

Let op!

Tekeningen in de documentatie kunnen niet meer actueel zijn.

Raadpleeg daarom altijd het systeem voor de huidige situatie. (mits aanwezig)



	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations-Input</i>	Page: 1

STATIC CALCULATIONS

Item: Container gantry crane 41 t x (24 + 37 + 18) m
VENLO-ECT Delta Terminal BV
Holland

Client: HANS KÜNZ GES.M.B.H.

Static calculations: NOKRAN d.o.o.

Author: Aleksander Novak, BScEng.



Project number: 123999

Date: May, 2009

In accordance with DIN 15018 Standard

Lifting class: H3

Load group: B5 (B4 for both legs)

Order no.: 21098

Pages: 819



Handwritten signature and date: 25. 6. 2009

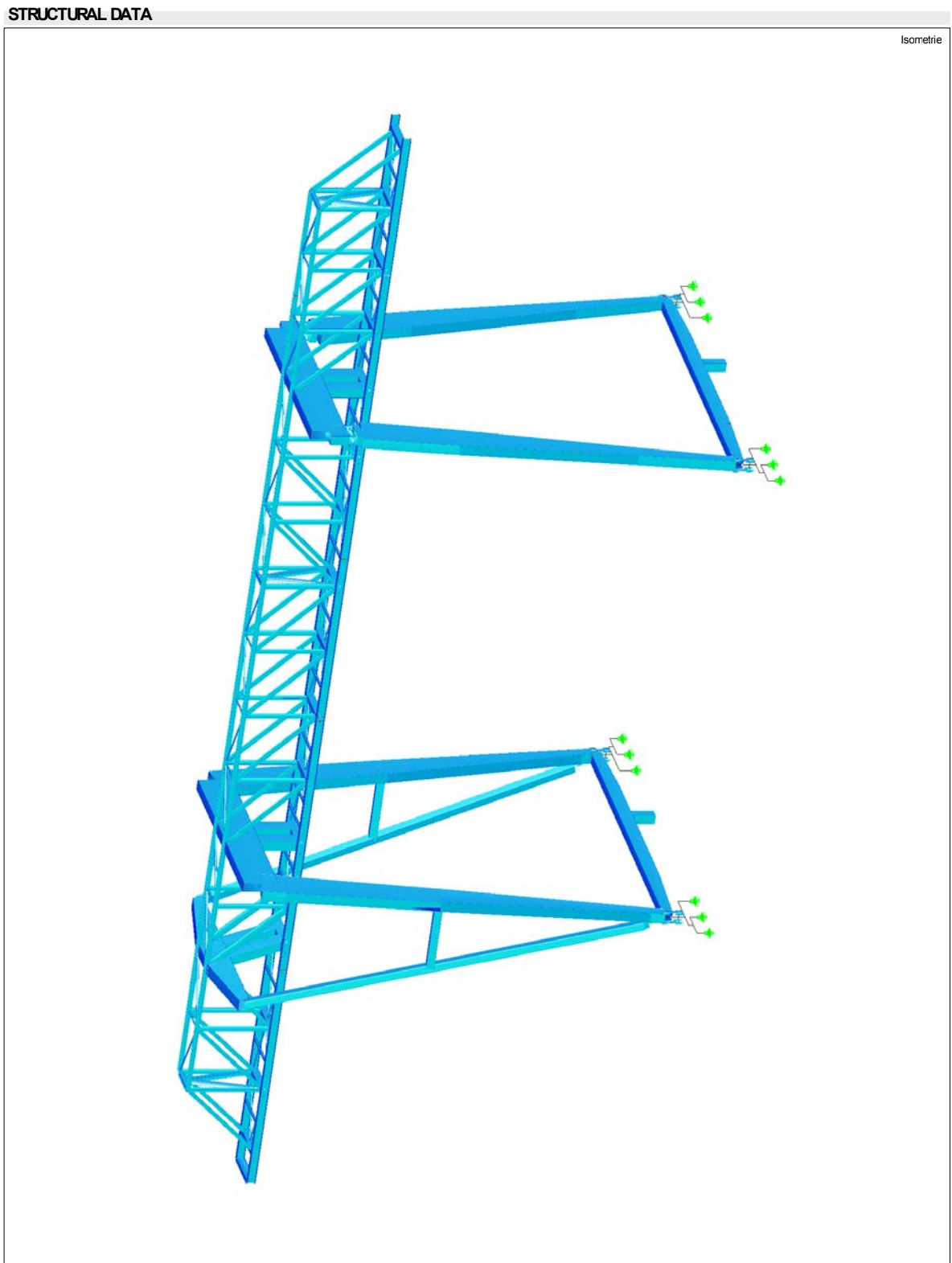
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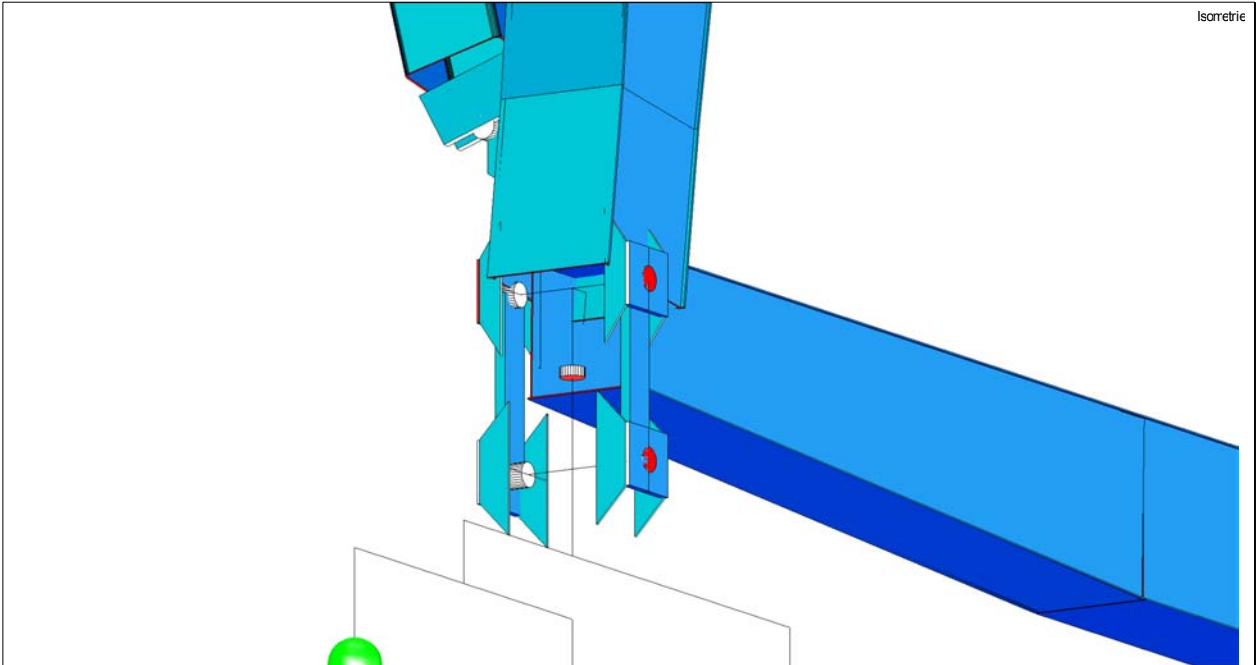
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1. CONSTRUCTION MODEL FOR COMPUTER-SUPPORTED CALCULATION

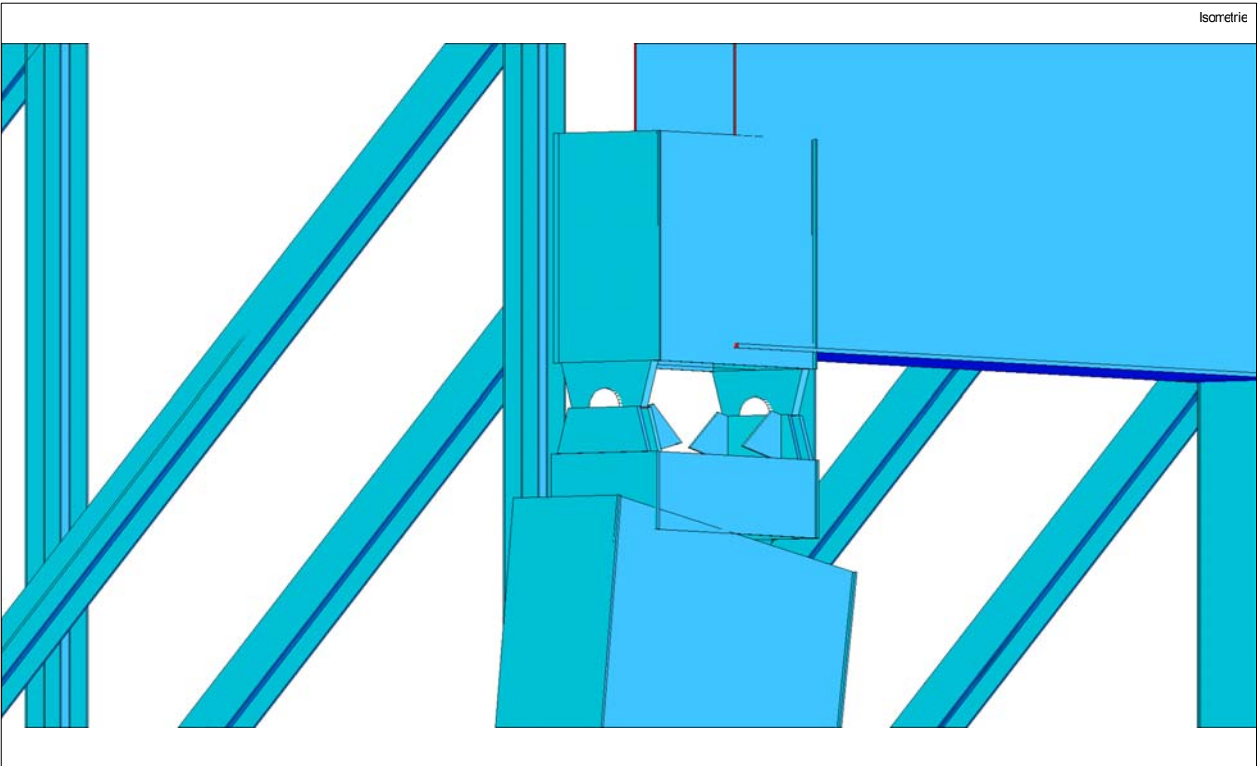


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STRUCTURAL DATA



STRUCTURAL DATA

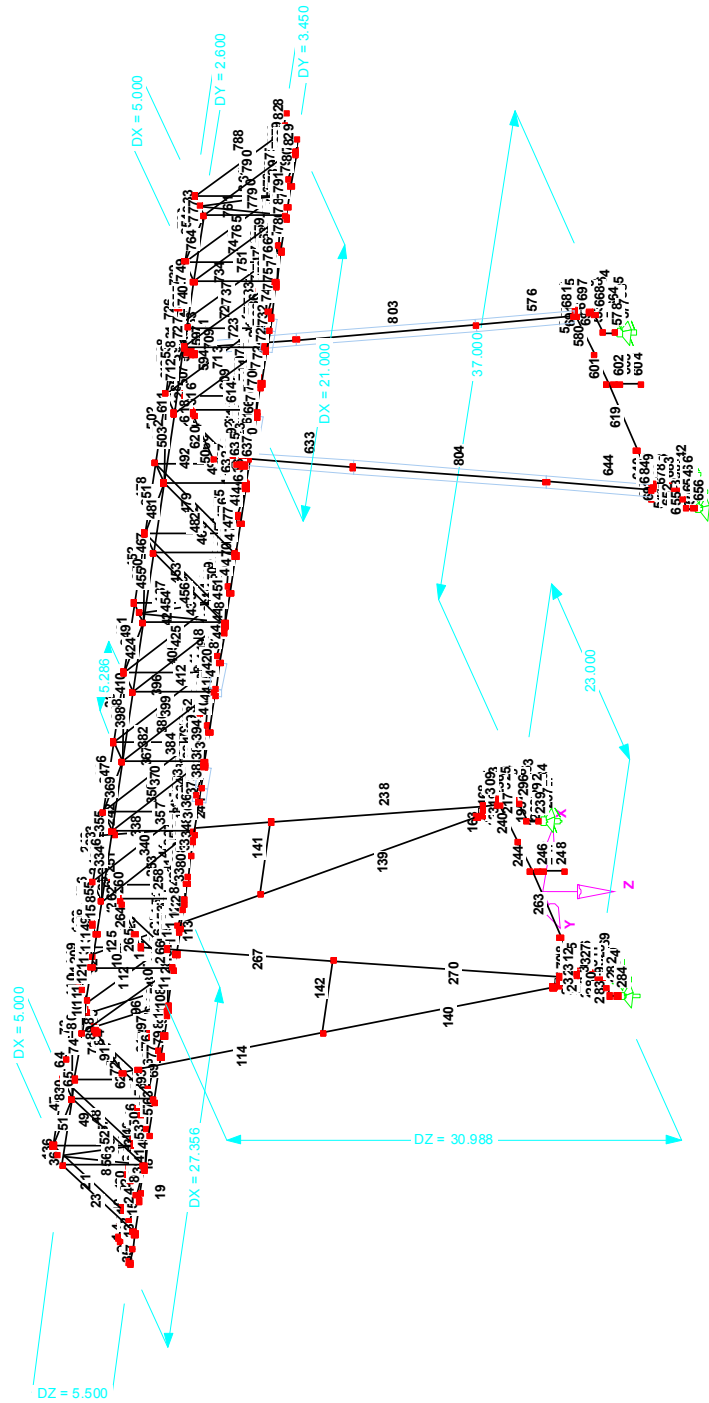


DX

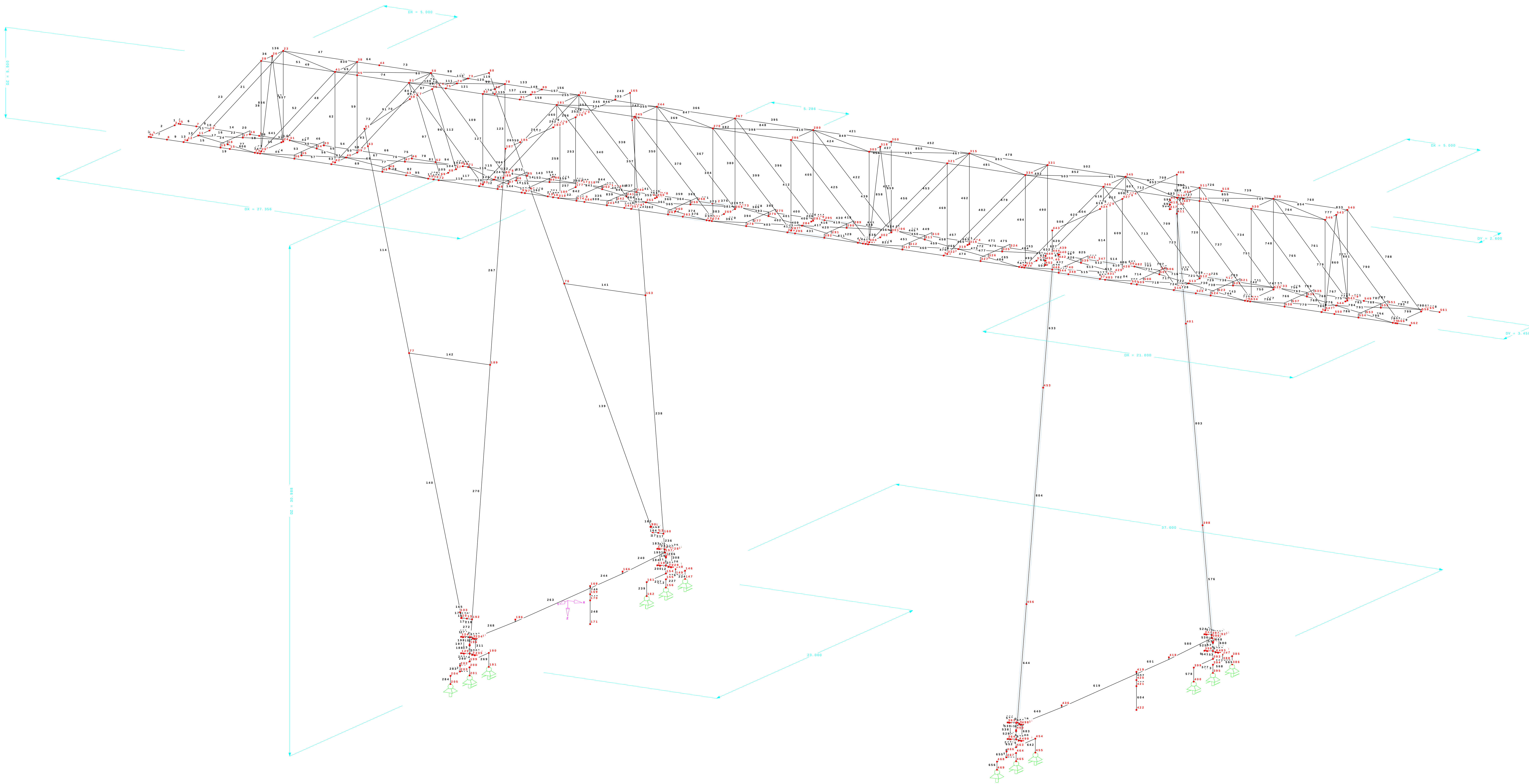
STRUCTURAL DATA

Stabnummerierung

Isometrie



STRUCTURAL DATA



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2. CONSTRUCTION LOADS:

2.1. Deadweight

2.1.1 Construction deadweight

$$F_i = m_i \times g = \rho \times A_i \times l_i \times g$$

Loading caused by the construction deadweight having taken into account in the computer program by direct input of deceleration g . The resulting node forces are automatically calculated in accordance with the above equation in the computer.

In order to achieve realistic loadings, the material density for various construction elements was increased by between 10% and 40%.

Crane gantry steel structure

-Theoretical weight $G_{teo} =$	261,00 t
-Weight according to parts list $G_{stkl} =$	271,00 t (without trolley rails)
-Factor $k_{gew} =$	$G_{stkl} / G_{teo} = \underline{\underline{1,038}}$

Gauge $L =$	37,00 m
Column height cca $L_{st} =$	30,99 m (SOK-Crane-middle HT)
Main girder length $L_H =$	88,00 m

2.1.1.1. Crane travel (60t)

$F_{fah11} =$	<u>150,00 kN per corner/ 6 wheels-FS</u>
$F_{fah21} =$	<u>150,00 kN per corner/ 6 wheels-PS</u>
$F_{fah} =$	$2 * F_{fah11} + 2 * F_{fah21} = 600,00 \text{ kN}$

2.1.1.2. Pedestal on main girder (10 t)

$F_{GE} =$	100,00 kN
-Line load per main girder $F_{EH1lin} =$	$F_{GE} / (2 * L_H) = \underline{\underline{0,57 \text{ kN/m}}}$

2.1.1.3. Electric housing (12 t)

$F_{EH} =$	120,00 kN
-pro console $F_{EH1} =$	$F_{EH} / 2 = \underline{\underline{60,00 \text{ kN}}}$

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2.1.1.4. Acces to main girder (10t)

$$F_{tre} = 100,00 \text{ kN}$$

2.1.1.5. Cable reel with pedestal (5 t):

$$F_{kabt} = \underline{50,00 \text{ kN}}$$

2.1.1.6. Trolley rails (15 t)

$$F_{sch} = 150,00 \text{ kN}$$

$$\text{-Line load per main girder } F_{sch1lin} = (F_{sch} / 2) / L_H = \underline{0,85 \text{ kN/m}}$$

2.1.1.7. Trailing cable with pedestal (4 t)

$$F_{ket} = 40,00 \text{ kN}$$

$$\text{-Line load per main girder } F_{ket1lin} = (F_{ket} / 1) / L_H = \underline{0,45 \text{ kN/m}}$$

2.1.2. Total:

$$\text{-Stb fein } G_{STBF} = F_{fah} + F_{GE} + F_{EH} + F_{tre} + F_{kabt} + F_{sch} + F_{ket} = 1160,00 \text{ kN}$$

$$\text{-Stb grob } G_{STBG} = \frac{G_{stkl} * 10}{10} = \underline{2710,00 \text{ kN}}$$

$$\Sigma T_{kran} = G_{STBF} + G_{STBG} = \underline{3870,00 \text{ kN}}$$

2.2 CRANE TROLLEY WITH CABIN:

$$G_{katz} = 38,00 \text{ t}$$

Carrying capacity:

$$\text{Cable } Q_{seil} = 1,25 \text{ t}$$

$$\text{Headblock only } Q_{Rnetto} = 3,00 \text{ t}$$

$$\text{Headblock complete } Q_{rol} = Q_{seil} + Q_{Rnetto} = 4,25 \text{ t}$$

$$\text{Spreader } Q_S = 12,70 \text{ t}$$

$$\text{Containerload } Q = 41,00 \text{ t}$$

$$\text{Headblock + Spreader } Q_{spr} = \frac{Q_{rol} + Q_S}{10} = \underline{16,95 \text{ t}}$$

$$\Sigma Q_{tot} = Q + Q_{spr} = 57,95 \text{ t}$$

$$\text{Auxiliary container operation } Q_H = 17,00 \text{ t}$$

$$\text{Headblock + Spreader } Q_{spr} = \frac{Q_{rol} + Q_S}{10} = \underline{16,95 \text{ t}}$$

$$\Sigma Q_{totH} = Q_H + Q_{spr} = 33,95 \text{ t}$$

$$\text{Gauge - crane: } L = 37,00 \text{ m}$$

$$\text{Gauge - trolley } a_k = 3,45 \text{ m}$$

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Speeds:

Hoisting speed :

-with full load 41t V_{d1} =	40,00 m/min
-with partial load (half on cables) 233,95 t V_{d2} =	80,00 m/min
-crane travel speed v_z =	80,00 m/min
-trolley speed v_M =	120,00 m/min

Coefficients:

Deadweight coefficient from table 1 (DIN 15018) is :

φ =	<u>1.20</u>	
	K_a	K_r
Deadweight of trolley with:	1.2	1.2
Deadweight of gantry with:	1.0	1.2

DEADWEIGHT-trolley (centric):

$$\text{trolley + lifting equipment (Spreader)} G_{ksp} = G_{katz} + Q_{spr} = 54,95 \text{ t}$$

$$\text{with wheels } n_{KR} = 4$$

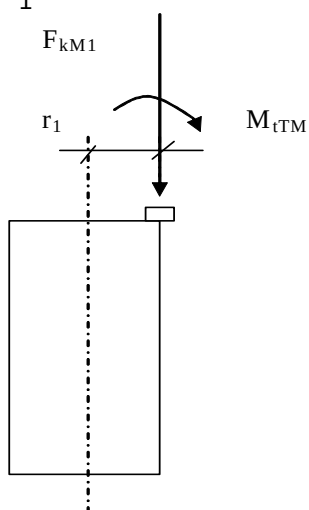
Without coefficients:

$$T_M = G_{katz} * 10 = 380,00 \text{ kN}$$

Reactions per wheel:

$$F_{kM1} = T_M / n_{KR} = \underline{\underline{95,00 \text{ kN/wheel-centric}}}$$

$$r_1 = 0,000 \text{ m}$$



$$M_{tTM} = F_{kM1} * r_1 = \underline{\underline{0,00 \text{ kNm/wheel-centric}}}$$

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-With coefficients $\varphi = 1,2$:

$$T_{M\varphi} = G_{katz} * 10 * \varphi = 456,00 \text{ kN}$$

Reactions per wheel:

$$F_{kM1\varphi} = T_{M\varphi} / n_{KR} = \underline{114,00 \text{ kN/wheel}}$$

$$M_{tTM\varphi} = F_{kM1\varphi} * r_1 = \underline{0,00 \text{ kNm/wheel}}$$

- for park position: trolley EG + lifting equipment (spreader) :

$$G_{ksp} = 54,95 \text{ t}$$

$$T_M = G_{ksp} * 10 = 549,50 \text{ kN}$$

Reactions per wheel:

$$F_{kM1} = T_M / n_{KR} = \underline{137,38 \text{ kN/wheel-centric}}$$

$$M_{tTM} = F_{kM1} * r_1 = \underline{0,00 \text{ kNm/wheel-centric}}$$

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DEADWEIGHT + LIFTING LOAD 41 t:

Container operating mode

Coefficient ψ (lifting load coefficient):

-centric **H3/B5 and H3/B4 for legs:**

$$V_{d1} = 40,00 \text{ m/min}$$

$$\psi_1 = 1,3 + 0,0066 \cdot V_{d1} = 1,5640$$

-just spreader with headblock **(H3/B5):**

$$V_{d2} = 80,00 \text{ m/min}$$

$$\psi_2 = 1,3 + 0,0066 \cdot V_{d2} = 1,8280$$

Without coefficients:

$$Q_{katz} = G_{katz} \cdot 10 = 380,00 \text{ kN}$$

$$\underline{Q_Q} \equiv \underline{Q_{tot} \cdot 10} = 579,50 \text{ kN}$$

$$G = Q_{katz} + Q_Q = 959,50 \text{ kN}$$

Reactions per wheel :

$$F_{KM1} = G / n_{KR} = \underline{239,88 \text{ kN}}$$

$$M_t = F_{KM1} \cdot r_1 = \underline{0,00 \text{ kNm}}$$

With coefficients (centric - full load):

$$\varphi = 1,2 \quad \psi_1 = 1,5640$$

$$Q_{katz\varphi} = G_{katz} \cdot 10 \cdot \varphi = 456,00 \text{ kN}$$

$$\underline{Q_{Q\psi}} \equiv \underline{Q_{tot} \cdot 10 \cdot \psi_1} = 906,34 \text{ kN}$$

$$G\psi = Q_{katz\varphi} + Q_{Q\psi} = 1362,34 \text{ kN}$$

Reactions per wheel:

$$F_{KM1} = G\psi / n_{KR} = \underline{340,58 \text{ kN}}$$

$$M_t = F_{KM1} \cdot r_1 = \underline{0,00 \text{ kNm}}$$

With coefficients (spreader only):

$$\varphi = 1,2 \quad \psi_2 = 1,8280$$

$$Q_{katz\varphi} = G_{katz} \cdot 10 \cdot \varphi = 456,00 \text{ kN}$$

$$\underline{Q_{Q\psi}} \equiv \underline{Q_{spr} \cdot 10 \cdot \psi_2} = 309,85 \text{ kN}$$

$$G\psi_1 = Q_{katz\varphi} + Q_{Q\psi} = 765,85 \text{ kN}$$

(less than full load $G\psi_1 \leq G\psi$)

-factor G ist $f_G = G\psi / G = \underline{1,420}$

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LIFTING LOAD : (centric):

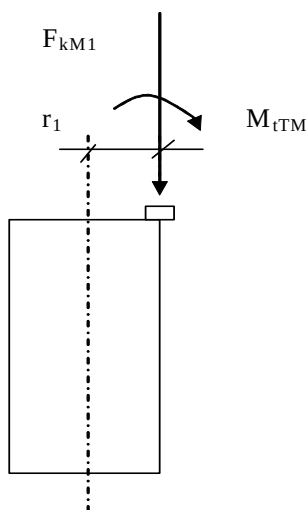
Without lifting load coefficient:

$$T_M = Q_{\text{tot}} * 10 = 579,50 \text{ kN}$$

Reactions per wheel:

$$F_{kM1} = T_M / n_{KR} = \underline{\underline{144,88 \text{ kN/wheel-centric}}}$$

$$r_1 = 0,000 \text{ mm}$$



$$M_{tTM} = F_{kM1} * r_1 = \underline{\underline{0,00 \text{ kNm/wheel-centric}}}$$

-With lifting load coefficient ψ :

$$\psi_1 = 1,5640$$

$$T_{M\psi} = Q_{\text{tot}} * 10 * \psi_1 = 906,34 \text{ kN}$$

Reactions per wheel:

$$F_{kM1\psi} = T_{M\psi} / n_{KR} = \underline{\underline{226,59 \text{ kN/wheel}}}$$

$$M_{tTM\psi} = F_{kM1\psi} * r_1 = \underline{\underline{0,00 \text{ kNm/wheel}}}$$

a) Reactions per wheel (lifting load eccentric $e = 1.2 \text{ m}$ in longitudinal and $0,25 \text{ m}$ transverse directions, $e \approx 1,2 \text{ m}$, $\approx 10 \%$ for 40 ft container):

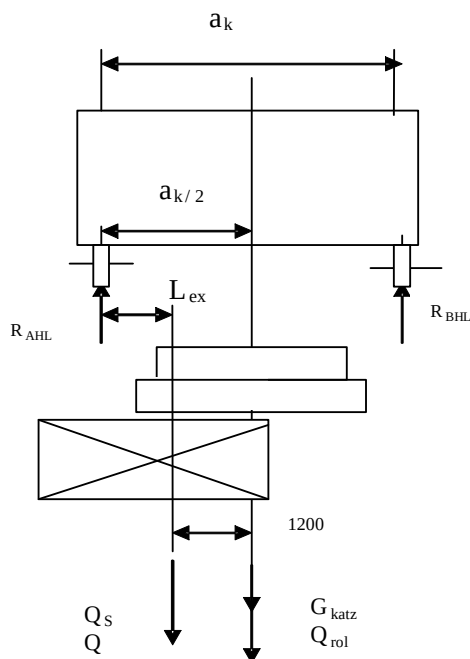
$$\text{- max eccentric is then } e = \sqrt{(1,2)^2 + (0,25)^2} = 1,226 \text{ m}$$

Without coefficients:

$$a_k = 3,45 \text{ m}$$

$$L_{\text{ex}} = a_k / 2 - e = 0,50 \text{ kNm}$$

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Crane trolley -EG (φ):

$$\begin{aligned}
 R_{AK} &= G_{katz} \cdot 10 / n_{KR} &= & \underline{\underline{95,00 \text{ kN/wheel (eccentric)}}} \\
 R_{BK} &= R_{AK} &= & \underline{\underline{95,00 \text{ kN/wheel (eccentric)}}} \\
 M_{1A} &= R_{AK} \cdot r_1 &= & \underline{\underline{0,00 \text{ kNm/wheel (eccentric)}}} \\
 M_{1B} &= R_{BK} \cdot r_1 &= & \underline{\underline{0,00 \text{ kNm/wheel (eccentric)}}}
 \end{aligned}$$

Headblock + Spreder (ψ):

$$\begin{aligned}
 R_{AH} &= (Q_{rol} + Q_s) \cdot 10 / n_{KR} &= & 42,38 \text{ kN} \\
 R_{BH} &= R_{AH} &= & 42,38 \text{ kN}
 \end{aligned}$$

Lifting load (eccentric) :

$$\begin{aligned}
 R_{BHL} &= (Q) \cdot 10 \cdot L_{ex} / a_k &= & 59,42 \text{ kN} \\
 R_{AHL} &= (Q) \cdot 10 - R_{BHL} &= & 350,58 \text{ kN} \\
 F_{B1} &= R_{BHL} / (n_{KR} / 2) &= & 29,71 \text{ kN} \\
 F_{A1} &= R_{AHL} / (n_{KR} / 2) &= & 175,29 \text{ kN}
 \end{aligned}$$

Reaktionen pro Rad-zusammen:

$$\begin{aligned}
 F_{1Amax'} &= R_{AK} + R_{AH} + F_{A1} &= & \underline{\underline{312,67 \text{ kN (MAX per wheel)}}} \\
 F_{1Bmax'} &= R_{BK} + R_{BH} + F_{B1} &= & 167,09 \text{ kN}
 \end{aligned}$$

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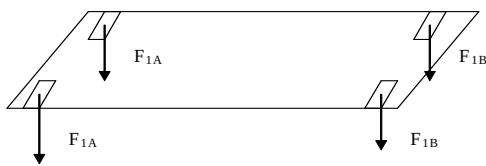
Reactionen per wheel-for input (load 41t):

$$F_{1Amax} = R_{AH} + F_{A1} = \underline{\underline{217,67 \text{ kN/wheel (eccentric)}}}$$

$$F_{1Bmax} = R_{BH} + F_{B1} = \underline{\underline{72,09 \text{ kN/wheel (eccentric)}}}$$

$$M_{1A} = F_{1Amax} * r_1 = \underline{\underline{0,00 \text{ kNm/wheel (eccentric)}}}$$

$$M_{1B} = F_{1Bmax} * r_1 = \underline{\underline{0,00 \text{ kNm/wheel (eccentric)}}}$$

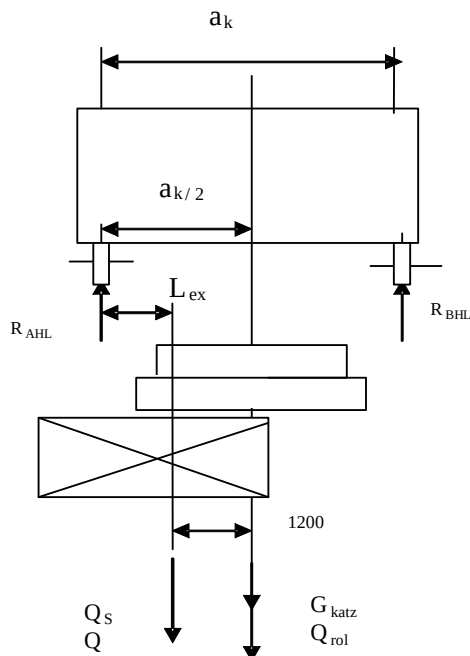


b) Reactions per wheel (load centric e = 0 m, ≈ 0 % for 40 ft container):

Without coefficients:

$$a_k = 3,45 \text{ m}$$

$$L_{ex} = a_k/2 - 0,0 = 1,725 \text{ kNm}$$



Crane trolley -EG (φ):

$$R_{AK} = G_{katz} * 10/n_{KR} = \underline{\underline{95,00 \text{ kN/wheel (centric)}}}$$

$$R_{BK} = R_{AK} = \underline{\underline{95,00 \text{ kN/wheel (centric)}}}$$

$$M_{1A} = R_{AK} * r_1 = \underline{\underline{0,00 \text{ kNm/wheel (centric)}}}$$

$$M_{1B} = R_{BK} * r_1 = \underline{\underline{0,00 \text{ kNm/wheel (centric)}}}$$

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Headblock + Spreder (ψ):

$$R_{AH} = (Q_{rol} + Q_S) * 10 / n_{KR} = 42,38 \text{ kN}$$

$$R_{BH} = R_{AH} = 42,38 \text{ kN}$$

Lifting load (eccentric) :

$$R_{BHL} = (Q) * 10 * L_{ex} / a_k = 205,00 \text{ kN}$$

$$R_{AHL} = (Q) * 10 - R_{BHL} = 205,00 \text{ kN}$$

$$F_{B1} = R_{BHL} / (n_{KR}/2) = 102,50 \text{ kN}$$

$$F_{A1} = R_{AHL} / (n_{KR}/2) = 102,50 \text{ kN}$$

Reactionen per wheel-together:

$$F_{1Amax}' = R_{AK} + R_{AH} + F_{A1} = \underline{\underline{239,88 \text{ kN (MAX per wheel)}}}$$

$$F_{1Bmax}' = R_{BK} + R_{BH} + F_{B1} = 239,88 \text{ kN}$$

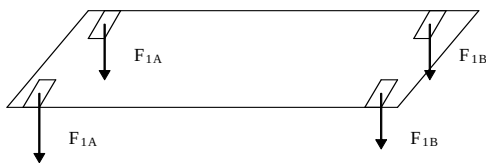
Reactionen per wheel-for input (load 41t):

$$F_{1Amax} = R_{AH} + F_{A1} = \underline{\underline{144,88 \text{ kN/wheel (centric)}}}$$

$$F_{1Bmax} = R_{BH} + F_{B1} = \underline{\underline{144,88 \text{ kN/wheel (centric)}}}$$

$$M_{1A} = F_{1Amax} * r_1 = \underline{\underline{0,00 \text{ kNm/wheel (centric)}}}$$

$$M_{1B} = F_{1Bmax} * r_1 = \underline{\underline{0,00 \text{ kNm/wheel (centric)}}}$$



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2.3. Acceleration and deceleration of crane movements

These type of load s were also taken into account through direct input of deceleration into the computer program Y axis.

Deceleration during braking:

$$\text{Total wheels (2 rails) } n_{zr} = 4 * 6 + 0 = 24 \text{ wheels}$$

$$\text{Driven wheels LR } n_{azr} = 18 \text{ wheels}$$

$$\text{Factor for drive } k_{an} = n_{azr} / n_{zr} = 0,75$$

$$0,75 = 75 \%$$

$$\text{Mass } m_K = G_{stkl} + G_{STBF} / 10 = 387,00 \text{ t (without trolley)}$$

$$\text{Mass } m_{KK} = G_{stkl} + G_{STBF} / 10 + G_{ksp} = 441,95 \text{ t (with trolley)}$$

$$v_{zs} = v_z / 60 = 1,33 \text{ m/s}$$

$$a_y = 0,25 \text{ m/s}^2 \text{ (KUNZ, in operation)}$$

$$t_y = v_{zs} / a_y = 5,32 \text{ sec}$$

$$F_{gl} = m_{KK} * k_{an} * 0,2 * 9.81 = 650,33 \text{ kN}$$

$$a_{yfakt} = F_{gl} / m_{KK} = 1,472 \text{ m/s}^2$$

$$a_{yk} = a_{yfakt} * 1.5 = 2,208 \text{ m/s}^2$$

Crane running frictional connection:

-Minimum wheel pressure without payload and with trolley EG:

$$\text{minR}_1 = 1308,00 \text{ kN per side (from R-Stab minLK90-LK92)}$$

$$\text{minR}_2 = 2211,00 \text{ kN per side (from R-Stab minLK90-LK92)}$$

$$\text{-for PST all running wheels per side } n_{RallePS} = 12,00 \text{ wheels}$$

$$\text{-for PST driven wheels per side } n_{RangPS} = 8,00 \text{ wheels}$$

$$\text{-for FST all running wheels per side } n_{RalleFS} = 12,00 \text{ wheels}$$

$$\text{-for FST driven wheels per side } n_{RangFS} = 10,00 \text{ wheels}$$

$$\text{PST minR}_{Kr1} = \text{minR}_1 / n_{RallePS} * n_{RangPS} = 872,00 \text{ kN}$$

$$\text{FST minR}_{Kr2} = \text{minR}_2 / n_{RalleFS} * n_{RangFS} = 1842,50 \text{ kN}$$

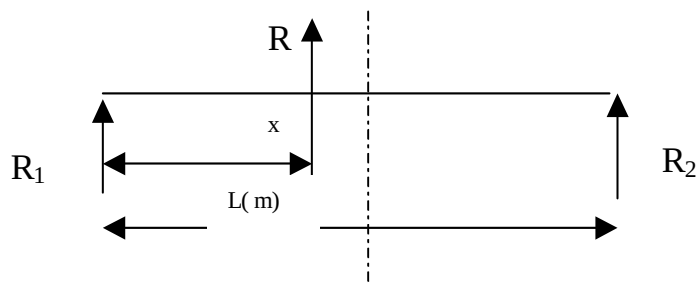
$$\text{minR}_{Kr1} \text{minR}_{Kr2} = \text{minR}_{Kr1} + \text{minR}_{Kr2} = 2714,50 \text{ kN}$$

(driven running wheels are not speed-coupled)

$$K_r = 1.5 * 0.2 * \text{minR}_{Kr1} \text{minR}_{Kr2} = 814,35 \text{ kN}$$

Centre of gravity deadweight (without trolley):

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$$T_{\text{kran}} = 3870,00 \text{ kN}$$

$$L = 37,00 \text{ m}$$

$$\text{FST } R_2 = 2394,00 \text{ kN}$$

$$\text{PST } R_1 = 1476,00 \text{ kN}$$

$$R = R_1 + R_2 = 3870,00 \text{ kN (from R-Stab LK83-max)}$$

$$X = (R_2 * L) / R = 22,89 \text{ m}$$

$$a_S = X = 22,89 \text{ m}$$

Centre of gravity trolley in Pos. 1:

$$\text{Masse } m_{\text{KK1}} = G_{\text{stkl}} + G_{\text{STBF}} / 10 + G_{\text{ksp}} + Q = 482,95 \text{ t}$$

$$R_1 = 3975,00 \text{ kN}$$

$$R_2 = 936,00 \text{ kN}$$

$$R = R_1 + R_2 = 4911,00 \text{ kN (aus R-Stab LK84-} R_1 \text{ max. } R_2 \text{ min)}$$

$$a_S = R_2 * L / R = 7,05 \text{ m}$$

Location of resultants from drive forces

$$N_{\text{kol}} = \text{MAX} (n_{\text{RangFS}} ; n_{\text{RangPS}}) = 10 \text{ wheels}$$

$$a_{\text{kk1}} = N_{\text{kol}} * L / n_{\text{azr}} = 20,56 \text{ m}$$

$$L_S = a_{\text{kk1}} - a_S = 13,51 \text{ m}$$

$$\xi = (L - a_S) / L = 0,809 \text{ m}$$

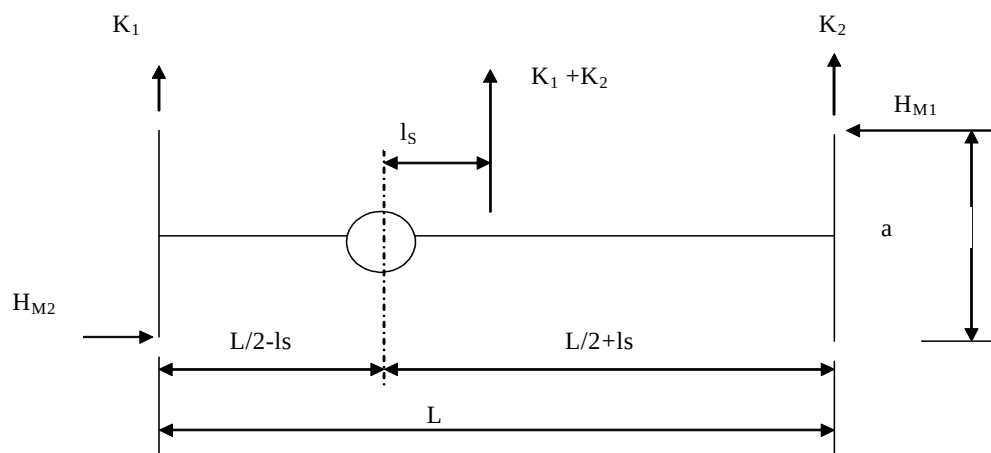
$$\xi' = a_S / L = 0,191 \text{ m}$$

$$a = 23,00 \text{ m (max. external measurement - on vertical bolts)}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 17

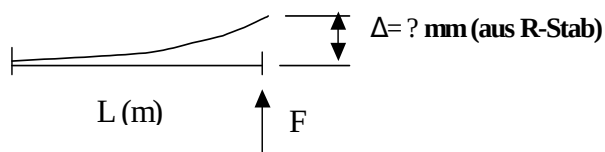
$$H_{M1} = \xi' * K_r * L_S / a = 91,36 \text{ kN}$$

$$H_{M2} = \xi * K_r * L_S / a = 386,98 \text{ kN}$$



$$M = K_r * L_S = 11001,87 \text{ kN}$$

$$F = M / L = \underline{\underline{297,35 \text{ kN (calculated for the displacement)}}}$$



$$\Delta = \underline{\underline{1479 \text{ mm}}}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 18

a) Calculating the driving force for load case H:

- EM rated power at 50 Hz $P_{EM} = 18,00 \text{ kW}$
- rated rpm at 50 Hz $n_{EM} = 1760,00 \text{ rpm}$
- Braking torque of brake $M_{Eb} = 100,00 \text{ Nm}$
- gear ratio $i_G = 42,33$
- efficiency $\eta_G = 0,90$
- dia of crane travel wheel $d_K = 0,63 \text{ m}$
- Drive torque on the wheel from rated power $M_{LR} = 9555 * P_{EM} / n_{EM} * i_G * \eta_G = 3722,90 \text{ Nm}$
- Driving force on wheel $F_{LR} = (M_{LR} / d_K * 2) / 1000 = \mathbf{11,82 \text{ kN}}$

-Control of friction:

$$\begin{aligned}
\min R_{1EMPS} &= \min R_1 / n_{RallePS} &= 109,00 \text{ kN} \\
\min R_{2EMFS} &= \min R_2 / n_{RalleFS} &= 184,25 \text{ kN} \\
\min R_{EM} &= \text{MIN} (\min R_{1EMPS} ; \min R_{2EMFS}) &= 109,00 \text{ kN} \\
F_{FRIKmax} &= \min R_{EM} * 0,2 &= \mathbf{21,80 \text{ kN}} \\
F_{LR} &\leq F_{FRIKmax} \Rightarrow \text{OK}
\end{aligned}$$

-electric data:

-maximum output of FU relative to rated motor at 87Hz-FST:

$$k_{E1} = 2,40$$

-maximum output of FU relative to rated motor at 87Hz PST:

$$k_{E2} = 3,00$$

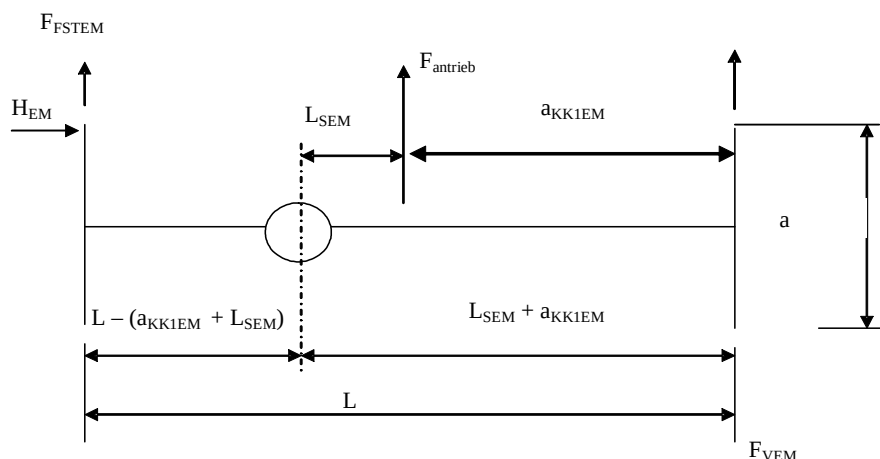
-safety factor for Brakes:

$$k_{E3} = 1,50$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 19

-safety factor:

$$v_E = 1,10$$



--maximal force on the wheel, taking into account the maximum values of FU and safety factor:

$$F_{ELLR} = F_{LR} * k_{E1} * v_E = 31,20 \text{ kN}$$

--total driving force on the wheels for static calculations- FST:

$$F_{FSTEM} = F_{ELLR} * n_{RangFS} = 312,00 \text{ kN}$$

--total driving force on the wheels for static calculations- PST:

$$F_{PSTEM} = F_{ELLR} * n_{RangPS} = 249,60 \text{ kN}$$

$$\text{- driving force total } F_{antrieb} = F_{FSTEM} + F_{PSTEM} = 561,60 \text{ kN}$$

$$\text{-driving force total-position } a_{KK1EM} = F_{FSTEM} * L / F_{antrieb} = 20,56 \text{ m}$$

$$L_{SEM} = a_{KK1EM} - a_S = 13,51 \text{ m}$$

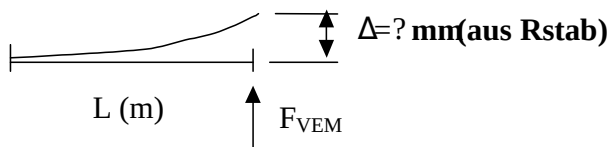
$$\text{- torque on portal is } M_{EM} = F_{antrieb} * L_{SEM} = 7587,22 \text{ kNm}$$

$$\text{- force for portal deformation } F_{VEM} = M_{EM} / L = 205,06 \text{ kN (for loadcase H)}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 20

$$F \geq F_{VEM}$$

-we calculate with :



$\Delta = 1020 \text{ mm}$ (calculated for the displacement)

- controle for horisontal force $H_{EM} = M_{EM} / a = 329,88 \text{ kN}$

This crane is equipped with **a synchronizing device**, so is Max. possible deformation at the Portal
+ -200 mm :

$\Delta = \underline{200 \text{ mm}}$ (calculated for the displacement)

b) Calculation of the braking load case for HS (E-STOP):

-Braking torque on the wheel $M_{BRE} = M_{Eb} * i_G = 4233,00 \text{ Nm}$

-Braking force on wheel $F_{BRLR} = (M_{BRE} / d_k * 2) / 1000 = \underline{13,44 \text{ kN}}$

-maximal force on the wheel, taking into account the safety factor:

$$F_{BELLR} = F_{BRLR} * k_{E3} = 20,16 \text{ kN}$$

--total braking force on the wheels for static calculations- FST:

$$F_{BFSTEM} = F_{BELLR} * n_{RangFS} = \underline{201,60 \text{ kN}}$$

--total braking force on the wheels for static calculations- PST:

$$F_{BPSTEM} = F_{BELLR} * n_{RangPS} = \underline{161,28 \text{ kN}}$$

- braking force total $F_{Bres} = F_{BFSTEM} + F_{BPSTEM} = 362,88 \text{ kN}$

-braking force total - position $a_{BKK1EM} = F_{BFSTEM} * L / F_{Bres} = 20,56 \text{ m}$

$L_{BSEM} = a_{BKK1EM} - a_S = 13,51 \text{ m}$

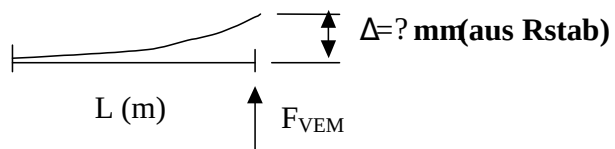
- torque on portal is $M_{BEM} = F_{Bres} * L_{BSEM} = 4902,51 \text{ kNm}$

- force for portal deformation $F_{BDEM} = M_{BEM} / L = \underline{132,50 \text{ kN}}$ (for loadcase HS)

 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	<i>Static calculations - Input</i>	<i>Page: 21</i>

$$F \geq F_{VEM}$$

-we calculate with :



$\Delta = \underline{\underline{658 \text{ mm (calculated for the displacement)}}}$

- controle for horisontal force $H_{BEM} = M_{BEM} / a = 213,15 \text{ kN}$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 22

Trolley horizontal forces in the direction of crane travel (towards Y axis):

$$F_{Hz} = m \times a_z$$

$$v_z = 80,00 \text{ m/min}$$

$$v_{zs} = 1,33 \text{ m/s}$$

$$a_y = 0,25 \text{ m/s}^2$$

--with 1,5 factor ist:

$$a_{yf} = a_y \times 1.5 = 0,38 \text{ m/s}^2$$

$$k_{az} = a_{yf} / 9.81 = \underline{\underline{0,0387}}$$

--coefficient for construction due to fittings:

$$k_{kon} = T_{kran} / G_{STBG} = 1,428$$

$$k_{TOT} = k_{gew} \times k_{kon} = \underline{\underline{1,482}}$$

Crane trolley without lifting load:

$$G_{katz} = 38,00 \text{ t}$$

$$F_H = G_{katz} \times a_{yf} = 14,44 \text{ kN}$$

$$F_{H1} = F_H / n_{KR} = 3,61 \text{ kN}$$

Crane trolley with lifting load (41 t):

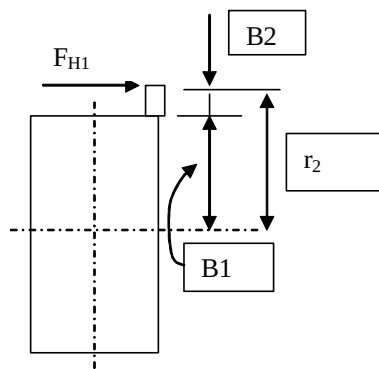
$$G / 10 = 95,95 \text{ t}$$

$$F_H = G / 10 \times a_{yf} = 36,46 \text{ kN}$$

$$F_{H1} = F_H / n_{KR} = \underline{\underline{9,12 \text{ kN}}}$$

$$r_2 = 0,402 \text{ mm}$$

$$M_z = F_{H1} \times r_2 = \underline{\underline{3,67 \text{ kNm}}}$$



 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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-E-house (12 t):

$$F_{EH} / 10 = 12,00 \text{ t}$$

$$F_{EHH} = F_{EH} / 10 * a_{yf} = 4,56 \text{ kN}$$

$$F_{EHH1} = F_{EHH} / 2 = \underline{\underline{2,28 \text{ kN}}}$$

$$r_2 = 0,402 \text{ mm}$$

$$M_{EHZ} = F_{EHH1} * r_2 = \underline{\underline{0,92 \text{ kNm}}}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 24

2.4. Acceleration and deceleration of crane trolley movements

$$v_M = 120,00 \text{ m/min}$$

$$V_{Ms} = v_M / 60 = 2,00 \text{ m/s}$$

Crane trolley without lifting load:

$$a_x = 1,00 \text{ m/s}^2 \text{ (KUNZ)}$$

$$t_x = V_{Ms} / a_x = 2,00 \text{ sec}$$

(100 % driven LR)

$$k_{ak} = 1,00$$

-with 1,5 factor ist:

$$a_{xf} = a_x * 1.5 = 1,50 \text{ m/s}^2$$

$$F_H = m \times a_x$$

$$G_{katz} = 38,00 \text{ t}$$

$$F_H = G_{katz} * a_{xf} = 57,00 \text{ kN}$$

$$F_{H1} = F_H / n_{KR} = 14,25 \text{ kN}$$

$$F_{gl} = G_{katz} * k_{ak} * 0,20 * 9.81 = 74,56 \text{ kN}$$

Crane trolley with lifting load 57,95 t (41 +16,95t)-container operation:

$$a_{xf} = 1,50 \text{ m/s}^2$$

$$m_{Kat} = G_{katz} + Q_{tot} * 0.4 = 61,18 \text{ t}$$

$$F_H = m_{Kat} * a_{xf} = 91,77 \text{ kN}$$

$$F_{H1} = F_H / n_{KR} = \underline{\underline{22,94 \text{ kN}}}$$

$$F_{gl} = (G_{katz} + Q_{spr}) * k_{ak} * 0,2 * 9.81 = 107,81 \text{ kN}$$

$$F_{gl} \geq F_H \text{ (100 \% driven LR)}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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2.5. Wind and storm pressure on the construction

Wind during operation is higher than in according to DIN (20m/s) wind = 20,20 m/s

-therefore wind pressure is higher than normal (250 N/m²):

$$q_{wind} = \frac{wind^2}{16 * 9,81} = 250,18 \text{ N/m}^2$$

-we take:

$$q_{w0} = 250,00 \text{ N/m}^2 \text{ in operation}$$

$$q_{ws} = 800,00 \text{ N/m}^2 \text{ out of operation (up to 20 m high)}$$

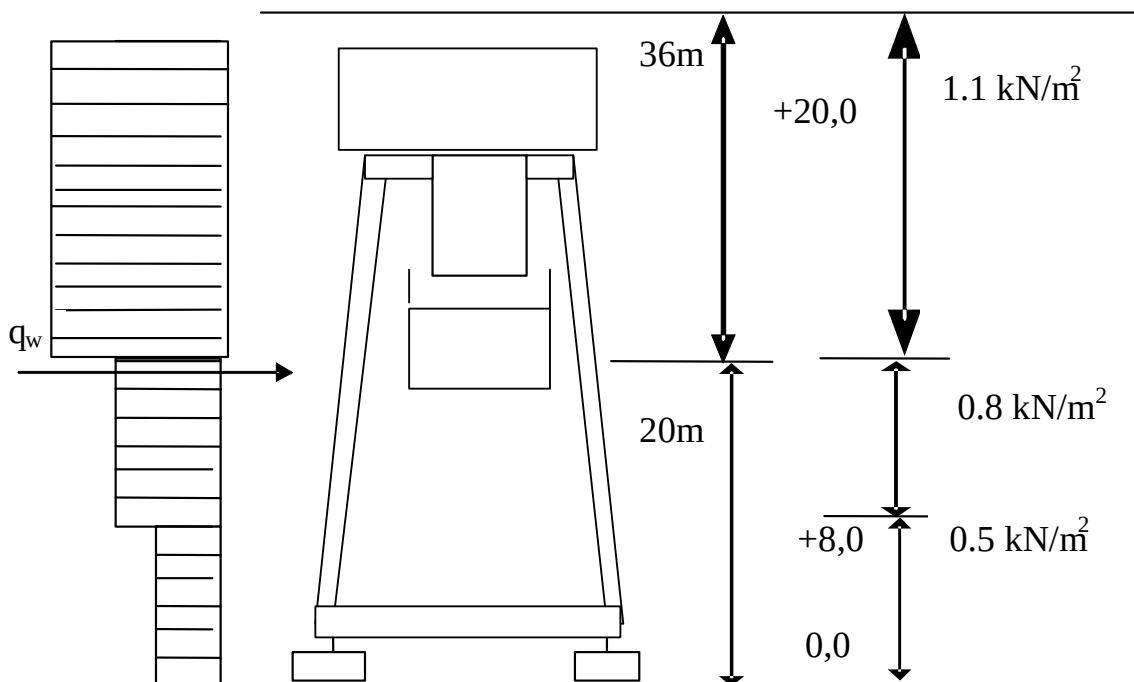
$$q_{ws1} = 1100,00 \text{ N/m}^2 \text{ out of operation (20 to 100 m high)}$$

$$raz1 = q_{ws}/q_{w0} = 3,200$$

$$raz2 = q_{ws1}/q_{w0} = 4,400$$

in accordance with DIN 1055 Part 4

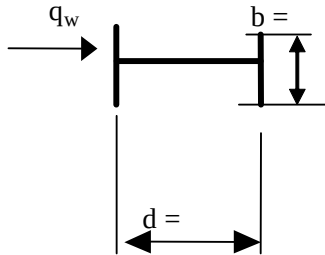
2.5.1. Wind pressure in crane direction of travel (towards Y axis)



	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 26

A) Main girder:

-upper horizontal corner:



$$\begin{aligned}
 d &= 0,340 \text{ m} \\
 b &= 0,310 \text{ m} \\
 L_L &= 87,00 \text{ m}
 \end{aligned}$$

$$C_1 = b/d = 0,912$$

follows $\Rightarrow C_f = C_2 \times \Psi$ (table 6)

$$C_2 = 1,70$$

$$\lambda = C_3 \times l/d \text{ (table 16)}$$

$$C_3 = 1,40$$

$$\lambda = C_3 \times L_L/d = 358,24$$

$$\text{fuer } \lambda = \lambda = 358,24 \text{ ist}$$

$$\Psi = 1,00 \text{ (picture 14)}$$

$$C_f = C_2 \times \Psi = 1,700$$

$$A = L_L \times d = 29,580 \text{ m}^2$$

$$A' = C_f \times A = 50,286 \text{ m}^2$$

-in operation:

$$F_w = C_f \times A \times q_{w0} / 1000 = 12,572 \text{ kN}$$

$$q_w = C_f \times d \times q_{w0} / 1000 = \underline{\underline{0,1445 \text{ kN/m}}}$$

-out of operation:

$$F_{ws} = C_f \times A \times q_{ws1} / 1000 = 55,315 \text{ kN}$$

$$q_{wss} = C_f \times d \times q_{ws1} / 1000 = \underline{\underline{0,6358 \text{ kN/m}}}$$

-for second girder :

$$a_w = 2,60 \text{ m}$$

$$C_3 = a_w/d = 7,65$$

$$\eta = 0,45 \text{ (picture 10)}$$

$$n = 2$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 27

$$A_{\Sigma} = (1 + \eta + (n - 2) * \eta^2) * A = 42,89 \text{ m}^2$$

$$A_{\Sigma} = [1 + \eta + (n - 2) * \eta^2] * A_1 = [1 + \eta] * A_1 \Rightarrow$$

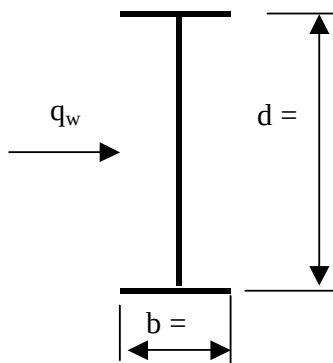
-in operation:

$$q_{w1} = \eta * q_w = \underline{\underline{0,0650 \text{ kN/m}}}$$

-out of operation:

$$q_{w1s} = \eta * q_{wss} = \underline{\underline{0,2861 \text{ kN/m}}}$$

-lower horizontal corner with rail:



$$d = 0,722 \text{ m}$$

$$b = 0,305 \text{ m}$$

$$L_L = 87,00 \text{ m}$$

$$C_1 = b/d = 0,422$$

follows $\Rightarrow C_f = C_2 * \Psi$ (table 6)

$$C_2 = 2,00$$

$$\lambda = C_3 * l/d \text{ (table 16)}$$

$$C_3 = 1,40$$

$$\lambda = C_3 * L_L/d = 168,70$$

$$\text{fuer } \lambda = \lambda = 168,70 \text{ ist}$$

$$\Psi = 0,98 \text{ (picture 14)}$$

$$C_f = C_2 * \Psi = 1,960$$

$$A = L_L * d = 62,814 \text{ m}^2$$

$$A' = C_f * A = 123,115 \text{ m}^2$$

-in operation:

$$F_w = C_f * A * q_{w0} / 1000 = 30,779 \text{ kN}$$

$$q_w = C_f * d * q_{w0} / 1000 = \underline{\underline{0,3538 \text{ kN/m}}}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 28

-out of operation:

$$F_{WS} = C_f \cdot A \cdot q_{WS1} / 1000 = 135,427 \text{ kN}$$

$$q_{WSS} = C_f \cdot d \cdot q_{WS1} / 1000 = \underline{\underline{1,5566 \text{ kN/m}}}$$

-for second girder :

$$a_w = 2,60 \text{ m}$$

$$C_3 = a_w / d = 3,60$$

$$\eta = 0,15 \text{ (picture 10)}$$

$$n = 2$$

$$A_{\Sigma} = (1 + \eta + (n - 2) \cdot \eta^2) \cdot A = 72,24 \text{ m}^2$$

$$A_{\Sigma} = [1 + \eta + (n - 2) \cdot \eta^2] \cdot A_1 = [1 + \eta] \cdot A_1 \Rightarrow$$

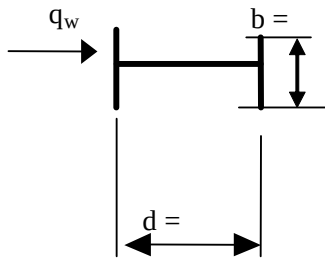
-in operation:

$$q_{W1} = \eta \cdot q_w = \underline{\underline{0,0531 \text{ kN/m}}}$$

-out of operation:

$$q_{W1S} = \eta \cdot q_{WSS} = \underline{\underline{0,2335 \text{ kN/m}}}$$

-Verticals + diagonals (small):



$$d = 0,302 \text{ m}$$

$$b = 0,250 \text{ m}$$

$$L_L = 7,40 \text{ m}$$

$$C_1 = b/d = 0,828$$

follows $\Rightarrow C_f = C_2 \cdot \Psi$ (table 6)

$$C_2 = 1,70$$

$$\lambda = C_3 \cdot l/d \text{ (table 16)}$$

$$C_3 = 2,00$$

$$\lambda = C_3 \cdot L_L / d = 49,01$$

$$\text{fuer } \lambda = \lambda = 49,01 \text{ ist}$$

$$\Psi = 0,88 \text{ (picture 14)}$$

$$C_f = C_2 \cdot \Psi = 1,496$$

 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 29

$$A = L_L \cdot d = 2,235 \text{ m}^2$$

$$A' = C_f \cdot A = 3,344 \text{ m}^2$$

-in operation:

$$F_W = C_f \cdot A \cdot q_{W0} / 1000 = 0,836 \text{ kN}$$

$$q_W = C_f \cdot d \cdot q_{W0} / 1000 = \underline{\underline{0,1129 \text{ kN/m}}}$$

-out of operation:

$$F_{WS} = C_f \cdot A \cdot q_{WS1} / 1000 = 3,678 \text{ kN}$$

$$q_{WS} = C_f \cdot d \cdot q_{WS1} / 1000 = \underline{\underline{0,4970 \text{ kN/m}}}$$

-for second girder :

$$a_w = 2,60 \text{ m}$$

$$C_3 = a_w / d = 8,61$$

$$\eta = 0,85 \text{ (picture 10)}$$

$$n = 2$$

$$A_\Sigma = (1 + \eta + (n - 2) \cdot \eta^2) \cdot A = 4,13 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) \cdot \eta^2] \cdot A_1 = [1 + \eta] \cdot A_1 \Rightarrow$$

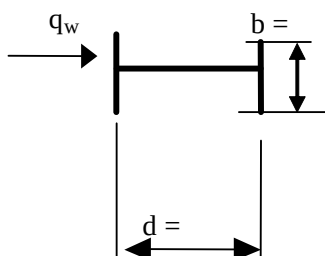
-in operation:

$$q_{W1} = \eta \cdot q_W = \underline{\underline{0,0960 \text{ kN/m}}}$$

-out of operation:

$$q_{W1s} = \eta \cdot q_{WS} = \underline{\underline{0,4224 \text{ kN/m}}}$$

-Verticals + diagonals (big):



$$d = 0,302 \text{ m}$$

$$b = 0,450 \text{ m}$$

$$L_L = 7,40 \text{ m}$$

$$C_1 = b/d = 1,490$$

follows $\Rightarrow C_f = C_2 \times \Psi$ (table 6)

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$$C_2 = 1,70$$

$$\lambda = C_3 \times l/d \quad (\text{table 16})$$

$$C_3 = 2,00$$

$$\lambda = C_3 \times L_L/d = 49,01$$

$$\text{fuer } \lambda = \lambda = 49,01 \text{ ist}$$

$$\Psi = 0,88 \quad (\text{picture 14})$$

$$C_f = C_2 \times \Psi = 1,496$$

$$A = L_L \times d = 2,235 \text{ m}^2$$

$$A' = C_f \times A = 3,344 \text{ m}^2$$

-in operation:

$$F_W = C_f \times A \times q_{W0} / 1000 = 0,836 \text{ kN}$$

$$q_W = C_f \times d \times q_{W0} / 1000 = \underline{\underline{0,1129 \text{ kN/m}}}$$

-out of operation:

$$F_{WS} = C_f \times A \times q_{WS1} / 1000 = 3,678 \text{ kN}$$

$$q_{WSS} = C_f \times d \times q_{WS1} / 1000 = \underline{\underline{0,4970 \text{ kN/m}}}$$

-for second girder :

$$a_w = 2,60 \text{ m}$$

$$C_3 = a_w/d = 8,61$$

$$\eta = 0,85 \quad (\text{picture 10})$$

$$n = 2$$

$$A_\Sigma = (1 + \eta + (n - 2) \times \eta^2) \times A = 4,13 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) \times \eta^2] \times A_1 = [1 + \eta] \times A_1 \Rightarrow$$

-in operation:

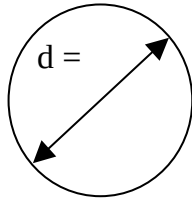
$$q_{W1} = \eta \times q_W = \underline{\underline{0,0960 \text{ kN/m}}}$$

-out of operation:

$$q_{W1s} = \eta \times q_{WSS} = \underline{\underline{0,4224 \text{ kN/m}}}$$

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-upper tubes $\Phi 127$ mm : (in shadow)



$$d = 0,127 \text{ m}$$

$$L_L = 5,00 \text{ m}$$

$$v_w = 20,00 \text{ m/s } (q = 0,25 \text{ kN/m}^2)$$

$$Re = v_w * d / (1.5 * 10^{-5}) / 1 = 1,7 * 10^5$$

$$k_w = 0,001 \text{ (fuer Stahl)}$$

$$C_4 = (k_w/d) * 1 = 7,87 * 10^{-3}$$

follows $\Rightarrow C_{f0}$

$$C_{f0} = 1,10 \text{ (picture 2)}$$

$$\lambda = L_L/d = 39,37$$

fuer $\lambda = \lambda = 39,37$ ist

$$\Psi = 0,85 \text{ (pictureBild 14)}$$

$$C_f = C_{f0} * \Psi = 0,935$$

$$A = L_L * d = 0,635 \text{ m}^2$$

$$A' = C_f * A = 0,594 \text{ m}^2$$

-in operation:

$$F_w = C_f * A * q_{w0} / 1000 = 0,148 \text{ kN}$$

$$q_{w0} = C_f * d * q_{w0} / 1000 = \underline{\underline{0,0297 \text{ kN/m}}}$$

-out of operation:

$$F_{ws} = C_f * A * q_{ws1} / 1000 = 0,653 \text{ kN}$$

$$q_{ws1} = C_f * d * q_{ws1} / 1000 = \underline{\underline{0,1306 \text{ kN/m}}}$$

-for second girder :

$$a_w = 1,70 \text{ m}$$

$$C_3 = a_w/d = 13,39$$

$$\eta = 0,75 \text{ (picture 10)}$$

$$n = 2$$

$$A_\Sigma = (1 + \eta + (n - 2) * \eta^2) * A = 1,11 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) * \eta^2] * A_1 = [1 + 0,75] * A_1 \Rightarrow$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 32

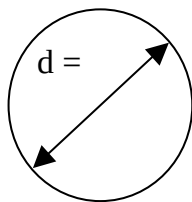
-in operation:

$$q_{w1} = \eta * q_w = \underline{\underline{0,0223 \text{ kN/m}}}$$

-out of operation:

$$q_{w1s} = \eta * q_{wss} = \underline{\underline{0,0979 \text{ kN/m}}}$$

-lower tubes $\Phi 168 \text{ mm}$: (in shadow)



$$d = 0,168 \text{ m}$$

$$L_L = 5,00 \text{ m}$$

$$v_w = 20,00 \text{ m/s (} q = 0,25 \text{ kN/m}^2 \text{)}$$

$$Re = v_w * d / (1,5 * 10^{-5}) / 1 = 2,2 * 10^5$$

$$k_w = 0,001 \text{ (fuer Stahl)}$$

$$C_4 = (k_w/d) * 1 = 5,95 * 10^{-3}$$

follows $\Rightarrow C_{f0}$

$$C_{f0} = 1,03 \text{ (picture 2)}$$

$$\lambda = L_L/d = 29,76$$

fuer $\lambda = \lambda = 29,76 \text{ ist}$

$$\Psi = 0,82 \text{ (picture 14)}$$

$$C_f = C_{f0} * \Psi = 0,845$$

$$A = L_L * d = 0,840 \text{ m}^2$$

$$A' = C_f * A = 0,710 \text{ m}^2$$

-in operation:

$$F_w = C_f * A * q_{w0} / 1000 = 0,177 \text{ kN}$$

$$q_w = C_f * d * q_{w0} / 1000 = \underline{\underline{0,0355 \text{ kN/m}}}$$

-out of operation:

$$F_{ws} = C_f * A * q_{ws1} / 1000 = 0,781 \text{ kN}$$

$$q_{wss} = C_f * d * q_{ws1} / 1000 = \underline{\underline{0,1562 \text{ kN/m}}}$$

 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 33

-for second girder :

$$a_w = 1,70 \text{ m}$$

$$C_3 = a_w / d = 10,12$$

$$\eta = 0,60 \text{ (picture 10)}$$

$$n = 2$$

$$A_\Sigma = (1 + \eta + (n - 2) * \eta^2) * A = 1,34 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) * \eta^2] * A_1 = [1 + \eta] * A_1 \Rightarrow$$

-in operation:

$$q_{w1} = \eta * q_w = \underline{\underline{0,0213 \text{ kN/m}}}$$

-out of operation:

$$q_{w1s} = \eta * q_{wss} = \underline{\underline{0,0937 \text{ kN/m}}}$$

 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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-Legs connections (PS+FS):



$$\begin{aligned}
 d &= 0,710 \text{ m} \\
 b &= 3,400 \text{ m} \\
 L_L &= 5,50 \text{ m}
 \end{aligned}$$

$$C_1 = b/d = 4,789$$

follows $\Rightarrow C_f = C_2 \times \Psi$ (table 7)

$$C_2 = 1,00$$

$$\lambda = C_3 \times l/d \text{ (table 16)}$$

$$C_3 = 2,00$$

$$\lambda = C_3 * L_L / d = 15,49$$

$$\text{fuer } \lambda = \lambda = 15,49 \text{ ist}$$

$$\Psi = 0,75 \text{ (picture 14)}$$

$$C_f = C_2 * \Psi = 0,750$$

$$A = L_L * d = 3,905 \text{ m}^2$$

$$A' = C_f * A = 2,929 \text{ m}^2$$

-in operation:

$$F_W = C_f * A * q_{W0} / 1000 = 0,732 \text{ kN}$$

$$q_W = C_f * d * q_{W0} / 1000 = \underline{\underline{0,1331 \text{ kN/m}}}$$

-out of operation:

$$F_{WS} = C_f * A * q_{WS1} / 1000 = 3,222 \text{ kN}$$

$$q_{WSS} = C_f * d * q_{WS1} / 1000 = \underline{\underline{0,5857 \text{ kN/m}}}$$

-for second girder :

$$a_w = 0,00 \text{ m}$$

$$C_3 = a_w / d = 0,00$$

$$\eta = 0,00 \text{ (picture 10)}$$

$$n = 2$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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$$A_{\Sigma} = (1 + \eta + (n - 2) \cdot \eta^2) \cdot A = 3,90 \text{ m}^2$$

$$A_{\Sigma} = [1 + \eta + (n - 2) \cdot \eta^2] \cdot A_1 = [1 + \eta] \cdot A_1 \Rightarrow$$

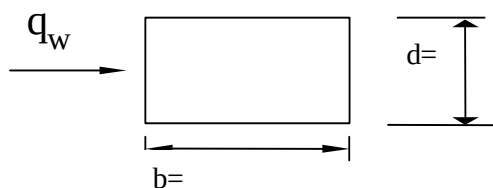
-in operation:

$$q_{w1} = \eta \cdot q_w = \underline{\underline{0,0000 \text{ kN/m}}}$$

-out of operation:

$$q_{w1s} = \eta \cdot q_{wss} = \underline{\underline{0,0000 \text{ kN/m}}}$$

B) oscilating leg (PS):



$$d = 0,710 \text{ m}$$

$$b = 1,636 \text{ m}$$

$$L_L = 32,00 \text{ m}$$

$$C_1 = b/d = 2,304$$

follows $\Rightarrow C_f = C_2 \cdot \Psi$ (table 7)

$$C_2 = 1,50$$

$$\lambda = C_3 \cdot l/d \text{ (table 16)}$$

$$C_3 = 1,50$$

$$\lambda = C_3 \cdot L_L/d = 67,61$$

$$\text{fuer } \lambda = \lambda = 67,61 \text{ ist}$$

$$\Psi = 0,91 \text{ (picture 14)}$$

$$C_f = C_2 \cdot \Psi = 1,365$$

$$A = L_L \cdot d = 22,720 \text{ m}^2$$

$$A' = C_f \cdot A = 31,013 \text{ m}^2$$

-in operation:

$$F_w = C_f \cdot A \cdot q_{w0} / 1000 = 7,753 \text{ kN}$$

$$q_w = C_f \cdot d \cdot q_{w0} / 1000 = \underline{\underline{0,2423 \text{ kN/m}}}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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-out of operation:

$$F_{WS} = C_f \cdot A \cdot q_{WS} / 1000 = 24,810 \text{ kN}$$

$$q_{WSS} = C_f \cdot d \cdot q_{WS} / 1000 = \underline{\underline{0,7753 \text{ kN/m}}}$$

-for second girder :

$$a_w = 14,60 \text{ m}$$

$$C_3 = a_w / d = 20,56$$

$$\eta = 1,00 \text{ (picture 10)}$$

$$n = 2$$

$$A_\Sigma = (1 + \eta + (n - 2) \cdot \eta^2) \cdot A = 45,44 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) \cdot \eta^2] \cdot A_1 = [1 + \eta] \cdot A_1 \Rightarrow$$

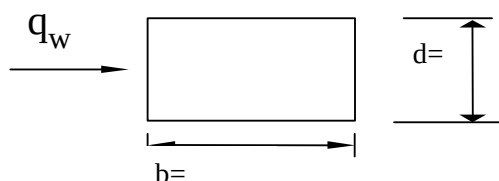
-in operation:

$$q_{W1} = \eta \cdot q_W = \underline{\underline{0,2423 \text{ kN/m}}}$$

-out of operation:

$$q_{W1S} = \eta \cdot q_{WSS} = \underline{\underline{0,7753 \text{ kN/m}}}$$

C) Fixed leg-(FS):



$$d = 0,710 \text{ m}$$

$$b = 1,636 \text{ m}$$

$$L_L = 32,00 \text{ m}$$

$$C_1 = b/d = 2,304$$

follows $\Rightarrow C_f = C_2 \cdot \Psi$ (table 7)

$$C_2 = 1,50$$

$$\lambda = C_3 \cdot L_L / d \text{ (table 16)}$$

$$C_3 = 1,50$$

$$\lambda = C_3 \cdot L_L / d = 67,61$$

$$\text{fuer } \lambda = \lambda = 67,61 \text{ ist}$$

$$\Psi = 0,91 \text{ (picture 14)}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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$$C_f = C_2 * \Psi = 1,365$$

$$A = L_L * d = 22,720 \text{ m}^2$$

$$A' = C_f * A = 31,013 \text{ m}^2$$

-in operation:

$$F_W = C_f * A * q_{W0} / 1000 = 7,753 \text{ kN}$$

$$q_W = C_f * d * q_{W0} / 1000 = \underline{\underline{0,2423 \text{ kN/m}}}$$

-out of operation:

$$F_{WS} = C_f * A * q_{WS} / 1000 = 24,810 \text{ kN}$$

$$q_{WSS} = C_f * d * q_{WS} / 1000 = \underline{\underline{0,7753 \text{ kN/m}}}$$

-for second girder :

$$a_w = 14,60 \text{ m}$$

$$C_3 = a_w / d = 20,56$$

$$\eta = 1,00 \text{ (picture 10)}$$

$$n = 2$$

$$A_\Sigma = (1 + \eta + (n - 2) * \eta^2) * A = 45,44 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) * \eta^2] * A_1 = [1 + \eta] * A_1 \Rightarrow$$

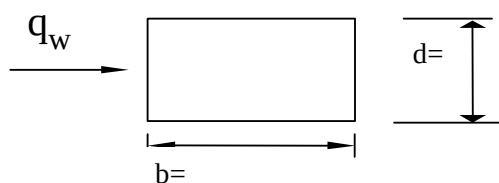
-in operation:

$$q_{W1} = \eta * q_W = \underline{\underline{0,2423 \text{ kN/m}}}$$

-out of operation:

$$q_{W1S} = \eta * q_{WSS} = \underline{\underline{0,7753 \text{ kN/m}}}$$

-inclined support 600 x 600 x12 (FS):



$$d = 0,600 \text{ m}$$

$$b = 0,600 \text{ m}$$

$$L_L = 36,00 \text{ m}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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$$C_1 = b/d = 1,000$$

follows $\Rightarrow C_f = C_2 \times \Psi$ (table 7)

$$C_2 = 1,90$$

$$\lambda = C_3 \times l/d \text{ (table 16)}$$

$$C_3 = 1,50$$

$$\lambda = C_3 \times L_L/d = 90,00$$

$$\text{fuer } \lambda = \lambda = 90,00 \text{ ist}$$

$$\Psi = 0,95 \text{ (picture 14)}$$

$$C_f = C_2 \times \Psi = 1,805$$

$$A = L_L \times d = 21,600 \text{ m}^2$$

$$A' = C_f \times A = 38,988 \text{ m}^2$$

-in operation:

$$F_w = C_f \times A \times q_{w0} / 1000 = 9,747 \text{ kN}$$

$$q_{w1} = C_f \times d \times q_{w0} / 1000 = \underline{\underline{0,2707 \text{ kN/m}}}$$

-out of operation:

$$F_{ws} = C_f \times A \times q_{ws1} / 1000 = 42,887 \text{ kN}$$

$$q_{ws1} = C_f \times d \times q_{ws1} / 1000 = \underline{\underline{1,1913 \text{ kN/m}}}$$

-for second girder :

$$a_w = 14,60 \text{ m}$$

$$C_3 = a_w/d = 24,33$$

$$\eta = 1,00 \text{ (picture 10)}$$

$$n = 2$$

$$A_\Sigma = (1 + \eta + (n - 2) \times \eta^2) \times A = 43,20 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) \times \eta^2] \times A_1 = [1 + 1] \times A_1 \Rightarrow$$

-in operation:

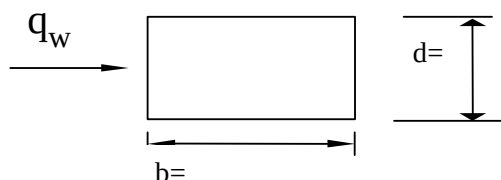
$$q_{w1} = \eta \times q_w = \underline{\underline{0,2707 \text{ kN/m}}}$$

-out of operation:

$$q_{w1s} = \eta \times q_{ws1} = \underline{\underline{1,1913 \text{ kN/m}}}$$

 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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-connection beam 600x6000 (FS):



$$d = 0,600 \text{ m}$$

$$b = 0,600 \text{ m}$$

$$L_L = 6,00 \text{ m}$$

$$C_1 = b/d = 1,000$$

follows $\Rightarrow C_f = C_2 \times \Psi$ (table 7)

$$C_2 = 1,90$$

$$\lambda = C_3 \times l/d \text{ (table 16)}$$

$$C_3 = 2,00$$

$$\lambda = C_3 * L_L / d = 20,00$$

$$\text{fuer } \lambda = \lambda = 20,00 \text{ ist}$$

$$\Psi = 0,78 \text{ (picture 14)}$$

$$C_f = C_2 * \Psi = 1,482$$

$$A = L_L * d = 3,600 \text{ m}^2$$

$$A' = C_f * A = 5,335 \text{ m}^2$$

-in operation:

$$F_W = C_f * A * q_{W0} / 1000 = 1,334 \text{ kN}$$

$$q_W = C_f * d * q_{W0} / 1000 = \underline{\underline{0,2223 \text{ kN/m}}}$$

-out of operation:

$$F_{WS} = C_f * A * q_{WS1} / 1000 = 5,869 \text{ kN}$$

$$q_{WSS} = C_f * d * q_{WS1} / 1000 = \underline{\underline{0,9781 \text{ kN/m}}}$$

-for second girder :

$$a_w = 16,00 \text{ m}$$

$$C_3 = a_w / d = 26,67$$

$$\eta = 1,00 \text{ (picture 10)}$$

$$n = 2$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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$$A_{\Sigma} = (1 + \eta + (n - 2) * \eta^2) * A = 7,20 \text{ m}^2$$

$$A_{\Sigma} = [1 + \eta + (n - 2) * \eta^2] * A_1 = [1 + \eta] * A_1 \Rightarrow$$

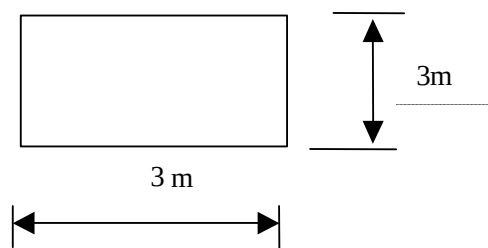
-in operation:

$$q_{w1} = \eta * q_w = \underline{\underline{0,2223 \text{ kN/m}}}$$

-out of operation:

$$q_{w1s} = \eta * q_{wss} = \underline{\underline{0,9781 \text{ kN/m}}}$$

D) E-house:



$$h = 3,00 \text{ m}$$

$$B = 3,00 \text{ m}$$

$$C_f = 1,50$$

$$A_k = h * B = 9,00 \text{ m}^2$$

$$A_k' = C_f * A_k = 13,50 \text{ m}^2$$

-in operation:

$$F = C_f * A_k * q_{w0} / 1000 = 3,38 \text{ kN}$$

-for 2 consoles is:

$$F_1 = F / 2 = \underline{\underline{1,690 \text{ kN}}}$$

-out of operation:

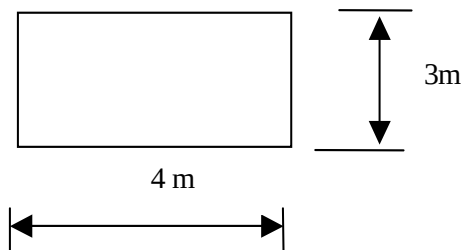
$$F = A_k * q_{ws1} / 1000 = 9,90 \text{ kN}$$

-for 2 consoles is:

$$F_1 = F / 2 = \underline{\underline{4,950 \text{ kN}}}$$

E) Trolley:

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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$$\begin{aligned}
 h &= 3.00 \text{ m} \\
 B &= 4.00 \text{ m} \\
 C_f &= 1.50
 \end{aligned}$$

$$\begin{aligned}
 A_k &= h * B = 12.00 \text{ m}^2 \\
 A_k' &= C_f * A_k = 18.00 \text{ m}^2 \text{ (in operation -KUNZ)} \\
 A_{kaus}' &= 11.00 \text{ m}^2 \text{ (out of operation -KUNZ)}
 \end{aligned}$$

-in operation:

$$F = C_f * A_k * q_{w0} / 1000 = 4,50 \text{ kN}$$

-for 2 wheels per rail is:

$$F_1 = F / 2 = \underline{\underline{2,250 \text{ kN}}}$$

-out of operation:

$$F = A_{kaus}' * q_{ws1} / 1000 = 12,10 \text{ kN}$$

-for 2 wheels per rail is:

$$F_1 = F / 2 = \underline{\underline{6,050 \text{ kN}}}$$

F) Access on the portal:

-to FS:

$$\begin{aligned}
 H &= 1.40 \text{ m} \\
 L_L &= 32,50 \text{ m} \\
 C_f &= 1.50
 \end{aligned}$$

$$A = H * L_L = 45,50 \text{ m}^2$$

$$A' = C_f * A = 68,25 \text{ m}^2$$

-in operation:

$$F = C_f * A * q_{w0} / 1000 = 17,06 \text{ kN}$$

$$q_w = F / L_L = \underline{\underline{0,525 \text{ kN/m}}}$$

-out of operation:

$$F = C_f * A * q_{ws} / 1000 = 54,60 \text{ kN}$$

$$q_w = F / L_L = \underline{\underline{1,680 \text{ kN/m}}}$$

 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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-to HT: (in shadow)

$$\begin{aligned}
H &= 1.10 \text{ m} \\
L_L &= 87,00 \text{ m} \\
C_f &= 1.50
\end{aligned}$$

$$\begin{aligned}
A &= H * L_L = 95,70 \text{ m}^2 \\
A' &= C_f * A = 143,55 \text{ m}^2
\end{aligned}$$

-in operation:

$$\begin{aligned}
F &= C_f * A * q_{w0} / 1000 = 35,89 \text{ kN} \\
q_w &= F / L_L = 0,413 \text{ kN/m}
\end{aligned}$$

fuer ein Traeger:

$$q_{w_{\text{ein}}} = q_w / 2 = \underline{\underline{0,206 \text{ KN/m}}}$$

-out of operation:

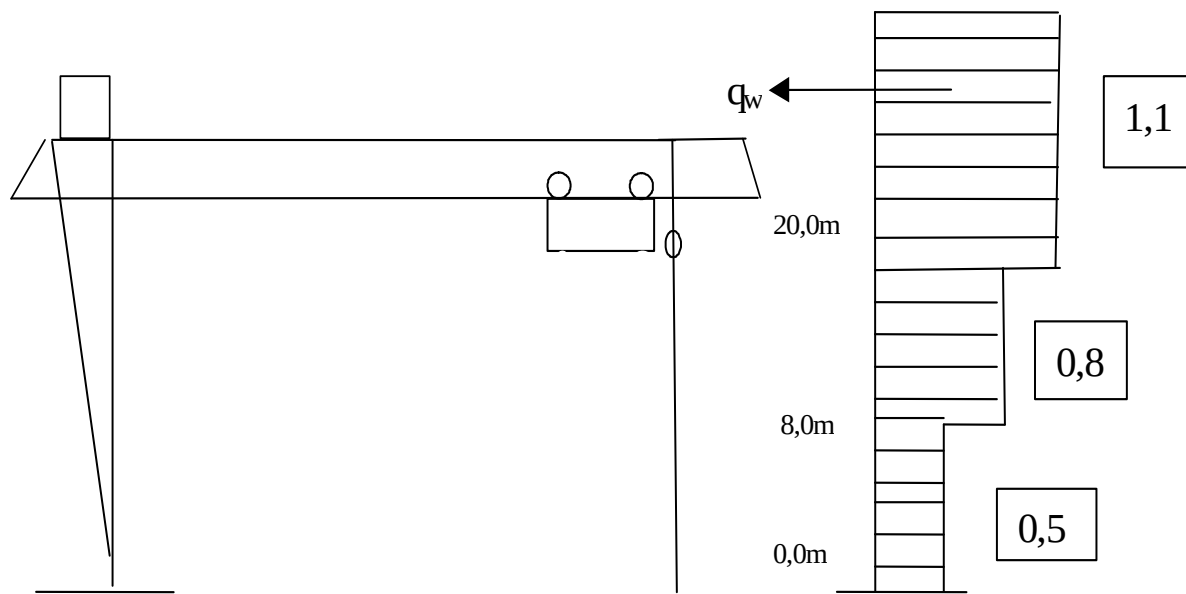
$$\begin{aligned}
F &= C_f * A * q_{ws1} / 1000 = 157,91 \text{ kN} \\
q_w &= F / L_L = 1,815 \text{ kN/m}
\end{aligned}$$

fuer ein Traeger:

$$q_{w_{\text{ein}}} = q_w / 2 = \underline{\underline{0,907 \text{ KN/m}}}$$

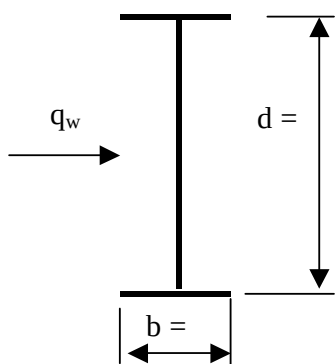
 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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2.5.2. Wind pressure transverse to travel direction (towards X axis)



A) Main beam:

-Verticals + diagonals (small): (all diagonals in shadow)



$$\begin{aligned}
 d &= 0,722 \text{ m} \\
 b &= 0,305 \text{ m} \\
 L_L &= 87,00 \text{ m}
 \end{aligned}$$

$$C_1 = b/d = 0,422$$

follows $\Rightarrow C_f = C_2 \times \Psi$ (table 6)

$$C_2 = 2,00$$

$$\lambda = C_3 \times l/d \text{ (table 16)}$$

$$C_3 = 1,40$$

$$\lambda = C_3 * L_L/d = 168,70$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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$$\begin{aligned} \text{fuer } \lambda &= \lambda &= 168,70 \text{ ist} \\ \Psi &= &0,98 \text{ (picture 14)} \end{aligned}$$

$$\begin{aligned} C_f &= C_2 * \Psi &= 1,960 \\ A &= L_L * d &= 62,814 \text{ m}^2 \\ A' &= C_f * A &= 123,115 \text{ m}^2 \end{aligned}$$

-in operation:

$$\begin{aligned} F_W &= C_f * A * q_{W0} / 1000 &= 30,779 \text{ kN} \\ q_{W1} &= C_f * d * q_{W0} / 1000 &= \underline{\underline{0,3538 \text{ kN/m}}} \end{aligned}$$

-out of operation:

$$\begin{aligned} F_{WS} &= C_f * A * q_{WS1} / 1000 &= 135,427 \text{ kN} \\ q_{WSS} &= C_f * d * q_{WS1} / 1000 &= \underline{\underline{1,5566 \text{ kN/m}}} \end{aligned}$$

-for second girder :

$$\begin{aligned} a_w &= &2,60 \text{ m} \\ C_3 &= a_w / d &= 3,60 \\ \eta &= &0,15 \text{ (picture 10)} \\ n &= &2 \end{aligned}$$

$$A_{\Sigma} = (1 + \eta + (n - 2) * \eta^2) * A = 72,24 \text{ m}^2$$

$$A_{\Sigma} = [1 + \eta + (n - 2) * \eta^2] * A_1 = [1 + \eta] * A_1 \Rightarrow$$

-in operation:

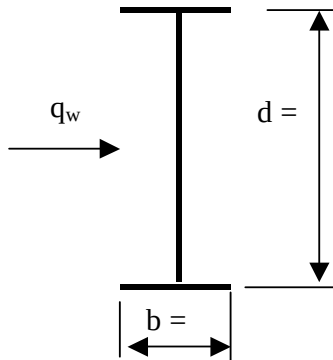
$$q_{W1} = \eta * q_W = \underline{\underline{0,0531 \text{ kN/m}}}$$

-out of operation:

$$q_{W1s} = \eta * q_{WSS} = \underline{\underline{0,2335 \text{ kN/m}}}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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--Verticals + diagonals (big): (all diagonals in shadow)



$$\begin{aligned}
 d &= 0,722 \text{ m} \\
 b &= 0,305 \text{ m} \\
 L_L &= 87,00 \text{ m}
 \end{aligned}$$

$$\begin{aligned}
 C_1 &= b/d = 0,422 \\
 \text{follows } \Rightarrow C_f &= C_2 \times \Psi \text{ (table 6)} \\
 C_2 &= 2,00 \\
 \lambda &= C_3 \times l/d \text{ (table 16)} \\
 C_3 &= 1,40 \\
 \lambda &= C_3 * L_L/d = 168,70 \\
 \text{fuer } \lambda &= \lambda = 168,70 \text{ ist} \\
 \Psi &= 0,98 \text{ (picture 14)}
 \end{aligned}$$

$$\begin{aligned}
 C_f &= C_2 * \Psi = 1,960 \\
 A &= L_L * d = 62,814 \text{ m}^2 \\
 A' &= C_f * A = 123,115 \text{ m}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{-in operation:} \\
 F_w &= C_f * A * q_{w0} / 1000 = 30,779 \text{ kN} \\
 q_w &= C_f * d * q_{w0} / 1000 = \underline{\underline{0,3538 \text{ kN/m}}}
 \end{aligned}$$

$$\begin{aligned}
 \text{-out of operation:} \\
 F_{ws} &= C_f * A * q_{ws1} / 1000 = 135,427 \text{ kN} \\
 q_{wss} &= C_f * d * q_{ws1} / 1000 = \underline{\underline{1,5566 \text{ kN/m}}}
 \end{aligned}$$

$$\begin{aligned}
 \text{-for second girder :} \\
 a_w &= 2,60 \text{ m} \\
 C_3 &= a_w/d = 3,60 \\
 \eta &= 0,15 \text{ (picture 10)} \\
 n &= 2
 \end{aligned}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 46

$$A_{\Sigma} = (1 + \eta + (n - 2) \cdot \eta^2) \cdot A = 72,24 \text{ m}^2$$

$$A_{\Sigma} = [1 + \eta + (n - 2) \cdot \eta^2] \times A_1 = [1 + \eta] \times A_1 \Rightarrow$$

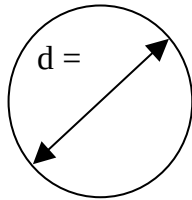
-in operation:

$$q_{w1} = \eta \cdot q_w = \underline{\underline{0,0531 \text{ kN/m}}}$$

-out of operation:

$$q_{w1s} = \eta \cdot q_{wss} = \underline{\underline{0,2335 \text{ kN/m}}}$$

-upper tubes Φ 127 mm : (in shadow)



$$d = 0,127 \text{ m}$$

$$L_L = 2,00 \text{ m}$$

$$v_w = 20,00 \text{ m/s } (q = 0,25 \text{ kN/m}^2)$$

$$Re = v_w \cdot d / (1,5 \cdot 10^{-5}) / 1 = 1,7 \cdot 10^5$$

$$k_w = 0,001 \text{ (fuer Stahl)}$$

$$C_4 = (k_w/d) \cdot 1 = 7,87 \cdot 10^{-3}$$

follows $\Rightarrow C_{f0}$

$$C_{f0} = 1,10 \text{ (picture 2)}$$

$$\lambda = L_L/d = 15,75$$

$$\text{fuer } \lambda = \lambda = 15,75 \text{ ist}$$

$$\Psi = 0,75 \text{ (picture 14)}$$

$$C_f = C_{f0} \cdot \Psi = 0,825$$

$$A = L_L \cdot d = 0,254 \text{ m}^2$$

$$A' = C_f \cdot A = 0,210 \text{ m}^2$$

-in operation:

$$F_w = C_f \cdot A \cdot q_{w0} / 1000 = 0,052 \text{ kN}$$

$$q_w = C_f \cdot d \cdot q_{w0} / 1000 = \underline{\underline{0,0262 \text{ kN/m}}}$$

 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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-out of operation:

$$F_{ws} = C_f \cdot A \cdot q_{ws1} / 1000 = 0,231 \text{ kN}$$

$$q_{wss} = C_f \cdot d \cdot q_{ws1} / 1000 = \underline{\underline{0,1153 \text{ kN/m}}}$$

-for second girder :

$$a_w = 5,00 \text{ m}$$

$$C_3 = a_w / d = 39,37$$

$$\eta = 1,00 \text{ (picture 10)}$$

$$n = 2$$

$$A_\Sigma = (1 + \eta + (n - 2) \cdot \eta^2) \cdot A = 0,51 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) \cdot \eta^2] \cdot A_1 = [1 + \eta] \cdot A_1 \Rightarrow$$

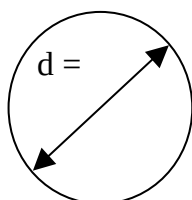
-in operation:

$$q_{w1} = \eta \cdot q_w = \underline{\underline{0,0262 \text{ kN/m}}}$$

-out of operation:

$$q_{w1s} = \eta \cdot q_{wss} = \underline{\underline{0,1153 \text{ kN/m}}}$$

-ower tubes Fi 168 mm : (in shadow)



$$d = 0,168 \text{ m}$$

$$L_L = 3,50 \text{ m}$$

$$v_w = 20,00 \text{ m/s (} q = 0,25 \text{ kN/m}^2 \text{)}$$

$$Re = v_w \cdot d / (1,5 \cdot 10^{-5}) / 1 = 2,2 \cdot 10^5$$

$$k_w = 0,001 \text{ (fuer Stahl)}$$

$$C_4 = (k_w / d) \cdot 1 = 5,95 \cdot 10^{-3}$$

follows $\Rightarrow C_{f0}$

$$C_{f0} = 0,82 \text{ (picture 2)}$$

$$\lambda = L_L / d = 20,83$$

$$\text{fuer } \lambda = \lambda = 20,83 \text{ ist}$$

$$\Psi = 0,78 \text{ (picture 14)}$$

$$C_f = C_{f0} \cdot \Psi = 0,640$$

 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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$$A = L_L \cdot d = 0,588 \text{ m}^2$$

$$A' = C_f \cdot A = 0,376 \text{ m}^2$$

-in operation:

$$F_W = C_f \cdot A \cdot q_{W0} / 1000 = 0,094 \text{ kN}$$

$$q_W = C_f \cdot d \cdot q_{W0} / 1000 = \underline{\underline{0,0269 \text{ kN/m}}}$$

-out of operation:

$$F_{WS} = C_f \cdot A \cdot q_{WS1} / 1000 = 0,414 \text{ kN}$$

$$q_{WS} = C_f \cdot d \cdot q_{WS1} / 1000 = \underline{\underline{0,1183 \text{ kN/m}}}$$

-for second girder :

$$a_w = 5,00 \text{ m}$$

$$C_3 = a_w / d = 29,76$$

$$\eta = 1,00 \text{ (picture 10)}$$

$$n = 2$$

$$A_\Sigma = (1 + \eta + (n - 2) \cdot \eta^2) \cdot A = 1,18 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) \cdot \eta^2] \cdot A_1 = [1 + \eta] \cdot A_1 \Rightarrow$$

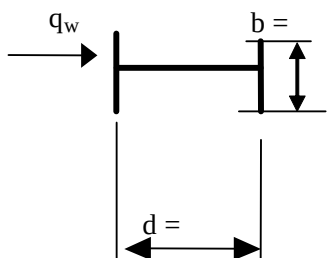
-in operation:

$$q_{W1} = \eta \cdot q_W = \underline{\underline{0,0269 \text{ kN/m}}}$$

-out of operation:

$$q_{W1s} = \eta \cdot q_{WS} = \underline{\underline{0,1183 \text{ kN/m}}}$$

-Horizontal link above: (every second in the shade)



$$d = 0,200 \text{ m}$$

$$b = 0,374 \text{ m}$$

$$L_L = 2,80 \text{ m}$$

$$C_1 = b/d = 1,870$$

follows $\Rightarrow C_f = C_2 \times \Psi$ (table 6)

$$C_2 = 1,70$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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$$\lambda = C_3 \times l/d \quad (\text{table 16})$$

$$C_3 = 2,00$$

$$\lambda = C_3 \times L_L/d = 28,00$$

$$\text{fuer } \lambda = \lambda = 28,00 \text{ ist}$$

$$\Psi = 0,65 \text{ (picture 14)}$$

$$C_f = C_2 \times \Psi = 1,105$$

$$A = L_L \times d = 0,560 \text{ m}^2$$

$$A' = C_f \times A = 0,619 \text{ m}^2$$

-in operation:

$$F_W = C_f \times A \times q_{W0} / 1000 = 0,155 \text{ kN}$$

$$q_W = C_f \times d \times q_{W0} / 1000 = \underline{\underline{0,0553 \text{ kN/m}}}$$

-out of operation:

$$F_{WS} = C_f \times A \times q_{WS1} / 1000 = 0,681 \text{ kN}$$

$$q_{WSS} = C_f \times d \times q_{WS1} / 1000 = \underline{\underline{0,2431 \text{ kN/m}}}$$

-for second girder :

$$a_w = 5,00 \text{ m}$$

$$C_3 = a_w / d = 25,00$$

$$\eta = 1,00 \text{ (picture 10)}$$

$$n = 2$$

$$A_\Sigma = (1 + \eta + (n - 2) \times \eta^2) \times A = 1,12 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) \times \eta^2] \times A_1 = [1 + 1] \times A_1 \Rightarrow$$

-in operation:

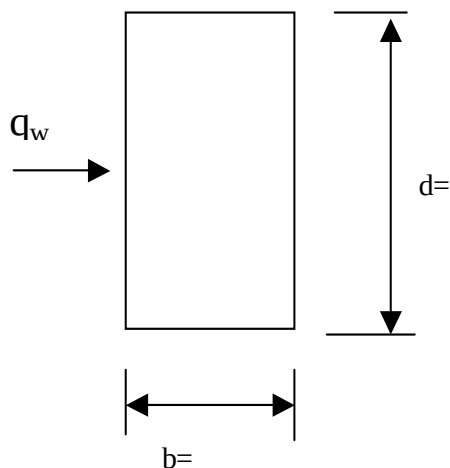
$$q_{W1} = \eta \times q_W = \underline{\underline{0,0553 \text{ kN/m}}}$$

-out of operation:

$$q_{W1s} = \eta \times q_{WSS} = \underline{\underline{0,2431 \text{ kN/m}}}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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- Connection box below: (every second in the shade)



$$\begin{aligned}
 d &= 0,550 \text{ m} \\
 b &= 0,374 \text{ m} \\
 L_L &= 3,70 \text{ m}
 \end{aligned}$$

$$\begin{aligned}
 C_1 &= b/d = 0,680 \\
 \text{follows } \Rightarrow C_f &= C_2 \times \Psi \text{ (table 6)} \\
 C_2 &= 2,10 \\
 \lambda &= C_3 \times l/d \text{ (table 16)} \\
 C_3 &= 2,00 \\
 \lambda &= C_3 * L_L/d = 13,45 \\
 \text{fuer } \lambda &= \lambda = 13,45 \text{ ist} \\
 \Psi &= 0,72 \text{ (picture 14)}
 \end{aligned}$$

$$\begin{aligned}
 C_f &= C_2 * \Psi = 1,512 \\
 A &= L_L * d = 2,035 \text{ m}^2 \\
 A' &= C_f * A = 3,077 \text{ m}^2 \\
 \text{-in operation:} \\
 F_w &= C_f * A * q_{w0} / 1000 = 0,769 \text{ kN} \\
 q_w &= C_f * d * q_{w0} / 1000 = \underline{\underline{0,2079 \text{ kN/m}}}
 \end{aligned}$$

$$\begin{aligned}
 \text{-out of operation:} \\
 F_{ws} &= C_f * A * q_{ws1} / 1000 = 3,385 \text{ kN} \\
 q_{wss} &= C_f * d * q_{ws1} / 1000 = \underline{\underline{0,9148 \text{ kN/m}}}
 \end{aligned}$$

-for second girder :

$$a_w = 5,00 \text{ m}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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$$C_3 = a_w / d = 9,09$$

$$\eta = 0,60 \text{ (picture 10)}$$

$$n = 2$$

$$A_\Sigma = (1 + \eta + (n - 2) * \eta^2) * A = 3,26 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) * \eta^2] * A_1 = [1 + \eta] * A_1 \Rightarrow$$

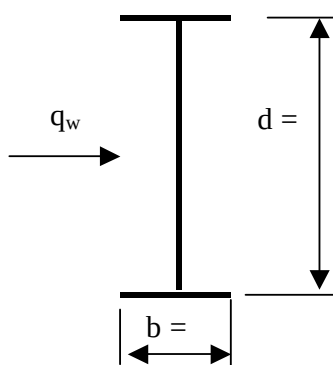
-in operation:

$$q_{w1} = \eta * q_w = \underline{\underline{0,1247 \text{ kN/m}}}$$

-out of operation:

$$q_{w1s} = \eta * q_{wss} = \underline{\underline{0,5489 \text{ kN/m}}}$$

-Connection - HAE-160 below: (in shade)



$$d = 0,152 \text{ m}$$

$$b = 0,160 \text{ m}$$

$$L_L = 3,70 \text{ m}$$

$$C_1 = b/d = 1,053$$

follows $\Rightarrow C_f = C_2 * \Psi$ (table 6)

$$C_2 = 1,70$$

$$\lambda = C_3 * l/d \text{ (table 16)}$$

$$C_3 = 2,00$$

$$\lambda = C_3 * L_L / d = 48,68$$

$$\text{fuer } \lambda = \lambda = 48,68 \text{ ist}$$

$$\Psi = 0,88 \text{ (picture 14)}$$

$$C_f = C_2 * \Psi = 1,496$$

$$A = L_L * d = 0,562 \text{ m}^2$$

$$A' = C_f * A = 0,841 \text{ m}^2$$

-in operation:

$$F_w = C_f * A * q_{w0} / 1000 = 0,210 \text{ kN}$$

$$q_w = C_f * d * q_{w0} / 1000 = \underline{\underline{0,0568 \text{ kN/m}}}$$

 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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-out of operation:

$$F_{WS} = C_f * A * q_{WS1} / 1000 = 0,925 \text{ kN}$$

$$q_{WSS} = C_f * d * q_{WS1} / 1000 = \underline{\underline{0,2501 \text{ kN/m}}}$$

-for second girder :

$$a_w = 5,00 \text{ m}$$

$$C_3 = a_w / d = 32,89$$

$$\eta = 1,00 \text{ (picture 10)}$$

$$n = 2$$

$$A_{\Sigma} = (1 + \eta + (n - 2) * \eta^2) * A = 1,12 \text{ m}^2$$

$$A_{\Sigma} = [1 + \eta + (n - 2) * \eta^2] * A_1 = [1 + \eta] * A_1 \Rightarrow$$

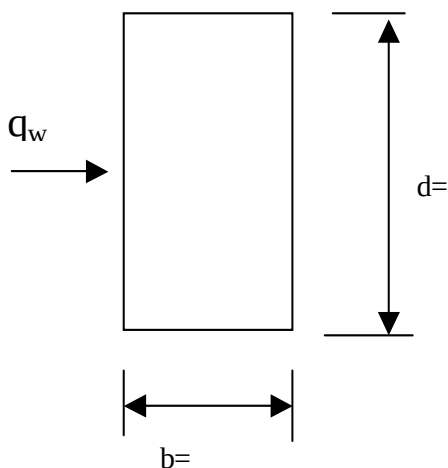
-in operation:

$$q_{W1} = \eta * q_w = \underline{\underline{0,0568 \text{ kN/m}}}$$

-out of operation:

$$q_{W1S} = \eta * q_{WSS} = \underline{\underline{0,2501 \text{ kN/m}}}$$

Leg-connection to HT (PS+FS):



$$d = 5,000 \text{ m}$$

$$b = 0,710 \text{ m}$$

$$L_L = 3,40 \text{ m}$$

$$C_1 = b/d = 0,142$$

follows $\Rightarrow C_f = C_2 * \Psi$ (table 6)

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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$$\begin{aligned}
C_2 &= 2,10 \\
\lambda &= C_3 \times l/d \quad (\text{table 16}) \\
C_3 &= 2,00 \\
\lambda &= C_3 \times L_L/d = 1,36 \\
\text{fuer } \lambda &= \lambda = 1,36 \text{ ist} \\
\Psi &= 0,61 \quad (\text{picture 14})
\end{aligned}$$

$$\begin{aligned}
C_f &= C_2 \times \Psi = 1,281 \\
A &= L_L \times d = 17,000 \text{ m}^2 \\
A' &= C_f \times A = 21,777 \text{ m}^2
\end{aligned}$$

-in operation:

$$\begin{aligned}
F_w &= C_f \times A \times q_{w0} / 1000 = 5,444 \text{ kN} \\
q_w &= C_f \times d \times q_{w0} / 1000 = 1,6013 \text{ kN/m}
\end{aligned}$$

fuer ein Traeger:

$$q_{w_{\text{ein}}} = q_w / 2 = \underline{\underline{0,801 \text{ KN/m}}}$$

-out of operation:

$$\begin{aligned}
F_{ws} &= C_f \times A \times q_{ws1} / 1000 = 23,955 \text{ kN} \\
q_{ws} &= C_f \times d \times q_{ws1} / 1000 = 7,0455 \text{ kN/m}
\end{aligned}$$

fuer ein Traeger:

$$q_{w_{\text{ein}}} = q_{ws} / 2 = \underline{\underline{3,523 \text{ KN/m}}}$$

-for second girder :

$$\begin{aligned}
a_w &= 10,00 \text{ m} \\
C_3 &= a_w / d = 2,00 \\
\eta &= 0,00 \quad (\text{picture 10}) \\
n &= 2
\end{aligned}$$

$$A_{\Sigma} = (1 + \eta + (n - 2) \times \eta^2) \times A = 17,00 \text{ m}^2$$

$$A_{\Sigma} = [1 + \eta + (n - 2) \times \eta^2] \times A_1 = [1 + \eta] \times A_1 \Rightarrow$$

-in operation:

$$q_{w1} = \eta \times q_w = \underline{\underline{0,0000 \text{ kN/m}}}$$

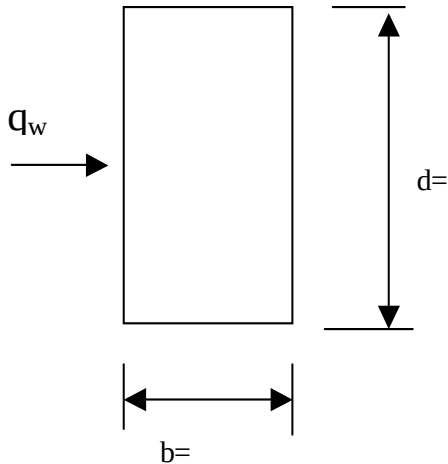
-out of operation:

$$q_{w1s} = \eta \times q_{ws} = \underline{\underline{0,0000 \text{ kN/m}}}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 54

B) Oscilating leg (PST):

-Head beam:



$$\begin{aligned}
 d &= 1,000 \text{ m} \\
 b &= 0,700 \text{ m} \\
 L_L &= 24,00 \text{ m}
 \end{aligned}$$

$$\begin{aligned}
 C_1 &= b/d = 0,700 \\
 \text{follows } \Rightarrow C_f &= C_2 \times \Psi \text{ (table 7)} \\
 C_2 &= 2,10 \\
 \lambda &= C_3 \times l/d \text{ (table 16)} \\
 C_3 &= 1,50 \\
 \lambda &= C_3 * L_L/d = 36,00 \\
 \text{fuer } \lambda &= \lambda = 36,00 \text{ ist} \\
 \Psi &= 0,82 \text{ (picture 14)}
 \end{aligned}$$

$$\begin{aligned}
 C_f &= C_2 * \Psi = 1,722 \\
 A &= L_L * d = 24,000 \text{ m}^2 \\
 A' &= C_f * A = 41,328 \text{ m}^2
 \end{aligned}$$

-in operation:

$$\begin{aligned}
 F_W &= C_f * A * q_{w0} / 1000 = 10,332 \text{ kN} \\
 q_{w0} &= C_f * d * q_{w0} / 1000 = \underline{\underline{0,4305 \text{ kN/m}}}
 \end{aligned}$$

-out of operation:

$$\begin{aligned}
 F_{ws} &= C_f * A * q_{ws} / 1000 = 33,062 \text{ kN} \\
 q_{ws} &= C_f * d * q_{ws} / 1000 = \underline{\underline{1,3776 \text{ kN/m}}}
 \end{aligned}$$

 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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-for second girder :

$$\begin{aligned}
a_w &= 37,00 \text{ m} \\
C_3 &= a_w / d = 37,00 \\
\eta &= 1,00 \text{ (picture 10)} \\
n &= 2
\end{aligned}$$

$$A_\Sigma = (1 + \eta + (n - 2) * \eta^2) * A = 48,00 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) * \eta^2] * A_1 = [1 + \eta] * A_1 \Rightarrow$$

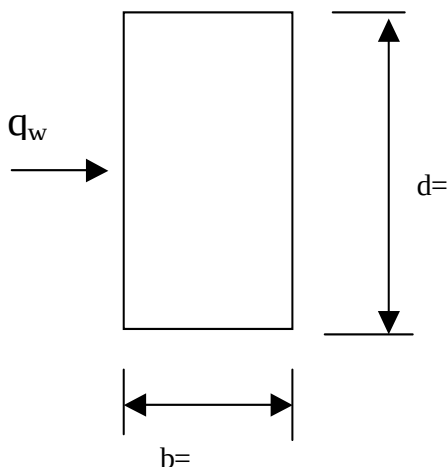
-in operation:

$$q_{w1} = \eta * q_w = \underline{\underline{0,4305 \text{ kN/m}}}$$

-out of operation:

$$q_{w1s} = \eta * q_{wss} = \underline{\underline{1,3776 \text{ kN/m}}}$$

-leg:



$$\begin{aligned}
d &= 1,636 \text{ m} \\
b &= 0,710 \text{ m} \\
L_L &= 35,00 \text{ m}
\end{aligned}$$

$$C_1 = b/d = 0,434$$

follows $\Rightarrow C_f = C_2 * \Psi$ (table 7)

$$C_2 = 2,10$$

$$\lambda = C_3 * l/d \text{ (table 16)}$$

$$C_3 = 2,00$$

$$\lambda = C_3 * L_L/d = 42,79$$

$$\text{fuer } \lambda = \lambda = 42,79 \text{ ist}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 56

$$\Psi = 0,84 \text{ (picture 14)}$$

$$C_f = C_2 * \Psi = 1,764$$

$$A = L_L * d = 57,260 \text{ m}^2$$

$$A' = C_f * A = 101,007 \text{ m}^2$$

-in operation:

$$F_W = C_f * A * q_{W0} / 1000 = 25,252 \text{ kN}$$

$$q_W = C_f * d * q_{W0} / 1000 = \underline{\underline{0,7215 \text{ kN/m}}}$$

-out of operation:

$$F_{WS} = C_f * A * q_{WS} / 1000 = 80,805 \text{ kN}$$

$$q_{WS} = C_f * d * q_{WS} / 1000 = \underline{\underline{2,3087 \text{ kN/m}}}$$

-for second girder :

$$a_w = 37,00 \text{ m}$$

$$C_3 = a_w / d = 22,62$$

$$\eta = 1,00 \text{ (picture 10)}$$

$$n = 2$$

$$A_{\Sigma} = (1 + \eta + (n - 2) * \eta^2) * A = 114,52 \text{ m}^2$$

$$A_{\Sigma} = [1 + \eta + (n - 2) * \eta^2] * A_1 = [1 + \eta] * A_1 \Rightarrow$$

-in operation:

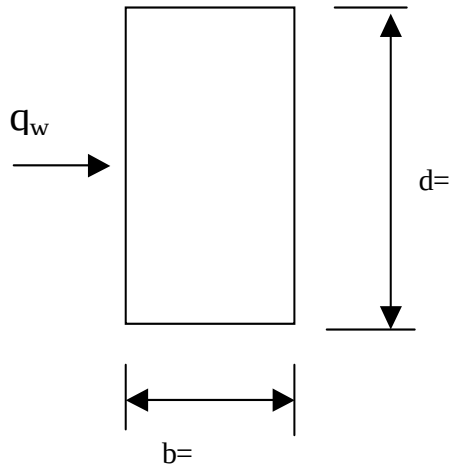
$$q_{W1} = \eta * q_W = \underline{\underline{0,7215 \text{ kN/m}}}$$

-out of operation:

$$q_{W1s} = \eta * q_{WS} = \underline{\underline{2,3087 \text{ kN/m}}}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 57

-Horizontal-connection beam- above:



$$\begin{aligned}
 d &= 2,400 \text{ m} \\
 b &= 0,710 \text{ m} \\
 L_L &= 15,50 \text{ m}
 \end{aligned}$$

$$\begin{aligned}
 C_1 &= b/d = 0,296 \\
 \text{follows } \Rightarrow C_f &= C_2 \times \Psi \text{ (table 7)} \\
 C_2 &= 2,10 \\
 \lambda &= C_3 \times l/d \text{ (table 16)} \\
 C_3 &= 2,00 \\
 \lambda &= C_3 * L_L/d = 12,92 \\
 \text{fuer } \lambda &= \lambda = 12,92 \text{ ist} \\
 \Psi &= 0,71 \text{ (picture 14)}
 \end{aligned}$$

$$\begin{aligned}
 C_f &= C_2 * \Psi = 1,491 \\
 A &= L_L * d = 37,200 \text{ m}^2 \\
 A' &= C_f * A = 55,465 \text{ m}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{-in operation:} \\
 F_W &= C_f * A * q_{w0} / 1000 = 13,866 \text{ kN} \\
 q_W &= C_f * d * q_{w0} / 1000 = \underline{\underline{0,8946 \text{ kN/m}}}
 \end{aligned}$$

$$\begin{aligned}
 \text{-out of operation:} \\
 F_{WS} &= C_f * A * q_{ws1} / 1000 = 61,012 \text{ kN} \\
 q_{WSS} &= C_f * d * q_{ws1} / 1000 = \underline{\underline{3,9362 \text{ kN/m}}}
 \end{aligned}$$

$$\begin{aligned}
 \text{-for second girder :} \\
 a_w &= 37,00 \text{ m}
 \end{aligned}$$

 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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$$C_3 = a_w / d = 15,42$$

$$\eta = 1,00 \text{ (picture 10)}$$

$$n = 2$$

$$A_\Sigma = (1 + \eta + (n - 2) \cdot \eta^2) \cdot A = 74,40 \text{ m}^2$$

$$A_\Sigma = [1 + \eta + (n - 2) \cdot \eta^2] \cdot A_1 = [1 + \eta] \cdot A_1 \Rightarrow$$

-in operation:

$$q_{w1} = \eta \cdot q_w = \underline{\underline{0,8946 \text{ kN/m}}}$$

-out of operation:

$$q_{w1s} = \eta \cdot q_{wss} = \underline{\underline{3,9362 \text{ kN/m}}}$$

	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
	Static calculations - Input	Page: 59

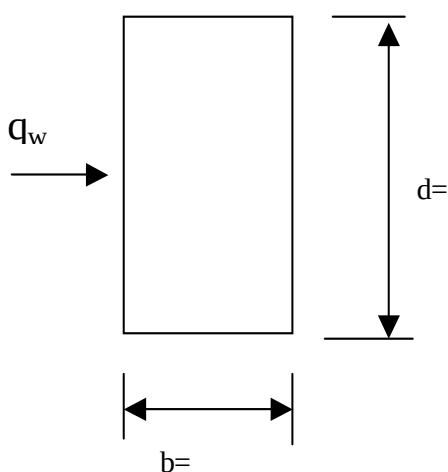
C) Fixed leg (FST):

-head beam: (the same as PST)

-Leg: (the same as PST)

-Horizontal-connection beam- above: (the same as PST)

-inclined support- 600 x 600 x 12 (FS):



$$d = 0,600 \text{ m}$$

$$b = 0,600 \text{ m}$$

$$L_L = 36,00 \text{ m}$$

$$C_1 = b/d = 1,000$$

$$\text{follows } \Rightarrow C_f = C_2 \times \Psi \text{ (table 7)}$$

$$C_2 = 1,90$$

$$\lambda = C_3 \times l/d \text{ (table 16)}$$

$$C_3 = 1,50$$

$$\lambda = C_3 \times L_L/d = 90,00$$

$$\text{fuer } \lambda = \lambda = 90,00 \text{ ist}$$

$$\Psi = 0,92 \text{ (picture 14)}$$

$$C_f = C_2 \times \Psi = 1,748$$

$$A = L_L \times d = 21,600 \text{ m}^2$$

$$A' = C_f \times A = 37,757 \text{ m}^2$$

-in operation:

$$F_w = C_f \times A \times q_{w0} / 1000 = 9,439 \text{ kN}$$

$$q_w = C_f \times d \times q_{w0} / 1000 = \underline{\underline{0,2622 \text{ kN/m}}}$$

 NOKRAN	Containercrane 41t x (24 + 37 + 18) m VENLO - ECT Delta Terminal-21098 Project: 123999	
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-out of operation:

$$F_{WS} = C_f * A * q_{WS} / 1000 = 30,205 \text{ kN}$$

$$q_{WSS} = C_f * d * q_{WS} / 1000 = \underline{\underline{0,8390 \text{ kN/m}}}$$

-for second girder :

$$a_w = 10,00 \text{ m}$$

$$C_3 = a_w / d = 16,67$$

$$\eta = 0,85 \text{ (picture 10)}$$

$$n = 2$$

$$A_{\Sigma} = (1 + \eta + (n - 2) * \eta^2) * A = 39,96 \text{ m}^2$$

$$A_{\Sigma} = [1 + \eta + (n - 2) * \eta^2] * A_1 = [1 + \eta] * A_1 \Rightarrow$$

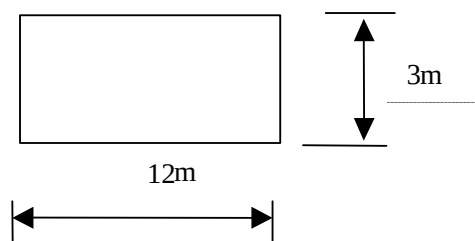
-in operation:

$$q_{W1} = \eta * q_w = \underline{\underline{0,2229 \text{ kN/m}}}$$

-out of operation:

$$q_{W1S} = \eta * q_{WSS} = \underline{\underline{0,7131 \text{ kN/m}}}$$

D) E-house:



$$h = 3,00 \text{ m}$$

$$B = 12,00 \text{ m}$$

$$C_f = 1,50$$

$$A_k = h * B = 36,00 \text{ m}^2$$

$$A_k' = C_f * A_k = 54,00 \text{ m}^2$$

-in operation:

$$F = C_f * A_k * q_{w0} / 1000 = 13,50 \text{ kN}$$

-for 2 consoles is:

$$F_1 = F / 2 = \underline{\underline{6,750 \text{ kN}}}$$

-out of operation:

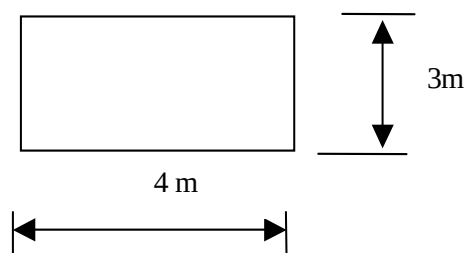
$$F = A_k * q_{ws1} / 1000 = 39,60 \text{ kN}$$

-for 2 consoles is:

$$F_1 = F / 2 = \underline{\underline{19,800 \text{ kN}}}$$

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E) Trolley:



$$\begin{aligned}
 h &= 3,00 \text{ m} \\
 B &= 4,00 \text{ m} \\
 C_f &= 1,50
 \end{aligned}$$

$$\begin{aligned}
 A_k &= h * B = 12,00 \text{ m}^2 \\
 A_k' &= C_f * A_k = 18,00 \text{ m}^2 \text{ (in operation -KUNZ)} \\
 A_{kaus}' &= 11,00 \text{ m}^2 \text{ (out of operation -KUNZ)}
 \end{aligned}$$

-in operation:

$$F = C_f * A_k * q_{w0} / 1000 = 4,50 \text{ kN}$$

-for 2 wheels per rail is:

$$F_1 = F / 2 = \underline{\underline{2,250 \text{ kN}}}$$

-out of operation:

$$F = A_{kaus}' * q_{ws1} / 1000 = 12,10 \text{ kN}$$

-for 2 wheels per rail is:

$$F_1 = F / 2 = \underline{\underline{6,050 \text{ kN}}}$$

F) Access on the portal:

-to PST:

$$\begin{aligned}
 H &= 2,00 \text{ m} \\
 L_L &= 35,00 \text{ m} \\
 C_f &= 1.50
 \end{aligned}$$

$$A = H * L_L = 70,00 \text{ m}^2$$

$$A' = C_f * A = 105,00 \text{ m}^2$$

-in operation:

$$F = C_f * A * q_{w0} / 1000 = 26,25 \text{ kN}$$

$$q_w = F / L_L = \underline{\underline{0,750 \text{ kN/m}}}$$

-out of operation:

$$F = C_f * A * q_{ws} / 1000 = 84,00 \text{ kN}$$

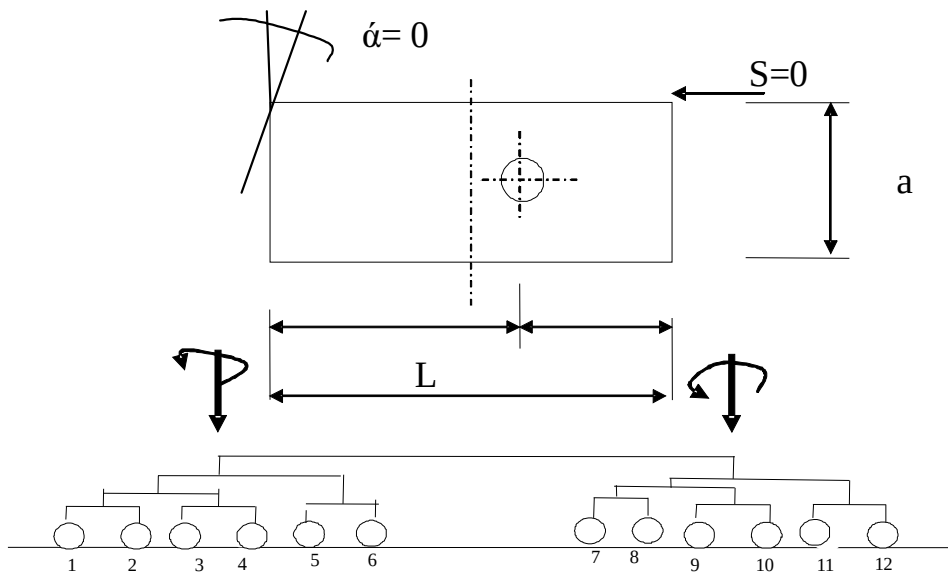
$$q_w = F / L_L = \underline{\underline{2,400 \text{ kN/m}}}$$

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2.6 Forces produced by skew

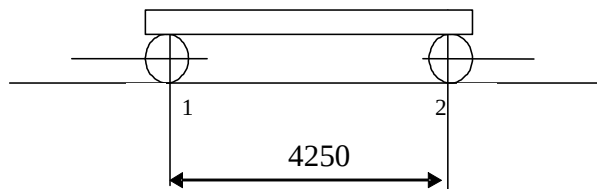
A)Crane:

No skew forces for crane due to the vertical- rotated bolts connected to portal. There is no more angle α wich make skew forces.



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B) Trolley:



Gauge - trolley: $a_k = 3,45 \text{ m}$

Guide distance - trolley $a_{kk} = 4,25 \text{ m}$

Deadweight = $G_{katz} * 10 = 380,00$

Liftingload = $Q_Q = 579,50 \text{ kN}$

$G_{TOTk} = \text{Deadweight} + \text{Liftingload} = 959,50 \text{ kN}$

Skew angle: $\alpha = \alpha_F + \alpha_V + \alpha_0$

gap = 10,00 mm

rail width = 100,00 mm (rail A100)

$\alpha_F = 0,75 * \text{gap} / a_{kk} = 1,7647 \text{ }^\circ\text{(with flanges)}$

$\alpha_V = 0,10 * \text{width} / a_{kk} = 2,3529 \text{ }^\circ\text{(with flanges)}$

$\alpha_0 = 1.0000 \text{ }^\circ$

$\alpha = \alpha_F + \alpha_V + \alpha_0 = 5,1176 \text{ }^\circ\text{(promile)}$

Coefficient of adhesion:

$f = 0.30 * (1 - 2.718282 * (-0.25 * \alpha)) = 0,2165 \text{ mm}$

$m = 0 \text{ (LR-connected)}$

$n = 2 \text{ (LR per side)}$

$e_1 = 0,00 \text{ m}$

$e_2 = 4,25 \text{ m}$

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$$\begin{aligned} \text{sume}_i &= e_1 + e_2 = 4,25 \text{ m} \\ \text{sumkvadre}_i &= e_1^2 + e_2^2 = 18,063 \text{ m}^2 \\ \text{Centre of gravity:} \\ \zeta &= 0.50 \text{ m} \\ \zeta' &= 0.50 \text{ m} \end{aligned}$$

Location h of slip poles and factor λ :

System FF:

$$\begin{aligned} h &= (m * \zeta' * \zeta * L^2 + \text{sumkvadre}_i) / \text{sume}_i = 4,250 \text{ m} \\ \lambda &= 1 - (\text{sume}_i / (n * h)) = 0,5000 \\ S &= \lambda * f * G_{\text{TOTk}} = \underline{\underline{103,87 \text{ kN}}} \end{aligned}$$

$$\begin{aligned} \lambda_{1ix} &= 0 & \lambda_{2ix} &= 0 \\ \lambda_{1iy} &= \xi * (1 - e_i/h) / n & \lambda_{2iy} &= \xi * (1 - e_i/h) / n \\ H_{S1i} &= \lambda_{1iy} * f * \Sigma R & H_{S2i} &= \lambda_{2iy} * f * \Sigma R \\ e_1 &= 0,00 \text{ m} \\ \lambda_{11y} &= \zeta' * (1 - e_1/h) / n = 0,250000 \\ H_{S11} &= \lambda_{11y} * f * G_{\text{TOTk}} = \underline{\underline{51,93 \text{ kN}}} \\ e_2 &= 4,25 \text{ m} \\ \lambda_{12y} &= \zeta' * (1 - e_2/h) / n = 0,000000 \\ H_{S12} &= \lambda_{12y} * f * G_{\text{TOTk}} = \underline{\underline{0,00 \text{ kN}}} \\ H_{S1\text{sum}} &= H_{S11} + H_{S12} = \underline{\underline{51,93 \text{ kN}}} \end{aligned}$$

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Rough check:

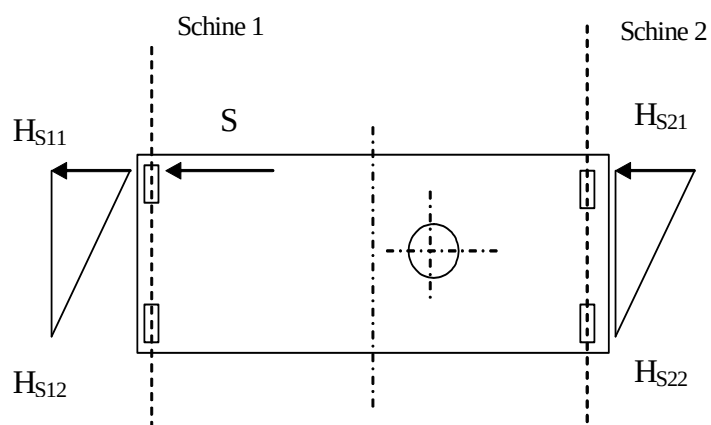
$$\text{kontrolle} = \zeta * S + H_{S1\text{sum}} = 103,86 \text{ kN} \approx S \Rightarrow \text{OK}$$

Moments:

$$r_2 = 0,402 \text{ m}$$

$$M_1 = H_{S11} * r_2 = \underline{\underline{20,88 \text{ kNm}}}$$

$$M_2 = H_{S12} * r_2 = \underline{\underline{0,00 \text{ kNm}}}$$



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2.7 Buffer forces:

Crane:

a) Buffer on crane travel drive:

Buffer : hydraulic buffer Leben Type SK 80 - fi75

Max. Buffer force $P = 290,00 \text{ kN}$
Stroke $s = 0,800 \text{ m}$
max. energy per stroke $E = 197,00 \text{ kJ}$

$v_z = 80,00 \text{ m/min}$ (max. crane speed)

-At the rail end, the crane speed is reduced to max. 70% (DIN) and that is:

$$V_{kd} = v_z * 0,7 = 56,00 \text{ m/min}$$

$$V_{kds} = V_{kd} / 60 = 0,93 \text{ m/sec}$$

$$G_{TOT} = m_{KK} * 10 + Q_Q = 4999,00 \text{ kN}$$

$G_{TOT} = 4999,00 \text{ kN}$ (crane + trolley + lifting load)

$$E_p = (G_{TOT}) * V_{kds}^2 / 2 / 10 = 216,18 \text{ kJ}$$

$$E_{p1} = E_p / 2 = 108,09 \text{ kJ}$$

$$E_{p1} \leq E \Rightarrow \text{OK}$$

Deceleration at buffer impact:

$$a_{yp} = V_{kds}^2 / (2 * s) = 0,541 \text{ m/s}^2$$

$$a_{yp} = 0,541 \text{ m/s}^2$$

$$\text{(weight in LF)} \quad k_{ayy} = a_{yp} / 9,81 = \underline{\underline{0,05515}}$$

$$k_{TOT} = \underline{\underline{1,482}}$$

(with equipment k_{gew} * k_{kon} - in LF-Factor)

Check for max. buffer force:

$$F_{max} = G_{TOT} * a_{yp} / 10 = 270,446 \text{ kN}$$

$$F_{1max} = F_{max} / 2 = \underline{\underline{135,22 \text{ kN}}}$$

$$F_{1max} \leq P \Rightarrow \text{OK}$$

Force on access to FS :

$$F_{Zut} = F_{tre} * a_{yp} / 10 = 5,41 \text{ kN}$$

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$$q_{\text{zut}} = F_{\text{Zut}} / L_{\text{st}} = \underline{\underline{0,175 \text{ kN/m}}}$$

These type of loadings were taken into account through direct input of deceleration into the computer program Y axis.

-in accordance with DIN 15018 for hydraulic buffers with square characteristics:

$$a_{\text{DIN}} = 1.5 \times a_y \Rightarrow$$

Factor f =

1,5 (in LK)

-coefficient for complete construction due to fittings ($T_{\text{crane}}/G_{\text{STBG}}$):

$$k_{\text{kon}} = 1,43 \text{ (in LF)}$$

$$a_{\text{DIN}} = f * a_{\text{yp}} = 0,812 \text{ m/s}^2$$

Horizontal forces for trolley at rails: (with lifting load)

$$G = 959,500 \text{ kN}$$

$$n_{\text{KR}} = 4 \text{ Katzradern}$$

$$F_{\text{KH}} = G * a_{\text{yp}} / 10 = 51,91 \text{ kN}$$

$$F_{\text{KH1}} = F_{\text{KH}} / n_{\text{KR}} = \underline{\underline{12,98 \text{ kN}}}$$

Moment at rails:

$$M_y = F_{\text{KH1}} * r_2 = \underline{\underline{5,22 \text{ kNm}}}$$

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Trolley:

Buffer : Hydraulic buffer Leben SK 80 fi 75 mm

Max. buffer force $P = 290,00 \text{ kN}$
 Stroke $s = 0,60 \text{ m}$
 max. Energy per stroke $E = 155,00 \text{ kJ}$

$v_M = 120,00 \text{ m/min}$ (max. trolley speed)

$V_{kds} = v_M / 60 = 2,000 \text{ m/sec}$

- At the end of the rails, the crane speed is reduced to max 100% and that is:

$G_{TOTk} = 959,50 \text{ kN}$ (trolley + lifting load)
 $E_p = (G_{TOTk}) * V_{kds}^2 / 2 / 10 * 1,0 = 191,90 \text{ kJ}$
 $E_{p1} = E_p / 2 = 95,95 \text{ kJ}$
 $E_{p1} \leq E \Rightarrow \text{OK}$

Deceleration at buffer impact:

$a_{ypk} = V_{kds}^2 / (2 * s) = 3,333 \text{ m/s}^2$
 $a_{ypk} = 3,333 \text{ m/s}^2$

These type of loadings were taken into account through direct input of deceleration into the computer program X axis.

-in accordance with DIN 15018 for hydraulic buffers with square characteristics:

$a_{DIN} = 1.5 * a_y \Rightarrow$
 Faktor $f = \underline{1,50 \text{ (in LK)}}$
 $a_{DIN} = f * a_{ypk} = 5,000 \text{ m/s}^2$

Horizontal forces for trolleys at rail stoppers (2 off.): (with lifting load)

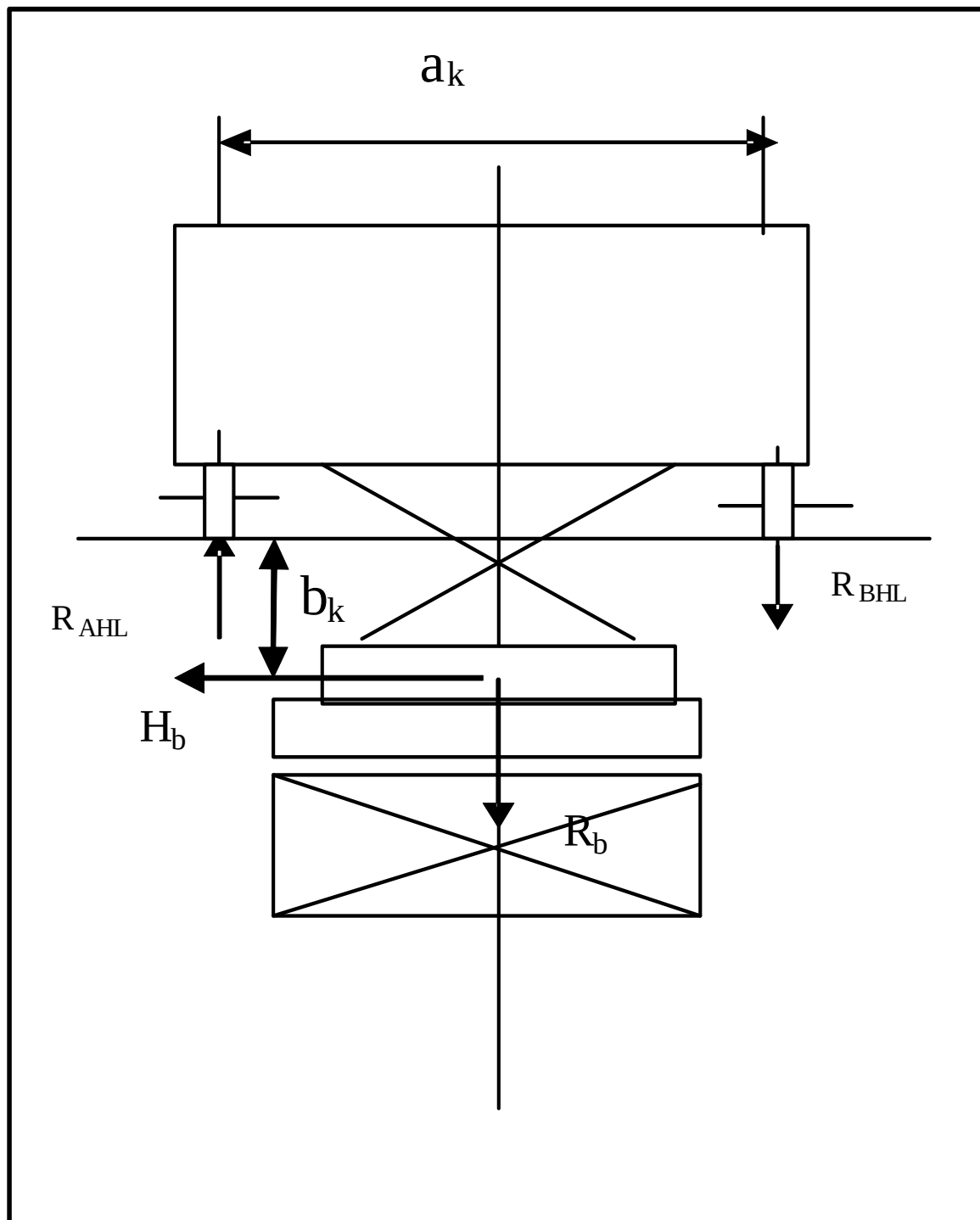
$G = 959,50 \text{ kN}$
 $F_{kH} = G * a_{ypk} / 10 = 319,80 \text{ kN}$
 $F_{kH1} = F_{kH} / 2 = 159,90 \text{ kN}$

-Load is on cable therefore only approx 50% is transferred to buffers (KUNZ):

$G = (G_{katz} + 0,50 * Q_{tot}) * 10 = 669,75 \text{ kN}$
 $F_{kH} = G * a_{ypk} / 10 = 223,23 \text{ kN}$
 $F_{kH1} = F_{kH} / 2 = \underline{111,61 \text{ kN}}$
 $F_{kH1} \leq P \Rightarrow \text{OK}$

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2.8. Trolley wheel pressures for fatigue strength due to crane movements: (centric trolley)



- Gravitation centre from trolley rails $b_k =$
- Sum of forces for fatigue strength $R_b =$

5,20 m (KUNZ-centric trolley)
95,59 t (KUNZ)

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$$F_{Hz} = m \times a_z$$

$$a_k = 3,45 \text{ m}$$

$$v_z = 80,00 \text{ m/min}$$

$$v_{zs} = 1,33 \text{ m/s}$$

$$a_y = 0,25 \text{ m/s}^2$$

-with 1,5 factor is:

$$a_{yfb} = a_y \times 1.5 = 0,38 \text{ m/s}^2$$

-Horizontal force due to crane movements is:

$$H_b = (R_b \times a_{yfb}) = 36,32 \text{ kN}$$

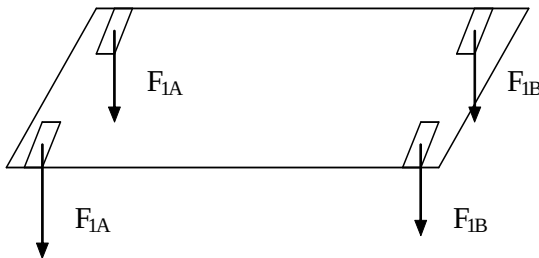
-Vertical reactions A and B are:

$$R_{AHLb} = (H_b \times b_k) / a_k = 54,74 \text{ kN}$$

$$R_{BHLb} = R_{AHLb} = 54,74 \text{ kN}$$

-for each wheel is :

$$R_{AHLb1} = R_{AHLb} / (n_{KR} / 2) = 27,37 \text{ kN}$$



- Vertical reactions for fatigue strength are:

Crane trolley -EG (φ):

$$R_{AK} = G_{katz} \times 10 / n_{KR} = \underline{\underline{95,00 \text{ kN/wheel (centric)}}$$

$$R_{BK} = R_{AK} = \underline{\underline{95,00 \text{ kN/wheel (centric)}}$$

$$M_{1A} = R_{AK} \times r_1 = \underline{\underline{0,00 \text{ kNm/wheel (centric)}}$$

$$M_{1B} = R_{BK} \times r_1 = \underline{\underline{0,00 \text{ kNm/wheel (centric)}}$$

Extra spreaders - per wheel(ψ):

$$\text{- EG for extra spreader } Q_{se} = 12,00 \text{ t}$$

$$R_{AH} = (Q_{se} + Q_{rol}) \times 10 / n_{KR} = 40,63 \text{ kN}$$

$$R_{BH} = R_{AH} = 40,63 \text{ kN}$$

Lifting load -per wheel (centric) :

$$F_{B1} = Q \times 10 / (n_{KR}) = 102,50 \text{ kN}$$

$$F_{A1} = Q \times 10 / (n_{KR}) = 102,50 \text{ kN}$$

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Reactions per wheel - together:

$$F_{1Amax'} = R_{AK} + R_{AH} + F_{A1} = 238,13 \text{ kN}$$

$$F_{1Bmax'} = R_{BK} + R_{BH} + F_{B1} = 238,13 \text{ kN}$$

Reactions per wheel - for input (lifting load 41t):

$$F_{1Amax} = R_{AH} + F_{A1} - R_{AHLb1} = \underline{\underline{115,76 \text{ kN/wheel (centric)}}$$

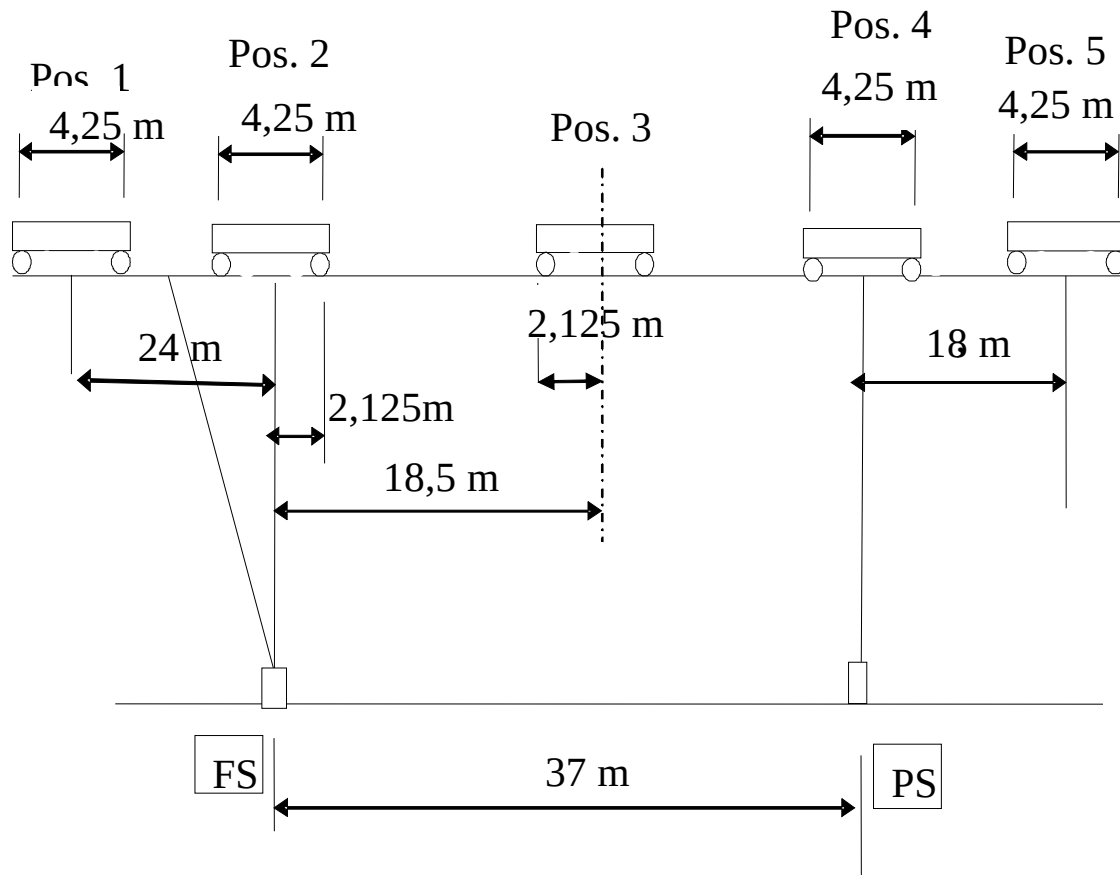
$$F_{1Bmax} = R_{BH} + F_{B1} - R_{AHLb1} = \underline{\underline{170,50 \text{ kN/wheel (centric)}}$$

$$M_{1A} = F_{1Amax} * r_1 = \underline{\underline{0,00 \text{ kNm/wheel (centric)}}$$

$$M_{1B} = F_{1Bmax} * r_1 = \underline{\underline{0,00 \text{ kNm/wheel (centric)}}$$

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3. Load cases for computer-supported calculation:



Load cases:

LF1 = LT Eigengewicht Konstruktion (ständige)
LF2 = Ausrüstung + Zutritt (ständige)

LF4 = Hublast 41t - POS 1-zentrisch
LF5 = Hublast 41t - POS 2-zentrisch
LF6 = Hublast 41t - POS 3-zentrisch
LF7 = Hublast 41t - POS 4-zentrisch
LF8 = Hublast 41t - POS 5-zentrisch

LF11 = Katze- Eigengewicht POS 1
LF12 = Katze- Eigengewicht POS 2
LF13 = Katze- Eigengewicht POS 3
LF14 = Katze- Eigengewicht POS 4
LF15 = Katze- Eigengewicht POS 5

LF18 = Katze-acceleration wegen Kranbremsung-ay POS 1
LF19 = Katze-acceleration wegen Kranbremsung-ay POS 2
LF20 = Katze-acceleration wegen Kranbremsung-ay POS 3
LF21 = Katze-acceleration wegen Kranbremsung-ay POS 4

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LF22 = Katze-acceleration wegen Kranbremsung-ay POS 5

LF25 = Kranbremsung- ay

LF26 = Katzbremsung +ax

LF27 = Katzbremsung -ax

LF28 = Massenkräfte-Kran-Antriebskräfte (Kr-H)- Verschiebung DIN aus EM+-200

LF30 = Arbeitswind in Katzfahrrichtung + Wx

LF31 = Arbeitswind in Katzfahrrichtung - Wx

LF32 = Arbeitswind in Kranfahrrichtung+ Wy

LF33 = Arbeitswind in Kranfahrrichtung - Wy

LF40 = Keine Schräglaf fuer Kran - S_{Kr} (keine alfa)

LF43 = Schräglaf fuer Katze - S_{Ka} in POS 1

LF44 = Schräglaf fuer Katze - S_{Ka} in POS 2

LF45 = Schräglaf fuer Katze - S_{Ka} in POS 3

LF46 = Schräglaf fuer Katze - S_{Ka} in POS 4

LF47 = Schräglaf fuer Katze - S_{Ka} in POS 5

LF50 = Sturmwind in Katzfahrrichtung - Wsx

LF51 = Sturmwind in Kranfahrrichtung + Wsy

LF52 = Katze in Parkposition-bei PS ohne Last

LF60 = Pufferkräfte bei Kranfahren an Krankonstruktion - Pu-Kran

LF61 = Pufferkräfte bei Kranfahren an Katze- Pu-POS 1

LF62 = Pufferkräfte bei Kranfahren an Katze - Pu-POS 2

LF63 = Pufferkräfte bei Kranfahren an Katze - Pu-POS 3

LF64 = Pufferkräfte bei Kranfahren an Katze - Pu-POS 4

LF65 = Pufferkräfte bei Kranfahren an Katze - Pu-POS 5

LF70 = Pufferkräfte bei Katzfahren + Pux

LF71 = Pufferkräfte bei Katzfahren - Pux

LF74 = Hublast 41t - POS 1-exzentrisch

LF75 = Hublast 41t - POS 2-exzentrisch

LF76 = Hublast 41t - POS 3-exzentrisch

LF77 = Hublast 41t - POS 4-exzentrisch

LF78 = Hublast 41t - POS 5-exzentrisch

LF80 = Nür Hublast 41 t Pos 1

LF81 = Nür Hublast 41 t Pos 4

LF82 = Nür Hublast 41 t Pos 5

LF84 = Massenkräfte-Kran-Bremskräfte (Kr-NOT-AUS-HS)- Verschiebung DIN aus EM

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Load case combinations :

Deadweight coefficient : $\varphi = 1,20$

Lifting load coefficient for 41 t : $\psi_1 = 1,5640$

-no synchronous running , then control on drive forces from EM in case H
(with synchronous running , then control on deformation +/- 200 mm in case H)
This crane is equipped with synchronous running device!

Loads in accordance with DIN 15018 Table 7 :

LF-KOMBINATIONEN		
LK-Nr.	LK-Bezeichnung	Kombinationskriterium
	Main loads H: $\varphi * G + \psi * P + K_r$	
1	LT+Zutritt +Hublast pos1+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF28
2	LT+Zutritt +Hublast pos2+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF19 + LF25 + LF28
3	LT+Zutritt +Hublast pos3+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF20 + LF25 + LF28
4	LT+Zutritt +Hublast pos4+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF21 + LF25 + LF28
5	LT+Zutritt +Hublast pos5+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF28
	$\varphi * G + \psi * P + K_a$	
7	LT+Zutritt +Hublast pos1+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26
8	LT+Zutritt +Hublast pos2+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF26
9	LT+Zutritt +Hublast pos3+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF26
10	LT+Zutritt +Hublast pos4+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF26
11	LT+Zutritt +Hublast pos5+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26
	$\varphi * G + \psi * P\text{-exze} + K_r$	
13	LT+Zutritt +Hublast pos1-exzen+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF74 + 1.20*LF11 + LF18 + LF25 + LF28
14	LT+Zutritt +Hublast pos2-exzen+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF75 + 1.20*LF12 + LF19 + LF25 + LF28
15	LT+Zutritt +Hublast pos3-exzen+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF76 + 1.20*LF13 + LF20 + LF25 + LF28
16	LT+Zutritt +Hublast pos4-exzen+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF77 + 1.20*LF14 + LF21 + LF25 + LF28
17	LT+Zutritt +Hublast pos5-exzen+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF78 + 1.20*LF15 + LF22 + LF25 + LF28
	Additional loads HZ $\varphi * G + \psi * P + K_r \pm W_{ix}$	
20	LT+Zutritt +Hublast pos1+EGkatze+Kr +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF31
21	LT+Zutritt +Hublast pos2+EGkatze+Kr +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF19 + LF25 + LF31
22	LT+Zutritt +Hublast pos3+EGkatze+Kr +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF20 + LF25 + LF31
23	LT+Zutritt +Hublast pos4+EGkatze+Kr +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF21 + LF25 + LF31
24	LT+Zutritt +Hublast pos5+EGkatze+Kr +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF31
26	LT+Zutritt +Hublast pos1+EGkatze+Ka +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26 + LF31

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27	LT+Zutritt +Hublast pos2+EGkatze+Ka +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF26 + LF31
28	LT+Zutritt +Hublast pos3+EGkatze+Ka +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF26 + LF31
29	LT+Zutritt +Hublast pos4+EGkatze+Ka +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF26 + LF31
30	LT+Zutritt +Hublast pos5+EGkatze+Ka +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26 + LF31
	$\phi * G + \psi * P + K_r \pm W_{iy}$	
33	LT+Zutritt +Hublast pos1+EGkatze+Kr +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF33
34	LT+Zutritt +Hublast pos2+EGkatze+Kr +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF19 + LF25 + LF33
35	LT+Zutritt +Hublast pos3+EGkatze+Kr +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF20 + LF25 + LF33
36	LT+Zutritt +Hublast pos4+EGkatze+Kr +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF21 + LF25 + LF33
37	LT+Zutritt +Hublast pos5+EGkatze+Kr +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF33
39	LT+Zutritt +Hublast pos1+EGkatze+Ka +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26 + LF33
40	LT+Zutritt +Hublast pos2+EGkatze+Ka +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF26 + LF33
41	LT+Zutritt +Hublast pos3+EGkatze+Ka +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF26 + LF33
42	LT+Zutritt +Hublast pos4+EGkatze+Ka +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF26 + LF33
43	LT+Zutritt +Hublast pos5+EGkatze+Ka +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26 + LF33
	$\phi * G + \psi * P \pm W_{iy} + S_{ka}$	
58	LT+Zutritt +Hublast pos1+EGkatze +-Wy +Ska	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF33 + LF43
59	LT+Zutritt +Hublast pos2+EGkatze +-Wy +Ska	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF33 + LF44
60	LT+Zutritt +Hublast pos3+EGkatze +-Wy +Ska	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF33 + LF45
61	LT+Zutritt +Hublast pos4+EGkatze +-Wy +Ska	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF33 + LF46
62	LT+Zutritt +Hublast pos5+EGkatze +-Wy +Ska	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF33 + LF47
	$G + P_o \pm W_{a,xy}$	
65	LT+Zutritt +Katze im Parkposition + Sturmwind -Wx	LF1/S + LF2/S + LF52 + LF50
66	LT+Zutritt +Katze im Parkposition + Sturmwind -Wy	LF1/S + LF2/S + LF52 + LF51
	Special loads HS $\phi * G + P + P_{u,kran}$	
67	LT+Zutritt +Hublast pos1+EGkatze +Puy-kran	1.20*LF1/S + 1.20*LF2/S + LF4 + 1.20*LF11 + 1.50*LF60 + 1.50*LF61
68	LT+Zutritt +Hublast pos2+EGkatze +Puy-kran	1.20*LF1/S + 1.20*LF2/S + LF5 + 1.20*LF12 + 1.50*LF60 + 1.50*LF62
69	LT+Zutritt +Hublast pos3+EGkatze +Puy-kran	1.20*LF1/S + 1.20*LF2/S + LF6 + 1.20*LF13 + 1.50*LF60 + 1.50*LF63
70	LT+Zutritt +Hublast pos4+EGkatze +Puy-kran	1.20*LF1/S + 1.20*LF2/S + LF7 + 1.20*LF14 + 1.50*LF60 +

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		1.50*LF64
71	LT+Zutritt +Hublast pos5+EGkatze +Puy-kran	1.20*LF1/S + 1.20*LF2/S + LF8 + 1.20*LF15 + 1.50*LF60 +
		1.50*LF65
	$\varphi^* G + P + P u_{katze}$	
73	LT+Zutritt +Hublast pos5+EGkatze +Pux-katze	1.20*LF1/S + 1.20*LF2/S + LF8 + 1.20*LF15 + 1.50*LF70
	$\varphi^* G + (1+\psi)/2^* P_k + K_a$	$(1+\psi)/2=(1+1,564)/2 = 1,282$ $P_k = 1,25x P$ $k = 1,25 \times 1,282 = 1,602$
75	LT+Zutritt +Prufplast-klein pos1+EGkatze +Ka	1.20*LF1/S + 1.20*LF2/S + 1.602*LF4 + 1.20*LF11 + LF26
76	LT+Zutritt +Prufplast-klein pos3+EGkatze +Ka	1.20*LF1/S + 1.20*LF2/S + 1.602*LF6 + 1.20*LF13 + LF26
77	LT+Zutritt +Prufplast-klein pos5+EGkatze +Ka	1.20*LF1/S + 1.20*LF2/S + 1.602*LF8 + 1.20*LF15 + LF26
	$G + P_g$	$P_g = 1,33 \times P$
78	LT+Zutritt +Prufplast-gross pos1+EGkatze	LF1/S + LF2/S + 1.33*LF4 + LF11
79	LT+Zutritt +Prufplast-gross pos3+EGkatze	LF1/S + LF2/S + 1.33*LF6 + LF13
80	LT+Zutritt +Prufplast-gross pos5+EGkatze	LF1/S + LF2/S + 1.33*LF8 + LF15
	EMERGENCY STOP	
82	LT+Zutritt +Hublast pos1+EGkatze+Kr+ -Wy+NOT-AUS	LF1/S + LF2/S + LF4 + LF11 + LF18 + LF25 + LF33 + LF84
83	LT+Zutritt +Hublast pos3+EGkatze+Kr+ -Wy+NOT-AUS	LF1/S + LF2/S + LF6 + LF13 + LF20 + LF25 + LF33 + LF84
84	LT+Zutritt +Hublast pos5+EGkatze+Kr+ -Wy+NOT-AUS	LF1/S + LF2/S + LF8 + LF15 + LF22 + LF25 + LF33 + LF84
	EXTRA LK	
87	LT+Zutritt -netto	LF1/S + LF2/S
88	LT+Zutritt +Hublast pos1+EGkatze -netto	LF1/S + LF2/S + LF4 + LF11
89	LT+Zutritt +Hublast pos3+EGkatze -netto	LF1/S + LF2/S + LF7 + LF13
90	LT+Zutritt +Hublast pos5+EGkatze -netto	LF1/S + LF2/S + LF8 + LF15
91	LT+Zutritt +EGkatze-pos 1	1.20*LF1/S + 1.20*LF2/S + 1.20*LF11
92	LT+Zutritt +EGkatze-pos 3	1.20*LF1/S + 1.20*LF2/S + 1.20*LF13
93	LT+Zutritt +EGkatze-pos 5	1.20*LF1/S + 1.20*LF2/S + 1.20*LF15
94	LT+Zutritt +EGkatze-pos 1-netto	LF1/S + LF2/S + LF11
95	LT+Zutritt +EGkatze-pos 3-netto	LF1/S + LF2/S + LF13
96	LT+Zutritt +EGkatze-pos 5-netto	LF1/S + LF2/S + LF15
	EXTREM MAX/MIN	
97	EXTREM MAX/MIN Fall H	1.50*LK1 o 1.50*LK2 o 1.50*LK3 o 1.50*LK4 o 1.50*LK5 o 1.50*LK6 o 1.50*LK7 o 1.50*LK8 o 1.50*LK9 o 1.50*LK10 o
		1.50*LK11 o 1.50*LK12 o 1.50*LK13 o 1.50*LK14 o 1.50*LK15 o 1.50*LK16 o 1.50*LK17
98	EXTREM MAX/MIN Fall HZ	1.35*LK20 o 1.35*LK21 o 1.35*LK22 o 1.35*LK23 o 1.35*LK24
		o 1.35*LK25 o 1.35*LK26 o 1.35*LK27 o 1.35*LK28 o
		1.35*LK29 o 1.35*LK30 o 1.35*LK31 o 1.35*LK33 o
		1.35*LK34 o 1.35*LK35 o 1.35*LK36 o 1.35*LK37 o
		1.35*LK38 o 1.35*LK39 o 1.35*LK40 o 1.35*LK41 o 1.35*LK42 o 1.35*LK43 o 1.35*LK48 o
		1.35*LK59 o 1.35*LK60 o 1.35*LK61 o 1.35*LK62 o
		1.35*LK63 o 1.35*LK65 o 1.35*LK66
99	EXTREM MAX/MIN Fall HS	1.10*LK67 o 1.10*LK68 o 1.10*LK69 o 1.10*LK70 o 1.10*LK71
		o 1.10*LK72 o 1.10*LK73 o 1.10*LK75 o 1.10*LK76 o

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		1.10*LK77 o 1.10*LK78 o 1.10*LK79 o 1.10*LK80 o 1.10*LK82 o 1.10*LK83 o 1.10*LK84

The following pages contain the computer printout of loads occurring during individual load cases in addition to the standard data necessary for computer-supported calculations (construction supports, materials, static cross-section values etc...).

The computer printout of results for computer-supported calculation is attached.

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STATIC CALCULATION

CONSTRUCTION PROJECT

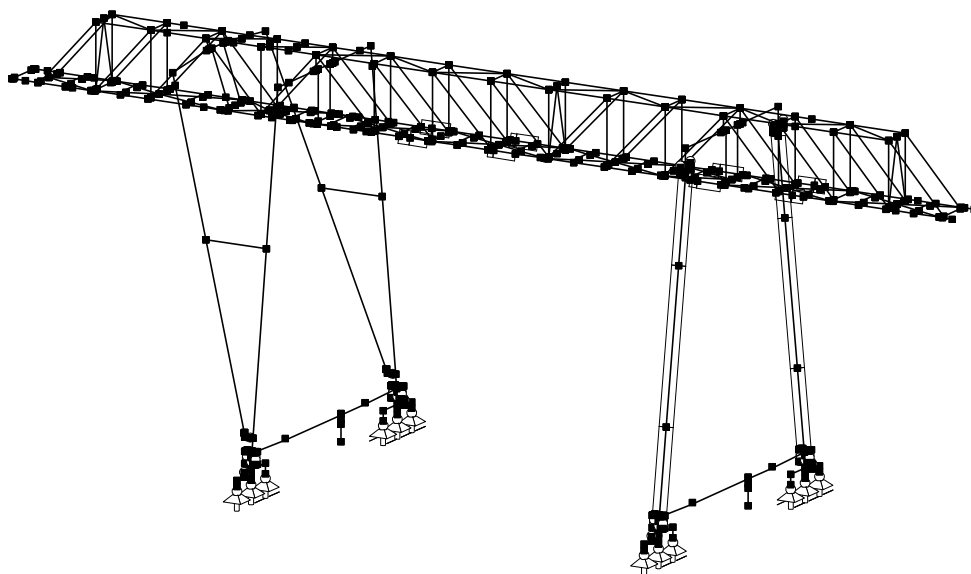
Containercrane CTK 41t x (24 + 37 + 18) m
VENLO - ECT DELTA Terminal

CLIENT

VENLO - ECT DELTA Terminal
HOLLAND

STRUCTURAL ENGINEER

KUNZ



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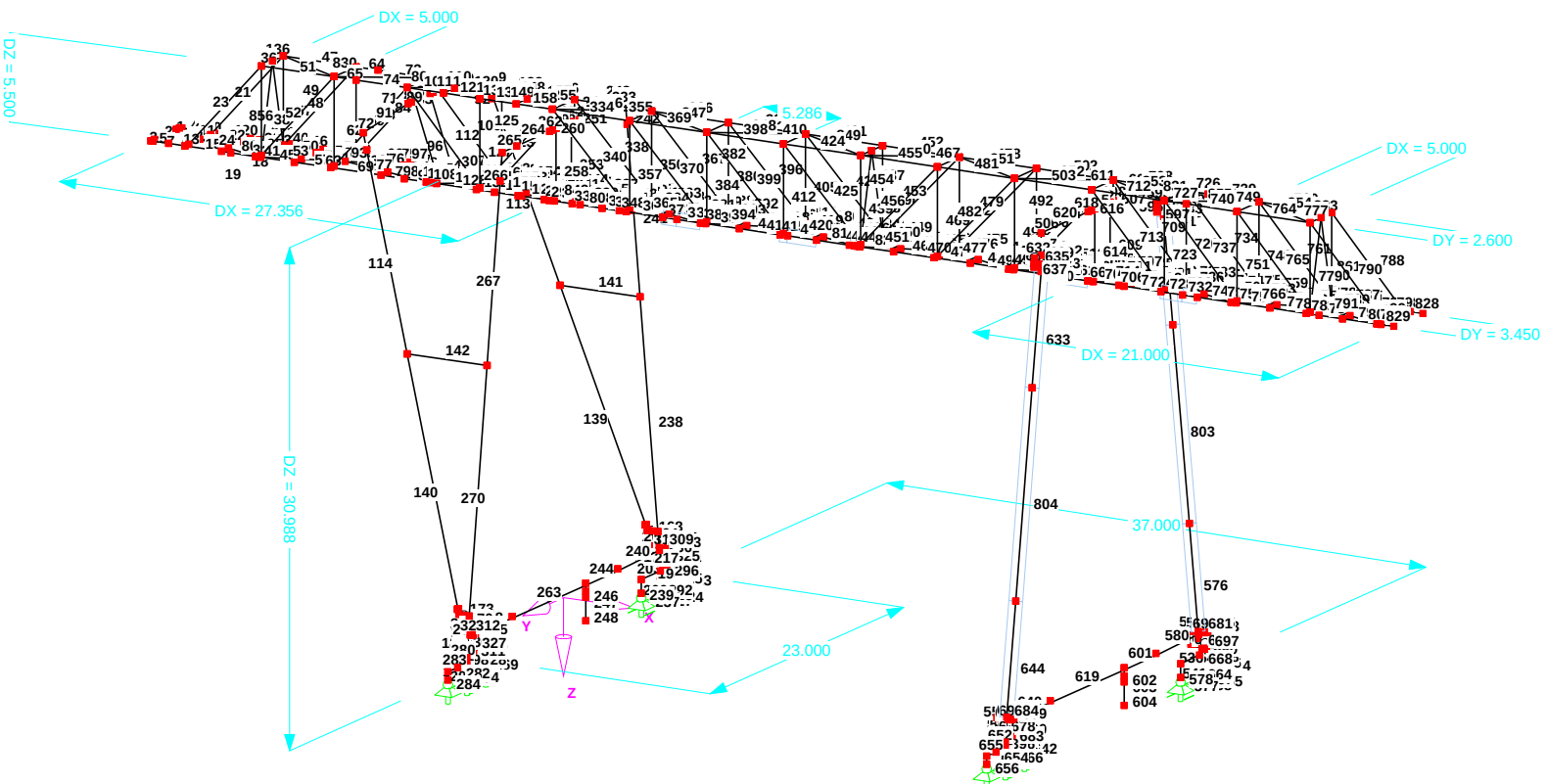
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STRUCTURAL DATA

Element Numbering

Isometric



Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

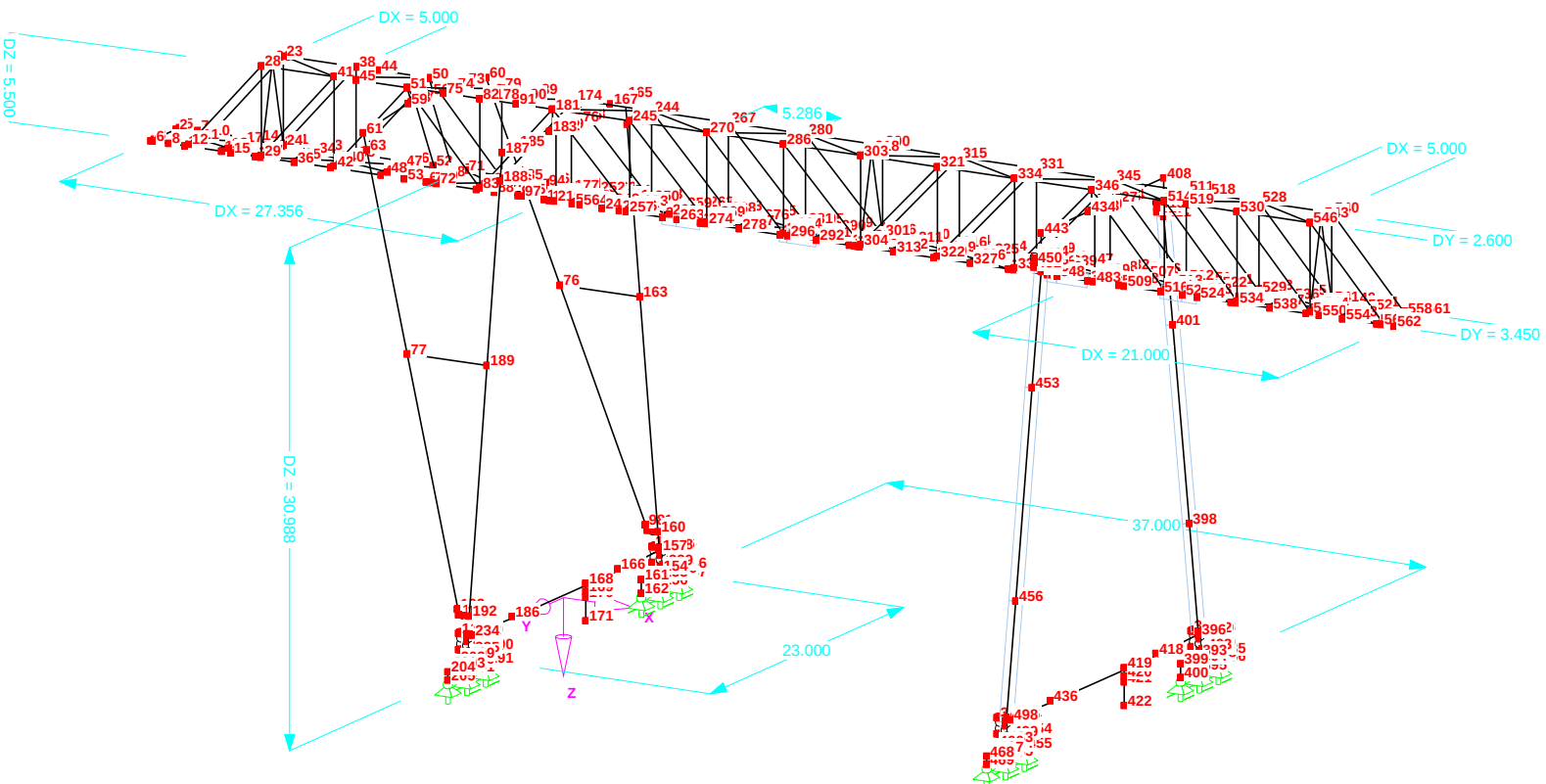
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STRUCTURAL DATA

Node Numbering

Isometric



Project: VENLO

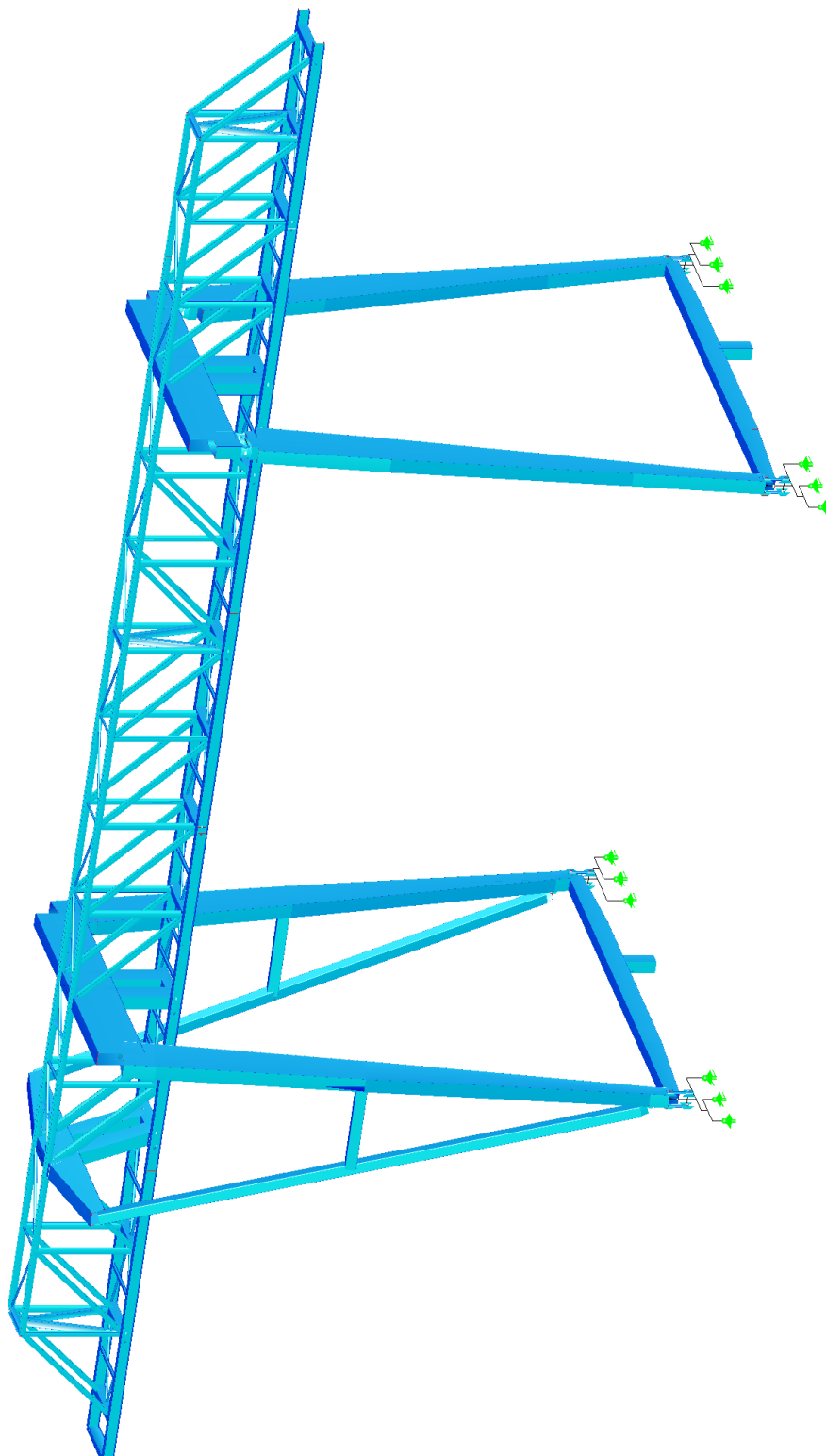
Position: CTK 41 T x (24+37+18)m-M

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STRUCTURAL DATA

Isometric



Project: VENLO

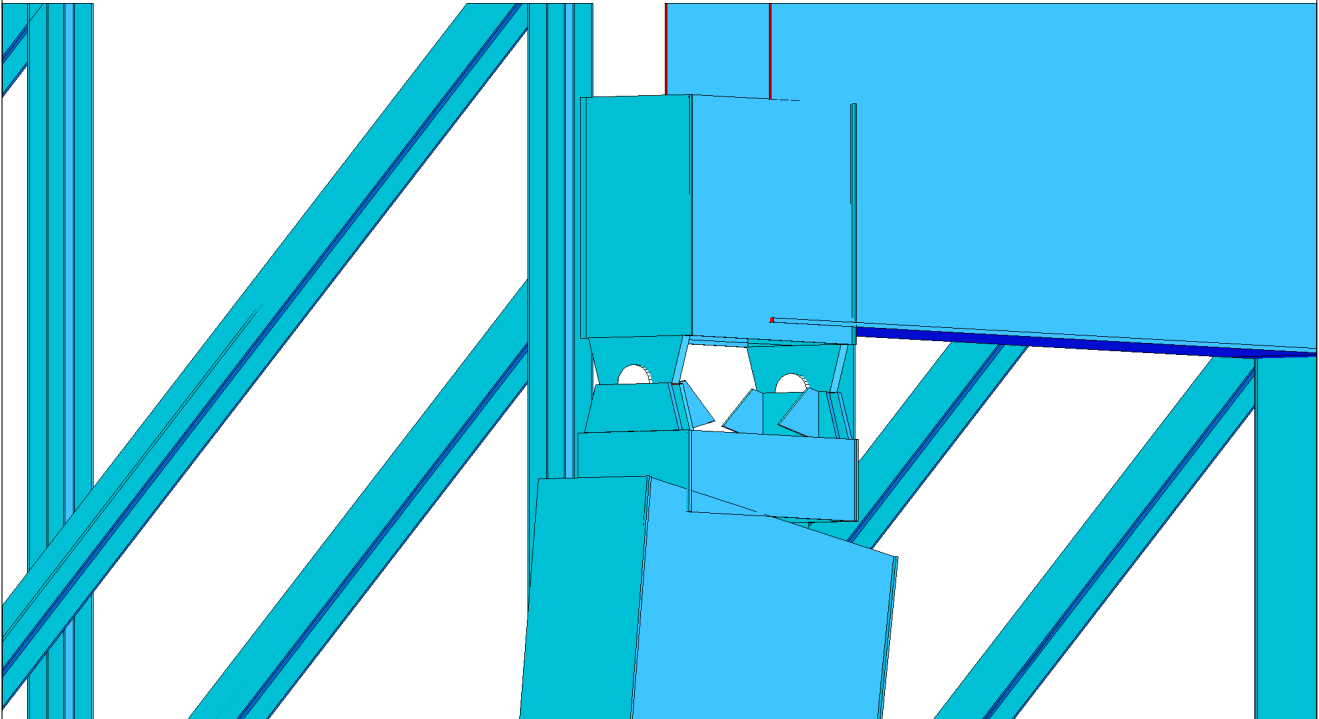
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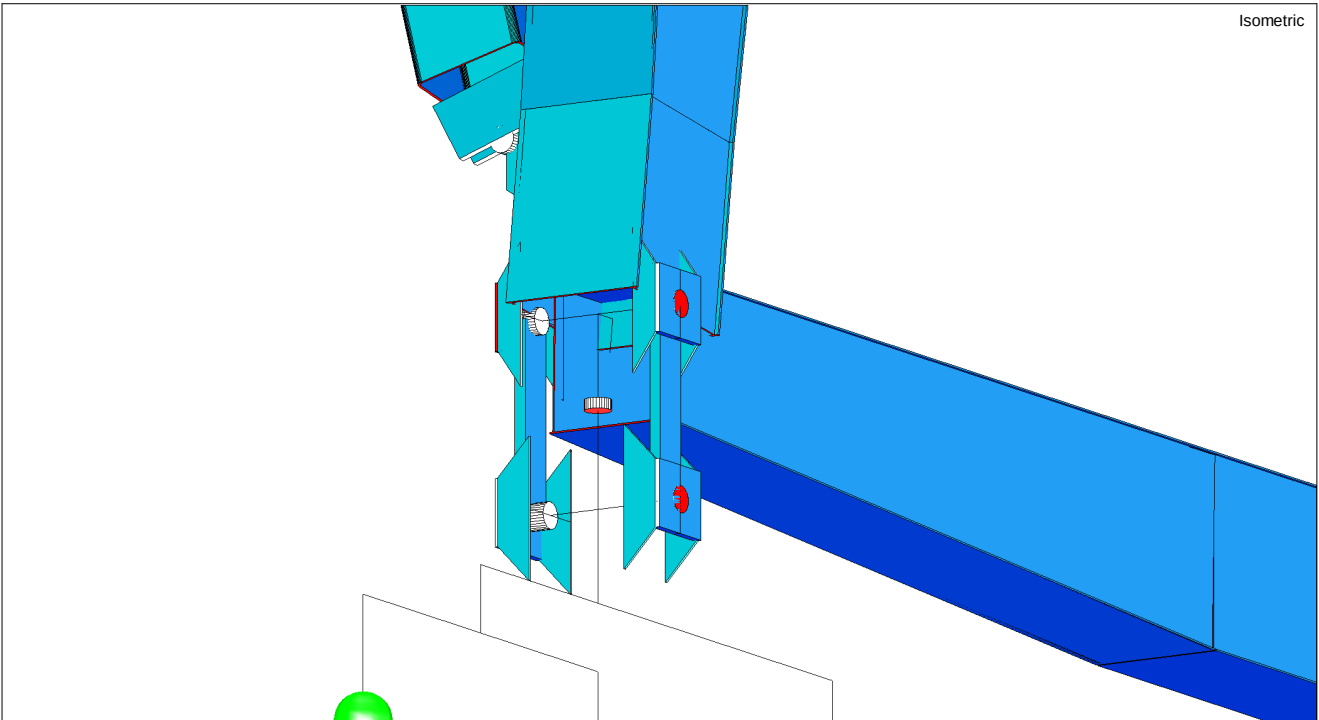
STRUCTURAL DATA

Isometric



STRUCTURAL DATA

Isometric



GENERAL DATA

COMPUTING METHOD

- ☒ Structural Analysis
- ☐ Stress Analysis
- ☒ Dynamic Analysis

- ☒ Load Cases
- ☐ Load Groups

- ☒ 1st Order Analysis
- ☐ 2nd Order Analysis
- ☐ Cable Theory

- ☒ Design Cases
- ☒ Dynamic Cases

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GENERAL DATA

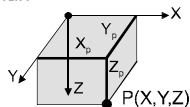
☒ Load Combinations ☐ Buckling Curves

STRUCTURAL DATA PARAMETERS

☐ 1D Continuous Beam	556 Nodes	811 Elements
☐ 2D Construction Type	2 Materials	0 Cables
☒ 3D Construction Type	73 Sections	69 Tapered Elements
☐ Grid	5 Element Hinges	0 Elastic Foundations
	0 Element Partitions	10 Sets of Elements

STRUCTURE

Cartesian



NODES

Node No	Coordinates-System	Ref Nodes	Node Coordinates		
			X [m]	Y [m]	Z [m]
1	Cartesian	-	-27.356	-1.725	-24.868
2	Cartesian	-	-27.356	-1.300	-24.868
3	Cartesian	-	-27.356	1.300	-24.868
4	Cartesian	-	-27.356	1.725	-24.868
5	Cartesian	-	-27.206	-1.725	-24.868
6	Cartesian	-	-27.206	1.725	-24.868
7	Cartesian	-	-26.125	-1.725	-24.868
8	Cartesian	-	-26.125	1.725	-24.868
9	Cartesian	-	-25.000	-1.725	-24.868
10	Cartesian	-	-25.000	-1.300	-24.868
11	Cartesian	-	-25.000	0.000	-24.868
12	Cartesian	-	-25.000	1.300	-24.868
13	Cartesian	-	-25.000	1.725	-24.868
14	Cartesian	-	-21.875	-1.725	-24.868
15	Cartesian	-	-21.875	1.725	-24.868
16	Cartesian	-	-22.500	-1.725	-24.868
17	Cartesian	-	-22.500	-0.894	-24.868
18	Cartesian	-	-22.500	0.894	-24.868
19	Cartesian	-	-22.500	1.725	-24.868
20	Cartesian	-	-20.175	-1.725	-24.868
21	Cartesian	-	-20.175	1.725	-24.868
22	Cartesian	-	-20.000	-1.725	-24.868
23	Cartesian	-	-20.000	-1.300	-30.368
24	Cartesian	-	-20.000	-1.300	-24.868
25	Cartesian	-	-20.000	-1.081	-24.868
26	Cartesian	-	-20.000	0.000	-30.368
27	Cartesian	-	-20.000	1.081	-24.868
28	Cartesian	-	-20.000	1.300	-30.368
29	Cartesian	-	-20.000	1.300	-24.868
30	Cartesian	-	-20.000	1.725	-24.868
31	Cartesian	-	-19.825	-1.725	-24.868
32	Cartesian	-	-19.825	1.725	-24.868
33	Cartesian	-	-17.500	-1.725	-24.868
34	Cartesian	-	-17.500	-0.894	-24.868
35	Cartesian	-	-17.500	0.894	-24.868
36	Cartesian	-	-17.500	1.725	-24.868
37	Cartesian	-	-15.000	-1.725	-24.868
38	Cartesian	-	-15.000	-1.300	-30.368
39	Cartesian	-	-15.000	-1.300	-24.868
40	Cartesian	-	-15.000	0.000	-24.868
41	Cartesian	-	-15.000	1.300	-30.368
42	Cartesian	-	-15.000	1.300	-24.868
43	Cartesian	-	-15.000	1.725	-24.868
44	Cartesian	-	-13.500	-1.300	-30.368
45	Cartesian	-	-13.500	1.300	-30.368
46	Cartesian	-	-11.546	-1.725	-24.868
47	Cartesian	-	-11.546	-0.909	-24.868
48	Cartesian	-	-11.546	0.909	-24.868
49	Cartesian	-	-11.546	1.725	-24.868
50	Cartesian	-	-10.000	-1.300	-30.368
51	Cartesian	-	-10.000	1.300	-30.368
52	Cartesian	-	-9.946	-1.725	-24.868
53	Cartesian	-	-9.946	1.725	-24.868
54	Cartesian	-	-9.705	-1.700	-29.518
55	Cartesian	-	-9.705	-1.300	-29.518
56	Cartesian	-	-9.705	-0.917	-29.518
57	Cartesian	-	-9.705	0.917	-29.518
58	Cartesian	-	-9.705	1.300	-29.518
59	Cartesian	-	-9.705	1.700	-29.518
60	Cartesian	-	-9.540	-7.300	-29.043
61	Cartesian	-	-9.540	7.300	-29.043
62	Cartesian	-	-9.223	-7.440	-28.054
63	Cartesian	-	-9.223	7.440	-28.054
64	Cartesian	-	-8.447	-1.725	-24.868
65	Cartesian	-	-8.447	1.725	-24.868
66	Cartesian	-	-8.092	-1.725	-24.868
67	Cartesian	-	-8.092	-0.917	-24.868
68	Cartesian	-	-8.092	0.000	-24.868
69	Cartesian	-	-8.092	0.917	-24.868
70	Cartesian	-	-8.092	1.725	-24.868
71	Cartesian	-	-7.737	-1.725	-24.868
72	Cartesian	-	-7.737	1.725	-24.868
73	Cartesian	-	-7.500	-1.300	-30.368
74	Cartesian	-	-7.500	0.000	-30.368
75	Cartesian	-	-7.500	1.300	-30.368
76	Cartesian	-	-5.489	-9.092	-16.390
77	Cartesian	-	-5.489	9.092	-16.390
78	Cartesian	-	-5.000	-1.725	-24.868

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NODES

Node No	Coordinates-System	Ref Nodes	X [m]	Node Coordinates Y [m]	Z [m]
79	Cartesian	-	-5.000	-1.300	-30.368
80	Cartesian	-	-5.000	-1.300	-24.868
81	Cartesian	-	-5.000	0.000	-24.868
82	Cartesian	-	-5.000	1.300	-30.368
83	Cartesian	-	-5.000	1.300	-24.868
84	Cartesian	-	-5.000	1.725	-24.868
85	Cartesian	-	-3.751	-1.725	-24.868
86	Cartesian	-	-3.751	-0.464	-24.868
87	Cartesian	-	-3.751	0.464	-24.868
88	Cartesian	-	-3.751	1.725	-24.868
89	Cartesian	-	-2.500	-1.300	-30.368
90	Cartesian	-	-2.500	0.000	-30.368
91	Cartesian	-	-2.500	1.300	-30.368
92	Cartesian	-	-2.125	-1.725	-24.868
93	Cartesian	-	-2.125	1.725	-24.868
94	Cartesian	-	-1.903	-1.150	-24.868
95	Cartesian	-	-1.903	1.150	-24.868
96	Cartesian	-	-1.903	-1.725	-24.868
97	Cartesian	-	-1.903	1.725	-24.868
98	Cartesian	-	-0.813	-1.161	-1.787
99	Cartesian	-	-0.813	1.161	-1.787
100	Cartesian	-	-0.813	-1.229	-1.787
101	Cartesian	-	-0.813	-11.094	-1.787
102	Cartesian	-	-0.813	11.094	-1.787
103	Cartesian	-	-0.813	11.229	-1.787
104	Cartesian	-	-0.700	-11.284	-1.460
105	Cartesian	-	-0.700	-11.217	-1.460
106	Cartesian	-	-0.700	-11.149	-1.460
107	Cartesian	-	-0.700	11.149	-1.460
108	Cartesian	-	-0.700	11.217	-1.460
109	Cartesian	-	-0.700	11.284	-1.460
110	Cartesian	-	-0.490	-11.500	-0.450
111	Cartesian	-	-0.490	-11.500	0.550
112	Cartesian	-	-0.490	11.500	-0.450
113	Cartesian	-	-0.490	11.500	0.550
114	Cartesian	-	-0.465	-11.698	-0.450
115	Cartesian	-	-0.465	-11.698	0.550
116	Cartesian	-	-0.465	-11.500	-0.450
117	Cartesian	-	-0.465	-11.500	0.550
118	Cartesian	-	-0.465	-11.302	-0.450
119	Cartesian	-	-0.465	-11.302	0.550
120	Cartesian	-	-0.465	11.302	-0.450
121	Cartesian	-	-0.465	11.302	0.550
122	Cartesian	-	-0.465	11.500	-0.450
123	Cartesian	-	-0.465	11.500	0.550
124	Cartesian	-	-0.465	11.698	-0.450
125	Cartesian	-	-0.465	11.698	0.550
126	Cartesian	-	-0.397	-11.500	-0.450
127	Cartesian	-	-0.397	-11.500	0.550
128	Cartesian	-	-0.397	11.500	-0.450
129	Cartesian	-	-0.397	11.500	0.550
130	Cartesian	-	-0.355	-1.725	-24.868
131	Cartesian	-	-0.355	1.725	-24.868
132	Cartesian	-	-0.350	-11.217	-1.460
133	Cartesian	-	-0.350	11.217	-1.460
134	Cartesian	-	-0.330	-11.698	-0.450
135	Cartesian	-	-0.330	-11.500	-0.450
136	Cartesian	-	-0.330	-11.302	-0.450
137	Cartesian	-	-0.330	11.302	-0.450
138	Cartesian	-	-0.330	11.500	-0.450
139	Cartesian	-	-0.330	11.698	-0.450
140	Cartesian	-	-0.280	-11.698	0.550
141	Cartesian	-	-0.280	-11.500	0.550
142	Cartesian	-	-0.280	-11.302	0.550
143	Cartesian	-	-0.280	11.302	0.550
144	Cartesian	-	-0.280	11.500	0.550
145	Cartesian	-	-0.280	11.698	0.550
146	Cartesian	-	0.000	-13.750	1.380
147	Cartesian	-	0.000	-13.750	1.880
148	Gelagert	-	0.000	-12.625	1.030
149	Cartesian	-	0.000	-12.625	1.380
150	Cartesian	-	0.000	-11.500	-0.450
151	Cartesian	-	0.000	-11.500	-0.010
152	Cartesian	-	0.000	-11.500	0.045
153	Cartesian	-	0.000	-11.500	0.550
154	Cartesian	-	0.000	-11.500	1.030
155	Cartesian	-	0.000	-11.500	1.380
156	Cartesian	-	0.000	-11.500	1.880
157	Gelagert	-	0.000	-11.384	-0.271
158	Cartesian	-	0.000	-11.359	-0.450
159	Cartesian	-	0.000	-11.354	-0.450
160	Cartesian	-	0.000	-11.217	-1.460
161	Cartesian	-	0.000	-9.250	1.030
162	Cartesian	-	0.000	-9.250	1.880
163	Gelagert	-	0.000	-9.099	-16.410
164	Cartesian	-	0.000	-7.542	-27.400
165	Cartesian	-	0.000	-7.300	-29.108
166	Cartesian	-	0.000	-6.419	-0.271

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NODES

Node No	Coordinates-System	Ref Nodes	X [m]	Node Coordinates Y [m]	Z [m]
167	Cartesian	-	0.000	-5.580	-29.108
168	Cartesian	-	0.000	-2.625	-0.271
169	Cartesian	-	0.000	-2.625	0.229
170	Cartesian	-	0.000	-2.625	0.599
171	Cartesian	-	0.000	-2.625	2.041
172	Cartesian	-	0.000	-1.725	-24.868
173	Cartesian	-	0.000	-1.700	-29.108
174	Cartesian	-	0.000	-1.300	-30.368
175	Cartesian	-	0.000	-1.300	-29.108
176	Cartesian	-	0.000	-0.917	-29.108
177	Cartesian	-	0.000	-0.917	-24.868
178	Cartesian	-	-4.379	0.977	-30.368
179	Cartesian	-	0.000	0.917	-29.108
180	Cartesian	-	0.000	0.917	-24.868
181	Cartesian	-	0.000	1.300	-30.368
182	Cartesian	-	0.000	1.300	-29.108
183	Cartesian	-	0.000	1.700	-29.108
184	Cartesian	-	0.000	1.725	-24.868
185	Cartesian	-	0.000	5.580	-29.108
186	Cartesian	-	0.000	6.142	-0.271
187	Cartesian	-	0.000	7.300	-29.108
188	Cartesian	-	0.000	7.542	-27.400
189	Cartesian	-	0.000	9.099	-16.410
190	Cartesian	-	0.000	9.250	1.030
191	Cartesian	-	0.000	9.250	1.880
192	Gelagert	-	0.000	11.217	-1.460
193	Cartesian	-	0.000	11.359	-0.450
194	Cartesian	-	0.000	11.384	-0.271
195	Cartesian	-	0.000	11.500	-0.450
196	Cartesian	-	0.000	11.500	-0.010
197	Cartesian	-	0.000	11.500	0.045
198	Cartesian	-	0.000	11.500	0.550
199	Cartesian	-	0.000	11.500	1.030
200	Cartesian	-	0.000	11.500	1.380
201	Cartesian	-	0.000	11.500	1.880
202	Gelagert	-	0.000	12.625	1.030
203	Cartesian	-	0.000	12.625	1.380
204	Cartesian	-	0.000	13.750	1.380
205	Cartesian	-	0.000	13.750	1.880
206	Gelagert	-	0.280	-11.698	0.550
207	Cartesian	-	0.280	-11.500	0.550
208	Cartesian	-	0.280	-11.302	0.550
209	Cartesian	-	0.280	11.302	0.550
210	Cartesian	-	0.280	11.500	0.550
211	Cartesian	-	0.280	11.698	0.550
212	Cartesian	-	0.330	-11.698	-0.450
213	Cartesian	-	0.330	-11.500	-0.450
214	Cartesian	-	0.330	-11.302	-0.450
215	Cartesian	-	0.330	11.302	-0.450
216	Cartesian	-	0.330	11.500	-0.450
217	Cartesian	-	0.330	11.698	-0.450
218	Cartesian	-	0.355	-1.725	-24.868
219	Cartesian	-	0.355	1.725	-24.868
220	Cartesian	-	0.398	-11.500	-0.450
221	Cartesian	-	0.398	-11.500	0.550
222	Cartesian	-	0.398	11.500	-0.450
223	Cartesian	-	0.398	11.500	0.550
224	Cartesian	-	0.465	-11.698	-0.450
225	Cartesian	-	0.465	-11.698	0.550
226	Cartesian	-	0.465	-11.500	-0.450
227	Cartesian	-	0.465	-11.500	0.550
228	Cartesian	-	0.465	-11.302	-0.450
229	Cartesian	-	0.465	-11.302	0.550
230	Cartesian	-	0.465	11.302	-0.450
231	Cartesian	-	0.465	11.302	0.550
232	Cartesian	-	0.465	11.500	-0.450
233	Cartesian	-	0.465	11.500	0.550
234	Cartesian	-	0.465	11.698	-0.450
235	Cartesian	-	0.465	11.698	0.550
236	Cartesian	-	0.490	-11.500	-0.450
237	Cartesian	-	0.490	-11.500	0.550
238	Cartesian	-	0.490	11.500	-0.450
239	Cartesian	-	0.490	11.500	0.550
240	Cartesian	-	3.642	-1.725	-24.868
241	Cartesian	-	3.642	-0.575	-24.868
242	Cartesian	-	3.642	0.575	-24.868
243	Cartesian	-	3.642	1.725	-24.868
244	Cartesian	-	5.285	-1.300	-30.368
245	Cartesian	-	5.285	1.300	-30.368
246	Cartesian	-	4.825	-1.725	-24.868
247	Cartesian	-	4.825	1.725	-24.868
248	Cartesian	-	5.285	-1.725	-24.868
249	Cartesian	-	1.586	1.294	-24.868
250	Cartesian	-	5.285	-1.300	-24.868
251	Cartesian	-	5.285	-1.081	-24.868
252	Cartesian	-	1.586	-1.294	-24.868
253	Cartesian	-	5.285	0.000	-24.868
254	Cartesian	-	5.285	1.081	-24.868

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NODES

Node No	Coordinates-System	Ref Nodes	X [m]	Node Coordinates Y [m]	Z [m]
256	Cartesian	-	5.285	1.300	-24.868
257	Cartesian	-	5.285	1.725	-24.868
258	Cartesian	-	7.785	-1.725	-24.868
259	Cartesian	-	7.785	-0.894	-24.868
260	Cartesian	-	7.785	0.894	-24.868
261	Cartesian	-	7.785	1.725	-24.868
262	Cartesian	-	8.785	-1.725	-24.868
263	Cartesian	-	8.785	1.725	-24.868
264	Cartesian	-	10.396	-1.725	-24.868
265	Cartesian	-	10.396	1.725	-24.868
266	Cartesian	-	10.571	-1.725	-24.868
267	Cartesian	-	10.571	-1.300	-30.368
268	Cartesian	-	10.571	-1.300	-24.868
269	Cartesian	-	10.571	0.000	-24.868
270	Cartesian	-	10.571	1.300	-30.368
271	Cartesian	-	10.571	1.300	-24.868
272	Cartesian	-	10.571	1.725	-24.868
273	Cartesian	-	10.747	-1.725	-24.868
274	Cartesian	-	10.747	1.725	-24.868
275	Cartesian	-	13.071	-1.725	-24.868
276	Cartesian	-	13.071	-0.894	-24.868
277	Cartesian	-	13.071	0.894	-24.868
278	Cartesian	-	13.071	1.725	-24.868
279	Cartesian	-	15.857	-1.725	-24.868
280	Cartesian	-	15.857	-1.300	-30.368
281	Cartesian	-	15.857	-1.300	-24.868
282	Cartesian	-	15.857	-1.081	-24.868
284	Cartesian	-	15.857	0.000	-24.868
285	Cartesian	-	15.857	1.081	-24.868
286	Cartesian	-	15.857	1.300	-30.368
287	Cartesian	-	15.857	1.300	-24.868
288	Cartesian	-	15.857	1.725	-24.868
289	Cartesian	-	18.356	-1.725	-24.868
290	Cartesian	-	18.356	-0.894	-24.868
291	Cartesian	-	18.356	0.894	-24.868
292	Cartesian	-	18.356	1.725	-24.868
295	Cartesian	-	16.375	-1.725	-24.868
296	Cartesian	-	16.375	1.725	-24.868
297	Cartesian	-	20.968	-1.725	-24.868
298	Cartesian	-	20.968	1.725	-24.868
299	Cartesian	-	21.142	-1.725	-24.868
300	Cartesian	-	21.142	-1.300	-30.368
301	Cartesian	-	21.142	-1.300	-24.868
302	Cartesian	-	21.142	0.000	-24.868
303	Cartesian	-	21.142	1.300	-30.368
304	Cartesian	-	21.142	1.300	-24.868
305	Cartesian	-	21.142	1.725	-24.868
306	Cartesian	-	21.317	-1.725	-24.868
307	Cartesian	-	21.317	1.725	-24.868
308	Cartesian	-	20.625	-1.725	-24.868
309	Cartesian	-	20.625	1.725	-24.868
310	Cartesian	-	23.642	-1.725	-24.868
311	Cartesian	-	23.642	-0.894	-24.868
312	Cartesian	-	23.642	0.894	-24.868
313	Cartesian	-	23.642	1.725	-24.868
314	Cartesian	-	26.428	-1.725	-24.868
315	Cartesian	-	26.428	-1.300	-30.368
316	Cartesian	-	26.428	-1.300	-24.868
317	Cartesian	-	26.428	-1.081	-24.868
318	Cartesian	-	21.142	0.000	-30.368
319	Cartesian	-	26.428	0.000	-24.868
320	Cartesian	-	26.428	1.081	-24.868
321	Cartesian	-	26.428	1.300	-30.368
322	Cartesian	-	26.428	1.300	-24.868
323	Cartesian	-	26.428	1.725	-24.868
324	Cartesian	-	28.928	-1.725	-24.868
325	Cartesian	-	28.928	-0.802	-24.868
326	Cartesian	-	28.928	0.802	-24.868
327	Cartesian	-	28.928	1.725	-24.868
328	Cartesian	-	31.538	-1.725	-24.868
329	Cartesian	-	31.538	1.725	-24.868
330	Cartesian	-	31.714	-1.725	-24.868
331	Cartesian	-	31.714	-1.300	-30.368
332	Cartesian	-	31.714	-1.300	-24.868
333	Cartesian	-	31.714	0.000	-24.868
334	Cartesian	-	31.714	1.300	-30.368
335	Cartesian	-	31.714	1.300	-24.868
336	Cartesian	-	31.714	1.725	-24.868
337	Cartesian	-	31.888	-1.725	-24.868
338	Cartesian	-	31.888	1.725	-24.868
339	Cartesian	-	34.213	-0.894	-24.868
340	Cartesian	-	34.213	0.894	-24.868
341	Cartesian	-	34.213	-1.725	-24.868
344	Cartesian	-	34.213	1.725	-24.868
345	Cartesian	-	36.999	-1.300	-30.368
346	Cartesian	-	36.999	1.300	-30.368
347	Cartesian	-	34.874	-1.725	-24.868
348	Cartesian	-	34.874	1.725	-24.868
349	Cartesian	-	36.509	-11.533	-0.215
350	Cartesian	-	36.509	-11.533	0.785
351	Cartesian	-	36.509	11.533	-0.215

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NODES

Node No	Coordinates-System	Ref Nodes	X [m]	Node Coordinates Y [m]	Z [m]
352	Cartesian	-	36.509	11.533	0.785
353	Cartesian	-	36.534	-11.731	-0.215
354	Cartesian	-	36.534	-11.731	0.785
355	Cartesian	-	36.534	-11.533	-0.215
356	Cartesian	-	36.534	-11.533	0.785
357	Cartesian	-	36.534	-11.335	-0.215
358	Cartesian	-	36.534	-11.335	0.785
359	Cartesian	-	36.534	11.335	-0.215
360	Cartesian	-	36.534	11.335	0.785
361	Cartesian	-	36.534	11.533	-0.215
362	Cartesian	-	36.534	11.533	0.785
363	Cartesian	-	36.534	11.731	-0.215
364	Cartesian	-	36.534	11.731	0.785
365	Cartesian	-	36.602	-11.533	-0.215
366	Cartesian	-	36.602	-11.533	0.785
367	Cartesian	-	36.602	11.533	-0.215
368	Cartesian	-	36.602	11.533	0.785
369	Cartesian	-	36.999	-1.725	-24.868
370	Cartesian	-	36.999	1.725	-24.868
371	Cartesian	-	36.669	-11.731	-0.215
372	Cartesian	-	36.669	-11.533	-0.215
373	Cartesian	-	36.669	-11.335	-0.215
374	Cartesian	-	36.669	11.335	-0.215
375	Cartesian	-	36.669	11.533	-0.215
376	Cartesian	-	36.669	11.731	-0.215
377	Cartesian	-	36.719	-11.731	0.785
378	Cartesian	-	36.719	-11.533	0.785
379	Cartesian	-	36.719	-11.335	0.785
380	Cartesian	-	36.719	11.335	0.785
381	Cartesian	-	36.719	11.533	0.785
382	Cartesian	-	36.719	11.731	0.785
385	Cartesian	-	36.999	-13.783	1.615
386	Cartesian	-	36.999	-13.783	2.115
387	Gelagert Cartesian	-	36.999	-12.658	1.265
388	Cartesian	-	36.999	-12.658	1.615
389	Cartesian	-	36.999	-11.533	-0.215
390	Cartesian	-	36.999	-11.533	0.225
391	Cartesian	-	36.999	-11.533	0.280
392	Cartesian	-	36.999	-11.533	0.785
393	Cartesian	-	36.999	-11.533	1.265
394	Cartesian	-	36.999	-11.533	1.615
395	Cartesian	-	36.999	-11.533	2.115
396	Gelagert Cartesian	-	36.999	-11.417	-0.036
397	Cartesian	-	36.999	-11.392	-0.215
398	Cartesian	-	36.999	-10.324	-7.133
399	Cartesian	-	36.999	-9.283	1.265
400	Cartesian	-	36.999	-9.283	2.115
401	Gelagert Cartesian	-	36.999	-8.367	-19.815
402	Cartesian	-	36.999	-8.142	-27.468
403	Cartesian	-	36.999	-8.142	-27.198
404	Cartesian	-	36.999	-8.085	-27.738
405	Cartesian	-	36.999	-8.085	-27.468
406	Cartesian	-	36.999	-8.021	-27.468
407	Cartesian	-	36.999	-8.021	-27.198
408	Cartesian	-	36.999	-7.300	-29.108
409	Cartesian	-	36.999	-7.300	-27.738
410	Cartesian	-	36.999	-7.300	-27.198
411	Cartesian	-	36.999	-7.300	-26.733
412	Cartesian	-	36.999	-6.579	-27.468
413	Cartesian	-	36.999	-6.579	-27.198
414	Cartesian	-	36.999	-6.515	-27.738
415	Cartesian	-	36.999	-6.515	-27.468
416	Cartesian	-	36.999	-6.457	-27.468
417	Cartesian	-	36.999	-6.457	-27.198
418	Cartesian	-	36.999	-6.364	-0.036
419	Cartesian	-	36.999	-2.570	-0.036
420	Cartesian	-	36.999	-2.570	0.464
421	Cartesian	-	36.999	-2.570	0.834
422	Cartesian	-	36.999	-2.570	2.276
424	Cartesian	-	36.999	-1.700	-29.108
426	Cartesian	-	36.999	-1.300	-29.108
427	Cartesian	-	36.999	-0.917	-29.108
428	Cartesian	-	36.999	-0.917	-24.868
429	Cartesian	-	36.999	0.000	-24.868
430	Cartesian	-	36.999	0.917	-29.108
431	Cartesian	-	36.999	0.917	-24.868
433	Cartesian	-	36.999	1.300	-29.108
434	Cartesian	-	36.999	1.700	-29.108
436	Cartesian	-	36.999	6.196	-0.036
437	Cartesian	-	36.999	6.457	-27.468
438	Cartesian	-	36.999	6.457	-27.198
439	Cartesian	-	36.999	6.515	-27.738
440	Cartesian	-	36.999	6.515	-27.468
441	Cartesian	-	36.999	6.579	-27.468
442	Cartesian	-	36.999	6.579	-27.198
443	Cartesian	-	36.999	7.300	-29.108
444	Cartesian	-	36.999	7.300	-27.738
445	Cartesian	-	36.999	7.300	-27.198

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NODES

Node No	Coordinates-System	Ref Nodes	X [m]	Node Coordinates Y [m]	Z [m]
446	Cartesian	-	36.999	7.300	-26.733
447	Cartesian	-	36.999	8.021	-27.468
448	Cartesian	-	36.999	8.021	-27.198
449	Cartesian	-	36.999	8.085	-27.738
450	Cartesian	-	36.999	8.085	-27.468
451	Cartesian	-	36.999	8.142	-27.468
452	Cartesian	-	36.999	8.142	-27.198
453	Cartesian	-	36.999	8.367	-19.815
454	Cartesian	-	36.999	9.283	1.265
455	Cartesian	-	36.999	9.283	2.115
	Gelagert				
456	Cartesian	-	36.999	10.324	-7.133
457	Cartesian	-	36.999	11.392	-0.215
458	Cartesian	-	36.999	11.417	-0.036
459	Cartesian	-	36.999	11.533	-0.215
460	Cartesian	-	36.999	11.533	0.225
461	Cartesian	-	36.999	11.533	0.280
462	Cartesian	-	36.999	11.533	0.785
463	Cartesian	-	36.999	11.533	1.265
464	Cartesian	-	36.999	11.533	1.615
465	Cartesian	-	36.999	11.533	2.115
	Gelagert				
466	Cartesian	-	36.999	12.658	1.265
467	Cartesian	-	36.999	12.658	1.615
468	Cartesian	-	36.999	13.783	1.615
469	Cartesian	-	36.999	13.783	2.115
	Gelagert				
470	Cartesian	-	37.279	-11.731	0.785
471	Cartesian	-	37.279	-11.533	0.785
472	Cartesian	-	37.279	-11.335	0.785
473	Cartesian	-	37.279	11.335	0.785
474	Cartesian	-	37.279	11.533	0.785
475	Cartesian	-	37.279	11.731	0.785
476	Cartesian	-	37.329	-11.731	-0.215
477	Cartesian	-	37.329	-11.533	-0.215
478	Cartesian	-	37.329	-11.335	-0.215
479	Cartesian	-	37.329	11.335	-0.215
480	Cartesian	-	37.329	11.533	-0.215
481	Cartesian	-	37.329	11.731	-0.215
482	Cartesian	-	37.354	-1.725	-24.868
483	Cartesian	-	37.354	1.725	-24.868
484	Cartesian	-	37.397	-11.533	-0.215
485	Cartesian	-	37.397	-11.533	0.785
486	Cartesian	-	37.397	11.533	-0.215
487	Cartesian	-	37.397	11.533	0.785
488	Cartesian	-	37.464	-11.731	-0.215
489	Cartesian	-	37.464	-11.731	0.785
490	Cartesian	-	37.464	-11.533	-0.215
491	Cartesian	-	37.464	-11.533	0.785
492	Cartesian	-	37.464	-11.335	-0.215
493	Cartesian	-	37.464	-11.335	0.785
494	Cartesian	-	37.464	11.335	-0.215
495	Cartesian	-	37.464	11.335	0.785
496	Cartesian	-	37.464	11.533	-0.215
497	Cartesian	-	37.464	11.533	0.785
498	Cartesian	-	37.464	11.731	-0.215
499	Cartesian	-	37.464	11.731	0.785
500	Cartesian	-	37.489	-11.533	-0.215
501	Cartesian	-	37.489	-11.533	0.785
502	Cartesian	-	37.489	11.533	-0.215
503	Cartesian	-	37.489	11.533	0.785
504	Cartesian	-	39.124	-1.725	-24.868
505	Cartesian	-	39.124	1.725	-24.868
506	Cartesian	-	39.499	-1.725	-24.868
507	Cartesian	-	39.499	-0.928	-24.868
508	Cartesian	-	39.499	0.928	-24.868
509	Cartesian	-	39.499	1.725	-24.868
510	Cartesian	-	41.999	-1.725	-24.868
511	Cartesian	-	41.999	-1.300	-30.368
512	Cartesian	-	41.999	-1.300	-24.868
513	Cartesian	-	41.999	0.000	-24.868
514	Cartesian	-	41.999	1.300	-30.368
515	Cartesian	-	41.999	1.300	-24.868
516	Cartesian	-	41.999	1.725	-24.868
517	Cartesian	-	43.499	-1.725	-24.868
518	Cartesian	-	43.499	-1.300	-30.368
519	Cartesian	-	43.499	1.300	-30.368
520	Cartesian	-	43.499	1.725	-24.868
521	Cartesian	-	44.499	-1.725	-24.868
522	Cartesian	-	44.499	-0.894	-24.868
523	Cartesian	-	44.499	0.894	-24.868
524	Cartesian	-	44.499	1.725	-24.868
525	Cartesian	-	46.824	-1.725	-24.868
526	Cartesian	-	46.824	1.725	-24.868
527	Cartesian	-	46.999	-1.725	-24.868
528	Cartesian	-	46.999	-1.300	-30.368
529	Cartesian	-	46.999	-1.300	-24.868
530	Cartesian	-	46.999	1.300	-30.368
531	Cartesian	-	46.999	1.300	-24.868
532	Cartesian	-	46.999	1.725	-24.868
533	Cartesian	-	47.174	-1.725	-24.868

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NODES

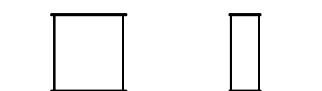
Node No	Coordinates-System	Ref Nodes	X [m]	Node Coordinates Y [m]	Z [m]
534	Cartesian	-	47.174	1.725	-24.868
535	Cartesian	-	49.499	-1.725	-24.868
536	Cartesian	-	49.499	-0.894	-24.868
537	Cartesian	-	49.499	0.894	-24.868
538	Cartesian	-	49.499	1.725	-24.868
539	Cartesian	-	51.999	-1.725	-24.868
540	Cartesian	-	51.999	-1.300	-30.368
541	Cartesian	-	51.999	-1.300	-24.868
542	Cartesian	-	51.999	-1.081	-24.868
543	Cartesian	-	51.999	0.000	-30.368
544	Cartesian	-	51.999	0.000	-24.868
545	Cartesian	-	51.999	1.081	-24.868
546	Cartesian	-	51.999	1.300	-30.368
547	Cartesian	-	51.999	1.300	-24.868
548	Cartesian	-	51.999	1.725	-24.868
549	Cartesian	-	52.874	-1.725	-24.868
550	Cartesian	-	52.874	1.725	-24.868
551	Cartesian	-	54.499	-1.725	-24.868
552	Cartesian	-	54.499	-0.894	-24.868
553	Cartesian	-	54.499	0.894	-24.868
554	Cartesian	-	54.499	1.725	-24.868
555	Cartesian	-	56.824	-1.725	-24.868
556	Cartesian	-	56.824	1.725	-24.868
557	Cartesian	-	56.999	-1.725	-24.868
558	Cartesian	-	56.999	-1.300	-24.868
559	Cartesian	-	56.999	1.300	-24.868
560	Cartesian	-	56.999	1.725	-24.868
561	Cartesian	-	57.999	-1.725	-24.868
562	Cartesian	-	57.999	1.725	-24.868
563	Cartesian	-	2.125	-1.725	-24.868
564	Cartesian	-	2.125	1.725	-24.868
565	Cartesian	-	57.124	-1.725	-24.868
566	Cartesian	-	57.124	1.725	-24.868
571	Cartesian	-	1.586	-1.725	-24.868
574	Cartesian	-	1.586	1.725	-24.868

MATERIALS

Mat No	Material Description	E Modulus [kN/cm ²]	Shear Mod [kN/cm ²]	Spec Weight [kN/cm ³]	Coeff Therm [1/°C]
1	Stahl St 52	2.100E+04	8.100E+03	7.850E-05	1.200E-05
3	Niro Stahl 1.4021	2.100E+04	8.100E+03	7.850E-05	1.200E-05

SECTIONS

Kasten(A) 770/15/10/710/803/770/15 Kasten(A) 770/15/10/710/1970/770/15



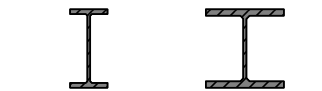
Kasten(A) 770/15/10/710/2466/770/15 Kasten(A) 770/15/10/710/2530/770/15



Kasten(A) 770/25/12/710/2540/770/25 TO 600/600/12/12/12/12/37/25



HE-B 600 HE-B 300



HE-M 600 HE-M 300



Sec No	Mat No	Section Name Section Rotation	I _T A	I ₂ A ₂	I ₃ [cm ⁴] A ₃ [cm ²]
1	-1	Dummy Rigid	10000000.00 100.000	10000000.00 100.000	10000000.00 100.000
2	1	Kasten(A) 770/15/10/710/803/770/15	507948.00 385.600	435620.00	314508.00
4	1	Kasten(A) 770/15/10/710/1970/770/15	1627680.00 619.000	3424160.00	617014.00
5	1	Kasten(A) 770/15/10/710/2466/770/15	2125370.00 718.200	5878560.00	745585.00
6	1	Kasten(A) 770/15/10/710/2530/770/15	2189990.00 731.000	6257030.00	762175.00
7	1	Kasten(A) 770/25/12/710/2540/770/25	2766480.00 982.600	9175880.00	969092.00
14	1	TO 600/600/12/12/12/12/37/25	248548.00 275.853	156979.00	156979.00
17	1	HE-B 600	669.00 270.000	171000.00	13530.00
18	1	HE-B 300 α = 90.00°	186.00 149.000	25170.00	8560.00
19	1	HE-M 600	1570.00 364.000	237400.00	18980.00
21	1	HE-M 300 α = 90.00°	1410.00 303.000	59200.00	19400.00
22	1	Kasten(A) 374/15/12/350/550/374/15	109318.00 237.000	108429.00	53979.10
23	1	Kasten(A) 570/10/15/540/730/570/10 90.00°	308760.00 327.000	237231.00	194929.00
24	1	Venlo TREAGER 3 α = 31.61°	410645.00 380.660	205794.00 211.830	415046.00 100.910
25	1	IS 374/200/5/12	23.68 65.500	17517.50	1600.36
26	1	Kasten(A) 1066/10/15/1036/730/1066/10	748273.00 426.200	365803.00	790133.00
27	1	Kasten(A) 1070/10/15/1036/730/1070/10	748274.00 427.000	366840.00	792414.00
28	1	RO 127x5,6	786.93 21.358	394.30	394.30
29	1	RO 127x10	1257.90 36.757	633.55	633.55

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Kasten(A) 374/19/12/350/550/374/15 Kasten(A) 570/10/15/540/730/570/10

SECTIONS

Sec No	Mat No	Section Name Section Rotation	I_T A	I_2 A ₂	I_3 [cm ⁴] A ₃ [cm ²]
30	1	IS 302/250/8/20	131.43 120.960	21113.30	5209.45
31	1	IS 292/250/8/15	58.85 95.960	15599.70	3907.37
32	1	IS 618/300/12/15	100.11 160.560	102159.00	6758.47
33	1	IS 302/250/15/20	158.34 139.300	22162.40	5215.70
34	1	IS 292/250/10/15	63.36 101.200	15899.50	3908.43
39	1	Venlo TREAGER 2A $\alpha = -12.19^\circ$	584165.00 475.010	647311.00 188.620	346020.00 166.370
40	1	Venlo TREAGER 1A $\alpha = -2.09^\circ$	1545160.00 670.810	3521680.00 143.100	609859.00 348.610
41	1	HE-A 160	12.30 38.800	1670.00	616.00
42	1	IS 302/450/15/20	265.01 219.300	38093.90	30382.40
43	1	Kasten(A) 480/30/15/350 /570/480/30	162260.00 441.000	243331.00	106283.00
44	1	RO 168,3x10	3115.54 49.731	1563.98	1563.98
49	2	Dummy Rigid			
50	1	Kasten(A) 700/8/8/650 /1016/700/8	422549.00 272.000	417837.00	218928.00
51	1	Kasten(A) 700/8/8/650/756 /700/8	275719.00 230.400	210697.00	173897.00
52	3	Rundstahl 140	3771.48 153.938	1885.74	1885.74
53	1	Flachstahl 740/15	82.19 111.000	20.81	50653.00
54	1	Flachstahl 350/15	38.31 52.500	9.84	5359.38
55	1	Flachstahl 350/40	692.91 140.000	186.67	14291.70
56	1	Flachstahl 200/60	1168.02 120.000	360.00	4000.00
60	1	Kasten(A) 700/8/8/650/716 /700/8	254255.00 224.000	186093.00	166969.00
63	1	Flachstahl 40/508	1029.97 203.200	43698.90	270.93
64	1	Flachstahl 40/953	1979.31 381.200	288508.00	508.27
65	1	Flachstahl 35/666	920.31 233.100	86160.80	237.96
66	1	Flachstahl 35/500	683.07 175.000	36458.30	178.65
67	1	Kasten(A) 700/8/8/650 /1016/700/8	422549.00 272.000	417837.00	218928.00
68	1	Kasten(A) 700/8/8/650/756 /700/8	275719.00 230.400	210697.00	173897.00
69	3	Rundstahl 140	3771.48 153.938	1885.74	1885.74
70	1	Flachstahl 740/15	82.19 111.000	20.81	50653.00
71	1	Flachstahl 350/15	38.31 52.500	9.84	5359.38
72	1	Flachstahl 350/40	692.91 140.000	186.67	14291.70
73	1	Flachstahl 200/60	1168.02 120.000	360.00	4000.00
76	1	Kasten(A) 700/8/8/650/716 /700/8	254255.00 224.000	186093.00	166969.00
79	1	Kasten(A) 770/20/15/710 /1680/770/20	1972520.00 800.000	3224650.00	798789.00
80	3	Rundstahl 220	22998.00 380.133	11499.00	11499.00
81	1	Flachstahl 500/35	683.07 175.000	178.65	36458.30
82	1	Flachstahl 656/35	906.02 229.600	234.38	82337.60
83	1	Flachstahl 656/70	6996.06 459.200	1875.07	164675.00
84	1	Flachstahl 500/70	5212.47 350.000	1429.17	72916.70
85	1	Pi(A) 500/35/12/135/376	696.57 199.000	1340.27	45493.90
86	1	Pi(A) 656/35/12/435/376	953.69 325.600	45058.50	118480.00
87	1	Kasten(A) 770/15/10/710 /1640/770/15	1300900.00 553.000	2220550.00	531472.00
88	1	Venlo TRAAGER5	2315.66 460.600	256402.00 202.730	19328.90 199.350
89	1	Kasten(A) 770/20/12/710 /2500/770/20	2642000.00 898.400	7713300.00	921664.00
90	1	Kasten(A) 770/15/12/710 /772/770/15	537446.00 409.080	412683.00	346230.00
91	1	Kasten(A) 770/15/12/710 /1215/770/15	1013790.00 515.400	1164450.00	484800.00
92	1	Kasten(A) 770/15/12/710	1013790.00	1164450.00	484800.00

Venlo TREAGER 3

IS 374/200/5/12

Kasten(A) 1066/01/01/036/730/01066/0 Kasten(A) 1070/01/01/036/730/01070/0

RO 127x5,6

RO 127x10

IS 302/250/8/20

IS 292/250/8/15

IS 618/300/12/15

IS 302/250/15/20

IS 292/250/10/15

Venlo TREAGER 2A

Venlo TREAGER 1A

HE-A 160

IS 302/450/15/20

Kasten(A) 480/30/15/350/570/480/30

RO 168,3x10

Kasten(A) 700/8/8/650/1016/700/8

Kasten(A) 700/8/8/650/756/700/8

Rundstahl 140

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Flachstahl 740/15



Flachstahl 350/15



Flachstahl 350/40



Flachstahl 200/60



Kasten(A) 700/8/650/715/700/8



Flachstahl 40/508



Flachstahl 40/953



Flachstahl 35/666



Flachstahl 35/500



Kasten(A) 770/20/15/710/1680/770/20



Rundstahl 220



Flachstahl 500/35



Flachstahl 656/35



Flachstahl 656/70



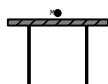
Flachstahl 500/70



Pi(A) 500/35/12/135/376



Pi(A) 656/35/12/435/376



Kasten(A) 770/15/10/710/1640/770/15



Venlo TRAEGER5



Kasten(A) 770/20/12/710/2500/770/20



Kasten(A) 770/15/12/710/772/770/15



Kasten(A) 770/15/12/710/1215/770/15



SECTIONS

Sec No	Mat No	Section Name Section Rotation	I_T A	I_2 A ₂	I_3 [cm ⁴] A ₃ [cm ²]
92		/1215/770/15	515.400	1164450.00	484800.00
93	1	IS 302/250/15/25	275.18 162.800	26043.30	6517.51
94	1	Kasten(A) 770/20/12/710 /2247/770/20	2333110.00 837.680	5968930.00	842526.00
95	1	Kasten(A) 770/15/12/710 /2247/770/15	2218780.00 763.080	5056400.00	807609.00
96	1	IS 302/250/8/25	248.74 145.160	25109.80	6511.49
97	1	IS 374/260/8/20	137.99 130.720	35100.80	5860.09
98	1	Kasten(A) 480/35/15/350 /570/480/35	166880.00 486.000	272022.00	114500.00
99	1	RO 168,3x12,5	3712.81 61.183	1868.35	1868.35
100	1	IS 374/200/5/12 $\alpha = 90.00^\circ$	23.68 65.500	17517.50	1600.36

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IS 302/250/15/25

Kasten(A) 770/20/12/710/2247/770/20



Kasten(A) 770/15/12/710/2247/770/15 IS 302/250/8/25



IS 374/260/8/20

Kasten(A) 480/35/15/350/570/480/35



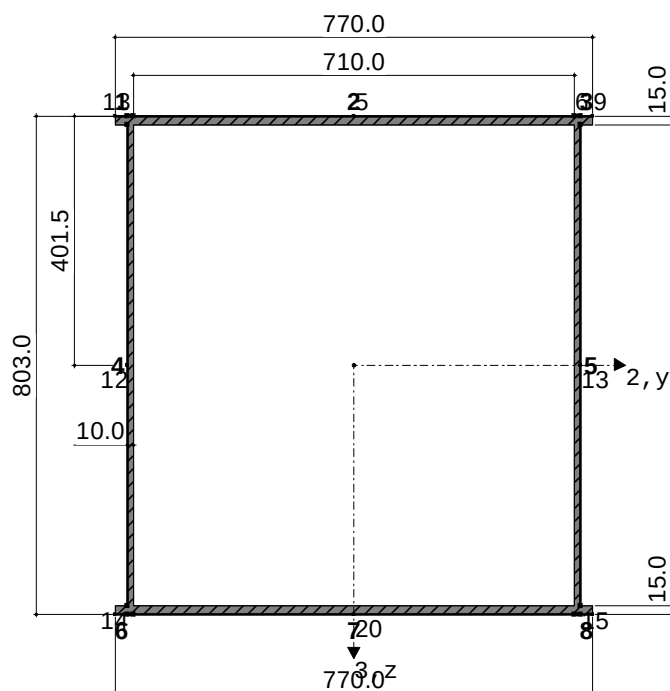
RO 168,3x12,5



SECTIONS

KASTEN(A) 770/15/10/710/803/770/15

DETAILED PICTURE



SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	385.60	cm ²
Schubfläche	A-y	174.29	cm ²
Schubfläche	A-z	139.38	cm ²
Kernfläche A*	A-k	5673.60	cm ²

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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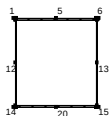
17.05.2009

SECTION DATA



Description	Name	Size	Unit
Schwerpunktabstand von Flanschoberkante	e-z	40.15	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	435620.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	314508.00	cm ⁴
Polares Trägheitsmoment	I-p	750128.00	cm ⁴
Polares Trägheitsmoment	I-p,M	750128.00	cm ⁴
Trägheitsradius	j-y	33.61	cm
Trägheitsradius	j-z	28.56	cm
Hauptachsenträgheitsradius	j-2	33.61	cm
Hauptachsenträgheitsradius	j-3	28.56	cm
Polarer Trägheitsradius	j-p	44.11	cm
Polarer Trägheitsradius	j-p,M	44.11	cm
Polarer Trägheitsradius	j-Om,M	4.78	cm
Eigenlast	G	302.70	kg/m
Mantelfläche	U	3.226	m ² /m
Torsionsträgheitsmoment	I-T	507948.00	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	223.68	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	507725.00	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	1.712E+07	cm ⁶
Abklingfaktor	Lambda	0.106975	1/cm
Widerstandsmoment	W-y-max	10849.80	cm ³
Widerstandsmoment	W-y-min	-10849.80	cm ³
Widerstandsmoment	W-z	8169.03	cm ³
Wölbwiderstandsmoment	W-Om	38644.00	cm ⁴
Statisches Moment	S-y-max	3022.26	cm ³
Statisches Moment	S-z-max	2503.09	cm ³
Wölbordinate	Omega max	443.03	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	10684.40	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	12089.00	cm ³
Plastisches Widerstandsmoment	Wpl-z	10012.30	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.11	
Plastischer Formbeiwert	Alpha-pl-z	1.23	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

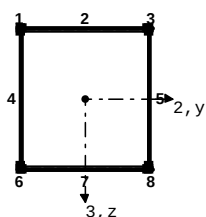
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-38.50	-40.15	0.00	0.00	1.50	443.03	0.00
2	-36.50	-40.15	-115.85	-110.32	1.50	364.23	-1210.90
3	-36.00	-40.15	2122.70	-1535.55	1.50	344.53	-1476.68
4	-35.50	-40.15	2094.03	-1561.56	1.50	339.75	-1638.67
5	0.00	-40.15	0.00	-2503.09	1.50	0.00	-10684.40
6	35.50	-40.15	-2094.03	-1561.56	1.50	-339.75	-1638.67
7	36.00	-40.15	-2122.70	-1535.55	1.50	-344.53	-1476.68
8	36.50	-40.15	115.85	-110.32	1.50	-364.23	-1210.90
9	38.50	-40.15	0.00	0.00	1.50	-443.03	0.00
10	-36.50	-38.65	2289.61	-1378.21	1.00	337.97	350.56
11	36.50	-38.65	-2289.61	-1378.21	1.00	-337.97	350.56
12	-36.50	0.00	3022.26	0.00	1.00	0.00	6881.91
13	36.50	0.00	-3022.26	0.00	1.00	0.00	6881.91
14	-36.50	38.65	2289.61	1378.21	1.00	-337.97	350.56
15	36.50	38.65	-2289.61	1378.21	1.00	337.97	350.56
16	-38.50	40.15	0.00	0.00	1.50	-443.03	0.00
17	-36.50	40.15	-115.85	110.32	1.50	-364.23	-1210.90
18	-36.00	40.15	2122.70	1535.55	1.50	-344.53	-1476.68
19	-35.50	40.15	2094.03	1561.56	1.50	-339.75	-1638.67
20	0.00	40.15	0.00	2503.09	1.50	0.00	-10684.40
21	35.50	40.15	-2094.03	1561.56	1.50	339.75	-1638.67
22	36.00	40.15	-2122.70	1535.55	1.50	344.53	-1476.68
23	36.50	40.15	115.85	110.32	1.50	364.23	-1210.90
24	38.50	40.15	0.00	0.00	1.50	443.03	0.00

Kasten(A) 770/15/10/710/803/770/15

(B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
1	One Side	20.00 15.00	1.33	-365.00 -401.50	-385.00 -401.50	57.92 56.63	0.00
2	Both Sides	710.00 15.00	47.33	-355.00 -401.50	355.00 -401.50	1047.01 2189.24	5673.60
3	One Side	20.00 15.00	1.33	365.00 -401.50	385.00 -401.50	57.92 56.63	0.00
4	Both Sides	773.00 10.00	77.30	-365.00 -386.50	-365.00 386.50	2778.04 689.11	5673.60
5	Both Sides	773.00 10.00	77.30	365.00 -386.50	365.00 386.50	2778.04 689.11	5673.60
6	One Side	20.00 15.00	1.33	-365.00 401.50	-385.00 401.50	57.92 56.63	0.00
7	Both Sides	710.00 15.00	47.33	-355.00 401.50	355.00 401.50	1047.01 2189.24	5673.60

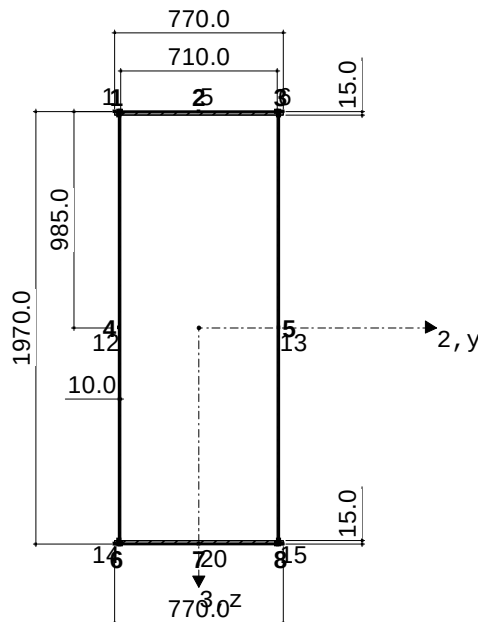
Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 102
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(B/T)-ZONES

No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments	Area
				y-1/z-1[mm]	y-2/z-2[mm]	Q2/Q3 [cm³]	[cm²]
8	One Side	20.00 15.00	1.33	365.00 401.50	385.00 401.50	57.92 56.63	0.00

KASTEN(A) 770/15/10/710/1970/770/15

DETAILED PICTURE



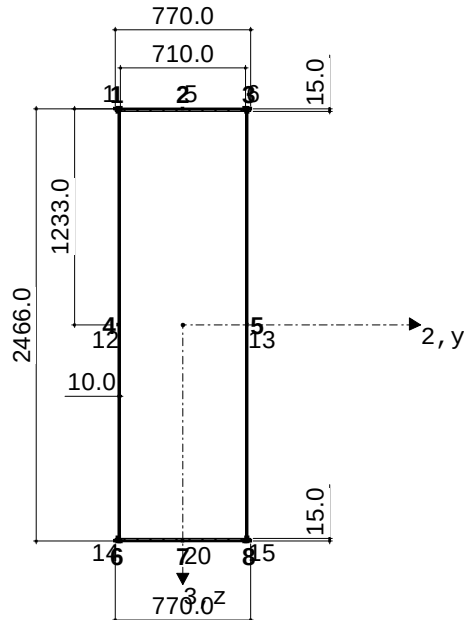
SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	619.00	cm²
Schubfläche	A-y	113.13	cm²
Schubfläche	A-z	369.17	cm²
Kernfläche A*	A-k	14076.00	cm²
Schwerpunktabstand von Flanschoberkante	e-z	98.50	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	3.424E+06	cm⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	617014.00	cm⁴
Polares Trägheitsmoment	I-p	4.041E+06	cm⁴
Polares Trägheitsmoment	I-p,M	4.041E+06	cm⁴
Trägheitsradius	j-y	74.38	cm
Trägheitsradius	j-z	31.57	cm
Hauptachsenträgheitsradius	j-2	74.38	cm
Hauptachsenträgheitsradius	j-3	31.57	cm
Polarer Trägheitsradius	j-p	80.80	cm
Polarer Trägheitsradius	j-p,M	80.80	cm
Polarer Trägheitsradius	j-Om,M	15.70	cm
Eigenlast	G	485.92	kg/m
Mantelfläche	U	5.560	m²/m
Torsionsträgheitsmoment	I-T	1.628E+06	cm⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	301.48	cm⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	1.627E+06	cm⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	9.956E+08	cm⁶
Abklingfaktor	Lambda	0.025111	1/cm
Widerstandsmoment	W-y-max	34763.00	cm³
Widerstandsmoment	W-y-min	-34763.00	cm³
Widerstandsmoment	W-z	16026.30	cm³
Wölbwiderstandsmoment	W-Om	419041.00	cm⁴
Statisches Moment	S-y-max	10349.60	cm³
Statisches Moment	S-z-max	4603.69	cm³
Wölbordinate	Omega max	2376.01	cm²

KASTEN(A) 770/15/10/710/2466/770/15

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 104
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DETAILED PICTURE



SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	718.20	cm ²
Schubfläche	A-y	96.97	cm ²
Schubfläche	A-z	463.58	cm ²
Kernfläche A*	A-k	17647.20	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	123.30	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	5.879E+06	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	745585.00	cm ⁴
Polares Trägheitsmoment	I-p	6.624E+06	cm ⁴
Polares Trägheitsmoment	I-p,M	6.624E+06	cm ⁴
Trägheitsradius	j-y	90.47	cm
Trägheitsradius	j-z	32.22	cm
Hauptachsenträgheitsradius	j-2	90.47	cm
Hauptachsenträgheitsradius	j-3	32.22	cm
Polarer Trägheitsradius	j-p	96.04	cm
Polarer Trägheitsradius	j-p,M	96.04	cm
Polarer Trägheitsradius	j-Om,M	18.30	cm
Eigenlast	G	563.79	kg/m
Mantelfläche	U	6.552	m ² /m
Torsionsträgheitsmoment	I-T	2.125E+06	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	334.55	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	2.125E+06	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	2.218E+09	cm ⁶
Abklingfaktor	Lambda	0.019225	1/cm
Widerstandsmoment	W-y-max	47676.90	cm ³
Widerstandsmoment	W-y-min	-47676.90	cm ³
Widerstandsmoment	W-z	19365.80	cm ³
Wölbwiderstandsmoment	W-Om	677657.00	cm ⁴
Statisches Moment	S-y-max	14494.90	cm ³
Statisches Moment	S-z-max	5496.49	cm ³
Wölbordinate	Omega max	3273.16	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	182488.00	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	57979.50	cm ³
Plastisches Widerstandsmoment	Wpl-z	21985.90	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.22	
Plastischer Formbeiwert	Alpha-pl-z	1.14	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 105
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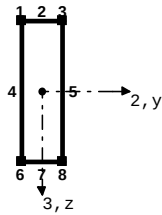
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-38.50	-123.30	0.00	0.00	1.50	3273.16	0.00
2	-36.50	-123.30	-360.31	-110.32	1.50	3028.06	-9451.84
3	-36.00	-123.30	6602.40	-4528.95	1.50	2966.79	-1.02E+05
4	-35.50	-123.30	6511.43	-4555.48	1.50	2925.58	-1.05E+05
5	0.00	-123.30	0.00	-5496.49	1.50	0.00	-1.82E+05
6	35.50	-123.30	-6511.43	-4555.48	1.50	-2925.58	-1.05E+05
7	36.00	-123.30	-6602.40	-4528.95	1.50	-2966.79	-1.02E+05
8	36.50	-123.30	360.31	-110.32	1.50	-3028.06	-9451.84
9	38.50	-123.30	0.00	0.00	1.50	-3273.16	0.00
10	-36.50	-121.80	7132.81	-4368.42	1.00	2948.63	-88466.10
11	36.50	-121.80	-7132.81	-4368.42	1.00	-2948.63	-88466.10
12	-36.50	0.00	14494.90	0.00	1.00	0.00	91105.60
13	36.50	0.00	-14494.90	0.00	1.00	0.00	91105.60
14	-36.50	121.80	7132.81	4368.42	1.00	-2948.63	-88466.10
15	36.50	121.80	-7132.81	4368.42	1.00	2948.63	-88466.10
16	-38.50	123.30	0.00	0.00	1.50	-3273.16	0.00
17	-36.50	123.30	-360.31	110.32	1.50	-3028.06	-9451.84
18	-36.00	123.30	6602.40	4528.95	1.50	-2966.79	-1.02E+05
19	-35.50	123.30	6511.43	4555.48	1.50	-2925.58	-1.05E+05
20	0.00	123.30	0.00	5496.49	1.50	0.00	-1.82E+05
21	35.50	123.30	-6511.43	4555.48	1.50	2925.58	-1.05E+05
22	36.00	123.30	-6602.40	4528.95	1.50	2966.79	-1.02E+05
23	36.50	123.30	360.31	110.32	1.50	3028.06	-9451.84
24	38.50	123.30	0.00	0.00	1.50	3273.16	0.00

Kasten(A) 770/15/10/710/2466/770/15

(B/T)-ZONES

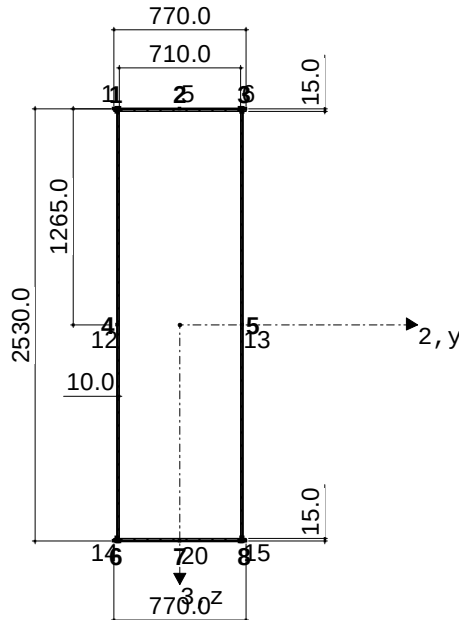


No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	20.00	1.33	-365.00	-385.00	180.15	0.00
		15.00		-1233.00	-1233.00	56.63	
2	Both Sides	710.00	47.33	-355.00	355.00	3255.72	17647.20
		15.00		-1233.00	-1233.00	5182.82	
3	One Side	20.00	1.33	365.00	385.00	180.15	0.00
		15.00		-1233.00	-1233.00	56.63	
4	Both Sides	2436.00	243.60	-365.00	-365.00	12040.90	17647.20
		10.00		-1218.00	1218.00	2184.21	
5	Both Sides	2436.00	243.60	365.00	365.00	12040.90	17647.20
		10.00		-1218.00	1218.00	2184.21	
6	One Side	20.00	1.33	-365.00	-385.00	180.15	0.00
		15.00		1233.00	1233.00	56.63	
7	Both Sides	710.00	47.33	-355.00	355.00	3255.72	17647.20
		15.00		1233.00	1233.00	5182.82	
8	One Side	20.00	1.33	365.00	385.00	180.15	0.00
		15.00		1233.00	1233.00	56.63	

KASTEN(A) 770/15/10/710/2530/770/15

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 106
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DETAILED PICTURE

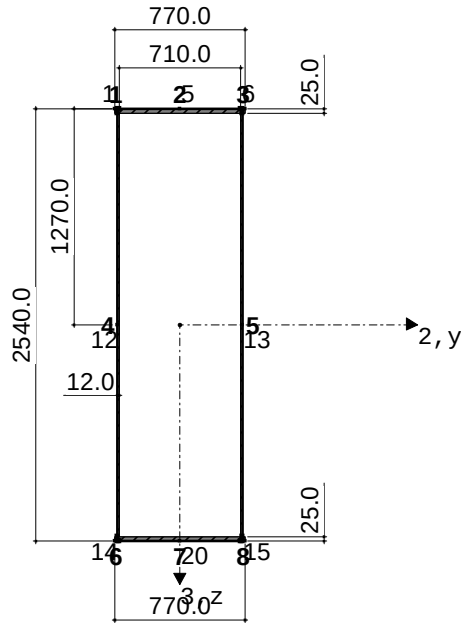


SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	731.00	cm ²
Schubfläche	A-y	95.19	cm ²
Schubfläche	A-z	475.64	cm ²
Kernfläche A*	A-k	18108.00	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	126.50	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	6.257E+06	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	762175.00	cm ⁴
Polares Trägheitsmoment	I-p	7.019E+06	cm ⁴
Polares Trägheitsmoment	I-p,M	7.019E+06	cm ⁴
Trägheitsradius	j-y	92.52	cm
Trägheitsradius	j-z	32.29	cm
Hauptachsenträgheitsradius	j-2	92.52	cm
Hauptachsenträgheitsradius	j-3	32.29	cm
Polarer Trägheitsradius	j-p	97.99	cm
Polarer Trägheitsradius	j-p,M	97.99	cm
Polarer Trägheitsradius	j-Om,M	18.59	cm
Eigenlast	G	573.84	kg/m
Mantelfläche	U	6.680	m ² /m
Torsionsträgheitsmoment	I-T	2.190E+06	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	338.81	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	2.190E+06	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	2.425E+09	cm ⁶
Abklingfaktor	Lambda	0.018666	1/cm
Widerstandsmoment	W-y-max	49462.70	cm ³
Widerstandsmoment	W-y-min	-49462.70	cm ³
Widerstandsmoment	W-z	19796.80	cm ³
Wölbwiderstandsmoment	W-Om	715127.00	cm ⁴
Statisches Moment	S-y-max	15074.60	cm ³
Statisches Moment	S-z-max	5611.69	cm ³
Wölbordinate	Omega max	3390.32	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	192628.00	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	60298.20	cm ³
Plastisches Widerstandsmoment	Wpl-z	22446.80	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.22	
Plastischer Formbeiwert	Alpha-pl-z	1.13	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 108
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DETAILED PICTURE



SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	982.60	cm ²
Schubfläche	A-y	140.27	cm ²
Schubfläche	A-z	577.03	cm ²
Kernfläche A*	A-k	18158.30	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	127.00	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	9.176E+06	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	969092.00	cm ⁴
Polares Trägheitsmoment	I-p	1.014E+07	cm ⁴
Polares Trägheitsmoment	I-p,M	1.014E+07	cm ⁴
Trägheitsradius	j-y	96.64	cm
Trägheitsradius	j-z	31.40	cm
Hauptachsenträgheitsradius	j-2	96.64	cm
Hauptachsenträgheitsradius	j-3	31.40	cm
Polarer Trägheitsradius	j-p	101.61	cm
Polarer Trägheitsradius	j-p,M	101.61	cm
Polarer Trägheitsradius	j-Om,M	20.14	cm
Eigenlast	G	771.34	kg/m
Mantelfläche	U	6.692	m ² /m
Torsionsträgheitsmoment	I-T	2.766E+06	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	1077.01	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	2.765E+06	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	4.115E+09	cm ⁶
Abklingfaktor	Lambda	0.016104	1/cm
Widerstandsmoment	W-y-max	72251.00	cm ³
Widerstandsmoment	W-y-min	-72251.00	cm ³
Widerstandsmoment	W-z	25171.20	cm ³
Wölbwiderstandsmoment	W-Om	1.100E+06	cm ⁴
Statisches Moment	S-y-max	21403.60	cm ³
Statisches Moment	S-z-max	7246.15	cm ³
Wölbordinate	Omega max	3741.81	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	313710.00	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	85614.40	cm ³
Plastisches Widerstandsmoment	Wpl-z	28984.60	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.18	
Plastischer Formbeiwert	Alpha-pl-z	1.15	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 109
		17.05.2009

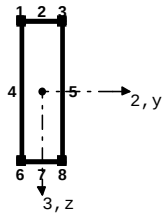
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-38.50	-127.00	0.00	0.00	2.50	3741.81	0.00
2	-36.70	-127.00	-557.05	-166.63	2.50	3515.46	-16328.90
3	-36.10	-127.00	11325.40	-5623.83	2.50	3440.01	-1.58E+05
4	-35.50	-127.00	11138.50	-5677.04	2.50	3382.84	-1.64E+05
5	0.00	-127.00	0.00	-7246.15	2.50	0.00	-3.14E+05
6	35.50	-127.00	-11138.50	-5677.04	2.50	-3382.84	-1.64E+05
7	36.10	-127.00	-11325.40	-5623.83	2.50	-3440.01	-1.58E+05
8	36.70	-127.00	557.05	-166.63	2.50	-3515.46	-16328.90
9	38.50	-127.00	0.00	0.00	2.50	-3741.81	0.00
10	-36.70	-124.50	12223.80	-5358.58	1.20	3405.82	-1.32E+05
11	-36.70	-124.50	-12223.80	-5358.58	1.20	-3405.82	-1.32E+05
12	-36.70	0.00	21403.60	0.00	1.20	0.00	122615.00
13	-36.70	0.00	-21403.60	0.00	1.20	0.00	122615.00
14	-36.70	124.50	12223.80	5358.58	1.20	-3405.82	-1.32E+05
15	-36.70	124.50	-12223.80	5358.58	1.20	3405.82	-1.32E+05
16	-38.50	127.00	0.00	0.00	2.50	-3741.81	0.00
17	-36.70	127.00	-557.05	166.63	2.50	-3515.46	-16328.90
18	-36.10	127.00	11325.40	5623.83	2.50	-3440.01	-1.58E+05
19	-35.50	127.00	11138.50	5677.04	2.50	-3382.84	-1.64E+05
20	0.00	127.00	0.00	7246.15	2.50	0.00	-3.14E+05
21	35.50	127.00	-11138.50	5677.04	2.50	3382.84	-1.64E+05
22	36.10	127.00	-11325.40	5623.83	2.50	3440.01	-1.58E+05
23	36.70	127.00	557.05	166.63	2.50	3515.46	-16328.90
24	38.50	127.00	0.00	0.00	2.50	3741.81	0.00

Kasten(A) 770/25/12/710/2540/770/25

(B/T)-ZONES

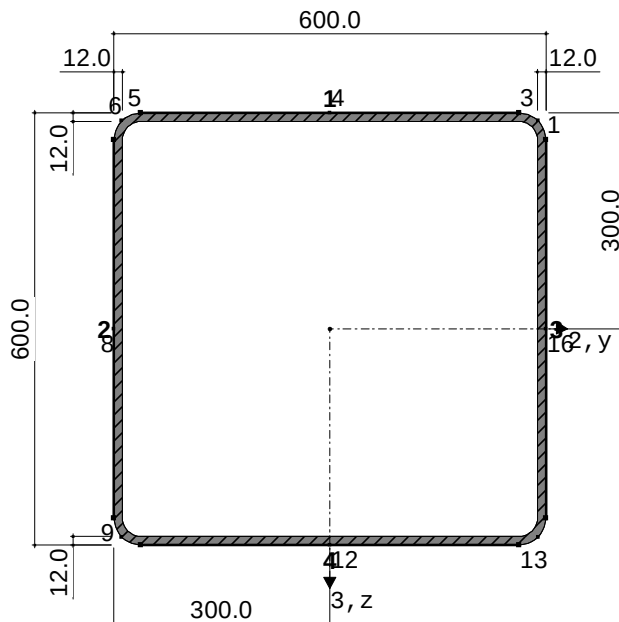


No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	18.00	0.72	-367.00	-385.00	278.53	0.00
		25.00		-1270.00	-1270.00	85.28	
2	Both Sides	710.00	28.40	-355.00	355.00	5569.26	18158.30
		25.00		-1270.00	-1270.00	6723.11	
3	One Side	18.00	0.72	367.00	385.00	278.53	0.00
		25.00		-1270.00	-1270.00	85.28	
4	Both Sides	2490.00	207.50	-367.00	-367.00	18343.70	18158.30
		12.00		-1245.00	1245.00	2679.29	
5	Both Sides	2490.00	207.50	367.00	367.00	18343.70	18158.30
		12.00		-1245.00	1245.00	2679.29	
6	One Side	18.00	0.72	-367.00	-385.00	278.53	0.00
		25.00		1270.00	1270.00	85.28	
7	Both Sides	710.00	28.40	-355.00	355.00	5569.26	18158.30
		25.00		1270.00	1270.00	6723.11	
8	One Side	18.00	0.72	367.00	385.00	278.53	0.00
		25.00		1270.00	1270.00	85.28	

TO 600/600/12/12/12/12/37/25

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 110
		17.05.2009

DETAILED PICTURE

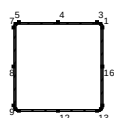


SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	275.85	cm ²
Schubfläche	A-y	118.63	cm ²
Kernfläche A*	A-k	3457.44	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	156979.00	cm ⁴
Trägheitsradius	j-y	23.86	cm
Polarer Trägheitsradius	j-p	33.74	cm
Eigenlast	G	216.54	kg/m
Mantelfläche	U	2.336	m ² /m
Torsionsträgheitsmoment	I-T	248548.00	cm ⁴
Wölbwiderstand bezogen auf M	C-M	24631.70	cm ⁶
Hilfswert für Wölbverdrehung	r-omega,M	0.00	
Widerstandsmoment	W-y	5232.62	cm ³
Wölbwiderstandsmoment	W-Om	-1536.94	cm ⁴
Statisches Moment	S-y-max	1508.03	cm ³
Wölbordinate	Omega max	16.03	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	182.55	cm ⁴
Plastisches Widerstandsmoment	Wpl-y	6032.12	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.15	
Knickspannungslinie	Ksl-y	b	

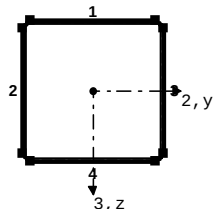
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t	Warping Ordinate	Warping Area
	y	z	Qy	Qz	[cm]	Omega[cm ²]	A-Omega[cm ⁴]
1	30.00	-26.30	-1093.02	-927.86	1.20	-16.03	-152.71
2	28.92	-28.92	-1012.83	-1012.82	1.20	0.00	-182.55
3	26.30	-30.00	-927.86	-1093.02	1.20	16.03	-152.71
4	0.00	-30.00	0.00	-1508.03	1.20	0.00	100.19
5	-26.30	-30.00	927.86	-1093.02	1.20	-16.03	-152.71
6	-28.92	-28.92	1012.82	-1012.83	1.20	0.00	-182.55
7	-30.00	-26.30	1093.02	-927.86	1.20	16.03	-152.71
8	-30.00	0.00	1508.03	0.00	1.20	0.00	100.19
9	-30.00	26.30	1093.02	927.86	1.20	-16.03	-152.71
10	-28.92	28.92	1012.83	1012.82	1.20	0.00	-182.55
11	-26.30	30.00	927.86	1093.02	1.20	16.03	-152.71
12	0.00	30.00	0.00	1508.03	1.20	0.00	100.19
13	26.30	30.00	-927.86	1093.02	1.20	-16.03	-152.71
14	28.92	28.92	-1012.82	1012.83	1.20	0.00	-182.55
15	30.00	26.30	-1093.02	927.86	1.20	16.03	-152.71
16	30.00	0.00	-1508.03	0.00	1.20	0.00	100.19

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 111
		17.05.2009

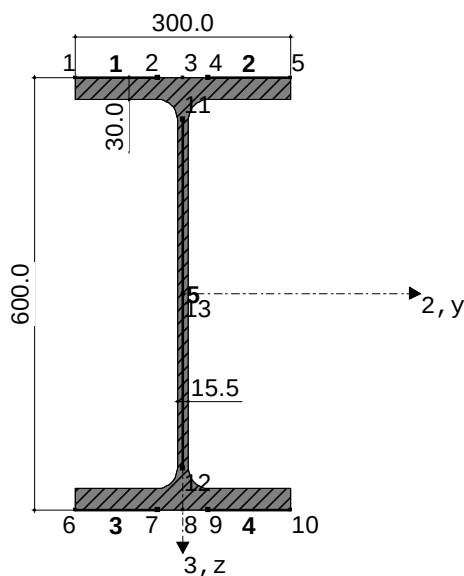
TO 600/600/12/12/12/12/37/25 (B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm^3]	Area [cm^2]
1	Both Sides	526.00 12.00	43.83	-263.00 -300.00	263.00 -300.00	463.93 1369.69	3449.19
2	Both Sides	526.00 12.00	43.83	-300.00 -263.00	-300.00 263.00	1369.69 463.93	3449.19
3	Both Sides	526.00 12.00	43.83	300.00 -263.00	300.00 263.00	1369.69 463.93	3449.19
4	Both Sides	526.00 12.00	43.83	-263.00 300.00	263.00 300.00	463.93 1369.69	3449.19

HE-B 600

DETAILED PICTURE



SECTION DATA



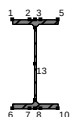
Description	Name	Size	Unit
Depth	d	600.00	mm
Width	b	300.00	mm
Web thickness	t _w	15.50	mm
Flange thickness	t _f	30.00	mm
Fillet radius	r	27.00	mm
Cross-section area	A	270.00	cm^2
Shear area	A ₂	150.51	cm^2
Shear area	A ₃	85.32	cm^2
Shear area according to EC 3	A _{v_y}	186.59	cm^2
Shear area according to EC 3	A _{v_z}	110.85	cm^2
Web area	A _{Web}	83.70	cm^2
Moment of inertia	I _y	171000.00	cm^4
Moment of inertia	I _z	13530.00	cm^4
Governing radius of gyration	r _y	25.20	cm
Governing radius of gyration	r _z	7.08	cm
Polar radius of gyration	r _o	26.18	cm
Radius of Gyration of Flange plus 1/5 of W	r _{zg}	7.84	cm
Nominal weight	W _t	212.00	kg/m
Surface	A _{Surf}	2.32	m^2/m
Torsional constant	J	669.00	cm^4
Warping constant	I _{Omega}	1.097E+07	cm^6
Elastic section modulus	S _y	5700.00	cm^3
Elastic section modulus	S _z	902.00	cm^3
Warping constant moment	W _w	25649.10	cm^4

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 112
		17.05.2009

SECTION DATA

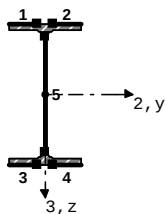
Description	Name	Size	Unit
Statical moment of area	Q _y	3210.00	cm ³
Statical moment of area	Q _z	337.50	cm ³
Normalized warping constant	Omega _{max}	427.50	cm ²
Warping statical moment	S _w	9618.75	cm ⁴
Plastic section modulus	Z _y	6420.00	cm ³
Plastic section modulus	Z _z	1391.06	cm ³
Plastic warping constant moment	Z _w	38475.00	cm ⁴
Plastic shape factor	Alpha _{pl_2}	1.13	
Plastic shape factor	Alpha _{pl_3}	1.54	
Plastic shape factor	Alpha _{pl_Om}	1.50	
Buckling stress curve	Bsc _y	a	
Buckling stress curve	Bsc _z	b	
Flange hole spacing	w ₁	120.00	mm

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Q _y	Q _z			
1	-15.00	-30.00	0.00	0.00	3.00	427.50	0.00
2	-3.47	-30.00	-985.58	-319.35	3.00	99.04	-9102.52
3	0.00	-30.00	-1280.87	-337.84	3.00	0.00	-9618.75
4	3.47	-30.00	-985.58	319.35	3.00	-99.04	9102.52
5	15.00	-30.00	0.00	0.00	3.00	-427.50	0.00
6	-15.00	30.00	0.00	0.00	3.00	-427.50	0.00
7	-3.47	30.00	-985.39	319.39	3.00	-99.04	-9102.52
8	0.00	30.00	-1280.87	337.84	3.00	0.00	-9618.75
9	3.47	30.00	-985.39	-319.39	3.00	99.04	9102.52
10	15.00	30.00	0.00	0.00	3.00	427.50	0.00
11	0.00	-24.30	-2743.92	0.00	1.55	0.00	0.00
12	0.00	24.30	-2743.87	0.00	1.55	0.00	0.00
13	0.00	0.00	-3203.22	0.00	1.55	0.00	0.00

HE-B 600



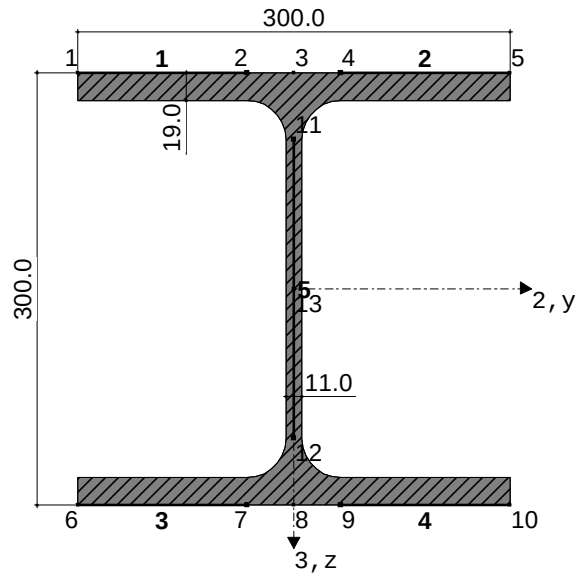
(B/T)-ZONES

No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q ₂ /Q ₃ [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	115.25	3.84	-34.75	-150.00	492.69
		30.00		-300.00	-300.00	192.90
2	One Side	115.25	3.84	34.75	150.00	492.69
		30.00		-300.00	-300.00	192.90
3	One Side	115.25	3.84	-34.75	-150.00	492.69
		30.00		300.00	300.00	192.90
4	One Side	115.25	3.84	34.75	150.00	492.69
		30.00		300.00	300.00	192.90
5	Both Sides	486.00	31.35	0.00	0.00	3057.46
		15.50		-243.00	243.00	0.00

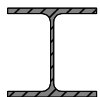
HE-B 300

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 113
		17.05.2009

DETAILED PICTURE



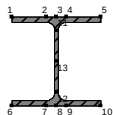
SECTION DATA



Description	Name	Size	Unit
Depth	d	300.00	mm
Width	b	300.00	mm
Web thickness	t _w	11.00	mm
Flange thickness	t _f	19.00	mm
Fillet radius	r	27.00	mm
Cross-section area	A	149.00	cm ²
Shear area	A ₂	95.05	cm ²
Shear area	A ₃	28.63	cm ²
Shear area according to EC 3	A _{v_y}	118.18	cm ²
Shear area according to EC 3	A _{v_z}	47.35	cm ²
Web area	A _{Web}	28.80	cm ²
Moment of inertia	I _y	25170.00	cm ⁴
Moment of inertia	I _z	8560.00	cm ⁴
Governing radius of gyration	r _y	13.00	cm
Governing radius of gyration	r _z	7.58	cm
Polar radius of gyration	r _o	15.05	cm
Radius of Gyration of Flange plus 1/5 of W	r _{zg}	8.06	cm
Nominal weight	W _t	117.00	kg/m
Surface	A _{surf}	1.73	m ² /m
Torsional constant	I _{Omega}	186.00	cm ⁴
Warping constant	I _{Omega}	1.688E+06	cm ⁶
Elastic section modulus	S _y	1680.00	cm ³
Elastic section modulus	S _z	571.00	cm ³
Warping constant moment	W _w	8009.49	cm ⁴
Statical moment of area	Q _y	934.00	cm ³
Statical moment of area	Q _z	213.75	cm ³
Normalized warping constant	Omega _{max}	210.75	cm ²
Warping statical moment	S _w	3003.19	cm ⁴
Plastic section modulus	Z _y	1868.00	cm ³
Plastic section modulus	Z _z	870.14	cm ³
Plastic warping constant moment	Z _w	12012.80	cm ⁴
Plastic shape factor	Alpha _{pl_2}	1.11	
Plastic shape factor	Alpha _{pl_3}	1.52	
Plastic shape factor	Alpha _{pl_Om}	1.50	
Buckling stress curve	Bsc _y	b	
Buckling stress curve	Bsc _z	c	
Flange hole spacing	w ₁	120.00	mm

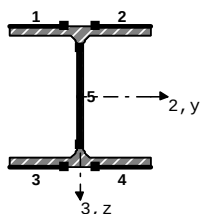
Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 114
		17.05.2009

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-15.00	-15.00	0.00	0.00	1.90	210.75	0.00
2	-3.25	-15.00	-313.37	-203.68	1.90	45.66	-2862.20
3	0.00	-15.00	-403.87	-214.38	1.90	0.00	-3003.19
4	3.25	-15.00	-313.37	-203.68	1.90	-45.66	-2862.20
5	15.00	-15.00	0.00	0.00	1.90	-210.75	0.00
6	-15.00	15.00	0.00	0.00	1.90	-210.75	0.00
7	-3.25	15.00	-313.67	203.72	1.90	-45.66	-2862.20
8	0.00	15.00	-403.87	214.38	1.90	0.00	-3003.19
9	3.25	15.00	-313.67	203.72	1.90	45.66	-2862.20
10	15.00	15.00	0.00	0.00	1.90	210.75	0.00
11	0.00	-10.40	-870.48	0.00	1.10	0.00	0.00
12	0.00	10.40	-872.14	0.00	1.10	0.00	0.00
13	0.00	0.00	-929.97	0.00	1.10	0.00	0.00

HE-B 300

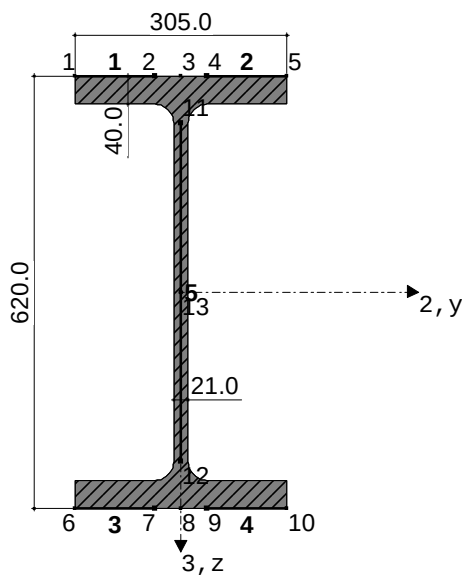


(B/T)-ZONES

No	Restrained	b [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	117.50	6.18	-32.50	-150.00	156.83
		19.00		-150.00	-150.00	123.72
2	One Side	117.50	6.18	32.50	150.00	156.83
		19.00		-150.00	-150.00	123.72
3	One Side	117.50	6.18	-32.50	-150.00	156.83
		19.00		150.00	150.00	123.72
4	One Side	117.50	6.18	32.50	150.00	156.83
		19.00		150.00	150.00	123.72
5	Both Sides	208.00	18.91	0.00	0.00	914.17
		11.00		-104.00	104.00	0.00

HE-M 600

DETAILED PICTURE

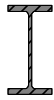


SECTION DATA

Description	Name	Size	Unit
Depth	d	620.00	mm
Width	b	305.00	mm

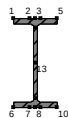
Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 115
		17.05.2009

SECTION DATA



Description	Name	Size	Unit
Web thickness	t _w	21.00	mm
Flange thickness	t _f	40.00	mm
Fillet radius	r	27.00	mm
Cross-section area	A	364.00	cm ²
Shear area	A ₂	204.56	cm ²
Shear area	A ₃	117.06	cm ²
Shear area according to EC 3	A _{v_y}	254.08	cm ²
Shear area according to EC 3	A _{v_z}	150.00	cm ²
Web area	A _{Web}	113.00	cm ²
Moment of inertia	I _y	237400.00	cm ⁴
Moment of inertia	I _z	18980.00	cm ⁴
Governing radius of gyration	r _y	25.60	cm
Governing radius of gyration	r _z	7.22	cm
Polar radius of gyration	r _o	26.60	cm
Radius of Gyration of Flange plus 1/5 of W	r _{zg}	8.01	cm
Nominal weight	W _t	285.00	kg/m
Surface	A _{surf}	2.37	m ² /m
Torsional constant	J	1570.00	cm ⁴
Warping constant	I _{Omega}	1.591E+07	cm ⁶
Elastic section modulus	S _y	7660.00	cm ³
Elastic section modulus	S _z	1240.00	cm ³
Warping constant moment	W _w	35970.60	cm ⁴
Statical moment of area	Q _y	4390.00	cm ³
Statical moment of area	Q _z	465.13	cm ³
Normalized warping constant	Omega _{max}	442.25	cm ²
Warping statical moment	S _w	13488.60	cm ⁴
Plastic section modulus	Z _y	8780.00	cm ³
Plastic section modulus	Z _z	1930.38	cm ³
Plastic warping constant moment	Z _w	53954.50	cm ⁴
Plastic shape factor	Alpha _{pl_2}	1.15	
Plastic shape factor	Alpha _{pl_3}	1.56	
Plastic shape factor	Alpha _{pl_Om}	1.50	
Buckling stress curve	Bsc _y	a	
Buckling stress curve	Bsc _z	b	
Flange hole spacing	w ₁	130.00	mm

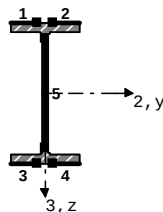
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Q _y	Q _z			
1	-15.25	-31.00	0.00	0.00	4.00	442.25	0.00
2	-3.75	-31.00	-1337.02	-437.16	4.00	108.75	-12673.00
3	0.00	-31.00	-1758.36	-465.14	4.00	0.00	-13488.60
4	3.75	-31.00	-1337.02	437.16	4.00	-108.75	12673.00
5	15.25	-31.00	0.00	0.00	4.00	-442.25	0.00
6	-15.25	31.00	0.00	0.00	4.00	-442.25	0.00
7	-3.75	31.00	-1334.88	437.09	4.00	-108.75	-12673.00
8	0.00	31.00	-1758.36	465.14	4.00	0.00	-13488.60
9	3.75	31.00	-1334.88	-437.09	4.00	108.75	12673.00
10	15.25	31.00	0.00	0.00	4.00	442.25	0.00
11	0.00	-24.30	-3752.28	0.00	2.10	0.00	0.00
12	0.00	24.30	-3743.63	0.00	2.10	0.00	0.00
13	0.00	0.00	-4376.69	0.00	2.10	0.00	0.00

HE-M 600

(B/T)-ZONES

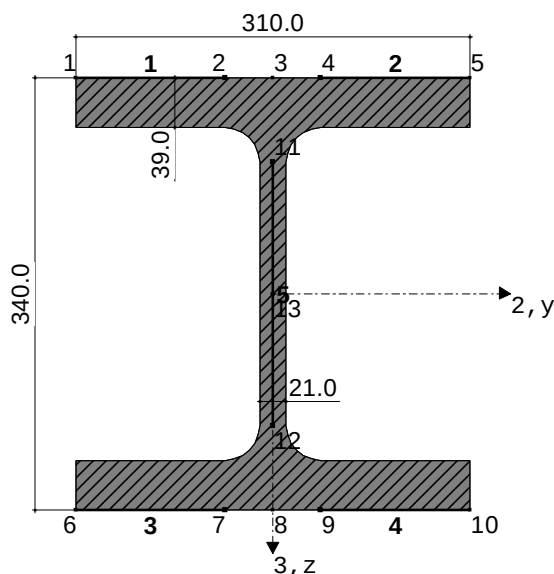


No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	115.00	2.88	-37.50	-152.50	667.00
		40.00		-310.00	-310.00	262.58
2	One Side	115.00	2.88	37.50	152.50	667.00
		40.00		-310.00	-310.00	262.58
3	One Side	115.00	2.88	-37.50	-152.50	667.00
		40.00		310.00	310.00	262.58
4	One Side	115.00	2.88	37.50	152.50	667.00
		40.00		310.00	310.00	262.58
5	Both Sides	486.00	23.14	0.00	0.00	4183.33
		21.00		-243.00	243.00	0.00

HE-M 300

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 116
		17.05.2009

DETAILED PICTURE



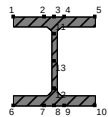
SECTION DATA



Description	Name	Size	Unit
Depth	d	340.00	mm
Width	b	310.00	mm
Web thickness	t _w	21.00	mm
Flange thickness	t _f	39.00	mm
Fillet radius	r	27.00	mm
Cross-section area	A	303.00	cm ²
Shear area	A ₂	202.24	cm ²
Shear area	A ₃	58.75	cm ²
Shear area according to EC 3	A _{v_y}	251.88	cm ²
Shear area according to EC 3	A _{v_z}	90.45	cm ²
Web area	A _{Web}	55.00	cm ²
Moment of inertia	I _y	59200.00	cm ⁴
Moment of inertia	I _z	19400.00	cm ⁴
Governing radius of gyration	r _y	14.00	cm
Governing radius of gyration	r _z	8.00	cm
Polar radius of gyration	r _o	16.12	cm
Radius of Gyration of Flange plus 1/5 of W	r _{zg}	8.47	cm
Nominal weight	W _t	238.00	kg/m
Surface	A _{surf}	1.83	m ² /m
Torsional constant	I _{Omega}	1410.00	cm ⁴
Warping constant	I _{Omega}	4.386E+06	cm ⁶
Elastic section modulus	S _y	3480.00	cm ³
Elastic section modulus	S _z	1250.00	cm ³
Warping constant moment	W _w	18801.80	cm ⁴
Statical moment of area	Q _y	2040.00	cm ³
Statical moment of area	Q _z	468.49	cm ³
Normalized warping constant	Omega _{max}	233.27	cm ²
Warping statical moment	S _w	7050.74	cm ⁴
Plastic section modulus	Z _y	4080.00	cm ³
Plastic section modulus	Z _z	1913.18	cm ³
Plastic warping constant moment	Z _w	28202.90	cm ⁴
Plastic shape factor	Alpha _{pl_2}	1.17	
Plastic shape factor	Alpha _{pl_3}	1.53	
Plastic shape factor	Alpha _{pl_Om}	1.50	
Buckling stress curve	Bsc _y	b	
Buckling stress curve	Bsc _z	c	
Flange hole spacing	w ₁	120.00	mm

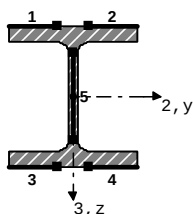
Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 117
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STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-15.50	-17.00	0.00	0.00	3.90	233.27	0.00
2	-3.75	-17.00	-689.41	-441.02	3.90	56.44	-6638.04
3	0.00	-17.00	-904.37	-468.51	3.90	0.00	-7050.74
4	3.75	-17.00	-689.41	441.02	3.90	-56.44	6638.04
5	15.50	-17.00	0.00	0.00	3.90	-233.27	0.00
6	-15.50	17.00	0.00	0.00	3.90	-233.27	0.00
7	-3.75	17.00	-689.67	441.07	3.90	-56.44	-6638.04
8	0.00	17.00	-904.37	468.51	3.90	0.00	-7050.74
9	3.75	17.00	-689.67	-441.07	3.90	56.44	6638.04
10	15.50	17.00	0.00	0.00	3.90	233.27	0.00
11	0.00	-10.40	-1920.90	0.00	2.10	0.00	0.00
12	0.00	10.40	-1921.06	0.00	2.10	0.00	0.00
13	0.00	0.00	-2034.47	0.00	2.10	0.00	0.00

HE-M 300

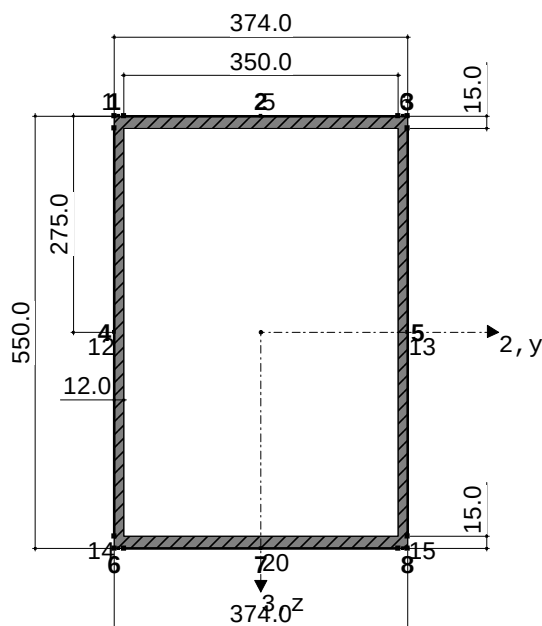


(B/T)-ZONES

No	Restrained	b [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	117.50	3.01	-37.50	-155.00	344.83
		39.00		-170.00	-170.00	265.40
2	One Side	117.50	3.01	37.50	155.00	344.83
		39.00		-170.00	-170.00	265.40
3	One Side	117.50	3.01	-37.50	-155.00	344.83
		39.00		170.00	170.00	265.40
4	One Side	117.50	3.01	37.50	155.00	344.83
		39.00		170.00	170.00	265.40
5	Both Sides	208.00	9.90	0.00	0.00	2002.14
		21.00		-104.00	104.00	0.00

KASTEN(A) 374/15/12/350/550/374/15

DETAILED PICTURE



SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	237.00	cm ²
Schubfläche	A-y	79.10	cm ²

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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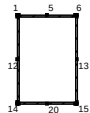
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SECTION DATA



Description	Name	Size	Unit
Schubfläche	A-z	115.22	cm ²
Kernfläche A*	A-k	1936.70	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	27.50	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	108429.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	53979.10	cm ⁴
Polares Trägheitsmoment	I-p	162408.00	cm ⁴
Polares Trägheitsmoment	I-p,M	162408.00	cm ⁴
Trägheitsradius	j-y	21.39	cm
Trägheitsradius	j-z	15.09	cm
Hauptachsenträgheitsradius	j-2	21.39	cm
Hauptachsenträgheitsradius	j-3	15.09	cm
Polarer Trägheitsradius	j-p	26.18	cm
Polarer Trägheitsradius	j-p,M	26.18	cm
Polarer Trägheitsradius	j-Om,M	3.26	cm
Eigenlast	G	186.04	kg/m
Mantelfläche	U	1.848	m ² /m
Torsionsträgheitsmoment	I-T	109318.00	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	150.54	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	109167.00	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	1.724E+06	cm ⁶
Abklingfaktor	Lambda	0.156410	1/cm
Widerstandsmoment	W-y-max	3942.86	cm ³
Widerstandsmoment	W-y-min	-3942.86	cm ³
Widerstandsmoment	W-z	2886.58	cm ³
Wölbwiderstandsmoment	W-Om	10762.90	cm ⁴
Statisches Moment	S-y-max	1155.94	cm ³
Statisches Moment	S-z-max	826.99	cm ³
Wölbordinate	Omega max	160.14	cm ²
Wölbfläche (Flächenmoment 1. Grades mit <0	A-Om max	2587.17	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	4623.75	cm ³
Plastisches Widerstandsmoment	Wpl-z	3307.95	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.17	
Plastischer Formbeiwert	Alpha-pl-z	1.15	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

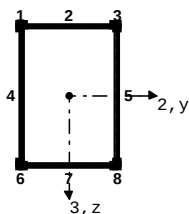
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-18.70	-27.50	0.00	0.00	1.50	160.14	0.00
2	-18.70	-27.50	0.00	0.00	1.50	160.14	0.00
3	-18.10	-27.50	721.28	-584.60	1.50	144.09	-631.15
4	-17.50	-27.50	698.81	-599.56	1.50	139.31	-758.68
5	0.00	-27.50	0.00	-826.99	1.50	0.00	-2587.17
6	17.50	-27.50	-698.81	-599.56	1.50	-139.31	-758.68
7	18.10	-27.50	-721.28	-584.60	1.50	-144.09	-631.15
8	18.70	-27.50	0.00	0.00	1.50	-160.14	0.00
9	18.70	-27.50	0.00	0.00	1.50	-160.14	0.00
10	-18.70	-26.00	758.86	-558.84	1.20	140.05	-366.38
11	-18.70	-26.00	-758.86	-558.84	1.20	-140.05	-366.38
12	-18.70	0.00	1155.94	0.00	1.20	0.00	1818.40
13	-18.70	0.00	-1155.94	0.00	1.20	0.00	1818.40
14	-18.70	26.00	758.86	558.84	1.20	-140.05	-366.38
15	-18.70	26.00	-758.86	558.84	1.20	140.05	-366.38
16	-18.70	27.50	0.00	0.00	1.50	-160.14	0.00
17	-18.70	27.50	0.00	0.00	1.50	-160.14	0.00
18	-18.10	27.50	721.28	584.60	1.50	-144.09	-631.15
19	-17.50	27.50	698.81	599.56	1.50	-139.31	-758.68
20	0.00	27.50	0.00	826.99	1.50	0.00	-2587.17
21	17.50	27.50	-698.81	599.56	1.50	139.31	-758.68
22	18.10	27.50	-721.28	584.60	1.50	144.09	-631.15
23	18.70	27.50	0.00	0.00	1.50	160.14	0.00
24	18.70	27.50	0.00	0.00	1.50	160.14	0.00

Kasten(A) 374/15/12/350/550/374/15

(B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
1	One Side	0.00	0.00	-187.00	-187.00	0.00	0.00
2	Both Sides	15.00	23.33	-275.00	-275.00	0.00	0.00
3	One Side	350.00	0.00	-175.00	175.00	349.40	1936.70
4	Both Sides	15.00	0.00	-275.00	-275.00	751.18	0.00
5	Both Sides	0.00	43.33	187.00	187.00	0.00	0.00
6	One Side	15.00	43.33	-275.00	-275.00	0.00	0.00
		520.00		-187.00	-187.00	1023.58	1936.70
		12.00		-260.00	260.00	279.42	
		520.00		187.00	187.00	1023.58	1936.70
		12.00		-260.00	260.00	279.42	
		0.00	0.00	-187.00	-187.00	0.00	0.00
		15.00		275.00	275.00	0.00	0.00

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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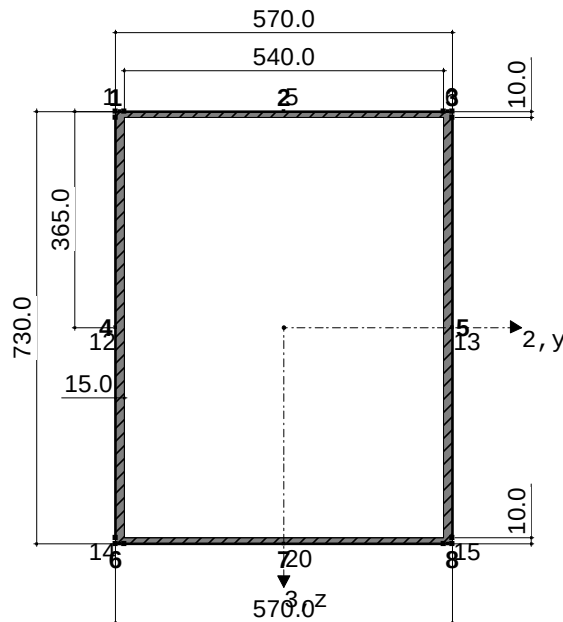
17.05.2009

(B/T)-ZONES

No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm^3]	Area [cm^2]
7	Both Sides	350.00	23.33	-175.00	175.00	349.40	1936.70
8	One Side	15.00		275.00	275.00	751.18	
		0.00	0.00	187.00	187.00	0.00	0.00
		15.00		275.00	275.00	0.00	

KASTEN(A) 570/10/15/540/730/570/10

DETAILED PICTURE



SECTION DATA



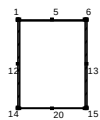
Description	Name	Size	Unit
Querschnittsfläche	A	327.00	cm^2
Schubfläche	A-y	91.44	cm^2
Schubfläche	A-z	184.16	cm^2
Kernfläche A*	A-k	3996.00	cm^2
Schwerpunktabstand von Flanschoberkante	e-z	36.50	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	237231.00	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	194929.00	cm^4
Polares Trägheitsmoment	I-p	432160.00	cm^4
Polares Trägheitsmoment	I-p,M	432160.00	cm^4
Trägheitsradius	j-y	26.93	cm
Trägheitsradius	j-z	24.42	cm
Hauptachsenträgheitsradius	j-2	26.93	cm
Hauptachsenträgheitsradius	j-3	24.42	cm
Polarer Trägheitsradius	j-p	36.35	cm
Polarer Trägheitsradius	j-p,M	36.35	cm
Polarer Trägheitsradius	j-Om,M	1.16	cm
Eigenlast	G	256.70	kg/m
Mantelfläche	U	2.600	m^2/m
Torsionsträgheitsmoment	I-T	308760.00	cm^4
Torsionsträgheitsmoment St. Venant	I-T StVen	199.69	cm^4
Torsionsträgheitsmoment Bredt	I-T Bredt	308561.00	cm^4
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	581801.00	cm^6
Abklingfaktor	Lambda	0.452435	1/cm
Widerstandsmoment	W-y-max	6499.49	cm^3
Widerstandsmoment	W-y-min	-6499.49	cm^3
Widerstandsmoment	W-z	6839.61	cm^3
Wölbwiderstandsmoment	W-Om	8036.90	cm^4
Statisches Moment	S-y-max	1971.19	cm^3

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 120
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SECTION DATA

Description	Name	Size	Unit
Statisches Moment	S-z-max	1883.81	cm ³
Wölbordinate	Omega max	72.39	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	1733.01	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	7884.75	cm ³
Plastisches Widerstandsmoment	Wpl-z	7535.25	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.21	
Plastischer Formbeiwert	Alpha-pl-z	1.10	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

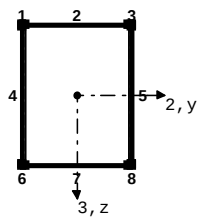
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-28.50	-36.50	0.00	0.00	1.00	-45.39	0.00
2	-28.50	-36.50	0.00	0.00	1.00	-45.39	0.00
3	-27.75	-36.50	990.05	-1505.60	1.00	-72.39	265.72
4	-27.00	-36.50	965.75	-1524.08	1.00	-70.43	319.28
5	0.00	-36.50	0.00	-1883.81	1.00	0.00	1270.15
6	27.00	-36.50	-965.75	-1524.08	1.00	70.43	319.28
7	27.75	-36.50	-990.05	-1505.60	1.00	72.39	265.72
8	28.50	-36.50	0.00	0.00	1.00	45.39	0.00
9	28.50	-36.50	0.00	0.00	1.00	45.39	0.00
10	-28.50	-35.50	1033.15	-1472.13	1.50	-71.39	167.64
11	-28.50	-35.50	-1033.15	-1472.13	1.50	71.39	167.64
12	-28.50	0.00	1971.19	0.00	1.50	0.00	-1733.01
13	-28.50	0.00	-1971.19	0.00	1.50	0.00	-1733.01
14	-28.50	35.50	1033.15	1472.13	1.50	71.39	167.64
15	-28.50	35.50	-1033.15	1472.13	1.50	-71.39	167.64
16	-28.50	36.50	0.00	0.00	1.00	45.39	0.00
17	-28.50	36.50	0.00	0.00	1.00	45.39	0.00
18	-27.75	36.50	990.05	1505.60	1.00	72.39	265.72
19	-27.00	36.50	965.75	1524.08	1.00	70.43	319.28
20	0.00	36.50	0.00	1883.81	1.00	0.00	1270.15
21	27.00	36.50	-965.75	1524.08	1.00	-70.43	319.28
22	27.75	36.50	-990.05	1505.60	1.00	-72.39	265.72
23	28.50	36.50	0.00	0.00	1.00	-45.39	0.00
24	28.50	36.50	0.00	0.00	1.00	-45.39	0.00

Kasten(A) 570/10/15/540/730/570/10

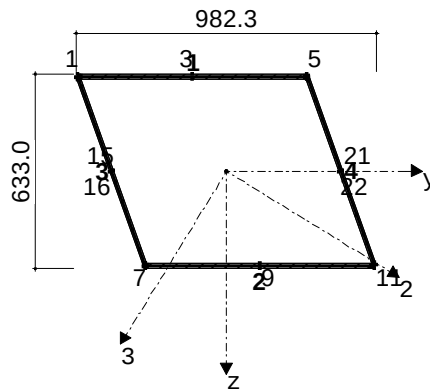
(B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	0.00	0.00	-285.00	-285.00	0.00	0.00
2	Both Sides	10.00	54.00	-365.00	-365.00	0.00	3996.00
3	One Side	10.00	0.00	-270.00	270.00	482.87	3996.00
4	Both Sides	10.00	47.33	-365.00	-365.00	1763.90	3996.00
5	One Side	10.00	0.00	285.00	285.00	0.00	3996.00
6	Both Sides	10.00	47.33	285.00	285.00	0.00	3996.00
7	One Side	10.00	0.00	-285.00	-285.00	1658.51	3996.00
8	Both Sides	10.00	54.00	-365.00	-365.00	736.06	3996.00
9	One Side	10.00	0.00	285.00	285.00	1658.51	3996.00
10	Both Sides	10.00	47.33	285.00	285.00	736.06	3996.00
11	One Side	10.00	0.00	-285.00	-285.00	0.00	0.00
12	Both Sides	10.00	54.00	-365.00	-365.00	0.00	3996.00
13	One Side	10.00	0.00	-270.00	270.00	482.87	3996.00
14	Both Sides	10.00	47.33	-365.00	-365.00	1763.90	3996.00
15	One Side	10.00	0.00	285.00	285.00	0.00	3996.00
16	Both Sides	10.00	47.33	285.00	285.00	0.00	3996.00
17	One Side	10.00	0.00	-285.00	-285.00	1658.51	3996.00
18	Both Sides	10.00	54.00	-365.00	-365.00	736.06	3996.00
19	One Side	10.00	0.00	285.00	285.00	1658.51	3996.00
20	Both Sides	10.00	47.33	285.00	285.00	736.06	3996.00
21	One Side	10.00	0.00	-285.00	-285.00	0.00	0.00
22	Both Sides	10.00	54.00	-365.00	-365.00	0.00	3996.00
23	One Side	10.00	0.00	-270.00	270.00	482.87	3996.00
24	Both Sides	10.00	47.33	-365.00	-365.00	1763.90	3996.00
25	One Side	10.00	0.00	285.00	285.00	0.00	3996.00
26	Both Sides	10.00	47.33	285.00	285.00	0.00	3996.00
27	One Side	10.00	0.00	-285.00	-285.00	1658.51	3996.00
28	Both Sides	10.00	54.00	-365.00	-365.00	736.06	3996.00
29	One Side	10.00	0.00	285.00	285.00	1658.51	3996.00
30	Both Sides	10.00	47.33	285.00	285.00	736.06	3996.00
31	One Side	10.00	0.00	-285.00	-285.00	0.00	0.00
32	Both Sides	10.00	54.00	-365.00	-365.00	0.00	3996.00
33	One Side	10.00	0.00	-270.00	270.00	482.87	3996.00
34	Both Sides	10.00	47.33	-365.00	-365.00	1763.90	3996.00
35	One Side	10.00	0.00	285.00	285.00	0.00	3996.00
36	Both Sides	10.00	47.33	285.00	285.00	0.00	3996.00
37	One Side	10.00	0.00	-285.00	-285.00	1658.51	3996.00
38	Both Sides	10.00	54.00	-365.00	-365.00	736.06	3996.00
39	One Side	10.00	0.00	285.00	285.00	1658.51	3996.00
40	Both Sides	10.00	47.33	285.00	285.00	736.06	3996.00
41	One Side	10.00	0.00	-285.00	-285.00	0.00	0.00
42	Both Sides	10.00	54.00	-365.00	-365.00	0.00	3996.00
43	One Side	10.00	0.00	-270.00	270.00	482.87	3996.00
44	Both Sides	10.00	47.33	-365.00	-365.00	1763.90	3996.00
45	One Side	10.00	0.00	285.00	285.00	0.00	3996.00
46	Both Sides	10.00	47.33	285.00	285.00	0.00	3996.00
47	One Side	10.00	0.00	-285.00	-285.00	1658.51	3996.00
48	Both Sides	10.00	54.00	-365.00	-365.00	736.06	3996.00
49	One Side	10.00	0.00	285.00	285.00	1658.51	3996.00
50	Both Sides	10.00	47.33	285.00	285.00	736.06	3996.00

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 121
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DETAILED PICTURE



SECTION DATA



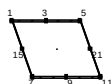
Description	Name	Size	Unit
Querschnittsfläche	A	380.66	cm ²
Schubfläche	A-2	211.83	cm ²
Schubfläche	A-3	100.91	cm ²
Lage des Schwerpunktes	y-S	48.55	cm
Lage des Schwerpunktes	z-S	30.89	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	263274.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	357566.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-yz	93402.00	cm ⁴
Hauptachsenwinkel	Alpha	31.61	°
Hauptachsenträgheitsmoment	I-2	205794.00	cm ⁴
Hauptachsenträgheitsmoment	I-3	415046.00	cm ⁴
Polares Trägheitsmoment	I-p	620840.00	cm ⁴
Polares Trägheitsmoment	I-p,M	620840.00	cm ⁴
Polares Trägheitsmoment	I-Om,M	0.00	cm ⁴
Trägheitsradius	j-y	26.30	cm
Trägheitsradius	j-z	30.65	cm
Trägheitsradius	j-yz	15.66	cm
Hauptachsenträgheitsradius	j-2	23.25	cm
Hauptachsenträgheitsradius	j-3	33.02	cm
Polarer Trägheitsradius	j-p	40.39	cm
Polarer Trägheitsradius	j-p,M	40.39	cm
Polarer Trägheitsradius	j-Om,M	0.74	cm
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	0.00	cm
Eigenlast	G	298.82	kg/m
Mantelfläche	U	5.622	m ² /m
Torsionsträgheitsmoment	I-T	410645.00	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	244.36	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	410401.00	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	y-M	0.00	cm
Schubmittelpunkt-Lage bezogen auf S	z-M	0.01	cm
Wölbwiderstand bezogen auf M	C-M	344142.00	cm ⁶
Abklingfaktor	Lambda	0.678418	1/cm
Widerstandsmoment	W-2-max	5041.47	cm ³
Widerstandsmoment	W-2-min	-5042.13	cm ³
Widerstandsmoment	W-3-max	7163.25	cm ³
Widerstandsmoment	W-3-min	-7164.57	cm ³
Wölbwiderstandsmoment	W-Om max	6624.21	cm ⁴
Wölbwiderstandsmoment	W-Om min	-6624.21	cm ⁴
Statisches Moment	S-2 max	1922.42	cm ³
Statisches Moment	S-3 max	-2714.56	cm ³
Wölbordinate	Omega max	51.95	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	1352.20	cm ⁴
Querschnittsstrecke (DIN 4114)	r-2, DIN	0.01	cm
Querschnittsstrecke (DIN 4114)	r-3, DIN	0.02	cm
Plastisches Widerstandsmoment	Wpl-2-max	7691.24	cm ³

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 122
		17.05.2009

SECTION DATA

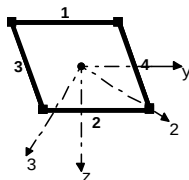
Description	Name	Size	Unit
Plastisches Widerstandsmoment	Wpl-3-max	10856.00	cm ³
Plastischer Formbeiwert	Alpha-pl-2	1.53	
Plastischer Formbeiwert	Alpha-pl-3	1.52	

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-48.55	-31.64	1922.33	186.24	1.50	51.95	108.95
2	-48.55	-30.14	1922.33	186.24	1.50	51.95	108.95
3	-11.05	-31.64	1321.01	-2137.34	1.50	0.00	-1352.20
4	-11.05	-30.14	1321.01	-2137.34	1.50	0.00	-1352.20
5	26.45	-31.64	-381.02	-2679.94	1.50	-51.95	108.95
6	26.45	-30.14	-381.02	-2679.94	1.50	-51.95	108.95
7	-26.45	30.16	-381.28	-2680.16	1.50	-51.95	-108.95
8	-26.45	31.66	-381.28	-2680.16	1.50	-51.95	-108.95
9	11.05	30.16	1320.80	-2136.92	1.50	0.00	1352.20
10	11.05	31.66	1320.80	-2136.92	1.50	0.00	1352.20
11	48.55	30.16	1922.42	187.25	1.50	51.95	-108.95
12	48.55	31.66	1922.42	187.25	1.50	51.95	-108.95
13	-47.98	-31.10	-1922.33	-186.24	1.20	51.95	-108.95
14	-49.11	-30.69	-1922.33	-186.24	1.20	51.95	-108.95
15	-36.93	-0.20	-1552.15	-1928.07	1.20	0.00	-1131.88
16	-38.06	0.21	-1552.15	-1928.07	1.20	0.00	-1131.88
17	-25.88	30.70	-381.28	-2680.16	1.20	-51.95	-108.95
18	-27.01	31.11	-381.28	-2680.16	1.20	-51.95	-108.95
19	27.02	-31.10	-381.02	-2679.94	1.20	-51.95	108.95
20	25.89	-30.69	-381.02	-2679.94	1.20	-51.95	108.95
21	38.07	-0.20	-1552.43	-1927.31	1.20	0.00	1131.88
22	36.94	0.21	-1552.43	-1927.31	1.20	0.00	1131.88
23	49.12	30.70	-1922.42	-187.25	1.20	51.95	108.95
24	47.99	31.11	-1922.42	-187.25	1.20	51.95	108.95

Venlo TREAGER 3

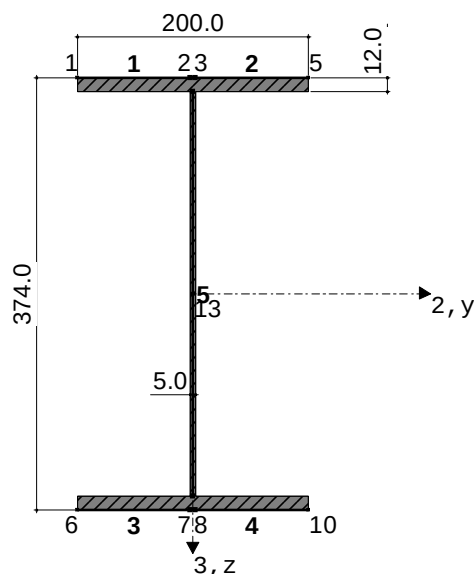


(B/T)-ZONES

No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Qy/Qz[cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	Both Sides	737.26 15.00	49.15	-476.46 -308.95	260.81 -308.94	1078.64 1733.45	0.00
2	Both Sides	737.26 15.00	49.15	-260.78 309.08	476.49 309.09	1078.48 1733.06	0.00
3	Both Sides	640.40 12.00	53.37	-482.05 -299.48	-266.44 303.59	1316.29 1634.56	0.00
4	Both Sides	640.40 12.00	53.37	266.48 -303.45	482.14 299.53	1316.54 1633.86	0.00

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 123
		17.05.2009

DETAILED PICTURE

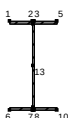


SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	65.50	cm ²
Schubfläche	A-y	40.02	cm ²
Schubfläche	A-z	17.44	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	17517.50	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	1600.36	cm ⁴
Polares Trägheitsmoment	I-p	19117.90	cm ⁴
Trägheitsradius	j-y	16.35	cm
Trägheitsradius	j-z	4.94	cm
Polarer Trägheitsradius	j-p	17.08	cm
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	5.39	cm
Eigenlast	G	51.42	kg/m
Mantelfläche	U	1.538	m ² /m
Torsionsträgheitsmoment	I-T	23.68	cm ⁴
Wölbwiderstand bezogen auf M	C-M	524176.00	cm ⁶
Abklingfaktor	Lambda	0.004174	1/cm
Widerstandsmoment	W-y	936.76	cm ³
Widerstandsmoment	W-z	160.04	cm ³
Wölbwiderstandsmoment	W-Om	2896.00	cm ⁴
Statisches Moment	S-y-max	510.96	cm ³
Statisches Moment	S-z-max	60.00	cm ³
Wölbordinate	Omega max	181.00	cm ²
Wölbfläche (Flächenmoment 1. Grades mit α)	A-Om max	1086.00	cm ⁴
Plastisches Widerstandsmoment	Wpl-y	1021.92	cm ³
Plastisches Widerstandsmoment	Wpl-z	242.19	cm ³
Plastisches Wölbwiderstandsmoment	W-pl-Om	4344.00	cm ⁴
Plastischer Formbeiwert	Alpha-pl-y	1.09	
Plastischer Formbeiwert	Alpha-pl-z	1.51	
Plastischer Formbeiwert	Alpha-pl-Om	1.50	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	c	

STRESS POINTS



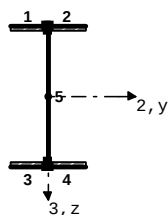
No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-10.00	-18.70	0.00	0.00	1.20	181.00	0.00
2	-0.25	-18.70	-211.37	-59.96	1.20	4.53	-1085.32
3	0.00	-18.70	-216.69	-60.00	1.20	0.00	-1086.00
4	0.25	-18.70	-211.37	59.96	1.20	-4.53	1085.32
5	10.00	-18.70	0.00	0.00	1.20	-181.00	0.00
6	-10.00	18.70	0.00	0.00	1.20	-181.00	0.00
7	-0.25	18.70	-211.37	59.96	1.20	-4.53	-1085.32

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 124
		17.05.2009

STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
8	0.00	18.70	-216.69	60.00	1.20	0.00	-1086.00
9	0.25	18.70	-211.37	-59.96	1.20	4.53	1085.32
10	10.00	18.70	0.00	0.00	1.20	181.00	0.00
11	0.00	-17.50	-436.81	0.00	0.50	0.00	0.00
12	0.00	17.50	-436.81	0.00	0.50	0.00	0.00
13	0.00	0.00	-510.96	0.00	0.50	0.00	0.00

IS 374/200/5/12

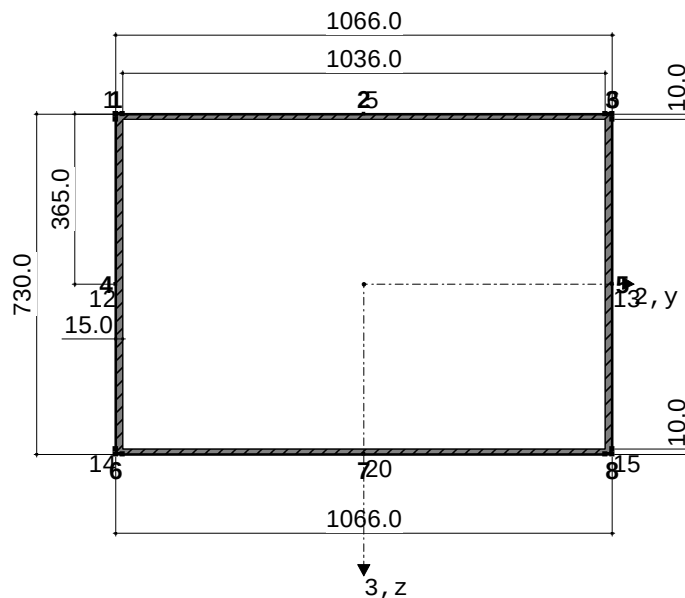


(B/T)-ZONES

No	Restrained	b [mm]	t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
					y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	97.50	12.00	8.13	-2.50	-100.00	105.69
2	One Side	97.50	12.00	8.13	-187.00	-187.00	39.49
3	One Side	97.50	12.00	8.13	2.50	100.00	105.69
4	One Side	97.50	12.00	8.13	-187.00	-187.00	39.49
5	Both Sides	350.00	5.00	70.00	-2.50	-100.00	105.69
					187.00	187.00	39.49
					2.50	100.00	105.69
					187.00	187.00	39.49
					0.00	0.00	486.25
					-175.00	175.00	0.00

KASTEN(A) 1066/10/15/1036/730/1066/10

DETAILED PICTURE



SECTION DATA

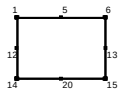
Description	Name	Size	Unit
Querschnittsfläche	A	426.20	cm ²
Schubfläche	A-y	191.13	cm ²
Schubfläche	A-z	152.56	cm ²
Kernfläche A*	A-k	7567.20	cm ²
Schwerpunkt Abstand von Flanschoberkante	e-z	36.50	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	365803.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	790133.00	cm ⁴
Polares Trägheitsmoment	I-p	1.156E+06	cm ⁴
Polares Trägheitsmoment	I-p,M	1.156E+06	cm ⁴

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 125
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SECTION DATA

Description	Name	Size	Unit
Trägheitsradius	j-y	29.30	cm
Trägheitsradius	j-z	43.06	cm
Hauptachsenträgheitsradius	j-2	29.30	cm
Hauptachsenträgheitsradius	j-3	43.06	cm
Polarer Trägheitsradius	j-p	52.08	cm
Polarer Trägheitsradius	j-p,M	52.08	cm
Polarer Trägheitsradius	j-0m,M	7.90	cm
Eigenlast	G	334.57	kg/m
Mantelfläche	U	3.592	m^2/m
Torsionsträgheitsmoment	I-T	748273.00	cm^4
Torsionsträgheitsmoment St. Venant	I-T StVen	232.76	cm^4
Torsionsträgheitsmoment Bredt	I-T Bredt	748041.00	cm^4
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	7.216E+07	cm^6
Abklingfaktor	Lambda	0.063243	1/cm
Widerstandsmoment	W-y-max	10022.00	cm^3
Widerstandsmoment	W-y-min	-10022.00	cm^3
Widerstandsmoment	W-z	14824.30	cm^3
Wölbwiderstandsmoment	W-0m	102274.00	cm^4
Statisches Moment	S-y-max	2863.99	cm^3
Statisches Moment	S-z-max	4218.73	cm^3
Wölbordinate	Omega max	705.56	cm^2
Wölbfläche (Flächenmoment 1. Grades mit <0	A-0m max	23909.10	cm^4
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	11456.00	cm^3
Plastisches Widerstandsmoment	Wpl-z	16874.90	cm^3
Plastischer Formbeiwert	Alpha-pl-y	1.14	
Plastischer Formbeiwert	Alpha-pl-z	1.14	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

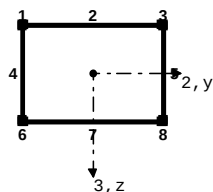
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm^3]		t [cm]	Warping Ordinate Omega[cm^2]	Warping Area A-Omega[cm^4]
	y	z	Qy	Qz			
1	-53.30	-36.50	0.00	0.00	1.00	-678.56	0.00
2	-53.30	-36.50	0.00	0.00	1.00	-678.56	0.00
3	-52.55	-36.50	1882.85	-2851.00	1.00	-705.56	-4339.79
4	-51.80	-36.50	1857.68	-2887.48	1.00	-695.49	-3814.40
5	0.00	-36.50	0.00	-4218.73	1.00	0.00	14198.90
6	51.80	-36.50	-1857.68	-2887.48	1.00	695.49	-3814.40
7	52.55	-36.50	-1882.85	-2851.00	1.00	705.56	-4339.79
8	53.30	-36.50	0.00	0.00	1.00	678.56	0.00
9	53.30	-36.50	0.00	0.00	1.00	678.56	0.00
10	-53.30	-35.50	1926.46	-2787.00	1.50	-695.76	-5384.34
11	53.30	-35.50	-1926.46	-2787.00	1.50	695.76	-5384.34
12	-53.30	0.00	2863.99	0.00	1.50	0.00	-23909.10
13	53.30	0.00	-2863.99	0.00	1.50	0.00	-23909.10
14	-53.30	35.50	1926.46	2787.00	1.50	695.76	-5384.34
15	53.30	35.50	-1926.46	2787.00	1.50	-695.76	-5384.34
16	-53.30	36.50	0.00	0.00	1.00	678.56	0.00
17	-53.30	36.50	0.00	0.00	1.00	678.56	0.00
18	-52.55	36.50	1882.85	2851.00	1.00	705.56	-4339.79
19	-51.80	36.50	1857.68	2887.48	1.00	695.49	-3814.40
20	0.00	36.50	0.00	4218.73	1.00	0.00	14198.90
21	51.80	36.50	-1857.68	2887.48	1.00	-695.49	-3814.40
22	52.55	36.50	-1882.85	2851.00	1.00	-705.56	-4339.79
23	53.30	36.50	0.00	0.00	1.00	-678.56	0.00
24	53.30	36.50	0.00	0.00	1.00	-678.56	0.00

Kasten(A) 1066/10/15/1036/730/1066/10

(B/T)-ZONES

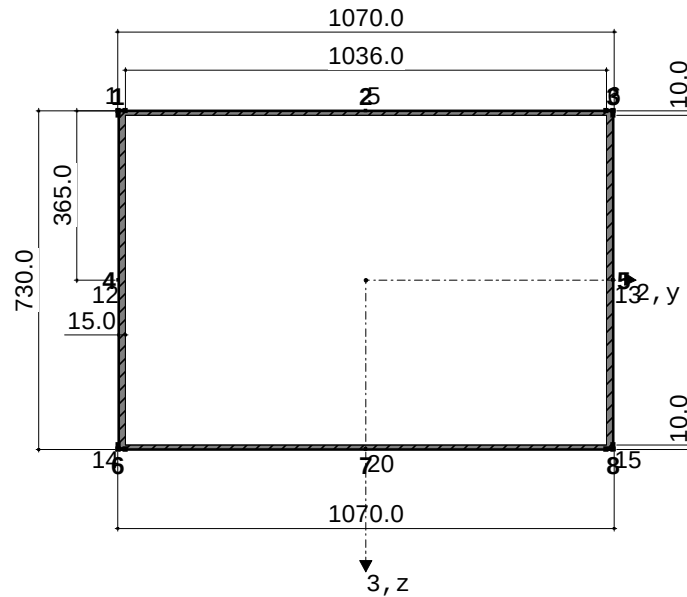


No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm^3]	Area [cm^2]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	0.00	0.00	-533.00	-533.00	0.00	0.00
2	Both Sides	1036.00	103.60	-518.00	518.00	928.84	7567.20
3	One Side	0.00	0.00	533.00	533.00	0.00	0.00
4	Both Sides	1036.00	103.60	-518.00	518.00	928.84	7567.20
5	Both Sides	1036.00	103.60	-518.00	518.00	928.84	7567.20
6	One Side	0.00	0.00	533.00	533.00	0.00	0.00
7	Both Sides	1036.00	103.60	-518.00	518.00	928.84	7567.20
8	One Side	0.00	0.00	533.00	533.00	0.00	0.00

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 126
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KASTEN(A) 1070/10/15/1036/730/1070/10

DETAILED PICTURE



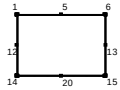
SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	427.00	cm ²
Schubfläche	A-y	191.24	cm ²
Schubfläche	A-z	152.81	cm ²
Kernfläche A*	A-k	7567.20	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	36.50	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	366840.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	792414.00	cm ⁴
Polares Trägheitsmoment	I-p	1.159E+06	cm ⁴
Polares Trägheitsmoment	I-p,M	1.159E+06	cm ⁴
Trägheitsradius	j-y	29.31	cm
Trägheitsradius	j-z	43.08	cm
Hauptachsenträgheitsradius	j-2	29.31	cm
Hauptachsenträgheitsradius	j-3	43.08	cm
Polarer Trägheitsradius	j-p	52.10	cm
Polarer Trägheitsradius	j-p,M	52.10	cm
Polarer Trägheitsradius	j-Om,M	7.91	cm
Eigenlast	G	335.20	kg/m
Mantelfläche	U	3.608	m ² /m
Torsionsträgheitsmoment	I-T	748274.00	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	232.96	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	748041.00	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	7.253E+07	cm ⁶
Abklingfaktor	Lambda	0.063084	1/cm
Widerstandsmoment	W-y-max	10050.40	cm ³
Widerstandsmoment	W-y-min	-10050.40	cm ³
Widerstandsmoment	W-z	14811.50	cm ³
Wölbwiderstandsmoment	W-Om	102790.00	cm ⁴
Statisches Moment	S-y-max	2871.19	cm ³
Statisches Moment	S-z-max	4229.41	cm ³
Wölbordinate	Omega max	705.56	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	24001.70	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	11484.80	cm ³
Plastisches Widerstandsmoment	Wpl-z	16917.70	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.14	
Plastischer Formbeiwert	Alpha-pl-z	1.14	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 127
		17.05.2009

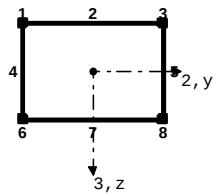
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-53.50	-36.50	0.00	0.00	1.00	-671.36	0.00
2	-53.30	-36.50	-5.32	-7.88	1.00	-678.56	134.99
3	-52.55	-36.50	1882.85	-2861.68	1.00	-705.56	-4297.47
4	-51.80	-36.50	1857.68	-2898.16	1.00	-695.49	-3772.07
5	0.00	-36.50	0.00	-4229.41	1.00	0.00	14241.20
6	51.80	-36.50	-1857.68	-2898.16	1.00	695.49	-3772.07
7	52.55	-36.50	-1882.85	-2861.68	1.00	705.56	-4297.47
8	53.30	-36.50	5.32	-7.88	1.00	678.56	134.99
9	53.50	-36.50	0.00	0.00	1.00	671.36	0.00
10	-53.30	-35.50	1933.66	-2787.00	1.50	-695.76	-5477.01
11	53.30	-35.50	-1933.66	-2787.00	1.50	695.76	-5477.01
12	-53.30	0.00	2871.19	0.00	1.50	0.00	-24001.70
13	53.30	0.00	-2871.19	0.00	1.50	0.00	-24001.70
14	-53.30	35.50	1933.66	2787.00	1.50	695.76	-5477.01
15	53.30	35.50	-1933.66	2787.00	1.50	-695.76	-5477.01
16	-53.50	36.50	0.00	0.00	1.00	671.36	0.00
17	-53.30	36.50	-5.32	7.88	1.00	678.56	134.99
18	-52.55	36.50	1882.85	2861.68	1.00	705.56	-4297.47
19	-51.80	36.50	1857.68	2898.16	1.00	695.49	-3772.07
20	0.00	36.50	0.00	4229.41	1.00	0.00	14241.20
21	51.80	36.50	-1857.68	2898.16	1.00	-695.49	-3772.07
22	52.55	36.50	-1882.85	2861.68	1.00	-705.56	-4297.47
23	53.30	36.50	5.32	7.88	1.00	-678.56	134.99
24	53.50	36.50	0.00	0.00	1.00	-671.36	0.00

Kasten(A) 1070/10/15/1036/730/1070/10

(B/T)-ZONES

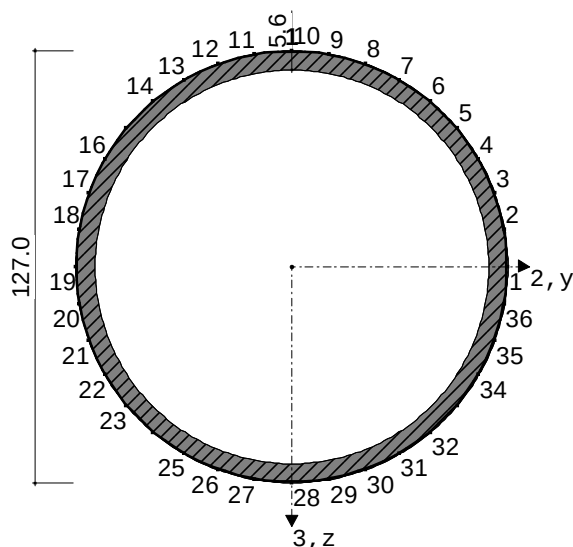


No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	2.00	0.20	-533.00	-535.00	2.66	0.00
		10.00		-365.00	-365.00	3.94	
2	Both Sides	1036.00	103.60	-518.00	518.00	928.84	7567.20
		10.00		-365.00	-365.00	3785.66	
3	One Side	2.00	0.20	533.00	535.00	2.66	0.00
		10.00		-365.00	-365.00	3.94	
4	Both Sides	710.00	47.33	-533.00	-533.00	2558.68	7567.20
		15.00		-355.00	355.00	1393.50	
5	Both Sides	710.00	47.33	533.00	533.00	2558.68	7567.20
		15.00		-355.00	355.00	1393.50	
6	One Side	2.00	0.20	-533.00	-535.00	2.66	0.00
		10.00		365.00	365.00	3.94	
7	Both Sides	1036.00	103.60	-518.00	518.00	928.84	7567.20
		10.00		365.00	365.00	3785.66	
8	One Side	2.00	0.20	533.00	535.00	2.66	0.00
		10.00		365.00	365.00	3.94	

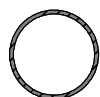
RO 127X5,6

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 128
		17.05.2009

DETAILED PICTURE

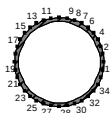


SECTION DATA



Description	Name	Size	Unit
Outside diameter	D	127.00	mm
Wall thickness	t	5.60	mm
Cross-section area	A	21.36	cm ²
Shear area	A ₂	10.68	cm ²
Core area A*	A _c	115.75	cm ²
Moment of inertia	I _y	394.30	cm ⁴
Governing radius of gyration	r _y	4.30	cm
Polar radius of gyration	r _o	6.08	cm
Nominal weight	Wt	16.77	kg/m
Surface area (only outside)	A _{surf}	0.40	m ² /m
Torsional constant	J	786.93	cm ⁴
Elastic section modulus	S _y	62.09	cm ³
Statical moment of area	Q _y	20.65	cm ³
Plastic section modulus	Z _y	82.59	cm ³
Plastic shape factor	Alpha _{pl_2}	1.33	
Buckling stress curve	Bsc _y	a	

STRESS POINTS



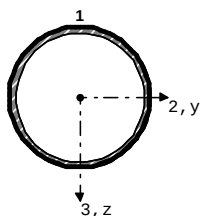
No	Coordinates [cm]		Stat.Moment [cm ³]		t	Warping Ordinate	Warping Area
	y	z	Qy	Qz	[cm]	Omega[cm ²]	A-Omega[cm ⁴]
1	6.35	0.00	-20.61	0.00	0.56	0.00	0.00
2	6.25	-1.10	-20.30	-3.58	0.56	0.00	0.00
3	5.97	-2.17	-19.37	-7.05	0.56	0.00	0.00
4	5.50	-3.17	-17.85	-10.31	0.56	0.00	0.00
5	4.86	-4.08	-15.79	-13.25	0.56	0.00	0.00
6	4.08	-4.86	-13.25	-15.79	0.56	0.00	0.00
7	3.17	-5.50	-10.31	-17.85	0.56	0.00	0.00
8	2.17	-5.97	-7.05	-19.37	0.56	0.00	0.00
9	1.10	-6.25	-3.58	-20.30	0.56	0.00	0.00
10	0.00	-6.35	0.00	-20.61	0.56	0.00	0.00
11	-1.10	-6.25	3.58	-20.30	0.56	0.00	0.00
12	-2.17	-5.97	7.05	-19.37	0.56	0.00	0.00
13	-3.17	-5.50	10.31	-17.85	0.56	0.00	0.00
14	-4.08	-4.86	13.25	-15.79	0.56	0.00	0.00
15	-4.86	-4.08	15.79	-13.25	0.56	0.00	0.00
16	-5.50	-3.17	17.85	-10.31	0.56	0.00	0.00
17	-5.97	-2.17	19.37	-7.05	0.56	0.00	0.00
18	-6.25	-1.10	20.30	-3.58	0.56	0.00	0.00
19	-6.35	0.00	20.61	0.00	0.56	0.00	0.00
20	-6.25	1.10	20.30	3.58	0.56	0.00	0.00
21	-5.97	2.17	19.37	7.05	0.56	0.00	0.00

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 129
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STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
22	-5.50	3.17	17.85	10.31	0.56	0.00	0.00
23	-4.86	4.08	15.79	13.25	0.56	0.00	0.00
24	-4.08	4.86	13.25	15.79	0.56	0.00	0.00
25	-3.17	5.50	10.31	17.85	0.56	0.00	0.00
26	-2.17	5.97	7.05	19.37	0.56	0.00	0.00
27	-1.10	6.25	3.58	20.30	0.56	0.00	0.00
28	0.00	6.35	0.00	20.61	0.56	0.00	0.00
29	1.10	6.25	-3.58	20.30	0.56	0.00	0.00
30	2.17	5.97	-7.05	19.37	0.56	0.00	0.00
31	3.17	5.50	-10.31	17.85	0.56	0.00	0.00
32	4.08	4.86	-13.25	15.79	0.56	0.00	0.00
33	4.86	4.08	-15.79	13.25	0.56	0.00	0.00
34	5.50	3.17	-17.85	10.31	0.56	0.00	0.00
35	5.97	2.17	-19.37	7.05	0.56	0.00	0.00
36	6.25	1.10	-20.30	3.58	0.56	0.00	0.00

RO 127x5,6

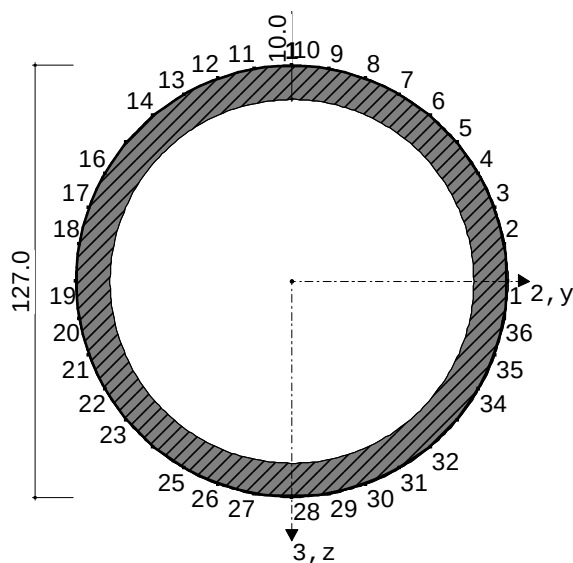


(B/T)-ZONES

No	Restrained	d [mm]	d/t [-]	Av. Stat. Moments Q2/Q3 [cm ³]	Av. Stat. Moments Q2/Q3 [cm ²]
1	Tubes	127.00 5.60	22.68	0.00 0.00	115.75

RO 127X10

DETAILED PICTURE



SECTION DATA

Description	Name	Size	Unit
Outside diameter	D	127.00	mm

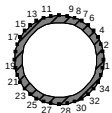
Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 130
		17.05.2009

SECTION DATA



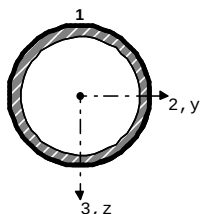
Description	Name	Size	Unit
Wall thickness	t	10.00	mm
Cross-section area	A	36.76	cm ²
Shear area	A ₂	18.45	cm ²
Core area A*	A _c	107.51	cm ²
Moment of inertia	I _y	633.55	cm ⁴
Governing radius of gyration	r _y	4.15	cm
Polar radius of gyration	r _o	5.87	cm
Nominal weight	Wt	28.85	kg/m
Surface area (only outside)	A _{surf}	0.40	m ² /m
Torsional constant	J	1257.90	cm ⁴
Elastic section modulus	S _y	99.77	cm ³
Statical moment of area	Q _y	34.31	cm ³
Plastic section modulus	Z _y	137.22	cm ³
Plastic shape factor	Alpha _{pl,2}	1.38	
Buckling stress curve	Bsc _y	a	

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t	Warping Ordinate	Warping Area
	y	z	Qy	Qz	[cm]	Omega[cm ²]	A-Omega[cm ⁴]
1	6.35	0.00	-34.19	0.00	1.00	0.00	0.00
2	6.25	-1.10	-33.67	-5.94	1.00	0.00	0.00
3	5.97	-2.17	-32.13	-11.69	1.00	0.00	0.00
4	5.50	-3.17	-29.61	-17.09	1.00	0.00	0.00
5	4.86	-4.08	-26.19	-21.98	1.00	0.00	0.00
6	4.08	-4.86	-21.98	-26.19	1.00	0.00	0.00
7	3.17	-5.50	-17.10	-29.61	1.00	0.00	0.00
8	2.17	-5.97	-11.69	-32.13	1.00	0.00	0.00
9	1.10	-6.25	-5.94	-33.67	1.00	0.00	0.00
10	0.00	-6.35	0.00	-34.19	1.00	0.00	0.00
11	-1.10	-6.25	5.94	-33.67	1.00	0.00	0.00
12	-2.17	-5.97	11.69	-32.13	1.00	0.00	0.00
13	-3.17	-5.50	17.09	-29.61	1.00	0.00	0.00
14	-4.08	-4.86	21.98	-26.19	1.00	0.00	0.00
15	-4.86	-4.08	26.19	-21.98	1.00	0.00	0.00
16	-5.50	-3.17	29.61	-17.10	1.00	0.00	0.00
17	-5.97	-2.17	32.13	-11.69	1.00	0.00	0.00
18	-6.25	-1.10	33.67	-5.94	1.00	0.00	0.00
19	-6.35	0.00	34.19	0.00	1.00	0.00	0.00
20	-6.25	1.10	33.67	5.94	1.00	0.00	0.00
21	-5.97	2.17	32.13	11.69	1.00	0.00	0.00
22	-5.50	3.17	29.61	17.09	1.00	0.00	0.00
23	-4.86	4.08	26.19	21.98	1.00	0.00	0.00
24	-4.08	4.86	21.98	26.19	1.00	0.00	0.00
25	-3.17	5.50	17.10	29.61	1.00	0.00	0.00
26	-2.17	5.97	11.69	32.13	1.00	0.00	0.00
27	-1.10	6.25	5.94	33.67	1.00	0.00	0.00
28	0.00	6.35	0.00	34.19	1.00	0.00	0.00
29	1.10	6.25	-5.94	33.67	1.00	0.00	0.00
30	2.17	5.97	-11.69	32.13	1.00	0.00	0.00
31	3.17	5.50	-17.09	29.61	1.00	0.00	0.00
32	4.08	4.86	-21.98	26.19	1.00	0.00	0.00
33	4.86	4.08	-26.19	21.98	1.00	0.00	0.00
34	5.50	3.17	-29.61	17.10	1.00	0.00	0.00
35	5.97	2.17	-32.13	11.69	1.00	0.00	0.00
36	6.25	1.10	-33.67	5.94	1.00	0.00	0.00

RO 127x10

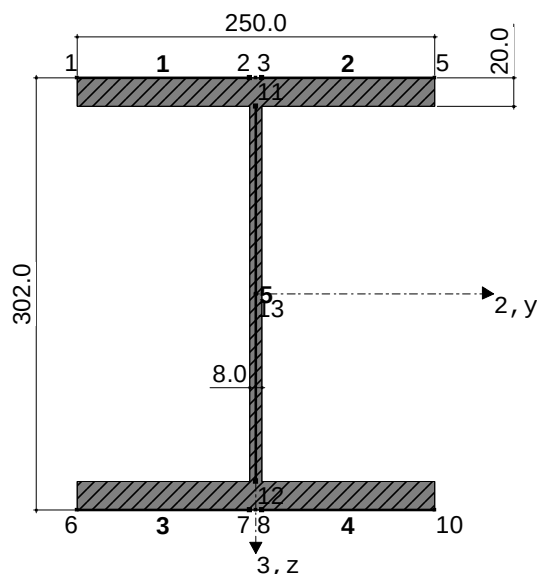


(B/T)-ZONES

No	Restrained	d t[mm]	d/t[-]	Av. Stat. Moments Q2/Q3 [cm ³]	Av. Stat. Moments Q2/Q3 [cm ²]
1	Tubes	127.00 10.00	12.70	0.00 0.00	107.51

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 131
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DETAILED PICTURE

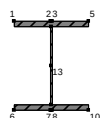


SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	120.96	cm ²
Schubfläche	A-y	83.38	cm ²
Schubfläche	A-z	21.35	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	21113.30	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	5209.45	cm ⁴
Polares Trägheitsmoment	I-p	26322.80	cm ⁴
Trägheitsradius	j-y	13.21	cm
Trägheitsradius	j-z	6.56	cm
Polarer Trägheitsradius	j-p	14.75	cm
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	6.93	cm
Eigenlast	G	94.95	kg/m
Mantelfläche	U	1.588	m ² /m
Torsionsträgheitsmoment	I-T	131.43	cm ⁴
Wölbwiderstand bezogen auf M	C-M	1.035E+06	cm ⁶
Abklingfaktor	Lambda	0.006997	1/cm
Widerstandsmoment	W-y	1398.23	cm ³
Widerstandsmoment	W-z	416.76	cm ³
Wölbwiderstandsmoment	W-Om	5875.00	cm ⁴
Statisches Moment	S-y-max	773.64	cm ³
Statisches Moment	S-z-max	156.23	cm ³
Wölbordinate	Omega max	176.25	cm ²
Wölbfläche (Flächenmoment 1. Grades mit α)	A-Om max	2203.13	cm ⁴
Plastisches Widerstandsmoment	Wpl-y	1547.29	cm ³
Plastisches Widerstandsmoment	Wpl-z	629.19	cm ³
Plastisches Wölbwiderstandsmoment	W-pl-Om	8812.50	cm ⁴
Plastischer Formbeiwert	Alpha-pl-y	1.11	
Plastischer Formbeiwert	Alpha-pl-z	1.51	
Plastischer Formbeiwert	Alpha-pl-Om	1.50	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	c	

STRESS POINTS



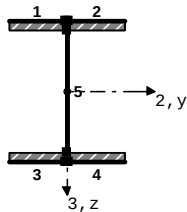
No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-12.50	-15.10	0.00	0.00	2.00	176.25	0.00
2	-0.40	-15.10	-340.54	-156.08	2.00	5.64	-2200.87
3	0.00	-15.10	-351.45	-156.23	2.00	0.00	-2203.13
4	0.40	-15.10	-340.54	156.08	2.00	-5.64	2200.87
5	12.50	-15.10	0.00	0.00	2.00	-176.25	0.00
6	-12.50	15.10	0.00	0.00	2.00	-176.25	0.00
7	-0.40	15.10	-340.54	156.08	2.00	-5.64	-2200.87

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 132
		17.05.2009

STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
8	0.00	15.10	-351.45	156.23	2.00	0.00	-2203.13
9	0.40	15.10	-340.54	-156.08	2.00	5.64	2200.87
10	12.50	15.10	0.00	0.00	2.00	176.25	0.00
11	0.00	-13.10	-706.65	0.00	0.80	0.00	0.00
12	0.00	13.10	-706.65	0.00	0.80	0.00	0.00
13	0.00	0.00	-773.64	0.00	0.80	0.00	0.00

IS 302/250/8/20

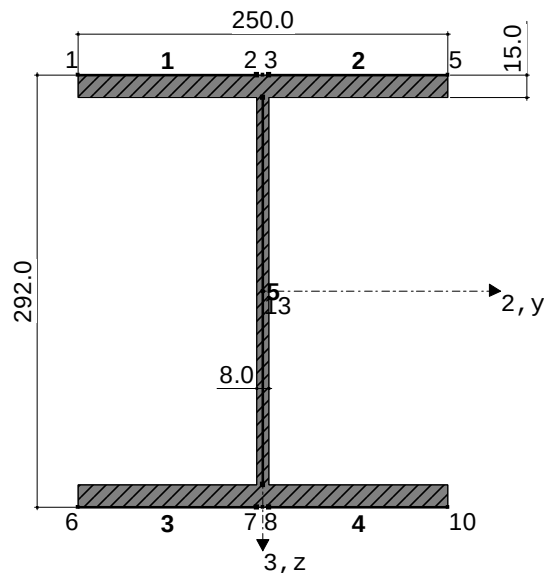


(B/T)-ZONES

No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	121.00 20.00	6.05	-4.00 -151.00	-125.00 -151.00	170.27 102.44
2	One Side	121.00 20.00	6.05	4.00 -151.00	125.00 -151.00	170.27 102.44
3	One Side	121.00 20.00	6.05	-4.00 151.00	-125.00 151.00	170.27 102.44
4	One Side	121.00 20.00	6.05	4.00 151.00	125.00 151.00	170.27 102.44
5	Both Sides	262.00 8.00	32.75	0.00 -131.00	0.00 131.00	751.31 0.00

IS 292/250/8/15

DETAILED PICTURE



SECTION DATA



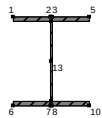
Description	Name	Size	Unit
Querschnittsfläche	A	95.96	cm ²
Schubfläche	A-y	62.54	cm ²
Schubfläche	A-z	20.63	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	15599.70	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	3907.37	cm ⁴
Polares Trägheitsmoment	I-p	19507.10	cm ⁴
Trägheitsradius	j-y	12.75	cm
Trägheitsradius	j-z	6.38	cm
Polarer Trägheitsradius	j-p	14.26	cm

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 133
		17.05.2009

SECTION DATA

Description	Name	Size	Unit
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	6.84	cm
Eigenlast	G	75.33	kg/m
Mantelfläche	U	1.568	m ² /m
Torsionsträgheitsmoment	I-T	58.85	cm ⁴
Wölbwiderstand bezogen auf M	C-M	749307.00	cm ⁶
Abklingfaktor	Lambda	0.005504	1/cm
Widerstandsmoment	W-y	1068.47	cm ³
Widerstandsmoment	W-z	312.59	cm ³
Wölbwiderstandsmoment	W-Om	4328.13	cm ⁴
Statisches Moment	S-y-max	588.02	cm ³
Statisches Moment	S-z-max	117.17	cm ³
Wölbordinate	Omega max	173.13	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	1623.05	cm ⁴
Plastisches Widerstandsmoment	Wpl-y	1176.04	cm ³
Plastisches Widerstandsmoment	Wpl-z	472.94	cm ³
Plastisches Wölbwiderstandsmoment	W-pl-Om	6492.19	cm ⁴
Plastischer Formbeiwert	Alpha-pl-y	1.10	
Plastischer Formbeiwert	Alpha-pl-z	1.51	
Plastischer Formbeiwert	Alpha-pl-Om	1.50	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	c	

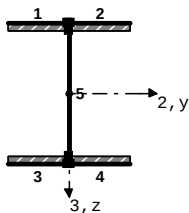
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-12.50	-14.60	0.00	0.00	1.50	173.13	0.00
2	-0.40	-14.60	-250.79	-117.06	1.50	5.54	-1621.38
3	0.00	-14.60	-258.66	-117.17	1.50	0.00	-1623.05
4	0.40	-14.60	-250.79	-117.06	1.50	-5.54	-1621.38
5	12.50	-14.60	0.00	0.00	1.50	-173.13	0.00
6	-12.50	14.60	0.00	0.00	1.50	-173.13	0.00
7	-0.40	14.60	-250.79	117.06	1.50	-5.54	-1621.38
8	0.00	14.60	-258.66	117.17	1.50	0.00	-1623.05
9	0.40	14.60	-250.79	117.06	1.50	5.54	-1621.38
10	12.50	14.60	0.00	0.00	1.50	173.13	0.00
11	0.00	-13.10	-521.39	0.00	0.80	0.00	0.00
12	0.00	13.10	-521.39	0.00	0.80	0.00	0.00
13	0.00	0.00	-588.02	0.00	0.80	0.00	0.00

IS 292/250/8/15

(B/T)-ZONES

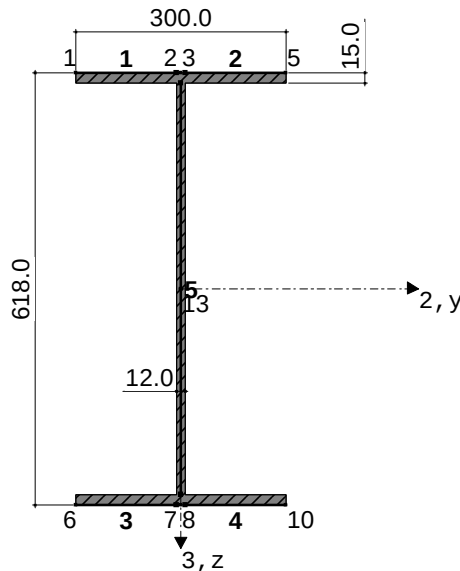


No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	121.00	8.07	-4.00	-125.00	125.40
		15.00		-146.00	-146.00	76.83
2	One Side	121.00	8.07	4.00	125.00	125.40
		15.00		-146.00	-146.00	76.83
3	One Side	121.00	8.07	-4.00	-125.00	125.40
		15.00		146.00	146.00	76.83
4	One Side	121.00	8.07	4.00	125.00	125.40
		15.00		146.00	146.00	76.83
5	Both Sides	262.00	32.75	0.00	0.00	565.81
		8.00		-131.00	131.00	0.00

IS 618/300/12/15

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 134
		17.05.2009

DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	160.56	cm ²
Schubfläche	A-y	75.21	cm ²
Schubfläche	A-z	68.50	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	102159.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	6758.47	cm ⁴
Polares Trägheitsmoment	I-p	108917.00	cm ⁴
Trägheitsradius	j-y	25.22	cm
Trägheitsradius	j-z	6.49	cm
Polarer Trägheitsradius	j-p	26.05	cm
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	7.56	cm
Eigenlast	G	126.04	kg/m
Mantelfläche	U	2.412	m ² /m
Torsionsträgheitsmoment	I-T	100.11	cm ⁴
Wölbwiderstand bezogen auf M	C-M	6.136E+06	cm ⁶
Abklingfaktor	Lambda	0.002509	1/cm
Widerstandsmoment	W-y	3306.11	cm ³
Widerstandsmoment	W-z	450.56	cm ³
Wölbwiderstandsmoment	W-Om	13567.50	cm ⁴
Statisches Moment	S-y-max	1875.37	cm ³
Statisches Moment	S-z-max	168.68	cm ³
Wölbordinate	Omega max	452.25	cm ²
Wölbfläche (Flächenmoment 1. Grades mit α)	A-Om max	5087.81	cm ⁴
Plastisches Widerstandsmoment	Wpl-y	3750.73	cm ³
Plastisches Widerstandsmoment	Wpl-z	696.17	cm ³
Plastisches Wölbwiderstandsmoment	W-pl-Om	20351.30	cm ⁴
Plastischer Formbeiwert	Alpha-pl-y	1.13	
Plastischer Formbeiwert	Alpha-pl-z	1.55	
Plastischer Formbeiwert	Alpha-pl-Om	1.50	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	c	

STRESS POINTS



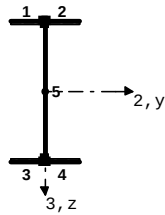
No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-15.00	-30.90	0.00	0.00	1.50	452.25	0.00
2	-0.60	-30.90	-646.90	-168.43	1.50	18.09	-5079.67
3	0.00	-30.90	-672.76	-168.68	1.50	0.00	-5087.81
4	0.60	-30.90	-646.90	168.43	1.50	-18.09	5079.67
5	15.00	-30.90	0.00	0.00	1.50	-452.25	0.00
6	-15.00	30.90	0.00	0.00	1.50	-452.25	0.00
7	-0.60	30.90	-646.90	168.43	1.50	-18.09	-5079.67

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 135
		17.05.2009

STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
8	0.00	30.90	-672.76	168.68	1.50	0.00	-5087.81
9	0.60	30.90	-646.90	-168.43	1.50	18.09	5079.67
10	15.00	30.90	0.00	0.00	1.50	452.25	0.00
11	0.00	-29.40	-1366.99	0.00	1.20	0.00	0.00
12	0.00	29.40	-1366.99	0.00	1.20	0.00	0.00
13	0.00	0.00	-1875.37	0.00	1.20	0.00	0.00

IS 618/300/12/15

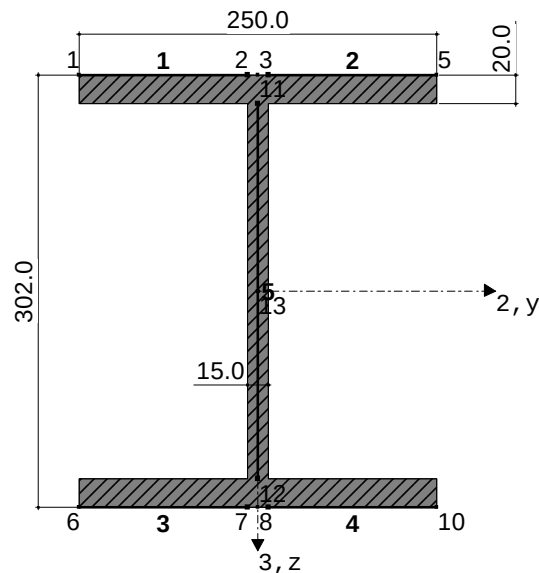


(B/T)-ZONES

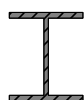
No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	144.00	9.60	-6.00	-150.00	323.45
		15.00		-309.00	-309.00	110.15
2	One Side	144.00	9.60	6.00	150.00	323.45
		15.00		-309.00	-309.00	110.15
3	One Side	144.00	9.60	-6.00	-150.00	323.45
		15.00		309.00	309.00	110.15
4	One Side	144.00	9.60	6.00	150.00	323.45
		15.00		309.00	309.00	110.15
5	Both Sides	588.00	49.00	0.00	0.00	1705.91
		12.00		-294.00	294.00	0.00

IS 302/250/15/20

DETAILED PICTURE



SECTION DATA



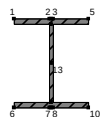
Description	Name	Size	Unit
Querschnittsfläche	A	139.30	cm ²
Schubfläche	A-y	83.62	cm ²
Schubfläche	A-z	38.60	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	22162.40	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	5215.70	cm ⁴
Polares Trägheitsmoment	I-p	27378.10	cm ⁴
Trägheitsradius	j-y	12.61	cm
Trägheitsradius	j-z	6.12	cm
Polarer Trägheitsradius	j-p	14.02	cm

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 136
		17.05.2009

SECTION DATA

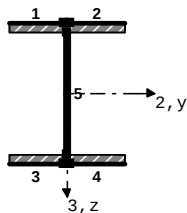
Description	Name	Size	Unit
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	6.71	cm
Eigenlast	G	109.35	kg/m
Mantelfläche	U	1.574	m ² /m
Torsionsträgheitsmoment	I-T	158.34	cm ⁴
Wölbwiderstand bezogen auf M	C-M	1.035E+06	cm ⁶
Abklingfaktor	Lambda	0.007680	1/cm
Widerstandsmoment	W-y	1467.71	cm ³
Widerstandsmoment	W-z	417.26	cm ³
Wölbwiderstandsmoment	W-Om	5875.00	cm ⁴
Statisches Moment	S-y-max	833.71	cm ³
Statisches Moment	S-z-max	156.10	cm ³
Wölbordinate	Omega max	176.25	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	2203.13	cm ⁴
Plastisches Widerstandsmoment	Wpl-y	1667.42	cm ³
Plastisches Widerstandsmoment	Wpl-z	639.74	cm ³
Plastisches Wölbwiderstandsmoment	W-pl-Om	8812.50	cm ⁴
Plastischer Formbeiwert	Alpha-pl-y	1.14	
Plastischer Formbeiwert	Alpha-pl-z	1.53	
Plastischer Formbeiwert	Alpha-pl-Om	1.50	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	c	

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-12.50	-15.10	0.00	0.00	2.00	176.25	0.00
2	-0.75	-15.10	-329.64	-155.63	2.00	10.57	-2195.19
3	0.00	-15.10	-348.17	-156.10	2.00	0.00	-2203.13
4	0.75	-15.10	-329.64	155.63	2.00	-10.57	2195.19
5	12.50	-15.10	0.00	0.00	2.00	-176.25	0.00
6	-12.50	15.10	0.00	0.00	2.00	-176.25	0.00
7	-0.75	15.10	-329.64	155.63	2.00	-10.57	-2195.19
8	0.00	15.10	-348.17	156.10	2.00	0.00	-2203.13
9	0.75	15.10	-329.64	-155.63	2.00	10.57	2195.19
10	12.50	15.10	0.00	0.00	2.00	176.25	0.00
11	0.00	-13.10	-707.20	0.00	1.50	0.00	0.00
12	0.00	13.10	-707.20	0.00	1.50	0.00	0.00
13	0.00	0.00	-833.71	0.00	1.50	0.00	0.00

IS 302/250/15/20



(B/T)-ZONES

No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	117.50	5.88	-7.50	-125.00	164.82
		20.00		-151.00	-151.00	100.84
2	One Side	117.50	5.88	7.50	125.00	164.82
		20.00		-151.00	-151.00	100.84
3	One Side	117.50	5.88	-7.50	-125.00	164.82
		20.00		151.00	151.00	100.84
4	One Side	117.50	5.88	7.50	125.00	164.82
		20.00		151.00	151.00	100.84
5	Both Sides	262.00	17.47	0.00	0.00	791.54
		15.00		-131.00	131.00	0.00

IS 292/250/10/15

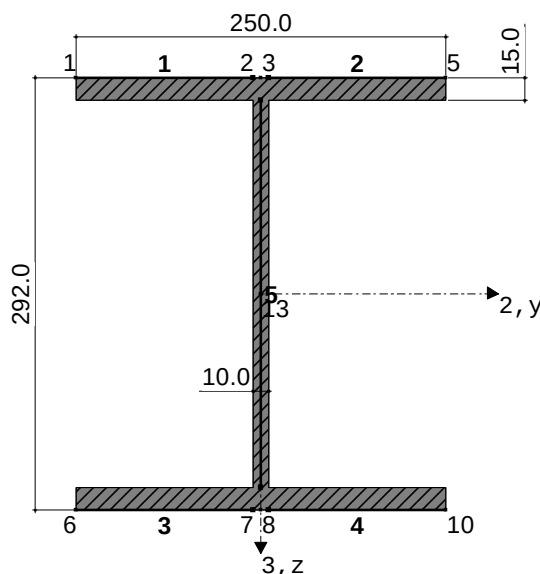
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

Page: 137

17.05.2009

DETAILED PICTURE

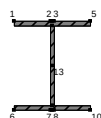


SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	101.20	cm ²
Schubfläche	A-y	62.58	cm ²
Schubfläche	A-z	25.44	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	15899.50	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	3908.43	cm ⁴
Polares Trägheitsmoment	I-p	19807.90	cm ⁴
Trägheitsradius	j-y	12.53	cm
Trägheitsradius	j-z	6.21	cm
Polarer Trägheitsradius	j-p	13.99	cm
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	6.76	cm
Eigenlast	G	79.44	kg/m
Mantelfläche	U	1.564	m ² /m
Torsionsträgheitsmoment	I-T	63.36	cm ⁴
Wölbwiderstand bezogen auf M	C-M	749307.00	cm ⁶
Abklingfaktor	Lambda	0.005711	1/cm
Widerstandsmoment	W-y	1089.01	cm ³
Widerstandsmoment	W-z	312.67	cm ³
Wölbwiderstandsmoment	W-Om	4328.13	cm ⁴
Statisches Moment	S-y-max	605.18	cm ³
Statisches Moment	S-z-max	117.15	cm ³
Wölbordinate	Omega max	173.13	cm ²
Wölbfläche (Flächenmoment 1. Grades mit α)	A-Om max	1623.05	cm ⁴
Plastisches Widerstandsmoment	Wpl-y	1210.36	cm ³
Plastisches Widerstandsmoment	Wpl-z	475.30	cm ³
Plastisches Wölbwiderstandsmoment	W-pl-Om	6492.19	cm ⁴
Plastischer Formbeiwert	Alpha-pl-y	1.11	
Plastischer Formbeiwert	Alpha-pl-z	1.52	
Plastischer Formbeiwert	Alpha-pl-Om	1.50	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	c	

STRESS POINTS



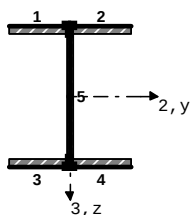
No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-12.50	-14.60	0.00	0.00	1.50	173.13	0.00
2	-0.50	-14.60	-248.48	-116.98	1.50	6.93	-1620.45
3	0.00	-14.60	-257.98	-117.15	1.50	0.00	-1623.05
4	0.50	-14.60	-248.48	116.98	1.50	-6.93	1620.45
5	12.50	-14.60	0.00	0.00	1.50	-173.13	0.00
6	-12.50	14.60	0.00	0.00	1.50	-173.13	0.00
7	-0.50	14.60	-248.48	116.98	1.50	-6.93	-1620.45

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 138
		17.05.2009

STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
8	0.00	14.60	-257.98	117.15	1.50	0.00	-1623.05
9	0.50	14.60	-248.48	-116.98	1.50	6.93	1620.45
10	12.50	14.60	0.00	0.00	1.50	173.13	0.00
11	0.00	-13.10	-521.61	0.00	1.00	0.00	0.00
12	0.00	13.10	-521.61	0.00	1.00	0.00	0.00
13	0.00	0.00	-605.18	0.00	1.00	0.00	0.00

IS 292/250/10/15

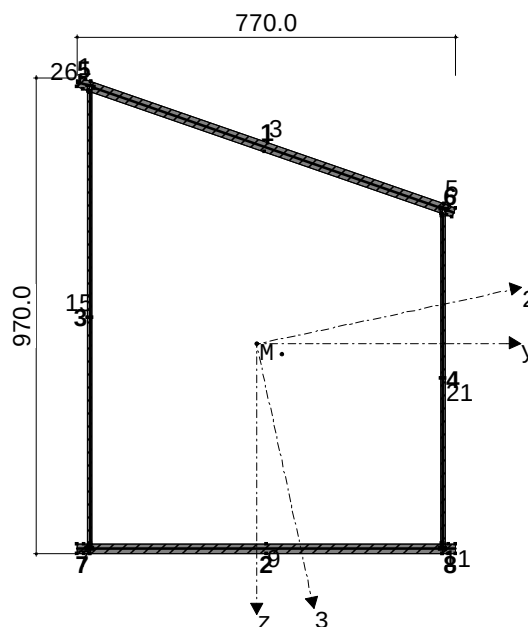


(B/T)-ZONES

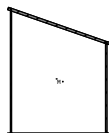
No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	120.00	8.00	-5.00	-125.00	124.24
		15.00		-146.00	-146.00	76.50
2	One Side	120.00	8.00	5.00	125.00	124.24
		15.00		-146.00	-146.00	76.50
3	One Side	120.00	8.00	-5.00	-125.00	124.24
		15.00		146.00	146.00	76.50
4	One Side	120.00	8.00	5.00	125.00	124.24
		15.00		146.00	146.00	76.50
5	Both Sides	262.00	26.20	0.00	0.00	577.32
		10.00		-131.00	131.00	0.00

VENLO TREAGER 2A

DETAILED PICTURE



SECTION DATA

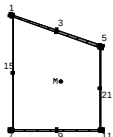


Description	Name	Size	Unit
Querschnittsfläche	A	475.01	cm ²
Schubfläche	A-2	188.62	cm ²
Schubfläche	A-3	166.37	cm ²
Lage des Schwerpunktes	y-S	34.11	cm
Lage des Schwerpunktes	z-S	52.43	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	633878.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	359452.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-yz	62182.50	cm ⁴
Hauptachsenwinkel	Alpha	-12.19	°

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 139
		17.05.2009

SECTION DATA

Description	Name	Size	Unit
Hauptachsenträgheitsmoment	I-2	647311.00	cm ⁴
Hauptachsenträgheitsmoment	I-3	346020.00	cm ⁴
Polares Trägheitsmoment	I-p	993331.00	cm ⁴
Polares Trägheitsmoment	I-p,M	1.009E+06	cm ⁴
Polares Trägheitsmoment	I-Om,M	0.00	cm ⁴
Trägheitsradius	j-y	36.53	cm
Trägheitsradius	j-z	27.51	cm
Trägheitsradius	j-yz	11.44	cm
Hauptachsenträgheitsradius	j-2	36.92	cm
Hauptachsenträgheitsradius	j-3	26.99	cm
Polarer Trägheitsradius	j-p	45.73	cm
Polarer Trägheitsradius	j-p,M	46.08	cm
Polarer Trägheitsradius	j-Om,M	7.09	cm
Trägheitsradius des Gurtquerschnitts (1/5	j-zg	0.00	cm
Eigenlast	G	372.88	kg/m
Mantelfläche	U	6.384	m ² /m
Torsionsträgheitsmoment	I-T	584165.00	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	468.61	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	583696.00	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	y-M	5.26	cm
Schubmittelpunkt-Lage bezogen auf S	z-M	2.20	cm
Wölbwiderstand bezogen auf M	C-M	5.064E+07	cm ⁶
Abklingfaktor	Lambda	0.066702	1/cm
Widerstandsmoment	W-2-max	12835.90	cm ³
Widerstandsmoment	W-2-min	-10699.70	cm ³
Widerstandsmoment	W-3-max	7636.66	cm ³
Widerstandsmoment	W-3-min	-7718.31	cm ³
Wölbwiderstandsmoment	W-Om max	73516.70	cm ⁴
Wölbwiderstandsmoment	W-Om min	-75464.40	cm ⁴
Statisches Moment	S-2 max	-4250.75	cm ³
Statisches Moment	S-3 max	-2957.42	cm ³
Wölbordinate	Omega max	688.88	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω	A-Om max	22311.70	cm ⁴
Querschnittsstrecke (DIN 4114)	r-2, DIN	-0.99	cm
Querschnittsstrecke (DIN 4114)	r-3, DIN	-4.13	cm
Plastisches Widerstandsmoment	Wpl-2-max	16178.90	cm ³
Plastisches Widerstandsmoment	Wpl-3-max	11392.30	cm ³
Plastischer Formbeiwert	Alpha-pl-2	1.51	
Plastischer Formbeiwert	Alpha-pl-3	1.49	



STRESS POINTS

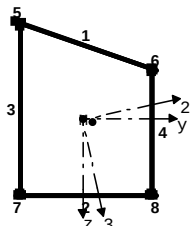
No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-33.78	-53.38	1871.21	-2158.73	2.00	478.88	-6034.57
2	-34.43	-51.49	1871.21	-2158.73	2.00	478.88	-6034.57
3	2.22	-40.88	-1817.25	-2611.04	2.00	-51.76	-22311.70
4	1.57	-38.99	-1817.25	-2611.04	2.00	-51.76	-22311.70
5	38.22	-28.38	-4004.71	-590.69	2.00	-582.40	1854.99
6	37.57	-26.49	-4004.71	-590.69	2.00	-582.40	1854.99
7	-34.11	40.87	-3117.36	-1146.12	2.00	-482.29	6456.47
8	-34.11	42.87	-3117.36	-1146.12	2.00	-482.29	6456.47
9	1.89	40.87	-419.94	-2910.81	2.00	53.71	21885.40
10	1.89	42.87	-419.94	-2910.81	2.00	53.71	21885.40
11	37.89	40.87	2822.90	-2150.65	2.00	589.71	-1277.76
12	37.89	42.87	2822.90	-2150.65	2.00	589.71	-1277.76
13	-33.61	-52.43	-2136.56	2054.24	1.00	478.88	3636.44
14	-34.61	-52.43	-2136.56	2054.24	1.00	478.88	3636.44
15	-33.61	-5.28	-3759.11	787.93	1.00	-1.70	-7613.08
16	-34.61	-5.28	-3759.11	787.93	1.00	-1.70	-7613.08
17	-33.61	41.87	-3280.47	-934.44	1.00	-482.29	3797.11
18	-34.61	41.87	-3280.47	-934.44	1.00	-482.29	3797.11
19	38.39	-27.43	-4084.61	-398.26	1.00	-582.40	4727.62
20	37.39	-27.43	-4084.61	-398.26	1.00	-582.40	4727.62
21	38.39	7.22	-4134.95	924.45	1.00	3.66	14754.30
22	37.39	7.22	-4134.95	924.45	1.00	3.66	14754.30
23	38.39	41.87	-3062.74	2007.11	1.00	589.71	4474.23
24	37.39	41.87	-3062.74	2007.11	1.00	589.71	4474.23
25	-35.94	-54.13	0.00	0.00	2.00	567.56	0.00
26	-36.60	-52.24	0.00	0.00	2.00	567.56	0.00
27	-34.86	-53.75	-136.00	-54.39	2.00	523.22	-1249.87
28	-35.52	-51.86	-136.00	-54.39	2.00	523.22	-1249.87
29	-33.78	-53.38	-265.35	-104.49	2.00	478.88	-2398.12
30	-34.43	-51.49	-265.35	-104.49	2.00	478.88	-2398.12
31	38.22	-28.38	79.90	-192.44	2.00	-582.40	-2872.63
32	37.57	-26.49	79.90	-192.44	2.00	-582.40	-2872.63
33	39.31	-28.00	41.06	-101.52	2.00	-626.75	-1487.13
34	38.65	-26.11	41.06	-101.52	2.00	-626.75	-1487.13
35	40.39	-27.63	0.00	0.00	2.00	-671.10	0.00
36	39.73	-25.74	0.00	0.00	2.00	-671.10	0.00
37	-34.11	42.87	-163.11	211.68	2.00	-482.29	-2659.37
38	-34.11	40.87	-163.11	211.68	2.00	-482.29	-2659.37
39	-35.36	42.87	-83.32	110.02	2.00	-531.87	-1391.66
40	-35.36	40.87	-83.32	110.02	2.00	-531.87	-1391.66
41	-36.61	42.87	0.00	0.00	2.00	-581.46	0.00
42	-36.61	40.87	0.00	0.00	2.00	-581.46	0.00
43	37.89	40.87	-239.84	-143.54	2.00	589.71	3196.47
44	37.89	42.87	-239.84	-143.54	2.00	589.71	3196.47
45	39.14	40.87	-123.30	-75.08	2.00	639.29	1660.21

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STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
46	39.14	42.87	-123.30	-75.08	2.00	639.29	1660.21
47	40.39	40.87	0.00	0.00	2.00	688.88	0.00
48	40.39	42.87	0.00	0.00	2.00	688.88	0.00

Venlo TREAGER 2A

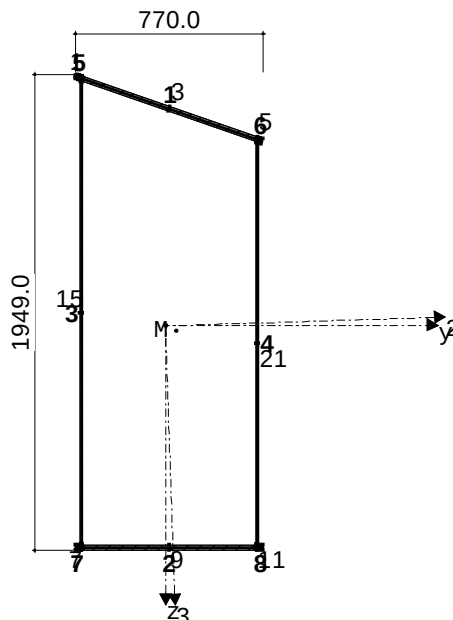


(B/T)-ZONES

No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Qy/Qz[cm ³]	Area [cm ²]
1	Both Sides	751.58 20.00	37.58	-332.81 -521.48	377.25 -274.95	1661.58 2033.09	0.00
2	Both Sides	710.00 20.00	35.50	-336.07 418.70	373.93 418.68	1184.72 2293.04	0.00
3	Both Sides	920.68 10.00	92.07	-341.10 -512.02	-341.11 408.64	3193.13 829.26	0.00
4	Both Sides	670.68 10.00	67.07	378.92 -262.02	378.94 408.70	3533.17 808.94	0.00
5	One Side	22.92 20.00	1.15	-341.09 -524.30	-362.67 -531.81	134.34 53.32	0.00
6	One Side	14.15 20.00	0.71	387.21 -271.48	400.60 -266.80	16.63 41.11	0.00
7	One Side	20.00 20.00	1.00	-346.09 418.72	-366.06 418.63	26.04 34.38	0.00
8	One Side	20.00 20.00	1.00	383.96 418.67	403.90 418.66	38.53 23.46	0.00

VENLO TREAGER 1A

DETAILED PICTURE



SECTION DATA

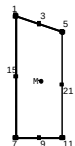


Description	Name	Size	Unit
Querschnittsfläche	A	670.81	cm ²
Schubfläche	A-2	143.10	cm ²
Schubfläche	A-3	348.61	cm ²
Lage des Schwerpunktes	y-S	34.66	cm
Lage des Schwerpunktes	z-S	101.12	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	3.518E+06	cm ⁴

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SECTION DATA

Description	Name	Size	Unit
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	613723.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-yz	106010.00	cm ⁴
Hauptachsenwinkel	Alpha	-2.09	°
Hauptachsenträgheitsmoment	I-2	3.522E+06	cm ⁴
Hauptachsenträgheitsmoment	I-3	609859.00	cm ⁴
Polares Trägheitsmoment	I-p	4.132E+06	cm ⁴
Polares Trägheitsmoment	I-p,M	4.148E+06	cm ⁴
Polares Trägheitsmoment	I-Om,M	0.00	cm ⁴
Trägheitsradius	j-y	72.42	cm
Trägheitsradius	j-z	30.25	cm
Trägheitsradius	j-yz	12.57	cm
Hauptachsenträgheitsradius	j-2	72.46	cm
Hauptachsenträgheitsradius	j-3	30.15	cm
Polarer Trägheitsradius	j-p	78.48	cm
Polarer Trägheitsradius	j-p,M	78.64	cm
Polarer Trägheitsradius	j-Om,M	16.06	cm
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	0.00	cm
Eigenlast	G	526.58	kg/m
Mantelfläche	U	10.300	m ² /m
Torsionsträgheitsmoment	I-T	1.545E+06	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	533.88	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	1.545E+06	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	y-M	4.38	cm
Schubmittelpunkt-Lage bezogen auf S	z-M	2.42	cm
Wölbwiderstand bezogen auf M	C-M	1.069E+09	cm ⁶
Abklingfaktor	Lambda	0.023607	1/cm
Widerstandsmoment	W-2-max	37678.90	cm ³
Widerstandsmoment	W-2-min	-33835.40	cm ³
Widerstandsmoment	W-3-max	14319.80	cm ³
Widerstandsmoment	W-3-min	-15062.70	cm ³
Wölbwiderstandsmoment	W-Om max	433796.00	cm ⁴
Wölbwiderstandsmoment	W-Om min	-4.42E+05	cm ⁴
Statisches Moment	S-2 max	-11355.80	cm ³
Statisches Moment	S-3 max	-4702.87	cm ³
Wölbordinate	Omega max	2465.21	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	130447.00	cm ⁴
Querschnittsstrecke (DIN 4114)	r-2, DIN	0.46	cm
Querschnittsstrecke (DIN 4114)	r-3, DIN	-9.70	cm
Plastisches Widerstandsmoment	Wpl-2-max	44291.00	cm ³
Plastisches Widerstandsmoment	Wpl-3-max	18715.70	cm ³
Plastischer Formbeiwert	Alpha-pl-2	1.31	
Plastischer Formbeiwert	Alpha-pl-3	1.31	



STRESS POINTS

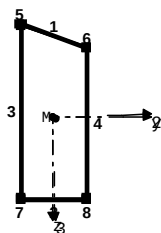
No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-34.33	-102.07	5169.41	-3633.16	2.00	1979.23	-59708.90
2	-34.99	-100.18	5169.41	-3633.16	2.00	1979.23	-59708.90
3	1.67	-89.57	-2083.29	-4632.57	2.00	-122.99	-1.30E+05
4	1.01	-87.68	-2083.29	-4632.57	2.00	-122.99	-1.30E+05
5	37.67	-77.07	-8297.00	-2934.26	2.00	-2225.20	-40962.00
6	37.01	-75.18	-8297.00	-2934.26	2.00	-2225.20	-40962.00
7	-34.66	90.08	-6385.76	-3270.08	2.00	-1990.87	61818.10
8	-34.66	92.08	-6385.76	-3270.08	2.00	-1990.87	61818.10
9	1.34	90.08	112.41	-4702.87	2.00	126.35	128941.00
10	1.34	92.08	112.41	-4702.87	2.00	126.35	128941.00
11	37.34	90.08	6704.68	-3554.28	2.00	2243.57	43624.00
12	37.34	92.08	6704.68	-3554.28	2.00	2243.57	43624.00
13	-34.16	-101.12	-5631.03	3489.23	1.00	1979.23	50191.00
14	-35.16	-101.12	-5631.03	3489.23	1.00	1979.23	50191.00
15	-34.16	-5.02	-10766.90	371.77	1.00	-5.82	-44631.40
16	-35.16	-5.02	-10766.90	371.77	1.00	-5.82	-44631.40
17	-34.16	91.08	-6823.10	-3078.86	1.00	-1990.87	51309.70
18	-35.16	91.08	-6823.10	-3078.86	1.00	-1990.87	51309.70
19	37.84	-76.12	-8623.09	-2753.46	1.00	-2225.20	-30316.60
20	36.84	-76.12	-8623.09	-2753.46	1.00	-2225.20	-30316.60
21	37.84	7.48	-11316.80	438.22	1.00	9.18	62312.90
22	36.84	7.48	-11316.80	438.22	1.00	9.18	62312.90
23	37.84	91.08	-7155.26	3382.34	1.00	2243.57	-31852.10
24	36.84	91.08	-7155.26	3382.34	1.00	2243.57	-31852.10
25	-36.49	-102.82	0.00	0.00	2.00	2174.02	0.00
26	-37.15	-100.93	0.00	0.00	2.00	2174.02	0.00
27	-35.41	-102.45	-235.91	-74.60	2.00	2076.63	-4870.60
28	-36.07	-100.56	-235.91	-74.60	2.00	2076.63	-4870.60
29	-34.33	-102.07	-461.62	-143.92	2.00	1979.23	-9517.99
30	-34.99	-100.18	-461.62	-143.92	2.00	1979.23	-9517.99
31	37.67	-77.07	326.09	-180.80	2.00	-2225.20	-10645.40
32	37.01	-75.18	326.09	-180.80	2.00	-2225.20	-10645.40
33	38.75	-76.69	169.79	-95.55	2.00	-2322.61	-5434.32
34	38.10	-74.80	169.79	-95.55	2.00	-2322.61	-5434.32
35	39.83	-76.32	0.00	0.00	2.00	-2420.02	0.00
36	39.18	-74.43	0.00	0.00	2.00	-2420.02	0.00
37	-34.66	92.08	-437.34	191.23	2.00	-1990.87	-10508.50
38	-34.66	90.08	-437.34	191.23	2.00	-1990.87	-10508.50
39	-35.91	92.08	-224.21	99.57	2.00	-2101.69	-5392.76
40	-35.91	90.08	-224.21	99.57	2.00	-2101.69	-5392.76
41	-37.16	92.08	0.00	0.00	2.00	-2212.51	0.00
42	-37.16	90.08	0.00	0.00	2.00	-2212.51	0.00

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 142
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STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
43	37.34	90.08	-450.58	-171.95	2.00	2243.57	11772.00
44	37.34	92.08	-450.58	-171.95	2.00	2243.57	11772.00
45	38.59	90.08	-231.11	-89.68	2.00	2354.39	6024.51
46	38.59	92.08	-231.11	-89.68	2.00	2354.39	6024.51
47	39.84	90.08	0.00	0.00	2.00	2465.21	0.00
48	39.84	92.08	0.00	0.00	2.00	2465.21	0.00

Venlo TREAGER 1A

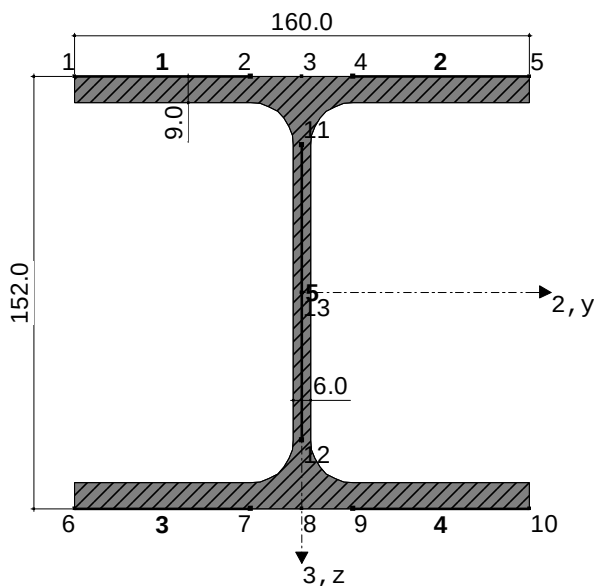


(B/T)-ZONES

No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Qy/Qz[cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	Both Sides	751.58	37.58	-338.26	371.69	2243.77	0.00
		20.00		-1008.35	-761.85	3319.61	
2	Both Sides	710.00	35.50	-341.55	368.43	1870.99	0.00
		20.00		910.75	910.78	3381.87	
3	Both Sides	1899.68	189.97	-346.62	-346.62	8662.54	0.00
		10.00		-998.94	900.73	1377.66	
4	Both Sides	1649.68	164.97	373.46	373.46	9360.44	0.00
		10.00		-748.90	900.79	1271.31	
5	One Side	22.92	1.15	-346.57	-368.26	233.36	0.00
		20.00		-1011.25	-1018.76	73.28	
6	One Side	14.15	0.71	381.72	395.10	68.75	0.00
		20.00		-758.41	-753.69	38.69	
7	One Side	20.00	1.00	-351.56	-371.57	70.07	0.00
		20.00		910.71	910.74	31.11	
8	One Side	20.00	1.00	378.43	398.45	72.22	0.00
		20.00		910.72	910.79	28.03	

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DETAILED PICTURE

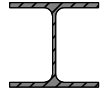


SECTION DATA

Description	Name	Size	Unit
Depth	d	152.00	mm
Width	b	160.00	mm
Web thickness	t _w	6.00	mm

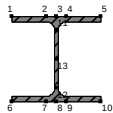
Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 143
		17.05.2009

SECTION DATA



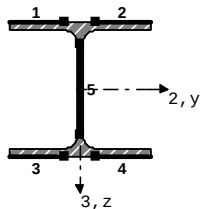
Description	Name	Size	Unit
Flange thickness	t _f	9.00	mm
Fillet radius	r _m	15.00	mm
Cross-section area	A	38.80	cm ²
Shear area	A ₂	24.00	cm ²
Shear area	A ₃	7.83	cm ²
Shear area according to EC 3	A _{v_y}	30.06	cm ²
Shear area according to EC 3	A _{v_z}	13.24	cm ²
Web area	A _{Web}	8.04	cm ²
Moment of inertia	I _y	1670.00	cm ⁴
Moment of inertia	I _z	616.00	cm ⁴
Governing radius of gyration	r _y	6.57	cm
Governing radius of gyration	r _z	3.98	cm
Polar radius of gyration	r _o	7.68	cm
Radius of Gyration of Flange plus 1/5 of W	r _{zg}	4.26	cm
Nominal weight	W _t	30.40	kg/m
Surface	A _{surf}	0.91	m ² /m
Torsional constant	J	12.30	cm ⁴
Warping constant	I _{Omega}	31410.00	cm ⁶
Elastic section modulus	S _y	220.00	cm ³
Elastic section modulus	S _z	76.90	cm ³
Warping constant moment	W _w	549.13	cm ⁴
Statical moment of area	Q _y	123.00	cm ³
Statical moment of area	Q _z	28.80	cm ³
Normalized warping constant	Omega _{max}	57.20	cm ²
Warping statical moment	S _w	205.92	cm ⁴
Plastic section modulus	Z _y	246.00	cm ³
Plastic section modulus	Z _z	117.63	cm ³
Plastic warping constant moment	Z _w	823.68	cm ⁴
Plastic shape factor	Alpha _{pl_2}	1.12	
Plastic shape factor	Alpha _{pl_3}	1.53	
Plastic shape factor	Alpha _{pl_Om}	1.50	
Buckling stress curve	Bsc _y	b	
Buckling stress curve	Bsc _z	c	
Flange hole spacing	w ₁	86.00	mm

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Q _y	Q _z			
1	-8.00	-7.60	0.00	0.00	0.90	57.20	0.00
2	-1.80	-7.60	-39.79	-27.33	0.90	12.87	-195.50
3	0.00	-7.60	-52.32	-28.94	0.90	0.00	-205.92
4	1.80	-7.60	-39.79	-27.33	0.90	-12.87	195.50
5	8.00	-7.60	0.00	0.00	0.90	-57.20	0.00
6	-8.00	7.60	0.00	0.00	0.90	-57.20	0.00
7	-1.80	7.60	-39.90	27.34	0.90	-12.87	-195.50
8	0.00	7.60	-52.32	28.94	0.90	0.00	-205.92
9	1.80	7.60	-39.90	-27.34	0.90	12.87	195.50
10	8.00	7.60	0.00	0.00	0.90	57.20	0.00
11	0.00	-5.20	-113.78	0.00	0.60	0.00	0.00
12	0.00	5.20	-113.99	0.00	0.60	0.00	0.00
13	0.00	0.00	-121.89	0.00	0.60	0.00	0.00

HE-A 160

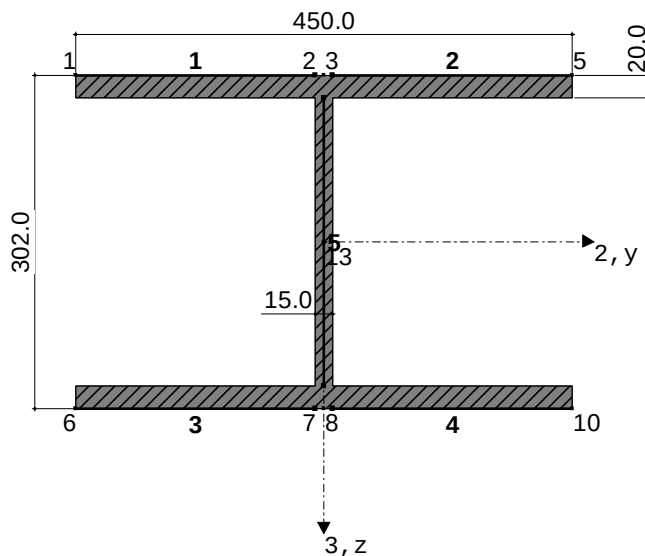


(B/T)-ZONES

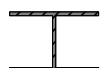
No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	62.00	6.89	-18.00	-80.00	19.95
		9.00		-76.00	-76.00	16.55
2	One Side	62.00	6.89	18.00	80.00	19.95
		9.00		-76.00	-76.00	16.55
3	One Side	62.00	6.89	-18.00	-80.00	19.95
		9.00		76.00	76.00	16.55
4	One Side	62.00	6.89	18.00	80.00	19.95
		9.00		76.00	76.00	16.55
5	Both Sides	104.00	17.33	0.00	0.00	120.30
		6.00		-52.00	52.00	0.00

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 144
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DETAILED PICTURE

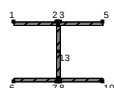


SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	219.30	cm ²
Schubfläche	A-y	150.10	cm ²
Schubfläche	A-z	35.93	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	38093.90	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	30382.40	cm ⁴
Polares Trägheitsmoment	I-p	68476.30	cm ⁴
Trägheitsradius	j-y	13.18	cm
Trägheitsradius	j-z	11.77	cm
Polarer Trägheitsradius	j-p	17.67	cm
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	12.46	cm
Eigenlast	G	172.15	kg/m
Mantelfläche	U	2.374	m ² /m
Torsionsträgheitsmoment	I-T	265.01	cm ⁴
Wölbwiderstand bezogen auf M	C-M	6.039E+06	cm ⁶
Abklingfaktor	Lambda	0.004114	1/cm
Widerstandsmoment	W-y	2522.77	cm ³
Widerstandsmoment	W-z	1350.33	cm ³
Wölbwiderstandsmoment	W-Om	19035.00	cm ⁴
Statisches Moment	S-y-max	1397.71	cm ³
Statisches Moment	S-z-max	506.10	cm ³
Wölbordinate	Omega max	317.25	cm ²
Wölbfläche (Flächenmoment 1. Grades mit α)	A-Om max	7138.13	cm ⁴
Plastisches Widerstandsmoment	Wpl-y	2795.42	cm ³
Plastisches Widerstandsmoment	Wpl-z	2039.74	cm ³
Plastisches Wölbwiderstandsmoment	W-pl-Om	28552.50	cm ⁴
Plastischer Formbeiwert	Alpha-pl-y	1.11	
Plastischer Formbeiwert	Alpha-pl-z	1.51	
Plastischer Formbeiwert	Alpha-pl-Om	1.50	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	c	

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-22.50	-15.10	0.00	0.00	2.00	317.25	0.00
2	-0.75	-15.10	-611.87	-505.64	2.00	10.57	-7130.19
3	0.00	-15.10	-630.17	-506.10	2.00	0.00	-7138.13
4	0.75	-15.10	-611.87	505.64	2.00	-10.57	7130.19
5	22.50	-15.10	0.00	0.00	2.00	-317.25	0.00
6	-22.50	15.10	0.00	0.00	2.00	-317.25	0.00
7	-0.75	15.10	-611.87	505.64	2.00	-10.57	-7130.19

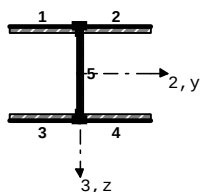
Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 145
		17.05.2009

STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
8	0.00	15.10	-630.17	506.10	2.00	0.00	-7138.13
9	0.75	15.10	-611.87	-505.64	2.00	10.57	7130.19
10	22.50	15.10	0.00	0.00	2.00	317.25	0.00
11	0.00	-13.10	-1271.20	0.00	1.50	0.00	0.00
12	0.00	13.10	-1271.20	0.00	1.50	0.00	0.00
13	0.00	0.00	-1397.71	0.00	1.50	0.00	0.00

IS 302/450/15/20

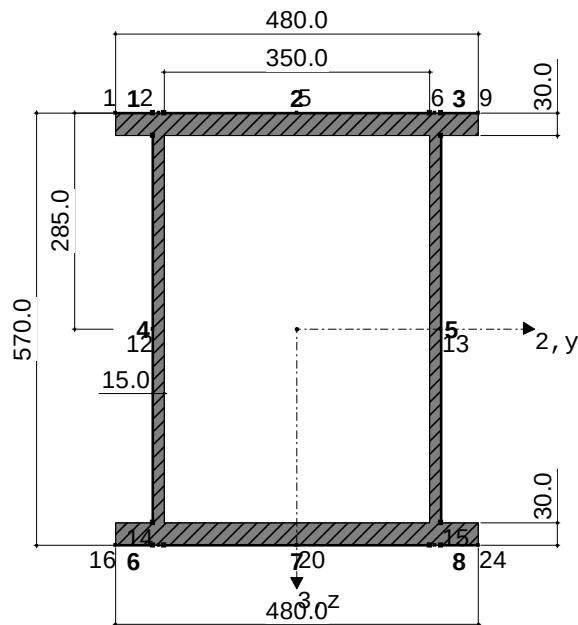
(B/T)-ZONES



No	Restrained	b [mm]	t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
					y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	217.50	20.00	10.88	-7.50	-225.00	305.93
2	One Side	217.50	20.00	10.88	-151.00	-151.00	331.68
3	One Side	217.50	20.00	10.88	7.50	225.00	305.93
4	One Side	217.50	20.00	10.88	-151.00	-151.00	331.68
5	Both Sides	262.00	15.00	17.47	-7.50	-225.00	305.93
					151.00	151.00	331.68
					7.50	225.00	305.93
					151.00	151.00	331.68
					0.00	0.00	1355.54
					-131.00	131.00	0.00

KASTEN(A) 480/30/15/350/570/480/30

DETAILED PICTURE



SECTION DATA

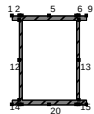


Description	Name	Size	Unit
Querschnittsfläche	A	441.00	cm ²
Schubfläche	A-y	186.93	cm ²
Schubfläche	A-z	152.29	cm ²
Kernfläche A*	A-k	1971.00	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	28.50	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	243331.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	106283.00	cm ⁴
Polares Trägheitsmoment	I-p	349614.00	cm ⁴
Polares Trägheitsmoment	I-p,M	349614.00	cm ⁴

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 146
		17.05.2009

SECTION DATA

Description	Name	Size	Unit
Trägheitsradius	j-y	23.49	cm
Trägheitsradius	j-z	15.52	cm
Hauptachsenträgheitsradius	j-2	23.49	cm
Hauptachsenträgheitsradius	j-3	15.52	cm
Polarer Trägheitsradius	j-p	28.16	cm
Polarer Trägheitsradius	j-p,M	28.16	cm
Polarer Trägheitsradius	j-Om,M	6.51	cm
Eigenlast	G	346.18	kg/m
Mantelfläche	U	2.300	m²/m
Torsionsträgheitsmoment	I-T	162260.00	cm⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	951.69	cm⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	161308.00	cm⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	1.482E+07	cm⁶
Abklingfaktor	Lambda	0.064990	1/cm
Widerstandsmoment	W-y-max	8537.92	cm³
Widerstandsmoment	W-y-min	-8537.92	cm³
Widerstandsmoment	W-z	4428.47	cm³
Wölbwiderstandsmoment	W-Om	37131.10	cm⁴
Statisches Moment	S-y-max	2431.69	cm³
Statisches Moment	S-z-max	1562.06	cm³
Wölbordinate	Omega max	399.07	cm²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	12154.90	cm⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	9726.75	cm³
Plastisches Widerstandsmoment	Wpl-z	6248.25	cm³
Plastischer Formbeiwert	Alpha-pl-y	1.14	
Plastischer Formbeiwert	Alpha-pl-z	1.41	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

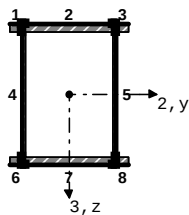


STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm³]		t [cm]	Warping Ordinate Omega[cm²]	Warping Area A-Omega[cm⁴]
	y	z	Qy	Qz			
1	-24.00	-28.50	0.00	0.00	3.00	399.07	0.00
2	-19.00	-28.50	-400.17	-319.11	3.00	264.07	-4973.51
3	-18.25	-28.50	1470.74	-1067.45	3.00	243.82	-5544.88
4	-17.50	-28.50	1412.92	-1105.73	3.00	233.80	-6017.73
5	0.00	-28.50	0.00	-1562.06	3.00	0.00	-12154.90
6	17.50	-28.50	-1412.92	-1105.73	3.00	-233.80	-6017.73
7	18.25	-28.50	-1470.74	-1067.45	3.00	-243.82	-5544.88
8	19.00	-28.50	400.17	-319.11	3.00	-264.07	-4973.51
9	24.00	-28.50	0.00	0.00	3.00	-399.07	0.00
10	-19.00	-25.50	1958.14	-688.18	1.50	230.27	597.82
11	19.00	-25.50	-1958.14	-688.18	1.50	-230.27	597.82
12	-19.00	0.00	2431.69	0.00	1.50	0.00	5001.77
13	19.00	0.00	-2431.69	0.00	1.50	0.00	5001.77
14	-19.00	25.50	1958.14	688.18	1.50	-230.27	597.82
15	19.00	25.50	-1958.14	688.18	1.50	230.27	597.82
16	-24.00	28.50	0.00	0.00	3.00	-399.07	0.00
17	-19.00	28.50	-400.17	319.11	3.00	-264.07	-4973.51
18	-18.25	28.50	1470.74	1067.45	3.00	-243.82	-5544.88
19	-17.50	28.50	1412.92	1105.73	3.00	-233.80	-6017.73
20	0.00	28.50	0.00	1562.06	3.00	0.00	-12154.90
21	17.50	28.50	-1412.92	1105.73	3.00	233.80	-6017.73
22	18.25	28.50	-1470.74	1067.45	3.00	243.82	-5544.88
23	19.00	28.50	400.17	319.11	3.00	264.07	-4973.51
24	24.00	28.50	0.00	0.00	3.00	399.07	0.00

Kasten(A) 480/30/15/350/570/480/30

(B/T)-ZONES

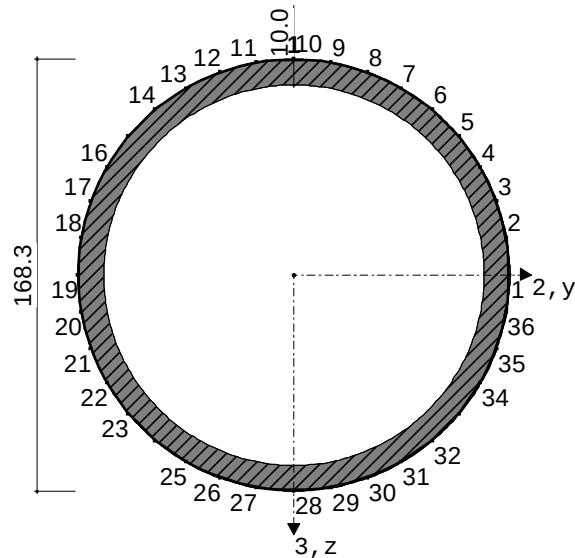


No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm³]	Area [cm²]
1	One Side	50.00	1.67	-190.00	-240.00	200.09	0.00
2	Both Sides	30.00	11.67	-285.00	-285.00	167.13	1971.00
3	One Side	350.00	11.67	-175.00	175.00	706.46	1971.00
4	Both Sides	30.00	11.67	-285.00	-285.00	1409.95	1971.00
5	One Side	50.00	1.67	190.00	240.00	200.09	0.00
6	Both Sides	30.00	11.67	-285.00	-285.00	167.13	1971.00
7	One Side	510.00	34.00	-190.00	-190.00	2273.84	1971.00
8	Both Sides	15.00	34.00	-255.00	255.00	344.09	1971.00
9	One Side	510.00	34.00	190.00	190.00	2273.84	1971.00
10	Both Sides	15.00	34.00	-255.00	255.00	344.09	1971.00
11	One Side	50.00	1.67	-190.00	-240.00	200.09	0.00
12	Both Sides	30.00	11.67	-285.00	-285.00	167.13	1971.00
13	One Side	350.00	11.67	-175.00	175.00	706.46	1971.00
14	Both Sides	30.00	11.67	-285.00	-285.00	1409.95	1971.00
15	One Side	50.00	1.67	190.00	240.00	200.09	0.00
16	Both Sides	30.00	11.67	-285.00	-285.00	167.13	1971.00
17	One Side	510.00	34.00	-190.00	-190.00	2273.84	1971.00
18	Both Sides	15.00	34.00	-255.00	255.00	344.09	1971.00
19	One Side	510.00	34.00	190.00	190.00	2273.84	1971.00
20	Both Sides	15.00	34.00	-255.00	255.00	344.09	1971.00

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 147
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RO 168,3X10

DETAILED PICTURE

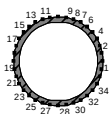


SECTION DATA



Description	Name	Size	Unit
Outside diameter	D	168.30	mm
Wall thickness	t	10.00	mm
Cross-section area	A	49.73	cm ²
Shear area	A ₂	24.91	cm ²
Core area A*	A _c	196.81	cm ²
Moment of inertia	I _y	1563.98	cm ⁴
Governing radius of gyration	r _y	5.61	cm
Polar radius of gyration	r _o	7.93	cm
Nominal weight	Wt	39.04	kg/m
Surface area (only outside)	A _{surf}	0.53	m ² /m
Torsional constant	J	3115.53	cm ⁴
Elastic section modulus	S _y	185.86	cm ³
Statical moment of area	Q _y	62.73	cm ³
Plastic section modulus	Z _y	250.92	cm ³
Plastic shape factor	Alpha _{pl_2}	1.35	
Buckling stress curve	Bsc _y	a	

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t	Warping Ordinate	Warping Area
	y	z	Qy	Qz	[cm]	Omega[cm ²]	A-Omega[cm ⁴]
1	8.41	0.00	-62.59	0.00	1.00	0.00	0.00
2	8.29	-1.46	-61.64	-10.87	1.00	0.00	0.00
3	7.91	-2.88	-58.81	-21.40	1.00	0.00	0.00
4	7.29	-4.21	-54.20	-31.29	1.00	0.00	0.00
5	6.45	-5.41	-47.95	-40.23	1.00	0.00	0.00
6	5.41	-6.45	-40.23	-47.94	1.00	0.00	0.00
7	4.21	-7.29	-31.30	-54.20	1.00	0.00	0.00
8	2.88	-7.91	-21.41	-58.81	1.00	0.00	0.00
9	1.46	-8.29	-10.87	-61.64	1.00	0.00	0.00
10	0.00	-8.41	0.00	-62.59	1.00	0.00	0.00
11	-1.46	-8.29	10.87	-61.64	1.00	0.00	0.00
12	-2.88	-7.91	21.40	-58.81	1.00	0.00	0.00
13	-4.21	-7.29	31.29	-54.20	1.00	0.00	0.00
14	-5.41	-6.45	40.23	-47.95	1.00	0.00	0.00
15	-6.45	-5.41	47.94	-40.23	1.00	0.00	0.00
16	-7.29	-4.21	54.20	-31.30	1.00	0.00	0.00
17	-7.91	-2.88	58.81	-21.41	1.00	0.00	0.00
18	-8.29	-1.46	61.64	-10.87	1.00	0.00	0.00

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

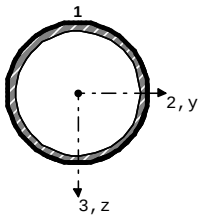
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STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
19	-8.41	0.00	62.59	0.00	1.00	0.00	0.00
20	-8.29	1.46	61.64	10.87	1.00	0.00	0.00
21	-7.91	2.88	58.81	21.40	1.00	0.00	0.00
22	-7.29	4.21	54.20	31.29	1.00	0.00	0.00
23	-6.45	5.41	47.95	40.23	1.00	0.00	0.00
24	-5.41	6.45	40.23	47.94	1.00	0.00	0.00
25	-4.21	7.29	31.30	54.20	1.00	0.00	0.00
26	-2.88	7.91	21.41	58.81	1.00	0.00	0.00
27	-1.46	8.29	10.87	61.64	1.00	0.00	0.00
28	0.00	8.41	0.00	62.59	1.00	0.00	0.00
29	1.46	8.29	-10.87	61.64	1.00	0.00	0.00
30	2.88	7.91	-21.40	58.81	1.00	0.00	0.00
31	4.21	7.29	-31.29	54.20	1.00	0.00	0.00
32	5.41	6.45	-40.23	47.95	1.00	0.00	0.00
33	6.45	5.41	-47.94	40.23	1.00	0.00	0.00
34	7.29	4.21	-54.20	31.30	1.00	0.00	0.00
35	7.91	2.88	-58.81	21.41	1.00	0.00	0.00
36	8.29	1.46	-61.64	10.87	1.00	0.00	0.00

RO 168,3x10

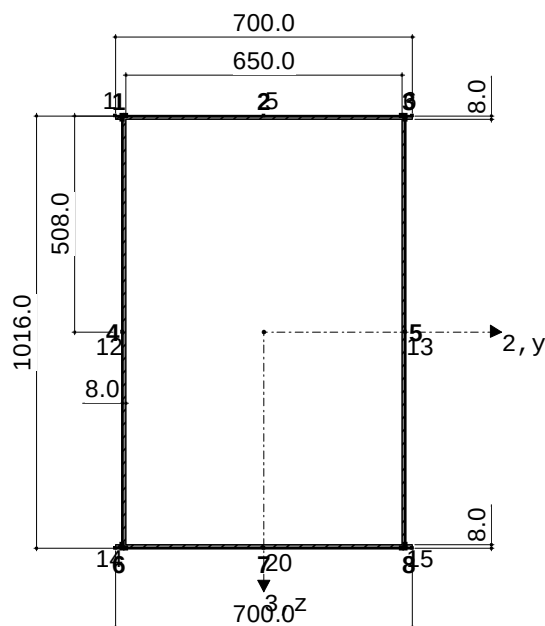


(B/T)-ZONES

No	Restrained	d [mm]	d/t[-]	Av. Stat. Moments Q2/Q3 [cm ³]	Av. Stat. Moments Q2/Q3 [cm ²]
1	Tubes	168.30 10.00	16.83	0.00 0.00	196.81

KASTEN(A) 700/8/8/650/1016/700/8

DETAILED PICTURE



Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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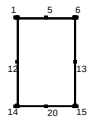
17.05.2009

SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	272.00	cm ²
Schubfläche	A-y	79.35	cm ²
Schubfläche	A-z	145.02	cm ²
Kernfläche A*	A-k	6632.64	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	50.80	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	417837.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	218927.00	cm ⁴
Polares Trägheitsmoment	I-p	636765.00	cm ⁴
Polares Trägheitsmoment	I-p,M	636765.00	cm ⁴
Trägheitsradius	j-y	39.19	cm
Trägheitsradius	j-z	28.37	cm
Hauptachsenträgheitsradius	j-2	39.19	cm
Hauptachsenträgheitsradius	j-3	28.37	cm
Polarer Trägheitsradius	j-p	48.38	cm
Polarer Trägheitsradius	j-p,M	48.38	cm
Polarer Trägheitsradius	j-Om,M	4.32	cm
Eigenlast	G	213.52	kg/m
Mantelfläche	U	3.500	m ² /m
Torsionsträgheitsmoment	I-T	422550.00	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	58.13	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	422491.00	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	1.187E+07	cm ⁶
Abklingfaktor	Lambda	0.117175	1/cm
Widerstandsmoment	W-y-max	8225.14	cm ³
Widerstandsmoment	W-y-min	-8225.14	cm ³
Widerstandsmoment	W-z	6255.07	cm ³
Wölbwiderstandsmoment	W-Om	26135.70	cm ⁴
Statisches Moment	S-y-max	2411.20	cm ³
Statisches Moment	S-z-max	1806.00	cm ³
Wölbordinate	Omega max	454.19	cm ²
Wölbfläche (Flächenmoment 1. Grades mit <0	A-Om max	6617.85	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	9644.80	cm ³
Plastisches Widerstandsmoment	Wpl-z	7224.00	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.17	
Plastischer Formbeiwert	Alpha-pl-z	1.15	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

STRESS POINTS



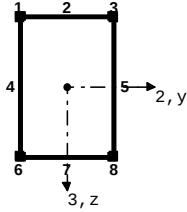
No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-35.00	-50.80	0.00	0.00	0.80	454.19	0.00
2	-33.30	-50.80	-66.53	-45.11	0.80	368.51	-559.44
3	-32.90	-50.80	1322.51	-1375.65	0.80	348.35	-2033.53
4	-32.50	-50.80	1306.88	-1385.79	0.80	344.12	-2144.32
5	0.00	-50.80	0.00	-1806.00	0.80	0.00	-6617.85
6	32.50	-50.80	-1306.88	-1385.79	0.80	-344.12	-2144.32
7	32.90	-50.80	-1322.51	-1375.65	0.80	-348.35	-2033.53
8	33.30	-50.80	66.53	-45.11	0.80	-368.51	-559.44
9	35.00	-50.80	0.00	0.00	0.80	-454.19	0.00
10	-33.30	-50.00	1418.29	-1311.35	0.80	345.59	-1248.36
11	33.30	-50.00	-1418.29	-1311.35	0.80	-345.59	-1248.36
12	-33.30	0.00	2411.20	0.00	0.80	0.00	5663.40
13	33.30	0.00	-2411.20	0.00	0.80	0.00	5663.40
14	-33.30	50.00	1418.29	1311.35	0.80	-345.59	-1248.36
15	33.30	50.00	-1418.29	1311.35	0.80	345.59	-1248.36
16	-35.00	50.80	0.00	0.00	0.80	-454.19	0.00
17	-33.30	50.80	-66.53	45.11	0.80	-368.51	-559.44
18	-32.90	50.80	1322.51	1375.65	0.80	-348.35	-2033.53
19	-32.50	50.80	1306.88	1385.79	0.80	-344.12	-2144.32
20	0.00	50.80	0.00	1806.00	0.80	0.00	-6617.85
21	32.50	50.80	-1306.88	1385.79	0.80	344.12	-2144.32
22	32.90	50.80	-1322.51	1375.65	0.80	348.35	-2033.53
23	33.30	50.80	66.53	45.11	0.80	368.51	-559.44
24	35.00	50.80	0.00	0.00	0.80	454.19	0.00

(B/T)-ZONES

No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
1	One Side	17.00	2.13	-333.00	-350.00	33.26	0.00
		8.00		-508.00	-508.00	23.33	
2	Both Sides	650.00	81.25	-325.00	325.00	653.44	6632.64
		8.00		-508.00	-508.00	1665.93	
3	One Side	17.00	2.13	333.00	350.00	33.26	0.00
		8.00		-508.00	-508.00	23.33	
4	Both Sides	1000.00	125.00	-333.00	-333.00	2080.23	6632.64
		8.00		-500.00	500.00	655.67	
5	Both Sides	1000.00	125.00	333.00	333.00	2080.23	6632.64
		8.00		-500.00	500.00	655.67	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 150
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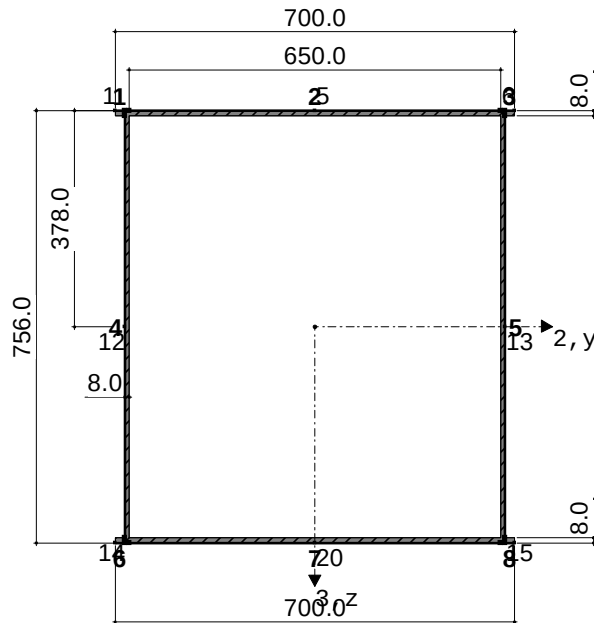
Kasten(A) 700/8/8/650/1016/700/8 (B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm^3]	Area [cm^2]
6	One Side	17.00 8.00	2.13	-333.00 508.00	-350.00 508.00	33.26 23.33	0.00
7	Both Sides	650.00 8.00	81.25	-325.00 508.00	325.00 508.00	653.44 1665.93	6632.64
8	One Side	17.00 8.00	2.13	333.00 508.00	350.00 508.00	33.26 23.33	0.00

KASTEN(A) 700/8/8/650/756/700/8

DETAILED PICTURE



SECTION DATA

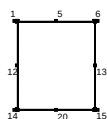


Description	Name	Size	Unit
Querschnittsfläche	A	230.40	cm^2
Schubfläche	A-y	86.58	cm^2
Schubfläche	A-z	103.28	cm^2
Kernfläche A*	A-k	4921.84	cm^2
Schwerpunktabstand von Flanschoberkante	e-z	37.80	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	210697.00	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	173897.00	cm^4
Polares Trägheitsmoment	I-p	384594.00	cm^4
Polares Trägheitsmoment	I-p,M	384594.00	cm^4
Trägheitsradius	j-y	30.24	cm
Trägheitsradius	j-z	27.47	cm
Hauptachsenträgheitsradius	j-2	30.24	cm
Hauptachsenträgheitsradius	j-3	27.47	cm
Polarer Trägheitsradius	j-p	40.86	cm
Polarer Trägheitsradius	j-p,M	40.86	cm
Polarer Trägheitsradius	j-Om,M	1.21	cm
Eigenlast	G	180.86	kg/m
Mantelfläche	U	2.980	m^2/m
Torsionsträgheitsmoment	I-T	275719.00	cm^4
Torsionsträgheitsmoment St. Venant	I-T StVen	49.25	cm^4
Torsionsträgheitsmoment Bredt	I-T Bredt	275670.00	cm^4
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	562270.00	cm^6
Abklingfaktor	Lambda	0.434905	1/cm

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 151
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SECTION DATA

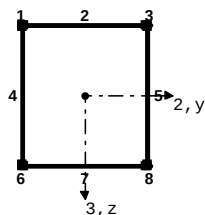
Description	Name	Size	Unit
Widerstandsmoment	W-y-max	5573.99	cm ³
Widerstandsmoment	W-y-min	-5573.99	cm ³
Widerstandsmoment	W-z	4968.49	cm ³
Wölbwiderstandsmoment	W-Om	3574.43	cm ⁴
Statisches Moment	S-y-max	1594.80	cm ³
Statisches Moment	S-z-max	1463.84	cm ³
Wölbordinate	Omega max	157.30	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	1236.54	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	6379.20	cm ³
Plastisches Widerstandsmoment	Wpl-z	5855.36	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.14	
Plastischer Formbeiwert	Alpha-pl-z	1.18	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	



STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-35.00	-37.80	0.00	0.00	0.80	157.30	0.00
2	-33.30	-37.80	-49.37	-45.11	0.80	93.72	-170.70
3	-32.90	-37.80	981.39	-1033.49	0.80	78.76	-200.01
4	-32.50	-37.80	969.89	-1043.54	0.80	77.81	-225.06
5	0.00	-37.80	0.00	-1463.84	0.80	0.00	-1236.54
6	32.50	-37.80	-969.89	-1043.54	0.80	-77.81	-225.06
7	32.90	-37.80	-981.39	-1033.49	0.80	-78.76	-200.01
8	33.30	-37.80	49.37	-45.11	0.80	-93.72	-170.70
9	35.00	-37.80	0.00	0.00	0.80	-157.30	0.00
10	-33.30	-37.00	1052.22	-969.39	0.80	77.92	23.35
11	-33.30	-37.00	-1052.22	-969.39	0.80	-77.92	23.35
12	-33.30	0.00	1594.80	0.00	0.80	0.00	1176.59
13	-33.30	0.00	-1594.80	0.00	0.80	0.00	1176.59
14	-33.30	37.00	1052.22	969.39	0.80	-77.92	23.35
15	33.30	37.00	-1052.22	969.39	0.80	77.92	23.35
16	-35.00	37.80	0.00	0.00	0.80	-157.30	0.00
17	-33.30	37.80	-49.37	45.11	0.80	-93.72	-170.70
18	-32.90	37.80	981.39	1033.49	0.80	-78.76	-200.01
19	-32.50	37.80	969.89	1043.54	0.80	-77.81	-225.06
20	0.00	37.80	0.00	1463.84	0.80	0.00	-1236.54
21	32.50	37.80	-969.89	1043.54	0.80	77.81	-225.06
22	32.90	37.80	-981.39	1033.49	0.80	78.76	-200.01
23	33.30	37.80	49.37	45.11	0.80	93.72	-170.70
24	35.00	37.80	0.00	0.00	0.80	157.30	0.00

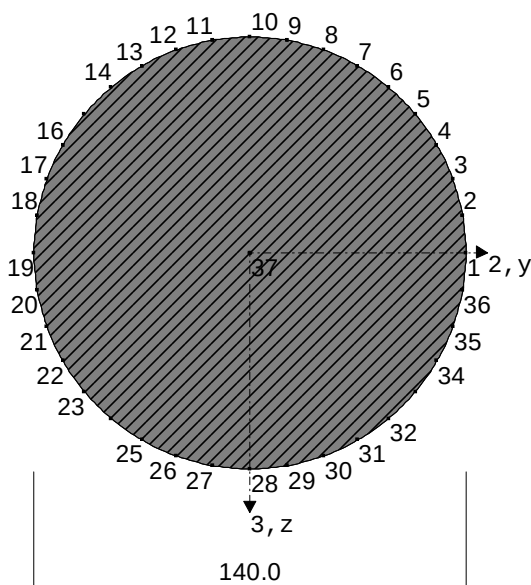
Kasten(A) 700/8/8/650/756/700/8 (B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
1	One Side	17.00 8.00	2.13	-333.00 -378.00	-350.00 -378.00	24.69 23.33	0.00
2	Both Sides	650.00 8.00	81.25	-325.00 -378.00	325.00 -378.00	484.95 1323.74	4921.84
3	One Side	17.00 8.00	2.13	333.00 -378.00	350.00 -378.00	24.69 23.33	0.00
4	Both Sides	740.00 8.00	92.50	-333.00 -370.00	-333.00 370.00	1413.94 484.70	4921.84
5	Both Sides	740.00 8.00	92.50	333.00 -370.00	333.00 370.00	1413.94 484.70	4921.84
6	One Side	17.00 8.00	2.13	-333.00 378.00	-350.00 378.00	24.69 23.33	0.00
7	Both Sides	650.00 8.00	81.25	-325.00 378.00	325.00 378.00	484.95 1323.74	4921.84
8	One Side	17.00 8.00	2.13	333.00 378.00	350.00 378.00	24.69 23.33	0.00

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 152
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DETAILED PICTURE

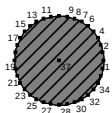


SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	153.94	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	1885.74	cm ⁴
Trägheitsradius	j-y	3.50	cm
Polarer Trägheitsradius	j-p	4.04	cm
Eigenlast	G	120.84	kg/m
Mantelfläche	U	0.440	m ² /m
Torsionsträgheitsmoment	I-T	3771.48	cm ⁴
Widerstandsmoment	W-y	269.39	cm ³
Plastisches Widerstandsmoment	Wpl-y	457.33	cm ³
Knickspannungslinie	Ksl-y	c	

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	7.00	0.00	0.00	0.00	14.00	0.00	0.00
2	6.89	-1.22	0.00	0.00	14.00	0.00	0.00
3	6.58	-2.39	0.00	0.00	14.00	0.00	0.00
4	6.06	-3.50	0.00	0.00	14.00	0.00	0.00
5	5.36	-4.50	0.00	0.00	14.00	0.00	0.00
6	4.50	-5.36	0.00	0.00	14.00	0.00	0.00
7	3.50	-6.06	0.00	0.00	14.00	0.00	0.00
8	2.39	-6.58	0.00	0.00	14.00	0.00	0.00
9	1.22	-6.89	0.00	0.00	14.00	0.00	0.00
10	0.00	-7.00	0.00	0.00	14.00	0.00	0.00
11	-1.22	-6.89	0.00	0.00	14.00	0.00	0.00
12	-2.39	-6.58	0.00	0.00	14.00	0.00	0.00
13	-3.50	-6.06	0.00	0.00	14.00	0.00	0.00
14	-4.50	-5.36	0.00	0.00	14.00	0.00	0.00
15	-5.36	-4.50	0.00	0.00	14.00	0.00	0.00
16	-6.06	-3.50	0.00	0.00	14.00	0.00	0.00
17	-6.58	-2.39	0.00	0.00	14.00	0.00	0.00
18	-6.89	-1.22	0.00	0.00	14.00	0.00	0.00
19	-7.00	0.00	0.00	0.00	14.00	0.00	0.00
20	-6.89	1.22	0.00	0.00	14.00	0.00	0.00
21	-6.58	2.39	0.00	0.00	14.00	0.00	0.00
22	-6.06	3.50	0.00	0.00	14.00	0.00	0.00
23	-5.36	4.50	0.00	0.00	14.00	0.00	0.00
24	-4.50	5.36	0.00	0.00	14.00	0.00	0.00
25	-3.50	6.06	0.00	0.00	14.00	0.00	0.00
26	-2.39	6.58	0.00	0.00	14.00	0.00	0.00
27	-1.22	6.89	0.00	0.00	14.00	0.00	0.00

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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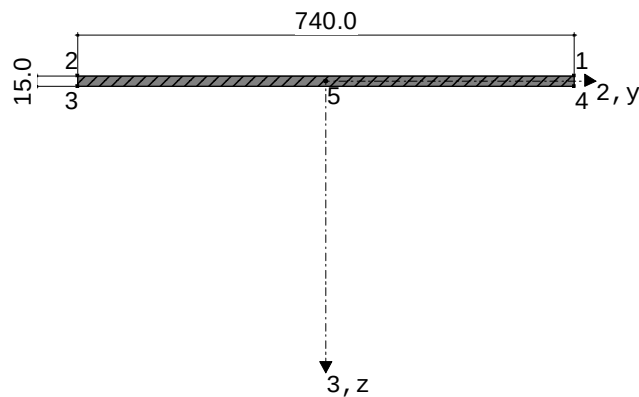
17.05.2009

STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
28	0.00	7.00	0.00	0.00	14.00	0.00	0.00
29	1.22	6.89	0.00	0.00	14.00	0.00	0.00
30	2.39	6.58	0.00	0.00	14.00	0.00	0.00
31	3.50	6.06	0.00	0.00	14.00	0.00	0.00
32	4.50	5.36	0.00	0.00	14.00	0.00	0.00
33	5.36	4.50	0.00	0.00	14.00	0.00	0.00
34	6.06	3.50	0.00	0.00	14.00	0.00	0.00
35	6.58	2.39	0.00	0.00	14.00	0.00	0.00
36	6.89	1.22	0.00	0.00	14.00	0.00	0.00
37	0.00	0.00	228.67	228.67	14.00	0.00	0.00

FLACHSTAHL 740/15

DETAILED PICTURE



SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	111.00	cm ²
Schubfläche	A-y	92.50	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	20.81	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	50653.00	cm ⁴
Polares Trägheitsmoment	I-p	50673.80	cm ⁴
Trägheitsradius	j-y	0.43	cm
Trägheitsradius	j-z	21.36	cm
Polarer Trägheitsradius	j-p	21.37	cm
Eigenlast	G	87.14	kg/m
Mantelfläche	U	1.510	m ² /m
Torsionsträgheitsmoment	I-T	82.19	cm ⁴
Widerstandsmoment	W-y	27.75	cm ³
Widerstandsmoment	W-z	1369.00	cm ³
Statisches Moment	S-y-max	20.81	cm ³
Statisches Moment	S-z-max	1026.75	cm ³
Plastisches Widerstandsmoment	Wpl-y	41.62	cm ³
Plastisches Widerstandsmoment	Wpl-z	2053.50	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

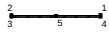
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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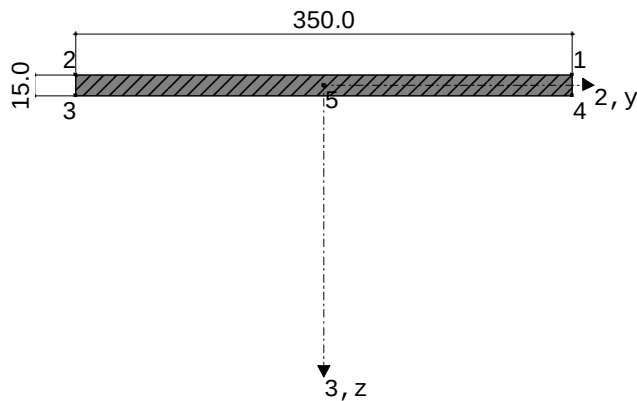
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm^3]		t [cm]	Warping Ordinate Omega[cm^2]	Warping Area A-Omega[cm^4]
	y	z	Qy	Qz			
1	37.00	-0.75	0.00	0.00	1.50	0.00	0.00
2	-37.00	-0.75	0.00	0.00	1.50	0.00	0.00
3	-37.00	0.75	0.00	0.00	1.50	0.00	0.00
4	37.00	0.75	0.00	0.00	1.50	0.00	0.00
5	0.00	0.00	-20.81	0.00	74.00	0.00	0.00
6	0.00	0.00	0.00	-1026.75	1.50	0.00	0.00

FLACHSTAHL 350/15

DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	52.50	cm^2
Schubfläche	A-y	43.75	cm^2
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	9.84	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	5359.38	cm^4
Polares Trägheitsmoment	I-p	5369.22	cm^4
Trägheitsradius	j-y	0.43	cm
Trägheitsradius	j-z	10.10	cm
Polarer Trägheitsradius	j-p	10.11	cm
Eigenlast	G	41.21	kg/m
Mantelfläche	U	0.730	m^2/m
Torsionsträgheitsmoment	I-T	38.31	cm^4
Widerstandsmoment	W-y	13.13	cm^3
Widerstandsmoment	W-z	306.25	cm^3
Statisches Moment	S-y-max	9.84	cm^3
Statisches Moment	S-z-max	229.69	cm^3
Plastisches Widerstandsmoment	Wpl-y	19.69	cm^3
Plastisches Widerstandsmoment	Wpl-z	459.38	cm^3
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 155
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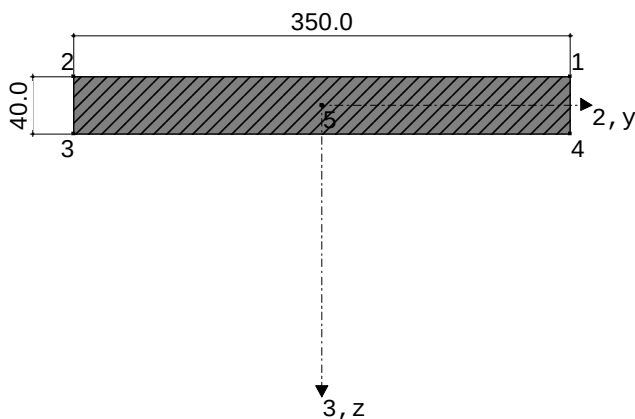
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm^3]		t [cm]	Warping Ordinate Omega[cm^2]	Warping Area A-Omega[cm^4]
	y	z	Qy	Qz			
1	17.50	-0.75	0.00	0.00	1.50	0.00	0.00
2	-17.50	-0.75	0.00	0.00	1.50	0.00	0.00
3	-17.50	0.75	0.00	0.00	1.50	0.00	0.00
4	17.50	0.75	0.00	0.00	1.50	0.00	0.00
5	0.00	0.00	-9.84	0.00	35.00	0.00	0.00
6	0.00	0.00	0.00	-229.69	1.50	0.00	0.00

FLACHSTAHL 350/40

DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	140.00	cm^2
Schubfläche	A-y	116.67	cm^2
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	186.67	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	14291.70	cm^4
Polares Trägheitsmoment	I-p	14478.30	cm^4
Trägheitsradius	j-y	1.15	cm
Trägheitsradius	j-z	10.10	cm
Polarer Trägheitsradius	j-p	10.17	cm
Eigenlast	G	109.90	kg/m
Mantelfläche	U	0.780	m^2/m
Torsionsträgheitsmoment	I-T	692.91	cm^4
Widerstandsmoment	W-y	93.33	cm^3
Widerstandsmoment	W-z	816.67	cm^3
Statisches Moment	S-y-max	70.00	cm^3
Statisches Moment	S-z-max	612.50	cm^3
Plastisches Widerstandsmoment	Wpl-y	140.00	cm^3
Plastisches Widerstandsmoment	Wpl-z	1225.00	cm^3
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 156
		17.05.2009

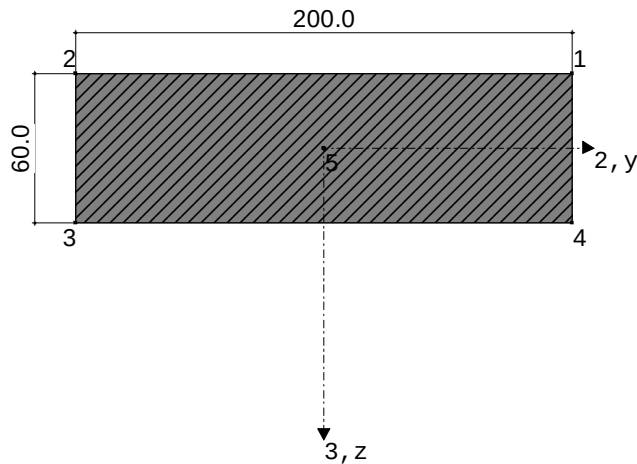
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm^3]		t [cm]	Warping Ordinate Omega[cm^2]	Warping Area A-Omega[cm^4]
	y	z	Qy	Qz			
1	17.50	-2.00	0.00	0.00	4.00	0.00	0.00
2	-17.50	-2.00	0.00	0.00	4.00	0.00	0.00
3	-17.50	2.00	0.00	0.00	4.00	0.00	0.00
4	17.50	2.00	0.00	0.00	4.00	0.00	0.00
5	0.00	0.00	-70.00	0.00	35.00	0.00	0.00
6	0.00	0.00	0.00	-612.50	4.00	0.00	0.00

FLACHSTAHL 200/60

DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	120.00	cm^2
Schubfläche	A-y	100.00	cm^2
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	360.00	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	4000.00	cm^4
Polares Trägheitsmoment	I-p	4360.00	cm^4
Trägheitsradius	j-y	1.73	cm
Trägheitsradius	j-z	5.77	cm
Polarer Trägheitsradius	j-p	6.03	cm
Eigenlast	G	94.20	kg/m
Mantelfläche	U	0.520	m^2/m
Torsionsträgheitsmoment	I-T	1168.02	cm^4
Widerstandsmoment	W-y	120.00	cm^3
Widerstandsmoment	W-z	400.00	cm^3
Statisches Moment	S-y-max	90.00	cm^3
Statisches Moment	S-z-max	300.00	cm^3
Plastisches Widerstandsmoment	Wpl-y	180.00	cm^3
Plastisches Widerstandsmoment	Wpl-z	600.00	cm^3
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

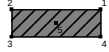
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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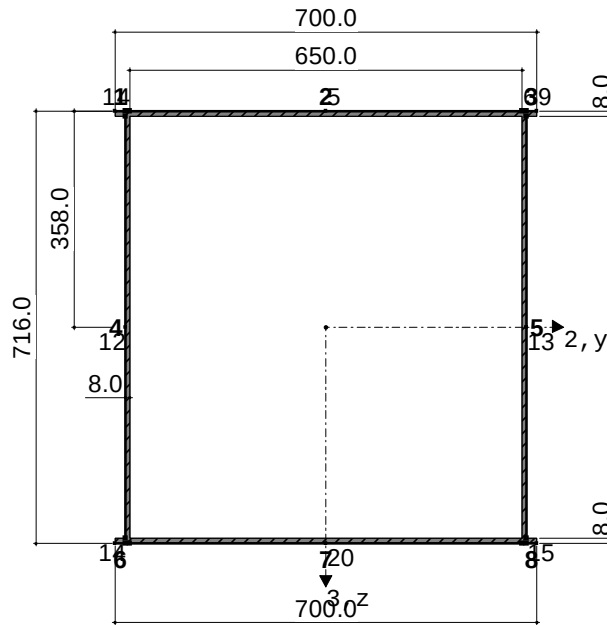
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	10.00	-3.00	0.00	0.00	6.00	0.00	0.00
2	-10.00	-3.00	0.00	0.00	6.00	0.00	0.00
3	-10.00	3.00	0.00	0.00	6.00	0.00	0.00
4	10.00	3.00	0.00	0.00	6.00	0.00	0.00
5	0.00	0.00	-90.00	0.00	20.00	0.00	0.00
6	0.00	0.00	0.00	-300.00	6.00	0.00	0.00

KASTEN(A) 700/8/8/650/716/700/8

DETAILED PICTURE



SECTION DATA



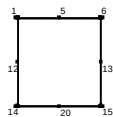
Description	Name	Size	Unit
Querschnittsfläche	A	224.00	cm ²
Schubfläche	A-y	87.74	cm ²
Schubfläche	A-z	96.81	cm ²
Kernfläche A*	A-k	4658.64	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	35.80	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	186093.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	166969.00	cm ⁴
Polares Trägheitsmoment	I-p	353062.00	cm ⁴
Polares Trägheitsmoment	I-p,M	353062.00	cm ⁴
Trägheitsradius	j-y	28.82	cm
Trägheitsradius	j-z	27.30	cm
Hauptachsenträgheitsradius	j-2	28.82	cm
Hauptachsenträgheitsradius	j-3	27.30	cm
Polarer Trägheitsradius	j-p	39.70	cm
Polarer Trägheitsradius	j-p,M	39.70	cm
Polarer Trägheitsradius	j-Om,M	0.71	cm
Eigenlast	G	175.84	kg/m
Mantelfläche	U	2.900	m ² /m
Torsionsträgheitsmoment	I-T	254255.00	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	47.89	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	254207.00	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	178288.00	cm ⁶
Abklingfaktor	Lambda	0.741663	1/cm
Widerstandsmoment	W-y-max	5198.13	cm ³
Widerstandsmoment	W-y-min	-5198.13	cm ³
Widerstandsmoment	W-z	4770.55	cm ³
Wölbwiderstandsmoment	W-Om	1524.21	cm ⁴

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SECTION DATA

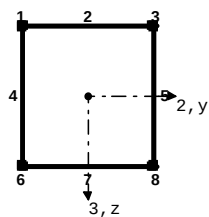
Description	Name	Size	Unit
Statisches Moment	S-y-max	1481.20	cm ³
Statisches Moment	S-z-max	1411.20	cm ³
Wölbordinate	Omega max	116.97	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	658.92	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	5924.80	cm ³
Plastisches Widerstandsmoment	Wpl-z	5644.80	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.14	
Plastischer Formbeiwert	Alpha-pl-z	1.18	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-35.00	-35.80	0.00	0.00	0.80	116.97	0.00
2	-33.30	-35.80	-46.73	-45.11	0.80	56.79	-118.16
3	-32.90	-35.80	928.91	-980.85	0.80	42.63	-134.06
4	-32.50	-35.80	918.03	-990.90	0.80	42.11	-111.46
5	0.00	-35.80	0.00	-1411.20	0.80	0.00	-658.92
6	32.50	-35.80	-918.03	-990.90	0.80	-42.11	-111.46
7	32.90	-35.80	-928.91	-980.85	0.80	-42.63	-134.06
8	33.30	-35.80	46.73	-45.11	0.80	-56.79	-118.16
9	35.00	-35.80	0.00	0.00	0.80	-116.97	0.00
10	-33.30	-35.00	995.91	-916.79	0.80	42.15	49.72
11	33.30	-35.00	-995.91	-916.79	0.80	-42.15	49.72
12	-33.30	0.00	1481.20	0.00	0.80	0.00	639.80
13	33.30	0.00	-1481.20	0.00	0.80	0.00	639.80
14	-33.30	35.00	995.91	916.79	0.80	-42.15	49.72
15	33.30	35.00	-995.91	916.79	0.80	42.15	49.72
16	-35.00	35.80	0.00	0.00	0.80	-116.97	0.00
17	-33.30	35.80	-46.73	45.11	0.80	-56.79	-118.16
18	-32.90	35.80	928.91	980.85	0.80	-42.63	-134.06
19	-32.50	35.80	918.03	990.90	0.80	-42.11	-111.46
20	0.00	35.80	0.00	1411.20	0.80	0.00	-658.92
21	32.50	35.80	-918.03	990.90	0.80	42.11	-111.46
22	32.90	35.80	-928.91	980.85	0.80	42.63	-134.06
23	33.30	35.80	46.73	45.11	0.80	56.79	-118.16
24	35.00	35.80	0.00	0.00	0.80	116.97	0.00

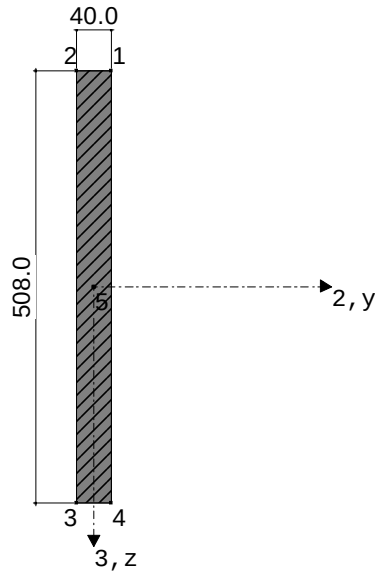
Kasten(A) 700/8/8/650/716/700/8 (B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	17.00	2.13	-333.00	-350.00	23.37	0.00
		8.00		-358.00	-358.00	23.33	
2	Both Sides	650.00	81.25	-325.00	325.00	459.01	4658.64
		8.00		-358.00	-358.00	1271.10	
3	One Side	17.00	2.13	333.00	350.00	23.37	0.00
		8.00		-358.00	-358.00	23.33	
4	Both Sides	700.00	87.50	-333.00	-333.00	1319.44	4658.64
		8.00		-350.00	350.00	458.40	
5	Both Sides	700.00	87.50	333.00	333.00	1319.44	4658.64
		8.00		-350.00	350.00	458.40	
6	One Side	17.00	2.13	-333.00	-350.00	23.37	0.00
		8.00		358.00	358.00	23.33	
7	Both Sides	650.00	81.25	-325.00	325.00	459.01	4658.64
		8.00		358.00	358.00	1271.10	
8	One Side	17.00	2.13	333.00	350.00	23.37	0.00
		8.00		358.00	358.00	23.33	

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DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	203.20	cm ²
Schubfläche	A-y	169.33	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	43698.80	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	270.93	cm ⁴
Polares Trägheitsmoment	I-p	43969.80	cm ⁴
Trägheitsradius	j-y	14.66	cm
Trägheitsradius	j-z	1.15	cm
Polarer Trägheitsradius	j-p	14.71	cm
Eigenlast	G	159.51	kg/m
Mantelfläche	U	1.096	m ² /m
Torsionsträgheitsmoment	I-T	1029.97	cm ⁴
Widerstandsmoment	W-y	1720.43	cm ³
Widerstandsmoment	W-z	135.47	cm ³
Statisches Moment	S-y-max	1290.32	cm ³
Statisches Moment	S-z-max	101.60	cm ³
Plastisches Widerstandsmoment	Wpl-y	2580.64	cm ³
Plastisches Widerstandsmoment	Wpl-z	203.20	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

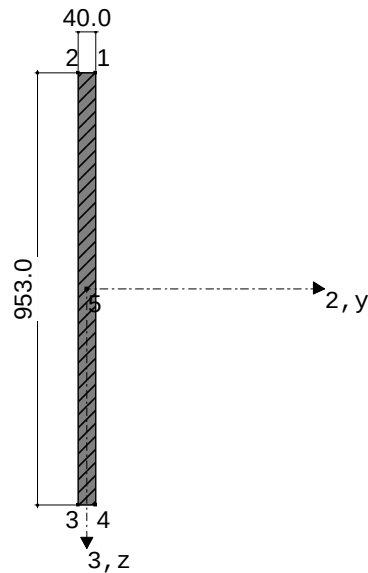
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	2.00	-25.40	0.00	0.00	4.00	0.00	0.00
2	-2.00	-25.40	0.00	0.00	4.00	0.00	0.00
3	-2.00	25.40	0.00	0.00	4.00	0.00	0.00
4	2.00	25.40	0.00	0.00	4.00	0.00	0.00
5	0.00	0.00	-1290.32	0.00	4.00	0.00	0.00
6	0.00	0.00	0.00	-101.60	50.80	0.00	0.00

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 160
		17.05.2009

DETAILED PICTURE



SECTION DATA

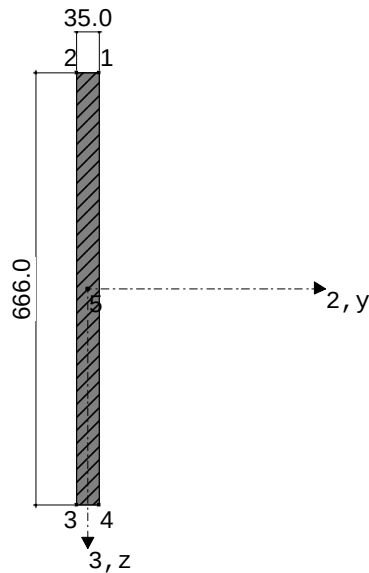
Description	Name	Size	Unit
Querschnittsfläche	A	381.20	cm ²
Schubfläche	A-y	317.67	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	288508.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	508.27	cm ⁴
Polares Trägheitsmoment	I-p	289016.00	cm ⁴
Trägheitsradius	j-y	27.51	cm
Trägheitsradius	j-z	1.15	cm
Polarer Trägheitsradius	j-p	27.53	cm
Eigenlast	G	299.24	kg/m
Mantelfläche	U	1.986	m ² /m
Torsionsträgheitsmoment	I-T	1979.31	cm ⁴
Widerstandsmoment	W-y	6054.73	cm ³
Widerstandsmoment	W-z	254.13	cm ³
Statisches Moment	S-y-max	4541.04	cm ³
Statisches Moment	S-z-max	190.60	cm ³
Plastisches Widerstandsmoment	Wpl-y	9082.09	cm ³
Plastisches Widerstandsmoment	Wpl-z	381.20	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t	Warping Ordinate	Warping Area
	y	z	Qy	Qz	[cm]	Omega[cm ²]	A-Omega[cm ⁴]
1	2.00	-47.65	0.00	0.00	4.00	0.00	0.00
2	-2.00	-47.65	0.00	0.00	4.00	0.00	0.00
3	-2.00	47.65	0.00	0.00	4.00	0.00	0.00
4	2.00	47.65	0.00	0.00	4.00	0.00	0.00
5	0.00	0.00	-4541.04	0.00	4.00	0.00	0.00
6	0.00	0.00	0.00	-190.60	95.30	0.00	0.00

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 161
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DETAILED PICTURE



SECTION DATA

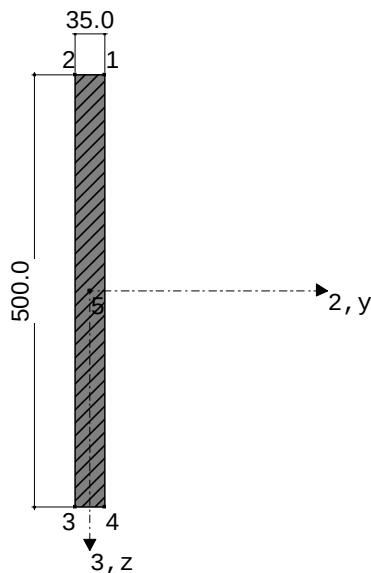
Description	Name	Size	Unit
Querschnittsfläche	A	233.10	cm ²
Schubfläche	A-y	194.25	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	86160.80	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	237.96	cm ⁴
Polares Trägheitsmoment	I-p	86398.70	cm ⁴
Trägheitsradius	j-y	19.23	cm
Trägheitsradius	j-z	1.01	cm
Polarer Trägheitsradius	j-p	19.25	cm
Eigenlast	G	182.98	kg/m
Mantelfläche	U	1.402	m ² /m
Torsionsträgheitsmoment	I-T	920.31	cm ⁴
Widerstandsmoment	W-y	2587.41	cm ³
Widerstandsmoment	W-z	135.98	cm ³
Statisches Moment	S-y-max	1940.56	cm ³
Statisches Moment	S-z-max	101.98	cm ³
Plastisches Widerstandsmoment	Wpl-y	3881.11	cm ³
Plastisches Widerstandsmoment	Wpl-z	203.96	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	1.75	-33.30	0.00	0.00	3.50	0.00	0.00
2	-1.75	-33.30	0.00	0.00	3.50	0.00	0.00
3	-1.75	33.30	0.00	0.00	3.50	0.00	0.00
4	1.75	33.30	0.00	0.00	3.50	0.00	0.00
5	0.00	0.00	-1940.56	0.00	3.50	0.00	0.00
6	0.00	0.00	0.00	-101.98	66.60	0.00	0.00

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 162
		17.05.2009

DETAILED PICTURE



SECTION DATA

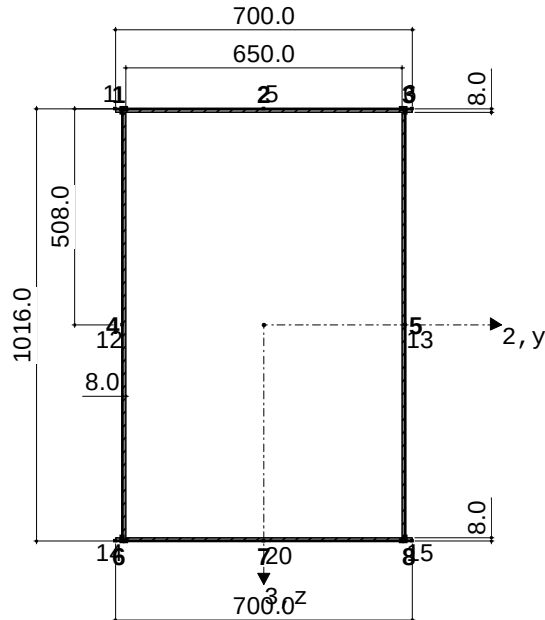
Description	Name	Size	Unit
Querschnittsfläche	A	175.00	cm ²
Schubfläche	A-y	145.83	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	36458.30	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	178.65	cm ⁴
Polares Trägheitsmoment	I-p	36637.00	cm ⁴
Trägheitsradius	j-y	14.43	cm
Trägheitsradius	j-z	1.01	cm
Polarer Trägheitsradius	j-p	14.47	cm
Eigenlast	G	137.38	kg/m
Mantelfläche	U	1.070	m ² /m
Torsionsträgheitsmoment	I-T	683.07	cm ⁴
Widerstandsmoment	W-y	1458.33	cm ³
Widerstandsmoment	W-z	102.08	cm ³
Statisches Moment	S-y-max	1093.75	cm ³
Statisches Moment	S-z-max	76.56	cm ³
Plastisches Widerstandsmoment	Wpl-y	2187.50	cm ³
Plastisches Widerstandsmoment	Wpl-z	153.13	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	1.75	-25.00	0.00	0.00	3.50	0.00	0.00
2	-1.75	-25.00	0.00	0.00	3.50	0.00	0.00
3	-1.75	25.00	0.00	0.00	3.50	0.00	0.00
4	1.75	25.00	0.00	0.00	3.50	0.00	0.00
5	0.00	0.00	-1093.75	0.00	3.50	0.00	0.00
6	0.00	0.00	0.00	-76.56	50.00	0.00	0.00

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 163
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DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	272.00	cm ²
Schubfläche	A-y	79.35	cm ²
Schubfläche	A-z	145.02	cm ²
Kernfläche A*	A-k	6632.64	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	50.80	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	417837.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	218927.00	cm ⁴
Polares Trägheitsmoment	I-p	636765.00	cm ⁴
Polares Trägheitsmoment	I-p,M	636765.00	cm ⁴
Trägheitsradius	j-y	39.19	cm
Trägheitsradius	j-z	28.37	cm
Hauptachsenträgheitsradius	j-2	39.19	cm
Hauptachsenträgheitsradius	j-3	28.37	cm
Polarer Trägheitsradius	j-p	48.38	cm
Polarer Trägheitsradius	j-p,M	48.38	cm
Polarer Trägheitsradius	j-Om,M	4.32	cm
Eigenlast	G	213.52	kg/m
Mantelfläche	U	3.500	m ² /m
Torsionsträgheitsmoment	I-T	422550.00	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	58.13	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	422491.00	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	1.187E+07	cm ⁶
Abklingfaktor	Lambda	0.117175	1/cm
Widerstandsmoment	W-y-max	8225.14	cm ³
Widerstandsmoment	W-y-min	-8225.14	cm ³
Widerstandsmoment	W-z	6255.07	cm ³
Wölbwiderstandsmoment	W-Om	26135.70	cm ⁴
Statisches Moment	S-y-max	2411.20	cm ³
Statisches Moment	S-z-max	1806.00	cm ³
Wölbordinate	Omega max	454.19	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	6617.85	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	9644.80	cm ³
Plastisches Widerstandsmoment	Wpl-z	7224.00	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.17	
Plastischer Formbeiwert	Alpha-pl-z	1.15	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

KASTEN(A) 700/8/8/650/756/700/8

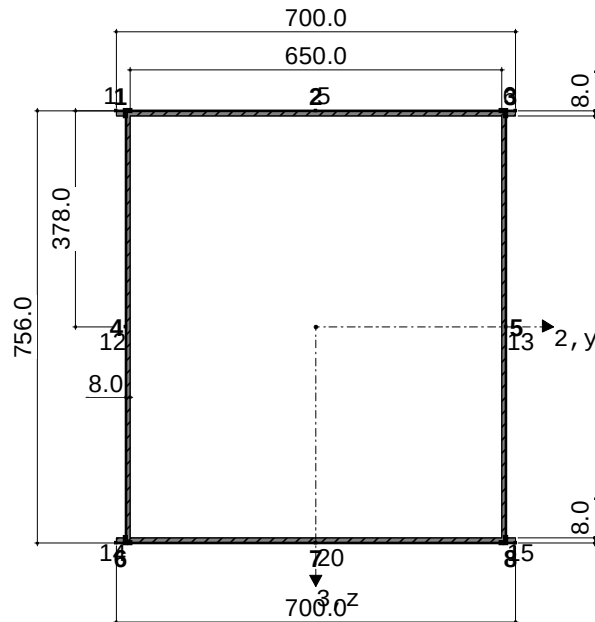
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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DETAILED PICTURE



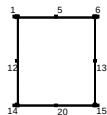
SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	230.40	cm ²
Schubfläche	A-y	86.58	cm ²
Schubfläche	A-z	103.28	cm ²
Kernfläche A*	A-k	4921.84	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	37.80	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	210697.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	173897.00	cm ⁴
Polares Trägheitsmoment	I-p	384594.00	cm ⁴
Polares Trägheitsmoment	I-p,M	384594.00	cm ⁴
Trägheitsradius	j-y	30.24	cm
Trägheitsradius	j-z	27.47	cm
Hauptachsenträgheitsradius	j-2	30.24	cm
Hauptachsenträgheitsradius	j-3	27.47	cm
Polarer Trägheitsradius	j-p	40.86	cm
Polarer Trägheitsradius	j-p,M	40.86	cm
Polarer Trägheitsradius	j-Om,M	1.21	cm
Eigenlast	G	180.86	kg/m
Mantelfläche	U	2.980	m ² /m
Torsionsträgheitsmoment	I-T	275719.00	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	49.25	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	275670.00	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	562270.00	cm ⁶
Abklingfaktor	Lambda	0.434905	1/cm
Widerstandsmoment	W-y-max	5573.99	cm ³
Widerstandsmoment	W-y-min	-5573.99	cm ³
Widerstandsmoment	W-z	4968.49	cm ³
Wölbwiderstandsmoment	W-Om	3574.43	cm ⁴
Statisches Moment	S-y-max	1594.80	cm ³
Statisches Moment	S-z-max	1463.84	cm ³
Wölbordinate	Omega max	157.30	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	1236.54	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	6379.20	cm ³
Plastisches Widerstandsmoment	Wpl-z	5855.36	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.14	
Plastischer Formbeiwert	Alpha-pl-z	1.18	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

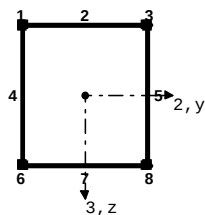
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STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-35.00	-37.80	0.00	0.00	0.80	157.30	0.00
2	-33.30	-37.80	-49.37	-45.11	0.80	93.72	-170.70
3	-32.90	-37.80	981.39	-1033.49	0.80	78.76	-200.01
4	-32.50	-37.80	969.89	-1043.54	0.80	77.81	-225.06
5	0.00	-37.80	0.00	-1463.84	0.80	0.00	-1236.54
6	32.50	-37.80	-969.89	-1043.54	0.80	-77.81	-225.06
7	32.90	-37.80	-981.39	-1033.49	0.80	-78.76	-200.01
8	33.30	-37.80	49.37	-45.11	0.80	-93.72	-170.70
9	35.00	-37.80	0.00	0.00	0.80	-157.30	0.00
10	-33.30	-37.00	1052.22	-969.39	0.80	77.92	23.35
11	33.30	-37.00	-1052.22	-969.39	0.80	-77.92	23.35
12	-33.30	0.00	1594.80	0.00	0.80	0.00	1176.59
13	33.30	0.00	-1594.80	0.00	0.80	0.00	1176.59
14	-33.30	37.00	1052.22	969.39	0.80	-77.92	23.35
15	33.30	37.00	-1052.22	969.39	0.80	77.92	23.35
16	-35.00	37.80	0.00	0.00	0.80	-157.30	0.00
17	-33.30	37.80	-49.37	45.11	0.80	-93.72	-170.70
18	-32.90	37.80	981.39	1033.49	0.80	-78.76	-200.01
19	-32.50	37.80	969.89	1043.54	0.80	-77.81	-225.06
20	0.00	37.80	0.00	1463.84	0.80	0.00	-1236.54
21	32.50	37.80	-969.89	1043.54	0.80	77.81	-225.06
22	32.90	37.80	-981.39	1033.49	0.80	78.76	-200.01
23	33.30	37.80	49.37	45.11	0.80	93.72	-170.70
24	35.00	37.80	0.00	0.00	0.80	157.30	0.00

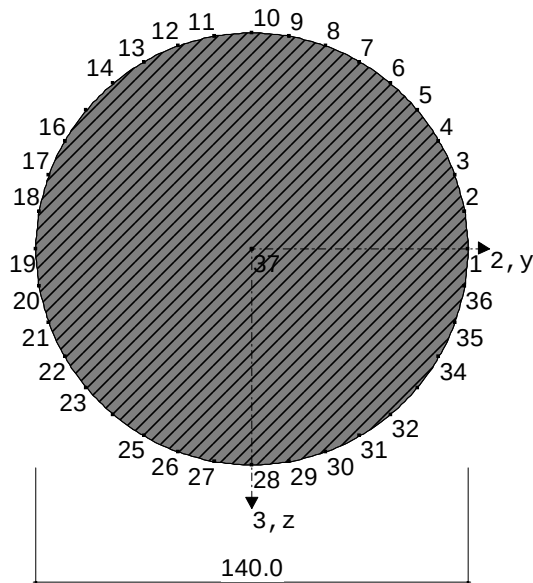
Kasten(A) 700/8/8/650/756/700/8 (B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	17.00	2.13	-333.00	-350.00	24.69	0.00
		8.00		-378.00	-378.00	23.33	
2	Both Sides	650.00	81.25	-325.00	325.00	484.95	4921.84
		8.00		-378.00	-378.00	1323.74	
3	One Side	17.00	2.13	333.00	350.00	24.69	0.00
		8.00		-378.00	-378.00	23.33	
4	Both Sides	740.00	92.50	-333.00	-333.00	1413.94	4921.84
		8.00		-370.00	370.00	484.70	
5	Both Sides	740.00	92.50	333.00	333.00	1413.94	4921.84
		8.00		-370.00	370.00	484.70	
6	One Side	17.00	2.13	-333.00	-350.00	24.69	0.00
		8.00		378.00	378.00	23.33	
7	Both Sides	650.00	81.25	-325.00	325.00	484.95	4921.84
		8.00		378.00	378.00	1323.74	
8	One Side	17.00	2.13	333.00	350.00	24.69	0.00
		8.00		378.00	378.00	23.33	

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DETAILED PICTURE

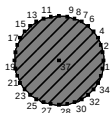


SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	153.94	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	1885.74	cm ⁴
Trägheitsradius	j-y	3.50	cm
Polarer Trägheitsradius	j-p	4.04	cm
Eigenlast	G	120.84	kg/m
Mantelfläche	U	0.440	m ² /m
Torsionsträgheitsmoment	I-T	3771.48	cm ⁴
Widerstandsmoment	W-y	269.39	cm ³
Plastisches Widerstandsmoment	Wpl-y	457.33	cm ³
Knickspannungslinie	Ksl-y	c	

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	7.00	0.00	0.00	0.00	14.00	0.00	0.00
2	6.89	-1.22	0.00	0.00	14.00	0.00	0.00
3	6.58	-2.39	0.00	0.00	14.00	0.00	0.00
4	6.06	-3.50	0.00	0.00	14.00	0.00	0.00
5	5.36	-4.50	0.00	0.00	14.00	0.00	0.00
6	4.50	-5.36	0.00	0.00	14.00	0.00	0.00
7	3.50	-6.06	0.00	0.00	14.00	0.00	0.00
8	2.39	-6.58	0.00	0.00	14.00	0.00	0.00
9	1.22	-6.89	0.00	0.00	14.00	0.00	0.00
10	0.00	-7.00	0.00	0.00	14.00	0.00	0.00
11	-1.22	-6.89	0.00	0.00	14.00	0.00	0.00
12	-2.39	-6.58	0.00	0.00	14.00	0.00	0.00
13	-3.50	-6.06	0.00	0.00	14.00	0.00	0.00
14	-4.50	-5.36	0.00	0.00	14.00	0.00	0.00
15	-5.36	-4.50	0.00	0.00	14.00	0.00	0.00
16	-6.06	-3.50	0.00	0.00	14.00	0.00	0.00
17	-6.58	-2.39	0.00	0.00	14.00	0.00	0.00
18	-6.89	-1.22	0.00	0.00	14.00	0.00	0.00
19	-7.00	0.00	0.00	0.00	14.00	0.00	0.00
20	-6.89	1.22	0.00	0.00	14.00	0.00	0.00
21	-6.58	2.39	0.00	0.00	14.00	0.00	0.00
22	-6.06	3.50	0.00	0.00	14.00	0.00	0.00
23	-5.36	4.50	0.00	0.00	14.00	0.00	0.00
24	-4.50	5.36	0.00	0.00	14.00	0.00	0.00
25	-3.50	6.06	0.00	0.00	14.00	0.00	0.00
26	-2.39	6.58	0.00	0.00	14.00	0.00	0.00
27	-1.22	6.89	0.00	0.00	14.00	0.00	0.00

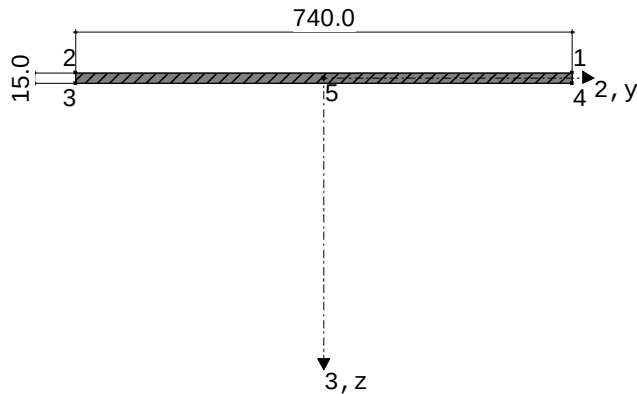
Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 168
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STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
28	0.00	7.00	0.00	0.00	14.00	0.00	0.00
29	1.22	6.89	0.00	0.00	14.00	0.00	0.00
30	2.39	6.58	0.00	0.00	14.00	0.00	0.00
31	3.50	6.06	0.00	0.00	14.00	0.00	0.00
32	4.50	5.36	0.00	0.00	14.00	0.00	0.00
33	5.36	4.50	0.00	0.00	14.00	0.00	0.00
34	6.06	3.50	0.00	0.00	14.00	0.00	0.00
35	6.58	2.39	0.00	0.00	14.00	0.00	0.00
36	6.89	1.22	0.00	0.00	14.00	0.00	0.00
37	0.00	0.00	228.67	228.67	14.00	0.00	0.00

FLACHSTAHL 740/15

DETAILED PICTURE



SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	111.00	cm ²
Schubfläche	A-y	92.50	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	20.81	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	50653.00	cm ⁴
Polares Trägheitsmoment	I-p	50673.80	cm ⁴
Trägheitsradius	j-y	0.43	cm
Trägheitsradius	j-z	21.36	cm
Polarer Trägheitsradius	j-p	21.37	cm
Eigenlast	G	87.14	kg/m
Mantelfläche	U	1.510	m ² /m
Torsionsträgheitsmoment	I-T	82.19	cm ⁴
Widerstandsmoment	W-y	27.75	cm ³
Widerstandsmoment	W-z	1369.00	cm ³
Statisches Moment	S-y-max	20.81	cm ³
Statisches Moment	S-z-max	1026.75	cm ³
Plastisches Widerstandsmoment	Wpl-y	41.62	cm ³
Plastisches Widerstandsmoment	Wpl-z	2053.50	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

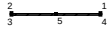
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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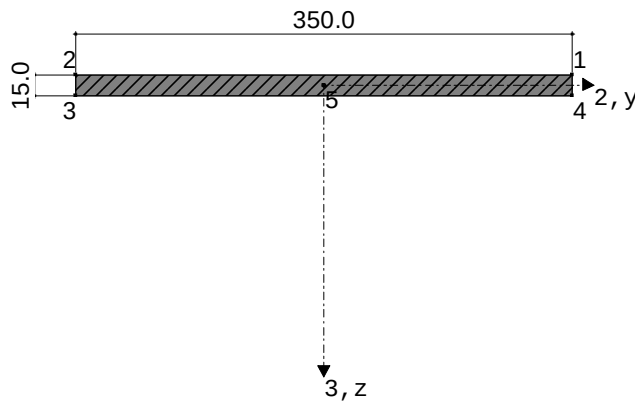
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm^3]		t [cm]	Warping Ordinate Omega[cm^2]	Warping Area A-Omega[cm^4]
	y	z	Qy	Qz			
1	37.00	-0.75	0.00	0.00	1.50	0.00	0.00
2	-37.00	-0.75	0.00	0.00	1.50	0.00	0.00
3	-37.00	0.75	0.00	0.00	1.50	0.00	0.00
4	37.00	0.75	0.00	0.00	1.50	0.00	0.00
5	0.00	0.00	-20.81	0.00	74.00	0.00	0.00
6	0.00	0.00	0.00	-1026.75	1.50	0.00	0.00

FLACHSTAHL 350/15

DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	52.50	cm^2
Schubfläche	A-y	43.75	cm^2
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	9.84	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	5359.38	cm^4
Polares Trägheitsmoment	I-p	5369.22	cm^4
Trägheitsradius	j-y	0.43	cm
Trägheitsradius	j-z	10.10	cm
Polarer Trägheitsradius	j-p	10.11	cm
Eigenlast	G	41.21	kg/m
Mantelfläche	U	0.730	m^2/m
Torsionsträgheitsmoment	I-T	38.31	cm^4
Widerstandsmoment	W-y	13.13	cm^3
Widerstandsmoment	W-z	306.25	cm^3
Statisches Moment	S-y-max	9.84	cm^3
Statisches Moment	S-z-max	229.69	cm^3
Plastisches Widerstandsmoment	Wpl-y	19.69	cm^3
Plastisches Widerstandsmoment	Wpl-z	459.38	cm^3
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 170
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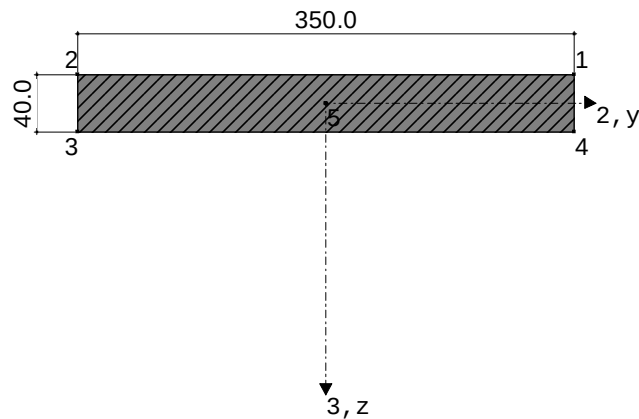
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm^3]		t [cm]	Warping Ordinate Omega[cm^2]	Warping Area A-Omega[cm^4]
	y	z	Qy	Qz			
1	17.50	-0.75	0.00	0.00	1.50	0.00	0.00
2	-17.50	-0.75	0.00	0.00	1.50	0.00	0.00
3	-17.50	0.75	0.00	0.00	1.50	0.00	0.00
4	17.50	0.75	0.00	0.00	1.50	0.00	0.00
5	0.00	0.00	-9.84	0.00	35.00	0.00	0.00
6	0.00	0.00	0.00	-229.69	1.50	0.00	0.00

FLACHSTAHL 350/40

DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	140.00	cm^2
Schubfläche	A-y	116.67	cm^2
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	186.67	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	14291.70	cm^4
Polares Trägheitsmoment	I-p	14478.30	cm^4
Trägheitsradius	j-y	1.15	cm
Trägheitsradius	j-z	10.10	cm
Polarer Trägheitsradius	j-p	10.17	cm
Eigenlast	G	109.90	kg/m
Mantelfläche	U	0.780	m^2/m
Torsionsträgheitsmoment	I-T	692.91	cm^4
Widerstandsmoment	W-y	93.33	cm^3
Widerstandsmoment	W-z	816.67	cm^3
Statisches Moment	S-y-max	70.00	cm^3
Statisches Moment	S-z-max	612.50	cm^3
Plastisches Widerstandsmoment	Wpl-y	140.00	cm^3
Plastisches Widerstandsmoment	Wpl-z	1225.00	cm^3
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 171
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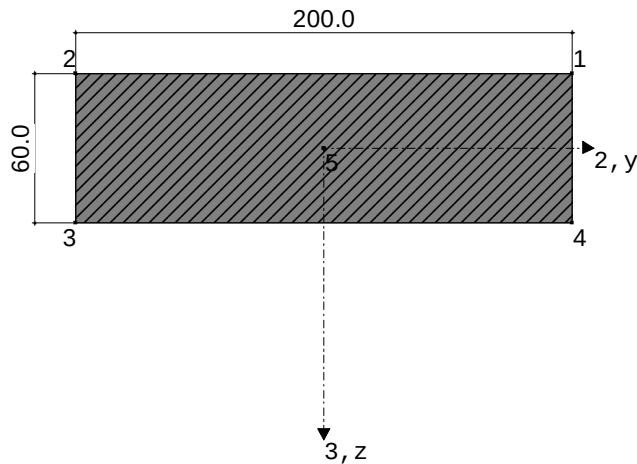
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm^3]		t [cm]	Warping Ordinate Omega[cm^2]	Warping Area A-Omega[cm^4]
	y	z	Qy	Qz			
1	17.50	-2.00	0.00	0.00	4.00	0.00	0.00
2	-17.50	-2.00	0.00	0.00	4.00	0.00	0.00
3	-17.50	2.00	0.00	0.00	4.00	0.00	0.00
4	17.50	2.00	0.00	0.00	4.00	0.00	0.00
5	0.00	0.00	-70.00	0.00	35.00	0.00	0.00
6	0.00	0.00	0.00	-612.50	4.00	0.00	0.00

FLACHSTAHL 200/60

DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	120.00	cm^2
Schubfläche	A-y	100.00	cm^2
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	360.00	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	4000.00	cm^4
Polares Trägheitsmoment	I-p	4360.00	cm^4
Trägheitsradius	j-y	1.73	cm
Trägheitsradius	j-z	5.77	cm
Polarer Trägheitsradius	j-p	6.03	cm
Eigenlast	G	94.20	kg/m
Mantelfläche	U	0.520	m^2/m
Torsionsträgheitsmoment	I-T	1168.02	cm^4
Widerstandsmoment	W-y	120.00	cm^3
Widerstandsmoment	W-z	400.00	cm^3
Statisches Moment	S-y-max	90.00	cm^3
Statisches Moment	S-z-max	300.00	cm^3
Plastisches Widerstandsmoment	Wpl-y	180.00	cm^3
Plastisches Widerstandsmoment	Wpl-z	600.00	cm^3
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

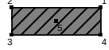
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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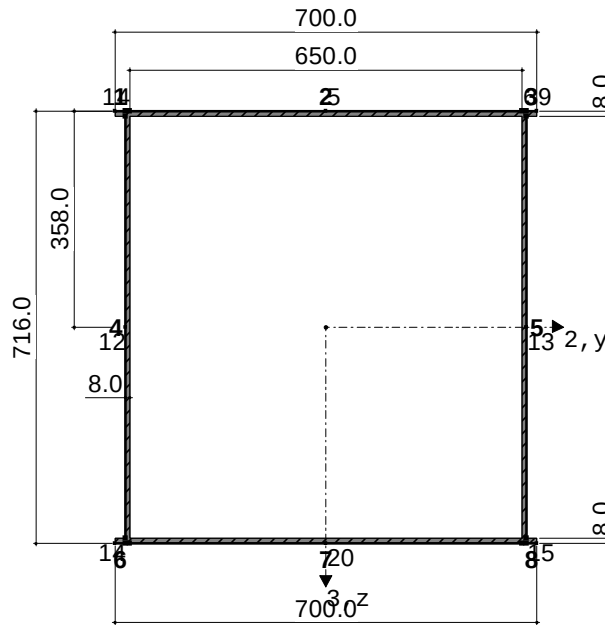
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	10.00	-3.00	0.00	0.00	6.00	0.00	0.00
2	-10.00	-3.00	0.00	0.00	6.00	0.00	0.00
3	-10.00	3.00	0.00	0.00	6.00	0.00	0.00
4	10.00	3.00	0.00	0.00	6.00	0.00	0.00
5	0.00	0.00	-90.00	0.00	20.00	0.00	0.00
6	0.00	0.00	0.00	-300.00	6.00	0.00	0.00

KASTEN(A) 700/8/8/650/716/700/8

DETAILED PICTURE



SECTION DATA



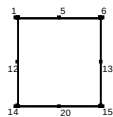
Description	Name	Size	Unit
Querschnittsfläche	A	224.00	cm ²
Schubfläche	A-y	87.74	cm ²
Schubfläche	A-z	96.81	cm ²
Kernfläche A*	A-k	4658.64	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	35.80	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	186093.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	166969.00	cm ⁴
Polares Trägheitsmoment	I-p	353062.00	cm ⁴
Polares Trägheitsmoment	I-p,M	353062.00	cm ⁴
Trägheitsradius	j-y	28.82	cm
Trägheitsradius	j-z	27.30	cm
Hauptachsenträgheitsradius	j-2	28.82	cm
Hauptachsenträgheitsradius	j-3	27.30	cm
Polarer Trägheitsradius	j-p	39.70	cm
Polarer Trägheitsradius	j-p,M	39.70	cm
Polarer Trägheitsradius	j-Om,M	0.71	cm
Eigenlast	G	175.84	kg/m
Mantelfläche	U	2.900	m ² /m
Torsionsträgheitsmoment	I-T	254255.00	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	47.89	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	254207.00	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	178288.00	cm ⁶
Abklingfaktor	Lambda	0.741663	1/cm
Widerstandsmoment	W-y-max	5198.13	cm ³
Widerstandsmoment	W-y-min	-5198.13	cm ³
Widerstandsmoment	W-z	4770.55	cm ³
Wölbwiderstandsmoment	W-Om	1524.21	cm ⁴

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SECTION DATA

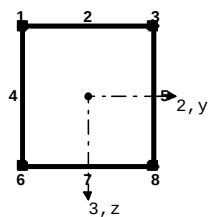
Description	Name	Size	Unit
Statisches Moment	S-y-max	1481.20	cm ³
Statisches Moment	S-z-max	1411.20	cm ³
Wölbordinate	Omega max	116.97	cm ²
Wölbfläche (Flächenmoment 1. Grades mit α)	A-Om max	658.92	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	5924.80	cm ³
Plastisches Widerstandsmoment	Wpl-z	5644.80	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.14	
Plastischer Formbeiwert	Alpha-pl-z	1.18	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-35.00	-35.80	0.00	0.00	0.80	116.97	0.00
2	-33.30	-35.80	-46.73	-45.11	0.80	56.79	-118.16
3	-32.90	-35.80	928.91	-980.85	0.80	42.63	-134.06
4	-32.50	-35.80	918.03	-990.90	0.80	42.11	-111.46
5	0.00	-35.80	0.00	-1411.20	0.80	0.00	-658.92
6	32.50	-35.80	-918.03	-990.90	0.80	-42.11	-111.46
7	32.90	-35.80	-928.91	-980.85	0.80	-42.63	-134.06
8	33.30	-35.80	46.73	-45.11	0.80	-56.79	-118.16
9	35.00	-35.80	0.00	0.00	0.80	-116.97	0.00
10	-33.30	-35.00	995.91	-916.79	0.80	42.15	49.72
11	33.30	-35.00	-995.91	-916.79	0.80	-42.15	49.72
12	-33.30	0.00	1481.20	0.00	0.80	0.00	639.80
13	33.30	0.00	-1481.20	0.00	0.80	0.00	639.80
14	-33.30	35.00	995.91	916.79	0.80	-42.15	49.72
15	33.30	35.00	-995.91	916.79	0.80	42.15	49.72
16	-35.00	35.80	0.00	0.00	0.80	-116.97	0.00
17	-33.30	35.80	-46.73	45.11	0.80	-56.79	-118.16
18	-32.90	35.80	928.91	980.85	0.80	-42.63	-134.06
19	-32.50	35.80	918.03	990.90	0.80	-42.11	-111.46
20	0.00	35.80	0.00	1411.20	0.80	0.00	-658.92
21	32.50	35.80	-918.03	990.90	0.80	42.11	-111.46
22	32.90	35.80	-928.91	980.85	0.80	42.63	-134.06
23	33.30	35.80	46.73	45.11	0.80	56.79	-118.16
24	35.00	35.80	0.00	0.00	0.80	116.97	0.00

Kasten(A) 700/8/650/716/700/8 (B/T)-ZONES

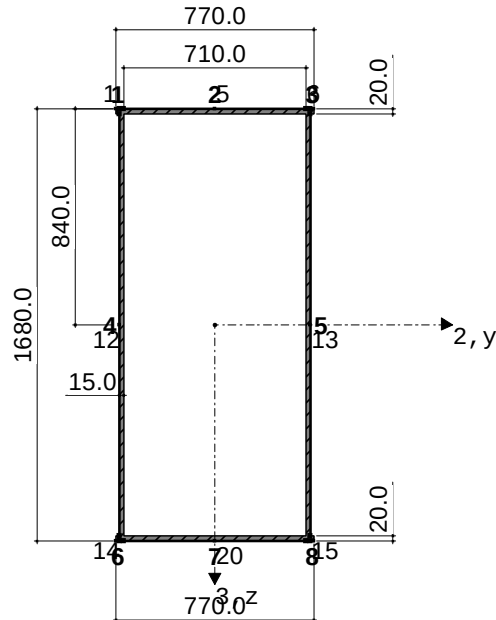


No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
1	One Side	17.00	2.13	-333.00	-350.00	23.37	0.00
		8.00		-358.00	-358.00	23.33	
2	Both Sides	650.00	81.25	-325.00	325.00	459.01	4658.64
		8.00		-358.00	-358.00	1271.10	
3	One Side	17.00	2.13	333.00	350.00	23.37	0.00
		8.00		-358.00	-358.00	23.33	
4	Both Sides	700.00	87.50	-333.00	-333.00	1319.44	4658.64
		8.00		-350.00	350.00	458.40	
5	Both Sides	700.00	87.50	333.00	333.00	1319.44	4658.64
		8.00		-350.00	350.00	458.40	
6	One Side	17.00	2.13	-333.00	-350.00	23.37	0.00
		8.00		358.00	358.00	23.33	
7	Both Sides	650.00	81.25	-325.00	325.00	459.01	4658.64
		8.00		358.00	358.00	1271.10	
8	One Side	17.00	2.13	333.00	350.00	23.37	0.00
		8.00		358.00	358.00	23.33	

KASTEN(A) 770/20/15/710/1680/770/20

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 174
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DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	800.00	cm ²
Schubfläche	A-y	172.86	cm ²
Schubfläche	A-z	465.10	cm ²
Kernfläche A*	A-k	12035.00	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	84.00	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	3.225E+06	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	798789.00	cm ⁴
Polares Trägheitsmoment	I-p	4.023E+06	cm ⁴
Polares Trägheitsmoment	I-p,M	4.023E+06	cm ⁴
Trägheitsradius	j-y	63.49	cm
Trägheitsradius	j-z	31.60	cm
Hauptachsenträgheitsradius	j-2	63.49	cm
Hauptachsenträgheitsradius	j-3	31.60	cm
Polarer Trägheitsradius	j-p	70.92	cm
Polarer Trägheitsradius	j-p,M	70.92	cm
Polarer Trägheitsradius	j-Om,M	12.78	cm
Eigenlast	G	628.00	kg/m
Mantelfläche	U	4.960	m ² /m
Torsionsträgheitsmoment	I-T	1.973E+06	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	777.79	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	1.972E+06	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	6.572E+08	cm ⁶
Abklingfaktor	Lambda	0.034025	1/cm
Widerstandsmoment	W-y-max	38388.70	cm ³
Widerstandsmoment	W-y-min	-38388.70	cm ³
Widerstandsmoment	W-z	20747.80	cm ³
Wölbwiderstandsmoment	W-Om	384160.00	cm ⁴
Statisches Moment	S-y-max	11434.00	cm ³
Statisches Moment	S-z-max	5941.00	cm ³
Wölbordinate	Omega max	1710.75	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	99280.80	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	45736.00	cm ³
Plastisches Widerstandsmoment	Wpl-z	23764.00	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.19	
Plastischer Formbeiwert	Alpha-pl-z	1.15	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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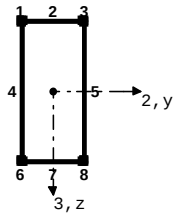
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-38.50	-84.00	0.00	0.00	2.00	1710.75	0.00
2	-37.00	-84.00	-243.25	-110.70	2.00	1586.25	-4945.50
3	-36.25	-84.00	5991.64	-4638.12	2.00	1524.00	-44035.80
4	-35.50	-84.00	5870.26	-4690.58	2.00	1492.47	-46298.20
5	0.00	-84.00	0.00	-5941.00	2.00	0.00	-99280.80
6	35.50	-84.00	-5870.26	-4690.58	2.00	-1492.47	-46298.20
7	36.25	-84.00	-5991.64	-4638.12	2.00	-1524.00	-44035.80
8	37.00	-84.00	243.25	-110.70	2.00	-1586.25	-4945.50
9	38.50	-84.00	0.00	0.00	2.00	-1710.75	0.00
10	-37.00	-82.00	6450.54	-4432.53	1.50	1505.64	-34485.40
11	37.00	-82.00	-6450.54	-4432.53	1.50	-1505.64	-34485.40
12	-37.00	0.00	11434.00	0.00	1.50	0.00	58111.40
13	37.00	0.00	-11434.00	0.00	1.50	0.00	58111.40
14	-37.00	82.00	6450.54	4432.53	1.50	-1505.64	-34485.40
15	37.00	82.00	-6450.54	4432.53	1.50	1505.64	-34485.40
16	-38.50	84.00	0.00	0.00	2.00	-1710.75	0.00
17	-37.00	84.00	-243.25	110.70	2.00	-1586.25	-4945.50
18	-36.25	84.00	5991.64	4638.12	2.00	-1524.00	-44035.80
19	-35.50	84.00	5870.26	4690.58	2.00	-1492.47	-46298.20
20	0.00	84.00	0.00	5941.00	2.00	0.00	-99280.80
21	35.50	84.00	-5870.26	4690.58	2.00	1492.47	-46298.20
22	36.25	84.00	-5991.64	4638.12	2.00	1524.00	-44035.80
23	37.00	84.00	243.25	110.70	2.00	1586.25	-4945.50
24	38.50	84.00	0.00	0.00	2.00	1710.75	0.00

Kasten(A) 770/20/15/710/1680/770/20

(B/T)-ZONES

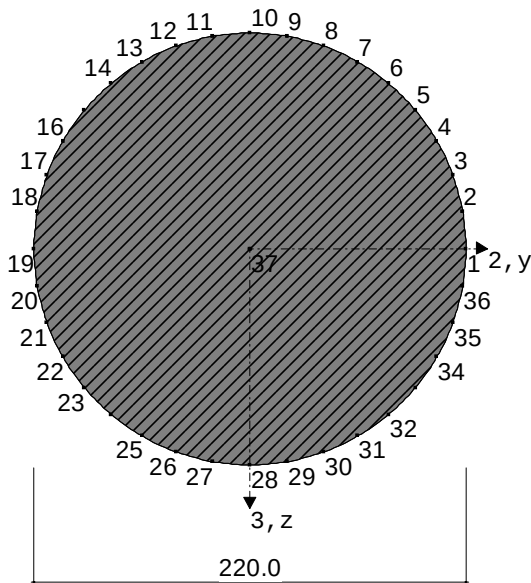


No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	15.00	0.75	-370.00	-385.00	121.63	0.00
		20.00		-840.00	-840.00	57.42	
2	Both Sides	710.00	35.50	-355.00	355.00	2935.13	12035.00
		20.00		-840.00	-840.00	5524.19	
3	One Side	15.00	0.75	370.00	385.00	121.63	0.00
		20.00		-840.00	-840.00	57.42	
4	Both Sides	1640.00	109.33	-370.00	-370.00	9772.85	12035.00
		15.00		-820.00	820.00	2216.27	
5	Both Sides	1640.00	109.33	370.00	370.00	9772.85	12035.00
		15.00		-820.00	820.00	2216.27	
6	One Side	15.00	0.75	-370.00	-385.00	121.63	0.00
		20.00		840.00	840.00	57.42	
7	Both Sides	710.00	35.50	-355.00	355.00	2935.13	12035.00
		20.00		840.00	840.00	5524.19	
8	One Side	15.00	0.75	370.00	385.00	121.63	0.00
		20.00		840.00	840.00	57.42	

RUNDSTAHL 220

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 176
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DETAILED PICTURE

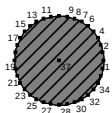


SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	380.13	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	11499.00	cm ⁴
Trägheitsradius	j-y	5.50	cm
Polarer Trägheitsradius	j-p	6.35	cm
Eigenlast	G	298.40	kg/m
Mantelfläche	U	0.691	m ² /m
Torsionsträgheitsmoment	I-T	22998.00	cm ⁴
Widerstandsmoment	W-y	1045.36	cm ³
Plastisches Widerstandsmoment	Wpl-y	1774.67	cm ³
Knickspannungslinie	Ksl-y	c	

STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	11.00	0.00	0.00	0.00	22.00	0.00	0.00
2	10.83	-1.91	0.00	0.00	22.00	0.00	0.00
3	10.34	-3.76	0.00	0.00	22.00	0.00	0.00
4	9.53	-5.50	0.00	0.00	22.00	0.00	0.00
5	8.43	-7.07	0.00	0.00	22.00	0.00	0.00
6	7.07	-8.43	0.00	0.00	22.00	0.00	0.00
7	5.50	-9.53	0.00	0.00	22.00	0.00	0.00
8	3.76	-10.34	0.00	0.00	22.00	0.00	0.00
9	1.91	-10.83	0.00	0.00	22.00	0.00	0.00
10	0.00	-11.00	0.00	0.00	22.00	0.00	0.00
11	-1.91	-10.83	0.00	0.00	22.00	0.00	0.00
12	-3.76	-10.34	0.00	0.00	22.00	0.00	0.00
13	-5.50	-9.53	0.00	0.00	22.00	0.00	0.00
14	-7.07	-8.43	0.00	0.00	22.00	0.00	0.00
15	-8.43	-7.07	0.00	0.00	22.00	0.00	0.00
16	-9.53	-5.50	0.00	0.00	22.00	0.00	0.00
17	-10.34	-3.76	0.00	0.00	22.00	0.00	0.00
18	-10.83	-1.91	0.00	0.00	22.00	0.00	0.00
19	-11.00	0.00	0.00	0.00	22.00	0.00	0.00
20	-10.83	1.91	0.00	0.00	22.00	0.00	0.00
21	-10.34	3.76	0.00	0.00	22.00	0.00	0.00
22	-9.53	5.50	0.00	0.00	22.00	0.00	0.00
23	-8.43	7.07	0.00	0.00	22.00	0.00	0.00
24	-7.07	8.43	0.00	0.00	22.00	0.00	0.00
25	-5.50	9.53	0.00	0.00	22.00	0.00	0.00
26	-3.76	10.34	0.00	0.00	22.00	0.00	0.00
27	-1.91	10.83	0.00	0.00	22.00	0.00	0.00

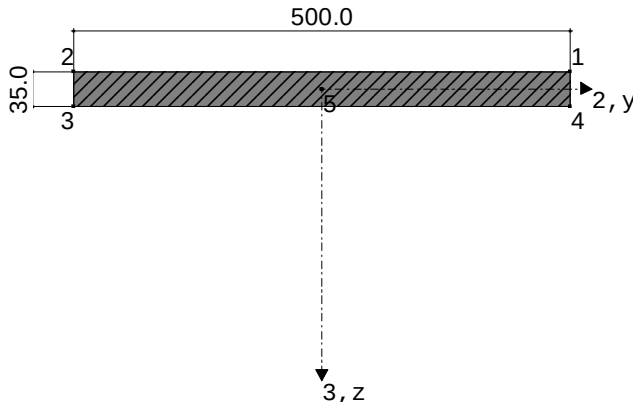
Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 177
		17.05.2009

STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
28	0.00	11.00	0.00	0.00	22.00	0.00	0.00
29	1.91	10.83	0.00	0.00	22.00	0.00	0.00
30	3.76	10.34	0.00	0.00	22.00	0.00	0.00
31	5.50	9.53	0.00	0.00	22.00	0.00	0.00
32	7.07	8.43	0.00	0.00	22.00	0.00	0.00
33	8.43	7.07	0.00	0.00	22.00	0.00	0.00
34	9.53	5.50	0.00	0.00	22.00	0.00	0.00
35	10.34	3.76	0.00	0.00	22.00	0.00	0.00
36	10.83	1.91	0.00	0.00	22.00	0.00	0.00
37	0.00	0.00	887.33	887.33	22.00	0.00	0.00

FLACHSTAHL 500/35

DETAILED PICTURE



SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	175.00	cm ²
Schubfläche	A-y	145.83	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	178.65	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	36458.30	cm ⁴
Polares Trägheitsmoment	I-p	36637.00	cm ⁴
Trägheitsradius	j-y	1.01	cm
Trägheitsradius	j-z	14.43	cm
Polarer Trägheitsradius	j-p	14.47	cm
Eigenlast	G	137.38	kg/m
Mantelfläche	U	1.070	m ² /m
Torsionsträgheitsmoment	I-T	683.07	cm ⁴
Widerstandsmoment	W-y	102.08	cm ³
Widerstandsmoment	W-z	1458.33	cm ³
Statisches Moment	S-y-max	76.56	cm ³
Statisches Moment	S-z-max	1093.75	cm ³
Plastisches Widerstandsmoment	Wpl-y	153.13	cm ³
Plastisches Widerstandsmoment	Wpl-z	2187.50	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 178
		17.05.2009

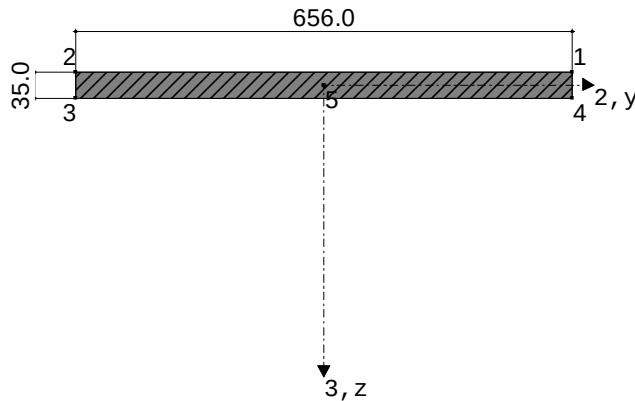
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm^3]		t [cm]	Warping Ordinate Omega[cm^2]	Warping Area A-Omega[cm^4]
	y	z	Qy	Qz			
1	25.00	-1.75	0.00	0.00	3.50	0.00	0.00
2	-25.00	-1.75	0.00	0.00	3.50	0.00	0.00
3	-25.00	1.75	0.00	0.00	3.50	0.00	0.00
4	25.00	1.75	0.00	0.00	3.50	0.00	0.00
5	0.00	0.00	-76.56	0.00	50.00	0.00	0.00
6	0.00	0.00	0.00	-1093.75	3.50	0.00	0.00

FLACHSTAHL 656/35

DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	229.60	cm^2
Schubfläche	A-y	191.33	cm^2
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	234.38	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	82337.60	cm^4
Polares Trägheitsmoment	I-p	82572.00	cm^4
Trägheitsradius	j-y	1.01	cm
Trägheitsradius	j-z	18.94	cm
Polarer Trägheitsradius	j-p	18.96	cm
Eigenlast	G	180.24	kg/m
Mantelfläche	U	1.382	m^2/m
Torsionsträgheitsmoment	I-T	906.02	cm^4
Widerstandsmoment	W-y	133.93	cm^3
Widerstandsmoment	W-z	2510.29	cm^3
Statisches Moment	S-y-max	100.45	cm^3
Statisches Moment	S-z-max	1882.72	cm^3
Plastisches Widerstandsmoment	Wpl-y	200.90	cm^3
Plastisches Widerstandsmoment	Wpl-z	3765.44	cm^3
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 179
		17.05.2009

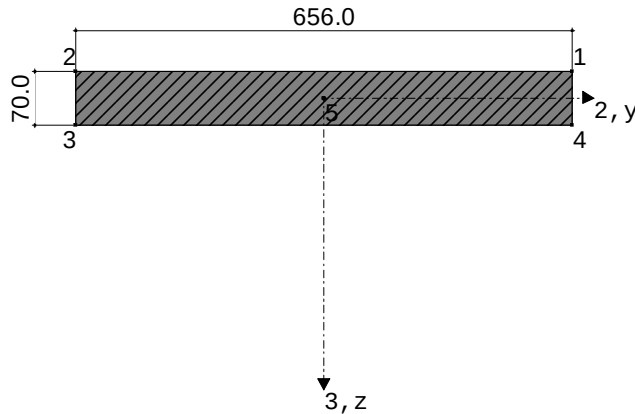
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm^3]		t [cm]	Warping Ordinate Omega[cm^2]	Warping Area A-Omega[cm^4]
	y	z	Qy	Qz			
1	32.80	-1.75	0.00	0.00	3.50	0.00	0.00
2	-32.80	-1.75	0.00	0.00	3.50	0.00	0.00
3	-32.80	1.75	0.00	0.00	3.50	0.00	0.00
4	32.80	1.75	0.00	0.00	3.50	0.00	0.00
5	0.00	0.00	-100.45	0.00	65.60	0.00	0.00
6	0.00	0.00	0.00	-1882.72	3.50	0.00	0.00

FLACHSTAHL 656/70

DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	459.20	cm^2
Schubfläche	A-y	382.67	cm^2
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	1875.07	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	164675.00	cm^4
Polares Trägheitsmoment	I-p	166550.00	cm^4
Trägheitsradius	j-y	2.02	cm
Trägheitsradius	j-z	18.94	cm
Polarer Trägheitsradius	j-p	19.04	cm
Eigenlast	G	360.47	kg/m
Mantelfläche	U	1.452	m^2/m
Torsionsträgheitsmoment	I-T	6996.06	cm^4
Widerstandsmoment	W-y	535.73	cm^3
Widerstandsmoment	W-z	5020.59	cm^3
Statisches Moment	S-y-max	401.80	cm^3
Statisches Moment	S-z-max	3765.44	cm^3
Plastisches Widerstandsmoment	Wpl-y	803.60	cm^3
Plastisches Widerstandsmoment	Wpl-z	7530.88	cm^3
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 180
		17.05.2009

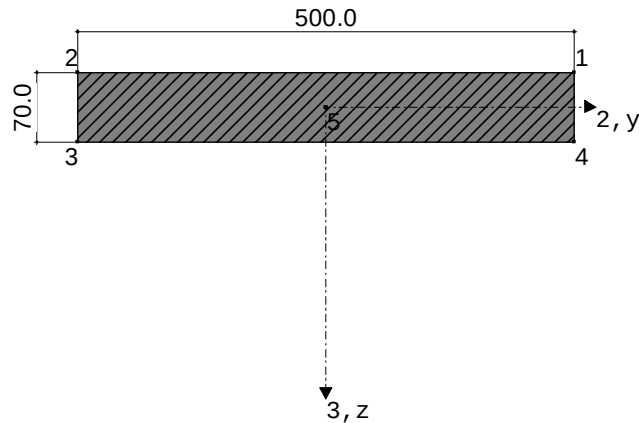
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm^3]		t [cm]	Warping Ordinate Omega[cm^2]	Warping Area A-Omega[cm^4]
	y	z	Qy	Qz			
1	32.80	-3.50	0.00	0.00	7.00	0.00	0.00
2	-32.80	-3.50	0.00	0.00	7.00	0.00	0.00
3	-32.80	3.50	0.00	0.00	7.00	0.00	0.00
4	32.80	3.50	0.00	0.00	7.00	0.00	0.00
5	0.00	0.00	-401.80	0.00	65.60	0.00	0.00
6	0.00	0.00	0.00	-3765.44	7.00	0.00	0.00

FLACHSTAHL 500/70

DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	350.00	cm^2
Schubfläche	A-y	291.67	cm^2
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	1429.17	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	72916.70	cm^4
Polares Trägheitsmoment	I-p	74345.80	cm^4
Trägheitsradius	j-y	2.02	cm
Trägheitsradius	j-z	14.43	cm
Polarer Trägheitsradius	j-p	14.57	cm
Eigenlast	G	274.75	kg/m
Mantelfläche	U	1.140	m^2/m
Torsionsträgheitsmoment	I-T	5212.47	cm^4
Widerstandsmoment	W-y	408.33	cm^3
Widerstandsmoment	W-z	2916.67	cm^3
Statisches Moment	S-y-max	306.25	cm^3
Statisches Moment	S-z-max	2187.50	cm^3
Plastisches Widerstandsmoment	Wpl-y	612.50	cm^3
Plastisches Widerstandsmoment	Wpl-z	4375.00	cm^3
Plastischer Formbeiwert	Alpha-pl-y	1.50	
Plastischer Formbeiwert	Alpha-pl-z	1.50	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 181
		17.05.2009

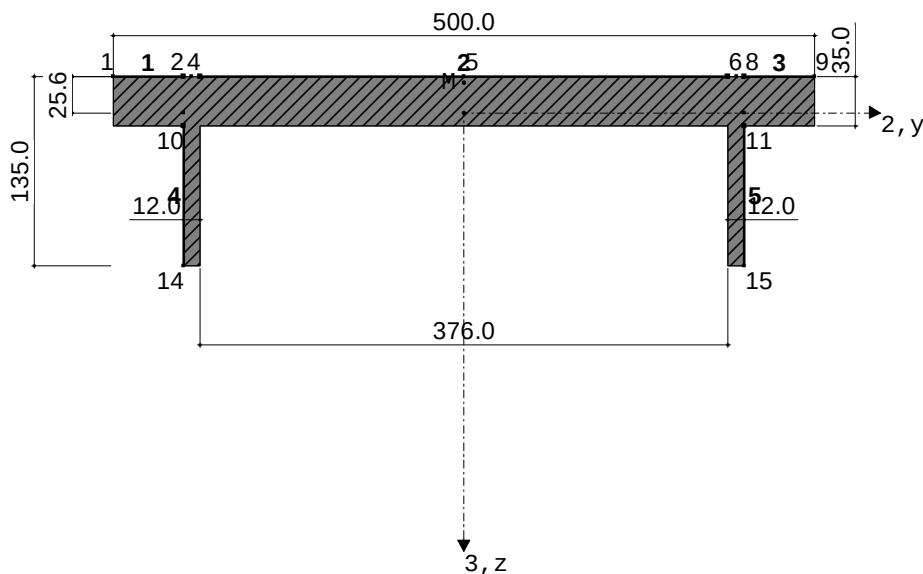
STRESS POINTS



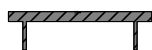
No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	25.00	-3.50	0.00	0.00	7.00	0.00	0.00
2	-25.00	-3.50	0.00	0.00	7.00	0.00	0.00
3	-25.00	3.50	0.00	0.00	7.00	0.00	0.00
4	25.00	3.50	0.00	0.00	7.00	0.00	0.00
5	0.00	0.00	-306.25	0.00	50.00	0.00	0.00
6	0.00	0.00	0.00	-2187.50	7.00	0.00	0.00

PI(A) 500/35/12/135/376

DETAILED PICTURE



SECTION DATA



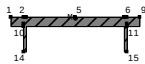
Description	Name	Size	Unit
Querschnittsfläche	A	199.00	cm ²
Schubfläche	A-y	141.01	cm ²
Schubfläche	A-z	26.28	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	2.56	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	1340.27	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	45493.90	cm ⁴
Polares Trägheitsmoment	I-p	46834.10	cm ⁴
Polares Trägheitsmoment	I-p,M	47809.80	cm ⁴
Trägheitsradius	j-y	2.60	cm
Trägheitsradius	j-z	15.12	cm
Polarer Trägheitsradius	j-p	15.34	cm
Polarer Trägheitsradius	j-p,M	15.50	cm
Eigenlast	G	156.21	kg/m
Mantelfläche	U	1.470	m ² /m
Torsionsträgheitsmoment	I-T	696.57	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	-2.21	cm
Wölbwiderstand bezogen auf M	C-M	406098.00	cm ⁶
Abklingfaktor	Lambda	0.025722	1/cm
Widerstandsmoment	W-y-max	122.56	cm ³
Widerstandsmoment	W-y-min	-522.71	cm ³
Widerstandsmoment	W-z	1819.75	cm ³
Wölbwiderstandsmoment	W-Om	2022.28	cm ⁴
Statisches Moment	S-y-max	71.03	cm ³
Statisches Moment	S-z-max	1326.55	cm ³
Wölbordinate	Omega max	200.81	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	1224.40	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	24.26	cm
Querschnittsstrecke	r-M-z	28.69	cm

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 182
		17.05.2009

SECTION DATA

Description	Name	Size	Unit
Lage der Flächenhalbierenden bez. auf S	f-z	-0.58	cm
Plastisches Widerstandsmoment	Wpl-y	312.24	cm ³
Plastisches Widerstandsmoment	Wpl-z	2653.10	cm ³
Plastischer Formbeiwert	Alpha-pl-y	2.55	
Plastischer Formbeiwert	Alpha-pl-z	1.46	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

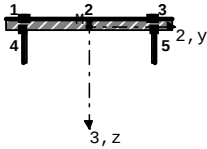
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-25.00	-2.56	0.00	0.00	3.50	-34.97	0.00
2	-20.00	-2.56	-14.18	-391.47	3.50	-27.98	550.80
3	-19.40	-2.56	55.17	-671.04	3.50	-27.14	-615.73
4	-18.80	-2.56	53.51	-709.85	3.50	-26.30	-559.62
5	0.00	-2.56	0.00	-1326.55	3.50	0.00	305.61
6	18.80	-2.56	-53.51	-709.85	3.50	26.30	-559.62
7	19.40	-2.56	-55.17	-671.04	3.50	27.14	-615.73
8	20.00	-2.56	14.18	-391.47	3.50	27.98	550.80
9	25.00	-2.56	0.00	0.00	3.50	34.97	0.00
10	-20.00	0.94	-71.21	230.78	1.20	6.81	1245.74
11	20.00	0.94	-71.21	-230.78	1.20	-6.81	-1245.74
12	-20.00	0.00	-71.60	238.68	1.20	-11.35	1243.20
13	20.00	0.00	-71.60	-238.68	1.20	11.35	-1243.20
14	-20.00	10.94	0.00	0.00	1.20	200.81	0.00
15	20.00	10.94	0.00	0.00	1.20	-200.81	0.00

PI(A) 500/35/12/135/376

(B/T)-ZONES

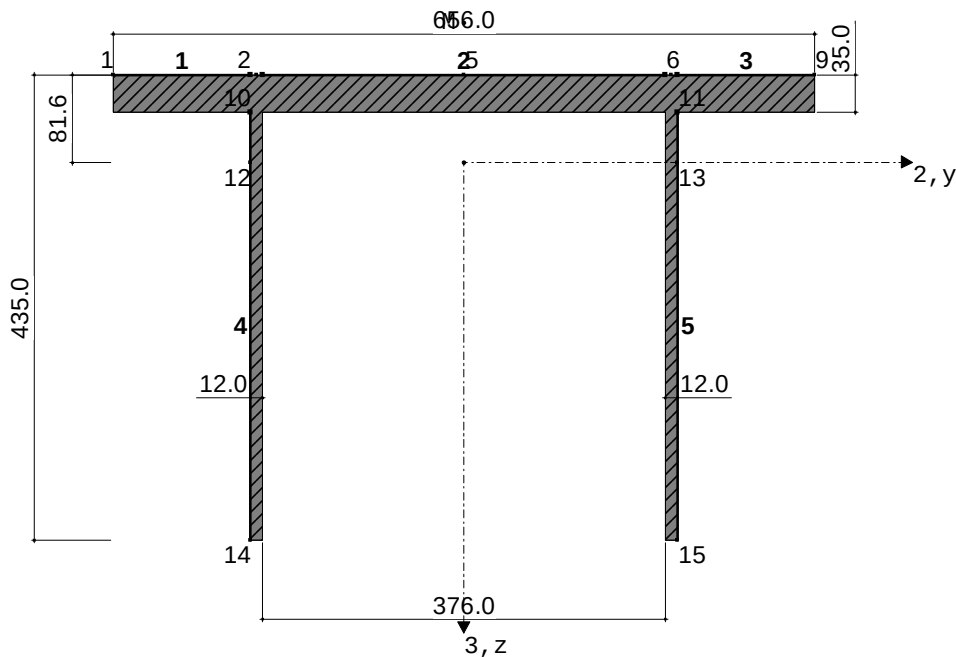


No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ⁴]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	50.00	1.43	-200.00	-250.00	7.09
		35.00		-25.64	-25.64	203.89
2	Both Sides	376.00	10.74	-188.00	188.00	26.75
		35.00		-25.64	-25.64	1120.98
3	One Side	50.00	1.43	200.00	250.00	7.09
		35.00		-25.64	-25.64	203.89
4	One Side	100.00	8.33	-200.00	-200.00	45.61
		12.00		9.36	109.36	115.39
5	One Side	100.00	8.33	200.00	200.00	45.61
		12.00		9.36	109.36	115.39

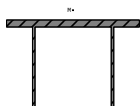
PI(A) 656/35/12/435/376

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 183
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DETAILED PICTURE



SECTION DATA



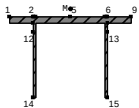
Description	Name	Size	Unit
Querschnittsfläche	A	325.60	cm ²
Schubfläche	A-y	139.57	cm ²
Schubfläche	A-z	82.48	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	8.16	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	45058.50	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	118480.00	cm ⁴
Polares Trägheitsmoment	I-p	163538.00	cm ⁴
Polares Trägheitsmoment	I-p,M	219164.00	cm ⁴
Trägheitsradius	j-y	11.76	cm
Trägheitsradius	j-z	19.08	cm
Polarer Trägheitsradius	j-p	22.41	cm
Polarer Trägheitsradius	j-p,M	25.94	cm
Eigenlast	G	255.60	kg/m
Mantelfläche	U	2.982	m ² /m
Torsionsträgheitsmoment	I-T	953.69	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	-13.14	cm
Wölbwiderstand bezogen auf M	C-M	1.675E+07	cm ⁶
Abklingfaktor	Lambda	0.004686	1/cm
Widerstandsmoment	W-y-max	1275.10	cm ³
Widerstandsmoment	W-y-min	-5520.00	cm ³
Widerstandsmoment	W-z	3612.19	cm ³
Wölbwiderstandsmoment	W-Om	24656.80	cm ⁴
Statisches Moment	S-y-max	749.22	cm ³
Statisches Moment	S-z-max	2813.92	cm ³
Wölbordinate	Omega max	679.42	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	13749.70	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	19.78	cm
Querschnittsstrecke	r-m-z	46.07	cm
Lage der Flächenhalbierenden bez. auf S	f-z	-5.61	cm
Plastisches Widerstandsmoment	Wpl-y	2253.78	cm ³
Plastisches Widerstandsmoment	Wpl-z	5627.84	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.77	
Plastischer Formbeiwert	Alpha-pl-z	1.56	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-32.80	-8.16	0.00	0.00	3.50	-220.69	0.00
2	-20.00	-8.16	-286.65	-1180.66	3.50	-134.57	7957.78

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 184
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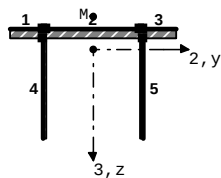
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
3	-19.40	-8.16	434.41	-2158.41	3.50	-130.53	8236.13
4	-18.80	-8.16	421.33	-2197.34	3.50	-126.49	-5243.67
5	0.00	-8.16	0.00	-2813.92	3.50	0.00	-1082.04
6	18.80	-8.16	-421.33	-2197.34	3.50	126.49	-5243.67
7	19.40	-8.16	-434.41	-2158.41	3.50	130.53	8236.13
8	20.00	-8.16	286.65	-1180.66	3.50	134.57	7957.78
9	32.80	-8.16	0.00	0.00	3.50	220.69	0.00
10	-20.00	-4.66	-737.09	927.97	1.20	-96.58	13988.10
11	20.00	-4.66	-737.09	-927.97	1.20	96.58	-13988.10
12	-20.00	0.00	-749.23	822.65	1.20	-6.12	14275.50
13	20.00	0.00	-749.23	-822.65	1.20	6.12	-14275.50
14	-20.00	35.34	0.00	0.00	1.20	679.42	0.00
15	20.00	35.34	0.00	0.00	1.20	-679.42	0.00

Pi(A) 656/35/12/435/376

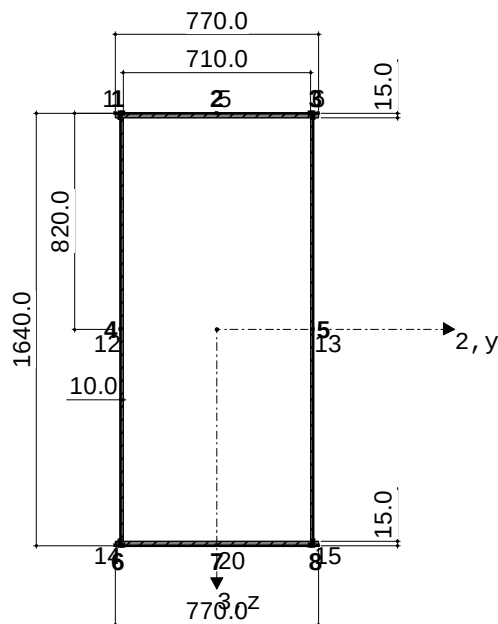
(B/T)-ZONES



No	Restrained	b [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	128.00	3.66	-200.00	-328.00	143.32
		35.00		-81.63	-81.63	638.80
2	Both Sides	376.00	10.74	-188.00	188.00	210.66
		35.00		-81.63	-81.63	2608.39
3	One Side	128.00	3.66	200.00	328.00	143.32
		35.00		-81.63	-81.63	638.80
4	One Side	400.00	33.33	-200.00	-200.00	528.24
		12.00		-46.63	353.37	463.99
5	One Side	400.00	33.33	200.00	200.00	528.24
		12.00		-46.63	353.37	463.99

KASTEN(A) 770/15/10/710/1640/770/15

DETAILED PICTURE



SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	553.00	cm ²
Schubfläche	A-y	126.74	cm ²

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 185
		17.05.2009

SECTION DATA



Description	Name	Size	Unit
Schubfläche	A-z	305.31	cm ²
Kernfläche A*	A-k	11700.00	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	82.00	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	2.221E+06	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	531472.00	cm ⁴
Polares Trägheitsmoment	I-p	2.752E+06	cm ⁴
Polares Trägheitsmoment	I-p,M	2.752E+06	cm ⁴
Trägheitsradius	j-y	63.37	cm
Trägheitsradius	j-z	31.00	cm
Hauptachsenträgheitsradius	j-2	63.37	cm
Hauptachsenträgheitsradius	j-3	31.00	cm
Polarer Trägheitsradius	j-p	70.54	cm
Polarer Trägheitsradius	j-p,M	70.54	cm
Polarer Trägheitsradius	j-Om,M	13.47	cm
Eigenlast	G	434.11	kg/m
Mantelfläche	U	4.900	m ² /m
Torsionsträgheitsmoment	I-T	1.301E+06	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	279.48	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	1.301E+06	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	4.995E+08	cm ⁶
Abklingfaktor	Lambda	0.031694	1/cm
Widerstandsmoment	W-y-max	27079.90	cm ³
Widerstandsmoment	W-y-min	-27079.90	cm ³
Widerstandsmoment	W-z	13804.50	cm ³
Wölbwiderstandsmoment	W-Om	278414.00	cm ⁴
Statisches Moment	S-y-max	7932.31	cm ³
Statisches Moment	S-z-max	4009.69	cm ³
Wölbordinate	Omega max	1794.16	cm ²
Wölbfläche (Flächenmoment 1. Grades mit <0	A-Om max	74592.00	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	31729.30	cm ³
Plastisches Widerstandsmoment	Wpl-z	16038.80	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.17	
Plastischer Formbeiwert	Alpha-pl-z	1.16	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

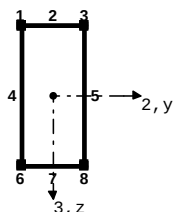
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-38.50	-82.00	0.00	0.00	1.50	1794.16	0.00
2	-36.50	-82.00	-238.89	-110.32	1.50	1631.66	-5138.72
3	-36.00	-82.00	4377.37	-3042.15	1.50	1591.03	-31634.10
4	-35.50	-82.00	4317.26	-3068.59	1.50	1568.94	-32819.10
5	0.00	-82.00	0.00	-4009.69	1.50	0.00	-74592.00
6	35.50	-82.00	-4317.26	-3068.59	1.50	-1568.94	-32819.10
7	36.00	-82.00	-4377.37	-3042.15	1.50	-1591.03	-31634.10
8	36.50	-82.00	238.89	-110.32	1.50	-1631.66	-5138.72
9	38.50	-82.00	0.00	0.00	1.50	-1794.16	0.00
10	-36.50	-80.50	4727.15	-2882.42	1.00	1576.35	-24099.10
11	-36.50	-80.50	-4727.15	-2882.42	1.00	-1576.35	-24099.10
12	-36.50	0.00	7932.31	0.00	1.00	0.00	39348.90
13	-36.50	0.00	-7932.31	0.00	1.00	0.00	39348.90
14	-36.50	80.50	4727.15	2882.42	1.00	-1576.35	-24099.10
15	-36.50	80.50	-4727.15	2882.42	1.00	1576.35	-24099.10
16	-38.50	82.00	0.00	0.00	1.50	-1794.16	0.00
17	-36.50	82.00	-238.89	110.32	1.50	-1631.66	-5138.72
18	-36.00	82.00	4377.37	3042.15	1.50	-1591.03	-31634.10
19	-35.50	82.00	4317.26	3068.59	1.50	-1568.94	-32819.10
20	0.00	82.00	0.00	4009.69	1.50	0.00	-74592.00
21	35.50	82.00	-4317.26	3068.59	1.50	1568.94	-32819.10
22	36.00	82.00	-4377.37	3042.15	1.50	1591.03	-31634.10
23	36.50	82.00	238.89	110.32	1.50	1631.66	-5138.72
24	38.50	82.00	0.00	0.00	1.50	1794.16	0.00

Kasten(A) 770/15/10/710/1640/770/15

(B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
1	One Side	20.00	1.33	-365.00	-385.00	119.44	0.00
		15.00		-820.00	-820.00	56.63	
2	Both Sides	710.00	47.33	-355.00	355.00	2158.63	11700.00
		15.00		-820.00	-820.00	3695.99	
3	One Side	20.00	1.33	365.00	385.00	119.44	0.00
		15.00		-820.00	-820.00	56.63	
4	Both Sides	1610.00	161.00	-365.00	-365.00	6863.93	11700.00
		10.00		-805.00	805.00	1441.21	
5	Both Sides	1610.00	161.00	365.00	365.00	6863.93	11700.00
		10.00		-805.00	805.00	1441.21	
6	One Side	20.00	1.33	-365.00	-385.00	119.44	0.00
		15.00		820.00	820.00	56.63	

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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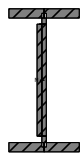
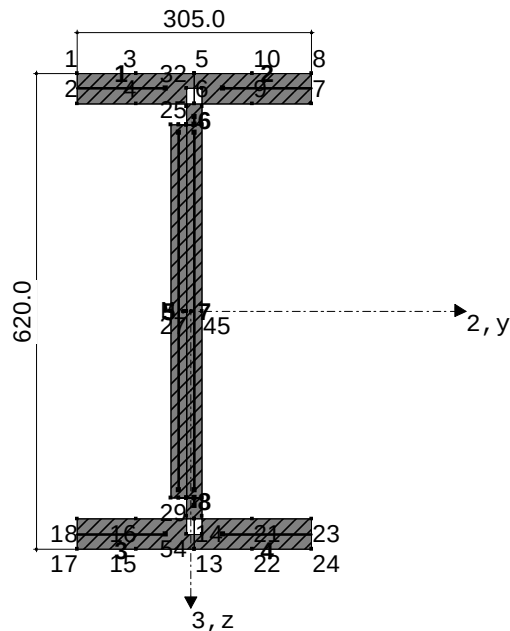
17.05.2009

(B/T)-ZONES

No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments	Area
				y-1/z-1[mm]	y-2/z-2[mm]	Q2/Q3 [cm^3]	[cm^2]
7	Both Sides	710.00	47.33	-355.00	355.00	2158.63	11700.00
		15.00		820.00	820.00	3695.99	
8	One Side	20.00	1.33	365.00	385.00	119.44	0.00
		15.00		820.00	820.00	56.63	

VENLO TRAEGER5

DETAILED PICTURE



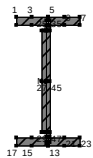
SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	460.60	cm^2
Schubfläche	A-2	202.73	cm^2
Schubfläche	A-3	199.35	cm^2
Lage des Schwerpunktes	y-S	-0.43	cm
Lage des Schwerpunktes	z-S	31.00	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	256402.00	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	19328.90	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-yz	0.00	cm^4
Hauptachsenwinkel	Alpha	0.00	°
Hauptachsenträgheitsmoment	I-2	256402.00	cm^4
Hauptachsenträgheitsmoment	I-3	19328.90	cm^4
Polares Trägheitsmoment	I-p	275731.00	cm^4
Polares Trägheitsmoment	I-p,M	276289.00	cm^4
Polares Trägheitsmoment	I-Om,M	0.00	cm^4
Trägheitsradius	j-y	23.59	cm
Trägheitsradius	j-z	6.48	cm
Trägheitsradius	j-yz	0.00	cm
Hauptachsenträgheitsradius	j-2	23.59	cm
Hauptachsenträgheitsradius	j-3	6.48	cm
Polarer Trägheitsradius	j-p	24.47	cm
Polarer Trägheitsradius	j-p,M	24.49	cm
Polarer Trägheitsradius	j-Om,M	7.60	cm
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	0.00	cm
Eigenlast	G	361.57	kg/m
Mantelfläche	U	2.412	m^2/m
Torsionsträgheitsmoment	I-T	2315.66	cm^4
Torsionsträgheitsmoment St. Venant	I-T StVen	1513.43	cm^4
Torsionsträgheitsmoment Bredt	I-T Bredt	802.23	cm^4
Schubmittelpunkt-Lage bezogen auf S	y-M	-1.10	cm

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 187
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SECTION DATA

Description	Name	Size	Unit
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	1.596E+07	cm ⁶
Abklingfaktor	Lambda	0.007482	1/cm
Widerstandsmoment	W-2-max	8271.03	cm ⁴
Widerstandsmoment	W-2-min	-8271.03	cm ⁴
Widerstandsmoment	W-3-max	1232.51	cm ⁴
Widerstandsmoment	W-3-min	-1304.48	cm ⁴
Wölbwiderstandsmoment	W-Om max	35899.10	cm ⁴
Wölbwiderstandsmoment	W-Om min	-35899.10	cm ⁴
Statisches Moment	S-2 max	-3762.63	cm ³
Statisches Moment	S-3 max	491.49	cm ³
Wölbordinate	Omega max	444.45	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	13622.60	cm ⁴
Querschnittsstrecke (DIN 4114)	r-2, DIN	0.00	cm
Querschnittsstrecke (DIN 4114)	r-3, DIN	5.01	cm
Plastisches Widerstandsmoment	Wpl-2-max	9959.85	cm ³
Plastisches Widerstandsmoment	Wpl-3-max	2092.07	cm ³
Plastischer Formbeiwert	Alpha-pl-2	1.20	
Plastischer Formbeiwert	Alpha-pl-3	1.70	



STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-14.82	-31.00	0.00	0.00	4.00	440.05	0.00
2	-14.82	-27.00	0.00	0.00	4.00	440.05	0.00
3	-7.19	-31.00	-884.50	-335.65	4.00	218.93	-10049.50
4	-7.19	-27.00	-884.50	-335.65	4.00	218.93	-10049.50
5	0.43	-31.00	-1759.22	-438.99	4.00	-2.20	-13354.70
6	0.43	-27.00	-1759.22	-438.99	4.00	-2.20	-13354.70
7	15.68	-27.00	0.00	0.00	4.00	-444.45	0.00
8	15.68	-31.00	0.00	0.00	4.00	-444.45	0.00
9	8.06	-27.00	-884.50	362.04	4.00	-223.32	10183.40
10	8.06	-31.00	-884.50	362.04	4.00	-223.32	10183.40
11	0.43	-27.00	-1759.22	491.49	4.00	-2.20	13622.60
12	0.43	-31.00	-1759.22	491.49	4.00	-2.20	13622.60
13	0.43	31.00	-1759.22	438.99	4.00	2.20	-13354.70
14	0.43	27.00	-1759.22	438.99	4.00	2.20	-13354.70
15	-7.19	31.00	-884.50	335.65	4.00	-218.93	-10049.50
16	-7.19	27.00	-884.50	335.65	4.00	-218.93	-10049.50
17	-14.82	31.00	0.00	0.00	4.00	-440.05	0.00
18	-14.82	27.00	0.00	0.00	4.00	-440.05	0.00
19	0.43	27.00	-1759.22	-491.49	4.00	2.20	13622.60
20	0.43	31.00	-1759.22	-491.49	4.00	2.20	13622.60
21	8.06	27.00	-884.50	-362.04	4.00	223.32	10183.40
22	8.06	31.00	-884.50	-362.04	4.00	223.32	10183.40
23	15.68	27.00	0.00	0.00	4.00	444.45	0.00
24	15.68	31.00	0.00	0.00	4.00	444.45	0.00
25	-0.62	-24.30	-1759.41	78.61	2.00	36.30	515.39
26	-2.62	-24.30	-1759.41	78.61	2.00	36.30	515.39
27	-0.62	0.00	-2349.90	0.00	2.00	0.00	-366.65
28	-2.62	0.00	-2349.90	0.00	2.00	0.00	-366.65
29	-0.62	24.30	-1759.41	-78.61	2.00	-36.30	515.39
30	-2.62	24.30	-1759.41	-78.61	2.00	-36.30	515.39
31	1.48	-29.00	-3518.45	52.49	2.10	-2.20	267.87
32	-0.62	-29.00	-3518.45	52.49	2.10	-2.20	267.87
33	1.48	-26.65	-3590.95	53.63	2.10	-5.79	287.59
34	-0.62	-26.65	-3590.95	53.63	2.10	-5.79	287.59
35	1.48	-24.30	-3762.63	56.53	2.10	-9.39	325.05
36	-0.62	-24.30	-3762.63	56.53	2.10	-9.39	325.05
37	-1.62	-24.30	1759.41	-78.61	0.00	36.30	-515.39
38	-1.62	-24.30	1759.41	-78.61	0.00	36.30	-515.39
39	-0.59	-24.30	1759.41	-78.61	0.00	13.45	-515.39
40	-0.59	-24.30	1759.41	-78.61	0.00	13.45	-515.39
41	0.43	-24.30	1759.41	-78.61	0.00	-9.39	-515.39
42	0.43	-24.30	1759.41	-78.61	0.00	-9.39	-515.39
43	1.48	-24.30	-2003.22	-22.08	2.10	-9.39	-190.34
44	-0.62	-24.30	-2003.22	-22.08	2.10	-9.39	-190.34
45	1.48	0.00	-2623.24	0.00	2.10	0.00	49.25
46	-0.62	0.00	-2623.24	0.00	2.10	0.00	49.25
47	1.48	24.30	-2003.22	22.08	2.10	9.39	-190.34
48	-0.62	24.30	-2003.22	22.08	2.10	9.39	-190.34
49	1.48	24.30	-3762.63	-56.53	2.10	9.39	325.05
50	-0.62	24.30	-3762.63	-56.53	2.10	9.39	325.05
51	1.48	26.65	-3590.95	-53.63	2.10	5.79	287.59
52	-0.62	26.65	-3590.95	-53.63	2.10	5.79	287.59
53	1.48	29.00	-3518.45	-52.49	2.10	2.20	267.87
54	-0.62	29.00	-3518.45	-52.49	2.10	2.20	267.87
55	0.43	24.30	1759.41	78.61	0.00	9.39	-515.39
56	0.43	24.30	1759.41	78.61	0.00	9.39	-515.39
57	-0.59	24.30	1759.41	78.61	0.00	-13.45	-515.39
58	-0.59	24.30	1759.41	78.61	0.00	-13.45	-515.39
59	-1.62	24.30	1759.41	78.61	0.00	-36.30	-515.39
60	-1.62	24.30	1759.41	78.61	0.00	-36.30	-515.39

Project: VENLO

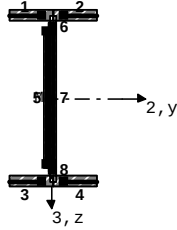
Position: CTK 41 T x (24+37+18)m-M

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Venlo TRAEGER5

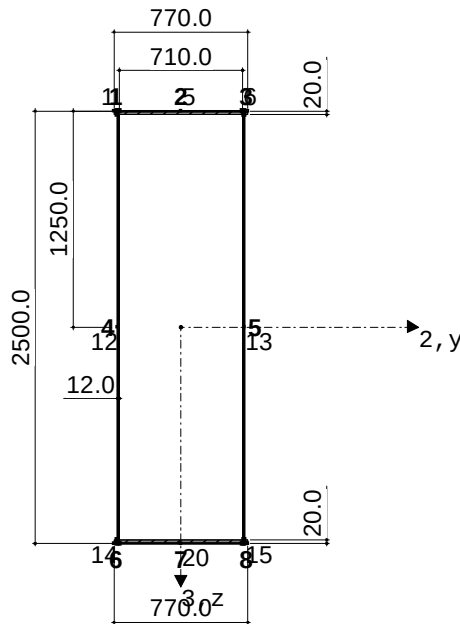
(B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm^3]	Area [cm^2]
1	One Side	115.00 40.00	2.88	-33.17 -290.00	-148.17 -290.00	521.30 203.53	0.00
2	One Side	115.00 40.00	2.88	41.83 -290.00	156.83 -290.00	521.30 219.09	0.00
3	One Side	115.00 40.00	2.88	-33.17 290.00	-148.17 290.00	521.30 203.53	0.00
4	One Side	115.00 40.00	2.88	41.83 290.00	156.83 290.00	521.30 219.09	0.00
5	Both Sides	465.00 20.00	23.25	-16.17 -232.50	-16.17 232.50	2059.52 33.27	-99.63
6	Both Sides	10.00 21.00	0.48	4.33 -243.00	4.33 -253.00	8353.54 124.70	0.00
7	Both Sides	466.00 21.00	22.19	4.33 -233.00	4.33 233.00	2304.14 9.32	99.63
8	Both Sides	10.00 21.00	0.48	4.33 253.00	4.33 243.00	8353.55 124.70	0.00

KASTEN(A) 770/20/12/710/2500/770/20

DETAILED PICTURE



SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	898.40	cm^2
Schubfläche	A-y	123.55	cm^2
Schubfläche	A-z	564.48	cm^2
Kernfläche A*	A-k	17905.60	cm^2
Schwerpunktabstand von Flanschoberkante	e-z	125.00	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	7.713E+06	cm^4
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	921664.00	cm^4
Polares Trägheitsmoment	I-p	8.635E+06	cm^4
Polares Trägheitsmoment	I-p,M	8.635E+06	cm^4
Trägheitsradius	j-y	92.66	cm
Trägheitsradius	j-z	32.03	cm
Hauptachsenträgheitsradius	j-2	92.66	cm
Hauptachsenträgheitsradius	j-3	32.03	cm
Polarer Trägheitsradius	j-p	98.04	cm
Polarer Trägheitsradius	j-p,M	98.04	cm
Polarer Trägheitsradius	j-Om,M	19.02	cm
Eigenlast	G	705.24	kg/m

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 189
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SECTION DATA

Description	Name	Size	Unit
Mantelfläche	U	6.612	m ² /m
Torsionsträgheitsmoment	I-T	2.642E+06	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	689.91	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	2.641E+06	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	3.123E+09	cm ⁶
Abklingfaktor	Lambda	0.018063	1/cm
Widerstandsmoment	W-y-max	61706.40	cm ³
Widerstandsmoment	W-y-min	-61706.40	cm ³
Widerstandsmoment	W-z	23939.30	cm ³
Wölbwiderstandsmoment	W-Om	907193.00	cm ⁴
Statisches Moment	S-y-max	18625.40	cm ³
Statisches Moment	S-z-max	6810.61	cm ³
Wölbordinate	Omega max	3442.70	cm ²
Wölbfläche (Flächenmoment 1. Grades mit α)	A-Om max	248542.00	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	74501.60	cm ³
Plastisches Widerstandsmoment	Wpl-z	27242.40	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.21	
Plastischer Formbeiwert	Alpha-pl-z	1.14	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

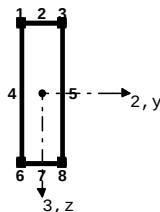
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-38.50	-125.00	0.00	0.00	2.00	3442.70	0.00
2	-36.70	-125.00	-439.44	-133.31	2.00	3219.50	-11991.90
3	-36.10	-125.00	8934.23	-5512.75	2.00	3145.10	-1.35E+05
4	-35.50	-125.00	8786.79	-5555.32	2.00	3092.82	-1.39E+05
5	0.00	-125.00	0.00	-6810.61	2.00	0.00	-2.49E+05
6	35.50	-125.00	-8786.79	-5555.32	2.00	-3092.82	-1.39E+05
7	36.10	-125.00	-8934.23	-5512.75	2.00	-3145.10	-1.35E+05
8	36.70	-125.00	439.44	-133.31	2.00	-3219.50	-11991.90
9	38.50	-125.00	0.00	0.00	2.00	-3442.70	0.00
10	-36.70	-123.00	9645.99	-5299.69	1.20	3119.73	-1.15E+05
11	36.70	-123.00	-9645.99	-5299.69	1.20	-3119.73	-1.15E+05
12	-36.70	0.00	18625.40	0.00	1.20	0.00	114802.00
13	36.70	0.00	-18625.40	0.00	1.20	0.00	114802.00
14	-36.70	123.00	9645.99	5299.69	1.20	-3119.73	-1.15E+05
15	36.70	123.00	-9645.99	5299.69	1.20	3119.73	-1.15E+05
16	-38.50	125.00	0.00	0.00	2.00	-3442.70	0.00
17	-36.70	125.00	-439.44	133.31	2.00	-3219.50	-11991.90
18	-36.10	125.00	8934.23	5512.75	2.00	-3145.10	-1.35E+05
19	-35.50	125.00	8786.79	5555.32	2.00	-3092.82	-1.39E+05
20	0.00	125.00	0.00	6810.61	2.00	0.00	-2.49E+05
21	35.50	125.00	-8786.79	5555.32	2.00	3092.82	-1.39E+05
22	36.10	125.00	-8934.23	5512.75	2.00	3145.10	-1.35E+05
23	36.70	125.00	439.44	133.31	2.00	3219.50	-11991.90
24	38.50	125.00	0.00	0.00	2.00	3442.70	0.00

Kasten(A) 770/20/12/710/2500/770/20

(B/T)-ZONES

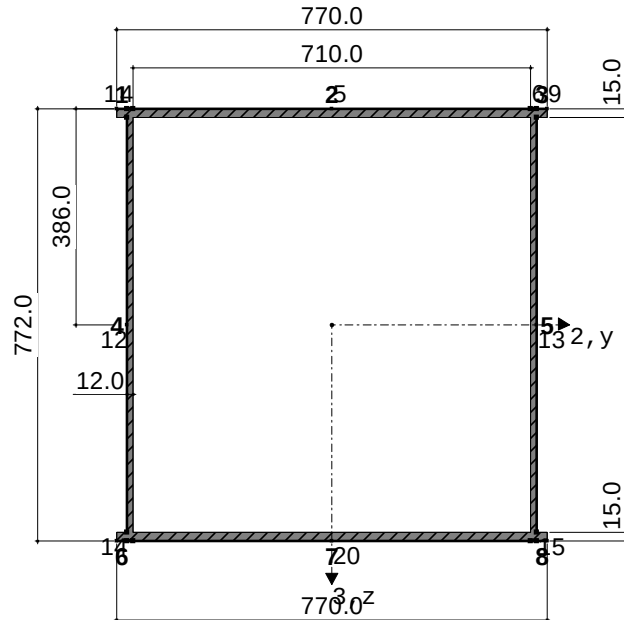


No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	18.00	0.90	-367.00	-385.00	219.72	0.00
		20.00		-1250.00	-1250.00	68.22	
2	Both Sides	710.00	35.50	-355.00	355.00	4393.40	17905.60
		20.00		-1250.00	-1250.00	6392.18	
3	One Side	18.00	0.90	367.00	385.00	219.72	0.00
		20.00		-1250.00	-1250.00	68.22	
4	Both Sides	2460.00	205.00	-367.00	-367.00	15632.30	17905.60
		12.00		-1230.00	1230.00	2649.85	
5	Both Sides	2460.00	205.00	367.00	367.00	15632.30	17905.60
		12.00		-1230.00	1230.00	2649.85	
6	One Side	18.00	0.90	-367.00	-385.00	219.72	0.00
		20.00		1250.00	1250.00	68.22	
7	Both Sides	710.00	35.50	-355.00	355.00	4393.40	17905.60
		20.00		1250.00	1250.00	6392.18	
8	One Side	18.00	0.90	367.00	385.00	219.72	0.00
		20.00		1250.00	1250.00	68.22	

KASTEN(A) 770/15/12/710/772/770/15

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 190
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DETAILED PICTURE



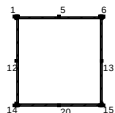
SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	409.08	cm ²
Schubfläche	A-y	178.68	cm ²
Schubfläche	A-z	157.21	cm ²
Kernfläche A*	A-k	5465.54	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	38.60	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	412683.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	346230.00	cm ⁴
Polares Trägheitsmoment	I-p	758913.00	cm ⁴
Polares Trägheitsmoment	I-p,M	758913.00	cm ⁴
Trägheitsradius	j-y	31.76	cm
Trägheitsradius	j-z	29.09	cm
Hauptachsenträgheitsradius	j-2	31.76	cm
Hauptachsenträgheitsradius	j-3	29.09	cm
Polarer Trägheitsradius	j-p	43.07	cm
Polarer Trägheitsradius	j-p,M	43.07	cm
Polarer Trägheitsradius	j-Om,M	2.63	cm
Eigenlast	G	321.13	kg/m
Mantelfläche	U	3.156	m ² /m
Torsionsträgheitsmoment	I-T	537446.00	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	258.36	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	537188.00	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	5.244E+06	cm ⁶
Abklingfaktor	Lambda	0.198816	1/cm
Widerstandsmoment	W-y-max	10691.30	cm ³
Widerstandsmoment	W-y-min	-10691.30	cm ³
Widerstandsmoment	W-z	8992.99	cm ³
Wölbwiderstandsmoment	W-Om	19104.40	cm ⁴
Statisches Moment	S-y-max	3011.68	cm ³
Statisches Moment	S-z-max	2718.86	cm ³
Wölbordinate	Omega max	274.51	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	5583.22	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	12046.70	cm ³
Plastisches Widerstandsmoment	Wpl-z	10875.40	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.13	
Plastischer Formbeiwert	Alpha-pl-z	1.21	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 191
		17.05.2009

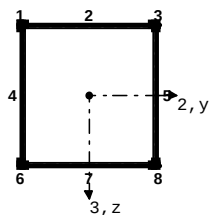
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-38.50	-38.60	0.00	0.00	1.50	274.51	0.00
2	-36.70	-38.60	-99.55	-98.96	1.50	206.38	-649.21
3	-36.10	-38.60	2042.52	-1748.15	1.50	183.67	-824.73
4	-35.50	-38.60	2010.11	-1778.79	1.50	180.62	-774.21
5	0.00	-38.60	0.00	-2718.86	1.50	0.00	-5583.22
6	35.50	-38.60	-2010.11	-1778.79	1.50	-180.62	-774.21
7	36.10	-38.60	-2042.52	-1748.15	1.50	-183.67	-824.73
8	36.70	-38.60	99.55	-98.96	1.50	-206.38	-649.21
9	38.50	-38.60	0.00	0.00	1.50	-274.51	0.00
10	-36.70	-37.10	2200.00	-1593.48	1.20	180.03	378.12
11	-36.70	-37.10	-2200.00	-1593.48	1.20	-180.03	378.12
12	-36.70	0.00	3011.68	0.00	1.20	0.00	4385.66
13	-36.70	0.00	-3011.68	0.00	1.20	0.00	4385.66
14	-36.70	37.10	2200.00	1593.48	1.20	-180.03	378.12
15	-36.70	37.10	-2200.00	1593.48	1.20	180.03	378.12
16	-38.50	38.60	0.00	0.00	1.50	-274.51	0.00
17	-36.70	38.60	-99.55	98.96	1.50	-206.38	-649.21
18	-36.10	38.60	2042.52	1748.15	1.50	-183.67	-824.73
19	-35.50	38.60	2010.11	1778.79	1.50	-180.62	-774.21
20	0.00	38.60	0.00	2718.86	1.50	0.00	-5583.22
21	35.50	38.60	-2010.11	1778.79	1.50	180.62	-774.21
22	36.10	38.60	-2042.52	1748.15	1.50	183.67	-824.73
23	36.70	38.60	99.55	98.96	1.50	206.38	-649.21
24	38.50	38.60	0.00	0.00	1.50	274.51	0.00

Kasten(A) 770/15/12/710/772/770/15

(B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	18.00	1.20	-367.00	-385.00	49.77	0.00
		15.00		-386.00	-386.00	51.17	
2	Both Sides	710.00	47.33	-355.00	355.00	1005.06	5465.54
		15.00		-386.00	-386.00	2405.50	
3	One Side	18.00	1.20	367.00	385.00	49.77	0.00
		15.00		-386.00	-386.00	51.17	
4	Both Sides	742.00	61.83	-367.00	-367.00	2741.12	5465.54
		12.00		-371.00	371.00	796.74	
5	Both Sides	742.00	61.83	367.00	367.00	2741.12	5465.54
		12.00		-371.00	371.00	796.74	
6	One Side	18.00	1.20	-367.00	-385.00	49.77	0.00
		15.00		386.00	386.00	51.17	
7	Both Sides	710.00	47.33	-355.00	355.00	1005.06	5465.54
		15.00		386.00	386.00	2405.50	
8	One Side	18.00	1.20	367.00	385.00	49.77	0.00
		15.00		386.00	386.00	51.17	

KASTEN(A) 770/15/12/710/1215/770/15

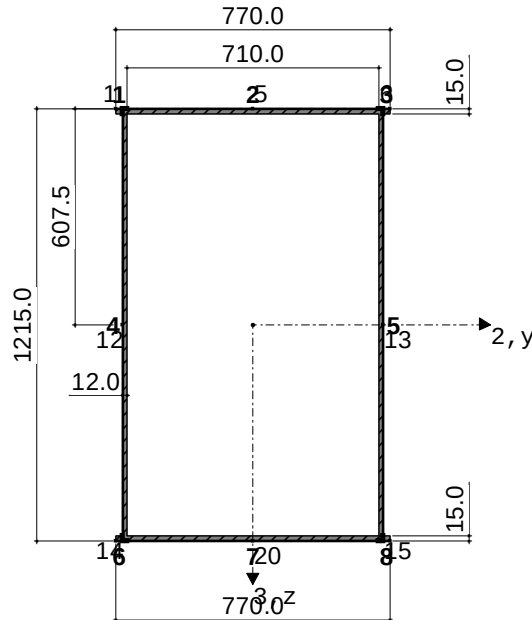
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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DETAILED PICTURE



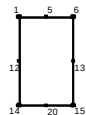
SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	515.40	cm ²
Schubfläche	A-y	153.07	cm ²
Schubfläche	A-z	263.58	cm ²
Kernfläche A*	A-k	8664.00	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	60.75	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	1.164E+06	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	484800.00	cm ⁴
Polares Trägheitsmoment	I-p	1.649E+06	cm ⁴
Polares Trägheitsmoment	I-p,M	1.649E+06	cm ⁴
Trägheitsradius	j-y	47.53	cm
Trägheitsradius	j-z	30.67	cm
Hauptachsenträgheitsradius	j-2	47.53	cm
Hauptachsenträgheitsradius	j-3	30.67	cm
Polarer Trägheitsradius	j-p	56.57	cm
Polarer Trägheitsradius	j-p,M	56.57	cm
Polarer Trägheitsradius	j-Om,M	8.04	cm
Eigenlast	G	404.59	kg/m
Mantelfläche	U	4.042	m ² /m
Torsionsträgheitsmoment	I-T	1.014E+06	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	309.39	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	1.013E+06	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	1.067E+08	cm ⁶
Abklingfaktor	Lambda	0.060539	1/cm
Widerstandsmoment	W-y-max	19167.80	cm ³
Widerstandsmoment	W-y-min	-19167.80	cm ³
Widerstandsmoment	W-z	12592.20	cm ³
Wölbwiderstandsmoment	W-Om	118237.00	cm ⁴
Statisches Moment	S-y-max	5571.34	cm ³
Statisches Moment	S-z-max	3678.40	cm ³
Wölbordinate	Omega max	902.39	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	30390.70	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	22285.30	cm ³
Plastisches Widerstandsmoment	Wpl-z	14713.60	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.16	
Plastischer Formbeiwert	Alpha-pl-z	1.17	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 193
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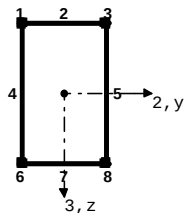
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-38.50	-60.75	0.00	0.00	1.50	902.39	0.00
2	-36.70	-60.75	-157.79	-98.96	1.50	794.39	-2290.66
3	-36.10	-60.75	3237.79	-2707.69	1.50	758.39	-9857.25
4	-35.50	-60.75	3185.41	-2738.94	1.50	745.79	-10534.10
5	0.00	-60.75	0.00	-3678.40	1.50	0.00	-30390.70
6	35.50	-60.75	-3185.41	-2738.94	1.50	-745.79	-10534.10
7	36.10	-60.75	-3237.79	-2707.69	1.50	-758.39	-9857.25
8	36.70	-60.75	157.79	-98.96	1.50	-794.39	-2290.66
9	38.50	-60.75	0.00	0.00	1.50	-902.39	0.00
10	-36.70	-59.25	3490.62	-2551.16	1.20	748.91	-6189.55
11	-36.70	-59.25	-3490.62	-2551.16	1.20	-748.91	-6189.55
12	-36.70	0.00	5571.34	0.00	1.20	0.00	20434.30
13	-36.70	0.00	-5571.34	0.00	1.20	0.00	20434.30
14	-36.70	59.25	3490.62	2551.16	1.20	-748.91	-6189.55
15	-36.70	59.25	-3490.62	2551.16	1.20	748.91	-6189.55
16	-38.50	60.75	0.00	0.00	1.50	-902.39	0.00
17	-36.70	60.75	-157.79	98.96	1.50	-794.39	-2290.66
18	-36.10	60.75	3237.79	2707.69	1.50	-758.39	-9857.25
19	-35.50	60.75	3185.41	2738.94	1.50	-745.79	-10534.10
20	0.00	60.75	0.00	3678.40	1.50	0.00	-30390.70
21	35.50	60.75	-3185.41	2738.94	1.50	745.79	-10534.10
22	36.10	60.75	-3237.79	2707.69	1.50	758.39	-9857.25
23	36.70	60.75	157.79	98.96	1.50	794.39	-2290.66
24	38.50	60.75	0.00	0.00	1.50	902.39	0.00

Kasten(A) 770/15/12/710/1215/770/15

(B/T)-ZONES

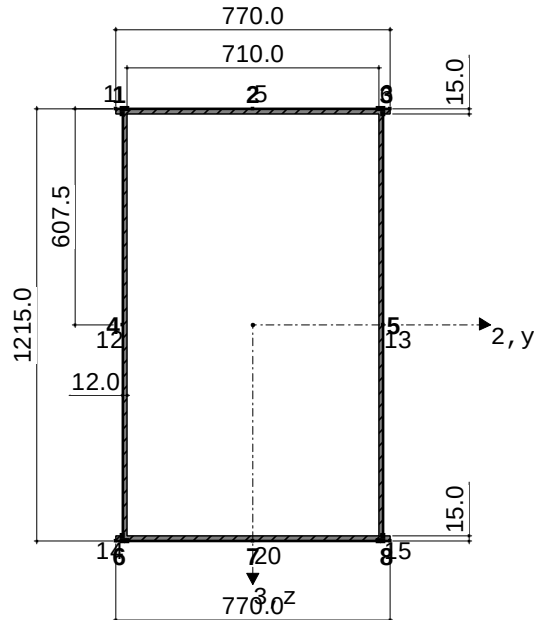


No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	18.00	1.20	-367.00	-385.00	78.90	0.00
		15.00		-607.50	-607.50	51.17	
2	Both Sides	710.00	47.33	-355.00	355.00	1592.70	8664.00
		15.00		-607.50	-607.50	3365.25	
3	One Side	18.00	1.20	367.00	385.00	78.90	0.00
		15.00		-607.50	-607.50	51.17	
4	Both Sides	1185.00	98.75	-367.00	-367.00	4877.77	8664.00
		12.00		-592.50	592.50	1275.58	
5	Both Sides	1185.00	98.75	367.00	367.00	4877.77	8664.00
		12.00		-592.50	592.50	1275.58	
6	One Side	18.00	1.20	-367.00	-385.00	78.90	0.00
		15.00		607.50	607.50	51.17	
7	Both Sides	710.00	47.33	-355.00	355.00	1592.70	8664.00
		15.00		607.50	607.50	3365.25	
8	One Side	18.00	1.20	367.00	385.00	78.90	0.00
		15.00		607.50	607.50	51.17	

KASTEN(A) 770/15/12/710/1215/770/15

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 194
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DETAILED PICTURE



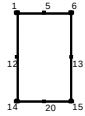
SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	515.40	cm ²
Schubfläche	A-y	153.07	cm ²
Schubfläche	A-z	263.58	cm ²
Kernfläche A*	A-k	8664.00	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	60.75	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	1.164E+06	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	484800.00	cm ⁴
Polares Trägheitsmoment	I-p	1.649E+06	cm ⁴
Polares Trägheitsmoment	I-p,M	1.649E+06	cm ⁴
Trägheitsradius	j-y	47.53	cm
Trägheitsradius	j-z	30.67	cm
Hauptachsenträgheitsradius	j-2	47.53	cm
Hauptachsenträgheitsradius	j-3	30.67	cm
Polarer Trägheitsradius	j-p	56.57	cm
Polarer Trägheitsradius	j-p,M	56.57	cm
Polarer Trägheitsradius	j-Om,M	8.04	cm
Eigenlast	G	404.59	kg/m
Mantelfläche	U	4.042	m ² /m
Torsionsträgheitsmoment	I-T	1.014E+06	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	309.39	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	1.013E+06	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	1.067E+08	cm ⁶
Abklingfaktor	Lambda	0.060539	1/cm
Widerstandsmoment	W-y-max	19167.80	cm ³
Widerstandsmoment	W-y-min	-19167.80	cm ³
Widerstandsmoment	W-z	12592.20	cm ³
Wölbwiderstandsmoment	W-Om	118237.00	cm ⁴
Statisches Moment	S-y-max	5571.34	cm ³
Statisches Moment	S-z-max	3678.40	cm ³
Wölbordinate	Omega max	902.39	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	30390.70	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	22285.30	cm ³
Plastisches Widerstandsmoment	Wpl-z	14713.60	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.16	
Plastischer Formbeiwert	Alpha-pl-z	1.17	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 195
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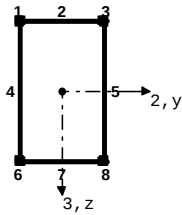
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-38.50	-60.75	0.00	0.00	1.50	902.39	0.00
2	-36.70	-60.75	-157.79	-98.96	1.50	794.39	-2290.66
3	-36.10	-60.75	3237.79	-2707.69	1.50	758.39	-9857.25
4	-35.50	-60.75	3185.41	-2738.94	1.50	745.79	-10534.10
5	0.00	-60.75	0.00	-3678.40	1.50	0.00	-30390.70
6	35.50	-60.75	-3185.41	-2738.94	1.50	-745.79	-10534.10
7	36.10	-60.75	-3237.79	-2707.69	1.50	-758.39	-9857.25
8	36.70	-60.75	157.79	-98.96	1.50	-794.39	-2290.66
9	38.50	-60.75	0.00	0.00	1.50	-902.39	0.00
10	-36.70	-59.25	3490.62	-2551.16	1.20	748.91	-6189.55
11	36.70	-59.25	-3490.62	-2551.16	1.20	-748.91	-6189.55
12	-36.70	0.00	5571.34	0.00	1.20	0.00	20434.30
13	36.70	0.00	-5571.34	0.00	1.20	0.00	20434.30
14	-36.70	59.25	3490.62	2551.16	1.20	-748.91	-6189.55
15	36.70	59.25	-3490.62	2551.16	1.20	748.91	-6189.55
16	-38.50	60.75	0.00	0.00	1.50	-902.39	0.00
17	-36.70	60.75	-157.79	98.96	1.50	-794.39	-2290.66
18	-36.10	60.75	3237.79	2707.69	1.50	-758.39	-9857.25
19	-35.50	60.75	3185.41	2738.94	1.50	-745.79	-10534.10
20	0.00	60.75	0.00	3678.40	1.50	0.00	-30390.70
21	35.50	60.75	-3185.41	2738.94	1.50	745.79	-10534.10
22	36.10	60.75	-3237.79	2707.69	1.50	758.39	-9857.25
23	36.70	60.75	157.79	98.96	1.50	794.39	-2290.66
24	38.50	60.75	0.00	0.00	1.50	902.39	0.00

Kasten(A) 770/15/12/710/1215/770/15

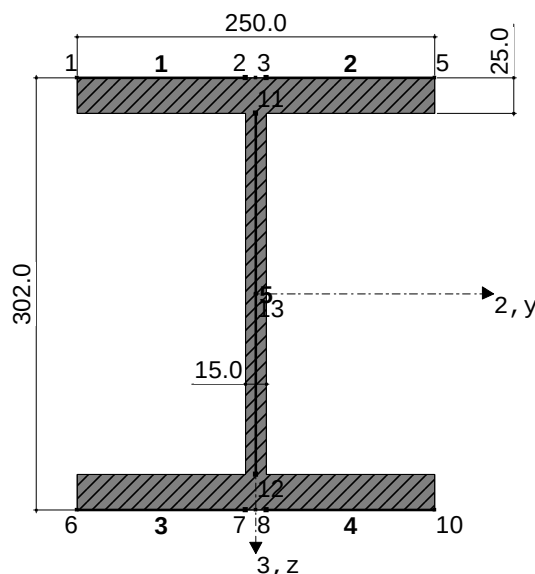
(B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	18.00	1.20	-367.00	-385.00	78.90	0.00
		15.00		-607.50	-607.50	51.17	
2	Both Sides	710.00	47.33	-355.00	355.00	1592.70	8664.00
		15.00		-607.50	-607.50	3365.25	
3	One Side	18.00	1.20	367.00	385.00	78.90	0.00
		15.00		-607.50	-607.50	51.17	
4	Both Sides	1185.00	98.75	-367.00	-367.00	4877.77	8664.00
		12.00		-592.50	592.50	1275.58	
5	Both Sides	1185.00	98.75	367.00	367.00	4877.77	8664.00
		12.00		-592.50	592.50	1275.58	
6	One Side	18.00	1.20	-367.00	-385.00	78.90	0.00
		15.00		607.50	607.50	51.17	
7	Both Sides	710.00	47.33	-355.00	355.00	1592.70	8664.00
		15.00		607.50	607.50	3365.25	
8	One Side	18.00	1.20	367.00	385.00	78.90	0.00
		15.00		607.50	607.50	51.17	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 196
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DETAILED PICTURE

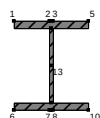


SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	162.80	cm ²
Schubfläche	A-y	104.44	cm ²
Schubfläche	A-z	38.36	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	26043.30	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	6517.50	cm ⁴
Polares Trägheitsmoment	I-p	32560.80	cm ⁴
Trägheitsradius	j-y	12.65	cm
Trägheitsradius	j-z	6.33	cm
Polarer Trägheitsradius	j-p	14.14	cm
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	6.82	cm
Eigenlast	G	127.80	kg/m
Mantelfläche	U	1.574	m ² /m
Torsionsträgheitsmoment	I-T	275.18	cm ⁴
Wölbwiderstand bezogen auf M	C-M	1.249E+06	cm ⁶
Abklingfaktor	Lambda	0.009219	1/cm
Widerstandsmoment	W-y	1724.72	cm ³
Widerstandsmoment	W-z	521.40	cm ³
Wölbwiderstandsmoment	W-Om	7213.54	cm ⁴
Statisches Moment	S-y-max	984.70	cm ³
Statisches Moment	S-z-max	195.19	cm ³
Wölbordinate	Omega max	173.13	cm ²
Wölbfläche (Flächenmoment 1. Grades mit α)	A-Om max	2705.08	cm ⁴
Plastisches Widerstandsmoment	Wpl-y	1969.39	cm ³
Plastisches Widerstandsmoment	Wpl-z	795.42	cm ³
Plastisches Wölbwiderstandsmoment	W-pl-Om	10820.30	cm ⁴
Plastischer Formbeiwert	Alpha-pl-y	1.14	
Plastischer Formbeiwert	Alpha-pl-z	1.53	
Plastischer Formbeiwert	Alpha-pl-Om	1.50	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	c	

STRESS POINTS



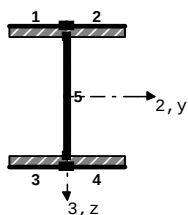
No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-12.50	-15.10	0.00	0.00	2.50	173.13	0.00
2	-0.75	-15.10	-405.95	-194.57	2.50	10.39	-2695.34
3	0.00	-15.10	-429.62	-195.19	2.50	0.00	-2705.08
4	0.75	-15.10	-405.95	194.57	2.50	-10.39	2695.34
5	12.50	-15.10	0.00	0.00	2.50	-173.13	0.00
6	-12.50	15.10	0.00	0.00	2.50	-173.13	0.00
7	-0.75	15.10	-405.95	194.57	2.50	-10.39	-2695.34

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STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
8	0.00	15.10	-429.62	195.19	2.50	0.00	-2705.08
9	0.75	15.10	-405.95	-194.57	2.50	10.39	2695.34
10	12.50	15.10	0.00	0.00	2.50	173.13	0.00
11	0.00	-12.60	-866.61	0.00	1.50	0.00	0.00
12	0.00	12.60	-866.61	0.00	1.50	0.00	0.00
13	0.00	0.00	-984.70	0.00	1.50	0.00	0.00

IS 302/250/15/25

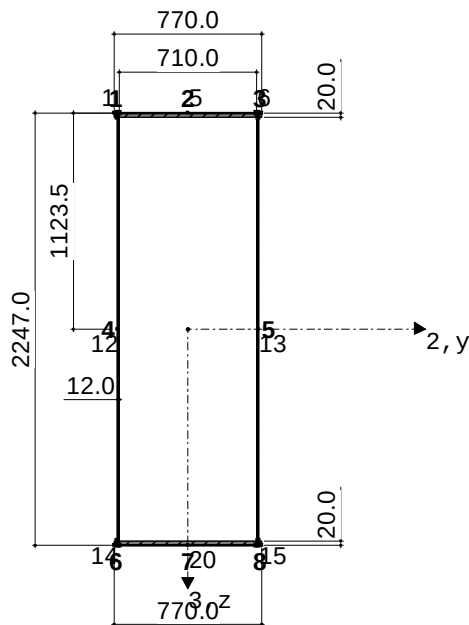


(B/T)-ZONES

No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	117.50	4.70	-7.50	-125.00	202.98
		25.00		-151.00	-151.00	126.06
2	One Side	117.50	4.70	7.50	125.00	202.98
		25.00		-151.00	-151.00	126.06
3	One Side	117.50	4.70	-7.50	-125.00	202.98
		25.00		151.00	151.00	126.06
4	One Side	117.50	4.70	7.50	125.00	202.98
		25.00		151.00	151.00	126.06
5	Both Sides	252.00	16.80	0.00	0.00	945.33
		15.00		-126.00	126.00	0.00

KASTEN(A) 770/20/12/710/2247/770/20

DETAILED PICTURE



SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	837.68	cm ²
Schubfläche	A-y	133.81	cm ²
Schubfläche	A-z	506.74	cm ²
Kernfläche A*	A-k	16078.90	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	112.35	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	5.969E+06	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	842526.00	cm ⁴
Polares Trägheitsmoment	I-p	6.811E+06	cm ⁴
Polares Trägheitsmoment	I-p,M	6.811E+06	cm ⁴

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 198
		17.05.2009

SECTION DATA

Description	Name	Size	Unit
Trägheitsradius	j-y	84.41	cm
Trägheitsradius	j-z	31.71	cm
Hauptachsenträgheitsradius	j-2	84.41	cm
Hauptachsenträgheitsradius	j-3	31.71	cm
Polarer Trägheitsradius	j-p	90.17	cm
Polarer Trägheitsradius	j-p,M	90.17	cm
Polarer Trägheitsradius	j-Om,M	17.86	cm
Eigenlast	G	657.58	kg/m
Mantelfläche	U	6.106	m²/m
Torsionsträgheitsmoment	I-T	2.333E+06	cm⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	660.77	cm⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	2.332E+06	cm⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	2.172E+09	cm⁶
Abklingfaktor	Lambda	0.020357	1/cm
Widerstandsmoment	W-y-max	53128.00	cm³
Widerstandsmoment	W-y-min	-53128.00	cm³
Widerstandsmoment	W-z	21883.80	cm³
Wölbwiderstandsmoment	W-Om	729287.00	cm⁴
Statisches Moment	S-y-max	15880.20	cm³
Statisches Moment	S-z-max	6262.61	cm³
Wölbordinate	Omega max	2977.79	cm²
Wölbfläche (Flächenmoment 1. Grades mit α)	A-Om max	199725.00	cm⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	63520.90	cm³
Plastisches Widerstandsmoment	Wpl-z	25050.40	cm³
Plastischer Formbeiwert	Alpha-pl-y	1.20	
Plastischer Formbeiwert	Alpha-pl-z	1.14	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

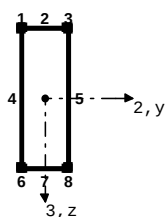


STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm³]		t [cm]	Warping Ordinate Omega[cm²]	Warping Area A-Omega[cm⁴]
	y	z	Qy	Qz			
1	-38.50	-112.35	0.00	0.00	2.00	2977.79	0.00
2	-36.70	-112.35	-394.61	-133.31	2.00	2777.36	-10359.30
3	-36.10	-112.35	8022.80	-4964.75	2.00	2710.55	-1.02E+05
4	-35.50	-112.35	7890.40	-5007.32	2.00	2665.50	-1.05E+05
5	0.00	-112.35	0.00	-6262.61	2.00	0.00	-2.00E+05
6	35.50	-112.35	-7890.40	-5007.32	2.00	-2665.50	-1.05E+05
7	36.10	-112.35	-8022.80	-4964.75	2.00	-2710.55	-1.02E+05
8	36.70	-112.35	394.61	-133.31	2.00	-2777.36	-10359.30
9	38.50	-112.35	0.00	0.00	2.00	-2977.79	0.00
10	-36.70	-110.35	8660.60	-4752.12	1.20	2686.21	-84983.70
11	36.70	-110.35	-8660.60	-4752.12	1.20	-2686.21	-84983.70
12	-36.70	0.00	15880.20	0.00	1.20	0.00	92870.00
13	36.70	0.00	-15880.20	0.00	1.20	0.00	92870.00
14	-36.70	110.35	8660.60	4752.12	1.20	-2686.21	-84983.70
15	36.70	110.35	-8660.60	4752.12	1.20	2686.21	-84983.70
16	-38.50	112.35	0.00	0.00	2.00	-2977.79	0.00
17	-36.70	112.35	-394.61	133.31	2.00	-2777.36	-10359.30
18	-36.10	112.35	8022.80	4964.75	2.00	-2710.55	-1.02E+05
19	-35.50	112.35	7890.40	5007.32	2.00	-2665.50	-1.05E+05
20	0.00	112.35	0.00	6262.61	2.00	0.00	-2.00E+05
21	35.50	112.35	-7890.40	5007.32	2.00	2665.50	-1.05E+05
22	36.10	112.35	-8022.80	4964.75	2.00	2710.55	-1.02E+05
23	36.70	112.35	394.61	133.31	2.00	2777.36	-10359.30
24	38.50	112.35	0.00	0.00	2.00	2977.79	0.00

Kasten(A) 770/20/12/710/2247/770/20

(B/T)-ZONES

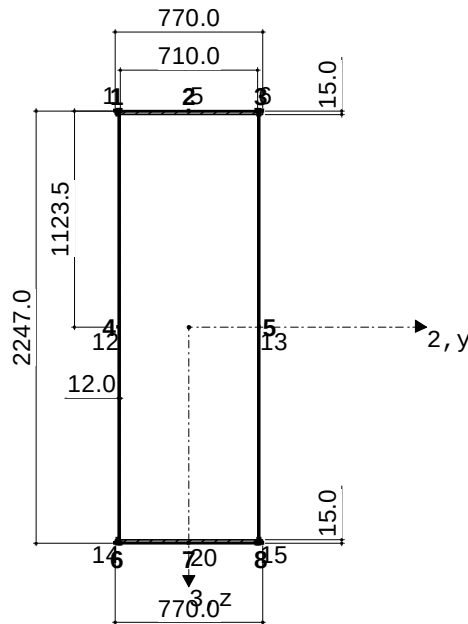


No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm³]	Area [cm²]
1	One Side	18.00	0.90	-367.00	-385.00	197.30	0.00
2	Both Sides	20.00		-1123.50	-1123.50	68.22	
3	One Side	710.00	35.50	-355.00	355.00	3945.20	16078.90
4	Both Sides	20.00		-1123.50	-1123.50	5844.18	
5	One Side	18.00	0.90	367.00	385.00	197.30	0.00
6	Both Sides	20.00		-1123.50	-1123.50	68.22	
7	One Side	2207.00	183.92	-367.00	-367.00	13473.70	16078.90
8	Both Sides	12.00		-1103.50	1103.50	2376.06	
9	One Side	2207.00	183.92	367.00	367.00	13473.70	16078.90
10	Both Sides	12.00		-1103.50	1103.50	2376.06	
11	One Side	18.00	0.90	-367.00	-385.00	197.30	0.00
12	Both Sides	20.00		-1123.50	-1123.50	68.22	
13	One Side	710.00	35.50	-355.00	355.00	3945.20	16078.90
14	Both Sides	20.00		-1123.50	-1123.50	5844.18	
15	One Side	18.00	0.90	367.00	385.00	197.30	0.00
16	Both Sides	20.00		-1123.50	-1123.50	68.22	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 199
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KASTEN(A) 770/15/12/710/2247/770/15

DETAILED PICTURE

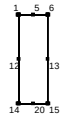


SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	763.08	cm ²
Schubfläche	A-y	110.70	cm ²
Schubfläche	A-z	502.59	cm ²
Kernfläche A*	A-k	16115.00	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	112.35	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	5.056E+06	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	807609.00	cm ⁴
Polares Trägheitsmoment	I-p	5.864E+06	cm ⁴
Polares Trägheitsmoment	I-p,M	5.864E+06	cm ⁴
Trägheitsradius	j-y	81.40	cm
Trägheitsradius	j-z	32.53	cm
Hauptachsenträgheitsradius	j-2	81.40	cm
Hauptachsenträgheitsradius	j-3	32.53	cm
Polarer Trägheitsradius	j-p	87.66	cm
Polarer Trägheitsradius	j-p,M	87.66	cm
Polarer Trägheitsradius	j-Om,M	16.00	cm
Eigenlast	G	599.02	kg/m
Mantelfläche	U	6.106	m ² /m
Torsionsträgheitsmoment	I-T	2.219E+06	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	428.28	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	2.218E+06	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	1.502E+09	cm ⁶
Abklingfaktor	Lambda	0.023872	1/cm
Widerstandsmoment	W-y-max	45005.80	cm ³
Widerstandsmoment	W-y-min	-45005.80	cm ³
Widerstandsmoment	W-z	20976.90	cm ³
Wölbwiderstandsmoment	W-Om	568817.00	cm ⁴
Statisches Moment	S-y-max	13817.50	cm ³
Statisches Moment	S-z-max	5913.71	cm ³
Wölbordinate	Omega max	2640.13	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	146722.00	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	55270.10	cm ³
Plastisches Widerstandsmoment	Wpl-z	23654.80	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.23	
Plastischer Formbeiwert	Alpha-pl-z	1.13	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	b	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 200
		17.05.2009

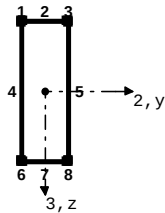
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-38.50	-112.35	0.00	0.00	1.50	2640.13	0.00
2	-36.70	-112.35	-293.49	-98.96	1.50	2439.25	-6857.16
3	-36.10	-112.35	6022.25	-4943.00	1.50	2372.29	-82492.70
4	-35.50	-112.35	5923.35	-4974.73	1.50	2332.86	-84610.10
5	0.00	-112.35	0.00	-5913.71	1.50	0.00	-1.47E+05
6	35.50	-112.35	-5923.35	-4974.73	1.50	-2332.86	-84610.10
7	36.10	-112.35	-6022.25	-4943.00	1.50	-2372.29	-82492.70
8	36.70	-112.35	293.49	-98.96	1.50	-2439.25	-6857.16
9	38.50	-112.35	0.00	0.00	1.50	-2640.13	0.00
10	-36.70	-110.85	6497.48	-4784.94	1.20	2356.35	-71342.50
11	36.70	-110.85	-6497.48	-4784.94	1.20	-2356.35	-71342.50
12	-36.70	0.00	13817.50	0.00	1.20	0.00	85378.00
13	36.70	0.00	-13817.50	0.00	1.20	0.00	85378.00
14	-36.70	110.85	6497.48	4784.94	1.20	-2356.35	-71342.50
15	36.70	110.85	-6497.48	4784.94	1.20	2356.35	-71342.50
16	-38.50	112.35	0.00	0.00	1.50	-2640.13	0.00
17	-36.70	112.35	-293.49	98.96	1.50	-2439.25	-6857.16
18	-36.10	112.35	6022.25	4943.00	1.50	-2372.29	-82492.70
19	-35.50	112.35	5923.35	4974.73	1.50	-2332.86	-84610.10
20	0.00	112.35	0.00	5913.71	1.50	0.00	-1.47E+05
21	35.50	112.35	-5923.35	4974.73	1.50	2332.86	-84610.10
22	36.10	112.35	-6022.25	4943.00	1.50	2372.29	-82492.70
23	36.70	112.35	293.49	98.96	1.50	2439.25	-6857.16
24	38.50	112.35	0.00	0.00	1.50	2640.13	0.00

Kasten(A) 770/15/12/710/2247/770/15

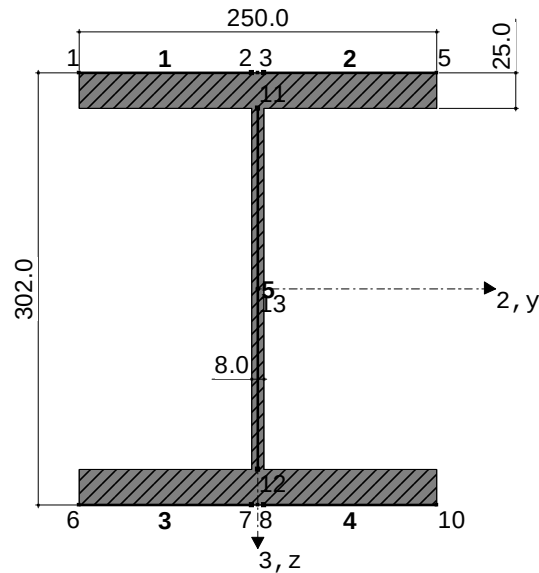
(B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	18.00	1.20	-367.00	-385.00	146.74	0.00
		15.00		-1123.50	-1123.50	51.17	
2	Both Sides	710.00	47.33	-355.00	355.00	2961.67	16115.00
		15.00		-1123.50	-1123.50	5600.72	
3	One Side	18.00	1.20	367.00	385.00	146.74	0.00
		15.00		-1123.50	-1123.50	51.17	
4	Both Sides	2217.00	184.75	-367.00	-367.00	11377.50	16115.00
		12.00		-1108.50	1108.50	2392.47	
5	Both Sides	2217.00	184.75	367.00	367.00	11377.50	16115.00
		12.00		-1108.50	1108.50	2392.47	
6	One Side	18.00	1.20	-367.00	-385.00	146.74	0.00
		15.00		1123.50	1123.50	51.17	
7	Both Sides	710.00	47.33	-355.00	355.00	2961.67	16115.00
		15.00		1123.50	1123.50	5600.72	
8	One Side	18.00	1.20	367.00	385.00	146.74	0.00
		15.00		1123.50	1123.50	51.17	

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 201
		17.05.2009

DETAILED PICTURE

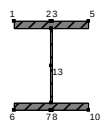


SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	145.16	cm ²
Schubfläche	A-y	104.21	cm ²
Schubfläche	A-z	21.19	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	25109.80	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	6511.49	cm ⁴
Polares Trägheitsmoment	I-p	31621.30	cm ⁴
Trägheitsradius	j-y	13.15	cm
Trägheitsradius	j-z	6.70	cm
Polarer Trägheitsradius	j-p	14.76	cm
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	7.00	cm
Eigenlast	G	113.95	kg/m
Mantelfläche	U	1.588	m ² /m
Torsionsträgheitsmoment	I-T	248.74	cm ⁴
Wölbwiderstand bezogen auf M	C-M	1.249E+06	cm ⁶
Abklingfaktor	Lambda	0.008765	1/cm
Widerstandsmoment	W-y	1662.90	cm ³
Widerstandsmoment	W-z	520.92	cm ³
Wölbwiderstandsmoment	W-Om	7213.54	cm ⁴
Statisches Moment	S-y-max	929.13	cm ³
Statisches Moment	S-z-max	195.29	cm ³
Wölbordinate	Omega max	173.13	cm ²
Wölbfläche (Flächenmoment 1. Grades mit α)	A-Om max	2705.08	cm ⁴
Plastisches Widerstandsmoment	Wpl-y	1858.26	cm ³
Plastisches Widerstandsmoment	Wpl-z	785.28	cm ³
Plastisches Wölbwiderstandsmoment	W-pl-Om	10820.30	cm ⁴
Plastischer Formbeiwert	Alpha-pl-y	1.12	
Plastischer Formbeiwert	Alpha-pl-z	1.51	
Plastischer Formbeiwert	Alpha-pl-Om	1.50	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	c	

STRESS POINTS



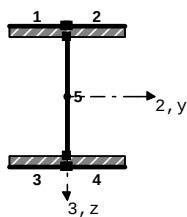
No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-12.50	-15.10	0.00	0.00	2.50	173.13	0.00
2	-0.40	-15.10	-418.35	-195.10	2.50	5.54	-2702.31
3	0.00	-15.10	-431.74	-195.29	2.50	0.00	-2705.08
4	0.40	-15.10	-418.35	195.10	2.50	-5.54	2702.31
5	12.50	-15.10	0.00	0.00	2.50	-173.13	0.00
6	-12.50	15.10	0.00	0.00	2.50	-173.13	0.00
7	-0.40	15.10	-418.35	195.10	2.50	-5.54	-2702.31

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 202
		17.05.2009

STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
8	0.00	15.10	-431.74	195.29	2.50	0.00	-2705.08
9	0.40	15.10	-418.35	-195.10	2.50	5.54	2702.31
10	12.50	15.10	0.00	0.00	2.50	173.13	0.00
11	0.00	-12.60	-866.22	0.00	0.80	0.00	0.00
12	0.00	12.60	-866.22	0.00	0.80	0.00	0.00
13	0.00	0.00	-929.13	0.00	0.80	0.00	0.00

IS 302/250/8/25

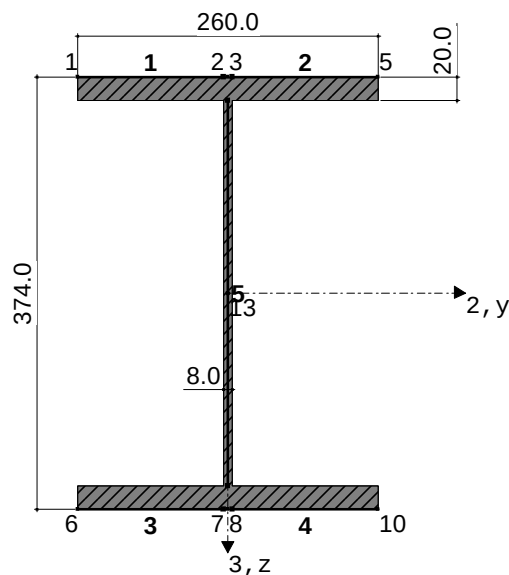


(B/T)-ZONES

No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	121.00	4.84	-4.00	-125.00	209.18
2	One Side	25.00	4.84	-151.00	-151.00	128.06
3	One Side	121.00	4.84	4.00	125.00	209.18
4	One Side	25.00	4.84	-151.00	-151.00	128.06
5	Both Sides	121.00	4.84	-4.00	-125.00	209.18
		25.00	4.84	151.00	151.00	128.06
		121.00	4.84	4.00	125.00	209.18
		25.00	4.84	151.00	151.00	128.06
		252.00	31.50	0.00	0.00	908.16
		8.00		-126.00	126.00	0.00

IS 374/260/8/20

DETAILED PICTURE



SECTION DATA



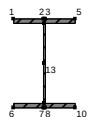
Description	Name	Size	Unit
Querschnittsfläche	A	130.72	cm ²
Schubfläche	A-y	86.72	cm ²
Schubfläche	A-z	27.02	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	35100.80	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	5860.09	cm ⁴
Polares Trägheitsmoment	I-p	40960.90	cm ⁴
Trägheitsradius	j-y	16.39	cm
Trägheitsradius	j-z	6.70	cm
Polarer Trägheitsradius	j-p	17.70	cm

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 203
		17.05.2009

SECTION DATA

Description	Name	Size	Unit
Trägheitsradius des Gurtquerschnitts (1/5)	j-zg	7.15	cm
Eigenlast	G	102.62	kg/m
Mantelfläche	U	1.772	m ² /m
Torsionsträgheitsmoment	I-T	137.99	cm ⁴
Wölbwiderstand bezogen auf M	C-M	1.835E+06	cm ⁶
Abklingfaktor	Lambda	0.005385	1/cm
Widerstandsmoment	W-y	1877.05	cm ³
Widerstandsmoment	W-z	450.78	cm ³
Wölbwiderstandsmoment	W-Om	7976.80	cm ⁴
Statisches Moment	S-y-max	1031.96	cm ³
Statisches Moment	S-z-max	168.98	cm ³
Wölbordinate	Omega max	230.10	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	2991.30	cm ⁴
Plastisches Widerstandsmoment	Wpl-y	2063.91	cm ³
Plastisches Widerstandsmoment	Wpl-z	681.34	cm ³
Plastisches Wölbwiderstandsmoment	W-pl-Om	11965.20	cm ⁴
Plastischer Formbeiwert	Alpha-pl-y	1.10	
Plastischer Formbeiwert	Alpha-pl-z	1.51	
Plastischer Formbeiwert	Alpha-pl-Om	1.50	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	c	

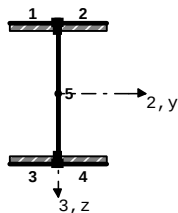
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-13.00	-18.70	0.00	0.00	2.00	230.10	0.00
2	-0.40	-18.70	-445.17	-168.83	2.00	7.08	-2988.47
3	0.00	-18.70	-458.88	-168.98	2.00	0.00	-2991.30
4	0.40	-18.70	-445.17	168.83	2.00	-7.08	2988.47
5	13.00	-18.70	0.00	0.00	2.00	-230.10	0.00
6	-13.00	18.70	0.00	0.00	2.00	-230.10	0.00
7	-0.40	18.70	-445.17	168.83	2.00	-7.08	-2988.47
8	0.00	18.70	-458.88	168.98	2.00	0.00	-2991.30
9	0.40	18.70	-445.17	-168.83	2.00	7.08	2988.47
10	13.00	18.70	0.00	0.00	2.00	230.10	0.00
11	0.00	-16.70	-923.87	0.00	0.80	0.00	0.00
12	0.00	16.70	-923.87	0.00	0.80	0.00	0.00
13	0.00	0.00	-1031.96	0.00	0.80	0.00	0.00

IS 374/260/8/20

(B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]
				y-1/z-1[mm]	y-2/z-2[mm]	
1	One Side	126.00	6.30	-4.00	-130.00	222.58
		20.00		-187.00	-187.00	110.88
2	One Side	126.00	6.30	4.00	130.00	222.58
		20.00		-187.00	-187.00	110.88
3	One Side	126.00	6.30	-4.00	-130.00	222.58
		20.00		187.00	187.00	110.88
4	One Side	126.00	6.30	4.00	130.00	222.58
		20.00		187.00	187.00	110.88
5	Both Sides	334.00	41.75	0.00	0.00	995.93
		8.00		-167.00	167.00	0.00

KASTEN(A) 480/35/15/350/570/480/35

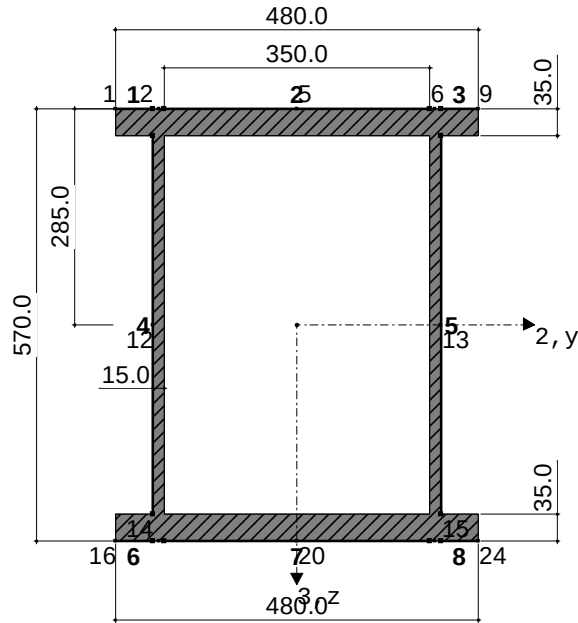
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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DETAILED PICTURE



SECTION DATA



Description	Name	Size	Unit
Querschnittsfläche	A	486.00	cm ²
Schubfläche	A-y	220.82	cm ²
Schubfläche	A-z	151.64	cm ²
Kernfläche A*	A-k	1952.75	cm ²
Schwerpunktabstand von Flanschoberkante	e-z	28.50	cm
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	272022.00	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	114499.00	cm ⁴
Polares Trägheitsmoment	I-p	386522.00	cm ⁴
Polares Trägheitsmoment	I-p,M	386522.00	cm ⁴
Trägheitsradius	j-y	23.66	cm
Trägheitsradius	j-z	15.35	cm
Hauptachsenträgheitsradius	j-2	23.66	cm
Hauptachsenträgheitsradius	j-3	15.35	cm
Polarer Trägheitsradius	j-p	28.20	cm
Polarer Trägheitsradius	j-p,M	28.20	cm
Polarer Trägheitsradius	j-Om,M	7.12	cm
Eigenlast	G	381.51	kg/m
Mantelfläche	U	2.300	m ² /m
Torsionsträgheitsmoment	I-T	166880.00	cm ⁴
Torsionsträgheitsmoment St. Venant	I-T StVen	1430.07	cm ⁴
Torsionsträgheitsmoment Bredt	I-T Bredt	165450.00	cm ⁴
Schubmittelpunkt-Lage bezogen auf S	z-M	0.00	cm
Wölbwiderstand bezogen auf M	C-M	1.960E+07	cm ⁶
Abklingfaktor	Lambda	0.057303	1/cm
Widerstandsmoment	W-y-max	9544.63	cm ³
Widerstandsmoment	W-y-min	-9544.63	cm ³
Widerstandsmoment	W-z	4770.81	cm ³
Wölbwiderstandsmoment	W-Om	46551.00	cm ⁴
Statisches Moment	S-y-max	2715.75	cm ³
Statisches Moment	S-z-max	1692.38	cm ³
Wölbordinate	Omega max	421.11	cm ²
Wölbfläche (Flächenmoment 1. Grades mit ω)	A-Om max	15375.20	cm ⁴
Querschnittsstrecke (DIN 4114)	r-y, DIN	0.00	cm
Querschnittsstrecke	r-M-z	0.00	cm
Lage der Flächenhalbierenden bez. auf S	f-z	0.00	cm
Plastisches Widerstandsmoment	Wpl-y	10863.00	cm ³
Plastisches Widerstandsmoment	Wpl-z	6769.50	cm ³
Plastischer Formbeiwert	Alpha-pl-y	1.14	
Plastischer Formbeiwert	Alpha-pl-z	1.42	
Knickspannungslinie	Ksl-y	c	
Knickspannungslinie	Ksl-z	c	

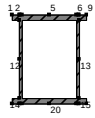
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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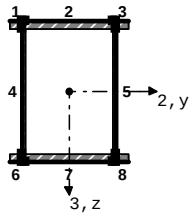
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-24.00	-28.50	0.00	0.00	3.50	421.11	0.00
2	-19.00	-28.50	-463.93	-373.28	3.50	287.36	-6199.03
3	-18.25	-28.50	1702.14	-1113.88	3.50	267.29	-6927.00
4	-17.50	-28.50	1634.46	-1159.10	3.50	256.31	-7525.74
5	0.00	-28.50	0.00	-1692.38	3.50	0.00	-15375.20
6	17.50	-28.50	-1634.46	-1159.10	3.50	-256.31	-7525.74
7	18.25	-28.50	-1702.14	-1113.88	3.50	-267.29	-6927.00
8	19.00	-28.50	463.93	-373.28	3.50	-287.36	-6199.03
9	24.00	-28.50	0.00	0.00	3.50	-421.11	0.00
10	-19.00	-25.00	2259.77	-675.32	1.50	249.81	767.19
11	19.00	-25.00	-2259.77	-675.32	1.50	-249.81	767.19
12	-19.00	0.00	2715.75	0.00	1.50	0.00	5451.05
13	19.00	0.00	-2715.75	0.00	1.50	0.00	5451.05
14	-19.00	25.00	2259.77	675.32	1.50	-249.81	767.19
15	19.00	25.00	-2259.77	675.32	1.50	249.81	767.19
16	-24.00	28.50	0.00	0.00	3.50	-421.11	0.00
17	-19.00	28.50	-463.93	373.28	3.50	-287.36	-6199.03
18	-18.25	28.50	1702.14	1113.88	3.50	-267.29	-6927.00
19	-17.50	28.50	1634.46	1159.10	3.50	-256.31	-7525.74
20	0.00	28.50	0.00	1692.38	3.50	0.00	-15375.20
21	17.50	28.50	-1634.46	1159.10	3.50	256.31	-7525.74
22	18.25	28.50	-1702.14	1113.88	3.50	267.29	-6927.00
23	19.00	28.50	463.93	373.28	3.50	287.36	-6199.03
24	24.00	28.50	0.00	0.00	3.50	421.11	0.00

Kasten(A) 480/35/15/350/570/480/35

(B/T)-ZONES

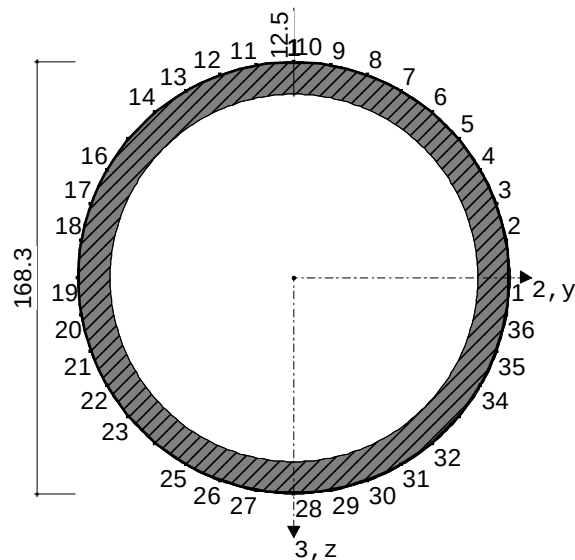


No	Restrained	b t [mm]	b/t [-]	Coordinates		Av. Stat. Moments Q2/Q3 [cm ³]	Area [cm ²]
				y-1/z-1[mm]	y-2/z-2[mm]		
1	One Side	50.00	1.43	-190.00	-240.00	231.97	0.00
		35.00		-285.00	-285.00	195.10	
2	Both Sides	350.00	10.00	-175.00	175.00	817.23	1952.75
		35.00		-285.00	-285.00	1514.62	
3	One Side	50.00	1.43	190.00	240.00	231.97	0.00
		35.00		-285.00	-285.00	195.10	
4	Both Sides	500.00	33.33	-190.00	-190.00	2563.76	1952.75
		15.00		-250.00	250.00	337.66	
5	Both Sides	500.00	33.33	190.00	190.00	2563.76	1952.75
		15.00		-250.00	250.00	337.66	
6	One Side	50.00	1.43	-190.00	-240.00	231.97	0.00
		35.00		285.00	285.00	195.10	
7	Both Sides	350.00	10.00	-175.00	175.00	817.23	1952.75
		35.00		285.00	285.00	1514.62	
8	One Side	50.00	1.43	190.00	240.00	231.97	0.00
		35.00		285.00	285.00	195.10	

RO 168,3X12,5

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 206
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DETAILED PICTURE

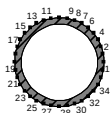


SECTION DATA



Description	Name	Size	Unit
Outside diameter	D	168.30	mm
Wall thickness	t	12.50	mm
Cross-section area	A	61.18	cm ²
Shear area	A ₂	30.69	cm ²
Core area A*	A _c	190.64	cm ²
Moment of inertia	I _y	1868.35	cm ⁴
Governing radius of gyration	r _y	5.53	cm
Polar radius of gyration	r _o	7.82	cm
Nominal weight	Wt	48.03	kg/m
Surface area (only outside)	A _{surf}	0.53	m ² /m
Torsional constant	J	3712.81	cm ⁴
Elastic section modulus	S _y	222.03	cm ³
Statical moment of area	Q _y	76.02	cm ³
Plastic section modulus	Z _y	304.07	cm ³
Plastic shape factor	Alpha _{pl_2}	1.37	
Buckling stress curve	Bsc _y	a	

STRESS POINTS



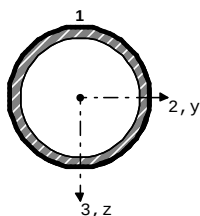
No	Coordinates [cm]		Stat.Moment [cm ³]		t	Warping Ordinate	Warping Area
	y	z	Qy	Qz	[cm]	Omega[cm ²]	A-Omega[cm ⁴]
1	8.41	0.00	-75.78	0.00	1.25	0.00	0.00
2	8.29	-1.46	-74.63	-13.16	1.25	0.00	0.00
3	7.91	-2.88	-71.21	-25.92	1.25	0.00	0.00
4	7.29	-4.21	-65.63	-37.89	1.25	0.00	0.00
5	6.45	-5.41	-58.05	-48.71	1.25	0.00	0.00
6	5.41	-6.45	-48.71	-58.05	1.25	0.00	0.00
7	4.21	-7.29	-37.89	-65.63	1.25	0.00	0.00
8	2.88	-7.91	-25.92	-71.21	1.25	0.00	0.00
9	1.46	-8.29	-13.16	-74.63	1.25	0.00	0.00
10	0.00	-8.41	0.00	-75.78	1.25	0.00	0.00
11	-1.46	-8.29	13.16	-74.63	1.25	0.00	0.00
12	-2.88	-7.91	25.92	-71.21	1.25	0.00	0.00
13	-4.21	-7.29	37.89	-65.63	1.25	0.00	0.00
14	-5.41	-6.45	48.71	-58.05	1.25	0.00	0.00
15	-6.45	-5.41	58.05	-48.71	1.25	0.00	0.00
16	-7.29	-4.21	65.63	-37.89	1.25	0.00	0.00
17	-7.91	-2.88	71.21	-25.92	1.25	0.00	0.00
18	-8.29	-1.46	74.63	-13.16	1.25	0.00	0.00
19	-8.41	0.00	75.78	0.00	1.25	0.00	0.00
20	-8.29	1.46	74.63	13.16	1.25	0.00	0.00
21	-7.91	2.88	71.21	25.92	1.25	0.00	0.00

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STRESS POINTS

No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
22	-7.29	4.21	65.63	37.89	1.25	0.00	0.00
23	-6.45	5.41	58.05	48.71	1.25	0.00	0.00
24	-5.41	6.45	48.71	58.05	1.25	0.00	0.00
25	-4.21	7.29	37.89	65.63	1.25	0.00	0.00
26	-2.88	7.91	25.92	71.21	1.25	0.00	0.00
27	-1.46	8.29	13.16	74.63	1.25	0.00	0.00
28	0.00	8.41	0.00	75.78	1.25	0.00	0.00
29	1.46	8.29	-13.16	74.63	1.25	0.00	0.00
30	2.88	7.91	-25.92	71.21	1.25	0.00	0.00
31	4.21	7.29	-37.89	65.63	1.25	0.00	0.00
32	5.41	6.45	-48.71	58.05	1.25	0.00	0.00
33	6.45	5.41	-58.05	48.71	1.25	0.00	0.00
34	7.29	4.21	-65.63	37.89	1.25	0.00	0.00
35	7.91	2.88	-71.21	25.92	1.25	0.00	0.00
36	8.29	1.46	-74.63	13.16	1.25	0.00	0.00

RO 168,3x12,5

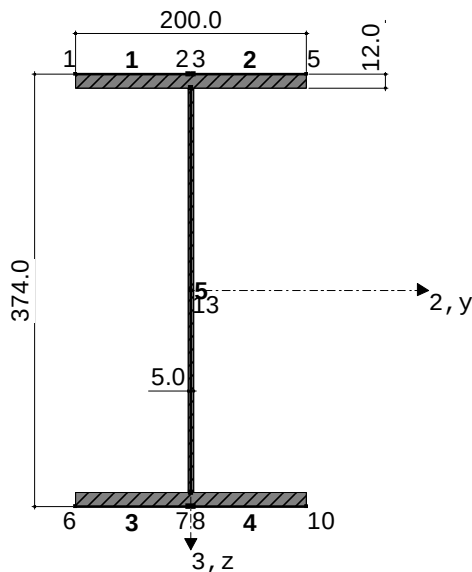


(B/T)-ZONES

No	Restrained	d [mm]	d/t [-]	Av. Stat. Moments Q2/Q3 [cm ³]	Av. Stat. Moments Q2/Q3 [cm ²]
1	Tubes	168.30 12.50	13.46	0.00 0.00	190.64

IS 374/200/5/12

DETAILED PICTURE



SECTION DATA

Description	Name	Size	Unit
Querschnittsfläche	A	65.50	cm ²

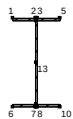
Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 208
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SECTION DATA



Description	Name	Size	Unit
Schubfläche	A-y	40.02	cm ²
Schubfläche	A-z	17.44	cm ²
Trägheitsmoment (Flächenmoment 2. Grades)	I-y	17517.50	cm ⁴
Trägheitsmoment (Flächenmoment 2. Grades)	I-z	1600.36	cm ⁴
Polares Trägheitsmoment	I-p	19117.90	cm ⁴
Trägheitsradius	j-y	16.35	cm
Trägheitsradius	j-z	4.94	cm
Polarer Trägheitsradius	j-p	17.08	cm
Trägheitsradius des Gurtquerschnitts (1/5	j-zg	5.39	cm
Eigenlast	G	51.42	kg/m
Mantelfläche	U	1.538	m ² /m
Torsionsträgheitsmoment	I-T	23.68	cm ⁴
Wölbwiderstand bezogen auf M	C-M	524176.00	cm ⁶
Abklingfaktor	Lambda	0.004174	1/cm
Widerstandsmoment	W-y	936.76	cm ³
Widerstandsmoment	W-z	160.04	cm ³
Wölbwiderstandsmoment	W-Om	2896.00	cm ⁴
Statisches Moment	S-y-max	510.96	cm ³
Statisches Moment	S-z-max	60.00	cm ³
Wölbordinate	Omega max	181.00	cm ²
Wölbfläche (Flächenmoment 1. Grades mit α)	A-Om max	1086.00	cm ⁴
Plastisches Widerstandsmoment	Wpl-y	1021.92	cm ³
Plastisches Widerstandsmoment	Wpl-z	242.19	cm ³
Plastisches Wölbwiderstandsmoment	W-pl-Om	4344.00	cm ⁴
Plastischer Formbeiwert	Alpha-pl-y	1.09	
Plastischer Formbeiwert	Alpha-pl-z	1.51	
Plastischer Formbeiwert	Alpha-pl-Om	1.50	
Knickspannungslinie	Ksl-y	b	
Knickspannungslinie	Ksl-z	c	

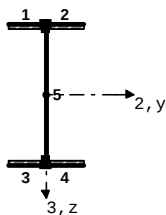
STRESS POINTS



No	Coordinates [cm]		Stat.Moment [cm ³]		t [cm]	Warping Ordinate Omega[cm ²]	Warping Area A-Omega[cm ⁴]
	y	z	Qy	Qz			
1	-10.00	-18.70	0.00	0.00	1.20	181.00	0.00
2	-0.25	-18.70	-211.37	-59.96	1.20	4.53	-1085.32
3	0.00	-18.70	-216.69	-60.00	1.20	0.00	-1086.00
4	0.25	-18.70	-211.37	-59.96	1.20	-4.53	1085.32
5	10.00	-18.70	0.00	0.00	1.20	-181.00	0.00
6	-10.00	18.70	0.00	0.00	1.20	-181.00	0.00
7	-0.25	18.70	-211.37	59.96	1.20	-4.53	-1085.32
8	0.00	18.70	-216.69	60.00	1.20	0.00	-1086.00
9	0.25	18.70	-211.37	-59.96	1.20	4.53	1085.32
10	10.00	18.70	0.00	0.00	1.20	181.00	0.00
11	0.00	-17.50	-436.81	0.00	0.50	0.00	0.00
12	0.00	17.50	-436.81	0.00	0.50	0.00	0.00
13	0.00	0.00	-510.96	0.00	0.50	0.00	0.00

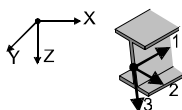
IS 374/200/5/12

(B/T)-ZONES



No	Restrained	b t [mm]	b/t [-]	Coordinates y-1/z-1[mm] y-2/z-2[mm]		Av. Stat. Moments Q2/Q3 [cm ³]
1	One Side	97.50 12.00	8.13	-2.50 -187.00	-100.00 -187.00	105.69 39.49
2	One Side	97.50 12.00	8.13	2.50 -187.00	100.00 -187.00	105.69 39.49
3	One Side	97.50 12.00	8.13	-2.50 187.00	-100.00 187.00	105.69 39.49
4	One Side	97.50 12.00	8.13	2.50 187.00	100.00 187.00	105.69 39.49
5	Both Sides	350.00 5.00	70.00	0.00 -175.00	0.00 175.00	486.25 0.00

Global Hinge Definition



ELEMENT HINGES

Hinge No	Ref Axis	N/V Hinge/Spring [kN/m]			T/M Hinge/Spring [kNm/rad]		
		1-Normal	2-Shear	3-Shear	1-Torsion	2-Bending	3-Bending
1	Global	No	No	No	Yes	No	No
2	Global	No	No	No	No	Yes	No
3	Global	No	No	No	Yes	Yes	No
4	Global	No	No	Yes	Yes	Yes	Yes
5	Global	No	No	No	Yes	No	No

ELEMENTS

Elem No	Elem Type	Nodes		Beta [°]	Section		Hinge		Part No	Length [m]	Elem Location
		Begin	End		Begin	End	Begin	End			
1	Beam	2	1	0.00	32	32	-	-	-	0.425	HORI
2	Beam	3	2	0.00	32	32	-	-	-	2.600	HORI
3	Beam	4	3	0.00	32	32	-	-	-	0.425	HORI

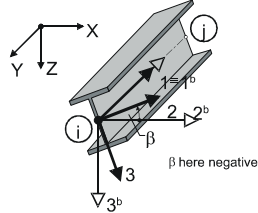
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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Local Element Axis System



ELEMENTS

Elem No	Elem Type	Nodes		Beta [°]	Section		Hinge		Part No	Length [m]	Elem Location
		Begin	End		Begin	End	Begin	End			
4	Beam	1	5	0.00	17	17	-	-	-	0.150	HORI
5	Beam	4	6	0.00	17	17	-	-	-	0.150	HORI
6	Beam	5	7	0.00	17	17	-	-	-	1.081	HORI
7	Beam	6	8	0.00	17	17	-	-	-	1.081	HORI
8	Beam	7	9	0.00	17	17	-	-	-	1.125	HORI
9	Beam	8	13	0.00	17	17	-	-	-	1.125	HORI
10	Beam	10	9	0.00	22	22	-	-	-	0.425	HORI
11	Beam	11	10	0.00	22	22	-	-	-	1.300	HORI
12	Beam	12	11	0.00	22	22	-	-	-	1.300	HORI
13	Beam	13	12	0.00	22	22	-	-	-	0.425	HORI
14	Beam	9	16	0.00	17	17	-	-	-	2.500	HORI
15	Beam	13	19	0.00	17	17	-	-	-	2.500	HORI
16	Beam	11	17	0.00	29	29	-	-	-	2.655	HORI
17	Beam	11	18	0.00	29	29	-	-	-	2.655	HORI
18	Beam	14	16	0.00	17	17	-	-	-	0.625	HORI
19	Beam	15	19	0.00	17	17	-	-	-	0.625	HORI
20	Beam	17	16	0.00	41	41	-	-	-	0.831	HORI
21	Beam	10	23	90.00	33	33	-	-	-	7.433	GENL
22	Beam	18	17	0.00	41	41	-	-	-	1.788	HORI
23	Beam	12	28	90.00	33	33	-	-	-	7.433	GENL
24	Beam	19	18	0.00	41	41	-	-	-	0.831	HORI
26	Beam	17	20	0.00	29	29	-	-	-	2.469	HORI
27	Beam	18	21	0.00	29	29	-	-	-	2.469	HORI
29	Beam	20	22	0.00	17	17	-	-	-	0.175	HORI
30	Beam	21	30	0.00	17	17	-	-	-	0.175	HORI
31	Beam	24	22	0.00	22	22	-	-	-	0.425	HORI
32	Beam	24	23	90.00	30	30	-	-	-	5.500	VERT
33	Beam	25	24	0.00	22	22	-	-	-	0.219	HORI
35	Beam	27	25	0.00	22	22	-	-	-	2.162	HORI
36	Beam	28	26	90.00	97	97	-	-	-	1.300	HORI
37	Beam	29	27	0.00	22	22	-	-	-	0.219	HORI
38	Beam	29	28	90.00	30	30	-	-	-	5.500	VERT
39	Beam	30	29	0.00	22	22	-	-	-	0.425	HORI
40	Beam	22	31	0.00	17	17	-	-	-	0.175	HORI
41	Beam	30	32	0.00	17	17	-	-	-	0.175	HORI
42	Beam	31	33	0.00	17	17	-	-	-	2.325	HORI
43	Beam	31	34	0.00	29	29	-	-	-	2.469	HORI
44	Beam	32	35	0.00	29	29	-	-	-	2.469	HORI
45	Beam	32	36	0.00	17	17	-	-	-	2.325	HORI
46	Beam	34	33	0.00	41	41	-	-	-	0.831	HORI
47	Beam	23	38	0.00	18	18	-	-	-	5.000	HORI
48	Beam	24	38	90.00	33	33	-	-	-	7.433	GENL
49	Beam	41	23	0.00	28	28	-	-	-	5.636	HORI
50	Beam	35	34	0.00	41	41	-	-	-	1.788	HORI
51	Beam	28	41	0.00	18	18	-	-	-	5.000	HORI
52	Beam	29	41	90.00	33	33	-	-	-	7.433	GENL
53	Beam	36	35	0.00	41	41	-	-	-	0.831	HORI
54	Beam	33	37	0.00	17	17	-	-	-	2.500	HORI
55	Beam	34	40	0.00	29	29	-	-	-	2.655	HORI
56	Beam	35	40	0.00	29	29	-	-	-	2.655	HORI
57	Beam	36	43	0.00	17	17	-	-	-	2.500	HORI
58	Beam	39	37	0.00	22	22	-	-	-	0.425	HORI
59	Beam	39	38	90.00	30	30	-	-	-	5.500	VERT
60	Beam	40	39	0.00	22	22	-	-	-	1.300	HORI
61	Beam	42	40	0.00	22	22	-	-	-	1.300	HORI
62	Beam	42	41	90.00	30	30	-	-	-	5.500	VERT
63	Beam	43	42	0.00	22	22	-	-	-	0.425	HORI
64	Beam	38	44	0.00	18	18	-	-	-	1.500	HORI
65	Beam	41	45	0.00	18	18	-	-	-	1.500	HORI
66	Beam	37	46	0.00	17	17	-	-	-	3.454	HORI
67	Beam	40	47	0.00	44	44	-	-	-	3.572	HORI
68	Beam	40	48	0.00	44	44	-	-	-	3.572	HORI
69	Beam	43	49	0.00	17	17	-	-	-	3.454	HORI
70	Beam	39	50	90.00	33	33	-	-	-	7.433	GENL
71	Beam	50	41	0.00	44	44	-	-	-	5.636	HORI
72	Beam	42	51	90.00	33	33	-	-	-	7.433	GENL
73	Beam	44	50	0.00	21	21	-	-	-	3.500	HORI
74	Beam	45	51	0.00	21	21	-	-	-	3.500	HORI
75	Beam	47	46	0.00	41	41	-	-	-	0.816	HORI
76	Beam	48	47	0.00	41	41	-	-	-	1.818	HORI
77	Beam	49	48	0.00	41	41	-	-	-	0.816	HORI
78	Beam	46	52	0.00	17	17	-	-	-	1.600	HORI
79	Beam	49	53	0.00	17	17	-	-	-	1.600	HORI
80	Beam	51	50	0.00	1	1	-	-	-	2.600	HORI
81	Beam	47	64	0.00	44	44	-	-	-	3.205	HORI
82	Beam	48	65	0.00	44	44	-	-	-	3.205	HORI
83	Beam	55	50	0.00	1	1	-	-	-	0.900	GENL
84	Beam	58	51	0.00	1	1	-	-	-	0.900	GENL
85	Beam	55	54	-19.10	40	40	-	-	-	0.400	HORI
86	Beam	56	55	-19.10	40	40	-	-	-	0.383	HORI
87	Beam	57	56	-19.10	40	40	-	-	-	1.834	HORI
88	Beam	58	57	-19.10	40	40	-	-	-	0.383	HORI
89	Beam	59	58	-19.10	40	40	-	-	-	0.400	HORI
90	Beam	54	60	-19.10	40	39	-	-	-	5.623	GENL
91	Beam	61	59	-19.10	39	40	-	-	-	5.623	GENL
92	Beam	62	60	-28.00	14	14	-	-	-	1.048	GENL
93	Beam	63	61	28.00	14	14	-	-	-	1.048	GENL
94	Beam	52	64	0.00	19	19	-	-	-	1.499	HORI
95	Beam	53	65	0.00	19	19	-	-	-	1.499	HORI
96	Beam	67	56	0.00	27	27	-	-	-	4.922	GENL
97	Beam	69	57	0.00	27	27	-	-	-	4.922	GENL

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ELEMENTS

Elem No	Elem Type	Nodes		Beta [°]	Section		Hinge		Part No	Length [m]	Elem Location
		Begin	End		Begin	End	Begin	End			
98	Beam	50	73	0.00	21	21	-	-	-	2.500	HORI
99	Beam	51	74	0.00	44	44	-	-	-	2.818	HORI
100	Beam	51	75	0.00	21	21	-	-	-	2.500	HORI
101	Beam	64	66	0.00	19	19	-	-	-	0.355	HORI
102	Beam	65	70	0.00	19	19	-	-	-	0.355	HORI
103	Beam	67	66	0.00	24	24	-	-	-	0.808	HORI
104	Beam	68	67	0.00	24	24	-	-	-	0.917	HORI
105	Beam	69	68	0.00	24	24	-	-	-	0.917	HORI
106	Beam	70	69	0.00	24	24	-	-	-	0.808	HORI
107	Beam	66	71	0.00	19	19	-	-	-	0.355	HORI
108	Beam	70	72	0.00	19	19	-	-	-	0.355	HORI
109	Beam	50	80	90.00	42	42	-	-	-	7.433	GENL
110	Beam	74	73	90.00	41	41	-	-	-	1.300	HORI
111	Beam	75	74	90.00	41	41	-	-	-	1.300	HORI
112	Beam	51	83	90.00	42	42	-	-	-	7.433	GENL
113	Beam	76	62	-28.00	14	14	-	-	-	12.359	GENL
114	Beam	77	63	28.00	14	14	-	-	-	12.359	GENL
115	Beam	71	78	0.00	19	19	-	-	-	2.737	HORI
116	Beam	71	81	0.00	44	44	-	-	-	3.235	HORI
117	Beam	72	81	0.00	44	44	-	-	-	3.235	HORI
118	Beam	72	84	0.00	19	19	-	-	-	2.737	HORI
119	Beam	73	79	0.00	21	21	-	-	-	2.500	HORI
120	Beam	74	79	0.00	44	44	-	-	-	2.818	HORI
121	Beam	75	82	0.00	21	21	-	-	-	2.500	HORI
122	Beam	80	78	0.00	98	98	-	-	-	0.425	HORI
123	Beam	80	79	90.00	30	30	-	-	-	5.500	VERT
124	Beam	81	80	0.00	43	43	-	-	-	1.300	HORI
125	Beam	79	82	0.00	44	44	-	-	-	2.600	HORI
126	Beam	83	81	0.00	43	43	-	-	-	1.300	HORI
127	Beam	83	82	90.00	30	30	-	-	-	5.500	VERT
128	Beam	84	83	0.00	98	98	-	-	-	0.425	HORI
129	Beam	78	85	0.00	19	19	-	-	-	1.249	HORI
130	Beam	81	86	0.00	99	99	-	-	-	1.332	HORI
131	Beam	81	87	0.00	99	99	-	-	-	1.332	HORI
132	Beam	84	88	0.00	19	19	-	-	-	1.249	HORI
133	Beam	79	89	0.00	21	21	-	-	-	2.500	HORI
134	Beam	82	178	0.00	49	49	-	-	-	0.700	HORI
135	Beam	82	91	0.00	21	21	-	-	-	2.500	HORI
136	Beam	26	23	90.00	97	97	-	-	-	1.300	HORI
137	Beam	178	90	0.00	44	44	-	-	-	2.118	HORI
139	Beam	98	76	-28.00	14	14	-	-	-	15.472	GENL
140	Beam	99	77	28.00	14	14	-	-	-	15.472	GENL
141	Beam	76	163	-10.00	14	14	-	-	-	5.489	GENL
142	Beam	77	189	-10.00	14	14	-	-	-	5.489	GENL
143	Beam	85	92	0.00	19	19	-	-	-	1.626	HORI
144	Beam	88	93	0.00	19	19	-	-	-	1.626	HORI
145	Beam	86	94	0.00	99	99	-	-	-	1.971	HORI
146	Beam	87	95	0.00	99	99	-	-	-	1.971	HORI
147	Beam	80	174	90.00	42	42	-	-	-	7.433	GENL
148	Beam	90	89	90.00	41	41	-	-	-	1.300	HORI
149	Beam	91	90	90.00	41	41	-	-	-	1.300	HORI
150	Beam	83	181	90.00	42	42	-	-	-	7.433	GENL
151	Beam	92	96	0.00	19	19	-	-	-	0.222	HORI
152	Beam	93	97	0.00	19	19	-	-	-	0.222	HORI
153	Beam	95	94	0.00	41	41	-	-	-	2.300	HORI
154	Beam	94	96	0.00	41	41	-	-	-	0.575	HORI
155	Beam	97	95	0.00	41	41	-	-	-	0.575	HORI
156	Beam	89	174	0.00	21	21	-	-	-	2.500	HORI
157	Beam	90	174	0.00	44	44	-	-	-	2.818	HORI
158	Beam	91	181	0.00	21	21	-	-	-	2.500	HORI
159	Beam	94	130	0.00	99	99	-	-	-	1.652	HORI
160	Beam	95	131	0.00	99	99	-	-	-	1.652	HORI
161	Beam	96	130	0.00	19	19	-	-	-	1.548	HORI
162	Beam	97	131	0.00	19	19	-	-	-	1.548	HORI
163	Beam	98	100	0.00	49	49	-	-	-	0.068	HORI
164	Beam	98	101	0.00	49	49	-	-	-	0.067	HORI
165	Beam	99	102	0.00	49	49	-	-	-	0.067	HORI
166	Beam	99	103	0.00	49	49	-	-	-	0.068	HORI
167	Beam	100	104	-25.00	65	66	-	-	-	0.350	GENL
168	Beam	101	106	-25.00	65	66	-	-	-	0.350	GENL
169	Beam	102	107	-25.00	65	66	-	-	-	0.350	GENL
170	Beam	103	109	-25.00	65	66	-	-	-	0.350	GENL
171	Beam	104	105	0.00	52	52	-	-	-	0.067	HORI
172	Beam	105	106	0.00	52	52	-	-	-	0.068	HORI
173	Beam	108	107	0.00	52	52	-	-	-	0.068	HORI
174	Beam	109	108	0.00	52	52	-	-	-	0.067	HORI
175	Beam	132	105	0.00	64	63	-	2	-	0.350	HORI
176	Beam	133	108	0.00	64	63	-	2	-	0.350	HORI
177	Beam	116	110	0.00	52	52	-	-	-	0.025	HORI
178	Beam	117	111	0.00	52	52	-	-	-	0.025	HORI
179	Beam	122	112	0.00	52	52	-	-	-	0.025	HORI
180	Beam	123	113	90.00	52	52	-	-	-	0.025	HORI
181	Beam	116	114	90.00	55	55	-	-	-	0.198	HORI
182	Beam	117	115	90.00	55	55	-	-	-	0.198	HORI
183	Beam	118	116	90.00	55	55	-	-	-	0.198	HORI
184	Beam	119	117	90.00	55	55	-	-	-	0.198	HORI
185	Beam	120	122	90.00	55	55	-	-	-	0.198	HORI
186	Beam	123	121	90.00	55	55	-	-	-	0.198	HORI
187	Beam	122	124	90.00	55	55	-	-	-	0.198	HORI
188	Beam	125	123	90.00	55	55	-	-	-	0.198	HORI
189	Beam	126	116	0.00	52	52	-	-	-	0.068	HORI

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ELEMENTS

Elem No	Elem Type	Nodes		Beta [°]	Section		Hinge		Part No	Length [m]	Elem Location
		Begin	End		Begin	End	Begin	End			
190	Beam	127	117	0.00	52	52	-	-	-	0.068	HORI
191	Beam	128	122	0.00	52	52	-	-	-	0.068	HORI
192	Beam	129	123	90.00	52	52	-	-	-	0.068	HORI
193	Beam	134	114	90.00	53	54	-	-	-	0.135	HORI
194	Beam	126	127	360.00	56	56	3	3	-	1.000	VERT
195	Beam	136	118	90.00	53	54	-	-	-	0.135	HORI
196	Beam	137	120	90.00	53	54	-	-	-	0.135	HORI
197	Beam	129	128	180.00	56	56	3	3	-	1.000	VERT
198	Beam	139	124	90.00	53	54	-	-	-	0.135	HORI
199	Beam	140	115	90.00	53	54	-	-	-	0.185	HORI
200	Beam	142	119	90.00	53	54	-	-	-	0.185	HORI
201	Beam	143	121	90.00	53	54	-	-	-	0.185	HORI
202	Beam	145	125	90.00	53	54	-	-	-	0.185	HORI
203	Beam	135	126	0.00	52	52	-	-	-	0.068	HORI
204	Beam	138	128	0.00	52	52	-	-	-	0.068	HORI
205	Beam	141	127	0.00	52	52	-	-	-	0.118	HORI
206	Beam	144	129	90.00	52	52	-	-	-	0.118	HORI
207	Beam	135	134	0.00	49	49	-	-	-	0.198	HORI
208	Beam	135	136	0.00	49	49	-	-	-	0.198	HORI
209	Beam	138	137	0.00	49	49	-	-	-	0.198	HORI
210	Beam	138	139	0.00	49	49	-	-	-	0.198	HORI
211	Beam	141	140	0.00	49	49	-	-	-	0.198	HORI
212	Beam	141	142	0.00	49	49	-	-	-	0.198	HORI
213	Beam	144	143	90.00	49	49	-	-	-	0.198	HORI
214	Beam	144	145	90.00	49	49	-	-	-	0.198	HORI
215	Beam	130	172	180.00	88	88	-	-	-	0.355	HORI
216	Beam	131	184	0.00	88	88	-	-	-	0.355	HORI
217	Beam	160	132	0.00	49	49	-	-	-	0.350	HORI
218	Beam	192	133	0.00	49	49	-	-	-	0.350	HORI
219	Beam	150	135	0.00	49	49	-	-	-	0.330	HORI
220	Beam	195	138	0.00	49	49	-	-	-	0.330	HORI
221	Beam	153	141	0.00	49	49	-	-	-	0.280	HORI
222	Beam	198	144	90.00	49	49	-	-	-	0.280	HORI
223	Beam	147	146	0.00	1	1	-	-	-	0.500	VERT
224	Beam	146	149	0.00	1	1	-	-	-	1.125	HORI
225	Beam	149	148	0.00	1	1	1	-	-	0.350	VERT
226	Beam	148	154	0.00	1	1	-	-	-	1.125	HORI
227	Beam	149	155	0.00	1	1	-	-	-	1.125	HORI
228	Beam	150	151	0.00	49	49	-	-	-	0.440	VERT
229	Beam	151	152	0.00	52	52	4	-	-	0.055	VERT
230	Beam	152	153	0.00	49	49	-	-	-	0.505	VERT
231	Beam	154	153	0.00	1	1	-	-	-	0.480	VERT
232	Beam	156	155	0.00	1	1	-	-	-	0.500	VERT
233	Beam	158	150	0.00	49	49	-	-	-	0.141	HORI
234	Beam	158	157	0.00	1	1	-	-	-	0.181	GENL
235	Beam	159	158	0.00	49	49	-	-	-	0.005	HORI
236	Beam	160	158	0.00	2	2	-	-	-	1.020	GENL
237	Beam	154	161	0.00	1	1	-	-	-	2.250	HORI
238	Beam	163	160	0.00	4	2	-	-	-	15.099	GENL
239	Beam	162	161	0.00	1	1	-	-	-	0.850	VERT
240	Beam	166	157	0.00	50	51	-	-	-	4.967	GENL
241	Beam	164	163	0.00	5	4	-	-	-	11.099	GENL
242	Beam	165	164	0.00	6	5	-	-	-	1.725	GENL
243	Beam	167	165	0.00	7	7	-	-	-	1.720	HORI
244	Beam	168	166	0.00	50	50	-	-	-	3.794	HORI
245	Beam	173	167	0.00	7	7	-	-	-	3.880	HORI
246	Beam	168	169	90.00	49	49	-	-	-	0.500	VERT
247	Beam	169	170	90.00	60	60	-	-	-	0.370	VERT
248	Beam	170	171	90.00	60	60	-	-	-	1.442	VERT
249	Beam	175	173	0.00	7	7	-	-	-	0.400	HORI
250	Beam	177	172	0.00	23	23	-	-	-	0.808	HORI
251	Beam	174	175	0.00	1	1	-	-	-	1.260	VERT
252	Beam	176	175	0.00	7	7	-	-	-	0.383	HORI
253	Beam	177	176	0.00	26	26	-	-	-	4.240	VERT
255	Beam	181	174	0.00	1	1	-	-	-	2.600	HORI
256	Beam	179	176	0.00	7	7	-	-	-	1.834	HORI
257	Beam	180	177	0.00	23	23	-	-	-	1.834	HORI
258	Beam	180	179	0.00	26	26	-	-	-	4.240	VERT
259	Beam	182	179	0.00	7	7	-	-	-	0.383	HORI
260	Beam	182	181	0.00	1	1	-	-	-	1.260	VERT
261	Beam	184	180	0.00	23	23	-	-	-	0.808	HORI
262	Beam	183	182	0.00	7	7	-	-	-	0.400	HORI
263	Beam	186	168	0.00	50	50	-	-	-	8.766	HORI
264	Beam	185	183	0.00	7	7	-	-	-	3.880	HORI
265	Beam	187	185	0.00	7	7	-	-	-	1.720	HORI
266	Beam	188	187	0.00	5	6	-	-	-	1.725	GENL
267	Beam	189	188	0.00	4	5	-	-	-	11.099	GENL
268	Beam	194	186	0.00	51	50	-	-	-	5.244	GENL
269	Beam	191	190	0.00	1	1	-	-	-	0.850	VERT
270	Beam	192	189	0.00	2	4	-	-	-	15.099	GENL
271	Beam	199	190	0.00	1	1	-	-	-	2.250	HORI
272	Beam	193	192	0.00	2	2	-	-	-	1.020	GENL
273	Beam	194	193	0.00	1	1	-	-	-	0.181	GENL
274	Beam	193	195	0.00	49	49	-	-	-	0.141	HORI
275	Beam	195	196	0.00	49	49	-	-	-	0.440	VERT
276	Beam	196	197	0.00	52	52	4	-	-	0.055	VERT
277	Beam	197	198	0.00	49	49	-	-	-	0.505	VERT
278	Beam	199	198	0.00	1	1	-	-	-	0.480	VERT
279	Beam	201	200	0.00	1	1	-	-	-	0.500	VERT
280	Beam	202	199	0.00	1	1	-	-	-	1.125	HORI
281	Beam	203	200	0.00	1	1	-	-	-	1.125	HORI

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ELEMENTS

Elem No	Elem Type	Nodes		Beta [°]	Section		Hinge		Part No	Length [m]	Elem Location
		Begin	End		Begin	End	Begin	End			
282	Beam	203	202	0.00	1	1	1	-	-	0.350	VERT
283	Beam	204	203	0.00	1	1	-	-	-	1.125	HORI
284	Beam	205	204	0.00	1	1	-	-	-	0.500	VERT
285	Beam	153	207	0.00	49	49	-	-	-	0.280	HORI
286	Beam	198	210	90.00	49	49	-	-	-	0.280	HORI
287	Beam	150	213	0.00	49	49	-	-	-	0.330	HORI
288	Beam	195	216	0.00	49	49	-	-	-	0.330	HORI
289	Beam	172	218	180.00	88	88	-	-	-	0.355	HORI
290	Beam	184	219	0.00	88	88	-	-	-	0.355	HORI
291	Beam	207	206	0.00	49	49	-	-	-	0.198	HORI
292	Beam	207	208	0.00	49	49	-	-	-	0.198	HORI
293	Beam	210	209	90.00	49	49	-	-	-	0.198	HORI
294	Beam	210	211	90.00	49	49	-	-	-	0.198	HORI
295	Beam	213	212	0.00	49	49	-	-	-	0.198	HORI
296	Beam	213	214	0.00	49	49	-	-	-	0.198	HORI
297	Beam	216	215	90.00	49	49	-	-	-	0.198	HORI
298	Beam	217	216	90.00	49	49	-	-	-	0.198	HORI
299	Beam	207	221	0.00	52	52	-	-	-	0.118	HORI
300	Beam	210	223	90.00	52	52	-	-	-	0.118	HORI
301	Beam	213	220	0.00	52	52	-	-	-	0.068	HORI
302	Beam	216	222	0.00	52	52	-	-	-	0.068	HORI
303	Beam	206	225	90.00	53	54	-	-	-	0.185	HORI
304	Beam	208	229	90.00	53	54	-	-	-	0.185	HORI
305	Beam	209	231	90.00	53	54	-	-	-	0.185	HORI
306	Beam	211	235	90.00	53	54	-	-	-	0.185	HORI
307	Beam	212	224	90.00	53	54	-	-	-	0.135	HORI
308	Beam	220	221	180.00	56	56	3	3	-	1.000	VERT
309	Beam	214	228	90.00	53	54	-	-	-	0.135	HORI
310	Beam	215	230	90.00	53	54	-	-	-	0.135	HORI
311	Beam	222	223	180.00	56	56	3	3	-	1.000	VERT
312	Beam	217	234	90.00	53	54	-	-	-	0.135	HORI
313	Beam	220	226	0.00	52	52	-	-	-	0.067	HORI
314	Beam	221	227	0.00	52	52	-	-	-	0.067	HORI
315	Beam	222	232	0.00	52	52	-	-	-	0.067	HORI
316	Beam	223	233	90.00	52	52	-	-	-	0.067	HORI
317	Beam	226	224	90.00	55	55	-	-	-	0.198	HORI
318	Beam	227	225	90.00	55	55	-	-	-	0.198	HORI
319	Beam	228	226	90.00	55	55	-	-	-	0.198	HORI
320	Beam	229	227	90.00	55	55	-	-	-	0.198	HORI
321	Beam	232	230	90.00	55	55	-	-	-	0.198	HORI
322	Beam	233	231	90.00	55	55	-	-	-	0.198	HORI
323	Beam	234	232	90.00	55	55	-	-	-	0.198	HORI
324	Beam	235	233	90.00	55	55	-	-	-	0.198	HORI
325	Beam	226	236	0.00	52	52	-	-	-	0.025	HORI
326	Beam	227	237	0.00	52	52	-	-	-	0.025	HORI
327	Beam	232	238	0.00	52	52	-	-	-	0.025	HORI
328	Beam	233	239	90.00	52	52	-	-	-	0.025	HORI
329	Beam	218	571	0.00	19	19	-	-	-	1.231	HORI
330	Beam	218	252	0.00	29	29	-	-	-	1.304	HORI
331	Beam	219	249	0.00	29	29	-	-	-	1.304	HORI
332	Beam	219	574	0.00	19	19	-	-	-	1.231	HORI
333	Beam	174	244	0.00	21	21	-	-	-	5.285	HORI
334	Beam	181	245	0.00	21	21	-	-	-	5.285	HORI
335	Beam	249	242	0.00	29	29	-	-	-	2.178	HORI
336	Beam	574	564	0.00	19	19	-	-	-	0.538	HORI
337	Beam	571	563	0.00	19	19	-	-	-	0.538	HORI
338	Beam	174	250	90.00	34	34	-	-	-	7.628	GENL
340	Beam	181	256	90.00	34	34	-	-	-	7.628	GENL
341	Beam	240	246	0.00	19	19	-	-	-	1.183	HORI
342	Beam	243	247	0.00	19	19	-	-	-	1.183	HORI
347	Beam	246	248	0.00	19	19	-	-	-	0.460	HORI
348	Beam	247	257	0.00	19	19	-	-	-	0.460	HORI
349	Beam	250	248	0.00	22	22	-	-	-	0.425	HORI
350	Beam	250	244	90.00	30	30	-	-	-	5.500	VERT
351	Beam	251	250	0.00	22	22	-	-	-	0.219	HORI
353	Beam	253	251	0.00	22	22	-	-	-	1.081	HORI
354	Beam	254	253	0.00	22	22	-	-	-	1.081	HORI
355	Beam	245	244	90.00	28	28	-	-	-	2.600	HORI
356	Beam	256	254	0.00	22	22	-	-	-	0.219	HORI
357	Beam	256	245	90.00	30	30	-	-	-	5.500	VERT
358	Beam	257	256	0.00	22	22	-	-	-	0.425	HORI
359	Beam	248	258	0.00	19	19	-	-	-	2.500	HORI
360	Beam	253	259	0.00	29	29	-	-	-	2.655	HORI
361	Beam	253	260	0.00	29	29	-	-	-	2.655	HORI
362	Beam	257	261	0.00	19	19	-	-	-	2.500	HORI
363	Beam	259	258	0.00	41	41	-	-	-	0.831	HORI
364	Beam	260	259	0.00	41	41	-	-	-	1.788	HORI
365	Beam	261	260	0.00	41	41	-	-	-	0.831	HORI
366	Beam	244	267	0.00	21	21	-	-	-	5.286	HORI
367	Beam	244	268	90.00	34	34	-	-	-	7.628	GENL
369	Beam	245	270	0.00	21	21	-	-	-	5.286	HORI
370	Beam	245	271	90.00	34	34	-	-	-	7.628	GENL
371	Beam	258	262	0.00	19	19	-	-	-	1.000	HORI
372	Beam	261	263	0.00	19	19	-	-	-	1.000	HORI
373	Beam	259	264	0.00	29	29	-	-	-	2.740	HORI
374	Beam	260	265	0.00	29	29	-	-	-	2.740	HORI
375	Beam	262	264	0.00	19	19	-	-	-	1.611	HORI
376	Beam	263	265	0.00	19	19	-	-	-	1.611	HORI
377	Beam	264	266	0.00	19	19	-	-	-	0.175	HORI
378	Beam	265	272	0.00	19	19	-	-	-	0.175	HORI
379	Beam	268	266	0.00	22	22	-	-	-	0.425	HORI

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ELEMENTS

Elem No	Elem Type	Nodes		Beta [°]	Section		Hinge		Part No	Length [m]	Elem Location
		Begin	End		Begin	End	Begin	End			
380	Beam	268	267	90.00	31	31	-	-	-	5.500	VERT
381	Beam	269	268	0.00	22	22	-	-	-	1.300	HORI
382	Beam	267	270	0.00	28	28	-	-	-	2.600	HORI
383	Beam	271	269	0.00	22	22	-	-	-	1.300	HORI
384	Beam	271	270	90.00	31	31	-	-	-	5.500	VERT
385	Beam	272	271	0.00	22	22	-	-	-	0.425	HORI
386	Beam	266	273	0.00	19	19	-	-	-	0.176	HORI
387	Beam	272	274	0.00	19	19	-	-	-	0.176	HORI
388	Beam	273	275	0.00	19	19	-	-	-	2.324	HORI
389	Beam	273	276	0.00	29	29	-	-	-	2.468	HORI
390	Beam	274	277	0.00	29	29	-	-	-	2.468	HORI
391	Beam	274	278	0.00	19	19	-	-	-	2.324	HORI
392	Beam	276	275	0.00	41	41	-	-	-	0.831	HORI
393	Beam	277	276	0.00	41	41	-	-	-	1.788	HORI
394	Beam	278	277	0.00	41	41	-	-	-	0.831	HORI
395	Beam	267	280	0.00	21	21	-	-	-	5.286	HORI
396	Beam	267	281	90.00	34	34	-	-	-	7.628	GENL
398	Beam	270	286	0.00	21	21	-	-	-	5.286	HORI
399	Beam	270	287	90.00	34	34	-	-	-	7.628	GENL
400	Beam	275	279	0.00	19	19	-	-	-	2.786	HORI
401	Beam	276	284	0.00	29	29	-	-	-	2.926	HORI
402	Beam	277	284	0.00	29	29	-	-	-	2.926	HORI
403	Beam	278	288	0.00	19	19	-	-	-	2.786	HORI
404	Beam	281	279	0.00	22	22	-	-	-	0.425	HORI
405	Beam	281	280	90.00	30	30	-	-	-	5.500	VERT
406	Beam	282	281	0.00	22	22	-	-	-	0.219	HORI
407	Beam	252	241	0.00	29	29	-	-	-	2.178	HORI
408	Beam	284	282	0.00	22	22	-	-	-	1.081	HORI
409	Beam	285	284	0.00	22	22	-	-	-	1.081	HORI
410	Beam	286	280	90.00	28	28	-	-	-	2.600	HORI
411	Beam	287	285	0.00	22	22	-	-	-	0.219	HORI
412	Beam	287	286	90.00	30	30	-	-	-	5.500	VERT
413	Beam	288	287	0.00	22	22	-	-	-	0.425	HORI
414	Beam	279	295	0.00	19	19	-	-	-	0.518	HORI
415	Beam	288	296	0.00	19	19	-	-	-	0.518	HORI
416	Beam	284	290	0.00	29	29	-	-	-	2.654	HORI
417	Beam	284	291	0.00	29	29	-	-	-	2.654	HORI
418	Beam	290	289	0.00	41	41	-	-	-	0.831	HORI
419	Beam	291	290	0.00	41	41	-	-	-	1.788	HORI
420	Beam	292	291	0.00	41	41	-	-	-	0.831	HORI
421	Beam	280	300	0.00	21	21	-	-	-	5.285	HORI
422	Beam	280	301	90.00	33	33	-	-	-	7.628	GENL
424	Beam	286	303	0.00	21	21	-	-	-	5.285	HORI
425	Beam	286	304	90.00	33	33	-	-	-	7.628	GENL
428	Beam	290	297	0.00	29	29	-	-	-	2.741	HORI
429	Beam	291	298	0.00	29	29	-	-	-	2.741	HORI
430	Beam	295	289	0.00	19	19	-	-	-	1.981	HORI
431	Beam	296	292	0.00	19	19	-	-	-	1.981	HORI
432	Beam	297	299	0.00	19	19	-	-	-	0.174	HORI
433	Beam	298	305	0.00	19	19	-	-	-	0.174	HORI
434	Beam	301	299	0.00	22	22	-	-	-	0.425	HORI
435	Beam	301	300	90.00	31	31	-	-	-	5.500	VERT
436	Beam	302	301	0.00	22	22	-	-	-	1.300	HORI
437	Beam	300	318	-90.00	25	25	-	-	-	1.300	HORI
438	Beam	304	302	0.00	22	22	-	-	-	1.300	HORI
439	Beam	304	303	90.00	31	31	-	-	-	5.500	VERT
440	Beam	305	304	0.00	22	22	-	-	-	0.425	HORI
441	Beam	299	306	0.00	19	19	-	-	-	0.175	HORI
442	Beam	305	307	0.00	19	19	-	-	-	0.175	HORI
445	Beam	306	311	0.00	29	29	-	-	-	2.469	HORI
446	Beam	307	312	0.00	29	29	-	-	-	2.469	HORI
447	Beam	308	297	0.00	19	19	-	-	-	0.343	HORI
448	Beam	309	298	0.00	19	19	-	-	-	0.343	HORI
449	Beam	311	310	0.00	41	41	-	-	-	0.831	HORI
450	Beam	312	311	0.00	41	41	-	-	-	1.788	HORI
451	Beam	313	312	0.00	41	41	-	-	-	0.831	HORI
452	Beam	300	315	0.00	21	21	-	-	-	5.286	HORI
453	Beam	301	315	90.00	93	93	-	-	-	7.628	GENL
454	Beam	318	303	-90.00	25	25	-	-	-	1.300	HORI
455	Beam	303	321	0.00	21	21	-	-	-	5.286	HORI
456	Beam	304	321	90.00	93	93	-	-	-	7.628	GENL
457	Beam	310	314	0.00	19	19	-	-	-	2.786	HORI
458	Beam	311	319	0.00	29	29	-	-	-	2.926	HORI
459	Beam	312	319	0.00	29	29	-	-	-	2.926	HORI
460	Beam	313	323	0.00	19	19	-	-	-	2.786	HORI
461	Beam	316	314	0.00	22	22	-	-	-	0.425	HORI
462	Beam	316	315	90.00	31	31	-	-	-	5.500	VERT
463	Beam	317	316	0.00	22	22	-	-	-	0.219	HORI
464	Beam	242	253	0.00	29	29	-	-	-	1.741	HORI
465	Beam	319	317	0.00	22	22	-	-	-	1.081	HORI
466	Beam	320	319	0.00	22	22	-	-	-	1.081	HORI
467	Beam	321	315	90.00	28	28	-	-	-	2.600	HORI
468	Beam	322	320	0.00	22	22	-	-	-	0.219	HORI
469	Beam	322	321	90.00	31	31	-	-	-	5.500	VERT
470	Beam	323	322	0.00	22	22	-	-	-	0.425	HORI
471	Beam	314	324	0.00	19	19	-	-	-	2.500	HORI
472	Beam	319	325	0.00	29	29	-	-	-	2.626	HORI
473	Beam	319	326	0.00	29	29	-	-	-	2.626	HORI
474	Beam	323	327	0.00	19	19	-	-	-	2.500	HORI
475	Beam	325	324	0.00	41	41	-	-	-	0.923	HORI
476	Beam	326	325	0.00	41	41	-	-	-	1.605	HORI

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ELEMENTS

Elem No	Elem Type	Nodes		Beta [°]	Section		Hinge		Part No	Length [m]	Elem Location
		Begin	End		Begin	End	Begin	End			
477	Beam	327	326	0.00	41	41	-	-	-	0.923	HORI
478	Beam	315	331	0.00	21	21	-	-	-	5.286	HORI
479	Beam	316	331	90.00	33	33	-	-	-	7.628	GENL
481	Beam	321	334	0.00	21	21	-	-	-	5.286	HORI
482	Beam	322	334	90.00	33	33	-	-	-	7.628	GENL
483	Beam	324	328	0.00	19	19	-	-	-	2.610	HORI
484	Beam	325	328	0.00	29	29	-	-	-	2.768	HORI
485	Beam	326	329	0.00	29	29	-	-	-	2.768	HORI
486	Beam	327	329	0.00	19	19	-	-	-	2.610	HORI
487	Beam	328	330	0.00	19	19	-	-	-	0.176	HORI
488	Beam	329	336	0.00	19	19	-	-	-	0.176	HORI
489	Beam	332	330	0.00	22	22	-	-	-	0.425	HORI
490	Beam	332	331	90.00	31	31	-	-	-	5.500	VERT
491	Beam	333	332	0.00	22	22	-	-	-	1.300	HORI
492	Beam	331	334	0.00	28	28	-	-	-	2.600	HORI
493	Beam	335	333	0.00	22	22	-	-	-	1.300	HORI
494	Beam	335	334	90.00	31	31	-	-	-	5.500	VERT
495	Beam	336	335	0.00	22	22	-	-	-	0.425	HORI
496	Beam	330	337	0.00	19	19	-	-	-	0.174	HORI
497	Beam	336	338	0.00	19	19	-	-	-	0.174	HORI
498	Beam	337	339	0.00	29	29	-	-	-	2.469	HORI
499	Beam	338	340	0.00	29	29	-	-	-	2.469	HORI
500	Beam	337	341	0.00	19	19	-	-	-	2.325	HORI
501	Beam	338	344	0.00	19	19	-	-	-	2.325	HORI
502	Beam	331	345	0.00	21	21	-	-	-	5.285	HORI
503	Beam	334	346	0.00	21	21	-	-	-	5.285	HORI
504	Beam	332	345	90.00	33	33	-	-	-	7.628	GENL
506	Beam	335	346	90.00	33	33	-	-	-	7.628	GENL
507	Beam	241	253	0.00	29	29	-	-	-	1.741	HORI
510	Beam	341	347	0.00	19	19	-	-	-	0.661	HORI
511	Beam	344	348	0.00	19	19	-	-	-	0.661	HORI
512	Beam	339	429	0.00	29	29	-	-	-	2.926	HORI
513	Beam	340	429	0.00	29	29	-	-	-	2.926	HORI
514	Beam	347	369	0.00	19	19	-	-	-	2.125	HORI
515	Beam	348	370	0.00	19	19	-	-	-	2.125	HORI
518	Beam	355	349	0.00	69	69	-	-	-	0.025	HORI
519	Beam	356	350	0.00	69	69	-	-	-	0.025	HORI
520	Beam	361	351	0.00	69	69	-	-	-	0.025	HORI
521	Beam	362	352	90.00	69	69	-	-	-	0.025	HORI
522	Beam	355	353	90.00	72	72	-	-	-	0.198	HORI
523	Beam	356	354	90.00	72	72	-	-	-	0.198	HORI
524	Beam	357	355	90.00	72	72	-	-	-	0.198	HORI
525	Beam	358	356	90.00	72	72	-	-	-	0.198	HORI
526	Beam	359	361	90.00	72	72	-	-	-	0.198	HORI
527	Beam	362	360	90.00	72	72	-	-	-	0.198	HORI
528	Beam	361	363	90.00	72	72	-	-	-	0.198	HORI
529	Beam	364	362	90.00	72	72	-	-	-	0.198	HORI
530	Beam	365	355	0.00	69	69	-	-	-	0.067	HORI
531	Beam	366	356	0.00	69	69	-	-	-	0.067	HORI
532	Beam	367	361	0.00	69	69	-	-	-	0.067	HORI
533	Beam	368	362	90.00	69	69	-	-	-	0.067	HORI
534	Beam	371	353	90.00	70	71	-	-	-	0.135	HORI
535	Beam	365	366	360.00	73	73	3	3	-	1.000	VERT
536	Beam	373	357	90.00	70	71	-	-	-	0.135	HORI
537	Beam	374	359	90.00	70	71	-	-	-	0.135	HORI
538	Beam	368	367	180.00	73	73	3	3	-	1.000	VERT
539	Beam	376	363	90.00	70	71	-	-	-	0.135	HORI
540	Beam	377	354	90.00	70	71	-	-	-	0.185	HORI
541	Beam	379	358	90.00	70	71	-	-	-	0.185	HORI
542	Beam	380	360	90.00	70	71	-	-	-	0.185	HORI
543	Beam	382	364	90.00	70	71	-	-	-	0.185	HORI
544	Beam	372	365	0.00	69	69	-	-	-	0.068	HORI
545	Beam	375	367	0.00	69	69	-	-	-	0.068	HORI
546	Beam	378	366	0.00	69	69	-	-	-	0.118	HORI
547	Beam	381	368	90.00	69	69	-	-	-	0.118	HORI
548	Beam	372	371	0.00	49	49	-	-	-	0.198	HORI
549	Beam	372	373	0.00	49	49	-	-	-	0.198	HORI
550	Beam	375	374	0.00	49	49	-	-	-	0.198	HORI
551	Beam	375	376	0.00	49	49	-	-	-	0.198	HORI
552	Beam	378	377	0.00	49	49	-	-	-	0.198	HORI
553	Beam	378	379	0.00	49	49	-	-	-	0.198	HORI
554	Beam	381	380	90.00	49	49	-	-	-	0.198	HORI
555	Beam	381	382	90.00	49	49	-	-	-	0.198	HORI
558	Beam	389	372	0.00	49	49	-	-	-	0.330	HORI
559	Beam	459	375	0.00	49	49	-	-	-	0.330	HORI
560	Beam	392	378	0.00	49	49	-	-	-	0.280	HORI
561	Beam	462	381	90.00	49	49	-	-	-	0.280	HORI
564	Beam	386	385	0.00	1	1	-	-	-	0.500	VERT
565	Beam	385	388	0.00	1	1	-	-	-	1.125	HORI
566	Beam	388	387	0.00	1	1	1	-	-	0.350	VERT
567	Beam	387	393	0.00	1	1	-	-	-	1.125	HORI
568	Beam	388	394	0.00	1	1	-	-	-	1.125	HORI
569	Beam	389	390	0.00	49	49	-	-	-	0.440	VERT
570	Beam	390	391	0.00	69	69	4	-	-	0.055	VERT
571	Beam	391	392	0.00	49	49	-	-	-	0.505	VERT
572	Beam	393	392	0.00	1	1	-	-	-	0.480	VERT
573	Beam	395	394	0.00	1	1	-	-	-	0.500	VERT
574	Beam	397	389	0.00	49	49	-	-	-	0.141	HORI
575	Beam	397	396	0.00	1	1	-	-	-	0.181	GENL
576	Beam	398	397	0.00	92	90	-	-	-	7.000	GENL
577	Beam	393	399	0.00	1	1	-	-	-	2.250	HORI

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ELEMENTS

Elem No	Elem Type	Nodes		Beta [°]	Section		Hinge		Part No	Length [m]	Elem Location
		Begin	End		Begin	End	Begin	End			
578	Beam	400	399	0.00	1	1	-	-	-	0.850	VERT
580	Beam	418	396	0.00	67	68	-	-	-	5.054	GENL
581	Beam	402	403	90.00	81	82	-	-	-	0.270	VERT
582	Beam	405	402	90.00	80	80	-	-	-	0.057	HORI
583	Beam	404	405	90.00	83	84	-	2	-	0.270	VERT
584	Beam	407	403	90.00	49	49	-	-	-	0.122	HORI
585	Beam	406	405	90.00	80	80	-	-	-	0.065	HORI
586	Beam	407	406	-180.00	86	85	-	-	-	0.276	GENL
587	Beam	411	401	0.00	89	94	-	-	-	7.000	GENL
588	Beam	409	404	90.00	49	49	-	-	-	0.785	HORI
589	Beam	410	407	90.00	49	49	-	-	-	0.721	HORI
590	Beam	408	409	90.00	87	87	-	-	-	1.370	VERT
591	Beam	410	411	90.00	79	79	-	-	-	0.465	VERT
592	Beam	413	410	90.00	49	49	-	-	-	0.720	HORI
593	Beam	414	409	90.00	49	49	-	-	-	0.785	HORI
594	Beam	413	412	180.00	86	85	-	-	-	0.276	GENL
595	Beam	415	412	90.00	80	80	-	-	-	0.064	HORI
596	Beam	417	413	90.00	49	49	-	-	-	0.122	HORI
597	Beam	414	415	90.00	83	84	-	2	-	0.270	VERT
598	Beam	416	415	90.00	80	80	-	-	-	0.057	HORI
599	Beam	416	417	90.00	81	82	-	-	-	0.270	VERT
600	Beam	424	408	0.00	7	7	-	-	-	5.600	HORI
601	Beam	419	418	0.00	67	67	-	-	-	3.794	HORI
602	Beam	419	420	90.00	49	49	-	-	-	0.500	VERT
603	Beam	420	421	90.00	76	76	-	-	-	0.370	VERT
604	Beam	421	422	90.00	76	76	-	-	-	1.442	VERT
605	Beam	426	424	0.00	7	7	-	-	-	0.400	HORI
606	Beam	428	369	0.00	23	23	-	-	-	0.808	HORI
607	Beam	345	426	0.00	1	1	-	-	-	1.260	VERT
608	Beam	427	426	0.00	7	7	-	-	-	0.383	HORI
609	Beam	428	427	0.00	26	26	-	-	-	4.240	VERT
610	Beam	429	428	0.00	23	23	-	-	-	0.917	HORI
611	Beam	346	345	0.00	1	1	-	-	-	2.600	HORI
612	Beam	430	427	0.00	7	7	-	-	-	1.834	HORI
613	Beam	431	429	0.00	23	23	-	-	-	0.917	HORI
614	Beam	431	430	0.00	26	26	-	-	-	4.240	VERT
615	Beam	433	430	0.00	7	7	-	-	-	0.383	HORI
616	Beam	433	346	0.00	1	1	-	-	-	1.260	VERT
617	Beam	370	431	0.00	23	23	-	-	-	0.808	HORI
618	Beam	434	433	0.00	7	7	-	-	-	0.400	HORI
619	Beam	436	419	0.00	67	67	-	-	-	8.766	HORI
620	Beam	443	434	0.00	7	7	-	-	-	5.600	HORI
621	Beam	437	438	90.00	81	82	-	-	-	0.270	VERT
622	Beam	440	437	0.00	80	80	-	-	-	0.058	HORI
623	Beam	439	440	90.00	83	84	-	2	-	0.270	VERT
624	Beam	442	438	0.00	49	49	-	-	-	0.122	HORI
625	Beam	441	440	0.00	80	80	-	-	-	0.064	HORI
626	Beam	441	442	-180.00	85	86	-	-	-	0.276	GENL
627	Beam	444	439	0.00	49	49	-	-	-	0.785	HORI
628	Beam	445	442	0.00	49	49	-	-	-	0.720	HORI
629	Beam	443	444	90.00	87	87	-	-	-	1.370	VERT
630	Beam	445	446	90.00	79	79	-	-	-	0.465	VERT
631	Beam	448	445	0.00	49	49	-	-	-	0.721	HORI
632	Beam	449	444	0.00	49	49	-	-	-	0.785	HORI
633	Beam	446	453	0.00	89	94	-	-	-	7.000	GENL
634	Beam	447	448	180.00	85	86	-	-	-	0.276	GENL
635	Beam	450	447	0.00	80	80	-	-	-	0.064	HORI
636	Beam	452	448	0.00	49	49	-	-	-	0.122	HORI
637	Beam	449	450	90.00	83	84	-	2	-	0.270	VERT
638	Beam	451	450	0.00	80	80	-	-	-	0.057	HORI
639	Beam	451	452	90.00	81	82	-	-	-	0.270	VERT
640	Beam	458	436	0.00	68	67	-	-	-	5.222	GENL
641	Beam	14	20	0.00	17	17	-	-	-	1.700	HORI
642	Beam	455	454	0.00	1	1	-	-	-	0.850	VERT
643	Beam	463	454	0.00	1	1	-	-	-	2.250	HORI
644	Beam	456	457	0.00	92	90	-	-	-	7.000	GENL
645	Beam	457	458	0.00	1	1	-	-	-	0.181	GENL
646	Beam	457	459	0.00	49	49	-	-	-	0.141	HORI
647	Beam	459	460	0.00	49	49	-	-	-	0.440	VERT
648	Beam	460	461	0.00	69	69	4	-	-	0.055	VERT
649	Beam	461	462	0.00	49	49	-	-	-	0.505	VERT
650	Beam	463	462	0.00	1	1	-	-	-	0.480	VERT
651	Beam	465	464	0.00	1	1	-	-	-	0.500	VERT
652	Beam	466	463	0.00	1	1	-	-	-	1.125	HORI
653	Beam	467	464	0.00	1	1	-	-	-	1.125	HORI
654	Beam	467	466	0.00	1	1	1	-	-	0.350	VERT
655	Beam	468	467	0.00	1	1	-	-	-	1.125	HORI
656	Beam	469	468	0.00	1	1	-	-	-	0.500	VERT
657	Beam	392	471	0.00	49	49	-	-	-	0.280	HORI
658	Beam	462	474	90.00	49	49	-	-	-	0.280	HORI
659	Beam	389	477	0.00	49	49	-	-	-	0.330	HORI
660	Beam	459	480	0.00	49	49	-	-	-	0.330	HORI
661	Beam	369	482	0.00	19	19	-	-	-	0.355	HORI
662	Beam	370	483	0.00	19	19	-	-	-	0.355	HORI
663	Beam	471	470	0.00	49	49	-	-	-	0.198	HORI
664	Beam	471	472	0.00	49	49	-	-	-	0.198	HORI
665	Beam	474	473	90.00	49	49	-	-	-	0.198	HORI
666	Beam	474	475	90.00	49	49	-	-	-	0.198	HORI
667	Beam	477	476	0.00	49	49	-	-	-	0.198	HORI
668	Beam	477	478	0.00	49	49	-	-	-	0.198	HORI
669	Beam	480	479	90.00	49	49	-	-	-	0.198	HORI

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ELEMENTS

Elem No	Elem Type	Nodes		Beta [°]	Section		Hinge		Part No	Length [m]	Elem Location
		Begin	End		Begin	End	Begin	End			
670	Beam	481	480	90.00	49	49	-	-	-	0.198	HORI
671	Beam	471	485	0.00	69	69	-	-	-	0.118	HORI
672	Beam	474	487	90.00	69	69	-	-	-	0.118	HORI
673	Beam	477	484	0.00	69	69	-	-	-	0.068	HORI
674	Beam	480	486	0.00	69	69	-	-	-	0.068	HORI
675	Beam	470	489	90.00	70	71	-	-	-	0.185	HORI
676	Beam	472	493	90.00	70	71	-	-	-	0.185	HORI
677	Beam	473	495	90.00	70	71	-	-	-	0.185	HORI
678	Beam	475	499	90.00	70	71	-	-	-	0.185	HORI
679	Beam	476	488	90.00	70	71	-	-	-	0.135	HORI
680	Beam	484	485	180.00	73	73	3	3	-	1.000	VERT
681	Beam	478	492	90.00	70	71	-	-	-	0.135	HORI
682	Beam	479	494	90.00	70	71	-	-	-	0.135	HORI
683	Beam	486	487	180.00	73	73	3	3	-	1.000	VERT
684	Beam	481	498	90.00	70	71	-	-	-	0.135	HORI
685	Beam	484	490	0.00	69	69	-	-	-	0.067	HORI
686	Beam	485	491	0.00	69	69	-	-	-	0.067	HORI
687	Beam	486	496	0.00	69	69	-	-	-	0.067	HORI
688	Beam	487	497	90.00	69	69	-	-	-	0.067	HORI
689	Beam	490	488	90.00	72	72	-	-	-	0.198	HORI
690	Beam	491	489	90.00	72	72	-	-	-	0.198	HORI
691	Beam	492	490	90.00	72	72	-	-	-	0.198	HORI
692	Beam	493	491	90.00	72	72	-	-	-	0.198	HORI
693	Beam	496	494	90.00	72	72	-	-	-	0.198	HORI
694	Beam	497	495	90.00	72	72	-	-	-	0.198	HORI
695	Beam	498	496	90.00	72	72	-	-	-	0.198	HORI
696	Beam	499	497	90.00	72	72	-	-	-	0.198	HORI
697	Beam	490	500	0.00	69	69	-	-	-	0.025	HORI
698	Beam	491	501	0.00	69	69	-	-	-	0.025	HORI
699	Beam	496	502	0.00	69	69	-	-	-	0.025	HORI
700	Beam	497	503	90.00	69	69	-	-	-	0.025	HORI
701	Beam	482	504	0.00	19	19	-	-	-	1.770	HORI
702	Beam	483	505	0.00	19	19	-	-	-	1.770	HORI
703	Beam	482	507	0.00	44	44	-	-	-	2.288	HORI
704	Beam	483	508	0.00	44	44	-	-	-	2.288	HORI
705	Beam	504	506	0.00	19	19	-	-	-	0.375	HORI
706	Beam	505	509	0.00	19	19	-	-	-	0.375	HORI
707	Beam	507	506	0.00	41	41	-	-	-	0.797	HORI
708	Beam	345	511	0.00	21	21	-	-	-	5.000	HORI
709	Beam	345	512	90.00	33	33	-	-	-	7.433	GENL
711	Beam	508	507	0.00	41	41	-	-	-	1.857	HORI
712	Beam	346	514	0.00	21	21	-	-	-	5.000	HORI
713	Beam	346	515	90.00	33	33	-	-	-	7.433	GENL
714	Beam	509	508	0.00	41	41	-	-	-	0.797	HORI
715	Beam	506	510	0.00	19	19	-	-	-	2.500	HORI
716	Beam	507	513	0.00	44	44	-	-	-	2.667	HORI
717	Beam	508	513	0.00	44	44	-	-	-	2.667	HORI
718	Beam	509	516	0.00	19	19	-	-	-	2.500	HORI
719	Beam	512	510	0.00	22	22	-	-	-	0.425	HORI
720	Beam	512	511	90.00	96	96	-	-	-	5.500	VERT
721	Beam	513	512	0.00	22	22	-	-	-	1.300	HORI
722	Beam	515	513	0.00	22	22	-	-	-	1.300	HORI
723	Beam	515	514	90.00	96	96	-	-	-	5.500	VERT
724	Beam	516	515	0.00	22	22	-	-	-	0.425	HORI
725	Beam	510	517	0.00	19	19	-	-	-	1.500	HORI
726	Beam	511	518	0.00	21	21	-	-	-	1.500	HORI
727	Beam	514	519	0.00	21	21	-	-	-	1.500	HORI
728	Beam	516	520	0.00	19	19	-	-	-	1.500	HORI
729	Beam	513	522	0.00	29	29	-	-	-	2.655	HORI
730	Beam	513	523	0.00	29	29	-	-	-	2.655	HORI
731	Beam	517	521	0.00	17	17	-	-	-	1.000	HORI
732	Beam	520	524	0.00	17	17	-	-	-	1.000	HORI
733	Beam	522	521	0.00	41	41	-	-	-	0.831	HORI
734	Beam	511	529	90.00	33	33	-	-	-	7.433	GENL
736	Beam	523	522	0.00	41	41	-	-	-	1.788	HORI
737	Beam	514	531	90.00	33	33	-	-	-	7.433	GENL
738	Beam	524	523	0.00	41	41	-	-	-	0.831	HORI
739	Beam	518	528	0.00	18	18	-	-	-	3.500	HORI
740	Beam	519	530	0.00	18	18	-	-	-	3.500	HORI
741	Beam	521	525	0.00	17	17	-	-	-	2.325	HORI
742	Beam	522	525	0.00	29	29	-	-	-	2.469	HORI
743	Beam	523	526	0.00	29	29	-	-	-	2.469	HORI
744	Beam	524	526	0.00	17	17	-	-	-	2.325	HORI
745	Beam	525	527	0.00	17	17	-	-	-	0.175	HORI
746	Beam	526	532	0.00	17	17	-	-	-	0.175	HORI
747	Beam	529	527	0.00	22	22	-	-	-	0.425	HORI
748	Beam	529	528	90.00	96	96	-	-	-	5.500	VERT
749	Beam	530	528	-90.00	28	28	-	-	-	2.600	HORI
750	Beam	531	529	0.00	22	22	-	-	-	2.600	HORI
751	Beam	531	530	90.00	96	96	-	-	-	5.500	VERT
752	Beam	532	531	0.00	22	22	-	-	-	0.425	HORI
753	Beam	527	533	0.00	17	17	-	-	-	0.175	HORI
754	Beam	532	534	0.00	17	17	-	-	-	0.175	HORI
755	Beam	533	535	0.00	17	17	-	-	-	2.325	HORI
756	Beam	533	536	0.00	29	29	-	-	-	2.469	HORI
757	Beam	534	537	0.00	29	29	-	-	-	2.469	HORI
758	Beam	534	538	0.00	17	17	-	-	-	2.325	HORI
759	Beam	536	535	0.00	41	41	-	-	-	0.831	HORI
760	Beam	528	540	0.00	18	18	-	-	-	5.000	HORI
761	Beam	528	541	90.00	33	33	-	-	-	7.433	GENL
763	Beam	537	536	0.00	41	41	-	-	-	1.788	HORI

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ELEMENTS

Elem No	Elem Type	Nodes		Beta [°]	Section		Hinge		Part No	Length [m]	Elem Location
		Begin	End		Begin	End	Begin	End			
764	Beam	530	546	0.00	18	18	-	-	-	5.000	HORI
765	Beam	530	547	90.00	33	33	-	-	-	7.433	GENL
766	Beam	538	537	0.00	41	41	-	-	-	0.831	HORI
767	Beam	535	539	0.00	17	17	-	-	-	2.500	HORI
768	Beam	536	544	0.00	29	29	-	-	-	2.655	HORI
769	Beam	537	544	0.00	29	29	-	-	-	2.655	HORI
770	Beam	538	548	0.00	17	17	-	-	-	2.500	HORI
771	Beam	541	539	0.00	22	22	-	-	-	0.425	HORI
772	Beam	541	540	90.00	30	30	-	-	-	5.500	VERT
773	Beam	542	541	0.00	22	22	-	-	-	0.219	HORI
775	Beam	544	542	0.00	22	22	-	-	-	1.081	HORI
776	Beam	545	544	0.00	22	22	-	-	-	1.081	HORI
777	Beam	546	543	90.00	97	97	-	-	-	1.300	HORI
778	Beam	547	545	0.00	22	22	-	-	-	0.219	HORI
779	Beam	547	546	90.00	30	30	-	-	-	5.500	VERT
780	Beam	548	547	0.00	22	22	-	-	-	0.425	HORI
781	Beam	539	549	0.00	17	17	-	-	-	0.875	HORI
782	Beam	548	550	0.00	17	17	-	-	-	0.875	HORI
783	Beam	544	552	0.00	29	29	-	-	-	2.655	HORI
784	Beam	544	553	0.00	29	29	-	-	-	2.655	HORI
785	Beam	549	551	0.00	17	17	-	-	-	1.625	HORI
786	Beam	550	554	0.00	17	17	-	-	-	1.625	HORI
787	Beam	552	551	0.00	41	41	-	-	-	0.831	HORI
788	Beam	540	558	90.00	33	33	-	-	-	7.433	GENL
789	Beam	553	552	0.00	41	41	-	-	-	1.788	HORI
790	Beam	546	559	90.00	33	33	-	-	-	7.433	GENL
791	Beam	554	553	0.00	41	41	-	-	-	0.831	HORI
792	Beam	551	555	0.00	17	17	-	-	-	2.325	HORI
793	Beam	552	555	0.00	29	29	-	-	-	2.469	HORI
794	Beam	553	556	0.00	29	29	-	-	-	2.469	HORI
795	Beam	554	556	0.00	17	17	-	-	-	2.325	HORI
796	Beam	555	557	0.00	17	17	-	-	-	0.175	HORI
797	Beam	556	560	0.00	17	17	-	-	-	0.175	HORI
798	Beam	558	557	0.00	22	22	-	-	-	0.425	HORI
799	Beam	559	558	0.00	22	22	-	-	-	2.600	HORI
800	Beam	560	559	0.00	22	22	-	-	-	0.425	HORI
801	Beam	557	565	0.00	17	17	-	-	-	0.125	HORI
802	Beam	560	566	0.00	17	17	-	-	-	0.125	HORI
803	Beam	401	398	0.00	95	91	-	-	-	12.832	GENL
804	Beam	453	456	0.00	95	91	-	-	-	12.832	GENL
806	Beam	15	21	0.00	17	17	-	-	-	1.700	HORI
807	Beam	563	240	0.00	19	19	-	-	-	1.518	HORI
808	Beam	564	243	0.00	19	19	-	-	-	1.518	HORI
811	Beam	292	309	0.00	19	19	-	-	-	2.269	HORI
812	Beam	289	308	0.00	19	19	-	-	-	2.269	HORI
821	Beam	306	310	0.00	19	19	-	-	-	2.325	HORI
822	Beam	307	313	0.00	19	19	-	-	-	2.325	HORI
825	Beam	339	341	0.00	41	41	-	-	-	0.831	HORI
826	Beam	340	339	0.00	41	41	-	-	-	1.788	HORI
827	Beam	344	340	0.00	41	41	-	-	-	0.831	HORI
828	Beam	565	561	0.00	17	17	-	-	-	0.875	HORI
829	Beam	566	562	0.00	17	17	-	-	-	0.875	HORI
830	Beam	41	38	-90.00	28	28	-	-	-	2.600	HORI
831	Beam	514	511	0.00	28	28	-	-	-	2.600	HORI
832	Beam	86	85	0.00	41	41	-	-	-	1.261	HORI
833	Beam	543	540	90.00	97	97	-	-	-	1.300	HORI
834	Beam	88	87	0.00	41	41	-	-	-	1.261	HORI
836	Beam	87	86	0.00	41	41	-	-	-	0.927	HORI
837	Beam	241	240	0.00	41	41	-	-	-	1.150	HORI
839	Beam	243	242	0.00	41	41	-	-	-	1.150	HORI
841	Beam	249	252	0.00	41	41	-	-	-	2.589	HORI
842	Beam	574	249	0.00	41	41	-	-	-	0.431	HORI
844	Beam	252	571	0.00	41	41	-	-	-	0.431	HORI
845	Beam	242	241	0.00	41	41	-	-	-	1.150	HORI
846	Beam	181	244	0.00	29	29	-	-	-	5.890	HORI
847	Beam	244	270	0.00	29	29	-	-	-	5.891	HORI
848	Beam	270	280	0.00	28	28	-	-	-	5.891	HORI
849	Beam	280	303	0.00	28	28	-	-	-	5.890	HORI
850	Beam	303	315	0.00	28	28	-	-	-	5.891	HORI
851	Beam	315	334	0.00	28	28	-	-	-	5.891	HORI
852	Beam	334	345	0.00	28	28	-	-	-	5.890	HORI
853	Beam	345	514	0.00	29	29	-	-	-	5.636	HORI
854	Beam	528	546	0.00	44	29	-	-	-	5.636	HORI
855	Beam	514	528	0.00	44	44	-	-	-	5.636	HORI
856	Beam	29	26	0.00	100	100	-	-	-	5.652	GENL
857	Beam	26	24	0.00	100	100	-	-	-	5.652	GENL
858	Beam	318	304	0.00	100	100	-	-	-	5.652	GENL
859	Beam	318	301	0.00	100	100	-	-	-	5.652	GENL
860	Beam	543	547	0.00	100	100	-	-	-	5.652	GENL
861	Beam	543	541	0.00	100	100	-	-	-	5.652	GENL

SUPPORTS

Support No	Supported Nodes	Rotation [°]		Fixed Support/Support Spring [kN/m] [kNm/rad]					
		Alpha	Beta	in X	in Y	in Z	ar X	ar Y	ar Z
1	205,469	0.0	0.0	Yes	Yes	Yes	No	No	No
2	147,156,162,191,201,386,	0.0	0.0	Yes	No	Yes	No	No	No

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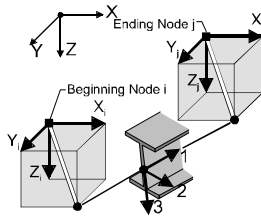
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SUPPORTS

Support No	Supported Nodes	Rotation [°]		Fixed Support/Support Spring [kN/m] [kNm/rad]					
		Alpha	Beta	in X	in Y	in Z	ar X	ar Y	ar Z
	395,400,455,465								

Eccentric Connections



ECCENTRICITIES

Ecc No	Eccentricity at Elements	Elem Side	Eccentricity in Direction		
			X [m]	Y [m]	Z [m]
27	20,22,24,46,50,53,75-77,154,155,363-365,392-394,418-420,449-451,475-477,707,711,714,733,736,738,759,763,766,787,789,791,825-827,832,834,836,837,839,841,842,844,845	Both	0.000	0.000	-0.224
43	153	Both	0.000	0.000	-0.224
48	268,640	End	0.000	0.000	0.130
49	244,263,601,619	Both	0.000	0.000	0.130
50	240,580	Begin	0.000	0.000	0.130
51	594	Begin	0.000	-0.056	0.000
52	586	Begin	0.000	0.056	0.000
53	634	End	0.000	-0.056	0.000
54	626	End	0.000	0.056	0.000

SETS OF ELEMENTS

Set No	Sets of Elements Description	Set of Elements Consists of Elements
5		633,804,644
6		576,803,587
9		511,515
10		510,514
11		728,732
12		725,731
13		372,376
14		371,375
15		415,431
16		414,430

LOADS

GENERAL DATA

LC No	LC Description	Factor	Combination Type	Dead Weight
1	Eigengewicht Konstruktionen	1.04	Permanent	1.00
2	Eigengewicht Konstruktionen und Einrichtung	1.00	Permanent	-
4	Hublast 57 t - POS 1	1.00	Variable	-
5	Hublast 57 t - POS 2	1.00	Variable	-
6	Hublast 57 t - POS 3	1.00	Variable	-
7	Hublast 57 t - POS 4	1.00	Variable	-
8	Hublast 57 t - POS 5	1.00	Variable	-
11	EG- Laufkatze- POS 1	1.00	Permanent	-
12	EG- Laufkatze- POS 2	1.00	Permanent	-
13	EG- Laufkatze- POS 3	1.00	Permanent	-
14	EG- Laufkatze- POS 4	1.00	Permanent	-
15	EG- Laufkatze- POS 5	1.00	Permanent	-
18	Portalkran Abbremsung in -Y, Laufkatze POS1	1.00	Variable	-
19	Portalkran Abbremsung in -Y, Laufkatze POS 2	1.00	Variable	-
20	Portalkran Abbremsung in -Y, Laufkatze POS 3	1.00	Variable	-
21	Portalkran Abbremsung in -Y, Laufkatze POS 4	1.00	Variable	-
22	Portalkran Abbremsung in -Y, Laufkatze POS 5	1.00	Variable	-
25	Kranbremsung in -Y, + Kon	1.00	Variable	-
				X=0.00 Y=-0.0387 Z=0.00
26	Laufkatze Abbremsung in +X,	1.00	Variable	-
27	Laufkatze Abbremsung in -X,	1.00	Variable	-
28	Massenkraefte- Kran (Kr)- Verschiebung DIN	1.00	Variable	-
30	Arbeitswind in Katzfahrrichtung +Wx,	1.00	Variable	-
31	Arbeitswind in Katzfahrrichtung -Wx,	-1.00	Variable	-
32	Arbeitswind in Kranfahrrichtung +Wy,	-1.00	Variable	-
33	Arbeitswind in Kranfahrrichtung -Wy,	1.00	Variable	-
43	Schraeglauf fuer Katze Ska - POS 1	1.00	Variable	-
44	Schraeglauf fuer Katze Ska - POS 2	1.00	Variable	-
45	Schraeglauf fuer Katze Ska - POS 3	1.00	Variable	-
46	Schraeglauf fuer Katze Ska - POS 4	1.00	Variable	-
47	Schraeglauf fuer Katze Ska - POS 5	1.00	Variable	-
50	Wind ausser Betrieb (+Wsx)	1.00	Variable	-
51	Wind ausser Betrieb (-Wsy)	1.00	Variable	-
52	Katze in Parkposition-bei FS ohne Last	1.00	Variable	-
60	Pufferkreaft bei Kranfahren an Konstruktion-P	1.50	Exceptional	-
				X=0.00 Y=-0.05515 Z=0.00

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GENERAL DATA

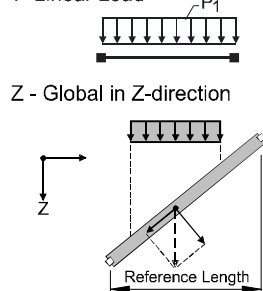
LC No	LC Description	Factor	Combination Type	Dead Weight
61	Pufferkrafte bei Kranfahren an Katze-Pu-POS	1.00	Exceptional	-
62	Pufferkrafte bei Kranfahren an Katze-Pu-POS	1.00	Exceptional	-
63	Pufferkrafte bei Kranfahren an Katze-Pu-POS	1.00	Exceptional	-
64	Pufferkrafte bei Kranfahren an Katze-Pu-POS	1.00	Exceptional	-
65	Pufferkrafte bei Kranfahren an Katze-Pu-POS	1.00	Exceptional	-
70	Pufferkrafte bei Katzfahren +Pux	1.00	Exceptional	-
71	Pufferkrafte bei Katzfahren -Pux	1.00	Exceptional	-
74	Hublast 57 t - POS 1-exzentrisch	1.00	Variable	-
75	Hublast 57 t - POS 2-exzentrisch	1.00	Variable	-
76	Hublast 57 t - POS 3-exzentrisch	1.00	Variable	-
77	Hublast 57 t - POS 4-exzentrisch	1.00	Variable	-
78	Hublast 57 t - POS 5-exzentrisch	1.00	Variable	-
80	Nur Hublast 41 t Pos 1	1.00	Variable	-
81	Nur Hublast 41 t Pos 3	1.00	Variable	-
82	Nur Hublast 41 t Pos 5	1.00	Variable	-
84	Massenkrafte- Kran -Bremskrafte-(Kr-NOT-AUS-HS)-Verschiebung DIN	1.00	Variable	-

NODAL FORCES

LC 2

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	174,181	0.000	0.000	60.000
5	154,199,393,463	0.000	0.000	150.000
6	188,189,192	0.000	0.000	33.000
7	160	0.000	0.000	50.000

1- Linear Load



ELEMENT LOADS

LC 2

No	Loaded Elements	Load type	Load Direction	Parameters [kN, kNm, m, °C, kN/m, kNm/m]	P ₁
1	4-9,14,15,18,19,29,30,40-42,45,54,57,66,69,78,79,94,95,101,102,107,108,115,118,129,132,143,144,151,152,161,162,215,216,289,290,329,332,336,337,341,342,347,348,359,362,371,372,375-378,386-388,391,400,403,414,415,430-433,441,442,447,448,457,460,471,474,483,486-488,496,497,500,501,510,511,514,515,641,661,662,701,702,705,706,715,718,725,728,731,732,741,744-746,753,755,758,767,770,781,782,785,786,792,795,797,801,802,806-808,811,812,821,822,828,829	1	Z	0.850	
2	4-9,14,15,18,19,29,30,40-42,45,54,57,66,69,78,79,94,95,101,102,107,108,115,118,129,132,143,144,151,152,161,162,215,216,289,290,329,332,336,337,341,342,347,348,359,362,371,372,375-378,386-388,391,400,403,414,415,430-433,441,442,447,448,457,460,471,474,483,486-488,496,497,500,501,510,511,514,515,641,661,662,701,702,705,706,715,718,725,728,731,732,741,744-746,753,755,758,767,770,781,782,785,786,792,795,797,801,802,806-808,811,812,821,822,828,829	1	Z	0.570	
3	5,7,9,15,19,30,41,45,57,69,79,95,102,108,118,132,144,152,162,216,290,332,336,342,347,348,362,372,376,378,387,391,403,415,431,433,442,448,460,474,486,488,497,501,511,515,662,702,706,718	1	Z	0.450	

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ELEMENT LOADS

LC 2

No	Loaded Elements	Load type	Load Direction	Parameters [kN, kNm, m, °C, kN/m, kNm/m]			
3	,728,732,744,746,754 ,758,770,782,786,795 ,797,802,806,808,811 ,822,829						

NODAL FORCES

LC 4

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	7,8,14,15	0.000	0.000	144.880

NODAL FORCES

LC 5

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	92,93,563,564	0.000	0.000	144.880

NODAL FORCES

LC 6

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	295,296,308,309	0.000	0.000	144.880

NODAL FORCES

LC 7

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	347,348,504,505	0.000	0.000	144.880

NODAL FORCES

LC 8

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	549,550,565,566	0.000	0.000	144.880

NODAL FORCES

LC 11

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	7,8,14,15	0.000	0.000	95.000

NODAL FORCES

LC 12

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	92,93,563,564	0.000	0.000	95.000

NODAL FORCES

LC 13

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	295,296,308,309	0.000	0.000	95.000

NODAL FORCES

LC 14

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	347,348,504,505	0.000	0.000	95.000

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NODAL FORCES

LC 15

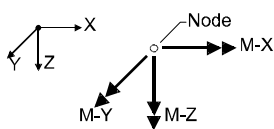
No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	549,550,565,566	0.000	0.000	95.000

NODAL FORCES

LC 18

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	7,8,14,15	0.000	-9.120	0.000

Global Nodal Moment



NODAL MOMENTS

LC 18

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	7,8,14,15	-3.670	0.000	0.000

NODAL FORCES

LC 19

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	92,93,563,564	0.000	-9.120	0.000

NODAL MOMENTS

LC 19

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	92,93,563,564	-3.670	0.000	0.000

NODAL FORCES

LC 20

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	295,296,308,309	0.000	-9.120	0.000

NODAL MOMENTS

LC 20

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	295,296,308,309	-3.670	0.000	0.000

NODAL FORCES

LC 21

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	347,348,504,505	0.000	-9.120	0.000

NODAL MOMENTS

LC 21

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	347,348,504,505	-3.670	0.000	0.000

NODAL FORCES

LC 22

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	549,550,565,566	0.000	-9.120	0.000

NODAL MOMENTS

LC 22

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	549,550,565,566	-3.670	0.000	0.000

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NODAL FORCES

LC 25

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	174,181	0.000	-22.800	0.000

NODAL FORCES

LC 26

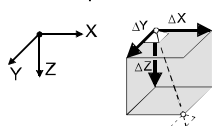
No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	295,296,308,309	22.940	0.000	0.000

NODAL FORCES

LC 27

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	295,296,308,309	-22.940	0.000	0.000

Imposed Displacement



IMPOSED DISPLACEMENTS

LC 28

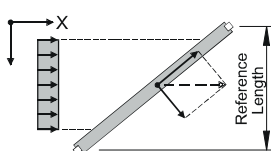
No	Displaced Nodes	Δ _X	Imposed Displacements [m] Δ _Y	Δ _Z
1	469	0.000	-0.200	0.000

NODAL FORCES

LC 30

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	174,181	6.700	0.000	0.000
2	14,15	2.250	0.000	0.000

X - Global in X-direction



ELEMENT LOADS

LC 30

No	Loaded Elements	Load type	Load Direction	Parameters [kN, kNm, m, °C, kN/m, kNm/m] P ₁		
1	32,38,380,384,435,439,453,456,462,469,748,751,772,779	1	X	0.353		
4	36,136,467,777,833	1	X	0.055		
5	10-13,58,60,61,63,250,257,261,379,381,383,385,434,436,438,440,461,463,465,466,468,470,606,610,613,617,747,750,752,798-800	1	X	0.207		
7	96,97,253,258,609,614	1	X	0.881		
8	240,244,263,268,580,601,619,640	1	X	0.431		
9	236,238,241,267,270,272,576,587,633,644,803,804	1	X	0.721		
10	90,91,236,243,245,264,265,272,600,605,615,618,620	1	X	0.894		
11	113,114	1	X	0.262		
12	267,270,272	1	X	0.750		

NODAL FORCES

LC 31

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	174,181	6.700	0.000	0.000
2	14,15	2.250	0.000	0.000

ELEMENT LOADS

LC 31

No	Loaded Elements	Load type	Load Direction	Parameters [kN, kNm, m, °C, kN/m, kNm/m] P ₁		
1	32,38,380,384,435,439,453,456,462,469,748,751,772,779	1	X	0.353		
4	36,136,467,777,833	1	X	0.055		
5	10-13,58,60,61,63,250,257,261,379,381,383	1	X	0.207		

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ELEMENT LOADS

LC 31

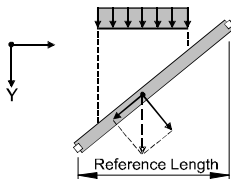
No	Loaded Elements	Load type	Load Direction	Parameters [kN, kNm, m, °C, kN/m, kNm/m]	P ₁		
5	,385,434,436,438,440 ,461,463,465,466,468 ,470,606,610,613,617 ,747,750,752,798-800						
7	96,97,253,258,609,614	1	X	0.881			
8	240,244,263,268,580,601 ,619,640	1	X	0.431			
9	236,238,241,267,270,272 ,576,587,633,644,803 ,804	1	X	0.721			
10	90,91,236,243,245,264 ,265,272,600,605,615 ,618,620	1	X	0.894			
11	113,114	1	X	0.262			
12	267,270,272	1	X	0.750			

NODAL FORCES

LC 32

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	174,181	0.000	-1.690	0.000
2	14,15	0.000	-2.250	0.000

Y - Global in Y-direction



ELEMENT LOADS

LC 32

No	Loaded Elements	Load type	Load Direction	Parameters [kN, kNm, m, °C, kN/m, kNm/m]	P ₁		
7	465	1	Y	-0.080			
8	51,65,74,100,121,135 ,158,334,369,398,424 ,455,481,503,712,727 ,740,764	1	Y	-0.144			
9	5,7,9,15,19,30,41,45,57 ,69,79,95,102,108,118 ,132,144,152,162,216 ,290,332,336,342,348 ,362,372,376,378,387 ,391,403,415,431,433 ,442,448,460,474,486 ,488,497,501,511,515 ,662,702,706,718,728 ,732,744,746,754,758 ,770,782,786,795,797 ,802,806,808,811,822 ,829	1	Y	-0.354			
10	4,6,8,14,18,29,40,42,54 ,66,78,94,101,107,115 ,129,143,151,161,215 ,289,329,337,341,347 ,359,371,375,377,386 ,388,400,414,430,432 ,441,447,457,471,483 ,487,496,500,510,514 ,641,661,701,705,715 ,725,731,741,745,753 ,755,767,781,785,792 ,796,801,807,812,821 ,828	1	Y	-0.053			
11	47,64,73,98,119,133,156 ,333,366,395,421,452 ,478,502,708,726,739 ,760	1	Y	-0.065			
12	21,23,32,36,38,48,52,59 ,62,70,72,123,127,136 ,338,340,350,357,367 ,370,380,384,396,399 ,405,412,422,425,435 ,439,453,456,462,469 ,479,482,490,494,504 ,506,709,713,720,723 ,734,737,748,751,761 ,765,772,777,779,788 ,790,833	1	Y	-0.112			
13	109,112,147,150	1	Y	-0.113			
14	84,97,258,260,614,616	1	Y	-0.133			
15	236,238,242,266,267,270 ,272,576,590,591,629 ,630,633,644,803,804	1	Y	-0.242			
16	590,591,629,630	1	Y	-0.242			
17	92,93,114,139,140	1	Y	-0.271			
18	141,142	1	Y	-0.222			
19	266,267,270	1	Y	-0.525			
20	113	1	Y	-0.271			
21	241	1	Y	-0.242			

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NODAL FORCES

LC 33

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	174,181	0.000	-1.690	0.000
2	14,15	0.000	-2.250	0.000

ELEMENT LOADS

LC 33

No	Loaded Elements	Load type	Load Direction	Parameters [kN, kNm, m, °C, kN/m, kNm/m]	P ₁		
7	465	1	Y	-0.080			
8	51,65,74,100,121,135 ,158,334,369,398,424 ,455,481,503,712,727 ,740,764	1	Y	-0.144			
9	5,7,9,15,19,30,41,45,57 ,69,79,95,102,108,118 ,132,144,152,162,216 ,290,332,336,342,348 ,362,372,376,378,387 ,391,403,415,431,433 ,442,448,460,474,486 ,488,497,501,511,515 ,662,702,706,718,728 ,732,744,746,754,758 ,770,782,786,795,797 ,802,806,808,811,822 ,829	1	Y	-0.354			
10	4,6,8,14,18,29,40,42,54 ,66,78,94,101,107,115 ,129,143,151,161,215 ,289,329,337,341,347 ,359,371,375,377,386 ,388,400,414,430,432 ,441,447,457,471,483 ,487,496,500,510,514 ,641,661,701,705,715 ,725,731,741,745,753 ,755,767,781,785,792 ,796,801,807,812,821 ,828	1	Y	-0.053			
11	47,64,73,98,119,133,156 ,333,366,395,421,452 ,478,502,708,726,739 ,760	1	Y	-0.065			
12	21,23,32,36,38,48,52,59 ,62,70,72,123,127,136 ,338,340,350,357,367 ,370,380,384,396,399 ,405,412,422,425,435 ,439,453,456,462,469 ,479,482,490,494,504 ,506,709,713,720,723 ,734,737,748,751,761 ,765,772,777,779,788 ,790,833	1	Y	-0.112			
13	109,112,147,150	1	Y	-0.113			
14	84,97,258,260,614,616	1	Y	-0.133			
15	236,238,242,266,267,270 ,272,576,590,591,629 ,630,633,644,803,804	1	Y	-0.242			
16	590,591,629,630	1	Y	-0.242			
17	92,93,114,139,140	1	Y	-0.271			
18	141,142	1	Y	-0.222			
19	266,267,270	1	Y	-0.525			
20	113	1	Y	-0.271			
21	241	1	Y	-0.242			

NODAL FORCES

LC 43

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	7,8	0.000	-51.930	0.000

NODAL MOMENTS

LC 43

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	7,8	-20.770	0.000	0.000

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NODAL FORCES

LC 44

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	563,564	0.000	-51.930	0.000

NODAL MOMENTS

LC 44

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	563,564	-20.770	0.000	0.000

NODAL FORCES

LC 45

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	295,296	0.000	-51.930	0.000

NODAL MOMENTS

LC 45

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	295,296	-22.770	0.000	0.000

NODAL FORCES

LC 46

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	517,520	0.000	-51.930	0.000

NODAL MOMENTS

LC 46

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	517,520	-20.770	0.000	0.000

NODAL FORCES

LC 47

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	565,566	0.000	-51.930	0.000

NODAL MOMENTS

LC 47

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	565,566	-20.770	0.000	0.000

NODAL FORCES

LC 50

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	174,181	19.800	0.000	0.000
2	563,564	6.050	0.000	0.000

ELEMENT LOADS

LC 50

No	Loaded Elements	Load type	Load Direction	Parameters [kN, kNm, m, °C, kN/m, kNm/m]	P ₁		
1	32,38,380,384,435,439,772,779	1	X	1.132			
3	410,467,749	1	X	0.176			
4	10-13,250,257,261,379,381,383,385,434,436,438,440,489,495,606,610,613,617,798-800	1	X	0.914			
6	96,97,253,258,609,614	1	X	3.875			
7	240,244,263,268,580,601,619,640	1	X	1.377			

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ELEMENT LOADS

LC 50

No	Loaded Elements	Load type	Load Direction	Parameters [kN, kNm, m, °C, kN/m, kNm/m] P ₁			
8	236,238,241,267,270,272,576,587,633,644,803,804	1	X	2.310			
9	90,91,243,245,264,265,600,620	1	X	3.936			
10	113,114	1	X	0.839			
11	267,270	1	X	2.400			

NODAL FORCES

LC 51

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	174,181	0.000	-4.950	0.000
2	563,564	0.000	-6.050	0.000

ELEMENT LOADS

LC 51

No	Loaded Elements	Load type	Load Direction	Parameters [kN, kNm, m, °C, kN/m, kNm/m] P ₁			
1	51,65,74,100,121,135,158,334,369,398,424,455,481,503,712,727,740,764	1	Y	-0.462			
2	47,64,73,98,119,133,156,333,366,395,421,452,478,502,708,726,739,760	1	Y	-0.208			
3	5,7,9,15,19,30,41,45,57,69,79,95,102,108,118,132,144,152,162,332,336,342,348,362,372,376,378,387,391,403,415,431,433,442,448,460,474,486,488,497,501,511,515,662,702,706,718,728,732,744,746,754,758,770,782,786,795,797,802,806,808,811,822,829	1	Y	-1.132			
4	4,6,8,14,18,29,40,42,54,66,78,94,101,107,115,129,143,151,161,329,337,341,347,359,371,375,377,386,388,400,414,430,432,441,447,457,471,483,487,496,500,510,514,641,661,701,705,715,725,731,741,745,753,755,767,781,785,792,796,801,807,812,821,828	1	Y	-0.169			
5	23,38,52,62,72,127,340,357,370,384,399,412,425,439,456,469,482,494,506,713,723,737,751,765,779,790	1	Y	-0.361			
6	21,32,48,59,70,123,338,350,367,380,396,405,422,435,453,462,479,490,504,709,720,734,748,761,772,788	1	Y	-0.307			
7	109,112,147,150	1	Y	-0.361			
8	84,97,258,260,614,616	1	Y	-0.426			
9	236,238,241,267,270,272,576,587,633,644,803,804	1	Y	-0.775			
10	113,114,139,140	1	Y	-0.866			
11	141,142	1	Y	-0.711			
12	267,270	1	Y	-1.680			
13	248,604	1	Y	-0.775			

NODAL FORCES

LC 52

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	92,93,563,564	0.000	0.000	137.380

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NODAL FORCES

LC 61

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	7,8,14,15	0.000	-12.980	0.000

NODAL MOMENTS

LC 61

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	7,8,14,15	-5.220	0.000	0.000

NODAL FORCES

LC 62

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	92,93,563,564	0.000	-12.980	0.000

NODAL MOMENTS

LC 62

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	92,93,563,564	-5.220	0.000	0.000

NODAL FORCES

LC 63

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	295,296,308,309	0.000	-12.980	0.000

NODAL MOMENTS

LC 63

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
2	295,296,308,309	-5.220	0.000	0.000

NODAL FORCES

LC 64

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	347,348,504,505	0.000	-12.980	0.000

NODAL MOMENTS

LC 64

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
2	347,348,504,505	-5.220	0.000	0.000

NODAL FORCES

LC 65

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	549,550,565,566	0.000	-12.980	0.000

NODAL MOMENTS

LC 65

No	Loaded Nodes	M _X [kNm]	Nodal Moments M _Y [kNm]	M _Z [kNm]
1	549,550,565,566	-5.220	0.000	0.000

NODAL FORCES

LC 70

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	565,566	111.610	0.000	0.000

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NODAL FORCES

LC 71

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
2	7,8	-111.610	0.000	0.000

NODAL FORCES

LC 74

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	8,15	0.000	0.000	72.090
2	7,14	0.000	0.000	217.670

NODAL FORCES

LC 75

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	93,564	0.000	0.000	72.090
2	92,563	0.000	0.000	217.670

NODAL FORCES

LC 76

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	296,309	0.000	0.000	72.090
2	295,308	0.000	0.000	217.670

NODAL FORCES

LC 77

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	348,505	0.000	0.000	72.090
2	347,504	0.000	0.000	217.670

NODAL FORCES

LC 78

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	550,566	0.000	0.000	72.090
2	549,565	0.000	0.000	217.670

NODAL FORCES

LC 80

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	7,8,14,15	0.000	0.000	102.500

NODAL FORCES

LC 81

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	295,296,308,309	0.000	0.000	102.500

NODAL FORCES

LC 82

No	Loaded Nodes	P _X [kN]	Nodal Forces P _Y [kN]	P _Z [kN]
1	549,550,565,566	0.000	0.000	102.500

IMPOSED DISPLACEMENTS

LC 84

No	Displaced Nodes	Δ _X	Imposed Displacements [m] Δ _Y	Δ _Z
1	469	0.000	-0.658	0.000

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LOAD COMBINATIONS

CO No	CO Description	Combination Criteria
1	LT+Zutritt +Hublast pos1+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF28
2	LT+Zutritt +Hublast pos2+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF19 + LF25 + LF28
3	LT+Zutritt +Hublast pos3+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF20 + LF25 + LF28
4	LT+Zutritt +Hublast pos4+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF21 + LF25 + LF28
5	LT+Zutritt +Hublast pos5+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF28
7	LT+Zutritt +Hublast pos1+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26
8	LT+Zutritt +Hublast pos2+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF26
9	LT+Zutritt +Hublast pos3+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF26
10	LT+Zutritt +Hublast pos4+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF26
11	LT+Zutritt +Hublast pos5+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26
13	LT+Zutritt +Hublast pos1 -exzentrisch+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.20*LF11 + LF18 + LF25 + 1.564*LF74 + LF28
14	LT+Zutritt +Hublast pos2 -exzentrisch+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.20*LF12 + LF19 + LF25 + 1.564*LF75 + LF28
15	LT+Zutritt +Hublast pos3 -exzentrisch+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.20*LF13 + LF20 + LF25 + 1.564*LF76 + LF28
16	LT+Zutritt +Hublast pos4 -exzentrisch+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.20*LF14 + LF21 + LF25 + 1.564*LF77 + LF28
17	LT+Zutritt +Hublast pos5 -exzentrisch+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.20*LF15 + LF22 + LF25 + 1.564*LF78 + LF28
20	LT+Zutritt +Hublast pos1+EGkatze+Kr + -Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF31
21	LT+Zutritt +Hublast pos2+EGkatze+Kr + -Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF19 + LF25 + LF31
22	LT+Zutritt +Hublast pos3+EGkatze+Kr + -Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF20 + LF25 + LF31
23	LT+Zutritt +Hublast pos4+EGkatze+Kr + -Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF21 + LF25 + LF31
24	LT+Zutritt +Hublast pos5+EGkatze+Kr + -Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF31
26	LT+Zutritt +Hublast pos1+EGkatze+Ka + -Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26 + LF30
27	LT+Zutritt +Hublast pos2+EGkatze+Ka + -Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF26 + LF30
28	LT+Zutritt +Hublast pos3+EGkatze+Ka + -Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF26 + LF30
29	LT+Zutritt +Hublast pos4+EGkatze+Ka + -Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF26 + LF30
30	LT+Zutritt +Hublast pos5+EGkatze+Ka + -Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26 + LF30
33	LT+Zutritt +Hublast pos1+EGkatze+Kr + -Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF33
34	LT+Zutritt +Hublast pos2+EGkatze+Kr + -Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF19 + LF25 + LF33
35	LT+Zutritt +Hublast pos3+EGkatze+Kr + -Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF20 + LF25 + LF33
36	LT+Zutritt +Hublast pos4+EGkatze+Kr + -Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF21 + LF25 + LF33
37	LT+Zutritt +Hublast pos5+EGkatze+Kr + -Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF33
39	LT+Zutritt +Hublast pos1+EGkatze+Ka + -Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26 + LF33
40	LT+Zutritt +Hublast pos2+EGkatze+Ka + -Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF26 + LF33
41	LT+Zutritt +Hublast pos3+EGkatze+Ka + -Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF26 + LF33
42	LT+Zutritt +Hublast pos4+EGkatze+Ka + -Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF26 + LF33
43	LT+Zutritt +Hublast pos5+EGkatze+Ka + -Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26 + LF33
58	LT+Zutritt +Hublast pos1+EGkatze +Wy +Ska	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF43 + LF33
59	LT+Zutritt +Hublast pos2+EGkatze +Wy +Ska	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF44 + LF33
60	LT+Zutritt +Hublast pos3+EGkatze +Wy +Ska	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF45 + LF33
61	LT+Zutritt +Hublast pos4+EGkatze +Wy +Ska	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF46 + LF33
62	LT+Zutritt +Hublast pos5+EGkatze +Wy +Ska	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF47 + LF33
65	LT+Zutritt +Katze im Parkposition + Sturmwind-Wx	LF1/S + LF2/S + LF52 + LF50
66	LT+Zutritt +Katze im Parkposition + Sturmwind-Wy	LF1/S + LF2/S + LF52 + LF51
67	LT+Zutritt +Hublast pos1+EGkatze +Puy -kran	1.20*LF1/S + 1.20*LF2/S + LF4 + 1.20*LF11 + 1.50*LF60 + 1.50*LF61
68	LT+Zutritt +Hublast pos2+EGkatze +Puy -kran	1.20*LF1/S + 1.20*LF2/S + LF5 + 1.20*LF12 + 1.50*LF60 + 1.50*LF62
69	LT+Zutritt +Hublast pos3+EGkatze +Puy -kran	1.20*LF1/S + 1.20*LF2/S + LF6 + 1.20*LF13 + 1.50*LF60 + 1.50*LF63
70	LT+Zutritt +Hublast pos4+EGkatze +Puy -kran	1.20*LF1/S + 1.20*LF2/S + LF7 + 1.20*LF14 + 1.50*LF60 + 1.50*LF64

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LOAD COMBINATIONS

CO No	CO Description	Combination Criteria
71	LT+Zutritt +Hubblast pos5+EGkatze +Puy -kran	1.20*LF1/S + 1.20*LF2/S + LF8 + 1.20*LF15 + 1.50*LF60 + 1.50*LF65
73	LT+Zutritt +Hubblast pos5+EGkatze +Pux -katze	1.20*LF1/S + 1.20*LF2/S + 1.20*LF15 + LF8 + 1.50*LF70
75	LT+Zutritt +Prufblast-klein pos1+EGkatze +Ka	1.20*LF1/S + 1.20*LF2/S + 1.602*LF4 + 1.20*LF11 + LF26
76	LT+Zutritt +Prufblast-klein pos3+EGkatze +Ka	1.20*LF1/S + 1.20*LF2/S + 1.602*LF6 + 1.20*LF13 + LF26
77	LT+Zutritt +Prufblast-klein pos5+EGkatze +Ka	1.20*LF1/S + 1.20*LF2/S + 1.602*LF8 + 1.20*LF15 + LF26
78	LT+Zutritt +Prufblast-gross pos1+EGkatze	LF1/S + LF2/S + 1.33*LF4 + LF11
79	LT+Zutritt +Prufblast-gross pos3+EGkatze	LF1/S + LF2/S + 1.33*LF6 + LF13
80	LT+Zutritt +Prufblast-gross pos5+EGkatze	LF1/S + LF2/S + 1.33*LF8 + LF15
82	LT+Zutritt +Hubblast pos1+EGkatze+Kr + -Wy+NOT-AUS	LF1/S + LF2/S + LF4 + LF11 + LF18 + LF25 + LF33 + LF84
83	LT+Zutritt +Hubblast pos3+EGkatze+Kr + -Wy+ NOT-AUS	LF1/S + LF2/S + LF6 + LF13 + LF20 + LF25 + LF33 + LF84
84	LT+Zutritt +Hubblast pos5+EGkatze+Kr + -Wy + NOT-AUS	LF1/S + LF2/S + LF8 + LF15 + LF22 + LF25 + LF33 + LF84
87	LT+Zutritt -netto	LF1/S + LF2/S
88	LT+Zutritt +Hubblast pos1+EGkatze -netto	LF1/S + LF2/S + LF4 + LF11
89	LT+Zutritt +Hubblast pos3+EGkatze -netto	LF1/S + LF2/S + LF7 + LF13
90	LT+Zutritt +Hubblast pos5+EGkatze -netto	LF1/S + LF2/S + LF8 + LF15
91	LT+Zutritt +EGkatze-pos 1	1.20*LF1/S + 1.20*LF2/S + 1.20*LF11
92	LT+Zutritt +EGkatze-pos 3	1.20*LF1/S + 1.20*LF2/S + 1.20*LF13
93	LT+Zutritt +EGkatze-pos 5	1.20*LF1/S + 1.20*LF2/S + 1.20*LF15
94	LT+Zutritt +EGkatze-pos 1-netto	LF1/S + LF2/S + LF11
95	LT+Zutritt +EGkatze-pos 3-netto	LF1/S + LF2/S + LF13
96	LT+Zutritt +EGkatze-pos 5-netto	LF1/S + LF2/S + LF15
97	EXTREM MAX/MIN Fall H	1.50*LK1 o 1.50*LK2 o 1.50*LK3 o 1.50*LK4 o 1.50*LK5 o 1.50*LK7 o 1.50*LK8 o 1.50*LK9 o 1.50*LK10 o 1.50*LK11 o 1.50*LK13 o 1.50*LK14 o 1.50*LK15 o 1.50*LK16 o 1.50*LK17
98	EXTREM MAX/MIN Fall HZ	1.35*LK20 o 1.35*LK21 o 1.35*LK22 o 1.35*LK23 o 1.35*LK24 o 1.35*LK26 o 1.35*LK27 o 1.35*LK28 o 1.35*LK29 o 1.35*LK30 o 1.35*LK33 o 1.35*LK34 o 1.35*LK35 o 1.35*LK36 o 1.35*LK37 o 1.35*LK39 o 1.35*LK40 o 1.35*LK41 o 1.35*LK42 o 1.35*LK43 o 1.35*LK58 o 1.35*LK59 o 1.35*LK60 o 1.35*LK61 o 1.35*LK62 o 1.35*LK65 o 1.35*LK66
99	EXTREM MAX/MIN Fall HS	1.10*LK67 o 1.10*LK68 o 1.10*LK69 o 1.10*LK70 o 1.10*LK71 o 1.10*LK73 o 1.10*LK75 o 1.10*LK76 o 1.10*LK77 o 1.10*LK78 o 1.10*LK79 o 1.10*LK80 o 1.10*LK82 o 1.10*LK83 o 1.10*LK84
100	EXTREM-netto	LK1 o LK2 o LK3 o LK4 o LK5 o LK7 o LK8 o LK9 o LK10 o LK11 o LK13 o LK14 o LK15 o LK16 o LK17 o LK20 o LK21 o LK22 o LK23 o LK24 o LK26 o LK27 o LK28 o LK29 o LK30 o LK33 o LK34 o LK35 o LK36 o LK37 o LK39 o LK40 o LK41 o LK42 o LK43 o LK58 o LK59 o LK60 o LK61 o LK62 o LK65 o LK66 o LK67 o LK68 o LK69 o LK70 o LK71 o LK73 o LK75 o LK76 o LK77 o LK78 o LK79 o LK80 o LK82 o LK83 o LK84

MAX/MIN/CORR INTERNAL FORCES BY SECTION

Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
Section No 1: Dummy Rigid									
251	CO98	.00	MAX	583.28	-160.15	-82.65	363.38	-70.50	2359.89
231	CO97	.00	MIN	-3895.02	.00	-34.99	3.49	-29.74	.09
			LC in Max: CO65 LC in Min: CO13						
251	CO97	.00	MAX	-3069.81	1247.48	10.39	135.66	344.16	-13054.4
80	CO99	.00	MIN	156.57	-565.51	-970.49	-143.09	1046.22	-729.05
			LC in Max: CO13 LC in Min: CO82						
226	CO97	.00	MAX	.00	25.81	2776.65	-21.94	.00	4.90
237	CO97	.00	MIN	.00	-9.18	-1388.37	7.80	3123.83	-20.64
			LC in Max: CO13 LC in Min: CO13						
616	CO99	.00	MAX	-1196.64	474.54	-20.27	472.76	-19.16	5585.02
255	CO99	.00	MIN	-498.69	-471.88	804.27	-686.61	6247.69	-631.20
			LC in Max: CO84 LC in Min: CO82						
255	CO98	.00	MAX	-1277.87	-165.31	-437.59	-59.13	14356.18	-394.01
255	CO98	.00	MIN	173.83	103.15	5.31	88.45	-2380.14	608.01
			LC in Max: CO20 LC in Min: CO65						
260	CO98	.00	MAX	-2533.48	1176.70	111.63	251.10	-115.59	15841.36
251	CO97	1.26	MIN	-2792.80	1205.08	11.20	146.65	404.16	-15087.4
			LC in Max: CO20 LC in Min: CO13						
Section No 2: Kasten(A) 770/15/10/710/803/770/15									
236	CO97	.00	MAX	.00	.00	.00	.00	.00	.00
236	CO97	1.02	MIN	-3863.85	22.64	162.67	152.48	878.28	32.99
			LC in Max: CO13						

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MAX/MIN/CORR INTERNAL FORCES BY SECTION

Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
272 236	CO98 CO98	.00 1.02	MAX MIN LC in Max: CO65 LC in Min: CO65	-1102.67 -1407.40	445.61 -408.46	15.26 -4.39	-6.17 10.00	162.70 211.64	-1072.99 -1021.98
236 272	CO98 CO97	.00 1.02	MAX MIN LC in Max: CO58 LC in Min: CO13	-3510.35 -3525.83	-40.70 -27.75	193.82 -77.53	-74.12 6.30	769.90 434.21	-125.16 89.99
236 272	CO99 CO98	.00 .00	MAX MIN LC in Max: CO84 LC in Min: CO58	-1235.36 -1304.55	159.62 -31.73	60.59 120.91	424.61 -91.34	332.86 -219.59	464.75 65.54
236 272	CO98 CO99	1.02 .00	MAX MIN LC in Max: CO58 LC in Min: CO82	-3515.55 -676.09	-40.70 140.92	193.43 147.61	-74.12 361.45	967.36 -393.90	-83.65 -261.09
272 272	CO98 CO98	1.02 1.02	MAX MIN LC in Max: CO20 LC in Min: CO65	-3068.29 -1098.37	-159.30 442.44	4.18 14.65	-38.60 -6.17	177.98 177.94	549.67 -1525.77
Section No 7: Kasten(A) 770/25/12/710/2540/770/25									
259 243	CO98 CO97	.00 1.72	MAX MIN LC in Max: CO20 LC in Min: CO1	654.95 -725.68	-81.63 8.51	384.35 -3409.64	213.84 -523.34	907.83 -5050.17	-14.43 52.80
600 262	CO98 CO98	.00 .00	MAX MIN LC in Max: CO65 LC in Min: CO65	-182.98 -13.59	75.33 -98.78	-796.42 -142.94	-74.74 -11.33	3584.55 -757.97	312.23 574.07
265 243	CO98 CO97	.00 1.72	MAX MIN LC in Max: CO20 LC in Min: CO1	-603.68 -725.68	24.31 8.51	3179.53 -3409.64	285.75 -523.34	-2592.31 -5050.17	-107.69 52.80
262 243	CO98 CO99	.00 .00	MAX MIN LC in Max: CO58 LC in Min: CO82	-399.02 -490.50	-1.43 21.77	2396.44 -2215.08	363.08 -791.32	14035.56 668.11	-52.39 227.55
262 243	CO98 CO99	.40 1.72	MAX MIN LC in Max: CO20 LC in Min: CO82	-521.75 -600.36	29.98 20.39	2917.82 -2470.82	329.44 -739.33	16749.21 -5282.62	-265.52 198.35
262 618	CO98 CO99	.40 .40	MAX MIN LC in Max: CO65 LC in Min: CO84	50.31 -284.79	-98.32 2.28	-515.74 1280.97	-29.17 -3.74	-2757.60 5824.61	614.92 -462.59
Section No 14: TO 600/600/12/12/12/37/25									
139 140	CO99 CO98	15.47 .00	MAX MIN LC in Max: CO84 LC in Min: CO65	524.48 -1442.12	8.32 4.20	-4.33 2.77	10.84 -20.17	19.82 15.30	-89.39 -7.98
142 113	CO98 CO99	5.49 .00	MAX MIN LC in Max: CO20 LC in Min: CO82	-15.98 416.45	40.74 -48.95	-83.73 .97	12.16 5.70	-267.50 174.24	-198.56 -137.91
142 141	CO98 CO99	.00 5.49	MAX MIN LC in Max: CO65 LC in Min: CO82	87.49 -12.01	-25.89 -33.43	150.21 -91.59	-4.79 -35.95	-275.97 -337.10	4.39 237.47
93 142	CO97 CO99	.00 .00	MAX MIN LC in Max: CO13 LC in Min: CO84	-54.10 27.19	-11.92 -41.62	-11.11 45.95	27.80 -41.21	-45.49 -87.15	111.92 18.39
142 141	CO98 CO99	5.49 5.49	MAX MIN LC in Max: CO65 LC in Min: CO82	87.56 -12.01	-22.99 -33.43	133.79 -91.59	-4.79 -35.95	503.46 -337.10	138.54 237.47
92 92	CO99 CO98	1.05 1.05	MAX MIN LC in Max: CO84 LC in Min: CO65	489.90 -1178.15	-43.12 29.84	-8.17 17.67	7.40 9.38	118.45 10.07	487.00 -333.30
Section No 17: HE-B 600									
57 745	CO98 CO97	.00 .00	MAX MIN LC in Max: CO58 LC in Min: CO17	217.28 -3058.76	1.16 54.71	-16.31 16.68	.04 -1.50	4.45 9.91	-2.17 90.81
754 753	CO97 CO98	.00 .00	MAX MIN LC in Max: CO17 LC in Min: CO62	-1498.83 -1782.41	188.73 -170.90	13.97 1.84	.75 -9.90	-30.12 -28.84	134.34 -121.76
801 8	CO97 CO97	.00 1.13	MAX MIN LC in Max: CO17 LC in Min: CO13	.00 -.52	.00 29.47	688.18 -702.39	.00 2.76	-88.47 -797.57	.00 -48.28
9 801	CO98 CO98	.00 .00	MAX MIN LC in Max: CO58 LC in Min: CO62	9.14 .00	56.28 -70.11	-463.86 5.87	15.16 -28.04	-.01 -2.93	30.02 -8.76
18 8	CO97 CO97	.00 1.13	MAX MIN LC in Max: CO13 LC in Min: CO13	-847.47 -.52	38.61 29.47	-357.40 -702.39	.58 2.76	435.81 -797.57	17.70 -48.28

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
754 753	CO97 CO98	.00 .00	MAX MIN LC in Max: CO17 LC in Min: CO62	-1498.83 -1782.41	188.73 -170.90	13.97 1.84	.75 -90	-30.12 -28.84	134.34 -121.76
Section No 18: HE-B 300									
64 739	CO97 CO98	.00 .00	MAX MIN LC in Max: CO13 LC in Min: CO62	1981.59 -96.08	-11.95 1.57	-20.41 -3.05	.12 .01	13.45 3.87	-13.66 -1.69
760 64	CO97 CO97	.00 1.50	MAX MIN LC in Max: CO17 LC in Min: CO13	732.72 1981.59	10.65 -15.22	12.21 -20.41	-0.04 .12	-31.51 -17.16	17.03 6.72
764 65	CO97 CO97	.00 1.50	MAX MIN LC in Max: CO17 LC in Min: CO13	609.33 1909.70	8.64 -9.40	17.78 -24.26	-0.03 .15	-41.10 -17.44	11.82 4.73
65 64	CO97 CO98	.00 .00	MAX MIN LC in Max: CO13 LC in Min: CO58	1818.45 3.46	-5.79 4.79	-23.20 -3.48	.18 -0.05	21.27 -5.24	-6.47 4.35
764 764	CO97 CO97	5.00 .00	MAX MIN LC in Max: CO17 LC in Min: CO17	609.33 609.33	-2.31 8.64	17.44 17.78	-0.03 -0.03	46.95 -41.10	-4.02 11.82
760 64	CO97 CO97	.00 .00	MAX MIN LC in Max: CO17 LC in Min: CO13	732.72 1981.59	10.65 -11.95	12.21 -20.41	-0.04 .12	-31.51 13.45	17.03 -13.66
Section No 19: HE-M 600									
432 329	CO98 CO97	.00 .00	MAX MIN LC in Max: CO28 LC in Min: CO1	1469.12 -5727.22	-21.92 4.62	-491.04 95.57	.62 1.15	54.66 -486.66	-50.87 1.53
662 661	CO97 CO98	.00 .00	MAX MIN LC in Max: CO17 LC in Min: CO62	-3835.80 -4041.32	212.60 -197.11	77.32 79.04	-2.85 2.34	-368.71 -377.82	61.62 -57.78
414 432	CO97 CO97	.00 .17	MAX MIN LC in Max: CO15 LC in Min: CO15	779.54 1159.82	-15.12 .47	681.04 -729.42	-.45 4.88	34.32 -93.82	-34.13 -43.19
807 414	CO98 CO98	.00 .00	MAX MIN LC in Max: CO59 LC in Min: CO60	-1052.18 1047.86	21.69 -75.95	-97.20 467.55	8.52 -25.18	229.34 21.80	38.50 -37.99
510 514	CO97 CO97	.66 2.13	MAX MIN LC in Max: CO16 LC in Min: CO16	-688.34 -725.05	.15 12.39	167.55 -534.35	-.76 .83	408.12 -711.07	-2.46 -21.54
442 441	CO98 CO97	.00 .00	MAX MIN LC in Max: CO20 LC in Min: CO1	-1632.30 -1776.20	128.70 -140.85	33.29 30.68	2.47 -2.47	-83.07 -72.81	152.36 -157.04
Section No 21: HE-M 300									
334 398	CO97 CO98	.00 .00	MAX MIN LC in Max: CO1 LC in Min: CO28	4876.00 -1416.31	27.44 12.77	-31.56 8.38	.11 -0.07	77.11 -22.44	80.06 8.28
708 73	CO97 CO97	.00 3.50	MAX MIN LC in Max: CO17 LC in Min: CO13	2764.42 1981.59	29.78 -30.81	35.53 -20.41	-.33 .12	-111.72 -88.62	80.72 87.32
712 121	CO97 CO99	.00 2.50	MAX MIN LC in Max: CO17 LC in Min: CO84	2915.94 876.60	24.41 -5.24	44.16 -73.11	-.45 1.00	-136.27 -66.51	62.58 7.19
121 712	CO99 CO97	.00 .00	MAX MIN LC in Max: CO82 LC in Min: CO17	2618.61 2750.94	-1.90 24.26	-72.26 41.03	1.01 -.48	121.69 -122.52	2.43 62.04
98 158	CO99 CO99	.00 2.50	MAX MIN LC in Max: CO82 LC in Min: CO82	2587.95 3382.35	-3.53 -1.46	-64.88 -58.34	.48 .56	219.16 -213.64	-30.35 -5.75
73 98	CO97 CO99	.00 3.50	MAX MIN LC in Max: CO13 LC in Min: CO82	1981.59 2587.95	-30.81 -3.53	-20.41 -64.88	.12 .48	-88.62 219.16	87.32 -30.35
Section No 22: Kasten(A) 374/15/12/350/550/374/15									
379 440	CO98 CO97	.00 .00	MAX MIN LC in Max: CO20 LC in Min: CO15	229.15 -109.18	945.08 271.83	43.32 -391.50	27.76 1.14	-17.93 5.74	200.80 73.80
434 440	CO98 CO98	.43 .00	MAX MIN LC in Max: CO20 LC in Min: CO20	121.93 129.05	1463.25 -1394.56	47.60 -55.09	23.31 -19.64	.08 .04	-282.08 -275.29
10 13	CO97 CO97	.00 .43	MAX MIN LC in Max: CO13	16.83 1.03	-848.80 620.61	1083.92 -843.61	-76.25 17.74	-462.93 -357.72	-276.64 -194.55

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
Section No 23: Kasten(A) 570/10/15/540/730/570/10									
771 31	CO97 CO97	.00 .00	LC in Min: CO1 MAX MIN LC in Max: CO17 LC in Min: CO13	6.95 149.19	937.83 -1151.58	652.01 331.93	100.54 -103.41	-276.51 -140.15	323.31 -322.33
750 10	CO97 CO97	2.60 .00	MAX MIN LC in Max: CO17 LC in Min: CO13	144.51 17.52	-48.50 -849.06	7.93 1083.92	16.97 -76.20	39.24 -462.93	299.63 -276.32
747 58	CO97 CO97	.00 .00	MAX MIN LC in Max: CO17 LC in Min: CO13	149.12 6.45	1204.32 -921.02	-15.03 87.68	55.19 -44.25	6.99 -36.26	348.40 -347.36
250 257	CO98 CO98	.00 .00	MAX MIN LC in Max: CO58 LC in Min: CO65	544.68 -154.75	172.31 -3.60	48.09 -4.87	8.07 -2.46	40.61 -10.44	133.74 47.75
250 261	CO97 CO97	.00 .81	MAX MIN LC in Max: CO14 LC in Min: CO2	125.44 117.87	1101.20 -835.74	-7.34 -18.75	-9.47 -15.19	-21.85 -10.69	884.04 668.57
610 613	CO97 CO97	.00 .00	MAX MIN LC in Max: CO17 LC in Min: CO5	143.40 146.96	-107.65 67.18	249.72 -226.62	17.15 -2.91	-316.17 -108.03	31.89 91.49
606 261	CO97 CO99	.00 .00	MAX MIN LC in Max: CO17 LC in Min: CO83	112.82 182.82	175.71 -7.33	232.88 -62.16	72.47 -124.37	-151.88 118.61	137.06 -1.66
261 610	CO99 CO97	.00 .00	MAX MIN LC in Max: CO83 LC in Min: CO17	178.35 124.10	13.86 -30.48	-67.08 244.44	-101.50 11.74	121.23 -316.88	-1.42 31.91
250 257	CO97 CO99	.00 .00	MAX MIN LC in Max: CO14 LC in Min: CO84	125.44 60.63	1101.20 -213.66	-7.34 -77.26	-9.47 -33.58	-21.85 69.80	884.04 -189.96
Section No 24: Venlo TREAGER 3									
106 106	CO97 CO99	.00 .00	MAX MIN LC in Max: CO13 LC in Min: CO84	225.40 -158.30	148.40 -84.34	27.03 -108.52	186.78 -148.83	29.88 38.88	48.07 63.61
105 103	CO99 CO99	.00 .81	MAX MIN LC in Max: CO84 LC in Min: CO82	-5.43 183.04	279.65 -155.13	151.25 -117.57	-78.99 -275.83	-130.09 4.46	262.08 5.82
105 103	CO99 CO99	.00 .81	MAX MIN LC in Max: CO84 LC in Min: CO82	-5.43 200.83	279.65 -150.47	151.25 -142.07	-78.99 -296.47	-130.09 -13.69	262.08 -23.91
106 103	CO98 CO97	.00 .00	MAX MIN LC in Max: CO20 LC in Min: CO13	151.74 132.39	130.91 -110.04	72.85 -122.55	226.15 -307.05	7.10 93.19	11.23 -103.86
104 105	CO99 CO99	.92 .00	MAX MIN LC in Max: CO84 LC in Min: CO84	-5.43 -5.48	276.36 279.58	145.90 151.15	-78.99 -78.96	142.41 -130.70	-247.80 262.14
105 104	CO99 CO99	.00 .92	MAX MIN LC in Max: CO84 LC in Min: CO84	-5.48 -5.43	279.58 276.36	151.15 145.90	-78.96 -78.99	-130.70 142.41	262.14 -247.80
Section No 25: IS 374/200/5/12									
454 454	CO97 CO97	1.30 .00	MAX MIN LC in Max: CO15 LC in Min: CO13	79.07 -40.23	.81 -3.06	3.96 -2.24	.00 -0.01	5.74 .50	-.83 -1.31
437 454	CO97 CO97	1.30 .00	MAX MIN LC in Max: CO15 LC in Min: CO3	13.58 20.78	10.93 -5.70	7.93 -2.01	-0.01 .00	1.41 1.08	-4.35 -2.46
437 454	CO99 CO98	.00 .00	MAX MIN LC in Max: CO82 LC in Min: CO62	-1.73 -29.61	.73 -2.08	32.40 -14.88	.00 .00	-42.03 -1.18	.75 -.93
437 437	CO97 CO97	.00 .00	MAX MIN LC in Max: CO1 LC in Min: CO9	-29.28 21.53	.08 4.47	-1.22 1.98	.01 -0.01	1.98 -1.53	.19 4.14
454 437	CO99 CO99	1.30 .00	MAX MIN LC in Max: CO82 LC in Min: CO82	-15.30 -1.73	-.52 .73	32.31 32.40	.00 .00	42.05 -42.03	.58 .75
437 437	CO97 CO97	.00 1.30	MAX MIN LC in Max: CO15 LC in Min: CO15	13.55 13.58	9.69 10.93	7.93 7.93	-0.01 -0.01	-8.89 1.41	9.06 -4.35
Section No 26: Kasten(A) 1066/10/15/1036/730/1066/10									
253 258	CO97 CO99	4.24 .00	MAX MIN	1303.07 -246.44	127.26 -126.80	20.46 -9.30	7.34 7.66	85.67 47.15	18.87 -161.44

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
253	CO98	.00	LC in Max: CO14 LC in Min: CO84						
258	CO97	.00	MAX	629.65	245.01*	10.69	2.04	22.63	595.08
	CO97	.00	MIN	730.17	-209.13*	9.87	8.68	40.40	-553.53
258	CO97	.00	LC in Max: CO59 LC in Min: CO2						
258	CO97	.00	MAX	279.12	28.91	65.86*	42.03	-35.18	-25.95
253	CO99	.00	MIN	46.84	11.75	-34.00*	5.69	43.05	31.74
614	CO97	.00	LC in Max: CO13 LC in Min: CO73						
609	CO97	.00	MAX	198.87	-7.20	-12.81	56.99*	45.96	-68.13
	CO97	.00	MIN	253.88	-19.44	-11.34	-74.53*	51.94	35.35
258	CO97	4.24	LC in Max: CO5 LC in Min: CO17						
253	CO99	4.24	MAX	305.67	29.73	65.86	42.03	244.07*	-150.27
	CO99	4.24	MIN	44.37	8.40	-28.60	5.04	-102.33*	-16.68
253	CO97	.00	LC in Max: CO13 LC in Min: CO73						
258	CO97	.00	MAX	1104.63	217.35	10.88	5.02	28.33	675.60*
	CO97	.00	MIN	730.17	-209.13	9.87	8.68	40.40	-553.53*
Section No 27: Kasten(A) 1070/10/15/1036/730/1070/10									
97	CO99	4.92	MAX	468.78*	-152.43	21.46	20.09	51.32	600.26
96	CO99	.00	MIN	-473.66*	-121.51	-48.55	35.13	211.45	-87.98
96	CO97	.00	LC in Max: CO84 LC in Min: CO82						
97	CO97	.00	MAX	53.34	99.94*	-29.46	44.13	178.20	163.26
	CO99	.00	MIN	448.83	-152.86*	28.31	19.89	-69.84	-151.29
97	CO99	.00	LC in Max: CO13 LC in Min: CO84						
97	CO97	4.92	MAX	448.83	-152.86	28.31*	19.89	-69.84	-151.29
	CO97	4.92	MIN	-231.49	70.85	-64.98*	36.69	-77.63	-287.61
96	CO97	.00	LC in Max: CO84 LC in Min: CO13						
97	CO98	.00	MAX	-185.99	21.49	-44.03	57.35*	233.47	89.10
	CO98	.00	MIN	-115.82	40.57	-9.61	-11.25*	83.47	38.25
96	CO97	.00	LC in Max: CO13 LC in Min: CO58						
97	CO98	4.92	MAX	-185.99	21.49	-44.03	57.35	233.47*	89.10
	CO98	4.92	MIN	-78.39	28.88	-50.00	23.29	-78.35*	-114.02
97	CO99	4.92	LC in Max: CO13 LC in Min: CO26						
96	CO97	4.92	MAX	466.66	-152.86	22.12	19.89	54.27	601.06*
	CO97	4.92	MIN	82.53	98.99	-39.58	44.13	8.27	-326.25*
Section No 28: RO 127x5,6									
49	CO97	.00	MAX	291.27*	-0.06	1.03	.06	-1.28	-3.39
851	CO99	.00	MIN	-149.84*	.04	.62	-.03	-.67	.11
410	CO97	.00	LC in Max: CO13 LC in Min: CO82						
749	CO97	.00	MAX	2.19	2.38*	-.52	.01	.69	2.55
	CO97	.00	MIN	-39.40	-1.47*	.60	.12	-.75	-1.42
492	CO97	.00	LC in Max: CO15 LC in Min: CO17						
830	CO97	.00	MAX	-36.74	.52	1.38*	.01	-1.38	.69
	CO97	.00	MIN	-13.05	-.24	-2.57*	-.19	3.30	.30
852	CO97	.00	LC in Max: CO17 LC in Min: CO13						
830	CO97	.00	MAX	136.85	.14	.76	.16*	-.66	.44
	CO97	.00	MIN	-15.14	.11	-2.26	-.21*	2.91	.76
830	CO97	.00	LC in Max: CO17 LC in Min: CO13						
830	CO97	2.60	MAX	-13.05	-.24	-2.57	-.19	3.30*	.30
	CO97	2.60	MIN	-13.08	.57	-2.57	-.19	-3.38*	-.12
410	CO97	.00	LC in Max: CO13 LC in Min: CO13						
410	CO97	2.60	MAX	2.19	2.38	-.52	.01	.69	2.55*
	CO97	2.60	MIN	2.16	1.56	-.52	.01	-.66	-2.58*
Section No 29: RO 127x10									
846	CO97	.00	MAX	267.54*	.34	2.06	.44	-3.59	1.03
507	CO97	.00	MIN	-601.57*	-.01	-1.65	-.48	1.19	-.34
743	CO97	.00	LC in Max: CO1 LC in Min: CO1						
331	CO98	.00	MAX	-37.06	4.26*	-1.44	.12	2.99	4.23
	CO98	.00	MIN	-76.55	-5.31*	3.69	-.63	-3.51	-3.71
331	CO98	.00	LC in Max: CO17 LC in Min: CO59						
464	CO98	1.74	MAX	-76.55	-5.31	3.69*	-.63	-3.51	-3.71
	CO98	1.74	MIN	-94.66	1.90	-3.20*	-.07	-2.71	-1.73
56	CO97	.00	LC in Max: CO59 LC in Min: CO59						
793	CO97	.00	MAX	43.24	-1.44	.06	.84*	-.04	-1.69
	CO97	.00	MIN	17.07	-2.47	-1.39	-.90*	2.52	-2.28
793	CO98	.00	LC in Max: CO13 LC in Min: CO17						
17	CO97	.00	MAX	178.79	-3.20	-1.65	-.63	3.04*	-3.43
	CO97	.00	MIN	-168.63	-.72	2.58	.64	-3.64*	-1.00

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
742	CO98	2.47	LC in Max: CO62 LC in Min: CO13						
743	CO97	2.47	MAX MIN	-37.60 -37.06	-4.27 4.26	-2.63 -2.76	-23 .12	-2.19 -2.20	6.14* -6.30*
			LC in Max: CO62 LC in Min: CO17						
Section No 30: IS 302/250/8/20									
412	CO98	5.50	MAX MIN	451.67* -1324.64*	2.71 7.01	2.11 2.22	.00 -.03	8.11 -6.90	-6.89 17.44
59	CO97	.00	LC in Max: CO30 LC in Min: CO13						
59	CO97	.00	MAX MIN	-1324.64 -1018.05	7.01* -8.02*	2.22 .62	-.03 .01	-6.90 5.72	17.44 -21.38
			LC in Max: CO13 LC in Min: CO1						
779	CO97	.00	MAX MIN	-584.31 -762.26	-4.71 -5.68	9.05* -15.14*	-.01 .01	-30.56 -29.47	-14.97 13.24
772	CO97	5.50	LC in Max: CO5 LC in Min: CO17						
38	CO97	.00	MAX MIN	-813.02 -20.65	4.23 6.61	6.36 -1.68	.06* -.09*	-13.78 6.36	14.20 18.22
123	CO99	.00	LC in Max: CO1 LC in Min: CO82						
405	CO97	.00	MAX MIN	-136.41 -155.58	-4.35 -3.68	-12.47 6.35	.01 .00	57.48* -30.87*	-13.68 -11.49
412	CO97	.00	LC in Max: CO15 LC in Min: CO3						
350	CO97	5.50	MAX MIN	-1008.27 -1018.05	-8.02 -8.02	.31 .62	.01 .01	8.27 5.72	22.76* -21.38*
350	CO97	.00	LC in Max: CO1 LC in Min: CO1						
Section No 31: IS 292/250/8/15									
462	CO98	5.50	MAX MIN	670.49* -934.84*	-1.46 -4.85	-3.97 .62	.00 .03	-11.29 -2.18	5.85 -13.44
380	CO97	.00	LC in Max: CO20 LC in Min: CO1						
435	CO98	.00	MAX MIN	-24.39 -926.78	5.10* -6.08*	-.23 .59	-.01 .03	.88 -2.40	6.36 -14.39
380	CO98	.00	LC in Max: CO65 LC in Min: CO20						
439	CO97	.00	MAX MIN	-28.64 -14.06	1.61 2.00	4.53* -7.88*	.00 .00	-20.90 -8.91	5.31 -4.39
435	CO97	5.50	LC in Max: CO3 LC in Min: CO15						
380	CO97	.00	MAX MIN	-934.84 -32.97	-4.85 -2.34	.62 .97	.03* -.03*	-2.18 -4.20	-13.44 -6.86
439	CO97	.00	LC in Max: CO1 LC in Min: CO1						
435	CO97	.00	MAX MIN	-21.94 -28.64	2.01 1.61	-7.74 4.53	.00 .00	33.76* -20.90*	6.63 5.31
439	CO97	.00	LC in Max: CO15 LC in Min: CO3						
380	CO97	5.50	MAX MIN	-927.09 -926.78	-4.85 -6.08	.38 .59	.03 .03	.54 -2.40	13.23* -14.39*
380	CO98	.00	LC in Max: CO1 LC in Min: CO20						
Section No 32: IS 618/300/12/15									
1	CO97	.00	MAX MIN	.00* -15.49*	.00 -1.86	.00 -5.58	.00 .00	.00 -3.11	.00 6.26
1	CO97	.43	LC in Max: CO1 LC in Min: CO1						
1	CO97	.00	MAX MIN	-10.61 -14.01	1.29* -9.22*	-2.85 -10.49	-.06 -.01	1.46 -9.13	.42 14.76
1	CO98	.00	LC in Max: CO13 LC in Min: CO58						
3	CO97	.00	MAX MIN	-15.38 -1.19	1.29 -9.19	4.29* -11.39*	-.06 -.01	-.87 -13.36	5.26 16.08
1	CO98	.43	LC in Max: CO13 LC in Min: CO58						
1	CO97	.00	MAX MIN	.00 -15.38	.00 -.42	.00 -4.37	.00* -.06*	.00 -.67	.00 3.60
1	CO97	.00	LC in Max: CO13 LC in Min: CO13						
3	CO98	.00	MAX MIN	-1.19 -14.01	-9.19 -9.22	-4.06 -11.39	-.01 -.01	13.31* -13.77*	-15.65 18.67
1	CO98	.43	LC in Max: CO58 LC in Min: CO58						
1	CO98	.43	MAX MIN	-14.01 -1.19	-9.22 -9.19	-11.39 -4.06	-.01 -.01	-13.77 13.31	18.67* -15.65*
3	CO98	.00	LC in Max: CO58 LC in Min: CO58						
Section No 33: IS 302/250/15/20									
709	CO97	.00	MAX MIN	1947.60* -860.22*	4.85 3.44	2.88 1.32	.00 .01	-3.48 -7.63	9.30 1.05
479	CO98	.00	LC in Max: CO17 LC in Min: CO20						
48	CO97	.00	MAX MIN	1758.96 1869.12	8.37* -7.62*	-7.86 5.84	-.03 .04	53.11 38.99	19.20 16.17
734	CO97	7.43	LC in Max: CO13 LC in Min: CO17						
788	CO97	.00	MAX	1139.70	4.70	20.20*	-.01	-51.18	4.74

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
147 109	CO97 CO99	7.43 7.43	MAX MIN LC in Max: CO13 LC in Min: CO82	2701.03 -2382.37	-3.40 -4.25	-14.09 -14.88	.01 .03	-33.54 -84.49	16.38 -7.51
150 112	CO97 CO97	.00 7.43	MAX MIN LC in Max: CO1 LC in Min: CO2	1579.02 4.57	13.58 -10.48	-3.88 -3.95	.04 .03	15.15 -22.31	46.71 21.01
150 147	CO98 CO99	.00 7.43	MAX MIN LC in Max: CO21 LC in Min: CO82	1332.41 2503.84	6.68 -2.75	3.92 -18.25	.01 .06	-21.06 -37.19	12.58 16.40
150 109	CO99 CO98	.00 .00	MAX MIN LC in Max: CO82 LC in Min: CO20	-371.16 -1909.06	8.56 6.90	-9.02 -8.73	.08 -.03	56.79 28.78	22.46 -.61
147 109	CO99 CO99	.00 7.43	MAX MIN LC in Max: CO82 LC in Min: CO82	2493.02 -2356.98	7.11 -4.17	-16.77 -15.36	.06 .03	92.96 -84.59	32.59 -7.67
147 109	CO97 CO97	.00 2.97	MAX MIN LC in Max: CO13 LC in Min: CO13	2683.30 -2364.96	12.72 1.13	-14.09 -14.79	.01 .01	71.21 -5.53	51.00 -14.66
Section No 43: Kasten(A) 480/30/15/350/570/480/30									
126 124	CO98 CO98	.00 .00	MAX MIN LC in Max: CO65 LC in Min: CO20	24.48 -37.15	315.02 708.24	4.72 -2.19	-2.54 -6.30	9.29 -13.36	304.20 302.31
124 126	CO97 CO98	.00 .00	MAX MIN LC in Max: CO13 LC in Min: CO20	-25.71 -35.52	855.95 -853.62	-28.16 31.62	-55.60 9.03	-12.02 -48.96	293.99 -796.26
126 124	CO98 CO97	.00 1.30	MAX MIN LC in Max: CO58 LC in Min: CO14	-26.80 -19.88	-768.42 431.16	45.74 -42.01	18.14 -33.15	-62.80 -122.24	-732.35 -456.22
126 124	CO98 CO99	.00 .00	MAX MIN LC in Max: CO58 LC in Min: CO82	-12.53 -16.25	-325.04 802.95	39.72 -24.31	19.10 -98.87	-48.60 -9.15	-337.38 179.41
124 124	CO98 CO97	1.30 1.30	MAX MIN LC in Max: CO58 LC in Min: CO14	-9.92 -19.88	93.42 431.16	13.62 -42.01	14.49 -33.15	19.63 -122.24	-52.97 -456.22
126 124	CO99 CO99	.00 1.30	MAX MIN LC in Max: CO84 LC in Min: CO82	-8.43 -16.25	306.06 802.95	-10.55 -29.46	-93.62 -98.87	9.31 -44.10	423.60 -864.42
Section No 44: RO 168,3x10									
855 137	CO97 CO99	.00 .00	MAX MIN LC in Max: CO17 LC in Min: CO84	392.58 -930.42	.88 5.86	2.34 .53	.41 1.32	-2.87 2.17	2.87 .33
137 125	CO99 CO99	.00 .00	MAX MIN LC in Max: CO82 LC in Min: CO82	-792.12 314.60	7.76 -20.87	.59 -1.24	1.49 -1.89	1.66 1.82	1.93 -27.11
703 717	CO97 CO97	.00 2.67	MAX MIN LC in Max: CO17 LC in Min: CO17	-341.03 -643.77	2.95 1.68	4.44 -3.55	-.25 .70	-5.85 -4.51	4.70 -2.31
137 125	CO99 CO99	.00 .00	MAX MIN LC in Max: CO82 LC in Min: CO82	-789.90 314.36	7.73 -20.85	.52 -.99	1.55 -1.94	1.86 1.49	1.94 -27.09
717 71	CO97 CO97	.00 .00	MAX MIN LC in Max: CO4 LC in Min: CO1	-98.25 59.25	.63 .56	-1.44 3.36	-.11 .96	3.36 -6.80	1.05 1.75
125 125	CO99 CO99	2.60 .00	MAX MIN LC in Max: CO82 LC in Min: CO82	314.60 314.60	-20.87 -20.87	-2.41 -1.24	-1.89 -1.89	-2.93 1.82	27.14 -27.11
Section No 49: Dummy Rigid									
274 134	CO98 CO99	.00 .00	MAX MIN LC in Max: CO66 LC in Min: CO84	441.56 -930.42	-19.70 5.86	-994.99 .53	45.89 1.32	334.89 1.80	-4.16 4.43
593 592	CO98 CO98	.00 .00	MAX MIN LC in Max: CO62 LC in Min: CO62	292.57 -292.57	3462.80 -3466.54	-29.44 29.44	-7.95 -7.95	-.01 1.92	-43.86 109.40
628 233	CO97 CO97	.00 .00	MAX MIN LC in Max: CO17 LC in Min: CO13	-262.15 .34	-111.38 34.99	2583.87 -3884.90	-30.07 -81.52	-1925.91 549.09	-87.47 8.43
233 274	CO98 CO98	.00 .00	MAX MIN LC in Max: CO65 LC in Min: CO65	.01 -9.76	-429.42 466.98	-1430.59 -1128.05	1000.55 -1088.07	202.18 155.12	-60.28 66.16

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
627 628	CO97 CO97	.00 .00	MAX MIN LC in Max: CO17 LC in Min: CO17	262.15 -262.15	111.38 -111.38	-2579.72 2583.87	-30.07 -30.07	2064.27 -1925.91	87.47 -87.47
592 593	CO98 CO98	.72 .79	MAX MIN LC in Max: CO62 LC in Min: CO62	-292.57 292.57	-3466.54 3462.80	29.44 -29.44	-7.95 -7.95	23.13 -23.13	2607.05 -2762.15
Section No 50: Kasten(A) 700/8/650/1016/700/8									
263 244	CO97 CO97	.00 .00	MAX MIN LC in Max: CO1 LC in Min: CO1	707.43 .00	11.67 .00	-11.20 .00	-66.39 .00	264.92 .00	64.71 .00
244 244	CO99 CO98	.00 3.79	MAX MIN LC in Max: CO84 LC in Min: CO65	188.79 192.06	36.97 -11.73	-27.09 -22.60	-206.93 -18.70	46.02 77.52	-101.89 -8.25
263 244	CO98 CO98	.00 3.79	MAX MIN LC in Max: CO62 LC in Min: CO66	214.69 416.35	2.92 -4.67	29.85 -76.68	-15.51 15.47	23.42 -294.04	10.25 24.21
244 244	CO98 CO99	.00 .00	MAX MIN LC in Max: CO58 LC in Min: CO84	682.11 188.79	-7.29 36.97	-59.91 -27.09	37.07 -206.93	-19.04 46.02	13.08 -101.89
263 244	CO98 CO99	.00 3.79	MAX MIN LC in Max: CO66 LC in Min: CO82	417.87 531.49	-4.67 32.36	-34.55 -73.56	15.47 -185.32	395.58 -333.15	-34.48 -211.97
263 244	CO99 CO99	.00 3.79	MAX MIN LC in Max: CO84 LC in Min: CO84	188.79 232.39	36.97 36.95	-2.04 -36.35	-206.93 -206.81	157.74 -79.44	222.22 -242.40
Section No 52: Rundstahl 140									
174 172	CO98 CO98	.00 .00	MAX MIN LC in Max: CO65 LC in Min: CO65	86.29 -262.68	-76.49 -352.77	-720.43 667.28	2.54 -10.89	4.83 -30.65	-1.55 -21.33
300 316	CO98 CO98	.00 .07	MAX MIN LC in Max: CO20 LC in Min: CO20	.00 .00	1143.00 -882.71	.08 .08	.00 .00	.16 -0.05	76.64 1.93
299 301	CO97 CO97	.00 .07	MAX MIN LC in Max: CO1 LC in Min: CO1	.00 .00	.54 -83	1153.83 -1524.96	.00 .00	-77.35 -34.65	-1.20 1.39
171 171	CO98 CO98	.00 .00	MAX MIN LC in Max: CO24 LC in Min: CO65	8.41 -81.49	-31.94 62.99	171.57 -643.73	2.74 -10.89	-4.16 13.73	-1.08 3.50
301 299	CO97 CO97	.00 .00	MAX MIN LC in Max: CO1 LC in Min: CO1	.00 .00	-83 .54	-1524.80 1153.83	.00 .00	68.28 -77.35	1.34 -1.20
300 300	CO98 CO98	.00 .12	MAX MIN LC in Max: CO20 LC in Min: CO20	.00 .00	1143.00 1142.78	.08 .08	.00 .00	.16 .18	76.64 -57.65
Section No 55: Flachstahl 350/40									
183 181	CO99 CO99	.00 .00	MAX MIN LC in Max: CO84 LC in Min: CO84	1.12 -1.12	-20.85 21.10	2.14 2.14	-0.01 .01	-0.07 -0.35	.00 4.15
320 318	CO97 CO97	.00 .20	MAX MIN LC in Max: CO1 LC in Min: CO1	.30 -0.30	445.99 -445.99	-1.08 -1.08	-0.97 .97	.03 -0.03	.08 .08
181 182	CO99 CO99	.00 .00	MAX MIN LC in Max: CO84 LC in Min: CO84	-1.12 .90	21.10 -36.56	2.14 -3.17	.01 -0.08	-0.35 .55	4.15 -7.26
318 320	CO97 CO97	.00 .00	MAX MIN LC in Max: CO1 LC in Min: CO1	-0.30 .30	-445.59 445.99	-1.08 -1.08	.97 -0.97	.19 .03	-88.20 .08
182 184	CO99 CO99	.00 .20	MAX MIN LC in Max: CO84 LC in Min: CO84	.90 -0.90	-36.56 36.56	-3.17 -3.17	-0.08 .08	.55 -0.55	-7.26 -7.26
317 318	CO97 CO97	.00 .00	MAX MIN LC in Max: CO1 LC in Min: CO1	.39 -0.30	258.79 -445.59	.74 -1.08	-0.15 .97	-0.12 .19	51.15 -88.20
Section No 56: Flachstahl 200/60									
311 308	CO98 CO97	.00 1.00	MAX MIN LC in Max: CO65 LC in Min: CO1	545.04 -2044.53	.00 -0.03	.00 .00	.08 1.68	.00 .00	.00 .00
194 194	CO99 CO99	1.00 .00	MAX MIN LC in Max: CO67	-798.75 -797.46	.07 -0.07	.00 .00	-0.06 -0.06	.00 .00	.00 .00

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
194	CO97	.00	LC in Min: CO67						
194	CO97	.00	MAX	.00	.00	.00	.00	.00	.00
			MIN	.00	.00	.00	.00	.00	.00
			LC in Max: CO67						
			LC in Min:						
194	CO99	.00	MAX	-166.55	.00	.00	4.94	.00	.00
197	CO98	.00	MIN	-561.03	.00	.00	-1.12	.00	.00
			LC in Max: CO84						
			LC in Min: CO58						
194	CO97	.00	MAX	.00	.00	.00	.00	.00	.00
194	CO97	.00	MIN	.00	.00	.00	.00	.00	.00
			LC in Max: CO67						
			LC in Min:						
194	CO97	.00	MAX	.00	.00	.00	.00	.00	.00
194	CO97	.00	MIN	.00	.00	.00	.00	.00	.00
			LC in Max: CO67						
			LC in Min:						
Section No 60: Kasten(A) 700/8/650/716/700/8									
247	CO97	.00	MAX	5.97	.00	.00	.00	.00	.00
247	CO97	.00	MIN	.00	.00	.00	.00	.00	.00
			LC in Max: CO1						
			LC in Min:						
247	CO97	.00	MAX	.00	.00	.00	.00	.00	.00
247	CO97	.00	MIN	.00	.00	.00	.00	.00	.00
			LC in Max: CO1						
			LC in Min:						
247	CO98	.00	MAX	4.47	.00	1.51	.00	-1.65	.00
247	CO97	.00	MIN	.00	.00	.00	.00	.00	.00
			LC in Max: CO66						
			LC in Min:						
247	CO97	.00	MAX	.00	.00	.00	.00	.00	.00
247	CO97	.00	MIN	.00	.00	.00	.00	.00	.00
			LC in Max: CO66						
			LC in Min:						
247	CO97	.00	MAX	.00	.00	.00	.00	.00	.00
247	CO98	.00	MIN	4.47	.00	1.51	.00	-1.65	.00
			LC in Max: CO66						
			LC in Min:						
247	CO97	.00	MAX	.00	.00	.00	.00	.00	.00
247	CO97	.00	MIN	.00	.00	.00	.00	.00	.00
			LC in Max: CO66						
			LC in Min:						
Section No 67: Kasten(A) 700/8/650/1016/700/8									
601	CO98	.00	MAX	530.04	3.86	-47.32	-14.77	34.74	-9.94
601	CO99	.00	MIN	-39.14	35.31	11.28	-135.18	150.26	-90.86
			LC in Max: CO62						
			LC in Min: CO82						
601	CO99	.00	MAX	196.47	37.32	2.11	-142.91	113.34	-96.06
601	CO98	3.79	MIN	182.98	-11.74	-23.23	-31	43.23	-47.30
			LC in Max: CO84						
			LC in Min: CO65						
619	CO97	.00	MAX	124.25	13.71	37.43	-52.47	8.02	84.85
601	CO98	3.79	MIN	289.01	3.79	-60.98	-14.54	-154.62	-24.18
			LC in Max: CO1						
			LC in Min: CO62						
601	CO98	.00	MAX	147.53	-3.85	-12.08	14.72	141.64	9.90
601	CO99	.00	MIN	196.47	37.32	2.11	-142.91	113.34	-96.06
			LC in Max: CO58						
			LC in Min: CO84						
619	CO98	.00	MAX	289.01	3.79	-10.42	-14.54	280.49	23.52
601	CO98	3.79	MIN	530.04	3.86	-60.97	-14.77	-170.68	-24.58
			LC in Max: CO62						
			LC in Min: CO62						
619	CO99	.00	MAX	196.47	37.32	27.17	-142.91	-30.99	231.16
601	CO99	3.79	MIN	196.47	37.32	-7.15	-142.91	103.77	-237.70
			LC in Max: CO84						
			LC in Min:						
Section No 69: Rundstahl 140									
518	CO97	.00	MAX	.00	.00	.00	.00	.00	.00
570	CO97	.05	MIN	-.12	.00	.11	.00	.00	.00
			LC in Max: CO1						
			LC in Min:						
547	CO97	.00	MAX	.00	773.23	-.64	.00	-1.26	51.84
533	CO97	.07	MIN	.00	-597.07	-.64	.00	.39	1.31
			LC in Max: CO5						
			LC in Min: CO5						
671	CO97	.00	MAX	.00	.60	790.21	.00	-52.98	-1.31
673	CO97	.07	MIN	.00	-.90	-1043.77	.00	-23.72	1.51
			LC in Max: CO17						
			LC in Min: CO17						
518	CO97	.00	MAX	.00	.00	.00	.00	.00	.00
518	CO97	.00	MIN	.00	.00	.00	.00	.00	.00
			LC in Max: CO17						
			LC in Min: CO17						
673	CO97	.00	MAX	.00	-.90	-1043.63	.00	46.72	1.46
671	CO97	.00	MIN	.00	.60	790.21	.00	-52.98	-1.31
			LC in Max: CO17						
			LC in Min: CO17						
547	CO97	.00	MAX	.00	773.23	-.64	.00	-1.26	51.84
533	CO97	.00	MIN	.00	-596.91	-.64	.00	.44	-39.00
			LC in Max: CO5						

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
			LC in Min: CO5						
Section No 72: Flachstahl 350/40									
524	CO99	.00	MAX	1.01*	-71.95	1.94	-.04	-.07	-.01
522	CO99	.00	MIN	-1.01*	72.20	1.94	.04	-.32	14.26
			LC in Max: CO84 LC in Min: CO84						
692	CO97	.00	MAX	.33	305.55*	-1.19	-.66	.03	.04
690	CO97	.20	MIN	-.33	-305.55*	-1.19	.66	-.03	.04
			LC in Max: CO17 LC in Min: CO17						
522	CO99	.00	MAX	-1.01	72.20	1.94*	.04	-.32	14.26
523	CO99	.00	MIN	.81	-124.48	-2.85*	-.28	.50	-24.65
			LC in Max: CO84 LC in Min: CO84						
525	CO97	.00	MAX	-.01	304.67	-.03	.66*	.00	.04
523	CO97	.00	MIN	.03	-304.24	-.03	-.66*	.00	-60.23
			LC in Max: CO17 LC in Min: CO17						
523	CO99	.00	MAX	.81	-124.48	-2.85	-.28	.50*	-24.65
525	CO99	.20	MIN	-.81	124.48	-2.85	.28	-.50*	-24.65
			LC in Max: CO84 LC in Min: CO84						
689	CO97	.00	MAX	.44	177.13	.79	-.11	-.14	34.99*
690	CO97	.00	MIN	-.31	-305.14	-1.19	.66	.21	-60.40*
			LC in Max: CO17 LC in Min: CO17						
Section No 73: Flachstahl 200/60									
535	CO99	.00	MAX	31.69*	.00	.00	4.20	.00	.00
680	CO97	1.00	MIN	-1400.02*	-.03	.00	1.83	.00	.00
			LC in Max: CO82 LC in Min: CO17						
535	CO99	1.00	MAX	-466.91	.07*	.00	-.07	.00	.00
535	CO99	.00	MIN	-465.62	-.07*	.00	-.07	.00	.00
			LC in Max: CO67 LC in Min: CO67						
535	CO97	.00	MAX	.00	.00	.00*	.00	.00	.00
535	CO97	.00	MIN	.00	.00	.00*	.00	.00	.00
			LC in Max: CO67 LC in Min: CO67						
535	CO99	.00	MAX	-569.95	.00	.00	4.44*	.00	.00
538	CO98	.00	MIN	-686.30	.00	.00	-.99*	.00	.00
			LC in Max: CO84 LC in Min: CO65						
535	CO97	.00	MAX	.00	.00	.00	.00	.00*	.00
535	CO97	.00	MIN	.00	.00	.00	.00	.00*	.00
			LC in Max: CO67 LC in Min: CO67						
535	CO97	.00	MAX	.00	.00	.00	.00	.00	.00*
535	CO97	.00	MIN	.00	.00	.00	.00	.00	.00*
			LC in Max: CO67 LC in Min: CO67						
Section No 76: Kasten(A) 700/8/8/650/716/700/8									
603	CO97	.00	MAX	5.97*	.00	.00	.00	.00	.00
603	CO97	.00	MIN	.00*	.00	.00	.00	.00	.00
			LC in Max: CO1 LC in Min: CO1						
603	CO97	.00	MAX	.00	.00*	.00	.00	.00	.00
603	CO97	.00	MIN	.00	.00*	.00	.00	.00	.00
			LC in Max: CO66 LC in Min: CO66						
603	CO98	.00	MAX	4.47	.00	1.51*	.00	-1.65	.00
603	CO97	.00	MIN	.00	.00	.00*	.00	.00	.00
			LC in Max: CO66 LC in Min: CO66						
603	CO97	.00	MAX	.00	.00	.00	.00*	.00	.00
603	CO97	.00	MIN	.00	.00	.00	.00*	.00	.00
			LC in Max: CO66 LC in Min: CO66						
603	CO97	.00	MAX	.00	.00	.00	.00	.00*	.00
603	CO98	.00	MIN	4.47	.00	1.51	.00	-1.65*	.00
			LC in Max: CO66 LC in Min: CO66						
603	CO97	.00	MAX	.00	.00	.00	.00	.00	.00*
603	CO97	.00	MIN	.00	.00	.00	.00	.00	.00*
			LC in Max: CO66 LC in Min: CO66						
Section No 79: Kasten(A) 770/20/15/710/1680/770/20									
591	CO99	.00	MAX	57.10*	-2.16	39.14	424.84	-1073.75	.58
591	CO97	.47	MIN	-2467.83*	-.03	-498.43	5.34	2099.58	.01
			LC in Max: CO82 LC in Min: CO17						
591	CO98	.00	MAX	-608.73	14.34*	-142.49	-14.77	676.04	-3.87
591	CO98	.00	MIN	-871.64	-45.56*	-182.98	-26.27	695.71	12.30
			LC in Max: CO20 LC in Min: CO65						
630	CO97	.00	MAX	-2341.60	.92	464.97*	179.83	-1902.23	-.24
591	CO98	.47	MIN	-2322.69	-.23	-523.62*	46.44	3177.32	.18
			LC in Max: CO5 LC in Min: CO62						
591	CO99	.00	MAX	-1147.22	-2.28	-196.47	449.16*	139.60	.62
591	CO98	.00	MIN	-654.78	.23	-140.82	-46.24*	443.54	-.07

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃	
591 630	CO98 CO97	.00 .00	LC in Max: CO84 LC in Min: CO58							
			MAX MIN	-2317.77 -2286.83	-23 .88	-523.33 464.40	46.44 175.63	3420.74* -2081.90*	.07 -24	
			LC in Max: CO62 LC in Min: CO17							
			MAX MIN	-875.75 -613.64	-45.56 14.34	-182.98 -142.64	-26.27 -14.77	610.63 609.74	33.49* -10.54*	
591 591	CO98 CO98	.47 .47	LC in Max: CO65 LC in Min: CO20							
			MAX MIN	-875.75 -613.64	-45.56 14.34	-182.98 -142.64	-26.27 -14.77	610.63 609.74	33.49* -10.54*	
			LC in Max: CO65 LC in Min: CO20							
			MAX MIN	-875.75 -613.64	-45.56 14.34	-182.98 -142.64	-26.27 -14.77	610.63 609.74	33.49* -10.54*	
Section No 80: Rundstahl 220										
585 595	CO98 CO98	.00 .00	MAX MIN	230.43* -295.95*	-769.96 -1907.37	14.20 14.09	-1.16 -1.16	-.04 -.88	-2.13 -124.01	
			LC in Max: CO62 LC in Min: CO62							
			MAX MIN	-3.39 -295.95	1557.17* -1907.70*	-15.35 14.09	-1.16 -1.16	.00 .04	.65 -.99	
			LC in Max: CO62 LC in Min: CO62							
625 622	CO97 CO97	.00 .06	MAX MIN	-264.29 -2.13	-53.31 58.06	1470.93* -1111.08*	-.62 -.62	.12 -.50	-.14 .00	
			LC in Max: CO17 LC in Min: CO17							
			MAX MIN	-103.76 -1.62	-535.90 -323.17	-19.10 -149.69	.20* -1.57*	1.19 8.61	-34.48 -18.51	
			LC in Max: CO65 LC in Min: CO84							
625 635	CO97 CO99	.06 .00	MAX MIN	-264.29 84.30	-53.31 -129.68	1470.57 437.26	-.62 -1.49	94.98* -27.96*	3.30 -8.02	
			LC in Max: CO17 LC in Min: CO82							
			MAX MIN	230.43 -295.95	-770.28 -1907.37	14.20 14.09	-.16 -1.16	.88 -.88	47.55* -124.01*	
			LC in Max: CO62 LC in Min: CO62							
Section No 87: Kasten(A) 770/15/10/710/1640/770/15										
629 590	CO98 CO97	.00 1.37	MAX MIN	73.98* -2454.06*	14.18 -.03	8.30 -498.00	-17.32 5.34	265.61 2600.29	23.25 .00	
			LC in Max: CO20 LC in Min: CO17							
			MAX MIN	-591.23 -857.06	14.34* -45.56*	-141.95 -182.98	-14.77 -26.27	947.61 1045.20	23.52 -74.74	
			LC in Max: CO20 LC in Min: CO65							
629 590	CO97 CO98	.00 1.37	MAX MIN	-2322.17 -2310.30	.92 -.23	464.97* -523.33*	179.83 46.44	-2790.31 3703.33	1.50 -.07	
			LC in Max: CO5 LC in Min: CO62							
			MAX MIN	-1135.34 -637.28	-2.28 .23	-196.47 -139.93	449.16* -46.24*	514.85 711.90	-3.74 .39	
			LC in Max: CO84 LC in Min: CO58							
590 629	CO98 CO97	.00 .00	MAX MIN	-2300.28 -2267.39	-.23 .88	-522.42 464.40	46.44 175.63	4419.67* -2968.92*	-.39 1.47	
			LC in Max: CO62 LC in Min: CO17							
			MAX MIN	-591.23 -857.06	14.34 -45.56	-141.95 -182.98	-14.77 -26.27	947.61 1045.20	23.52* -74.74*	
			LC in Max: CO20 LC in Min: CO65							
Section No 88: Venlo TRAEGER5										
289 289	CO98 CO97	.00 .00	MAX MIN	1098.02* -6291.06*	-26.01 191.17	-11.14 -99.32	.18 2.04	-51.11 522.99	-7.57 65.06	
			LC in Max: CO65 LC in Min: CO1							
			MAX MIN	-6291.06 -5736.88	191.17* -372.83*	-99.32 85.14	2.04 -2.55	522.99 431.12	65.06 139.21	
			LC in Max: CO1 LC in Min: CO58							
215 289	CO97 CO97	.35 .00	MAX MIN	-1813.64 -1806.30	-47.63 77.72	538.71* -558.60*	-2.50 1.65	836.02 826.56	10.50 38.28	
			LC in Max: CO14 LC in Min: CO14							
			MAX MIN	-5456.28 -1237.91	-217.74 -25.25	-87.22 371.80	3.97* -4.74*	-472.84 -553.54	-33.56 -53.50	
			LC in Max: CO20 LC in Min: CO59							
215 290	CO97 CO97	.35 .00	MAX MIN	-1779.57 -1416.75	-34.65 46.90	538.50 425.85	-2.55 -2.04	837.36* -632.98*	3.11 14.10	
			LC in Max: CO14 LC in Min: CO2							
			MAX MIN	-5736.88 -1693.62	-372.83 113.58	85.14 77.77	-2.55 -.57	431.12 320.94	139.21* -73.55*	
			LC in Max: CO58 LC in Min: CO84							
Section No 93: IS 302/250/15/25										
453 453	CO97 CO98	7.63 .00	MAX MIN	894.21* -983.76*	-4.76 3.79	-6.90 9.10	.01 .07	-8.14 -50.57	2.09 2.48	
			LC in Max: CO15 LC in Min: CO20							
			MAX	823.85	8.01*	7.18	.00	-42.47	13.38	
			LC in Max: CO15 LC in Min: CO20							

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
453	CO98	7.63	MIN LC in Max: CO28 LC in Min: CO26	-697.73	-7.24*	6.44	.04	13.10	10.60
453	CO97	.00	MAX	-963.96	5.41	9.32*	.06	-52.64	4.57
456	CO98	7.63	MIN LC in Max: CO1 LC in Min: CO20	-914.18	-5.62	-9.49*	-.05	-17.75	9.48
453	CO98	.00	MAX	-975.25	3.79	8.82	.07*	-50.07	2.52
456	CO97	.00	MIN LC in Max: CO20 LC in Min: CO1	-895.38	5.53	-8.72	-.06*	51.28	5.04
456	CO98	.00	MAX	-936.41	3.86	-9.26	-.05	53.23*	2.79
453	CO97	.00	MIN LC in Max: CO20 LC in Min: CO1	-963.96	5.41	9.32	.06	-52.64*	4.57
453	CO97	.00	MAX	873.90	7.90	-7.23	.01	46.11	14.10*
453	CO98	4.58	MIN LC in Max: CO15 LC in Min: CO28	816.57	.04	-6.71	.00	7.06	-5.01*
Section No 96: IS 302/250/8/25									
720	CO97	.00	MAX	.00*	.00	.00	.00	.00	.00
720	CO97	.00	MIN LC in Max: LC in Min: CO17	-1411.45*	-9.98	3.95	.06	-16.82	-26.59
748	CO98	.00	MAX	-138.86	.47*	.34	.01	.23	-1.00
720	CO97	.00	MIN LC in Max: CO28 LC in Min: CO17	-1410.61	-9.99*	4.18	.06	-16.97	-26.63
720	CO98	.00	MAX	-1042.46	-7.74	6.34*	.04	-17.36	-20.75
751	CO97	5.50	MIN LC in Max: CO62 LC in Min: CO17	-971.35	-5.10	-4.85*	-.09	-10.34	13.50
748	CO97	.00	MAX	-1378.48	-7.01	1.65	.12*	-.03	-19.89
751	CO97	.00	MIN LC in Max: CO17 LC in Min: CO5	-1191.33	-6.06	-3.21	-.12*	12.19	-17.24
720	CO98	.00	MAX	-173.57	-.93	-3.36	.01	17.75*	-1.30
723	CO97	5.50	MIN LC in Max: CO61 LC in Min: CO17	-1041.81	-7.64	-2.85	.00	-18.97*	21.61
720	CO97	5.50	MAX	-1398.89	-9.99	3.82	.06	5.05	28.31*
720	CO97	.00	MIN LC in Max: CO17 LC in Min: CO17	-1410.61	-9.99	4.18	.06	-16.97	-26.63*
Section No 97: IS 374/260/8/20									
777	CO97	.00	MAX	118.79*	-31.17	-49.10	-.08	49.81	-6.08
136	CO97	1.30	MIN LC in Max: CO17 LC in Min: CO13	-99.23*	80.29	41.34	-.08	62.94	-65.48
136	CO97	.00	MAX	-98.17	105.57*	37.43	-.09	13.55	56.43
36	CO97	1.30	MIN LC in Max: CO13 LC in Min: CO7	11.06	-70.85*	-6.20	.06	13.83	51.45
36	CO97	.00	MAX	1.02	-16.88	45.78*	.03	-50.40	7.80
777	CO97	.00	MIN LC in Max: CO13 LC in Min: CO17	118.79	-31.17	-49.10*	-.08	49.81	-6.08
833	CO97	.00	MAX	21.01	83.93	-35.88	.14*	-14.51	43.74
777	CO97	.00	MIN LC in Max: CO17 LC in Min: CO5	20.72	-56.44	-20.70	-.11*	12.72	-35.03
136	CO97	1.30	MAX	-99.23	80.29	41.34	-.08	62.94*	-65.48
833	CO97	1.30	MIN LC in Max: CO13 LC in Min: CO17	22.56	84.58	-39.89	.12	-66.43*	-67.38
136	CO97	.00	MAX	-98.17	105.57	37.43	-.09	13.55	56.43*
136	CO97	1.30	MIN LC in Max: CO13 LC in Min: CO13	-98.25	103.08	37.43	-.09	62.19	-79.18*
Section No 98: Kasten(A) 480/35/15/350/570/480/35									
128	CO98	.00	MAX	23.45*	-970.23	32.93	-25.14	-1.08	-86.22
128	CO98	.43	MIN LC in Max: CO65 LC in Min: CO20	-37.85*	2337.51	-108.00	74.25	-42.67	-823.85
128	CO98	.00	MAX	-37.77	2337.51*	-105.26	74.25	2.65	169.59
122	CO99	.00	MIN LC in Max: CO20 LC in Min: CO82	-13.65	-2586.03*	134.66	-158.46	-54.85	-982.09
122	CO97	.00	MAX	-14.76	-1384.91	344.70*	-33.99	-144.51	-509.71
128	CO97	.43	MIN LC in Max: CO14 LC in Min: CO2	-20.25	822.55	-249.58*	3.45	-104.19	-282.54
128	CO98	.00	MAX	-31.77	2055.75	-115.48	75.13*	2.15	121.66
122	CO99	.00	MIN LC in Max: CO58 LC in Min: CO82	-13.65	-2586.03	134.66	-158.46*	-54.85	-982.09
128	CO99	.43	MAX	-8.81	-1142.52	46.31	-107.82	19.89*	495.99
122	CO97	.00	MIN LC in Max: CO83 LC in Min: CO14	-14.76	-1384.91	344.70	-33.99	-144.51*	-509.71
128	CO99	.43	MAX	-9.16	-1163.45	36.41	-111.27	15.69	504.91*

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
122	CO99	.00	MIN LC in Max: CO84 LC in Min: CO82	-13.65	-2586.03	134.66	-158.46	-54.85	-982.09
Section No 99: RO 168,3x12,5									
130	CO99	.00	MAX	280.71	-22.13	5.49	1.40	-1.97	-20.99
145	CO98	.00	MIN LC in Max: CO84 LC in Min: CO58	-1078.66	3.48	-.03	.94	1.89	3.44
131	CO98	.00	MAX	-451.35	10.68	9.46	-.81	-7.94	10.07
130	CO99	.00	MIN LC in Max: CO58 LC in Min: CO84	280.71	-22.13	5.49	1.40	-1.97	-20.99
131	CO98	.00	MAX	-698.72	7.07	10.87	-.89	-9.56	7.17
159	CO97	1.65	MIN LC in Max: CO20 LC in Min: CO14	-103.58	-2.78	-6.98	-.23	-6.91	2.55
145	CO99	.00	MAX	-91.78	-4.00	-3.06	3.09	4.50	-3.30
146	CO98	.00	MIN LC in Max: CO82 LC in Min: CO20	-693.17	1.75	-1.69	-1.74	2.81	1.63
130	CO99	1.33	MAX	-91.21	-21.43	6.78	1.69	5.30	7.98
131	CO98	.00	MIN LC in Max: CO82 LC in Min: CO20	-698.72	7.07	10.87	-.89	-9.56	7.17
131	CO98	.00	MAX	-451.35	10.68	9.46	-.81	-7.94	10.07
130	CO99	.00	MIN LC in Max: CO58 LC in Min: CO84	279.04	-22.13	5.62	1.40	-2.10	-20.99
Section No 100: IS 374/200/5/12									
861	CO97	.00	MAX	160.67	-1.13	-4.89	.00	1.42	-4.24
856	CO97	.00	MIN LC in Max: CO17 LC in Min: CO13	-297.20	-.54	-1.49	.01	8.40	-2.19
860	CO97	.00	MAX	-247.18	1.61	1.29	.00	1.28	3.95
861	CO97	5.65	MIN LC in Max: CO17 LC in Min: CO17	134.74	-2.46	-6.39	.00	-34.74	5.89
857	CO97	.00	MAX	141.35	-1.08	5.07	.00	-.15	-4.44
861	CO97	.00	MIN LC in Max: CO13 LC in Min: CO17	135.74	-1.28	-6.40	.00	1.47	-4.49
856	CO97	.00	MAX	-119.92	.62	-3.23	.01	17.79	.75
857	CO97	.00	MIN LC in Max: CO1 LC in Min: CO1	-58.02	.36	3.16	-.01	.39	-.03
857	CO97	5.65	MAX	132.69	-2.14	5.05	.00	28.57	4.66
861	CO97	5.65	MIN LC in Max: CO13 LC in Min: CO17	129.46	-2.43	-6.40	.00	-34.77	5.84
861	CO97	5.65	MAX	134.74	-2.46	-6.39	.00	-34.74	5.89
861	CO97	.00	MIN LC in Max: CO17 LC in Min: CO17	141.01	-1.29	-6.39	.00	1.38	-4.56
Section No 2 - 4: Kasten(A) 770/15/10/710/803/770/15 - Kasten(A) 770/15/10/710/1970/770/15									
270	CO98	15.10	MAX	403.31	-85.68	-7.47	17.46	161.57	2.35
270	CO98	.00	MIN LC in Max: CO65 LC in Min: CO20	-3630.69	-12.65	-73.70	-8.64	369.29	240.87
270	CO98	15.10	MAX	-1403.64	22.53	.63	-10.62	254.89	103.79
270	CO98	15.10	MIN LC in Max: CO24 LC in Min: CO65	30.90	-86.52	-17.41	16.70	40.81	17.67
270	CO98	.00	MAX	-969.39	-2.90	141.74	-44.24	-164.46	41.05
270	CO97	15.10	MIN LC in Max: CO66 LC in Min: CO13	-3380.69	-8.07	-99.43	6.60	-942.38	194.80
270	CO99	.00	MAX	-179.05	.44	30.01	409.65	9.32	-102.03
270	CO98	.00	MIN LC in Max: CO84 LC in Min: CO58	-1303.88	-4.74	103.64	-80.65	-98.10	56.92
270	CO98	15.10	MAX	-893.58	-2.90	80.95	-44.24	1523.53	84.92
270	CO97	15.10	MIN LC in Max: CO66 LC in Min: CO13	-3380.69	-8.07	-99.43	6.60	-942.38	194.80
270	CO98	6.71	MAX	-3403.54	.88	-11.03	-39.74	124.61	290.28
270	CO98	1.68	MIN LC in Max: CO20 LC in Min: CO65	327.85	-.34	3.23	17.46	185.22	-574.99
Section No 4 - 2: Kasten(A) 770/15/10/710/1970/770/15 - Kasten(A) 770/15/10/710/803/770/15									
238	CO98	.00	MAX	443.58	56.74	11.11	-13.15	114.98	-13.96
238	CO97	15.10	MIN LC in Max: CO65 LC in Min: CO1	-3767.69	12.70	180.06	139.14	739.10	75.87
238	CO98	.00	MAX	71.19	57.58	21.05	-12.54	-5.74	1.28
238	CO98	.00	MIN LC in Max: CO65 LC in Min: CO24	-1415.80	-12.85	46.79	8.52	-347.50	111.19
238	CO98	.00	MAX	-3136.81	9.95	207.33	-70.39	-2285.23	160.35
238	CO98	15.10	MIN LC in Max: CO58 LC in Min: CO65	360.83	9.65	-.62	-13.15	187.34	-515.30

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
238 238	CO99 CO98	.00 .00	MAX MIN LC in Max: CO84 LC in Min: CO58	-1571.77 -1653.89	6.31 4.60	74.27 168.64	415.40 -72.24	-712.92 -1815.52	237.94 74.65
238 238	CO98 CO98	15.10 .00	MAX MIN LC in Max: CO58 LC in Min: CO58	-3236.80 -3136.81	9.95 9.95	198.10 207.33	-70.39 -70.39	767.57 -2285.23	10.04 160.35
238 238	CO99 CO98	.00 15.10	MAX MIN LC in Max: CO82 LC in Min: CO65	-2539.79 360.83	9.64 9.65	135.94 -62	398.57 -13.15	-1469.04 187.34	284.63 -515.30
Section No 4 - 5: Kasten(A) 770/15/10/710/1970/770/15 - Kasten(A) 770/15/10/710/2466/770/15									
267 267	CO98 CO98	11.10 .00	MAX MIN LC in Max: CO65 LC in Min: CO20	395.62 -3399.26	-68.57 2.27	-5.22 -128.16	-111.31 146.70	163.32 -835.34	-131.99 457.33
267 267	CO98 CO98	11.10 11.10	MAX MIN LC in Max: CO24 LC in Min: CO65	-1309.78 21.82	33.24 -69.03	-81.73 -16.82	93.37 -104.76	-1098.52 -85.87	100.78 -115.67
267 267	CO99 CO97	.00 11.10	MAX MIN LC in Max: CO82 LC in Min: CO13	-107.90 -3180.85	26.47 .79	129.78 -148.90	169.48 116.70	1488.71 -2503.35	-205.61 266.86
267 267	CO99 CO98	.00 .00	MAX MIN LC in Max: CO82 LC in Min: CO65	-1045.63 314.63	22.34 2.00	81.92 6.25	198.18 -111.31	947.84 156.10	-172.29 -501.40
267 267	CO99 CO97	11.10 11.10	MAX MIN LC in Max: CO82 LC in Min: CO13	-43.56 -3180.85	26.47 .79	108.80 -148.90	169.48 116.70	2814.36 -2503.35	-499.30 266.86
267 267	CO98 CO99	.00 11.10	MAX MIN LC in Max: CO20 LC in Min: CO84	-3205.01 -45.57	1.19 28.56	-66.91 47.58	149.69 153.88	1.61 936.46	487.09 -569.80
Section No 5 - 4: Kasten(A) 770/15/10/710/2466/770/15 - Kasten(A) 770/15/10/710/1970/770/15									
241 241	CO98 CO97	.00 11.10	MAX MIN LC in Max: CO65 LC in Min: CO1	437.86 -3604.44	30.39 8.51	1.85 226.30	120.00 -21.12	151.74 -2060.66	-215.74 416.51
241 241	CO98 CO98	.00 .00	MAX MIN LC in Max: CO65 LC in Min: CO20	64.06 -1897.43	30.85 -21.18	13.45 154.53	113.33 -91.84	-97.33 -2980.88	-199.71 120.73
241 241	CO99 CO98	.00 11.10	MAX MIN LC in Max: CO82 LC in Min: CO65	-2541.84 356.87	20.39 -4.23	247.15 -9.61	92.70 120.00	-4855.51 107.10	724.67 -361.02
241 241	CO98 CO98	.00 .00	MAX MIN LC in Max: CO65 LC in Min: CO20	437.86 -3240.90	30.39 -11.88	1.85 161.41	120.00 -116.71	151.74 -2990.01	-215.74 332.95
241 241	CO98 CO99	1.59 .00	MAX MIN LC in Max: CO65 LC in Min: CO82	425.56 -2541.84	25.45 20.39	.11 247.15	120.00 92.70	153.29 -4855.51	-260.02 724.67
241 241	CO99 CO98	.00 9.51	MAX MIN LC in Max: CO82 LC in Min: CO65	-2288.13 367.71	21.77 .73	171.26 -8.09	77.24 120.00	-2857.98 121.12	772.61 -363.78
Section No 5 - 6: Kasten(A) 770/15/10/710/2466/770/15 - Kasten(A) 770/15/10/710/2530/770/15									
266 266	CO98 CO98	1.73 .00	MAX MIN LC in Max: CO65 LC in Min: CO20	453.37 -3249.14	-68.57 24.31	-13.39 -149.53	-111.31 146.69	141.90 -2332.37	-13.70 309.77
266 266	CO98 CO98	.00 .00	MAX MIN LC in Max: CO24 LC in Min: CO65	-1256.85 65.93	33.24 -69.03	-89.28 -23.07	93.37 -104.76	-1098.52 -85.87	100.78 -115.68
266 266	CO99 CO97	.00 1.73	MAX MIN LC in Max: CO82 LC in Min: CO13	-7.62 -3103.86	26.47 .79	103.71 -159.90	169.50 116.68	2814.36 -2776.98	-499.30 265.49
266 266	CO99 CO98	.00 .00	MAX MIN LC in Max: CO82 LC in Min: CO65	-945.35 439.72	22.34 -68.57	55.81 -11.46	198.19 -111.31	1742.26 163.32	-420.28 -131.99
266 266	CO99 CO97	1.73 1.73	MAX MIN LC in Max: CO82 LC in Min: CO13	3.23 -3103.86	26.47 .79	100.30 -159.90	169.50 116.68	2990.32 -2776.98	-544.95 265.49
266 266	CO98 CO99	.00 1.73	MAX MIN LC in Max: CO20 LC in Min: CO84	-3055.32 1.49	23.23 28.56	-91.27 40.91	149.69 153.89	-831.79 1008.39	351.59 -619.06
Section No 6 - 5: Kasten(A) 770/15/10/710/2530/770/15 - Kasten(A) 770/15/10/710/2466/770/15									
242 242	CO98 CO97	.00 1.73	MAX MIN LC in Max: CO65	451.49 -3495.97	30.39 8.51	3.77 238.37	120.00 -21.10	146.91 -4637.25	-163.32 510.90

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Elem No	CO No	x [m]	N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
Section No 39 - 40: Venlo TREAGER 2A - Venlo TREAGER 1A								
242	CO98	.00	LC in Min: CO1					
242	CO98	.00	MAX MIN	77.69 -1880.98	30.85 -21.18	15.38 156.40	113.32 -91.83	-122.18 -3249.11
242	CO99	.00	LC in Max: CO65 LC in Min: CO20					
242	CO97	.00	MAX MIN	-2530.59 .00	20.39 .00	247.94 .00	92.72 .00	-5282.62 .00
242	CO98	.00	LC in Max: CO82 LC in Min:					
242	CO98	.00	MAX MIN	451.49 -3224.53	30.39 -11.88	3.77 163.82	120.00 -116.69	146.91 -3270.60
242	CO98	1.73	LC in Max: CO65 LC in Min: CO20					
242	CO99	.00	MAX MIN	437.86 -2530.59	30.39 20.39	1.84 247.94	120.00 92.72	151.74 -5282.62
242	CO99	.00	LC in Max: CO65 LC in Min: CO82					
242	CO98	1.73	MAX MIN	-2277.01 437.86	21.77 30.39	172.91 1.84	77.26 120.00	-3154.90 151.74
242	CO98	1.73	LC in Max: CO82 LC in Min: CO65					
Section No 39 - 40: Venlo TREAGER 2A - Venlo TREAGER 1A								
91	CO98	5.62	MAX MIN	129.06 -292.68	113.72 -194.25	-495.45 1129.96	16.58 31.95	-2410.99 -331.72
91	CO98	.00	LC in Max: CO20 LC in Min: CO65					
91	CO98	5.62	MAX MIN	129.06 -288.18	113.72 -206.10	-495.45 1087.59	16.58 37.72	-2410.99 5922.85
91	CO98	5.62	LC in Max: CO20 LC in Min: CO65					
91	CO98	.00	MAX MIN	-292.06 129.06	-194.94 113.72	1132.45 -495.45	37.72 16.58	-323.23 -2410.99
91	CO98	5.62	LC in Max: CO65 LC in Min: CO20					
91	CO98	.00	MAX MIN	49.10 -136.81	30.05 -49.58	-147.41 390.38	52.16 -155.72	248.76 -448.59
91	CO99	.00	LC in Max: CO58 LC in Min: CO84					
91	CO98	5.62	MAX MIN	-288.18 120.04	-206.10 111.15	1087.59 -488.27	37.72 11.61	5922.85 -2422.55
91	CO98	5.62	LC in Max: CO65 LC in Min: CO20					
91	CO98	5.62	MAX MIN	-288.18 129.06	-206.10 113.72	1087.59 -495.45	37.72 16.58	5922.85 -2410.99
91	CO98	5.62	LC in Max: CO65 LC in Min: CO20					
Section No 40 - 39: Venlo TREAGER 1A - Venlo TREAGER 2A								
90	CO99	.00	MAX MIN	153.68 -291.80	-85.60 182.29	488.17 -1127.32	-156.46 21.80	-2205.24 -329.91
90	CO98	5.62	LC in Max: CO84 LC in Min: CO65					
90	CO98	.00	MAX MIN	-287.31 106.85	194.13 -102.78	-1084.90 449.83	16.11 -11.07	5909.48 -2306.53
90	CO98	.00	LC in Max: CO65 LC in Min: CO24					
90	CO99	.00	MAX MIN	153.31 -291.18	-86.09 182.97	489.96 -1129.76	-152.87 16.11	-2220.80 -321.49
90	CO98	5.62	LC in Max: CO84 LC in Min: CO65					
90	CO99	.00	MAX MIN	-138.19 145.06	58.56 -80.04	-508.82 447.34	46.46 -160.24	2787.49 -1978.98
90	CO99	.00	LC in Max: CO73 LC in Min: CO82					
90	CO98	.00	MAX MIN	-287.31 106.85	194.13 -102.78	-1084.90 449.83	16.11 -11.07	5909.48 -2306.53
90	CO98	.00	LC in Max: CO65 LC in Min: CO24					
90	CO98	.00	MAX MIN	-287.31 106.85	194.13 -102.78	-1084.90 449.83	16.11 -11.07	5909.48 -2306.53
90	CO98	.00	LC in Max: CO65 LC in Min: CO24					
Section No 44 - 29: RO 168,3x10 - RO 127x10								
854	CO97	.00	MAX MIN	46.49 -227.71	-41 -38	2.19 1.82	-.09 -1.18	-2.54 -1.08
854	CO97	.00	LC in Max: CO5 LC in Min: CO17					
854	CO99	5.64	MAX MIN	-4.27 -187.92	.08 -5.0	-1.20 1.92	.00 -2.23	-1.04 -1.38
854	CO97	.00	LC in Max: CO67 LC in Min: CO17					
854	CO97	.00	MAX MIN	46.49 -227.65	-41 -27	2.19 -1.75	-.09 -1.18	-2.54 -1.41
854	CO97	5.64	LC in Max: CO5 LC in Min: CO17					
854	CO98	.00	MAX MIN	-69.42 -187.92	-.03 -5.0	1.69 1.92	.08 -2.23	-1.47 -1.38
854	CO97	.00	LC in Max: CO62 LC in Min: CO17					
854	CO97	2.82	MAX MIN	-201.48 46.49	-.31 -41	-.08 2.19	-.19 -0.09	1.29 -2.54
854	CO97	.00	LC in Max: CO17					

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃	
854 854	CO97 CO97	5.64 .00	LC in Min: CO5		MAX -210.20	-44	-1.68	-21	-1.19	1.20
			MIN	36.78	-47	2.18	-09	-2.47	-1.46	
			LC in Max: CO17 LC in Min: CO5							
Section No 50 - 51: Kasten(A) 700/8/8/650/1016/700/8 - Kasten(A) 700/8/8/650/756/700/8										
240 240	CO97 CO97	.00 .00	MAX MIN		707.22 .00	11.67 .00	-48.89 .00	-64.23 .00	-214.05 .00	-83.50 .00
240 240	CO99 CO98	.00 4.97	LC in Max: CO1 LC in Min:		MAX 189.68	36.97	-31.41	-200.52	-74.35	-247.49
			MIN	192.94	-20.97	-31.31	-18.48	-44.78	72.48	
			LC in Max: CO84 LC in Min: CO65							
240 240	CO97 CO98	.00 4.97	MAX MIN		.00 429.61	.00 -7.44	.00 -79.54	.00 35.72	.00 -602.03	.00 78.19
			LC in Max: LC in Min: CO58							
			MAX MIN	683.82 189.68	-7.29 36.97	-55.69 -31.41	35.99 -200.52	-272.23 -74.35	41.67 -247.49	
240 240	CO98 CO99	.00 .00	LC in Max: CO58 LC in Min: CO84		MAX 139.23	2.96	-17.09	-15.04	103.02	-26.34
			MIN	386.98	32.27	-75.05	-179.86	-664.29	-377.31	
			LC in Max: CO62 LC in Min: CO82							
240 240	CO98 CO99	4.97 4.97	MAX MIN		429.61 233.55	-7.44 36.95	-79.54 -41.46	35.72 -200.40	-602.03 -258.32	78.19 -431.28
			LC in Max: CO58 LC in Min: CO84							
Section No 51 - 50: Kasten(A) 700/8/8/650/756/700/8 - Kasten(A) 700/8/8/650/1016/700/8										
268 268	CO97 CO97	.00 .00	MAX MIN		708.02 .00	11.67 .00	-9.40 .00	-64.75 .00	363.58 .00	127.51 .00
268 268	CO99 CO98	.00 .00	LC in Max: CO1 LC in Min:		MAX 188.98	36.97	5.12	-201.36	161.11	421.18
			MIN	378.66	-9.87	4.04	21.26	241.83	-70.29	
			LC in Max: CO84 LC in Min: CO20							
268 268	CO98 CO99	.00 5.24	MAX MIN		139.86 531.63	2.96 32.36	43.79 -52.43	-15.44 -180.43	-152.75 366.30	26.99 199.04
			LC in Max: CO62 LC in Min: CO82							
			MAX MIN	681.78 188.98	-7.29 36.97	-22.50 5.12	35.80 -201.36	483.37 161.11	-89.87 421.18	
268 268	CO98 CO99	.00 .00	LC in Max: CO58 LC in Min: CO84		MAX 386.21	32.27	-37.38	-180.63	612.01	367.02
			MIN	139.86	2.96	43.79	-15.44	-152.75	26.99	
			LC in Max: CO82 LC in Min: CO62							
268 268	CO99 CO98	.00 .00	MAX MIN		188.98 427.10	36.97 -7.44	5.12 -16.88	-201.36 35.46	161.11 487.88	421.18 -92.92
			LC in Max: CO84 LC in Min: CO58							
Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15										
199 200	CO99 CO99	.00 .00	MAX MIN		3.17 -3.17	36.95 36.95	.90 .90	-01 .01	-09 -09	6.74 6.74
303 307	CO97 CO97	.00 .14	LC in Max: CO84 LC in Min: CO84		MAX -1.08	446.22	.31	.08	-03	81.56
			MIN	.74	-258.39	-39	-06	-03	.15	
			LC in Max: CO1 LC in Min: CO1							
199 193	CO99 CO99	.00 .00	MAX MIN		3.17 -2.14	36.95 -20.75	.90 -1.12	-01 .00	-09 .08	6.74 -2.79
			LC in Max: CO84 LC in Min: CO84							
			MAX MIN	.18 -1.18	428.22 428.22	-06 -06	.08 -08	.00 .00	78.27 78.27	
193 199	CO99 CO99	.00 .00	LC in Max: CO1 LC in Min: CO1		MAX -2.10	-23.35	-1.10	.00	.08	-3.15
			MIN	3.10	41.43	.88	-01	-09	7.56	
			LC in Max: CO82 LC in Min: CO82							
303 307	CO97 CO97	.00 .00	MAX MIN		-1.08 .74	446.22 -258.22	.31 -38	.08 -06	-03 .03	81.56 -34.72
			LC in Max: CO1 LC in Min: CO1							
Section No 64 - 63: Flachstahl 40/953 - Flachstahl 40/508										
175 176	CO99 CO98	.00 .00	MAX MIN		153.97 -432.95	-62.33 -188.93	-456.85 1365.50	1.86 .92	160.07 -477.71	-32.62 -44.46
175 176	CO98 CO98	.00 .00	LC in Max: CO84 LC in Min: CO65		MAX -415.77	181.21	1312.25	-92	-459.07	42.85
			MIN	-432.95	-188.93	.92	-477.71	-44.46		
			LC in Max: CO65 LC in Min: CO65							
176 175	CO98 CO99	.00 .35	MAX MIN		-432.95 153.97	-188.93 -62.33	1365.50 -457.78	.92 1.86	-477.71 .00	-44.46 -10.80
			LC in Max: CO65 LC in Min: CO65							

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
175	CO98	.00	LC in Max: CO65 LC in Min: CO84						
176	CO98	.00	MAX MIN	-20.74 141.25	23.56 58.12	89.56 -404.23	3.02 -2.62	-31.13 141.74	9.00 16.05
175	CO99	.00	LC in Max: CO66 LC in Min: CO20						
176	CO98	.00	MAX MIN	153.97 -432.95	-62.33 -188.93	-456.85 1365.50	1.86 .92	160.07 -477.71	-32.62 -44.46
175	CO98	.00	LC in Max: CO84 LC in Min: CO65						
176	CO98	.00	MAX MIN	-415.77 -432.95	181.21 -188.93	1312.25 1365.50	-.92 .92	-459.07 -477.71	42.85 -44.46
Section No 65 - 66: Flachstahl 35/666 - Flachstahl 35/500									
167	CO99	.00	MAX	280.98	6.73	-99.52	.53	38.16	1.23
168	CO98	.35	MIN LC in Max: CO84 LC in Min: CO65	-778.13	4.55	181.82	.62	18.18	-.89
170	CO98	.35	MAX MIN	-708.97 201.76	28.04 -7.76	-162.36 22.99	-.28 .05	-2.46 -7.63	-5.13 -1.26
168	CO98	.00	LC in Max: CO65 LC in Min: CO20						
167	CO98	.35	MAX MIN	-777.38 -607.99	4.43 -1.59	182.07 -235.26	.62 .55	-45.50 -17.85	.69 .84
168	CO98	.00	LC in Max: CO65 LC in Min: CO65						
169	CO98	.00	MAX MIN	-777.38 -731.38	4.43 12.29	182.07 126.09	.62 -.32	-45.50 -41.45	.69 2.75
167	CO98	.00	LC in Max: CO65 LC in Min: CO65						
168	CO98	.00	MAX MIN	-607.26 -777.38	-1.71 4.43	-235.01 182.07	.55 .62	64.46 -45.50	.26 .69
170	CO98	.00	LC in Max: CO65 LC in Min: CO65						
170	CO98	.35	MAX MIN	-708.24 -708.97	27.92 28.04	-162.11 -162.36	-.28 -.28	54.32 -2.46	4.67 -5.13
Section No 67 - 68: Kasten(A) 700/8/8/650/1016/700/8 - Kasten(A) 700/8/8/650/756/700/8									
580	CO98	5.05	MAX	531.86	3.86	-64.10	-14.13	-453.36	-44.46
580	CO99	.00	MIN LC in Max: CO62 LC in Min: CO82	-39.17	35.31	1.00	-129.35	175.46	-228.23
580	CO99	.00	MAX MIN	196.59 183.88	37.32 -21.14	-2.10 -32.51	-136.75 .90	103.77 -86.66	-241.30 35.83
580	CO99	5.05	LC in Max: CO84 LC in Min: CO65						
580	CO98	.00	MAX MIN	168.20 290.93	36.13 3.79	4.30 -70.31	-132.40 -13.91	149.20 -468.72	-233.61 -43.73
580	CO98	.00	LC in Max: CO84 LC in Min: CO62						
580	CO99	.00	MAX MIN	148.14 196.59	-3.85 37.32	-21.92 -2.10	14.08 -136.75	69.92 103.77	24.84 -241.30
580	CO99	1.68	LC in Max: CO58 LC in Min: CO84						
580	CO98	5.05	MAX MIN	19.71 290.93	35.23 3.79	-1.08 -70.31	-129.09 -13.91	175.65 -468.72	-287.13 -43.73
580	CO98	5.05	LC in Max: CO82 LC in Min: CO62						
580	CO99	5.05	MAX MIN	148.57 196.89	-3.85 37.32	-38.72 -13.50	14.08 -136.75	-84.47 63.58	44.27 -429.96
580	CO99	5.05	LC in Max: CO58 LC in Min: CO84						
Section No 68 - 67: Kasten(A) 700/8/8/650/756/700/8 - Kasten(A) 700/8/8/650/1016/700/8									
640	CO98	.00	MAX	530.04	3.86	-6.25	-14.18	340.96	44.42
640	CO99	5.22	MIN LC in Max: CO62 LC in Min: CO82	-38.23	35.31	37.30	-129.69	-74.38	221.95
640	CO99	.00	MAX MIN	197.38 153.63	37.32 -8.57	34.05 33.97	-137.12 7.47	-178.88 -42.94	429.58 -33.56
640	CO98	.00	LC in Max: CO84 LC in Min: CO20						
640	CO97	.00	MAX MIN	11.76 529.60	13.84 3.86	55.60 -23.60	-50.83 -14.18	-220.50 264.22	159.29 24.26
640	CO98	5.22	LC in Max: CO1 LC in Min: CO62						
640	CO98	.00	MAX MIN	148.53 197.38	-3.85 37.32	38.49 34.05	14.12 -137.12	-94.69 -178.88	-44.23 429.58
640	CO99	.00	LC in Max: CO58 LC in Min: CO84						
640	CO98	.00	MAX MIN	530.04 20.88	3.86 35.23	-6.25 48.04	-14.18 -129.44	340.96 -301.96	44.42 405.52
640	CO99	.00	LC in Max: CO62 LC in Min: CO82						
640	CO99	.00	MAX MIN	197.38 183.40	37.32 11.60	34.05 14.34	-137.12 -1.51	-178.88 59.31	429.58 -48.18
640	CO98	5.22	LC in Max: CO84 LC in Min: CO65						
Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15									
540	CO99	.00	MAX	2.85	124.86	.81	-.02	-.08	22.81

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Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
541	CO99	.00	MIN LC in Max: CO84 LC in Min: CO84	-2.85	124.86	.81	.02	-.08	22.81
675	CO97	.00	MAX	-1.19	305.78	.34	.04	-.03	55.88
679	CO97	.14	MIN LC in Max: CO17 LC in Min: CO17	.79	-176.73	-.42	-.04	-.03	.11
540	CO99	.00	MAX	2.85	124.86	.81	-.02	-.08	22.81
534	CO99	.00	MIN LC in Max: CO84 LC in Min: CO84	-1.94	-71.85	-1.01	.01	.08	-9.67
675	CO98	.00	MAX	-.30	290.17	.08	.05	-.01	53.03
676	CO98	.00	MIN LC in Max: CO62 LC in Min: CO62	.30	290.17	.08	-.05	-.01	53.03
534	CO99	.00	MAX	-1.94	-22.19	-1.00	.00	.08	-2.99
540	CO99	.00	MIN LC in Max: CO84 LC in Min: CO82	2.75	33.04	.78	.00	-.08	6.03
675	CO97	.00	MAX	-1.19	305.78	.34	.04	-.03	55.88
679	CO97	.00	MIN LC in Max: CO17 LC in Min: CO17	.79	-176.57	-.41	-.04	.03	-23.74
Section No 81 - 82: Flachstahl 500/35 - Flachstahl 656/35									
581	CO98	.00	MAX	557.94	-15.23	.96	.00	-.23	-.16
599	CO98	.27	MIN LC in Max: CO62 LC in Min: CO62	-1557.90	15.35	3.39	.00	.26	-3.98
639	CO99	.00	MAX	51.93	149.57	.67	.00	.06	1.57
581	CO99	.00	MIN LC in Max: CO84 LC in Min: CO84	-323.37	-149.69	-1.62	.00	.08	-1.57
639	CO98	.00	MAX	-831.53	15.46	3.46	.00	-.23	.16
581	CO97	.00	MIN LC in Max: CO62 LC in Min: CO17	-453.12	-58.56	-2.65	.00	.09	-.62
581	CO97	.00	MAX	.00	.00	.00	.00	.00	.00
581	CO97	.00	MIN LC in Max: CO62 LC in Min: CO62	.00	.00	.00	.00	.00	.00
639	CO98	.27	MAX	-832.26	15.46	3.46	.00	.70	-4.01
599	CO98	.00	MIN LC in Max: CO62 LC in Min: CO62	-1557.17	15.35	3.39	.00	-.65	.16
581	CO99	.27	MAX	-323.85	-149.69	-1.62	.00	-.36	38.84
639	CO99	.27	MIN LC in Max: CO84 LC in Min: CO84	51.45	149.57	.67	.00	.24	-38.82
Section No 83 - 84: Flachstahl 656/70 - Flachstahl 500/70									
583	CO98	.00	MAX	1281.49	-29.20	-128.49	.01	20.21	-7.88
597	CO98	.27	MIN LC in Max: CO62 LC in Min: CO62	-3464.25	29.44	-292.57	.01	-35.14	.00
637	CO99	.00	MAX	339.99	286.94	124.77	.10	-19.71	77.47
583	CO99	.00	MIN LC in Max: CO84 LC in Min: CO84	-433.68	-287.09	-82.94	.11	13.16	-77.52
623	CO97	.00	MAX	-2492.83	-114.03	263.14	.04	-39.30	-30.80
597	CO98	.00	MIN LC in Max: CO5 LC in Min: CO62	-3462.80	29.44	-292.57	.01	43.86	7.95
583	CO99	.00	MAX	-592.02	-277.99	4.10	.11	-.65	-75.06
583	CO98	.00	MIN LC in Max: CO82 LC in Min: CO65	55.53	-6.06	-79.88	-.03	12.61	-1.63
597	CO98	.00	MAX	-3462.80	29.44	-292.57	.01	43.86	7.95
623	CO97	.00	MIN LC in Max: CO62 LC in Min: CO5	-2492.83	-114.03	263.14	.04	-39.30	-30.80
637	CO99	.00	MAX	339.99	286.94	124.77	.10	-19.71	77.47
583	CO99	.00	MIN LC in Max: CO84 LC in Min: CO84	-433.68	-287.09	-82.94	.11	13.16	-77.52
Section No 85 - 86: Pi(A) 500/35/12/135/376 - Pi(A) 656/35/12/435/376									
634	CO99	.00	MAX	445.06	129.68	-6.20	.03	-.23	-1.52
626	CO97	.28	MIN LC in Max: CO82 LC in Min: CO17	-1494.99	53.31	40.17	.01	10.92	-15.33
634	CO99	.00	MAX	305.89	137.37	63.29	.03	-1.58	-1.61
634	CO98	.00	MIN LC in Max: CO84 LC in Min: CO58	129.63	-14.15	46.44	.00	-1.07	.16
634	CO98	.28	MAX	-458.88	14.20	202.99	.00	52.07	-4.08
626	CO98	.00	MIN LC in Max: CO62 LC in Min: CO62	329.13	13.86	-84.09	.00	1.38	-.16
626	CO99	.00	MAX	-699.03	131.79	46.33	.03	-.54	-1.54
626	CO97	.00	MIN LC in Max: CO82 LC in Min: CO82	.00	.00	.00	.00	.00	.00
634	CO98	.28	MAX	-458.88	14.20	202.99	.00	52.07	-4.08

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 249
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MAX/MIN/CORR INTERNAL FORCES BY SECTION

Elem No	CO No	x [m]		N	Forces [kN] V ₂	V ₃	T	Moments [kNm] M ₂	M ₃
626	CO98	.28	MIN LC in Max: CO62 LC in Min: CO62	328.20	13.86	-83.90	.00	-21.79	-3.98
634	CO98	.28	MAX	128.68	-14.15	46.63	.00	11.76	4.06
634	CO99	.28	MIN LC in Max: CO58 LC in Min: CO84	305.25	137.37	63.43	.03	15.88	-39.49
Section No 86 - 85: Pi(A) 656/35/12/435/376 - Pi(A) 500/35/12/135/376									
586	CO98	.28	MAX	800.71	14.20	-69.27	.00	-2.13	.16
594	CO98	.00	MIN LC in Max: CO62 LC in Min: CO62	-1928.97	14.09	-97.83	.00	25.97	4.05
586	CO99	.00	MAX	-93.50	137.41	-102.45	.03	26.16	39.50
594	CO98	.00	MIN LC in Max: CO84 LC in Min: CO65	-546.84	-19.10	-7.44	.00	2.12	-5.48
594	CO99	.28	MAX	349.62	128.92	50.62	.03	.77	1.52
586	CO97	.00	MIN LC in Max: CO82 LC in Min: CO17	-11.48	53.76	-176.48	.01	44.93	15.45
586	CO99	.00	MAX	-266.19	132.90	-65.12	.03	16.80	38.20
586	CO97	.00	MIN LC in Max: CO82 LC in Min: CO17	.00	.00	.00	.00	.00	.00
586	CO97	.00	MAX	-11.48	53.76	-176.48	.01	44.93	15.45
594	CO99	.00	MIN LC in Max: CO17 LC in Min: CO82	348.99	128.92	50.49	.03	-13.17	37.06
586	CO99	.00	MAX	-93.50	137.41	-102.45	.03	26.16	39.50
594	CO98	.00	MIN LC in Max: CO84 LC in Min: CO65	-546.84	-19.10	-7.44	.00	2.12	-5.48
Section No 89 - 94: Kasten(A) 770/20/12/710/2500/770/20 - Kasten(A) 770/20/12/710/2247/770/20									
587	CO99	.00	MAX	59.10	2.16	-30.48	420.12	1055.55	63.22
587	CO97	7.00	MIN LC in Max: CO82 LC in Min: CO17	-2603.66	.03	105.39	5.28	-1324.18	.60
587	CO98	.00	MAX	-893.40	45.56	47.29	-20.86	-610.63	-37.11
633	CO98	.00	MIN LC in Max: CO65 LC in Min: CO65	-875.12	-45.56	40.23	22.92	-451.89	37.42
587	CO98	.00	MAX	-2375.38	.23	163.31	45.93	-3177.32	6.91
633	CO98	7.00	MIN LC in Max: CO62 LC in Min: CO62	-492.40	.23	-54.92	45.16	1239.42	5.17
587	CO99	.00	MAX	-1167.07	2.28	18.72	444.16	-48.24	66.84
587	CO98	.00	MIN LC in Max: CO84 LC in Min: CO58	-673.50	-.23	38.88	-45.72	-377.99	-6.89
633	CO98	.00	MAX	-413.33	.23	-40.42	45.16	1573.60	6.79
587	CO98	.00	MIN LC in Max: CO62 LC in Min: CO62	-2375.38	.23	163.31	45.93	-3177.32	6.91
633	CO98	7.00	MAX	-941.33	-23.73	30.01	23.00	-206.50	279.95
587	CO98	7.00	MIN LC in Max: CO65 LC in Min: CO65	-959.61	23.73	37.08	-20.94	-315.78	-279.69
Section No 92 - 90: Kasten(A) 770/15/12/710/1215/770/15 - Kasten(A) 770/15/12/710/772/770/15									
576	CO97	.00	MAX	.00	.00	.00	.00	.00	.00
576	CO97	7.00	MIN LC in Max: CO17 LC in Min: CO17	-2770.56	.03	84.93	5.28	542.03	.06
644	CO98	7.00	MAX	-1065.92	38.11	10.80	23.00	178.47	137.29
576	CO98	7.00	MIN LC in Max: CO65 LC in Min: CO65	-1084.20	-38.11	17.86	-20.94	209.33	-137.24
576	CO98	.00	MAX	-2562.64	.23	138.63	45.93	-225.86	2.23
644	CO98	7.00	MIN LC in Max: CO62 LC in Min: CO62	-640.94	.23	-84.31	45.16	-164.73	.57
576	CO99	.00	MAX	-1293.80	2.28	-.83	444.16	110.17	21.59
576	CO98	.00	MIN LC in Max: CO84 LC in Min: CO58	-860.77	-.23	14.18	-45.72	105.66	-2.23
576	CO98	7.00	MAX	-2605.28	.23	134.34	45.93	728.64	.58
576	CO98	.00	MIN LC in Max: CO62 LC in Min: CO62	-2562.64	.23	138.63	45.93	-225.86	2.23
644	CO98	.00	MAX	-1030.67	16.28	16.24	23.00	84.56	327.70
576	CO98	.00	MIN LC in Max: CO65 LC in Min: CO65	-1048.95	-16.28	23.30	-20.94	65.96	-327.58
Section No 95 - 91: Kasten(A) 770/15/12/710/2247/770/15 - Kasten(A) 770/15/12/710/1215/770/15									
803	CO99	.00	MAX	5.17	2.16	-38.80	420.12	812.72	48.11
803	CO97	12.83	MIN LC in Max: CO82 LC in Min: CO17	-2723.35	.03	90.71	5.28	-72.01	.25
803	CO98	.00	MAX	-959.59	23.75	37.08	-20.86	-315.74	-279.69
804	CO98	.00	MIN LC in Max: CO65 LC in Min: CO65	-941.31	-23.73	30.01	22.92	-206.46	279.94

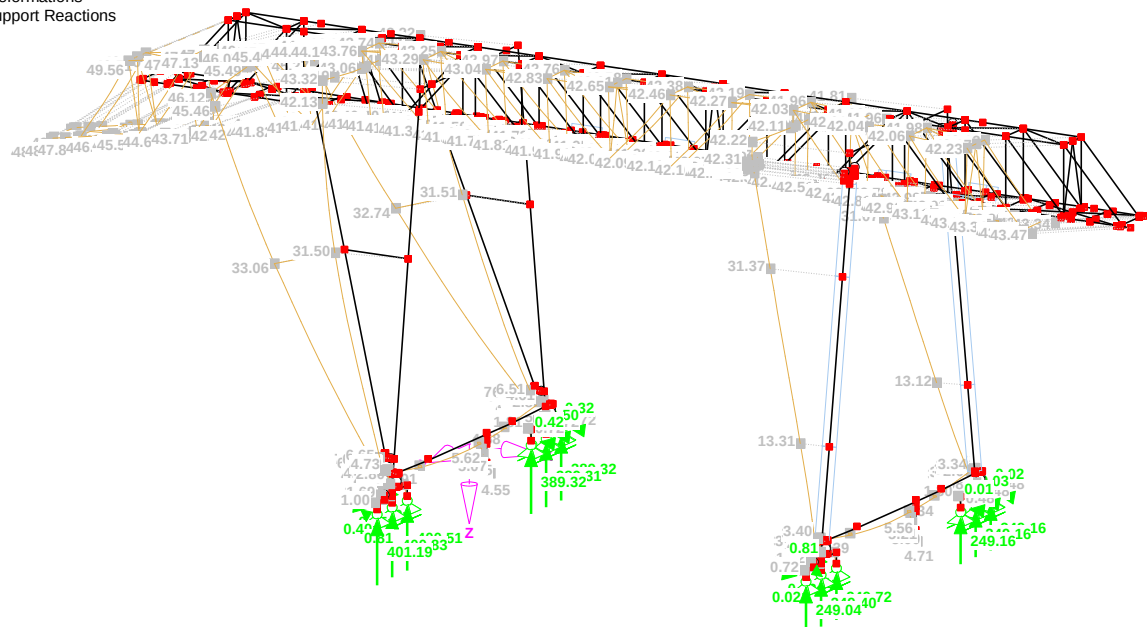
Max u: 11.07 mm
Factor for Deformations: 800

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 253
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RESULTS

CO 87 - LT+Zutritt -netto
Max Deformations
Min Support Reactions

Isometric



Max u: 49.56 mm
Factor for Deformations: 200

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STEEL1 - SPANNUNGSANALYSE EKSTREM H,HZ,HS

GENERAL DATA

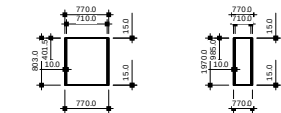
ELEMENTS TO DESIGN	All
LOAD CASES TO DESIGN	CO97 EXTREM MAX/MIN Fall H CO98 EXTREM MAX/MIN Fall HZ CO99 EXTREM MAX/MIN Fall HS

MATERIALS

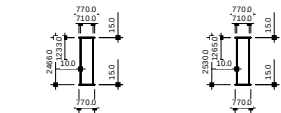
Mat No	Material Description	Material Code, Criterion	Allowable Stresses [N/mm²]		
			Sigma	Tau	Sigma eq
1	Stahl St 52	DIN 18800 t ≤ 40 mm	327.3	188.9	327.3
3	NiroStahl 1.4021	DIN 18800 t > 40 mm	409	245	409

SECTIONS

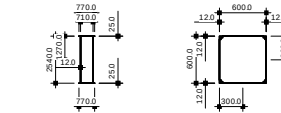
Kasten(A) 770/15/10/710/803/770/15 Kasten(A) 770/15/10/710/1970/770/15



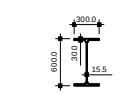
Kasten(A) 770/15/10/710/2466/770/15 Kasten(A) 770/15/10/710/2530/770/15



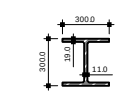
Kasten(A) 770/25/12/710/2540/770/25 TO 600/600/12/12/12/12/37/25



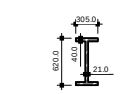
HE-B 600



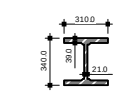
HE-B 300



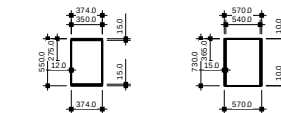
HE-M 600



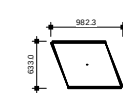
HE-M 300



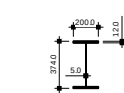
Kasten(A) 374/15/12/350/550/374/15 Kasten(A) 570/10/15/540/730/570/10



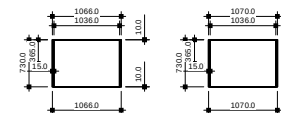
Venlo TREAGER 3



IS 374/200/5/12



Kasten(A) 1066/01/01/036/730/1066/0 Kasten(A) 1070/01/01/036/730/1070/0



Sec No	Mat No	Section Description Section Rotation	I-T [cm⁴] A [cm²]	I-2 [cm⁴] Alpha pl y	I-3 [cm⁴] Alpha pl z
1	-1	Dummy Rigid	1.000E+07 100.00	1.000E+07 1.00	1.000E+07 1.00
2	1	Kasten(A) 770/15/10/710/803/770/15	507948.08 385.60	435620.17 1.00	314507.77 1.00
4	1	Kasten(A) 770/15/10/710/1970/770/15	1.628E+06 619.00	3.424E+06 1.00	617013.73 1.00
5	1	Kasten(A) 770/15/10/710/2466/770/15	2.125E+06 718.20	5.879E+06 1.00	745585.14 1.00
6	1	Kasten(A) 770/15/10/710/2530/770/15	2.190E+06 731.00	6.257E+06 1.00	762175.07 1.00
7	1	Kasten(A) 770/25/12/710/2540/770/25	2.766E+06 982.60	9.176E+06 1.00	969092.27 1.00
14	1	TO 600/600/12/12/12/12/37/25	248548.04 275.85	156978.62 1.00	156978.62 1.00
17	1	HE-B 600	669.00 270.00	171000.03 1.14	13530.00 1.25
18	1	HE-B 300 α = 90.00°	186.00 149.00	25170.01 1.14	8560.00 1.25
19	1	HE-M 600	1570.00 364.00	237400.06 1.14	18980.00 1.25
21	1	HE-M 300 α = 90.00°	1410.00 303.00	59200.01 1.14	19400.00 1.25
22	1	Kasten(A) 374/15/12/350/550/374/15	109318.03 237.00	108428.77 1.00	53979.12 1.00
23	1	Kasten(A) 570/10/15/540/730/570/10 α = 90.00°	308760.07 327.00	237231.31 1.00	194928.80 1.00
24	1	Venlo TREAGER 3 α = 31.61°	410644.99 380.66	205794.00 1.00	415046.00 1.00
25	1	IS 374/200/5/12	23.68 65.50	17517.50 1.14	1600.36 1.25
26	1	Kasten(A) 1066/10/15/1036/730/1066/10	748273.12 426.20	365802.76 1.00	790132.68 1.00
27	1	Kasten(A) 1070/10/15/1036/730/1070/10	748274.15 427.00	366839.65 1.00	792413.95 1.00
28	1	RO 127x5,6	786.93 21.36	394.30 1.00	394.30 1.00
29	1	RO 127x10	1257.90 36.76	633.55 1.00	633.55 1.00
30	1	IS 302/250/8/20	131.43 120.96	21113.32 1.14	5209.45 1.25
31	1	IS 292/250/8/15	58.85 95.96	15599.73 1.14	3907.37 1.25
32	1	IS 618/300/12/15	100.11 160.56	102158.67 1.14	6758.47 1.25
33	1	IS 302/250/15/20	158.34 139.30	22162.43 1.14	5215.70 1.25
34	1	IS 292/250/10/15	63.36 101.20	15899.48 1.14	3908.43 1.25
39	1	Venlo TREAGER 2A α = -12.19°	584165.01 475.01	647311.01 1.00	346020.00 1.00
40	1	Venlo TREAGER 1A α = -2.09°	1.545E+06 670.81	3.522E+06 1.00	609859.03 1.00
41	1	HE-A 160	12.30 38.80	1670.00 1.14	616.00 1.25
42	1	IS 302/450/15/20	265.01 219.30	38093.90 1.14	30382.37 1.25
43	1	Kasten(A) 480/30/15/350/570/480/30	162260.02 441.00	243330.79 1.00	106283.27 1.00
44	1	RO 168,3x10	3115.54 49.73	1563.98 1.00	1563.98 1.00
49	2	Dummy Rigid	0.00 0.00	0.00 1.00	0.00 1.00
50	1	Kasten(A) 700/8/8/650/1016/700/8	422549.06 272.00	417837.31 1.00	218927.51 1.00
51	1	Kasten(A) 700/8/8/650/756/700/8	275719.05 230.40	210697.02 1.00	173897.03 1.00
52	3	Rundstahl 140	3771.48	1885.74	1885.74

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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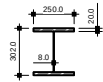
RO 127x5,6



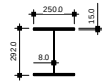
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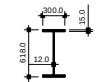
IS 302/250/8/20



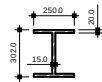
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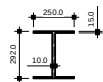
IS 618/300/12/15



IS 302/250/15/20



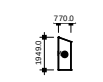
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Venlo TREAGER 2A



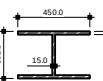
Venlo TREAGER 1A



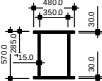
HE-A 160



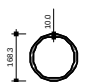
IS 302/450/15/20



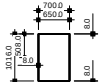
Kasten(A) 480/30/15/350/570/480/30



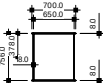
RO 168,3x10



Kasten(A) 700/8/8/650/1016/700/8



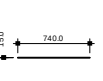
Kasten(A) 700/8/8/650/756/700/8



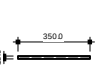
Rundstahl 140



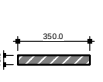
Flachstahl 740/15



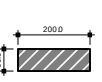
Flachstahl 350/15



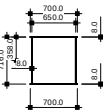
Flachstahl 350/40



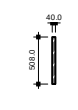
Flachstahl 200/60



Kasten(A) 700/8/8/650/716/700/8



Flachstahl 40/508



SECTIONS

Sec No	Mat No	Section Description Section Rotation	I-T [cm ⁴] A [cm ²]	I-2 [cm ⁴] Alpha pl y	I-3 [cm ⁴] Alpha pl z
52			153.94	1.00	1.00
53	1	Flachstahl 740/15	82.19 111.00	20.81 1.00	50653.01 1.00
54	1	Flachstahl 350/15	38.31 52.50	9.84 1.00	5359.38 1.00
55	1	Flachstahl 350/40	692.91 140.00	186.67 1.00	14291.67 1.00
56	1	Flachstahl 200/60	1168.02 120.00	360.00 1.00	4000.00 1.00
60	1	Kasten(A) 700/8/8/650/716/700/8	254255.04 224.00	186093.26 1.00	166969.26 1.00
63	1	Flachstahl 40/508	1029.97 203.20	43698.85 1.00	270.93 1.00
64	1	Flachstahl 40/953	1979.31 381.20	288507.78 1.00	508.27 1.00
65	1	Flachstahl 35/666	920.31 233.10	86160.77 1.00	237.96 1.00
66	1	Flachstahl 35/500	683.07 175.00	36458.34 1.00	178.65 1.00
67	1	Kasten(A) 700/8/8/650/1016/700/8	422549.06 272.00	417837.31 1.00	218927.51 1.00
68	1	Kasten(A) 700/8/8/650/756/700/8	275719.05 230.40	210697.02 1.00	173897.03 1.00
69	3	Rundstahl 140	3771.48 153.94	1885.74 1.00	1885.74 1.00
70	1	Flachstahl 740/15	82.19 111.00	20.81 1.00	50653.01 1.00
71	1	Flachstahl 350/15	38.31 52.50	9.84 1.00	5359.38 1.00
72	1	Flachstahl 350/40	692.91 140.00	186.67 1.00	14291.67 1.00
73	1	Flachstahl 200/60	1168.02 120.00	360.00 1.00	4000.00 1.00
76	1	Kasten(A) 700/8/8/650/716/700/8	254255.04 224.00	186093.26 1.00	166969.26 1.00
79	1	Kasten(A) 770/20/15/710/1680/770/20	1.973E+06 800.00	3.225E+06 1.00	798788.85 1.00
80	3	Rundstahl 220	22998.00 380.13	11499.02 1.00	11499.02 1.00
81	1	Flachstahl 500/35	683.07 175.00	178.65 1.00	36458.34 1.00
82	1	Flachstahl 656/35	906.02 229.60	234.38 1.00	82337.64 1.00
83	1	Flachstahl 656/70	6996.06 459.20	1875.07 1.00	164675.27 1.00
84	1	Flachstahl 500/70	5212.47 350.00	1429.17 1.00	72916.68 1.00
85	1	Pi(A) 500/35/12/135/376	696.57 199.00	1340.27 1.00	45493.86 1.00
86	1	Pi(A) 656/35/12/435/376	953.69 325.60	45058.52 1.00	118479.73 1.00
87	1	Kasten(A) 770/15/10/710/1640/770/15	1.301E+06 553.00	2.221E+06 1.00	531472.17 1.00
88	1	Venlo TRAAGER5	2315.66 460.60	256402.00 1.00	19328.90 1.00
89	1	Kasten(A) 770/20/12/710/2500/770/20	2.642E+06 898.40	7.713E+06 1.00	921663.83 1.00
90	1	Kasten(A) 770/15/12/710/772/770/15	537446.09 409.08	412682.86 1.00	346230.34 1.00
91	1	Kasten(A) 770/15/12/710/1215/770/15	1.014E+06 515.40	1.164E+06 1.00	484800.39 1.00
92	1	Kasten(A) 770/15/12/710/1215/770/15	1.014E+06 515.40	1.164E+06 1.00	484800.39 1.00
93	1	IS 302/250/15/25	275.18 162.80	26043.29 1.14	6517.51 1.25
94	1	Kasten(A) 770/20/12/710/2247/770/20	2.333E+06 837.68	5.969E+06 1.00	842525.62 1.00
95	1	Kasten(A) 770/15/12/710/2247/770/15	2.219E+06 763.08	5.056E+06 1.00	807609.22 1.00
96	1	IS 302/250/8/25	248.74 145.16	25109.79 1.14	6511.49 1.25
97	1	IS 374/260/8/20	137.99 130.72	35100.81 1.14	5860.09 1.25
98	1	Kasten(A) 480/35/15/350/570/480/35	166880.04 486.00	272022.07 1.00	114499.52 1.00
99	1	RO 168,3x12,5	3712.81 61.18	1868.35 1.00	1868.35 1.00
100	1	IS 374/200/5/12 $\alpha = 90.00^\circ$	23.68 65.50	17517.50 1.14	1600.36 1.25

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Flachstahl 40/953



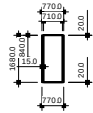
Flachstahl 35/666



Flachstahl 35/500



Kasten(A) 770/20/15/710/1680/770/20



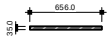
Rundstahl 220



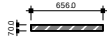
Flachstahl 500/35



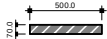
Flachstahl 656/35



Flachstahl 656/70



Flachstahl 500/70



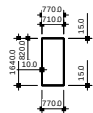
PI(A) 500/35/12/135/376



PI(A) 656/35/12/435/376



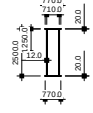
Kasten(A) 770/15/10/710/1640/770/15



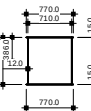
Venlo TRAEGER5



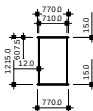
Kasten(A) 770/20/12/710/2500/770/20



Kasten(A) 770/15/12/710/772/770/15



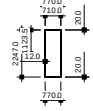
Kasten(A) 770/15/12/710/1215/770/15



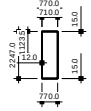
IS 302/250/15/25



Kasten(A) 770/20/12/710/2247/770/20



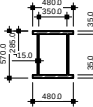
Kasten(A) 770/15/12/710/2247/770/15 IS 302/250/15/25



IS 374/260/8/20



Kasten(A) 480/35/15/350/570/480/35



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RO 168,3x12,5



MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm^2] existing	allowable	Stress Ratio
Element No 1: Section No 32 - IS 618/300/12/15						
Sigma Total	0.430	10	CO98 -V-2	-46.47	327.30	0.14
Tau Total	0.430	3	CO98 -V-2	-2.18	188.90	0.01
Sigma eq	0.430	10	CO98 -V-2	46.48	327.30	0.14
Element No 2: Section No 32 - IS 618/300/12/15						
Sigma Total	2.600	10	CO98 -V-2	-36.39	327.30	0.11
Tau Total	2.600	3	CO98 -V-2	-2.14	188.90	0.01
Sigma eq	2.600	10	CO98 -V-2	36.39	327.30	0.11
Element No 3: Section No 32 - IS 618/300/12/15						
Sigma Total	0.000	1	CO98 -V-3	-38.83	327.30	0.12
Tau Total	0.430	3	CO98 -V-2	-1.90	188.90	0.01
Sigma eq	0.000	1	CO98 -V-3	38.84	327.30	0.12
Element No 4: Section No 17 - HE-B 600						
Sigma Total	0.000	5	CO98 -N	-21.04	327.30	0.06
Tau Total	0.150	8	CO98 -N	-63.22	188.90	0.33
Sigma eq	0.150	8	CO98 -N	109.50	327.30	0.33
Element No 5: Section No 17 - HE-B 600						
Sigma Total	0.150	6	CO98 +V-3	17.97	327.30	0.05
Tau Total	0.000	8	CO98 +V-3	59.89	188.90	0.32
Sigma eq	0.150	6	CO98 +V-3	104.93	327.30	0.32
Element No 6: Section No 17 - HE-B 600						
Sigma Total	1.080	5	CO97 -M-3	21.85	327.30	0.07
Tau Total	1.080	8	CO98 -N	-63.39	188.90	0.34
Sigma eq	1.080	8	CO98 -N	109.85	327.30	0.34
Element No 7: Section No 17 - HE-B 600						
Sigma Total	1.080	1	CO98 +N	33.62	327.30	0.10
Tau Total	0.000	8	CO98 +V-3	59.86	188.90	0.32
Sigma eq	1.080	1	CO98 +N	105.54	327.30	0.32
Element No 8: Section No 17 - HE-B 600						
Sigma Total	1.130	6	CO98 -N	-202.21	327.30	0.62
Tau Total	1.130	13	CO98 -N	-91.68	188.90	0.49
Sigma eq	1.130	6	CO98 -N	230.60	327.30	0.70
Element No 9: Section No 17 - HE-B 600						
Sigma Total	1.130	1	CO97 -V-3	142.91	327.30	0.44
Tau Total	1.130	13	CO98 +N	-92.08	188.90	0.49
Sigma eq	1.130	5	CO98 +N	175.68	327.30	0.54
Element No 10: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	8	CO97 -M-3	214.48	327.30	0.66
Tau Total	0.000	10	CO97 -T	-152.91	188.90	0.81
Sigma eq	0.430	10	CO97 -T	266.44	327.30	0.81
Element No 11: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	1.300	16	CO97 +V-2	-170.66	327.30	0.52
Tau Total	1.300	15	CO97 -N	-32.56	188.90	0.17
Sigma eq	1.300	18	CO97 +V-2	172.55	327.30	0.53
Element No 12: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	16	CO98 -V-2	-149.10	327.30	0.46
Tau Total	0.000	5	CO98 -V-2	-21.11	188.90	0.11
Sigma eq	0.000	17	CO98 -V-2	149.11	327.30	0.46
Element No 13: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	16	CO97 -M-3	-160.01	327.30	0.49
Tau Total	0.430	10	CO97 +T	106.62	188.90	0.56
Sigma eq	0.000	10	CO97 +T	186.07	327.30	0.57
Element No 14: Section No 17 - HE-B 600						
Sigma Total	0.000	10	CO97 +V-2	-199.54	327.30	0.61
Tau Total	0.000	13	CO97 +V-2	46.53	188.90	0.25
Sigma eq	0.000	10	CO97 +V-2	199.56	327.30	0.61
Element No 15: Section No 17 - HE-B 600						
Sigma Total	0.000	6	CO97 -V-2	-167.73	327.30	0.51
Tau Total	0.000	13	CO97 -V-2	37.66	188.90	0.20
Sigma eq	0.000	6	CO97 -V-2	167.73	327.30	0.51
Element No 16: Section No 29 - RO 127x10						
Sigma Total	0.000	32	CO98 -N	-127.68	327.30	0.39
Tau Total	0.000	22	CO98 +V-2	-2.68	188.90	0.01
Sigma eq	0.000	32	CO98 -N	127.69	327.30	0.39
Element No 17: Section No 29 - RO 127x10						
Sigma Total	0.000	26	CO97 -N	-92.97	327.30	0.28
Tau Total	0.000	35	CO97 -V-2	4.42	188.90	0.02
Sigma eq	0.000	26	CO97 -N	93.10	327.30	0.28
Element No 18: Section No 17 - HE-B 600						
Sigma Total	0.000	5	CO97 +T	-127.48	327.30	0.39
Tau Total	0.630	13	CO97 -N	-51.36	188.90	0.27
Sigma eq	0.000	5	CO97 +T	127.56	327.30	0.39
Element No 19: Section No 17 - HE-B 600						
Sigma Total	0.000	1	CO97 -M-3	-109.32	327.30	0.33
Tau Total	0.630	13	CO97 -V-3	-45.31	188.90	0.24
Sigma eq	0.000	1	CO97 -M-3	114.40	327.30	0.35
Element No 20: Section No 41 - HE-A 160						
Sigma Total	0.830	10	CO98 -V-2	-150.31	327.30	0.46
Tau Total	0.830	3	CO98 -V-2	-10.03	188.90	0.05
Sigma eq	0.830	10	CO98 -V-2	150.32	327.30	0.46
Element No 21: Section No 33 - IS 302/250/15/20						
Sigma Total	0.000	6	CO97 -V-3	232.30	327.30	0.71

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm^2] existing	allowable	Stress Ratio
Tau Total	7.430	13	CO97 -V-3	-6.50	188.90	0.03
Sigma eq	0.000	6	CO97 -V-3	232.30	327.30	0.71
Element No 22: Section No 41 - HE-A 160						
Sigma Total	1.790	10	CO99 -V-3	-48.81	327.30	0.15
Tau Total	1.790	13	CO99 -V-2	-4.68	188.90	0.02
Sigma eq	1.790	10	CO99 -V-3	48.81	327.30	0.15
Element No 23: Section No 33 - IS 302/250/15/20						
Sigma Total	0.000	1	CO97 +V-3	153.20	327.30	0.47
Tau Total	0.000	13	CO97 +V-3	2.35	188.90	0.01
Sigma eq	0.000	1	CO97 +V-3	153.20	327.30	0.47
Element No 24: Section No 41 - HE-A 160						
Sigma Total	0.000	10	CO97 -M-2	-115.02	327.30	0.35
Tau Total	0.830	8	CO97 -N	-7.73	188.90	0.04
Sigma eq	0.000	10	CO97 -M-2	115.02	327.30	0.35
Element No 26: Section No 29 - RO 127x10						
Sigma Total	2.470	18	CO98 -N	-142.71	327.30	0.44
Tau Total	0.000	7	CO97 +T	3.70	188.90	0.02
Sigma eq	2.470	18	CO98 -N	142.72	327.30	0.44
Element No 27: Section No 29 - RO 127x10						
Sigma Total	2.470	2	CO97 -N	-101.14	327.30	0.31
Tau Total	0.000	31	CO97 -N	3.00	188.90	0.02
Sigma eq	2.470	2	CO97 -N	101.16	327.30	0.31
Element No 29: Section No 17 - HE-B 600						
Sigma Total	0.170	6	CO97 -V-3	-201.72	327.30	0.62
Tau Total	0.170	13	CO97 -V-3	-47.32	188.90	0.25
Sigma eq	0.170	6	CO97 -V-3	202.87	327.30	0.62
Element No 30: Section No 17 - HE-B 600						
Sigma Total	0.170	10	CO97 -V-3	-158.04	327.30	0.48
Tau Total	0.170	13	CO97 -T	-30.85	188.90	0.16
Sigma eq	0.170	10	CO97 -V-3	158.17	327.30	0.48
Element No 31: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	8	CO97 -T	153.51	327.30	0.47
Tau Total	0.000	10	CO97 -V-2	-141.09	188.90	0.75
Sigma eq	0.430	10	CO97 -V-2	254.86	327.30	0.78
Element No 32: Section No 30 - IS 302/250/8/20						
Sigma Total	0.000	5	CO97 -V-3	-155.96	327.30	0.48
Tau Total	5.500	13	CO97 -V-3	-5.95	188.90	0.03
Sigma eq	0.000	5	CO97 -V-3	155.96	327.30	0.48
Element No 33: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.220	8	CO97 -T	121.13	327.30	0.37
Tau Total	0.220	15	CO97 -T	-13.90	188.90	0.07
Sigma eq	0.220	8	CO97 -T	121.71	327.30	0.37
Element No 35: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	2.160	8	CO97 -T	116.37	327.30	0.36
Tau Total	2.160	15	CO97 -T	-13.85	188.90	0.07
Sigma eq	2.160	8	CO97 -T	116.97	327.30	0.36
Element No 36: Section No 97 - IS 374/260/8/20						
Sigma Total	1.300	6	CO97 +M-2	122.36	327.30	0.37
Tau Total	0.000	13	CO97 +V-3	17.00	188.90	0.09
Sigma eq	1.300	6	CO97 +M-2	122.37	327.30	0.37
Element No 37: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	8	CO98 -V-2	107.28	327.30	0.33
Tau Total	0.220	15	CO97 -T	-13.41	188.90	0.07
Sigma eq	0.000	8	CO98 -V-2	107.28	327.30	0.33
Element No 38: Section No 30 - IS 302/250/8/20						
Sigma Total	0.000	10	CO97 +V-3	-112.16	327.30	0.34
Tau Total	0.000	13	CO97 +V-3	3.50	188.90	0.02
Sigma eq	0.000	10	CO97 +V-3	112.17	327.30	0.34
Element No 39: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	8	CO97 +T	125.32	327.30	0.38
Tau Total	0.000	5	CO97 +T	116.46	188.90	0.62
Sigma eq	0.000	10	CO97 +V-2	211.75	327.30	0.65
Element No 40: Section No 17 - HE-B 600						
Sigma Total	0.000	10	CO98 -N	-186.46	327.30	0.57
Tau Total	0.170	3	CO97 -V-2	-15.16	188.90	0.08
Sigma eq	0.000	10	CO98 -N	186.83	327.30	0.57
Element No 41: Section No 17 - HE-B 600						
Sigma Total	0.000	1	CO97 -M-3	-179.50	327.30	0.55
Tau Total	0.170	8	CO98 +V-2	-10.72	188.90	0.06
Sigma eq	0.000	1	CO97 -M-3	179.69	327.30	0.55
Element No 42: Section No 17 - HE-B 600						
Sigma Total	0.000	10	CO98 -N	-171.02	327.30	0.52
Tau Total	2.330	8	CO97 -N	-6.35	188.90	0.03
Sigma eq	0.000	10	CO98 -N	171.04	327.30	0.52
Element No 43: Section No 29 - RO 127x10						
Sigma Total	0.000	34	CO97 -N	-132.07	327.30	0.40
Tau Total	0.000	6	CO97 -M-2	4.87	188.90	0.03
Sigma eq	0.000	34	CO97 -N	132.19	327.30	0.40
Element No 44: Section No 29 - RO 127x10						
Sigma Total	0.000	22	CO98 -N	-109.85	327.30	0.34
Tau Total	0.000	14	CO97 -M-2	-3.99	188.90	0.02
Sigma eq	0.000	22	CO98 -N	109.91	327.30	0.34
Element No 45: Section No 17 - HE-B 600						
Sigma Total	0.000	6	CO97 -N	-165.12	327.30	0.50
Tau Total	2.330	3	CO97 -M-2	-5.93	188.90	0.03
Sigma eq	0.000	6	CO97 -N	165.16	327.30	0.50
Element No 46: Section No 41 - HE-A 160						
Sigma Total	0.830	6	CO98 +N	136.22	327.30	0.42
Tau Total	0.000	8	CO98 +N	9.08	188.90	0.05
Sigma eq	0.830	6	CO98 +N	136.23	327.30	0.42
Element No 47: Section No 18 - HE-B 300						

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm ²]		Stress Ratio
				existing	allowable	
Sigma Total	5.000	6	CO97 +V-3	86.29	327.30	0.26
Tau Total	0.000	13	CO97 +V-3	3.68	188.90	0.02
Sigma eq	5.000	6	CO97 +V-3	86.29	327.30	0.26
Element No 48: Section No 33 - IS 302/250/15/20						
Sigma Total	0.000	6	CO97 +N	208.70	327.30	0.64
Tau Total	7.430	13	CO97 -V-3	-2.47	188.90	0.01
Sigma eq	0.000	6	CO97 +N	208.70	327.30	0.64
Element No 49: Section No 28 - RO 127x5,6						
Sigma Total	0.000	8	CO97 +N	157.90	327.30	0.48
Tau Total	0.000	1	CO97 +N	1.42	188.90	0.01
Sigma eq	0.000	8	CO97 +N	157.90	327.30	0.48
Element No 50: Section No 41 - HE-A 160						
Sigma Total	0.000	6	CO97 +V-2	39.25	327.30	0.12
Tau Total	1.790	8	CO97 +V-2	-0.89	188.90	0.00
Sigma eq	0.000	6	CO97 +V-2	39.25	327.30	0.12
Element No 51: Section No 18 - HE-B 300						
Sigma Total	5.000	6	CO97 +V-3	82.36	327.30	0.25
Tau Total	5.000	13	CO97 -V-3	-3.04	188.90	0.02
Sigma eq	5.000	6	CO97 +V-3	82.36	327.30	0.25
Element No 52: Section No 33 - IS 302/250/15/20						
Sigma Total	0.000	1	CO97 +N	186.56	327.30	0.57
Tau Total	0.000	13	CO97 +V-3	2.47	188.90	0.01
Sigma eq	0.000	1	CO97 +N	186.56	327.30	0.57
Element No 53: Section No 41 - HE-A 160						
Sigma Total	0.000	6	CO97 +N	140.29	327.30	0.43
Tau Total	0.830	8	CO97 +N	-9.17	188.90	0.05
Sigma eq	0.000	6	CO97 +N	140.30	327.30	0.43
Element No 54: Section No 17 - HE-B 600						
Sigma Total	2.500	6	CO98 -N	-150.40	327.30	0.46
Tau Total	2.500	13	CO97 -V-3	-6.36	188.90	0.03
Sigma eq	2.500	6	CO98 -N	150.44	327.30	0.46
Element No 55: Section No 29 - RO 127x10						
Sigma Total	2.650	31	CO97 -N	-110.99	327.30	0.34
Tau Total	2.650	35	CO97 -T	-3.80	188.90	0.02
Sigma eq	2.650	31	CO97 -N	111.03	327.30	0.34
Element No 56: Section No 29 - RO 127x10						
Sigma Total	2.650	25	CO98 -N	-95.50	327.30	0.29
Tau Total	2.650	24	CO97 +T	4.98	188.90	0.03
Sigma eq	2.650	25	CO98 -N	95.57	327.30	0.29
Element No 57: Section No 17 - HE-B 600						
Sigma Total	2.500	10	CO97 -N	-143.54	327.30	0.44
Tau Total	2.500	13	CO97 -V-3	-7.79	188.90	0.04
Sigma eq	2.500	10	CO97 -N	143.59	327.30	0.44
Element No 58: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	8	CO97 -V-2	129.80	327.30	0.40
Tau Total	0.000	5	CO97 -T	-101.86	188.90	0.54
Sigma eq	0.000	10	CO97 -V-2	197.39	327.30	0.60
Element No 59: Section No 30 - IS 302/250/8/20						
Sigma Total	5.500	1	CO97 -N	-163.11	327.30	0.50
Tau Total	0.000	3	CO97 -T	1.78	188.90	0.01
Sigma eq	5.500	1	CO97 -N	163.11	327.30	0.50
Element No 60: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	1.300	8	CO97 +V-2	124.30	327.30	0.38
Tau Total	0.000	20	CO97 +V-2	-42.40	188.90	0.22
Sigma eq	1.300	14	CO97 +V-2	138.78	327.30	0.42
Element No 61: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	8	CO98 -V-2	110.80	327.30	0.34
Tau Total	0.000	20	CO97 -V-2	35.60	188.90	0.19
Sigma eq	0.000	14	CO97 -V-2	120.73	327.30	0.37
Element No 62: Section No 30 - IS 302/250/8/20						
Sigma Total	5.500	6	CO97 +V-2	-152.61	327.30	0.47
Tau Total	5.500	13	CO97 -V-3	-1.60	188.90	0.01
Sigma eq	5.500	6	CO97 +V-2	152.61	327.30	0.47
Element No 63: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	8	CO97 +V-2	112.91	327.30	0.34
Tau Total	0.000	5	CO97 +T	91.30	188.90	0.48
Sigma eq	0.430	10	CO97 +V-2	173.27	327.30	0.53
Element No 64: Section No 18 - HE-B 300						
Sigma Total	0.000	10	CO97 +N	164.95	327.30	0.50
Tau Total	1.500	13	CO97 -V-3	-7.77	188.90	0.04
Sigma eq	0.000	10	CO97 +N	164.96	327.30	0.50
Element No 65: Section No 18 - HE-B 300						
Sigma Total	0.000	10	CO97 +N	165.14	327.30	0.50
Tau Total	1.500	13	CO97 -V-3	-9.04	188.90	0.05
Sigma eq	0.000	10	CO97 +N	165.14	327.30	0.50
Element No 66: Section No 17 - HE-B 600						
Sigma Total	0.000	10	CO97 +M-3	-153.88	327.30	0.47
Tau Total	0.000	13	CO97 -M-2	6.29	188.90	0.03
Sigma eq	0.000	10	CO97 +M-3	153.90	327.30	0.47
Element No 67: Section No 44 - RO 168,3x10						
Sigma Total	0.000	32	CO98 -N	-142.67	327.30	0.44
Tau Total	0.000	32	CO97 +T	4.25	188.90	0.02
Sigma eq	0.000	32	CO98 -N	142.69	327.30	0.44
Element No 68: Section No 44 - RO 168,3x10						
Sigma Total	0.000	24	CO97 -N	-169.97	327.30	0.52
Tau Total	0.000	20	CO97 -T	-2.78	188.90	0.01
Sigma eq	0.000	24	CO97 -N	169.98	327.30	0.52
Element No 69: Section No 17 - HE-B 600						
Sigma Total	0.000	6	CO97 -M-3	-157.90	327.30	0.48
Tau Total	0.000	13	CO98 +V-3	6.07	188.90	0.03
Sigma eq	0.000	6	CO97 -M-3	157.90	327.30	0.48

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm ²] existing	allowable	Stress Ratio
Element No 70: Section No 33 - IS 302/250/15/20						
Sigma Total	7.430	1	CO97 -V-2	171.01	327.30	0.52
Tau Total	7.430	13	CO98 -V-3	-1.84	188.90	0.01
Sigma eq	7.430	1	CO97 -V-2	171.01	327.30	0.52
Element No 71: Section No 44 - RO 168,3x10						
Sigma Total	0.000	30	CO97 +M-3	-81.11	327.30	0.25
Tau Total	0.000	2	CO97 +V-3	5.04	188.90	0.03
Sigma eq	0.000	30	CO97 +M-3	81.35	327.30	0.25
Element No 72: Section No 33 - IS 302/250/15/20						
Sigma Total	7.430	1	CO97 +N	154.43	327.30	0.47
Tau Total	7.430	8	CO97 +V-3	1.48	188.90	0.01
Sigma eq	7.430	1	CO97 +N	154.43	327.30	0.47
Element No 73: Section No 21 - HE-M 300						
Sigma Total	3.500	1	CO97 +N	160.61	327.30	0.49
Tau Total	3.500	13	CO97 -V-3	-3.74	188.90	0.02
Sigma eq	3.500	1	CO97 +N	160.61	327.30	0.49
Element No 74: Section No 21 - HE-M 300						
Sigma Total	3.500	1	CO97 +N	144.73	327.30	0.44
Tau Total	3.500	13	CO97 -V-3	-4.27	188.90	0.02
Sigma eq	3.500	1	CO97 +N	144.73	327.30	0.44
Element No 75: Section No 41 - HE-A 160						
Sigma Total	0.820	6	CO98 -V-2	91.34	327.30	0.28
Tau Total	0.820	3	CO98 -V-2	-6.84	188.90	0.04
Sigma eq	0.820	6	CO98 -V-2	91.34	327.30	0.28
Element No 76: Section No 41 - HE-A 160						
Sigma Total	1.820	10	CO97 +V-2	48.58	327.30	0.15
Tau Total	0.000	3	CO97 +V-2	1.40	188.90	0.01
Sigma eq	1.820	10	CO97 +V-2	48.58	327.30	0.15
Element No 77: Section No 41 - HE-A 160						
Sigma Total	0.000	6	CO97 +V-2	129.97	327.30	0.40
Tau Total	0.000	3	CO97 +V-2	10.16	188.90	0.05
Sigma eq	0.000	6	CO97 +V-2	129.97	327.30	0.40
Element No 78: Section No 17 - HE-B 600						
Sigma Total	0.000	6	CO97 -N	-126.62	327.30	0.39
Tau Total	1.600	13	CO98 -V-3	-3.45	188.90	0.02
Sigma eq	0.000	6	CO97 -N	126.63	327.30	0.39
Element No 79: Section No 17 - HE-B 600						
Sigma Total	0.000	10	CO97 -N	-112.43	327.30	0.34
Tau Total	1.600	13	CO98 -V-2	-3.53	188.90	0.02
Sigma eq	0.000	10	CO97 -N	112.46	327.30	0.34
Element No 81: Section No 44 - RO 168,3x10						
Sigma Total	0.000	34	CO98 -N	-130.65	327.30	0.40
Tau Total	3.200	23	CO97 -V-2	1.61	188.90	0.01
Sigma eq	0.000	34	CO98 -N	130.66	327.30	0.40
Element No 82: Section No 44 - RO 168,3x10						
Sigma Total	0.000	22	CO97 -N	-155.30	327.30	0.47
Tau Total	0.000	32	CO97 -N	2.50	188.90	0.01
Sigma eq	0.000	22	CO97 -N	155.32	327.30	0.47
Element No 85: Section No 40 - Venlo TREAGER 1A						
Sigma Total	0.000	41	CO98 +V-2	198.57	327.30	0.61
Tau Total	0.400	21	CO98 +V-2	-37.06	188.90	0.20
Sigma eq	0.000	41	CO98 +V-2	198.57	327.30	0.61
Element No 86: Section No 40 - Venlo TREAGER 1A						
Sigma Total	0.000	41	CO99 -N	-21.80	327.30	0.07
Tau Total	0.000	15	CO99 +V-3	12.90	188.90	0.07
Sigma eq	0.000	18	CO99 +V-3	26.12	327.30	0.08
Element No 87: Section No 40 - Venlo TREAGER 1A						
Sigma Total	0.000	48	CO98 +N	6.47	327.30	0.02
Tau Total	1.830	15	CO99 -V-3	-2.74	188.90	0.01
Sigma eq	0.000	48	CO98 +N	6.47	327.30	0.02
Element No 88: Section No 40 - Venlo TREAGER 1A						
Sigma Total	0.380	41	CO99 +N	21.22	327.30	0.06
Tau Total	0.000	15	CO99 +M-2	14.02	188.90	0.07
Sigma eq	0.380	18	CO99 +M-2	26.08	327.30	0.08
Element No 89: Section No 40 - Venlo TREAGER 1A						
Sigma Total	0.400	41	CO98 -V-2	204.31	327.30	0.62
Tau Total	0.000	21	CO98 -V-2	39.60	188.90	0.21
Sigma eq	0.400	41	CO98 -V-2	204.31	327.30	0.62
Element No 90: Section No 40 - 39: Venlo TREAGER 1A - Venlo TREAGER 2A						
Sigma Total	0.000	41	CO98 +V-2	215.52	327.30	0.66
Tau Total	5.620	21	CO98 +V-2	-75.60	188.90	0.40
Sigma eq	0.000	41	CO98 +V-2	215.52	327.30	0.66
Element No 91: Section No 39 - 40: Venlo TREAGER 2A - Venlo TREAGER 1A						
Sigma Total	5.620	41	CO98 -V-2	221.20	327.30	0.68
Tau Total	0.000	21	CO98 -V-2	80.75	188.90	0.43
Sigma eq	5.620	41	CO98 -V-2	221.20	327.30	0.68
Element No 92: Section No 14 - TO 600/600/12/12/12/12/37/25						
Sigma Total	1.050	9	CO99 +M-3	130.67	327.30	0.40
Tau Total	0.000	12	CO99 +N	4.45	188.90	0.02
Sigma eq	1.050	9	CO99 +M-3	130.81	327.30	0.40
Element No 93: Section No 14 - TO 600/600/12/12/12/37/25						
Sigma Total	1.050	15	CO99 -M-2	-125.99	327.30	0.38
Tau Total	1.050	12	CO99 +T	6.03	188.90	0.03
Sigma eq	1.050	15	CO99 -M-2	126.20	327.30	0.39
Element No 94: Section No 19 - HE-M 600						
Sigma Total	1.500	10	CO97 -N	-102.43	327.30	0.31
Tau Total	1.500	13	CO98 -V-3	-3.25	188.90	0.02
Sigma eq	1.500	10	CO97 -N	102.43	327.30	0.31
Element No 95: Section No 19 - HE-M 600						
Sigma Total	1.500	6	CO97 -N	-84.98	327.30	0.26
Tau Total	1.500	13	CO98 -V-2	-3.39	188.90	0.02

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²] existing	allowable	Stress Ratio
Sigma eq	1.500	6	CO97 -N	84.99	327.30	0.26
Element No 96: Section No 27 - Kasten(A) 1070/10/15/1036/730/1070/10						
Sigma Total	4.920	24	CO99 -V-2	-53.32	327.30	0.16
Tau Total	0.000	20	CO99 -V-2	9.58	188.90	0.05
Sigma eq	4.920	15	CO99 -V-2	53.38	327.30	0.16
Element No 97: Section No 27 - Kasten(A) 1070/10/15/1036/730/1070/10						
Sigma Total	4.920	16	CO99 -V-2	56.91	327.30	0.17
Tau Total	0.000	20	CO99 -V-2	9.47	188.90	0.05
Sigma eq	4.920	18	CO99 -V-2	57.05	327.30	0.17
Element No 98: Section No 21 - HE-M 300						
Sigma Total	0.000	10	CO97 +N	211.30	327.30	0.65
Tau Total	0.000	13	CO99 -V-2	-11.33	188.90	0.06
Sigma eq	0.000	10	CO97 +N	211.30	327.30	0.65
Element No 99: Section No 44 - RO 168,3x10						
Sigma Total	2.820	18	CO99 -N	-220.89	327.30	0.67
Tau Total	0.000	9	CO99 +V-2	4.47	188.90	0.02
Sigma eq	2.820	18	CO99 -N	220.92	327.30	0.67
Element No 100: Section No 21 - HE-M 300						
Sigma Total	0.000	10	CO97 +N	191.10	327.30	0.58
Tau Total	0.000	13	CO99 -V-3	-9.39	188.90	0.05
Sigma eq	0.000	10	CO97 +N	191.10	327.30	0.58
Element No 101: Section No 19 - HE-M 600						
Sigma Total	0.350	6	CO98 -N	-144.71	327.30	0.44
Tau Total	0.350	8	CO98 -N	-11.95	188.90	0.06
Sigma eq	0.350	6	CO98 -N	144.77	327.30	0.44
Element No 102: Section No 19 - HE-M 600						
Sigma Total	0.350	10	CO97 -V-2	-153.49	327.30	0.47
Tau Total	0.350	3	CO97 -V-2	-14.64	188.90	0.08
Sigma eq	0.350	10	CO97 -V-2	153.61	327.30	0.47
Element No 103: Section No 24 - Venlo TREAGER 3						
Sigma Total	0.000	12	CO99 +N	26.24	327.30	0.08
Tau Total	0.810	21	CO99 +N	-41.41	188.90	0.22
Sigma eq	0.810	21	CO99 +N	72.21	327.30	0.22
Element No 104: Section No 24 - Venlo TREAGER 3						
Sigma Total	0.920	12	CO99 -T	35.87	327.30	0.11
Tau Total	0.000	15	CO99 +V-2	27.20	188.90	0.14
Sigma eq	0.920	13	CO99 +V-2	48.77	327.30	0.15
Element No 105: Section No 24 - Venlo TREAGER 3						
Sigma Total	0.000	12	CO99 -M-2	-37.70	327.30	0.12
Tau Total	0.000	15	CO99 +V-2	27.43	188.90	0.15
Sigma eq	0.000	13	CO99 +V-2	50.44	327.30	0.15
Element No 106: Section No 24 - Venlo TREAGER 3						
Sigma Total	0.810	12	CO99 +M-3	-23.14	327.30	0.07
Tau Total	0.000	21	CO98 +T	29.98	188.90	0.16
Sigma eq	0.000	22	CO98 +T	51.98	327.30	0.16
Element No 107: Section No 19 - HE-M 600						
Sigma Total	0.000	5	CO98 -N	-154.20	327.30	0.47
Tau Total	0.350	13	CO99 -V-2	-18.30	188.90	0.10
Sigma eq	0.000	5	CO98 -N	154.23	327.30	0.47
Element No 108: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO99 +T	-121.53	327.30	0.37
Tau Total	0.000	8	CO99 -V-2	16.12	188.90	0.09
Sigma eq	0.000	6	CO99 +T	121.74	327.30	0.37
Element No 109: Section No 42 - IS 302/450/15/20						
Sigma Total	7.430	6	CO99 -N	-147.69	327.30	0.45
Tau Total	7.430	13	CO99 -V-3	-3.97	188.90	0.02
Sigma eq	7.430	6	CO99 -N	147.69	327.30	0.45
Element No 110: Section No 41 - HE-A 160						
Sigma Total	1.300	10	CO99 +V-2	88.76	327.30	0.27
Tau Total	0.000	13	CO99 +V-2	15.45	188.90	0.08
Sigma eq	1.300	10	CO99 +V-2	88.77	327.30	0.27
Element No 111: Section No 41 - HE-A 160						
Sigma Total	0.000	1	CO99 +V-3	203.85	327.30	0.62
Tau Total	0.000	13	CO99 +V-3	62.32	188.90	0.33
Sigma eq	0.000	1	CO99 +V-3	203.85	327.30	0.62
Element No 112: Section No 42 - IS 302/450/15/20						
Sigma Total	4.460	1	CO98 -N	-116.45	327.30	0.36
Tau Total	7.430	13	CO99 -V-3	-2.75	188.90	0.01
Sigma eq	4.460	1	CO98 -N	116.45	327.30	0.36
Element No 113: Section No 14 - TO 600/600/12/12/12/12/37/25						
Sigma Total	12.360	9	CO99 +M-3	123.28	327.30	0.38
Tau Total	0.000	12	CO99 +N	4.83	188.90	0.03
Sigma eq	12.360	9	CO99 +M-3	123.43	327.30	0.38
Element No 114: Section No 14 - TO 600/600/12/12/12/12/37/25						
Sigma Total	12.360	15	CO99 -M-2	-116.12	327.30	0.35
Tau Total	12.360	12	CO99 +T	6.00	188.90	0.03
Sigma eq	12.360	15	CO99 -M-2	116.36	327.30	0.36
Element No 115: Section No 19 - HE-M 600						
Sigma Total	2.740	6	CO97 +V-2	-189.21	327.30	0.58
Tau Total	2.740	13	CO99 -V-3	-18.87	188.90	0.10
Sigma eq	2.740	6	CO97 +V-2	189.21	327.30	0.58
Element No 116: Section No 44 - RO 168,3x10						
Sigma Total	3.240	33	CO99 -N	-105.75	327.30	0.32
Tau Total	3.240	25	CO99 +T	3.13	188.90	0.02
Sigma eq	3.240	33	CO99 -N	105.78	327.30	0.32
Element No 117: Section No 44 - RO 168,3x10						
Sigma Total	3.240	21	CO99 +N	97.11	327.30	0.30
Tau Total	0.000	31	CO99 +T	3.23	188.90	0.02
Sigma eq	3.240	21	CO99 +N	97.19	327.30	0.30
Element No 118: Section No 19 - HE-M 600						
Sigma Total	2.740	10	CO98 -N	-166.08	327.30	0.51

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm^2] existing	allowable	Stress Ratio
Tau Total	2.740	13	CO98 -V-3	-14.07	188.90	0.07
Sigma eq	2.740	10	CO98 -N	166.08	327.30	0.51
Element No 119: Section No 21 - HE-M 300						
Sigma Total	0.000	10	CO97 +N	174.21	327.30	0.53
Tau Total	0.000	13	CO99 -V-2	-5.72	188.90	0.03
Sigma eq	0.000	10	CO97 +N	174.22	327.30	0.53
Element No 120: Section No 44 - RO 168,3x10						
Sigma Total	0.000	2	CO99 -N	-239.87	327.30	0.73
Tau Total	2.820	11	CO99 +V-2	5.70	188.90	0.03
Sigma eq	0.000	2	CO99 -N	239.95	327.30	0.73
Element No 121: Section No 21 - HE-M 300						
Sigma Total	2.500	1	CO97 +N	177.18	327.30	0.54
Tau Total	2.500	13	CO99 -V-3	-13.45	188.90	0.07
Sigma eq	2.500	1	CO97 +N	177.19	327.30	0.54
Element No 122: Section No 98 - Kasten(A) 480/35/15/350/570/480/35						
Sigma Total	0.000	16	CO99 -V-2	-211.88	327.30	0.65
Tau Total	0.000	10	CO99 -V-2	-136.19	188.90	0.72
Sigma eq	0.000	10	CO99 -V-2	284.03	327.30	0.87
Element No 123: Section No 30 - IS 302/250/8/20						
Sigma Total	0.000	5	CO97 -T	-51.59	327.30	0.16
Tau Total	5.500	8	CO99 -V-3	-2.54	188.90	0.01
Sigma eq	0.000	5	CO97 -T	51.61	327.30	0.16
Element No 124: Section No 43 - Kasten(A) 480/30/15/350/570/480/30						
Sigma Total	1.300	16	CO99 +V-2	-200.73	327.30	0.61
Tau Total	1.300	15	CO99 +V-2	-52.96	188.90	0.28
Sigma eq	1.300	16	CO99 +V-2	200.73	327.30	0.61
Element No 125: Section No 44 - RO 168,3x10						
Sigma Total	2.600	18	CO99 -V-2	209.81	327.30	0.64
Tau Total	2.600	9	CO99 -T	-13.30	188.90	0.07
Sigma eq	2.600	18	CO99 -V-2	210.01	327.30	0.64
Element No 126: Section No 43 - Kasten(A) 480/30/15/350/570/480/30						
Sigma Total	0.000	16	CO98 -V-2	-186.34	327.30	0.57
Tau Total	0.000	20	CO98 -V-2	42.58	188.90	0.23
Sigma eq	0.000	16	CO98 -V-2	186.34	327.30	0.57
Element No 127: Section No 30 - IS 302/250/8/20						
Sigma Total	0.000	5	CO98 +V-2	-46.33	327.30	0.14
Tau Total	5.500	3	CO99 -V-3	-1.61	188.90	0.01
Sigma eq	0.000	5	CO98 +V-2	46.33	327.30	0.14
Element No 128: Section No 98 - Kasten(A) 480/35/15/350/570/480/35						
Sigma Total	0.430	16	CO98 -N	-177.93	327.30	0.54
Tau Total	0.430	10	CO98 -N	110.57	188.90	0.59
Sigma eq	0.430	10	CO98 -N	233.48	327.30	0.71
Element No 129: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO97 +V-2	-242.96	327.30	0.74
Tau Total	0.000	13	CO97 -M-2	19.10	188.90	0.10
Sigma eq	0.000	10	CO97 +V-2	243.26	327.30	0.74
Element No 130: Section No 99 - RO 168,3x12,5						
Sigma Total	0.000	32	CO98 -N	-215.87	327.30	0.66
Tau Total	0.000	30	CO99 +V-3	10.92	188.90	0.06
Sigma eq	0.000	32	CO98 -N	215.89	327.30	0.66
Element No 131: Section No 99 - RO 168,3x12,5						
Sigma Total	0.000	21	CO99 -N	-218.90	327.30	0.67
Tau Total	0.000	28	CO99 -V-2	8.83	188.90	0.05
Sigma eq	0.000	21	CO99 -N	218.95	327.30	0.67
Element No 132: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO98 -N	-230.39	327.30	0.70
Tau Total	0.000	13	CO97 -M-2	15.71	188.90	0.08
Sigma eq	0.000	6	CO98 -N	230.66	327.30	0.70
Element No 133: Section No 21 - HE-M 300						
Sigma Total	2.500	1	CO97 -V-3	175.79	327.30	0.54
Tau Total	0.000	13	CO99 -V-2	-11.77	188.90	0.06
Sigma eq	2.500	1	CO97 -V-3	175.81	327.30	0.54
Element No 135: Section No 21 - HE-M 300						
Sigma Total	2.500	1	CO97 +N	173.99	327.30	0.53
Tau Total	0.000	13	CO99 +T	-3.91	188.90	0.02
Sigma eq	2.500	1	CO97 +N	174.00	327.30	0.53
Element No 136: Section No 97 - IS 374/260/8/20						
Sigma Total	1.300	1	CO97 +V-2	-216.30	327.30	0.66
Tau Total	0.000	3	CO97 +V-2	18.97	188.90	0.10
Sigma eq	1.300	1	CO97 +V-2	216.31	327.30	0.66
Element No 137: Section No 44 - RO 168,3x10						
Sigma Total	2.120	18	CO99 -N	-253.29	327.30	0.77
Tau Total	0.000	10	CO99 +T	7.04	188.90	0.04
Sigma eq	2.120	18	CO99 -N	253.38	327.30	0.77
Element No 139: Section No 14 - TO 600/600/12/12/12/12/37/25						
Sigma Total	15.470	14	CO98 -M-2	-62.95	327.30	0.19
Tau Total	15.470	8	CO98 -M-2	3.19	188.90	0.02
Sigma eq	15.470	14	CO98 -M-2	63.00	327.30	0.19
Element No 140: Section No 14 - TO 600/600/12/12/12/12/37/25						
Sigma Total	15.470	10	CO98 -V-3	-64.70	327.30	0.20
Tau Total	15.470	16	CO98 -V-3	-3.32	188.90	0.02
Sigma eq	15.470	10	CO98 -V-3	64.77	327.30	0.20
Element No 141: Section No 14 - TO 600/600/12/12/12/12/37/25						
Sigma Total	5.490	14	CO99 -N	-106.27	327.30	0.32
Tau Total	5.490	16	CO99 -N	-11.68	188.90	0.06
Sigma eq	5.490	14	CO99 -N	107.06	327.30	0.33
Element No 142: Section No 14 - TO 600/600/12/12/12/12/37/25						
Sigma Total	5.490	11	CO98 -V-2	122.96	327.30	0.38
Tau Total	0.000	8	CO98 +N	-12.60	188.90	0.07
Sigma eq	5.490	11	CO98 -V-2	123.35	327.30	0.38
Element No 143: Section No 19 - HE-M 600						

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Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²]		Stress Ratio
				existing	allowable	
Sigma Total	1.630	6	CO97 -N	-200.24	327.30	0.61
Tau Total	0.000	13	CO97 -T	19.12	188.90	0.10
Sigma eq	1.630	6	CO97 -N	200.24	327.30	0.61
Element No 144: Section No 19 - HE-M 600						
Sigma Total	1.630	10	CO98 -N	-180.29	327.30	0.55
Tau Total	0.000	13	CO97 +V-3	15.04	188.90	0.08
Sigma eq	1.630	10	CO98 -N	180.29	327.30	0.55
Element No 145: Section No 99 - RO 168,3x12,5						
Sigma Total	0.000	4	CO98 -N	-193.98	327.30	0.59
Tau Total	1.970	23	CO99 -V-3	8.36	188.90	0.04
Sigma eq	0.000	4	CO98 -N	194.03	327.30	0.59
Element No 146: Section No 99 - RO 168,3x12,5						
Sigma Total	1.970	35	CO97 -N	-171.04	327.30	0.52
Tau Total	0.000	31	CO99 +V-3	6.04	188.90	0.03
Sigma eq	1.970	35	CO97 -N	171.05	327.30	0.52
Element No 147: Section No 42 - IS 302/450/15/20						
Sigma Total	0.000	6	CO97 +N	188.35	327.30	0.58
Tau Total	7.430	13	CO99 -V-3	-4.80	188.90	0.03
Sigma eq	0.000	6	CO97 +N	188.35	327.30	0.58
Element No 148: Section No 41 - HE-A 160						
Sigma Total	1.300	6	CO99 +V-3	199.43	327.30	0.61
Tau Total	0.000	13	CO99 +V-3	64.00	188.90	0.34
Sigma eq	1.300	6	CO99 +V-3	199.43	327.30	0.61
Element No 149: Section No 41 - HE-A 160						
Sigma Total	0.000	5	CO99 -V-2	73.35	327.30	0.22
Tau Total	0.000	13	CO99 +V-3	11.17	188.90	0.06
Sigma eq	0.000	5	CO99 -V-2	73.36	327.30	0.22
Element No 150: Section No 42 - IS 302/450/15/20						
Sigma Total	0.000	1	CO98 +N	156.42	327.30	0.48
Tau Total	7.430	13	CO99 -V-3	-3.26	188.90	0.02
Sigma eq	0.000	1	CO98 +N	156.42	327.30	0.48
Element No 151: Section No 19 - HE-M 600						
Sigma Total	0.220	6	CO97 -N	-203.58	327.30	0.62
Tau Total	0.220	13	CO97 +V-2	-49.37	188.90	0.26
Sigma eq	0.220	6	CO97 -N	203.58	327.30	0.62
Element No 152: Section No 19 - HE-M 600						
Sigma Total	0.220	10	CO98 -N	-183.19	327.30	0.56
Tau Total	0.220	13	CO97 -V-3	-40.32	188.90	0.21
Sigma eq	0.220	10	CO98 -N	183.19	327.30	0.56
Element No 153: Section No 41 - HE-A 160						
Sigma Total	0.000	10	CO98 -V-2	44.61	327.30	0.14
Tau Total	2.300	13	CO99 -V-2	-3.97	188.90	0.02
Sigma eq	0.000	10	CO98 -V-2	44.61	327.30	0.14
Element No 154: Section No 41 - HE-A 160						
Sigma Total	0.580	10	CO99 +V-2	162.99	327.30	0.50
Tau Total	0.000	3	CO99 +V-2	19.58	188.90	0.10
Sigma eq	0.580	10	CO99 +V-2	162.99	327.30	0.50
Element No 155: Section No 41 - HE-A 160						
Sigma Total	0.000	10	CO99 -N	-170.57	327.30	0.52
Tau Total	0.000	3	CO99 -N	21.52	188.90	0.11
Sigma eq	0.000	10	CO99 -N	170.58	327.30	0.52
Element No 156: Section No 21 - HE-M 300						
Sigma Total	2.500	1	CO97 -V-2	219.32	327.30	0.67
Tau Total	2.500	13	CO99 -V-3	-8.63	188.90	0.05
Sigma eq	2.500	1	CO97 -V-2	219.32	327.30	0.67
Element No 157: Section No 44 - RO 168,3x10						
Sigma Total	0.000	3	CO99 -N	-221.73	327.30	0.68
Tau Total	2.820	12	CO99 -V-3	6.06	188.90	0.03
Sigma eq	0.000	3	CO99 -N	221.80	327.30	0.68
Element No 158: Section No 21 - HE-M 300						
Sigma Total	2.500	1	CO97 +N	208.73	327.30	0.64
Tau Total	2.500	13	CO99 -M-2	-10.38	188.90	0.05
Sigma eq	2.500	1	CO97 +N	208.73	327.30	0.64
Element No 159: Section No 99 - RO 168,3x12,5						
Sigma Total	0.000	30	CO98 -N	-194.45	327.30	0.59
Tau Total	1.650	24	CO99 -V-2	5.00	188.90	0.03
Sigma eq	0.000	30	CO98 -N	194.45	327.30	0.59
Element No 160: Section No 99 - RO 168,3x12,5						
Sigma Total	1.650	25	CO97 -N	-184.39	327.30	0.56
Tau Total	0.000	32	CO99 -V-2	5.09	188.90	0.03
Sigma eq	1.650	25	CO97 -N	184.41	327.30	0.56
Element No 161: Section No 19 - HE-M 600						
Sigma Total	1.550	10	CO97 -V-2	-234.21	327.30	0.72
Tau Total	1.550	13	CO97 -V-3	-46.67	188.90	0.25
Sigma eq	1.550	10	CO97 -V-2	234.24	327.30	0.72
Element No 162: Section No 19 - HE-M 600						
Sigma Total	1.550	6	CO98 -N	-212.93	327.30	0.65
Tau Total	1.550	13	CO97 -V-3	-35.82	188.90	0.19
Sigma eq	1.550	6	CO98 -N	213.00	327.30	0.65
Element No 167: Section No 65 - 66: Flachstahl 35/666 - Flachstahl 35/500						
Sigma Total	0.350	4	CO98 -V-2	-55.54	327.30	0.17
Tau Total	0.350	5	CO98 -N	20.17	188.90	0.11
Sigma eq	0.350	4	CO98 -V-2	55.74	327.30	0.17
Element No 168: Section No 65 - 66: Flachstahl 35/666 - Flachstahl 35/500						
Sigma Total	0.350	2	CO98 -N	-65.65	327.30	0.20
Tau Total	0.350	5	CO98 -N	15.59	188.90	0.08
Sigma eq	0.350	2	CO98 -N	65.88	327.30	0.20
Element No 169: Section No 65 - 66: Flachstahl 35/666 - Flachstahl 35/500						
Sigma Total	0.000	4	CO98 +V-2	-67.70	327.30	0.21
Tau Total	0.350	5	CO98 -N	10.84	188.90	0.06
Sigma eq	0.000	4	CO98 +V-2	67.73	327.30	0.21

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm^2] existing	Stress [N/mm^2] allowable	Stress Ratio
Element No 170: Section No 65 - 66: Flachstahl 35/666 - Flachstahl 35/500						
Sigma Total	0.350	3	CO98 +V-2	-92.45	327.30	0.28
Tau Total	0.350	5	CO98 -N	14.23	188.90	0.08
Sigma eq	0.350	3	CO98 +V-2	92.48	327.30	0.28
Element No 171: Section No 52 - Rundstahl 140						
Sigma Total	0.070	28	CO98 -N	-115.65	409.00	0.28
Tau Total	0.070	37	CO98 -N	70.52	245.00	0.29
Sigma eq	0.070	37	CO98 -N	122.27	409.00	0.30
Element No 172: Section No 52 - Rundstahl 140						
Sigma Total	0.000	25	CO98 -N	-155.19	409.00	0.38
Tau Total	0.000	37	CO98 -N	-47.45	245.00	0.19
Sigma eq	0.000	25	CO98 -N	159.08	409.00	0.39
Element No 173: Section No 52 - Rundstahl 140						
Sigma Total	0.000	31	CO98 -N	-197.34	409.00	0.48
Tau Total	0.000	37	CO98 -N	-91.36	245.00	0.37
Sigma eq	0.000	31	CO98 -N	197.51	409.00	0.48
Element No 174: Section No 52 - Rundstahl 140						
Sigma Total	0.070	10	CO98 +N	168.16	409.00	0.41
Tau Total	0.070	37	CO98 +N	73.75	245.00	0.30
Sigma eq	0.070	10	CO98 +N	168.36	409.00	0.41
Element No 175: Section No 64 - 63: Flachstahl 40/953 - Flachstahl 40/508						
Sigma Total	0.000	4	CO98 -N	-255.34	327.30	0.78
Tau Total	0.350	5	CO98 -N	97.71	188.90	0.52
Sigma eq	0.000	4	CO98 -N	255.36	327.30	0.78
Element No 176: Section No 64 - 63: Flachstahl 40/953 - Flachstahl 40/508						
Sigma Total	0.000	3	CO98 -N	-265.20	327.30	0.81
Tau Total	0.350	5	CO98 -N	101.68	188.90	0.54
Sigma eq	0.000	3	CO98 -N	265.22	327.30	0.81
Element No 177: Section No 52 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -N	0.00	409.00	0.00
Tau Total	0.000	37	CO97 +V-3	-0.01	245.00	0.00
Sigma eq	0.000	37	CO97 +V-3	0.01	409.00	0.00
Element No 178: Section No 52 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -N	0.00	409.00	0.00
Tau Total	0.000	37	CO97 +V-3	-0.01	245.00	0.00
Sigma eq	0.000	37	CO97 +V-3	0.01	409.00	0.00
Element No 179: Section No 52 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -N	0.00	409.00	0.00
Tau Total	0.000	37	CO97 +V-3	-0.01	245.00	0.00
Sigma eq	0.000	37	CO97 +V-3	0.01	409.00	0.00
Element No 180: Section No 52 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -N	0.00	409.00	0.00
Tau Total	0.000	37	CO97 +V-2	-0.01	245.00	0.00
Sigma eq	0.000	37	CO97 +V-2	0.01	409.00	0.00
Element No 181: Section No 55 - Flachstahl 350/40						
Sigma Total	0.000	3	CO97 +V-2	61.90	327.30	0.19
Tau Total	0.000	5	CO97 +V-2	27.36	188.90	0.14
Sigma eq	0.000	3	CO97 +V-2	61.92	327.30	0.19
Element No 182: Section No 55 - Flachstahl 350/40						
Sigma Total	0.000	3	CO97 -V-2	-106.89	327.30	0.33
Tau Total	0.200	5	CO97 -V-2	47.15	188.90	0.25
Sigma eq	0.000	3	CO97 -V-2	107.32	327.30	0.33
Element No 183: Section No 55 - Flachstahl 350/40						
Sigma Total	0.200	4	CO97 -V-2	-61.90	327.30	0.19
Tau Total	0.200	5	CO97 -V-2	27.36	188.90	0.14
Sigma eq	0.200	4	CO97 -V-2	61.92	327.30	0.19
Element No 184: Section No 55 - Flachstahl 350/40						
Sigma Total	0.200	4	CO97 +V-2	106.89	327.30	0.33
Tau Total	0.000	5	CO97 +V-2	47.15	188.90	0.25
Sigma eq	0.200	4	CO97 +V-2	107.32	327.30	0.33
Element No 185: Section No 55 - Flachstahl 350/40						
Sigma Total	0.200	1	CO98 -V-2	-61.68	327.30	0.19
Tau Total	0.200	5	CO98 -V-2	27.31	188.90	0.14
Sigma eq	0.200	1	CO98 -V-2	61.70	327.30	0.19
Element No 186: Section No 55 - Flachstahl 350/40						
Sigma Total	0.000	1	CO98 -V-2	106.32	327.30	0.32
Tau Total	0.200	5	CO98 -V-2	47.05	188.90	0.25
Sigma eq	0.000	1	CO98 -V-2	106.76	327.30	0.33
Element No 187: Section No 55 - Flachstahl 350/40						
Sigma Total	0.000	2	CO98 +V-2	61.68	327.30	0.19
Tau Total	0.000	5	CO98 +V-2	27.31	188.90	0.14
Sigma eq	0.000	2	CO98 +V-2	61.70	327.30	0.19
Element No 188: Section No 55 - Flachstahl 350/40						
Sigma Total	0.200	2	CO98 +V-2	-106.32	327.30	0.32
Tau Total	0.000	5	CO98 +V-2	47.05	188.90	0.25
Sigma eq	0.200	2	CO98 +V-2	106.76	327.30	0.33
Element No 189: Section No 52 - Rundstahl 140						
Sigma Total	0.000	10	CO97 +V-3	126.92	409.00	0.31
Tau Total	0.000	37	CO97 +V-3	-44.27	245.00	0.18
Sigma eq	0.000	10	CO97 +V-3	126.92	409.00	0.31
Element No 190: Section No 52 - Rundstahl 140						
Sigma Total	0.000	10	CO97 -V-3	-213.22	409.00	0.52
Tau Total	0.070	37	CO97 -V-3	76.17	245.00	0.31
Sigma eq	0.000	10	CO97 -V-3	213.22	409.00	0.52
Element No 191: Section No 52 - Rundstahl 140						
Sigma Total	0.000	10	CO98 +V-3	126.62	409.00	0.31
Tau Total	0.000	37	CO98 +V-3	-44.16	245.00	0.18
Sigma eq	0.000	10	CO98 +V-3	126.62	409.00	0.31
Element No 192: Section No 52 - Rundstahl 140						
Sigma Total	0.000	1	CO98 -V-2	212.74	409.00	0.52
Tau Total	0.070	37	CO98 -V-2	76.00	245.00	0.31

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Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²] existing	allowable	Stress Ratio
Sigma eq	0.000	1	CO98 -V-2	212.74	409.00	0.52
Element No 193: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	1	CO97 -V-2	25.03	327.30	0.08
Tau Total	0.140	5	CO97 -V-2	72.85	188.90	0.39
Sigma eq	0.140	5	CO97 -V-2	126.17	327.30	0.39
Element No 194: Section No 56 - Flachstahl 200/60						
Sigma Total	1.000	1	CO97 -N	-168.12	327.30	0.51
Tau Total	0.000	1	CO99 +T	25.38	188.90	0.13
Sigma eq	1.000	1	CO97 -N	168.13	327.30	0.51
Element No 195: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO97 -V-2	-25.03	327.30	0.08
Tau Total	0.140	5	CO97 -V-2	72.85	188.90	0.39
Sigma eq	0.140	5	CO97 -V-2	126.17	327.30	0.39
Element No 196: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO98 -V-2	-24.98	327.30	0.08
Tau Total	0.140	5	CO98 -V-2	72.71	188.90	0.38
Sigma eq	0.140	5	CO98 -V-2	125.94	327.30	0.38
Element No 197: Section No 56 - Flachstahl 200/60						
Sigma Total	0.000	1	CO98 -N	-167.77	327.30	0.51
Tau Total	0.000	1	CO99 +T	24.25	188.90	0.13
Sigma eq	0.000	1	CO98 -N	167.77	327.30	0.51
Element No 198: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	1	CO98 -V-2	24.98	327.30	0.08
Tau Total	0.140	5	CO98 -V-2	72.71	188.90	0.38
Sigma eq	0.140	5	CO98 -V-2	125.94	327.30	0.38
Element No 199: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	1	CO97 +V-2	-58.80	327.30	0.18
Tau Total	0.190	5	CO97 +V-2	125.74	188.90	0.67
Sigma eq	0.190	5	CO97 +V-2	217.79	327.30	0.67
Element No 200: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO97 +V-2	58.80	327.30	0.18
Tau Total	0.190	5	CO97 +V-2	125.74	188.90	0.67
Sigma eq	0.190	5	CO97 +V-2	217.79	327.30	0.67
Element No 201: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO98 +V-2	58.66	327.30	0.18
Tau Total	0.190	5	CO98 +V-2	125.46	188.90	0.66
Sigma eq	0.190	5	CO98 +V-2	217.30	327.30	0.66
Element No 202: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	1	CO98 +V-2	-58.66	327.30	0.18
Tau Total	0.190	5	CO98 +V-2	125.46	188.90	0.66
Sigma eq	0.190	5	CO98 +V-2	217.30	327.30	0.66
Element No 203: Section No 52 - Rundstahl 140						
Sigma Total	0.000	10	CO97 -V-3	-250.12	409.00	0.61
Tau Total	0.070	37	CO97 -V-3	130.32	245.00	0.53
Sigma eq	0.000	10	CO97 -V-3	250.12	409.00	0.61
Element No 204: Section No 52 - Rundstahl 140						
Sigma Total	0.000	10	CO98 -V-3	-249.60	409.00	0.61
Tau Total	0.070	37	CO98 -V-3	130.07	245.00	0.53
Sigma eq	0.000	10	CO98 -V-3	249.60	409.00	0.61
Element No 205: Section No 52 - Rundstahl 140						
Sigma Total	0.000	10	CO97 +V-3	283.34	409.00	0.69
Tau Total	0.000	37	CO97 +V-3	-98.62	245.00	0.40
Sigma eq	0.000	10	CO97 +V-3	283.34	409.00	0.69
Element No 206: Section No 52 - Rundstahl 140						
Sigma Total	0.000	1	CO98 +V-2	-282.79	409.00	0.69
Tau Total	0.000	37	CO98 +V-2	-98.41	245.00	0.40
Sigma eq	0.000	1	CO98 +V-2	282.79	409.00	0.69
Element No 215: Section No 88 - Venlo TRAEGER5						
Sigma Total	0.350	8	CO98 -N	-289.97	327.30	0.89
Tau Total	0.350	35	CO97 +V-3	38.31	188.90	0.20
Sigma eq	0.350	8	CO98 -N	289.97	327.30	0.89
Element No 216: Section No 88 - Venlo TRAEGER5						
Sigma Total	0.350	24	CO97 -V-2	-253.22	327.30	0.77
Tau Total	0.350	49	CO97 -V-3	-29.36	188.90	0.16
Sigma eq	0.350	24	CO97 -V-2	253.22	327.30	0.77
Element No 229: Section No 52 - Rundstahl 140						
Sigma Total	0.060	10	CO98 +V-3	-87.72	409.00	0.21
Tau Total	0.000	37	CO98 +V-3	-37.19	245.00	0.15
Sigma eq	0.060	10	CO98 +V-3	87.72	409.00	0.21
Element No 236: Section No 2 - Kasten(A) 770/15/10/710/803/770/15						
Sigma Total	0.000	1	CO98 -V-2	-232.17	327.30	0.71
Tau Total	0.000	11	CO99 +V-3	48.95	188.90	0.26
Sigma eq	0.000	1	CO98 -V-2	232.17	327.30	0.71
Element No 238: Section No 4 - 2: Kasten(A) 770/15/10/710/1970/770/15 - Kasten(A) 770/15/10/710/803/770/15						
Sigma Total	15.100	9	CO97 -N	-175.12	327.30	0.54
Tau Total	15.100	13	CO99 -N	45.71	188.90	0.24
Sigma eq	15.100	11	CO97 -N	176.37	327.30	0.54
Element No 240: Section No 50 - 51: Kasten(A) 700/8/8/650/1016/700/8 - Kasten(A) 700/8/8/650/756/700/8						
Sigma Total	4.970	9	CO99 +N	217.15	327.30	0.66
Tau Total	4.970	15	CO99 +V-2	-30.70	188.90	0.16
Sigma eq	4.970	9	CO99 +N	217.15	327.30	0.66
Element No 241: Section No 5 - 4: Kasten(A) 770/15/10/710/2466/770/15 - Kasten(A) 770/15/10/710/1970/770/15						
Sigma Total	0.000	24	CO99 -N	-174.65	327.30	0.53
Tau Total	11.100	13	CO99 -N	10.64	188.90	0.06
Sigma eq	0.000	24	CO99 -N	174.65	327.30	0.53
Element No 242: Section No 6 - 5: Kasten(A) 770/15/10/710/2530/770/15 - Kasten(A) 770/15/10/710/2466/770/15						
Sigma Total	0.000	24	CO99 -N	-179.80	327.30	0.55

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm^2]		Stress Ratio
				existing	allowable	
Tau Total	1.730	13	CO99 -N	8.72	188.90	0.05
Sigma eq	0.000	24	CO99 -N	179.80	327.30	0.55
Element No 243: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	1.720	24	CO99 -N	-87.10	327.30	0.27
Tau Total	1.720	13	CO97 -N	-78.29	188.90	0.41
Sigma eq	1.720	13	CO97 -N	135.92	327.30	0.42
Element No 244: Section No 50 - Kasten(A) 700/8/8/650/1016/700/8						
Sigma Total	3.790	9	CO99 +N	93.93	327.30	0.29
Tau Total	3.790	21	CO99 +V-2	-23.85	188.90	0.13
Sigma eq	3.790	8	CO99 +N	96.99	327.30	0.30
Element No 245: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	0.000	9	CO97 +V-2	-214.09	327.30	0.65
Tau Total	3.880	13	CO97 -N	-77.80	188.90	0.41
Sigma eq	0.000	11	CO97 +V-2	225.48	327.30	0.69
Element No 247: Section No 60 - Kasten(A) 700/8/8/650/716/700/8						
Sigma Total	0.000	1	CO98 +V-3	0.52	327.30	0.00
Tau Total	0.000	12	CO98 +V-3	-0.15	188.90	0.00
Sigma eq	0.000	3	CO98 +V-3	0.54	327.30	0.00
Element No 248: Section No 60 - Kasten(A) 700/8/8/650/716/700/8						
Sigma Total	0.000	1	CO98 +V-3	0.37	327.30	0.00
Tau Total	0.000	12	CO98 +V-3	-0.15	188.90	0.00
Sigma eq	0.000	10	CO98 +V-3	0.40	327.30	0.00
Element No 249: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	0.000	9	CO97 +V-2	-231.48	327.30	0.71
Tau Total	0.400	13	CO97 -N	-76.71	188.90	0.41
Sigma eq	0.000	11	CO97 +V-2	241.39	327.30	0.74
Element No 250: Section No 23 - Kasten(A) 570/10/15/540/730/570/10						
Sigma Total	0.000	1	CO97 +V-2	136.45	327.30	0.42
Tau Total	0.000	20	CO97 +V-2	-107.61	188.90	0.57
Sigma eq	0.000	3	CO97 +V-2	197.38	327.30	0.60
Element No 252: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	0.000	24	CO97 +N	19.70	327.30	0.06
Tau Total	0.380	13	CO97 -V-3	-26.78	188.90	0.14
Sigma eq	0.380	13	CO97 -V-3	46.58	327.30	0.14
Element No 253: Section No 26 - Kasten(A) 1066/10/15/1036/730/1066/10						
Sigma Total	0.000	16	CO97 +V-2	74.32	327.30	0.23
Tau Total	0.000	5	CO98 +V-2	13.22	188.90	0.07
Sigma eq	0.000	18	CO97 +V-2	74.99	327.30	0.23
Element No 256: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	1.830	16	CO98 +M-2	19.39	327.30	0.06
Tau Total	0.000	10	CO98 +V-3	-1.88	188.90	0.01
Sigma eq	1.830	16	CO98 +M-2	19.39	327.30	0.06
Element No 257: Section No 23 - Kasten(A) 570/10/15/540/730/570/10						
Sigma Total	1.830	23	CO97 -V-2	-52.98	327.30	0.16
Tau Total	1.830	5	CO99 +M-3	-25.38	188.90	0.13
Sigma eq	1.830	22	CO97 -V-2	55.17	327.30	0.17
Element No 258: Section No 26 - Kasten(A) 1066/10/15/1036/730/1066/10						
Sigma Total	0.000	23	CO97 -V-2	58.50	327.30	0.18
Tau Total	0.000	20	CO97 -V-2	11.74	188.90	0.06
Sigma eq	0.000	22	CO97 -V-2	59.87	327.30	0.18
Element No 259: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	0.380	16	CO98 +M-2	22.15	327.30	0.07
Tau Total	0.000	13	CO97 +V-3	20.80	188.90	0.11
Sigma eq	0.000	13	CO97 +V-3	36.26	327.30	0.11
Element No 261: Section No 23 - Kasten(A) 570/10/15/540/730/570/10						
Sigma Total	0.810	1	CO97 -V-2	103.00	327.30	0.31
Tau Total	0.810	5	CO97 -V-2	-82.67	188.90	0.44
Sigma eq	0.810	3	CO97 -V-2	151.73	327.30	0.46
Element No 262: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	0.400	1	CO98 +M-2	-247.68	327.30	0.76
Tau Total	0.000	13	CO98 -N	66.95	188.90	0.35
Sigma eq	0.400	1	CO98 +M-2	247.68	327.30	0.76
Element No 263: Section No 50 - Kasten(A) 700/8/8/650/1016/700/8						
Sigma Total	0.000	16	CO99 +N	95.22	327.30	0.29
Tau Total	8.770	21	CO99 +V-2	-23.34	188.90	0.12
Sigma eq	0.000	18	CO99 +N	98.67	327.30	0.30
Element No 264: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	3.880	1	CO98 +M-2	-231.03	327.30	0.71
Tau Total	0.000	13	CO98 -N	67.93	188.90	0.36
Sigma eq	3.880	3	CO98 +M-2	231.07	327.30	0.71
Element No 265: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	1.720	1	CO97 +M-2	-72.01	327.30	0.22
Tau Total	0.000	13	CO98 -N	68.36	188.90	0.36
Sigma eq	0.000	13	CO98 -N	118.42	327.30	0.36
Element No 266: Section No 5 - 6: Kasten(A) 770/15/10/710/2466/770/15 - Kasten(A) 770/15/10/710/2530/770/15						
Sigma Total	1.730	24	CO97 -N	-112.01	327.30	0.34
Tau Total	0.000	12	CO98 -N	7.84	188.90	0.04
Sigma eq	1.730	24	CO97 -N	112.01	327.30	0.34
Element No 267: Section No 4 - 5: Kasten(A) 770/15/10/710/1970/770/15 - Kasten(A) 770/15/10/710/2466/770/15						
Sigma Total	7.930	24	CO98 -N	-111.86	327.30	0.34
Tau Total	0.000	13	CO99 +V-3	9.94	188.90	0.05
Sigma eq	7.930	24	CO98 -N	111.86	327.30	0.34
Element No 268: Section No 51 - 50: Kasten(A) 700/8/8/650/756/700/8 - Kasten(A) 700/8/8/650/1016/700/8						
Sigma Total	0.000	16	CO99 +N	206.66	327.30	0.63
Tau Total	0.000	20	CO99 +V-2	-29.46	188.90	0.16
Sigma eq	0.000	17	CO99 +N	206.97	327.30	0.63
Element No 270: Section No 2 - 4: Kasten(A) 770/15/10/710/803/770/15 - Kasten(A) 770/15/10/710/1970/770/15						

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm ²] existing	allowable	Stress Ratio
Sigma Total	0.000	9	CO98 -N	-157.68	327.30	0.48
Tau Total	0.000	13	CO99 +V-2	41.87	188.90	0.22
Sigma eq	0.000	9	CO98 -N	157.68	327.30	0.48
Element No 272: Section No 2 - Kasten(A) 770/15/10/710/803/770/15						
Sigma Total	1.020	1	CO98 +V-2	-231.66	327.30	0.71
Tau Total	0.000	11	CO99 +V-3	45.79	188.90	0.24
Sigma eq	1.020	1	CO98 +V-2	231.66	327.30	0.71
Element No 276: Section No 52 - Rundstahl 140						
Sigma Total	0.060	17	CO99 +V-2	-96.34	409.00	0.24
Tau Total	0.000	37	CO99 +V-2	-53.02	245.00	0.22
Sigma eq	0.060	17	CO99 +V-2	96.34	409.00	0.24
Element No 289: Section No 88 - Venlo TRAEGER5						
Sigma Total	0.000	8	CO97 -N	-252.60	327.30	0.77
Tau Total	0.000	35	CO97 -V-3	-40.12	188.90	0.21
Sigma eq	0.000	8	CO97 -N	252.60	327.30	0.77
Element No 290: Section No 88 - Venlo TRAEGER5						
Sigma Total	0.000	24	CO98 -N	-223.02	327.30	0.68
Tau Total	0.000	49	CO97 +V-3	30.41	188.90	0.16
Sigma eq	0.000	24	CO98 -N	223.02	327.30	0.68
Element No 299: Section No 52 - Rundstahl 140						
Sigma Total	0.000	10	CO97 +V-3	287.13	409.00	0.70
Tau Total	0.000	37	CO97 +V-3	-99.99	245.00	0.41
Sigma eq	0.000	10	CO97 +V-3	287.13	409.00	0.70
Element No 300: Section No 52 - Rundstahl 140						
Sigma Total	0.000	1	CO98 +V-2	-284.49	409.00	0.70
Tau Total	0.000	37	CO98 +V-2	-99.01	245.00	0.40
Sigma eq	0.000	1	CO98 +V-2	284.49	409.00	0.70
Element No 301: Section No 52 - Rundstahl 140						
Sigma Total	0.000	10	CO97 -V-3	-253.46	409.00	0.62
Tau Total	0.070	37	CO97 -V-3	132.16	245.00	0.54
Sigma eq	0.000	10	CO97 -V-3	253.46	409.00	0.62
Element No 302: Section No 52 - Rundstahl 140						
Sigma Total	0.000	10	CO98 -V-3	-251.16	409.00	0.61
Tau Total	0.070	37	CO98 -V-3	130.85	245.00	0.53
Sigma eq	0.000	10	CO98 -V-3	251.16	409.00	0.61
Element No 303: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	4	CO97 +V-2	-60.75	327.30	0.19
Tau Total	0.180	5	CO97 +V-2	123.70	188.90	0.65
Sigma eq	0.180	5	CO97 +V-2	214.26	327.30	0.65
Element No 304: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO97 +V-2	60.75	327.30	0.19
Tau Total	0.180	5	CO97 +V-2	123.70	188.90	0.65
Sigma eq	0.180	5	CO97 +V-2	214.26	327.30	0.65
Element No 305: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO98 +V-2	59.01	327.30	0.18
Tau Total	0.180	5	CO98 +V-2	122.52	188.90	0.65
Sigma eq	0.180	5	CO98 +V-2	212.22	327.30	0.65
Element No 306: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	1	CO98 +V-2	-59.01	327.30	0.18
Tau Total	0.180	5	CO98 +V-2	122.52	188.90	0.65
Sigma eq	0.180	5	CO98 +V-2	212.22	327.30	0.65
Element No 307: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	4	CO97 -V-2	26.51	327.30	0.08
Tau Total	0.140	5	CO97 -V-2	73.83	188.90	0.39
Sigma eq	0.140	5	CO97 -V-2	127.87	327.30	0.39
Element No 308: Section No 56 - Flachstahl 200/60						
Sigma Total	1.000	1	CO97 -N	-170.38	327.30	0.52
Tau Total	0.000	1	CO99 +T	25.38	188.90	0.13
Sigma eq	1.000	1	CO97 -N	171.03	327.30	0.52
Element No 309: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO97 -V-2	-26.51	327.30	0.08
Tau Total	0.140	5	CO97 -V-2	73.83	188.90	0.39
Sigma eq	0.140	5	CO97 -V-2	127.87	327.30	0.39
Element No 310: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO98 -V-2	-25.14	327.30	0.08
Tau Total	0.140	5	CO98 -V-2	73.14	188.90	0.39
Sigma eq	0.140	5	CO98 -V-2	126.69	327.30	0.39
Element No 311: Section No 56 - Flachstahl 200/60						
Sigma Total	1.000	1	CO98 -N	-168.78	327.30	0.52
Tau Total	0.000	1	CO99 +T	24.25	188.90	0.13
Sigma eq	1.000	1	CO98 -N	168.79	327.30	0.52
Element No 312: Section No 53 - 54: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	1	CO98 -V-2	25.14	327.30	0.08
Tau Total	0.140	5	CO98 -V-2	73.14	188.90	0.39
Sigma eq	0.140	5	CO98 -V-2	126.69	327.30	0.39
Element No 313: Section No 52 - Rundstahl 140						
Sigma Total	0.000	10	CO97 +V-3	128.62	409.00	0.31
Tau Total	0.000	37	CO97 +V-3	-44.78	245.00	0.18
Sigma eq	0.000	10	CO97 +V-3	128.62	409.00	0.31
Element No 314: Section No 52 - Rundstahl 140						
Sigma Total	0.000	10	CO97 -V-3	-216.04	409.00	0.53
Tau Total	0.070	37	CO97 -V-3	77.13	245.00	0.31
Sigma eq	0.000	10	CO97 -V-3	216.04	409.00	0.53
Element No 315: Section No 52 - Rundstahl 140						
Sigma Total	0.000	10	CO98 +V-3	127.40	409.00	0.31
Tau Total	0.000	37	CO98 +V-3	-44.44	245.00	0.18
Sigma eq	0.000	10	CO98 +V-3	127.40	409.00	0.31
Element No 316: Section No 52 - Rundstahl 140						
Sigma Total	0.000	1	CO98 -V-2	214.00	409.00	0.52
Tau Total	0.070	37	CO98 -V-2	76.45	245.00	0.31
Sigma eq	0.000	1	CO98 -V-2	214.00	409.00	0.52

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²] existing	Stress [N/mm²] allowable	Stress Ratio
Element No 317: Section No 55 - Flachstahl 350/40						
Sigma Total	0.000	2	CO97 +V-2	63.95	327.30	0.20
Tau Total	0.000	5	CO97 +V-2	27.73	188.90	0.15
Sigma eq	0.000	2	CO97 +V-2	63.96	327.30	0.20
Element No 318: Section No 55 - Flachstahl 350/40						
Sigma Total	0.000	2	CO97 -V-2	-110.06	327.30	0.34
Tau Total	0.200	5	CO97 -V-2	47.78	188.90	0.25
Sigma eq	0.000	2	CO97 -V-2	110.48	327.30	0.34
Element No 319: Section No 55 - Flachstahl 350/40						
Sigma Total	0.200	1	CO97 -V-2	-63.95	327.30	0.20
Tau Total	0.200	5	CO97 -V-2	27.73	188.90	0.15
Sigma eq	0.200	1	CO97 -V-2	63.96	327.30	0.20
Element No 320: Section No 55 - Flachstahl 350/40						
Sigma Total	0.200	1	CO97 +V-2	110.06	327.30	0.34
Tau Total	0.000	5	CO97 +V-2	47.78	188.90	0.25
Sigma eq	0.200	1	CO97 +V-2	110.48	327.30	0.34
Element No 321: Section No 55 - Flachstahl 350/40						
Sigma Total	0.000	1	CO98 +V-2	-62.16	327.30	0.19
Tau Total	0.000	5	CO98 +V-2	27.47	188.90	0.15
Sigma eq	0.000	1	CO98 +V-2	62.17	327.30	0.19
Element No 322: Section No 55 - Flachstahl 350/40						
Sigma Total	0.000	1	CO98 -V-2	107.30	327.30	0.33
Tau Total	0.200	5	CO98 -V-2	47.33	188.90	0.25
Sigma eq	0.000	1	CO98 -V-2	107.72	327.30	0.33
Element No 323: Section No 55 - Flachstahl 350/40						
Sigma Total	0.200	2	CO98 -V-2	62.16	327.30	0.19
Tau Total	0.200	5	CO98 -V-2	27.47	188.90	0.15
Sigma eq	0.200	2	CO98 -V-2	62.17	327.30	0.19
Element No 324: Section No 55 - Flachstahl 350/40						
Sigma Total	0.200	2	CO98 +V-2	-107.30	327.30	0.33
Tau Total	0.000	5	CO98 +V-2	47.33	188.90	0.25
Sigma eq	0.200	2	CO98 +V-2	107.72	327.30	0.33
Element No 325: Section No 52 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -N	0.00	409.00	0.00
Tau Total	0.000	37	CO97 +V-3	-0.01	245.00	0.00
Sigma eq	0.000	37	CO97 +V-3	0.01	409.00	0.00
Element No 326: Section No 52 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -N	0.00	409.00	0.00
Tau Total	0.000	37	CO97 +V-3	-0.01	245.00	0.00
Sigma eq	0.000	37	CO97 +V-3	0.01	409.00	0.00
Element No 327: Section No 52 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -N	0.00	409.00	0.00
Tau Total	0.000	37	CO97 +V-3	-0.01	245.00	0.00
Sigma eq	0.000	37	CO97 +V-3	0.01	409.00	0.00
Element No 328: Section No 52 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -N	0.00	409.00	0.00
Tau Total	0.000	37	CO97 +V-2	-0.01	245.00	0.00
Sigma eq	0.000	37	CO97 +V-2	0.01	409.00	0.00
Element No 329: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO97 -N	-222.12	327.30	0.68
Tau Total	0.000	13	CO97 +V-3	49.42	188.90	0.26
Sigma eq	0.000	10	CO97 -N	222.18	327.30	0.68
Element No 330: Section No 29 - RO 127x10						
Sigma Total	0.000	31	CO97 -N	-185.11	327.30	0.57
Tau Total	1.300	7	CO98 -V-2	-3.29	188.90	0.02
Sigma eq	0.000	31	CO97 -N	185.11	327.30	0.57
Element No 331: Section No 29 - RO 127x10						
Sigma Total	0.000	24	CO98 -N	-170.26	327.30	0.52
Tau Total	0.000	13	CO98 -V-2	-6.41	188.90	0.03
Sigma eq	0.000	24	CO98 -N	170.26	327.30	0.52
Element No 332: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO98 -N	-207.97	327.30	0.64
Tau Total	0.000	13	CO97 +V-3	38.20	188.90	0.20
Sigma eq	0.000	6	CO98 -N	208.03	327.30	0.64
Element No 333: Section No 21 - HE-M 300						
Sigma Total	0.000	6	CO97 +N	257.99	327.30	0.79
Tau Total	0.000	13	CO97 +N	-7.38	188.90	0.04
Sigma eq	0.000	6	CO97 +N	257.99	327.30	0.79
Element No 334: Section No 21 - HE-M 300						
Sigma Total	0.000	6	CO97 +N	247.03	327.30	0.75
Tau Total	0.000	13	CO97 +V-2	-6.40	188.90	0.03
Sigma eq	0.000	6	CO97 +N	247.03	327.30	0.75
Element No 335: Section No 29 - RO 127x10						
Sigma Total	0.000	28	CO98 -N	-157.94	327.30	0.48
Tau Total	2.180	18	CO98 +T	3.46	188.90	0.02
Sigma eq	0.000	28	CO98 -N	157.95	327.30	0.48
Element No 336: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO98 -N	-189.92	327.30	0.58
Tau Total	0.000	8	CO98 -T	60.74	188.90	0.32
Sigma eq	0.000	10	CO98 -N	189.92	327.30	0.58
Element No 337: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -N	-210.97	327.30	0.64
Tau Total	0.000	8	CO98 -V-2	59.60	188.90	0.32
Sigma eq	0.000	6	CO97 -N	210.98	327.30	0.64
Element No 338: Section No 34 - IS 292/250/10/15						
Sigma Total	7.630	6	CO97 +N	173.02	327.30	0.53
Tau Total	0.000	13	CO98 +V-3	1.54	188.90	0.01
Sigma eq	7.630	6	CO97 +N	173.02	327.30	0.53
Element No 340: Section No 34 - IS 292/250/10/15						
Sigma Total	7.630	1	CO97 -V-3	173.12	327.30	0.53
Tau Total	0.000	8	CO97 -V-3	-1.12	188.90	0.01

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm ²]		Stress Ratio
				existing	allowable	
Sigma eq	7.630	1	CO97 -V-3	173.12	327.30	0.53
Element No 341: Section No 19 - HE-M 600						
Sigma Total	1.180	10	CO97 -N	-206.94	327.30	0.63
Tau Total	1.180	13	CO97 -V-3	-16.48	188.90	0.09
Sigma eq	1.180	10	CO97 -N	207.03	327.30	0.63
Element No 342: Section No 19 - HE-M 600						
Sigma Total	1.180	6	CO97 -N	-190.78	327.30	0.58
Tau Total	1.180	13	CO97 -V-3	-13.53	188.90	0.07
Sigma eq	1.180	6	CO97 -N	190.88	327.30	0.58
Element No 347: Section No 19 - HE-M 600						
Sigma Total	0.460	10	CO97 -N	-215.37	327.30	0.66
Tau Total	0.460	13	CO97 -M-2	-17.02	188.90	0.09
Sigma eq	0.460	10	CO97 -N	215.45	327.30	0.66
Element No 348: Section No 19 - HE-M 600						
Sigma Total	0.460	6	CO97 -N	-199.30	327.30	0.61
Tau Total	0.460	13	CO97 -M-2	-14.05	188.90	0.07
Sigma eq	0.460	6	CO97 -N	199.39	327.30	0.61
Element No 349: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	8	CO97 +M-3	-79.05	327.30	0.24
Tau Total	0.000	5	CO97 -V-3	83.46	188.90	0.44
Sigma eq	0.000	11	CO97 +M-3	146.55	327.30	0.45
Element No 350: Section No 30 - IS 302/250/8/20						
Sigma Total	5.500	5	CO97 -V-2	-143.88	327.30	0.44
Tau Total	0.000	8	CO97 +T	1.74	188.90	0.01
Sigma eq	5.500	5	CO97 -V-2	143.88	327.30	0.44
Element No 351: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.220	8	CO97 +M-3	-78.67	327.30	0.24
Tau Total	0.000	20	CO97 +M-3	24.87	188.90	0.13
Sigma eq	0.220	14	CO97 +M-3	86.61	327.30	0.26
Element No 353: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	1.080	8	CO97 +M-3	-61.91	327.30	0.19
Tau Total	1.080	20	CO97 +M-3	24.87	188.90	0.13
Sigma eq	1.080	14	CO97 +M-3	71.89	327.30	0.22
Element No 354: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	23	CO97 +V-2	-60.15	327.30	0.18
Tau Total	0.000	5	CO97 +V-2	23.56	188.90	0.12
Sigma eq	0.000	11	CO97 +V-2	68.10	327.30	0.21
Element No 355: Section No 28 - RO 127x5,6						
Sigma Total	0.000	1	CO97 +V-2	-57.53	327.30	0.18
Tau Total	0.000	13	CO97 +T	2.36	188.90	0.01
Sigma eq	0.000	1	CO97 +V-2	57.53	327.30	0.18
Element No 356: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	23	CO97 +V-2	-78.53	327.30	0.24
Tau Total	0.000	5	CO97 +V-2	23.56	188.90	0.12
Sigma eq	0.000	15	CO97 +V-2	84.34	327.30	0.26
Element No 357: Section No 30 - IS 302/250/8/20						
Sigma Total	0.000	1	CO97 -N	-139.95	327.30	0.43
Tau Total	5.500	13	CO98 -V-3	-2.26	188.90	0.01
Sigma eq	0.000	1	CO97 -N	139.95	327.30	0.43
Element No 358: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	23	CO97 +M-3	-78.43	327.30	0.24
Tau Total	0.000	5	CO97 +V-3	-81.01	188.90	0.43
Sigma eq	0.430	11	CO97 -V-2	144.57	327.30	0.44
Element No 359: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -N	-208.89	327.30	0.64
Tau Total	0.000	13	CO97 +V-3	5.38	188.90	0.03
Sigma eq	0.000	6	CO97 -N	208.92	327.30	0.64
Element No 360: Section No 29 - RO 127x10						
Sigma Total	0.000	25	CO98 -N	-102.00	327.30	0.31
Tau Total	0.000	32	CO97 -V-2	3.71	188.90	0.02
Sigma eq	0.000	25	CO98 -N	102.12	327.30	0.31
Element No 361: Section No 29 - RO 127x10						
Sigma Total	0.000	28	CO97 -N	-117.07	327.30	0.36
Tau Total	0.000	19	CO97 -N	-3.65	188.90	0.02
Sigma eq	0.000	28	CO97 -N	117.18	327.30	0.36
Element No 362: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO97 -N	-185.49	327.30	0.57
Tau Total	0.000	13	CO97 +V-3	4.97	188.90	0.03
Sigma eq	0.000	10	CO97 -N	185.51	327.30	0.57
Element No 363: Section No 41 - HE-A 160						
Sigma Total	0.830	10	CO97 +N	119.90	327.30	0.37
Tau Total	0.830	8	CO97 +N	-8.58	188.90	0.05
Sigma eq	0.830	10	CO97 +N	119.90	327.30	0.37
Element No 364: Section No 41 - HE-A 160						
Sigma Total	0.000	6	CO97 +N	31.35	327.30	0.10
Tau Total	0.000	3	CO99 +V-2	0.84	188.90	0.00
Sigma eq	0.000	6	CO97 +N	31.35	327.30	0.10
Element No 365: Section No 41 - HE-A 160						
Sigma Total	0.000	10	CO97 -V-2	86.84	327.30	0.27
Tau Total	0.000	8	CO97 -V-2	6.50	188.90	0.03
Sigma eq	0.000	10	CO97 -V-2	86.85	327.30	0.27
Element No 366: Section No 21 - HE-M 300						
Sigma Total	0.000	1	CO97 +N	171.80	327.30	0.52
Tau Total	0.000	13	CO98 +V-3	5.67	188.90	0.03
Sigma eq	0.000	1	CO97 +N	171.80	327.30	0.52
Element No 367: Section No 34 - IS 292/250/10/15						
Sigma Total	7.630	6	CO97 +M-2	207.54	327.30	0.63
Tau Total	0.000	13	CO97 +V-3	2.45	188.90	0.01
Sigma eq	7.630	6	CO97 +M-2	207.54	327.30	0.63
Element No 369: Section No 21 - HE-M 300						
Sigma Total	0.000	1	CO97 +N	174.07	327.30	0.53

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm^2] existing	allowable	Stress Ratio
Tau Total	0.000	13	CO97 +V-3	5.60	188.90	0.03
Sigma eq	0.000	1	CO97 +N	174.07	327.30	0.53
Element No 370: Section No 34 - IS 292/250/10/15						
Sigma Total	7.630	3	CO97 -M-2	187.67	327.30	0.57
Tau Total	7.630	3	CO97 -V-3	-1.81	188.90	0.01
Sigma eq	7.630	1	CO97 -M-2	187.67	327.30	0.57
Element No 371: Section No 19 - HE-M 600						
Sigma Total	1.000	10	CO97 -N	-169.68	327.30	0.52
Tau Total	0.000	8	CO97 -N	4.75	188.90	0.03
Sigma eq	1.000	10	CO97 -N	169.71	327.30	0.52
Element No 372: Section No 19 - HE-M 600						
Sigma Total	1.000	6	CO98 -N	-155.05	327.30	0.47
Tau Total	0.000	3	CO97 -N	4.16	188.90	0.02
Sigma eq	1.000	6	CO98 -N	155.07	327.30	0.47
Element No 373: Section No 29 - RO 127x10						
Sigma Total	2.740	34	CO98 -N	-132.11	327.30	0.40
Tau Total	2.740	6	CO97 -V-2	-3.94	188.90	0.02
Sigma eq	2.740	34	CO98 -N	132.16	327.30	0.40
Element No 374: Section No 29 - RO 127x10						
Sigma Total	2.740	22	CO97 -N	-137.98	327.30	0.42
Tau Total	2.740	14	CO97 +V-2	3.48	188.90	0.02
Sigma eq	2.740	22	CO97 -N	138.02	327.30	0.42
Element No 375: Section No 19 - HE-M 600						
Sigma Total	1.610	10	CO97 -N	-223.31	327.30	0.68
Tau Total	0.000	8	CO97 -N	4.59	188.90	0.02
Sigma eq	1.610	10	CO97 -N	223.34	327.30	0.68
Element No 376: Section No 19 - HE-M 600						
Sigma Total	1.610	6	CO97 -N	-200.49	327.30	0.61
Tau Total	1.610	8	CO97 -N	-4.00	188.90	0.02
Sigma eq	1.610	6	CO97 -N	200.51	327.30	0.61
Element No 377: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO97 -N	-234.07	327.30	0.72
Tau Total	0.170	8	CO98 +V-2	-7.98	188.90	0.04
Sigma eq	0.000	10	CO97 -N	234.22	327.30	0.72
Element No 378: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -N	-212.02	327.30	0.65
Tau Total	0.170	3	CO97 -V-2	-8.91	188.90	0.05
Sigma eq	0.000	6	CO97 -N	212.15	327.30	0.65
Element No 379: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	23	CO97 +V-2	86.41	327.30	0.26
Tau Total	0.000	5	CO97 +V-2	104.28	188.90	0.55
Sigma eq	0.430	11	CO97 +V-2	182.61	327.30	0.56
Element No 380: Section No 31 - IS 292/250/8/15						
Sigma Total	0.000	6	CO98 -N	-144.86	327.30	0.44
Tau Total	0.000	8	CO98 -M-2	2.05	188.90	0.01
Sigma eq	0.000	6	CO98 -N	144.87	327.30	0.44
Element No 381: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	1.300	1	CO97 -V-3	74.68	327.30	0.23
Tau Total	0.000	15	CO97 -V-2	7.36	188.90	0.04
Sigma eq	1.300	2	CO97 -V-3	74.68	327.30	0.23
Element No 382: Section No 28 - RO 127x5,6						
Sigma Total	2.600	7	CO97 +N	58.63	327.30	0.18
Tau Total	2.600	16	CO97 +N	3.29	188.90	0.02
Sigma eq	2.600	7	CO97 +N	58.65	327.30	0.18
Element No 383: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	1	CO97 +M-3	79.94	327.30	0.24
Tau Total	0.000	15	CO97 -V-2	7.63	188.90	0.04
Sigma eq	0.000	2	CO97 +M-3	79.94	327.30	0.24
Element No 384: Section No 31 - IS 292/250/8/15						
Sigma Total	0.000	6	CO98 -N	-138.24	327.30	0.42
Tau Total	5.500	13	CO97 -V-3	-2.28	188.90	0.01
Sigma eq	0.000	6	CO98 -N	138.24	327.30	0.42
Element No 385: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	1	CO97 +M-3	87.09	327.30	0.27
Tau Total	0.000	5	CO97 -V-2	-97.84	188.90	0.52
Sigma eq	0.430	5	CO97 -V-2	170.11	327.30	0.52
Element No 386: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -N	-233.94	327.30	0.71
Tau Total	0.000	8	CO97 -N	16.40	188.90	0.09
Sigma eq	0.000	6	CO97 -N	234.04	327.30	0.72
Element No 387: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO97 -N	-213.54	327.30	0.65
Tau Total	0.000	3	CO97 -N	14.62	188.90	0.08
Sigma eq	0.000	10	CO97 -N	213.63	327.30	0.65
Element No 388: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -N	-191.78	327.30	0.59
Tau Total	0.000	8	CO97 +V-3	5.35	188.90	0.03
Sigma eq	0.000	6	CO97 -N	191.81	327.30	0.59
Element No 389: Section No 29 - RO 127x10						
Sigma Total	0.000	17	CO97 -N	-156.86	327.30	0.48
Tau Total	2.470	6	CO97 -N	-3.81	188.90	0.02
Sigma eq	0.000	17	CO97 -N	156.91	327.30	0.48
Element No 390: Section No 29 - RO 127x10						
Sigma Total	0.000	3	CO97 -N	-136.41	327.30	0.42
Tau Total	2.470	15	CO97 -V-3	3.39	188.90	0.02
Sigma eq	0.000	3	CO97 -N	136.46	327.30	0.42
Element No 391: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO97 -N	-176.63	327.30	0.54
Tau Total	0.000	3	CO97 -N	4.88	188.90	0.03
Sigma eq	0.000	10	CO97 -N	176.66	327.30	0.54
Element No 392: Section No 41 - HE-A 160						

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²] existing	allowable	Stress Ratio
Sigma Total	0.830	6	CO98 +V-2	-108.98	327.30	0.33
Tau Total	0.830	8	CO98 +V-2	-8.06	188.90	0.04
Sigma eq	0.830	6	CO98 +V-2	108.99	327.30	0.33
Element No 393: Section No 41 - HE-A 160						
Sigma Total	0.000	10	CO97 +M-3	-35.14	327.30	0.11
Tau Total	1.790	13	CO97 +V-2	-0.75	188.90	0.00
Sigma eq	0.000	10	CO97 +M-3	35.14	327.30	0.11
Element No 394: Section No 41 - HE-A 160						
Sigma Total	0.000	6	CO97 -V-2	-93.67	327.30	0.29
Tau Total	0.000	8	CO97 -V-2	6.89	188.90	0.04
Sigma eq	0.000	6	CO97 -V-2	93.68	327.30	0.29
Element No 395: Section No 21 - HE-M 300						
Sigma Total	0.000	6	CO97 +N	139.53	327.30	0.43
Tau Total	5.290	13	CO97 -V-3	-4.24	188.90	0.02
Sigma eq	0.000	6	CO97 +N	139.53	327.30	0.43
Element No 396: Section No 34 - IS 292/250/10/15						
Sigma Total	7.630	6	CO97 +M-2	183.48	327.30	0.56
Tau Total	0.000	13	CO97 +V-3	2.45	188.90	0.01
Sigma eq	7.630	6	CO97 +M-2	183.48	327.30	0.56
Element No 398: Section No 21 - HE-M 300						
Sigma Total	0.000	6	CO97 +N	135.14	327.30	0.41
Tau Total	0.000	13	CO97 -V-3	-3.55	188.90	0.02
Sigma eq	0.000	6	CO97 +N	135.14	327.30	0.41
Element No 399: Section No 34 - IS 292/250/10/15						
Sigma Total	7.630	1	CO97 +N	160.93	327.30	0.49
Tau Total	7.630	13	CO98 -V-3	-1.41	188.90	0.01
Sigma eq	7.630	1	CO97 +N	160.93	327.30	0.49
Element No 400: Section No 19 - HE-M 600						
Sigma Total	2.790	10	CO97 -N	-146.02	327.30	0.45
Tau Total	0.000	8	CO97 -M-3	2.84	188.90	0.02
Sigma eq	2.790	10	CO97 -N	146.05	327.30	0.45
Element No 401: Section No 29 - RO 127x10						
Sigma Total	0.000	23	CO97 -N	-129.41	327.30	0.40
Tau Total	0.000	36	CO97 +T	2.25	188.90	0.01
Sigma eq	0.000	23	CO97 -N	129.43	327.30	0.40
Element No 402: Section No 29 - RO 127x10						
Sigma Total	0.000	29	CO98 -N	-111.84	327.30	0.34
Tau Total	2.930	34	CO97 +V-2	-2.78	188.90	0.01
Sigma eq	0.000	29	CO98 -N	111.88	327.30	0.34
Element No 403: Section No 19 - HE-M 600						
Sigma Total	2.790	6	CO98 -N	-132.62	327.30	0.41
Tau Total	0.000	3	CO98 -T	2.84	188.90	0.02
Sigma eq	2.790	6	CO98 -N	132.66	327.30	0.41
Element No 404: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	1	CO97 +M-3	146.80	327.30	0.45
Tau Total	0.000	11	CO97 +T	104.73	188.90	0.55
Sigma eq	0.430	11	CO97 +T	182.97	327.30	0.56
Element No 405: Section No 30 - IS 302/250/8/20						
Sigma Total	5.500	5	CO97 -N	-113.67	327.30	0.35
Tau Total	5.500	13	CO97 +T	-5.93	188.90	0.03
Sigma eq	5.500	5	CO97 -N	113.67	327.30	0.35
Element No 406: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.220	23	CO97 -V-3	-119.35	327.30	0.36
Tau Total	0.000	20	CO97 +M-3	21.91	188.90	0.12
Sigma eq	0.220	15	CO97 -V-3	120.46	327.30	0.37
Element No 407: Section No 29 - RO 127x10						
Sigma Total	0.000	26	CO97 -N	-174.72	327.30	0.53
Tau Total	0.000	1	CO98 +T	4.16	188.90	0.02
Sigma eq	0.000	26	CO97 -N	174.73	327.30	0.53
Element No 408: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	1.080	23	CO97 +M-3	-104.01	327.30	0.32
Tau Total	1.080	20	CO97 +M-3	21.91	188.90	0.12
Sigma eq	1.080	15	CO97 +M-3	105.93	327.30	0.32
Element No 409: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	23	CO97 -M-2	-91.95	327.30	0.28
Tau Total	0.000	5	CO97 +V-2	21.63	188.90	0.11
Sigma eq	0.000	22	CO97 -M-2	92.87	327.30	0.28
Element No 410: Section No 28 - RO 127x5,6						
Sigma Total	2.600	4	CO97 -V-3	49.67	327.30	0.15
Tau Total	0.000	12	CO97 -V-3	2.55	188.90	0.01
Sigma eq	2.600	4	CO97 -V-3	49.67	327.30	0.15
Element No 411: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	23	CO97 -M-2	-105.10	327.30	0.32
Tau Total	0.000	5	CO97 +V-2	21.63	188.90	0.11
Sigma eq	0.000	15	CO97 -M-2	105.42	327.30	0.32
Element No 412: Section No 30 - IS 302/250/8/20						
Sigma Total	5.500	10	CO98 -N	-105.32	327.30	0.32
Tau Total	1.380	13	CO97 +V-3	2.99	188.90	0.02
Sigma eq	5.500	10	CO98 -N	105.32	327.30	0.32
Element No 413: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	23	CO97 -T	-115.63	327.30	0.35
Tau Total	0.430	11	CO97 -T	-81.72	188.90	0.43
Sigma eq	0.000	11	CO97 -T	142.52	327.30	0.44
Element No 414: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -N	-140.04	327.30	0.43
Tau Total	0.000	8	CO98 -V-2	77.46	188.90	0.41
Sigma eq	0.520	8	CO98 -V-2	148.17	327.30	0.45
Element No 415: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO97 -N	-123.81	327.30	0.38
Tau Total	0.000	13	CO98 +V-3	74.17	188.90	0.39
Sigma eq	0.520	8	CO98 +V-3	137.26	327.30	0.42

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²] existing	allowable	Stress Ratio
Element No 416: Section No 29 - RO 127x10						
Sigma Total	0.000	27	CO97 +V-3	-69.39	327.30	0.21
Tau Total	0.000	36	CO98 +V-3	4.13	188.90	0.02
Sigma eq	0.000	27	CO97 +V-3	69.62	327.30	0.21
Element No 417: Section No 29 - RO 127x10						
Sigma Total	0.000	28	CO97 -N	-84.10	327.30	0.26
Tau Total	0.000	19	CO97 +V-3	-4.34	188.90	0.02
Sigma eq	0.000	28	CO97 -N	84.29	327.30	0.26
Element No 418: Section No 41 - HE-A 160						
Sigma Total	0.830	10	CO97 +N	137.37	327.30	0.42
Tau Total	0.000	3	CO97 +V-2	8.48	188.90	0.04
Sigma eq	0.830	10	CO97 +N	137.37	327.30	0.42
Element No 419: Section No 41 - HE-A 160						
Sigma Total	1.790	10	CO98 -V-2	-58.26	327.30	0.18
Tau Total	1.790	13	CO98 -V-3	-4.27	188.90	0.02
Sigma eq	1.790	10	CO98 -V-2	58.26	327.30	0.18
Element No 420: Section No 41 - HE-A 160						
Sigma Total	0.000	10	CO97 +N	109.61	327.30	0.33
Tau Total	0.830	3	CO97 -V-2	-6.72	188.90	0.04
Sigma eq	0.000	10	CO97 +N	109.62	327.30	0.33
Element No 421: Section No 21 - HE-M 300						
Sigma Total	5.280	6	CO97 +M-3	98.08	327.30	0.30
Tau Total	0.000	13	CO97 +V-2	3.19	188.90	0.02
Sigma eq	5.280	6	CO97 +M-3	98.08	327.30	0.30
Element No 422: Section No 33 - IS 302/250/15/20						
Sigma Total	7.630	6	CO97 +N	147.73	327.30	0.45
Tau Total	0.000	13	CO97 +N	2.79	188.90	0.01
Sigma eq	7.630	6	CO97 +N	147.73	327.30	0.45
Element No 424: Section No 21 - HE-M 300						
Sigma Total	5.280	6	CO97 +N	104.50	327.30	0.32
Tau Total	0.000	13	CO97 +V-3	3.22	188.90	0.02
Sigma eq	5.280	6	CO97 +N	104.50	327.30	0.32
Element No 425: Section No 33 - IS 302/250/15/20						
Sigma Total	7.630	1	CO97 +N	134.12	327.30	0.41
Tau Total	7.630	13	CO98 -V-3	-2.41	188.90	0.01
Sigma eq	7.630	1	CO97 +N	134.12	327.30	0.41
Element No 428: Section No 29 - RO 127x10						
Sigma Total	2.740	34	CO98 -V-3	-109.01	327.30	0.33
Tau Total	2.740	6	CO97 -V-2	-5.04	188.90	0.03
Sigma eq	2.740	34	CO98 -V-3	109.14	327.30	0.33
Element No 429: Section No 29 - RO 127x10						
Sigma Total	2.740	22	CO97 -N	-115.20	327.30	0.35
Tau Total	2.740	14	CO98 +V-2	4.57	188.90	0.02
Sigma eq	2.740	22	CO97 -N	115.30	327.30	0.35
Element No 430: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -N	-130.70	327.30	0.40
Tau Total	0.000	3	CO98 +T	15.93	188.90	0.08
Sigma eq	0.000	6	CO97 -N	130.84	327.30	0.40
Element No 431: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO97 -N	-116.09	327.30	0.35
Tau Total	0.000	3	CO98 +V-2	17.39	188.90	0.09
Sigma eq	0.000	10	CO97 -N	116.25	327.30	0.36
Element No 432: Section No 19 - HE-M 600						
Sigma Total	0.170	10	CO97 +M-3	-205.57	327.30	0.63
Tau Total	0.170	13	CO97 -V-3	-70.56	188.90	0.37
Sigma eq	0.170	10	CO97 +M-3	205.91	327.30	0.63
Element No 433: Section No 19 - HE-M 600						
Sigma Total	0.170	6	CO98 -M-3	-190.73	327.30	0.58
Tau Total	0.170	13	CO97 -V-3	-48.60	188.90	0.26
Sigma eq	0.170	6	CO98 -M-3	191.05	327.30	0.58
Element No 434: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	16	CO97 -T	-130.27	327.30	0.40
Tau Total	0.430	5	CO98 +V-2	153.46	188.90	0.81
Sigma eq	0.000	5	CO98 +V-2	265.99	327.30	0.81
Element No 435: Section No 31 - IS 292/250/8/15						
Sigma Total	0.000	5	CO97 -V-3	-55.09	327.30	0.17
Tau Total	5.500	13	CO97 -V-3	-3.71	188.90	0.02
Sigma eq	0.000	5	CO97 -V-3	55.09	327.30	0.17
Element No 436: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	1.300	16	CO97 +V-2	-109.88	327.30	0.34
Tau Total	1.300	15	CO97 +V-2	-10.03	188.90	0.05
Sigma eq	1.300	17	CO97 +V-2	110.00	327.30	0.34
Element No 437: Section No 25 - IS 374/200/5/12						
Sigma Total	0.000	1	CO97 +V-2	68.17	327.30	0.21
Tau Total	0.000	13	CO99 +V-3	18.90	188.90	0.10
Sigma eq	0.000	1	CO97 +V-2	68.18	327.30	0.21
Element No 438: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	1	CO97 +M-3	101.58	327.30	0.31
Tau Total	1.300	15	CO97 +V-2	-9.77	188.90	0.05
Sigma eq	0.000	2	CO97 +M-3	101.59	327.30	0.31
Element No 439: Section No 31 - IS 292/250/8/15						
Sigma Total	0.000	10	CO98 +M-3	-42.92	327.30	0.13
Tau Total	0.000	13	CO97 +V-2	2.20	188.90	0.01
Sigma eq	0.000	10	CO98 +M-3	42.92	327.30	0.13
Element No 440: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	1	CO97 +M-3	122.27	327.30	0.37
Tau Total	0.000	5	CO98 -V-2	-145.82	188.90	0.77
Sigma eq	0.430	5	CO98 -V-2	252.80	327.30	0.77
Element No 441: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -V-2	-184.48	327.30	0.56
Tau Total	0.000	8	CO97 -V-2	15.49	188.90	0.08

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²] existing	allowable	Stress Ratio
Sigma eq	0.000	6	CO97 -V-2	184.80	327.30	0.56
Element No 442: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO98 +V-2	-178.11	327.30	0.54
Tau Total	0.000	3	CO98 +V-2	14.79	188.90	0.08
Sigma eq	0.000	10	CO98 +V-2	178.44	327.30	0.55
Element No 445: Section No 29 - RO 127x10						
Sigma Total	0.000	17	CO97 -N	-119.11	327.30	0.36
Tau Total	2.470	6	CO97 -N	-4.71	188.90	0.02
Sigma eq	0.000	17	CO97 -N	119.18	327.30	0.36
Element No 446: Section No 29 - RO 127x10						
Sigma Total	0.000	3	CO97 +V-2	-108.90	327.30	0.33
Tau Total	2.470	14	CO98 +V-2	4.57	188.90	0.02
Sigma eq	0.000	3	CO97 +V-2	108.97	327.30	0.33
Element No 447: Section No 19 - HE-M 600						
Sigma Total	0.340	10	CO97 -N	-193.94	327.30	0.59
Tau Total	0.340	13	CO97 -V-3	-70.73	188.90	0.37
Sigma eq	0.340	10	CO97 -N	194.02	327.30	0.59
Element No 448: Section No 19 - HE-M 600						
Sigma Total	0.340	6	CO98 -N	-181.17	327.30	0.55
Tau Total	0.000	13	CO97 +M-2	-53.24	188.90	0.28
Sigma eq	0.340	6	CO98 -N	181.25	327.30	0.55
Element No 449: Section No 41 - HE-A 160						
Sigma Total	0.830	6	CO97 +V-2	-128.85	327.30	0.39
Tau Total	0.830	8	CO97 +V-2	-8.18	188.90	0.04
Sigma eq	0.830	6	CO97 +V-2	128.86	327.30	0.39
Element No 450: Section No 41 - HE-A 160						
Sigma Total	1.790	6	CO97 -M-2	-44.93	327.30	0.14
Tau Total	1.790	13	CO97 +V-2	-0.91	188.90	0.00
Sigma eq	1.790	6	CO97 -M-2	44.93	327.30	0.14
Element No 451: Section No 41 - HE-A 160						
Sigma Total	0.000	6	CO97 -V-2	-120.50	327.30	0.37
Tau Total	0.000	8	CO97 -V-2	7.54	188.90	0.04
Sigma eq	0.000	6	CO97 -V-2	120.51	327.30	0.37
Element No 452: Section No 21 - HE-M 300						
Sigma Total	0.000	6	CO97 +N	99.63	327.30	0.30
Tau Total	5.290	13	CO98 -V-3	-2.84	188.90	0.02
Sigma eq	0.000	6	CO97 +N	99.63	327.30	0.30
Element No 453: Section No 93 - IS 302/250/15/25						
Sigma Total	0.000	6	CO97 +V-2	107.46	327.30	0.33
Tau Total	0.000	13	CO97 -N	2.68	188.90	0.01
Sigma eq	0.000	6	CO97 +V-2	107.46	327.30	0.33
Element No 454: Section No 25 - IS 374/200/5/12						
Sigma Total	1.300	5	CO99 +M-2	-50.85	327.30	0.16
Tau Total	0.000	13	CO99 +V-3	18.90	188.90	0.10
Sigma eq	1.300	11	CO99 +M-2	52.40	327.30	0.16
Element No 455: Section No 21 - HE-M 300						
Sigma Total	5.290	1	CO97 -M-2	99.66	327.30	0.30
Tau Total	5.290	13	CO98 -V-3	-2.79	188.90	0.01
Sigma eq	5.290	1	CO97 -M-2	99.66	327.30	0.30
Element No 456: Section No 93 - IS 302/250/15/25						
Sigma Total	0.000	1	CO98 +N	100.89	327.30	0.31
Tau Total	7.630	13	CO97 -V-3	-2.68	188.90	0.01
Sigma eq	0.000	1	CO98 +N	100.89	327.30	0.31
Element No 457: Section No 19 - HE-M 600						
Sigma Total	2.790	6	CO98 -N	-114.71	327.30	0.35
Tau Total	2.790	3	CO97 -V-2	-4.14	188.90	0.02
Sigma eq	2.790	6	CO98 -N	114.75	327.30	0.35
Element No 458: Section No 29 - RO 127x10						
Sigma Total	0.000	25	CO97 -N	-77.82	327.30	0.24
Tau Total	0.000	1	CO98 +T	3.30	188.90	0.02
Sigma eq	0.000	25	CO97 -N	77.92	327.30	0.24
Element No 459: Section No 29 - RO 127x10						
Sigma Total	2.930	17	CO97 +N	72.38	327.30	0.22
Tau Total	0.000	20	CO98 -N	-3.43	188.90	0.02
Sigma eq	2.930	17	CO97 +N	72.43	327.30	0.22
Element No 460: Section No 19 - HE-M 600						
Sigma Total	2.790	10	CO97 -N	-103.58	327.30	0.32
Tau Total	2.790	8	CO98 +V-2	-4.21	188.90	0.02
Sigma eq	2.790	10	CO97 -N	103.65	327.30	0.32
Element No 461: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	8	CO97 -M-3	65.53	327.30	0.20
Tau Total	0.000	5	CO97 -V-2	-58.88	188.90	0.31
Sigma eq	0.000	10	CO97 -V-2	109.09	327.30	0.33
Element No 462: Section No 31 - IS 292/250/8/15						
Sigma Total	0.000	10	CO98 +N	108.43	327.30	0.33
Tau Total	5.500	13	CO98 -V-3	-1.88	188.90	0.01
Sigma eq	0.000	10	CO98 +N	108.43	327.30	0.33
Element No 463: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.220	8	CO97 +V-2	63.40	327.30	0.19
Tau Total	0.000	20	CO97 +V-2	-20.11	188.90	0.11
Sigma eq	0.220	14	CO97 +V-2	70.05	327.30	0.21
Element No 464: Section No 29 - RO 127x10						
Sigma Total	1.740	30	CO97 -N	-174.36	327.30	0.53
Tau Total	1.740	20	CO97 +T	3.58	188.90	0.02
Sigma eq	1.740	30	CO97 -N	174.39	327.30	0.53
Element No 465: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	1.080	8	CO97 +V-2	49.80	327.30	0.15
Tau Total	0.000	20	CO97 +V-2	-20.11	188.90	0.11
Sigma eq	1.080	14	CO97 +V-2	58.16	327.30	0.18
Element No 466: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	8	CO98 -V-2	40.27	327.30	0.12

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm^2] existing	allowable	Stress Ratio
Tau Total	1.080	5	CO98 -V-2	-15.96	188.90	0.08
Sigma eq	0.000	11	CO98 -V-2	46.30	327.30	0.14
Element No 467: Section No 28 - RO 127x5.6						
Sigma Total	0.000	30	CO99 -V-2	31.42	327.30	0.10
Tau Total	0.000	23	CO97 -T	-1.55	188.90	0.01
Sigma eq	0.000	30	CO99 -V-2	31.43	327.30	0.10
Element No 468: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	8	CO98 -V-2	52.23	327.30	0.16
Tau Total	0.220	5	CO98 -V-2	-15.93	188.90	0.08
Sigma eq	0.000	11	CO98 -V-2	56.95	327.30	0.17
Element No 469: Section No 31 - IS 292/250/8/15						
Sigma Total	0.000	5	CO98 +N	98.60	327.30	0.30
Tau Total	0.000	13	CO98 +V-3	1.53	188.90	0.01
Sigma eq	0.000	5	CO98 +N	98.60	327.30	0.30
Element No 470: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	8	CO98 +V-2	55.89	327.30	0.17
Tau Total	0.000	5	CO98 +V-2	54.90	188.90	0.29
Sigma eq	0.430	10	CO98 +V-2	99.04	327.30	0.30
Element No 471: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO97 -N	-116.61	327.30	0.36
Tau Total	2.500	13	CO97 -V-3	-2.90	188.90	0.02
Sigma eq	0.000	10	CO97 -N	116.62	327.30	0.36
Element No 472: Section No 29 - RO 127x10						
Sigma Total	2.630	23	CO97 -N	-101.19	327.30	0.31
Tau Total	0.000	23	CO98 +V-2	-1.49	188.90	0.01
Sigma eq	2.630	23	CO97 -N	101.19	327.30	0.31
Element No 473: Section No 29 - RO 127x10						
Sigma Total	2.630	34	CO97 -N	-101.07	327.30	0.31
Tau Total	0.000	32	CO97 -V-2	2.20	188.90	0.01
Sigma eq	2.630	34	CO97 -N	101.08	327.30	0.31
Element No 474: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -N	-112.26	327.30	0.34
Tau Total	0.000	13	CO97 +V-3	2.85	188.90	0.02
Sigma eq	0.000	6	CO97 -N	112.27	327.30	0.34
Element No 475: Section No 41 - HE-A 160						
Sigma Total	0.920	10	CO98 -V-2	-75.87	327.30	0.23
Tau Total	0.920	3	CO98 -V-2	-4.92	188.90	0.03
Sigma eq	0.920	10	CO98 -V-2	75.87	327.30	0.23
Element No 476: Section No 41 - HE-A 160						
Sigma Total	0.000	6	CO97 -M-3	-20.03	327.30	0.06
Tau Total	0.000	3	CO99 +V-2	0.73	188.90	0.00
Sigma eq	0.000	6	CO97 -M-3	20.03	327.30	0.06
Element No 477: Section No 41 - HE-A 160						
Sigma Total	0.000	10	CO97 +V-2	-88.65	327.30	0.27
Tau Total	0.000	3	CO97 +V-2	6.56	188.90	0.03
Sigma eq	0.000	10	CO97 +V-2	88.65	327.30	0.27
Element No 478: Section No 21 - HE-M 300						
Sigma Total	0.000	1	CO97 +N	115.01	327.30	0.35
Tau Total	0.000	13	CO97 -T	3.59	188.90	0.02
Sigma eq	0.000	1	CO97 +N	115.01	327.30	0.35
Element No 479: Section No 33 - IS 302/250/15/20						
Sigma Total	0.000	6	CO97 -V-3	109.13	327.30	0.33
Tau Total	7.630	8	CO97 +V-3	1.27	188.90	0.01
Sigma eq	0.000	6	CO97 -V-3	109.13	327.30	0.33
Element No 481: Section No 21 - HE-M 300						
Sigma Total	5.290	6	CO97 +N	115.50	327.30	0.35
Tau Total	0.000	13	CO97 +V-3	3.12	188.90	0.02
Sigma eq	5.290	6	CO97 +N	115.50	327.30	0.35
Element No 482: Section No 33 - IS 302/250/15/20						
Sigma Total	0.000	1	CO98 -M-2	104.51	327.30	0.32
Tau Total	0.000	3	CO97 +V-3	1.24	188.90	0.01
Sigma eq	0.000	1	CO98 -M-2	104.51	327.30	0.32
Element No 483: Section No 19 - HE-M 600						
Sigma Total	2.610	6	CO97 -N	-139.76	327.30	0.43
Tau Total	2.610	13	CO97 -V-3	-4.68	188.90	0.02
Sigma eq	2.610	6	CO97 -N	139.77	327.30	0.43
Element No 484: Section No 29 - RO 127x10						
Sigma Total	2.770	19	CO97 -N	-116.48	327.30	0.36
Tau Total	2.770	5	CO97 -V-2	-2.14	188.90	0.01
Sigma eq	2.770	19	CO97 -N	116.50	327.30	0.36
Element No 485: Section No 29 - RO 127x10						
Sigma Total	2.770	1	CO97 -N	-116.40	327.30	0.36
Tau Total	0.000	15	CO97 -N	-2.08	188.90	0.01
Sigma eq	2.770	1	CO97 -N	116.42	327.30	0.36
Element No 486: Section No 19 - HE-M 600						
Sigma Total	2.610	10	CO97 -N	-134.94	327.30	0.41
Tau Total	2.610	13	CO97 -V-3	-4.34	188.90	0.02
Sigma eq	2.610	10	CO97 -N	134.94	327.30	0.41
Element No 487: Section No 19 - HE-M 600						
Sigma Total	0.180	6	CO97 +V-2	-173.36	327.30	0.53
Tau Total	0.180	8	CO97 +V-2	-10.67	188.90	0.06
Sigma eq	0.180	6	CO97 +V-2	173.38	327.30	0.53
Element No 488: Section No 19 - HE-M 600						
Sigma Total	0.180	10	CO97 -V-2	-168.35	327.30	0.51
Tau Total	0.180	3	CO97 -V-2	-10.73	188.90	0.06
Sigma eq	0.180	10	CO97 -V-2	168.37	327.30	0.51
Element No 489: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	8	CO97 -M-3	71.56	327.30	0.22
Tau Total	0.000	5	CO97 -V-2	-78.17	188.90	0.41
Sigma eq	0.000	10	CO97 -M-3	135.49	327.30	0.41
Element No 490: Section No 31 - IS 292/250/8/15						

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²] existing	allowable	Stress Ratio
Sigma Total	5.500	6	CO97 -N	-111.78	327.30	0.34
Tau Total	0.000	13	CO97 +V-3	1.53	188.90	0.01
Sigma eq	5.500	6	CO97 -N	111.79	327.30	0.34
Element No 491: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	1.300	23	CO97 +V-2	65.15	327.30	0.20
Tau Total	1.300	15	CO97 +V-2	-6.40	188.90	0.03
Sigma eq	1.300	15	CO97 +V-2	66.02	327.30	0.20
Element No 492: Section No 28 - RO 127x5,6						
Sigma Total	0.000	31	CO97 +V-3	-42.00	327.30	0.13
Tau Total	0.000	13	CO97 -T	-1.90	188.90	0.01
Sigma eq	0.000	31	CO97 +V-3	42.01	327.30	0.13
Element No 493: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	23	CO98 +M-2	57.92	327.30	0.18
Tau Total	0.000	20	CO97 +V-2	-6.29	188.90	0.03
Sigma eq	0.000	23	CO98 +M-2	57.92	327.30	0.18
Element No 494: Section No 31 - IS 292/250/8/15						
Sigma Total	5.500	6	CO98 -N	-107.38	327.30	0.33
Tau Total	0.000	8	CO98 -N	-1.06	188.90	0.01
Sigma eq	5.500	6	CO98 -N	107.38	327.30	0.33
Element No 495: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	23	CO98 +V-3	58.78	327.30	0.18
Tau Total	0.000	5	CO98 +V-2	75.17	188.90	0.40
Sigma eq	0.430	5	CO98 +V-2	130.22	327.30	0.40
Element No 496: Section No 19 - HE-M 600						
Sigma Total	0.170	10	CO97 -V-3	-176.75	327.30	0.54
Tau Total	0.000	13	CO97 +V-3	18.49	188.90	0.10
Sigma eq	0.170	10	CO97 -V-3	176.84	327.30	0.54
Element No 497: Section No 19 - HE-M 600						
Sigma Total	0.170	6	CO97 -V-3	-169.90	327.30	0.52
Tau Total	0.000	13	CO97 +V-3	14.84	188.90	0.08
Sigma eq	0.170	6	CO97 -V-3	169.99	327.30	0.52
Element No 498: Section No 29 - RO 127x10						
Sigma Total	0.000	34	CO97 -N	-106.39	327.30	0.33
Tau Total	0.000	5	CO97 +T	2.93	188.90	0.02
Sigma eq	0.000	34	CO97 -N	106.39	327.30	0.33
Element No 499: Section No 29 - RO 127x10						
Sigma Total	0.000	22	CO97 -N	-107.35	327.30	0.33
Tau Total	0.000	15	CO97 -M-2	-2.84	188.90	0.02
Sigma eq	0.000	22	CO97 -N	107.36	327.30	0.33
Element No 500: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO97 -N	-168.56	327.30	0.51
Tau Total	0.000	13	CO97 +V-3	17.32	188.90	0.09
Sigma eq	0.000	10	CO97 -N	168.57	327.30	0.52
Element No 501: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -N	-161.17	327.30	0.49
Tau Total	0.000	13	CO97 +V-3	13.58	188.90	0.07
Sigma eq	0.000	6	CO97 -N	161.19	327.30	0.49
Element No 502: Section No 21 - HE-M 300						
Sigma Total	5.280	1	CO97 -V-3	158.21	327.30	0.48
Tau Total	5.280	13	CO98 -V-3	-4.07	188.90	0.02
Sigma eq	5.280	1	CO97 -V-3	158.21	327.30	0.48
Element No 503: Section No 21 - HE-M 300						
Sigma Total	5.280	1	CO97 +N	167.02	327.30	0.51
Tau Total	5.280	13	CO98 +N	-4.42	188.90	0.02
Sigma eq	5.280	1	CO97 +N	167.02	327.30	0.51
Element No 504: Section No 33 - IS 302/250/15/20						
Sigma Total	0.000	6	CO97 -V-3	116.53	327.30	0.36
Tau Total	7.630	13	CO98 -V-3	-1.97	188.90	0.01
Sigma eq	0.000	6	CO97 -V-3	116.53	327.30	0.36
Element No 506: Section No 33 - IS 302/250/15/20						
Sigma Total	0.000	1	CO98 +N	109.04	327.30	0.33
Tau Total	0.000	13	CO97 +V-3	1.66	188.90	0.01
Sigma eq	0.000	1	CO98 +N	109.04	327.30	0.33
Element No 507: Section No 29 - RO 127x10						
Sigma Total	1.740	27	CO97 -N	-188.83	327.30	0.58
Tau Total	1.740	1	CO97 -N	-3.63	188.90	0.02
Sigma eq	1.740	27	CO97 -N	188.86	327.30	0.58
Element No 510: Section No 19 - HE-M 600						
Sigma Total	0.660	6	CO97 -N	-144.91	327.30	0.44
Tau Total	0.000	13	CO97 +M-2	21.27	188.90	0.11
Sigma eq	0.660	6	CO97 -N	144.94	327.30	0.44
Element No 511: Section No 19 - HE-M 600						
Sigma Total	0.660	10	CO97 -N	-136.18	327.30	0.42
Tau Total	0.660	8	CO99 +M-3	16.21	188.90	0.09
Sigma eq	0.660	10	CO97 -N	136.21	327.30	0.42
Element No 512: Section No 29 - RO 127x10						
Sigma Total	2.930	28	CO97 -N	-87.31	327.30	0.27
Tau Total	2.930	1	CO98 -T	-3.08	188.90	0.02
Sigma eq	2.930	28	CO97 -N	87.36	327.30	0.27
Element No 513: Section No 29 - RO 127x10						
Sigma Total	2.930	27	CO97 -N	-91.30	327.30	0.28
Tau Total	2.930	21	CO97 +N	3.41	188.90	0.02
Sigma eq	2.930	27	CO97 -N	91.35	327.30	0.28
Element No 514: Section No 19 - HE-M 600						
Sigma Total	2.130	6	CO97 -N	-186.67	327.30	0.57
Tau Total	2.130	13	CO97 -V-3	-48.02	188.90	0.25
Sigma eq	2.130	6	CO97 -N	186.70	327.30	0.57
Element No 515: Section No 19 - HE-M 600						
Sigma Total	2.130	10	CO97 -N	-174.25	327.30	0.53
Tau Total	2.130	13	CO97 +T	-39.11	188.90	0.21
Sigma eq	2.130	10	CO97 -N	174.27	327.30	0.53

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm^2]		Stress Ratio
				existing	allowable	
Element No 518: Section No 69 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -N	0.00	409.00	0.00
Tau Total	0.000	37	CO97 +V-3	-0.01	245.00	0.00
Sigma eq	0.000	37	CO97 +V-3	0.01	409.00	0.00
Element No 519: Section No 69 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -N	0.00	409.00	0.00
Tau Total	0.000	37	CO97 +V-3	-0.01	245.00	0.00
Sigma eq	0.000	37	CO97 +V-3	0.01	409.00	0.00
Element No 520: Section No 69 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -N	0.00	409.00	0.00
Tau Total	0.000	37	CO97 +V-3	-0.01	245.00	0.00
Sigma eq	0.000	37	CO97 +V-3	0.01	409.00	0.00
Element No 521: Section No 69 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -N	0.00	409.00	0.00
Tau Total	0.000	37	CO97 +V-2	-0.01	245.00	0.00
Sigma eq	0.000	37	CO97 +V-2	0.01	409.00	0.00
Element No 522: Section No 72 - Flachstahl 350/40						
Sigma Total	0.000	1	CO97 +V-2	-42.72	327.30	0.13
Tau Total	0.000	5	CO97 +V-2	18.92	188.90	0.10
Sigma eq	0.000	1	CO97 +V-2	42.74	327.30	0.13
Element No 523: Section No 72 - Flachstahl 350/40						
Sigma Total	0.000	1	CO97 -V-2	73.75	327.30	0.23
Tau Total	0.200	5	CO97 -V-2	32.64	188.90	0.17
Sigma eq	0.000	1	CO97 -V-2	74.05	327.30	0.23
Element No 524: Section No 72 - Flachstahl 350/40						
Sigma Total	0.200	1	CO97 -V-2	-42.72	327.30	0.13
Tau Total	0.200	5	CO97 -V-2	18.92	188.90	0.10
Sigma eq	0.200	1	CO97 -V-2	42.74	327.30	0.13
Element No 525: Section No 72 - Flachstahl 350/40						
Sigma Total	0.200	2	CO97 +V-2	-73.75	327.30	0.23
Tau Total	0.000	5	CO97 +V-2	32.64	188.90	0.17
Sigma eq	0.200	2	CO97 +V-2	74.05	327.30	0.23
Element No 526: Section No 72 - Flachstahl 350/40						
Sigma Total	0.200	1	CO97 -V-2	-43.46	327.30	0.13
Tau Total	0.200	5	CO97 -V-2	18.57	188.90	0.10
Sigma eq	0.200	1	CO97 -V-2	43.47	327.30	0.13
Element No 527: Section No 72 - Flachstahl 350/40						
Sigma Total	0.000	4	CO97 -V-2	74.43	327.30	0.23
Tau Total	0.200	5	CO97 -V-2	32.03	188.90	0.17
Sigma eq	0.000	4	CO97 -V-2	74.70	327.30	0.23
Element No 528: Section No 72 - Flachstahl 350/40						
Sigma Total	0.000	2	CO97 +V-2	43.46	327.30	0.13
Tau Total	0.000	5	CO97 +V-2	18.57	188.90	0.10
Sigma eq	0.000	2	CO97 +V-2	43.47	327.30	0.13
Element No 529: Section No 72 - Flachstahl 350/40						
Sigma Total	0.200	3	CO97 +V-2	-74.43	327.30	0.23
Tau Total	0.000	5	CO97 +V-2	32.03	188.90	0.17
Sigma eq	0.200	3	CO97 +V-2	74.70	327.30	0.23
Element No 530: Section No 69 - Rundstahl 140						
Sigma Total	0.000	10	CO97 +V-3	87.83	409.00	0.21
Tau Total	0.000	37	CO97 +V-3	-30.61	245.00	0.12
Sigma eq	0.000	10	CO97 +V-3	87.83	409.00	0.21
Element No 531: Section No 69 - Rundstahl 140						
Sigma Total	0.000	10	CO97 -V-3	-147.52	409.00	0.36
Tau Total	0.070	37	CO97 -V-3	52.70	245.00	0.22
Sigma eq	0.000	10	CO97 -V-3	147.52	409.00	0.36
Element No 532: Section No 69 - Rundstahl 140						
Sigma Total	0.000	10	CO97 +V-3	86.12	409.00	0.21
Tau Total	0.000	37	CO97 +V-3	-29.97	245.00	0.12
Sigma eq	0.000	10	CO97 +V-3	86.12	409.00	0.21
Element No 533: Section No 69 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -V-2	144.77	409.00	0.35
Tau Total	0.070	37	CO97 -V-2	51.77	245.00	0.21
Sigma eq	0.000	1	CO97 -V-2	144.77	409.00	0.35
Element No 534: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO97 -V-2	-17.29	327.30	0.05
Tau Total	0.140	5	CO97 -V-2	50.35	188.90	0.27
Sigma eq	0.140	5	CO97 -V-2	87.21	327.30	0.27
Element No 535: Section No 73 - Flachstahl 200/60						
Sigma Total	1.000	1	CO97 -N	-116.33	327.30	0.36
Tau Total	0.000	1	CO99 +T	22.81	188.90	0.12
Sigma eq	1.000	1	CO97 -N	116.33	327.30	0.36
Element No 536: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	1	CO97 -V-2	17.29	327.30	0.05
Tau Total	0.140	5	CO97 -V-2	50.35	188.90	0.27
Sigma eq	0.140	5	CO97 -V-2	87.21	327.30	0.27
Element No 537: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO97 -V-2	-18.13	327.30	0.06
Tau Total	0.140	5	CO97 -V-2	49.41	188.90	0.26
Sigma eq	0.140	5	CO97 -V-2	85.57	327.30	0.26
Element No 538: Section No 73 - Flachstahl 200/60						
Sigma Total	0.000	1	CO97 -N	-114.16	327.30	0.35
Tau Total	0.000	1	CO99 +T	22.81	188.90	0.12
Sigma eq	0.000	1	CO97 -N	115.26	327.30	0.35
Element No 539: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	4	CO97 -V-2	18.13	327.30	0.06
Tau Total	0.140	5	CO97 -V-2	49.41	188.90	0.26
Sigma eq	0.140	5	CO97 -V-2	85.57	327.30	0.26
Element No 540: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO97 +V-2	40.70	327.30	0.12
Tau Total	0.190	5	CO97 +V-2	87.05	188.90	0.46

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²] existing	allowable	Stress Ratio
Sigma eq	0.190	5	CO97 +V-2	150.77	327.30	0.46
Element No 541: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	1	CO97 +V-2	-40.70	327.30	0.12
Tau Total	0.190	5	CO97 +V-2	87.05	188.90	0.46
Sigma eq	0.190	5	CO97 +V-2	150.77	327.30	0.46
Element No 542: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO97 +V-2	41.13	327.30	0.13
Tau Total	0.190	5	CO97 +V-2	85.42	188.90	0.45
Sigma eq	0.190	5	CO97 +V-2	147.95	327.30	0.45
Element No 543: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	4	CO97 +V-2	-41.13	327.30	0.13
Tau Total	0.190	5	CO97 +V-2	85.42	188.90	0.45
Sigma eq	0.190	5	CO97 +V-2	147.95	327.30	0.45
Element No 544: Section No 69 - Rundstahl 140						
Sigma Total	0.000	10	CO97 -V-3	-172.95	409.00	0.42
Tau Total	0.070	37	CO97 -V-3	90.14	245.00	0.37
Sigma eq	0.000	10	CO97 -V-3	172.95	409.00	0.42
Element No 545: Section No 69 - Rundstahl 140						
Sigma Total	0.000	10	CO97 -V-3	-169.72	409.00	0.41
Tau Total	0.070	37	CO97 -V-3	88.53	245.00	0.36
Sigma eq	0.000	10	CO97 -V-3	169.72	409.00	0.41
Element No 546: Section No 69 - Rundstahl 140						
Sigma Total	0.000	10	CO97 +V-3	196.11	409.00	0.48
Tau Total	0.000	37	CO97 +V-3	-68.25	245.00	0.28
Sigma eq	0.000	10	CO97 +V-3	196.11	409.00	0.48
Element No 547: Section No 69 - Rundstahl 140						
Sigma Total	0.000	1	CO97 +V-2	-192.43	409.00	0.47
Tau Total	0.000	37	CO97 +V-2	-66.92	245.00	0.27
Sigma eq	0.000	1	CO97 +V-2	192.43	409.00	0.47
Element No 570: Section No 69 - Rundstahl 140						
Sigma Total	0.050	10	CO98 +V-3	-12.07	409.00	0.03
Tau Total	0.000	37	CO98 +V-3	-5.13	245.00	0.02
Sigma eq	0.050	10	CO98 +V-3	12.07	409.00	0.03
Element No 576: Section No 92 - 90: Kasten(A) 770/15/12/710/1215/770/15 - Kasten(A)						
770/15/12/710/772/770/15						
Sigma Total	7.000	9	CO98 -N	-131.90	327.30	0.40
Tau Total	7.000	12	CO99 -V-3	35.34	188.90	0.19
Sigma eq	7.000	7	CO98 -N	132.49	327.30	0.40
Element No 580: Section No 67 - 68: Kasten(A) 700/8/8/650/1016/700/8 - Kasten(A)						
700/8/8/650/756/700/8						
Sigma Total	5.050	9	CO98 +N	113.37	327.30	0.35
Tau Total	5.050	20	CO99 +V-2	-21.29	188.90	0.11
Sigma eq	5.050	9	CO98 +N	113.37	327.30	0.35
Element No 581: Section No 81 - 82: Flachstahl 500/35 - Flachstahl 656/35						
Sigma Total	0.270	4	CO99 -N	-37.71	327.30	0.12
Tau Total	0.000	5	CO99 -V-2	12.83	188.90	0.07
Sigma eq	0.270	4	CO99 -N	37.71	327.30	0.12
Element No 582: Section No 80 - Rundstahl 220						
Sigma Total	0.000	19	CO98 +N	30.50	409.00	0.07
Tau Total	0.060	37	CO99 -N	21.63	245.00	0.09
Sigma eq	0.060	37	CO99 -N	37.46	409.00	0.09
Element No 583: Section No 83 - 84: Flachstahl 656/70 - Flachstahl 500/70						
Sigma Total	0.270	1	CO98 -V-3	96.19	327.30	0.29
Tau Total	0.270	5	CO99 -V-2	12.81	188.90	0.07
Sigma eq	0.270	1	CO98 -V-3	96.19	327.30	0.29
Element No 585: Section No 80 - Rundstahl 220						
Sigma Total	0.060	19	CO98 +N	51.55	409.00	0.13
Tau Total	0.060	37	CO98 +N	26.60	245.00	0.11
Sigma eq	0.060	19	CO98 +N	51.55	409.00	0.13
Element No 586: Section No 86 - 85: Pi(A) 656/35/12/435/376 - Pi(A) 500/35/12/135/376						
Sigma Total	0.280	1	CO98 +N	44.40	327.30	0.14
Tau Total	0.280	12	CO97 -V-3	-80.84	188.90	0.43
Sigma eq	0.280	12	CO97 -V-3	140.02	327.30	0.43
Element No 587: Section No 89 - 94: Kasten(A) 770/20/12/710/2500/770/20 - Kasten(A)						
770/20/12/710/2247/770/20						
Sigma Total	0.000	24	CO98 -N	-78.22	327.30	0.24
Tau Total	7.000	12	CO99 +N	11.75	188.90	0.06
Sigma eq	0.000	22	CO98 -N	78.25	327.30	0.24
Element No 590: Section No 87 - Kasten(A) 770/15/10/710/1640/770/15						
Sigma Total	0.000	1	CO98 -N	-204.83	327.30	0.63
Tau Total	0.000	12	CO99 -V-2	26.21	188.90	0.14
Sigma eq	0.000	3	CO98 -N	205.32	327.30	0.63
Element No 591: Section No 79 - Kasten(A) 770/20/15/710/1680/770/20						
Sigma Total	0.000	9	CO98 -N	-118.08	327.30	0.36
Tau Total	0.000	12	CO99 -V-2	17.08	188.90	0.09
Sigma eq	0.000	3	CO98 -N	118.51	327.30	0.36
Element No 594: Section No 86 - 85: Pi(A) 656/35/12/435/376 - Pi(A) 500/35/12/135/376						
Sigma Total	0.280	15	CO98 -N	-105.03	327.30	0.32
Tau Total	0.280	12	CO98 -N	-44.09	188.90	0.23
Sigma eq	0.280	10	CO98 -N	123.58	327.30	0.38
Element No 595: Section No 80 - Rundstahl 220						
Sigma Total	0.000	19	CO98 -N	-126.41	409.00	0.31
Tau Total	0.060	37	CO98 -N	66.50	245.00	0.27
Sigma eq	0.000	19	CO98 -N	126.41	409.00	0.31
Element No 597: Section No 83 - 84: Flachstahl 656/70 - Flachstahl 500/70						
Sigma Total	0.270	3	CO98 -N	-185.04	327.30	0.57
Tau Total	0.270	5	CO99 +V-2	13.14	188.90	0.07
Sigma eq	0.270	3	CO98 -N	185.04	327.30	0.57
Element No 598: Section No 80 - Rundstahl 220						
Sigma Total	0.060	19	CO98 -N	-85.10	409.00	0.21
Tau Total	0.000	37	CO98 -N	-54.16	245.00	0.22

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm ²] existing	allowable	Stress Ratio
Sigma eq	0.000	37	CO98 -N	93.80	409.00	0.23
Element No 599: Section No 81 - 82: Flachstahl 500/35 - Flachstahl 656/35						
Sigma Total	0.000	4	CO98 -N	-95.46	327.30	0.29
Tau Total	0.000	5	CO99 +V-2	12.73	188.90	0.07
Sigma eq	0.000	4	CO98 -N	95.46	327.30	0.29
Element No 600: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	0.000	9	CO97 +M-2	-159.81	327.30	0.49
Tau Total	5.600	13	CO97 -N	-47.49	188.90	0.25
Sigma eq	0.000	11	CO97 +M-2	161.98	327.30	0.49
Element No 601: Section No 67 - Kasten(A) 700/8/8/650/1016/700/8						
Sigma Total	3.790	1	CO99 -N	-58.71	327.30	0.18
Tau Total	0.000	20	CO99 +V-2	-17.31	188.90	0.09
Sigma eq	3.790	15	CO99 +V-2	62.74	327.30	0.19
Element No 603: Section No 76 - Kasten(A) 700/8/8/650/716/700/8						
Sigma Total	0.000	1	CO98 +V-3	0.52	327.30	0.00
Tau Total	0.000	12	CO98 +V-3	-0.15	188.90	0.00
Sigma eq	0.000	3	CO98 +V-3	0.54	327.30	0.00
Element No 604: Section No 76 - Kasten(A) 700/8/8/650/716/700/8						
Sigma Total	0.000	1	CO98 +V-3	0.37	327.30	0.00
Tau Total	0.000	12	CO98 +V-3	-0.15	188.90	0.00
Sigma eq	0.000	10	CO98 +V-3	0.40	327.30	0.00
Element No 605: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	0.000	9	CO97 +M-2	-171.78	327.30	0.52
Tau Total	0.400	13	CO97 -N	-45.92	188.90	0.24
Sigma eq	0.000	11	CO97 +M-2	173.32	327.30	0.53
Element No 606: Section No 23 - Kasten(A) 570/10/15/540/730/570/10						
Sigma Total	0.000	1	CO97 +V-2	132.05	327.30	0.40
Tau Total	0.000	20	CO97 +V-2	-102.92	188.90	0.54
Sigma eq	0.000	3	CO97 +V-2	189.89	327.30	0.58
Element No 608: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	0.000	16	CO97 +N	17.02	327.30	0.05
Tau Total	0.380	13	CO97 -V-3	-23.43	188.90	0.12
Sigma eq	0.380	13	CO97 -V-3	40.62	327.30	0.12
Element No 609: Section No 26 - Kasten(A) 1066/10/15/1036/730/1066/10						
Sigma Total	0.000	1	CO97 +M-3	70.62	327.30	0.22
Tau Total	0.000	20	CO98 +V-2	-13.09	188.90	0.07
Sigma eq	0.000	10	CO97 +M-3	71.02	327.30	0.22
Element No 610: Section No 23 - Kasten(A) 570/10/15/540/730/570/10						
Sigma Total	0.000	1	CO97 +N	57.77	327.30	0.18
Tau Total	0.920	22	CO97 +V-3	21.22	188.90	0.11
Sigma eq	0.000	3	CO97 +V-3	64.34	327.30	0.20
Element No 612: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	0.920	24	CO97 +N	13.61	327.30	0.04
Tau Total	0.000	13	CO97 +V-3	1.53	188.90	0.01
Sigma eq	0.920	24	CO97 +N	13.61	327.30	0.04
Element No 613: Section No 23 - Kasten(A) 570/10/15/540/730/570/10						
Sigma Total	0.920	1	CO97 +N	57.81	327.30	0.18
Tau Total	0.000	22	CO98 +N	-18.86	188.90	0.10
Sigma eq	0.920	3	CO97 +V-2	62.48	327.30	0.19
Element No 614: Section No 26 - Kasten(A) 1066/10/15/1036/730/1066/10						
Sigma Total	0.000	23	CO97 -M-3	54.78	327.30	0.17
Tau Total	0.000	5	CO97 -V-2	-9.82	188.90	0.05
Sigma eq	0.000	22	CO97 -M-3	55.39	327.30	0.17
Element No 615: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	0.380	16	CO98 +N	15.74	327.30	0.05
Tau Total	0.000	12	CO97 +V-3	-18.41	188.90	0.10
Sigma eq	0.000	12	CO98 +V-3	32.01	327.30	0.10
Element No 617: Section No 23 - Kasten(A) 570/10/15/540/730/570/10						
Sigma Total	0.810	1	CO97 -V-2	102.79	327.30	0.31
Tau Total	0.810	20	CO97 -V-2	80.32	188.90	0.43
Sigma eq	0.810	3	CO97 -V-2	146.80	327.30	0.45
Element No 618: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	0.400	1	CO97 +V-2	-165.98	327.30	0.51
Tau Total	0.000	12	CO97 -N	-43.60	188.90	0.23
Sigma eq	0.400	10	CO97 +V-2	167.78	327.30	0.51
Element No 619: Section No 67 - Kasten(A) 700/8/8/650/1016/700/8						
Sigma Total	0.000	16	CO98 +N	55.43	327.30	0.17
Tau Total	0.000	19	CO99 +V-2	-17.48	188.90	0.09
Sigma eq	0.000	16	CO98 +N	55.43	327.30	0.17
Element No 620: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25						
Sigma Total	5.600	1	CO97 +V-2	-154.00	327.30	0.47
Tau Total	0.000	12	CO97 -N	-45.17	188.90	0.24
Sigma eq	5.600	10	CO97 +V-2	156.46	327.30	0.48
Element No 621: Section No 81 - 82: Flachstahl 500/35 - Flachstahl 656/35						
Sigma Total	0.000	2	CO97 -N	-68.81	327.30	0.21
Tau Total	0.000	5	CO99 -V-2	12.72	188.90	0.07
Sigma eq	0.000	2	CO97 -N	68.81	327.30	0.21
Element No 622: Section No 80 - Rundstahl 220						
Sigma Total	0.000	10	CO97 -N	-60.69	409.00	0.15
Tau Total	0.060	37	CO97 -N	37.23	245.00	0.15
Sigma eq	0.060	37	CO97 -N	64.49	409.00	0.16
Element No 623: Section No 83 - 84: Flachstahl 656/70 - Flachstahl 500/70						
Sigma Total	0.270	1	CO97 -N	-151.12	327.30	0.46
Tau Total	0.270	5	CO99 -V-2	14.00	188.90	0.07
Sigma eq	0.270	1	CO97 -N	151.12	327.30	0.46
Element No 625: Section No 80 - Rundstahl 220						
Sigma Total	0.060	10	CO97 +V-3	-97.81	409.00	0.24
Tau Total	0.000	37	CO97 +V-3	-50.02	245.00	0.20
Sigma eq	0.060	10	CO97 +V-3	97.81	409.00	0.24
Element No 626: Section No 85 - 86: Pi(A) 500/35/12/135/376 - Pi(A) 656/35/12/435/376						
Sigma Total	0.000	14	CO97 -N	-76.33	327.30	0.23

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²]		Stress Ratio
existing				allowable		
Tau Total	0.000	12	CO98 +N	-38.04	188.90	0.20
Sigma eq	0.000	13	CO97 -N	82.52	327.30	0.25
Element No 629: Section No 87 - Kasten(A) 770/15/10/710/1640/770/15						
Sigma Total	0.000	24	CO97 -M-2	-150.74	327.30	0.46
Tau Total	0.000	13	CO99 -M-2	29.74	188.90	0.16
Sigma eq	0.000	22	CO97 -M-2	151.95	327.30	0.46
Element No 630: Section No 79 - Kasten(A) 770/20/15/710/1680/770/20						
Sigma Total	0.000	16	CO97 -M-2	-82.83	327.30	0.25
Tau Total	0.000	13	CO99 -M-2	19.43	188.90	0.10
Sigma eq	0.000	22	CO97 -M-2	83.94	327.30	0.26
Element No 633: Section No 89 - 94: Kasten(A) 770/20/12/710/2500/770/20 - Kasten(A) 770/20/12/710/2247/770/20						
Sigma Total	0.000	24	CO97 +V-3	-57.34	327.30	0.18
Tau Total	7.000	13	CO99 +V-3	13.05	188.90	0.07
Sigma eq	0.000	22	CO97 +V-3	57.51	327.30	0.18
Element No 634: Section No 85 - 86: Pi(A) 500/35/12/135/376 - Pi(A) 656/35/12/435/376						
Sigma Total	0.000	14	CO98 +V-3	-54.66	327.30	0.17
Tau Total	0.000	13	CO98 +V-3	90.90	188.90	0.48
Sigma eq	0.000	13	CO98 +V-3	159.11	327.30	0.49
Element No 635: Section No 80 - Rundstahl 220						
Sigma Total	0.000	28	CO98 -V-3	35.20	409.00	0.09
Tau Total	0.060	37	CO98 -V-3	19.47	245.00	0.08
Sigma eq	0.000	28	CO98 -V-3	35.20	409.00	0.09
Element No 637: Section No 83 - 84: Flachstahl 656/70 - Flachstahl 500/70						
Sigma Total	0.000	2	CO97 +V-3	72.27	327.30	0.22
Tau Total	0.270	5	CO99 +V-2	13.41	188.90	0.07
Sigma eq	0.000	2	CO97 +V-3	72.27	327.30	0.22
Element No 638: Section No 80 - Rundstahl 220						
Sigma Total	0.060	10	CO98 -N	-45.60	409.00	0.11
Tau Total	0.000	37	CO98 -N	-29.79	245.00	0.12
Sigma eq	0.000	37	CO98 -N	51.59	409.00	0.13
Element No 639: Section No 81 - 82: Flachstahl 500/35 - Flachstahl 656/35						
Sigma Total	0.000	4	CO98 -N	-49.88	327.30	0.15
Tau Total	0.000	5	CO99 +V-2	12.82	188.90	0.07
Sigma eq	0.000	4	CO98 -N	49.88	327.30	0.15
Element No 640: Section No 68 - 67: Kasten(A) 700/8/8/650/756/700/8 - Kasten(A) 700/8/8/650/1016/700/8						
Sigma Total	0.000	24	CO99 -N	-137.38	327.30	0.42
Tau Total	0.000	19	CO99 +V-2	-22.17	188.90	0.12
Sigma eq	0.000	24	CO99 -N	137.38	327.30	0.42
Element No 641: Section No 17 - HE-B 600						
Sigma Total	1.700	6	CO97 +V-2	-158.17	327.30	0.48
Tau Total	1.700	13	CO97 +V-2	-45.61	188.90	0.24
Sigma eq	1.700	6	CO97 +V-2	159.01	327.30	0.49
Element No 644: Section No 92 - 90: Kasten(A) 770/15/12/710/1215/770/15 - Kasten(A) 770/15/12/710/772/770/15						
Sigma Total	7.000	9	CO97 +V-3	-107.66	327.30	0.33
Tau Total	7.000	13	CO99 +V-3	37.05	188.90	0.20
Sigma eq	7.000	7	CO97 +V-3	109.95	327.30	0.34
Element No 648: Section No 69 - Rundstahl 140						
Sigma Total	0.050	19	CO98 +V-2	-56.10	409.00	0.14
Tau Total	0.000	37	CO98 +V-2	-24.13	245.00	0.10
Sigma eq	0.050	19	CO98 +V-2	56.10	409.00	0.14
Element No 661: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO98 -N	-206.79	327.30	0.63
Tau Total	0.000	13	CO97 +V-3	48.01	188.90	0.25
Sigma eq	0.000	6	CO98 -N	207.04	327.30	0.63
Element No 662: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO97 +V-2	-203.04	327.30	0.62
Tau Total	0.000	13	CO97 -T	39.69	188.90	0.21
Sigma eq	0.000	10	CO97 +V-2	203.43	327.30	0.62
Element No 671: Section No 69 - Rundstahl 140						
Sigma Total	0.000	10	CO97 +V-3	196.67	409.00	0.48
Tau Total	0.000	37	CO97 +V-3	-68.50	245.00	0.28
Sigma eq	0.000	10	CO97 +V-3	196.67	409.00	0.48
Element No 672: Section No 69 - Rundstahl 140						
Sigma Total	0.000	1	CO97 +V-2	-185.64	409.00	0.45
Tau Total	0.000	37	CO97 +V-2	-64.60	245.00	0.26
Sigma eq	0.000	1	CO97 +V-2	185.64	409.00	0.45
Element No 673: Section No 69 - Rundstahl 140						
Sigma Total	0.000	10	CO97 -V-3	-173.43	409.00	0.42
Tau Total	0.070	37	CO97 -V-3	90.48	245.00	0.37
Sigma eq	0.000	10	CO97 -V-3	173.43	409.00	0.42
Element No 674: Section No 69 - Rundstahl 140						
Sigma Total	0.000	10	CO97 -V-3	-163.70	409.00	0.40
Tau Total	0.070	37	CO97 -V-3	85.32	245.00	0.35
Sigma eq	0.000	10	CO97 -V-3	163.70	409.00	0.40
Element No 675: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	4	CO97 +V-2	-42.01	327.30	0.13
Tau Total	0.190	5	CO97 +V-2	87.30	188.90	0.46
Sigma eq	0.190	5	CO97 +V-2	151.21	327.30	0.46
Element No 676: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO97 +V-2	42.01	327.30	0.13
Tau Total	0.190	5	CO97 +V-2	87.30	188.90	0.46
Sigma eq	0.190	5	CO97 +V-2	151.21	327.30	0.46
Element No 677: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	1	CO97 +V-2	-38.52	327.30	0.12
Tau Total	0.190	5	CO97 +V-2	82.39	188.90	0.44
Sigma eq	0.190	5	CO97 +V-2	142.71	327.30	0.44
Element No 678: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	1	CO97 +V-2	-38.52	327.30	0.12

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm^2]		Stress Ratio
				existing	allowable	
Tau Total	0.190	5	CO97 +V-2	82.39	188.90	0.44
Sigma eq	0.190	5	CO97 +V-2	142.71	327.30	0.44
Element No 679: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	4	CO97 -V-2	18.49	327.30	0.06
Tau Total	0.140	5	CO97 -V-2	50.49	188.90	0.27
Sigma eq	0.140	5	CO97 -V-2	87.46	327.30	0.27
Element No 680: Section No 73 - Flachstahl 200/60						
Sigma Total	1.000	1	CO97 -N	-116.67	327.30	0.36
Tau Total	0.000	1	CO99 +T	22.81	188.90	0.12
Sigma eq	1.000	1	CO97 -N	117.80	327.30	0.36
Element No 681: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO97 -V-2	-18.49	327.30	0.06
Tau Total	0.140	5	CO97 -V-2	50.49	188.90	0.27
Sigma eq	0.140	5	CO97 -V-2	87.46	327.30	0.27
Element No 682: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	4	CO97 +N	16.59	327.30	0.05
Tau Total	0.140	5	CO97 -V-2	47.64	188.90	0.25
Sigma eq	0.140	5	CO97 -V-2	82.51	327.30	0.25
Element No 683: Section No 73 - Flachstahl 200/60						
Sigma Total	1.000	1	CO97 -N	-110.11	327.30	0.34
Tau Total	0.000	1	CO99 +T	22.81	188.90	0.12
Sigma eq	1.000	1	CO97 -N	110.11	327.30	0.34
Element No 684: Section No 70 - 71: Flachstahl 740/15 - Flachstahl 350/15						
Sigma Total	0.000	2	CO97 -N	-16.59	327.30	0.05
Tau Total	0.140	5	CO97 -V-2	47.64	188.90	0.25
Sigma eq	0.140	5	CO97 -V-2	82.51	327.30	0.25
Element No 685: Section No 69 - Rundstahl 140						
Sigma Total	0.000	10	CO97 +V-3	88.05	409.00	0.22
Tau Total	0.000	37	CO97 +V-3	-30.63	245.00	0.13
Sigma eq	0.000	10	CO97 +V-3	88.05	409.00	0.22
Element No 686: Section No 69 - Rundstahl 140						
Sigma Total	0.000	10	CO97 -V-3	-147.93	409.00	0.36
Tau Total	0.070	37	CO97 -V-3	52.80	245.00	0.22
Sigma eq	0.000	10	CO97 -V-3	147.93	409.00	0.36
Element No 687: Section No 69 - Rundstahl 140						
Sigma Total	0.000	10	CO97 +V-3	83.08	409.00	0.20
Tau Total	0.000	37	CO97 +V-3	-28.97	245.00	0.12
Sigma eq	0.000	10	CO97 +V-3	83.08	409.00	0.20
Element No 688: Section No 69 - Rundstahl 140						
Sigma Total	0.000	1	CO97 -V-2	139.57	409.00	0.34
Tau Total	0.070	37	CO97 -V-2	49.88	245.00	0.20
Sigma eq	0.000	1	CO97 -V-2	139.57	409.00	0.34
Element No 689: Section No 72 - Flachstahl 350/40						
Sigma Total	0.000	2	CO97 +V-2	44.38	327.30	0.14
Tau Total	0.000	5	CO97 +V-2	18.98	188.90	0.10
Sigma eq	0.000	2	CO97 +V-2	44.39	327.30	0.14
Element No 690: Section No 72 - Flachstahl 350/40						
Sigma Total	0.000	2	CO97 -V-2	-76.23	327.30	0.23
Tau Total	0.200	5	CO97 -V-2	32.74	188.90	0.17
Sigma eq	0.000	2	CO97 -V-2	76.52	327.30	0.23
Element No 691: Section No 72 - Flachstahl 350/40						
Sigma Total	0.200	1	CO97 -V-2	-44.38	327.30	0.14
Tau Total	0.200	5	CO97 -V-2	18.98	188.90	0.10
Sigma eq	0.200	1	CO97 -V-2	44.39	327.30	0.14
Element No 692: Section No 72 - Flachstahl 350/40						
Sigma Total	0.200	1	CO97 +V-2	76.23	327.30	0.23
Tau Total	0.000	5	CO97 +V-2	32.74	188.90	0.17
Sigma eq	0.200	1	CO97 +V-2	76.52	327.30	0.23
Element No 693: Section No 72 - Flachstahl 350/40						
Sigma Total	0.000	1	CO97 +V-2	-40.42	327.30	0.12
Tau Total	0.000	5	CO97 +V-2	17.91	188.90	0.09
Sigma eq	0.000	1	CO97 +V-2	40.43	327.30	0.12
Element No 694: Section No 72 - Flachstahl 350/40						
Sigma Total	0.000	1	CO97 -V-2	69.81	327.30	0.21
Tau Total	0.200	5	CO97 -V-2	30.90	188.90	0.16

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²] existing	allowable	Stress Ratio
Sigma Total	0.000	10	CO97 -N	-183.06	327.30	0.56
Tau Total	0.000	13	CO97 +V-3	46.61	188.90	0.25
Sigma eq	0.000	10	CO97 -N	183.10	327.30	0.56
Element No 702: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -N	-163.46	327.30	0.50
Tau Total	0.000	13	CO97 +V-3	35.90	188.90	0.19
Sigma eq	0.000	6	CO97 -N	163.51	327.30	0.50
Element No 703: Section No 44 - RO 168,3x10						
Sigma Total	0.000	30	CO98 -N	-144.37	327.30	0.44
Tau Total	0.000	36	CO97 +T	3.17	188.90	0.02
Sigma eq	0.000	30	CO98 -N	144.37	327.30	0.44
Element No 704: Section No 44 - RO 168,3x10						
Sigma Total	0.000	26	CO97 -N	-154.72	327.30	0.47
Tau Total	0.000	17	CO98 +V-3	-2.68	188.90	0.01
Sigma eq	0.000	26	CO97 -N	154.72	327.30	0.47
Element No 705: Section No 19 - HE-M 600						
Sigma Total	0.380	6	CO97 -N	-144.06	327.30	0.44
Tau Total	0.380	13	CO97 +M-2	-22.16	188.90	0.12
Sigma eq	0.380	6	CO97 -N	144.10	327.30	0.44
Element No 706: Section No 19 - HE-M 600						
Sigma Total	0.380	10	CO97 -N	-130.27	327.30	0.40
Tau Total	0.380	8	CO99 -V-3	-18.33	188.90	0.10
Sigma eq	0.380	10	CO97 -N	130.34	327.30	0.40
Element No 707: Section No 41 - HE-A 160						
Sigma Total	0.800	10	CO97 +V-2	72.73	327.30	0.22
Tau Total	0.800	13	CO99 -V-3	-6.29	188.90	0.03
Sigma eq	0.800	10	CO97 +V-2	72.73	327.30	0.22
Element No 708: Section No 21 - HE-M 300						
Sigma Total	0.000	1	CO97 +N	187.87	327.30	0.57
Tau Total	0.000	13	CO97 +V-3	6.68	188.90	0.04
Sigma eq	0.000	1	CO97 +N	187.87	327.30	0.57
Element No 709: Section No 33 - IS 302/250/15/20						
Sigma Total	7.430	6	CO97 +M-3	178.68	327.30	0.55
Tau Total	0.000	13	CO98 +V-3	1.49	188.90	0.01
Sigma eq	7.430	6	CO97 +M-3	178.68	327.30	0.55
Element No 711: Section No 41 - HE-A 160						
Sigma Total	1.860	6	CO97 +M-3	46.59	327.30	0.14
Tau Total	1.860	13	CO99 +V-2	-4.63	188.90	0.02
Sigma eq	1.860	6	CO97 +M-3	46.59	327.30	0.14
Element No 712: Section No 21 - HE-M 300						
Sigma Total	0.000	1	CO97 +N	185.37	327.30	0.57
Tau Total	0.000	13	CO97 +N	7.90	188.90	0.04
Sigma eq	0.000	1	CO97 +N	185.38	327.30	0.57
Element No 713: Section No 33 - IS 302/250/15/20						
Sigma Total	7.430	1	CO97 -T	156.83	327.30	0.48
Tau Total	7.430	3	CO97 -V-3	-1.11	188.90	0.01
Sigma eq	7.430	1	CO97 -T	156.83	327.30	0.48
Element No 714: Section No 41 - HE-A 160						
Sigma Total	0.000	10	CO97 -V-2	100.89	327.30	0.31
Tau Total	0.800	13	CO99 -V-3	-6.62	188.90	0.04
Sigma eq	0.000	10	CO97 -V-2	100.89	327.30	0.31
Element No 715: Section No 19 - HE-M 600						
Sigma Total	2.500	10	CO97 +M-3	-148.89	327.30	0.45
Tau Total	2.500	13	CO97 -M-2	-17.96	188.90	0.10
Sigma eq	2.500	10	CO97 +M-3	148.97	327.30	0.46
Element No 716: Section No 44 - RO 168,3x10						
Sigma Total	2.670	30	CO98 -N	-140.45	327.30	0.43
Tau Total	2.670	33	CO97 +V-2	-5.27	188.90	0.03
Sigma eq	2.670	30	CO98 -N	140.51	327.30	0.43
Element No 717: Section No 44 - RO 168,3x10						
Sigma Total	2.670	25	CO97 -N	-156.68	327.30	0.48
Tau Total	2.670	21	CO97 -V-2	4.11	188.90	0.02
Sigma eq	2.670	25	CO97 -N	156.71	327.30	0.48
Element No 718: Section No 19 - HE-M 600						
Sigma Total	2.500	6	CO97 -M-3	-145.34	327.30	0.44
Tau Total	2.500	13	CO97 -M-2	-13.97	188.90	0.07
Sigma eq	2.500	6	CO97 -M-3	145.38	327.30	0.44
Element No 719: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	8	CO97 +M-3	-114.57	327.30	0.35
Tau Total	0.000	5	CO97 +V-2	109.64	188.90	0.58
Sigma eq	0.000	11	CO97 +M-3	203.14	327.30	0.62
Element No 720: Section No 96 - IS 302/250/8/25						
Sigma Total	0.000	6	CO97 -V-2	-158.50	327.30	0.48
Tau Total	0.000	13	CO98 +V-3	3.06	188.90	0.02
Sigma eq	0.000	6	CO97 -V-2	158.51	327.30	0.48
Element No 721: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	1.300	1	CO97 -V-2	111.31	327.30	0.34
Tau Total	0.000	20	CO97 -V-2	38.08	188.90	0.20
Sigma eq	1.300	15	CO97 -V-2	124.83	327.30	0.38
Element No 722: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	8	CO97 +V-2	-96.64	327.30	0.30
Tau Total	0.000	20	CO97 +V-2	-31.41	188.90	0.17
Sigma eq	0.000	14	CO97 +V-2	107.10	327.30	0.33
Element No 723: Section No 96 - IS 302/250/8/25						
Sigma Total	5.500	10	CO97 -V-2	-140.66	327.30	0.43
Tau Total	0.000	3	CO97 -T	-1.48	188.90	0.01
Sigma eq	5.500	10	CO97 -V-2	140.66	327.30	0.43
Element No 724: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	23	CO97 +M-3	-97.34	327.30	0.30
Tau Total	0.000	5	CO97 -V-2	-95.80	188.90	0.51
Sigma eq	0.430	11	CO97 +M-3	174.55	327.30	0.53

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²] existing	allowable	Stress Ratio
Element No 725: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO98 -N	-145.74	327.30	0.45
Tau Total	0.000	8	CO98 -V-2	48.87	188.90	0.26
Sigma eq	0.000	6	CO98 -N	145.77	327.30	0.45
Element No 726: Section No 21 - HE-M 300						
Sigma Total	0.000	6	CO97 +V-2	83.87	327.30	0.26
Tau Total	1.500	13	CO97 -V-3	-3.49	188.90	0.02
Sigma eq	0.000	6	CO97 +V-2	83.87	327.30	0.26
Element No 727: Section No 21 - HE-M 300						
Sigma Total	0.000	6	CO97 +N	83.82	327.30	0.26
Tau Total	1.500	13	CO97 -V-3	-3.14	188.90	0.02
Sigma eq	0.000	6	CO97 +N	83.82	327.30	0.26
Element No 728: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO97 +V-2	-137.38	327.30	0.42
Tau Total	0.000	8	CO98 -T	48.73	188.90	0.26
Sigma eq	0.000	10	CO97 +V-2	137.43	327.30	0.42
Element No 729: Section No 29 - RO 127x10						
Sigma Total	0.000	31	CO97 -N	-116.39	327.30	0.36
Tau Total	0.000	31	CO98 +T	3.57	188.90	0.02
Sigma eq	0.000	31	CO97 -N	116.43	327.30	0.36
Element No 730: Section No 29 - RO 127x10						
Sigma Total	0.000	24	CO98 -N	-105.64	327.30	0.32
Tau Total	0.000	25	CO97 +V-2	-4.51	188.90	0.02
Sigma eq	0.000	24	CO98 -N	105.70	327.30	0.32
Element No 731: Section No 17 - HE-B 600						
Sigma Total	0.000	6	CO98 -N	-146.28	327.30	0.45
Tau Total	0.000	3	CO98 +V-3	49.44	188.90	0.26
Sigma eq	0.000	6	CO98 -N	146.35	327.30	0.45
Element No 732: Section No 17 - HE-B 600						
Sigma Total	0.000	10	CO97 -N	-136.46	327.30	0.42
Tau Total	0.000	3	CO98 +V-2	49.05	188.90	0.26
Sigma eq	0.000	10	CO97 -N	136.54	327.30	0.42
Element No 733: Section No 41 - HE-A 160						
Sigma Total	0.830	10	CO98 +V-2	152.99	327.30	0.47
Tau Total	0.000	3	CO98 +V-2	10.48	188.90	0.06
Sigma eq	0.830	10	CO98 +V-2	152.99	327.30	0.47
Element No 734: Section No 33 - IS 302/250/15/20						
Sigma Total	7.430	6	CO97 +N	199.50	327.30	0.61
Tau Total	0.000	13	CO98 +V-3	2.40	188.90	0.01
Sigma eq	7.430	6	CO97 +N	199.50	327.30	0.61
Element No 736: Section No 41 - HE-A 160						
Sigma Total	0.000	10	CO98 -V-3	50.22	327.30	0.15
Tau Total	1.790	13	CO98 -V-2	-6.99	188.90	0.04
Sigma eq	0.000	10	CO98 -V-3	50.22	327.30	0.15
Element No 737: Section No 33 - IS 302/250/15/20						
Sigma Total	7.430	1	CO97 +N	186.05	327.30	0.57
Tau Total	7.430	13	CO97 -V-3	-2.67	188.90	0.01
Sigma eq	7.430	1	CO97 +N	186.05	327.30	0.57
Element No 738: Section No 41 - HE-A 160						
Sigma Total	0.000	10	CO97 +N	148.49	327.30	0.45
Tau Total	0.830	3	CO97 +N	-9.98	188.90	0.05
Sigma eq	0.000	10	CO97 +N	148.50	327.30	0.45
Element No 739: Section No 18 - HE-B 300						
Sigma Total	0.000	6	CO97 +N	132.55	327.30	0.40
Tau Total	3.500	13	CO97 -V-3	-7.24	188.90	0.04
Sigma eq	0.000	6	CO97 +N	132.55	327.30	0.40
Element No 740: Section No 18 - HE-B 300						
Sigma Total	0.000	6	CO97 +N	135.29	327.30	0.41
Tau Total	3.500	13	CO97 -V-3	-6.55	188.90	0.03
Sigma eq	0.000	6	CO97 +N	135.29	327.30	0.41
Element No 741: Section No 17 - HE-B 600						
Sigma Total	2.330	10	CO97 -V-2	-205.21	327.30	0.63
Tau Total	0.000	8	CO97 -N	6.07	188.90	0.03
Sigma eq	2.330	10	CO97 -V-2	205.23	327.30	0.63
Element No 742: Section No 29 - RO 127x10						
Sigma Total	2.470	35	CO97 -N	-147.36	327.30	0.45
Tau Total	2.470	6	CO97 -T	-3.86	188.90	0.02
Sigma eq	2.470	35	CO97 -N	147.43	327.30	0.45
Element No 743: Section No 29 - RO 127x10						
Sigma Total	2.470	21	CO98 -N	-126.31	327.30	0.39
Tau Total	2.470	14	CO97 +T	3.40	188.90	0.02
Sigma eq	2.470	21	CO98 -N	126.34	327.30	0.39
Element No 744: Section No 17 - HE-B 600						
Sigma Total	2.330	6	CO97 +V-2	-202.54	327.30	0.62
Tau Total	0.000	3	CO97 -N	5.54	188.90	0.03
Sigma eq	2.330	6	CO97 +V-2	202.54	327.30	0.62
Element No 745: Section No 17 - HE-B 600						
Sigma Total	0.170	10	CO98 -N	-220.36	327.30	0.67
Tau Total	0.000	3	CO97 +V-2	13.62	188.90	0.07
Sigma eq	0.170	10	CO98 -N	220.56	327.30	0.67
Element No 746: Section No 17 - HE-B 600						
Sigma Total	0.170	6	CO97 -M-2	-218.89	327.30	0.67
Tau Total	0.000	8	CO98 -V-2	11.00	188.90	0.06
Sigma eq	0.170	6	CO97 -M-2	219.04	327.30	0.67
Element No 747: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	16	CO97 +T	128.76	327.30	0.39
Tau Total	0.000	5	CO97 +V-2	132.55	188.90	0.70
Sigma eq	0.000	10	CO97 +T	237.75	327.30	0.73
Element No 748: Section No 96 - IS 302/250/8/25						
Sigma Total	5.500	5	CO97 -V-2	-135.62	327.30	0.41
Tau Total	0.000	8	CO97 +T	2.16	188.90	0.01

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Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm ²] existing	allowable	Stress Ratio
Sigma eq	5.500	5	CO97 -V-2	135.63	327.30	0.41
Element No 749: Section No 28 - RO 127x5,6						
Sigma Total	0.000	22	CO97 -N	-44.29	327.30	0.14
Tau Total	0.000	30	CO97 -N	2.41	188.90	0.01
Sigma eq	0.000	22	CO97 -N	44.33	327.30	0.14
Element No 750: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	2.600	16	CO97 -V-2	126.54	327.30	0.39
Tau Total	0.000	15	CO97 -V-2	10.56	188.90	0.06
Sigma eq	2.600	14	CO97 -V-2	127.11	327.30	0.39
Element No 751: Section No 96 - IS 302/250/8/25						
Sigma Total	0.000	1	CO97 -N	-124.74	327.30	0.38
Tau Total	5.500	13	CO97 -V-3	-2.53	188.90	0.01
Sigma eq	0.000	1	CO97 -N	124.75	327.30	0.38
Element No 752: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	1	CO98 -T	106.65	327.30	0.33
Tau Total	0.000	5	CO97 -V-2	-119.86	188.90	0.63
Sigma eq	0.430	10	CO97 -T	208.09	327.30	0.64
Element No 753: Section No 17 - HE-B 600						
Sigma Total	0.000	6	CO98 -N	-206.06	327.30	0.63
Tau Total	0.000	8	CO98 -N	18.31	188.90	0.10
Sigma eq	0.000	6	CO98 -N	206.18	327.30	0.63
Element No 754: Section No 17 - HE-B 600						
Sigma Total	0.000	10	CO97 +V-2	-209.73	327.30	0.64
Tau Total	0.000	3	CO97 +V-2	19.42	188.90	0.10
Sigma eq	0.000	10	CO97 +V-2	209.81	327.30	0.64
Element No 755: Section No 17 - HE-B 600						
Sigma Total	0.000	6	CO97 -N	-158.95	327.30	0.49
Tau Total	2.330	3	CO97 -N	-5.53	188.90	0.03
Sigma eq	0.000	6	CO97 -N	158.99	327.30	0.49
Element No 756: Section No 29 - RO 127x10						
Sigma Total	0.000	18	CO98 -N	-153.93	327.30	0.47
Tau Total	2.470	6	CO97 -T	-3.64	188.90	0.02
Sigma eq	0.000	18	CO98 -N	153.94	327.30	0.47
Element No 757: Section No 29 - RO 127x10						
Sigma Total	0.000	2	CO97 -N	-169.89	327.30	0.52
Tau Total	2.470	13	CO97 +T	3.21	188.90	0.02
Sigma eq	0.000	2	CO97 -N	169.89	327.30	0.52
Element No 758: Section No 17 - HE-B 600						
Sigma Total	0.000	10	CO97 -N	-153.87	327.30	0.47
Tau Total	0.000	3	CO97 +V-2	5.24	188.90	0.03
Sigma eq	0.000	10	CO97 -N	153.89	327.30	0.47
Element No 759: Section No 41 - HE-A 160						
Sigma Total	0.830	6	CO98 -N	-136.91	327.30	0.42
Tau Total	0.830	8	CO98 -N	-9.41	188.90	0.05
Sigma eq	0.830	6	CO98 -N	136.91	327.30	0.42
Element No 760: Section No 18 - HE-B 300						
Sigma Total	0.000	1	CO97 -T	97.91	327.30	0.30
Tau Total	0.000	13	CO97 +V-3	4.65	188.90	0.02
Sigma eq	0.000	1	CO97 -T	97.92	327.30	0.30
Element No 761: Section No 33 - IS 302/250/15/20						
Sigma Total	7.430	6	CO97 +N	202.19	327.30	0.62
Tau Total	0.000	13	CO97 +V-3	2.08	188.90	0.01
Sigma eq	7.430	6	CO97 +N	202.19	327.30	0.62
Element No 763: Section No 41 - HE-A 160						
Sigma Total	1.790	10	CO97 -V-2	-35.81	327.30	0.11
Tau Total	0.000	8	CO97 -V-2	0.86	188.90	0.00
Sigma eq	1.790	10	CO97 -V-2	35.81	327.30	0.11
Element No 764: Section No 18 - HE-B 300						
Sigma Total	0.000	1	CO97 +N	86.10	327.30	0.26
Tau Total	0.000	13	CO97 +N	6.15	188.90	0.03
Sigma eq	0.000	1	CO97 +N	86.10	327.30	0.26
Element No 765: Section No 33 - IS 302/250/15/20						
Sigma Total	7.430	1	CO97 +N	164.22	327.30	0.50
Tau Total	7.430	3	CO97 -V-3	-1.52	188.90	0.01
Sigma eq	7.430	1	CO97 +N	164.22	327.30	0.50
Element No 766: Section No 41 - HE-A 160						
Sigma Total	0.000	6	CO97 -N	-159.87	327.30	0.49
Tau Total	0.000	8	CO97 -N	10.98	188.90	0.06
Sigma eq	0.000	6	CO97 -N	159.87	327.30	0.49
Element No 767: Section No 17 - HE-B 600						
Sigma Total	2.500	10	CO97 -N	-124.29	327.30	0.38
Tau Total	2.500	13	CO97 -V-3	-4.81	188.90	0.03
Sigma eq	2.500	10	CO97 -N	124.29	327.30	0.38
Element No 768: Section No 29 - RO 127x10						
Sigma Total	2.650	34	CO98 -N	-119.77	327.30	0.37
Tau Total	2.650	23	CO98 -N	2.21	188.90	0.01
Sigma eq	2.650	34	CO98 -N	119.79	327.30	0.37
Element No 769: Section No 29 - RO 127x10						
Sigma Total	2.650	22	CO97 -N	-137.21	327.30	0.42
Tau Total	2.650	33	CO97 -N	-3.64	188.90	0.02
Sigma eq	2.650	22	CO97 -N	137.27	327.30	0.42
Element No 770: Section No 17 - HE-B 600						
Sigma Total	2.500	6	CO97 -N	-114.22	327.30	0.35
Tau Total	2.500	13	CO97 -V-3	-3.92	188.90	0.02
Sigma eq	2.500	6	CO97 -N	114.22	327.30	0.35
Element No 771: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	1	CO97 +V-2	182.43	327.30	0.56
Tau Total	0.000	11	CO97 +V-2	140.57	188.90	0.74
Sigma eq	0.000	11	CO97 +V-2	247.67	327.30	0.76
Element No 772: Section No 30 - IS 302/250/8/20						
Sigma Total	0.000	1	CO97 -V-3	-145.01	327.30	0.44

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²] existing	allowable	Stress Ratio
Sigma Total	0.170	10	CO98 -N	-128.25	327.30	0.39
Tau Total	0.170	3	CO98 -N	-18.02	188.90	0.10
Sigma eq	0.170	10	CO98 -N	129.01	327.30	0.39
Element No 797: Section No 17 - HE-B 600						
Sigma Total	0.170	6	CO97 -N	-104.73	327.30	0.32
Tau Total	0.170	13	CO97 -V-3	-15.11	188.90	0.08
Sigma eq	0.170	6	CO97 -N	105.58	327.30	0.32
Element No 798: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.000	23	CO97 -M-2	-169.80	327.30	0.52
Tau Total	0.000	11	CO97 +T	116.27	188.90	0.62
Sigma eq	0.430	11	CO97 +T	202.87	327.30	0.62
Element No 799: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	2.600	23	CO97 -V-2	-131.67	327.30	0.40
Tau Total	2.600	14	CO97 -V-2	9.60	188.90	0.05
Sigma eq	2.600	23	CO97 -V-2	131.83	327.30	0.40
Element No 800: Section No 22 - Kasten(A) 374/15/12/350/550/374/15						
Sigma Total	0.430	23	CO97 -T	-127.43	327.30	0.39
Tau Total	0.430	11	CO97 -T	-86.12	188.90	0.46
Sigma eq	0.000	11	CO97 -T	150.47	327.30	0.46
Element No 801: Section No 17 - HE-B 600						
Sigma Total	0.000	1	CO97 +V-3	15.52	327.30	0.05
Tau Total	0.000	8	CO98 -V-2	131.73	188.90	0.70
Sigma eq	0.000	8	CO98 -V-2	228.16	327.30	0.70
Element No 802: Section No 17 - HE-B 600						
Sigma Total	0.000	1	CO97 +V-3	11.85	327.30	0.04
Tau Total	0.000	8	CO98 -V-2	131.78	188.90	0.70
Sigma eq	0.000	8	CO98 -V-2	228.25	327.30	0.70
Element No 803: Section No 95 - 91: Kasten(A) 770/15/12/710/224/770/15 - Kasten(A)						
770/15/12/710/1215/770/15						
Sigma Total	0.000	24	CO98 -N	-78.58	327.30	0.24
Tau Total	12.830	12	CO99 -V-3	22.20	188.90	0.12
Sigma eq	0.000	22	CO98 -N	78.65	327.30	0.24
Element No 804: Section No 95 - 91: Kasten(A) 770/15/12/710/224/770/15 - Kasten(A)						
770/15/12/710/1215/770/15						
Sigma Total	3.210	24	CO97 +V-3	-58.48	327.30	0.18
Tau Total	12.830	13	CO99 +V-3	23.65	188.90	0.13
Sigma eq	4.810	15	CO97 +V-3	59.12	327.30	0.18
Element No 806: Section No 17 - HE-B 600						
Sigma Total	1.700	10	CO97 -V-2	-121.28	327.30	0.37
Tau Total	0.000	13	CO97 +M-3	-29.77	188.90	0.16
Sigma eq	1.700	10	CO97 -V-2	121.31	327.30	0.37
Element No 807: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -N	-203.47	327.30	0.62
Tau Total	1.520	8	CO98 +T	-25.04	188.90	0.13
Sigma eq	0.000	6	CO97 -N	203.48	327.30	0.62
Element No 808: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO98 -N	-183.90	327.30	0.56
Tau Total	1.520	8	CO98 +V-2	-23.90	188.90	0.13
Sigma eq	0.000	10	CO98 -N	183.90	327.30	0.56
Element No 811: Section No 19 - HE-M 600						
Sigma Total	2.270	6	CO98 -N	-166.41	327.30	0.51
Tau Total	2.270	8	CO98 -N	-6.43	188.90	0.03
Sigma eq	2.270	6	CO98 -N	166.49	327.30	0.51
Element No 812: Section No 19 - HE-M 600						
Sigma Total	2.270	10	CO97 -N	-177.96	327.30	0.54
Tau Total	2.270	3	CO97 -N	-6.86	188.90	0.04
Sigma eq	2.270	10	CO97 -N	178.05	327.30	0.54
Element No 821: Section No 19 - HE-M 600						
Sigma Total	0.000	6	CO97 -V-2	-154.27	327.30	0.47
Tau Total	0.000	8	CO98 -V-2	7.77	188.90	0.04
Sigma eq	0.000	6	CO97 -V-2	154.38	327.30	0.47
Element No 822: Section No 19 - HE-M 600						
Sigma Total	0.000	10	CO98 +V-2	-150.47	327.30	0.46
Tau Total	0.000	3	CO98 +V-2	7.70	188.90	0.04
Sigma eq	0.000	10	CO98 +V-2	150.59	327.30	0.46
Element No 825: Section No 41 - HE-A 160						
Sigma Total	0.830	6	CO98 -V-2	90.40	327.30	0.28
Tau Total	0.830	3	CO98 -V-2	-6.69	188.90	0.04
Sigma eq	0.830	6	CO98 -V-2	90.41	327.30	0.28
Element No 826: Section No 41 - HE-A 160						
Sigma Total	1.790	6	CO98 +M-3	28.84	327.30	0.09
Tau Total	1.790	13	CO99 +V-2	-4.20	188.90	0.02
Sigma eq	1.790	6	CO98 +M-3	28.84	327.30	0.09
Element No 827: Section No 41 - HE-A 160						
Sigma Total	0.000	6	CO97 -T	79.68	327.30	0.24
Tau Total	0.000	3	CO99 +V-2	5.30	188.90	0.03
Sigma eq	0.000	6	CO97 -T	79.69	327.30	0.24
Element No 828: Section No 17 - HE-B 600						
Sigma Total	0.000	5	CO97 -V-2	0.48	327.30	0.00
Tau Total	0.000	13	CO97 -V-2	0.69	188.90	0.00
Sigma eq	0.000	13	CO97 -V-2	1.20	327.30	0.00
Element No 829: Section No 17 - HE-B 600						
Sigma Total	0.000	5	CO98 -V-2	1.01	327.30	0.00
Tau Total	0.000	13	CO97 -V-2	0.78	188.90	0.00
Sigma eq	0.000	13	CO97 -V-2	1.34	327.30	0.00
Element No 830: Section No 28 - RO 127x5,6						
Sigma Total	2.600	28	CO97 -V-3	-60.56	327.30	0.19
Tau Total	2.600	36	CO97 -V-3	-3.92	188.90	0.02
Sigma eq	2.600	28	CO97 -V-3	60.66	327.30	0.19
Element No 831: Section No 28 - RO 127x5,6						
Sigma Total	2.600	22	CO97 +V-2	-62.43	327.30	0.19

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Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm^2] existing	allowable	Stress Ratio
Tau Total	2.600	14	CO97 +V-2	2.92	188.90	0.02
Sigma eq	2.600	22	CO97 +V-2	62.48	327.30	0.19
Element No 832: Section No 41 - HE-A 160						
Sigma Total	1.260	6	CO98 +N	123.40	327.30	0.38
Tau Total	0.000	13	CO98 +N	12.13	188.90	0.06
Sigma eq	1.260	6	CO98 +N	123.40	327.30	0.38
Element No 833: Section No 97 - IS 374/260/8/20						
Sigma Total	1.300	5	CO97 +N	186.59	327.30	0.57
Tau Total	0.000	8	CO97 +N	-16.90	188.90	0.09
Sigma eq	1.300	5	CO97 +N	186.62	327.30	0.57
Element No 834: Section No 41 - HE-A 160						
Sigma Total	0.000	6	CO97 +M-3	115.69	327.30	0.35
Tau Total	1.260	13	CO98 +N	-12.30	188.90	0.07
Sigma eq	0.000	6	CO97 +M-3	115.69	327.30	0.35
Element No 836: Section No 41 - HE-A 160						
Sigma Total	0.930	5	CO99 +V-2	101.26	327.30	0.31
Tau Total	0.930	8	CO99 +V-2	-9.71	188.90	0.05
Sigma eq	0.930	5	CO99 +V-2	101.26	327.30	0.31
Element No 837: Section No 41 - HE-A 160						
Sigma Total	1.150	1	CO98 -V-2	67.79	327.30	0.21
Tau Total	1.150	13	CO98 -V-3	-5.50	188.90	0.03
Sigma eq	1.150	1	CO98 -V-2	67.79	327.30	0.21
Element No 839: Section No 41 - HE-A 160						
Sigma Total	0.000	10	CO98 -V-2	105.74	327.30	0.32
Tau Total	1.150	13	CO98 -V-3	-6.24	188.90	0.03
Sigma eq	0.000	10	CO98 -V-2	105.74	327.30	0.32
Element No 841: Section No 41 - HE-A 160						
Sigma Total	0.000	6	CO98 +V-2	93.26	327.30	0.28
Tau Total	2.590	13	CO98 +V-2	-11.50	188.90	0.06
Sigma eq	0.000	6	CO98 +V-2	93.26	327.30	0.28
Element No 842: Section No 41 - HE-A 160						
Sigma Total	0.000	5	CO98 -V-3	-79.91	327.30	0.24
Tau Total	0.430	13	CO98 -V-3	-14.79	188.90	0.08
Sigma eq	0.000	5	CO98 -V-3	79.92	327.30	0.24
Element No 844: Section No 41 - HE-A 160						
Sigma Total	0.430	5	CO98 -V-3	86.71	327.30	0.26
Tau Total	0.430	13	CO98 -V-3	-17.65	188.90	0.09
Sigma eq	0.430	5	CO98 -V-3	86.71	327.30	0.26
Element No 845: Section No 41 - HE-A 160						
Sigma Total	0.000	6	CO98 +M-3	55.17	327.30	0.17
Tau Total	1.150	13	CO98 -V-3	-6.18	188.90	0.03
Sigma eq	0.000	6	CO98 +M-3	55.17	327.30	0.17
Element No 846: Section No 29 - RO 127x10						
Sigma Total	0.000	12	CO97 +N	110.13	327.30	0.34
Tau Total	0.000	2	CO97 +V-2	3.23	188.90	0.02
Sigma eq	0.000	12	CO97 +N	110.18	327.30	0.34
Element No 847: Section No 29 - RO 127x10						
Sigma Total	5.890	27	CO97 -N	-71.85	327.30	0.22
Tau Total	5.890	2	CO97 -T	-2.28	188.90	0.01
Sigma eq	5.890	27	CO97 -N	71.85	327.30	0.22
Element No 848: Section No 28 - RO 127x5,6						
Sigma Total	0.000	12	CO99 +N	114.16	327.30	0.35
Tau Total	0.000	2	CO97 +T	2.00	188.90	0.01
Sigma eq	0.000	12	CO99 +N	114.16	327.30	0.35
Element No 849: Section No 28 - RO 127x5,6						
Sigma Total	5.890	27	CO99 -N	-76.10	327.30	0.23
Tau Total	5.890	1	CO97 -T	-1.75	188.90	0.01
Sigma eq	5.890	27	CO99 -N	76.10	327.30	0.23
Element No 850: Section No 28 - RO 127x5,6						
Sigma Total	5.890	7	CO99 +N	88.28	327.30	0.27
Tau Total	0.000	2	CO97 +T	1.60	188.90	0.01
Sigma eq	5.890	7	CO99 +N	88.28	327.30	0.27
Element No 851: Section No 28 - RO 127x5,6						
Sigma Total	5.890	13	CO98 +N	87.52	327.30	0.27
Tau Total	0.000	18	CO97 -T	-1.96	188.90	0.01
Sigma eq	5.890	13	CO98 +N	87.52	327.30	0.27
Element No 852: Section No 28 - RO 127x5,6						
Sigma Total	5.890	9	CO97 +N	99.88	327.30	0.31
Tau Total	5.890	18	CO97 +N	2.25	188.90	0.01
Sigma eq	5.890	9	CO97 +N	99.91	327.30	0.31
Element No 853: Section No 29 - RO 127x10						
Sigma Total	0.000	26	CO97 -N	-71.62	327.30	0.22
Tau Total	0.000	18	CO97 +V-3	-3.64	188.90	0.02
Sigma eq	0.000	26	CO97 -N	71.72	327.30	0.22
Element No 854: Section No 44 - 29: RO 168,3x10 - RO 127x10						
Sigma Total	5.640	31	CO97 -N	-78.58	327.30	0.24
Tau Total	5.640	2	CO97 -V-2	-1.99	188.90	0.01
Sigma eq	5.640	31	CO97 -N	78.61	327.30	0.24
Element No 855: Section No 44 - RO 168,3x10						
Sigma Total	0.000	14	CO97 +N	100.70	327.30	0.31
Tau Total	0.000	3	CO97 +T	2.56	188.90	0.01
Sigma eq	0.000	14	CO97 +N	100.70	327.30	0.31
Element No 856: Section No 100 - IS 374/200/5/12						
Sigma Total	5.650	5	CO97 -N	-75.13	327.30	0.23
Tau Total	0.000	13	CO97 +V-2	-2.13	188.90	0.01
Sigma eq	5.650	5	CO97 -N	75.13	327.30	0.23
Element No 857: Section No 100 - IS 374/200/5/12						
Sigma Total	5.650	6	CO97 -V-2	80.91	327.30	0.25
Tau Total	0.000	13	CO97 -V-2	2.96	188.90	0.02
Sigma eq	5.650	6	CO97 -V-2	80.91	327.30	0.25
Element No 858: Section No 100 - IS 374/200/5/12						

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MAX STRESSES BY ELEMENT

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²]		Stress Ratio
				existing	allowable	
Sigma Total	5.650	10	CO97 -N	-38.71	327.30	0.12
Tau Total	0.000	13	CO97 -V-3	-1.19	188.90	0.01
Sigma eq	5.650	10	CO97 -N	38.71	327.30	0.12
Element No 859: Section No 100 - IS 374/200/5/12						
Sigma Total	5.650	6	CO97 +M-2	67.77	327.30	0.21
Tau Total	0.000	13	CO97 +V-3	1.82	188.90	0.01
Sigma eq	5.650	6	CO97 +M-2	67.77	327.30	0.21
Element No 860: Section No 100 - IS 374/200/5/12						
Sigma Total	0.000	5	CO97 -N	-64.20	327.30	0.20
Tau Total	0.000	13	CO97 +V-3	2.78	188.90	0.01
Sigma eq	0.000	5	CO97 -N	64.20	327.30	0.20
Element No 861: Section No 100 - IS 374/200/5/12						
Sigma Total	5.650	1	CO97 -V-2	94.46	327.30	0.29
Tau Total	0.000	13	CO97 -V-3	-3.73	188.90	0.02
Sigma eq	5.650	1	CO97 -V-2	94.46	327.30	0.29

GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
1	0.430	CO98	-14.01	-9.22	-11.39	-0.01	-13.77	18.67
2	2.600	CO98	-14.01	-9.22	-10.49	-0.01	-9.13	14.76
3	0.000	CO98	-1.19	-9.19	-4.06	-0.01	13.31	-15.65
4	0.150	CO98	-9.22	14.01	-12.27	-13.77	-1.77	16.56
5	0.150	CO98	9.19	-1.11	3.08	-13.31	0.53	15.82
6	1.080	CO98	-9.22	14.09	-18.62	-13.77	-18.45	1.36
7	1.080	CO98	9.22	-13.42	-4.06	-12.88	-0.01	30.02
8	1.130	CO98	-9.22	84.28	-485.01	14.27	-560.39	-93.41
9	1.130	CO98	9.22	57.23	-471.29	15.16	-526.03	-34.05
10	0.430	CO97	16.83	-848.66	1082.30	-76.62	-2.58	84.06
11	1.300	CO97	-22.18	201.43	-51.76	-56.32	-380.25	-211.54
12	0.000	CO98	-67.45	-197.49	6.41	-5.45	-289.60	-210.17
13	0.000	CO97	1.10	620.47	-842.01	18.12	0.51	69.18
14	0.000	CO97	-837.91	14.86	379.30	0.30	-718.86	38.24
15	0.000	CO97	-609.29	-16.49	309.30	-0.12	-584.51	-38.44
16	0.000	CO98	-337.28	1.53	2.42	-0.24	-2.90	2.12
17	0.000	CO97	-213.32	-0.63	2.34	0.62	-3.36	-0.96
18	0.000	CO97	-847.34	38.61	-357.27	0.58	435.77	17.72
19	0.000	CO97	-620.67	-42.00	-286.98	-4.34	349.28	-22.60
20	0.830	CO98	-24.61	-16.63	-1.77	0.01	-5.21	9.26
21	0.000	CO97	1540.88	7.59	-24.15	0.04	112.29	18.85
22	1.790	CO99	-14.21	-1.87	-3.85	0.00	-5.44	1.57
23	0.000	CO97	1159.79	7.22	9.39	0.00	-43.95	16.69
24	0.000	CO97	-25.47	11.97	1.79	-0.01	-5.31	6.49
26	2.470	CO98	-322.23	3.67	0.62	0.12	1.40	-5.33
27	2.470	CO97	-201.55	-2.89	0.45	0.25	1.03	4.51
29	0.170	CO97	-1019.95	110.28	-338.25	2.78	-187.74	-118.17
30	0.170	CO97	-785.41	-96.43	-239.25	-0.83	-88.62	102.29
31	0.430	CO97	154.83	-1152.23	333.99	-102.81	-0.64	190.98
32	0.000	CO97	-1059.18	5.05	-12.33	-0.04	38.56	17.01
33	0.220	CO97	102.13	52.03	-15.03	-39.66	-60.17	-293.17
35	2.160	CO97	102.13	52.03	-14.27	-39.66	-56.96	-281.78
36	1.300	CO97	11.04	-70.78	-6.06	0.06	13.86	51.45
37	0.000	CO98	91.19	-46.97	7.76	0.70	-47.05	-264.13
38	0.000	CO97	-812.40	4.20	6.84	0.06	-15.61	14.10
39	0.000	CO97	95.35	1059.33	-232.53	47.88	0.76	192.76
40	0.000	CO98	-1841.95	47.99	-3.25	1.51	-51.37	98.52
41	0.000	CO97	-1520.57	-59.40	-10.89	-1.08	2.19	-110.76
42	0.000	CO98	-1848.87	41.54	-6.93	0.36	-49.77	84.62
43	0.000	CO97	-304.50	2.30	2.18	0.63	-2.60	4.17
44	0.000	CO98	-255.18	-1.88	1.78	-0.35	-1.78	-3.63
45	0.000	CO97	-1724.69	-40.35	-10.45	-0.42	-39.27	-85.11
46	0.830	CO98	23.21	-15.38	0.49	0.01	4.39	8.49
47	5.000	CO97	741.51	-9.18	10.77	0.01	29.86	10.69
48	0.000	CO97	1765.16	8.36	-7.95	-0.03	52.90	19.17
49	0.000	CO97	291.27	-0.06	1.03	0.06	-1.28	-0.39
50	0.000	CO97	23.20	1.23	0.31	0.00	3.80	1.23
51	5.000	CO97	783.66	-9.26	4.71	-0.04	17.81	10.93
52	0.000	CO97	1585.67	7.85	8.91	0.01	-46.59	17.10
53	0.000	CO97	25.64	15.48	-0.57	-0.01	4.89	8.58
54	2.500	CO98	-1864.23	18.67	-34.76	-0.45	-146.89	-50.14
55	2.650	CO97	-300.06	-0.96	-1.79	-0.36	-2.58	1.39
56	2.650	CO98	-252.68	0.94	-1.74	0.45	-2.28	-1.39
57	2.500	CO97	-1735.17	-16.53	-45.51	0.47	-171.93	44.30
58	0.000	CO97	6.45	-921.02	87.68	-44.25	-36.26	-347.36
59	5.500	CO97	-1314.85	7.01	2.22	-0.03	5.28	-21.10
60	1.300	CO97	6.90	379.07	-9.38	-21.42	-29.46	-336.38
61	0.000	CO97	7.13	-342.27	13.09	3.70	-33.57	-293.22
62	5.500	CO97	-1184.52	6.42	-2.44	0.01	-12.41	-19.09
63	0.430	CO97	4.66	848.18	-93.15	26.11	-38.55	-297.12
64	0.000	CO97	1981.59	-11.95	-20.41	0.12	13.45	-13.66
65	0.000	CO97	1929.28	-9.21	-19.24	0.04	27.84	-10.88
66	0.000	CO97	-2565.69	10.66	38.39	0.25	-145.35	30.09
67	0.000	CO98	-594.43	1.40	2.55	0.50	-3.50	2.52
68	0.000	CO97	-681.54	-2.18	3.06	-0.16	-4.44	-4.23
69	0.000	CO97	-2281.40	-15.03	38.01	-0.14	-145.14	-43.24
70	7.430	CO97	1891.73	-5.79	-4.02	0.01	-8.30	12.33
71	0.000	CO97	-217.58	0.45	3.45	1.29	-6.61	2.14

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GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	N	Forces [kN] V-2	V-3	M-T	Moments [kNm] M-2	M-3
72	7.430	CO97	1765.26	-5.46	0.34	0.01	-2.88	10.74
73	3.500	CO97	1981.59	-30.81	-20.41	0.12	-88.62	87.32
74	3.500	CO97	1929.28	-28.08	-19.83	0.04	-69.69	76.41
75	0.820	CO98	9.64	-11.85	-1.88	0.00	1.69	6.25
76	1.820	CO97	14.57	2.18	-0.28	0.00	3.00	-2.40
77	0.000	CO97	10.01	18.00	2.19	0.00	1.71	9.21
78	0.000	CO97	-2848.89	-9.28	11.67	-0.21	-67.05	-8.43
79	0.000	CO97	-2575.22	2.78	7.23	0.33	-69.15	4.44
81	0.000	CO98	-583.97	1.12	0.96	-0.31	-1.09	2.21
82	0.000	CO97	-665.09	-1.80	1.34	0.63	-2.04	-3.45
85	0.000	CO98	-187.73	98.93	-1116.17	-9.90	6422.65	542.61
86	0.000	CO99	-127.82	27.47	383.15	-35.00	-583.10	-40.16
87	0.000	CO98	139.18	-2.74	6.12	-0.88	159.19	-2.93
88	0.380	CO99	146.73	-8.47	400.33	-42.90	658.65	31.11
89	0.400	CO98	-188.24	-110.63	1119.95	70.47	6444.62	620.76
90	0.000	CO98	-287.31	194.13	-1084.90	16.11	5909.48	1019.22
91	5.620	CO98	-288.18	-206.10	1087.59	37.72	5922.85	1099.28
92	1.050	CO99	489.90	-43.12	-8.17	7.40	118.45	487.00
93	1.050	CO99	-413.97	-46.71	-4.03	17.93	-121.22	474.44
94	1.500	CO97	-2848.89	-8.84	-10.61	-0.21	-63.75	19.71
95	1.500	CO97	-2575.22	2.78	-17.58	0.33	-83.52	-4.14
96	4.920	CO99	-437.24	-150.44	-39.29	23.54	-27.42	597.73
97	4.920	CO99	466.66	-152.86	22.12	19.89	54.27	601.06
98	0.000	CO97	4435.68	-1.00	-37.47	0.33	142.69	-29.95
99	2.820	CO99	-837.32	6.51	0.47	0.65	2.00	-9.56
100	0.000	CO97	4463.47	2.89	-32.20	0.01	115.27	-13.38
101	0.350	CO98	-3126.53	152.25	-13.58	-0.93	-53.19	-64.56
102	0.350	CO97	-2942.10	-176.07	-18.36	1.38	-65.11	79.85
103	0.810	CO99	200.83	-150.47	-142.07	-296.47	-13.69	-23.91
104	0.920	CO99	-5.43	276.36	145.90	-78.99	142.41	-247.80
105	0.000	CO99	-5.43	279.65	151.25	-78.99	-130.09	262.08
106	0.000	CO98	151.74	130.91	72.85	226.15	7.10	11.23
107	0.000	CO98	-3218.09	100.37	-59.76	-0.63	78.99	69.05
108	0.000	CO99	-1654.30	-126.12	63.08	1.65	-210.84	-60.42
109	7.430	CO99	-2382.37	-4.25	-14.88	0.03	-84.49	-7.51
110	1.300	CO99	37.76	0.28	12.30	-0.01	16.31	-0.37
111	0.000	CO99	18.70	1.07	51.23	0.00	-42.08	0.58
112	4.460	CO98	-2229.12	-1.61	3.47	0.03	13.92	-12.54
113	12.360	CO99	487.44	-43.53	-7.41	7.40	126.62	441.61
114	12.360	CO99	-416.43	-46.30	-3.27	17.93	-117.40	425.71
115	2.740	CO97	-3053.31	45.63	-172.93	0.25	-240.13	-92.06
116	3.240	CO99	-331.94	-2.70	-2.28	0.59	-4.83	5.41
117	3.240	CO99	324.71	-2.51	0.02	0.77	2.37	5.43
118	2.740	CO98	-2695.60	-37.99	-145.10	0.08	-210.92	80.26
119	0.000	CO97	4426.74	-12.53	-24.60	0.36	60.27	-13.53
120	0.000	CO99	-875.96	5.28	0.30	1.14	2.26	11.63
121	2.500	CO97	4494.29	-20.88	-28.76	0.51	-12.66	31.56
122	0.000	CO99	-13.65	-2586.03	134.66	-158.46	-54.85	-982.09
123	0.000	CO97	-39.53	6.78	-0.92	-0.06	4.39	18.83
124	1.300	CO99	-16.25	802.95	-29.46	-98.87	-44.10	-864.42
125	2.600	CO99	314.60	-20.87	-2.41	-1.89	-2.93	27.14
126	0.000	CO98	-35.52	-853.62	31.62	9.03	-48.96	-796.26
127	0.000	CO98	-38.30	6.29	-0.55	0.01	1.34	17.59
128	0.430	CO98	-37.85	2337.51	-108.00	74.25	-42.67	-823.85
129	0.000	CO97	-5449.91	70.31	-70.17	2.75	-132.76	94.46
130	0.000	CO98	-1076.60	7.03	6.64	0.88	-7.01	5.43
131	0.000	CO99	-827.31	-19.29	2.75	0.59	-5.42	-17.80
132	0.000	CO98	-4917.06	-73.89	-56.55	-2.51	-145.57	-94.96
133	2.500	CO97	4262.40	-6.73	-35.91	0.52	-76.29	16.53
135	2.500	CO97	4573.46	-1.68	-19.98	0.23	-54.66	9.21
136	1.300	CO97	-98.25	103.08	37.43	-0.09	62.19	-79.18
137	2.120	CO99	-930.42	5.86	-0.42	1.32	2.29	-12.09
139	15.470	CO98	-1337.47	2.47	-11.19	18.99	-52.33	26.18
140	15.470	CO98	-1393.94	-2.66	-11.30	-20.01	-53.47	-23.46
141	5.490	CO99	-12.01	-33.43	-91.59	-35.95	-337.10	237.47
142	5.490	CO98	87.18	-24.60	132.35	-5.09	499.12	145.69
143	1.630	CO97	-5486.50	5.25	-81.82	0.04	-359.40	-3.21
144	1.630	CO98	-4919.20	-4.79	-69.78	0.36	-324.92	3.38
145	0.000	CO98	-1078.66	3.48	-0.03	0.94	1.89	3.44
146	1.970	CO97	-992.04	-1.82	-1.61	-0.45	-0.58	1.89
147	0.000	CO97	2683.30	12.72	-14.09	0.01	71.21	51.00
148	1.300	CO99	16.87	-0.50	52.21	-0.01	42.01	0.30
149	0.000	CO99	40.93	-0.12	8.54	-0.01	-13.20	-0.21
150	0.000	CO98	2493.80	12.23	1.42	0.03	-17.13	48.49
151	0.220	CO97	-5486.50	5.30	-83.58	0.04	-377.78	-4.38
152	0.220	CO98	-4919.20	-4.79	-71.52	0.36	-340.61	4.44
153	0.000	CO98	19.26	-1.46	0.58	0.00	2.89	-2.04
154	0.580	CO99	14.05	35.45	0.78	-0.01	2.60	-11.36
155	0.000	CO99	-9.44	37.20	3.95	-0.01	-1.96	12.26
156	2.500	CO97	4225.62	-18.81	-37.08	0.21	-139.98	49.64
157	0.000	CO99	-883.87	5.59	-0.92	1.11	2.18	7.91
158	2.500	CO97	4581.99	-13.26	-30.68	0.24	-121.10	28.45
159	0.000	CO98	-1058.49	0.49	0.88	-0.22	-4.43	1.75
160	1.650	CO97	-976.30	1.06	-1.08	0.78	-4.88	-2.57
161	1.550	CO97	-5350.05	-18.84	-94.74	-0.87	-523.23	23.53
162	1.550	CO98	-4915.20	17.04	-85.14	1.23	-463.90	-21.56
167	0.350	CO98	-607.19	-1.88	-233.74	0.54	-17.82	0.88
168	0.350	CO98	-778.13	4.55	181.82	0.62	18.18	-0.89
169	0.000	CO98	-729.07	12.50	125.16	-0.32	-41.15	2.79
170	0.350	CO98	-708.97	28.04	-162.36	-0.28	-2.46	-5.13
171	0.070	CO98	-81.49	62.99	-643.86	-10.89	-29.73	-0.76

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Position: CTK 41 T x (24+37+18)m-M

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GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
172	0.000	CO98	-262.68	-352.77	667.28	-10.89	-30.65	-21.33
173	0.000	CO98	-102.64	356.47	643.83	2.54	-44.71	25.29
174	0.070	CO98	86.29	-76.49	-720.54	2.54	-43.79	3.62
175	0.000	CO98	-415.77	181.21	1312.25	-0.92	-459.07	42.85
176	0.000	CO98	-432.95	-188.93	1365.50	0.92	-477.71	-44.46
177	0.000	CO97	0.00	0.00	0.06	0.00	0.00	0.00
178	0.000	CO97	0.00	0.00	0.06	0.00	0.00	0.00
179	0.000	CO97	0.00	0.00	0.06	0.00	0.00	0.00
180	0.000	CO97	0.00	0.06	0.00	0.00	0.00	0.00
181	0.000	CO97	0.06	255.38	-0.09	0.15	0.01	50.46
182	0.000	CO97	-0.03	-439.70	0.14	-0.96	-0.03	-87.03
183	0.200	CO97	-0.06	-255.38	-0.09	-0.15	-0.01	50.46
184	0.200	CO97	0.03	439.70	0.14	0.96	0.03	-87.03
185	0.200	CO98	-0.01	-254.85	0.03	0.15	0.00	50.37
186	0.000	CO98	0.01	-438.74	-0.04	-0.96	0.00	-86.83
187	0.000	CO98	0.01	254.85	0.03	-0.15	0.00	50.37
188	0.200	CO98	-0.01	438.74	-0.04	0.96	0.00	-86.83
189	0.000	CO97	0.00	0.14	510.95	0.00	-34.19	0.04
190	0.000	CO97	0.00	-0.04	-879.16	0.00	57.44	-0.04
191	0.000	CO98	0.00	-0.03	509.90	0.00	-34.11	-0.01
192	0.000	CO98	0.00	-877.27	-0.03	0.00	0.01	-57.31
193	0.140	CO97	0.09	-254.96	0.04	0.06	0.00	0.15
194	1.000	CO97	-2017.48	0.03	0.00	-0.21	0.00	0.00
195	0.140	CO97	-0.09	-254.96	0.04	-0.06	0.00	0.15
196	0.140	CO98	-0.03	-254.49	-0.01	0.05	0.00	0.15
197	0.000	CO98	-2013.20	0.00	0.00	0.05	0.00	0.00
198	0.140	CO98	0.03	-254.49	-0.01	-0.05	0.00	0.15
199	0.190	CO97	-0.14	440.10	-0.03	-0.08	0.00	-0.96
200	0.190	CO97	0.14	440.10	-0.03	0.08	0.00	-0.96
201	0.190	CO98	0.04	439.10	0.01	-0.07	0.00	-0.96
202	0.190	CO98	-0.04	439.10	0.01	0.07	0.00	-0.96
203	0.000	CO97	0.00	0.16	-1504.62	0.00	67.38	-0.16
204	0.000	CO98	0.00	-0.03	-1501.59	0.00	67.24	0.05
205	0.000	CO97	0.00	0.00	1138.57	0.00	-76.33	0.16
206	0.000	CO98	0.00	1136.17	-0.03	0.00	-0.04	76.18
215	0.350	CO98	-5941.24	-362.91	89.94	-3.21	495.23	124.61
216	0.350	CO97	-5283.21	-335.33	-70.89	3.70	-394.64	111.92
229	0.060	CO98	-0.09	0.00	429.42	0.00	23.63	0.00
236	0.000	CO98	-1403.11	-405.27	-3.78	10.00	215.80	-1436.86
238	15.100	CO97	-3767.69	12.70	180.06	139.14	739.10	75.87
240	4.970	CO99	533.10	32.36	-70.84	-179.71	-657.92	-377.50
241	0.000	CO99	-2541.84	20.39	247.15	92.70	-4855.51	724.67
242	0.000	CO99	-2530.59	20.39	247.94	92.72	-5282.62	759.85
243	1.720	CO97	-725.68	8.51	-3409.64	-523.34	-5050.17	52.80
244	3.790	CO99	531.49	32.36	-73.56	-185.32	-333.15	-211.97
245	0.000	CO97	-618.96	9.96	-3115.52	-586.57	14670.72	119.34
247	0.000	CO98	4.47	0.00	1.51	0.00	-1.65	0.00
248	0.000	CO98	3.56	0.00	1.51	0.00	-1.09	0.00
249	0.000	CO97	-618.96	9.96	-3109.74	-586.57	15915.76	123.32
250	0.000	CO97	125.44	1101.20	-7.34	-9.47	-21.85	884.04
252	0.380	CO97	378.54	14.72	-1275.49	-86.77	337.99	-7.86
253	0.000	CO97	1104.63	217.35	10.88	5.02	28.33	675.60
256	1.830	CO98	602.11	-17.17	29.16	-9.68	910.13	16.86
257	1.830	CO97	-42.35	-180.72	-30.61	-13.08	-31.78	320.03
258	0.000	CO97	730.17	-209.13	9.87	8.68	40.40	-553.53
259	0.000	CO97	387.03	-22.29	963.98	89.77	316.98	-5.01
261	0.810	CO97	117.87	-835.74	-18.75	-15.19	-10.69	668.57
262	0.400	CO98	-521.75	29.98	2917.82	329.44	16749.21	-265.52
263	0.000	CO99	532.76	32.36	-39.24	-185.32	366.30	194.51
264	3.880	CO98	-521.59	29.98	2923.02	329.44	15581.03	-253.53
265	0.000	CO98	-603.68	24.31	3179.53	285.75	-2592.31	-107.69
266	1.730	CO97	-3103.86	0.79	-159.90	116.68	-2776.98	265.49
267	7.930	CO98	-3331.31	18.02	-137.78	146.70	-1888.89	376.89
268	0.000	CO99	532.36	32.36	-40.61	-180.43	609.42	368.76
270	0.000	CO98	-3630.69	-12.65	-73.70	-8.64	369.29	240.87
272	1.020	CO98	-1098.37	442.44	14.65	-6.17	177.94	-1525.77
276	0.060	CO99	-0.08	438.94	173.20	0.00	9.53	-24.15
289	0.000	CO97	-6291.06	191.17	-99.32	2.04	522.99	65.06
290	0.000	CO98	-5712.17	169.02	90.45	-1.85	-481.05	50.34
299	0.000	CO97	0.00	0.54	1153.83	0.00	-77.35	-1.20
300	0.000	CO98	0.00	1143.00	0.08	0.00	0.16	76.64
301	0.000	CO97	0.00	-0.83	-1524.80	0.00	68.28	1.34
302	0.000	CO98	0.00	0.11	-1510.69	0.00	67.66	-0.18
303	0.180	CO97	-1.08	445.99	0.30	0.08	0.03	-0.97
304	0.180	CO97	1.08	445.99	0.30	-0.08	0.03	-0.97
305	0.180	CO98	0.15	441.75	-0.04	0.07	0.00	-0.96
306	0.180	CO98	-0.15	441.75	-0.04	-0.07	0.00	-0.96
307	0.140	CO97	0.74	-258.39	-0.39	-0.06	-0.03	0.15
308	1.000	CO97	-2044.53	-0.03	0.00	1.68	0.00	0.00
309	0.140	CO97	-0.74	-258.39	-0.39	0.06	-0.03	0.15
310	0.140	CO98	-0.09	-256.00	0.05	-0.05	0.00	0.15
311	1.000	CO98	-2025.35	0.00	0.00	-0.23	0.00	0.00
312	0.140	CO98	0.09	-256.00	0.05	0.05	0.00	0.15
313	0.000	CO97	0.00	-0.79	517.82	0.00	-34.65	-0.30
314	0.000	CO97	0.00	0.58	-890.97	0.00	58.20	0.42
315	0.000	CO98	0.00	0.11	512.93	0.00	-34.32	0.04
316	0.000	CO98	0.00	-882.58	0.08	0.00	-0.05	-57.65
317	0.000	CO97	0.39	258.79	0.74	-0.15	-0.12	51.15
318	0.000	CO97	-0.30	-445.59	-1.08	0.97	0.19	-88.20
319	0.200	CO97	-0.39	-258.79	0.74	0.15	0.12	51.15
320	0.200	CO97	0.30	445.59	-1.08	-0.97	-0.19	-88.20

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GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
321	0.000	CO98	-0.05	256.36	-0.09	-0.15	0.01	50.67
322	0.000	CO98	0.04	-441.38	0.15	0.96	-0.03	-87.36
323	0.200	CO98	0.05	-256.36	-0.09	0.15	-0.01	50.67
324	0.200	CO98	-0.04	441.38	0.15	-0.96	0.03	-87.36
325	0.000	CO97	0.00	0.00	0.06	0.00	0.00	0.00
326	0.000	CO97	0.00	0.00	0.06	0.00	0.00	0.00
327	0.000	CO97	0.00	0.00	0.06	0.00	0.00	0.00
328	0.000	CO97	0.00	0.06	0.00	0.00	0.00	0.00
329	0.000	CO97	-5727.22	4.62	95.57	1.15	-486.66	1.53
330	0.000	CO97	-596.84	1.49	0.44	0.28	-1.88	1.28
331	0.000	CO98	-539.49	-1.70	0.62	-0.23	-1.80	-1.50
332	0.000	CO98	-5202.40	-7.55	86.59	-1.04	-447.90	-8.17
333	0.000	CO97	4844.73	26.88	-42.89	0.24	123.43	78.42
334	0.000	CO97	4876.00	27.44	-31.56	0.11	77.11	80.06
335	0.000	CO98	-540.73	0.08	1.28	0.28	-1.08	-0.05
336	0.000	CO98	-5201.77	2.15	74.53	-0.31	-347.40	2.05
337	0.000	CO97	-5724.94	-4.26	82.92	0.36	-375.49	-5.80
338	7.630	CO97	1403.31	-4.01	1.00	0.00	6.69	8.82
340	7.630	CO97	1361.45	-3.86	-2.91	0.00	-13.01	8.33
341	1.180	CO97	-5721.67	-32.03	58.46	-1.35	-147.33	37.98
342	1.180	CO97	-5211.83	30.39	47.19	1.38	-143.54	-35.91
347	0.460	CO97	-5721.67	-31.95	54.45	-1.35	-121.37	52.69
348	0.460	CO97	-5211.83	30.39	43.19	1.38	-122.76	-49.89
349	0.000	CO97	-6.39	723.33	-2.67	41.90	3.01	225.21
350	5.500	CO97	-1008.27	-8.02	0.31	0.01	8.27	22.76
351	0.220	CO97	-8.25	-220.62	0.04	13.60	11.81	217.44
353	1.080	CO97	-8.25	-220.62	0.81	13.60	11.72	169.13
354	0.000	CO97	-10.45	227.26	20.09	2.00	-5.70	168.19
355	0.000	CO97	-67.50	1.63	0.09	0.00	-0.14	1.61
356	0.000	CO97	-10.44	227.26	20.85	2.00	-10.18	217.96
357	0.000	CO97	-969.68	-7.61	-4.38	-0.01	15.96	-20.16
358	0.430	CO97	-11.06	-741.89	-7.86	-28.36	-0.94	222.20
359	0.000	CO97	-4961.79	-24.03	35.04	0.76	-155.37	-65.08
360	0.000	CO98	-312.86	-0.59	1.08	0.62	-1.50	-0.77
361	0.000	CO97	-366.21	0.00	1.41	-0.62	-1.74	-0.08
362	0.000	CO97	-4472.31	20.19	37.85	-0.75	-154.60	52.81
363	0.830	CO97	18.21	14.72	-0.47	-0.01	2.57	-7.97
364	0.000	CO97	24.61	0.56	0.58	0.00	4.01	0.52
365	0.000	CO97	15.12	-10.69	0.54	0.01	1.96	-5.70
366	0.000	CO97	3879.66	13.72	32.10	-0.25	-94.67	20.74
367	7.630	CO97	1371.57	-5.74	6.09	0.00	34.08	12.73
369	0.000	CO97	3972.79	13.34	30.54	-0.24	-96.51	19.07
370	7.630	CO97	1305.43	-5.68	-3.88	-0.01	-20.64	12.42
371	1.000	CO97	-4947.08	-41.65	6.91	-0.75	-84.89	28.23
372	1.000	CO98	-4460.67	34.83	7.20	0.66	-81.84	-27.15
373	2.740	CO98	-319.64	-2.28	-2.09	-0.36	-2.15	3.96
374	2.740	CO97	-368.42	1.68	-1.92	0.33	-1.92	-3.24
375	1.610	CO97	-4947.08	-41.39	-5.82	-0.75	-84.01	95.13
376	1.610	CO97	-4461.61	35.31	-7.24	0.67	-78.81	-84.17
377	0.000	CO97	-5191.94	33.56	-8.25	-1.88	-86.22	99.79
378	0.000	CO97	-4756.20	-56.06	-9.42	1.69	-80.77	-88.13
379	0.430	CO97	225.69	971.31	47.85	29.46	0.33	-221.70
380	0.000	CO98	-926.78	-6.08	0.59	0.03	-2.40	-14.39
381	1.300	CO97	220.39	-2.50	-5.45	-0.16	-3.60	186.10
382	2.600	CO97	23.33	1.22	-2.32	0.11	-2.52	-1.56
383	0.000	CO97	220.41	12.09	7.92	2.61	-7.20	198.64
384	0.000	CO98	-882.58	-5.81	-0.20	-0.01	-2.74	-13.66
385	0.430	CO97	224.45	-915.70	-49.71	-25.09	-20.55	193.90
386	0.000	CO97	-4220.61	-192.11	38.22	-1.54	-117.25	-127.79
387	0.000	CO97	-3840.51	168.38	37.29	1.42	-107.65	116.96
388	0.000	CO97	-3805.13	-41.10	37.55	-0.75	-111.46	-90.47
389	0.000	CO97	-442.07	-2.22	-0.72	-0.47	1.03	-3.51
390	0.000	CO97	-379.92	1.90	-0.63	0.41	0.96	3.16
391	0.000	CO97	-3483.42	38.64	36.39	0.72	-102.00	84.15
392	0.830	CO98	-18.60	12.11	-2.89	-0.01	-3.66	-6.74
393	0.000	CO97	-37.95	0.51	0.42	0.00	-3.66	0.67
394	0.000	CO97	-21.27	-9.75	3.06	0.01	-4.14	-5.34
395	0.000	CO97	3028.17	15.16	-24.14	0.19	74.31	22.84
396	7.630	CO97	1181.11	-5.34	5.68	-0.01	37.29	10.17
398	0.000	CO97	3050.90	14.91	-18.57	-0.01	57.98	22.28
399	7.630	CO97	1166.85	-5.31	-2.22	0.00	-11.48	10.97
400	2.790	CO97	-3795.67	-16.62	-6.99	0.58	-36.47	46.03
401	0.000	CO97	-445.86	-0.38	1.02	0.33	-0.52	-0.62
402	0.000	CO98	-382.81	0.03	1.04	-0.38	-0.76	0.11
403	2.790	CO98	-3489.44	13.38	-9.76	-0.70	-44.01	-38.60
404	0.430	CO97	2.16	649.23	681.49	41.30	-0.16	-71.83
405	5.500	CO97	-843.07	-5.37	2.81	0.01	13.47	14.31
406	0.220	CO97	-14.85	-186.78	-25.72	15.16	-212.92	186.84
407	0.000	CO97	-599.61	-0.45	1.38	-0.25	-1.11	-0.33
408	1.080	CO97	-13.65	-187.80	-24.66	15.84	-207.01	147.03
409	0.000	CO97	-18.10	169.27	5.13	0.27	-186.06	127.00
410	2.600	CO97	9.35	1.46	-0.99	0.03	-1.26	-2.52
411	0.000	CO97	-18.08	169.27	5.89	0.27	-187.27	164.07
412	5.500	CO98	-792.38	-4.95	-3.33	-0.01	-11.42	13.19
413	0.000	CO97	-9.43	-526.15	-537.12	-22.86	4.07	-55.35
414	0.520	CO98	1047.86	-75.92	463.86	-25.18	263.03	1.35
415	0.520	CO98	546.18	-50.38	468.25	-24.45	259.58	40.00
416	0.000	CO97	-179.31	-0.36	1.65	0.69	-2.00	-0.50
417	0.000	CO97	-232.11	-0.04	1.82	-0.72	-2.09	-0.08
418	0.830	CO97	37.80	14.15	0.50	-0.01	5.87	-7.77
419	1.790	CO98	-29.78	-1.49	-3.50	0.00	-6.52	1.61

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GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
420	0.000	CO97	35.20	-10.82	-0.41	0.01	5.34	-5.87
421	5.280	CO97	2184.12	-13.66	14.92	-0.04	38.78	18.60
422	7.630	CO97	1122.73	-6.60	9.49	0.03	55.05	12.36
424	5.280	CO97	2353.29	-13.92	13.42	-0.12	39.35	19.44
425	7.630	CO97	1042.36	-6.54	-7.70	-0.03	-44.25	12.16
428	2.740	CO98	-176.03	-3.04	-2.67	-0.57	-2.79	5.43
429	2.740	CO97	-236.57	2.26	-2.46	0.50	-2.54	-4.39
430	0.000	CO97	-3122.22	-18.75	20.25	1.35	-53.32	-47.25
431	0.000	CO97	-2850.63	15.05	19.38	-1.38	-53.52	38.32
432	0.170	CO97	-3218.61	-21.43	-19.88	-2.67	-51.90	137.37
433	0.170	CO98	-3018.64	-1.04	-21.87	2.50	-64.15	-123.74
434	0.000	CO98	121.99	1463.13	48.94	23.31	-20.43	339.77
435	0.000	CO97	-21.94	2.01	-7.74	0.00	33.76	6.63
436	1.300	CO97	-81.58	43.51	-46.28	-16.64	-247.35	-126.17
437	0.000	CO97	13.55	9.69	7.93	-0.01	-8.89	9.06
438	0.000	CO97	122.88	4.99	8.36	1.85	-27.31	258.27
439	0.000	CO98	-26.04	3.17	3.90	0.01	-18.45	7.17
440	0.430	CO98	129.05	-1394.44	-56.43	-19.64	-23.67	317.37
441	0.000	CO97	-1776.20	-140.85	30.68	-2.47	-72.81	-157.04
442	0.000	CO98	-1632.30	128.70	33.29	2.47	-83.07	152.36
445	0.000	CO97	-232.13	-3.23	-1.41	-0.52	1.90	-5.25
446	0.000	CO97	-203.91	3.01	-1.34	0.50	1.82	5.01
447	0.340	CO97	-3108.03	-55.65	-15.57	-1.26	-45.60	127.69
448	0.340	CO98	-2852.93	50.92	-17.75	1.19	-57.58	-118.58
449	0.830	CO97	-48.54	10.80	-5.19	-0.01	-8.30	-6.05
450	1.790	CO97	-56.13	0.38	-0.58	0.00	-5.61	-0.38
451	0.000	CO97	-49.13	-9.63	5.13	0.01	-8.40	-5.36
452	0.000	CO97	2232.34	13.77	-15.06	-0.03	40.40	17.97
453	0.000	CO97	873.90	7.90	-7.23	0.01	46.11	14.10
454	1.300	CO99	-15.30	-0.52	32.31	0.00	42.05	0.58
455	5.290	CO97	2283.31	-11.36	-16.49	0.00	-47.61	13.31
456	0.000	CO98	823.85	8.01	7.18	0.00	-42.47	13.38
457	2.790	CO98	-2710.64	12.74	-26.82	-0.69	-79.35	-37.19
458	0.000	CO97	-239.51	-0.44	1.39	0.54	-1.10	-0.62
459	2.930	CO97	212.08	-0.93	-0.81	0.28	-0.41	1.41
460	2.790	CO97	-2538.87	-9.02	-28.06	0.84	-86.00	28.13
461	0.000	CO97	1.13	-521.88	21.56	-32.39	-8.94	-174.46
462	0.000	CO98	663.51	-4.08	-3.75	0.00	9.95	-9.37
463	0.220	CO97	2.64	176.96	-3.49	-11.82	-8.11	-176.76
464	1.740	CO97	-542.76	-0.45	-2.70	0.45	-2.58	0.70
465	1.080	CO97	2.64	176.96	-2.73	-11.82	-7.42	-138.00
466	0.000	CO98	1.08	-155.24	3.06	-0.43	-7.69	-110.47
467	0.000	CO99	12.60	-0.08	-1.17	0.00	1.53	-0.43
468	0.000	CO98	1.08	-155.18	3.75	-0.43	-8.45	-144.46
469	0.000	CO98	630.76	-3.96	2.86	0.00	-4.29	-9.02
470	0.430	CO98	1.13	503.70	-34.15	19.98	-14.13	-150.86
471	0.000	CO97	-3190.84	8.49	18.00	-0.25	-69.74	24.70
472	2.630	CO97	-354.67	0.23	-0.74	-0.15	-0.30	-0.36
473	2.630	CO97	-352.92	-0.31	-0.69	0.16	-0.23	0.45
474	0.000	CO97	-2978.72	-9.39	19.23	0.27	-68.55	-26.73
475	0.920	CO98	-13.42	-7.61	-2.71	0.00	-2.50	4.70
476	0.000	CO97	-21.67	-0.39	0.41	0.00	-1.69	-0.52
477	0.000	CO97	-14.44	9.15	3.01	-0.01	-2.68	5.60
478	0.000	CO97	2724.18	12.02	19.32	-0.24	-49.46	13.64
479	0.000	CO97	974.05	7.11	-1.46	0.00	13.32	12.57
481	5.290	CO97	2770.36	-11.52	17.22	-0.09	50.50	11.97
482	0.000	CO98	920.77	6.45	2.04	0.00	-11.85	12.66
483	2.610	CO97	-3194.16	21.53	-25.38	0.30	-88.00	-50.43
484	2.770	CO97	-353.36	1.17	-0.23	0.24	0.12	-2.03
485	2.770	CO97	-350.85	-1.20	-0.18	-0.24	0.16	2.09
486	2.610	CO97	-2982.66	-21.84	-28.29	-0.30	-91.00	51.17
487	0.180	CO97	-3470.25	142.56	-27.24	0.56	-91.53	-82.23
488	0.180	CO97	-3256.52	-142.04	-29.86	-0.58	-94.05	82.90
489	0.000	CO97	20.94	-706.35	23.51	-28.47	-8.46	-197.83
490	5.500	CO97	-734.55	3.62	-0.08	-0.01	-1.93	-10.45
491	1.300	CO97	17.55	43.83	-6.16	-10.52	4.76	-182.44
492	0.000	CO97	-36.74	0.52	1.38	0.01	-1.38	0.69
493	0.000	CO98	155.03	-2.65	1.74	-0.26	20.09	-133.60
494	5.500	CO98	-699.60	3.40	-1.11	0.01	-3.44	-9.77
495	0.430	CO98	15.84	706.74	-16.29	17.37	-5.41	-157.60
496	0.170	CO97	-4092.21	-36.21	-38.32	1.26	-78.79	67.26
497	0.170	CO97	-3883.56	53.52	-31.95	-1.28	-83.28	-65.13
498	0.000	CO97	-272.65	1.79	1.62	0.06	-1.56	2.81
499	0.000	CO97	-282.33	-1.65	1.53	-0.06	-1.47	-2.67
500	0.000	CO97	-3900.02	30.05	-40.19	0.57	-77.18	63.89
501	0.000	CO97	-3679.28	-29.15	-33.15	-0.56	-79.07	-61.94
502	5.280	CO97	3116.79	-19.28	-22.51	0.06	-66.15	45.49
503	5.280	CO97	3357.27	-19.09	-24.06	0.11	-70.98	44.85
504	0.000	CO97	1045.29	5.41	-5.89	-0.01	30.82	8.55
506	0.000	CO98	1013.42	4.94	4.95	0.01	-25.41	7.92
507	1.740	CO97	-601.56	0.01	-2.58	-0.48	-2.49	-0.34
510	0.660	CO97	-3910.32	12.38	-64.88	-0.70	-230.82	-9.14
511	0.660	CO97	-3688.29	-10.99	-60.25	0.66	-215.60	8.34
512	2.930	CO97	-263.46	0.11	-1.13	-0.36	-1.56	-0.12
513	2.930	CO97	-274.35	0.09	-1.20	0.33	-1.66	-0.16
514	2.130	CO97	-3910.32	12.73	-81.68	-0.70	-386.54	-35.81
515	2.130	CO97	-3688.29	-10.99	-78.78	0.66	-363.33	31.71
518	0.000	CO97	0.00	0.00	0.06	0.00	0.00	0.00
519	0.000	CO97	0.00	0.00	0.06	0.00	0.00	0.00
520	0.000	CO97	0.00	0.00	0.06	0.00	0.00	0.00
521	0.000	CO97	0.00	0.06	0.00	0.00	0.00	0.00

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GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
522	0.000	CO97	0.00	176.63	0.03	0.11	0.00	34.89
523	0.000	CO97	0.03	-304.24	-0.03	-0.66	0.00	-60.23
524	0.200	CO97	0.00	-176.63	0.03	-0.11	0.00	34.89
525	0.200	CO97	-0.03	304.24	-0.03	0.66	0.00	-60.23
526	0.200	CO97	-0.41	-173.33	0.78	0.11	0.14	34.24
527	0.000	CO97	0.33	-298.56	-1.14	-0.64	0.19	-59.10
528	0.000	CO97	0.41	173.33	0.78	-0.11	-0.14	34.24
529	0.200	CO97	-0.33	298.56	-1.14	0.64	-0.19	-59.10
530	0.000	CO97	0.00	0.01	353.45	0.00	-23.66	-0.01
531	0.000	CO97	0.00	0.06	-608.29	0.00	39.74	0.01
532	0.000	CO97	0.00	-0.81	346.85	0.00	-23.20	-0.31
533	0.000	CO97	0.00	-596.91	-0.64	0.00	0.44	-39.00
534	0.140	CO97	-0.03	-176.22	-0.01	0.04	0.00	0.11
535	1.000	CO97	-1395.93	0.03	0.00	0.06	0.00	0.00
536	0.140	CO97	0.03	-176.22	-0.01	-0.04	0.00	0.11
537	0.140	CO97	-0.78	-172.92	-0.41	0.04	-0.03	0.11
538	0.000	CO97	-1369.89	0.00	0.00	1.79	0.00	0.00
539	0.140	CO97	0.78	-172.92	-0.41	-0.04	-0.03	0.11
540	0.190	CO97	0.03	304.67	0.01	-0.04	0.00	-0.66
541	0.190	CO97	-0.03	304.67	0.01	0.04	0.00	-0.66
542	0.190	CO97	1.14	298.96	0.33	-0.04	0.03	-0.64
543	0.190	CO97	-1.14	298.96	0.33	0.04	0.03	-0.64
544	0.000	CO97	0.00	0.04	-1040.57	0.00	46.59	0.04
545	0.000	CO97	0.00	-0.81	-1021.13	0.00	45.72	1.41
546	0.000	CO97	0.00	0.09	787.91	0.00	-52.83	-0.03
547	0.000	CO97	0.00	773.23	-0.64	0.00	-1.26	51.84
570	0.050	CO98	-0.09	0.00	59.25	0.00	3.25	0.00
576	7.000	CO98	-2605.28	0.23	134.34	45.93	728.64	0.58
580	5.050	CO98	531.86	3.86	-64.10	-14.13	-453.36	-44.46
581	0.270	CO99	-451.44	-144.91	-1.95	0.00	-0.41	37.61
582	0.060	CO99	-1.95	-450.95	-144.91	-1.52	0.00	0.12
583	0.270	CO98	1151.06	-29.69	-230.76	0.01	-25.85	0.00
585	0.060	CO98	230.43	-770.28	14.20	-0.16	0.88	47.55
586	0.280	CO97	-10.44	53.76	-176.26	0.01	-3.70	0.63
587	0.000	CO98	-2375.38	0.23	163.31	45.93	-3177.32	6.91
590	0.000	CO98	-2300.28	-0.23	-522.42	46.44	4419.67	-0.39
591	0.000	CO98	-2317.77	-0.23	-523.33	46.44	3420.74	0.07
594	0.280	CO98	-1928.04	14.09	-97.65	0.00	-0.99	0.16
595	0.000	CO98	-295.95	-1907.37	14.09	-0.16	-0.88	-124.01
597	0.270	CO98	-3464.25	29.44	-292.57	0.01	-35.14	0.00
598	0.000	CO98	-3.39	1557.17	-15.35	-0.16	0.00	0.65
599	0.000	CO98	-1557.17	15.35	3.39	0.00	-0.65	0.16
600	0.000	CO97	-406.59	0.90	-2162.73	-1.47	10728.63	180.75
601	3.790	CO99	196.47	37.32	-7.15	-142.91	103.77	-237.70
603	0.000	CO98	4.47	0.00	1.51	0.00	-1.65	0.00
604	0.000	CO98	3.56	0.00	1.51	0.00	-1.09	0.00
605	0.000	CO97	-406.59	0.90	-2156.96	-1.47	11592.57	181.10
606	0.000	CO97	61.75	1064.61	38.69	-0.24	-30.51	858.14
608	0.380	CO97	228.90	6.42	-1198.82	-5.32	94.51	12.05
609	0.000	CO97	1123.09	203.71	-0.01	-9.57	-1.98	653.27
610	0.000	CO97	143.40	-107.65	249.72	17.15	-316.17	31.89
612	0.920	CO97	424.21	-0.64	6.20	-0.42	621.96	-17.33
613	0.920	CO97	146.82	62.77	-226.62	-2.91	-315.84	31.89
614	0.000	CO97	812.51	-182.19	-3.69	-0.36	3.32	-524.60
615	0.000	CO98	269.35	4.52	940.53	-5.20	160.43	5.24
617	0.810	CO97	31.77	-827.22	-38.19	2.97	-30.85	663.90
618	0.400	CO97	-426.95	1.02	2157.09	-1.66	11088.45	-205.41
619	0.000	CO98	530.04	3.86	-10.41	-14.77	264.22	23.90
620	5.600	CO97	-426.95	1.02	2162.86	-1.66	10224.45	-205.01
621	0.000	CO97	-1111.08	-58.06	-2.13	0.00	0.50	-0.62
622	0.060	CO97	-2.13	58.06	-1111.08	-0.62	-0.50	0.00
623	0.270	CO97	-2581.32	-111.38	262.15	0.04	31.59	0.00
625	0.060	CO97	-264.29	-53.31	1470.57	-0.62	94.98	3.30
626	0.000	CO97	-1493.94	53.31	39.94	0.01	-0.12	-0.63
629	0.000	CO97	-2267.39	0.88	464.40	175.63	-2968.92	1.47
630	0.000	CO97	-2286.83	0.88	464.40	175.63	-2081.90	-0.24
633	0.000	CO97	-2336.29	0.88	109.42	173.68	-1865.95	26.13
634	0.000	CO98	-457.93	14.20	202.78	0.00	-3.87	-0.16
635	0.000	CO98	4.18	-13.97	-538.50	-0.16	36.68	-0.86
637	0.000	CO97	301.20	112.27	202.26	0.04	-31.97	30.31
638	0.000	CO98	-3.46	15.46	831.53	-0.16	-0.23	0.00
639	0.000	CO98	-831.53	15.46	3.46	0.00	-0.23	0.16
640	0.000	CO99	-37.93	35.31	49.07	-129.69	-300.73	406.33
641	1.700	CO97	-858.32	48.78	-337.14	2.10	-129.81	-93.45
644	7.000	CO97	-2590.67	0.88	70.18	173.68	471.36	2.19
648	0.050	CO98	-0.11	274.60	4.02	0.00	0.22	-15.11
661	0.000	CO98	-4041.32	-197.11	79.04	2.34	-377.82	-57.78
662	0.000	CO97	-3835.80	212.60	77.32	-2.85	-368.71	61.62
671	0.000	CO97	0.00	0.60	790.21	0.00	-52.98	-1.31
672	0.000	CO97	0.00	745.82	0.00	0.00	0.00	50.01
673	0.000	CO97	0.00	-0.90	-1043.63	0.00	46.72	1.46
674	0.000	CO97	0.00	0.00	-984.87	0.00	44.10	0.00
675	0.190	CO97	-1.19	305.55	0.33	0.04	0.03	-0.66
676	0.190	CO97	1.19	305.55	0.33	-0.04	0.03	-0.66
677	0.190	CO97	0.00	288.38	0.00	0.04	0.00	-0.63
678	0.190	CO97	0.00	288.38	0.00	-0.04	0.00	-0.63
679	0.140	CO97	0.79	-176.73	-0.42	-0.04	-0.03	0.11
680	1.000	CO97	-1400.02	-0.03	0.00	1.83	0.00	0.00
681	0.140	CO97	-0.79	-176.73	-0.42	0.04	-0.03	0.11
682	0.140	CO97	0.00	-166.74	0.00	-0.04	0.00	0.09
683	1.000	CO97	-1321.29	0.00	0.00	0.00	0.00	0.00

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Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
684	0.140	CO97	0.00	-166.74	0.00	0.04	0.00	0.09
685	0.000	CO97	0.00	-0.87	354.48	0.00	-23.72	-0.31
686	0.000	CO97	0.00	0.63	-610.08	0.00	39.85	0.45
687	0.000	CO97	0.00	0.00	334.50	0.00	-22.38	0.00
688	0.000	CO97	0.00	-575.73	0.00	0.00	0.00	-37.60
689	0.000	CO97	0.44	177.13	0.79	-0.11	-0.14	34.99
690	0.000	CO97	-0.31	-305.14	-1.19	0.66	0.21	-60.40
691	0.200	CO97	-0.44	-177.13	0.79	0.11	0.14	34.99
692	0.200	CO97	0.31	305.14	-1.19	-0.66	-0.21	-60.40
693	0.000	CO97	0.00	167.15	0.00	-0.09	0.00	33.01
694	0.000	CO97	0.00	-287.97	0.00	0.63	0.00	-57.01
695	0.200	CO97	0.00	-167.15	0.00	0.09	0.00	33.01
696	0.200	CO97	0.00	287.97	0.00	-0.63	0.00	-57.01
697	0.000	CO97	0.00	0.00	0.06	0.00	0.00	0.00
698	0.000	CO97	0.00	0.00	0.06	0.00	0.00	0.00
699	0.000	CO97	0.00	0.00	0.06	0.00	0.00	0.00
700	0.000	CO97	0.00	0.06	0.00	0.00	0.00	0.00
701	0.000	CO97	-3757.00	19.08	85.56	0.83	-417.73	31.49
702	0.000	CO97	-3437.28	-15.00	78.93	-0.94	-377.21	-24.61
703	0.000	CO98	-589.10	0.46	2.92	-0.04	-4.51	1.69
704	0.000	CO97	-633.78	-0.36	2.89	-0.18	-4.74	-1.80
705	0.380	CO97	-3757.00	19.42	68.60	0.83	-252.40	-9.81
706	0.380	CO97	-3437.28	-15.00	60.23	-0.94	-227.96	7.56
707	0.800	CO97	35.65	4.59	2.09	0.00	6.00	-2.79
708	0.000	CO97	2789.91	29.74	35.06	-0.33	-109.46	80.55
709	7.430	CO97	1934.02	-5.40	2.93	0.00	18.59	11.34
711	1.860	CO97	38.76	-1.14	-0.60	0.00	3.39	1.63
712	0.000	CO97	2915.94	24.41	44.16	-0.45	-136.27	62.58
713	7.430	CO97	1728.15	-5.41	-1.44	-0.01	-9.16	11.07
714	0.000	CO97	33.38	-9.78	-1.86	0.00	5.64	-5.13
715	2.500	CO97	-3556.53	-23.11	44.55	-1.06	-91.85	48.78
716	2.670	CO98	-596.11	-1.15	-3.05	-0.93	-3.58	1.35
717	2.670	CO97	-643.77	1.68	-3.55	0.70	-4.51	-2.31
718	2.500	CO97	-3231.75	25.67	32.74	0.79	-97.51	-54.54
719	0.000	CO97	-0.19	976.35	4.86	57.31	0.00	330.69
720	0.000	CO97	-1410.61	-9.99	4.18	0.06	-16.97	-26.63
721	1.300	CO97	0.88	-340.14	-12.83	19.38	-3.57	318.58
722	0.000	CO97	-2.43	302.79	4.95	-2.81	7.35	273.29
723	5.500	CO97	-1249.32	-8.91	-1.26	-0.03	-10.15	25.26
724	0.430	CO97	-2.06	-874.21	-10.10	-37.56	-2.31	279.03
725	0.000	CO98	-2736.22	-26.08	38.15	0.58	-108.99	-70.12
726	0.000	CO97	1506.32	12.69	20.59	0.00	67.56	18.47
727	0.000	CO97	1662.75	12.05	-16.80	0.04	53.94	16.84
728	0.000	CO97	-2481.33	25.33	39.96	-0.79	-113.61	67.68
729	0.000	CO97	-344.37	0.69	1.41	0.36	-1.98	1.10
730	0.000	CO98	-308.50	-0.82	1.42	-0.43	-1.77	-1.26
731	0.000	CO98	-2736.22	-25.97	27.47	0.58	-59.76	-31.08
732	0.000	CO97	-2571.21	21.66	33.60	-0.58	-76.15	25.14
733	0.830	CO98	20.74	18.29	0.15	-0.01	3.82	-10.03
734	7.430	CO97	1869.12	-7.62	5.84	0.04	38.99	16.17
736	0.000	CO98	0.12	-2.17	-4.83	0.00	5.55	-1.92
737	7.430	CO97	1661.88	-7.39	-8.10	-0.03	-44.01	15.34
738	0.000	CO97	22.56	-17.37	-0.03	0.01	4.07	-9.56
739	0.000	CO97	1589.88	5.34	-18.84	0.03	31.64	3.99
740	0.000	CO97	1662.75	5.36	-17.01	0.04	28.59	3.80
741	2.330	CO97	-2689.56	-45.74	9.81	-0.28	-6.21	94.27
742	2.470	CO97	-352.17	-2.71	-2.10	-0.42	-1.96	4.76
743	2.470	CO98	-312.84	2.03	-1.73	0.26	-1.55	-3.81
744	2.330	CO97	-2463.98	47.90	2.54	0.19	-18.42	-97.46
745	0.170	CO98	-2754.77	-37.81	4.44	-1.20	-5.71	105.83
746	0.170	CO97	-2500.32	39.44	-1.51	1.05	-20.61	-110.65
747	0.000	CO97	149.12	1204.32	-15.03	55.19	6.99	348.40
748	5.500	CO97	-1385.20	-7.07	1.23	0.11	6.89	18.78
749	0.000	CO97	-39.40	-1.47	0.60	0.12	-0.75	-1.42
750	2.600	CO97	144.66	-65.68	4.83	18.96	34.97	322.04
751	0.000	CO97	-1210.98	-6.14	-2.91	-0.12	12.96	-17.46
752	0.430	CO97	149.97	-1113.73	-5.97	-35.13	-1.93	287.14
753	0.000	CO98	-1782.41	-170.90	1.84	-0.90	-28.84	-121.76
754	0.000	CO97	-1498.83	188.73	13.97	0.75	-30.12	134.34
755	0.000	CO97	-1705.65	-37.11	-2.85	-0.45	-41.35	-79.85
756	0.000	CO98	-372.09	-3.46	-0.89	-0.26	1.13	-5.14
757	0.000	CO97	-408.39	3.95	-1.08	0.14	1.22	5.74
758	0.000	CO97	-1390.79	41.19	9.00	0.33	-40.95	85.85
759	0.830	CO98	-25.03	14.42	-3.31	-0.01	-5.18	-8.23
760	0.000	CO97	731.32	10.62	12.63	-0.04	-32.10	16.95
761	7.430	CO97	1838.33	-7.56	7.10	-0.01	43.23	17.01
763	1.790	CO97	-25.11	-1.26	-0.44	0.00	-2.68	1.32
764	0.000	CO97	609.33	8.64	17.78	-0.03	-41.10	11.82
765	7.430	CO97	1588.77	-7.15	-3.52	0.00	-20.44	15.12
766	0.000	CO97	-27.99	-17.24	3.59	0.01	-5.72	-9.75
767	2.500	CO97	-1699.13	-12.10	-37.69	-0.09	-140.91	33.05
768	2.650	CO98	-385.24	-0.97	-1.05	0.31	-0.70	1.32
769	2.650	CO97	-424.39	1.26	-1.32	-0.57	-1.17	-1.83
770	2.500	CO97	-1379.94	15.30	-29.83	-0.12	-93.93	-42.06
771	0.000	CO97	6.95	937.83	652.01	100.54	-276.51	323.31
772	0.000	CO97	-772.18	-5.68	-14.98	0.01	53.00	-18.03
773	0.220	CO97	-41.73	-316.44	-33.00	31.65	-188.34	302.19
775	1.080	CO97	-41.73	-316.44	-32.24	31.65	-181.20	232.89
776	0.000	CO97	-4.90	286.05	8.57	0.01	-154.86	201.17
777	1.300	CO97	20.72	-58.95	-20.70	-0.11	-14.19	39.97
778	0.000	CO97	-4.88	286.05	9.32	0.01	-156.81	263.80

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GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
779	0.000	CO97	-584.31	-4.71	9.05	-0.01	-30.56	-14.97
780	0.430	CO97	-12.48	-797.40	-486.54	-55.65	-202.58	271.56
781	0.000	CO97	-763.71	-31.62	616.56	-3.45	-241.72	-56.50
782	0.880	CO97	-545.31	2.04	450.07	-3.99	252.09	27.58
783	0.000	CO98	193.06	-1.46	1.00	0.14	-0.94	-2.07
784	0.000	CO98	-155.94	-1.30	1.88	-0.04	-1.70	-1.88
785	0.000	CO97	-764.27	-17.88	-71.07	2.06	296.11	-28.99
786	0.000	CO97	-545.31	15.72	-60.81	1.51	252.09	27.58
787	0.830	CO98	12.45	15.35	0.66	-0.01	2.09	-8.64
788	7.430	CO97	1128.29	-5.55	19.97	-0.01	97.53	7.92
789	0.000	CO98	9.59	1.34	0.63	0.00	0.68	1.26
790	7.430	CO97	836.52	-5.41	-10.58	-0.01	-51.17	7.29
791	0.000	CO97	11.25	-7.76	-0.47	0.01	1.79	-4.34
792	2.330	CO98	-709.15	-33.25	-72.95	-0.36	-35.36	68.19
793	2.470	CO98	178.79	-3.20	-2.85	-0.63	-2.51	4.45
794	0.000	CO98	-163.20	-1.16	0.90	0.00	-0.73	-1.62
795	2.330	CO97	-578.13	26.72	-87.74	0.36	-42.68	-56.79
796	0.170	CO98	-541.86	-96.43	-76.83	-1.80	-50.87	89.53
797	0.170	CO97	-567.18	32.91	-91.60	1.72	-60.52	-65.94
798	0.430	CO97	-23.13	737.93	789.07	30.22	-3.33	-74.58
799	2.600	CO97	-43.11	-30.57	-39.47	21.65	-265.41	180.52
800	0.000	CO97	-32.35	-566.76	-609.59	-7.34	1.72	-65.63
801	0.000	CO98	0.00	-70.17	5.87	-28.04	-2.93	-8.80
802	0.000	CO98	0.00	-70.58	6.60	-28.04	-3.29	-9.00
803	0.000	CO98	-2454.80	0.23	151.05	45.93	-2077.54	5.27
804	4.810	CO97	-2474.63	0.88	88.08	173.68	-706.20	15.60
806	1.700	CO97	-631.48	-38.30	-238.24	-0.34	-48.01	80.70
807	0.000	CO97	-5724.94	-4.17	78.96	0.36	-331.99	-3.54
808	0.000	CO98	-5201.75	2.15	70.58	-0.31	-308.39	0.90
811	2.270	CO98	-2852.93	50.92	-15.07	1.19	-51.95	-101.12
812	2.270	CO97	-3108.03	-55.71	-12.85	-1.26	-40.72	108.60
821	0.000	CO97	-1568.37	-59.91	30.81	-1.35	-69.57	-127.07
822	0.000	CO98	-1454.44	59.00	33.41	1.36	-79.19	124.67
825	0.830	CO98	16.17	-10.80	-0.93	0.01	2.54	5.75
826	1.790	CO98	22.14	-0.63	-0.32	0.00	3.20	0.66
827	0.000	CO97	23.24	7.85	0.16	-0.01	3.55	4.43
828	0.000	CO97	0.00	-0.11	5.72	0.00	-2.49	-0.04
829	0.000	CO97	0.00	-0.11	6.42	0.00	-2.81	-0.04
830	2.600	CO97	-13.08	0.57	-2.57	-0.19	-3.38	-0.12
831	2.600	CO97	-55.78	1.50	-1.28	0.14	-1.08	-1.98
832	1.260	CO98	67.64	-5.21	8.92	-0.01	12.24	3.87
833	1.300	CO97	22.56	84.58	-39.89	0.12	-66.43	-67.38
834	0.000	CO97	52.60	6.36	-7.11	0.00	9.60	4.50
836	0.930	CO99	13.71	14.48	-4.09	-0.01	-1.64	-6.95
837	1.150	CO98	14.35	-5.62	-4.47	0.00	-4.98	3.19
839	0.000	CO98	8.40	-8.17	-4.54	0.00	8.32	-5.06
841	0.000	CO98	1.24	2.24	-8.11	0.00	12.06	2.93
842	0.000	CO98	-2.79	-0.57	-11.54	0.01	16.43	0.34
844	0.430	CO98	7.11	-0.11	-14.51	0.00	-16.31	-0.82
845	0.000	CO98	14.00	4.10	-4.43	0.00	3.54	2.73
846	0.000	CO97	267.54	0.34	2.06	0.44	-3.59	1.03
847	5.890	CO97	-199.90	0.15	-1.72	-0.04	-1.69	-0.45
848	0.000	CO99	215.06	0.11	0.62	0.02	-0.77	0.33
849	5.890	CO99	-145.06	0.06	-0.58	-0.02	-0.50	-0.09
850	5.890	CO99	165.81	0.10	-0.56	-0.01	-0.59	-0.30
851	5.890	CO98	153.40	-0.16	-0.85	-0.08	-0.86	0.46
852	5.890	CO97	158.12	0.14	-1.08	0.16	-1.57	-0.34
853	0.000	CO97	-155.22	-0.30	1.93	-0.42	-2.76	-0.99
854	5.640	CO97	-227.65	-0.27	-1.75	-0.18	-1.41	0.88
855	0.000	CO97	392.58	0.88	2.34	0.41	-2.87	2.87
856	5.650	CO97	-291.95	-1.96	-1.49	0.01	0.00	4.89
857	5.650	CO97	135.23	-2.24	5.07	0.00	28.53	4.77
858	5.650	CO97	-150.26	-0.75	-0.87	0.00	-6.64	1.39
859	5.650	CO97	126.01	-1.95	3.12	0.00	16.08	5.02
860	0.000	CO97	-265.13	1.42	2.82	0.00	1.15	3.60
861	5.650	CO97	134.74	-2.46	-6.39	0.00	-34.74	5.89

PARTS LIST BY ELEMENT

Item No	Number Elements	Section	Length [m]	Tot Length [m]	Sing Weight [kg/m]	Weight [kg]	Tot Weight [t]
1	2	32 - IS 618/300/12/15	0.425	0.850	126.040	53.57	0.11
2	1	32 - IS 618/300/12/15	2.600	2.600	126.040	327.70	0.33
3	2	17 - HE-B 600	0.150	0.300	211.950	31.79	0.06
4	2	17 - HE-B 600	1.081	2.162	211.950	229.12	0.46
5	2	17 - HE-B 600	1.125	2.250	211.950	238.44	0.48
6	26	22 - Kasten(A) 374/15/12/350/550/374/1	0.425	11.050	186.045	79.07	2.06
7	12	22 - Kasten(A) 374/15/12/350/550/374/1	1.300	15.600	186.045	241.86	2.90
8	6	17 - HE-B 600	2.500	15.000	211.950	529.88	3.18
9	14	29 - RO 127x10	2.655	37.170	28.854	76.61	1.07
10	2	17 - HE-B 600	0.625	1.250	211.950	132.47	0.26
11	20	41 - HE-A 160	0.831	16.624	30.458	25.32	0.51
12	14	33 - IS 302/250/15/20	7.433	104.062	109.351	812.81	11.38
13	10	41 - HE-A 160	1.788	17.876	30.458	54.45	0.54
14	16	29 - RO 127x10	2.469	39.506	28.854	71.24	1.14
15	10	17 - HE-B 600	0.175	1.750	211.950	37.09	0.37
16	12	30 - IS 302/250/8/20	5.500	66.000	94.954	522.24	6.27
17	10	22 - Kasten(A) 374/15/12/350/550/374/1	0.219	2.190	186.045	40.74	0.41

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PARTS LIST BY ELEMENT

Item No	Number Elements	Section	Length [m]	Tot Length [m]	Sing Weight [kg/m]	Weight [kg]	Tot Weight [t]
18	1	22 - Kasten(A) 374/15/12/350/550/374/1	2.162	2.162	186.045	402.23	0.40
19	4	97 - IS 374/260/8/20	1.300	5.200	102.615	133.40	0.53
20	8	17 - HE-B 600	2.325	18.600	211.950	492.78	3.94
21	4	18 - HE-B 300	5.000	20.000	116.965	584.83	2.34
22	1	28 - RO 127x5,6	5.636	5.636	16.766	94.49	0.09
23	2	18 - HE-B 300	1.500	3.000	116.965	175.45	0.35
24	2	17 - HE-B 600	3.454	6.908	211.950	732.08	1.46
25	2	44 - RO 168,3x10	3.572	7.143	39.039	139.43	0.28
26	2	44 - RO 168,3x10	5.636	11.271	39.039	220.01	0.44
27	2	21 - HE-M 300	3.500	7.000	237.855	832.49	1.66
28	2	41 - HE-A 160	0.816	1.632	30.458	24.85	0.05
29	1	41 - HE-A 160	1.818	1.818	30.458	55.39	0.06
30	2	17 - HE-B 600	1.600	3.200	211.950	339.12	0.68
31	3	1 - Dummy Rigid	2.600	7.800	0.000	0.00	0.00
32	2	44 - RO 168,3x10	3.205	6.409	39.039	125.10	0.25
33	2	1 - Dummy Rigid	0.900	1.799	0.000	0.00	0.00
34	2	40 - Venlo TREAGER 1A	0.400	0.800	526.586	210.63	0.42
35	2	40 - Venlo TREAGER 1A	0.383	0.766	526.586	201.68	0.40
36	1	40 - Venlo TREAGER 1A	1.834	1.834	526.586	965.76	0.97
37	2	39 - Venlo TREAGER 2A	5.623	11.245	449.734	2528.65	5.06
		40 - Venlo TREAGER 1A					
38	2	14 - TO 600/600/12/12/12/12/37/25	1.048	2.096	216.545	226.94	0.45
39	4	19 - HE-M 600	1.499	5.996	285.740	428.32	1.71
40	2	27 - Kasten(A) 1070/10/15/1036/730/10	4.922	9.844	335.195	1649.77	3.30
41	8	21 - HE-M 300	2.500	20.000	237.855	594.64	4.76
42	3	44 - RO 168,3x10	2.818	8.453	39.039	110.00	0.33
43	6	19 - HE-M 600	0.355	2.130	285.740	101.44	0.61
44	2	24 - Venlo TREAGER 3	0.808	1.616	298.818	241.45	0.48
45	2	24 - Venlo TREAGER 3	0.917	1.834	298.818	274.02	0.55
46	4	42 - IS 302/450/15/20	7.433	29.732	172.151	1279.60	5.12
47	4	41 - HE-A 160	1.300	5.200	30.458	39.60	0.16
48	2	14 - TO 600/600/12/12/12/12/37/25	12.359	24.717	216.545	2676.19	5.35
49	2	19 - HE-M 600	2.737	5.474	285.740	782.07	1.56
50	2	44 - RO 168,3x10	3.235	6.470	39.039	126.30	0.25
51	2	98 - Kasten(A) 480/35/15/350/570/480/3	0.425	0.850	381.510	162.14	0.32
52	2	43 - Kasten(A) 480/30/15/350/570/480/3	1.300	2.600	346.185	450.04	0.90
53	1	44 - RO 168,3x10	2.600	2.600	39.039	101.50	0.10
54	2	19 - HE-M 600	1.249	2.498	285.740	356.89	0.71
55	2	99 - RO 168,3x12,5	1.332	2.665	48.028	63.99	0.13
56	1	49 - Dummy Rigid	0.700	0.700	0.000	0.00	0.00
57	1	44 - RO 168,3x10	2.118	2.118	39.039	82.68	0.08
58	2	14 - TO 600/600/12/12/12/12/37/25	15.472	30.944	216.545	3350.38	6.70
59	2	14 - TO 600/600/12/12/12/12/37/25	5.489	10.978	216.545	1188.57	2.38
60	2	19 - HE-M 600	1.626	3.252	285.740	464.61	0.93
61	2	99 - RO 168,3x12,5	1.971	3.942	48.028	94.66	0.19
62	2	19 - HE-M 600	0.222	0.444	285.740	63.43	0.13
63	1	41 - HE-A 160	2.300	2.300	30.458	70.05	0.07
64	2	41 - HE-A 160	0.575	1.150	30.458	17.52	0.04
65	2	99 - RO 168,3x12,5	1.652	3.303	48.028	79.33	0.16
66	2	19 - HE-M 600	1.548	3.096	285.740	442.33	0.88
67	4	49 - Dummy Rigid	0.068	0.270	0.000	0.00	0.00
68	4	65 - Flachstahl 35/666	0.350	1.400	160.179	56.06	0.22
		66 - Flachstahl 35/500					
69	16	52 - Rundstahl 140	0.067	1.080	120.841	8.16	0.13
70	2	63 - Flachstahl 40/508	0.350	0.700	229.377	80.28	0.16
		64 - Flachstahl 40/953					
71	8	52 - Rundstahl 140	0.025	0.200	120.841	3.02	0.02
72	16	55 - Flachstahl 350/40	0.198	3.168	109.900	21.76	0.35
73	8	53 - Flachstahl 740/15	0.135	1.080	64.174	8.66	0.07
		54 - Flachstahl 350/15					
74	4	56 - Flachstahl 200/60	1.000	4.000	94.200	94.20	0.38
75	8	53 - Flachstahl 740/15	0.185	1.480	64.174	11.87	0.09
		54 - Flachstahl 350/15					
76	4	52 - Rundstahl 140	0.118	0.470	120.841	14.20	0.06
77	32	49 - Dummy Rigid	0.198	6.336	0.000	0.00	0.00
78	4	88 - Venlo TRAEGERS	0.355	1.420	361.571	128.36	0.51
79	2	49 - Dummy Rigid	0.350	0.700	0.000	0.00	0.00
80	8	49 - Dummy Rigid	0.330	2.640	0.000	0.00	0.00
81	8	49 - Dummy Rigid	0.280	2.240	0.000	0.00	0.00
82	8	1 - Dummy Rigid	0.500	4.000	0.000	0.00	0.00
83	12	1 - Dummy Rigid	1.125	13.500	0.000	0.00	0.00
84	4	1 - Dummy Rigid	0.350	1.400	0.000	0.00	0.00
85	4	49 - Dummy Rigid	0.440	1.760	0.000	0.00	0.00
86	2	52 - Rundstahl 140	0.055	0.110	120.841	6.65	0.01
87	4	49 - Dummy Rigid	0.505	2.020	0.000	0.00	0.00
88	4	1 - Dummy Rigid	0.480	1.920	0.000	0.00	0.00
89	4	49 - Dummy Rigid	0.141	0.565	0.000	0.00	0.00
90	4	1 - Dummy Rigid	0.181	0.724	0.000	0.00	0.00
91	1	49 - Dummy Rigid	0.005	0.005	0.000	0.00	0.00
92	2	2 - Kasten(A) 770/15/10/710/803/770/15	1.020	2.039	302.696	308.67	0.62
93	4	1 - Dummy Rigid	2.250	9.000	0.000	0.00	0.00
94	2	2 - Kasten(A) 770/15/10/710/803/770/15	15.099	30.199	394.305	5953.78	11.91
		4 - Kasten(A) 770/15/10/710/1970/770/1					
95	4	1 - Dummy Rigid	0.850	3.400	0.000	0.00	0.00
96	1	50 - Kasten(A) 700/8/8/650/1016/700/8	4.967	4.967	197.192	979.53	0.98
		51 - Kasten(A) 700/8/8/650/756/700/8					
97	2	4 - Kasten(A) 770/15/10/710/1970/770/1	11.099	22.199	524.851	5825.54	11.65
		5 - Kasten(A) 770/15/10/710/2466/770/1					
98	2	5 - Kasten(A) 770/15/10/710/2466/770/1	1.725	3.450	568.811	981.20	1.96
		6 - Kasten(A) 770/15/10/710/2530/770/1					
99	2	7 - Kasten(A) 770/25/12/710/2540/770/2	1.720	3.440	771.341	1326.71	2.65

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 296
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PARTS LIST BY ELEMENT

Item No	Number Elements	Section	Length [m]	Tot Length [m]	Sing Weight [kg/m]	Weight [kg]	Tot Weight [t]
100	1	50 - Kasten(A) 700/8/8/650/1016/700/8	3.794	3.794	213.520	810.04	0.81
101	2	7 - Kasten(A) 770/25/12/710/2540/770/2	3.880	7.760	771.341	2992.80	5.99
102	2	49 - Dummy Rigid	0.500	1.000	0.000	0.00	0.00
103	1	60 - Kasten(A) 700/8/8/650/716/700/8	0.370	0.370	175.840	65.06	0.07
104	1	60 - Kasten(A) 700/8/8/650/716/700/8	1.442	1.442	175.840	253.56	0.25
105	4	7 - Kasten(A) 770/25/12/710/2540/770/2	0.400	1.600	771.341	308.54	1.23
106	4	23 - Kasten(A) 570/10/15/540/730/570/1	0.808	3.232	256.695	207.41	0.83
107	4	1 - Dummy Rigid	1.260	5.040	0.000	0.00	0.00
108	4	7 - Kasten(A) 770/25/12/710/2540/770/2	0.383	1.532	771.341	295.42	1.18
109	4	26 - Kasten(A) 1066/10/15/1036/730/10	4.240	16.960	334.567	1418.56	5.67
110	2	7 - Kasten(A) 770/25/12/710/2540/770/2	1.834	3.668	771.341	1414.64	2.83
111	1	23 - Kasten(A) 570/10/15/540/730/570/1	1.834	1.834	256.695	470.78	0.47
112	1	50 - Kasten(A) 700/8/8/650/1016/700/8	8.766	8.766	213.520	1871.79	1.87
113	1	50 - Kasten(A) 700/8/8/650/1016/700/8	5.244	5.244	197.192	1034.13	1.03
		51 - Kasten(A) 700/8/8/650/756/700/8					
114	2	19 - HE-M 600	1.231	2.462	285.740	351.76	0.70
115	2	29 - RO 127x10	1.304	2.608	28.854	37.63	0.08
116	10	21 - HE-M 300	5.285	52.850	237.855	1257.06	12.57
117	2	29 - RO 127x10	2.178	4.356	28.854	62.85	0.13
118	2	19 - HE-M 600	0.538	1.077	285.740	153.86	0.31
119	6	34 - IS 292/250/10/15	7.628	45.766	79.442	605.96	3.64
120	2	19 - HE-M 600	1.183	2.366	285.740	338.01	0.68
121	2	19 - HE-M 600	0.460	0.920	285.740	131.44	0.26
122	8	22 - Kasten(A) 374/15/12/350/550/374/1	1.081	8.648	186.045	201.11	1.61
123	8	28 - RO 127x5,6	2.600	20.800	16.766	43.59	0.35
124	6	19 - HE-M 600	2.500	15.000	285.740	714.35	4.29
125	4	21 - HE-M 300	5.286	21.144	237.855	1257.30	5.03
126	2	19 - HE-M 600	1.000	2.000	285.740	285.74	0.57
127	4	29 - RO 127x10	2.740	10.960	28.854	79.06	0.32
128	2	19 - HE-M 600	1.611	3.222	285.740	460.33	0.92
129	8	19 - HE-M 600	0.175	1.400	285.740	50.00	0.40
130	8	31 - IS 292/250/8/15	5.500	44.000	75.329	414.31	3.31
131	4	19 - HE-M 600	0.176	0.704	285.740	50.29	0.20
132	6	19 - HE-M 600	2.324	13.944	285.740	664.06	3.98
133	4	19 - HE-M 600	2.786	11.144	285.740	796.07	3.18
134	6	29 - RO 127x10	2.926	17.555	28.854	84.42	0.51
135	2	19 - HE-M 600	0.518	1.036	285.740	148.01	0.30
136	6	33 - IS 302/250/15/20	7.628	45.766	109.350	834.09	5.00
137	2	19 - HE-M 600	1.981	3.962	285.740	566.05	1.13
138	2	25 - IS 374/200/5/12	1.300	2.600	51.418	66.84	0.13
139	2	19 - HE-M 600	0.343	0.686	285.740	98.01	0.20
140	2	93 - IS 302/250/15/25	7.628	15.257	127.798	974.89	1.95
141	2	29 - RO 127x10	1.741	3.481	28.854	50.22	0.10
142	2	29 - RO 127x10	2.626	5.251	28.854	75.76	0.15
143	2	41 - HE-A 160	0.923	1.845	30.458	28.10	0.06
144	1	41 - HE-A 160	1.605	1.605	30.458	48.87	0.05
145	2	19 - HE-M 600	2.610	5.220	285.740	745.78	1.49
146	2	29 - RO 127x10	2.768	5.537	28.854	79.88	0.16
147	2	19 - HE-M 600	0.661	1.322	285.740	188.87	0.38
148	2	19 - HE-M 600	2.125	4.250	285.740	607.20	1.21
149	8	69 - Rundstahl 140	0.025	0.200	120.841	3.02	0.02
150	16	72 - Flachstahl 350/40	0.198	3.168	109.900	21.76	0.35
151	12	69 - Rundstahl 140	0.067	0.810	120.841	8.16	0.10
152	8	70 - Flachstahl 740/15	0.135	1.080	64.174	8.66	0.07
		71 - Flachstahl 350/15					
153	4	73 - Flachstahl 200/60	1.000	4.000	94.200	94.20	0.38
154	8	70 - Flachstahl 740/15	0.185	1.480	64.174	11.87	0.09
		71 - Flachstahl 350/15					
155	4	69 - Rundstahl 140	0.118	0.470	120.841	14.20	0.06
156	2	69 - Rundstahl 140	0.055	0.110	120.841	6.65	0.01
157	2	90 - Kasten(A) 770/15/12/710/772/770/1	7.000	14.000	362.858	2540.01	5.08
		92 - Kasten(A) 770/15/12/710/1215/770/1					
158	1	67 - Kasten(A) 700/8/8/650/1016/700/8	5.054	5.054	197.192	996.68	1.00
		68 - Kasten(A) 700/8/8/650/756/700/8					
159	4	81 - Flachstahl 500/35	0.270	1.080	158.805	42.88	0.17
		82 - Flachstahl 656/35					
160	4	80 - Rundstahl 220	0.057	0.230	298.404	17.16	0.07
161	4	83 - Flachstahl 656/70	0.270	1.080	317.611	85.76	0.34
		84 - Flachstahl 500/70					
162	4	49 - Dummy Rigid	0.122	0.488	0.000	0.00	0.00
163	4	80 - Rundstahl 220	0.065	0.258	298.404	19.25	0.08
164	4	85 - Pi(A) 500/35/12/135/376	0.276	1.103	205.906	56.78	0.23
		86 - Pi(A) 656/35/12/435/376					
165	2	89 - Kasten(A) 770/20/12/710/2500/770/1	7.000	14.000	681.411	4769.88	9.54
		94 - Kasten(A) 770/20/12/710/2247/770/1					
166	4	49 - Dummy Rigid	0.785	3.140	0.000	0.00	0.00
167	4	49 - Dummy Rigid	0.721	2.882	0.000	0.00	0.00
168	2	87 - Kasten(A) 770/15/10/710/1640/770/1	1.370	2.740	434.105	594.72	1.19
169	2	79 - Kasten(A) 770/20/15/710/1680/770/1	0.465	0.930	628.000	292.02	0.58
170	2	7 - Kasten(A) 770/25/12/710/2540/770/2	5.600	11.200	771.341	4319.51	8.64
171	1	67 - Kasten(A) 700/8/8/650/1016/700/8	3.794	3.794	213.520	810.16	0.81
172	1	76 - Kasten(A) 700/8/8/650/716/700/8	0.370	0.370	175.840	65.06	0.07
173	1	76 - Kasten(A) 700/8/8/650/716/700/8	1.442	1.442	175.840	253.56	0.25
174	2	23 - Kasten(A) 570/10/15/540/730/570/1	0.917	1.834	256.695	235.39	0.47
175	1	67 - Kasten(A) 700/8/8/650/1016/700/8	8.766	8.766	213.520	1871.79	1.87
176	1	67 - Kasten(A) 700/8/8/650/1016/700/8	5.222	5.222	197.192	1029.79	1.03
		68 - Kasten(A) 700/8/8/650/756/700/8					
177	2	17 - HE-B 600	1.700	3.400	211.950	360.32	0.72
178	2	19 - HE-M 600	1.770	3.540	285.740	505.76	1.01
179	2	44 - RO 168,3x10	2.288	4.576	39.039	89.33	0.18
180	2	19 - HE-M 600	0.375	0.750	285.740	107.15	0.21

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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PARTS LIST BY ELEMENT

Item No	Number Elements	Section	Length [m]	Tot Length [m]	Sing Weight [kg/m]	Weight [kg]	Tot Weight [t]
181	2	41 - HE-A 160	0.797	1.593	30.458	24.26	0.05
182	2	21 - HE-M 300	5.000	10.000	237.855	1189.28	2.38
183	1	41 - HE-A 160	1.857	1.857	30.458	56.56	0.06
184	2	44 - RO 168,3x10	2.667	5.334	39.039	104.11	0.21
185	4	96 - IS 302/250/8/25	5.500	22.000	113.951	626.73	2.51
186	2	21 - HE-M 300	1.500	3.000	237.855	356.78	0.71
187	2	17 - HE-B 600	1.000	2.000	211.950	211.95	0.42
188	2	18 - HE-B 300	3.500	7.000	116.965	409.38	0.82
189	2	22 - Kasten(A) 374/15/12/350/550/374/1	2.600	5.200	186.045	483.72	0.97
190	4	17 - HE-B 600	0.875	3.500	211.950	185.46	0.74
191	2	17 - HE-B 600	1.625	3.250	211.950	344.42	0.69
192	2	17 - HE-B 600	0.125	0.250	211.950	26.49	0.05
193	2	91 - Kasten(A) 770/15/12/710/1215/770/95 - Kasten(A) 770/15/12/710/2247/770/	12.832	25.664	501.803	6439.04	12.88
194	2	19 - HE-M 600	1.518	3.035	285.740	433.62	0.87
195	2	19 - HE-M 600	2.269	4.538	285.740	648.34	1.30
196	2	41 - HE-A 160	1.261	2.523	30.458	38.42	0.08
197	1	41 - HE-A 160	0.927	0.927	30.458	28.24	0.03
198	3	41 - HE-A 160	1.150	3.450	30.458	35.03	0.11
199	1	41 - HE-A 160	2.589	2.589	30.458	78.84	0.08
200	2	41 - HE-A 160	0.431	0.861	30.458	13.12	0.03
201	2	29 - RO 127x10	5.890	11.780	28.854	169.95	0.34
202	5	28 - RO 127x5,6	5.891	29.454	16.766	98.76	0.49
203	1	29 - RO 127x10	5.636	5.636	28.854	162.61	0.16
204	1	29 - RO 127x10	5.636	5.636	33.947	191.31	0.19
205	6	44 - RO 168,3x10					
		100 - IS 374/200/5/12	5.652	33.909	51.417	290.59	1.74
Sum	811			1530.519			261.16

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

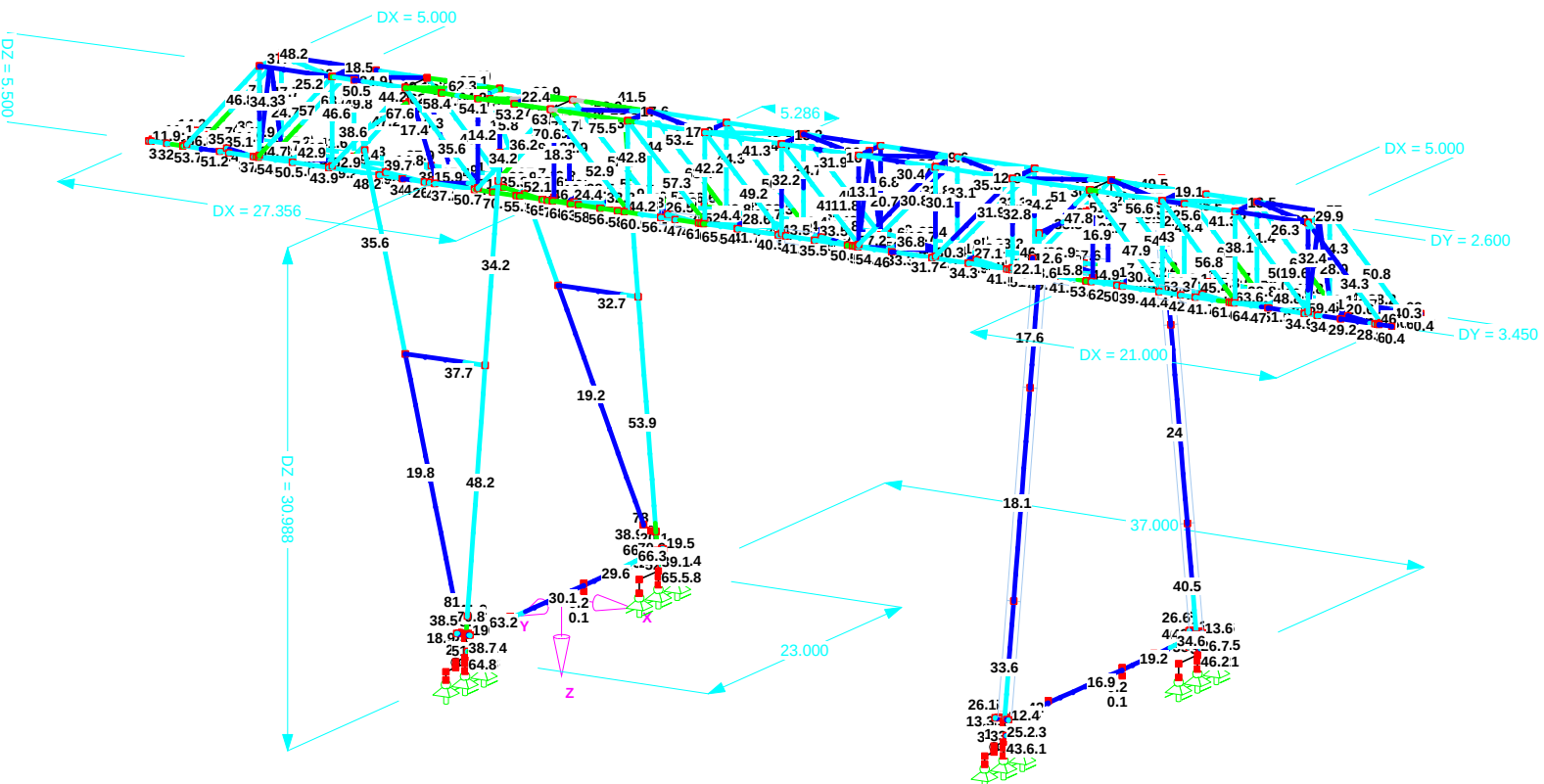
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SPANNUNGSAUSNUTZUNG

STIEBEL - Spannungsanalyse Extrem H.HZ.HS
Sigma eq

Isometric



Max = 88,6%

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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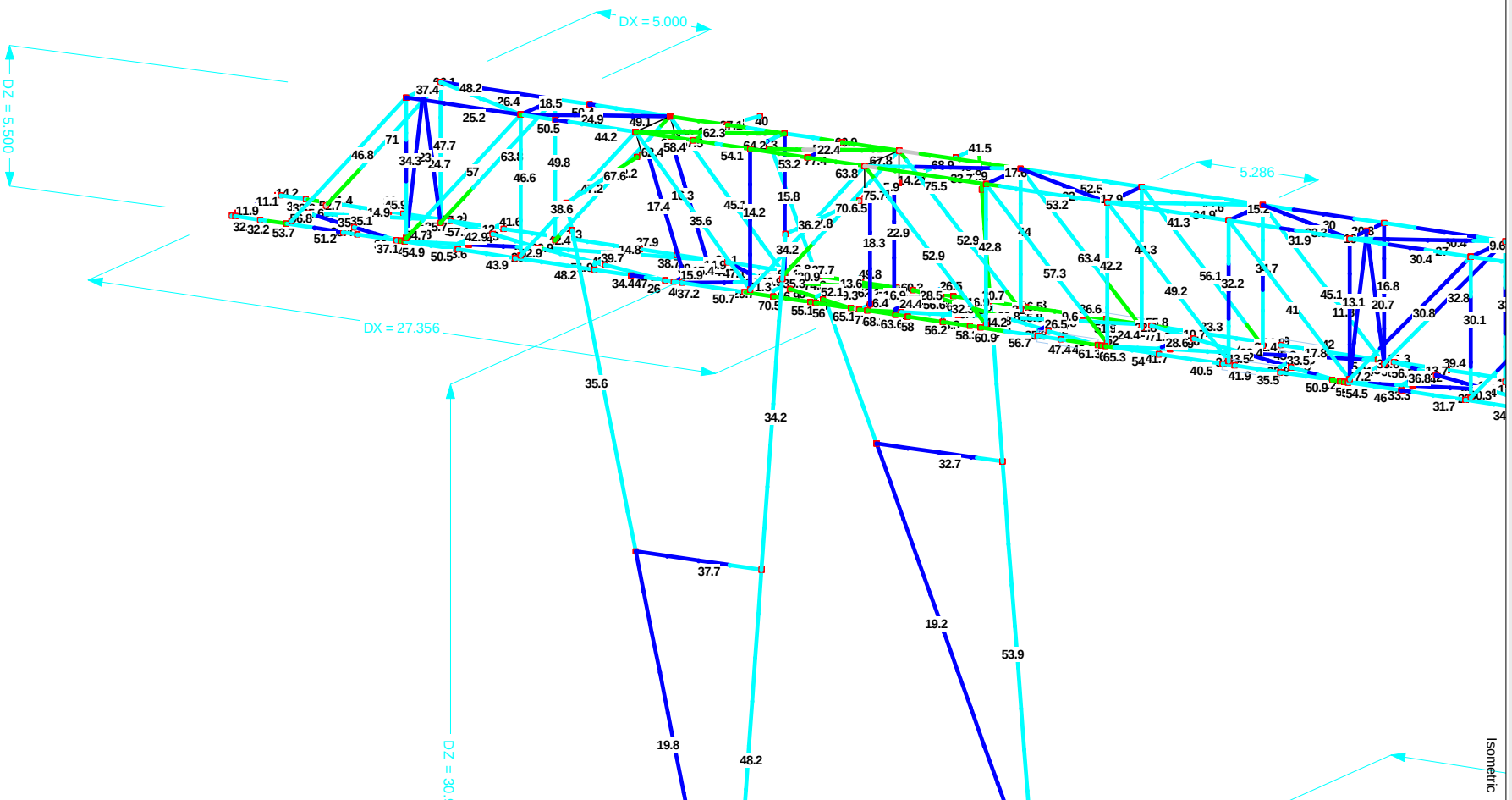
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GRAPHIC

SPANNUNGSNUTZUNG

STEEL 1 - Spannungsanalyse Extrem H.H.Z./H.S
Sigma eq

Max = 88,6%



Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

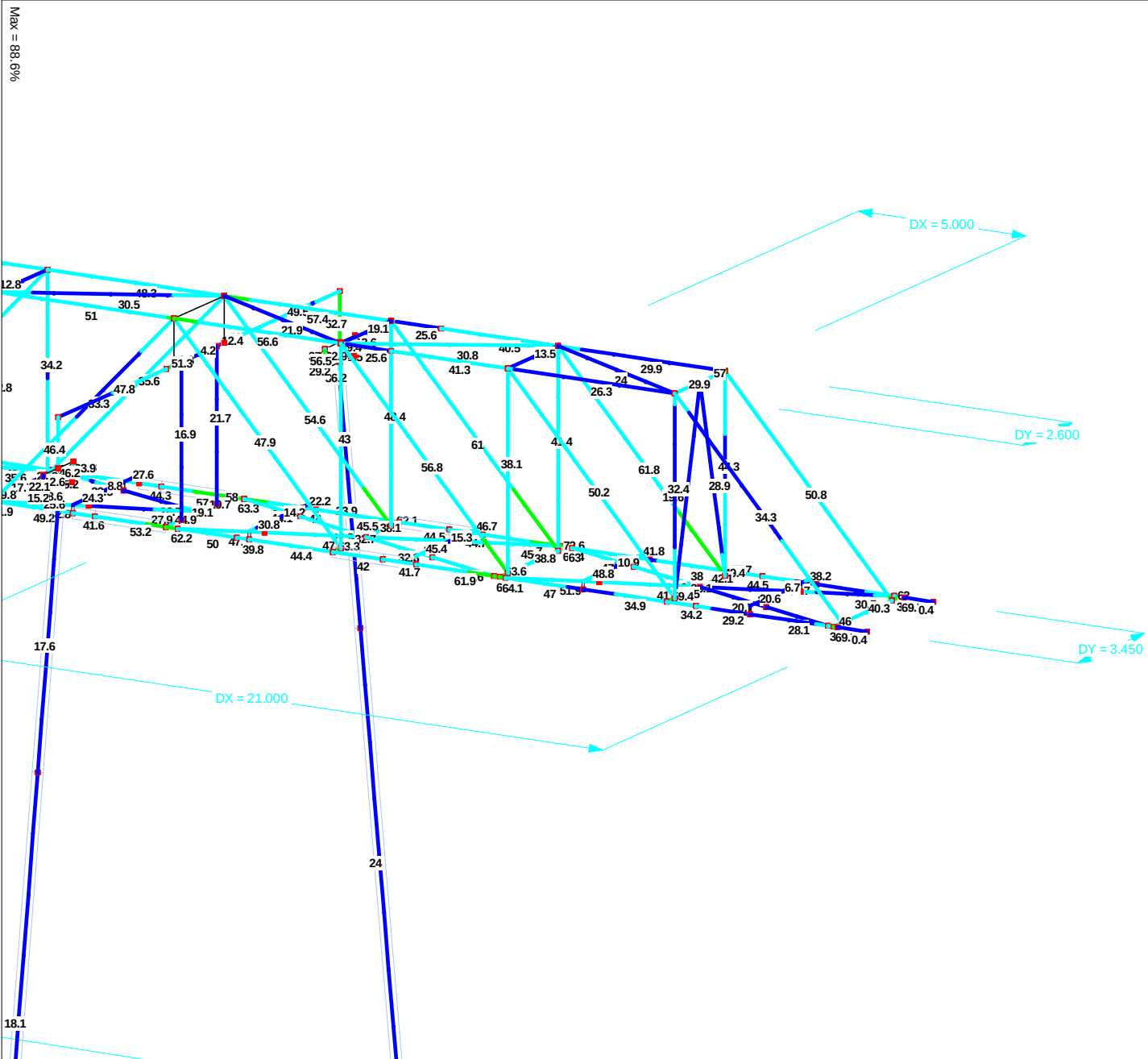
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SPANNUNGSNUTZUNG

STEEL 1 - Spannungsanalyse Extrem H.H.Z.,HS
Sigma eq

Isometric



Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 301
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KAPPA1 - BIEGEKNICKNACHWEIS

GENERAL DATA

Elements to design:

1-24,26,27,29-33,35-79,81,82,85-133,135-137,139-162
,167-206,215,216,229,238,240-245,247-250,252,253,256
,259,261-268,270,276,289,290,299-338,340-342,347-351
,353-367,369-396,398-422,424,425,428-442,445-479,481
,504,506,507,510-515,518-547,570,576,580-583,585-587
,590,591,594,595,597-601,603-606,608-610,612-615,617
,623,625,626,629,630,633-635,637-641,644,648,661,662
,671-709,711-734,736-761,763-773,775-804,806-808,811
,812,821,822,825-834,836,837,839,841,842,844-861

Sets of elements to design:

LS Combinations to design:

Gamma-M:

Design method according to DIN 18800:

Design method

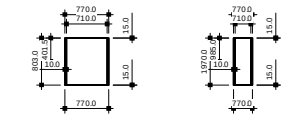
Checking limiting (b/t)

All
CO97 EXTREM MAX/MIN Fall H
CO98 EXTREM MAX/MIN Fall HZ
CO99 EXTREM MAX/MIN Fall HS
1.10
Design method 1 to clause (321)
Elastic-Elastic
☐

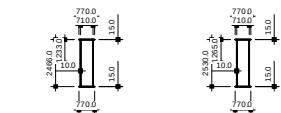
MATERIAL DATA

Mat. - No.	Material-Description	E-Modulus E [N/mm ²]	Shear Modulus G [N/mm ²]	Poisson's ratio Nue [-]	Yield Stress f-yk [N/mm ²]	Max-Mem. thickness t [mm]
1	Stahl S 355	210000.00	81000.000	0.300	360.000 335.000	40.000 80.000
3	NlroStahl 1.4021	210000.00	81000.000	0.300	590.000	50.000

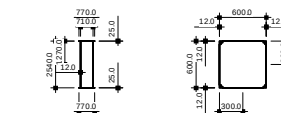
Kasten(A) 770/15/10/710/803/770/15 Kasten(A) 770/15/10/710/1970/770/15



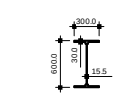
Kasten(A) 770/15/10/710/2466/770/15 Kasten(A) 770/15/10/710/2530/770/15



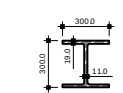
Kasten(A) 770/25/12/710/2540/770/25 TO 600/600/12/12/12/12/37/25



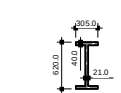
HE-B 600



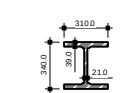
HE-B 300



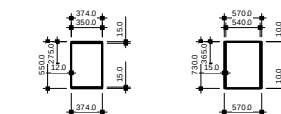
HE-M 600



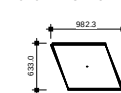
HE-M 300



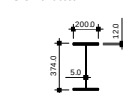
Kasten(A) 374/15/12/350/550/374/15 Kasten(A) 570/10/15/540/730/570/10



Venlo TREAGER 3



IS 374/200/5/12



SECTIONS

Sec. - No	Mat. - No.	Section-Description
2	1	Kasten(A) 770/15/10/710/803/770/15
4	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 770/15/10/710/1970/770/15
5	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 770/15/10/710/2466/770/15
6	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 770/15/10/710/2530/770/15
7	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 770/25/12/710/2540/770/25
14	1	101: Section type 'Arbitrary' -> Design without combined loading! TO 600/600/12/12/12/12/37/25
17	1	HE-B 600
18	1	HE-B 300
19	1	HE-M 600
21	1	HE-M 300
22	1	Kasten(A) 374/15/12/350/550/374/15
23	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 570/10/15/540/730/570/10
24	1	101: Section type 'Arbitrary' -> Design without combined loading! Venlo TREAGER 3
25	1	101: Section type 'Arbitrary' -> Design without combined loading! IS 374/200/5/12
26	1	Kasten(A) 1066/10/15/1036/730/1066/10
27	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 1070/10/15/1036/730/1070/10
28	1	101: Section type 'Arbitrary' -> Design without combined loading! RO 127x5,6
29	1	RO 127x10
30	1	IS 302/250/8/20
31	1	IS 292/250/8/15
32	1	IS 618/300/12/15
33	1	IS 302/250/15/20
34	1	IS 292/250/10/15
39	1	Venlo TREAGER 2A
40	1	101: Section type 'Arbitrary' -> Design without combined loading! Venlo TREAGER 1A
41	1	101: Section type 'Arbitrary' -> Design without combined loading! HE-A 160
42	1	IS 302/450/15/20
43	1	Kasten(A) 480/30/15/350/570/480/30
44	1	101: Section type 'Arbitrary' -> Design without combined loading! RO 168,3x10
50	1	Kasten(A) 700/8/8/650/1016/700/8
51	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 700/8/8/650/756/700/8
52	3	101: Section type 'Arbitrary' -> Design without combined loading! Rundstahl 140
53	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 740/15
54	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 350/15
55	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 350/40
56	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 200/60

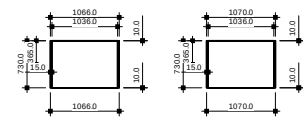
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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Kasten(A) 10660/0250/036/730/0660 Kasten(A) 10700/0250/036/730/0700



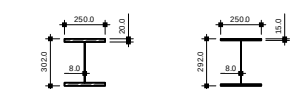
RO 127x5,6

RO 127x10



IS 302/250/8/20

IS 292/250/8/15



IS 618/300/12/15

IS 302/250/15/20



IS 292/250/10/15

Venlo TREAGER 2A



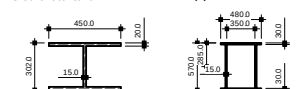
Venlo TREAGER 1A

HE-A 160



IS 302/450/15/20

Kasten(A) 480/30/15/350/570/480/30



RO 168,3x10

Kasten(A) 700/8/8/650/1016/700/8



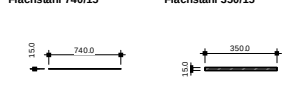
Kasten(A) 700/8/8/650/756/700/8

Rundstahl 140



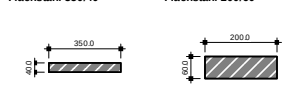
Flachstahl 740/15

Flachstahl 350/15



Flachstahl 350/40

Flachstahl 200/60

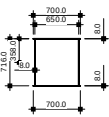


SECTIONS

Sec.-No	Mat.-No.	Section-Description
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63	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 40/508
64	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 40/953
65	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 35/666
66	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 35/500
67	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 700/8/8/650/1016/700/8
68	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 700/8/8/650/756/700/8
69	3	101: Section type 'Arbitrary' -> Design without combined loading! Rundstahl 140
70	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 740/15
71	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 350/15
72	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 350/40
73	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 200/60
76	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 700/8/8/650/716/700/8
79	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 770/20/15/710/1680/770/20
80	3	101: Section type 'Arbitrary' -> Design without combined loading! Rundstahl 220
81	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 500/35
82	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 656/35
83	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 656/70
84	1	101: Section type 'Arbitrary' -> Design without combined loading! Flachstahl 500/70
85	1	101: Section type 'Arbitrary' -> Design without combined loading! Pi(A) 500/35/12/135/376
86	1	101: Section type 'Arbitrary' -> Design without combined loading! Pi(A) 656/35/12/435/376
87	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 770/15/10/710/1640/770/15
88	1	101: Section type 'Arbitrary' -> Design without combined loading! Venlo TRAEGERS
89	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 770/20/12/710/2500/770/20
90	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 770/15/12/710/772/770/15
91	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 770/15/12/710/1215/770/15
92	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 770/15/12/710/1215/770/15
93	1	101: Section type 'Arbitrary' -> Design without combined loading! IS 302/250/15/25
94	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 770/20/12/710/2247/770/20
95	1	101: Section type 'Arbitrary' -> Design without combined loading! Kasten(A) 770/15/12/710/2247/770/15
96	1	101: Section type 'Arbitrary' -> Design without combined loading! IS 302/250/8/25
97	1	IS 374/260/8/20
98	1	Kasten(A) 480/35/15/350/570/480/35
99	1	101: Section type 'Arbitrary' -> Design without combined loading! RO 168,3x12,5
100	1	IS 374/200/5/12

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Kasten(A) 700/8/8/650/716/700/8



Flachstahl 40/508



Flachstahl 40/953



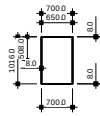
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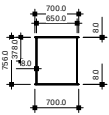
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Kasten(A) 700/8/8/650/1016/700/8



Kasten(A) 700/8/8/650/756/700/8



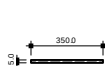
Rundstahl 140



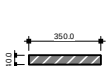
Flachstahl 740/15



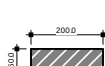
Flachstahl 350/15



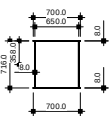
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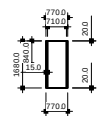
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Kasten(A) 700/8/8/650/716/700/8



Kasten(A) 770/20/15/710/1680/770/20



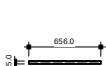
Rundstahl 220



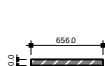
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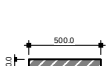
Flachstahl 656/35



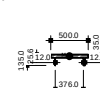
Flachstahl 656/70



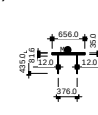
Flachstahl 500/70



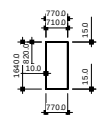
PI(A) 500/35/12/135/376



PI(A) 656/35/12/435/376



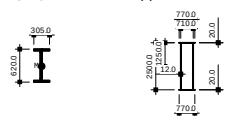
Kasten(A) 770/15/10/710/1640/770/15



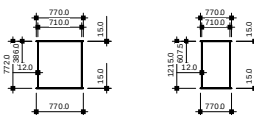
Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 304
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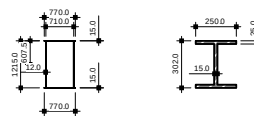
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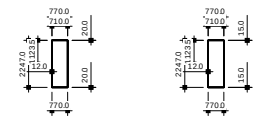
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Kasten(A) 770/15/12/710/1215/770/15 IS 302/250/15/25

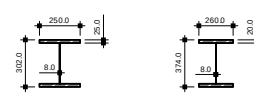


Kasten(A) 770/20/12/710/2247/770/20 Kasten(A) 770/15/12/710/1247/770/15

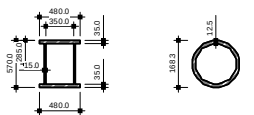


IS 302/250/8/25

IS 374/260/8/20



Kasten(A) 480/35/15/350/570/480/35 RO 168,3x12,5



IS 374/200/5/12



KAPPA DATA

Elem.-No.	Description	Parameter
1	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 618/300/12/15 ☒ 1.000 0.425 m 11722400.00 kN 0.022 b 0.995 ☒ 1.000 0.425 m 775513.00 kN 0.086 c 0.952
2	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 618/300/12/15 ☒ 1.000 2.600 m 313219.00 kN 0.136 b 0.967 ☒ 1.000 2.600 m 20721.50 kN 0.528 c 0.721

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KAPPA DATA

Elem.-No.	Description	Parameter
3	Section	IS 618/300/12/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.425 m
	Buckling load N-Cr,2	11722400.00 kN
	Slenderness Lambda-K,2 bar	0.022
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.995
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.425 m
	Buckling load N-Cr,3	775513.00 kN
4	Section	HE-B 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.150 m
	Buckling load N-Cr,2	1.57520E+08 kN
	Slenderness Lambda-K,2 bar	0.008
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.998
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.150 m
	Buckling load N-Cr,3	12463400.00 kN
5	Section	HE-B 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.150 m
	Buckling load N-Cr,2	1.57520E+08 kN
	Slenderness Lambda-K,2 bar	0.008
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.998
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.150 m
	Buckling load N-Cr,3	12463400.00 kN
6	Section	HE-B 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.081 m
	Buckling load N-Cr,2	3032930.00 kN
	Slenderness Lambda-K,2 bar	0.057
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.989
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.081 m
	Buckling load N-Cr,3	239974.00 kN
7	Section	HE-B 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.081 m
	Buckling load N-Cr,2	3032930.00 kN
	Slenderness Lambda-K,2 bar	0.057
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.989
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.081 m
	Buckling load N-Cr,3	239974.00 kN
8	Section	HE-B 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.125 m
	Buckling load N-Cr,2	2800340.00 kN
	Slenderness Lambda-K,2 bar	0.059
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.988
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.125 m

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Elem.-No.	Description	Parameter
8	Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	221570.00 kN 0.209 b 0.914
9	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 1.125 m 2800340.00 kN 0.059 a 0.988 ☒ 1.000 1.125 m 221570.00 kN 0.209 b 0.914
10	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
11	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.300 m 1329770.00 kN 0.080 c 0.974 ☒ 1.000 1.300 m 662000.00 kN 0.114 c 0.965
12	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.300 m 1329770.00 kN 0.080 c 0.974 ☒ 1.000 1.300 m 662000.00 kN 0.114 c 0.965
13	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
14	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar	HE-B 600 ☒ 1.000 2.500 m 567068.00 kN 0.131

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Elem.-No.	Description	Parameter
14	Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	a 0.974 ☒ 1.000 2.500 m 44868.00 kN 0.465 b 0.805
15	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 2.500 m 567068.00 kN 0.131 a 0.974 ☒ 1.000 2.500 m 44868.00 kN 0.465 b 0.805
16	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699
17	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699
18	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.625 m 9073090.00 kN 0.033 a 0.993 ☒ 1.000 0.625 m 717888.00 kN 0.116 b 0.952
19	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.625 m 9073090.00 kN 0.033 a 0.993 ☒ 1.000 0.625 m 717888.00 kN 0.116 b 0.952
20	Section	HE-A 160

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Elem.-No.	Description	Parameter
20	Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.70 kN 0.275 c 0.870
21	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☒ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
22	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.788 m 10832.10 kN 0.359 b 0.913 ☒ 1.000 1.788 m 3995.55 kN 0.591 c 0.714
23	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☒ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
24	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.60 kN 0.275 c 0.870
26	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3	RO 127x10 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731 ☒ 1.000 2.469 m 2153.84 kN

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Elem.-No.	Description	Parameter
26	Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.784 a 0.731
27	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731
29	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.175 m 1.15729E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 9156820.00 kN 0.033 b 0.986
30	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.175 m 1.15729E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 9156820.00 kN 0.033 b 0.986
31	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
32	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/20 ☒ 1.000 5.500 m 14466.10 kN 0.549 b 0.854 ☒ 1.000 5.500 m 3569.32 kN 1.105 c 0.455
33	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.219 m 46857100.00 kN 0.013 c

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33	Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.996 ☒ 1.000 0.219 m 23326900.00 kN 0.019 c 0.994
35	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 2.162 m 480786.00 kN 0.133 c 0.958 ☒ 1.000 2.162 m 239350.00 kN 0.189 c 0.942
36	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 374/260/8/20 ☒ 1.000 1.300 m 430477.00 kN 0.105 b 0.976 ☒ 1.000 1.300 m 71868.20 kN 0.256 c 0.882
37	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.219 m 46857100.00 kN 0.013 c 0.996 ☒ 1.000 0.219 m 23326900.00 kN 0.019 c 0.994
38	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/20 ☒ 1.000 5.500 m 14466.10 kN 0.549 b 0.854 ☒ 1.000 5.500 m 3569.32 kN 1.105 c 0.455
39	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
40	Section Buckling about the axis 2-2	HE-B 600 ☒

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Elem.-No.	Description	Parameter
40	Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 0.175 m 1.15729E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 9156820.00 kN 0.033 b 0.986
41	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.175 m 1.15729E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 9156820.00 kN 0.033 b 0.986
42	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 2.325 m 655645.00 kN 0.122 a 0.976 ☒ 1.000 2.325 m 51876.50 kN 0.433 b 0.820
43	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731
44	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731
45	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar	HE-B 600 ☒ 1.000 2.325 m 655645.00 kN 0.122 a 0.976 ☒ 1.000 2.325 m 51876.50 kN 0.433

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Elem.-No.	Description	Parameter
45	Buckling curve Ksl-3 Reduction factor Kappa-3 bar	b 0.820
46	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☑ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☑ 1.000 0.831 m 18478.60 kN 0.275 c 0.870
47	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 300 ☑ 1.000 5.000 m 20867.10 kN 0.507 b 0.868 ☑ 1.000 5.000 m 7096.64 kN 0.869 c 0.568
48	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☑ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☑ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
49	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x5,6 ☑ 1.000 5.636 m 257.32 kN 1.729 a 0.279 ☑ 1.000 5.636 m 257.32 kN 1.729 a 0.279
50	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☑ 1.000 1.788 m 10832.10 kN 0.359 b 0.913 ☑ 1.000 1.788 m 3995.55 kN 0.591 c 0.714
51	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar	HE-B 300 ☑ 1.000 5.000 m 20867.10 kN 0.507 b 0.868

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51	Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 5.000 m 7096.64 kN 0.869 c 0.568
52	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☒ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
53	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.60 kN 0.275 c 0.870
54	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 2.500 m 567068.00 kN 0.131 a 0.974 ☒ 1.000 2.500 m 44868.00 kN 0.465 b 0.805
55	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699
56	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699
57	Section Buckling about the axis 2-2 Effective length coefficient Beta-2	HE-B 600 ☒ 1.000

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57	Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	2.500 m 567068.00 kN 0.131 a 0.974 ☒ 1.000 2.500 m 44868.00 kN 0.465 b 0.805
58	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
59	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/20 ☒ 1.000 5.500 m 14466.10 kN 0.549 b 0.854 ☒ 1.000 5.500 m 3569.32 kN 1.105 c 0.455
60	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.300 m 1329770.00 kN 0.080 c 0.974 ☒ 1.000 1.300 m 662000.00 kN 0.114 c 0.965
61	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.300 m 1329770.00 kN 0.080 c 0.974 ☒ 1.000 1.300 m 662000.00 kN 0.114 c 0.965
62	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3	IS 302/250/8/20 ☒ 1.000 5.500 m 14466.10 kN 0.549 b 0.854 ☒ 1.000 5.500 m 3569.32 kN 1.105 c

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Elem.-No.	Description	Parameter
62	Reduction factor Kappa-3 bar	0.455
63	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
64	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 300 ☒ 1.000 1.500 m 231857.00 kN 0.152 b 0.965 ☒ 1.000 1.500 m 78851.60 kN 0.261 c 0.878
65	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 300 ☒ 1.000 1.500 m 231857.00 kN 0.152 b 0.965 ☒ 1.000 1.500 m 78851.60 kN 0.261 c 0.878
66	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 3.454 m 297078.00 kN 0.181 a 0.964 ☒ 1.000 3.454 m 23505.60 kN 0.643 b 0.718
67	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x10 ☒ 1.000 3.572 m 2541.03 kN 0.839 a 0.704 ☒ 1.000 3.572 m 2541.03 kN 0.839 a 0.704
68	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3	RO 168,3x10 ☒ 1.000 3.572 m 2541.03 kN 0.839 a 0.704 ☒

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Elem.-No.	Description	Parameter
68	Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 3.572 m 2541.03 kN 0.839 a 0.704
69	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 3.454 m 297078.00 kN 0.181 a 0.964 ☒ 1.000 3.454 m 23505.60 kN 0.643 b 0.718
70	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☒ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
71	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x10 ☒ 1.000 5.636 m 1020.64 kN 1.324 a 0.427 ☒ 1.000 5.636 m 1020.64 kN 1.324 a 0.427
72	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☒ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
73	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 3.500 m 100162.00 kN 0.330 b 0.917 ☒ 1.000 3.500 m 32823.50 kN 0.576 c 0.728
74	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2	HE-M 300 ☒ 1.000 3.500 m

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74	Buckling load N-Cr,2	100162.00 kN
	Slenderness Lambda-K,2 bar	0.330
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.917
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	3.500 m
	Buckling load N-Cr,3	32823.50 kN
	Slenderness Lambda-K,3 bar	0.576
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.728
75	Section	HE-A 160
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.816 m
	Buckling load N-Cr,2	52010.90 kN
	Slenderness Lambda-K,2 bar	0.164
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.962
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.816 m
	Buckling load N-Cr,3	19184.90 kN
	Slenderness Lambda-K,3 bar	0.270
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.872
76	Section	HE-A 160
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.818 m
	Buckling load N-Cr,2	10467.30 kN
	Slenderness Lambda-K,2 bar	0.365
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.911
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.818 m
	Buckling load N-Cr,3	3860.98 kN
	Slenderness Lambda-K,3 bar	0.601
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.709
77	Section	HE-A 160
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.816 m
	Buckling load N-Cr,2	52010.90 kN
	Slenderness Lambda-K,2 bar	0.164
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.962
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.816 m
	Buckling load N-Cr,3	19184.90 kN
	Slenderness Lambda-K,3 bar	0.270
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.872
78	Section	HE-B 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.600 m
	Buckling load N-Cr,2	1384440.00 kN
	Slenderness Lambda-K,2 bar	0.084
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.983
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.600 m
	Buckling load N-Cr,3	109541.00 kN
	Slenderness Lambda-K,3 bar	0.298
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.878
79	Section	HE-B 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.600 m
	Buckling load N-Cr,2	1384440.00 kN
	Slenderness Lambda-K,2 bar	0.084
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.983
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.600 m
	Buckling load N-Cr,3	109541.00 kN
	Slenderness Lambda-K,3 bar	0.298
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.878

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79	Reduction factor Kappa-3 bar	0.878
81	Section	RO 168,3x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	3.205 m
	Buckling load N-Cr,2	3156.54 kN
	Slenderness Lambda-K,2 bar	0.753
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.751
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	3.205 m
	Buckling load N-Cr,3	3156.54 kN
	Slenderness Lambda-K,3 bar	0.753
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.751
82	Section	RO 168,3x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	3.205 m
	Buckling load N-Cr,2	3156.54 kN
	Slenderness Lambda-K,2 bar	0.753
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.751
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	3.205 m
	Buckling load N-Cr,3	3156.54 kN
	Slenderness Lambda-K,3 bar	0.753
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.751
85	Section	Venlo TREAGER 1A
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.400 m
	Buckling load N-Cr,2	4.56193E+08 kN
	Slenderness Lambda-K,2 bar	0.007
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.997
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.400 m
	Buckling load N-Cr,3	79000200.00 kN
	Slenderness Lambda-K,3 bar	0.017
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.994
86	Section	Venlo TREAGER 1A
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.383 m
	Buckling load N-Cr,2	4.97590E+08 kN
	Slenderness Lambda-K,2 bar	0.007
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.997
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.383 m
	Buckling load N-Cr,3	86169000.00 kN
	Slenderness Lambda-K,3 bar	0.017
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.994
87	Section	Venlo TREAGER 1A
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.834 m
	Buckling load N-Cr,2	21700500.00 kN
	Slenderness Lambda-K,2 bar	0.033
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.988
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.834 m
	Buckling load N-Cr,3	3757940.00 kN
	Slenderness Lambda-K,3 bar	0.080
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.973
88	Section	Venlo TREAGER 1A
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.383 m
	Buckling load N-Cr,2	4.97590E+08 kN
	Slenderness Lambda-K,2 bar	0.007
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.997
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000

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88	Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.383 m 86169000.00 kN 0.017 c 0.994
89	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Venlo TREAGER 1A ☒ 1.000 0.400 m 4.56193E+08 kN 0.007 c 0.997 ☒ 1.000 0.400 m 79000200.00 kN 0.017 c 0.994
90	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Venlo TREAGER 1A Venlo TREAGER 2A ☒ 1.000 5.623 m 424393.00 kN 0.201 c 0.973 ☒ 1.000 5.623 m 226859.00 kN 0.275 c 0.889
91	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Venlo TREAGER 2A Venlo TREAGER 1A ☒ 1.000 5.623 m 424393.00 kN 0.201 c 0.973 ☒ 1.000 5.623 m 226859.00 kN 0.275 c 0.889
92	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	TO 600/600/12/12/12/12/37/25 ☒ 1.000 1.048 m 2962350.00 kN 0.058 b 0.985 ☒ 1.000 1.048 m 2962350.00 kN 0.058 b 0.985
93	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	TO 600/600/12/12/12/12/37/25 ☒ 1.000 1.048 m 2962350.00 kN 0.058 b 0.985 ☒ 1.000 1.048 m 2962350.00 kN 0.058 b 0.985
94	Section	HE-M 600

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94	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.499 m
	Buckling load N-Cr,2	2189760.00 kN
	Slenderness Lambda-K,2 bar	0.077
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.984
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.499 m
	Buckling load N-Cr,3	175070.00 kN
	Slenderness Lambda-K,3 bar	0.274
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.888
95	Section	HE-M 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.499 m
	Buckling load N-Cr,2	2189760.00 kN
	Slenderness Lambda-K,2 bar	0.077
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.984
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.499 m
	Buckling load N-Cr,3	175070.00 kN
	Slenderness Lambda-K,3 bar	0.274
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.888
96	Section	Kasten(A) 1070/10/15/1036/730/1070/10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	4.922 m
	Buckling load N-Cr,2	313866.00 kN
	Slenderness Lambda-K,2 bar	0.221
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.945
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	4.922 m
	Buckling load N-Cr,3	677986.00 kN
	Slenderness Lambda-K,3 bar	0.151
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.963
97	Section	Kasten(A) 1070/10/15/1036/730/1070/10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	4.922 m
	Buckling load N-Cr,2	313866.00 kN
	Slenderness Lambda-K,2 bar	0.221
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.945
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	4.922 m
	Buckling load N-Cr,3	677986.00 kN
	Slenderness Lambda-K,3 bar	0.151
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.963
98	Section	HE-M 300
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.500 m
	Buckling load N-Cr,2	196318.00 kN
	Slenderness Lambda-K,2 bar	0.236
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.942
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.500 m
	Buckling load N-Cr,3	64334.00 kN
	Slenderness Lambda-K,3 bar	0.412
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.810
99	Section	RO 168,3x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.818 m
	Buckling load N-Cr,2	4082.54 kN
	Slenderness Lambda-K,2 bar	0.662
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.795
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.818 m
	Buckling load N-Cr,3	4082.54 kN

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99	Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.662 a 0.795
100	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 2.500 m 196318.00 kN 0.236 b 0.942 ☒ 1.000 2.500 m 64334.00 kN 0.412 c 0.810
101	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.355 m 39043100.00 kN 0.018 a 0.996 ☒ 1.000 0.355 m 3121470.00 kN 0.065 b 0.973
102	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.355 m 39043100.00 kN 0.018 a 0.996 ☒ 1.000 0.355 m 3121470.00 kN 0.065 b 0.973
103	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Venlo TREAGER 3 ☒ 1.000 0.808 m 6533250.00 kN 0.046 c 0.980 ☒ 1.000 0.808 m 13176300.00 kN 0.032 c 0.986
104	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Venlo TREAGER 3 ☒ 1.000 0.917 m 5072400.00 kN 0.052 c 0.977 ☒ 1.000 0.917 m 10230000.00 kN 0.037 c 0.984
105	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2	Venlo TREAGER 3 ☒ 1.000 0.917 m 5072400.00 kN 0.052 c

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105	Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.977 ☒ 1.000 0.917 m 10230000.00 kN 0.037 c 0.984
106	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Venlo TREAGER 3 ☒ 1.000 0.808 m 6533250.00 kN 0.046 c 0.980 ☒ 1.000 0.808 m 13176300.00 kN 0.032 c 0.986
107	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.355 m 39043000.00 kN 0.018 a 0.996 ☒ 1.000 0.355 m 3121470.00 kN 0.065 b 0.973
108	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.355 m 39043000.00 kN 0.018 a 0.996 ☒ 1.000 0.355 m 3121470.00 kN 0.065 b 0.973
109	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/450/15/20 ☒ 1.000 7.433 m 14290.30 kN 0.743 b 0.769 ☒ 1.000 7.433 m 11397.50 kN 0.832 c 0.594
110	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.300 m 20480.90 kN 0.261 b 0.939 ☒ 1.000 1.300 m 7554.63 kN 0.430 c 0.796
111	Section Buckling about the axis 2-2	HE-A 160 ☒

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111	Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 1.300 m 20480.90 kN 0.261 b 0.939 ☒ 1.000 1.300 m 7554.63 kN 0.430 c 0.796
112	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/450/15/20 ☒ 1.000 7.433 m 14290.30 kN 0.743 b 0.769 ☒ 1.000 7.433 m 11397.50 kN 0.832 c 0.594
113	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	TO 600/600/12/12/12/12/37/25 ☒ 1.000 12.359 m 21302.10 kN 0.683 b 0.785 ☒ 1.000 12.359 m 21302.10 kN 0.683 b 0.785
114	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	TO 600/600/12/12/12/12/37/25 ☒ 1.000 12.359 m 21302.10 kN 0.683 b 0.785 ☒ 1.000 12.359 m 21302.10 kN 0.683 b 0.785
115	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 2.737 m 656826.00 kN 0.141 a 0.971 ☒ 1.000 2.737 m 52512.90 kN 0.500 b 0.789
116	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar	RO 168,3x10 ☒ 1.000 3.235 m 3096.97 kN 0.760 a 0.747 ☒ 1.000 3.235 m 3096.97 kN 0.760

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116	Buckling curve Ksl-3 Reduction factor Kappa-3 bar	a 0.747
117	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x10 ☑ 1.000 3.235 m 3096.97 kN 0.760 a 0.747 ☑ 1.000 3.235 m 3096.97 kN 0.760 a 0.747
118	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☑ 1.000 2.737 m 656826.00 kN 0.141 a 0.971 ☑ 1.000 2.737 m 52512.90 kN 0.500 b 0.789
119	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☑ 1.000 2.500 m 196318.00 kN 0.236 b 0.942 ☑ 1.000 2.500 m 64334.00 kN 0.412 c 0.810
120	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x10 ☑ 1.000 2.818 m 4082.54 kN 0.662 a 0.795 ☑ 1.000 2.818 m 4082.54 kN 0.662 a 0.795
121	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☑ 1.000 2.500 m 196318.00 kN 0.236 b 0.942 ☑ 1.000 2.500 m 64334.00 kN 0.412 c 0.810
122	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar	Kasten(A) 480/35/15/350/570/480/35 ☑ 1.000 0.425 m 31213700.00 kN 0.024 c 0.993

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122	Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 0.425 m 13138500.00 kN 0.036 c 0.986
123	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/20 ☒ 1.000 5.500 m 14466.10 kN 0.549 b 0.854 ☒ 1.000 5.500 m 3569.32 kN 1.105 c 0.455
124	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 480/30/15/350/570/480/30 ☒ 1.000 1.300 m 2984210.00 kN 0.073 c 0.978 ☒ 1.000 1.300 m 1303460.00 kN 0.110 c 0.958
125	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x10 ☒ 1.000 2.600 m 4795.18 kN 0.611 a 0.818 ☒ 1.000 2.600 m 4795.18 kN 0.611 a 0.818
126	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 480/30/15/350/570/480/30 ☒ 1.000 1.300 m 2984210.00 kN 0.073 c 0.978 ☒ 1.000 1.300 m 1303460.00 kN 0.110 c 0.958
127	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/20 ☒ 1.000 5.500 m 14466.10 kN 0.549 b 0.854 ☒ 1.000 5.500 m 3569.32 kN 1.105 c 0.455
128	Section Buckling about the axis 2-2 Effective length coefficient Beta-2	Kasten(A) 480/35/15/350/570/480/35 ☒ 1.000

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128	Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.425 m 31213700.00 kN 0.024 c 0.993 ☒ 1.000 0.425 m 13138500.00 kN 0.036 c 0.986
129	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.249 m 3154100.00 kN 0.064 a 0.987 ☒ 1.000 1.249 m 252168.00 kN 0.228 b 0.907
130	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x12,5 ☒ 1.000 1.332 m 21816.70 kN 0.318 a 0.918 ☒ 1.000 1.332 m 21816.70 kN 0.318 a 0.918
131	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x12,5 ☒ 1.000 1.332 m 21816.70 kN 0.318 a 0.918 ☒ 1.000 1.332 m 21816.70 kN 0.318 a 0.918
132	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.249 m 3154100.00 kN 0.064 a 0.987 ☒ 1.000 1.249 m 252168.00 kN 0.228 b 0.907
133	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3	HE-M 300 ☒ 1.000 2.500 m 196318.00 kN 0.236 b 0.942 ☒ 1.000 2.500 m 64334.00 kN 0.412 c

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133	Reduction factor Kappa-3 bar	0.810
135	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 2.500 m 196318.00 kN 0.236 b 0.942 ☒ 1.000 2.500 m 64334.00 kN 0.412 c 0.810
136	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 374/260/8/20 ☒ 1.000 1.300 m 430477.00 kN 0.105 b 0.976 ☒ 1.000 1.300 m 71868.20 kN 0.256 c 0.882
137	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x10 ☒ 1.000 2.118 m 7227.39 kN 0.498 a 0.862 ☒ 1.000 2.118 m 7227.39 kN 0.498 a 0.862
139	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	TO 600/600/12/12/12/12/37/25 ☒ 1.000 15.472 m 13591.50 kN 0.855 b 0.694 ☒ 1.000 15.472 m 13591.50 kN 0.855 b 0.694
140	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	TO 600/600/12/12/12/12/37/25 ☒ 1.000 15.472 m 13591.50 kN 0.855 b 0.694 ☒ 1.000 15.472 m 13591.50 kN 0.855 b 0.694
141	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3	TO 600/600/12/12/12/12/37/25 ☒ 1.000 5.489 m 107996.00 kN 0.303 b 0.922 ☒

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141	Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 5.489 m 107996.00 kN 0.303 b 0.922
142	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	TO 600/600/12/12/12/12/37/25 ☒ 1.000 5.489 m 107996.00 kN 0.303 b 0.922 ☒ 1.000 5.489 m 107996.00 kN 0.303 b 0.922
143	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.626 m 1861050.00 kN 0.084 a 0.983 ☒ 1.000 1.626 m 148790.00 kN 0.297 b 0.879
144	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.626 m 1861050.00 kN 0.084 a 0.983 ☒ 1.000 1.626 m 148790.00 kN 0.297 b 0.879
145	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x12,5 ☒ 1.000 1.971 m 9967.90 kN 0.470 a 0.870 ☒ 1.000 1.971 m 9967.90 kN 0.470 a 0.870
146	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x12,5 ☒ 1.000 1.971 m 9967.90 kN 0.470 a 0.870 ☒ 1.000 1.971 m 9967.90 kN 0.470 a 0.870
147	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2	IS 302/450/15/20 ☒ 1.000 7.433 m

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147	Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	14290.30 kN 0.743 b 0.769 ☒ 1.000 7.433 m 11397.50 kN 0.832 c 0.594
148	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.300 m 20480.90 kN 0.261 b 0.939 ☒ 1.000 1.300 m 7554.63 kN 0.430 c 0.796
149	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.300 m 20480.90 kN 0.261 b 0.939 ☒ 1.000 1.300 m 7554.63 kN 0.430 c 0.796
150	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/450/15/20 ☒ 1.000 7.433 m 14290.30 kN 0.743 b 0.769 ☒ 1.000 7.433 m 11397.50 kN 0.832 c 0.594
151	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.222 m 99837500.00 kN 0.011 a 0.998 ☒ 1.000 0.222 m 7981960.00 kN 0.041 b 0.983
152	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.222 m 99837500.00 kN 0.011 a 0.998 ☒ 1.000 0.222 m 7981960.00 kN 0.041 b 0.983

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152	Reduction factor Kappa-3 bar	0.983
153	Section	HE-A 160
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.300 m
	Buckling load N-Cr,2	6544.40 kN
	Slenderness Lambda-K,2 bar	0.462
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.882
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.300 m
	Buckling load N-Cr,3	2413.98 kN
	Slenderness Lambda-K,3 bar	0.761
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.623
154	Section	HE-A 160
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.575 m
	Buckling load N-Cr,2	104645.00 kN
	Slenderness Lambda-K,2 bar	0.116
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.973
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.575 m
	Buckling load N-Cr,3	38599.70 kN
	Slenderness Lambda-K,3 bar	0.190
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.909
155	Section	HE-A 160
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.575 m
	Buckling load N-Cr,2	104645.00 kN
	Slenderness Lambda-K,2 bar	0.116
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.973
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.575 m
	Buckling load N-Cr,3	38599.70 kN
	Slenderness Lambda-K,3 bar	0.190
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.909
156	Section	HE-M 300
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.500 m
	Buckling load N-Cr,2	196318.00 kN
	Slenderness Lambda-K,2 bar	0.236
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.942
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.500 m
	Buckling load N-Cr,3	64334.00 kN
	Slenderness Lambda-K,3 bar	0.412
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.810
157	Section	RO 168,3x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.818 m
	Buckling load N-Cr,2	4082.54 kN
	Slenderness Lambda-K,2 bar	0.662
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.795
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.818 m
	Buckling load N-Cr,3	4082.54 kN
	Slenderness Lambda-K,3 bar	0.662
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.795
158	Section	HE-M 300
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.500 m
	Buckling load N-Cr,2	196318.00 kN
	Slenderness Lambda-K,2 bar	0.236
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.942
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000

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158	Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	2.500 m 64334.00 kN 0.412 c 0.810
159	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x12,5 ☒ 1.000 1.652 m 14194.60 kN 0.394 a 0.895 ☒ 1.000 1.652 m 14194.60 kN 0.394 a 0.895
160	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x12,5 ☒ 1.000 1.652 m 14194.60 kN 0.394 a 0.895 ☒ 1.000 1.652 m 14194.60 kN 0.394 a 0.895
161	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.548 m 2053330.00 kN 0.080 a 0.984 ☒ 1.000 1.548 m 164162.00 kN 0.283 b 0.885
162	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.548 m 2053330.00 kN 0.080 a 0.984 ☒ 1.000 1.548 m 164162.00 kN 0.283 b 0.885
167	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 35/666 Flachstahl 35/500 ☒ 1.000 0.350 m 6168090.00 kN 0.032 c 0.992 ☒ 1.000 0.350 m 30223.60 kN 0.457 c 0.806
168	Section Start End	Flachstahl 35/666 Flachstahl 35/500

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168	Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 0.350 m 6168080.00 kN 0.032 c 0.992 ☒ 1.000 0.350 m 30223.60 kN 0.457 c 0.806
169	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 35/666 Flachstahl 35/500 ☒ 1.000 0.350 m 6168080.00 kN 0.032 c 0.992 ☒ 1.000 0.350 m 30223.60 kN 0.457 c 0.806
170	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 35/666 Flachstahl 35/500 ☒ 1.000 0.350 m 6168090.00 kN 0.032 c 0.992 ☒ 1.000 0.350 m 30223.60 kN 0.457 c 0.806
171	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.067 m 8578360.00 kN 0.033 c 0.981 ☒ 1.000 0.067 m 8578360.00 kN 0.033 c 0.981
172	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981
173	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar	Rundstahl 140 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981

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Elem.-No.	Description	Parameter
173	Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981
174	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.067 m 8578360.00 kN 0.033 c 0.981 ☒ 1.000 0.067 m 8578360.00 kN 0.033 c 0.981
175	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 40/953 Flachstahl 40/508 ☒ 1.000 0.350 m 7393530.00 kN 0.031 c 0.996 ☒ 1.000 0.350 m 45840.00 kN 0.399 c 0.832
176	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 40/953 Flachstahl 40/508 ☒ 1.000 0.350 m 7393530.00 kN 0.031 c 0.996 ☒ 1.000 0.350 m 45840.00 kN 0.399 c 0.832
177	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.025 m 62536600.00 kN 0.012 c 0.993 ☒ 1.000 0.025 m 62536600.00 kN 0.012 c 0.993
178	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.025 m 62536600.00 kN 0.012 c 0.993 ☒ 1.000 0.025 m 62536600.00 kN 0.012 c 0.993

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178	Reduction factor Kappa-3 bar	0.993
179	Section	Rundstahl 140
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.025 m
	Buckling load N-Cr,2	62536600.00 kN
	Slenderness Lambda-K,2 bar	0.012
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.993
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.025 m
	Buckling load N-Cr,3	62536600.00 kN
	Slenderness Lambda-K,3 bar	0.012
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.993
180	Section	Rundstahl 140
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.025 m
	Buckling load N-Cr,2	62536600.00 kN
	Slenderness Lambda-K,2 bar	0.012
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.993
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.025 m
	Buckling load N-Cr,3	62536600.00 kN
	Slenderness Lambda-K,3 bar	0.012
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.993
181	Section	Flachstahl 350/40
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.198 m
	Buckling load N-Cr,2	98686.00 kN
	Slenderness Lambda-K,2 bar	0.226
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.906
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.198 m
	Buckling load N-Cr,3	7555650.00 kN
	Slenderness Lambda-K,3 bar	0.026
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.989
182	Section	Flachstahl 350/40
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.198 m
	Buckling load N-Cr,2	98686.00 kN
	Slenderness Lambda-K,2 bar	0.226
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.906
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.198 m
	Buckling load N-Cr,3	7555650.00 kN
	Slenderness Lambda-K,3 bar	0.026
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.989
183	Section	Flachstahl 350/40
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.198 m
	Buckling load N-Cr,2	98686.00 kN
	Slenderness Lambda-K,2 bar	0.226
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.906
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.198 m
	Buckling load N-Cr,3	7555650.00 kN
	Slenderness Lambda-K,3 bar	0.026
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.989
184	Section	Flachstahl 350/40
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.198 m
	Buckling load N-Cr,2	98686.00 kN
	Slenderness Lambda-K,2 bar	0.226
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.906
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000

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184	Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.198 m 7555650.00 kN 0.026 c 0.989
185	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
186	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
187	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
188	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
189	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981
190	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2	Rundstahl 140 ☒ 1.000 0.068 m 8577880.00 kN

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Elem.-No.	Description	Parameter
190	Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.033 c 0.981 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981
191	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981
192	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981
193	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.135 m 11194.30 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094690.00 kN 0.018 c 0.992
194	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 200/60 ☒ 1.000 1.000 m 7461.42 kN 0.761 c 0.651 ☒ 1.000 1.000 m 82904.70 kN 0.228 c 0.905
195	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.135 m 11194.30 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094690.00 kN

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195	Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.018 c 0.992
196	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.135 m 11194.30 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094690.00 kN 0.018 c 0.992
197	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 200/60 ☒ 1.000 1.000 m 7461.42 kN 0.761 c 0.651 ☒ 1.000 1.000 m 82904.70 kN 0.228 c 0.905
198	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.135 m 11194.30 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094690.00 kN 0.018 c 0.992
199	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.185 m 5961.15 kN 0.563 c 0.862 ☒ 1.000 0.185 m 3245510.00 kN 0.024 c 0.990
200	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.185 m 5961.15 kN 0.563 c 0.862 ☒ 1.000 0.185 m 3245510.00 kN 0.024 c 0.990

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Elem.-No.	Description	Parameter
200	Reduction factor Kappa-3 bar	0.990
201	Section	
	Start	Flachstahl 740/15
	End	Flachstahl 350/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.185 m
	Buckling load N-Cr,2	5961.15 kN
	Slenderness Lambda-K,2 bar	0.563
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.862
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.185 m
	Buckling load N-Cr,3	3245510.00 kN
	Slenderness Lambda-K,3 bar	0.024
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.990
202	Section	
	Start	Flachstahl 740/15
	End	Flachstahl 350/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.185 m
	Buckling load N-Cr,2	5961.15 kN
	Slenderness Lambda-K,2 bar	0.563
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.862
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.185 m
	Buckling load N-Cr,3	3245510.00 kN
	Slenderness Lambda-K,3 bar	0.024
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.990
203	Section	Rundstahl 140
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.068 m
	Buckling load N-Cr,2	8577880.00 kN
	Slenderness Lambda-K,2 bar	0.033
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.981
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.068 m
	Buckling load N-Cr,3	8577880.00 kN
	Slenderness Lambda-K,3 bar	0.033
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.981
204	Section	Rundstahl 140
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.068 m
	Buckling load N-Cr,2	8577880.00 kN
	Slenderness Lambda-K,2 bar	0.033
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.981
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.068 m
	Buckling load N-Cr,3	8577880.00 kN
	Slenderness Lambda-K,3 bar	0.033
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.981
205	Section	Rundstahl 140
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.118 m
	Buckling load N-Cr,2	2830890.00 kN
	Slenderness Lambda-K,2 bar	0.057
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.967
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.118 m
	Buckling load N-Cr,3	2830890.00 kN
	Slenderness Lambda-K,3 bar	0.057
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.967
206	Section	Rundstahl 140
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.118 m
	Buckling load N-Cr,2	2830890.00 kN
	Slenderness Lambda-K,2 bar	0.057

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206	Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	c 0.967 ☒ 1.000 0.118 m 2830890.00 kN 0.057 c 0.967
215	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Venlo TRAEGER5 ☒ 1.000 0.355 m 42168100.00 kN 0.020 c 0.993 ☒ 1.000 0.355 m 3178850.00 kN 0.072 c 0.960
216	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Venlo TRAEGER5 ☒ 1.000 0.355 m 42168100.00 kN 0.020 c 0.993 ☒ 1.000 0.355 m 3178850.00 kN 0.072 c 0.960
229	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.055 m 12920200.00 kN 0.027 c 0.985 ☒ 1.000 0.055 m 12920200.00 kN 0.027 c 0.985
238	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/15/10/710/1970/770/15 Kasten(A) 770/15/10/710/803/770/15 ☒ 1.000 15.099 m 39601.10 kN 0.592 b 0.938 ☒ 1.000 15.099 m 28591.10 kN 0.697 b 0.767
240	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar	Kasten(A) 700/8/8/650/1016/700/8 Kasten(A) 700/8/8/650/756/700/8 ☒ 1.000 4.967 m 176980.00 kN 0.216 b 0.963 ☒ 1.000 4.967 m 146069.00 kN 0.238

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Elem.-No.	Description	Parameter
240	Buckling curve Ksl-3 Reduction factor Kappa-3 bar	b 0.939
241	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/15/10/710/2466/770/15 Kasten(A) 770/15/10/710/1970/770/15 ☒ 1.000 11.099 m 576067.00 kN 0.197 b 0.962 ☒ 1.000 11.099 m 103804.00 kN 0.463 b 0.877
242	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/15/10/710/2530/770/15 Kasten(A) 770/15/10/710/2466/770/15 ☒ 1.000 1.725 m 40946000.00 kN 0.025 b 0.993 ☒ 1.000 1.725 m 5193240.00 kN 0.071 b 0.983
243	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 1.720 m 64285000.00 kN 0.023 b 0.994 ☒ 1.000 1.720 m 6789330.00 kN 0.072 b 0.982
244	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 700/8/8/650/1016/700/8 ☒ 1.000 3.794 m 601707.00 kN 0.128 b 0.967 ☒ 1.000 3.794 m 315267.00 kN 0.176 b 0.957
245	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 3.880 m 12632900.00 kN 0.053 b 0.986 ☒ 1.000 3.880 m 1334200.00 kN 0.163 b 0.960
247	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2	Kasten(A) 700/8/8/650/716/700/8 ☒ 1.000 0.370 m

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Elem.-No.	Description	Parameter
247	Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	28173700.00 kN 0.017 b 0.996 ☒ 1.000 0.370 m 25278400.00 kN 0.018 b 0.995
248	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 700/8/8/650/716/700/8 ☒ 1.000 1.442 m 1854900.00 kN 0.066 b 0.984 ☒ 1.000 1.442 m 1664280.00 kN 0.070 b 0.982
249	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 0.400 m 1.18863E+09 kN 0.005 b 0.999 ☒ 1.000 0.400 m 1.25535E+08 kN 0.017 b 0.996
250	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 570/10/15/540/730/570/10 ☒ 1.000 0.808 m 7531270.00 kN 0.040 b 0.989 ☒ 1.000 0.808 m 6188310.00 kN 0.044 b 0.990
252	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 0.383 m 1.29649E+09 kN 0.005 b 0.999 ☒ 1.000 0.383 m 1.36926E+08 kN 0.016 b 0.996
253	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 1066/10/15/1036/730/1066/10 ☒ 1.000 4.240 m 421730.00 kN 0.191 b 0.953 ☒ 1.000 4.240 m 910935.00 kN 0.130 b 0.968

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253	Reduction factor Kappa-3 bar	0.968
256	Section	Kasten(A) 770/25/12/710/2540/770/25
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.834 m
	Buckling load N-Cr,2	56541600.00 kN
	Slenderness Lambda-K,2 bar	0.025
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.993
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.834 m
	Buckling load N-Cr,3	5971530.00 kN
	Slenderness Lambda-K,3 bar	0.077
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.981
257	Section	Kasten(A) 570/10/15/540/730/570/10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.834 m
	Buckling load N-Cr,2	1461810.00 kN
	Slenderness Lambda-K,2 bar	0.090
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.976
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.834 m
	Buckling load N-Cr,3	1201150.00 kN
	Slenderness Lambda-K,3 bar	0.099
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.977
258	Section	Kasten(A) 1066/10/15/1036/730/1066/10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	4.240 m
	Buckling load N-Cr,2	421730.00 kN
	Slenderness Lambda-K,2 bar	0.191
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.953
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	4.240 m
	Buckling load N-Cr,3	910935.00 kN
	Slenderness Lambda-K,3 bar	0.130
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.968
259	Section	Kasten(A) 770/25/12/710/2540/770/25
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.383 m
	Buckling load N-Cr,2	1.29649E+09 kN
	Slenderness Lambda-K,2 bar	0.005
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.999
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.383 m
	Buckling load N-Cr,3	1.36926E+08 kN
	Slenderness Lambda-K,3 bar	0.016
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.996
261	Section	Kasten(A) 570/10/15/540/730/570/10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.808 m
	Buckling load N-Cr,2	7531270.00 kN
	Slenderness Lambda-K,2 bar	0.040
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.989
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.808 m
	Buckling load N-Cr,3	6188310.00 kN
	Slenderness Lambda-K,3 bar	0.044
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.990
262	Section	Kasten(A) 770/25/12/710/2540/770/25
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.400 m
	Buckling load N-Cr,2	1.18863E+09 kN
	Slenderness Lambda-K,2 bar	0.005
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.999
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000

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262	Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.400 m 1.25535E+08 kN 0.017 b 0.996
263	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 700/8/8/650/1016/700/8 ☒ 1.000 8.766 m 112692.00 kN 0.295 b 0.922 ☒ 1.000 8.766 m 59045.20 kN 0.407 b 0.893
264	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 3.880 m 12632900.00 kN 0.053 b 0.986 ☒ 1.000 3.880 m 1334200.00 kN 0.163 b 0.960
265	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 1.720 m 64285000.00 kN 0.023 b 0.994 ☒ 1.000 1.720 m 6789330.00 kN 0.072 b 0.982
266	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/15/10/710/2466/770/15 Kasten(A) 770/15/10/710/2530/770/15 ☒ 1.000 1.725 m 40946000.00 kN 0.025 b 0.993 ☒ 1.000 1.725 m 5193240.00 kN 0.071 b 0.983
267	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/15/10/710/1970/770/15 Kasten(A) 770/15/10/710/2466/770/15 ☒ 1.000 11.099 m 576067.00 kN 0.197 b 0.962 ☒ 1.000 11.099 m 103804.00 kN 0.463 b 0.877
268	Section	

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Elem.-No.	Description	Parameter
268	Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 700/8/8/650/756/700/8 Kasten(A) 700/8/8/650/1016/700/8 ☒ 1.000 5.244 m 158783.00 kN 0.229 b 0.960 ☒ 1.000 5.244 m 131050.00 kN 0.252 b 0.936
270	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/15/10/710/803/770/15 Kasten(A) 770/15/10/710/1970/770/15 ☒ 1.000 15.099 m 39601.10 kN 0.592 b 0.938 ☒ 1.000 15.099 m 28591.10 kN 0.697 b 0.767
276	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.055 m 12920200.00 kN 0.027 c 0.985 ☒ 1.000 0.055 m 12920200.00 kN 0.027 c 0.985
289	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Venlo TRAEGER5 ☒ 1.000 0.355 m 42168100.00 kN 0.020 c 0.993 ☒ 1.000 0.355 m 3178850.00 kN 0.072 c 0.960
290	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Venlo TRAEGER5 ☒ 1.000 0.355 m 42168100.00 kN 0.020 c 0.993 ☒ 1.000 0.355 m 3178850.00 kN 0.072 c 0.960
299	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar	Rundstahl 140 ☒ 1.000 0.118 m 2830890.00 kN 0.057 c 0.967

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Elem.-No.	Description	Parameter
299	Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 0.118 m 2830890.00 kN 0.057 c 0.967
300	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.118 m 2830890.00 kN 0.057 c 0.967 ☒ 1.000 0.118 m 2830890.00 kN 0.057 c 0.967
301	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981
302	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981 ☒ 1.000 0.068 m 8577880.00 kN 0.033 c 0.981
303	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.185 m 5961.27 kN 0.563 c 0.862 ☒ 1.000 0.185 m 3245580.00 kN 0.024 c 0.990
304	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.185 m 5961.27 kN 0.563 c 0.862 ☒ 1.000 0.185 m 3245580.00 kN 0.024 c 0.990

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304	Reduction factor Kappa-3 bar	0.990
305	Section	
	Start	Flachstahl 740/15
	End	Flachstahl 350/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.185 m
	Buckling load N-Cr,2	5961.27 kN
	Slenderness Lambda-K,2 bar	0.563
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.862
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.185 m
	Buckling load N-Cr,3	3245580.00 kN
	Slenderness Lambda-K,3 bar	0.024
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.990
306	Section	
	Start	Flachstahl 740/15
	End	Flachstahl 350/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.185 m
	Buckling load N-Cr,2	5961.27 kN
	Slenderness Lambda-K,2 bar	0.563
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.862
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.185 m
	Buckling load N-Cr,3	3245580.00 kN
	Slenderness Lambda-K,3 bar	0.024
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.990
307	Section	
	Start	Flachstahl 740/15
	End	Flachstahl 350/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.135 m
	Buckling load N-Cr,2	11194.70 kN
	Slenderness Lambda-K,2 bar	0.411
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.909
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.135 m
	Buckling load N-Cr,3	6094870.00 kN
	Slenderness Lambda-K,3 bar	0.018
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.992
308	Section	Flachstahl 200/60
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.000 m
	Buckling load N-Cr,2	7461.42 kN
	Slenderness Lambda-K,2 bar	0.761
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.651
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.000 m
	Buckling load N-Cr,3	82904.70 kN
	Slenderness Lambda-K,3 bar	0.228
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.905
309	Section	
	Start	Flachstahl 740/15
	End	Flachstahl 350/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.135 m
	Buckling load N-Cr,2	11194.70 kN
	Slenderness Lambda-K,2 bar	0.411
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.909
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.135 m
	Buckling load N-Cr,3	6094870.00 kN
	Slenderness Lambda-K,3 bar	0.018
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.992
310	Section	
	Start	Flachstahl 740/15

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310	End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/15 ☒ 1.000 0.135 m 11194.70 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094870.00 kN 0.018 c 0.992
311	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 200/60 ☒ 1.000 1.000 m 7461.42 kN 0.761 c 0.651 ☒ 1.000 1.000 m 82904.70 kN 0.228 c 0.905
312	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.135 m 11194.70 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094870.00 kN 0.018 c 0.992
313	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.067 m 8578360.00 kN 0.033 c 0.981 ☒ 1.000 0.067 m 8578360.00 kN 0.033 c 0.981
314	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.067 m 8578360.00 kN 0.033 c 0.981 ☒ 1.000 0.067 m 8578360.00 kN 0.033 c 0.981
315	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3	Rundstahl 140 ☒ 1.000 0.067 m 8578360.00 kN 0.033 c 0.981 ☒

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315	Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 0.067 m 8578360.00 kN 0.033 c 0.981
316	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.067 m 8578360.00 kN 0.033 c 0.981 ☒ 1.000 0.067 m 8578360.00 kN 0.033 c 0.981
317	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
318	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
319	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
320	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
321	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2	Flachstahl 350/40 ☒ 1.000 0.198 m

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321	Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
322	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
323	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
324	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
325	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993
326	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993

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326	Reduction factor Kappa-3 bar	0.993
327	Section	Rundstahl 140
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.025 m
	Buckling load N-Cr,2	62527100.00 kN
	Slenderness Lambda-K,2 bar	0.012
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.993
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.025 m
	Buckling load N-Cr,3	62527100.00 kN
	Slenderness Lambda-K,3 bar	0.012
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.993
328	Section	Rundstahl 140
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.025 m
	Buckling load N-Cr,2	62527100.00 kN
	Slenderness Lambda-K,2 bar	0.012
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.993
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.025 m
	Buckling load N-Cr,3	62527100.00 kN
	Slenderness Lambda-K,3 bar	0.012
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.993
329	Section	HE-M 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.231 m
	Buckling load N-Cr,2	3246710.00 kN
	Slenderness Lambda-K,2 bar	0.064
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.987
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.231 m
	Buckling load N-Cr,3	259573.00 kN
	Slenderness Lambda-K,3 bar	0.225
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.908
330	Section	RO 127x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.304 m
	Buckling load N-Cr,2	7719.38 kN
	Slenderness Lambda-K,2 bar	0.414
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.888
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.304 m
	Buckling load N-Cr,3	7719.38 kN
	Slenderness Lambda-K,3 bar	0.414
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.888
331	Section	RO 127x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.304 m
	Buckling load N-Cr,2	7719.38 kN
	Slenderness Lambda-K,2 bar	0.414
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.888
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.304 m
	Buckling load N-Cr,3	7719.38 kN
	Slenderness Lambda-K,3 bar	0.414
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.888
332	Section	HE-M 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.231 m
	Buckling load N-Cr,2	3246710.00 kN
	Slenderness Lambda-K,2 bar	0.064
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.987
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000

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332	Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.231 m 259573.00 kN 0.225 b 0.908
333	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.285 m 43928.90 kN 0.498 b 0.865 ☒ 1.000 5.285 m 14395.60 kN 0.870 c 0.571
334	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.285 m 43928.90 kN 0.498 b 0.865 ☒ 1.000 5.285 m 14395.60 kN 0.870 c 0.571
335	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.178 m 2767.53 kN 0.691 a 0.779 ☒ 1.000 2.178 m 2767.53 kN 0.691 a 0.779
336	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.538 m 16969700.00 kN 0.028 a 0.994 ☒ 1.000 0.538 m 1356720.00 kN 0.098 b 0.959
337	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.538 m 16969700.00 kN 0.028 a 0.994 ☒ 1.000 0.538 m 1356720.00 kN 0.098 b 0.959
338	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2	IS 292/250/10/15 ☒ 1.000 7.628 m 5663.95 kN

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338	Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.802 b 0.736 ☒ 1.000 7.628 m 1392.32 kN 1.618 c 0.267
340	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 292/250/10/15 ☒ 1.000 7.628 m 5663.95 kN 0.802 b 0.736 ☒ 1.000 7.628 m 1392.32 kN 1.618 c 0.267
341	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.183 m 3516190.00 kN 0.061 a 0.988 ☒ 1.000 1.183 m 281117.00 kN 0.216 b 0.912
342	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.183 m 3516190.00 kN 0.061 a 0.988 ☒ 1.000 1.183 m 281117.00 kN 0.216 b 0.912
347	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.460 m 23253300.00 kN 0.024 a 0.995 ☒ 1.000 0.460 m 1859090.00 kN 0.084 b 0.965
348	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.460 m 23253300.00 kN 0.024 a 0.995 ☒ 1.000 0.460 m 1859090.00 kN 0.084 b 0.965

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349	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
350	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/20 ☒ 1.000 5.500 m 14466.10 kN 0.549 b 0.854 ☒ 1.000 5.500 m 3569.32 kN 1.105 c 0.455
351	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.219 m 46857100.00 kN 0.013 c 0.996 ☒ 1.000 0.219 m 23326900.00 kN 0.019 c 0.994
353	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.081 m 1923150.00 kN 0.067 c 0.979 ☒ 1.000 1.081 m 957400.00 kN 0.094 c 0.971
354	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.081 m 1923150.00 kN 0.067 c 0.979 ☒ 1.000 1.081 m 957400.00 kN 0.094 c 0.971
355	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3	RO 127x5,6 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730 ☒ 1.000 2.600 m

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355	Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1208.93 kN 0.797 a 0.730
356	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☑ 1.000 0.219 m 46857100.00 kN 0.013 c 0.996 ☑ 1.000 0.219 m 23326900.00 kN 0.019 c 0.994
357	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/20 ☑ 1.000 5.500 m 14466.10 kN 0.549 b 0.854 ☑ 1.000 5.500 m 3569.32 kN 1.105 c 0.455
358	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☑ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☑ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
359	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☑ 1.000 2.500 m 787263.00 kN 0.129 a 0.974 ☑ 1.000 2.500 m 62941.20 kN 0.456 b 0.809
360	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☑ 1.000 2.655 m 1862.86 kN 0.843 a 0.699 ☑ 1.000 2.655 m 1862.86 kN 0.843 a 0.699
361	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar	RO 127x10 ☑ 1.000 2.655 m 1862.86 kN 0.843

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361	Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	a 0.699 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699
362	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 2.500 m 787263.00 kN 0.129 a 0.974 ☒ 1.000 2.500 m 62941.20 kN 0.456 b 0.809
363	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.831 m 50096.40 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.70 kN 0.275 c 0.870
364	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.788 m 10832.10 kN 0.359 b 0.913 ☒ 1.000 1.788 m 3995.55 kN 0.591 c 0.714
365	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.70 kN 0.275 c 0.870
366	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.286 m 43912.30 kN 0.498 b 0.865 ☒ 1.000 5.286 m 14390.20 kN 0.871 c 0.571
367	Section	IS 292/250/10/15

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367	Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 7.628 m 5662.92 kN 0.802 b 0.736 ☒ 1.000 7.628 m 1392.07 kN 1.618 c 0.267
369	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.286 m 43912.30 kN 0.498 b 0.865 ☒ 1.000 5.286 m 14390.20 kN 0.871 c 0.571
370	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 292/250/10/15 ☒ 1.000 7.628 m 5662.92 kN 0.802 b 0.736 ☒ 1.000 7.628 m 1392.07 kN 1.618 c 0.267
371	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.000 m 4920390.00 kN 0.052 a 0.990 ☒ 1.000 1.000 m 393383.00 kN 0.183 b 0.925
372	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.000 m 4920390.00 kN 0.052 a 0.990 ☒ 1.000 1.000 m 393383.00 kN 0.183 b 0.925
373	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3	RO 127x10 ☒ 1.000 2.740 m 1748.87 kN 0.870 a 0.683 ☒ 1.000 2.740 m 1748.87 kN

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373	Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.870 a 0.683
374	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.740 m 1748.87 kN 0.870 a 0.683 ☒ 1.000 2.740 m 1748.87 kN 0.870 a 0.683
375	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.611 m 1895870.00 kN 0.083 a 0.983 ☒ 1.000 1.611 m 151573.00 kN 0.294 b 0.880
376	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.611 m 1895870.00 kN 0.083 a 0.983 ☒ 1.000 1.611 m 151573.00 kN 0.294 b 0.880
377	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.175 m 1.60669E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 12845400.00 kN 0.032 b 0.986
378	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.175 m 1.60669E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 12845400.00 kN 0.032 b 0.986
379	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c

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379	Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
380	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 292/250/8/15 ☒ 1.000 5.500 m 10688.40 kN 0.569 b 0.847 ☒ 1.000 5.500 m 2677.18 kN 1.136 c 0.437
381	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.300 m 1329770.00 kN 0.080 c 0.974 ☒ 1.000 1.300 m 662000.00 kN 0.114 c 0.965
382	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x5,6 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730
383	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.300 m 1329770.00 kN 0.080 c 0.974 ☒ 1.000 1.300 m 662000.00 kN 0.114 c 0.965
384	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 292/250/8/15 ☒ 1.000 5.500 m 10688.40 kN 0.569 b 0.847 ☒ 1.000 5.500 m 2677.18 kN 1.136 c 0.437
385	Section Buckling about the axis 2-2	Kasten(A) 374/15/12/350/550/374/15 ☒

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385	Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
386	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.176 m 1.58844E+08 kN 0.009 a 0.998 ☒ 1.000 0.176 m 12699500.00 kN 0.032 b 0.986
387	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.176 m 1.58844E+08 kN 0.009 a 0.998 ☒ 1.000 0.176 m 12699500.00 kN 0.032 b 0.986
388	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 2.324 m 911018.00 kN 0.120 a 0.976 ☒ 1.000 2.324 m 72835.40 kN 0.424 b 0.824
389	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.468 m 2155.48 kN 0.784 a 0.732 ☒ 1.000 2.468 m 2155.48 kN 0.784 a 0.732
390	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar	RO 127x10 ☒ 1.000 2.468 m 2155.48 kN 0.784 a 0.732 ☒ 1.000 2.468 m 2155.48 kN 0.784

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390	Buckling curve Ksl-3 Reduction factor Kappa-3 bar	a 0.732
391	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☑ 1.000 2.324 m 911018.00 kN 0.120 a 0.976 ☑ 1.000 2.324 m 72835.40 kN 0.424 b 0.824
392	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☑ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☑ 1.000 0.831 m 18478.70 kN 0.275 c 0.870
393	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☑ 1.000 1.788 m 10832.10 kN 0.359 b 0.913 ☑ 1.000 1.788 m 3995.55 kN 0.591 c 0.714
394	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☑ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☑ 1.000 0.831 m 18478.60 kN 0.275 c 0.870
395	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☑ 1.000 5.286 m 43912.30 kN 0.498 b 0.865 ☑ 1.000 5.286 m 14390.20 kN 0.871 c 0.571
396	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar	IS 292/250/10/15 ☑ 1.000 7.628 m 5662.92 kN 0.802 b 0.736

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396	Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 7.628 m 1392.07 kN 1.618 c 0.267
398	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.286 m 43912.30 kN 0.498 b 0.865 ☒ 1.000 5.286 m 14390.20 kN 0.871 c 0.571
399	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 292/250/10/15 ☒ 1.000 7.628 m 5662.92 kN 0.802 b 0.736 ☒ 1.000 7.628 m 1392.07 kN 1.618 c 0.267
400	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 2.786 m 633925.00 kN 0.144 a 0.971 ☒ 1.000 2.786 m 50681.90 kN 0.508 b 0.785
401	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.926 m 1533.88 kN 0.929 a 0.648 ☒ 1.000 2.926 m 1533.88 kN 0.929 a 0.648
402	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.926 m 1533.88 kN 0.929 a 0.648 ☒ 1.000 2.926 m 1533.88 kN 0.929 a 0.648
403	Section Buckling about the axis 2-2 Effective length coefficient Beta-2	HE-M 600 ☒ 1.000

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403	Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	2.786 m 633925.00 kN 0.144 a 0.971 ☒ 1.000 2.786 m 50681.90 kN 0.508 b 0.785
404	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
405	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/20 ☒ 1.000 5.500 m 14466.10 kN 0.549 b 0.854 ☒ 1.000 5.500 m 3569.32 kN 1.105 c 0.455
406	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.219 m 46857100.00 kN 0.013 c 0.996 ☒ 1.000 0.219 m 23326900.00 kN 0.019 c 0.994
407	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.178 m 2767.53 kN 0.691 a 0.779 ☒ 1.000 2.178 m 2767.53 kN 0.691 a 0.779
408	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.081 m 1923150.00 kN 0.067 c 0.979 ☒ 1.000 1.081 m 957400.00 kN 0.094 c

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408	Reduction factor Kappa-3 bar	0.971
409	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.081 m 1923150.00 kN 0.067 c 0.979 ☒ 1.000 1.081 m 957400.00 kN 0.094 c 0.971
410	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x5,6 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730
411	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.219 m 46857100.00 kN 0.013 c 0.996 ☒ 1.000 0.219 m 23326900.00 kN 0.019 c 0.994
412	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/20 ☒ 1.000 5.500 m 14466.10 kN 0.549 b 0.854 ☒ 1.000 5.500 m 3569.32 kN 1.105 c 0.455
413	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
414	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3	HE-M 600 ☒ 1.000 0.518 m 18337300.00 kN 0.027 a 0.995 ☒

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Elem.-No.	Description	Parameter
414	Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 0.518 m 1466060.00 kN 0.095 b 0.961
415	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.518 m 18337300.00 kN 0.027 a 0.995 ☒ 1.000 0.518 m 1466060.00 kN 0.095 b 0.961
416	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.654 m 1864.18 kN 0.843 a 0.699 ☒ 1.000 2.654 m 1864.18 kN 0.843 a 0.699
417	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.654 m 1864.18 kN 0.843 a 0.699 ☒ 1.000 2.654 m 1864.18 kN 0.843 a 0.699
418	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.60 kN 0.275 c 0.870
419	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.788 m 10832.10 kN 0.359 b 0.913 ☒ 1.000 1.788 m 3995.55 kN 0.591 c 0.714
420	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2	HE-A 160 ☒ 1.000 0.831 m

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420	Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	50096.30 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.60 kN 0.275 c 0.870
421	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.285 m 43928.90 kN 0.498 b 0.865 ☒ 1.000 5.285 m 14395.60 kN 0.870 c 0.571
422	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.628 m 7895.02 kN 0.797 b 0.734 ☒ 1.000 7.628 m 1858.01 kN 1.643 c 0.260
424	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.285 m 43928.90 kN 0.498 b 0.865 ☒ 1.000 5.285 m 14395.60 kN 0.870 c 0.571
425	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.628 m 7895.02 kN 0.797 b 0.734 ☒ 1.000 7.628 m 1858.01 kN 1.643 c 0.260
428	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.741 m 1747.66 kN 0.870 a 0.683 ☒ 1.000 2.741 m 1747.66 kN 0.870 a 0.683

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428	Reduction factor Kappa-3 bar	0.683
429	Section	RO 127x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.741 m
	Buckling load N-Cr,2	1747.66 kN
	Slenderness Lambda-K,2 bar	0.870
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.683
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.741 m
	Buckling load N-Cr,3	1747.66 kN
	Slenderness Lambda-K,3 bar	0.870
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.683
430	Section	HE-M 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.981 m
	Buckling load N-Cr,2	1253810.00 kN
	Slenderness Lambda-K,2 bar	0.102
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.979
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.981 m
	Buckling load N-Cr,3	100241.00 kN
	Slenderness Lambda-K,3 bar	0.362
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.851
431	Section	HE-M 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.981 m
	Buckling load N-Cr,2	1253810.00 kN
	Slenderness Lambda-K,2 bar	0.102
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.979
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.981 m
	Buckling load N-Cr,3	100241.00 kN
	Slenderness Lambda-K,3 bar	0.362
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.851
432	Section	HE-M 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.174 m
	Buckling load N-Cr,2	1.62518E+08 kN
	Slenderness Lambda-K,2 bar	0.009
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.998
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.174 m
	Buckling load N-Cr,3	12993300.00 kN
	Slenderness Lambda-K,3 bar	0.032
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.987
433	Section	HE-M 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.174 m
	Buckling load N-Cr,2	1.62518E+08 kN
	Slenderness Lambda-K,2 bar	0.009
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.998
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.174 m
	Buckling load N-Cr,3	12993300.00 kN
	Slenderness Lambda-K,3 bar	0.032
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.987
434	Section	Kasten(A) 374/15/12/350/550/374/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.425 m
	Buckling load N-Cr,2	12441900.00 kN
	Slenderness Lambda-K,2 bar	0.026
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.992
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000

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434	Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.425 m 6193940.00 kN 0.037 c 0.988
435	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 292/250/8/15 ☒ 1.000 5.500 m 10688.40 kN 0.569 b 0.847 ☒ 1.000 5.500 m 2677.18 kN 1.136 c 0.437
436	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.300 m 1329770.00 kN 0.080 c 0.974 ☒ 1.000 1.300 m 662000.00 kN 0.114 c 0.965
437	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 374/200/5/12 ☒ 1.000 1.300 m 214835.00 kN 0.105 b 0.976 ☒ 1.000 1.300 m 19626.90 kN 0.347 c 0.835
438	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.300 m 1329770.00 kN 0.080 c 0.974 ☒ 1.000 1.300 m 662000.00 kN 0.114 c 0.965
439	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 292/250/8/15 ☒ 1.000 5.500 m 10688.40 kN 0.569 b 0.847 ☒ 1.000 5.500 m 2677.18 kN 1.136 c 0.437
440	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN

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Elem.-No.	Description	Parameter
440	Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
441	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.175 m 1.60667E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 12845300.00 kN 0.032 b 0.986
442	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.175 m 1.60667E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 12845300.00 kN 0.032 b 0.986
445	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731
446	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731
447	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.343 m 41822500.00 kN 0.018 a 0.996 ☒ 1.000 0.343 m 3343690.00 kN 0.063 b 0.974

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448	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.343 m 41822500.00 kN 0.018 a 0.996 ☒ 1.000 0.343 m 3343690.00 kN 0.063 b 0.974
449	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.70 kN 0.275 c 0.870
450	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.788 m 10832.10 kN 0.359 b 0.913 ☒ 1.000 1.788 m 3995.55 kN 0.591 c 0.714
451	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.60 kN 0.275 c 0.870
452	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.286 m 43912.30 kN 0.498 b 0.865 ☒ 1.000 5.286 m 14390.20 kN 0.871 c 0.571
453	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3	IS 302/250/15/25 ☒ 1.000 7.628 m 9275.84 kN 0.795 b 0.736 ☒ 1.000 7.628 m

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453	Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	2321.34 kN 1.589 c 0.276
454	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 374/200/5/12 ☑ 1.000 1.300 m 214835.00 kN 0.105 b 0.976 ☑ 1.000 1.300 m 19626.90 kN 0.347 c 0.835
455	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☑ 1.000 5.286 m 43912.30 kN 0.498 b 0.865 ☑ 1.000 5.286 m 14390.20 kN 0.871 c 0.571
456	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/25 ☑ 1.000 7.628 m 9275.84 kN 0.795 b 0.736 ☑ 1.000 7.628 m 2321.34 kN 1.589 c 0.276
457	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☑ 1.000 2.786 m 633925.00 kN 0.144 a 0.971 ☑ 1.000 2.786 m 50681.90 kN 0.508 b 0.785
458	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☑ 1.000 2.926 m 1533.88 kN 0.929 a 0.648 ☑ 1.000 2.926 m 1533.88 kN 0.929 a 0.648
459	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar	RO 127x10 ☑ 1.000 2.926 m 1533.88 kN 0.929

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459	Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	a 0.648 ☒ 1.000 2.926 m 1533.88 kN 0.929 a 0.648
460	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 2.786 m 633925.00 kN 0.144 a 0.971 ☒ 1.000 2.786 m 50681.90 kN 0.508 b 0.785
461	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
462	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 292/250/8/15 ☒ 1.000 5.500 m 10688.40 kN 0.569 b 0.847 ☒ 1.000 5.500 m 2677.18 kN 1.136 c 0.437
463	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.219 m 46857100.00 kN 0.013 c 0.996 ☒ 1.000 0.219 m 23326900.00 kN 0.019 c 0.994
464	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 1.741 m 4334.05 kN 0.553 a 0.839 ☒ 1.000 1.741 m 4334.05 kN 0.553 a 0.839
465	Section	Kasten(A) 374/15/12/350/550/374/15

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465	Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 1.081 m 1923150.00 kN 0.067 c 0.979 ☒ 1.000 1.081 m 957400.00 kN 0.094 c 0.971
466	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.081 m 1923150.00 kN 0.067 c 0.979 ☒ 1.000 1.081 m 957400.00 kN 0.094 c 0.971
467	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x5,6 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730
468	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.219 m 46857100.00 kN 0.013 c 0.996 ☒ 1.000 0.219 m 23326900.00 kN 0.019 c 0.994
469	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 292/250/8/15 ☒ 1.000 5.500 m 10688.40 kN 0.569 b 0.847 ☒ 1.000 5.500 m 2677.18 kN 1.136 c 0.437
470	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN

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470	Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.037 c 0.988
471	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 2.500 m 787263.00 kN 0.129 a 0.974 ☒ 1.000 2.500 m 62941.20 kN 0.456 b 0.809
472	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.626 m 1904.78 kN 0.833 a 0.704 ☒ 1.000 2.626 m 1904.78 kN 0.833 a 0.704
473	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.626 m 1904.78 kN 0.833 a 0.704 ☒ 1.000 2.626 m 1904.78 kN 0.833 a 0.704
474	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 2.500 m 787263.00 kN 0.129 a 0.974 ☒ 1.000 2.500 m 62941.20 kN 0.456 b 0.809
475	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.923 m 40656.60 kN 0.185 b 0.957 ☒ 1.000 0.923 m 14996.70 kN 0.305 c 0.856
476	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2	HE-A 160 ☒ 1.000 1.605 m 13442.60 kN 0.322 b

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476	Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.923 ☒ 1.000 1.605 m 4958.46 kN 0.531 c 0.745
477	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.923 m 40656.60 kN 0.185 b 0.957 ☒ 1.000 0.923 m 14996.70 kN 0.305 c 0.856
478	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.286 m 43912.30 kN 0.498 b 0.865 ☒ 1.000 5.286 m 14390.20 kN 0.871 c 0.571
479	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.628 m 7893.59 kN 0.797 b 0.734 ☒ 1.000 7.628 m 1857.68 kN 1.643 c 0.260
481	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.286 m 43912.30 kN 0.498 b 0.865 ☒ 1.000 5.286 m 14390.20 kN 0.871 c 0.571
482	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.628 m 7893.59 kN 0.797 b 0.734 ☒ 1.000 7.628 m 1857.68 kN 1.643 c 0.260
483	Section Buckling about the axis 2-2	HE-M 600 ☒

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483	Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 2.610 m 722302.00 kN 0.135 a 0.973 ☒ 1.000 2.610 m 57747.60 kN 0.476 b 0.800
484	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.768 m 1713.46 kN 0.879 a 0.678 ☒ 1.000 2.768 m 1713.46 kN 0.879 a 0.678
485	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.768 m 1713.46 kN 0.879 a 0.678 ☒ 1.000 2.768 m 1713.46 kN 0.879 a 0.678
486	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 2.610 m 722302.00 kN 0.135 a 0.973 ☒ 1.000 2.610 m 57747.60 kN 0.476 b 0.800
487	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.176 m 1.58848E+08 kN 0.009 a 0.998 ☒ 1.000 0.176 m 12699800.00 kN 0.032 b 0.986
488	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar	HE-M 600 ☒ 1.000 0.176 m 1.58848E+08 kN 0.009 a 0.998 ☒ 1.000 0.176 m 12699800.00 kN 0.032

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488	Buckling curve Ksl-3 Reduction factor Kappa-3 bar	b 0.986
489	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☑ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☑ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
490	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 292/250/8/15 ☑ 1.000 5.500 m 10688.40 kN 0.569 b 0.847 ☑ 1.000 5.500 m 2677.18 kN 1.136 c 0.437
491	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☑ 1.000 1.300 m 1329770.00 kN 0.080 c 0.974 ☑ 1.000 1.300 m 662000.00 kN 0.114 c 0.965
492	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x5,6 ☑ 1.000 2.600 m 1208.93 kN 0.797 a 0.730 ☑ 1.000 2.600 m 1208.93 kN 0.797 a 0.730
493	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☑ 1.000 1.300 m 1329770.00 kN 0.080 c 0.974 ☑ 1.000 1.300 m 662000.00 kN 0.114 c 0.965
494	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar	IS 292/250/8/15 ☑ 1.000 5.500 m 10688.40 kN 0.569 b 0.847

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494	Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 5.500 m 2677.18 kN 1.136 c 0.437
495	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
496	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.174 m 1.62518E+08 kN 0.009 a 0.998 ☒ 1.000 0.174 m 12993300.00 kN 0.032 b 0.987
497	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.174 m 1.62518E+08 kN 0.009 a 0.998 ☒ 1.000 0.174 m 12993300.00 kN 0.032 b 0.987
498	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731
499	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731
500	Section Buckling about the axis 2-2 Effective length coefficient Beta-2	HE-M 600 ☒ 1.000

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Elem.-No.	Description	Parameter
500	Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	2.325 m 910235.00 kN 0.120 a 0.976 ☒ 1.000 2.325 m 72772.80 kN 0.424 b 0.824
501	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 2.325 m 910235.00 kN 0.120 a 0.976 ☒ 1.000 2.325 m 72772.80 kN 0.424 b 0.824
502	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.285 m 43928.90 kN 0.498 b 0.865 ☒ 1.000 5.285 m 14395.60 kN 0.870 c 0.571
503	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.285 m 43928.90 kN 0.498 b 0.865 ☒ 1.000 5.285 m 14395.60 kN 0.870 c 0.571
504	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.628 m 7895.02 kN 0.797 b 0.734 ☒ 1.000 7.628 m 1858.01 kN 1.643 c 0.260
506	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3	IS 302/250/15/20 ☒ 1.000 7.628 m 7895.02 kN 0.797 b 0.734 ☒ 1.000 7.628 m 1858.01 kN 1.643 c

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Elem.-No.	Description	Parameter
506	Reduction factor Kappa-3 bar	0.260
507	Section	RO 127x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.741 m
	Buckling load N-Cr,2	4334.05 kN
	Slenderness Lambda-K,2 bar	0.553
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.839
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.741 m
	Buckling load N-Cr,3	4334.05 kN
	Slenderness Lambda-K,3 bar	0.553
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.839
510	Section	HE-M 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.661 m
	Buckling load N-Cr,2	11261500.00 kN
	Slenderness Lambda-K,2 bar	0.034
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.993
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.661 m
	Buckling load N-Cr,3	900354.00 kN
	Slenderness Lambda-K,3 bar	0.121
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.950
511	Section	HE-M 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.661 m
	Buckling load N-Cr,2	11261500.00 kN
	Slenderness Lambda-K,2 bar	0.034
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.993
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.661 m
	Buckling load N-Cr,3	900354.00 kN
	Slenderness Lambda-K,3 bar	0.121
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.950
512	Section	RO 127x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.926 m
	Buckling load N-Cr,2	1533.88 kN
	Slenderness Lambda-K,2 bar	0.929
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.648
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.926 m
	Buckling load N-Cr,3	1533.88 kN
	Slenderness Lambda-K,3 bar	0.929
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.648
513	Section	RO 127x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.926 m
	Buckling load N-Cr,2	1533.88 kN
	Slenderness Lambda-K,2 bar	0.929
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.648
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.926 m
	Buckling load N-Cr,3	1533.88 kN
	Slenderness Lambda-K,3 bar	0.929
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.648
514	Section	HE-M 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.125 m
	Buckling load N-Cr,2	1089640.00 kN
	Slenderness Lambda-K,2 bar	0.110
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.978
	Buckling about axis 3-3	☒

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Elem.-No.	Description	Parameter
514	Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 2.125 m 87115.90 kN 0.388 b 0.840
515	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 2.125 m 1089640.00 kN 0.110 a 0.978 ☒ 1.000 2.125 m 87115.90 kN 0.388 b 0.840
518	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993
519	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993
520	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993
521	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993
522	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2	Flachstahl 350/40 ☒ 1.000 0.198 m

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Elem.-No.	Description	Parameter
522	Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
523	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
524	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
525	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
526	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
527	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989

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Elem.-No.	Description	Parameter
527	Reduction factor Kappa-3 bar	0.989
528	Section	Flachstahl 350/40
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.198 m
	Buckling load N-Cr,2	98686.00 kN
	Slenderness Lambda-K,2 bar	0.226
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.906
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.198 m
	Buckling load N-Cr,3	7555650.00 kN
	Slenderness Lambda-K,3 bar	0.026
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.989
529	Section	Flachstahl 350/40
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.198 m
	Buckling load N-Cr,2	98686.00 kN
	Slenderness Lambda-K,2 bar	0.226
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.906
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.198 m
	Buckling load N-Cr,3	7555650.00 kN
	Slenderness Lambda-K,3 bar	0.026
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.989
530	Section	Rundstahl 140
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.067 m
	Buckling load N-Cr,2	8578850.00 kN
	Slenderness Lambda-K,2 bar	0.033
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.981
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.067 m
	Buckling load N-Cr,3	8578850.00 kN
	Slenderness Lambda-K,3 bar	0.033
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.981
531	Section	Rundstahl 140
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.067 m
	Buckling load N-Cr,2	8578850.00 kN
	Slenderness Lambda-K,2 bar	0.033
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.981
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.067 m
	Buckling load N-Cr,3	8578850.00 kN
	Slenderness Lambda-K,3 bar	0.033
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.981
532	Section	Rundstahl 140
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.067 m
	Buckling load N-Cr,2	8578850.00 kN
	Slenderness Lambda-K,2 bar	0.033
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.981
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.067 m
	Buckling load N-Cr,3	8578850.00 kN
	Slenderness Lambda-K,3 bar	0.033
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.981
533	Section	Rundstahl 140
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.067 m
	Buckling load N-Cr,2	8578850.00 kN
	Slenderness Lambda-K,2 bar	0.033
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.981
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000

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533	Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.067 m 8578850.00 kN 0.033 c 0.981
534	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.135 m 11194.30 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094690.00 kN 0.018 c 0.992
535	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 200/60 ☒ 1.000 1.000 m 7461.42 kN 0.761 c 0.651 ☒ 1.000 1.000 m 82904.70 kN 0.228 c 0.905
536	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.135 m 11194.30 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094690.00 kN 0.018 c 0.992
537	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.135 m 11194.30 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094690.00 kN 0.018 c 0.992
538	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 200/60 ☒ 1.000 1.000 m 7461.42 kN 0.761 c 0.651 ☒ 1.000 1.000 m 82904.70 kN 0.228 c 0.905

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538	Reduction factor Kappa-3 bar	0.905
539	Section	
	Start	Flachstahl 740/15
	End	Flachstahl 350/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.135 m
	Buckling load N-Cr,2	11194.30 kN
	Slenderness Lambda-K,2 bar	0.411
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.909
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.135 m
	Buckling load N-Cr,3	6094690.00 kN
	Slenderness Lambda-K,3 bar	0.018
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.992
540	Section	
	Start	Flachstahl 740/15
	End	Flachstahl 350/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.185 m
	Buckling load N-Cr,2	5961.39 kN
	Slenderness Lambda-K,2 bar	0.563
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.862
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.185 m
	Buckling load N-Cr,3	3245650.00 kN
	Slenderness Lambda-K,3 bar	0.024
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.990
541	Section	
	Start	Flachstahl 740/15
	End	Flachstahl 350/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.185 m
	Buckling load N-Cr,2	5961.39 kN
	Slenderness Lambda-K,2 bar	0.563
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.862
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.185 m
	Buckling load N-Cr,3	3245650.00 kN
	Slenderness Lambda-K,3 bar	0.024
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.990
542	Section	
	Start	Flachstahl 740/15
	End	Flachstahl 350/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.185 m
	Buckling load N-Cr,2	5961.39 kN
	Slenderness Lambda-K,2 bar	0.563
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.862
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.185 m
	Buckling load N-Cr,3	3245650.00 kN
	Slenderness Lambda-K,3 bar	0.024
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.990
543	Section	
	Start	Flachstahl 740/15
	End	Flachstahl 350/15
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.185 m
	Buckling load N-Cr,2	5961.39 kN
	Slenderness Lambda-K,2 bar	0.563
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.862
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.185 m
	Buckling load N-Cr,3	3245650.00 kN
	Slenderness Lambda-K,3 bar	0.024
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.990

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544	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.068 m 8576910.00 kN 0.033 c 0.981 ☒ 1.000 0.068 m 8576910.00 kN 0.033 c 0.981
545	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.068 m 8576910.00 kN 0.033 c 0.981 ☒ 1.000 0.068 m 8576910.00 kN 0.033 c 0.981
546	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.118 m 2830890.00 kN 0.057 c 0.967 ☒ 1.000 0.118 m 2830890.00 kN 0.057 c 0.967
547	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.118 m 2830890.00 kN 0.057 c 0.967 ☒ 1.000 0.118 m 2830890.00 kN 0.057 c 0.967
570	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.055 m 12920200.00 kN 0.027 c 0.985 ☒ 1.000 0.055 m 12920200.00 kN 0.027 c 0.985
576	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3	Kasten(A) 770/15/12/710/1215/770/15 Kasten(A) 770/15/12/710/772/770/15 ☒ 1.000 7.000 m 174558.00 kN 0.290 b 0.958 ☒

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576	Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 7.000 m 146450.00 kN 0.317 b 0.914
580	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 700/8/8/650/1016/700/8 Kasten(A) 700/8/8/650/756/700/8 ☒ 1.000 5.054 m 170941.00 kN 0.220 b 0.962 ☒ 1.000 5.054 m 141085.00 kN 0.242 b 0.938
581	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 500/35 Flachstahl 656/35 ☒ 1.000 0.270 m 50790.60 kN 0.352 c 0.883 ☒ 1.000 0.270 m 10365400.00 kN 0.025 c 0.989
582	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 220 ☒ 1.000 0.057 m 72087500.00 kN 0.018 c 0.990 ☒ 1.000 0.057 m 72087500.00 kN 0.018 c 0.990
583	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 656/70 Flachstahl 500/70 ☒ 1.000 0.270 m 406324.00 kN 0.176 c 0.943 ☒ 1.000 0.270 m 20730800.00 kN 0.025 c 0.989
585	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3	Rundstahl 220 ☒ 1.000 0.065 m 57286100.00 kN 0.020 c 0.988 ☒ 1.000 0.065 m 57286100.00 kN 0.020 c

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585	Reduction factor Kappa-3 bar	0.988
586	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Pi(A) 656/35/12/435/376 Pi(A) 500/35/12/135/376 ☑ 1.000 0.276 m 365333.00 kN 0.140 c 0.997 ☑ 1.000 0.276 m 12400800.00 kN 0.024 c 0.990
587	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/20/12/710/2500/770/20 Kasten(A) 770/20/12/710/2247/770/20 ☑ 1.000 7.000 m 2524760.00 kN 0.109 b 0.975 ☑ 1.000 7.000 m 356374.00 kN 0.291 b 0.928
590	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/15/10/710/1640/770/15 ☑ 1.000 1.370 m 24521100.00 kN 0.028 b 0.993 ☑ 1.000 1.370 m 5868930.00 kN 0.058 b 0.986
591	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/20/15/710/1680/770/20 ☑ 1.000 0.465 m 3.09098E+08 kN 0.010 b 0.997 ☑ 1.000 0.465 m 76567600.00 kN 0.019 b 0.995
594	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Pi(A) 656/35/12/435/376 Pi(A) 500/35/12/135/376 ☑ 1.000 0.276 m 365333.00 kN 0.140 c 0.997 ☑ 1.000 0.276 m 12400800.00 kN 0.024 c 0.990
595	Section Buckling about the axis 2-2 Effective length coefficient Beta-2	Rundstahl 220 ☑ 1.000

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595	Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.064 m 57287800.00 kN 0.020 c 0.988 ☒ 1.000 0.064 m 57287800.00 kN 0.020 c 0.988
597	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 656/70 Flachstahl 500/70 ☒ 1.000 0.270 m 406324.00 kN 0.176 c 0.943 ☒ 1.000 0.270 m 20730800.00 kN 0.025 c 0.989
598	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 220 ☒ 1.000 0.057 m 72085100.00 kN 0.018 c 0.990 ☒ 1.000 0.057 m 72085100.00 kN 0.018 c 0.990
599	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 500/35 Flachstahl 656/35 ☒ 1.000 0.270 m 50790.60 kN 0.352 c 0.883 ☒ 1.000 0.270 m 10365400.00 kN 0.025 c 0.989
600	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 5.600 m 6064440.00 kN 0.076 b 0.980 ☒ 1.000 5.600 m 640484.00 kN 0.235 b 0.942
601	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3	Kasten(A) 700/8/8/650/1016/700/8 ☒ 1.000 3.794 m 601530.00 kN 0.128 b 0.967 ☒ 1.000

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601	Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	3.794 m 315174.00 kN 0.176 b 0.957
603	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 700/8/8/650/716/700/8 ☒ 1.000 0.370 m 28173700.00 kN 0.017 b 0.996 ☒ 1.000 0.370 m 25278400.00 kN 0.018 b 0.995
604	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 700/8/8/650/716/700/8 ☒ 1.000 1.442 m 1854900.00 kN 0.066 b 0.984 ☒ 1.000 1.442 m 1664280.00 kN 0.070 b 0.982
605	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 0.400 m 1.18863E+09 kN 0.005 b 0.999 ☒ 1.000 0.400 m 1.25535E+08 kN 0.017 b 0.996
606	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 570/10/15/540/730/570/10 ☒ 1.000 0.808 m 7531270.00 kN 0.040 b 0.989 ☒ 1.000 0.808 m 6188310.00 kN 0.044 b 0.990
608	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 0.383 m 1.29649E+09 kN 0.005 b 0.999 ☒ 1.000 0.383 m 1.36926E+08 kN 0.016 b 0.996
609	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2	Kasten(A) 1066/10/15/1036/730/1066/10 ☒ 1.000 4.240 m 421730.00 kN

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609	Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.191 b 0.953 ☒ 1.000 4.240 m 910935.00 kN 0.130 b 0.968
610	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 570/10/15/540/730/570/10 ☒ 1.000 0.917 m 5847260.00 kN 0.045 b 0.988 ☒ 1.000 0.917 m 4804590.00 kN 0.049 b 0.988
612	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 1.834 m 56541600.00 kN 0.025 b 0.993 ☒ 1.000 1.834 m 5971530.00 kN 0.077 b 0.981
613	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 570/10/15/540/730/570/10 ☒ 1.000 0.917 m 5847260.00 kN 0.045 b 0.988 ☒ 1.000 0.917 m 4804590.00 kN 0.049 b 0.988
614	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 1066/10/15/1036/730/1066/10 ☒ 1.000 4.240 m 421730.00 kN 0.191 b 0.953 ☒ 1.000 4.240 m 910935.00 kN 0.130 b 0.968
615	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 0.383 m 1.29649E+09 kN 0.005 b 0.999 ☒ 1.000 0.383 m 1.36926E+08 kN 0.016 b 0.996

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617	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 570/10/15/540/730/570/10 ☒ 1.000 0.808 m 7531270.00 kN 0.040 b 0.989 ☒ 1.000 0.808 m 6188310.00 kN 0.044 b 0.990
618	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 0.400 m 1.18863E+09 kN 0.005 b 0.999 ☒ 1.000 0.400 m 1.25535E+08 kN 0.017 b 0.996
619	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 700/8/8/650/1016/700/8 ☒ 1.000 8.766 m 112692.00 kN 0.295 b 0.922 ☒ 1.000 8.766 m 59045.20 kN 0.407 b 0.893
620	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/25/12/710/2540/770/25 ☒ 1.000 5.600 m 6064440.00 kN 0.076 b 0.980 ☒ 1.000 5.600 m 640484.00 kN 0.235 b 0.942
621	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 500/35 Flachstahl 656/35 ☒ 1.000 0.270 m 50790.60 kN 0.352 c 0.883 ☒ 1.000 0.270 m 10365400.00 kN 0.025 c 0.989
622	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3	Rundstahl 220 ☒ 1.000 0.058 m 72083900.00 kN 0.018 c 0.990 ☒

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622	Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 0.058 m 72083900.00 kN 0.018 c 0.990
623	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 656/70 Flachstahl 500/70 ☒ 1.000 0.270 m 406324.00 kN 0.176 c 0.943 ☒ 1.000 0.270 m 20730800.00 kN 0.025 c 0.989
625	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 220 ☒ 1.000 0.064 m 57287800.00 kN 0.020 c 0.988 ☒ 1.000 0.064 m 57287800.00 kN 0.020 c 0.988
626	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Pi(A) 500/35/12/135/376 Pi(A) 656/35/12/435/376 ☒ 1.000 0.276 m 365333.00 kN 0.140 c 0.997 ☒ 1.000 0.276 m 12400800.00 kN 0.024 c 0.990
629	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/15/10/710/1640/770/15 ☒ 1.000 1.370 m 24521100.00 kN 0.028 b 0.993 ☒ 1.000 1.370 m 5868930.00 kN 0.058 b 0.986
630	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/20/15/710/1680/770/20 ☒ 1.000 0.465 m 3.09098E+08 kN 0.010 b 0.997 ☒ 1.000 0.465 m 76567600.00 kN 0.019 b 0.995

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633	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.995 Kasten(A) 770/20/12/710/2500/770/20 Kasten(A) 770/20/12/710/2247/770/20 ☒ 1.000 7.000 m 2524760.00 kN 0.109 b 0.975 ☒ 1.000 7.000 m 356374.00 kN 0.291 b 0.928
634	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Pi(A) 500/35/12/135/376 Pi(A) 656/35/12/435/376 ☒ 1.000 0.276 m 365333.00 kN 0.140 c 0.997 ☒ 1.000 0.276 m 12400800.00 kN 0.024 c 0.990
635	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 220 ☒ 1.000 0.064 m 57287800.00 kN 0.020 c 0.988 ☒ 1.000 0.064 m 57287800.00 kN 0.020 c 0.988
637	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 656/70 Flachstahl 500/70 ☒ 1.000 0.270 m 406324.00 kN 0.176 c 0.943 ☒ 1.000 0.270 m 20730800.00 kN 0.025 c 0.989
638	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 220 ☒ 1.000 0.057 m 72085100.00 kN 0.018 c 0.990 ☒ 1.000 0.057 m 72085100.00 kN 0.018 c 0.990
639	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2	Flachstahl 500/35 Flachstahl 656/35 ☒ 1.000

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639	Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.270 m 50790.60 kN 0.352 c 0.883 ☒ 1.000 0.270 m 10365400.00 kN 0.025 c 0.989
640	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 700/8/8/650/756/700/8 Kasten(A) 700/8/8/650/1016/700/8 ☒ 1.000 5.222 m 160123.00 kN 0.228 b 0.961 ☒ 1.000 5.222 m 132156.00 kN 0.251 b 0.936
641	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 1.700 m 1226360.00 kN 0.089 a 0.982 ☒ 1.000 1.700 m 97032.80 kN 0.317 b 0.871
644	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/15/12/710/1215/770/15 Kasten(A) 770/15/12/710/772/770/15 ☒ 1.000 7.000 m 174558.00 kN 0.290 b 0.958 ☒ 1.000 7.000 m 146450.00 kN 0.317 b 0.914
648	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.055 m 12920200.00 kN 0.027 c 0.985 ☒ 1.000 0.055 m 12920200.00 kN 0.027 c 0.985
661	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3	HE-M 600 ☒ 1.000 0.355 m 39043100.00 kN 0.018 a 0.996 ☒ 1.000

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661	Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.355 m 3121470.00 kN 0.065 b 0.973
662	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.355 m 39043100.00 kN 0.018 a 0.996 ☒ 1.000 0.355 m 3121470.00 kN 0.065 b 0.973
671	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.118 m 2830520.00 kN 0.057 c 0.967 ☒ 1.000 0.118 m 2830520.00 kN 0.057 c 0.967
672	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.118 m 2830520.00 kN 0.057 c 0.967 ☒ 1.000 0.118 m 2830520.00 kN 0.057 c 0.967
673	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.068 m 8576910.00 kN 0.033 c 0.981 ☒ 1.000 0.068 m 8576910.00 kN 0.033 c 0.981
674	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.068 m 8576910.00 kN 0.033 c 0.981 ☒ 1.000 0.068 m 8576910.00 kN 0.033 c 0.981
675	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000

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675	Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.185 m 5960.90 kN 0.563 c 0.862 ☒ 1.000 0.185 m 3245380.00 kN 0.024 c 0.990
676	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.185 m 5960.90 kN 0.563 c 0.862 ☒ 1.000 0.185 m 3245380.00 kN 0.024 c 0.990
677	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.185 m 5960.90 kN 0.563 c 0.862 ☒ 1.000 0.185 m 3245380.00 kN 0.024 c 0.990
678	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.185 m 5960.90 kN 0.563 c 0.862 ☒ 1.000 0.185 m 3245380.00 kN 0.024 c 0.990
679	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.135 m 11194.30 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094690.00 kN 0.018 c 0.992
680	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar	Flachstahl 200/60 ☒ 1.000 1.000 m 7461.42 kN 0.761

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680	Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	c 0.651 ☒ 1.000 1.000 m 82904.70 kN 0.228 c 0.905
681	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.135 m 11194.30 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094690.00 kN 0.018 c 0.992
682	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.135 m 11194.30 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094690.00 kN 0.018 c 0.992
683	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 200/60 ☒ 1.000 1.000 m 7461.42 kN 0.761 c 0.651 ☒ 1.000 1.000 m 82904.70 kN 0.228 c 0.905
684	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 740/15 Flachstahl 350/15 ☒ 1.000 0.135 m 11194.30 kN 0.411 c 0.909 ☒ 1.000 0.135 m 6094690.00 kN 0.018 c 0.992
685	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3	Rundstahl 140 ☒ 1.000 0.067 m 8578850.00 kN 0.033 c 0.981 ☒ 1.000 0.067 m

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685	Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	8578850.00 kN 0.033 c 0.981
686	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.067 m 8578850.00 kN 0.033 c 0.981 ☒ 1.000 0.067 m 8578850.00 kN 0.033 c 0.981
687	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.067 m 8578850.00 kN 0.033 c 0.981 ☒ 1.000 0.067 m 8578850.00 kN 0.033 c 0.981
688	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.067 m 8578850.00 kN 0.033 c 0.981 ☒ 1.000 0.067 m 8578850.00 kN 0.033 c 0.981
689	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
690	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
691	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226

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691	Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
692	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
693	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
694	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
695	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
696	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Flachstahl 350/40 ☒ 1.000 0.198 m 98686.00 kN 0.226 c 0.906 ☒ 1.000 0.198 m 7555650.00 kN 0.026 c 0.989
697	Section	Rundstahl 140

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697	Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993
698	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993
699	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993
700	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Rundstahl 140 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993 ☒ 1.000 0.025 m 62527100.00 kN 0.012 c 0.993
701	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.770 m 1570550.00 kN 0.091 a 0.982 ☒ 1.000 1.770 m 125565.00 kN 0.323 b 0.868
702	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3	HE-M 600 ☒ 1.000 1.770 m 1570550.00 kN 0.091 a 0.982 ☒ 1.000 1.770 m 125565.00 kN

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702	Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.323 b 0.868
703	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x10 ☒ 1.000 2.288 m 6191.38 kN 0.538 a 0.847 ☒ 1.000 2.288 m 6191.38 kN 0.538 a 0.847
704	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x10 ☒ 1.000 2.288 m 6191.38 kN 0.538 a 0.847 ☒ 1.000 2.288 m 6191.38 kN 0.538 a 0.847
705	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.375 m 34989500.00 kN 0.019 a 0.996 ☒ 1.000 0.375 m 2797390.00 kN 0.068 b 0.971
706	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 0.375 m 34989500.00 kN 0.019 a 0.996 ☒ 1.000 0.375 m 2797390.00 kN 0.068 b 0.971
707	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.797 m 54547.40 kN 0.160 b 0.963 ☒ 1.000 0.797 m 20120.50 kN 0.263 c 0.875
708	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2	HE-M 300 ☒ 1.000 5.000 m 49079.60 kN 0.471 b

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708	Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0,874 ☒ 1.000 5.000 m 16083.50 kN 0.824 c 0.596
709	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☒ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
711	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.857 m 10039.00 kN 0.373 b 0.909 ☒ 1.000 1.857 m 3702.99 kN 0.614 c 0.702
712	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 5.000 m 49079.60 kN 0.471 b 0.874 ☒ 1.000 5.000 m 16083.50 kN 0.824 c 0.596
713	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☒ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
714	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.797 m 54547.40 kN 0.160 b 0.963 ☒ 1.000 0.797 m 20120.50 kN 0.263 c 0.875
715	Section Buckling about the axis 2-2	HE-M 600 ☒

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715	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.500 m
	Buckling load N-Cr,2	787263.00 kN
	Slenderness Lambda-K,2 bar	0.129
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.974
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.500 m
	Buckling load N-Cr,3	62941.20 kN
	Slenderness Lambda-K,3 bar	0.456
	Buckling curve Ksl-3	b
716	Reduction factor Kappa-3 bar	0.809
	Section	RO 168,3x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.667 m
	Buckling load N-Cr,2	4557.87 kN
	Slenderness Lambda-K,2 bar	0.627
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.811
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.667 m
717	Buckling load N-Cr,3	4557.87 kN
	Slenderness Lambda-K,3 bar	0.627
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.811
	Section	RO 168,3x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.667 m
	Buckling load N-Cr,2	4557.87 kN
	Slenderness Lambda-K,2 bar	0.627
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.811
718	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.667 m
	Buckling load N-Cr,3	4557.87 kN
	Slenderness Lambda-K,3 bar	0.627
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.811
	Section	HE-M 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.500 m
	Buckling load N-Cr,2	787263.00 kN
719	Slenderness Lambda-K,2 bar	0.129
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.974
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.500 m
	Buckling load N-Cr,3	62941.20 kN
	Slenderness Lambda-K,3 bar	0.456
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.809
	Section	Kasten(A) 374/15/12/350/550/374/15
	Buckling about the axis 2-2	☒
720	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.425 m
	Buckling load N-Cr,2	12441900.00 kN
	Slenderness Lambda-K,2 bar	0.026
	Buckling curve Ksl-2	c
	Reduction factor Kappa-2, bar	0.992
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.425 m
	Buckling load N-Cr,3	6193940.00 kN
	Slenderness Lambda-K,3 bar	0.037
	Buckling curve Ksl-3	c
720	Reduction factor Kappa-3 bar	0.988
	Section	IS 302/250/8/25
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	5.500 m
	Buckling load N-Cr,2	17204.30 kN
	Slenderness Lambda-K,2 bar	0.551
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.853
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	5.500 m
720	Buckling load N-Cr,3	4461.43 kN
	Slenderness Lambda-K,3 bar	1.082

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720	Buckling curve Ksl-3 Reduction factor Kappa-3 bar	c 0.469
721	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☑ 1.000 1.300 m 1329770.00 kN 0.080 c 0.974 ☑ 1.000 1.300 m 662000.00 kN 0.114 c 0.965
722	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☑ 1.000 1.300 m 1329770.00 kN 0.080 c 0.974 ☑ 1.000 1.300 m 662000.00 kN 0.114 c 0.965
723	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/25 ☑ 1.000 5.500 m 17204.30 kN 0.551 b 0.853 ☑ 1.000 5.500 m 4461.43 kN 1.082 c 0.469
724	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☑ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☑ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
725	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☑ 1.000 1.500 m 2186840.00 kN 0.077 a 0.984 ☑ 1.000 1.500 m 174837.00 kN 0.274 b 0.888
726	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar	HE-M 300 ☑ 1.000 1.500 m 545329.00 kN 0.141 b 0.966

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726	Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 1.500 m 178706.00 kN 0.247 c 0.886
727	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 300 ☒ 1.000 1.500 m 545329.00 kN 0.141 b 0.966 ☒ 1.000 1.500 m 178706.00 kN 0.247 c 0.886
728	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.500 m 2186840.00 kN 0.077 a 0.984 ☒ 1.000 1.500 m 174837.00 kN 0.274 b 0.888
729	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699
730	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699
731	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 1.000 m 3544180.00 kN 0.052 a 0.990 ☒ 1.000 1.000 m 280425.00 kN 0.186 b 0.924
732	Section Buckling about the axis 2-2 Effective length coefficient Beta-2	HE-B 600 ☒ 1.000

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Elem.- No.	Description	Parameter
732	Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 m 3544180.00 kN 0.052 a 0.990 ☒ 1.000 1.000 m 280425.00 kN 0.186 b 0.924
733	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.70 kN 0.275 c 0.870
734	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☒ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
736	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.788 m 10832.10 kN 0.359 b 0.913 ☒ 1.000 1.788 m 3995.55 kN 0.591 c 0.714
737	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☒ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
738	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3	HE-A 160 ☒ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.60 kN 0.275 c

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738	Reduction factor Kappa-3 bar	0.870
739	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 300 ☒ 1.000 3.500 m 42585.90 kN 0.355 b 0.914 ☒ 1.000 3.500 m 14482.90 kN 0.609 c 0.708
740	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 300 ☒ 1.000 3.500 m 42585.90 kN 0.355 b 0.914 ☒ 1.000 3.500 m 14482.90 kN 0.609 c 0.708
741	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 2.325 m 655645.00 kN 0.122 a 0.976 ☒ 1.000 2.325 m 51876.50 kN 0.433 b 0.820
742	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731
743	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731 ☒ 1.000 2.469 m 2153.84 kN 0.784 a 0.731
744	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3	HE-B 600 ☒ 1.000 2.325 m 655645.00 kN 0.122 a 0.976 ☒

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744	Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 2.325 m 51876.50 kN 0.433 b 0.820
745	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.175 m 1.15729E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 9156820.00 kN 0.033 b 0.986
746	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.175 m 1.15729E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 9156820.00 kN 0.033 b 0.986
747	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
748	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/25 ☒ 1.000 5.500 m 17204.30 kN 0.551 b 0.853 ☒ 1.000 5.500 m 4461.43 kN 1.082 c 0.469
749	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x5,6 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730
750	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 2.600 m

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750	Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	332443.00 kN 0.160 c 0.949 ☒ 1.000 2.600 m 165500.00 kN 0.227 c 0.930
751	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/25 ☒ 1.000 5.500 m 17204.30 kN 0.551 b 0.853 ☒ 1.000 5.500 m 4461.43 kN 1.082 c 0.469
752	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
753	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.175 m 1.15729E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 9156820.00 kN 0.033 b 0.986
754	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.175 m 1.15729E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 9156820.00 kN 0.033 b 0.986
755	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 2.325 m 655645.00 kN 0.122 a 0.976 ☒ 1.000 2.325 m 51876.50 kN 0.433 b 0.820

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755	Reduction factor Kappa-3 bar	0.820
756	Section	RO 127x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.469 m
	Buckling load N-Cr,2	2153.84 kN
	Slenderness Lambda-K,2 bar	0.784
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.731
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.469 m
	Buckling load N-Cr,3	2153.84 kN
	Slenderness Lambda-K,3 bar	0.784
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.731
757	Section	RO 127x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.469 m
	Buckling load N-Cr,2	2153.84 kN
	Slenderness Lambda-K,2 bar	0.784
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.731
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.469 m
	Buckling load N-Cr,3	2153.84 kN
	Slenderness Lambda-K,3 bar	0.784
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.731
758	Section	HE-B 600
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	2.325 m
	Buckling load N-Cr,2	655645.00 kN
	Slenderness Lambda-K,2 bar	0.122
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.976
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	2.325 m
	Buckling load N-Cr,3	51876.50 kN
	Slenderness Lambda-K,3 bar	0.433
	Buckling curve Ksl-3	b
	Reduction factor Kappa-3 bar	0.820
759	Section	HE-A 160
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.831 m
	Buckling load N-Cr,2	50096.30 kN
	Slenderness Lambda-K,2 bar	0.167
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.961
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.831 m
	Buckling load N-Cr,3	18478.60 kN
	Slenderness Lambda-K,3 bar	0.275
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.870
760	Section	HE-B 300
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	5.000 m
	Buckling load N-Cr,2	20867.10 kN
	Slenderness Lambda-K,2 bar	0.507
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.868
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	5.000 m
	Buckling load N-Cr,3	7096.64 kN
	Slenderness Lambda-K,3 bar	0.869
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.568
761	Section	IS 302/250/15/20
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	7.433 m
	Buckling load N-Cr,2	8313.88 kN
	Slenderness Lambda-K,2 bar	0.777
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.745
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000

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761	Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	7.433 m 1956.59 kN 1.601 c 0.270
763	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.788 m 10832.10 kN 0.359 b 0.913 ☒ 1.000 1.788 m 3995.55 kN 0.591 c 0.714
764	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 300 ☒ 1.000 5.000 m 20867.10 kN 0.507 b 0.868 ☒ 1.000 5.000 m 7096.64 kN 0.869 c 0.568
765	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☒ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
766	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.60 kN 0.275 c 0.870
767	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 2.500 m 567068.00 kN 0.131 a 0.974 ☒ 1.000 2.500 m 44868.00 kN 0.465 b 0.805
768	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2	RO 127x10 ☒ 1.000 2.655 m 1862.86 kN

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768	Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.843 a 0.699 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699
769	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699
770	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 2.500 m 567068.00 kN 0.131 a 0.974 ☒ 1.000 2.500 m 44868.00 kN 0.465 b 0.805
771	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
772	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/20 ☒ 1.000 5.500 m 14466.10 kN 0.549 b 0.854 ☒ 1.000 5.500 m 3569.32 kN 1.105 c 0.455
773	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.219 m 46857100.00 kN 0.013 c 0.996 ☒ 1.000 0.219 m 23326900.00 kN 0.019 c 0.994

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775	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.081 m 1923150.00 kN 0.067 c 0.979 ☒ 1.000 1.081 m 957400.00 kN 0.094 c 0.971
776	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 1.081 m 1923150.00 kN 0.067 c 0.979 ☒ 1.000 1.081 m 957400.00 kN 0.094 c 0.971
777	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 374/260/8/20 ☒ 1.000 1.300 m 430477.00 kN 0.105 b 0.976 ☒ 1.000 1.300 m 71868.20 kN 0.256 c 0.882
778	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.219 m 46857100.00 kN 0.013 c 0.996 ☒ 1.000 0.219 m 23326900.00 kN 0.019 c 0.994
779	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/8/20 ☒ 1.000 5.500 m 14466.10 kN 0.549 b 0.854 ☒ 1.000 5.500 m 3569.32 kN 1.105 c 0.455
780	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m

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780	Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	6193940.00 kN 0.037 c 0.988
781	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.875 m 4629130.00 kN 0.046 a 0.991 ☒ 1.000 0.875 m 366269.00 kN 0.163 b 0.933
782	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.875 m 4629130.00 kN 0.046 a 0.991 ☒ 1.000 0.875 m 366269.00 kN 0.163 b 0.933
783	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699
784	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699 ☒ 1.000 2.655 m 1862.86 kN 0.843 a 0.699
785	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 1.625 m 1342170.00 kN 0.085 a 0.983 ☒ 1.000 1.625 m 106196.00 kN 0.303 b 0.876
786	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar	HE-B 600 ☒ 1.000 1.625 m 1342170.00 kN 0.085

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786	Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	a 0.983 ☒ 1.000 1.625 m 106196.00 kN 0.303 b 0.876
787	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.831 m 50096.40 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.70 kN 0.275 c 0.870
788	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☒ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
789	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.788 m 10832.10 kN 0.359 b 0.913 ☒ 1.000 1.788 m 3995.54 kN 0.591 c 0.714
790	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 302/250/15/20 ☒ 1.000 7.433 m 8313.88 kN 0.777 b 0.745 ☒ 1.000 7.433 m 1956.59 kN 1.601 c 0.270
791	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.831 m 50096.40 kN 0.167 b 0.961 ☒ 1.000 0.831 m 18478.70 kN 0.275 c 0.870
792	Section	HE-B 600

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792	Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	☒ 1.000 2.325 m 655647.00 kN 0.122 a 0.976 ☒ 1.000 2.325 m 51876.70 kN 0.433 b 0.820
793	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.469 m 2153.85 kN 0.784 a 0.731 ☒ 1.000 2.469 m 2153.85 kN 0.784 a 0.731
794	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 2.469 m 2153.85 kN 0.784 a 0.731 ☒ 1.000 2.469 m 2153.85 kN 0.784 a 0.731
795	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 2.325 m 655647.00 kN 0.122 a 0.976 ☒ 1.000 2.325 m 51876.70 kN 0.433 b 0.820
796	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.175 m 1.15724E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 9156420.00 kN 0.033 b 0.986
797	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3	HE-B 600 ☒ 1.000 0.175 m 1.15724E+08 kN 0.009 a 0.998 ☒ 1.000 0.175 m 9156420.00 kN

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797	Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.033 b 0.986
798	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
799	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 2.600 m 332443.00 kN 0.160 c 0.949 ☒ 1.000 2.600 m 165500.00 kN 0.227 c 0.930
800	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 374/15/12/350/550/374/15 ☒ 1.000 0.425 m 12441900.00 kN 0.026 c 0.992 ☒ 1.000 0.425 m 6193940.00 kN 0.037 c 0.988
801	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.125 m 2.26827E+08 kN 0.007 a 0.999 ☒ 1.000 0.125 m 17947200.00 kN 0.023 b 0.990
802	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.125 m 2.26827E+08 kN 0.007 a 0.999 ☒ 1.000 0.125 m 17947200.00 kN 0.023 b 0.990
803	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2	Kasten(A) 770/15/12/710/2247/770/15 Kasten(A) 770/15/12/710/1215/770/15 ☒ 1.000 12.832 m 146576.00 kN

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803	Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	0.356 b 0.957 ☒ 1.000 12.832 m 61024.80 kN 0.551 b 0.842
804	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/15/12/710/2247/770/15 Kasten(A) 770/15/12/710/1215/770/15 ☒ 1.000 12.832 m 146576.00 kN 0.356 b 0.957 ☒ 1.000 12.832 m 61024.80 kN 0.551 b 0.842
806	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 1.700 m 1226360.00 kN 0.089 a 0.982 ☒ 1.000 1.700 m 97032.80 kN 0.317 b 0.871
807	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.518 m 2136610.00 kN 0.078 a 0.984 ☒ 1.000 1.518 m 170821.00 kN 0.277 b 0.887
808	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 1.518 m 2136610.00 kN 0.078 a 0.984 ☒ 1.000 1.518 m 170821.00 kN 0.277 b 0.887
811	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3	HE-M 600 ☒ 1.000 2.269 m 955721.00 kN 0.117 a 0.976 ☒ 1.000 2.269 m 76409.40 kN 0.414 b

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811	Reduction factor Kappa-3 bar	0.828
812	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☑ 1.000 2.269 m 955721.00 kN 0.117 a 0.976 ☑ 1.000 2.269 m 76409.40 kN 0.414 b 0.828
821	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☑ 1.000 2.325 m 910235.00 kN 0.120 a 0.976 ☑ 1.000 2.325 m 72772.80 kN 0.424 b 0.824
822	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☑ 1.000 2.325 m 910235.00 kN 0.120 a 0.976 ☑ 1.000 2.325 m 72772.80 kN 0.424 b 0.824
825	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☑ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☑ 1.000 0.831 m 18478.60 kN 0.275 c 0.870
826	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☑ 1.000 1.788 m 10832.10 kN 0.359 b 0.913 ☑ 1.000 1.788 m 3995.55 kN 0.591 c 0.714
827	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3	HE-A 160 ☑ 1.000 0.831 m 50096.30 kN 0.167 b 0.961 ☑

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827	Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	1.000 0.831 m 18478.60 kN 0.275 c 0.870
828	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.875 m 4629130.00 kN 0.046 a 0.991 ☒ 1.000 0.875 m 366269.00 kN 0.163 b 0.933
829	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-B 600 ☒ 1.000 0.875 m 4629130.00 kN 0.046 a 0.991 ☒ 1.000 0.875 m 366269.00 kN 0.163 b 0.933
830	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x5,6 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730
831	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x5,6 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730 ☒ 1.000 2.600 m 1208.93 kN 0.797 a 0.730
832	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.261 m 21754.80 kN 0.253 b 0.941 ☒ 1.000 1.261 m 8024.54 kN 0.417 c 0.802
833	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2	IS 374/260/8/20 ☒ 1.000 1.300 m

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833	Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	430477.00 kN 0.105 b 0.976 ☒ 1.000 1.300 m 71868.20 kN 0.256 c 0.882
834	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.261 m 21754.80 kN 0.253 b 0.941 ☒ 1.000 1.261 m 8024.54 kN 0.417 c 0.802
836	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 0.927 m 40254.80 kN 0.186 b 0.957 ☒ 1.000 0.927 m 14848.50 kN 0.307 c 0.855
837	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.150 m 26166.00 kN 0.231 b 0.946 ☒ 1.000 1.150 m 9651.64 kN 0.380 c 0.820
839	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 1.150 m 26166.00 kN 0.231 b 0.946 ☒ 1.000 1.150 m 9651.64 kN 0.380 c 0.820
841	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-A 160 ☒ 1.000 2.589 m 5165.78 kN 0.520 b 0.863 ☒ 1.000 2.589 m 1905.46 kN 0.856 c 0.572

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841	Reduction factor Kappa-3 bar	0.572
842	Section	HE-A 160
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.431 m
	Buckling load N-Cr,2	186550.00 kN
	Slenderness Lambda-K,2 bar	0.087
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.980
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.431 m
	Buckling load N-Cr,3	68811.20 kN
	Slenderness Lambda-K,3 bar	0.142
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.931
844	Section	HE-A 160
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	0.431 m
	Buckling load N-Cr,2	186550.00 kN
	Slenderness Lambda-K,2 bar	0.087
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.980
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	0.431 m
	Buckling load N-Cr,3	68811.20 kN
	Slenderness Lambda-K,3 bar	0.142
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.931
845	Section	HE-A 160
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	1.150 m
	Buckling load N-Cr,2	26184.60 kN
	Slenderness Lambda-K,2 bar	0.231
	Buckling curve Ksl-2	b
	Reduction factor Kappa-2, bar	0.946
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	1.150 m
	Buckling load N-Cr,3	9658.51 kN
	Slenderness Lambda-K,3 bar	0.380
	Buckling curve Ksl-3	c
	Reduction factor Kappa-3 bar	0.820
846	Section	RO 127x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	5.890 m
	Buckling load N-Cr,2	378.51 kN
	Slenderness Lambda-K,2 bar	1.870
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.242
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	5.890 m
	Buckling load N-Cr,3	378.51 kN
	Slenderness Lambda-K,3 bar	1.870
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.242
847	Section	RO 127x10
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	5.891 m
	Buckling load N-Cr,2	378.40 kN
	Slenderness Lambda-K,2 bar	1.870
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.242
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000
	Effective length s-K,3	5.891 m
	Buckling load N-Cr,3	378.40 kN
	Slenderness Lambda-K,3 bar	1.870
	Buckling curve Ksl-3	a
	Reduction factor Kappa-3 bar	0.242
848	Section	RO 127x5,6
	Buckling about the axis 2-2	☒
	Effective length coefficient Beta-2	1.000
	Effective length s-K,2	5.891 m
	Buckling load N-Cr,2	235.50 kN
	Slenderness Lambda-K,2 bar	1.807
	Buckling curve Ksl-2	a
	Reduction factor Kappa-2, bar	0.258
	Buckling about axis 3-3	☒
	Effective length coefficient Beta-3	1.000

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Elem.-No.	Description	Parameter
848	Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	5.891 m 235.50 kN 1.807 a 0.258
849	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x5,6 ☒ 1.000 5.890 m 235.57 kN 1.807 a 0.258 ☒ 1.000 5.890 m 235.57 kN 1.807 a 0.258
850	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x5,6 ☒ 1.000 5.891 m 235.50 kN 1.807 a 0.258 ☒ 1.000 5.891 m 235.50 kN 1.807 a 0.258
851	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x5,6 ☒ 1.000 5.891 m 235.50 kN 1.807 a 0.258 ☒ 1.000 5.891 m 235.50 kN 1.807 a 0.258
852	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x5,6 ☒ 1.000 5.890 m 235.57 kN 1.807 a 0.258 ☒ 1.000 5.890 m 235.57 kN 1.807 a 0.258
853	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 127x10 ☒ 1.000 5.636 m 413.44 kN 1.789 a 0.261 ☒ 1.000 5.636 m 413.44 kN 1.789 a 0.261
854	Section Start End Buckling about the axis 2-2 Effective length coefficient Beta-2	RO 168,3x10 RO 127x10 ☒ 1.000

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Elem.-No.	Description	Parameter
854	Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	5.636 m 413.44 kN 1.789 a 0.282 ☒ 1.000 5.636 m 413.44 kN 1.789 a 0.261
855	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	RO 168,3x10 ☒ 1.000 5.636 m 1020.64 kN 1.324 a 0.427 ☒ 1.000 5.636 m 1020.64 kN 1.324 a 0.427
856	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 374/200/5/12 ☒ 1.000 5.652 m 11367.30 kN 0.455 b 0.886 ☒ 1.000 5.652 m 1038.49 kN 1.507 c 0.297
857	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 374/200/5/12 ☒ 1.000 5.652 m 11367.30 kN 0.455 b 0.886 ☒ 1.000 5.652 m 1038.49 kN 1.507 c 0.297
858	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 374/200/5/12 ☒ 1.000 5.652 m 11367.30 kN 0.455 b 0.886 ☒ 1.000 5.652 m 1038.49 kN 1.507 c 0.297
859	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3	IS 374/200/5/12 ☒ 1.000 5.652 m 11367.30 kN 0.455 b 0.886 ☒ 1.000 5.652 m 1038.49 kN 1.507 c

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Elem.-No.	Description	Parameter
859	Reduction factor Kappa-3 bar	0.297
860	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 374/200/5/12 ☒ 1.000 5.652 m 11367.30 kN 0.455 b 0.886 ☒ 1.000 5.652 m 1038.49 kN 1.507 c 0.297
861	Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	IS 374/200/5/12 ☒ 1.000 5.652 m 11367.30 kN 0.455 b 0.886 ☒ 1.000 5.652 m 1038.49 kN 1.507 c 0.297
SZ5	Set of elements Element 633 Start End Element 804 Start End Element 644 Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/20/12/710/2500/770/20 Kasten(A) 770/20/12/710/2247/770/20 Kasten(A) 770/15/12/710/2247/770/15 Kasten(A) 770/15/12/710/1215/770/15 Kasten(A) 770/15/12/710/1215/770/15 Kasten(A) 770/15/12/710/772/770/15 ☒ 1.000 26.832 m 11880.50 kN 1.113 b 0.712 ☒ 1.000 26.832 m 9967.46 kN 1.216 b 0.476
SZ6	Set of elements Element 576 Start End Element 803 Start End Element 587 Start End Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	Kasten(A) 770/15/12/710/1215/770/15 Kasten(A) 770/15/12/710/772/770/15 Kasten(A) 770/15/12/710/2247/770/15 Kasten(A) 770/15/12/710/1215/770/15 Kasten(A) 770/20/12/710/2500/770/20 Kasten(A) 770/20/12/710/2247/770/20 ☒ 1.000 26.832 m 11880.50 kN 1.113 b 0.712 ☒ 1.000 26.832 m 9967.46 kN 1.216 b 0.476
SZ9	Set of elements Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar	HE-M 600 ☒ 1.000 2.786 m 633925.00 kN 0.144

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Elem.- No.	Description	Parameter
SZ9	Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	a 0.971 ☒ 1.000 2.786 m 50681.90 kN 0.508 b 0.785
SZ10	Set of elements Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 2.786 m 633925.00 kN 0.144 a 0.971 ☒ 1.000 2.786 m 50681.90 kN 0.508 b 0.785
SZ11	Set of elements Element 728 Element 732 Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 HE-B 600 ☒ 1.000 2.500 m 567068.00 kN 0.131 a 0.980 ☒ 1.000 2.500 m 44868.00 kN 0.465 b 0.805
SZ12	Set of elements Element 725 Element 731 Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 HE-B 600 ☒ 1.000 2.500 m 567068.00 kN 0.131 a 0.980 ☒ 1.000 2.500 m 44868.00 kN 0.465 b 0.805
SZ13	Set of elements Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☒ 1.000 2.611 m 721748.00 kN 0.135 a 0.973 ☒ 1.000 2.611 m 57703.30 kN 0.477 b 0.800
SZ14	Set of elements Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3	HE-M 600 ☒ 1.000 2.611 m 721748.00 kN 0.135 a 0.973 ☒ 1.000

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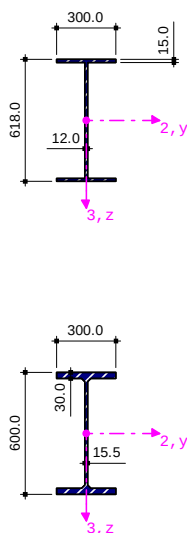
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Elem.-No.	Description	Parameter
SZ14	Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	2.611 m 57703.30 kN 0.477 b 0.800
SZ15	Set of elements Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☑ 1.000 2.499 m 787892.00 kN 0.129 a 0.974 ☑ 1.000 2.499 m 62991.50 kN 0.456 b 0.810
SZ16	Set of elements Section Buckling about the axis 2-2 Effective length coefficient Beta-2 Effective length s-K,2 Buckling load N-Cr,2 Slenderness Lambda-K,2 bar Buckling curve Ksl-2 Reduction factor Kappa-2, bar Buckling about axis 3-3 Effective length coefficient Beta-3 Effective length s-K,3 Buckling load N-Cr,3 Slenderness Lambda-K,3 bar Buckling curve Ksl-3 Reduction factor Kappa-3 bar	HE-M 600 ☑ 1.000 2.499 m 787892.00 kN 0.129 a 0.974 ☑ 1.000 2.499 m 62991.50 kN 0.456 b 0.810

DESIGN BY ELEMENT



Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method
1	430.000	CO98	0.142	1) Design to (28) fulfilled
Section properties IS 618/300/12/15				
A	160.56 cm ²	Ksl-2	b	Ksl-3 c
I-2	102159.0 cm ⁴	I-3	6758.47 cm ⁴	
W-2	-3306.11 cm ³	W-3	450.56 cm ³	
Forces and moments				
N	-14.12 kN	M-2,beg	1.34 kNm	M-3 18.67 kNm
V-3	-11.39 kN	M-2,end	0.00 kNm	M-3,beg 14.76 kNm
M-2	-13.77 kNm	V-2	-9.22 kN	M-3,end 18.67 kNm
Reduction factor Kappa				
s-K,2	0.425 m	Kappa-2 b	0.995	Ksl-3 c
N-Cr,2	11722400 kN	s-K,3	0.425 m	Kappa-3 b 0.952
Lambda-K,	0.022 < 0.2	N-Cr,3	775513.0 kN	Kappa bar 0.952
Ksl-2	b	Lambda-K,	0.086 < 0.2	
Coefficient k-2 and k-3				
Psi-2	0.663	k-2	1.000 <= 1.5	a-3 0.4150 <= 0.8
Beta-M,Psi	1.336	Psi-3	0.791	k-3 0.999 <= 1.5
V-load 3	Nein	Beta-M,Psi	1.247	
a-2	0.1050 <= 0.8	V-load 2	Nein	
Design				
D-N	0.003	D-M,3	0.126	
D-M,2	0.013	D-NM	0.142 < 1.0	
2	2600.000	CO98	0.112	1) Design to (28) fulfilled
Section properties IS 618/300/12/15				
A	160.56 cm ²	Ksl-2	b	Ksl-3 c
I-2	102159.0 cm ⁴	I-3	6758.47 cm ⁴	
W-2	-3306.11 cm ³	W-3	450.56 cm ³	
Forces and moments				
N	-14.09 kN	M-2,beg	11.39 kNm	M-3 14.76 kNm
V-3	-10.49 kN	M-2,end	1.34 kNm	M-3,beg 2.70 kNm
M-2	-9.13 kNm	V-2	-9.22 kN	M-3,end 14.76 kNm
Reduction factor Kappa				
s-K,2	2.600 m	Kappa-2 b	0.967	Ksl-3 c
N-Cr,2	313219.0 kN	s-K,3	2.600 m	Kappa-3 b 0.721
Lambda-K,	0.136 < 0.2	N-Cr,3	20721.50 kN	Kappa bar 0.721
Ksl-2	b	Lambda-K,	0.528	
Coefficient k-2 and k-3				
Psi-2	0.118	Beta-M,2	1.625	Beta-M,V,3 1.300
Beta-M,Psi	1.718	a-2	0.0325 <= 0.8	M-V,3 5.87 kNm
V-load 3	Ja	k-2	1.000 <= 1.5	Delta-M,3 26.50 kNm
C-load 3	Nein	Psi-3	0.183	Beta-M,3 1.590
Beta-M,V,2	1.300	Beta-M,Psi	1.672	a-3 0.1116 <= 0.8
M-V,2	4.57 kNm	V-load 2	Ja	k-3 1.000 <= 1.5

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method			
	Delta-M,2	20.52	kNm	C-load 2	Nein		
	Design						
	D-N	0.004		D-M,3	0.100		
	D-M,2	0.008		D-NM	0.112	< 1.0	
3	0.000	CO98	0.121	1) Design to (28) fulfilled			
Section properties IS 618/300/12/15							
A	160.56	cm^2	Ksl-2	b	Ksl-3	c	
I-2	102159.0	cm^4	I-3	6758.47	cm^4		
W-2	-3306.11	cm^3	W-3	450.56	cm^3		
Forces and moments							
N	-14.01	kN	M-2,beg	13.31	kNm	M-3	-15.65 kNm
V-3	-4.06	kN	M-2,end	11.39	kNm	M-3,beg	2.69 kNm
M-2	13.31	kNm	V-2	-9.22	kN	M-3,end	2.70 kNm
Reduction factor Kappa							
s-K,2	0.425	m	Kappa-2 b	0.995		Ksl-3	c
N-Cr,2	11722400	kN	s-K,3	0.425	m	Kappa-3 b	0.952
Lambda-K,	0.022	< 0.2	N-Cr,3	775513.0	kN	Kappa bar	0.952
Ksl-2	b		Lambda-K,	0.086	< 0.2		
Coefficient k-2 and k-3							
Psi-2	0.856		k-2	1.000	<= 1.5	a-3	0.3902 <= 0.8
Beta-M,Psi	1.201		Psi-3	0.996		k-3	0.999 <= 1.5
V-load 3	Nein		Beta-M,Psi	1.103			
a-2	0.0990	<= 0.8	V-load 2	Nein			
Design							
D-N	0.003		D-M,3	0.106			
D-M,2	0.012		D-NM	0.121	< 1.0		
4	0.000	CO98	0.064	1) Design to (28) fulfilled			
Section properties HE-B 600							
A	270.00	cm^2	Ksl-2	a	Ksl-3	b	
I-2	171000.0	cm^4	I-3	13530.00	cm^4		
W-2	-5700.00	cm^3	W-3	902.00	cm^3		
Forces and moments							
N	-9.22	kN	M-2,beg	0.01	kNm	M-3	18.67 kNm
V-3	-11.39	kN	M-2,end	0.00	kNm	M-3,beg	18.67 kNm
M-2	0.01	kNm	V-2	14.12	kN	M-3,end	16.56 kNm
Reduction factor Kappa							
s-K,2	0.150	m	Kappa-2 b	0.998		Ksl-3	b
N-Cr,2	1.5752e8	kN	s-K,3	0.150	m	Kappa-3 b	0.988
Lambda-K,	0.008	< 0.2	N-Cr,3	12463400	kN	Kappa bar	0.988
Ksl-2	a		Lambda-K,	0.028	< 0.2		
Coefficient k-2 and k-3							
Psi-2	0.000		k-2	1.000	<= 1.5	a-3	0.4963 <= 0.8
Beta-M,Psi	1.800		Psi-3	0.887		k-3	0.999 <= 1.5
V-load 3	Nein		Beta-M,Psi	1.179			
a-2	0.1232	<= 0.8	V-load 2	Nein			
Design							
D-N	0.001		D-M,3	0.063			
D-M,2	0.000		D-NM	0.064	< 1.0		
5	0.000	CO97	0.018	1) Design to (28) fulfilled			
Section properties HE-B 600							
A	270.00	cm^2	Ksl-2	a	Ksl-3	b	
I-2	171000.0	cm^4	I-3	13530.00	cm^4		
W-2	-5700.00	cm^3	W-3	902.00	cm^3		
Forces and moments							
N	-1.29	kN	M-2,beg	0.00	kNm	M-3	-5.28 kNm
V-3	-4.29	kN	M-2,end	0.00	kNm	M-3,beg	2.93 kNm
M-2	-0.06	kNm	V-2	-15.38	kN	M-3,end	3.07 kNm
Reduction factor Kappa							
s-K,2	0.150	m	Kappa-2 b	0.998		Ksl-3	b
N-Cr,2	1.5752e8	kN	s-K,3	0.150	m	Kappa-3 b	0.988
Lambda-K,	0.008	< 0.2	N-Cr,3	12463400	kN	Kappa bar	0.988
Ksl-2	a		Lambda-K,	0.028	< 0.2		
Coefficient k-2 and k-3							
Psi-2	0.076		k-2	1.000	<= 1.5	a-3	0.4937 <= 0.8
Beta-M,Psi	1.747		Psi-3	0.954		k-3	1.000 <= 1.5
V-load 3	Nein		Beta-M,Psi	1.132			
a-2	0.1223	<= 0.8	V-load 2	Nein			
Design							
D-N	0.000		D-M,3	0.018			
D-M,2	0.000		D-NM	0.018	< 1.0		
6	1080.000	CO97	0.068	1) Design to (28) fulfilled			
Section properties HE-B 600							
A	270.00	cm^2	Ksl-2	a	Ksl-3	b	
I-2	171000.0	cm^4	I-3	13530.00	cm^4		
W-2	-5700.00	cm^3	W-3	902.00	cm^3		
Forces and moments							
N	-1.86	kN	M-2,min	-11.82	kNm	M-3,end	1.82 kNm
V-3	-13.62	kN	x-M2,min	1.080	m	M-3,min	-18.15 kNm
M-2	-11.82	kNm	V-2	15.65	kN	x-M3,min	1.080 m
M-2,beg	0.00	kNm	M-3	-18.15	kNm		
M-2,end	0.00	kNm	M-3,beg	3.93	kNm		
Reduction factor Kappa							
s-K,2	1.081	m	Kappa-2 b	0.989		Ksl-3	b
N-Cr,2	3032930.	kN	s-K,3	1.081	m	Kappa-3 b	0.918
Lambda-K,	0.057	< 0.2	N-Cr,3	239974.0	kN	Kappa bar	0.918
Ksl-2	a		Lambda-K,	0.201			
Coefficient k-2 and k-3							

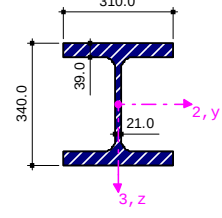
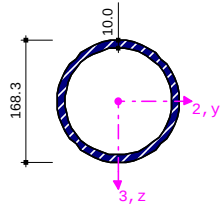
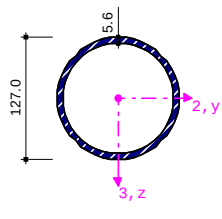
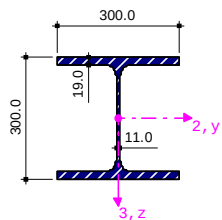
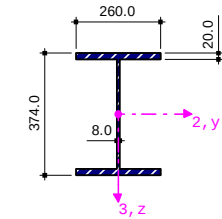
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				k-2	1.000 <= 1.5	a-3	0.3312 <= 0.8
				Psi-3	0.463	k-3	1.000 <= 1.5
				Beta-M,Psi	1.476		
				V-load 3	Nein		
				a-2	0.0975 <= 0.8		
				Design			
				D-N	0.000		
				D-M,2	0.006		
				D-M,3	0.061		
				D-NM	0.068 < 1.0		
7	1080.000	CO97	0.070	1) Design to (28) fulfilled			
				Section properties HE-B 600			
				A	270.00 cm ²	Ksl-2	a
				I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴
				W-2	-5700.00 cm ³	W-3	902.00 cm ³
				Forces and moments			
				N	-1.29 kN	M-2,min	-10.90 kNm
				V-3	-13.32 kN	x-M2,min	1.080 m
				M-2	-10.90 kNm	V-2	-15.38 kN
				M-2,beg	0.00 kNm	M-3	18.87 kNm
				M-2,end	0.00 kNm	M-3,beg	3.07 kNm
				Reduction factor Kappa			
				s-K,2	1.081 m	Kappa-2 b	0.989
				N-Cr,2	3032930. kN	s-K,3	1.081 m
				Lambda-K,	0.057 < 0.2	N-Cr,3	239974.0 kN
				Ksl-2	a	Lambda-K,	0.201
				Coefficient k-2 and k-3			
				Psi-2	0.072	k-2	1.000 <= 1.5
				Beta-M,Psi	1.749	Psi-3	0.163
				V-load 3	Nein	Beta-M,Psi	1.686
				a-2	0.0979 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.000	D-M,3	0.064
				D-M,2	0.006	D-NM	0.070 < 1.0
8	1130.000	CO98	0.618	1) Design to (28) fulfilled			
				Section properties HE-B 600			
				A	270.00 cm ²	Ksl-2	a
				I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴
				W-2	-5700.00 cm ³	W-3	902.00 cm ³
				Forces and moments			
				N	-9.22 kN	M-2,beg	0.00 kNm
				V-3	-485.01 kN	M-2,end	0.00 kNm
				M-2	-560.39 kNm	V-2	84.28 kN
				Reduction factor Kappa			
				s-K,2	1.125 m	Kappa-2 b	0.988
				N-Cr,2	2800340. kN	s-K,3	1.125 m
				Lambda-K,	0.059 < 0.2	N-Cr,3	221570.0 kN
				Ksl-2	a	Lambda-K,	0.209
				Coefficient k-2 and k-3			
				Psi-2	0.033	k-2	1.000 <= 1.5
				Beta-M,Psi	1.777	Psi-3	0.154
				V-load 3	Nein	Beta-M,Psi	1.692
				a-2	0.1000 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.001	D-M,3	0.316
				D-M,2	0.300	D-NM	0.618 < 1.0
9	1130.000	CO97	0.437	1) Design to (28) fulfilled			
				Section properties HE-B 600			
				A	270.00 cm ²	Ksl-2	a
				I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴
				W-2	-5700.00 cm ³	W-3	902.00 cm ³
				Forces and moments			
				N	-1.29 kN	M-2,beg	0.00 kNm
				V-3	-532.24 kN	M-2,end	0.00 kNm
				M-2	-604.71 kNm	V-2	-15.38 kN
				Reduction factor Kappa			
				s-K,2	1.125 m	Kappa-2 b	0.988
				N-Cr,2	2800340. kN	s-K,3	1.125 m
				Lambda-K,	0.059 < 0.2	N-Cr,3	221570.0 kN
				Ksl-2	a	Lambda-K,	0.209
				Coefficient k-2 and k-3			
				Psi-2	0.018	k-2	1.000 <= 1.5
				Beta-M,Psi	1.787	Psi-3	0.568
				V-load 3	Nein	Beta-M,Psi	1.402
				a-2	0.1013 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.000	D-M,3	0.112
				D-M,2	0.324	D-NM	0.437 < 1.0
10	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
				Section properties Kasten(A) 374/15/12/350/550/374/15			
				A	237.00 cm ²	W-2,max	3942.86 cm ³
				A-2	79.10 cm ²	Ksl-2	c
				I-2	108429.0 cm ⁴	A-3	115.22 cm ²
				W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴
				Forces and moments			
				N	0.00 kN	M-2,beg	0.00 kNm
				V-3	1083.92 kN	M-2,end	0.50 kNm
				M-2	-462.93 kNm	V-2	-849.06 kN
						M-3	-283.05 kNm
						M-3,beg	0.00 kNm
						M-3,end	84.52 kNm
11	1300.000	CO97	0.522	1) Design to (28) fulfilled			
						W-3,min	-2886.58 cm ³
						W-3,max	2886.58 cm ³
						Ksl-3	c

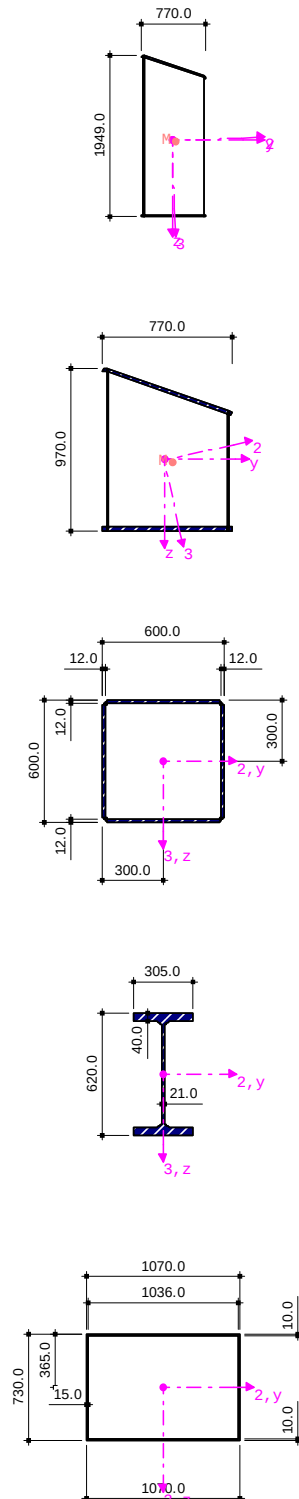
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	Section properties Kasten(A) 374/15/12/350/550/374/15								
	A	237.00	cm ²	W-2,max	3942.86	cm ³	W-3,min	-2886.58	cm ³
	A-2	79.10	cm ²	Ksl-2	c		W-3,max	2886.58	cm ³
	I-2	108429.0	cm ⁴	A-3	115.22	cm ²	Ksl-3	c	
	W-2,min	-3942.86	cm ³	I-3	53979.10	cm ⁴			
	Forces and moments								
	N	-22.29	kN	M-2,beg	0.00	kNm	M-3	-211.54	kNm
	V-3	-52.15	kN	M-2,end	0.00	kNm	M-3,beg	50.39	kNm
	M-2	-380.33	kNm	V-2	201.43	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	1.300	m	Kappa-2 b	0.974		Ksl-3	c	
	N-Cr,2	1329770.0	kN	s-K,3	1.300	m	Kappa-3 b	0.965	
	Lambda-K,	0.080	< 0.2	N-Cr,3	662000.0	kN	Kappa bar	0.965	
	Ksl-2	c		Lambda-K,	0.114	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.831		k-2	1.000	<= 1.5	a-3	0.1006	<= 0.8
	Beta-M,Psi	1.218		Psi-3	0.000		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.0475	<= 0.8	V-load 2	Nein				
	Design								
D-N	0.003		D-M,3	0.224					
D-M,2	0.295		D-NM	0.522	< 1.0				
12	0.000	CO98	0.459	1) Design to (28) fulfilled					
	Section properties Kasten(A) 374/15/12/350/550/374/15								
	A	237.00	cm ²	W-2,max	3942.86	cm ³	W-3,min	-2886.58	cm ³
	A-2	79.10	cm ²	Ksl-2	c		W-3,max	2886.58	cm ³
	I-2	108429.0	cm ⁴	A-3	115.22	cm ²	Ksl-3	c	
	W-2,min	-3942.86	cm ³	I-3	53979.10	cm ⁴			
	Forces and moments								
	N	-70.52	kN	M-2,beg	0.00	kNm	M-3	-210.17	kNm
	V-3	9.37	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm
	M-2	-293.37	kNm	V-2	-197.49	kN	M-3,end	46.58	kNm
	Reduction factor Kappa								
	s-K,2	1.300	m	Kappa-2 b	0.974		Ksl-3	c	
	N-Cr,2	1329770.0	kN	s-K,3	1.300	m	Kappa-3 b	0.965	
	Lambda-K,	0.080	< 0.2	N-Cr,3	662000.0	kN	Kappa bar	0.965	
	Ksl-2	c		Lambda-K,	0.114	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.968		k-2	1.000	<= 1.5	a-3	0.1006	<= 0.8
	Beta-M,Psi	1.123		Psi-3	0.000		k-3	0.999	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.0321	<= 0.8	V-load 2	Nein				
	Design								
D-N	0.009		D-M,3	0.222					
D-M,2	0.227		D-NM	0.459	< 1.0				
13	430.000	CO98	0.494	1) Design to (28) fulfilled					
	Section properties Kasten(A) 374/15/12/350/550/374/15								
	A	237.00	cm ²	W-2,max	3942.86	cm ³	W-3,min	-2886.58	cm ³
	A-2	79.10	cm ²	Ksl-2	c		W-3,max	2886.58	cm ³
	I-2	108429.0	cm ⁴	A-3	115.22	cm ²	Ksl-3	c	
	W-2,min	-3942.86	cm ³	I-3	53979.10	cm ⁴			
	Forces and moments								
	N	-67.18	kN	M-2,beg	15.15	kNm	M-3	-223.36	kNm
	V-3	-759.65	kN	M-2,end	0.39	kNm	M-3,beg	63.17	kNm
	M-2	-322.11	kNm	V-2	559.14	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	0.425	m	Kappa-2 b	0.992		Ksl-3	c	
	N-Cr,2	12441900.0	kN	s-K,3	0.425	m	Kappa-3 b	0.988	
	Lambda-K,	0.026	< 0.2	N-Cr,3	619394.0	kN	Kappa bar	0.988	
	Ksl-2	c		Lambda-K,	0.037	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.026		k-2	0.999	<= 1.5	a-3	0.1149	<= 0.8
	Beta-M,Psi	1.782		Psi-3	0.313		k-3	0.999	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.581				
	a-2	0.1613	<= 0.8	V-load 2	Nein				
	Design								
D-N	0.009		D-M,3	0.236					
D-M,2	0.249		D-NM	0.494	< 1.0				
14	0.000	CO97	0.630	1) Design to (28) fulfilled					
	Section properties HE-B 600								
	A	270.00	cm ²	Ksl-2	a		Ksl-3	b	
	I-2	171000.0	cm ⁴	I-3	13530.00	cm ⁴			
	W-2	-5700.00	cm ³	W-3	902.00	cm ³			
	Forces and moments								
	N	-849.59	kN	M-2,beg	0.00	kNm	M-3	38.24	kNm
	V-3	380.03	kN	M-2,end	209.05	kNm	M-3,beg	38.24	kNm
	M-2	-721.36	kNm	V-2	14.86	kN	M-3,end	7.20	kNm
	Reduction factor Kappa								
	s-K,2	2.500	m	Kappa-2 b	0.974		Ksl-3	b	
	N-Cr,2	567068.0	kN	s-K,3	2.500	m	Kappa-3 b	0.805	
	Lambda-K,	0.131	< 0.2	N-Cr,3	44868.00	kN	Kappa bar	0.805	
	Ksl-2	a		Lambda-K,	0.465				
	Coefficient k-2 and k-3								
	Psi-2	0.000		Beta-M,2	1.741		Beta-M,V,3	1.300	
	Beta-M,Psi	1.800		a-2	0.0586	<= 0.8	M-V,3	0.36	kNm
	V-load 3	Ja		k-2	0.994	<= 1.5	Delta-M,3	38.96	kNm
	C-load 3	Nein		Psi-3	0.188		Beta-M,3	1.665	
	Beta-M,V,2	1.300		Beta-M,Psi	1.668		a-3	0.2302	<= 0.8

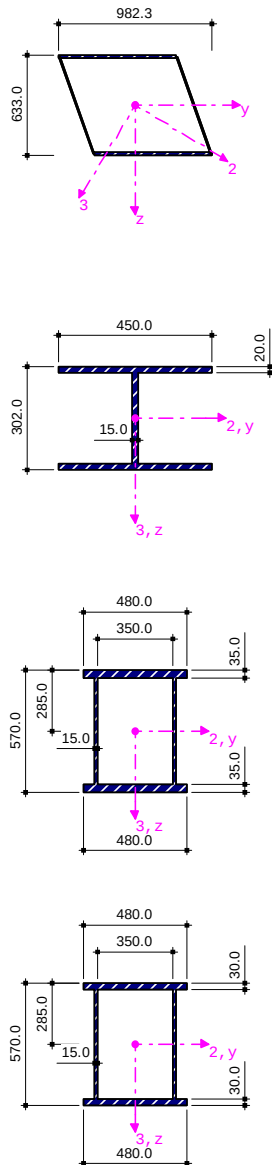
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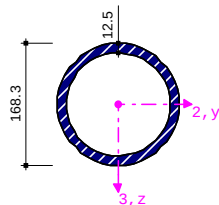
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	M-V,2	109.26	kNm	V-load 2	Ja	k-3	0.973	
	Delta-M,2	930.41	kNm	C-load 2	Nein		<= 1.5	
	Design							
	D-N	0.119		D-M,3	0.126			
	D-M,2	0.384		D-NM	0.630	< 1.0		
15	0.000	CO97	0.528	1) Design to (28) fulfilled				
	Section properties HE-B 600							
	A	270.00	cm^2	Ksl-2	a	Ksl-3	b	
	I-2	171000.0	cm^4	I-3	13530.00	cm^4		
	W-2	-5700.00	cm^3	W-3	902.00	cm^3		
	Forces and moments							
	N	-620.80	kN	M-2,beg	0.00	kNm	M-3	-38.44
	V-3	309.89	kN	M-2,end	165.92	kNm	M-3,beg	0.00
	M-2	-587.03	kNm	V-2	-16.49	kN	M-3,end	2.89
	Reduction factor Kappa							
	s-K,2	2.500	m	Kappa-2 b	0.974	Ksl-3	b	
	N-Cr,2	567068.0	kN	s-K,3	2.500	m	Kappa-3 b	0.805
	Lambda-K,	0.131	< 0.2	N-Cr,3	44868.00	kN	Kappa bar	0.805
	Ksl-2	a		Lambda-K,	0.465			
	Coefficient k-2 and k-3							
	Psi-2	0.000		Beta-M,2	1.742	Beta-M,V,3	1.300	
	Beta-M,Psi	1.800		a-2	0.0587	<= 0.8	M-V,3	1.45
	V-load 3	Ja		k-2	0.996	<= 1.5	Delta-M,3	41.33
	C-load 3	Nein		Psi-3	0.096		Beta-M,3	1.718
	Beta-M,V,2	1.300		Beta-M,Psi	1.733		a-3	0.2794
	M-V,2	87.93	kNm	V-load 2	Ja		k-3	<= 0.8
	Delta-M,2	752.95	kNm	C-load 2	Nein			0.976
	Design							<= 1.5
	D-N	0.087		D-M,3	0.127			
	D-M,2	0.313		D-NM	0.528	< 1.0		
	16	0.000	CO98	0.575	1) Design to (28) fulfilled			
	Section properties RO 127x10							
	A	36.76	cm^2	Ksl-2	a	Ksl-3	a	
	I-2	633.55	cm^4	I-3	633.55	cm^4		
	W-2	-99.77	cm^3	W-3	99.77	cm^3		
	Forces and moments							
	N	-337.28	kN	M-2,end	1.85	kNm	M-3,beg	2.16
	M-T	-0.24	kNm	M-2,max	1.85	kNm	M-3,end	0.23
	V-3	2.44	kN	x-M2,max	2.650	m	M-3,min	-1.97
	M-2	-2.93	kNm	V-2	1.55	kN	x-M3,min	2.650
	M-2,beg	0.00	kNm	M-3	2.16	kNm	VT	2.65
	Reduction factor Kappa							
	s-K,2	2.655	m	Kappa-2 b	0.699	Ksl-3	a	
	N-Cr,2	1862.86	kN	s-K,3	2.655	m	Kappa-3 b	0.699
	Lambda-K,	0.843		N-Cr,3	1862.86	kN	Kappa bar	0.699
	Ksl-2	a		Lambda-K,	0.843			
	Coefficient k-2 and k-3							
	Psi-2	0.130		Beta-M,2	1.597	Beta-M,V,3	1.300	
	Beta-M,Psi	1.709		a-2	-0.3042	<= 0.8	M-V,3	0.99
	V-load 3	Ja		k-2	1.122	<= 1.5	Delta-M,3	4.13
	C-load 3	Nein		Psi-3	0.106		Beta-M,3	1.623
	Beta-M,V,2	1.300		Beta-M,Psi	1.725		a-3	-0.2596
	M-V,2	1.31	kNm	V-load 2	Ja		k-3	<= 0.8
	Delta-M,2	4.78	kNm	C-load 2	Nein			1.104
	Design							<= 1.5
	D-N	0.401		D-M,3	0.073			
D-M,2	0.101		D-NM	0.575	< 1.0			
17	0.000	CO97	0.401	1) Design to (28) fulfilled				
	Section properties RO 127x10							
	A	36.76	cm^2	Ksl-2	a	Ksl-3	a	
	I-2	633.55	cm^4	I-3	633.55	cm^4		
	W-2	-99.77	cm^3	W-3	99.77	cm^3		
	Forces and moments							
	N	-213.32	kN	M-2,end	1.68	kNm	M-3,beg	0.04
	M-T	0.64	kNm	M-2,max	1.68	kNm	M-3,end	0.90
	V-3	2.60	kN	x-M2,max	2.650	m	M-3,max	0.90
	M-2	-3.64	kNm	V-2	-0.72	kN	x-M3,max	2.650
	M-2,beg	0.00	kNm	M-3	-1.00	kNm	VT	2.06
	Reduction factor Kappa							
	s-K,2	2.655	m	Kappa-2 b	0.699	Ksl-3	a	
	N-Cr,2	1862.86	kN	s-K,3	2.655	m	Kappa-3 b	0.699
	Lambda-K,	0.843		N-Cr,3	1862.86	kN	Kappa bar	0.699
	Ksl-2	a		Lambda-K,	0.843			
	Coefficient k-2 and k-3							
	Psi-2	0.008		Beta-M,2	1.691	Beta-M,V,3	1.300	
	Beta-M,Psi	1.794		a-2	-0.1455	<= 0.8	M-V,3	0.33
	V-load 3	Ja		k-2	1.037	<= 1.5	Delta-M,3	1.90
	C-load 3	Nein		Psi-3	0.060		Beta-M,3	1.678
	Beta-M,V,2	1.300		Beta-M,Psi	1.758		a-3	-0.1670
	M-V,2	1.11	kNm	V-load 2	Ja		k-3	<= 0.8
	Delta-M,2	5.32	kNm	C-load 2	Nein			1.042
	Design							<= 1.5
	D-N	0.254		D-M,3	0.032			
D-M,2	0.116		D-NM	0.401	< 1.0			
18	0.000	CO97	0.391	1) Design to (28) fulfilled				
	Section properties HE-B 600							
	A	270.00	cm^2	Ksl-2	a	Ksl-3	b	
	I-2	171000.0	cm^4	I-3	13530.00	cm^4		
	W-2	-5700.00	cm^3	W-3	902.00	cm^3		
	Forces and moments							
	N	-620.80	kN	M-2,beg	0.00	kNm	M-3	-38.44
	V-3	309.89	kN	M-2,end	165.92	kNm	M-3,beg	0.00
	M-2	-587.03	kNm	V-2	-16.49	kN	M-3,end	2.89
	Reduction factor Kappa							
	s-K,2	2.500	m	Kappa-2 b	0.974	Ksl-3	b	
	N-Cr,2	567068.0	kN	s-K,3	2.500	m	Kappa-3 b	0.805
	Lambda-K,	0.131	< 0.2	N-Cr,3	44868.00	kN	Kappa bar	0.805
	Ksl-2	a		Lambda-K,	0.465			
	Coefficient k-2 and k-3							
	Psi-2	0.000		Beta-M,2	1.742	Beta-M,V,3	1.300	
	Beta-M,Psi	1.800		a-2	0.0587	<= 0.8	M-V,3	1.45
	V-load 3	Ja		k-2	0.996	<= 1.5	Delta-M,3	41.33
	C-load 3	Nein		Psi-3	0.096		Beta-M,3	1.718
	Beta-M,V,2	1.300		Beta-M,Psi	1.733		a-3	0.2794
	M-V,2	87.93	kNm	V-load 2	Ja		k-3	<= 0.8
	Delta-M,2	752.95	kNm	C-load 2	Nein			0.976
	Design							<= 1.5
	D-N	0.087		D-M,3	0.127			
	D-M,2	0.313		D-NM	0.528	< 1.0		



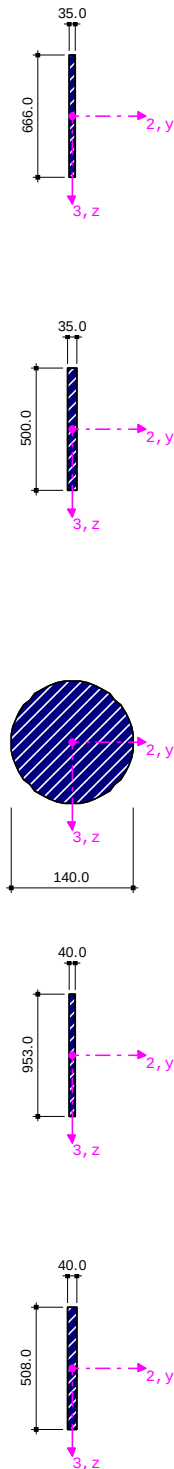
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Position: CTK 41 T x (24+37+18)m-M

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
				I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴
				W-2	-5700.00 cm ³	W-3	902.00 cm ³
				Forces and moments			
				N	-858.45 kN	M-2, beg	435.81 kNm
				V-3	-357.40 kN	M-2, end	211.20 kNm
				M-2	435.81 kNm	V-2	38.83 kN
				M-3		M-3, beg	17.72 kNm
						M-3, end	17.72 kNm
				Reduction factor Kappa			
				s-K,2	0.625 m	Kappa-2 b	0.993
				N-Cr,2	9073090. kN	s-K,3	0.625 m
				Lambda-K,	0.033 < 0.2	N-Cr,3	717888.0 kN
				Ksl-2	a	Lambda-K,	0.116 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.485	k-2	0.991 <= 1.5
				Beta-M,Psi	1.461	Psi-3	0.475
				V-load 3	Nein	Beta-M,Psi	1.467
				a-2	0.0910 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.102	D-M,3	0.057
				D-M,2	0.232	D-NM	0.391 < 1.0
19	0.000	CO97	0.335	1) Design to (28) fulfilled			
				Section properties HE-B 600			
				A	270.00 cm ²	Ksl-2	a
				I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴
				W-2	-5700.00 cm ³	W-3	902.00 cm ³
				Forces and moments			
				N	-631.64 kN	M-2, beg	349.29 kNm
				V-3	-287.11 kN	M-2, end	168.48 kNm
				M-2	349.29 kNm	V-2	-42.21 kN
				M-3		M-3, beg	-22.60 kNm
						M-3, end	0.00 kNm
				M-3, end	10.18 kNm		
				Reduction factor Kappa			
				s-K,2	0.625 m	Kappa-2 b	0.993
				N-Cr,2	9073090. kN	s-K,3	0.625 m
				Lambda-K,	0.033 < 0.2	N-Cr,3	717888.0 kN
				Ksl-2	a	Lambda-K,	0.116 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.482	k-2	0.993 <= 1.5
				Beta-M,Psi	1.462	Psi-3	0.101
				V-load 3	Nein	Beta-M,Psi	1.729
				a-2	0.0911 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.075	D-M,3	0.074
				D-M,2	0.186	D-NM	0.335 < 1.0
20	830.000	CO98	0.497	1) Design to (28) fulfilled			
				Section properties HE-A 160			
				A	38.80 cm ²	Ksl-2	b
				I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴
				W-2	-220.00 cm ³	W-3	76.90 cm ³
				Forces and moments			
				N	-24.64 kN	M-2, min	-7.90 kNm
				V-3	-4.10 kN	x-M2, min	0.830 m
				M-2	-7.90 kNm	V-2	-16.63 kN
				M-2, beg	0.34 kNm	M-3	9.26 kNm
				M-2, end	0.00 kNm	M-3, beg	0.30 kNm
				Reduction factor Kappa			
				s-K,2	0.831 m	Kappa-2 b	0.961
				N-Cr,2	50096.30 kN	s-K,3	0.831 m
				Lambda-K,	0.167 < 0.2	N-Cr,3	18478.69 kN
				Ksl-2	b	Lambda-K,	0.275
				Coefficient k-2 and k-3			
				Psi-2	0.639	k-2	1.002 <= 1.5
				Beta-M,Psi	1.353	Psi-3	0.032
				V-load 3	Nein	Beta-M,Psi	1.777
				a-2	-0.0980 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.022	D-M,3	0.365
				D-M,2	0.110	D-NM	0.497 < 1.0
21	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
				Section properties IS 302/250/15/20			
				A	139.30 cm ²	Ksl-2	b
				I-2	22162.40 cm ⁴	I-3	5215.70 cm ⁴
				W-2	-1467.70 cm ³	W-3	417.26 cm ³
				Forces and moments			
				N	0.00 kN	M-2, min	-67.64 kNm
				V-3	-24.15 kN	x-M2, min	7.430 m
				M-2	112.29 kNm	V-2	7.59 kN
				M-2, beg	112.29 kNm	M-3	18.85 kNm
				M-2, end	0.00 kNm	M-3, beg	18.85 kNm
				M-3, end	6.15 kNm		
					-2.85 kNm		
					4.460 m		
22	1790.000	CO99	0.162	1) Design to (28) fulfilled			
				Section properties HE-A 160			
				A	38.80 cm ²	Ksl-2	b
				I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴
				W-2	-220.00 cm ³	W-3	76.90 cm ³
				Forces and moments			
				N	-17.61 kN	M-2, beg	3.26 kNm
				V-3	-3.85 kN	M-2, end	0.15 kNm
				M-2	-5.44 kNm	V-2	-1.88 kN
				M-3		M-3, beg	1.68 kNm
						M-3, end	0.00 kNm
						M-3, end	1.68 kNm
				Reduction factor Kappa			
				s-K,2	1.788 m	Kappa-2 b	0.913
						Ksl-3	c

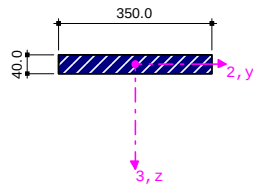
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

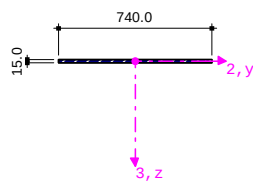
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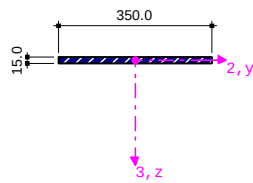
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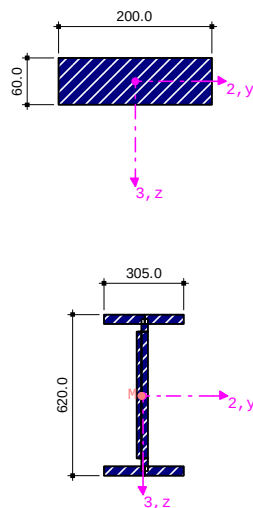
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	N-Cr,2	10832.09	kN	s-K,3	1.788	m	Kappa-3 b
	Lambda-K,	0.359		N-Cr,3	3995.55	kN	Kappa bar
	Ksl-2	b		Lambda-K,	0.591		
	Coefficient k-2 and k-3						
	Psi-2	0.583		Beta-M,2	1.377		Beta-M,V,3
	Beta-M,Psi	1.392		a-2	-0.3290	<= 0.8	M-V,3
	V-load 3	Ja		k-2	1.005	<= 1.5	Delta-M,3
	C-load 3	Nein		Psi-3	0.079		Beta-M,3
	Beta-M,V,2	1.300		Beta-M,Psi	1.745		a-3
	M-V,2	1.39	kNm	V-load 2	Ja		k-3
	Delta-M,2	8.70	kNm	C-load 2	Nein		
	Design						
	D-N	0.019		D-M,3	0.067		
	D-M,2	0.076		D-NM	0.162	< 1.0	



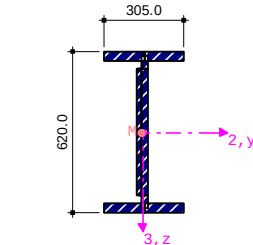
23	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties IS 302/250/15/20						
	A	139.30	cm^2	Ksl-2	b	Ksl-3	c
	I-2	22162.40	cm^4	I-3	5215.70	cm^4	
	W-2	-1467.70	cm^3	W-3	417.26	cm^3	
	Forces and moments						
	N	0.00	kN	M-2,end	24.44	kNm	M-3,end 5.91 kNm
	V-3	9.39	kN	V-2	7.22	kN	M-3,min -2.95 kNm
	M-2	-43.95	kNm	M-3	16.69	kNm	x-M3,min 4.460 m
	M-2,beq	30.99	kNm	M-3,beq	16.69	kNm	



24	0.000	CO97	0.360	1) Design to (28) fulfilled			
	Section properties HE-A 160						
	A	38.80	cm^2	Ksl-2	b	Ksl-3	c
	I-2	1670.00	cm^4	I-3	616.00	cm^4	
	W-2	-220.00	cm^3	W-3	76.90	cm^3	
	Forces and moments						
	N	-26.78	kN	M-2,end	1.98	kNm	M-3,end
	V-3	2.18	kN	V-2	12.70	kN	M-3,min
	M-2	-5.31	kNm	M-3	6.66	kNm	x-M3,min
	M-2,beg	2.34	kNm	M-3,beg	6.66	kNm	0.830 m
	Reduction factor Kappa						
	s-K,2	0.831	m	Kappa-2 b	0.961	Ksl-3	c
	N-Cr,2	50096.30	kN	s-K,3	0.831	m	Kappa-3 b
	Lambda-K,	0.167	< 0.2	N-Cr,3	18478.59	kN	Kappa bar
	Ksl-2		b	Lambda-K,	0.275		0.870
	Coefficient k-2 and k-3						
	Psi-2	0.846		k-2	1.003	<= 1.5	a-3
	Beta-M,Psi	1.208		Psi-3	0.000		k-3
	V-load 3	Nein		Beta-M,Psi	1.800		0.4197 <= 0.8
	a-2	-0.1464	<= 0.8	V-load 2	Nein		0.990 <= 1.5
Design							
D-N	0.024		D-M,3	0.262			
D-NM,2	0.074		D-NM	0.360	< 1.0		



26	2470.000	CO98	0.584	1) Design to (28) fulfilled			
Section properties RO 127x10							
A	36.76	cm^2	Ksl-2	a	Ksl-3	a	
I-2	633.55	cm^4	I-3	633.55	cm^4		
W-2	-99.77	cm^3	W-3	99.77	cm^3		
Forces and moments							
N	-322.23	kN	M-2,beq	0.00	kNm	M-3,beq	3.74 kNm
M-T	-0.20	kNm	M-2,end	1.42	kNm	M-3,end	0.00 kNm
V-3	-0.69	kN	V-2	3.67	kN	VT	3.53 kN
M-2	1.42	kNm	M-3	-5.33	kNm		
Reduction factor Kappa							
s-K,2	2.469	m	Kappa-2 b	0.731		Ksl-3	a
N-Cr,2	2153.84	kN	s-K,3	2.469	m	Kappa-3 b	0.731
Lambda-K,	0.784		N-Cr,3	2153.84	kN	Kappa bar	0.731
Ksl-2	a		Lambda-K,	0.784			
Coefficient k-2 and k-3							
Psi-2	0.236		Beta-M,2	1.531		Beta-M,V,3	1.300
Beta-M,Psi	1.635		a-2	-0.3602	<= 0.8	M-V,3	1.69 kNm
V-load 3	Ja		k-2	1.132	<= 1.5	Delta-M,3	9.07 kNm
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.707
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	-0.0838 <= 0.8
M-V,2	0.95	kNm	V-load 2	Ja		k-3	1.031 <= 1.5
Delta-M,2	3.07	kNm	C-load 2	Nein			
Design							
D-N	0.366		D-M,3	0.168			
D-M,2	0.049		D-NM	0.584	< 1.0		



27	2470.000	CO97	0.424	1) Design to (28) fulfilled			
Section properties RO 127x10							
A	36.76	cm^2	Ksl-2	a	Ksl-3	a	
I-2	633.55	cm^4	I-3	633.55	cm^4		
W-2	-99.77	cm^3	W-3	99.77	cm^3		
Forces and moments							
N	-201.55	kN	M-2,beg	0.00	kNm	M-3,beg	0.45 kNm
M-T	0.30	kNm	M-2,end	1.39	kNm	M-3,end	4.70 kNm
V-3	-0.67	kN	V-2	-2.93	kN	VT	2.71 kN
M-2	1.39	kNm	M-3	4.70	kNm		
Reduction factor Kappa							
s-K,2	2.469	m	Kappa-2 b	0.731	Ksl-3	a	
N-Cr,2	2153.84	kN	s-K,3	2.469	m	Kappa-3 b	0.731
Lambda-K,	0.784		N-Cr,3	2153.84	kN	Kappa bar	0.731

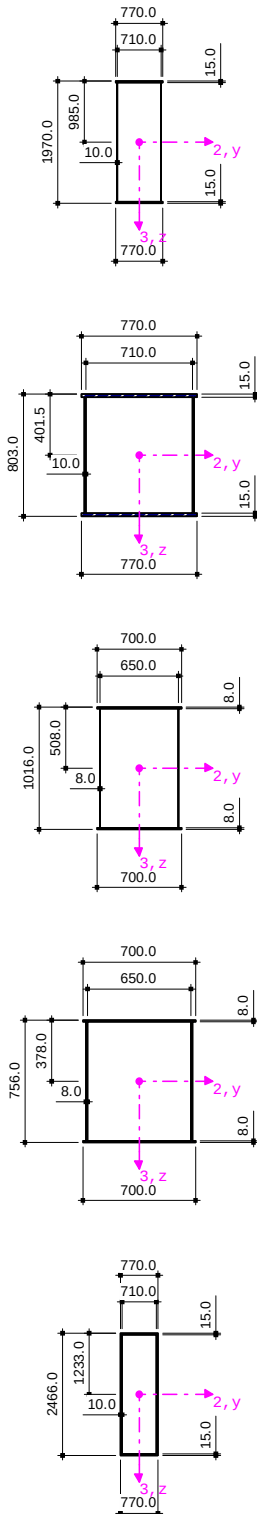
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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
				Lambda-K,	0.784		
				Coefficient k-2 and k-3			
				Psi-2	0.154	Beta-M,2	1.571
				Beta-M,Psi	1.692	a-2	-0.2978 <= 0.8
				V-load 3	Ja	k-2	1.068 <= 1.5
				C-load 3	Nein	Psi-3	0.096
				Beta-M,V,2	1.300	Beta-M,Psi	1.733
				M-V,2	0.97 kNm	V-load 2	Ja
				Delta-M,2	3.14 kNm	C-load 2	Nein
				Design			
				D-N	0.229	D-M,3	0.149
				D-M,2	0.045	D-NM	0.424 < 1.0
29	170.000	CO97	0.594	1) Design to (28) fulfilled			
				Section properties HE-B 600			
				A	270.00 cm ²	Ksl-2	a
				I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴
				W-2	-5700.00 cm ³	W-3	902.00 cm ³
				Forces and moments			
				N	-1020.41 kN	M-2,min	-187.74 kNm
				V-3	-338.25 kN	x-M2,min	0.170 m
				M-2	-187.74 kNm	V-2	121.93 kN
				M-2,beg	1.50 kNm	M-3	-118.17 kNm
				M-2,end	0.00 kNm	M-3,beg	0.00 kNm
				Reduction factor Kappa			
				s-K,2	0.175 m	Kappa-2 b	0.998
				N-Cr,2	1.1572e8 kN	s-K,3	0.175 m
				Lambda-K,	0.009 < 0.2	N-Cr,3	9156820. kN
				Ksl-2	a	Lambda-K,	0.033 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.685	Beta-M,2	1.320
				Beta-M,Psi	1.320	a-2	0.1139 <= 0.8
				V-load 3	Ja	k-2	0.987 <= 1.5
				C-load 3	Nein	Psi-3	0.837
				Beta-M,V,2	1.300	Beta-M,Psi	1.214
				M-V,2	1.69 kNm	V-load 2	Ja
				Delta-M,2	189.24 kNm	C-load 2	Nein
				Design			
				D-N	0.117	D-M,3	0.377
				D-M,2	0.099	D-NM	0.594 < 1.0
30	170.000	CO97	0.468	1) Design to (28) fulfilled			
				Section properties HE-B 600			
				A	270.00 cm ²	Ksl-2	a
				I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴
				W-2	-5700.00 cm ³	W-3	902.00 cm ³
				Forces and moments			
				N	-785.63 kN	M-2,min	-88.62 kNm
				V-3	-239.25 kN	x-M2,min	0.170 m
				M-2	-88.62 kNm	V-2	-107.97 kN
				M-2,beg	53.37 kNm	M-3	102.29 kNm
				M-2,end	42.27 kNm	M-3,beg	85.41 kNm
				Reduction factor Kappa			
				s-K,2	0.175 m	Kappa-2 b	0.998
				N-Cr,2	1.1572e8 kN	s-K,3	0.175 m
				Lambda-K,	0.009 < 0.2	N-Cr,3	9156820. kN
				Ksl-2	a	Lambda-K,	0.033 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.792	Beta-M,2	1.246
				Beta-M,Psi	1.246	a-2	0.1125 <= 0.8
				V-load 3	Ja	k-2	0.990 <= 1.5
				C-load 3	Nein	Psi-3	0.835
				Beta-M,V,2	1.300	Beta-M,Psi	1.216
				M-V,2	1.19 kNm	V-load 2	Ja
				Delta-M,2	141.99 kNm	C-load 2	Nein
				Design			
				D-N	0.090	D-M,3	0.331
				D-M,2	0.047	D-NM	0.468 < 1.0
31	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
				Section properties Kastent(A) 374/15/12/350/550/374/15			
				A	237.00 cm ²	W-2,max	3942.86 cm ³
				A-2	79.10 cm ²	Ksl-2	c
				I-2	108429.0 cm ⁴	A-3	115.22 cm ²
				W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴
				Forces and moments			
				N	0.00 kN	M-2,beg	0.00 kNm
				V-3	335.46 kN	M-2,end	0.74 kNm
				M-2	-142.90 kNm	V-2	-1152.22 kN
						M-3	-322.33 kNm
						M-3,beg	0.00 kNm
						M-3,end	209.38 kNm
32	0.000	CO97	0.814	1) Design to (28) fulfilled			
				Section properties IS 302/250/8/20			
				A	120.96 cm ²	Ksl-2	b
				I-2	21113.30 cm ⁴	I-3	5209.45 cm ⁴
				W-2	-1398.22 cm ³	W-3	416.76 cm ³
				Forces and moments			
				N	-1059.94 kN	M-2,beg	38.56 kNm
				V-3	-12.33 kN	M-2,end	0.00 kNm
				M-2	38.56 kNm	V-2	5.07 kN
				Reduction factor Kappa			
				s-K,2	5.500 m	Kappa-2 b	0.854
						Ksl-3	c

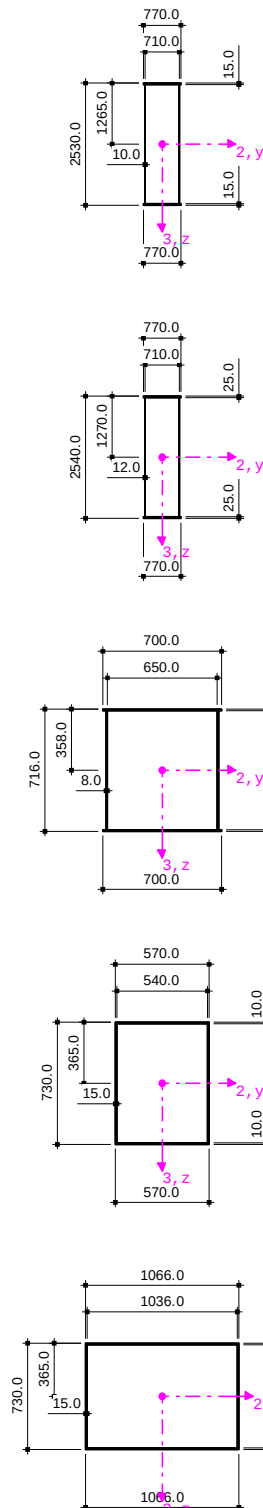
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Position: CTK 41 T x (24+37+18)m-M

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
				N-Cr,2	14466.09 kN	s-K,3	5.500 m
				Lambda-K,	0.549	N-Cr,3	3569.32 kN
				Ksl-2	b	Lambda-K,	1.105
				Coefficient k-2 and k-3			
				Psi-2	0.000	Beta-M,2	1.696
				Beta-M,Psi	1.800	a-2	-0.2273 <= 0.8
				V-load 3	Ja	k-2	1.071 <= 1.5
				C-load 3	Nein	Psi-3	0.000
				Beta-M,V,2	1.300	Beta-M,Psi	1.800
				M-V,2	14.14 kNm	V-load 2	Ja
				Delta-M,2	67.81 kNm	C-load 2	Nein
				Design			
				D-N		D-M,3	0.136
				D-M,2	0.588	D-NM	0.814 < 1.0
33	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
				Section properties Kasten(A) 374/15/12/350/550/374/15			
				A	237.00 cm ²	W-2,max	3942.86 cm ³
				A-2	79.10 cm ²	Ksl-2	c
				I-2	108429.0 cm ⁴	A-3	115.22 cm ²
				W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴
				Forces and moments			
				N	0.00 kN	M-2,beg	0.00 kNm
				V-3	-14.47 kN	M-2,end	0.00 kNm
				M-2	-57.18 kNm	V-2	52.23 kN
						M-3	-281.78 kNm
						M-3,beg	0.00 kNm
						M-3,end	2.54 kNm
35	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
				Section properties Kasten(A) 374/15/12/350/550/374/15			
				A	237.00 cm ²	W-2,max	3942.86 cm ³
				A-2	79.10 cm ²	Ksl-2	c
				I-2	108429.0 cm ⁴	A-3	115.22 cm ²
				W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴
				Forces and moments			
				N	0.00 kN	M-2,min	-57.18 kNm
				V-3	-6.95 kN	x-M2,min	2.160 m
				M-2	-46.10 kNm	V-2	52.23 kN
				M-2,beg	0.00 kNm	M-3	-248.92 kNm
				M-2,end	0.00 kNm	M-3,beg	0.00 kNm
						M-3,end	2.160 m
36	1300.000	CO97	0.371	1) Design to (28) fulfilled			
				Section properties IS 374/260/8/20			
				A	130.72 cm ²	Ksl-2	b
				I-2	35100.80 cm ⁴	I-3	5860.09 cm ⁴
				W-2	-1877.05 cm ³	W-3	450.78 cm ³
				Forces and moments			
				N	-0.47 kN	M-2,beg	21.89 kNm
				V-3	45.78 kN	M-2,end	13.86 kNm
				M-2	13.86 kNm	V-2	-70.85 kN
						M-3	51.45 kNm
						M-3,beg	7.80 kNm
						M-3,end	51.45 kNm
				Reduction factor Kappa			
				s-K,2	1.300 m	Kappa-2 b	0.976
				N-Cr,2	430477.0 kN	s-K,3	1.300 m
				Lambda-K,	0.105 < 0.2	N-Cr,3	71868.20 kN
				Ksl-2	b	Lambda-K,	0.256
				Coefficient k-2 and k-3			
				Psi-2	0.633	k-2	1.000 <= 1.5
				Beta-M,Psi	1.357	Psi-3	0.152
				V-load 3	Nein	Beta-M,Psi	1.694
				a-2	-0.0350 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.000	D-M,3	0.349
				D-M,2	0.023	D-NM	0.371 < 1.0
37	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
				Section properties Kasten(A) 374/15/12/350/550/374/15			
				A	237.00 cm ²	W-2,max	3942.86 cm ³
				A-2	79.10 cm ²	Ksl-2	c
				I-2	108429.0 cm ⁴	A-3	115.22 cm ²
				W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴
				Forces and moments			
				N	0.00 kN	M-2,beg	0.00 kNm
				V-3	6.28 kN	M-2,end	0.00 kNm
				M-2	-46.98 kNm	V-2	52.23 kN
						M-3	-253.63 kNm
						M-3,beg	0.00 kNm
						M-3,end	0.00 kNm
38	0.000	CO97	0.601	1) Design to (28) fulfilled			
				Section properties IS 302/250/8/20			
				A	120.96 cm ²	Ksl-2	b
				I-2	21113.30 cm ⁴	I-3	5209.45 cm ⁴
				W-2	-1398.22 cm ³	W-3	416.76 cm ³
				Forces and moments			
				N	-813.24 kN	M-2,beg	9.93 kNm
				V-3	6.84 kN	M-2,end	21.21 kNm
				M-2	-15.61 kNm	V-2	4.24 kN
						M-3	14.20 kNm
						M-3,beg	14.20 kNm
						M-3,end	0.00 kNm
				Reduction factor Kappa			
				s-K,2	5.500 m	Kappa-2 b	0.854
				N-Cr,2	14466.09 kN	s-K,3	5.500 m
				Lambda-K,	0.549	N-Cr,3	3569.32 kN
				Ksl-2	b	Lambda-K,	1.105
				Coefficient k-2 and k-3			
				Psi-2	0.468	Beta-M,2	1.436
				Beta-M,Psi	1.472	a-2	-0.5125 <= 0.8
				V-load 3	Ja	k-2	1.123 <= 1.5
						Beta-M,V,3	1.300
						M-V,3	4.53 kNm
						Delta-M,3	23.31 kNm

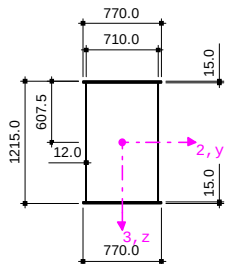
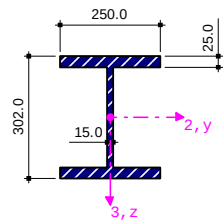
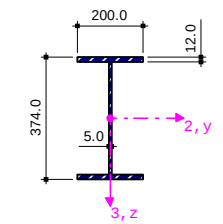
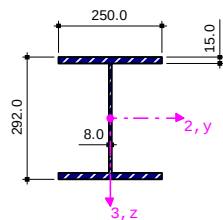
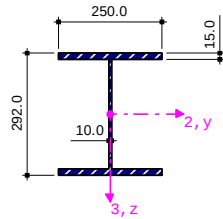
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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
				C-load 3	Nein	Psi-3	0.000
				Beta-M,V,2	1.300	Beta-M,Psi	1.800
				M-V,2	7.80 kNm	V-load 2	Ja
				Delta-M,2	36.82 kNm	C-load 2	Nein
				Design			
				D-N	0.451	D-M,3	0.111
				D-M,2	0.038	D-NM	0.601 < 1.0
39	430.000	CO98	0.374	1) Design to (28) fulfilled			
				Section properties Kasten(A) 374/15/12/350/550/374/15			
				A	237.00 cm ²	W-2,max	3942.86 cm ³
				A-2	79.10 cm ²	Ksl-2	c
				I-2	108429.0 cm ⁴	A-3	115.22 cm ²
				W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴
				Forces and moments			
				N	-9.57 kN	M-2,beg	1.81 kNm
				V-3	-213.14 kN	M-2,end	0.00 kNm
				M-2	-89.61 kNm	V-2	962.46 kN
				Reduction factor Kappa			
				s-K,2	0.425 m	Kappa-2 b	0.992
				N-Cr,2	12441900 kN	s-K,3	0.425 m
				Lambda-K,	0.026 < 0.2	N-Cr,3	6193940. kN
				Ksl-2	c	Lambda-K,	0.037 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.000	k-2	1.000 <= 1.5
				Beta-M,Psi	1.800	Psi-3	0.109
				V-load 3	Nein	Beta-M,Psi	1.724
				a-2	0.1622 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.001	D-M,3	0.303
				D-M,2	0.069	D-NM	0.374 < 1.0
40	0.000	CO97	0.571	1) Design to (28) fulfilled			
				Section properties HE-B 600			
				A	270.00 cm ²	Ksl-2	a
				I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴
				W-2	-5700.00 cm ³	W-3	902.00 cm ³
				Forces and moments			
				N	-2172.17 kN	M-2,max	8.58 kNm
				V-3	-8.81 kN	x-M2,max	0.170 m
				M-2	-85.03 kNm	M-2,min	-86.01 kNm
				M-2,beg	7.55 kNm	x-M2,min	0.170 m
				M-2,end	8.58 kNm	V-2	-67.20 kN
				Reduction factor Kappa			
				s-K,2	0.175 m	Kappa-2 b	0.998
				N-Cr,2	1.1572e8 kN	s-K,3	0.175 m
				Lambda-K,	0.009 < 0.2	N-Cr,3	9156820. kN
				Ksl-2	a	Lambda-K,	0.033 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.989	Beta-M,2	1.108
				Beta-M,Psi	1.108	a-2	0.1100 <= 0.8
				V-load 3	Ja	k-2	0.973 <= 1.5
				C-load 3	Nein	Psi-3	0.974
				Beta-M,V,2	1.300	Beta-M,Psi	1.118
				M-V,2	0.03 kNm	V-load 2	Ja
				Delta-M,2	94.59 kNm	C-load 2	Nein
				Design			
				D-N	0.249	D-M,3	0.278
				D-M,2	0.044	D-NM	0.571 < 1.0
41	0.000	CO97	0.570	1) Design to (28) fulfilled			
				Section properties HE-B 600			
				A	270.00 cm ²	Ksl-2	a
				I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴
				W-2	-5700.00 cm ³	W-3	902.00 cm ³
				Forces and moments			
				N	-1844.52 kN	M-2,end	23.10 kNm
				V-3	-13.77 kN	M-2,min	-42.49 kNm
				M-2	-41.28 kNm	x-M2,min	0.170 m
				M-2,beg	24.58 kNm	V-2	-59.94 kN
				Reduction factor Kappa			
				s-K,2	0.175 m	Kappa-2 b	0.998
				N-Cr,2	1.1572e8 kN	s-K,3	0.175 m
				Lambda-K,	0.009 < 0.2	N-Cr,3	9156820. kN
				Ksl-2	a	Lambda-K,	0.033 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.972	Beta-M,2	1.120
				Beta-M,Psi	1.120	a-2	0.1102 <= 0.8
				V-load 3	Ja	k-2	0.977 <= 1.5
				C-load 3	Nein	Psi-3	0.906
				Beta-M,V,2	1.300	Beta-M,Psi	1.166
				M-V,2	0.04 kNm	V-load 2	Ja
				Delta-M,2	67.07 kNm	C-load 2	Nein
				Design			
				D-N	0.212	D-M,3	0.336
				D-M,2	0.022	D-NM	0.570 < 1.0
42	0.000	CO97	0.576	1) Design to (28) fulfilled			
				Section properties HE-B 600			
				A	270.00 cm ²	Ksl-2	a
				I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴
						Ksl-3	b

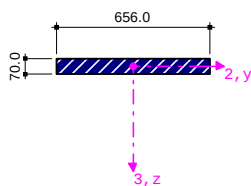
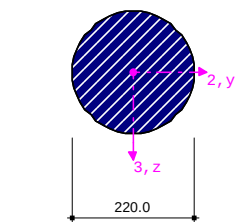
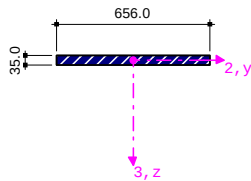
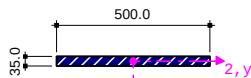
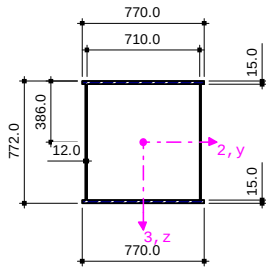
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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	W-2	-5700.00	cm^3	W-3	902.00	cm^3			
	Forces and moments								
	N	-1939.65	kN	M-2,end	4.02	kNm	M-3	85.41	kNm
	V-3	-12.39	kN	M-2,max	10.55	kNm	M-3,beg	85.41	kNm
	M-2	-83.64	kNm	x-M2,max	1.160	m	M-3,end	0.62	kNm
	M-2,beg	9.11	kNm	V-2	40.77	kN			
	Reduction factor Kappa								
	s-K,2	2.325	m	Kappa-2 b	0.976		Ksl-3	b	
	N-Cr,2	655645.0	kN	s-K,3	2.325	m	Kappa-3 b	0.820	
	Lambda-K,	0.122	< 0.2	N-Cr,3	51876.50	kN	Kappa bar	0.820	
	Ksl-2	a		Lambda-K,	0.433				
	Coefficient k-2 and k-3								
	Psi-2	0.691		Beta-M,2	1.316		Beta-M,V,3	1.300	
	Beta-M,Psi	1.317		a-2	-0.0403	<= 0.8	M-V,3	4.85	kNm
	V-load 3	Ja		k-2	1.009	<= 1.5	Delta-M,3	95.13	kNm
	C-load 3	Nein		Psi-3	0.007		Beta-M,3	1.770	
	Beta-M,V,2	1.300		Beta-M,Psi	1.795		a-3	0.3428	<= 0.8
	M-V,2	4.37	kNm	V-load 2	Ja		k-3	0.908	<= 1.5
	Delta-M,2	131.65	kNm	C-load 2	Nein				
	Design								
	D-N	0.268		D-M,3	0.263				
	D-M,2	0.045		D-NM	0.576	< 1.0			
43	0.000	CO97	0.600	1) Design to (28) fulfilled					
Section properties RO 127x10									
A	36.76	cm^2	Ksl-2	a		Ksl-3	a		
I-2	633.55	cm^4	I-3	633.55	cm^4				
W-2	-99.77	cm^3	W-3	99.77	cm^3				
Forces and moments									
N	-304.50	kN	M-2,beg	0.00	kNm	M-3,beg	5.34	kNm	
M-T	0.63	kNm	M-2,end	2.28	kNm	M-3,end	0.00	kNm	
V-3	2.61	kN	V-2	3.39	kN	VT	3.65	kN	
M-2	-2.75	kNm	M-3	5.34	kNm				
Reduction factor Kappa									
s-K,2	2.469	m	Kappa-2 b	0.731		Ksl-3	a		
N-Cr,2	2153.84	kN	s-K,3	2.469	m	Kappa-3 b	0.731		
Lambda-K,	0.784		N-Cr,3	2153.84	kN	Kappa bar	0.731		
Ksl-2	a		Lambda-K,	0.784					
Coefficient k-2 and k-3									
Psi-2	0.000		Beta-M,2	1.694		Beta-M,V,3	1.300		
Beta-M,Psi	1.800		a-2	-0.1049	<= 0.8	M-V,3	1.34	kNm	
V-load 3	Ja		k-2	1.036	<= 1.5	Delta-M,3	8.43	kNm	
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.721		
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	-0.0627	<= 0.8	
M-V,2	1.07	kNm	V-load 2	Ja		k-3	1.022	<= 1.5	
Delta-M,2	5.03	kNm	C-load 2	Nein					
Design									
D-N	0.346		D-M,3	0.167					
D-M,2	0.087		D-NM	0.600	< 1.0				
44	0.000	CO98	0.523	1) Design to (28) fulfilled					
Section properties RO 127x10									
A	36.76	cm^2	Ksl-2	a		Ksl-3	a		
I-2	633.55	cm^4	I-3	633.55	cm^4				
W-2	-99.77	cm^3	W-3	99.77	cm^3				
Forces and moments									
N	-255.18	kN	M-2,beg	0.00	kNm	M-3,beg	0.57	kNm	
M-T	-0.35	kNm	M-2,end	1.93	kNm	M-3,end	2.51	kNm	
V-3	2.27	kN	V-2	-2.93	kN	VT	3.36	kN	
M-2	-2.19	kNm	M-3	-4.70	kNm				
Reduction factor Kappa									
s-K,2	2.469	m	Kappa-2 b	0.731		Ksl-3	a		
N-Cr,2	2153.84	kN	s-K,3	2.469	m	Kappa-3 b	0.731		
Lambda-K,	0.784		N-Cr,3	2153.84	kN	Kappa bar	0.731		
Ksl-2	a		Lambda-K,	0.784					
Coefficient k-2 and k-3									
Psi-2	0.265		Beta-M,2	1.509		Beta-M,V,3	1.300		
Beta-M,Psi	1.615		a-2	-0.3949	<= 0.8	M-V,3	1.54	kNm	
V-load 3	Ja		k-2	1.115	<= 1.5	Delta-M,3	7.21	kNm	
C-load 3	Nein		Psi-3	0.262		Beta-M,3	1.549		
Beta-M,V,2	1.300		Beta-M,Psi	1.617		a-3	-0.3312	<= 0.8	
M-V,2	1.39	kNm	V-load 2	Ja		k-3	1.096	<= 1.5	
Delta-M,2	4.12	kNm	C-load 2	Nein					
Design									
D-N	0.290		D-M,3	0.158					
D-M,2	0.075		D-NM	0.523	< 1.0				
45	0.000	CO97	0.554	1) Design to (28) fulfilled					
Section properties HE-B 600									
A	270.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	171000.0	cm^4	I-3	13530.00	cm^4				
W-2	-5700.00	cm^3	W-3	902.00	cm^3				
Forces and moments									
N	-1724.68	kN	M-2,beg	24.44	kNm	M-3	-94.38	kNm	
V-3	-17.63	kN	M-2,end	6.16	kNm	M-3,beg	0.00	kNm	
M-2	-40.33	kNm	V-2	-45.30	kN	M-3,end	10.97	kNm	
Reduction factor Kappa									
s-K,2	2.325	m	Kappa-2 b	0.976		Ksl-3	b		
N-Cr,2	655645.0	kN	s-K,3	2.325	m	Kappa-3 b	0.820		
Lambda-K,	0.122	< 0.2	N-Cr,3	51876.50	kN	Kappa bar	0.820		
Ksl-2	a		Lambda-K,	0.433					

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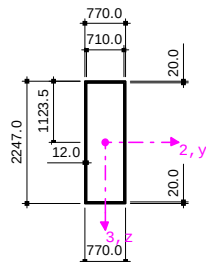
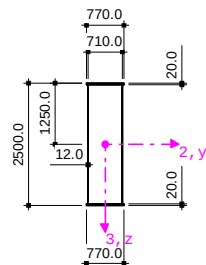
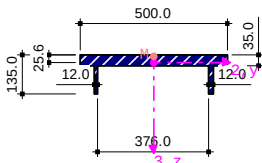
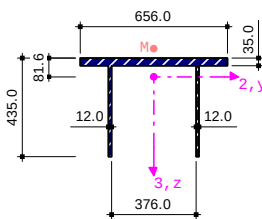
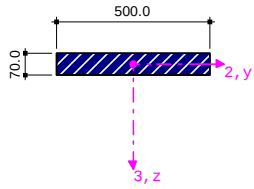
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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	Coefficient k-2 and k-3						
	Psi-2	0.472	Beta-M,2	1.461	Beta-M,V,3	1.300	
	Beta-M,Psi	1.470	a-2	-0.0048 <= 0.8	M-V,3	5.47 kNm	
	V-load 3	Ja	k-2	1.001 <= 1.5	Delta-M,3	105.35 kNm	
	C-load 3	Nein	Psi-3	0.025	Beta-M,3	1.758	
	Beta-M,V,2	1.300	Beta-M,Psi	1.783	a-3	0.3323 <= 0.8	
	M-V,2	5.29 kNm	V-load 2	Ja	k-3	0.921 <= 1.5	
	Delta-M,2	109.87 kNm	C-load 2	Nein			
	Design						
	D-N	0.238	D-M,3	0.294			
	D-M,2	0.022	D-NM	0.554 < 1.0			
46	830.000	CO98	0.399	1) Design to (28) fulfilled			
	Section properties HE-A 160						
	A	38.80 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴			
	W-2	-220.00 cm ³	W-3	76.90 cm ³			
	Forces and moments						
	N	-0.82 kN	M-2,max	4.39 kNm	M-3	8.49 kNm	
	V-3	-1.55 kN	x-M2,max	0.830 m	M-3,beg	0.00 kNm	
	M-2	4.39 kNm	M-2,min	-0.31 kNm	M-3,end	8.49 kNm	
	M-2,beg	3.81 kNm	x-M2,min	0.830 m	M-3,max	8.49 kNm	
	M-2,end	4.39 kNm	V-2	-15.38 kN	x-M3,max	0.830 m	
	Reduction factor Kappa						
	s-K,2	0.831 m	Kappa-2 b	0.961	Ksl-3	c	
	N-Cr,2	50096.30 kN	s-K,3	0.831 m	Kappa-3 b	0.870	
	Lambda-K,	0.167 < 0.2	N-Cr,3	18478.59 kN	Kappa bar	0.870	
	Ksl-2	b	Lambda-K,	0.275			
	Coefficient k-2 and k-3						
	Psi-2	0.868	k-2	1.000 <= 1.5	a-3	0.4197 <= 0.8	
	Beta-M,Psi	1.192	Psi-3	0.000	k-3	1.000 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.800			
	a-2	-0.1515 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.001	D-M,3	0.337			
	D-M,2	0.061	D-NM	0.399 < 1.0			
47	5000.000	CO98	0.115	1) Design to (28) fulfilled			
	Section properties HE-B 300						
	A	149.00 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	25170.00 cm ⁴	I-3	8560.00 cm ⁴			
	W-2	-1680.00 cm ³	W-3	571.00 cm ³			
	Forces and moments						
	N	-37.46 kN	M-2,beg	9.91 kNm	M-3	9.79 kNm	
	V-3	9.69 kN	M-2,end	26.92 kNm	M-3,beg	5.09 kNm	
	M-2	26.92 kNm	V-2	-8.32 kN	M-3,end	9.79 kNm	
	Reduction factor Kappa						
	s-K,2	5.000 m	Kappa-2 b	0.868	Ksl-3	c	
	N-Cr,2	20867.09 kN	s-K,3	5.000 m	Kappa-3 b	0.568	
	Lambda-K,	0.507	N-Cr,3	7096.64 kN	Kappa bar	0.568	
	Ksl-2	b	Lambda-K,	0.869			
	Coefficient k-2 and k-3						
	Psi-2	0.368	Beta-M,2	1.493	Beta-M,V,3	1.300	
	Beta-M,Psi	1.542	a-2	-0.4022 <= 0.8	M-V,3	2.33 kNm	
	V-load 3	Ja	k-2	1.004 <= 1.5	Delta-M,3	17.31 kNm	
	C-load 3	Nein	Psi-3	0.520	Beta-M,3	1.418	
	Beta-M,V,2	1.300	Beta-M,Psi	1.436	a-3	-0.4886 <= 0.8	
	M-V,2	9.87 kNm	V-load 2	Ja	k-3	1.007 <= 1.5	
	Delta-M,2	48.49 kNm	C-load 2	Nein			
	Design						
	D-N	0.014	D-M,3	0.053			
	D-M,2	0.049	D-NM	0.115 < 1.0			
48	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties IS 302/250/15/20						
	A	139.30 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	22162.40 cm ⁴	I-3	5215.70 cm ⁴			
	W-2	-1467.70 cm ³	W-3	417.26 cm ³			
	Forces and moments						
	N	0.00 kN	M-2,min	-14.19 kNm	M-3,end	4.57 kNm	
	V-3	-8.48 kN	x-M2,min	7.430 m	M-3,min	-6.20 kNm	
	M-2	55.50 kNm	V-2	8.37 kN	x-M3,min	5.950 m	
	M-2,beg	55.50 kNm	M-3	19.20 kNm			
	M-2,end	0.12 kNm	M-3,beg	19.20 kNm			
49	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties RO 127x5,6						
	A	21.36 cm ²	Ksl-2	a	Ksl-3	a	
	I-2	394.30 cm ⁴	I-3	394.30 cm ⁴			
	W-2	-62.09 cm ³	W-3	62.09 cm ³			
	Forces and moments						
	N	0.00 kN	M-2,end	0.00 kNm	M-3,beg	0.00 kNm	
	M-T	0.06 kNm	M-2,max	0.56 kNm	M-3,end	0.39 kNm	
	V-3	1.03 kN	x-M2,max	2.820 m	VT	0.98 kN	
	M-2	-1.28 kNm	V-2	-0.14 kN			
	M-2,beg	0.00 kNm	M-3	-0.42 kNm			
50	0.000	CO97	0.103	1) Design to (28) fulfilled			
	Section properties HE-A 160						
	A	38.80 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴			



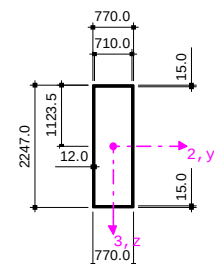
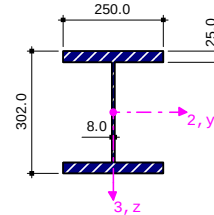
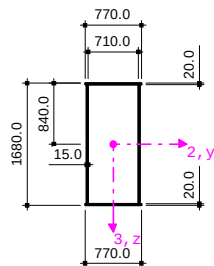
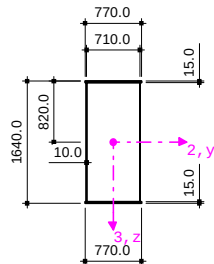
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	W-2	-220.00	cm^3	W-3	76.90	cm^3	
	Forces and moments						
	N	-0.93	kN	M-2,end	3.66	kNm	M-3 1.23 kNm
	V-3	0.56	kN	M-2,max	3.87	kNm	M-3,beg 1.23 kNm
	M-2	3.80	kNm	x-M2,max	0.890	m	M-3,end 0.50 kNm
	M-2,beg	3.80	kNm	V-2	1.23	kN	
	Reduction factor Kappa						
	s-K,2	1.788	m	Kappa-2 b	0.913		Ksl-3 c
	N-Cr,2	10832.09	kN	s-K,3	1.788	m	Kappa-3 b 0.714
	Lambda-K,	0.359		N-Cr,3	3995.55	kN	Kappa bar 0.714
	Ksl-2	b		Lambda-K,	0.591		
	Coefficient k-2 and k-3						
	Psi-2	0.963		Beta-M,2	1.132		Beta-M,V,3 1.300
	Beta-M,Psi	1.126		a-2	-0.5052	<= 0.8	M-V,3 0.71 kNm
	V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3 2.23 kNm
	C-load 3	Nein		Psi-3	0.440		Beta-M,3 1.431
	Beta-M,V,2	1.300		Beta-M,Psi	1.492		a-3 -0.1432 <= 0.8
	M-V,2	0.14	kNm	V-load 2	Ja		k-3 1.000 <= 1.5
	Delta-M,2	3.87	kNm	C-load 2	Nein		
	Design						
D-N	0.001		D-M,3	0.049			
D-M,2	0.053		D-NM	0.103	< 1.0		
51	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties HE-B 300						
	A	149.00	cm^2	Ksl-2	b		Ksl-3 c
	I-2	25170.00	cm^4	I-3	8560.00	cm^4	
	W-2	-1680.00	cm^3	W-3	571.00	cm^3	
	Forces and moments						
	N	0.00	kN	M-2,beg	38.04	kNm	M-3 -8.11 kNm
	V-3	-8.76	kN	M-2,end	17.81	kNm	M-3,beg 4.97 kNm
	M-2	38.04	kNm	V-2	6.00	kN	M-3,end 10.95 kNm
52	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties IS 302/250/15/20						
	A	139.30	cm^2	Ksl-2	b		Ksl-3 c
	I-2	22162.40	cm^4	I-3	5215.70	cm^4	
	W-2	-1467.70	cm^3	W-3	417.26	cm^3	
	Forces and moments						
	N	0.00	kN	M-2,max	26.07	kNm	M-3,end 4.59 kNm
	V-3	9.47	kN	x-M2,max	7.430	m	M-3,min -5.25 kNm
	M-2	-49.36	kNm	V-2	7.86	kN	x-M3,min 5.950 m
	M-2,beg	0.00	kNm	M-3	17.13	kNm	
	M-2,end	26.07	kNm	M-3,beg	17.13	kNm	
53	0.000	CO97	0.410	1) Design to (28) fulfilled			
	Section properties HE-A 160						
	A	38.80	cm^2	Ksl-2	b		Ksl-3 c
	I-2	1670.00	cm^4	I-3	616.00	cm^4	
	W-2	-220.00	cm^3	W-3	76.90	cm^3	
	Forces and moments						
	N	-1.51	kN	M-2,end	4.23	kNm	M-3,end 0.31 kNm
	V-3	1.80	kN	V-2	15.48	kN	M-3,min -4.27 kNm
	M-2	4.89	kNm	M-3	8.58	kNm	x-M3,min 0.830 m
	M-2,beg	4.89	kNm	M-3,beg	8.58	kNm	
	Reduction factor Kappa						
	s-K,2	0.831	m	Kappa-2 b	0.961		Ksl-3 c
	N-Cr,2	50096.30	kN	s-K,3	0.831	m	Kappa-3 b 0.870
	Lambda-K,	0.167	< 0.2	N-Cr,3	18478.59	kN	Kappa bar 0.870
	Ksl-2	b		Lambda-K,	0.275		
	Coefficient k-2 and k-3						
	Psi-2	0.865		k-2	1.000	<= 1.5	a-3 0.3548 <= 0.8
	Beta-M,Psi	1.194		Psi-3	0.169		k-3 1.000 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.682		
	a-2	-0.1508	<= 0.8	V-load 2	Nein		
	Design						
	D-N	0.001		D-M,3	0.341		
	D-M,2	0.068		D-NM	0.410	< 1.0	
54	2500.000	CO97	0.524	1) Design to (28) fulfilled			
	Section properties HE-B 600						
	A	270.00	cm^2	Ksl-2	a		Ksl-3 b
	I-2	171000.0	cm^4	I-3	13530.00	cm^4	
	W-2	-5700.00	cm^3	W-3	902.00	cm^3	
	Forces and moments						
	N	-1946.51	kN	M-2,beg	4.34	kNm	M-3 -45.38 kNm
	V-3	-43.60	kN	M-2,end	0.00	kNm	M-3,beg 1.47 kNm
	M-2	-202.46	kNm	V-2	17.03	kN	M-3,end 0.00 kNm
	Reduction factor Kappa						
	s-K,2	2.500	m	Kappa-2 b	0.974		Ksl-3 b
	N-Cr,2	567068.0	kN	s-K,3	2.500	m	Kappa-3 b 0.805
	Lambda-K,	0.131	< 0.2	N-Cr,3	44868.00	kN	Kappa bar 0.805
	Ksl-2	a		Lambda-K,	0.465		
	Coefficient k-2 and k-3						
	Psi-2	0.591		Beta-M,2	1.384		Beta-M,V,3 1.300
	Beta-M,Psi	1.386		a-2	-0.0350	<= 0.8	M-V,3 0.49 kNm
	V-load 3	Ja		k-2	1.008	<= 1.5	Delta-M,3 46.85 kNm
	C-load 3	Nein		Psi-3	0.088		Beta-M,3 1.734
	Beta-M,V,2	1.300		Beta-M,Psi	1.739		a-3 0.2946 <= 0.8
	M-V,2	5.53	kNm	V-load 2	Ja		k-3 0.919 <= 1.5
	Delta-M,2	206.80	kNm	C-load 2	Nein		

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	Design						
	D-N	0.274	D-M,3	0.141			
	D-M,2	0.109	D-NM	0.524	< 1.0		
55	2650.000	CO97	0.503	1) Design to (28) fulfilled			
	Section properties RO 127x10						
	A	36.76 cm ²	Ksl-2	a		Ksl-3	a
	I-2	633.55 cm ⁴	I-3	633.55 cm ⁴			
	W-2	-99.77 cm ³	W-3	99.77 cm ³			
	Forces and moments						
	N	-300.06 kN	M-2,end	0.00 kNm		M-3,beg	0.76 kNm
	M-T	-0.63 kNm	M-2,min	-2.60 kNm		M-3,end	1.47 kNm
	V-3	-1.79 kN	x-M2,min	2.650 m		M-3,max	1.47 kNm
	M-2	-2.60 kNm	V-2	-1.00 kN		x-M3,max	2.650 m
	M-2,beg	0.24 kNm	M-3	1.47 kNm		VT	1.42 kN
	Reduction factor Kappa						
	s-K,2	2.655 m	Kappa-2 b	0.699		Ksl-3	a
	N-Cr,2	1862.86 kN	s-K,3	2.655 m		Kappa-3 b	0.699
	Lambda-K,	0.843	N-Cr,3	1862.86 kN		Kappa bar	0.699
	Ksl-2	a	Lambda-K,	0.843			
	Coefficient k-2 and k-3						
	Psi-2	0.092	Beta-M,2	1.632		Beta-M,V,3	1.300
	Beta-M,Psi	1.735	a-2	-0.2444	<= 0.8	M-V,3	0.97 kNm
	V-load 3	Ja	k-2	1.087	<= 1.5	Delta-M,3	2.66 kNm
	C-load 3	Nein	Psi-3	0.840		Beta-M,3	1.244
	Beta-M,V,2	1.300	Beta-M,Psi	1.212		a-3	-0.8993 <= 0.8
	M-V,2	0.67 kNm	V-load 2	Ja		k-3	1.321 <= 1.5
	Delta-M,2	2.84 kNm	C-load 2	Nein			
	Design						
	D-N	0.357	D-M,3	0.059			
	D-M,2	0.087	D-NM	0.503	< 1.0		
56	2650.000	CO98	0.434	1) Design to (28) fulfilled			
	Section properties RO 127x10						
	A	36.76 cm ²	Ksl-2	a		Ksl-3	a
	I-2	633.55 cm ⁴	I-3	633.55 cm ⁴			
	W-2	-99.77 cm ³	W-3	99.77 cm ³			
	Forces and moments						
	N	-252.68 kN	M-2,end	0.00 kNm		M-3,beg	1.38 kNm
	M-T	0.54 kNm	M-2,min	-2.28 kNm		M-3,end	0.41 kNm
	V-3	-1.74 kN	x-M2,min	2.650 m		M-3,min	-1.73 kNm
	M-2	-2.28 kNm	V-2	1.16 kN		x-M3,min	2.650 m
	M-2,beg	0.62 kNm	M-3	-1.73 kNm		VT	1.55 kN
	Reduction factor Kappa						
	s-K,2	2.655 m	Kappa-2 b	0.699		Ksl-3	a
	N-Cr,2	1862.86 kN	s-K,3	2.655 m		Kappa-3 b	0.699
	Lambda-K,	0.843	N-Cr,3	1862.86 kN		Kappa bar	0.699
	Ksl-2	a	Lambda-K,	0.843			
	Coefficient k-2 and k-3						
	Psi-2	0.018	Beta-M,2	1.683		Beta-M,V,3	1.300
	Beta-M,Psi	1.788	a-2	-0.1588	<= 0.8	M-V,3	0.85 kNm
	V-load 3	Ja	k-2	1.048	<= 1.5	Delta-M,3	3.11 kNm
	C-load 3	Nein	Psi-3	0.297		Beta-M,3	1.513
	Beta-M,V,2	1.300	Beta-M,Psi	1.592		a-3	-0.4463 <= 0.8
	M-V,2	0.62 kNm	V-load 2	Ja		k-3	1.134 <= 1.5
	Delta-M,2	2.90 kNm	C-load 2	Nein			
	Design						
	D-N	0.301	D-M,3	0.060			
	D-M,2	0.073	D-NM	0.434	< 1.0		
57	2500.000	CO97	0.502	1) Design to (28) fulfilled			
	Section properties HE-B 600						
	A	270.00 cm ²	Ksl-2	a		Ksl-3	b
	I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴			
	W-2	-5700.00 cm ³	W-3	902.00 cm ³			
	Forces and moments						
	N	-1735.17 kN	M-2,beg	6.00 kNm		M-3	51.54 kNm
	V-3	-52.54 kN	M-2,end	0.00 kNm		M-3,beg	3.15 kNm
	M-2	-180.09 kNm	V-2	-19.66 kN		M-3,end	51.54 kNm
	Reduction factor Kappa						
	s-K,2	2.500 m	Kappa-2 b	0.974		Ksl-3	b
	N-Cr,2	567068.0 kN	s-K,3	2.500 m		Kappa-3 b	0.805
	Lambda-K,	0.131 < 0.2	N-Cr,3	44868.00 kN		Kappa bar	0.805
	Ksl-2	a	Lambda-K,	0.465			
	Coefficient k-2 and k-3						
	Psi-2	0.462	Beta-M,2	1.471		Beta-M,V,3	1.300
	Beta-M,Psi	1.477	a-2	-0.0123	<= 0.8	M-V,3	0.40 kNm
	V-load 3	Ja	k-2	1.002	<= 1.5	Delta-M,3	53.34 kNm
	C-load 3	Nein	Psi-3	0.061		Beta-M,3	1.754
	Beta-M,V,2	1.300	Beta-M,Psi	1.757		a-3	0.3130 <= 0.8
	M-V,2	6.21 kNm	V-load 2	Ja		k-3	0.924 <= 1.5
	Delta-M,2	186.09 kNm	C-load 2	Nein			
	Design						
	D-N	0.244	D-M,3	0.161			
	D-M,2	0.097	D-NM	0.502	< 1.0		
58	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Kasten(A) 374/15/12/350/550/374/15						
	A	237.00 cm ²	W-2,max	3942.86 cm ³		W-3,min	-2886.58 cm ³
	A-2	79.10 cm ²	Ksl-2	c		W-3,max	2886.58 cm ³
	I-2	108429.0 cm ⁴	A-3	115.22 cm ²		Ksl-3	c

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method				
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4		
	Forces and moments							
	N	0.00	kN	M-2,beg	0.00	kNm	M-3	-347.36 kNm
	V-3	92.29	kN	M-2,end	0.72	kNm	M-3,beg	0.00 kNm
	M-2	-38.19	kNm	V-2	-921.02	kN	M-3,end	75.47 kNm
59	5500.000	CO97	0.934	1) Design to (28) fulfilled				
	Section properties IS 302/250/8/20							
	A	120.96	cm^2	Ksl-2	b		Ksl-3	c
	I-2	21113.30	cm^4	I-3	5209.45	cm^4		
	W-2	-1398.22	cm^3	W-3	416.76	cm^3		
	Forces and moments							
	N	-1314.84	kN	M-2,beg	5.57	kNm	M-3	-21.10 kNm
	V-3	3.23	kN	M-2,end	11.02	kNm	M-3,beg	17.44 kNm
	M-2	11.02	kNm	V-2	7.01	kN	M-3,end	0.00 kNm
	Reduction factor Kappa							
	s-K,2	5.500	m	Kappa-2 b	0.854		Ksl-3	c
	N-Cr,2	14466.09	kN	s-K,3	5.500	m	Kappa-3 b	0.455
	Lambda-K,	0.549		N-Cr,3	3569.32	kN	Kappa bar	0.455
	Ksl-2	b		Lambda-K,	1.105			
	Coefficient k-2 and k-3							
	Psi-2	0.505		Beta-M,2	1.409		Beta-M,V,3	1.300
	Beta-M,Psi	1.446		a-2	-0.5414	<= 0.8	M-V,3	8.69 kNm
	V-load 3	Ja		k-2	1.211	<= 1.5	Delta-M,3	38.54 kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.687
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	-0.1811 <= 0.8
	M-V,2	4.70	kNm	V-load 2	Ja		k-3	1.132 <= 1.5
	Delta-M,2	18.72	kNm	C-load 2	Nein			
	Design							
	D-N	0.730		D-M,3	0.175			
	D-M,2	0.029		D-NM	0.934	< 1.0		
60	1300.000	CO97	0.379	1) Design to (28) fulfilled				
	Section properties Kasten(A) 374/15/12/350/550/374/15							
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58 cm^3
	A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58 cm^3
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4		
	Forces and moments							
	N	-1.02	kN	M-2,beg	0.00	kNm	M-3	-336.38 kNm
	V-3	-10.50	kN	M-2,end	0.00	kNm	M-3,beg	156.51 kNm
	M-2	-30.03	kNm	V-2	379.07	kN	M-3,end	0.00 kNm
	Reduction factor Kappa							
	s-K,2	1.300	m	Kappa-2 b	0.974		Ksl-3	c
	N-Cr,2	1329770.0	kN	s-K,3	1.300	m	Kappa-3 b	0.965
	Lambda-K,	0.080	< 0.2	N-Cr,3	662000.0	kN	Kappa bar	0.965
	Ksl-2	c		Lambda-K,	0.114	< 0.2		
	Coefficient k-2 and k-3							
	Psi-2	0.677		k-2	1.000	<= 1.5	a-3	0.1006 <= 0.8
	Beta-M,Psi	1.326		Psi-3	0.000		k-3	1.000 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800			
	a-2	0.0647	<= 0.8	V-load 2	Nein			
	Design							
	D-N	0.000		D-M,3	0.356			
	D-M,2	0.023		D-NM	0.379	< 1.0		
61	0.000	CO98	0.339	1) Design to (28) fulfilled				
	Section properties Kasten(A) 374/15/12/350/550/374/15							
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58 cm^3
	A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58 cm^3
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4		
	Forces and moments							
	N	-7.79	kN	M-2,beg	0.00	kNm	M-3	-292.73 kNm
	V-3	17.58	kN	M-2,end	0.00	kNm	M-3,beg	0.00 kNm
	M-2	-36.42	kNm	V-2	-332.61	kN	M-3,end	139.67 kNm
	Reduction factor Kappa							
	s-K,2	1.300	m	Kappa-2 b	0.974		Ksl-3	c
	N-Cr,2	1329770.0	kN	s-K,3	1.300	m	Kappa-3 b	0.965
	Lambda-K,	0.080	< 0.2	N-Cr,3	662000.0	kN	Kappa bar	0.965
	Ksl-2	c		Lambda-K,	0.114	< 0.2		
	Coefficient k-2 and k-3							
	Psi-2	0.557		k-2	1.000	<= 1.5	a-3	0.1006 <= 0.8
	Beta-M,Psi	1.410		Psi-3	0.000		k-3	1.000 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800			
	a-2	0.0782	<= 0.8	V-load 2	Nein			
	Design							
	D-N	0.001		D-M,3	0.310			
	D-M,2	0.028		D-NM	0.339	< 1.0		
62	5500.000	CO97	0.856	1) Design to (28) fulfilled				
	Section properties IS 302/250/8/20							
	A	120.96	cm^2	Ksl-2	b		Ksl-3	c
	I-2	21113.30	cm^4	I-3	5209.45	cm^4		
	W-2	-1398.22	cm^3	W-3	416.76	cm^3		
	Forces and moments							
	N	-1185.22	kN	M-2,beg	2.06	kNm	M-3	-19.09 kNm
	V-3	-3.35	kN	M-2,end	0.00	kNm	M-3,beg	16.22 kNm
	M-2	-17.34	kNm	V-2	6.42	kN	M-3,end	0.00 kNm
	Reduction factor Kappa							
	s-K,2	5.500	m	Kappa-2 b	0.854		Ksl-3	c

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Position: CTK 41 T x (24+37+18)m-M

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DESIGN BY ELEMENT

Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	14466.09 0.549 b 0.187 1.669 Ja Nein 1.300 0.82 19.40 0.658 0.042	kN kNm kNm	s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	5.500 3569.32 1.105 1.654 -0.2735 1.096 0.000 1.800 Ja Nein 0.157 0.856	m kN =< 0.8 =< 1.5 =< 0.8 =< 1.5 1.300 8.06 35.31 1.686 -0.1840 1.121	Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3
63	430.000	CO98	0.340	1) Design to (28) fulfilled			
	Section properties A A-2 I-2 W-2,min Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	430.000 237.00 79.10 108429.0 -3942.86 -5.18 -92.19 -38.25 0.425 12441900 0.026 c 0.000 1.800 Nein 0.1622 0.001 0.030	cm^2 cm^2 cm^4 cm^3 kN kN kNm Kappa m kN < 0.2 c 0.000 1.800 =< 0.8	15/12/350/550/374/15 W-2,max Ksl-2 A-3 I-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	3942.86 c 115.22 53979.10 0.66 0.00 788.53 0.992 0.425 6193940 0.037 1.000 0.037 1.774 Nein 0.310 0.340	cm^3 cm^3 cm^2 cm^4 kNm kNm kN m m kN < 0.2 =< 1.5 =< 1.5 =< 1.5 =< 1.5 =< 1.0	W-3,min W-3,max Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3
64	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties A I-2 W-2 Forces and moments N V-3 M-2	149.00 25170.00 -1680.00 0.00 -21.45 22.44	cm^2 cm^4 cm^3 kN kN kNm	Ksl-2 I-3 W-3 M-2,beg M-2,end V-2	b 8560.00 571.00 22.44 0.00 -11.95	cm^4 cm^3 kNm kNm kN	Ksl-3 M-3 M-3,beg M-3,end
65	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties A I-2 W-2 Forces and moments N V-3 M-2	149.00 25170.00 -1680.00 0.00 -24.15 30.45	cm^2 cm^4 cm^3 kN kN kNm	Ksl-2 I-3 W-3 M-2,beg M-2,end V-2	b 8560.00 571.00 30.45 2.89 -9.21	cm^4 cm^3 kNm kNm kN	Ksl-3 M-3 M-3,beg M-3,end
66	0.000	CO97	0.628	1) Design to (28) fulfilled			
	Section properties A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg M-2,end Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	270.00 171000.0 -5700.00 -2854.54 47.20 -158.19 0.00 44.46 3.454 297078.0 0.181 a 0.416 1.509 Ja Nein 1.300 14.80 202.65 0.450 0.086	cm^2 cm^4 cm^3 kN kN kNm kNm m kN < 0.2 a 0.416 1.509 =< 0.8 =< 1.5 =< 0.8 =< 1.5 =< 0.8 =< 1.5	HE-B 600 Ksl-2 I-3 W-3 M-2,max x-M2,max V-2 M-3 M-3,beg Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	a 13530.00 902.00 44.46 3.450 10.82 30.09 30.09 0.964 3.454 23505.59 0.643 1.494 -0.0569 1.019 0.000 1.800 Ja Nein 0.092 0.628	cm^4 cm^3 kNm m kN kN kNm m m kN kN kN =< 0.8 =< 1.5 =< 0.8 =< 1.5 =< 1.0	Ksl-3 M-3,end M-3,min x-M3,min Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3
67	0.000	CO98	0.639	1) Design to (28) fulfilled			
	Section properties A I-2	49.73 1563.98	cm^2 cm^4	Ksl-2 I-3	a 1563.98	cm^4	Ksl-3 a

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method			
	W-2	-185.86	cm^3	W-3	185.86	cm^3	
	Forces and moments						
	N	-594.43	kN	M-2,end	1.44	kNm	M-3,beg 2.84 kNm
	M-T	0.62	kNm	M-2,max	1.44	kNm	M-3,end 0.04 kNm
	V-3	2.55	kN	x-M2,max	3.570	m	M-3,min -2.47 kNm
	M-2	-3.50	kNm	V-2	1.46	kN	x-M3,min 3.570 m
	M-2,beg	0.00	kNm	M-3	2.84	kNm	VT 2.32 kN
	Reduction factor Kappa						
	s-K,2	3.572	m	Kappa-2 b	0.704		a
	N-Cr,2	2541.03	kN	s-K,3	3.572	m	Kappa-3 b 0.704
	Lambda-K,	0.839		N-Cr,3	2541.03	kN	Kappa bar 0.704
	Ksl-2	a		Lambda-K,	0.839		
	Coefficient k-2 and k-3						
	Psi-2	0.051		Beta-M,2	1.626		Beta-M,V,3 1.300
	Beta-M,Psi	1.764		a-2	-0.2785	<= 0.8	M-V,3 0.97 kNm
	V-load 3	Ja		k-2	1.145	<= 1.5	Delta-M,3 5.31 kNm
	C-load 3	Nein		Psi-3	0.158		Beta-M,3 1.619
	Beta-M,V,2	1.300		Beta-M,Psi	1.689		a-3 -0.2902 <= 0.8
	M-V,2	1.47	kNm	V-load 2	Ja		k-3 1.151 <= 1.5
	Delta-M,2	4.94	kNm	C-load 2	Nein		
Design							
D-N	0.519		D-M,3	0.054			
D-M,2	0.066		D-NM	0.639	< 1.0		
68	0.000	CO97	0.772	1) Design to (28) fulfilled			
Section properties RO 168,3x10							
A	49.73	cm^2	Ksl-2	a		Ksl-3 a	
I-2	1563.98	cm^4	I-3	1563.98	cm^4		
W-2	-185.86	cm^3	W-3	185.86	cm^3		
Forces and moments							
N	-681.54	kN	M-2,end	1.89	kNm	M-3,beg 1.49 kNm	
M-T	-0.70	kNm	M-2,max	1.89	kNm	M-3,end 3.55 kNm	
V-3	3.09	kN	x-M2,max	3.570	m	M-3,max 3.55 kNm	
M-2	-4.51	kNm	V-2	-2.18	kN	x-M3,max 3.570 m	
M-2,beg	0.00	kNm	M-3	-4.27	kNm	VT 3.08 kN	
Reduction factor Kappa							
s-K,2	3.572	m	Kappa-2 b	0.704		Ksl-3 a	
N-Cr,2	2541.03	kN	s-K,3	3.572	m	Kappa-3 b 0.704	
Lambda-K,	0.839		N-Cr,3	2541.03	kN	Kappa bar 0.704	
Ksl-2	a		Lambda-K,	0.839			
Coefficient k-2 and k-3							
Psi-2	0.000		Beta-M,2	1.670		Beta-M,V,3 1.300	
Beta-M,Psi	1.800		a-2	-0.2044	<= 0.8	M-V,3 1.90 kNm	
V-load 3	Ja		k-2	1.122	<= 1.5	Delta-M,3 7.82 kNm	
C-load 3	Nein		Psi-3	0.420		Beta-M,3 1.456	
Beta-M,V,2	1.300		Beta-M,Psi	1.506		a-3 -0.5630 <= 0.8	
M-V,2	1.67	kNm	V-load 2	Ja		k-3 1.335 <= 1.5	
Delta-M,2	6.40	kNm	C-load 2	Nein			
Design							
D-N	0.595		D-M,3	0.094			
D-M,2	0.083		D-NM	0.772	< 1.0		
69	0.000	CO97	0.624	1) Design to (28) fulfilled			
Section properties HE-B 600							
A	270.00	cm^2	Ksl-2	a		Ksl-3 b	
I-2	171000.0	cm^4	I-3	13530.00	cm^4		
W-2	-5700.00	cm^3	W-3	902.00	cm^3		
Forces and moments							
N	-2570.25	kN	M-2,max	27.99	kNm	M-3,end 8.95 kNm	
V-3	46.94	kN	x-M2,max	3.450	m	M-3,max 8.95 kNm	
M-2	-153.98	kNm	V-2	-15.19	kN	x-M3,max 3.450 m	
M-2,beg	0.00	kNm	M-3	-43.24	kNm		
M-2,end	27.99	kNm	M-3,beg	0.00	kNm		
Reduction factor Kappa							
s-K,2	3.454	m	Kappa-2 b	0.964		Ksl-3 b	
N-Cr,2	297078.0	kN	s-K,3	3.454	m	Kappa-3 b 0.718	
Lambda-K,	0.181	< 0.2	N-Cr,3	23505.9	kN	Kappa bar 0.718	
Ksl-2	a		Lambda-K,	0.643			
Coefficient k-2 and k-3							
Psi-2	0.456		Beta-M,2	1.466		Beta-M,V,3 1.300	
Beta-M,Psi	1.481		a-2	-0.0669	<= 0.8	M-V,3 5.96 kNm	
V-load 3	Ja		k-2	1.020	<= 1.5	Delta-M,3 52.19 kNm	
C-load 3	Nein		Psi-3	0.009		Beta-M,3 1.737	
Beta-M,V,2	1.300		Beta-M,Psi	1.793		a-3 0.2040 <= 0.8	
M-V,2	14.71	kNm	V-load 2	Ja		k-3 0.917 <= 1.5	
Delta-M,2	181.97	kNm	C-load 2	Nein			
Design							
D-N	0.405		D-M,3	0.134			
D-M,2	0.084		D-NM	0.624	< 1.0		
70	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
Section properties IS 302/250/15/20							
A	139.30	cm^2	Ksl-2	b		Ksl-3 c	
I-2	22162.40	cm^4	I-3	5215.70	cm^4		
W-2	-1467.70	cm^3	W-3	417.26	cm^3		
Forces and moments							
N	0.00	kN	M-2,min	-20.63	kNm	M-3,end 12.34 kNm	
V-3	-5.85	kN	x-M2,min	7.430	m	M-3,max 12.34 kNm	
M-2	24.48	kNm	V-2	4.83	kN	x-M3,max 7.430 m	
M-2,beg	24.48	kNm	M-3	7.64	kNm	M-3,min -2.73 kNm	
M-2,end	3.42	kNm	M-3,beg	7.64	kNm	x-M3,min 2.970 m	

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method
71	0.000	CO97	0.533	1) Design to (28) fulfilled
Section properties RO 168,3x10				
A	49.73	cm ²	Ksl-2	a
I-2	1563.98	cm ⁴	I-3	1563.98 cm ⁴
W-2	-185.86	cm ³	W-3	185.86 cm ³
Forces and moments				
N	-235.51	kN	M-2,end	1.61 kNm
M-T	1.42	kNm	M-2,max	1.69 kNm
V-3	3.54	kN	x-M2,max	4.230 m
M-2	-6.80	kNm	V-2	0.60 kN
M-2,beg	0.00	kNm	M-3	2.14 kNm
Reduction factor Kappa				
s-K,2	5.636	m	Kappa-2 b	0.427
N-Cr,2	1020.64	kN	s-K,3	5.636 m
Lambda-K,	1.324		N-Cr,3	1020.64 kN
Ksl-2	a		Lambda-K,	1.324
Coefficient k-2 and k-3				
Psi-2	0.279		Beta-M,2	1.461
Beta-M,Psi	1.604		a-2	-1.0766 <= 0.8
V-load 3	Ja		k-2	1.364 <= 1.5
C-load 3	Nein		Psi-3	0.154
Beta-M,V,2	1.300		Beta-M,Psi	1.692
M-V,2	3.99	kNm	V-load 2	Ja
Delta-M,2	8.49	kNm	C-load 2	Nein
Design				
D-N	0.339		D-M,3	0.042
D-M,2	0.153		D-NM	0.533 < 1.0
72	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required
Section properties IS 302/250/15/20				
A	139.30	cm ²	Ksl-2	b
I-2	22162.40	cm ⁴	I-3	5215.70 cm ⁴
W-2	-1467.70	cm ³	W-3	417.26 cm ³
Forces and moments				
N	0.00	kN	M-2,max	14.84 kNm
V-3	3.91	kN	x-M2,max	7.430 m
M-2	-14.09	kNm	V-2	4.95 kN
M-2,beg	3.95	kNm	M-3	8.43 kNm
M-2,end	14.84	kNm	M-3,beg	8.43 kNm
			x-M3,min	2.970 m
73	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required
Section properties HE-M 300				
A	303.00	cm ²	Ksl-2	b
I-2	59200.00	cm ⁴	I-3	19400.00 cm ⁴
W-2	-3480.00	cm ³	W-3	1250.00 cm ³
Forces and moments				
N	0.00	kN	M-2,beg	0.00 kNm
V-3	-21.54	kN	M-2,end	0.00 kNm
M-2	-21.06	kNm	V-2	-15.22 kN
			M-3	6.73 kNm
			M-3,beg	6.73 kNm
			M-3,end	87.32 kNm
74	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required
Section properties HE-M 300				
A	303.00	cm ²	Ksl-2	b
I-2	59200.00	cm ⁴	I-3	19400.00 cm ⁴
W-2	-3480.00	cm ³	W-3	1250.00 cm ³
Forces and moments				
N	0.00	kN	M-2,beg	2.89 kNm
V-3	-24.26	kN	M-2,end	0.00 kNm
M-2	-18.38	kNm	V-2	-12.49 kN
			M-3	5.41 kNm
			M-3,beg	5.41 kNm
			M-3,end	76.41 kNm
75	820.000	CO98	0.282	1) Design to (28) fulfilled
Section properties HE-A 160				
A	38.80	cm ²	Ksl-2	b
I-2	1670.00	cm ⁴	I-3	616.00 cm ⁴
W-2	-220.00	cm ³	W-3	76.90 cm ³
Forces and moments				
N	-1.04	kN	M-2,beg	3.38 kNm
V-3	-2.50	kN	M-2,end	2.34 kNm
M-2	2.34	kNm	V-2	-11.85 kN
			M-3	6.25 kNm
			M-3,beg	0.00 kNm
			M-3,end	6.25 kNm
Reduction factor Kappa				
s-K,2	0.816	m	Kappa-2 b	0.962
N-Cr,2	52010.89	kN	s-K,3	0.816 m
Lambda-K,	0.164 < 0.2		N-Cr,3	19184.90 kN
Ksl-2	b		Lambda-K,	0.270
Coefficient k-2 and k-3				
Psi-2	0.692		k-2	1.000 <= 1.5
Beta-M,Psi	1.315		Psi-3	0.000
V-load 3	Nein		Beta-M,Psi	1.800
a-2	-0.1062 <= 0.8		V-load 2	Nein
Design				
D-N	0.001		D-M,3	0.248
D-M,2	0.033		D-NM	0.282 < 1.0
76	0.000	CO98	0.119	1) Design to (28) fulfilled
Section properties HE-A 160				
A	38.80	cm ²	Ksl-2	b
I-2	1670.00	cm ⁴	I-3	616.00 cm ⁴
W-2	-220.00	cm ³	W-3	76.90 cm ³
Forces and moments				
N	-0.42	kN	M-2,end	2.54 kNm
			M-3	-2.04 kNm

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				V-3	0.50 kN	M-2,max	2.75 kNm
				M-2	2.67 kNm	x-M2,max	0.910 m
				M-2,beg	2.67 kNm	V-2	-1.92 kN
				Reduction factor Kappa			
				s-K,2	1.818 m	Kappa-2 b	0.911
				N-Cr,2	10467.29 kN	s-K,3	1.818 m
				Lambda-K,	0.365	N-Cr,3	3860.98 kN
				Ksl-2	b	Lambda-K,	0.601
				Coefficient k-2 and k-3			
				Psi-2	0.951	Beta-M,2	1.143
				Beta-M,Psi	1.134	a-2	-0.5081 <= 0.8
				V-load 3	Ja	k-2	1.000 <= 1.5
				C-load 3	Nein	Psi-3	0.245
				Beta-M,V,2	1.300	Beta-M,Psi	1.628
				M-V,2	0.15 kNm	V-load 2	Ja
				Delta-M,2	2.75 kNm	C-load 2	Nein
				Design			
				D-N	0.000	D-M,3	0.081
				D-M,2	0.037	D-NM	0.119 < 1.0
77	0.000	CO98	0.190	1) Design to (28) fulfilled			
				Section properties HE-A 160			
				A	38.80 cm ²	Ksl-2	b
				I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴
				W-2	-220.00 cm ³	W-3	76.90 cm ³
				Forces and moments			
				N	-0.27 kN	M-2,beg	2.63 kNm
				V-3	2.25 kN	M-2,end	3.54 kNm
				M-2	2.63 kNm	V-2	-7.76 kN
				Reduction factor Kappa			
				s-K,2	0.816 m	Kappa-2 b	0.962
				N-Cr,2	52010.89 kN	s-K,3	0.816 m
				Lambda-K,	0.164 < 0.2	N-Cr,3	19184.90 kN
				Ksl-2	b	Lambda-K,	0.270
				Coefficient k-2 and k-3			
				Psi-2	0.743	k-2	1.000 <= 1.5
				Beta-M,Psi	1.280	Psi-3	1.000
				V-load 3	Nein	Beta-M,Psi	1.100
				a-2	-0.1178 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.000	D-M,3	0.153
				D-M,2	0.037	D-NM	0.190 < 1.0
78	0.000	CO97	0.433	1) Design to (28) fulfilled			
				Section properties HE-B 600			
				A	270.00 cm ²	Ksl-2	a
				I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴
				W-2	-5700.00 cm ³	W-3	902.00 cm ³
				Forces and moments			
				N	-2848.88 kN	M-2,beg	44.58 kNm
				V-3	23.07 kN	M-2,end	57.33 kNm
				M-2	-67.05 kNm	V-2	-11.79 kN
				Reduction factor Kappa			
				s-K,2	1.600 m	Kappa-2 b	0.983
				N-Cr,2	1384440. kN	s-K,3	1.600 m
				Lambda-K,	0.084 < 0.2	N-Cr,3	109541.0 kN
				Ksl-2	a	Lambda-K,	0.298
				Coefficient k-2 and k-3			
				Psi-2	0.846	k-2	1.002 <= 1.5
				Beta-M,Psi	1.208	Psi-3	0.231
				V-load 3	Nein	Beta-M,Psi	1.639
				a-2	-0.0064 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.367	D-M,3	0.029
				D-M,2	0.036	D-NM	0.433 < 1.0
79	1600.000	CO97	0.393	1) Design to (28) fulfilled			
				Section properties HE-B 600			
				A	270.00 cm ²	Ksl-2	a
				I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴
				W-2	-5700.00 cm ³	W-3	902.00 cm ³
				Forces and moments			
				N	-2575.21 kN	M-2,beg	27.74 kNm
				V-3	-14.88 kN	M-2,end	28.45 kNm
				M-2	-66.98 kNm	V-2	-5.93 kN
				Reduction factor Kappa			
				s-K,2	1.600 m	Kappa-2 b	0.983
				N-Cr,2	1384440. kN	s-K,3	1.600 m
				Lambda-K,	0.084 < 0.2	N-Cr,3	109541.0 kN
				Ksl-2	a	Lambda-K,	0.298
				Coefficient k-2 and k-3			
				Psi-2	0.975	k-2	1.006 <= 1.5
				Beta-M,Psi	1.117	Psi-3	0.786
				V-load 3	Nein	Beta-M,Psi	1.250
				a-2	-0.0216 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.332	D-M,3	0.025
				D-M,2	0.036	D-NM	0.393 < 1.0
81	3200.000	CO98	0.558	1) Design to (28) fulfilled			
				Section properties RO 168,3x10			

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method				
	A	49.73	cm^2	Ksl-2	a	Ksl-3	a	
	I-2	1563.98	cm^4	I-3	1563.98			
	W-2	-185.86	cm^3	W-3	185.86			
	Forces and moments							
	N	-583.97	kN	M-2,max	0.63	M-3,beg	2.21	
	M-T	-0.31	kNm	x-M2,max	1.600	M-3,end	0.78	
	V-3	-1.54	kN	M-2,min	-1.93	M-3,min	-1.97	
	M-2	-1.93	kNm	x-M2,min	3.200	x-M3,min	3.200	
	M-2,beg	0.32	kNm	V-2	1.27	VT	1.69	
	M-2,end	0.00	kNm	M-3	-1.97			
	Reduction factor Kappa							
	s-K,2	3.205	m	Kappa-2 b	0.751	Ksl-3	a	
	N-Cr,2	3156.54	kN	s-K,3	3.205	Kappa-3 b	0.751	
	Lambda-K,	0.753		N-Cr,3	3156.54	Kappa bar	0.751	
	Ksl-2	a		Lambda-K,	0.753			
	Coefficient k-2 and k-3							
	Psi-2	0.565		Beta-M,2	1.360	Beta-M,V,3	1.300	
	Beta-M,Psi	1.405		a-2	-0.6143	M-V,3	0.98	
	V-load 3	Ja		k-2	1.294	Delta-M,3	4.18	
	C-load 3	Nein		Psi-3	0.353	Beta-M,3	1.493	
	Beta-M,V,2	1.300		Beta-M,Psi	1.553	a-3	-0.4129	
	M-V,2	1.10	kNm	V-load 2	Ja	k-3	1.197	
	Delta-M,2	2.56	kNm	C-load 2	Nein			
	Design							
	D-N	0.478		D-M,3	0.039			
	D-M,2	0.041		D-NM	0.558		< 1.0	
82	0.000	CO97	0.663	1) Design to (28) fulfilled				
	Section properties RO 168,3x10							
	A	49.73	cm^2	Ksl-2	a	Ksl-3	a	
	I-2	1563.98	cm^4	I-3	1563.98			
	W-2	-185.86	cm^3	W-3	185.86			
	Forces and moments							
	N	-665.09	kN	M-2,max	0.63	M-3,beg	0.70	
	M-T	0.63	kNm	x-M2,max	1.600	M-3,end	2.41	
	V-3	1.47	kN	M-2,min	-2.34	M-3,max	2.41	
	M-2	-2.04	kNm	x-M2,min	3.200	x-M3,max	3.200	
	M-2,beg	0.58	kNm	V-2	-1.80	VT	1.69	
	M-2,end	0.00	kNm	M-3	-3.45			
	Reduction factor Kappa							
	s-K,2	3.205	m	Kappa-2 b	0.751	Ksl-3	a	
	N-Cr,2	3156.54	kN	s-K,3	3.205	Kappa-3 b	0.751	
	Lambda-K,	0.753		N-Cr,3	3156.54	Kappa bar	0.751	
	Ksl-2	a		Lambda-K,	0.753			
	Coefficient k-2 and k-3							
	Psi-2	0.872		Beta-M,2	1.240	Beta-M,V,3	1.300	
	Beta-M,Psi	1.190		a-2	-0.7943	M-V,3	1.55	
	V-load 3	Ja		k-2	1.432	Delta-M,3	5.86	
	C-load 3	Nein		Psi-3	0.383	Beta-M,3	1.471	
	Beta-M,V,2	1.300		Beta-M,Psi	1.532	a-3	-0.4473	
	M-V,2	1.36	kNm	V-load 2	Ja	k-3	1.243	
	Delta-M,2	2.97	kNm	C-load 2	Nein			
	Design							
	D-N	0.544		D-M,3	0.071			
D-M,2	0.048		D-NM	0.663		< 1.0		
85	0.000	CO98	0.703	1) Design to (28) fulfilled				
	Section properties Venlo TREAGER 1A							
	A	670.81	cm^2	W-2,max	37678.89	W-3,min	-15062.7	
	A-2	143.10	cm^2	Ksl-2	c	W-3,max	14319.79	
	I-2	3521680.	cm^4	A-3	348.61	Ksl-3	c	
	W-2,min	-33835.3	cm^3	I-3	609859.0			
	Forces and moments							
	N	-188.58	kN	M-2,beg	6422.65	M-3	542.61	
	V-3	-1116.17	kN	M-2,end	5975.63	M-3,beg	542.61	
	M-2	6422.65	kNm	V-2	98.93	M-3,end	502.82	
	Reduction factor Kappa							
	s-K,2	0.400	m	Kappa-2 b	0.997	Ksl-3	c	
	N-Cr,2	4.5619e8	kN	s-K,3	0.400	Kappa-3 b	0.994	
	Lambda-K,	0.007	< 0.2	N-Cr,3	79000200	Kappa bar	0.994	
	Ksl-2	c		Lambda-K,	0.017			
	Coefficient k-2 and k-3							
	Psi-2	0.930		k-2	0.997	a-3	0.2773	
	Beta-M,Psi	1.149		Psi-3	0.927	k-3	0.998	
	V-load 3	Nein		Beta-M,Psi	1.151			
	a-2	0.2966	<= 0.8	V-load 2	Nein			
	Design							
	D-N	0.009		D-M,3	0.116			
	D-M,2	0.579		D-NM	0.703		< 1.0	
	86	0.000	CO99	0.076	1) Design to (28) fulfilled			
		Section properties Venlo TREAGER 1A						
		A	670.81	cm^2	W-2,max	37678.89	W-3,min	-15062.7
		A-2	143.10	cm^2	Ksl-2	c	W-3,max	14319.79
I-2		3521680.	cm^4	A-3	348.61	Ksl-3	c	
W-2,min		-33835.3	cm^3	I-3	609859.0			
Forces and moments								
N		-156.21	kN	M-2,end	163.67	M-3,end	0.40	
V-3		383.15	kN	V-2	32.76	M-3,min	-50.84	
M-2		-669.44	kNm	M-3	-40.16	x-M3,min	0.380	
M-2,beg		191.39	kNm	M-3,beg	6.66			

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	Reduction factor Kappa						
	s-K,2	0.383	m	Kappa-2 b	0.997	Ksl-3	c
	N-Cr,2	4.9759e8	kN	s-K,3	0.383	Kappa-3 b	0.994
	Lambda-K,	0.007	< 0.2	N-Cr,3	86169000	Kappa bar	0.994
	Ksl-2	c		Lambda-K,	0.017	< 0.2	
	Coefficient k-2 and k-3						
	Psi-2	0.855		k-2	0.998	<= 1.5	a-3
	Beta-M,Psi	1.201		Psi-3	0.790		k-3
	V-load 3	Nein		Beta-M,Psi	1.247		0.2818 <= 0.8
	a-2	0.2979	<= 0.8	V-load 2	Nein		0.998 <= 1.5
	Design						
	D-N	0.007		D-M,3	0.009		
D-M,2	0.060		D-NM	0.076	< 1.0		
87	920.000	CO98	0.018	1) Design to (28) fulfilled			
Section properties Venlo TREAGER 1A							
A	670.81	cm^2	W-2,max	37678.89	cm^3	W-3,min	-15062.7
A-2	143.10	cm^2	Ksl-2	c		W-3,max	14319.79
I-2	3521680.	cm^4	A-3	348.61	cm^2	Ksl-3	c
W-2,min	-33835.3	cm^3	I-3	609859.0	cm^4		
Forces and moments							
N	-53.91	kN	M-2,max	161.89	kNm	M-3,end	5.83
V-3	19.97	kN	x-M2,max	0.920	m	M-3,max	5.83
M-2	161.89	kNm	V-2	3.16	kN	x-M3,max	1.830
M-2,beg	159.19	kNm	M-3	4.78	kNm		
M-2,end	158.80	kNm	M-3,beg	3.59	kNm		
Reduction factor Kappa							
s-K,2	1.834	m	Kappa-2 b	0.988	Ksl-3	c	
N-Cr,2	21700500	kN	s-K,3	1.834	m	Kappa-3 b	0.973
Lambda-K,	0.033	< 0.2	N-Cr,3	3757940.	kN	Kappa bar	0.973
Ksl-2	c		Lambda-K,	0.080	< 0.2		
Coefficient k-2 and k-3							
Psi-2	0.998		Beta-M,2	1.107		Beta-M,V,3	1.300
Beta-M,Psi	1.102		a-2	0.2495	<= 0.8	M-V,3	0.07
V-load 3	Ja		k-2	0.999	<= 1.5	Delta-M,3	8.76
C-load 3	Nein		Psi-3	0.816		Beta-M,3	1.230
Beta-M,V,2	1.300		Beta-M,Psi	1.229		a-3	0.1835
M-V,2	6.68	kNm	V-load 2	Ja		k-3	1.000
Delta-M,2	236.75	kNm	C-load 2	Nein			<= 1.5
Design							
D-N	0.003		D-M,3	0.001			
D-M,2	0.015		D-NM	0.018	< 1.0		
88	380.000	CO99	0.070	1) Design to (28) fulfilled			
Section properties Venlo TREAGER 1A							
A	670.81	cm^2	W-2,max	37678.89	cm^3	W-3,min	-15062.7
A-2	143.10	cm^2	Ksl-2	c		W-3,max	14319.79
I-2	3521680.	cm^4	A-3	348.61	cm^2	Ksl-3	c
W-2,min	-33835.3	cm^3	I-3	609859.0	cm^4		
Forces and moments							
N	-46.70	kN	M-2,max	658.65	kNm	M-3	39.47
V-3	402.49	kN	x-M2,max	0.380	m	M-3,beg	27.71
M-2	658.65	kNm	M-2,min	-193.70	kNm	M-3,end	39.47
M-2,beg	504.91	kNm	x-M2,min	0.380	m	M-3,max	39.47
M-2,end	658.65	kNm	V-2	-45.78	kN	x-M3,max	0.380
Reduction factor Kappa							
s-K,2	0.383	m	Kappa-2 b	0.997	Ksl-3	c	
N-Cr,2	4.9759e8	kN	s-K,3	0.383	m	Kappa-3 b	0.994
Lambda-K,	0.007	< 0.2	N-Cr,3	86169000	kN	Kappa bar	0.994
Ksl-2	c		Lambda-K,	0.017	< 0.2		
Coefficient k-2 and k-3							
Psi-2	0.767		k-2	0.999	<= 1.5	a-3	0.2838
Beta-M,Psi	1.263		Psi-3	0.702		k-3	0.999
V-load 3	Nein		Beta-M,Psi	1.309			<= 1.5
a-2	0.2988	<= 0.8	V-load 2	Nein			
Design							
D-N	0.002		D-M,3	0.008			
D-M,2	0.059		D-NM	0.070	< 1.0		
89	400.000	CO98	0.721	1) Design to (28) fulfilled			
Section properties Venlo TREAGER 1A							
A	670.81	cm^2	W-2,max	37678.89	cm^3	W-3,min	-15062.7
A-2	143.10	cm^2	Ksl-2	c		W-3,max	14319.79
I-2	3521680.	cm^4	A-3	348.61	cm^2	Ksl-3	c
W-2,min	-33835.3	cm^3	I-3	609859.0	cm^4		
Forces and moments							
N	-189.08	kN	x-M2,max	0.400	m	M-3,end	620.76
V-3	1119.95	kN	M-2,min	-2661.45	kNm	M-3,max	620.76
M-2	6444.62	kNm	x-M2,min	0.400	m	x-M3,max	0.400
M-2,beg	5996.08	kNm	V-2	-110.63	kN	M-3,min	-362.04
M-2,end	6444.62	kNm	M-3	620.76	kNm	x-M3,min	0.400
M-2,max	6444.62	kNm	M-3,beg	576.29	kNm		
Reduction factor Kappa							
s-K,2	0.400	m	Kappa-2 b	0.997	Ksl-3	c	
N-Cr,2	4.5619e8	kN	s-K,3	0.400	m	Kappa-3 b	0.994
Lambda-K,	0.007	< 0.2	N-Cr,3	79000200	kN	Kappa bar	0.994
Ksl-2	c		Lambda-K,	0.017	< 0.2		
Coefficient k-2 and k-3							
Psi-2	0.930		k-2	0.997	<= 1.5	a-3	0.2773
Beta-M,Psi	1.149		Psi-3	0.928		k-3	0.998
V-load 3	Nein		Beta-M,Psi	1.150			<= 1.5

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	a-2 Design D-N D-M,2	0.2966 0.009 0.581	<= 0.8	V-load 2 D-M,3 D-NM	Nein 0.132 0.721	< 1.0	
90	0.000	CO98	0.764	1) Design to (28) fulfilled			
Section properties Venlo TREAGER 1A							
A	670.81	cm^2	W-2,max	37678.89	cm^3	W-3,min	-15062.7
A-2	143.10	cm^2	Ksl-2	c		W-3,max	14319.79
I-2	3521680.	cm^4	A-3	348.61	cm^2	Ksl-3	c
W-2,min	-33835.3	cm^3	I-3	609859.0	cm^4		
Forces and moments							
N	-287.93	kN	M-2,beg	5909.48	kNm	M-3	1019.22
V-3	-1084.90	kN	M-2,end	130.65	kNm	M-3,beg	1019.22
M-2	5909.48	kNm	V-2	194.13	kN	M-3,end	9.68
Reduction factor Kappa							
s-K,2	5.623	m	Kappa-2 b	0.962		Ksl-3	c
N-Cr,2	424393.0	kN	s-K,3	5.623	m	Kappa-3 b	0.915
Lambda-K,	0.239		N-Cr,3	226859.0	kN	Kappa bar	0.915
Ksl-2	c		Lambda-K,	0.326			
Taper conditions							
TapCon1-2	1339.949	> 1.20	TapCon2-2	0.317	> 0.05		
TapCon1-3	716.270	> 1.20	TapCon2-3	0.534	> 0.05		
Coefficient k-2 and k-3							
Psi-2	0.143		Beta-M,2	1.684		Beta-M,V,3	1.300
Beta-M,Psi	1.700		a-2	0.1582	<= 0.8	M-V,3	42.90
V-load 3	Ja		k-2	0.998	<= 1.5	Delta-M,3	1515.44
C-load 3	Nein		Psi-3	0.112		Beta-M,3	1.710
Beta-M,V,2	1.300		Beta-M,Psi	1.722		a-3	0.1176
M-V,2	327.95	kNm	V-load 2	Ja		k-3	0.998
Delta-M,2	8216.01	kNm	C-load 2	Nein			
Design							
D-N	0.014		D-M,3	0.217			
D-M,2	0.533		D-NM	0.764	< 1.0		
91	5620.000	CO98	0.782	1) Design to (28) fulfilled			
Section properties Venlo 0.000000000							
A	670.72	cm^2	W-2,max	37667.69	cm^3	W-3,min	-15059.4
A-2	143.12	cm^2	Ksl-2	c		W-3,max	14316.79
I-2	3520390.	cm^4	A-3	348.53	cm^2	Ksl-3	c
W-2,min	-33825.0	cm^3	I-3	609740.0	cm^4		
Forces and moments							
N	-288.81	kN	x-M2,max	5.620	m	M-3,end	1099.28
V-3	1087.59	kN	M-2,min	-2422.55	kNm	M-3,max	1099.28
M-2	5922.85	kNm	x-M2,min	5.620	m	x-M3,max	5.620
M-2,beg	269.70	kNm	V-2	-206.10	kN	M-3,min	-538.39
M-2,end	5922.85	kNm	M-3	1099.28	kNm	x-M3,min	5.620
M-2,max	5922.85	kNm	M-3,beg	44.81	kNm		
Reduction factor Kappa							
s-K,2	5.623	m	Kappa-2 b	0.962		Ksl-3	c
N-Cr,2	424393.0	kN	s-K,3	5.623	m	Kappa-3 b	0.915
Lambda-K,	0.239		N-Cr,3	226859.0	kN	Kappa bar	0.915
Ksl-2	c		Lambda-K,	0.326			
Taper conditions							
TapCon1-2	1335.869	> 1.20	TapCon2-2	0.316	> 0.05		
TapCon1-3	714.088	> 1.20	TapCon2-3	0.533	> 0.05		
Coefficient k-2 and k-3							
Psi-2	0.137		Beta-M,2	1.684		Beta-M,V,3	1.300
Beta-M,Psi	1.704		a-2	0.1581	<= 0.8	M-V,3	39.19
V-load 3	Ja		k-2	0.998	<= 1.5	Delta-M,3	1637.67
C-load 3	Nein		Psi-3	0.059		Beta-M,3	1.748
Beta-M,V,2	1.300		Beta-M,Psi	1.759		a-3	0.1426
M-V,2	425.93	kNm	V-load 2	Ja		k-3	0.998
Delta-M,2	8345.40	kNm	C-load 2	Nein			
Design							
D-N	0.014		D-M,3	0.234			
D-M,2	0.534		D-NM	0.782	< 1.0		
92	1050.000	CO99	0.418	1) Design to (28) fulfilled			
Section properties TO 600/600/12/12/12/12/37/25							
A	275.85	cm^2	Ksl-2	b		Ksl-3	b
I-2	156979.0	cm^4	I-3	156979.0	cm^4		
W-2	-5232.62	cm^3	W-3	5232.62	cm^3		
Forces and moments							
N	-564.41	kN	M-2	122.22	kNm	VT-2	26.79
M-T	-18.18	kNm	M-2,beg	130.98	kNm	M-3	487.00
V-3	-9.28	kN	M-2,end	122.22	kNm	M-3,beg	441.61
VT-3	26.79	kN	V-2	-44.97	kN	M-3,end	487.00
Reduction factor Kappa							
s-K,2	1.048	m	Kappa-2 b	0.985		Ksl-3	b
N-Cr,2	2962350.	kN	s-K,3	1.048	m	Kappa-3 b	0.985
Lambda-K,	0.058	< 0.2	N-Cr,3	2962350.	kN	Kappa bar	0.985
Ksl-2	b		Lambda-K,	0.058	< 0.2		
Coefficient k-2 and k-3							
Psi-2	0.933		k-2	0.997	<= 1.5	a-3	0.0561
Beta-M,Psi	1.147		Psi-3	0.907		k-3	0.996
V-load 3	Nein		Beta-M,Psi	1.165			
a-2	0.0540	<= 0.8	V-load 2	Nein			
Design							
D-N	0.063		D-M,3	0.283			
D-M,2	0.071		D-NM	0.418	< 1.0		

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DESIGN BY ELEMENT

Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
93	1050.000	CO99	0.410	1) Design to (28) fulfilled					
	Section properties TO 600/600/12/12/12/12/37/25								
	A	275.85	cm^2	Ksl-2	b	Ksl-3	b		
	I-2	156979.0	cm^4	I-3	156979.0	cm^4			
	W-2	-5232.62	cm^3	W-3	5232.62	cm^3			
	Forces and moments								
	N	-560.32	kN	M-2	-121.22	kNm	VT-2	25.26	kN
	M-T	22.91	kNm	M-2,beg	24.66	kNm	M-3	474.44	kNm
	V-3	-8.94	kN	M-2,end	18.02	kNm	M-3,beg	425.71	kNm
	VT-3	25.26	kN	V-2	-48.17	kN	M-3,end	474.44	kNm
	Reduction factor Kappa								
	s-K,2	1.048	m	Kappa-2 b	0.985	Ksl-3	b		
	N-Cr,2	2962350.	kN	s-K,3	1.048	m	Kappa-3 b	0.985	
	Lambda-K,	0.058	< 0.2	N-Cr,3	2962350.	kN	Kappa bar	0.985	
	Ksl-2	b		Lambda-K,	0.058	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.968		k-2	0.997	<= 1.5	a-3	0.0526	<= 0.8
Beta-M,Psi	1.122		Psi-3	0.951		k-3	0.997	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.135					
a-2	0.0511	<= 0.8	V-load 2	Nein					
Design									
D-N	0.063		D-M,3	0.276					
D-M,2	0.071		D-NM	0.410	< 1.0				
94	1500.000	CO97	0.355	1) Design to (28) fulfilled					
	Section properties HE-M 600								
	A	364.00	cm^2	Ksl-2	a	Ksl-3	b		
	I-2	237400.0	cm^4	I-3	18980.00	cm^4			
	W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
	Forces and moments								
	N	-2848.88	kN	M-2,beg	57.33	kNm	M-3	26.66	kNm
	V-3	-21.16	kN	M-2,end	52.56	kNm	M-3,beg	9.00	kNm
	M-2	-63.75	kNm	V-2	-11.79	kN	M-3,end	26.66	kNm
	Reduction factor Kappa								
	s-K,2	1.499	m	Kappa-2 b	0.984	Ksl-3	b		
	N-Cr,2	2189760.	kN	s-K,3	1.499	m	Kappa-3 b	0.888	
	Lambda-K,	0.077	< 0.2	N-Cr,3	175070.0	kN	Kappa bar	0.888	
	Ksl-2	a		Lambda-K,	0.274				
	Coefficient k-2 and k-3								
	Psi-2	0.917		k-2	0.996	<= 1.5	a-3	0.3001	<= 0.8
	Beta-M,Psi	1.158		Psi-3	0.384		k-3	0.919	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.531					
a-2	0.0160	<= 0.8	V-load 2	Nein					
Design									
D-N	0.269		D-M,3	0.060					
D-M,2	0.025		D-NM	0.355	< 1.0				
95	1500.000	CO97	0.314	1) Design to (28) fulfilled					
	Section properties HE-M 600								
	A	364.00	cm^2	Ksl-2	a	Ksl-3	b		
	I-2	237400.0	cm^4	I-3	18980.00	cm^4			
	W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
	Forces and moments								
	N	-2575.21	kN	M-2,beg	28.45	kNm	M-3	16.28	kNm
	V-3	-27.94	kN	M-2,end	10.90	kNm	M-3,beg	7.52	kNm
	M-2	-83.52	kNm	V-2	-5.93	kN	M-3,end	16.28	kNm
	Reduction factor Kappa								
	s-K,2	1.499	m	Kappa-2 b	0.984	Ksl-3	b		
	N-Cr,2	2189760.	kN	s-K,3	1.499	m	Kappa-3 b	0.888	
	Lambda-K,	0.077	< 0.2	N-Cr,3	175070.0	kN	Kappa bar	0.888	
	Ksl-2	a		Lambda-K,	0.274				
	Coefficient k-2 and k-3								
	Psi-2	0.802		k-2	0.994	<= 1.5	a-3	0.2704	<= 0.8
	Beta-M,Psi	1.239		Psi-3	0.462		k-3	0.934	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.477					
a-2	0.0284	<= 0.8	V-load 2	Nein					
Design									
D-N	0.243		D-M,3	0.037					
D-M,2	0.033		D-NM	0.314	< 1.0				
96	4920.000	CO99	0.172	1) Design to (28) fulfilled					
	Section properties Kasten(A) 1070/10/15/1036/730/1070/10								
	A	427.00	cm^2	W-2,max	10050.40	cm^3	W-3,min	-14811.5	cm^3
	A-2	191.24	cm^2	Ksl-2	b	W-3,max	14811.50	cm^3	
	I-2	366840.0	cm^4	A-3	152.81	cm^2	Ksl-3	b	
	W-2,min	-10050.4	cm^3	I-3	792414.0	cm^4			
	Forces and moments								
	N	-455.83	kN	M-2,min	-44.10	kNm	M-3,end	597.73	kNm
	V-3	-54.74	kN	x-M2,min	4.920	m	M-3,max	597.73	kNm
	M-2	-44.10	kNm	V-2	-150.44	kN	x-M3,max	4.920	m
	M-2,beg	211.45	kNm	M-3	597.73	kNm	M-3,min	-191.52	kNm
	M-2,end	40.39	kNm	M-3,beg	86.12	kNm	x-M3,min	4.920	m
	Reduction factor Kappa								
	s-K,2	4.922	m	Kappa-2 b	0.945	Ksl-3	b		
	N-Cr,2	313866.0	kN	s-K,3	4.922	m	Kappa-3 b	0.945	
	Lambda-K,	0.221		N-Cr,3	677986.0	kN	Kappa bar	0.945	
	Ksl-2	b		Lambda-K,	0.151	< 0.2			
Coefficient k-2 and k-3									
Psi-2	0.461		Beta-M,2	1.441		Beta-M,V,3	1.300		
Beta-M,Psi	1.477		a-2	-0.1046	<= 0.8	M-V,3	139.05	kNm	

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method				
	V-load 3	Ja	k-2	1.004	<= 1.5	Delta-M,3	789.25 kNm	
	C-load 3	Nein	Psi-3	0.745		Beta-M,3	1.282	
	Beta-M,V,2	1.300	Beta-M,Psi	1.278		a-3	-0.0740 <= 0.8	
	M-V,2	52.01 kNm	V-load 2	Ja		k-3	1.003 <= 1.5	
	Delta-M,2	255.55 kNm	C-load 2	Nein				
	Design							
	D-N	0.035	D-M,3	0.124				
	D-M,2	0.013	D-NM	0.172	< 1.0			
	97	4920.000	CO99	0.152	1) Design to (28) fulfilled			
	Section properties Kasten(A) 1070/10/15/1036/730/1070/10							
A	427.00	cm^2	W-2,max	10050.40	cm^3	W-3,min	-14811.5	cm^3
A-2	191.24	cm^2	Ksl-2	b		W-3,max	14811.50	cm^3
I-2	366840.0	cm^4	A-3	152.81	cm^2	Ksl-3	b	
W-2,min	-10050.4	cm^3	I-3	792414.0	cm^4			
Forces and moments								
N	-146.96	kN	V-2	-152.86	kN	x-M3,max	4.920	m
V-3	-44.99	kN	M-3	601.06	kNm	M-3,min	-170.53	kNm
M-2	55.45	kNm	M-3,beg	37.52	kNm	x-M3,min	4.920	m
M-2,beg	157.04	kNm	M-3,end	601.06	kNm			
M-2,end	55.45	kNm	M-3,max	601.06	kNm			
Reduction factor Kappa								
s-K,2	4.922	m	Kappa-2 b	0.945		Ksl-3	b	
N-Cr,2	313866.0	kN	s-K,3	4.922	m	Kappa-3 b	0.945	
Lambda-K,	0.221		N-Cr,3	677986.0	kN	Kappa bar	0.945	
Ksl-2	b		Lambda-K,	0.151	< 0.2			
Coefficient k-2 and k-3								
Psi-2	0.661		Beta-M,2	1.328		Beta-M,V,3	1.300	
Beta-M,Psi	1.338		a-2	-0.1546	<= 0.8	M-V,3	120.39	kNm
V-load 3	Ja		k-2	1.002	<= 1.5	Delta-M,3	771.59	kNm
C-load 3	Nein		Psi-3	0.887		Beta-M,3	1.198	
Beta-M,V,2	1.300		Beta-M,Psi	1.179		a-3	-0.0994	<= 0.8
M-V,2	56.06	kNm	V-load 2	Ja		k-3	1.001	<= 1.5
Delta-M,2	226.88	kNm	C-load 2	Nein				
Design								
D-N	0.011		D-M,3	0.124				
D-M,2	0.017		D-NM	0.152	< 1.0			
98	0.000	CO98	0.120	1) Design to (28) fulfilled				
Section properties HE-M 300								
A	303.00	cm^2	Ksl-2	b		Ksl-3	c	
I-2	59200.00	cm^4	I-3	19400.00	cm^4			
W-2	-3480.00	cm^3	W-3	1250.00	cm^3			
Forces and moments								
N	-134.68	kN	M-2,beg	37.94	kNm	M-3	28.55	kNm
V-3	-5.93	kN	M-2,end	23.23	kNm	M-3,beg	28.55	kNm
M-2	37.94	kNm	V-2	14.39	kN	M-3,end	3.06	kNm
Reduction factor Kappa								
s-K,2	2.500	m	Kappa-2 b	0.942		Ksl-3	c	
N-Cr,2	196318.0	kN	s-K,3	2.500	m	Kappa-3 b	0.810	
Lambda-K,	0.236		N-Cr,3	64334.00	kN	Kappa bar	0.810	
Ksl-2	b		Lambda-K,	0.412				
Coefficient k-2 and k-3								
Psi-2	0.612		Psi-3	0.465		M-V,3	2.63	kNm
Beta-M,Psi	1.371		Beta-M,Psi	1.475		Delta-M,3	54.67	kNm
V-load 3	Nein		V-load 2	Ja		Beta-M,3	1.466	
a-2	-0.1239	<= 0.8	C-load 2	Nein		a-3	0.0910	<= 0.8
k-2	1.002	<= 1.5	Beta-M,V,3	1.300		k-3	0.998	<= 1.5
Design								
D-N	0.017		D-M,3	0.070				
D-M,2	0.033		D-NM	0.120	< 1.0			
99	2820.000	CO99	0.868	1) Design to (28) fulfilled				
Section properties RO 168,3x10								
A	49.73	cm^2	Ksl-2	a		Ksl-3	a	
I-2	1563.98	cm^4	I-3	1563.98	cm^4			
W-2	-185.86	cm^3	W-3	185.86	cm^3			
Forces and moments								
N	-837.32	kN	M-2,beg	0.21	kNm	M-3,beg	10.05	kNm
M-T	0.66	kNm	M-2,end	2.00	kNm	M-3,end	0.00	kNm
V-3	-0.69	kN	V-2	7.39	kN	VT	6.76	kN
M-2	2.00	kNm	M-3	-10.77	kNm			
Reduction factor Kappa								
s-K,2	2.818	m	Kappa-2 b	0.795		Ksl-3	a	
N-Cr,2	4082.54	kN	s-K,3	2.818	m	Kappa-3 b	0.795	
Lambda-K,	0.662		N-Cr,3	4082.54	kN	Kappa bar	0.795	
Ksl-2	a		Lambda-K,	0.662				
Coefficient k-2 and k-3								
Psi-2	0.105		Beta-M,2	1.641		Beta-M,V,3	1.300	
Beta-M,Psi	1.727		a-2	-0.1249	<= 0.8	M-V,3	4.98	kNm
V-load 3	Ja		k-2	1.081	<= 1.5	Delta-M,3	20.82	kNm
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.680	
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	-0.0732	<= 0.8
M-V,2	0.66	kNm	V-load 2	Ja		k-3	1.047	<= 1.5
Delta-M,2	3.33	kNm	C-load 2	Nein				
Design								
D-N	0.647		D-M,3	0.185				
D-M,2	0.036		D-NM	0.868	< 1.0			
100	0.000	CO98	0.126	1) Design to (28) fulfilled				
Section properties HE-M 300								

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Position: CTK 41 T x (24+37+18)m-M

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DESIGN BY ELEMENT

Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	A	303.00	cm^2	Ksl-2	b	Ksl-3	c		
	I-2	59200.00	cm^4	I-3	19400.00	cm^4			
	W-2	-3480.00	cm^3	W-3	1250.00	cm^3			
	Forces and moments								
	N	-149.89	kN	M-2,beg	44.21	kNm	M-3	28.09	kNm
	V-3	-14.80	kN	M-2,end	7.24	kNm	M-3,beg	28.09	kNm
	M-2	44.21	kNm	V-2	14.03	kN	M-3,end	3.54	kNm
	Reduction factor Kappa								
	s-K,2	2.500	m	Kappa-2 b	0.942	Ksl-3	c		
	N-Cr,2	196318.0	kN	s-K,3	2.500	m	Kappa-3 b	0.810	
	Lambda-K,	0.236		N-Cr,3	64334.00	kN	Kappa bar	0.810	
	Ksl-2	b		Lambda-K,	0.412				
	Coefficient k-2 and k-3								
	Psi-2	0.797		Beta-M,2	1.242		Beta-M,V,3	1.300	
	Beta-M,Psi	1.242		a-2	-0.1849	<= 0.8	M-V,3	2.65	kNm
	V-load 3	Ja		k-2	1.003	<= 1.5	Delta-M,3	55.44	kNm
	C-load 3	Nein		Psi-3	0.440		Beta-M,3	1.483	
	Beta-M,V,2	1.300		Beta-M,Psi	1.492		a-3	0.1045	<= 0.8
	M-V,2	0.15	kNm	V-load 2	Ja		k-3	0.998	<= 1.5
	Delta-M,2	58.03	kNm	C-load 2	Nein				
	Design								
	D-N	0.019		D-M,3	0.069				
	D-M,2	0.039		D-NM	0.126	< 1.0			
101	350.000	CO98	0.457	1) Design to (28) fulfilled					
	Section properties HE-M 600								
	A	364.00	cm^2	Ksl-2	a	Ksl-3	b		
	I-2	237400.0	cm^4	I-3	18980.00	cm^4			
	W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
	Forces and moments								
	N	-3126.53	kN	M-2,min	-128.61	kNm	M-3,end	0.00	kNm
	V-3	-39.01	kN	x-M2,min	0.350	m	M-3,min	-64.56	kNm
	M-2	-128.61	kNm	V-2	152.25	kN	x-M3,min	0.350	m
	M-2,beg	45.23	kNm	M-3	-64.56	kNm			
	M-2,end	41.47	kNm	M-3,beg	8.22	kNm			
	Reduction factor Kappa								
	s-K,2	0.355	m	Kappa-2 b	0.996	Ksl-3	b		
	N-Cr,2	39043100	kN	s-K,3	0.355	m	Kappa-3 b	0.973	
	Lambda-K,	0.018	< 0.2	N-Cr,3	3121470. kN	Kappa bar	0.973		
	Ksl-2	a		Lambda-K,	0.065	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.917		k-2	0.970	<= 1.5	a-3	0.5071	<= 0.8
	Beta-M,Psi	1.158		Psi-3	0.262		k-3	0.863	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.617				
	a-2	0.1154	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.270		D-M,3	0.137				
	D-M,2	0.050		D-NM	0.457	< 1.0			
102	350.000	CO97	0.471	1) Design to (28) fulfilled					
	Section properties HE-M 600								
	A	364.00	cm^2	Ksl-2	a	Ksl-3	b		
	I-2	237400.0	cm^4	I-3	18980.00	cm^4			
	W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
	Forces and moments								
	N	-3036.02	kN	M-2,min	-93.03	kNm	M-3,end	79.85	kNm
	V-3	-32.73	kN	x-M2,min	0.350	m	M-3,max	79.85	kNm
	M-2	-93.03	kNm	V-2	-176.07	kN	x-M3,max	0.350	m
	M-2,beg	9.78	kNm	M-3	79.85	kNm			
	M-2,end	2.28	kNm	M-3,beg	18.69	kNm			
	Reduction factor Kappa								
	s-K,2	0.355	m	Kappa-2 b	0.996	Ksl-3	b		
	N-Cr,2	39043100	kN	s-K,3	0.355	m	Kappa-3 b	0.973	
	Lambda-K,	0.018	< 0.2	N-Cr,3	3121470. kN	Kappa bar	0.973		
	Ksl-2	a		Lambda-K,	0.065	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.920		k-2	0.971	<= 1.5	a-3	0.4521	<= 0.8
	Beta-M,Psi	1.156		Psi-3	0.868		k-3	0.882	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.192				
	a-2	0.1153	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.262		D-M,3	0.173				
	D-M,2	0.036		D-NM	0.471	< 1.0			
103	0.000	CO99	0.125	1) Design to (28) fulfilled					
	Section properties Venlo TREAGER 3								
	A	380.66	cm^2	W-2,max	5041.47	cm^3	W-3,min	-7164.56	cm^3
	A-2	211.83	cm^2	Ksl-2	c		W-3,max	7163.25	cm^3
	I-2	205794.0	cm^4	A-3	100.91	cm^2	Ksl-3	c	
	W-2,min	-5042.12	cm^3	I-3	415046.0	cm^4			
	Forces and moments								
	N	-38.15	kN	M-2,beg	100.18	kNm	M-3	-144.91	kNm
	V-3	-139.71	kN	M-2,end	49.81	kNm	M-3,beg	53.02	kNm
	M-2	100.18	kNm	V-2	-153.69	kN	M-3,end	80.33	kNm
	Reduction factor Kappa								
	s-K,2	0.808	m	Kappa-2 b	0.980	Ksl-3	c		
	N-Cr,2	6533250. kN		s-K,3	0.808	m	Kappa-3 b	0.980	
	Lambda-K,	0.046	< 0.2	N-Cr,3	13176300 kN	Kappa bar	0.980		
	Ksl-2	c		Lambda-K,	0.032	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.874		k-2	0.999	<= 1.5	a-3	0.4728	<= 0.8

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Position: CTK 41 T x (24+37+18)m-M

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	Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	1.188 Nein 0.4512 0.003 0.061	<= 0.8	Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	0.660 1.338 Nein 0.062 0.125	k-3 < 1.0	0.999 <= 1.5
104	920.000	CO99	0.193	1) Design to (28) fulfilled			
	Section properties Venlo TREAGER 3						
	A	380.66 cm^2	W-2,max	5041.47 cm^3	W-3,min	-7164.56 cm^3	
	A-2	211.83 cm^2	Ksl-2	c	W-3,max	7163.25 cm^3	
	I-2	205794.0 cm^4	A-3	100.91 cm^2	Ksl-3	c	
	W-2,min	-5042.12 cm^3	I-3	415046.0 cm^4			
	Forces and moments						
	N	-8.55 kN	M-2,beg	18.84 kNm	M-3	-247.80 kNm	
	V-3	145.90 kN	M-2,end	142.41 kNm	M-3,beg	21.52 kNm	
	M-2	142.41 kNm	V-2	276.36 kN	M-3,end	86.38 kNm	
	Reduction factor Kappa						
	s-K,2	0.917 m	Kappa-2 b	0.977	Ksl-3	c	
	N-Cr,2	5072400. kN	s-K,3	0.917 m	Kappa-3 b	0.977	
	Lambda-K,	0.052 < 0.2	N-Cr,3	10230000 kN	Kappa bar	0.977	
	Ksl-2	c	Lambda-K,	0.037 < 0.2			
	Coefficient k-2 and k-3						
	Psi-2	0.453	k-2	1.000 <= 1.5	a-3	0.4881 <= 0.8	
	Beta-M,Psi	1.483	Psi-3	0.249	k-3	1.000 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.626			
	a-2	0.4718 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.001	D-M,3	0.106			
	D-M,2	0.086	D-NM	0.193 < 1.0			
105	0.000	CO99	0.192	1) Design to (28) fulfilled			
	Section properties Venlo TREAGER 3						
	A	380.66 cm^2	W-2,max	5041.47 cm^3	W-3,min	-7164.56 cm^3	
	A-2	211.83 cm^2	Ksl-2	c	W-3,max	7163.25 cm^3	
	I-2	205794.0 cm^4	A-3	100.91 cm^2	Ksl-3	c	
	W-2,min	-5042.12 cm^3	I-3	415046.0 cm^4			
	Forces and moments						
	N	-8.22 kN	M-2,beg	49.59 kNm	M-3	262.14 kNm	
	V-3	151.25 kN	M-2,end	18.84 kNm	M-3,beg	262.14 kNm	
	M-2	-130.70 kNm	V-2	279.65 kN	M-3,end	21.52 kNm	
	Reduction factor Kappa						
	s-K,2	0.917 m	Kappa-2 b	0.977	Ksl-3	c	
	N-Cr,2	5072400. kN	s-K,3	0.917 m	Kappa-3 b	0.977	
	Lambda-K,	0.052 < 0.2	N-Cr,3	10230000 kN	Kappa bar	0.977	
	Ksl-2	c	Lambda-K,	0.037 < 0.2			
	Coefficient k-2 and k-3						
	Psi-2	0.380	k-2	1.000 <= 1.5	a-3	0.4958 <= 0.8	
	Beta-M,Psi	1.534	Psi-3	0.100	k-3	1.000 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.730			
	a-2	0.4772 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.001	D-M,3	0.112			
	D-M,2	0.079	D-NM	0.192 < 1.0			
106	810.000	CO98	0.105	1) Design to (28) fulfilled			
	Section properties Venlo TREAGER 3						
	A	380.66 cm^2	W-2,max	5041.47 cm^3	W-3,min	-7164.56 cm^3	
	A-2	211.83 cm^2	Ksl-2	c	W-3,max	7163.25 cm^3	
	I-2	205794.0 cm^4	A-3	100.91 cm^2	Ksl-3	c	
	W-2,min	-5042.12 cm^3	I-3	415046.0 cm^4			
	Forces and moments						
	N	-34.38 kN	M-2,beg	22.18 kNm	M-3	-116.33 kNm	
	V-3	-94.01 kN	M-2,end	64.57 kNm	M-3,beg	35.91 kNm	
	M-2	-86.32 kNm	V-2	131.22 kN	M-3,end	56.30 kNm	
	Reduction factor Kappa						
	s-K,2	0.808 m	Kappa-2 b	0.980	Ksl-3	c	
	N-Cr,2	6533250. kN	s-K,3	0.808 m	Kappa-3 b	0.980	
	Lambda-K,	0.046 < 0.2	N-Cr,3	13176300 kN	Kappa bar	0.980	
	Ksl-2	c	Lambda-K,	0.032 < 0.2			
	Coefficient k-2 and k-3						
	Psi-2	0.361	k-2	0.999 <= 1.5	a-3	0.4738 <= 0.8	
	Beta-M,Psi	1.547	Psi-3	0.638	k-3	0.999 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.354			
	a-2	0.4841 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.003	D-M,3	0.050			
	D-M,2	0.052	D-NM	0.105 < 1.0			
107	0.000	CO98	0.510	1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00 cm^2	Ksl-2	a	Ksl-3	b	
	I-2	237400.0 cm^4	I-3	18980.00 cm^4			
	W-2	-7660.00 cm^3	W-3	1240.00 cm^3			
	Forces and moments						
	N	-3218.09 kN	M-2,beg	220.59 kNm	M-3	69.05 kNm	
	V-3	-133.27 kN	M-2,end	172.83 kNm	M-3,beg	69.05 kNm	
	M-2	220.59 kNm	V-2	119.93 kN	M-3,end	33.41 kNm	
	Reduction factor Kappa						
	s-K,2	0.355 m	Kappa-2 b	0.996	Ksl-3	b	
	N-Cr,2	39043000 kN	s-K,3	0.355 m	Kappa-3 b	0.973	

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	Lambda-K, a	0.018 < 0.2	N-Cr,3	3121470. kN	Kappa bar	0.973	
	Ksl-2		Lambda-K,	0.065 < 0.2			
	Coefficient k-2 and k-3						
	Psi-2	0.854	k-2	0.968 <= 1.5	a-3	0.4870 <= 0.8	
	Beta-M,Psi	1.202	Psi-3	0.484	k-3	0.865 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.461			
	a-2	0.1170 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.278	D-M,3	0.147			
	D-M,2	0.085	D-NM	0.510 < 1.0			
108	0.000	CO99	0.454	1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00 cm ²	Ksl-2	a	Ksl-3	b	
	I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴			
	W-2	-7660.00 cm ³	W-3	1240.00 cm ³			
	Forces and moments						
	N	-2310.87 kN	M-2,beg	133.73 kNm	M-3	-68.82 kNm	
	V-3	105.77 kN	M-2,end	103.47 kNm	M-3,beg	26.29 kNm	
	M-2	-261.87 kNm	V-2	-174.13 kN	M-3,end	1.89 kNm	
	Reduction factor Kappa						
	s-K,2	0.355 m	Kappa-2 b	0.996	Ksl-3	b	
	N-Cr,2	39043000 kN	s-K,3	0.355 m	Kappa-3 b	0.973	
	Lambda-K,	0.018 < 0.2	N-Cr,3	3121470. kN	Kappa bar	0.973	
	Ksl-2	a	Lambda-K,	0.065 < 0.2			
	Coefficient k-2 and k-3						
	Psi-2	0.861	k-2	0.977 <= 1.5	a-3	0.5095 <= 0.8	
	Beta-M,Psi	1.197	Psi-3	0.236	k-3	0.898 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.635			
	a-2	0.1168 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.199	D-M,3	0.152			
	D-M,2	0.102	D-NM	0.454 < 1.0			
109	7430.000	CO99	0.715	1) Design to (28) fulfilled			
	Section properties IS 302/450/15/20						
	A	219.30 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	38093.89 cm ⁴	I-3	30382.40 cm ⁴			
	W-2	-2522.77 cm ³	W-3	1350.33 cm ³			
	Forces and moments						
	N	-2382.37 kN	M-2,min	-84.59 kNm	M-3,end	11.98 kNm	
	V-3	-15.55 kN	x-M2,min	7.430 m	M-3,max	11.98 kNm	
	M-2	-84.59 kNm	V-2	-6.96 kN	x-M3,max	7.430 m	
	M-2,beg	26.39 kNm	M-3	11.98 kNm	M-3,min	-14.28 kNm	
	M-2,end	3.64 kNm	M-3,beg	6.20 kNm	x-M3,min	4.460 m	
	Reduction factor Kappa						
	s-K,2	7.433 m	Kappa-2 b	0.769	Ksl-3	c	
	N-Cr,2	14290.29 kN	s-K,3	7.433 m	Kappa-3 b	0.594	
	Lambda-K,	0.743	N-Cr,3	11397.50 kN	Kappa bar	0.594	
	Ksl-2	b	Lambda-K,	0.832			
	Coefficient k-2 and k-3						
	Psi-2	0.138	Beta-M,2	1.643	Beta-M,V,3	1.300	
	Beta-M,Psi	1.703	a-2	-0.4219 <= 0.8	M-V,3	8.61 kNm	
	V-load 3	Ja	k-2	1.182 <= 1.5	Delta-M,3	26.26 kNm	
	C-load 3	Nein	Psi-3	0.518	Beta-M,3	1.393	
	Beta-M,V,2	1.300	Beta-M,Psi	1.438	a-3	-0.5005 <= 0.8	
	M-V,2	16.50 kNm	V-load 2	Ja	k-3	1.280 <= 1.5	
	Delta-M,2	110.98 kNm	C-load 2	Nein			
	Design						
	D-N	0.559	D-M,3	0.035			
	D-M,2	0.121	D-NM	0.715 < 1.0			
110	1300.000	CO99	0.248	1) Design to (28) fulfilled			
	Section properties HE-A 160						
	A	38.80 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴			
	W-2	-220.00 cm ³	W-3	76.90 cm ³			
	Forces and moments						
	N	-6.22 kN	M-2,beg	0.77 kNm	M-3	-0.37 kNm	
	V-3	12.30 kN	M-2,end	16.31 kNm	M-3,beg	0.29 kNm	
	M-2	16.31 kNm	V-2	-0.76 kN	M-3,end	0.17 kNm	
	Reduction factor Kappa						
	s-K,2	1.300 m	Kappa-2 b	0.939	Ksl-3	c	
	N-Cr,2	20480.90 kN	s-K,3	1.300 m	Kappa-3 b	0.796	
	Lambda-K,	0.261	N-Cr,3	7554.63 kN	Kappa bar	0.796	
	Ksl-2	b	Lambda-K,	0.430			
	Coefficient k-2 and k-3						
	Psi-2	0.305	k-2	1.001 <= 1.5	a-3	-0.1162 <= 0.8	
	Beta-M,Psi	1.586	Psi-3	0.787	k-3	1.001 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.249			
	a-2	-0.0978 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.006	D-M,3	0.015			
	D-M,2	0.227	D-NM	0.248 < 1.0			
111	0.000	CO99	0.619	1) Design to (28) fulfilled			
	Section properties HE-A 160						
	A	38.80 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴			
	W-2	-220.00 cm ³	W-3	76.90 cm ³			
	Forces and moments						

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method					
	N	-10.26	kN	M-2,beg	0.00	kNm	M-3	0.61	kNm
	V-3	51.23	kN	M-2,end	24.53	kNm	M-3,beg	0.61	kNm
	M-2	-42.08	kNm	V-2	1.14	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	1.300	m	Kappa-2 b	0.939		Ksl-3	c	
	N-Cr,2	20480.90	kN	s-K,3	1.300	m	Kappa-3 b	0.796	
	Lambda-K,	0.261		N-Cr,3	7554.63	kN	Kappa bar	0.796	
	Ksl-2	b		Lambda-K,	0.430				
	Coefficient k-2 and k-3								
	Psi-2	0.000		k-2	1.000	<= 1.5	a-3	0.3577	<= 0.8
	Beta-M,Psi	1.800		Psi-3	0.000		k-3	0.996	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.0137	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.010		D-M,3	0.024				
D-M,2	0.584		D-NM	0.619	< 1.0				
112	7430.000	CO98	0.620	1) Design to (28) fulfilled					
Section properties			IS 302/450/15/20						
A	219.30	cm^2	Ksl-2	b		Ksl-3	c		
I-2	38093.89	cm^4	I-3	30382.40	cm^4				
W-2	-2522.77	cm^3	W-3	1350.33	cm^3				
Forces and moments									
N	-2235.51	kN	x-M2,max	7.430	m	M-3,end	18.56	kNm	
V-3	3.44	kN	M-2,min	-16.90	kNm	M-3,max	18.56	kNm	
M-2	23.81	kNm	x-M2,min	7.430	m	x-M3,max	7.430	m	
M-2,beg	8.19	kNm	V-2	-9.14	kN	M-3,min	-12.77	kNm	
M-2,end	23.81	kNm	M-3	18.56	kNm	x-M3,min	2.970	m	
M-2,max	23.81	kNm	M-3,beg	16.40	kNm				
Reduction factor Kappa									
s-K,2	7.433	m	Kappa-2 b	0.769		Ksl-3	c		
N-Cr,2	14290.29	kN	s-K,3	7.433	m	Kappa-3 b	0.594		
Lambda-K,	0.743		N-Cr,3	11397.50	kN	Kappa bar	0.594		
Ksl-2	b		Lambda-K,	0.832					
Coefficient k-2 and k-3									
Psi-2	0.363		Beta-M,2	1.494		Beta-M,V,3	1.300		
Beta-M,Psi	1.546		a-2	-0.6444	<= 0.8	M-V,3	11.82	kNm	
V-load 3	Ja		k-2	1.261	<= 1.5	Delta-M,3	31.33	kNm	
C-load 3	Nein		Psi-3	0.884		Beta-M,3	1.226		
Beta-M,V,2	1.300		Beta-M,Psi	1.181		a-3	-0.7775	<= 0.8	
M-V,2	8.59	kNm	V-load 2	Ja		k-3	1.408	<= 1.5	
Delta-M,2	40.71	kNm	C-load 2	Nein					
Design									
D-N	0.524		D-M,3	0.059					
D-M,2	0.036		D-NM	0.620	< 1.0				
113	12360.0	CO99	0.439	1) Design to (28) fulfilled					
Section properties			TO 600/600/12/12/12/12/37/25						
A	275.85	cm^2	Ksl-2	b		Ksl-3	b		
I-2	156979.0	cm^4	I-3	156979.0	cm^4				
W-2	-5232.62	cm^3	W-3	5232.62	cm^3				
Forces and moments									
N	-567.35	kN	M-2,beg	174.24	kNm	VT-2	26.89	kN	
M-T	-18.18	kNm	M-2,end	130.97	kNm	M-3	441.61	kNm	
V-3	-8.49	kN	M-2,max	174.87	kNm	M-3,beg	18.38	kNm	
VT-3	26.89	kN	x-M2,max	1.540	m	M-3,end	441.61	kNm	
M-2	130.97	kNm	V-2	-45.07	kN				
Reduction factor Kappa									
s-K,2	12.359	m	Kappa-2 b	0.785		Ksl-3	b		
N-Cr,2	21302.09	kN	s-K,3	12.359	m	Kappa-3 b	0.785		
Lambda-K,	0.683		N-Cr,3	21302.09	kN	Kappa bar	0.785		
Ksl-2	b		Lambda-K,	0.683					
Coefficient k-2 and k-3									
Psi-2	0.752		Beta-M,2	1.276		Beta-M,V,3	1.300		
Beta-M,Psi	1.274		a-2	-0.8362	<= 0.8	M-V,3	98.43	kNm	
V-load 3	Ja		k-2	1.067	<= 1.5	Delta-M,3	618.70	kNm	
C-load 3	Nein		Psi-3	0.869		Beta-M,3	1.209		
Beta-M,V,2	1.300		Beta-M,Psi	1.192		a-3	-0.9275	<= 0.8	
M-V,2	16.55	kNm	V-load 2	Ja		k-3	1.074	<= 1.5	
Delta-M,2	222.35	kNm	C-load 2	Nein					
Design									
D-N	0.080		D-M,3	0.277					
D-M,2	0.082		D-NM	0.439	< 1.0				
114	12360.0	CO99	0.420	1) Design to (28) fulfilled					
Section properties			TO 600/600/12/12/12/12/37/25						
A	275.85	cm^2	Ksl-2	b		Ksl-3	b		
I-2	156979.0	cm^4	I-3	156979.0	cm^4				
W-2	-5232.62	cm^3	W-3	5232.62	cm^3				
Forces and moments									
N	-563.27	kN	M-2,beg	44.11	kNm	VT-2	24.56	kN	
M-T	22.91	kNm	M-2,end	24.66	kNm	M-3	425.71	kNm	
V-3	-8.03	kN	M-2,max	51.85	kNm	M-3,beg	42.50	kNm	
VT-3	24.56	kN	x-M2,max	4.630	m	M-3,end	425.71	kNm	
M-2	-117.40	kNm	V-2	-47.47	kN				
Reduction factor Kappa									
s-K,2	12.359	m	Kappa-2 b	0.785		Ksl-3	b		
N-Cr,2	21302.09	kN	s-K,3	12.359	m	Kappa-3 b	0.785		
Lambda-K,	0.683		N-Cr,3	21302.09	kN	Kappa bar	0.785		
Ksl-2	b		Lambda-K,	0.683					
Coefficient k-2 and k-3									

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
				Beta-M,2	1.189	Beta-M,V,3	1.300
				a-2	-0.9546 <= 0.8	M-V,3	86.66 kNm
				k-2	1.076 <= 1.5	Delta-M,3	606.65 kNm
				Psi-3	0.854	Beta-M,3	1.216
				Beta-M,Psi	1.202	a-3	-0.9177 <= 0.8
				M-V,2	16.04 kNm	k-3	1.073 <= 1.5
				Delta-M,2	184.07 kNm		
				Design			
				D-N	0.079		
				D-M,2	0.074		
				D-M,3	0.267		
				D-NM	0.420 < 1.0		
115	2740.000	CO98	0.689	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				A	364.00 cm ²	Ksl-2	a
				I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴
				W-2	-7660.00 cm ³	W-3	1240.00 cm ³
				Forces and moments			
				N	-3309.58 kN	M-2,beg	172.31 kNm
				V-3	-155.28 kN	M-2,end	52.47 kNm
				M-2	-226.02 kNm	V-2	46.03 kN
				Reduction factor Kappa			
				s-K,2	2.737 m	Kappa-2 b	0.971
				N-Cr,2	656826.0 kN	s-K,3	2.737 m
				Lambda-K,	0.141 < 0.2	N-Cr,3	52512.89 kN
				Ksl-2	a	Lambda-K,	0.500
				Coefficient k-2 and k-3			
				Psi-2	0.699	Beta-M,2	1.308
				Beta-M,Psi	1.311	a-2	-0.0493 <= 0.8
				V-load 3	Ja	k-2	1.014 <= 1.5
				C-load 3	Nein	Psi-3	0.870
				Beta-M,V,2	1.300	Beta-M,Psi	1.191
				M-V,2	113.45 kNm	V-load 2	Ja
				Delta-M,2	398.33 kNm	C-load 2	Nein
				Design			
				D-N	0.352	D-M,3	0.246
				D-M,2	0.091	D-NM	0.689 < 1.0
116	3240.000	CO99	0.471	1) Design to (28) fulfilled			
				Section properties RO 168,3x10			
				A	49.73 cm ²	Ksl-2	a
				I-2	1563.98 cm ⁴	I-3	1563.98 cm ⁴
				W-2	-185.86 cm ³	W-3	185.86 cm ³
				Forces and moments			
				N	-331.94 kN	M-2,end	0.00 kNm
				M-T	0.67 kNm	M-2,max	0.45 kNm
				V-3	-2.28 kN	x-M2,max	1.620 m
				M-2	-4.83 kNm	V-2	-2.97 kN
				M-2,beg	0.25 kNm	M-3	6.02 kNm
				Reduction factor Kappa			
				s-K,2	3.235 m	Kappa-2 b	0.747
				N-Cr,2	3096.97 kN	s-K,3	3.235 m
				Lambda-K,	0.760	N-Cr,3	3096.97 kN
				Ksl-2	a	Lambda-K,	0.760
				Coefficient k-2 and k-3			
				Psi-2	0.157	Beta-M,2	1.612
				Beta-M,Psi	1.690	a-2	-0.2403 <= 0.8
				V-load 3	Ja	k-2	1.066 <= 1.5
				C-load 3	Nein	Psi-3	0.485
				Beta-M,V,2	1.300	Beta-M,Psi	1.461
				M-V,2	1.06 kNm	V-load 2	Ja
				Delta-M,2	5.28 kNm	C-load 2	Nein
				Design			
				D-N	0.273	D-M,3	0.113
				D-M,2	0.085	D-NM	0.471 < 1.0
117	3240.000	CO98	0.378	1) Design to (28) fulfilled			
				Section properties RO 168,3x10			
				A	49.73 cm ²	Ksl-2	a
				I-2	1563.98 cm ⁴	I-3	1563.98 cm ⁴
				W-2	-185.86 cm ³	W-3	185.86 cm ³
				Forces and moments			
				N	-324.95 kN	M-2,beg	0.93 kNm
				M-T	0.26 kNm	M-2,end	0.18 kNm
				V-3	-2.21 kN	V-2	1.40 kN
				M-2	-2.93 kNm	M-3	-2.86 kNm
				Reduction factor Kappa			
				s-K,2	3.235 m	Kappa-2 b	0.747
				N-Cr,2	3096.97 kN	s-K,3	3.235 m
				Lambda-K,	0.760	N-Cr,3	3096.97 kN
				Ksl-2	a	Lambda-K,	0.760
				Coefficient k-2 and k-3			
				Psi-2	0.471	Beta-M,2	1.393
				Beta-M,Psi	1.470	a-2	-0.5725 <= 0.8
				V-load 3	Ja	k-2	1.153 <= 1.5
				C-load 3	Nein	Psi-3	0.635
				Beta-M,V,2	1.300	Beta-M,Psi	1.355
				M-V,2	1.75 kNm	V-load 2	Ja
				Delta-M,2	3.86 kNm	C-load 2	Nein
				Design			
				D-N	0.267	D-M,3	0.055
				D-M,2	0.056	D-NM	0.378 < 1.0

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
118	2740.000	CO98	0.586	1) Design to (28) fulfilled			
Section properties HE-M 600				Ksl-2	a	Ksl-3	b
A				I-3	18980.00 cm ⁴		
I-2				W-3	1240.00 cm ³		
W-2							
Forces and moments				M-2,beg	178.70 kNm	M-3	80.26 kNm
N				M-2,end	49.90 kNm	M-3,beg	6.22 kNm
V-3				V-2	-37.99 kN	M-3,end	80.26 kNm
M-2							
Reduction factor Kappa				Kappa-2 b	0.971	Ksl-3	b
s-K,2				s-K,3	2.737 m	Kappa-3 b	0.789
N-Cr,2				N-Cr,3	52512.89 kN	Kappa bar	0.789
Lambda-K,				Lambda-K,	0.500		
Coefficient k-2 and k-3							
Psi-2				Beta-M,2	1.329	Beta-M,V,3	1.300
Beta-M,Psi				a-2	-0.0435 <= 0.8	M-V,3	14.97 kNm
V-load 3				k-2	1.010 <= 1.5	Delta-M,3	115.99 kNm
C-load 3				Psi-3	0.664	Beta-M,3	1.331
Beta-M,V,2				Beta-M,Psi	1.335	a-3	-0.1119 <= 0.8
M-V,2				V-load 2	Ja	k-3	1.032 <= 1.5
Delta-M,2				C-load 2	Nein		
Design							
D-N				D-M,3	0.204		
D-M,2				D-NM	0.586 < 1.0		
119	2500.000	CO98	0.097	1) Design to (28) fulfilled			
Section properties HE-M 300				Ksl-2	b	Ksl-3	c
A				I-3	19400.00 cm ⁴		
I-2				W-3	1250.00 cm ³		
W-2							
Forces and moments				M-2,beg	26.64 kNm	M-3	28.44 kNm
N				M-2,end	0.47 kNm	M-3,beg	3.06 kNm
V-3				V-2	-21.24 kN	M-3,end	28.44 kNm
M-2							
Reduction factor Kappa				Kappa-2 b	0.942	Ksl-3	c
s-K,2				s-K,3	2.500 m	Kappa-3 b	0.810
N-Cr,2				N-Cr,3	64334.00 kN	Kappa bar	0.810
Lambda-K,				Lambda-K,	0.412		
Coefficient k-2 and k-3							
Psi-2				Beta-M,2	1.417	Beta-M,V,3	1.300
Beta-M,Psi				a-2	-0.1024 <= 0.8	M-V,3	3.14 kNm
V-load 3				k-2	1.001 <= 1.5	Delta-M,3	40.58 kNm
C-load 3				Psi-3	0.108	Beta-M,3	1.692
Beta-M,V,2				Beta-M,Psi	1.725	a-3	0.2767 <= 0.8
M-V,2				V-load 2	Ja	k-3	0.995 <= 1.5
Delta-M,2				C-load 2	Nein		
Design							
D-N				D-M,3	0.069		
D-M,2				D-NM	0.097 < 1.0		
120	0.000	CO99	0.945	1) Design to (28) fulfilled			
Section properties RO 168,3x10				Ksl-2	a	Ksl-3	a
A				I-3	1563.98 cm ⁴		
I-2				W-3	185.86 cm ³		
W-2							
Forces and moments				M-2,beg	2.32 kNm	M-3,beg	13.34 kNm
N				M-2,end	1.34 kNm	M-3,end	0.00 kNm
M-T				V-2	6.26 kN	VT	5.03 kN
V-3				M-3	13.34 kNm		
M-2							
Reduction factor Kappa				Kappa-2 b	0.795	Ksl-3	a
s-K,2				s-K,3	2.818 m	Kappa-3 b	0.795
N-Cr,2				N-Cr,3	4082.54 kN	Kappa bar	0.795
Lambda-K,				Lambda-K,	0.662		
Coefficient k-2 and k-3							
Psi-2				Beta-M,2	1.376	Beta-M,V,3	1.300
Beta-M,Psi				a-2	-0.4761 <= 0.8	M-V,3	2.03 kNm
V-load 3				k-2	1.322 <= 1.5	Delta-M,3	17.64 kNm
C-load 3				Psi-3	0.000	Beta-M,3	1.742
Beta-M,V,2				Beta-M,Psi	1.800	a-3	0.0089 <= 0.8
M-V,2				V-load 2	Ja	k-3	0.994 <= 1.5
Delta-M,2				C-load 2	Nein		
Design							
D-N				D-M,3	0.218		
D-M,2				D-NM	0.945 < 1.0		
121	2500.000	CO98	0.108	1) Design to (28) fulfilled			
Section properties HE-M 300				Ksl-2	b	Ksl-3	c
A				I-3	19400.00 cm ⁴		
I-2				W-3	1250.00 cm ³		
W-2							
Forces and moments				M-2,beg	17.08 kNm	M-3	31.63 kNm
N				M-2,end	14.35 kNm	M-3,beg	3.54 kNm
V-3				V-2	-22.48 kN	M-3,end	31.63 kNm
M-2							
Reduction factor Kappa				Kappa-2 b	0.942	Ksl-3	c
s-K,2							

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	196318.0 kN 0.236 b 0.840 1.212 Ja Nein 1.300 3.37 kNm 28.58 kNm 0.019 0.013		s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	2.500 m 64334.00 kN 0.412 1.222 -0.1942 <= 0.8 1.003 <= 1.5 0.112 1.722 Ja Nein 0.077 0.108 < 1.0	Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	0.810 0.810 1.300 3.79 kNm 43.67 kNm 1.685 0.2712 <= 0.8 0.995 <= 1.5
122	0.000	CO99	0.649	1) Design to (28) fulfilled			
	Section properties Kasten(A) 480/35/15/350/570/480/35 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	486.00 cm^2 220.82 cm^2 272022.0 cm^4 -9544.62 cm^3 -20.28 kN 143.26 kN -59.65 kNm 0.425 m 31213700 kN 0.024 < 0.2 c 0.111 1.723 Nein 0.1250 <= 0.8 0.001 0.019		W-2,max Ksl-2 A-3 I-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	9544.63 cm^3 c 151.64 cm^2 114499.0 cm^4 0.22 kNm 1.99 kNm -2586.03 kN 0.993 0.425 m 13138500 kN 0.036 < 0.2 1.000 <= 1.5 0.624 1.363 Nein 0.629 0.649 < 1.0	W-3,min W-3,max Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	-4770.81 cm^3 4770.81 cm^3 c -982.09 kNm 78.95 kNm 126.46 kNm c 0.986 0.986 0.3724 <= 0.8 1.000 <= 1.5
123	0.000	CO97	0.187	1) Design to (28) fulfilled			
	Section properties IS 302/250/8/20 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	120.96 cm^2 21113.30 cm^4 -1398.22 cm^3 -42.78 kN -2.06 kN 10.01 kNm 5.500 m 14466.09 kN 0.549 b 0.818 1.228 Ja Nein 1.300 2.29 kNm 12.15 kNm 0.024 0.022		b Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	5209.45 cm^4 416.76 cm^3 10.01 kNm 2.24 kNm 6.93 kN 0.854 5.500 m 3569.32 kN 1.105 1.241 -0.7260 <= 0.8 1.009 <= 1.5 0.000 1.800 Ja Nein 0.142 0.187 < 1.0	Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	c 19.23 kNm 19.23 kNm 0.00 kNm c 0.455 0.455 1.300 8.56 kNm 38.10 kNm 1.688 -0.1804 <= 0.8 1.004 <= 1.5
124	1300.000	CO99	0.616	1) Design to (28) fulfilled			
	Section properties Kasten(A) 480/30/15/350/570/480/30 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	441.00 cm^2 186.93 cm^2 243331.0 cm^4 -8537.91 cm^3 -22.23 kN -29.46 kN -50.80 kNm 1.300 m 2984210. kN 0.073 < 0.2 c 0.806 1.236 Nein 0.0277 <= 0.8 0.002 0.018		W-2,max Ksl-2 A-3 I-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	8537.92 cm^3 c 152.29 cm^2 106283.0 cm^4 5.40 kNm 11.55 kNm 802.95 kN 0.978 1.300 m 1303460. kN 0.110 < 0.2 1.000 <= 1.5 0.356 1.551 Nein 0.596 0.616 < 1.0	W-3,min W-3,max Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	-4428.47 cm^3 4428.47 cm^3 c -864.42 kNm 208.74 kNm 74.29 kNm c 0.958 0.958 0.3118 <= 0.8 0.999 <= 1.5
125	2600.000	CO99	0.566	1) Design to (28) fulfilled			
	Section properties RO 168,3x10						

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	A 49.73 cm ² I-2 1563.98 cm ⁴ W-2 -185.86 cm ³		Ksl-2 I-3 W-3	a 1563.98 cm ⁴ 185.86 cm ³	Ksl-3	a	
	Forces and moments N -82.60 kN M-T -1.94 kNm V-3 -2.78 kN M-2 -3.39 kNm		M-2,beg M-2,end V-2 M-3	2.33 kNm 0.00 kNm -20.87 kN 27.14 kNm	M-3,beg M-3,end VT	0.13 kNm 27.14 kNm 19.11 kN	
	Reduction factor Kappa s-K,2 2.600 m N-Cr,2 4795.18 kN Lambda-K, 0.611		Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.818 2.600 m 4795.18 kN 0.611	Ksl-3 Kappa-3 b Kappa bar	a 0.818 0.818	
	Coefficient k-2 and k-3 Psi-2 0.071 Beta-M,Psi 1.750 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 1.57 kNm Delta-M,2 5.72 kNm		Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2	1.627 -0.1055 <= 0.8 1.007 <= 1.5 0.005 1.797 Ja Nein	Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	1.300 13.61 kNm 54.25 kNm 1.672 -0.0507 <= 0.8 1.003 <= 1.5	
	Design D-N 0.062 D-M,2 0.056		D-M,3 D-NM	0.448 0.566 < 1.0			
126	0.000 CO98		0.585	1) Design to (28) fulfilled			
	Section properties Kasten(A) 480/30/15/350/570/480/30 A 441.00 cm ² A-2 186.93 cm ² I-2 243331.0 cm ⁴ W-2,min -8537.91 cm ³		W-2,max Ksl-2 A-3 I-3	8537.92 cm ³ c 152.29 cm ² 106283.0 cm ⁴	W-3,min W-3,max Ksl-3	-4428.47 cm ³ 4428.47 cm ³ c	
	Forces and moments N -35.75 kN V-3 45.74 kN M-2 -92.30 kNm		M-2,beg M-2,end V-2	9.29 kNm 11.33 kNm -853.62 kN	M-3 M-3,beg M-3,end	-796.26 kNm 304.20 kNm 313.44 kNm	
	Reduction factor Kappa s-K,2 1.300 m N-Cr,2 2984210. kN Lambda-K, 0.073 < 0.2 Ksl-2 c		Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.978 1.300 m 1303460. kN 0.110 < 0.2	Ksl-3 Kappa-3 b Kappa bar	c 0.958 0.958	
	Coefficient k-2 and k-3 Psi-2 0.820 Beta-M,Psi 1.226 V-load 3 Nein a-2 0.0263 <= 0.8		k-2 Psi-3 Beta-M,Psi V-load 2	1.000 <= 1.5 0.971 1.121 Nein	a-3 k-3	0.2168 <= 0.8 0.999 <= 1.5	
	Design D-N 0.003 D-M,2 0.033		D-M,3 D-NM	0.549 0.585 < 1.0			
127	0.000 CO98		0.165	1) Design to (28) fulfilled			
	Section properties IS 302/250/8/20 A 120.96 cm ² I-2 21113.30 cm ⁴ W-2 -1398.22 cm ³		Ksl-2 I-3 W-3	b 5209.45 cm ⁴ 416.76 cm ³	Ksl-3	c	
	Forces and moments N -39.69 kN V-3 -1.44 kN M-2 5.10 kNm		M-2,beg M-2,end V-2	5.10 kNm 0.00 kNm 6.29 kN	M-3 M-3,beg M-3,end	17.59 kNm 17.59 kNm 7.98 kNm	
	Reduction factor Kappa s-K,2 5.500 m N-Cr,2 14466.09 kN Lambda-K, 0.549		Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.854 5.500 m 3569.32 kN 1.105	Ksl-3 Kappa-3 b Kappa bar	c 0.455 0.455	
	Coefficient k-2 and k-3 Psi-2 0.986 Beta-M,Psi 1.110 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 2.59 kNm Delta-M,2 9.43 kNm		Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2	1.162 -0.8131 <= 0.8 1.010 <= 1.5 0.491 1.457 Ja Nein	Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	1.300 12.12 kNm 34.59 kNm 1.402 -0.8119 <= 0.8 1.018 <= 1.5	
	Design D-N 0.022 D-M,2 0.011		D-M,3 D-NM	0.131 0.165 < 1.0			
128	430.000 CO98		0.562	1) Design to (28) fulfilled			
	Section properties Kasten(A) 480/35/15/350/570/480/35 A 486.00 cm ² A-2 220.82 cm ² I-2 272022.0 cm ⁴ W-2,min -9544.62 cm ³		W-2,max Ksl-2 A-3 I-3	9544.63 cm ³ c 151.64 cm ² 114499.0 cm ⁴	W-3,min W-3,max Ksl-3	-4770.81 cm ³ 4770.81 cm ³ c	
	Forces and moments N -37.85 kN V-3 -244.23 kN M-2 -101.57 kNm		M-2,beg M-2,end V-2	2.65 kNm 12.43 kNm 2337.51 kN	M-3 M-3,beg M-3,end	-823.85 kNm 175.22 kNm 326.13 kNm	
	Reduction factor Kappa s-K,2 0.425 m N-Cr,2 31213700 kN Lambda-K, 0.024 < 0.2 Ksl-2 c		Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.993 0.425 m 13138500 kN 0.036 < 0.2	Ksl-3 Kappa-3 b Kappa bar	c 0.986 0.986	
	Coefficient k-2 and k-3						

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method				
	Psi-2	0.213	k-2 Psi-3 Beta-M,Psi V-load 3 a-2 Design	1.000	<= 1.5	a-3	0.3769	<= 0.8
	Beta-M,Psi	1.651		0.537		k-3	0.999	<= 1.5
	V-load 3	Nein		1.424				
	a-2	0.1216		<= 0.8	V-load 2	Nein		
	D-N	0.002	D-M,3	0.527				
	D-M,2	0.033	D-NM	0.562	< 1.0			
	129	0.000	CO97	0.780	1) Design to (28) fulfilled			
Section properties HE-M 600								
A	364.00	cm^2	Ksl-2	a		Ksl-3	b	
I-2	237400.0	cm^4	I-3	18980.00	cm^4			
W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
Forces and moments								
N	-5485.66	kN	M-2,beg	0.00	kNm	M-3	94.46	kNm
V-3	205.05	kN	M-2,end	21.09	kNm	M-3,beg	94.46	kNm
M-2	-231.81	kNm	V-2	70.31	kN	M-3,end	9.45	kNm
Reduction factor Kappa								
s-K,2	1.249	m	Kappa-2 b	0.987		Ksl-3	b	
N-Cr,2	3154100.	kN	s-K,3	1.249	m	Kappa-3 b	0.907	
Lambda-K,	0.064	< 0.2	N-Cr,3	252168.0	kN	Kappa bar	0.907	
Ksl-2	a		Lambda-K,	0.228				
Coefficient k-2 and k-3								
Psi-2	0.939		k-2	0.983	<= 1.5	a-3	0.4336	<= 0.8
Beta-M,Psi	1.143		Psi-3	0.100		k-3	0.780	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.730				
a-2	0.0357	<= 0.8	V-load 2	Nein				
Design								
D-N	0.508		D-M,3	0.182				
D-M,2	0.091		D-NM	0.780	< 1.0			
130	0.000	CO97	0.810	1) Design to (28) fulfilled				
Section properties RO 168,3x12,5								
A	61.18	cm^2	Ksl-2	a		Ksl-3	a	
I-2	1868.35	cm^4	I-3	1868.35	cm^4			
W-2	-222.03	cm^3	W-3	222.03	cm^3			
Forces and moments								
N	-1045.40	kN	M-2,end	4.43	kNm	M-3,beg	2.37	kNm
M-T	1.59	kNm	M-2,max	4.43	kNm	M-3,end	3.39	kNm
V-3	9.90	kN	x-M2,max	1.330	m	M-3,max	3.39	kNm
M-2	-8.10	kNm	V-2	-10.11	kN	x-M3,max	1.330	m
M-2,beg	0.00	kNm	M-3	-10.10	kNm	VT	12.56	kN
Reduction factor Kappa								
s-K,2	1.332	m	Kappa-2 b	0.918		Ksl-3	a	
N-Cr,2	21816.69	kN	s-K,3	1.332	m	Kappa-3 b	0.918	
Lambda-K,	0.318		N-Cr,3	21816.69	kN	Kappa bar	0.918	
Ksl-2	a		Lambda-K,	0.318				
Coefficient k-2 and k-3								
Psi-2	0.000		k-2	0.862	<= 1.5	a-3	-0.0686	<= 0.8
Beta-M,Psi	1.800		Psi-3	0.699		k-3	1.039	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.311				
a-2	0.2424	<= 0.8	V-load 2	Nein				
Design								
D-N	0.569		D-M,3	0.144				
D-M,2	0.096		D-NM	0.810	< 1.0			
131	0.000	CO99	0.828	1) Design to (28) fulfilled				
Section properties RO 168,3x12,5								
A	61.18	cm^2	Ksl-2	a		Ksl-3	a	
I-2	1868.35	cm^4	I-3	1868.35	cm^4			
W-2	-222.03	cm^3	W-3	222.03	cm^3			
Forces and moments								
N	-827.31	kN	M-2,end	2.85	kNm	M-3,beg	6.81	kNm
M-T	0.84	kNm	M-2,max	2.85	kNm	M-3,end	8.76	kNm
V-3	6.97	kN	x-M2,max	1.330	m	M-3,max	8.76	kNm
M-2	-6.38	kNm	V-2	-21.76	kN	x-M3,max	1.330	m
M-2,beg	0.00	kNm	M-3	-20.23	kNm	VT	22.01	kN
Reduction factor Kappa								
s-K,2	1.332	m	Kappa-2 b	0.918		Ksl-3	a	
N-Cr,2	21816.69	kN	s-K,3	1.332	m	Kappa-3 b	0.918	
Lambda-K,	0.318		N-Cr,3	21816.69	kN	Kappa bar	0.918	
Ksl-2	a		Lambda-K,	0.318				
Coefficient k-2 and k-3								
Psi-2	0.486		k-2	0.988	<= 1.5	a-3	-0.1034	<= 0.8
Beta-M,Psi	1.460		Psi-3	0.777		k-3	1.047	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.256				
a-2	0.0263	<= 0.8	V-load 2	Nein				
Design								
D-N	0.450		D-M,3	0.291				
D-M,2	0.087		D-NM	0.828	< 1.0			
132	0.000	CO98	0.710	1) Design to (28) fulfilled				
Section properties HE-M 600								
A	364.00	cm^2	Ksl-2	a		Ksl-3	b	
I-2	237400.0	cm^4	I-3	18980.00	cm^4			
W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
Forces and moments								
N	-4917.06	kN	M-2,beg	24.76	kNm	M-3	-94.96	kNm
V-3	153.44	kN	M-2,end	78.66	kNm	M-3,beg	50.49	kNm
M-2	-176.93	kNm	V-2	-73.89	kN	M-3,end	2.17	kNm
Reduction factor Kappa								

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DESIGN BY ELEMENT

Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	1.249 m 3154100. kN 0.064 < 0.2 a 0.768 1.262 Nein 0.0511 <= 0.8 0.455 0.069		Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	0.987 1.249 m 252168.0 kN 0.228 0.979 <= 1.5 0.043 1.770 Nein 0.186 0.710 < 1.0	Ksl-3 Kappa-3 b Kappa bar a-3 k-3	b 0.907 0.907 0.4519 <= 0.8 0.794 <= 1.5
133	2500.000	CO99	0.157	1) Design to (28) fulfilled			
	Section properties HE-M 300 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	303.00 cm ² 59200.00 cm ⁴ -3480.00 cm ³ -36.85 kN -64.14 kN -131.92 kNm 0.236 2.500 m 196318.0 kN 0.236 b 0.042 1.770 Ja Nein 1.300 16.72 kNm 162.38 kNm 0.005 0.116		Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	b 19400.00 cm ⁴ 1250.00 cm ³ 30.46 kNm 0.32 kNm -9.16 kN 0.942 2.500 m 64334.00 kN 0.412 1.722 0.0413 <= 0.8 1.000 <= 1.5 0.859 1.199 Ja Nein 0.036 0.157 < 1.0	Ksl-3 Kappa-3 b Kappa bar M-3 M-3,beg M-3,end Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	c 14.77 kNm 12.69 kNm 14.77 kNm 0.810 0.810 1.300 3.24 kNm 18.84 kNm 1.216 -0.1151 <= 0.8 1.001 <= 1.5
135	2500.000	CO98	0.074	1) Design to (28) fulfilled			
	Section properties HE-M 300 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	303.00 cm ² 59200.00 cm ⁴ -3480.00 cm ³ -132.92 kN -15.85 kN -26.11 kNm 0.236 2.500 m 196318.0 kN 0.236 b 0.068 1.752 Ja Nein 1.300 7.03 kNm 39.76 kNm 0.017 0.023		Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	b 19400.00 cm ⁴ 1250.00 cm ³ 13.65 kNm 0.23 kNm -6.08 kN 0.942 2.500 m 64334.00 kN 0.412 1.672 0.0179 <= 0.8 1.000 <= 1.5 0.976 1.117 Ja Nein 0.035 0.074 < 1.0	Ksl-3 Kappa-3 b Kappa bar M-3 M-3,beg M-3,end Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	c 14.12 kNm 13.78 kNm 14.12 kNm 0.810 0.810 1.300 1.23 kNm 25.15 kNm 1.126 -0.1894 <= 0.8 1.003 <= 1.5
136	1300.000	CO97	0.660	1) Design to (28) fulfilled			
	Section properties IS 374/260/8/20 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	130.72 cm ² 35100.80 cm ⁴ -1877.05 cm ³ -99.23 kN 41.34 kN 62.94 kNm 1.300 m 430477.0 kN 0.105 < 0.2 b 0.217 1.648 Nein 0.0260 <= 0.8 0.026 0.102		Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	b 5860.09 cm ⁴ 450.78 cm ³ 13.66 kNm 62.94 kNm 103.08 kN 0.976 1.300 m 71868.20 kN 0.256 0.999 <= 1.5 0.000 1.800 Nein 0.531 0.660 < 1.0	Ksl-3 Kappa-3 b Kappa bar M-3 M-3,beg M-3,end Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	c -79.18 kNm 56.43 kNm 0.00 kNm 0.882 0.882 1.300 1.23 kNm 25.15 kNm 1.126 -0.1894 <= 0.8 1.003 <= 1.5
137	2120.000	CO99	0.934	1) Design to (28) fulfilled			
	Section properties RO 168,3x10 A	49.73 cm ²		Ksl-2	a	Ksl-3	a

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method				
	I-2	1563.98	cm^4	I-3	1563.98	cm^4		
	W-2	-185.86	cm^3	W-3	185.86	cm^3		
	Forces and moments							
	N	-930.42	kN	M-2,end	2.33	kNm	M-3,beg	2.81 kNm
	M-T	1.55	kNm	M-2,max	2.60	kNm	M-3,end	0.00 kNm
	V-3	-0.50	kN	x-M2,max	1.060	m	VT	6.23 kN
	M-2	2.33	kNm	V-2	7.76	kN		
	M-2,beg	2.37	kNm	M-3	-14.49	kNm		
	Reduction factor Kappa							
	s-K,2	2.118	m	Kappa-2 b	0.862		Ksl-3	a
	N-Cr,2	7227.39	kN	s-K,3	2.118	m	Kappa-3 b	0.862
	Lambda-K,	0.498		N-Cr,3	7227.39	kN	Kappa bar	0.862
	Ksl-2	a		Lambda-K,	0.498			
	Coefficient k-2 and k-3							
	Psi-2	0.983		Beta-M,2	1.123		Beta-M,V,3	1.300
	Beta-M,Psi	1.112		a-2	-0.5227	<= 0.8	M-V,3	0.97 kNm
	V-load 3	Ja		k-2	1.347	<= 1.5	Delta-M,3	17.30 kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.772
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.1230 <= 0.8
	M-V,2	0.29	kNm	V-load 2	Ja		k-3	0.918 <= 1.5
	Delta-M,2	4.86	kNm	C-load 2	Nein			
	Design							
	D-N	0.663		D-M,3	0.219			
D-M,2	0.052		D-NM	0.934	< 1.0			
139	15470.0	CO98	0.314	1) Design to (28) fulfilled				
Section properties TO 600/600/12/12/12/37/25								
A	275.85	cm^2	Ksl-2	b		Ksl-3	b	
I-2	156979.0	cm^4	I-3	156979.0	cm^4			
W-2	-5232.62	cm^3	W-3	5232.62	cm^3			
Forces and moments								
N	-1341.23	kN	M-2,max	48.38	kNm	M-3,beg	7.94 kNm	
M-T	19.14	kNm	x-M2,max	9.280	m	M-3,end	26.18 kNm	
V-3	-11.21	kN	M-2,min	-52.33	kNm	M-3,max	32.56 kNm	
VT-3	-9.92	kN	x-M2,min	15.470	m	x-M3,max	10.830 m	
M-2	-52.33	kNm	V-2	9.22	kN	M-3,min	-96.11 kNm	
M-2,beg	14.74	kNm	VT-2	-9.92	kN	x-M3,min	15.470 m	
M-2,end	28.66	kNm	M-3	-96.11	kNm			
Reduction factor Kappa								
s-K,2	15.472	m	Kappa-2 b	0.694		Ksl-3	b	
N-Cr,2	13591.50	kN	s-K,3	15.472	m	Kappa-3 b	0.694	
Lambda-K,	0.855		N-Cr,3	13591.50	kN	Kappa bar	0.694	
Ksl-2	b		Lambda-K,	0.855				
Coefficient k-2 and k-3								
Psi-2	0.514		Beta-M,2	1.396		Beta-M,V,3	1.300	
Beta-M,Psi	1.440		a-2	-0.8797	<= 0.8	M-V,3	14.11 kNm	
V-load 3	Ja		k-2	1.188	<= 1.5	Delta-M,3	128.67 kNm	
C-load 3	Nein		Psi-3	0.303		Beta-M,3	1.556	
Beta-M,V,2	1.300		Beta-M,Psi	1.588		a-3	-0.6060 <= 0.8	
M-V,2	31.60	kNm	V-load 2	Ja		k-3	1.130 <= 1.5	
Delta-M,2	100.71	kNm	C-load 2	Nein				
Design								
D-N	0.214		D-M,3	0.063				
D-M,2	0.036		D-NM	0.314	< 1.0			
140	9280.000	CO98	0.314	1) Design to (28) fulfilled				
Section properties TO 600/600/12/12/12/37/25								
A	275.85	cm^2	Ksl-2	b		Ksl-3	b	
I-2	156979.0	cm^4	I-3	156979.0	cm^4			
W-2	-5232.62	cm^3	W-3	5232.62	cm^3			
Forces and moments								
N	-1415.48	kN	M-2,max	49.03	kNm	M-3,beg	0.01 kNm	
M-T	-20.17	kNm	x-M2,max	9.280	m	M-3,end	65.06 kNm	
V-3	-5.81	kN	M-2,min	-53.47	kNm	M-3,max	65.06 kNm	
VT-3	-15.08	kN	x-M2,min	15.470	m	x-M3,max	15.470 m	
M-2	49.03	kNm	V-2	-5.09	kN	M-3,min	-84.69 kNm	
M-2,beg	15.30	kNm	VT-2	-15.08	kN	x-M3,min	9.280 m	
M-2,end	30.94	kNm	M-3	-84.69	kNm			
Reduction factor Kappa								
s-K,2	15.472	m	Kappa-2 b	0.694		Ksl-3	b	
N-Cr,2	13591.50	kN	s-K,3	15.472	m	Kappa-3 b	0.694	
Lambda-K,	0.855		N-Cr,3	13591.50	kN	Kappa bar	0.694	
Ksl-2	b		Lambda-K,	0.855				
Coefficient k-2 and k-3								
Psi-2	0.495		Beta-M,2	1.406		Beta-M,V,3	1.300	
Beta-M,Psi	1.454		a-2	-0.8629	<= 0.8	M-V,3	17.07 kNm	
V-load 3	Ja		k-2	1.195	<= 1.5	Delta-M,3	149.75 kNm	
C-load 3	Nein		Psi-3	0.134		Beta-M,3	1.660	
Beta-M,V,2	1.300		Beta-M,Psi	1.706		a-3	-0.4287 <= 0.8	
M-V,2	31.95	kNm	V-load 2	Ja		k-3	1.097 <= 1.5	
Delta-M,2	102.50	kNm	C-load 2	Nein				
Design								
D-N	0.226		D-M,3	0.054				
D-M,2	0.034		D-NM	0.314	< 1.0			
141	5490.000	CO99	0.337	1) Design to (28) fulfilled				
Section properties TO 600/600/12/12/12/37/25								
A	275.85	cm^2	Ksl-2	b		Ksl-3	b	
I-2	156979.0	cm^4	I-3	156979.0	cm^4			
W-2	-5232.62	cm^3	W-3	5232.62	cm^3			
Forces and moments								

Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	N	-12.01	kN	M-2	-337.10	kNm	VT-2	-5.37	kN
	M-T	-38.80	kNm	M-2,beg	130.69	kNm	M-3	237.47	kNm
	V-3	-91.59	kN	M-2,end	49.02	kNm	M-3,beg	52.44	kNm
	VT-3	-5.37	kN	V-2	-33.43	kN	M-3,end	237.47	kNm
	Reduction factor Kappa								
	s-K,2	5.489	m	Kappa-2 b	0.922		Ksl-3	b	
	N-Cr,2	107996.0	kN	s-K,3	5.489	m	Kappa-3 b	0.922	
	Lambda-K,	0.303		N-Cr,3	107996.0	kN	Kappa bar	0.922	
	Ksl-2	b		Lambda-K,	0.303				
	Coefficient k-2 and k-3								
	Psi-2	0.375		Beta-M,2	1.491		Beta-M,V,3	1.300	
	Beta-M,Psi	1.537		a-2	-0.1562	<= 0.8	M-V,3	1.40	kNm
	V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	274.97	kNm
	C-load 3	Nein		Psi-3	0.448		Beta-M,3	1.486	
	Beta-M,V,2	1.300		Beta-M,Psi	1.487		a-3	-0.1592	<= 0.8
	M-V,2	92.36	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
	Delta-M,2	467.79	kNm	C-load 2	Nein				
	Design								
	D-N	0.001		D-M,3	0.139				
	D-M,2	0.197		D-NM	0.337	< 1.0			
142	5490.000	CO98	0.412	1) Design to (28) fulfilled					
Section properties TO 600/600/12/12/12/37/25									
A	275.85	cm^2	Ksl-2	b		Ksl-3	b		
I-2	156979.0	cm^4	I-3	156979.0	cm^4				
W-2	-5232.62	cm^3	W-3	5232.62	cm^3				
Forces and moments									
N	-15.98	kN	M-2	503.46	kNm	VT-2	23.74	kN	
M-T	17.00	kNm	M-2,beg	138.24	kNm	M-3	-198.56	kNm	
V-3	133.79	kN	M-2,end	503.46	kNm	M-3,beg	21.99	kNm	
VT-3	23.74	kN	V-2	40.74	kN	M-3,end	145.69	kNm	
Reduction factor Kappa									
s-K,2	5.489	m	Kappa-2 b	0.922		Ksl-3	b		
N-Cr,2	107996.0	kN	s-K,3	5.489	m	Kappa-3 b	0.922		
Lambda-K,	0.303		N-Cr,3	107996.0	kN	Kappa bar	0.922		
Ksl-2	b		Lambda-K,	0.303					
Coefficient k-2 and k-3									
Psi-2	0.969		Beta-M,2	1.172		Beta-M,V,3	1.300		
Beta-M,Psi	1.121		a-2	-0.3494	<= 0.8	M-V,3	9.46	kNm	
V-load 3	Ja		k-2	1.001	<= 1.5	Delta-M,3	344.25	kNm	
C-load 3	Nein		Psi-3	0.151		Beta-M,3	1.684		
Beta-M,V,2	1.300		Beta-M,Psi	1.694		a-3	-0.0392	<= 0.8	
M-V,2	220.56	kNm	V-load 2	Ja		k-3	1.000	<= 1.5	
Delta-M,2	779.43	kNm	C-load 2	Nein					
Design									
D-N	0.002		D-M,3	0.116					
D-M,2	0.294		D-NM	0.412	< 1.0				
143	1630.000	CO97	0.684	1) Design to (28) fulfilled					
Section properties HE-M 600									
A	364.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	237400.0	cm^4	I-3	18980.00	cm^4				
W-2	-7660.00	cm^3	W-3	1240.00	cm^3				
Forces and moments									
N	-5486.50	kN	M-2,beg	21.39	kNm	M-3	7.50	kNm	
V-3	185.29	kN	M-2,end	332.65	kNm	M-3,beg	13.77	kNm	
M-2	-365.64	kNm	V-2	11.63	kN	M-3,end	7.50	kNm	
Reduction factor Kappa									
s-K,2	1.626	m	Kappa-2 b	0.983		Ksl-3	b		
N-Cr,2	1861050.	kN	s-K,3	1.626	m	Kappa-3 b	0.879		
Lambda-K,	0.084	< 0.2	N-Cr,3	148790.0	kN	Kappa bar	0.879		
Ksl-2	a		Lambda-K,	0.297					
Coefficient k-2 and k-3									
Psi-2	0.676		k-2	0.984	<= 1.5	a-3	0.2118	<= 0.8	
Beta-M,Psi	1.327		Psi-3	0.545		k-3	0.889	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.419					
a-2	0.0333	<= 0.8	V-load 2	Nein					
Design									
D-N	0.524		D-M,3	0.016					
D-M,2	0.144		D-NM	0.684	< 1.0				
144	1630.000	CO98	0.621	1) Design to (28) fulfilled					
Section properties HE-M 600									
A	364.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	237400.0	cm^4	I-3	18980.00	cm^4				
W-2	-7660.00	cm^3	W-3	1240.00	cm^3				
Forces and moments									
N	-4919.20	kN	M-2,beg	78.18	kNm	M-3	9.14	kNm	
V-3	130.45	kN	M-2,end	269.60	kNm	M-3,beg	3.73	kNm	
M-2	-330.21	kNm	V-2	-8.02	kN	M-3,end	9.14	kNm	
Reduction factor Kappa									
s-K,2	1.626	m	Kappa-2 b	0.983		Ksl-3	b		
N-Cr,2	1861050.	kN	s-K,3	1.626	m	Kappa-3 b	0.879		
Lambda-K,	0.084	< 0.2	N-Cr,3	148790.0	kN	Kappa bar	0.879		
Ksl-2	a		Lambda-K,	0.297					
Coefficient k-2 and k-3									
Psi-2	0.697		k-2	0.987	<= 1.5	a-3	0.1573	<= 0.8	
Beta-M,Psi	1.312		Psi-3	0.676		k-3	0.926	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.327					
a-2	0.0308	<= 0.8	V-load 2	Nein					
Design									

Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	D-N	0.470	D-M,3	0.021			
	D-M,2	0.130	D-NM	0.621	< 1.0		
145	0.000	CO98	0.715	1) Design to (28) fulfilled			
Section properties RO 168,3x12,5							
A	61.18	cm^2	Ksl-2	a	Ksl-3	a	
I-2	1868.35	cm^4	I-3	1868.35	cm^4		
W-2	-222.03	cm^3	W-3	222.03	cm^3		
Forces and moments							
N	-1078.66	kN	M-2,end	1.67	kNm	M-3,min	-3.42 kNm
M-T	1.55	kNm	V-2	3.48	kN	x-M3,min	1.970 m
V-3	1.40	kN	M-3	3.44	kNm	VT	2.20 kN
M-2	2.79	kNm	M-3,beg	3.44	kNm		
M-2,beg	2.79	kNm	M-3,end	0.68	kNm		
Reduction factor Kappa							
s-K,2	1.971	m	Kappa-2 b	0.870	Ksl-3	a	
N-Cr,2	9967.90	kN	s-K,3	1.971	m	Kappa-3 b	0.870
Lambda-K,	0.470		N-Cr,3	9967.90	kN	Kappa bar	0.870
Ksl-2	a		Lambda-K,	0.470			
Coefficient k-2 and k-3							
Psi-2	0.919		Beta-M,2	1.184	Beta-M,V,3	1.300	
Beta-M,Psi	1.157		a-2	-0.3973	<= 0.8	M-V,3	1.58 kNm
V-load 3	Ja		k-2	1.246	<= 1.5	Delta-M,3	6.86 kNm
C-load 3	Nein		Psi-3	0.198		Beta-M,3	1.578
Beta-M,V,2	1.300		Beta-M,Psi	1.662		a-3	-0.0271 <= 0.8
M-V,2	0.77	kNm	V-load 2	Ja		k-3	1.017 <= 1.5
Delta-M,2	4.02	kNm	C-load 2	Nein			
Design							
D-N	0.619		D-M,3	0.048			
D-M,2	0.048		D-NM	0.715	< 1.0		
146	1970.000	CO97	0.674	1) Design to (28) fulfilled			
Section properties RO 168,3x12,5							
A	61.18	cm^2	Ksl-2	a	Ksl-3	a	
I-2	1868.35	cm^4	I-3	1868.35	cm^4		
W-2	-222.03	cm^3	W-3	222.03	cm^3		
Forces and moments							
N	-992.04	kN	x-M2,max	1.970	m	M-3,max	3.12 kNm
M-T	-1.66	kNm	M-2,min	-2.25	kNm	x-M3,max	1.970 m
V-3	-3.26	kN	x-M2,min	1.970	m	M-3,min	-2.18 kNm
M-2	3.23	kNm	V-2	-2.58	kN	x-M3,min	1.970 m
M-2,beg	2.40	kNm	M-3	3.12	kNm	VT	2.50 kN
M-2,end	3.23	kNm	M-3,beg	1.90	kNm		
M-2,max	3.23	kNm	M-3,end	3.12	kNm		
Reduction factor Kappa							
s-K,2	1.971	m	Kappa-2 b	0.870	Ksl-3	a	
N-Cr,2	9967.90	kN	s-K,3	1.971	m	Kappa-3 b	0.870
Lambda-K,	0.470		N-Cr,3	9967.90	kN	Kappa bar	0.870
Ksl-2	a		Lambda-K,	0.470			
Coefficient k-2 and k-3							
Psi-2	0.743		Beta-M,2	1.285	Beta-M,V,3	1.300	
Beta-M,Psi	1.280		a-2	-0.3025	<= 0.8	M-V,3	1.91 kNm
V-load 3	Ja		k-2	1.172	<= 1.5	Delta-M,3	5.30 kNm
C-load 3	Nein		Psi-3	0.908		Beta-M,3	1.213
Beta-M,V,2	1.300		Beta-M,Psi	1.164		a-3	-0.3702 <= 0.8
M-V,2	1.45	kNm	V-load 2	Ja		k-3	1.211 <= 1.5
Delta-M,2	5.48	kNm	C-load 2	Nein			
Design							
D-N	0.569		D-M,3	0.052			
D-M,2	0.052		D-NM	0.674	< 1.0		
147	0.000	CO98	0.412	1) Design to (28) fulfilled			
Section properties IS 302/450/15/20							
A	219.30	cm^2	Ksl-2	b	Ksl-3	c	
I-2	38093.89	cm^4	I-3	30382.40	cm^4		
W-2	-2522.77	cm^3	W-3	1350.33	cm^3		
Forces and moments							
N	-969.17	kN	M-2,min	-49.68	kNm	M-3,end	17.05 kNm
V-3	-12.60	kN	x-M2,min	7.430	m	M-3,min	-12.70 kNm
M-2	52.46	kNm	V-2	11.80	kN	x-M3,min	2.970 m
M-2,beg	52.46	kNm	M-3	47.09	kNm		
M-2,end	9.02	kNm	M-3,beg	47.09	kNm		
Reduction factor Kappa							
s-K,2	7.433	m	Kappa-2 b	0.769	Ksl-3	c	
N-Cr,2	14290.29	kN	s-K,3	7.433	m	Kappa-3 b	0.594
Lambda-K,	0.743		N-Cr,3	11397.50	kN	Kappa bar	0.594
Ksl-2	b		Lambda-K,	0.832			
Coefficient k-2 and k-3							
Psi-2	0.368		Beta-M,2	1.479	Beta-M,V,3	1.300	
Beta-M,Psi	1.543		a-2	-0.6661	<= 0.8	M-V,3	9.16 kNm
V-load 3	Ja		k-2	1.117	<= 1.5	Delta-M,3	59.79 kNm
C-load 3	Nein		Psi-3	0.362		Beta-M,3	1.509
Beta-M,V,2	1.300		Beta-M,Psi	1.547		a-3	-0.3071 <= 0.8
M-V,2	26.67	kNm	V-load 2	Ja		k-3	1.070 <= 1.5
Delta-M,2	102.14	kNm	C-load 2	Nein			
Design							
D-N	0.227		D-M,3	0.114			
D-M,2	0.071		D-NM	0.412	< 1.0		
148	1300.000	CO99	0.605	1) Design to (28) fulfilled			
Section properties HF-A 160							

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	A 38.80 cm ² I-2 1670.00 cm ⁴ W-2 -220.00 cm ³		Ksl-2 I-3 W-3	b 616.00 cm ⁴ 76.90 cm ³	Ksl-3	c	
	Forces and moments N -9.42 kN V-3 52.21 kN M-2 42.01 kNm		M-2, beg M-2, end V-2	0.40 kNm 42.01 kNm -0.61 kN	M-3 M-3, beg M-3, end	0.32 kNm 0.10 kNm 0.32 kNm	
	Reduction factor Kappa s-K,2 1.300 m N-Cr,2 20480.90 kN Lambda-K, 0.261		Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.939 1.300 m 7554.63 kN 0.430	Ksl-3 Kappa-3 b Kappa bar	c 0.796 0.796	
	Coefficient k-2 and k-3 Psi-2 0.024 Beta-M, Psi 1.783 V-load 3 Nein a-2 0.0050 <= 0.8		k-2 Psi-3 Beta-M, Psi V-load 2	1.000 <= 1.5 0.313 1.581 Nein	a-3 k-3	0.1696 <= 0.8 0.998 <= 1.5	
	Design D-N 0.009 D-M,2 0.583		D-M,3 D-NM	0.013 0.605 < 1.0			
149	0.000 CO99	0.198	1) Design to (28) fulfilled				
	Section properties HE-A 160 A 38.80 cm ² I-2 1670.00 cm ⁴ W-2 -220.00 cm ³		Ksl-2 I-3 W-3	b 616.00 cm ⁴ 76.90 cm ³	Ksl-3	c	
	Forces and moments N -5.90 kN V-3 8.78 kN M-2 -13.20 kNm		M-2, beg M-2, end V-2	0.00 kNm 1.95 kNm 0.62 kN	M-3 M-3, beg M-3, end	-0.22 kNm 0.17 kNm 0.26 kNm	
	Reduction factor Kappa s-K,2 1.300 m N-Cr,2 20480.90 kN Lambda-K, 0.261		Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.939 1.300 m 7554.63 kN 0.430	Ksl-3 Kappa-3 b Kappa bar	c 0.796 0.796	
	Coefficient k-2 and k-3 Psi-2 0.242 Beta-M, Psi 1.630 V-load 3 Nein a-2 -0.0749 <= 0.8		k-2 Psi-3 Beta-M, Psi V-load 2	1.000 <= 1.5 0.667 1.333 Nein	a-3 k-3	-0.0436 <= 0.8 1.000 <= 1.5	
	Design D-N 0.006 D-M,2 0.183		D-M,3 D-NM	0.009 0.198 < 1.0			
150	0.000 CO99	0.428	1) Design to (28) fulfilled				
	Section properties IS 302/450/15/20 A 219.30 cm ² I-2 38093.89 cm ⁴ W-2 -2522.77 cm ³		Ksl-2 I-3 W-3	b 30382.40 cm ⁴ 1350.33 cm ³	Ksl-3	c	
	Forces and moments N -1097.78 kN V-3 -10.01 kN M-2 61.86 kNm M-2, beg 61.86 kNm M-2, end 3.40 kNm		M-2, min x-M2, min V-2 M-3 M-3, beg	-20.48 kNm 7.430 m 9.59 kN 34.97 kNm 34.97 kNm	M-3, end M-3, min x-M3, min	12.09 kNm -8.24 kNm 4.460 m	
	Reduction factor Kappa s-K,2 7.433 m N-Cr,2 14290.29 kN Lambda-K, 0.743		Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.769 7.433 m 11397.50 kN 0.832	Ksl-3 Kappa-3 b Kappa bar	c 0.594 0.594	
	Coefficient k-2 and k-3 Psi-2 0.492 Beta-M, Psi 1.455 V-load 3 Ja C-load 3 Nein Beta-M, V, 2 1.300 M-V, 2 8.07 kNm Delta-M, 2 82.34 kNm		Beta-M, 2 a-2 k-2 Psi-3 Beta-M, Psi V-load 2 C-load 2	1.440 -0.7241 <= 0.8 1.144 <= 1.5 0.346 1.558 Ja Nein	Beta-M, V, 3 M-V, 3 Delta-M, 3 Beta-M, 3 a-3 k-3	1.300 5.13 kNm 43.21 kNm 1.527 -0.2761 <= 0.8 1.071 <= 1.5	
	Design D-N 0.258 D-M,2 0.086		D-M,3 D-NM	0.085 0.428 < 1.0			
151	220.000 CO97	0.627	1) Design to (28) fulfilled				
	Section properties HE-M 600 A 364.00 cm ² I-2 237400.0 cm ⁴ W-2 -7660.00 cm ³		Ksl-2 I-3 W-3	a 18980.00 cm ⁴ 1240.00 cm ³	Ksl-3	b	
	Forces and moments N -5486.50 kN V-3 -516.68 kN M-2 -383.45 kNm M-2, beg 332.65 kNm M-2, end 222.20 kNm		M-2, min x-M2, min V-2 M-3 M-3, beg	-383.45 kNm 0.220 m 14.43 kN -7.50 kNm 7.50 kNm	M-3, end M-3, min x-M3, min	5.74 kNm -7.50 kNm 0.220 m	
	Reduction factor Kappa s-K,2 0.222 m N-Cr,2 99837504 kN Lambda-K, 0.011 < 0.2		Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.998 0.222 m 7981960. kN 0.041 < 0.2	Ksl-3 Kappa-3 b Kappa bar	b 0.983 0.983	
	Coefficient k-2 and k-3 Psi-2 0.954 Beta-M, Psi 1.133		k-2 Psi-3	0.942 <= 1.5 0.765	a-3 k-3	0.4971 <= 0.8 0.767 <= 1.5	

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	V-load 3 a-2 Design D-N D-M,2	Nein 0.1263 0.469 0.144	 ≤ 0.8 	Beta-M,Psi V-load 2 D-M,3 D-NM	1.264 Nein 0.014 0.627	 ≤ 1.0	
152	220.000	CO98	0.567	1) Design to (28) fulfilled			
	Section properties HE-M 600 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg M-2,end Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	 364.00 237400.0 -7660.00 -4919.20 -356.64 -345.48 269.60 196.28 0.222 99837504 0.011 a 0.956 1.131 Nein 0.1263 0.420 0.131	 cm^2 cm^4 cm^3 kN kN kNm kNm kNm m kN < 0.2 a 0.956 1.131 Nein ≤ 0.8 0.420 0.131	Ksl-2 I-3 W-3 M-2,min x-M2,min V-2 M-3 M-3,beg Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	a 18980.00 1240.00 -345.48 0.220 9.40 8.19 9.14 0.998 0.222 7981960. 0.041 0.948 0.896 1.173 Nein 0.016 0.567	Ksl-3 b M-3,end M-3,min x-M3,min Ksl-3 Kappa-3 b Kappa bar a-3 k-3 ≤ 0.8 ≤ 1.5	8.19 -3.89 0.220 b 0.983 0.983 0.4897 0.794 ≤ 0.8 ≤ 1.5
153	0.000	CO98	0.147	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	 38.80 1670.00 -220.00 -12.12 -1.01 3.60 3.60 2.300 6544.40 0.462 b 0.967 1.123 Ja Nein 1.300 0.33 5.39 0.015 0.050	 cm^2 cm^4 cm^3 kN kN kNm kNm m kN < 0.2 b 0.967 1.123 Ja Nein 1.300 0.33 5.39 0.015 0.050	Ksl-2 I-3 W-3 M-2,end M-2,max x-M2,max V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	b 616.00 76.90 3.48 3.85 1.150 -1.46 0.882 2.300 2413.98 0.761 1.134 -0.6818 1.007 0.197 1.662 Ja Nein 0.081 0.147	Ksl-3 c M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3 1.300 0.61 3.36 1.596 -0.0844 1.001 ≤ 0.8 ≤ 1.5	2.04 0.26 1.32 c 0.623 0.623 1.300 0.61 3.36 1.596 -0.0844 1.001 ≤ 0.8 ≤ 1.5
154	580.000	CO99	0.530	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	 38.80 1670.00 -220.00 -1.91 -7.53 -5.56 0.575 104645.0 0.116 b 0.873 1.189 Nein -0.0692 0.002 0.077	 cm^2 cm^4 cm^3 kN kN kNm m kN < 0.2 b 0.873 1.189 Nein ≤ 0.8 0.002 0.077	Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	b 616.00 76.90 3.23 3.70 35.45 0.973 0.575 38599.69 0.190 1.000 0.594 1.384 Nein 0.451 0.530	Ksl-3 c M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3 12.26 12.26 3.55	-11.36 9.03 5.36 c 0.909 0.909 0.2955 1.000 ≤ 0.8 ≤ 1.5
155	0.000	CO99	0.587	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa	 38.80 1670.00 -220.00 -9.44 -5.64 6.73 0.575	 cm^2 cm^4 cm^3 kN kN kNm 0.575	Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Ksl-3 c M-3 M-3,beg M-3,end 12.26 12.26 3.55	b 616.00 76.90 6.73 4.08 37.20 Ksl-3 c M-3 M-3,beg M-3,end 12.26 12.26 3.55	12.26 12.26 3.55	

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	0.575 104645.0 0.116 b 0.606 1.376 Nein -0.0261 0.008 0.093	m kN < 0.2 b k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	0.973 0.575 38599.69 0.190 1.000 0.395 1.523 Nein 0.486 0.587	m kN < 0.2 =< 1.5 0.395 1.523 Nein < 1.0	Ksl-3 Kappa-3 b Kappa bar a-3 k-3 0.3483 0.997 =< 0.8 =< 1.5
156	2500.000	CO99	0.309	1) Design to (28) fulfilled			
	Section properties A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	HE-M 300 303.00 59200.00 -3480.00 cm^2 cm^4 cm^3 -81.60 -47.56 -208.29 kN kN kNm Kappa 2.500 196318.0 0.236 b 0.432 1.498 Ja Nein 1.300 0.16 208.60 kNm kNm 0.010 0.183	Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	b 19400.00 1250.00 0.31 0.00 -16.46 0.942 2.500 64334.00 0.412 1.498 -0.0644 1.001 0.312 1.582 Ja Nein 0.116 0.309	Ksl-3 Kappa-3 b Kappa bar M-3 M-3,beg M-3,end Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3 0.810 0.810 1.300 1.38 50.63 1.574 0.1799 0.998 =< 0.8 =< 1.5		
157	2820.000	CO99	0.889	1) Design to (28) fulfilled			
	Section properties A I-2 W-2 Forces and moments N M-T V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	RO 168,3x10 49.73 1563.98 -185.86 cm^2 cm^4 cm^3 -883.87 1.30 -2.23 -2.71 kN kNm kN kNm Kappa 2.818 4082.54 0.662 a 0.081 1.743 Ja Nein 1.300 0.66 4.91 kNm kNm 0.683 0.047	Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	a 1563.98 185.86 2.20 0.00 6.55 -9.22 0.795 2.818 4082.54 0.662 1.684 -0.0685 1.047 0.000 1.800 Ja Nein 0.160 0.889	Ksl-3 Kappa-3 b Kappa bar M-3,beg M-3,end VT Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3 a 0.795 0.795 1.300 4.51 18.45 1.678 -0.0768 1.052 =< 0.8 =< 1.5		
158	2500.000	CO98	0.162	1) Design to (28) fulfilled			
	Section properties A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	HE-M 300 303.00 59200.00 -3480.00 cm^2 cm^4 cm^3 -133.08 -10.11 -44.83 0.15 Kappa 2.500 196318.0 0.236 b 0.463 1.476 Ja Nein 1.300 1.05 46.79 kNm kNm 0.017	Ksl-2 I-3 W-3 M-2,end V-2 M-3 M-3,beg Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	b 19400.00 1250.00 1.96 -16.75 43.47 14.12 0.942 2.500 64334.00 0.412 1.472 -0.0765 1.001 0.755 1.271 Ja Nein 0.106	Ksl-3 Kappa-3 b Kappa bar M-3,end M-3,min x-M3,min Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3 c 0.810 0.810 1.300 2.58 55.73 1.273 -0.0684 1.001 =< 0.8 =< 1.5		

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	D-M,2	0.039		D-NM	0.162	< 1.0			
159	1650.000	CO97	0.753	1) Design to (28) fulfilled					
	Section properties RO 168,3x12,5								
	A	61.18	cm^2	Ksl-2	a	Ksl-3	a		
	I-2	1868.35	cm^4	I-3	1868.35	cm^4			
	W-2	-222.03	cm^3	W-3	222.03	cm^3			
	Forces and moments								
	N	-1030.68	kN	M-2,end	0.00	kNm	M-3,beg	1.80	kNm
	M-T	-0.70	kNm	M-2,min	-6.96	kNm	M-3,end	5.64	kNm
	V-3	-6.98	kN	x-M2,min	1.650	m	M-3,max	5.64	kNm
	M-2	-6.96	kNm	V-2	-5.20	kN	x-M3,max	1.650	m
	M-2,beg	3.38	kNm	M-3	5.64	kNm	VT	8.00	kN
	Reduction factor Kappa								
	s-K,2	1.652	m	Kappa-2 b	0.895	Ksl-3	a		
	N-Cr,2	14194.59	kN	s-K,3	1.652	m	Kappa-3 b	0.895	
	Lambda-K,	0.394		N-Cr,3	14194.59	kN	Kappa bar	0.895	
	Ksl-2	a		Lambda-K,	0.394				
	Coefficient k-2 and k-3								
	Psi-2	0.560		k-2	1.056	<= 1.5	a-3	0.0269	<= 0.8
	Beta-M,Psi	1.408		Psi-3	0.336		k-3	0.985	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.565				
a-2	-0.0971	<= 0.8	V-load 2	Nein					
Design									
D-N	0.575		D-M,3	0.076					
D-M,2	0.101		D-NM	0.753	< 1.0				
160	1650.000	CO97	0.729	1) Design to (28) fulfilled					
	Section properties RO 168,3x12,5								
	A	61.18	cm^2	Ksl-2	a	Ksl-3	a		
	I-2	1868.35	cm^4	I-3	1868.35	cm^4			
	W-2	-222.03	cm^3	W-3	222.03	cm^3			
	Forces and moments								
	N	-976.30	kN	M-2,end	0.00	kNm	M-3,beg	3.07	kNm
	M-T	1.08	kNm	M-2,min	-6.86	kNm	M-3,end	0.87	kNm
	V-3	-5.53	kN	x-M2,min	1.650	m	M-3,min	-6.03	kNm
	M-2	-6.86	kNm	V-2	5.52	kN	x-M3,min	1.650	m
	M-2,beg	1.79	kNm	M-3	-6.03	kNm	VT	6.73	kN
	Reduction factor Kappa								
	s-K,2	1.652	m	Kappa-2 b	0.895	Ksl-3	a		
	N-Cr,2	14194.59	kN	s-K,3	1.652	m	Kappa-3 b	0.895	
	Lambda-K,	0.394		N-Cr,3	14194.59	kN	Kappa bar	0.895	
	Ksl-2	a		Lambda-K,	0.394				
	Coefficient k-2 and k-3								
	Psi-2	0.630		k-2	1.074	<= 1.5	a-3	0.0117	<= 0.8
	Beta-M,Psi	1.359		Psi-3	0.363		k-3	0.994	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.546				
a-2	-0.1353	<= 0.8	V-load 2	Nein					
Design									
D-N	0.545		D-M,3	0.082					
D-M,2	0.101		D-NM	0.729	< 1.0				
161	1550.000	CO97	0.824	1) Design to (28) fulfilled					
	Section properties HE-M 600								
	A	364.00	cm^2	Ksl-2	a	Ksl-3	b		
	I-2	237400.0	cm^4	I-3	18980.00	cm^4			
	W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
	Forces and moments								
	N	-5480.56	kN	M-2,beg	223.23	kNm	M-3	23.53	kNm
	V-3	-529.50	kN	M-2,end	0.00	kNm	M-3,beg	4.78	kNm
	M-2	-641.07	kNm	V-2	-18.84	kN	M-3,end	23.53	kNm
	Reduction factor Kappa								
	s-K,2	1.548	m	Kappa-2 b	0.984	Ksl-3	b		
	N-Cr,2	2053330. kN		s-K,3	1.548	m	Kappa-3 b	0.885	
	Lambda-K,	0.080	< 0.2	N-Cr,3	164162.0	kN	Kappa bar	0.885	
	Ksl-2	a		Lambda-K,	0.283				
	Coefficient k-2 and k-3								
	Psi-2	0.602		k-2	0.978	<= 1.5	a-3	0.1279	<= 0.8
	Beta-M,Psi	1.378		Psi-3	0.799		k-3	0.934	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.241				
	a-2	0.0469	<= 0.8	V-load 2	Nein				
	Design								
D-N	0.520		D-M,3	0.054					
D-M,2	0.250		D-NM	0.824	< 1.0				
162	1550.000	CO98	0.735	1) Design to (28) fulfilled					
	Section properties HE-M 600								
	A	364.00	cm^2	Ksl-2	a	Ksl-3	b		
	I-2	237400.0	cm^4	I-3	18980.00	cm^4			
	W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
	Forces and moments								
	N	-4915.20	kN	M-2,beg	195.95	kNm	M-3	-33.32	kNm
	V-3	-367.66	kN	M-2,end	80.70	kNm	M-3,beg	7.24	kNm
	M-2	-484.85	kNm	V-2	24.49	kN	M-3,end	6.02	kNm
	Reduction factor Kappa								
	s-K,2	1.548	m	Kappa-2 b	0.984	Ksl-3	b		
	N-Cr,2	2053330. kN		s-K,3	1.548	m	Kappa-3 b	0.885	
	Lambda-K,	0.080	< 0.2	N-Cr,3	164162.0	kN	Kappa bar	0.885	
	Ksl-2	a		Lambda-K,	0.283				
	Coefficient k-2 and k-3								
	Psi-2	0.717		k-2	0.986	<= 1.5	a-3	0.1149	<= 0.8

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	Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	1.298 Nein 0.0341 0.466 0.191	<= 0.8	Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	0.831 1.218 Nein 0.078 0.735	k-3	0.946 <= 1.5
167	0.000	CO98	0.200	1) Design to (28) fulfilled			
	Section properties Flachstahl 35/666						
	A	233.10	cm ²	W-2,max	2587.41	cm ³	W-3,min -135.98 cm ³
	A-2	194.25	cm ²	Ksl-2	c		W-3,max 135.98 cm ³
	I-2	86160.79	cm ⁴	A-3	194.25	cm ²	Ksl-3 c
	W-2,min	-2587.40	cm ³	I-3	237.96	cm ⁴	
	Forces and moments						
	N	-607.26	kN	M-2,min	-17.85	kNm	M-3,end 0.88 kNm
	V-3	-235.01	kN	x-M2,min	0.350	m	M-3,min -0.96 kNm
	M-2	64.46	kNm	V-2	5.99	kN	x-M3,min 0.350 m
	M-2,beg	64.46	kNm	M-3	1.16	kNm	
	M-2,end	5.08	kNm	M-3,beg	1.16	kNm	
	Reduction factor Kappa						
	s-K,2	0.350	m	Kappa-2 b	0.990		Ksl-3 c
	N-Cr,2	6168090.	kN	s-K,3	0.350	m	Kappa-3 b 0.796
	Lambda-K,	0.037	< 0.2	N-Cr,3	30223.59	kN	Kappa bar 0.796
	Ksl-2	c		Lambda-K,	0.527		
	Taper conditions						
	TapCon1-2	9233.860	> 1.20	TapCon2-2	0.564	> 0.05	
	TapCon1-3	45.246	> 1.20	TapCon2-3	0.751	> 0.05	
	Coefficient k-2 and k-3						
	Psi-2	0.792		k-2	0.964	<= 1.5	a-3 -0.2704 <= 0.8
	Beta-M,Psi	1.246		Psi-3	0.759		k-3 1.027 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.269		
	a-2	0.4444	<= 0.8	V-load 2	Nein		
	Design						
	D-N	0.100		D-M,3	0.027		
	D-M,2	0.073		D-NM	0.200	< 1.0	
168	350.000	CO98	0.236	1) Design to (28) fulfilled			
	Section properties Flat 35/500.006						
	A	175.00	cm ²	W-2,max	1458.37	cm ³	W-3,min -102.08 cm ³
	A-2	145.83	cm ²	Ksl-2	c		W-3,max 102.08 cm ³
	I-2	36459.60	cm ⁴	A-3	145.83	cm ²	Ksl-3 c
	W-2,min	-1458.36	cm ³	I-3	178.65	cm ⁴	
	Forces and moments						
	N	-778.13	kN	M-2,max	18.18	kNm	M-3,end 0.00 kNm
	V-3	181.82	kN	x-M2,max	0.350	m	M-3,min -1.12 kNm
	M-2	18.18	kNm	V-2	6.82	kN	x-M3,min 0.350 m
	M-2,beg	13.39	kNm	M-3	-1.12	kNm	
	M-2,end	18.18	kNm	M-3,beg	1.24	kNm	
	Reduction factor Kappa						
	s-K,2	0.350	m	Kappa-2 b	0.986		Ksl-3 c
	N-Cr,2	6168080.	kN	s-K,3	0.350	m	Kappa-3 b 0.806
	Lambda-K,	0.032	< 0.2	N-Cr,3	30223.59	kN	Kappa bar 0.806
	Ksl-2	c		Lambda-K,	0.457		
	Taper conditions						
	TapCon1-2	7206.180	> 1.20	TapCon2-2	0.564	> 0.05	
	TapCon1-3	35.310	> 1.20	TapCon2-3	0.751	> 0.05	
	Coefficient k-2 and k-3						
	Psi-2	0.737		k-2	0.937	<= 1.5	a-3 0.3174 <= 0.8
	Beta-M,Psi	1.284		Psi-3	0.000		k-3 0.947 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800		
	a-2	0.4543	<= 0.8	V-load 2	Nein		
	Design						
	D-N	0.169		D-M,3	0.032		
	D-M,2	0.036		D-NM	0.236	< 1.0	
169	0.000	CO98	0.230	1) Design to (28) fulfilled			
	Section properties Flachstahl 35/666						
	A	233.10	cm ²	W-2,max	2587.41	cm ³	W-3,min -135.98 cm ³
	A-2	194.25	cm ²	Ksl-2	c		W-3,max 135.98 cm ³
	I-2	86160.79	cm ⁴	A-3	194.25	cm ²	Ksl-3 c
	W-2,min	-2587.40	cm ³	I-3	237.96	cm ⁴	
	Forces and moments						
	N	-731.38	kN	M-2,end	2.63	kNm	M-3,end 0.42 kNm
	V-3	126.09	kN	V-2	12.50	kN	M-3,min -1.61 kNm
	M-2	-41.45	kNm	M-3	2.79	kNm	x-M3,min 0.350 m
	M-2,beg	10.92	kNm	M-3,beg	2.79	kNm	
	Reduction factor Kappa						
	s-K,2	0.350	m	Kappa-2 b	0.990		Ksl-3 c
	N-Cr,2	6168080.	kN	s-K,3	0.350	m	Kappa-3 b 0.796
	Lambda-K,	0.037	< 0.2	N-Cr,3	30223.59	kN	Kappa bar 0.796
	Ksl-2	c		Lambda-K,	0.527		
	Taper conditions						
	TapCon1-2	7666.799	> 1.20	TapCon2-2	0.564	> 0.05	
	TapCon1-3	37.567	> 1.20	TapCon2-3	0.751	> 0.05	
	Coefficient k-2 and k-3						
	Psi-2	0.241		k-2	0.954	<= 1.5	a-3 -0.0453 <= 0.8
	Beta-M,Psi	1.631		Psi-3	0.453		k-3 1.005 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.483		
	a-2	0.4728	<= 0.8	V-load 2	Nein		
	Design						
	D-N	0.120		D-M,3	0.063		

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	N	-102.64	kN	M-2,beg	14.99	kNm	M-3	25.29	kNm
	V-3	643.83	kN	M-2,end	0.35	kNm	M-3,beg	25.29	kNm
	M-2	-44.71	kNm	V-2	356.47	kN	M-3,end	1.23	kNm
	Reduction factor Kappa								
	s-K,2	0.068	m	Kappa-2 b	0.981		Ksl-3	c	
	N-Cr,2	8577880.	kN	s-K,3	0.068	m	Kappa-3 b	0.981	
	Lambda-K,	0.033	< 0.2	N-Cr,3	8577880.	kN	Kappa bar	0.981	
	Ksl-2	c		Lambda-K,	0.033	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.029		Beta-M,2	1.767		Beta-M,V,3	1.300	
	Beta-M,Psi	1.780		a-2	0.8000	<= 0.8	M-V,3	0.25	kNm
	V-load 3	Ja		k-2	0.990	<= 1.5	Delta-M,3	32.22	kNm
	C-load 3	Nein		Psi-3	0.049		Beta-M,3	1.762	
	Beta-M,V,2	1.300		Beta-M,Psi	1.766		a-3	0.8000	<= 0.8
	M-V,2	1.61	kNm	V-load 2	Ja		k-3	0.990	<= 1.5
	Delta-M,2	59.70	kNm	C-load 2	Nein				
	Design								
	D-N	0.013		D-M,3	0.260				
	D-M,2	0.460		D-NM	0.733	< 1.0			
174	70.000	CO98	0.495	1) Design to (28) fulfilled					
Section properties Rundstahl 140									
A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3	
A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3	
I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c		
W-2,min	-179.45	cm^3	I-3	1885.74	cm^4				
Forces and moments									
N	-27.28	kN	M-2,beg	4.86	kNm	M-3	3.66	kNm	
V-3	-720.54	kN	M-2,end	12.51	kNm	M-3,beg	0.46	kNm	
M-2	-43.79	kNm	V-2	-77.27	kN	M-3,end	3.66	kNm	
Reduction factor Kappa									
s-K,2	0.067	m	Kappa-2 b	0.981		Ksl-3	c		
N-Cr,2	8578360.	kN	s-K,3	0.067	m	Kappa-3 b	0.981		
Lambda-K,	0.033	< 0.2	N-Cr,3	8578360.	kN	Kappa bar	0.981		
Ksl-2	c		Lambda-K,	0.033	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.388		Beta-M,2	1.522		Beta-M,V,3	1.300		
Beta-M,Psi	1.528		a-2	0.8000	<= 0.8	M-V,3	0.05	kNm	
V-load 3	Ja		k-2	0.997	<= 1.5	Delta-M,3	6.63	kNm	
C-load 3	Nein		Psi-3	0.522		Beta-M,3	1.434		
Beta-M,V,2	1.300		Beta-M,Psi	1.435		a-3	0.8000	<= 0.8	
M-V,2	1.57	kNm	V-load 2	Ja		k-3	0.997	<= 1.5	
Delta-M,2	56.30	kNm	C-load 2	Nein					
Design									
D-N	0.003		D-M,3	0.038					
D-M,2	0.454		D-NM	0.495	< 1.0				
175	0.000	CO98	0.789	1) Design to (28) fulfilled					
Section properties Flachstahl 40/953									
A	381.20	cm^2	W-2,max	6054.73	cm^3	W-3,min	-254.13	cm^3	
A-2	317.67	cm^2	Ksl-2	c		W-3,max	254.13	cm^3	
I-2	288508.0	cm^4	A-3	317.67	cm^2	Ksl-3	c		
W-2,min	-6054.72	cm^3	I-3	508.27	cm^4				
Forces and moments									
N	-415.77	kN	M-2,end	0.00	kNm	M-3,end	5.86	kNm	
V-3	1312.25	kN	V-2	181.21	kN	M-3,min	-20.57	kNm	
M-2	-459.07	kNm	M-3	42.85	kNm	x-M3,min	0.350	m	
M-2,beg	124.33	kNm	M-3,beg	42.85	kNm				
Reduction factor Kappa									
s-K,2	0.350	m	Kappa-2 b	0.993		Ksl-3	c		
N-Cr,2	7393530.	kN	s-K,3	0.350	m	Kappa-3 b	0.812		
Lambda-K,	0.043	< 0.2	N-Cr,3	45840.00	kN	Kappa bar	0.812		
Ksl-2	c		Lambda-K,	0.547					
Taper conditions									
TapCon1-2	16166.09	> 1.20	TapCon2-2	0.284	> 0.05				
TapCon1-3	100.230	> 1.20	TapCon2-3	0.533	> 0.05				
Coefficient k-2 and k-3									
Psi-2	0.000		k-2	0.984	<= 1.5	a-3	-0.2421	<= 0.8	
Beta-M,Psi	1.800		Psi-3	0.683		k-3	1.010	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.322					
a-2	0.4828	<= 0.8	V-load 2	Nein					
Design									
D-N	0.041		D-M,3	0.520					
D-M,2	0.228		D-NM	0.789	< 1.0				
176	0.000	CO98	0.823	1) Design to (28) fulfilled					
Section properties Flachstahl 40/953									
A	381.20	cm^2	W-2,max	6054.73	cm^3	W-3,min	-254.13	cm^3	
A-2	317.67	cm^2	Ksl-2	c		W-3,max	254.13	cm^3	
I-2	288508.0	cm^4	A-3	317.67	cm^2	Ksl-3	c		
W-2,min	-6054.72	cm^3	I-3	508.27	cm^4				
Forces and moments									
N	-432.95	kN	M-2,end	0.00	kNm	M-3,end	21.67	kNm	
V-3	1365.50	kN	V-2	-188.93	kN	M-3,max	21.67	kNm	
M-2	-477.71	kNm	M-3	-44.46	kNm	x-M3,max	0.350	m	
M-2,beg	147.88	kNm	M-3,beg	18.44	kNm				
Reduction factor Kappa									
s-K,2	0.350	m	Kappa-2 b	0.993		Ksl-3	c		
N-Cr,2	7393530.	kN	s-K,3	0.350	m	Kappa-3 b	0.812		
Lambda-K,	0.043	< 0.2	N-Cr,3	45840.00	kN	Kappa bar	0.812		
Ksl-2	c		Lambda-K,	0.547					

Elem.-No.	x [mm]	LS LG	Design- Criterion	Comment on design method					
	Taper conditions								
	TapCon1-2	15524.59	> 1.20	TapCon2-2	0.284	> 0.05			
	TapCon1-3	96.253	> 1.20	TapCon2-3	0.533	> 0.05			
	Coefficient k-2 and k-3								
	Psi-2	0.000		k-2	0.983	<= 1.5	a-3	-0.3707	<= 0.8
	Beta-M,Psi	1.800		Psi-3	0.851		k-3	1.016	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.204				
	a-2	0.4828	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.043		D-M,3	0.543				
D-M,2	0.237		D-NM	0.823	< 1.0				
177	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Rundstahl 140									
A	153.94	cm^2	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4	
A-2	136.79	cm^2	W-2,max	269.39	cm^3	Ksl-3	c		
I-2	1885.74	cm^4	Ksl-2	c					
Forces and moments									
N	0.00	kN	M-2	0.00	kNm	M-2,end	0.00	kNm	
V-3	0.06	kN	M-2,beg	0.00	kNm				
178	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Rundstahl 140									
A	153.94	cm^2	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4	
A-2	136.79	cm^2	W-2,max	269.39	cm^3	Ksl-3	c		
I-2	1885.74	cm^4	Ksl-2	c					
Forces and moments									
N	0.00	kN	M-2	0.00	kNm	M-2,end	0.00	kNm	
V-3	0.06	kN	M-2,beg	0.00	kNm				
179	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Rundstahl 140									
A	153.94	cm^2	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4	
A-2	136.79	cm^2	W-2,max	269.39	cm^3	Ksl-3	c		
I-2	1885.74	cm^4	Ksl-2	c					
Forces and moments									
N	0.00	kN	M-2	0.00	kNm	M-2,end	0.00	kNm	
V-3	0.06	kN	M-2,beg	0.00	kNm				
180	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Rundstahl 140									
A	153.94	cm^2	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4	
A-2	136.79	cm^2	W-2,max	269.39	cm^3	Ksl-3	c		
I-2	1885.74	cm^4	Ksl-2	c					
Forces and moments									
N	0.00	kN	M-2	0.00	kNm	M-2,end	0.00	kNm	
V-3	0.00	kN	M-2,beg	0.00	kNm				
181	0.000	CO97	0.194	1) Design to (28) fulfilled					
Section properties Flachstahl 350/40									
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3	
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3	
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c		
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4				
Forces and moments									
N	-0.52	kN	M-2,beg	0.01	kNm	M-3	50.46	kNm	
V-3	0.99	kN	M-2,end	0.03	kNm	M-3,beg	50.46	kNm	
M-2	-0.16	kNm	V-2	255.38	kN	M-3,end	0.00	kNm	
Reduction factor Kappa									
s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c		
N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906		
Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906		
Ksl-2	c		Lambda-K,	0.026	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.333		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8	
Beta-M,Psi	1.567		Psi-3	0.000		k-3	1.000	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.800					
a-2	0.3041	<= 0.8	V-load 2	Nein					
Design									
D-N	0.000		D-M,3	0.189					
D-M,2	0.005		D-NM	0.194	< 1.0				
182	0.000	CO97	0.334	1) Design to (28) fulfilled					
Section properties Flachstahl 350/40									
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3	
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3	
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c		
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4				
Forces and moments									
N	-0.03	kN	M-2,beg	0.25	kNm	M-3	-87.03	kNm	
V-3	-1.47	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm	
M-2	0.25	kNm	V-2	-439.70	kN	M-3,end	0.08	kNm	
Reduction factor Kappa									
s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c		
N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906		
Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906		
Ksl-2	c		Lambda-K,	0.026	< 0.2				
Coefficient k-2 and k-3									
Psi-2	1.000		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8	
Beta-M,Psi	1.100		Psi-3	0.000		k-3	1.000	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.800					

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	a-2 Design D-N D-M,2	0.0932 0.000 0.008	<= 0.8	V-load 2 D-M,3 D-NM	Nein 0.326 0.334	< 1.0			
183	200.000	CO97	0.194	1) Design to (28) fulfilled					
	Section properties Flachstahl 350/40								
	A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
	A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
	I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
	W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
	Forces and moments								
	N	-0.08	kN	M-2,beg	0.00	kNm	M-3	50.46	kNm
	V-3	0.99	kN	M-2,end	0.16	kNm	M-3,beg	0.00	kNm
	M-2	0.16	kNm	V-2	-255.38	kN	M-3,end	50.46	kNm
	Reduction factor Kappa								
	s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
	N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
	Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906	
	Ksl-2	c		Lambda-K,	0.026	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.333		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
	Beta-M,Psi	1.567		Psi-3	0.000		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.3041	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.189				
	D-M,2	0.005		D-NM	0.194	< 1.0			
184	200.000	CO97	0.334	1) Design to (28) fulfilled					
	Section properties Flachstahl 350/40								
	A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
	A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
	I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
	W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
	Forces and moments								
	N	-0.42	kN	M-2,beg	0.03	kNm	M-3	-87.03	kNm
	V-3	-1.47	kN	M-2,end	0.03	kNm	M-3,beg	0.08	kNm
	M-2	-0.25	kNm	V-2	439.70	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
	N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
	Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906	
	Ksl-2	c		Lambda-K,	0.026	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	1.000		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
	Beta-M,Psi	1.100		Psi-3	0.000		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.0932	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.326				
	D-M,2	0.008		D-NM	0.334	< 1.0			
185	200.000	CO98	0.191	1) Design to (28) fulfilled					
	Section properties Flachstahl 350/40								
	A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
	A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
	I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
	W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
	Forces and moments								
	N	-0.05	kN	M-2,beg	0.01	kNm	M-3	50.37	kNm
	V-3	-0.49	kN	M-2,end	0.01	kNm	M-3,beg	0.00	kNm
	M-2	-0.08	kNm	V-2	-254.85	kN	M-3,end	50.37	kNm
	Reduction factor Kappa								
	s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
	N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
	Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906	
	Ksl-2	c		Lambda-K,	0.026	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	1.000		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
	Beta-M,Psi	1.100		Psi-3	0.000		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.0932	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.188				
	D-M,2	0.003		D-NM	0.191	< 1.0			
186	0.000	CO98	0.329	1) Design to (28) fulfilled					
	Section properties Flachstahl 350/40								
	A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
	A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
	I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
	W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
	Forces and moments								
	N	-0.20	kN	M-2,beg	0.03	kNm	M-3	-86.83	kNm
	V-3	0.72	kN	M-2,end	0.01	kNm	M-3,beg	0.00	kNm
	M-2	-0.12	kNm	V-2	-438.74	kN	M-3,end	0.07	kNm
	Reduction factor Kappa								
	s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
	N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
	Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906	

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	c 0.333 1.567 Nein 0.3041 0.000 0.004	Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	0.026 1.000 0.000 1.800 Nein 0.325 0.329	< 0.2 =< 1.5 0.325 0.329	a-3 k-3	0.4897 1.000 =< 0.8 =< 1.5		
187	0.000	CO98	0.191	1) Design to (28) fulfilled					
	Section properties Flachstahl 350/40								
	A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
	A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
	I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
	W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
	Forces and moments								
	N	-0.26	kN	M-2,beg	0.08	kNm	M-3	50.37	kNm
	V-3	-0.49	kN	M-2,end	0.00	kNm	M-3,beg	50.37	kNm
	M-2	0.08	kNm	V-2	254.85	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
	N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
	Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906	
	Ksl-2	c		Lambda-K,	0.026	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	1.000		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
	Beta-M,Psi	1.100		Psi-3	0.000		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.0932	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.188				
	D-M,2	0.003		D-NM	0.191	< 1.0			
188	200.000	CO98	0.329	1) Design to (28) fulfilled					
	Section properties Flachstahl 350/40								
	A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
	A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
	I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
	W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
	Forces and moments								
	N	-0.04	kN	M-2,beg	0.00	kNm	M-3	-86.83	kNm
	V-3	0.72	kN	M-2,end	0.12	kNm	M-3,beg	0.07	kNm
	M-2	0.12	kNm	V-2	438.74	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
	N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
	Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906	
	Ksl-2	c		Lambda-K,	0.026	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.333		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
	Beta-M,Psi	1.567		Psi-3	0.000		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.3041	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.325				
	D-M,2	0.004		D-NM	0.329	< 1.0			
189	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
	Section properties Rundstahl 140								
	A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3
	A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3
	I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c	
	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4			
	Forces and moments								
	N	0.00	kN	M-2,beg	0.00	kNm	M-3	-0.41	kNm
	V-3	510.95	kN	M-2,end	0.30	kNm	M-3,beg	0.04	kNm
	M-2	-34.19	kNm	V-2	-1.03	kN	M-3,end	0.04	kNm
190	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
	Section properties Rundstahl 140								
	A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3
	A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3
	I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c	
	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4			
	Forces and moments								
	N	0.00	kN	M-2,beg	57.44	kNm	M-3	0.57	kNm
	V-3	-879.16	kN	M-2,end	0.00	kNm	M-3,beg	0.57	kNm
	M-2	57.44	kNm	V-2	0.84	kN	M-3,end	0.51	kNm
191	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
	Section properties Rundstahl 140								
	A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3
	A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3
	I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c	
	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4			
	Forces and moments								
	N	0.00	kN	M-2,beg	0.00	kNm	M-3	-0.33	kNm
	V-3	485.52	kN	M-2,end	0.28	kNm	M-3,beg	0.12	kNm
	M-2	-32.49	kNm	V-2	-0.87	kN	M-3,end	0.09	kNm

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
192	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
	Section properties		Rundstahl 140						
	A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3
	A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3
	I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c	
	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4			
	Forces and moments								
	N	0.00	kN	M-2,beg	0.47	kNm	M-3	-54.57	kNm
	V-3	-0.70	kN	M-2,end	0.42	kNm	M-3,beg	0.00	kNm
	M-2	0.47	kNm	V-2	-835.40	kN	M-3,end	1.83	kNm
	193	0.000	CO97	0.080	1) Design to (28) fulfilled				
Section properties		Flachstahl 740/15							
A		111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
A-2		92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
I-2		20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
W-2,min		-27.75	cm^3	I-3	50653.00	cm^4			
Forces and moments									
N		-0.99	kN	M-2,beg	0.03	kNm	M-3	-34.26	kNm
V-3		-0.52	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm
M-2		0.03	kNm	V-2	-254.80	kN	M-3,end	0.15	kNm
Reduction factor Kappa									
s-K,2		0.135	m	Kappa-2 b	0.799		Ksl-3	c	
N-Cr,2		11194.29	kN	s-K,3	0.135	m	Kappa-3 b	0.799	
Lambda-K,		0.597		N-Cr,3	6094690.	kN	Kappa bar	0.799	
Ksl-2		c		Lambda-K,	0.026	< 0.2			
Taper conditions									
TapCon1-2		10279.50	> 1.20	TapCon2-2	1.000	> 0.05			
TapCon1-3		5596600.	> 1.20	TapCon2-3	1.000	> 0.05			
Coefficient k-2 and k-3									
Psi-2		0.000		Beta-M,2	1.791		Beta-M,V,3	1.300	
Beta-M,Psi		1.800		a-2	0.2500	<= 0.8	M-V,3	0.01	kNm
V-load 3		Ja		k-2	1.000	<= 1.5	Delta-M,3	34.41	kNm
C-load 3		Nein		Psi-3	0.000		Beta-M,3	1.800	
Beta-M,V,2		1.300		Beta-M,Psi	1.800		a-3	0.4898	<= 0.8
M-V,2		0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
Delta-M,2		0.06	kNm	C-load 2	Nein				
Design									
D-N	0.000		D-M,3	0.076					
D-M,2	0.003		D-NM	0.080	< 1.0				
194	1000.000	CO97	0.789	4) Design to (3) fulfilled (axial compression)					
	Section properties		Flachstahl 200/60						
	A	120.00	cm^2	W-2,min	-120.00	cm^3	I-3	4000.00	cm^4
	A-2	100.00	cm^2	W-2,max	120.00	cm^3	Ksl-3	c	
	I-2	360.00	cm^4	Ksl-2	c				
	Forces and moments								
	N	-2017.47	kN	M-2	0.00	kNm	M-2,end	0.00	kNm
	V-3	0.00	kN	M-2,beg	0.00	kNm			
	Reduction factor Kappa								
	s-K,2	1.000	m	Kappa-2 b	0.651		Ksl-3	c	
	N-Cr,2	7461.42	kN	s-K,3	1.000	m	Kappa-3 b	0.651	
	Lambda-K,	0.761		N-Cr,3	82904.70	kN	Kappa bar	0.651	
	Ksl-2	c		Lambda-K,	0.228				
	Design								
D-N	0.789	< 1.0							
195	0.000	CO97	0.080	1) Design to (28) fulfilled					
	Section properties		Flachstahl 740/15						
	A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
	A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
	I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
	W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
	Forces and moments								
	N	-0.12	kN	M-2,beg	0.03	kNm	M-3	-34.26	kNm
	V-3	-0.52	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm
	M-2	0.03	kNm	V-2	-254.80	kN	M-3,end	0.15	kNm
	Reduction factor Kappa								
	s-K,2	0.135	m	Kappa-2 b	0.799		Ksl-3	c	
	N-Cr,2	11194.29	kN	s-K,3	0.135	m	Kappa-3 b	0.799	
	Lambda-K,	0.597		N-Cr,3	6094690.	kN	Kappa bar	0.799	
	Ksl-2	c		Lambda-K,	0.026	< 0.2			
	Taper conditions								
	TapCon1-2	84805.60	> 1.20	TapCon2-2	1.000	> 0.05			
	TapCon1-3	46171900	> 1.20	TapCon2-3	1.000	> 0.05			
	Coefficient k-2 and k-3								
	Psi-2	0.000		Beta-M,2	1.791		Beta-M,V,3	1.300	
	Beta-M,Psi	1.800		a-2	0.2500	<= 0.8	M-V,3	0.01	kNm
	V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	34.41	kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4898	<= 0.8
	M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
	Delta-M,2	0.06	kNm	C-load 2	Nein				
Design									
D-N	0.000		D-M,3	0.076					
D-M,2	0.003		D-NM	0.080	< 1.0				
196	0.000	CO98	0.077	1) Design to (28) fulfilled					
	Section properties		Flachstahl 740/15						
	A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method				
	I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c
	W-2,min	-27.75	cm^3	I-3	50653.00	cm^4		
	Forces and moments							
	N	-0.09	kN	M-2,beg	0.00	kNm	M-3	-34.20 kNm
	V-3	0.26	kN	M-2,end	0.01	kNm	M-3,beg	0.00 kNm
	M-2	-0.01	kNm	V-2	-254.34	kN	M-3,end	0.15 kNm
	Reduction factor Kappa							
	s-K,2	0.135	m	Kappa-2 b	0.799		Ksl-3	c
	N-Cr,2	11194.29	kN	s-K,3	0.135	m	Kappa-3 b	0.799
	Lambda-K,	0.597		N-Cr,3	6094690.	kN	Kappa bar	0.799
	Ksl-2	c		Lambda-K,	0.026	< 0.2		
	Taper conditions							
	TapCon1-2	113074.0	> 1.20	TapCon2-2	1.000	> 0.05		
	TapCon1-3	61562600	> 1.20	TapCon2-3	1.000	> 0.05		
	Coefficient k-2 and k-3							
	Psi-2	0.000		Beta-M,2	1.791		Beta-M,V,3	1.300
	Beta-M,Psi	1.800		a-2	0.2500	<= 0.8	M-V,3	0.01 kNm
	V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	34.35 kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4898 <= 0.8
	M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000 <= 1.5
	Delta-M,2	0.02	kNm	C-load 2	Nein			
Design								
D-N	0.000		D-M,3	0.076				
D-M,2	0.001		D-NM	0.077	< 1.0			
197	0.000	CO98	0.787	4) Design to (3) fulfilled (axial compression)				
Section properties Flachstahl 200/60								
A	120.00	cm^2	W-2,min	-120.00	cm^3	I-3	4000.00	cm^4
A-2	100.00	cm^2	W-2,max	120.00	cm^3	Ksl-3	c	
I-2	360.00	cm^4	Ksl-2	c				
Forces and moments								
N	-2013.19	kN	M-2	0.00	kNm	M-2,end	0.00	kNm
V-3	0.00	kN	M-2,beg	0.00	kNm			
Reduction factor Kappa								
s-K,2	1.000	m	Kappa-2 b	0.651		Ksl-3	c	
N-Cr,2	7461.42	kN	s-K,3	1.000	m	Kappa-3 b	0.651	
Lambda-K,	0.761		N-Cr,3	82904.70	kN	Kappa bar	0.651	
Ksl-2	c		Lambda-K,	0.228				
Design								
D-N	0.787	< 1.0						
198	0.000	CO98	0.078	1) Design to (28) fulfilled				
Section properties Flachstahl 740/15								
A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
Forces and moments								
N	-0.49	kN	M-2,beg	0.00	kNm	M-3	-34.20	kNm
V-3	0.26	kN	M-2,end	0.01	kNm	M-3,beg	0.00	kNm
M-2	-0.01	kNm	V-2	-254.34	kN	M-3,end	0.15	kNm
Reduction factor Kappa								
s-K,2	0.135	m	Kappa-2 b	0.799		Ksl-3	c	
N-Cr,2	11194.29	kN	s-K,3	0.135	m	Kappa-3 b	0.799	
Lambda-K,	0.597		N-Cr,3	6094690.	kN	Kappa bar	0.799	
Ksl-2	c		Lambda-K,	0.026	< 0.2			
Taper conditions								
TapCon1-2	20768.69	> 1.20	TapCon2-2	1.000	> 0.05			
TapCon1-3	11307400	> 1.20	TapCon2-3	1.000	> 0.05			
Coefficient k-2 and k-3								
Psi-2	0.000		Beta-M,2	1.791		Beta-M,V,3	1.300	
Beta-M,Psi	1.800		a-2	0.2500	<= 0.8	M-V,3	0.01	kNm
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	34.35	kNm
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800	
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4898	<= 0.8
M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
Delta-M,2	0.02	kNm	C-load 2	Nein				
Design								
D-N	0.000		D-M,3	0.076				
D-M,2	0.001		D-NM	0.078	< 1.0			
199	0.000	CO97	0.184	1) Design to (28) fulfilled				
Section properties Flachstahl 740/15								
A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
Forces and moments								
N	-0.18	kN	M-2,beg	0.00	kNm	M-3	80.48	kNm
V-3	0.42	kN	M-2,end	0.03	kNm	M-3,beg	80.48	kNm
M-2	-0.04	kNm	V-2	440.32	kN	M-3,end	0.00	kNm
Reduction factor Kappa								
s-K,2	0.185	m	Kappa-2 b	0.686		Ksl-3	c	
N-Cr,2	5961.15	kN	s-K,3	0.185	m	Kappa-3 b	0.686	
Lambda-K,	0.819		N-Cr,3	3245510.	kN	Kappa bar	0.686	
Ksl-2	c		Lambda-K,	0.035	< 0.2			
Taper conditions								
TapCon1-2	30106.80	> 1.20	TapCon2-2	1.000	> 0.05			
TapCon1-3	16391500	> 1.20	TapCon2-3	1.000	> 0.05			
Coefficient k-2 and k-3								

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method				
	Psi-2	0.000	Beta-M,2	1.792	Beta-M,V,3	1.300		
	Beta-M,Psi	1.800	a-2	0.1599	M-V,3	0.03	kNm	
	V-load 3	Ja	k-2	1.000	Delta-M,3	81.44	kNm	
	C-load 3	Nein	Psi-3	0.000	Beta-M,3	1.800		
	Beta-M,V,2	1.300	Beta-M,Psi	1.800	a-3	0.4860	<= 0.8	
	M-V,2	0.00 kNm	V-load 2	Ja	k-3	1.000	<= 1.5	
	Delta-M,2	0.07 kNm	C-load 2	Nein				
	Design							
	D-N	0.000	D-M,3	0.180				
	D-M,2	0.004	D-NM	0.184	< 1.0			
200	0.000	CO97	0.185	1) Design to (28) fulfilled				
Section properties Flachstahl 740/15								
A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
Forces and moments								
N	-1.47	kN	M-2,beg	0.00	kNm	M-3	80.48	kNm
V-3	0.42	kN	M-2,end	0.03	kNm	M-3,beg	80.48	kNm
M-2	-0.04	kNm	V-2	440.32	kN	M-3,end	0.00	kNm
Reduction factor Kappa								
s-K,2	0.185	m	Kappa-2 b	0.686		Ksl-3	c	
N-Cr,2	5961.15	kN	s-K,3	0.185	m	Kappa-3 b	0.686	
Lambda-K,	0.819		N-Cr,3	3245510.	kN	Kappa bar	0.686	
Ksl-2	c		Lambda-K,	0.035	< 0.2			
Taper conditions								
TapCon1-2	3686.550	> 1.20	TapCon2-2	1.000	> 0.05			
TapCon1-3	2007120.	> 1.20	TapCon2-3	1.000	> 0.05			
Coefficient k-2 and k-3								
Psi-2	0.000		Beta-M,2	1.792		Beta-M,V,3	1.300	
Beta-M,Psi	1.800		a-2	0.1599	<= 0.8	M-V,3	0.03	kNm
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	81.44	kNm
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800	
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4860	<= 0.8
M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
Delta-M,2	0.07	kNm	C-load 2	Nein				
Design								
D-N	0.001		D-M,3	0.180				
D-M,2	0.004		D-NM	0.185	< 1.0			
201	0.000	CO98	0.181	1) Design to (28) fulfilled				
Section properties Flachstahl 740/15								
A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
Forces and moments								
N	-0.72	kN	M-2,beg	0.01	kNm	M-3	80.30	kNm
V-3	-0.20	kN	M-2,end	0.00	kNm	M-3,beg	80.30	kNm
M-2	0.01	kNm	V-2	439.30	kN	M-3,end	0.00	kNm
Reduction factor Kappa								
s-K,2	0.185	m	Kappa-2 b	0.686		Ksl-3	c	
N-Cr,2	5961.15	kN	s-K,3	0.185	m	Kappa-3 b	0.686	
Lambda-K,	0.819		N-Cr,3	3245510.	kN	Kappa bar	0.686	
Ksl-2	c		Lambda-K,	0.035	< 0.2			
Taper conditions								
TapCon1-2	7526.700	> 1.20	TapCon2-2	1.000	> 0.05			
TapCon1-3	4097870.	> 1.20	TapCon2-3	1.000	> 0.05			
Coefficient k-2 and k-3								
Psi-2	0.000		Beta-M,2	1.793		Beta-M,V,3	1.300	
Beta-M,Psi	1.800		a-2	0.1614	<= 0.8	M-V,3	0.03	kNm
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	81.26	kNm
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800	
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4860	<= 0.8
M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
Delta-M,2	0.02	kNm	C-load 2	Nein				
Design								
D-N	0.000		D-M,3	0.179				
D-M,2	0.001		D-NM	0.181	< 1.0			
202	0.000	CO98	0.180	1) Design to (28) fulfilled				
Section properties Flachstahl 740/15								
A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
Forces and moments								
N	-0.14	kN	M-2,beg	0.01	kNm	M-3	80.30	kNm
V-3	-0.20	kN	M-2,end	0.00	kNm	M-3,beg	80.30	kNm
M-2	0.01	kNm	V-2	439.30	kN	M-3,end	0.00	kNm
Reduction factor Kappa								
s-K,2	0.185	m	Kappa-2 b	0.686		Ksl-3	c	
N-Cr,2	5961.15	kN	s-K,3	0.185	m	Kappa-3 b	0.686	
Lambda-K,	0.819		N-Cr,3	3245510.	kN	Kappa bar	0.686	
Ksl-2	c		Lambda-K,	0.035	< 0.2			
Taper conditions								
TapCon1-2	38708.69	> 1.20	TapCon2-2	1.000	> 0.05			
TapCon1-3	21074800	> 1.20	TapCon2-3	1.000	> 0.05			
Coefficient k-2 and k-3								
Psi-2	0.000		Beta-M,2	1.793		Beta-M,V,3	1.300	

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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DESIGN BY ELEMENT

Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method				
	Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	1.800 Ja Nein 1.300 0.00 kNm 0.02 kNm 0.000 0.001	a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	0.1614 1.000 0.000 1.800 Ja Nein 0.179 0.180	<= 0.8 <= 1.5 < 1.0	M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	0.03 kNm 81.26 kNm 1.800 0.4860 1.000	<= 0.8 <= 1.5
203	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
	Section properties Rundstahl 140							
	A A-2 I-2 W-2,min	153.94 cm^2 136.79 cm^2 1885.74 cm^4 -179.45 cm^3	W-2,max Ksl-2 A-3 I-3	269.39 cm^3 c 136.79 cm^2 1885.74 cm^4	W-3,min W-3,max Ksl-3	-179.45 cm^3 269.39 cm^3 c		
	Forces and moments							
	N V-3 M-2	0.00 kN -1504.61 kN 67.38 kNm	M-2,beg M-2,end V-2	67.38 kNm 0.00 kNm -1.03 kN	M-3 M-3,beg M-3,end	1.82 kNm 1.82 kNm 1.89 kNm		
204	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
	Section properties Rundstahl 140							
	A A-2 I-2 W-2,min	153.94 cm^2 136.79 cm^2 1885.74 cm^4 -179.45 cm^3	W-2,max Ksl-2 A-3 I-3	269.39 cm^3 c 136.79 cm^2 1885.74 cm^4	W-3,min W-3,max Ksl-3	-179.45 cm^3 269.39 cm^3 c		
	Forces and moments							
	N V-3 M-2	0.00 kN -1429.70 kN 64.02 kNm	M-2,beg M-2,end V-2	64.02 kNm 0.00 kNm -0.87 kN	M-3 M-3,beg M-3,end	1.51 kNm 1.51 kNm 1.57 kNm		
205	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
	Section properties Rundstahl 140							
	A A-2 I-2 W-2,min	153.94 cm^2 136.79 cm^2 1885.74 cm^4 -179.45 cm^3	W-2,max Ksl-2 A-3 I-3	269.39 cm^3 c 136.79 cm^2 1885.74 cm^4	W-3,min W-3,max Ksl-3	-179.45 cm^3 269.39 cm^3 c		
	Forces and moments							
	N V-3 M-2	0.00 kN 1138.57 kN -76.33 kNm	M-2,beg M-2,end V-2	0.00 kNm 57.44 kNm 0.84 kN	M-3 M-3,beg M-3,end	-1.62 kNm 0.19 kNm 0.21 kNm		
206	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
	Section properties Rundstahl 140							
	A A-2 I-2 W-2,min	153.94 cm^2 136.79 cm^2 1885.74 cm^4 -179.45 cm^3	W-2,max Ksl-2 A-3 I-3	269.39 cm^3 c 136.79 cm^2 1885.74 cm^4	W-3,min W-3,max Ksl-3	-179.45 cm^3 269.39 cm^3 c		
	Forces and moments							
	N V-3 M-2	0.00 kN -0.70 kN -1.37 kNm	M-2,beg M-2,end V-2	0.47 kNm 0.50 kNm 1082.01 kN	M-3 M-3,beg M-3,end	72.56 kNm 72.56 kNm 0.00 kNm		
215	350.000	CO97	0.944	1) Design to (28) fulfilled				
	Section properties Venlo TRAEGER5							
	A A-2 I-2 W-2,min	460.60 cm^2 202.73 cm^2 256402.0 cm^4 -8271.03 cm^3	W-2,max Ksl-2 A-3 I-3	8271.03 cm^3 c 199.35 cm^2 19328.90 cm^4	W-3,min W-3,max Ksl-3	-1304.47 cm^3 1232.51 cm^3 c		
	Forces and moments							
	N V-3 M-2 M-2,beg M-2,end	-6269.79 kN 538.71 kN 837.36 kNm 646.79 kNm 837.36 kNm	M-2,max x-M2,max V-2 M-3 M-3,beg	837.36 kNm 0.350 m -356.89 kN 124.10 kNm 8.09 kNm	M-3,end M-3,max x-M3,max	124.10 kNm 124.10 kNm 0.350 m		
	Reduction factor Kappa							
	s-K,2 N-Cr,2 Lambda-K, Ksl-2	0.355 m 42168100 kN 0.020 c	Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.993 0.355 m 3178850. kN 0.072 < 0.2	Ksl-3 Kappa-3 b Kappa bar	c 0.960 0.960		
	Coefficient k-2 and k-3							
	Psi-2 Beta-M,Psi V-load 3 a-2	0.772 1.259 Nein 0.1748 <= 0.8	k-2 Psi-3 Beta-M,Psi V-load 2	0.927 <= 1.5 0.408 1.514 Nein	a-3 k-3	0.6273 <= 0.8 0.728 <= 1.5		
	Design							
	D-N D-M,2	0.433 0.287	D-M,3 D-NM	0.224 0.944 < 1.0				
216	350.000	CO97	0.810	1) Design to (28) fulfilled				
	Section properties Venlo TRAEGER5							
	A A-2 I-2 W-2,min	460.60 cm^2 202.73 cm^2 256402.0 cm^4 -8271.03 cm^3	W-2,max Ksl-2 A-3 I-3	8271.03 cm^3 c 199.35 cm^2 19328.90 cm^4	W-3,min W-3,max Ksl-3	-1304.47 cm^3 1232.51 cm^3 c		
	Forces and moments							
	N V-3 M-2 M-2 beg	-5647.72 kN -406.01 kN -619.26 kNm 0.00 kNm	M-2,min x-M2,min V-2 M-3	-619.26 kNm 0.350 m -335.33 kN 111.92 kNm	M-3,end M-3,max x-M3,max	111.92 kNm 111.92 kNm 0.350 m		

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method				
	M-2,end	0.00	kNm	M-3,beg	9.19	kNm		
	Reduction factor Kappa							
	s-K,2	0.355	m	Kappa-2 b	0.993		Ksl-3	c
	N-Cr,2	42168100	kN	s-K,3	0.355	m	Kappa-3 b	0.960
	Lambda-K,	0.020	< 0.2	N-Cr,3	3178850.	kN	Kappa bar	0.960
	Ksl-2	c		Lambda-K,	0.072	< 0.2		
	Coefficient k-2 and k-3							
	Psi-2	0.768		k-2	0.934	<= 1.5	a-3	0.6602 <= 0.8
	Beta-M,Psi	1.262		Psi-3	0.082		k-3	0.742 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.743			
	a-2	0.1749	<= 0.8	V-load 2	Nein			
	Design							
D-N	0.390		D-M,3	0.206				
D-M,2	0.214		D-NM	0.810	< 1.0			
229	60.000	CO98	0.246	1) Design to (28) fulfilled				
Section properties Rundstahl 140								
A	153.94	cm^2		W-2,max	269.39	cm^3	W-3,min	-179.45 cm^3
A-2	136.79	cm^2		Ksl-2	c		W-3,max	269.39 cm^3
I-2	1885.74	cm^4		A-3	136.79	cm^2	Ksl-3	c
W-2,min	-179.45	cm^3		I-3	1885.74	cm^4		
Forces and moments								
N	-0.11	kN		M-2,beg	0.00	kNm	M-3	0.01 kNm
V-3	429.42	kN		M-2,end	23.63	kNm	M-3,beg	0.00 kNm
M-2	23.63	kNm		V-2	-0.15	kN	M-3,end	0.01 kNm
Reduction factor Kappa								
s-K,2	0.055	m		Kappa-2 b	0.985		Ksl-3	c
N-Cr,2	12920200	kN		s-K,3	0.055	m	Kappa-3 b	0.985
Lambda-K,	0.027	< 0.2		N-Cr,3	12920200	kN	Kappa bar	0.985
Ksl-2	c			Lambda-K,	0.027	< 0.2		
Coefficient k-2 and k-3								
Psi-2	0.000			Beta-M,2	1.765		Beta-M,V,3	1.300
Beta-M,Psi	1.800			a-2	0.8000	<= 0.8	M-V,3	0.00 kNm
V-load 3	Ja			k-2	1.000	<= 1.5	Delta-M,3	0.01 kNm
C-load 3	Nein			Psi-3	0.000		Beta-M,3	1.800
Beta-M,V,2	1.300			Beta-M,Psi	1.800		a-3	0.8000 <= 0.8
M-V,2	2.15	kNm		V-load 2	Ja		k-3	1.000 <= 1.5
Delta-M,2	31.06	kNm		C-load 2	Nein			
Design								
D-N	0.000			D-M,3	0.000			
D-M,2	0.245			D-NM	0.246	< 1.0		
238	13420.0	CO98	0.691	1) Design to (28) fulfilled				
Section properties BOX(A) 770/15/10/710/932.798/770/15								
A	411.56	cm^2		W-2,max	13060.50	cm^3	W-3,min	-9042.95 cm^3
A-2	165.83	cm^2		Ksl-2	b		W-3,max	9042.95 cm^3
I-2	609139.0	cm^4		A-3	165.43	cm^2	Ksl-3	b
W-2,min	-13060.5	cm^3		I-3	348154.0	cm^4		
Forces and moments								
N	-3626.64	kN		M-2,end	767.57	kNm	M-3,end	203.80 kNm
V-3	198.80	kN		V-2	16.74	kN	M-3,max	236.45 kNm
M-2	434.62	kNm		M-3	-494.69	kNm	x-M3,max	6.710 m
M-2,beg	114.98	kNm		M-3,beg	215.12	kNm		
Reduction factor Kappa								
s-K,2	15.099	m		Kappa-2 b	0.844		Ksl-3	b
N-Cr,2	39601.10	kN		s-K,3	15.099	m	Kappa-3 b	0.767
Lambda-K,	0.612			N-Cr,3	28591.09	kN	Kappa bar	0.767
Ksl-2	b			Lambda-K,	0.720			
Taper conditions								
TapCon1-2	9.927	> 1.20		TapCon2-2	0.376	> 0.05		
TapCon1-3	7.167	> 1.20		TapCon2-3	0.564	> 0.05		
Coefficient k-2 and k-3								
Psi-2	0.150			Beta-M,2	1.628		Beta-M,V,3	1.300
Beta-M,Psi	1.695			a-2	-0.3320	<= 0.8	M-V,3	26.36 kNm
V-load 3	Ja			k-2	1.106	<= 1.5	Delta-M,3	751.75 kNm
C-load 3	Nein			Psi-3	0.947		Beta-M,3	1.143
Beta-M,V,2	1.300			Beta-M,Psi	1.137		a-3	-1.0239 <= 0.8
M-V,2	522.35	kNm		V-load 2	Ja		k-3	1.360 <= 1.5
Delta-M,2	3052.80	kNm		C-load 2	Nein			
Design								
D-N	0.351			D-M,3	0.227			
D-M,2	0.112			D-NM	0.691	< 1.0		
240	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
Section properties Kasten(A) 700/8/8/650/1016/700/8								
A	272.00	cm^2		W-2,max	8225.14	cm^3	W-3,min	-6255.06 cm^3
A-2	79.35	cm^2		Ksl-2	b		W-3,max	6255.07 cm^3
I-2	417837.0	cm^4		A-3	145.02	cm^2	Ksl-3	b
W-2,min	-8225.13	cm^3		I-3	218927.0	cm^4		
Forces and moments								
N	0.00	kN		M-2,beg	78.01	kNm	M-3	-113.61 kNm
V-3	-57.06	kN		M-2,end	0.00	kNm	M-3,beg	14.97 kNm
M-2	-214.05	kNm		V-2	16.07	kN	M-3,end	31.92 kNm
241	0.000	CO97	0.567	1) Design to (28) fulfilled				
Section properties Kasten(A) 770/15/10/710/2466/770/15								
A	718.20	cm^2		W-2,max	47676.89	cm^3	W-3,min	-19365.8 cm^3
A-2	96.97	cm^2		Ksl-2	b		W-3,max	19365.80 cm^3
I-2	5878560	cm^4		A-3	463.58	cm^2	Ksl-3	b
W-2,min	-47676.8	cm^3		I-3	745585.0	cm^4		
Forces and moments								

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	N	-3495.98	kN	M-2,beg	0.00	kNm	M-3	572.49	kNm
	V-3	238.26	kN	M-2,end	0.00	kNm	M-3,beg	572.49	kNm
	M-2	-4637.25	kNm	V-2	-10.59	kN	M-3,end	461.86	kNm
	Reduction factor Kappa								
	s-K,2	11.099	m	Kappa-2 b	0.955		Ksl-3	b	
	N-Cr,2	576067.0	kN	s-K,3	11.099	m	Kappa-3 b	0.877	
	Lambda-K,	0.212		N-Cr,3	103804.0	kN	Kappa bar	0.877	
	Ksl-2	b		Lambda-K,	0.499				
	Taper conditions								
	TapCon1-2	149.799	> 1.20	TapCon2-2	0.766	> 0.05			
	TapCon1-3	26.993	> 1.20	TapCon2-3	0.852	> 0.05			
	Coefficient k-2 and k-3								
	Psi-2	0.444		k-2	1.000	<= 1.5	a-3	-0.6280	<= 0.8
	Beta-M,Psi	1.489		Psi-3	0.807		k-3	1.107	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.235				
a-2	-0.0004	<= 0.8	V-load 2	Nein					
Design									
D-N	0.170		D-M,3	0.100					
D-M,2	0.297		D-NM	0.567	< 1.0				
242	0.000	CO99	0.553	1) Design to (28) fulfilled					
Section properties Kasten(A) 770/15/10/710/2530/770/15									
A	731.00	cm^2	W-2,max	49462.69	cm^3	W-3,min	-19796.8	cm^3	
A-2	95.19	cm^2	Ksl-2	b		W-3,max	19796.80	cm^3	
I-2	6257030.	cm^4	A-3	475.64	cm^2	Ksl-3	b		
W-2,min	-49462.6	cm^3	I-3	762175.0	cm^4				
Forces and moments									
N	-2530.59	kN	M-2,beg	0.00	kNm	M-3	810.16	kNm	
V-3	247.94	kN	M-2,end	0.00	kNm	M-3,beg	810.16	kNm	
M-2	-5282.62	kNm	V-2	21.77	kN	M-3,end	772.61	kNm	
Reduction factor Kappa									
s-K,2	1.725	m	Kappa-2 b	0.993		Ksl-3	b		
N-Cr,2	40946000	kN	s-K,3	1.725	m	Kappa-3 b	0.983		
Lambda-K,	0.025	< 0.2	N-Cr,3	5193240.	kN	Kappa bar	0.983		
Ksl-2	b		Lambda-K,	0.071	< 0.2				
Taper conditions									
TapCon1-2	14709.50	> 1.20	TapCon2-2	0.982	> 0.05				
TapCon1-3	1865.619	> 1.20	TapCon2-3	0.989	> 0.05				
Coefficient k-2 and k-3									
Psi-2	0.919		k-2	0.981	<= 1.5	a-3	0.0103	<= 0.8	
Beta-M,Psi	1.157		Psi-3	0.954		k-3	0.999	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.132					
a-2	0.1763	<= 0.8	V-load 2	Nein					
Design									
D-N	0.108		D-M,3	0.125					
D-M,2	0.320		D-NM	0.553	< 1.0				
243	1720.000	CO99	0.267	1) Design to (28) fulfilled					
Section properties Kasten(A) 770/25/12/710/2540/770/25									
A	982.60	cm^2	W-2,max	72251.00	cm^3	W-3,min	-25171.1	cm^3	
A-2	140.27	cm^2	Ksl-2	b		W-3,max	25171.19	cm^3	
I-2	9175880.	cm^4	A-3	577.03	cm^2	Ksl-3	b		
W-2,min	-72251.0	cm^3	I-3	969092.0	cm^4				
Forces and moments									
N	-600.36	kN	M-2,end	0.00	kNm	M-3	204.37	kNm	
V-3	-2470.82	kN	M-2,min	-5282.62	kNm	M-3,beg	237.94	kNm	
M-2	-5282.62	kNm	x-M2,min	1.720	m	M-3,end	204.37	kNm	
M-2,beg	1877.47	kNm	V-2	21.77	kN				
Reduction factor Kappa									
s-K,2	1.720	m	Kappa-2 b	0.994		Ksl-3	b		
N-Cr,2	64285000	kN	s-K,3	1.720	m	Kappa-3 b	0.982		
Lambda-K,	0.023	< 0.2	N-Cr,3	6789330.	kN	Kappa bar	0.982		
Ksl-2	b		Lambda-K,	0.072	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.359		Beta-M,2	1.518		Beta-M,V,3	1.300		
Beta-M,Psi	1.549		a-2	0.1623	<= 0.8	M-V,3	0.01	kNm	
V-load 3	Ja		k-2	0.997	<= 1.5	Delta-M,3	290.12	kNm	
C-load 3	Nein		Psi-3	0.859		Beta-M,3	1.199		
Beta-M,V,2	1.300		Beta-M,Psi	1.199		a-3	0.0358	<= 0.8	
M-V,2	888.38	kNm	V-load 2	Ja		k-3	0.999	<= 1.5	
Delta-M,2	7160.09	kNm	C-load 2	Nein					
Design									
D-N	0.019		D-M,3	0.025					
D-M,2	0.223		D-NM	0.267	< 1.0				
244	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Kasten(A) 700/8/8/650/1016/700/8									
A	272.00	cm^2	W-2,max	8225.14	cm^3	W-3,min	-6255.06	cm^3	
A-2	79.35	cm^2	Ksl-2	b		W-3,max	6255.07	cm^3	
I-2	417837.0	cm^4	A-3	145.02	cm^2	Ksl-3	b		
W-2,min	-8225.13	cm^3	I-3	218927.0	cm^4				
Forces and moments									
N	0.00	kN	M-2,min	-214.05	kNm	M-3,end	14.51	kNm	
V-3	-52.98	kN	x-M2,min	3.790	m	M-3,max	14.51	kNm	
M-2	158.10	kNm	V-2	16.07	kN	x-M3,max	3.790	m	
M-2,beg	158.10	kNm	M-3	-50.55	kNm	M-3,min	-111.32	kNm	
M-2,end	78.01	kNm	M-3,beg	1.85	kNm	x-M3,min	3.790	m	
245	0.000	CO98	0.679	1) Design to (28) fulfilled					
Section properties Kasten(A) 770/25/12/710/2540/770/25									
A	982.60	cm^2	W-2,max	72251.00	cm^3	W-3,min	-25171.1	cm^3	

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	A-2	140.27	cm^2	Ksl-2	b	W-3,max	25171.19	cm^3	
	I-2	9175880.	cm^4	A-3	577.03	Ksl-3	b	cm^3	
	W-2,min	-72251.0	cm^3	I-3	969092.0			cm^4	
	Forces and moments								
	N	-666.82	kN	M-2,beg	14578.50	kNm	M-3	349.43	kNm
	V-3	-3226.46	kN	M-2,end	2674.96	kNm	M-3,beg	349.43	kNm
	M-2	14578.50	kNm	V-2	60.60	kN	M-3,end	156.05	kNm
	Reduction factor Kappa								
	s-K,2	3.880	m	Kappa-2 b	0.986	Ksl-3	b		
	N-Cr,2	12632900	kN	s-K,3	3.880	m	Kappa-3 b	0.960	
	Lambda-K,	0.053	< 0.2	N-Cr,3	1334200.	kN	Kappa bar	0.960	
	Ksl-2	b		Lambda-K,	0.163	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.673		Beta-M,2	1.328		Beta-M,V,3	1.300	
	Beta-M,Psi	1.329		a-2	0.1138	<= 0.8	M-V,3	2.43	kNm
	V-load 3	Ja		k-2	0.998	<= 1.5	Delta-M,3	567.10	kNm
	C-load 3	Nein		Psi-3	0.570		Beta-M,3	1.401	
Beta-M,V,2	1.300		Beta-M,Psi	1.401		a-3	-0.0437	<= 0.8	
M-V,2	726.46	kNm	V-load 2	Ja		k-3	1.001	<= 1.5	
Delta-M,2	17107.69	kNm	C-load 2	Nein					
Design									
D-N	0.022		D-M,3	0.042					
D-M,2	0.615		D-NM	0.679	< 1.0				
247	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Kasten(A) 700/8/8/650/716/700/8									
A	224.00	cm^2	W-2,min	-5198.12	cm^3	I-3	166969.0	cm^4	
A-2	87.74	cm^2	W-2,max	5198.13	cm^3	Ksl-3	b		
I-2	186093.0	cm^4	Ksl-2	b					
Forces and moments									
N	0.00	kN	M-2	-0.16	kNm	M-2,end	0.00	kNm	
V-3	0.18	kN	M-2,beg	0.00	kNm				
248	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Kasten(A) 700/8/8/650/716/700/8									
A	224.00	cm^2	W-2,min	-5198.12	cm^3	I-3	166969.0	cm^4	
A-2	87.74	cm^2	W-2,max	5198.13	cm^3	Ksl-3	b		
I-2	186093.0	cm^4	Ksl-2	b					
Forces and moments									
N	0.00	kN	M-2	-0.11	kNm	M-2,end	0.00	kNm	
V-3	0.15	kN	M-2,beg	0.00	kNm				
249	0.000	CO98	0.732	1) Design to (28) fulfilled					
Section properties Kasten(A) 770/25/12/710/2540/770/25									
A	982.60	cm^2	W-2,max	72251.00	cm^3	W-3,min	-25171.1	cm^3	
A-2	140.27	cm^2	Ksl-2	b		W-3,max	25171.19	cm^3	
I-2	9175880.	cm^4	A-3	577.03	cm^2	Ksl-3	b		
W-2,min	-72251.0	cm^3	I-3	969092.0	cm^4				
Forces and moments									
N	-666.67	kN	M-2,beg	15794.50	kNm	M-3	373.49	kNm	
V-3	-3221.28	kN	M-2,end	14578.50	kNm	M-3,beg	373.49	kNm	
M-2	15794.50	kNm	V-2	60.60	kN	M-3,end	349.43	kNm	
Reduction factor Kappa									
s-K,2	0.400	m	Kappa-2 b	0.999		Ksl-3	b		
N-Cr,2	1.1886e9	kN	s-K,3	0.400	m	Kappa-3 b	0.996		
Lambda-K,	0.005	< 0.2	N-Cr,3	1.2553e8	kN	Kappa bar	0.996		
Ksl-2	b		Lambda-K,	0.017	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.925		k-2	0.996	<= 1.5	a-3	0.1224	<= 0.8	
Beta-M,Psi	1.152		Psi-3	0.953		k-3	0.997	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.133					
a-2	0.1757	<= 0.8	V-load 2	Nein					
Design									
D-N	0.021		D-M,3	0.045					
D-M,2	0.666		D-NM	0.732	< 1.0				
250	0.000	CO98	0.304	1) Design to (28) fulfilled					
Section properties Kasten(A) 570/10/15/540/730/570/10									
A	327.00	cm^2	W-2,max	6499.49	cm^3	W-3,min	-6839.60	cm^3	
A-2	91.44	cm^2	Ksl-2	b		W-3,max	6839.61	cm^3	
I-2	237231.0	cm^4	A-3	184.16	cm^2	Ksl-3	b		
W-2,min	-6499.49	cm^3	I-3	194929.0	cm^4				
Forces and moments									
N	-102.40	kN	M-2,beg	40.61	kNm	M-3	616.64	kNm	
V-3	48.09	kN	M-2,end	79.46	kNm	M-3,beg	616.64	kNm	
M-2	40.61	kNm	V-2	770.03	kN	M-3,end	0.97	kNm	
Reduction factor Kappa									
s-K,2	0.808	m	Kappa-2 b	0.989		Ksl-3	b		
N-Cr,2	7531270.	kN	s-K,3	0.808	m	Kappa-3 b	0.989		
Lambda-K,	0.040	< 0.2	N-Cr,3	6188310.	kN	Kappa bar	0.989		
Ksl-2	b		Lambda-K,	0.044	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.642		k-2	0.998	<= 1.5	a-3	0.0842	<= 0.8	
Beta-M,Psi	1.351		Psi-3	0.002		k-3	0.999	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.799					
a-2	0.1618	<= 0.8	V-load 2	Nein					
Design									
D-N	0.010		D-M,3	0.275					
D-M,2	0.019		D-NM	0.304	< 1.0				
252	0.000	CO98	0.038	1) Design to (28) fulfilled					

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	Section properties Kasten(A) 770/25/12/710/2540/770/25								
	A	982.60	cm^2	W-2,max	72251.00	cm^3	W-3,min	-25171.1	cm^3
	A-2	140.27	cm^2	Ksl-2	b		W-3,max	25171.19	cm^3
	I-2	9175880.	cm^4	A-3	577.03	cm^2	Ksl-3	b	
	W-2,min	-72251.0	cm^3	I-3	969092.0	cm^4			
	Forces and moments								
	N	-100.58	kN	M-2,min	-193.87	kNm	M-3,end	10.11	kNm
	V-3	-783.65	kN	x-M2,min	0.380	m	M-3,max	10.11	kNm
	M-2	786.04	kNm	V-2	-24.83	kN	x-M3,max	0.380	m
	M-2,beg	786.04	kNm	M-3	-13.15	kNm	M-3,min	-22.34	kNm
	M-2,end	735.10	kNm	M-3,beg	1.92	kNm	x-M3,min	0.380	m
	Reduction factor Kappa								
	s-K,2	0.383	m	Kappa-2 b	0.999		Ksl-3	b	
	N-Cr,2	1.2964e9	kN	s-K,3	0.383	m	Kappa-3 b	0.996	
	Lambda-K,	0.005	< 0.2	N-Cr,3	1.3692e8	kN	Kappa bar	0.996	
	Ksl-2	b		Lambda-K,	0.016	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.935		k-2	0.999	<= 1.5	a-3	0.1318	<= 0.8
	Beta-M,Psi	1.145		Psi-3	0.589		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.388				
a-2	0.1760	<= 0.8	V-load 2	Nein					
Design									
D-N	0.003		D-M,3	0.002					
D-M,2	0.033		D-NM	0.038	< 1.0				
253	0.000	CO98	0.148	1) Design to (28) fulfilled					
Section properties Kasten(A) 1066/10/15/1036/730/1066/10									
A	426.20	cm^2	W-2,max	10022.00	cm^3	W-3,min	-14824.2	cm^3	
A-2	191.13	cm^2	Ksl-2	b		W-3,max	14824.29	cm^3	
I-2	365803.0	cm^4	A-3	152.56	cm^2	Ksl-3	b		
W-2,min	-10022.0	cm^3	I-3	790133.0	cm^4				
Forces and moments									
N	-62.30	kN	M-2,beg	67.84	kNm	M-3	595.08	kNm	
V-3	36.79	kN	M-2,end	160.97	kNm	M-3,beg	595.08	kNm	
M-2	67.84	kNm	V-2	245.01	kN	M-3,end	44.98	kNm	
Reduction factor Kappa									
s-K,2	4.240	m	Kappa-2 b	0.953		Ksl-3	b		
N-Cr,2	421730.0	kN	s-K,3	4.240	m	Kappa-3 b	0.953		
Lambda-K,	0.191	< 0.2	N-Cr,3	910935.0	kN	Kappa bar	0.953		
Ksl-2	b		Lambda-K,	0.130	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.441		Beta-M,2	1.455		Beta-M,V,3	1.300		
Beta-M,Psi	1.491		a-2	-0.0650	<= 0.8	M-V,3	147.58	kNm	
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	1038.88	kNm	
C-load 3	Nein		Psi-3	0.076		Beta-M,3	1.684		
Beta-M,V,2	1.300		Beta-M,Psi	1.747		a-3	0.0562	<= 0.8	
M-V,2	39.75	kNm	V-load 2	Ja		k-3	1.000	<= 1.5	
Delta-M,2	207.26	kNm	C-load 2	Nein					
Design									
D-N	0.005		D-M,3	0.123					
D-M,2	0.021		D-NM	0.148	< 1.0				
256	1830.000	CO98	0.044	1) Design to (28) fulfilled					
Section properties Kasten(A) 770/25/12/710/2540/770/25									
A	982.60	cm^2	W-2,max	72251.00	cm^3	W-3,min	-25171.1	cm^3	
A-2	140.27	cm^2	Ksl-2	b		W-3,max	25171.19	cm^3	
I-2	9175880.	cm^4	A-3	577.03	cm^2	Ksl-3	b		
W-2,min	-72251.0	cm^3	I-3	969092.0	cm^4				
Forces and moments									
N	-99.89	kN	M-2,max	910.13	kNm	M-3	17.86	kNm	
V-3	51.68	kN	x-M2,max	1.830	m	M-3,beg	0.32	kNm	
M-2	910.13	kNm	M-2,min	-147.37	kNm	M-3,end	17.86	kNm	
M-2,beg	849.20	kNm	x-M2,min	1.830	m	M-3,max	17.86	kNm	
M-2,end	910.13	kNm	V-2	-17.50	kN	x-M3,max	1.830	m	
Reduction factor Kappa									
s-K,2	1.834	m	Kappa-2 b	0.993		Ksl-3	b		
N-Cr,2	56541600	kN	s-K,3	1.834	m	Kappa-3 b	0.981		
Lambda-K,	0.025	< 0.2	N-Cr,3	5971530.	kN	Kappa bar	0.981		
Ksl-2	b		Lambda-K,	0.077	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.933		Beta-M,2	1.148		Beta-M,V,3	1.300		
Beta-M,Psi	1.147		a-2	0.1423	<= 0.8	M-V,3	6.03	kNm	
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	32.48	kNm	
C-load 3	Nein		Psi-3	0.018		Beta-M,3	1.697		
Beta-M,V,2	1.300		Beta-M,Psi	1.787		a-3	0.1049	<= 0.8	
M-V,2	4.57	kNm	V-load 2	Ja		k-3	1.000	<= 1.5	
Delta-M,2	1057.50	kNm	C-load 2	Nein					
Design									
D-N	0.003		D-M,3	0.002					
D-M,2	0.038		D-NM	0.044	< 1.0				
257	1830.000	CO97	0.173	1) Design to (28) fulfilled					
Section properties Kasten(A) 570/10/15/540/730/570/10									
A	327.00	cm^2	W-2,max	6499.49	cm^3	W-3,min	-6839.60	cm^3	
A-2	91.44	cm^2	Ksl-2	b		W-3,max	6839.61	cm^3	
I-2	237231.0	cm^4	A-3	184.16	cm^2	Ksl-3	b		
W-2,min	-6499.49	cm^3	I-3	194929.0	cm^4				
Forces and moments									
N	-76.15	kN	M-2,min	-47.99	kNm	M-3,end	320.03	kNm	
V-3	-44.83	kN	x-M2,min	1.830	m	M-3,max	320.03	kNm	
M-2	-47.99	kNm	V-2	-180.72	kN	x-M3,max	1.830	m	

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	M-2,beg M-2,end Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	36.28 kNm 17.85 kNm 1.834 m 1461810. kN 0.090 < 0.2 b 0.492 1.456 Ja Nein 1.300 24.35 kNm 84.27 kNm 0.007 0.023	kNm kNm m kN < 0.2 Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	320.03 kNm 224.16 kNm Kappa-2 b 0.976 1.834 m 1201150. kN 0.099 < 0.2 1.411 0.1074 0.999 0.883 1.182 Ja Nein 0.143 0.173	M-3,min x-M3,min Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	-83.50 kNm 1.830 m b 0.976 0.976 1.300 78.63 kNm 403.53 kNm 1.205 -0.0557 <= 0.8 1.000 <= 1.5	
258	4240.000	CO97	0.163	1) Design to (28) fulfilled			
	Section properties Kasten(A) 1066/10/15/1036/730/1066/10 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	426.20 cm^2 191.13 cm^2 365803.0 cm^4 -10022.0 cm^3 -20.52 kN 65.86 kN 244.07 kNm 4.240 m 421730.0 kN 0.191 < 0.2 b 0.300 1.590 Ja Nein 1.300 53.32 kNm 289.89 kNm 0.002 0.074	W-2,max Ksl-2 A-3 I-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	10022.00 cm^3 b 152.56 cm^2 790133.0 cm^4 73.26 kNm 244.07 kNm -209.13 kN 0.953 4.240 m 910935.0 kN 0.130 < 0.2 1.537 -0.0337 <= 0.8 1.000 <= 1.5 0.410 1.513 Ja Nein 0.087 0.163	W-3,min W-3,max Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	-14824.2 cm^3 14824.29 cm^3 b 423.77 kNm 15.84 kNm 423.77 kNm b 0.953 0.953 1.300 151.50 kNm 977.30 kNm 1.480 0.0034 <= 0.8 1.000 <= 1.5	
259	380.000	CO98	0.052	1) Design to (28) fulfilled			
	Section properties Kasten(A) 770/25/12/710/2540/770/25 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 M-2,beg M-2,end Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	982.60 cm^2 140.27 cm^2 9175880. cm^4 -72251.0 cm^3 -110.82 kN 964.01 kN 1078.87 kNm 907.83 kNm 1078.87 kNm 0.383 m 1.2964e9 kN 0.005 < 0.2 b 0.841 1.211 Nein 0.1767 <= 0.8 0.003 0.046	W-2,max Ksl-2 A-3 I-3 M-2,max x-M2,max V-2 M-3 M-3,beg Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	72251.00 cm^3 b 577.03 cm^2 969092.0 cm^4 1078.87 kNm 0.380 m -81.63 kN 20.99 kNm 15.00 kNm 0.999 0.383 m 1.3692e8 kN 0.016 < 0.2 0.999 <= 1.5 0.715 1.300 Nein 0.003 0.052	W-3,min W-3,max Ksl-3 M-3,end M-3,max x-M3,max Ksl-3 Kappa-3 b Kappa bar a-3 k-3	-25171.1 cm^3 25171.19 cm^3 b 20.99 kNm 20.99 kNm 0.380 m b 0.996 0.996 0.1290 <= 0.8 1.000 <= 1.5	
261	810.000	CO98	0.310	1) Design to (28) fulfilled			
	Section properties Kasten(A) 570/10/15/540/730/570/10 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	327.00 cm^2 91.44 cm^2 237231.0 cm^4 -6499.49 cm^3 -92.15 kN -57.71 kN -56.12 kNm 0.808 m 7531270. kN 0.040 < 0.2 b 0.484 1.461 Nein 0.001 1.799	W-2,max Ksl-2 A-3 I-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	6499.49 cm^3 b 184.16 cm^2 194929.0 cm^4 61.24 kNm 25.25 kNm -770.35 kN 0.989 0.808 m 6188310. kN 0.044 < 0.2 0.999 <= 1.5 0.001 1.799	W-3,min W-3,max Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	-6839.60 cm^3 6839.61 cm^3 b 615.69 kNm 0.49 kNm 615.69 kNm b 0.989 0.989 0.0842 <= 0.8 0.999 <= 1.5	

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	a-2 Design D-N D-M,2	0.1706 0.009 0.026	<= 0.8	V-load 2 D-M,3 D-NM	Nein 0.275 0.310	< 1.0	
262	400.000	CO98	0.799	1) Design to (28) fulfilled			
Section properties Kasten(A) 770/25/12/710/2540/770/25							
A	982.60	cm^2		W-2,max	72251.00	cm^3	W-3,min -25171.1 cm^3
A-2	140.27	cm^2		Ksl-2	b		W-3,max 25171.19 cm^3
I-2	9175880.	cm^4		A-3	577.03	cm^2	Ksl-3 b
W-2,min	-72251.0	cm^3		I-3	969092.0	cm^4	
Forces and moments							
N	-603.68	kN		x-M2,max	0.400	m	M-3,end 614.92 kNm
V-3	3101.56	kN		M-2,min	-2757.60	kNm	M-3,max 614.92 kNm
M-2	16749.19	kNm		x-M2,min	0.400	m	x-M3,max 0.400 m
M-2,beg	15581.00	kNm		V-2	-98.78	kN	M-3,min -310.00 kNm
M-2,end	16749.19	kNm		M-3	614.92	kNm	x-M3,min 0.400 m
M-2,max	16749.19	kNm		M-3,beg	575.60	kNm	
Reduction factor Kappa							
s-K,2	0.400	m		Kappa-2 b	0.999		Ksl-3 b
N-Cr,2	1.1886e9	kN		s-K,3	0.400	m	Kappa-3 b 0.996
Lambda-K,	0.005	< 0.2		N-Cr,3	1.2553e8	kN	Kappa bar 0.996
Ksl-2	b			Lambda-K,	0.017	< 0.2	
Coefficient k-2 and k-3							
Psi-2	0.930			k-2	0.997	<= 1.5	a-3 0.1225 <= 0.8
Beta-M,Psi	1.149			Psi-3	0.949		k-3 0.998 <= 1.5
V-load 3	Nein			Beta-M,Psi	1.136		
a-2	0.1757	<= 0.8		V-load 2	Nein		
Design							
D-N	0.019			D-M,3	0.074		
D-M,2	0.706			D-NM	0.799	< 1.0	
263	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
Section properties Kasten(A) 700/8/8/650/1016/700/8							
A	272.00	cm^2		W-2,max	8225.14	cm^3	W-3,min -6255.06 cm^3
A-2	79.35	cm^2		Ksl-2	b		W-3,max 6255.07 cm^3
I-2	417837.0	cm^4		A-3	145.02	cm^2	Ksl-3 b
W-2,min	-8225.13	cm^3		I-3	218927.0	cm^4	
Forces and moments							
N	0.00	kN		M-2,beg	302.73	kNm	M-3 90.85 kNm
V-3	29.59	kN		M-2,end	158.10	kNm	M-3,beg 90.85 kNm
M-2	302.73	kNm		V-2	16.07	kN	M-3,end 1.85 kNm
264	3880.000	CO98	0.747	1) Design to (28) fulfilled			
Section properties Kasten(A) 770/25/12/710/2540/770/25							
A	982.60	cm^2		W-2,max	72251.00	cm^3	W-3,min -25171.1 cm^3
A-2	140.27	cm^2		Ksl-2	b		W-3,max 25171.19 cm^3
I-2	9175880.	cm^4		A-3	577.03	cm^2	Ksl-3 b
W-2,min	-72251.0	cm^3		I-3	969092.0	cm^4	
Forces and moments							
N	-603.68	kN		M-2,beg	4639.54	kNm	M-3 575.60 kNm
V-3	3106.76	kN		M-2,end	15581.00	kNm	M-3,beg 234.09 kNm
M-2	15581.00	kNm		V-2	-98.78	kN	M-3,end 575.60 kNm
Reduction factor Kappa							
s-K,2	3.880	m		Kappa-2 b	0.986		Ksl-3 b
N-Cr,2	12632900	kN		s-K,3	3.880	m	Kappa-3 b 0.960
Lambda-K,	0.053	< 0.2		N-Cr,3	1334200.	kN	Kappa bar 0.960
Ksl-2	b			Lambda-K,	0.163	< 0.2	
Coefficient k-2 and k-3							
Psi-2	0.298			Beta-M,2	1.587		Beta-M,V,3 1.300
Beta-M,Psi	1.592			a-2	0.1412	<= 0.8	M-V,3 3.39 kNm
V-load 3	Ja			k-2	0.997	<= 1.5	Delta-M,3 869.78 kNm
C-load 3	Nein			Psi-3	0.517		Beta-M,3 1.438
Beta-M,V,2	1.300			Beta-M,Psi	1.438		a-3 -0.0316 <= 0.8
M-V,2	300.64	kNm		V-load 2	Ja		k-3 1.001 <= 1.5
Delta-M,2	18133.19	kNm		C-load 2	Nein		
Design							
D-N	0.020			D-M,3	0.070		
D-M,2	0.657			D-NM	0.747	< 1.0	
265	1720.000	CO98	0.243	1) Design to (28) fulfilled			
Section properties Kasten(A) 770/25/12/710/2540/770/25							
A	982.60	cm^2		W-2,max	72251.00	cm^3	W-3,min -25171.1 cm^3
A-2	140.27	cm^2		Ksl-2	b		W-3,max 25171.19 cm^3
I-2	9175880.	cm^4		A-3	577.03	cm^2	Ksl-3 b
W-2,min	-72251.0	cm^3		I-3	969092.0	cm^4	
Forces and moments							
N	-603.68	kN		M-2,max	4639.54	kNm	M-3,end 234.09 kNm
V-3	3157.19	kN		x-M2,max	1.720	m	M-3,max 234.09 kNm
M-2	4639.54	kNm		V-2	-78.17	kN	x-M3,max 1.720 m
M-2,beg	1746.70	kNm		M-3	234.09	kNm	M-3,min -151.97 kNm
M-2,end	4639.54	kNm		M-3,beg	108.28	kNm	x-M3,min 1.720 m
Reduction factor Kappa							
s-K,2	1.720	m		Kappa-2 b	0.994		Ksl-3 b
N-Cr,2	64285000	kN		s-K,3	1.720	m	Kappa-3 b 0.982
Lambda-K,	0.023	< 0.2		N-Cr,3	6789330.	kN	Kappa bar 0.982
Ksl-2	b			Lambda-K,	0.072	< 0.2	
Coefficient k-2 and k-3							
Psi-2	0.376			M-V,2	1045.39	kNm	Psi-3 0.719
Beta-M,Psi	1.536			Delta-M,2	7231.85	kNm	Beta-M,Psi 1.296
V-load 3	Ja			Beta-M,2	1.502		V-load 2 Nein

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	C-load 3	Nein	a-2	0.1616	<= 0.8	a-3	0.0499	<= 0.8
	Beta-M,V,2	1.300	k-2	0.997	<= 1.5	k-3	0.999	<= 1.5
	Design							
	D-N	0.019	D-M,3	0.028				
	D-M,2	0.196	D-NM	0.243	< 1.0			
266	860.000	CO99	0.371	1) Design to (28) fulfilled				
Section properties BOX(A) 770/15/10/710/2497.91/770/15								
A	724.58	cm^2	W-2,max	48563.80	cm^3	W-3,min	-19580.6	cm^3
A-2	96.08	cm^2	Ksl-2	b		W-3,max	19580.69	cm^3
I-2	6065390.	cm^4	A-3	469.60	cm^2	Ksl-3	b	
W-2,min	-48563.8	cm^3	I-3	753856.0	cm^4			
Forces and moments								
N	-2295.55	kN	M-2,beg	2814.36	kNm	M-3	-594.43	kNm
V-3	-109.60	kN	M-2,end	2990.32	kNm	M-3,beg	233.24	kNm
M-2	2903.08	kNm	V-2	28.56	kN	M-3,end	232.19	kNm
Reduction factor Kappa								
s-K,2	1.725	m	Kappa-2 b	0.993		Ksl-3	b	
N-Cr,2	40946000	kN	s-K,3	1.725	m	Kappa-3 b	0.983	
Lambda-K,	0.025	< 0.2	N-Cr,3	5193240.	kN	Kappa bar	0.983	
Ksl-2	b		Lambda-K,	0.071	< 0.2			
Taper conditions								
TapCon1-2	16215.59	> 1.20	TapCon2-2	0.982	> 0.05			
TapCon1-3	2056.639	> 1.20	TapCon2-3	0.989	> 0.05			
Coefficient k-2 and k-3								
Psi-2	0.941		k-2	0.983	<= 1.5	a-3	0.0074	<= 0.8
Beta-M,Psi	1.141		Psi-3	0.995		k-3	0.999	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.103				
a-2	0.1742	<= 0.8	V-load 2	Nein				
Design								
D-N	0.098		D-M,3	0.093				
D-M,2	0.180		D-NM	0.371	< 1.0			
267	0.000	CO98	0.433	1) Design to (28) fulfilled				
Section properties Kasten(A) 770/15/10/710/1970/770/15								
A	619.00	cm^2	W-2,max	34763.10	cm^3	W-3,min	-16026.2	cm^3
A-2	113.13	cm^2	Ksl-2	b		W-3,max	16026.29	cm^3
I-2	3424160.	cm^4	A-3	369.17	cm^2	Ksl-3	b	
W-2,min	-34763.1	cm^3	I-3	617014.0	cm^4			
Forces and moments								
N	-3399.26	kN	M-2,beg	1520.57	kNm	M-3	-501.40	kNm
V-3	-128.16	kN	M-2,end	1762.78	kNm	M-3,beg	487.09	kNm
M-2	1520.57	kNm	V-2	11.21	kN	M-3,end	351.59	kNm
Reduction factor Kappa								
s-K,2	11.099	m	Kappa-2 b	0.948		Ksl-3	b	
N-Cr,2	576067.0	kN	s-K,3	11.099	m	Kappa-3 b	0.877	
Lambda-K,	0.197	< 0.2	N-Cr,3	103804.0	kN	Kappa bar	0.877	
Ksl-2	b		Lambda-K,	0.463				
Taper conditions								
TapCon1-2	154.062	> 1.20	TapCon2-2	0.760	> 0.05			
TapCon1-3	27.761	> 1.20	TapCon2-3	0.849	> 0.05			
Coefficient k-2 and k-3								
Psi-2	0.863		Beta-M,2	1.198		Beta-M,V,3	1.300	
Beta-M,Psi	1.196		a-2	-0.1247	<= 0.8	M-V,3	29.99	kNm
V-load 3	Ja		k-2	1.022	<= 1.5	Delta-M,3	988.49	kNm
C-load 3	Nein		Psi-3	0.722		Beta-M,3	1.295	
Beta-M,V,2	1.300		Beta-M,Psi	1.295		a-3	-0.5044	<= 0.8
M-V,2	64.71	kNm	V-load 2	Ja		k-3	1.097	<= 1.5
Delta-M,2	4095.15	kNm	C-load 2	Nein				
Design								
D-N	0.191		D-M,3	0.105				
D-M,2	0.137		D-NM	0.433	< 1.0			
268	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
Section properties Kasten(A) 700/8/8/650/756/700/8								
A	230.40	cm^2	W-2,max	5573.99	cm^3	W-3,min	-4968.49	cm^3
A-2	86.58	cm^2	Ksl-2	b		W-3,max	4968.49	cm^3
I-2	210697.0	cm^4	A-3	103.28	cm^2	Ksl-3	b	
W-2,min	-5573.99	cm^3	I-3	173897.0	cm^4			
Forces and moments								
N	0.00	kN	M-2,beg	368.60	kNm	M-3	177.29	kNm
V-3	42.40	kN	M-2,end	302.73	kNm	M-3,beg	177.29	kNm
M-2	368.60	kNm	V-2	16.07	kN	M-3,end	93.06	kNm
270	0.000	CO98	0.774	1) Design to (28) fulfilled				
Section properties Kasten(A) 770/15/10/710/803/770/15								
A	385.60	cm^2	W-2,max	10849.79	cm^3	W-3,min	-8169.02	cm^3
A-2	174.29	cm^2	Ksl-2	b		W-3,max	8169.03	cm^3
I-2	435620.0	cm^4	A-3	139.38	cm^2	Ksl-3	b	
W-2,min	-10849.7	cm^3	I-3	314508.0	cm^4			
Forces and moments								
N	-3630.68	kN	V-2	-12.77	kN	x-M3,max	6.710	m
V-3	141.74	kN	M-3	-566.62	kNm	M-3,min	-574.99	kNm
M-2	369.29	kNm	M-3,beg	251.45	kNm	x-M3,min	1.680	m
M-2,beg	369.29	kNm	M-3,end	213.60	kNm			
M-2,end	1523.53	kNm	M-3,max	290.28	kNm			
Reduction factor Kappa								
s-K,2	15.099	m	Kappa-2 b	0.832		Ksl-3	b	
N-Cr,2	39601.10	kN	s-K,3	15.099	m	Kappa-3 b	0.767	
Lambda-K,	0.592		N-Cr,3	28591.09	kN	Kappa bar	0.767	
Ksl-2	b		Lambda-K	0.697				

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	Taper conditions						
	TapCon1-2	9.916	> 1.20	TapCon2-2	0.343	> 0.05	
	TapCon1-3	7.159	> 1.20	TapCon2-3	0.539	> 0.05	
	Coefficient k-2 and k-3						
	Psi-2	0.242		Beta-M,2	1.577		Beta-M,V,3 1.300
	Beta-M,Psi	1.630		a-2	-0.3862	<= 0.8	M-V,3 55.65 kNm
	V-load 3	Ja		k-2	1.134	<= 1.5	Delta-M,3 865.27 kNm
	C-load 3	Nein		Psi-3	0.849		Beta-M,3 1.211
	Beta-M,V,2	1.300		Beta-M,Psi	1.205		a-3 -0.8733 <= 0.8
	M-V,2	378.69 kNm		V-load 2	Ja		k-3 1.327 <= 1.5
	Delta-M,2	2365.04 kNm		C-load 2	Nein		
	Design						
D-N	0.375		D-M,3	0.281			
D-M,2	0.118		D-NM	0.774	< 1.0		
276	60.000	CO98	0.519	1) Design to (28) fulfilled			
Section properties Rundstahl 140							
A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min -179.45	
A-2	136.79	cm^2	Ksl-2	c		W-3,max 269.39	
I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3 c	
W-2,min	-179.45	cm^3	I-3	1885.74	cm^4		
Forces and moments							
N	-0.11	kN	M-2,beg	0.00	kNm	M-3 -24.29	
V-3	466.98	kN	M-2,end	25.69	kNm	M-3,beg 0.00	
M-2	25.69	kNm	V-2	441.56	kN	M-3,end 3.54	
Reduction factor Kappa							
s-K,2	0.055	m	Kappa-2 b	0.985		Ksl-3 c	
N-Cr,2	12920200	kN	s-K,3	0.055	m	Kappa-3 b 0.985	
Lambda-K,	0.027	< 0.2	N-Cr,3	12920200	kN	Kappa bar 0.985	
Ksl-2	c		Lambda-K,	0.027	< 0.2		
Coefficient k-2 and k-3							
Psi-2	0.000		Beta-M,2	1.767		Beta-M,V,3 1.300	
Beta-M,Psi	1.800		a-2	0.8000	<= 0.8	M-V,3 0.32	
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3 27.83	
C-load 3	Nein		Psi-3	0.000		Beta-M,3 1.794	
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3 0.8000 <= 0.8	
M-V,2	2.34	kNm	V-load 2	Ja		k-3 1.000 <= 1.5	
Delta-M,2	35.17	kNm	C-load 2	Nein			
Design							
D-N	0.000		D-M,3	0.252			
D-M,2	0.267		D-NM	0.519	< 1.0		
289	0.000	CO97	0.834	1) Design to (28) fulfilled			
Section properties Venlo TRAEGER5							
A	460.60	cm^2	W-2,max	8271.03	cm^3	W-3,min -1304.47	
A-2	202.73	cm^2	Ksl-2	c		W-3,max 1232.51	
I-2	256402.0	cm^4	A-3	199.35	cm^2	Ksl-3 c	
W-2,min	-8271.03	cm^3	I-3	19328.90	cm^4		
Forces and moments							
N	-6291.06	kN	M-2,end	628.85	kNm	M-3,end 12.33	
V-3	-558.60	kN	V-2	191.17	kN	M-3,min -10.10	
M-2	826.56	kNm	M-3	65.06	kNm	x-M3,min 0.350	
M-2,beg	826.56	kNm	M-3,beg	65.06	kNm		
Reduction factor Kappa							
s-K,2	0.355	m	Kappa-2 b	0.993		Ksl-3 c	
N-Cr,2	42168100	kN	s-K,3	0.355	m	Kappa-3 b 0.960	
Lambda-K,	0.020	< 0.2	N-Cr,3	3178850.	kN	Kappa bar 0.960	
Ksl-2	c		Lambda-K,	0.072	< 0.2		
Coefficient k-2 and k-3							
Psi-2	0.761		k-2	0.926	<= 1.5	a-3 0.6494 <= 0.8	
Beta-M,Psi	1.267		Psi-3	0.190		k-3 0.718 <= 1.5	
V-load 3	Nein		Beta-M,Psi	1.667			
a-2	0.1751	<= 0.8	V-load 2	Nein			
Design							
D-N	0.435		D-M,3	0.116			
D-M,2	0.283		D-NM	0.834	< 1.0		
290	0.000	CO98	0.713	1) Design to (28) fulfilled			
Section properties Venlo TRAEGER5							
A	460.60	cm^2	W-2,max	8271.03	cm^3	W-3,min -1304.47	
A-2	202.73	cm^2	Ksl-2	c		W-3,max 1232.51	
I-2	256402.0	cm^4	A-3	199.35	cm^2	Ksl-3 c	
W-2,min	-8271.03	cm^3	I-3	19328.90	cm^4		
Forces and moments							
N	-5712.16	kN	M-2,end	51.21	kNm	M-3 -53.50	
V-3	391.73	kN	M-2,max	51.21	kNm	M-3,beg 50.34	
M-2	-625.52	kNm	x-M2,max	0.350	m	M-3,end 4.90	
M-2,beg	46.87	kNm	V-2	169.02	kN		
Reduction factor Kappa							
s-K,2	0.355	m	Kappa-2 b	0.993		Ksl-3 c	
N-Cr,2	42168100	kN	s-K,3	0.355	m	Kappa-3 b 0.960	
Lambda-K,	0.020	< 0.2	N-Cr,3	3178850.	kN	Kappa bar 0.960	
Ksl-2	c		Lambda-K,	0.072	< 0.2		
Coefficient k-2 and k-3							
Psi-2	0.915		k-2	0.935	<= 1.5	a-3 0.5843 <= 0.8	
Beta-M,Psi	1.159		Psi-3	0.833		k-3 0.769 <= 1.5	
V-load 3	Nein		Beta-M,Psi	1.217			
a-2	0.1708	<= 0.8	V-load 2	Nein			
Design							
D-N	0.395		D-M,3	0.102			
D-M,2	0.216		D-NM	0.713	< 1.0		

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299	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
	Section properties Rundstahl 140								
	A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3
	A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3
	I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c	
	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4			
	Forces and moments								
	N	0.00	kN	M-2,beg	0.00	kNm	M-3	-1.62	kNm
	V-3	1153.83	kN	M-2,end	58.20	kNm	M-3,beg	0.18	kNm
	M-2	-77.35	kNm	V-2	0.84	kN	M-3,end	0.19	kNm
	300	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
		Section properties Rundstahl 140							
A		153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3
A-2		136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3
I-2		1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c	
W-2,min		-179.45	cm^3	I-3	1885.74	cm^4			
Forces and moments									
N		0.00	kN	M-2,beg	0.45	kNm	M-3	69.45	kNm
V-3		-0.70	kN	M-2,end	0.48	kNm	M-3,beg	69.45	kNm
M-2		-1.37	kNm	V-2	1035.69	kN	M-3,end	0.00	kNm
301		0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
		Section properties Rundstahl 140							
	A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3
	A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3
	I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c	
	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4			
	Forces and moments								
	N	0.00	kN	M-2,beg	68.28	kNm	M-3	1.82	kNm
	V-3	-1524.80	kN	M-2,end	0.00	kNm	M-3,beg	1.82	kNm
	M-2	68.28	kNm	V-2	-1.03	kN	M-3,end	1.89	kNm
	302	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
		Section properties Rundstahl 140							
A		153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3
A-2		136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3
I-2		1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c	
W-2,min		-179.45	cm^3	I-3	1885.74	cm^4			
Forces and moments									
N		0.00	kN	M-2,beg	61.29	kNm	M-3	1.51	kNm
V-3		-1368.44	kN	M-2,end	0.00	kNm	M-3,beg	1.51	kNm
M-2		61.29	kNm	V-2	-0.87	kN	M-3,end	1.57	kNm
303		0.000	CO97	0.187	1) Design to (28) fulfilled				
		Section properties Flachstahl 740/15							
	A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
	A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
	I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
	W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
	Forces and moments								
	N	-1.47	kN	M-2,max	0.03	kNm	M-3,end	0.00	kNm
	V-3	0.42	kN	x-M2,max	0.180	m	M-3,min	-0.97	kNm
	M-2	-0.04	kNm	V-2	446.22	kN	x-M3,min	0.180	m
	M-2,beg	0.00	kNm	M-3	81.56	kNm			
	M-2,end	0.03	kNm	M-3,beg	81.56	kNm			
	Reduction factor Kappa								
	s-K,2	0.185	m	Kappa-2 b	0.686		Ksl-3	c	
	N-Cr,2	5961.27	kN	s-K,3	0.185	m	Kappa-3 b	0.686	
	Lambda-K,	0.819		N-Cr,3	3245580.	kN	Kappa bar	0.686	
	Ksl-2	c		Lambda-K,	0.035	< 0.2			
	Taper conditions								
	TapCon1-2	3686.620	> 1.20	TapCon2-2	0.487	> 0.05			
	TapCon1-3	2007160.	> 1.20	TapCon2-3	0.237	> 0.05			
	Coefficient k-2 and k-3								
	Psi-2	0.000		Beta-M,2	1.792		Beta-M,V,3	1.300	
	Beta-M,Psi	1.800		a-2	0.1599	<= 0.8	M-V,3	0.03	kNm
	V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	82.53	kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4860	<= 0.8
	M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
Delta-M,2	0.07	kNm	C-load 2	Nein					
Design									
D-N	0.001		D-M,3	0.182					
D-M,2	0.004		D-NM	0.187	< 1.0				
304	0.000	CO97	0.187	1) Design to (28) fulfilled					
	Section properties Flachstahl 740/15								
	A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
	A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
	I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
	W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
	Forces and moments								
	N	-0.16	kN	M-2,max	0.03	kNm	M-3,end	0.00	kNm
	V-3	0.42	kN	x-M2,max	0.180	m	M-3,min	-0.97	kNm
	M-2	-0.04	kNm	V-2	446.22	kN	x-M3,min	0.180	m
	M-2,beg	0.00	kNm	M-3	81.56	kNm			
	M-2,end	0.03	kNm	M-3,beg	81.56	kNm			
Reduction factor Kappa									
s-K,2	0.185	m	Kappa-2 b	0.686		Ksl-3	c		

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	s-K,2 N-Cr,2 Lambda-K, Ksl-2	0.135 m 11194.70 kN 0.597 c		Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.799 0.135 m 6094870. kN 0.026 < 0.2	Ksl-3 Kappa-3 b Kappa bar	c 0.799 0.799
	Taper conditions			TapCon1-2 TapCon1-3	84808.00 > 1.20 46173200 > 1.20	TapCon2-2 TapCon2-3	1.000 > 0.05 1.000 > 0.05
	Coefficient k-2 and k-3			Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2	0.000 1.800 Ja Nein 1.300 0.00 kNm 0.06 kNm	Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2	1.791 0.2500 <= 0.8 1.000 <= 1.5 0.000 1.800 Ja Nein
	Design			D-N D-M,2	0.000 0.003	D-M,3 D-NM	0.077 0.081 < 1.0
308	1000.000	CO97	0.799	4) Design to (3) fulfilled (axial compression)			
	Section properties Flachstahl 200/60			A A-2 I-2	120.00 cm ² 100.00 cm ² 360.00 cm ⁴	W-2,min W-2,max Ksl-2	-120.00 cm ³ 120.00 cm ³ c
	Forces and moments			N V-3	-2044.53 kN 0.00 kN	M-2 M-2,beq	0.00 kNm 0.00 kNm
	Reduction factor Kappa			s-K,2 N-Cr,2 Lambda-K, Ksl-2	1.000 m 7461.42 kN 0.761 c	Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.651 1.000 m 82904.70 kN 0.228
	Design			D-N	0.799 < 1.0	Ksl-3 Kappa-3 b Kappa bar	c 0.651 0.651
309	0.000	CO97	0.081	1) Design to (28) fulfilled			
	Section properties Flachstahl 740/15			A A-2 I-2 W-2,min	111.00 cm ² 92.50 cm ² 20.81 cm ⁴ -27.75 cm ³	W-2,max Ksl-2 A-3 I-3	27.75 cm ³ c 92.50 cm ² 50653.00 cm ⁴
	Forces and moments			N V-3 M-2	-0.99 kN -0.52 kN 0.03 kNm	M-2,beq M-2,end V-2	0.03 kNm 0.00 kNm -258.22 kN
	Reduction factor Kappa			s-K,2 N-Cr,2 Lambda-K, Ksl-2	0.135 m 11194.70 kN 0.597 c	Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.799 0.135 m 6094870. kN 0.026 < 0.2
	Taper conditions			TapCon1-2 TapCon1-3	10279.79 > 1.20 5596760. > 1.20	TapCon2-2 TapCon2-3	1.000 > 0.05 1.000 > 0.05
	Coefficient k-2 and k-3			Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2	0.000 1.800 Ja Nein 1.300 0.00 kNm 0.06 kNm	Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2	1.791 0.2500 <= 0.8 1.000 <= 1.5 0.000 1.800 Ja Nein
	Design			D-N D-M,2	0.000 0.003	D-M,3 D-NM	0.077 0.081 < 1.0
310	0.000	CO98	0.078	1) Design to (28) fulfilled			
	Section properties Flachstahl 740/15			A A-2 I-2 W-2,min	111.00 cm ² 92.50 cm ² 20.81 cm ⁴ -27.75 cm ³	W-2,max Ksl-2 A-3 I-3	27.75 cm ³ c 92.50 cm ² 50653.00 cm ⁴
	Forces and moments			N V-3 M-2	-0.49 kN 0.26 kN -0.01 kNm	M-2,beq M-2,end V-2	0.00 kNm 0.01 kNm -255.85 kN
	Reduction factor Kappa			s-K,2 N-Cr,2 Lambda-K, Ksl-2	0.135 m 11194.70 kN 0.597 c	Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.799 0.135 m 6094870. kN 0.026 < 0.2
	Taper conditions			TapCon1-2 TapCon1-3	20769.30 > 1.20 11307700 > 1.20	TapCon2-2 TapCon2-3	1.000 > 0.05 1.000 > 0.05
	Coefficient k-2 and k-3			Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2	0.000 1.800 Ja Nein 1.300 0.00 kNm 0.02 kNm	Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2	1.791 0.2500 <= 0.8 1.000 <= 1.5 0.016 1.789 Ja Nein
	Design			D-N D-M,2	0.000 0.003	D-M,3 D-NM	0.077 0.081 < 1.0

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	Design							
	D-N	0.000	D-M,3	0.077				
	D-M,2	0.001	D-NM	0.078	< 1.0			
311	1000.000	CO98	0.792	4) Design to (3) fulfilled (axial compression)				
	Section properties		Flachstahl 200/60					
	A	120.00 cm^2	W-2,min	-120.00 cm^3	I-3	4000.00 cm^4		
	A-2	100.00 cm^2	W-2,max	120.00 cm^3	Ksl-3	c		
	I-2	360.00 cm^4	Ksl-2	c				
	Forces and moments							
	N	-2025.34 kN	M-2	0.00 kNm	M-2,end	0.00 kNm		
	V-3	0.00 kN	M-2,beg	0.00 kNm				
	Reduction factor Kappa							
	s-K,2	1.000 m	Kappa-2 b	0.651	Ksl-3	c		
	N-Cr,2	7461.42 kN	s-K,3	1.000 m	Kappa-3 b	0.651		
	Lambda-K,	0.761	N-Cr,3	82904.70 kN	Kappa bar	0.651		
	Ksl-2	c	Lambda-K,	0.228				
	Design							
	D-N	0.792	< 1.0					
312	0.000	CO98	0.078	1) Design to (28) fulfilled				
	Section properties		Flachstahl 740/15					
	A	111.00 cm^2	W-2,max	27.75 cm^3	W-3,min	-1369.00 cm^3		
	A-2	92.50 cm^2	Ksl-2	c	W-3,max	1369.00 cm^3		
	I-2	20.81 cm^4	A-3	92.50 cm^2	Ksl-3	c		
	W-2,min	-27.75 cm^3	I-3	50653.00 cm^4				
	Forces and moments							
	N	-0.09 kN	M-2,beg	0.00 kNm	M-3	-34.40 kNm		
	V-3	0.26 kN	M-2,end	0.01 kNm	M-3,beg	9.33 kNm		
	M-2	-0.01 kNm	V-2	-255.85 kN	M-3,end	0.15 kNm		
	Reduction factor Kappa							
	s-K,2	0.135 m	Kappa-2 b	0.799	Ksl-3	c		
	N-Cr,2	11194.70 kN	s-K,3	0.135 m	Kappa-3 b	0.799		
	Lambda-K,	0.597	N-Cr,3	6094870. kN	Kappa bar	0.799		
	Ksl-2	c	Lambda-K,	0.026 < 0.2				
	Taper conditions							
	TapCon1-2	113077.0	TapCon2-2	1.000	> 0.05			
	TapCon1-3	61564300	TapCon2-3	1.000	> 0.05			
	Coefficient k-2 and k-3							
	Psi-2	0.000	Beta-M,2	1.791	Beta-M,V,3	1.300		
	Beta-M,Psi	1.800	a-2	0.2500	M-V,3	0.34 kNm		
	V-load 3	Ja	k-2	1.000	Delta-M,3	43.73 kNm		
	C-load 3	Nein	Psi-3	0.016	Beta-M,3	1.785		
	Beta-M,V,2	1.300	Beta-M,Psi	1.789	a-3	0.4890	<= 0.8	
	M-V,2	0.00 kNm	V-load 2	Ja	k-3	1.000	<= 1.5	
	Delta-M,2	0.02 kNm	C-load 2	Nein				
	Design							
	D-N	0.000	D-M,3	0.077				
	D-M,2	0.001	D-NM	0.078	< 1.0			
313	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
	Section properties		Rundstahl 140					
	A	153.94 cm^2	W-2,max	269.39 cm^3	W-3,min	-179.45 cm^3		
	A-2	136.79 cm^2	Ksl-2	c	W-3,max	269.39 cm^3		
	I-2	1885.74 cm^4	A-3	136.79 cm^2	Ksl-3	c		
	W-2,min	-179.45 cm^3	I-3	1885.74 cm^4				
	Forces and moments							
	N	0.00 kN	M-2,beg	0.00 kNm	M-3	-0.41 kNm		
	V-3	517.82 kN	M-2,end	0.30 kNm	M-3,beg	0.04 kNm		
	M-2	-34.65 kNm	V-2	-1.03 kN	M-3,end	0.04 kNm		
314	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
	Section properties		Rundstahl 140					
	A	153.94 cm^2	W-2,max	269.39 cm^3	W-3,min	-179.45 cm^3		
	A-2	136.79 cm^2	Ksl-2	c	W-3,max	269.39 cm^3		
	I-2	1885.74 cm^4	A-3	136.79 cm^2	Ksl-3	c		
	W-2,min	-179.45 cm^3	I-3	1885.74 cm^4				
	Forces and moments							
	N	0.00 kN	M-2,beg	58.20 kNm	M-3	0.57 kNm		
	V-3	-890.97 kN	M-2,end	0.00 kNm	M-3,beg	0.57 kNm		
	M-2	58.20 kNm	V-2	0.84 kN	M-3,end	0.51 kNm		
315	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
	Section properties		Rundstahl 140					
	A	153.94 cm^2	W-2,max	269.39 cm^3	W-3,min	-179.45 cm^3		
	A-2	136.79 cm^2	Ksl-2	c	W-3,max	269.39 cm^3		
	I-2	1885.74 cm^4	A-3	136.79 cm^2	Ksl-3	c		
	W-2,min	-179.45 cm^3	I-3	1885.74 cm^4				
	Forces and moments							
	N	0.00 kN	M-2,beg	0.00 kNm	M-3	-0.33 kNm		
	V-3	464.68 kN	M-2,end	0.27 kNm	M-3,beg	0.11 kNm		
	M-2	-31.09 kNm	V-2	-0.87 kN	M-3,end	0.09 kNm		
316	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
	Section properties		Rundstahl 140					
	A	153.94 cm^2	W-2,max	269.39 cm^3	W-3,min	-179.45 cm^3		
	A-2	136.79 cm^2	Ksl-2	c	W-3,max	269.39 cm^3		
	I-2	1885.74 cm^4	A-3	136.79 cm^2	Ksl-3	c		
	W-2,min	-179.45 cm^3	I-3	1885.74 cm^4				
	Forces and moments							
	N	0.00 kN	M-2,beg	0.47 kNm	M-3	-52.23 kNm		

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	s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	0.198 m 98686.00 kN 0.226 c 0.333 1.567 Nein 0.3041 <= 0.8 0.000 0.004		Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	0.906 0.198 m 7555650. kN 0.026 < 0.2 1.000 <= 1.5 0.003 1.798 Nein 0.327 0.331 < 1.0	Ksl-3 Kappa-3 b Kappa bar a-3 k-3	c 0.906 0.906 0.4896 <= 0.8 1.000 <= 1.5
325	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Rundstahl 140 A A-2 I-2 Forces and moments N V-3	153.94 cm ² 136.79 cm ² 1885.74 cm ⁴ 0.00 kN 0.06 kN		W-2,min W-2,max Ksl-2 M-2 M-2,beg	-179.45 cm ³ 269.39 cm ³ c 0.00 kNm 0.00 kNm	I-3 Ksl-3 M-2,end	1885.74 cm ⁴ c 0.00 kNm
326	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Rundstahl 140 A A-2 I-2 Forces and moments N V-3	153.94 cm ² 136.79 cm ² 1885.74 cm ⁴ 0.00 kN 0.06 kN		W-2,min W-2,max Ksl-2 M-2 M-2,beg	-179.45 cm ³ 269.39 cm ³ c 0.00 kNm 0.00 kNm	I-3 Ksl-3 M-2,end	1885.74 cm ⁴ c 0.00 kNm
327	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Rundstahl 140 A A-2 I-2 Forces and moments N V-3	153.94 cm ² 136.79 cm ² 1885.74 cm ⁴ 0.00 kN 0.06 kN		W-2,min W-2,max Ksl-2 M-2 M-2,beg	-179.45 cm ³ 269.39 cm ³ c 0.00 kNm 0.00 kNm	I-3 Ksl-3 M-2,end	1885.74 cm ⁴ c 0.00 kNm
328	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Rundstahl 140 A A-2 I-2 Forces and moments N V-3	153.94 cm ² 136.79 cm ² 1885.74 cm ⁴ 0.00 kN 0.00 kN		W-2,min W-2,max Ksl-2 M-2 M-2,beg	-179.45 cm ³ 269.39 cm ³ c 0.00 kNm 0.00 kNm	I-3 Ksl-3 M-2,end	1885.74 cm ⁴ c 0.00 kNm
329	0.000	CO97	0.795	1) Design to (28) fulfilled			
	Section properties HE-M 600 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	364.00 cm ² 237400.0 cm ⁴ -7660.00 cm ³ -5727.22 kN 553.82 kN -627.07 kNm 0.00 kNm 1.231 m 3246710. kN 0.064 < 0.2 a 0.598 1.381 Nein 0.0676 <= 0.8 0.529 0.242		Ksl-2 I-3 W-3 M-2,end M-2,max x-M2,max V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	a 18980.00 cm ⁴ 1240.00 cm ³ 80.24 kNm 80.24 kNm 1.230 m -10.44 kN 0.987 1.231 m 259573.0 kN 0.225 0.967 <= 1.5 0.364 1.545 Nein 0.024 0.795 < 1.0	Ksl-3 b M-3 M-3,beg M-3,end b Kappa-3 b Kappa bar a-3 k-3	b -11.77 kNm 8.52 kNm 2.50 kNm 0.908 0.908 0.3522 <= 0.8 0.814 <= 1.5
330	1300.000	CO98	0.700	1) Design to (28) fulfilled			
	Section properties RO 127x10 A I-2 W-2 Forces and moments N M-T V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2	36.76 cm ² 633.55 cm ⁴ -99.77 cm ³ -551.69 kN 0.42 kNm -2.40 kN -2.65 kNm 1.05 kNm 1.304 m 7719.38 kN 0.414 a 0.758		Ksl-2 I-3 W-3 M-2,end M-2,min x-M2,min V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2	a 633.55 cm ⁴ 99.77 cm ³ 0.69 kNm -2.65 kNm 1.300 m -4.56 kN 2.88 kNm 0.888 1.304 m 7719.38 kN 0.414 1.119 <= 1.5	Ksl-3 a M-3,beg M-3,end M-3,max x-M3,max VT a Kappa-3 b Kappa bar a-3	a 1.55 kNm 2.88 kNm 2.88 kNm 1.300 m 4.73 kN 0.888 0.888 -0.1022 <= 0.8

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	Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	1.269 Nein -0.2299 0.516 0.091	<= 0.8	Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	0.538 1.423 Nein 0.093 0.700	k-3	1.053 <= 1.5
331	0.000	CO98	0.718	1) Design to (28) fulfilled			
	Section properties RO 127x10 A I-2 W-2 Forces and moments N M-T V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	36.76 cm ² 633.55 cm ⁴ -99.77 cm ³ -539.49 kN -0.63 kNm 3.69 kN -3.51 kNm 0.03 kNm 1.304 m 7719.38 kN 0.414 a 0.399 1.521 Nein -0.0214 0.505 0.109		Ksl-2 I-3 W-3 M-2,end M-2,max x-M2,max V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	a 633.55 cm ⁴ 99.77 cm ³ 0.89 kNm 0.89 kNm 1.300 m -5.31 kN -3.71 kNm 0.888 1.304 m 7719.38 kN 0.414 1.011 <= 1.5 0.070 1.751 Nein 0.104 0.718	Ksl-3 a M-3,beg M-3,end M-3,max x-M3,max VT Ksl-3 Kappa-3 b Kappa bar a-3 k-3	a 0.22 kNm 3.20 kNm 3.20 kNm 1.300 m 5.84 kN 0.888 0.888 0.1691 <= 0.8 0.915 <= 1.5
332	0.000	CO98	0.752	1) Design to (28) fulfilled			
	Section properties HE-M 600 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg M-2,end Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	364.00 cm ² 237400.0 cm ⁴ -7660.00 cm ³ -5202.39 kN 386.90 kN -485.28 kNm 51.15 kNm 109.27 kNm 1.231 m 3246710. kN 0.064 < 0.2 a 0.716 1.299 Nein 0.0572 0.481 0.189		Ksl-2 I-3 W-3 M-2,max x-M2,max V-2 M-3 M-3,beg Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	a 18980.00 cm ⁴ 1240.00 cm ³ 109.27 kNm 1.230 m -45.35 kN -40.85 kNm 4.83 kNm 0.987 1.231 m 259573.0 kN 0.225 0.975 <= 1.5 0.317 1.578 Nein 0.083 0.752	Ksl-3 b M-3,end M-3,max x-M3,max Ksl-3 Kappa-3 b Kappa bar a-3 k-3	b 15.26 kNm 15.26 kNm 1.230 m 0.908 0.908 0.3673 <= 0.8 0.823 <= 1.5
333	0.000	CO98	0.453	1) Design to (28) fulfilled			
	Section properties HE-M 300 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg M-2,end Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	303.00 cm ² 59200.00 cm ⁴ -3480.00 cm ³ -849.65 kN -41.92 kN 117.58 kNm 117.58 kNm 22.06 kNm 5.285 m 43928.89 kN 0.498 b 0.188 1.669 Ja Nein 1.300 62.67 kNm 222.00 kNm 0.150 0.106		Ksl-2 I-3 W-3 M-2,min x-M2,min V-2 M-3 M-3,beg Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	b 19400.00 cm ⁴ 1250.00 cm ³ -104.42 kNm 5.280 m 25.64 kN 77.00 kNm 77.00 kNm 0.865 5.285 m 14395.59 kN 0.870 1.565 -0.2615 <= 0.8 1.026 <= 1.5 0.370 1.541 Ja Nein 0.196 0.453	Ksl-3 c M-3,end M-3,min x-M3,min Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	c 15.42 kNm -8.69 kNm 1.320 m 0.571 0.571 1.300 4.79 kNm 85.69 kNm 1.527 -0.2923 <= 0.8 1.044 <= 1.5
334	0.000	CO98	0.467	1) Design to (28) fulfilled			
	Section properties HE-M 300 A I-2 W-2 Forces and moments	303.00 cm ² 59200.00 cm ⁴ -3480.00 cm ³		Ksl-2 I-3 W-3	b 19400.00 cm ⁴ 1250.00 cm ³	Ksl-3 c	c

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	N	-975.93 kN	M-2,min	-90.95 kNm	M-3,end	15.38 kNm	
	V-3	-37.03 kN	x-M2,min	5.280 m	M-3,min	-8.52 kNm	
	M-2	105.34 kNm	V-2	26.08 kN	x-M3,min	1.320 m	
	M-2,beg	105.34 kNm	M-3	78.45 kNm			
	M-2,end	19.58 kNm	M-3,beg	78.45 kNm			
	Reduction factor Kappa						
	s-K,2	5.285 m	Kappa-2 b	0.865	Ksl-3	c	
	N-Cr,2	43928.89 kN	s-K,3	5.285 m	Kappa-3 b	0.571	
	Lambda-K,	0.498	N-Cr,3	14395.59 kN	Kappa bar	0.571	
	Ksl-2	b	Lambda-K,	0.870			
	Coefficient k-2 and k-3						
	Psi-2	0.186	Beta-M,2	1.567	Beta-M,V,3	1.300	
	Beta-M,Psi	1.670	a-2	-0.2594 <= 0.8	M-V,3	4.68 kNm	
	V-load 3	Ja	k-2	1.030 <= 1.5	Delta-M,3	86.97 kNm	
	C-load 3	Nein	Psi-3	0.314	Beta-M,3	1.565	
	Beta-M,V,2	1.300	Beta-M,Psi	1.581	a-3	-0.2260 <= 0.8	
	M-V,2	54.76 kNm	V-load 2	Ja	k-3	1.039 <= 1.5	
	Delta-M,2	196.29 kNm	C-load 2	Nein			
	Design						
	D-N	0.172	D-M,3	0.199			
D-M,2	0.095	D-NM	0.467 < 1.0				
335	0.000	CO98	0.710	1) Design to (28) fulfilled			
Section properties RO 127x10							
A	36.76 cm^2	Ksl-2	a	Ksl-3	a		
I-2	633.55 cm^4	I-3	633.55 cm^4				
W-2	-99.77 cm^3	W-3	99.77 cm^3				
Forces and moments							
N	-540.73 kN	M-2,beg	2.01 kNm	M-3,beg	1.03 kNm		
M-T	0.54 kNm	M-2,end	0.93 kNm	M-3,end	1.07 kNm		
V-3	1.65 kN	V-2	-1.00 kN	VT	1.39 kN		
M-2	2.01 kNm	M-3	-1.12 kNm				
Reduction factor Kappa							
s-K,2	2.178 m	Kappa-2 b	0.779	Ksl-3	a		
N-Cr,2	2767.53 kN	s-K,3	2.178 m	Kappa-3 b	0.779		
Lambda-K,	0.691	N-Cr,3	2767.53 kN	Kappa bar	0.779		
Ksl-2	a	Lambda-K,	0.691				
Coefficient k-2 and k-3							
Psi-2	0.727	Beta-M,2	1.294	Beta-M,V,3	1.300		
Beta-M,Psi	1.291	a-2	-0.6004 <= 0.8	M-V,3	0.56 kNm		
V-load 3	Ja	k-2	1.347 <= 1.5	Delta-M,3	2.19 kNm		
C-load 3	Nein	Psi-3	0.963	Beta-M,3	1.171		
Beta-M,V,2	1.300	Beta-M,Psi	1.126	a-3	-0.7716 <= 0.8		
M-V,2	1.24 kNm	V-load 2	Ja	k-3	1.445 <= 1.5		
Delta-M,2	3.51 kNm	C-load 2	Nein				
Design							
D-N	0.577	D-M,3	0.050				
D-M,2	0.083	D-NM	0.710 < 1.0				
336	540.000	CO98	0.652	1) Design to (28) fulfilled			
Section properties HE-M 600							
A	364.00 cm^2	Ksl-2	a	Ksl-3	b		
I-2	237400.0 cm^4	I-3	18980.00 cm^4				
W-2	-7660.00 cm^3	W-3	1240.00 cm^3				
Forces and moments							
N	-5201.77 kN	M-2,beg	109.30 kNm	M-3	40.20 kNm		
V-3	372.05 kN	M-2,end	280.49 kNm	M-3,beg	15.38 kNm		
M-2	-308.39 kNm	V-2	-47.71 kN	M-3,end	40.20 kNm		
Reduction factor Kappa							
s-K,2	0.538 m	Kappa-2 b	0.994	Ksl-3	b		
N-Cr,2	16969700 kN	s-K,3	0.538 m	Kappa-3 b	0.959		
Lambda-K,	0.028 < 0.2	N-Cr,3	1356720. kN	Kappa bar	0.959		
Ksl-2	a	Lambda-K,	0.098 < 0.2				
Coefficient k-2 and k-3							
Psi-2	0.888	k-2	0.956 <= 1.5	a-3	0.4376 <= 0.8		
Beta-M,Psi	1.179	Psi-3	0.580	k-3	0.801 <= 1.5		
V-load 3	Nein	Beta-M,Psi	1.394				
a-2	0.1006 <= 0.8	V-load 2	Nein				
Design							
D-N	0.455	D-M,3	0.079				
D-M,2	0.118	D-NM	0.652 < 1.0				
337	540.000	CO98	0.675	1) Design to (28) fulfilled			
Section properties HE-M 600							
A	364.00 cm^2	Ksl-2	a	Ksl-3	b		
I-2	237400.0 cm^4	I-3	18980.00 cm^4				
W-2	-7660.00 cm^3	W-3	1240.00 cm^3				
Forces and moments							
N	-5462.68 kN	M-2,beg	110.48 kNm	M-3	39.53 kNm		
V-3	371.93 kN	M-2,end	280.62 kNm	M-3,beg	13.68 kNm		
M-2	-313.62 kNm	V-2	-49.42 kN	M-3,end	39.53 kNm		
Reduction factor Kappa							
s-K,2	0.538 m	Kappa-2 b	0.994	Ksl-3	b		
N-Cr,2	16969700 kN	s-K,3	0.538 m	Kappa-3 b	0.959		
Lambda-K,	0.028 < 0.2	N-Cr,3	1356720. kN	Kappa bar	0.959		
Ksl-2	a	Lambda-K,	0.098 < 0.2				
Coefficient k-2 and k-3							
Psi-2	0.890	k-2	0.954 <= 1.5	a-3	0.4340 <= 0.8		
Beta-M,Psi	1.177	Psi-3	0.606	k-3	0.793 <= 1.5		
V-load 3	Nein	Beta-M,Psi	1.376				
a-2	0.1005 <= 0.8	V-load 2	Nein				

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	Design						
	D-N	0.478	D-M,3	0.077			
	D-M,2	0.119	D-NM	0.675	< 1.0		
338	7630.000	CO98	0.480	1) Design to (28) fulfilled			
	Section properties IS 292/250/10/15						
	A	101.20 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	15899.50 cm ⁴	I-3	3908.43 cm ⁴			
	W-2	-1089.01 cm ³	W-3	312.67 cm ³			
	Forces and moments						
	N	-278.44 kN	M-2,end	13.93 kNm	M-3,end	8.40 kNm	
	V-3	2.74 kN	V-2	-3.63 kN	M-3,min	-2.44 kNm	
	M-2	13.93 kNm	M-3	8.40 kNm	x-M3,min	4.580 m	
	M-2,beg	4.29 kNm	M-3,beg	7.68 kNm			
	Reduction factor Kappa						
	s-K,2	7.628 m	Kappa-2 b	0.736	Ksl-3	c	
	N-Cr,2	5663.95 kN	s-K,3	7.628 m	Kappa-3 b	0.267	
	Lambda-K,	0.802	N-Cr,3	1392.32 kN	Kappa bar	0.267	
	Ksl-2	b	Lambda-K,	1.618			
	Coefficient k-2 and k-3						
	Psi-2	0.447	Beta-M,2	1.431	Beta-M,V,3	1.300	
	Beta-M,Psi	1.487	a-2	-0.8013	M-V,3	2.44 kNm	
	V-load 3	Ja	k-2	1.092	Delta-M,3	10.84 kNm	
	C-load 3	Nein	Psi-3	0.914	Beta-M,3	1.192	
	Beta-M,V,2	1.300	Beta-M,Psi	1.160	a-3	-2.0955	<= 0.8
	M-V,2	7.52 kNm	V-load 2	Ja	k-3	1.500	<= 1.5
	Delta-M,2	25.11 kNm	C-load 2	Nein			
	Design						
	D-N	0.314	D-M,3	0.123			
	D-M,2	0.043	D-NM	0.480	< 1.0		
340	7630.000	CO98	0.472	1) Design to (28) fulfilled			
	Section properties IS 292/250/10/15						
	A	101.20 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	15899.50 cm ⁴	I-3	3908.43 cm ⁴			
	W-2	-1089.01 cm ³	W-3	312.67 cm ³			
	Forces and moments						
	N	-283.12 kN	M-2,end	2.59 kNm	M-3,end	7.98 kNm	
	V-3	-2.42 kN	V-2	-3.60 kN	M-3,min	-2.46 kNm	
	M-2	-11.18 kNm	M-3	7.98 kNm	x-M3,min	4.580 m	
	M-2,beg	7.26 kNm	M-3,beg	8.11 kNm			
	Reduction factor Kappa						
	s-K,2	7.628 m	Kappa-2 b	0.736	Ksl-3	c	
	N-Cr,2	5663.95 kN	s-K,3	7.628 m	Kappa-3 b	0.267	
	Lambda-K,	0.802	N-Cr,3	1392.32 kN	Kappa bar	0.267	
	Ksl-2	b	Lambda-K,	1.618			
	Coefficient k-2 and k-3						
	Psi-2	0.634	Beta-M,2	1.336	Beta-M,V,3	1.300	
	Beta-M,Psi	1.356	a-2	-0.9533	M-V,3	2.46 kNm	
	V-load 3	Ja	k-2	1.111	Delta-M,3	10.57 kNm	
	C-load 3	Nein	Psi-3	0.984	Beta-M,3	1.155	
	Beta-M,V,2	1.300	Beta-M,Psi	1.111	a-3	-2.2131	<= 0.8
	M-V,2	6.53 kNm	V-load 2	Ja	k-3	1.500	<= 1.5
	Delta-M,2	18.44 kNm	C-load 2	Nein			
	Design						
	D-N	0.320	D-M,3	0.117			
	D-M,2	0.035	D-NM	0.472	< 1.0		
341	1180.000	CO97	0.660	1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00 cm ²	Ksl-2	a	Ksl-3	b	
	I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴			
	W-2	-7660.00 cm ³	W-3	1240.00 cm ³			
	Forces and moments						
	N	-5721.66 kN	V-2	-32.07 kN	x-M3,max	1.180 m	
	V-3	-177.56 kN	M-3	38.31 kNm	M-3,min	-6.33 kNm	
	M-2	-155.06 kNm	M-3,beg	2.71 kNm	x-M3,min	1.180 m	
	M-2,beg	118.95 kNm	M-3,end	38.31 kNm			
	M-2,end	0.00 kNm	M-3,max	38.31 kNm			
	Reduction factor Kappa						
	s-K,2	1.183 m	Kappa-2 b	0.988	Ksl-3	b	
	N-Cr,2	3516190. kN	s-K,3	1.183 m	Kappa-3 b	0.912	
	Lambda-K,	0.061 < 0.2	N-Cr,3	281117.0 kN	Kappa bar	0.912	
	Ksl-2	a	Lambda-K,	0.216			
	Coefficient k-2 and k-3						
	Psi-2	0.691	k-2	0.969	a-3	0.4293	<= 0.8
	Beta-M,Psi	1.316	Psi-3	0.136	k-3	0.774	<= 1.5
	V-load 3	Nein	Beta-M,Psi	1.705			
	a-2	0.0627 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.527	D-M,3	0.073			
	D-M,2	0.060	D-NM	0.660	< 1.0		
342	1180.000	CO98	0.616	1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00 cm ²	Ksl-2	a	Ksl-3	b	
	I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴			
	W-2	-7660.00 cm ³	W-3	1240.00 cm ³			
	Forces and moments						
	N	-5199.14 kN	M-2,end	27.00 kNm	M-3,end	8.40 kNm	
	V-3	-129.24 kN	V-2	32.40 kN	M-3,min	-35.71 kNm	

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	M-2	-148.41	kNm	M-3	-35.71	kNm	x-M3,min 1.180 m
	M-2,beg	106.87	kNm	M-3,beg	9.41	kNm	
	Reduction factor Kappa						
	s-K,2	1.183	m	Kappa-2 b	0.988		Ksl-3 b
	N-Cr,2	3516190.	kN	s-K,3	1.183	m	Kappa-3 b 0.912
	Lambda-K,	0.061	< 0.2	N-Cr,3	281117.0	kN	Kappa bar 0.912
	Ksl-2	a		Lambda-K,	0.216		
	Coefficient k-2 and k-3						
	Psi-2	0.702		k-2	0.973	<= 1.5	a-3 0.2006 <= 0.8
	Beta-M,Psi	1.309		Psi-3	0.893		k-3 0.904 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.175		
	a-2	0.0618	<= 0.8	V-load 2	Nein		
	Design						
	D-N	0.479		D-M,3	0.080		
	D-M,2	0.058		D-NM	0.616	< 1.0	
347	460.000	CO97	0.664	1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00	cm ²	Ksl-2	a		Ksl-3 b
	I-2	237400.0	cm ⁴	I-3	18980.00	cm ⁴	
	W-2	-7660.00	cm ³	W-3	1240.00	cm ³	
	Forces and moments						
	N	-5721.66	kN	M-2,min	-169.40	kNm	M-3,end 53.04 kNm
	V-3	-181.58	kN	x-M2,min	0.460	m	M-3,max 53.04 kNm
	M-2	-169.40	kNm	V-2	-32.04	kN	x-M3,max 0.460 m
	M-2,beg	0.00	kNm	M-3	53.04	kNm	M-3,min -8.67 kNm
	M-2,end	0.00	kNm	M-3,beg	38.31	kNm	x-M3,min 0.460 m
	Reduction factor Kappa						
	s-K,2	0.460	m	Kappa-2 b	0.995		Ksl-3 b
	N-Cr,2	23253300	kN	s-K,3	0.460	m	Kappa-3 b 0.965
	Lambda-K,	0.024	< 0.2	N-Cr,3	1859090.	kN	Kappa bar 0.965
	Ksl-2	a		Lambda-K,	0.084	< 0.2	
	Coefficient k-2 and k-3						
	Psi-2	0.915		k-2	0.949	<= 1.5	a-3 0.4374 <= 0.8
	Beta-M,Psi	1.159		Psi-3	0.730		k-3 0.782 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.289		
	a-2	0.1063	<= 0.8	V-load 2	Nein		
	Design						
	D-N	0.498		D-M,3	0.102		
	D-M,2	0.064		D-NM	0.664	< 1.0	
348	460.000	CO97	0.605	1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00	cm ²	Ksl-2	a		Ksl-3 b
	I-2	237400.0	cm ⁴	I-3	18980.00	cm ⁴	
	W-2	-7660.00	cm ³	W-3	1240.00	cm ³	
	Forces and moments						
	N	-5211.83	kN	V-2	30.47	kN	x-M3,max 0.460 m
	V-3	-144.75	kN	M-3	-50.24	kNm	M-3,min -50.24 kNm
	M-2	-138.87	kNm	M-3,beg	6.42	kNm	x-M3,min 0.460 m
	M-2,beg	0.00	kNm	M-3,end	8.88	kNm	
	M-2,end	0.00	kNm	M-3,max	8.88	kNm	
	Reduction factor Kappa						
	s-K,2	0.460	m	Kappa-2 b	0.995		Ksl-3 b
	N-Cr,2	23253300	kN	s-K,3	0.460	m	Kappa-3 b 0.965
	Lambda-K,	0.024	< 0.2	N-Cr,3	1859090.	kN	Kappa bar 0.965
	Ksl-2	a		Lambda-K,	0.084	< 0.2	
	Coefficient k-2 and k-3						
	Psi-2	0.930		k-2	0.953	<= 1.5	a-3 0.4382 <= 0.8
	Beta-M,Psi	1.149		Psi-3	0.723		k-3 0.801 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.294		
	a-2	0.1058	<= 0.8	V-load 2	Nein		
	Design						
	D-N	0.453		D-M,3	0.099		
	D-M,2	0.053		D-NM	0.605	< 1.0	
349	0.000	CO97	0.317	1) Design to (28) fulfilled			
	Section properties Kasten(A) 374/15/12/350/550/374/15						
	A	237.00	cm ²	W-2,max	3942.86	cm ³	W-3,min -2886.58 cm ³
	A-2	79.10	cm ²	Ksl-2	c		W-3,max 2886.58 cm ³
	I-2	108429.0	cm ⁴	A-3	115.22	cm ²	Ksl-3 c
	W-2,min	-3942.86	cm ³	I-3	53979.10	cm ⁴	
	Forces and moments						
	N	-10.15	kN	M-2,beg	10.05	kNm	M-3 225.21 kNm
	V-3	237.83	kN	M-2,end	2.12	kNm	M-3,beg 225.21 kNm
	M-2	-99.67	kNm	V-2	762.27	kN	M-3,end 13.44 kNm
	Reduction factor Kappa						
	s-K,2	0.425	m	Kappa-2 b	0.992		Ksl-3 c
	N-Cr,2	12441900	kN	s-K,3	0.425	m	Kappa-3 b 0.988
	Lambda-K,	0.026	< 0.2	N-Cr,3	6193940.	kN	Kappa bar 0.988
	Ksl-2	c		Lambda-K,	0.037	< 0.2	
	Coefficient k-2 and k-3						
	Psi-2	0.211		k-2	1.000	<= 1.5	a-3 0.1183 <= 0.8
	Beta-M,Psi	1.652		Psi-3	0.247		k-3 1.000 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.627		
	a-2	0.1545	<= 0.8	V-load 2	Nein		
	Design						
	D-N	0.001		D-M,3	0.238		
	D-M,2	0.077		D-NM	0.317	< 1.0	
350	0.000	CO97	0.802	1) Design to (28) fulfilled			

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	Section properties IS 302/250/8/20								
	A	120.96	cm^2	Ksl-2	b	Ksl-3	c		
	I-2	21113.30	cm^4	I-3	5209.45	cm^4			
	W-2	-1398.22	cm^3	W-3	416.76	cm^3			
	Forces and moments								
	N	-1018.50	kN	M-2,beg	16.62	kNm	M-3	-21.38	kNm
	V-3	-2.94	kN	M-2,end	9.28	kNm	M-3,beg	3.84	kNm
	M-2	16.62	kNm	V-2	-8.02	kN	M-3,end	22.76	kNm
	Reduction factor Kappa								
	s-K,2	5.500	m	Kappa-2 b	0.854		Ksl-3	c	
	N-Cr,2	14466.09	kN	s-K,3	5.500	m	Kappa-3 b	0.455	
	Lambda-K,	0.549		N-Cr,3	3569.32	kN	Kappa bar	0.455	
	Ksl-2	b		Lambda-K,	1.105				
	Coefficient k-2 and k-3								
	Psi-2	0.558		Beta-M,2	1.388		Beta-M,V,3	1.300	
	Beta-M,Psi	1.409		a-2	-0.5647	<= 0.8	M-V,3	11.67	kNm
	V-load 3	Ja		k-2	1.170	<= 1.5	Delta-M,3	44.14	kNm
	C-load 3	Nein		Psi-3	0.179		Beta-M,3	1.576	
	Beta-M,V,2	1.300		Beta-M,Psi	1.675		a-3	-0.4273	<= 0.8
	M-V,2	4.40	kNm	V-load 2	Ja		k-3	1.242	<= 1.5
	Delta-M,2	23.00	kNm	C-load 2	Nein				
	Design								
	D-N	0.565		D-M,3	0.195				
D-M,2	0.042		D-NM	0.802	< 1.0				
351	220.000	CO97	0.291	1) Design to (28) fulfilled					
Section properties Kasten(A) 374/15/12/350/550/374/15									
A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3	
A-2	79.10	cm^2	Ksl-2	c	W-3,max	2886.58	cm^3		
I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c		
W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4				
Forces and moments									
N	-10.77	kN	M-2,beg	20.97	kNm	M-3	217.44	kNm	
V-3	-19.09	kN	M-2,end	21.94	kNm	M-3,beg	169.13	kNm	
M-2	-77.15	kNm	V-2	-223.86	kN	M-3,end	217.44	kNm	
Reduction factor Kappa									
s-K,2	0.219	m	Kappa-2 b	0.996		Ksl-3	c		
N-Cr,2	46857100	kN	s-K,3	0.219	m	Kappa-3 b	0.994		
Lambda-K,	0.013	< 0.2	N-Cr,3	23326900	kN	Kappa bar	0.994		
Ksl-2	c		Lambda-K,	0.019	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.956		k-2	1.000	<= 1.5	a-3	0.1175	<= 0.8	
Beta-M,Psi	1.131		Psi-3	0.778		k-3	1.000	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.256					
a-2	0.1492	<= 0.8	V-load 2	Nein					
Design									
D-N	0.001		D-M,3	0.230					
D-M,2	0.060		D-NM	0.291	< 1.0				
353	1080.000	CO97	0.237	1) Design to (28) fulfilled					
Section properties Kasten(A) 374/15/12/350/550/374/15									
A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3	
A-2	79.10	cm^2	Ksl-2	c	W-3,max	2886.58	cm^3		
I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c		
W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4				
Forces and moments									
N	-10.77	kN	M-2,max	20.97	kNm	M-3	169.13	kNm	
V-3	-18.33	kN	x-M2,max	1.080	m	M-3,beg	11.68	kNm	
M-2	-73.03	kNm	M-2,min	-73.03	kNm	M-3,end	169.13	kNm	
M-2,beg	13.80	kNm	x-M2,min	1.080	m	M-3,max	169.13	kNm	
M-2,end	20.97	kNm	V-2	-223.86	kN	x-M3,max	1.080	m	
Reduction factor Kappa									
s-K,2	1.081	m	Kappa-2 b	0.979		Ksl-3	c		
N-Cr,2	1923150.	kN	s-K,3	1.081	m	Kappa-3 b	0.971		
Lambda-K,	0.067	< 0.2	N-Cr,3	957400.0	kN	Kappa bar	0.971		
Ksl-2	c		Lambda-K,	0.094	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.781		k-2	1.000	<= 1.5	a-3	0.0690	<= 0.8	
Beta-M,Psi	1.253		Psi-3	0.297		k-3	1.000	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.592					
a-2	0.0732	<= 0.8	V-load 2	Nein					
Design									
D-N	0.001		D-M,3	0.179					
D-M,2	0.057		D-NM	0.237	< 1.0				
354	0.000	CO97	0.233	1) Design to (28) fulfilled					
Section properties Kasten(A) 374/15/12/350/550/374/15									
A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3	
A-2	79.10	cm^2	Ksl-2	c	W-3,max	2886.58	cm^3		
I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c		
W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4				
Forces and moments									
N	-13.56	kN	M-2,max	13.98	kNm	M-3,end	11.68	kNm	
V-3	20.09	kN	x-M2,max	1.080	m	M-3,min	-77.49	kNm	
M-2	-68.00	kNm	V-2	227.26	kN	x-M3,min	1.080	m	
M-2,beg	2.46	kNm	M-3	168.19	kNm				
M-2,end	13.98	kNm	M-3,beg	168.19	kNm				
Reduction factor Kappa									
s-K,2	1.081	m	Kappa-2 b	0.979		Ksl-3	c		
N-Cr,2	1923150.	kN	s-K,3	1.081	m	Kappa-3 b	0.971		
Lambda-K,	0.067	< 0.2	N-Cr,3	957400.0	kN	Kappa bar	0.971		

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	c 0.839 1.213 Nein 0.0678 <= 0.8 0.002 0.053	Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	0.094 < 0.2 1.000 <= 1.5 0.280 1.604 Nein 0.178 0.233 < 1.0	a-3 k-3	0.0712 <= 0.8 1.000 <= 1.5	
355	2600.000	CO97	0.277	1) Design to (28) fulfilled			
	Section properties RO 127x5,6 A I-2 W-2 Forces and moments N M-T V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	 21.36 cm^2 394.30 cm^4 -62.09 cm^3 -70.26 kN 0.14 kNm -0.84 kN -1.11 kNm 2.600 m 1208.93 kN 0.797 a 0.594 1.384 Ja Nein 1.300 0.87 kNm 2.17 kNm 0.138 0.060	 Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	 a 394.30 cm^4 62.09 cm^3 1.06 kNm 0.63 kNm 0.81 kN -1.57 kNm 0.730 2.600 m 1208.93 kN 0.797 1.350 -0.7059 <= 0.8 1.097 <= 1.5 0.025 1.783 Ja Nein 0.079 0.277 < 1.0	Ksl-3 M-3,beg M-3,end VT Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	 a 1.61 kNm 0.04 kNm 1.03 kN a 0.730 0.730 1.300 0.54 kNm 3.18 kNm 1.701 -0.1462 <= 0.8 1.020 <= 1.5	
356	0.000	CO97	0.288	1) Design to (28) fulfilled			
	Section properties Kasten(A) 374/15/12/350/550/374/15 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	 237.00 cm^2 79.10 cm^2 108429.0 cm^4 -3942.86 cm^3 -13.53 kN 20.85 kN -71.10 kNm 0.219 m 46857100 kN 0.013 < 0.2 c 0.956 1.131 Nein 0.1492 <= 0.8 0.002 0.055	 W-2,max Ksl-2 A-3 I-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	 3942.86 cm^3 c 115.22 cm^2 53979.10 cm^4 0.72 kNm 2.46 kNm 227.26 kN 0.996 0.219 m 23326900 kN 0.019 < 0.2 1.000 <= 1.5 0.772 1.260 Nein 0.231 0.288 < 1.0	W-3,min W-3,max Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	 -2886.58 cm^3 2886.58 cm^3 c 217.96 kNm 217.96 kNm 168.19 kNm c 0.994 0.994 0.1177 <= 0.8 1.000 <= 1.5	
357	0.000	CO98	0.769	1) Design to (28) fulfilled			
	Section properties IS 302/250/8/20 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	 120.96 cm^2 21113.30 cm^4 -1398.22 cm^3 -960.47 kN -4.60 kN 17.62 kNm 5.500 m 14466.09 kN 0.549 b 0.910 1.163 Ja Nein 1.300 5.57 kNm 26.65 kNm 0.533 0.047	 Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	 b 5209.45 cm^4 416.76 cm^3 17.62 kNm 1.44 kNm -7.52 kN 0.854 5.500 m 3569.32 kN 1.105 1.191 -0.7806 <= 0.8 1.222 <= 1.5 0.263 1.616 Ja Nein 0.189 0.769 < 1.0	Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	 c -19.95 kNm 5.28 kNm 21.36 kNm c 0.455 0.455 1.300 12.06 kNm 41.31 kNm 1.524 -0.5427 <= 0.8 1.289 <= 1.5	
358	430.000	CO97	0.303	1) Design to (28) fulfilled			
	Section properties Kasten(A) 374/15/12/350/550/374/15 A A-2	 237.00 cm^2 79.10 cm^2	 W-2,max Ksl-2	 3942.86 cm^3 c	W-3,min W-3,max	 -2886.58 cm^3 2886.58 cm^3	

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
				Beta-M,2	1.552	Beta-M,V,3	1.300
				a-2	-0.3792 <= 0.8	M-V,3	0.65 kNm
				k-2	1.165 <= 1.5	Delta-M,3	1.79 kNm
				Psi-3	0.828	Beta-M,3	1.249
				Beta-M,Psi	1.221	a-3	-0.8897 <= 0.8
				M-V,2	0.55 kNm	k-3	1.388 <= 1.5
				Delta-M,2	2.01 kNm		
				C-load 2	Nein		
				Design			
				D-N	0.436	D-M,3	0.039
				D-M,2	0.062	D-NM	0.537 < 1.0
362	0.000	CO97	0.654	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				A	364.00 cm ²	Ksl-2	a
				I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴
				W-2	-7660.00 cm ³	W-3	1240.00 cm ³
				Forces and moments			
				N	-4472.31 kN	M-2,beg	0.00 kNm
				V-3	51.56 kN	M-2,end	19.09 kNm
				M-2	-160.05 kNm	V-2	20.19 kN
				Reduction factor Kappa			
				s-K,2	2.500 m	Kappa-2 b	0.974
				N-Cr,2	787263.0 kN	s-K,3	2.500 m
				Lambda-K,	0.129 < 0.2	N-Cr,3	62941.19 kN
				Ksl-2	a	Lambda-K,	0.456
				Coefficient k-2 and k-3			
				Psi-2	0.572	Beta-M,2	1.394
				Beta-M,Psi	1.400	a-2	-0.0100 <= 0.8
				V-load 3	Ja	k-2	1.004 <= 1.5
				C-load 3	Nein	Psi-3	0.489
				Beta-M,V,2	1.300	Beta-M,Psi	1.458
				M-V,2	9.55 kNm	V-load 2	Ja
				Delta-M,2	179.14 kNm	C-load 2	Nein
				Design			
				D-N	0.464	D-M,3	0.126
				D-M,2	0.064	D-NM	0.654 < 1.0
363	830.000	CO97	0.360	1) Design to (28) fulfilled			
				Section properties HE-A 160			
				A	38.80 cm ²	Ksl-2	b
				I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴
				W-2	-220.00 cm ³	W-3	76.90 cm ³
				Forces and moments			
				N	-8.70 kN	M-2,min	-1.92 kNm
				V-3	-2.25 kN	x-M2,min	0.830 m
				M-2	2.58 kNm	V-2	14.72 kN
				M-2,beg	3.27 kNm	M-3	-7.97 kNm
				M-2,end	2.58 kNm	M-3,beg	4.26 kNm
				Reduction factor Kappa			
				s-K,2	0.831 m	Kappa-2 b	0.961
				N-Cr,2	50096.39 kN	s-K,3	0.831 m
				Lambda-K,	0.167 < 0.2	N-Cr,3	18478.69 kN
				Ksl-2	b	Lambda-K,	0.275
				Coefficient k-2 and k-3			
				Psi-2	0.789	k-2	1.001 <= 1.5
				Beta-M,Psi	1.248	Psi-3	0.190
				V-load 3	Nein	Beta-M,Psi	1.667
				a-2	-0.1331 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.008	D-M,3	0.316
				D-M,2	0.036	D-NM	0.360 < 1.0
364	0.000	CO98	0.105	1) Design to (28) fulfilled			
				Section properties HE-A 160			
				A	38.80 cm ²	Ksl-2	b
				I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴
				W-2	-220.00 cm ³	W-3	76.90 cm ³
				Forces and moments			
				N	-8.92 kN	M-2,end	4.10 kNm
				V-3	0.54 kN	M-2,max	4.28 kNm
				M-2	4.08 kNm	x-M2,max	0.890 m
				M-2,beg	4.08 kNm	V-2	0.94 kN
				Reduction factor Kappa			
				s-K,2	1.788 m	Kappa-2 b	0.913
				N-Cr,2	10832.09 kN	s-K,3	1.788 m
				Lambda-K,	0.359	N-Cr,3	3995.55 kN
				Ksl-2	b	Lambda-K,	0.591
				Coefficient k-2 and k-3			
				Psi-2	0.995	Beta-M,2	1.111
				Beta-M,Psi	1.103	a-2	-0.5202 <= 0.8
				V-load 3	Ja	k-2	1.004 <= 1.5
				C-load 3	Nein	Psi-3	0.488
				Beta-M,V,2	1.300	Beta-M,Psi	1.459
				M-V,2	0.19 kNm	V-load 2	Ja
				Delta-M,2	4.86 kNm	C-load 2	Nein
				Design			
				D-N	0.010	D-M,3	0.038
				D-M,2	0.057	D-NM	0.105 < 1.0
365	0.000	CO97	0.269	1) Design to (28) fulfilled			
				Section properties HE-A 160			
				A	38.80 cm ²	Ksl-2	b
				I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴
				W-2	-220.00 cm ³	W-3	76.90 cm ³
				Forces and moments			
				N	-8.92 kN	M-2,end	4.10 kNm
				V-3	0.54 kN	M-2,max	4.28 kNm
				M-2	4.08 kNm	x-M2,max	0.890 m
				M-2,beg	4.08 kNm	V-2	0.94 kN
				Reduction factor Kappa			
				s-K,2	1.788 m	Kappa-2 b	0.913
				N-Cr,2	10832.09 kN	s-K,3	1.788 m
				Lambda-K,	0.359	N-Cr,3	3995.55 kN
				Ksl-2	b	Lambda-K,	0.591
				Coefficient k-2 and k-3			
				Psi-2	0.995	Beta-M,2	1.111
				Beta-M,Psi	1.103	a-2	-0.5202 <= 0.8
				V-load 3	Ja	k-2	1.004 <= 1.5
				C-load 3	Nein	Psi-3	0.488
				Beta-M,V,2	1.300	Beta-M,Psi	1.459
				M-V,2	0.19 kNm	V-load 2	Ja
				Delta-M,2	4.86 kNm	C-load 2	Nein
				Design			
				D-N	0.010	D-M,3	0.038
				D-M,2	0.057	D-NM	0.105 < 1.0

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	A 38.80 cm ² I-2 1670.00 cm ⁴ W-2 -220.00 cm ³			Ksl-2 b I-3 616.00 cm ⁴ W-3 76.90 cm ³	Ksl-3 c		
	Forces and moments N -10.34 kN V-3 2.24 kN M-2 2.40 kNm M-2,beg 2.40 kNm M-2,end 3.13 kNm			M-2,max 3.13 kNm x-M2,max 0.830 m V-2 -10.69 kN M-3 -5.70 kNm M-3,beg 2.30 kNm	M-3,end 3.20 kNm M-3,max 3.20 kNm x-M3,max 0.830 m		
	Reduction factor Kappa s-K,2 0.831 m N-Cr,2 50096.30 kN Lambda-K, 0.167 < 0.2			Kappa-2 b 0.961 s-K,3 0.831 m N-Cr,3 18478.69 kN Lambda-K, 0.275	Ksl-3 c Kappa-3 b 0.870 Kappa bar 0.870		
	Coefficient k-2 and k-3 Psi-2 0.767 Beta-M,Psi 1.263 V-load 3 Nein a-2 -0.1279 <= 0.8			k-2 1.001 <= 1.5 Psi-3 0.719 Beta-M,Psi 1.297 V-load 2 Nein	a-3 0.1431 <= 0.8 k-3 0.999 <= 1.5		
	Design D-N 0.009 D-M,2 0.033			D-M,3 0.226 D-NM 0.269 < 1.0			
366	0.000 CO98		0.298	1) Design to (28) fulfilled			
	Section properties HE-M 300 A 303.00 cm ² I-2 59200.00 cm ⁴ W-2 -3480.00 cm ³			Ksl-2 b I-3 19400.00 cm ⁴ W-3 1250.00 cm ³	Ksl-3 c		
	Forces and moments N -882.47 kN V-3 32.16 kN M-2 -95.90 kNm M-2,beg 20.67 kNm			M-2,end 73.78 kNm V-2 12.73 kN M-3 20.36 kNm M-3,beg 20.36 kNm	M-3,end 15.92 kNm M-3,min -9.34 kNm x-M3,min 2.640 m		
	Reduction factor Kappa s-K,2 5.286 m N-Cr,2 43912.30 kN Lambda-K, 0.498			Kappa-2 b 0.865 s-K,3 5.286 m N-Cr,3 14390.20 kN Lambda-K, 0.871	Ksl-3 c Kappa-3 b 0.571 Kappa bar 0.571		
	Coefficient k-2 and k-3 Psi-2 0.280 Beta-M,Psi 1.604 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 45.82 kNm Delta-M,2 169.68 kNm			Beta-M,2 1.522 a-2 -0.3042 <= 0.8 k-2 1.031 <= 1.5 Psi-3 0.782 Beta-M,Psi 1.253 V-load 2 Ja C-load 2 Nein	Beta-M,V,3 1.300 M-V,3 9.30 kNm Delta-M,3 29.70 kNm Beta-M,3 1.267 a-3 -0.7450 <= 0.8 k-3 1.116 <= 1.5		
	Design D-N 0.156 D-M,2 0.087			D-M,3 0.056 D-NM 0.298 < 1.0			
367	7630.000 CO98		0.742	1) Design to (28) fulfilled			
	Section properties IS 292/250/10/15 A 101.20 cm ² I-2 15899.50 cm ⁴ W-2 -1089.01 cm ³			Ksl-2 b I-3 3908.43 cm ⁴ W-3 312.67 cm ³	Ksl-3 c		
	Forces and moments N -409.66 kN V-3 5.68 kN M-2 31.81 kNm M-2,beg 3.59 kNm			M-2,end 31.81 kNm V-2 -5.32 kN M-3 12.12 kNm M-3,beg 6.26 kNm	M-3,end 12.12 kNm M-3,min -3.47 kNm x-M3,min 1.530 m		
	Reduction factor Kappa s-K,2 7.628 m N-Cr,2 5662.92 kN Lambda-K, 0.802			Kappa-2 b 0.736 s-K,3 7.628 m N-Cr,3 1392.07 kN Lambda-K, 1.618	Ksl-3 c Kappa-3 b 0.267 Kappa bar 0.267		
	Coefficient k-2 and k-3 Psi-2 0.506 Beta-M,Psi 1.446 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 9.03 kNm Delta-M,2 44.18 kNm			Beta-M,2 1.416 a-2 -0.8254 <= 0.8 k-2 1.139 <= 1.5 Psi-3 0.517 Beta-M,Psi 1.438 V-load 2 Ja C-load 2 Nein	Beta-M,V,3 1.300 M-V,3 2.44 kNm Delta-M,3 15.59 kNm Beta-M,3 1.417 a-3 -1.3668 <= 0.8 k-3 1.500 <= 1.5		
	Design D-N 0.463 D-M,2 0.102			D-M,3 0.178 D-NM 0.742 < 1.0			
369	0.000 CO98		0.307	1) Design to (28) fulfilled			
	Section properties HE-M 300 A 303.00 cm ² I-2 59200.00 cm ⁴ W-2 -3480.00 cm ³			Ksl-2 b I-3 19400.00 cm ⁴ W-3 1250.00 cm ³	Ksl-3 c		
	Forces and moments N -940.07 kN V-3 31.97 kN M-2 -96.44 kNm M-2,beg 20.17 kNm			M-2,end 72.58 kNm V-2 12.78 kN M-3 19.21 kNm M-3,beg 19.21 kNm	M-3,end 15.61 kNm M-3,min -9.46 kNm x-M3,min 2.640 m		
	Reduction factor Kappa s-K,2 5.286 m N-Cr,2 43912.30 kN Lambda-K, 0.498			Kappa-2 b 0.865 s-K,3 5.286 m N-Cr,3 14390.20 kN	Ksl-3 c Kappa-3 b 0.571 Kappa bar 0.571		

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
				Lambda-K,	0.871		
				Coefficient k-2 and k-3			
				Psi-2	0.278	Beta-M,V,3	1.300
				Beta-M,Psi	1.605	M-V,3	9.43 kNm
				V-load 3	Ja	Delta-M,3	28.67 kNm
				C-load 3	Nein	Beta-M,3	1.254
				Beta-M,V,2	1.300	a-3	-0.7688 <= 0.8
				M-V,2	43.50 kNm	k-3	1.128 <= 1.5
				Delta-M,2	169.02 kNm		
				Design			
				D-N	0.166	D-M,3	0.053
				D-M,2	0.087	D-NM	0.307 < 1.0
370	7630.000	CO98	0.710	1) Design to (28) fulfilled			
				Section properties IS 292/250/10/15			
				A	101.20 cm ²	Ksl-2	b
				I-2	15899.50 cm ⁴	I-3	3908.43 cm ⁴
				W-2	-1089.01 cm ³	W-3	312.67 cm ³
				Forces and moments			
				N	-416.80 kN	M-2,end	6.59 kNm
				V-3	-3.92 kN	V-2	-5.27 kN
				M-2	-19.75 kNm	M-3	11.85 kNm
				M-2,beg	8.78 kNm	M-3,beg	6.25 kNm
				Reduction factor Kappa			
				s-K,2	7.628 m	Kappa-2 b	0.736
				N-Cr,2	5662.92 kN	s-K,3	7.628 m
				Lambda-K,	0.802	N-Cr,3	1392.07 kN
				Ksl-2	b	Lambda-K,	1.618
				Coefficient k-2 and k-3			
				Psi-2	0.751	Beta-M,2	1.280
				Beta-M,Psi	1.275	a-2	-1.0438 <= 0.8
				V-load 3	Ja	k-2	1.179 <= 1.5
				C-load 3	Nein	Psi-3	0.527
				Beta-M,V,2	1.300	Beta-M,Psi	1.431
				M-V,2	5.91 kNm	V-load 2	Ja
				Delta-M,2	28.53 kNm	C-load 2	Nein
				Design			
				D-N	0.471	D-M,3	0.174
				D-M,2	0.065	D-NM	0.710 < 1.0
371	1000.000	CO97	0.540	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				A	364.00 cm ²	Ksl-2	a
				I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴
				W-2	-7660.00 cm ³	W-3	1240.00 cm ³
				Forces and moments			
				N	-4947.08 kN	M-2,beg	15.09 kNm
				V-3	25.45 kN	M-2,end	21.61 kNm
				M-2	-86.58 kNm	V-2	-41.65 kN
				Reduction factor Kappa			
				s-K,2	1.000 m	Kappa-2 b	0.990
				N-Cr,2	4920390. kN	s-K,3	1.000 m
				Lambda-K,	0.052 < 0.2	N-Cr,3	393383.0 kN
				Ksl-2	a	Lambda-K,	0.183 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.877	k-2	0.974 <= 1.5
				Beta-M,Psi	1.186	Psi-3	0.392
				V-load 3	Nein	Beta-M,Psi	1.526
				a-2	0.0622 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.449	D-M,3	0.058
				D-M,2	0.034	D-NM	0.540 < 1.0
372	1000.000	CO98	0.497	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				A	364.00 cm ²	Ksl-2	a
				I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴
				W-2	-7660.00 cm ³	W-3	1240.00 cm ³
				Forces and moments			
				N	-4460.66 kN	M-2,beg	42.09 kNm
				V-3	18.06 kN	M-2,end	40.38 kNm
				M-2	-82.57 kNm	V-2	34.83 kN
				Reduction factor Kappa			
				s-K,2	1.000 m	Kappa-2 b	0.990
				N-Cr,2	4920390. kN	s-K,3	1.000 m
				Lambda-K,	0.052 < 0.2	N-Cr,3	393383.0 kN
				Ksl-2	a	Lambda-K,	0.183 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.959	k-2	0.979 <= 1.5
				Beta-M,Psi	1.128	Psi-3	0.962
				V-load 3	Nein	Beta-M,Psi	1.126
				a-2	0.0563 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.405	D-M,3	0.060
				D-M,2	0.032	D-NM	0.497 < 1.0
373	2740.000	CO97	0.634	1) Design to (28) fulfilled			
				Section properties RO 127x10			
				A	36.76 cm ²	Ksl-2	a
				I-2	633.55 cm ⁴	I-3	633.55 cm ⁴
				W-2	-99.77 cm ³	W-3	99.77 cm ³
						Ksl-3	a

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	Forces and moments								
	N	-316.02	kN	M-2,end	0.00	kNm	M-3,beg	0.41	kNm
	M-T	-0.42	kNm	M-2,min	-2.44	kNm	M-3,end	4.66	kNm
	V-3	-2.43	kN	x-M2,min	2.740	m	M-3,max	4.66	kNm
	M-2	-2.44	kNm	V-2	-2.87	kN	x-M3,max	2.740	m
	M-2,beg	2.19	kNm	M-3	4.66	kNm	VT	3.34	kN
	Reduction factor Kappa								
	s-K,2	2.740	m	Kappa-2 b	0.683		Ksl-3	a	
	N-Cr,2	1748.87	kN	s-K,3	2.740	m	Kappa-3 b	0.683	
	Lambda-K,	0.870		N-Cr,3	1748.87	kN	Kappa bar	0.683	
	Ksl-2	a		Lambda-K,	0.870				
	Coefficient k-2 and k-3								
	Psi-2	0.160		Beta-M,2	1.570		Beta-M,V,3	1.300	
	Beta-M,Psi	1.688		a-2	-0.3735	<= 0.8	M-V,3	1.69	kNm
	V-load 3	Ja		k-2	1.144	<= 1.5	Delta-M,3	7.90	kNm
	C-load 3	Nein		Psi-3	0.231		Beta-M,3	1.565	
	Beta-M,V,2	1.300		Beta-M,Psi	1.638		a-3	-0.3806	<= 0.8
	M-V,2	1.41	kNm	V-load 2	Ja		k-3	1.146	<= 1.5
	Delta-M,2	4.63	kNm	C-load 2	Nein				
	Design								
	D-N	0.385		D-M,3	0.164				
D-M,2	0.085		D-NM	0.634	< 1.0				
374	2740.000	CO97	0.685	1) Design to (28) fulfilled					
Section properties RO 127x10									
A	36.76	cm^2	Ksl-2	a		Ksl-3	a		
I-2	633.55	cm^4	I-3	633.55	cm^4				
W-2	-99.77	cm^3	W-3	99.77	cm^3				
Forces and moments									
N	-368.42	kN	M-2,end	0.00	kNm	M-3,beg	2.32	kNm	
M-T	0.38	kNm	M-2,min	-2.19	kNm	M-3,end	1.06	kNm	
V-3	-2.19	kN	x-M2,min	2.740	m	M-3,min	-3.98	kNm	
M-2	-2.19	kNm	V-2	2.30	kN	x-M3,min	2.740	m	
M-2,beg	1.79	kNm	M-3	-3.98	kNm	VT	2.80	kN	
Reduction factor Kappa									
s-K,2	2.740	m	Kappa-2 b	0.683		Ksl-3	a		
N-Cr,2	1748.87	kN	s-K,3	2.740	m	Kappa-3 b	0.683		
Lambda-K,	0.870		N-Cr,3	1748.87	kN	Kappa bar	0.683		
Ksl-2	a		Lambda-K,	0.870					
Coefficient k-2 and k-3									
Psi-2	0.274		Beta-M,2	1.500		Beta-M,V,3	1.300		
Beta-M,Psi	1.608		a-2	-0.4941	<= 0.8	M-V,3	1.51	kNm	
V-load 3	Ja		k-2	1.222	<= 1.5	Delta-M,3	6.30	kNm	
C-load 3	Nein		Psi-3	0.457		Beta-M,3	1.437		
Beta-M,V,2	1.300		Beta-M,Psi	1.480		a-3	-0.6041	<= 0.8	
M-V,2	1.39	kNm	V-load 2	Ja		k-3	1.271	<= 1.5	
Delta-M,2	3.98	kNm	C-load 2	Nein					
Design									
D-N	0.448		D-M,3	0.155					
D-M,2	0.082		D-NM	0.685	< 1.0				
375	1610.000	CO97	0.705	1) Design to (28) fulfilled					
Section properties HE-M 600									
A	364.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	237400.0	cm^4	I-3	18980.00	cm^4				
W-2	-7660.00	cm^3	W-3	1240.00	cm^3				
Forces and moments									
N	-4947.08	kN	V-2	-41.39	kN	x-M3,max	1.610	m	
V-3	-23.46	kN	M-3	95.13	kNm	M-3,min	-20.34	kNm	
M-2	-84.01	kNm	M-3,beg	28.28	kNm	x-M3,min	1.610	m	
M-2,beg	21.61	kNm	M-3,end	95.13	kNm				
M-2,end	15.48	kNm	M-3,max	95.13	kNm				
Reduction factor Kappa									
s-K,2	1.611	m	Kappa-2 b	0.983		Ksl-3	b		
N-Cr,2	1895870.0	kN	s-K,3	1.611	m	Kappa-3 b	0.880		
Lambda-K,	0.083	< 0.2	N-Cr,3	151573.0	kN	Kappa bar	0.880		
Ksl-2	a		Lambda-K,	0.294					
Coefficient k-2 and k-3									
Psi-2	0.970		k-2	1.000	<= 1.5	a-3	0.3168	<= 0.8	
Beta-M,Psi	1.121		Psi-3	0.297		k-3	0.850	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.592					
a-2	0.0000	<= 0.8	V-load 2	Nein					
Design									
D-N	0.472		D-M,3	0.199					
D-M,2	0.034		D-NM	0.705	< 1.0				
376	1610.000	CO97	0.639	1) Design to (28) fulfilled					
Section properties HE-M 600									
A	364.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	237400.0	cm^4	I-3	18980.00	cm^4				
W-2	-7660.00	cm^3	W-3	1240.00	cm^3				
Forces and moments									
N	-4461.60	kN	V-2	35.31	kN	x-M3,max	1.610	m	
V-3	-25.43	kN	M-3	-84.17	kNm	M-3,min	-84.17	kNm	
M-2	-81.18	kNm	M-3,beg	5.36	kNm	x-M3,min	1.610	m	
M-2,beg	24.72	kNm	M-3,end	24.18	kNm				
M-2,end	18.06	kNm	M-3,max	24.18	kNm				
Reduction factor Kappa									
s-K,2	1.611	m	Kappa-2 b	0.983		Ksl-3	b		
N-Cr,2	1895870.0	kN	s-K,3	1.611	m	Kappa-3 b	0.880		
Lambda-K,	0.083	< 0.2	N-Cr,3	151573.0	kN	Kappa bar	0.880		

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	Ksl-2	a		Lambda-K,	0.294		
	Coefficient k-2 and k-3						
	Psi-2	0.998		k-2	1.001 <= 1.5	a-3	0.3055 <= 0.8
	Beta-M,Psi	1.102		Psi-3	0.325	k-3	0.870 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.573		
	a-2	-0.0031 <= 0.8		V-load 2	Nein		
	Design						
	D-N	0.426		D-M,3	0.180		
	D-M,2	0.032		D-NM	0.639 < 1.0		
377	0.000	CO97	0.666	1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00 cm ²		Ksl-2	a	Ksl-3	b
	I-2	237400.0 cm ⁴		I-3	18980.00 cm ⁴		
	W-2	-7660.00 cm ³		W-3	1240.00 cm ³		
	Forces and moments						
	N	-5191.93 kN		M-2,min	-87.78 kNm	M-3,end	96.76 kNm
	V-3	-24.45 kN		x-M2,min	0.170 m	M-3,min	-27.94 kNm
	M-2	-86.22 kNm		V-2	-68.67 kN	x-M3,min	0.170 m
	M-2,beg	14.27 kNm		M-3	99.79 kNm		
	M-2,end	12.08 kNm		M-3,beg	99.79 kNm		
	Reduction factor Kappa						
	s-K,2	0.175 m		Kappa-2 b	0.998	Ksl-3	b
	N-Cr,2	1.6066e8 kN		s-K,3	0.175 m	Kappa-3 b	0.986
	Lambda-K,	0.009 < 0.2		N-Cr,3	12845400 kN	Kappa bar	0.986
	Ksl-2	a		Lambda-K,	0.032 < 0.2		
	Coefficient k-2 and k-3						
	Psi-2	0.982		Beta-M,2	1.113	Beta-M,V,3	1.300
	Beta-M,Psi	1.112		a-2	0.1302 <= 0.8	M-V,3	0.09 kNm
	V-load 3	Ja		k-2	0.943 <= 1.5	Delta-M,3	127.73 kNm
	C-load 3	Nein		Psi-3	0.970	Beta-M,3	1.121
	Beta-M,V,2	1.300		Beta-M,Psi	1.121	a-3	0.5006 <= 0.8
	M-V,2	0.06 kNm		V-load 2	Ja	k-3	0.779 <= 1.5
	Delta-M,2	102.05 kNm		C-load 2	Nein		
	Design						
	D-N	0.442		D-M,3	0.192		
	D-M,2	0.032		D-NM	0.666 < 1.0		
378	170.000	CO97	0.611	1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00 cm ²		Ksl-2	a	Ksl-3	b
	I-2	237400.0 cm ⁴		I-3	18980.00 cm ⁴		
	W-2	-7660.00 cm ³		W-3	1240.00 cm ³		
	Forces and moments						
	N	-4756.20 kN		M-2,min	-84.57 kNm	M-3,end	36.42 kNm
	V-3	-27.69 kN		x-M2,min	0.170 m	M-3,max	36.42 kNm
	M-2	-84.57 kNm		V-2	-81.19 kN	x-M3,max	0.170 m
	M-2,beg	16.84 kNm		M-3	-88.40 kNm	M-3,min	-88.40 kNm
	M-2,end	14.46 kNm		M-3,beg	25.24 kNm	x-M3,min	0.170 m
	Reduction factor Kappa						
	s-K,2	0.175 m		Kappa-2 b	0.998	Ksl-3	b
	N-Cr,2	1.6066e8 kN		s-K,3	0.175 m	Kappa-3 b	0.986
	Lambda-K,	0.009 < 0.2		N-Cr,3	12845400 kN	Kappa bar	0.986
	Ksl-2	a		Lambda-K,	0.032 < 0.2		
	Coefficient k-2 and k-3						
	Psi-2	0.980		Beta-M,2	1.114	Beta-M,V,3	1.300
	Beta-M,Psi	1.114		a-2	0.1302 <= 0.8	M-V,3	0.01 kNm
	V-load 3	Ja		k-2	0.948 <= 1.5	Delta-M,3	124.82 kNm
	C-load 3	Nein		Psi-3	0.997	Beta-M,3	1.102
	Beta-M,V,2	1.300		Beta-M,Psi	1.102	a-3	0.4994 <= 0.8
	M-V,2	0.07 kNm		V-load 2	Ja	k-3	0.798 <= 1.5
	Delta-M,2	101.41 kNm		C-load 2	Nein		
	Design						
	D-N	0.405		D-M,3	0.174		
	D-M,2	0.032		D-NM	0.611 < 1.0		
379	0.000	CO97	0.252	1) Design to (28) fulfilled			
	Section properties Kasten(A) 374/15/12/350/550/374/15						
	A	237.00 cm ²		W-2,max	3942.86 cm ³	W-3,min	-2886.58 cm ³
	A-2	79.10 cm ²		Ksl-2	c	W-3,max	2886.58 cm ³
	I-2	108429.0 cm ⁴		A-3	115.22 cm ²	Ksl-3	c
	W-2,min	-3942.86 cm ³		I-3	53979.10 cm ⁴		
	Forces and moments						
	N	-9.75 kN		M-2,beg	0.00 kNm	M-3	219.09 kNm
	V-3	56.77 kN		M-2,end	0.93 kNm	M-3,beg	219.09 kNm
	M-2	-23.72 kNm		V-2	971.31 kN	M-3,end	46.83 kNm
	Reduction factor Kappa						
	s-K,2	0.425 m		Kappa-2 b	0.992	Ksl-3	c
	N-Cr,2	12441900 kN		s-K,3	0.425 m	Kappa-3 b	0.988
	Lambda-K,	0.026 < 0.2		N-Cr,3	6193940 kN	Kappa bar	0.988
	Ksl-2	c		Lambda-K,	0.037 < 0.2		
	Coefficient k-2 and k-3						
	Psi-2	0.000		k-2	1.000 <= 1.5	a-3	0.1199 <= 0.8
	Beta-M,Psi	1.800		Psi-3	0.216	k-3	1.000 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.649		
	a-2	0.1622 <= 0.8		V-load 2	Nein		
	Design						
	D-N	0.001		D-M,3	0.232		
	D-M,2	0.018		D-NM	0.252 < 1.0		
380	0.000	CO97	0.913	1) Design to (28) fulfilled			

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	Section properties IS 292/250/8/15									
	A	95.96	cm^2	Ksl-2	b	Ksl-3	c			
	I-2	15599.70	cm^4	I-3	3907.37	cm^4				
	W-2	-1068.46	cm^3	W-3	312.59	cm^3				
	Forces and moments									
	N	-934.84	kN	M-2,beg	12.19	kNm	M-3	-13.44	kNm	
	V-3	-1.86	kN	M-2,end	5.02	kNm	M-3,beg	4.37	kNm	
	M-2	12.19	kNm	V-2	-4.85	kN	M-3,end	13.23	kNm	
	Reduction factor Kappa									
	s-K,2	5.500	m	Kappa-2 b	0.847		Ksl-3	c		
	N-Cr,2	10688.40	kN	s-K,3	5.500	m	Kappa-3 b	0.437		
	Lambda-K,	0.569		N-Cr,3	2677.18	kN	Kappa bar	0.437		
	Ksl-2	b		Lambda-K,	1.136					
	Coefficient k-2 and k-3									
	Psi-2	0.412		Beta-M,2	1.492		Beta-M,V,3	1.300		
	Beta-M,Psi	1.512		a-2	-0.4775	<= 0.8	M-V,3	8.52	kNm	
	V-load 3	Ja		k-2	1.168	<= 1.5	Delta-M,3	26.67	kNm	
	C-load 3	Nein		Psi-3	0.330		Beta-M,3	1.483		
	Beta-M,V,2	1.300		Beta-M,Psi	1.569		a-3	-0.6618	<= 0.8	
	M-V,2	1.67	kNm	V-load 2	Ja		k-3	1.451	<= 1.5	
	Delta-M,2	17.44	kNm	C-load 2	Nein					
	Design									
	D-N	0.682		D-M,3	0.191					
	D-M,2	0.041		D-NM	0.913	< 1.0				
381	1300.000	CO97	0.228	1) Design to (28) fulfilled						
	Section properties Kasten(A) 374/15/12/350/550/374/15									
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3	
	A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3	
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c		
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4				
	Forces and moments									
	N	-12.43	kN	M-2,beg	0.54	kNm	M-3	198.38	kNm	
	V-3	11.51	kN	M-2,end	12.22	kNm	M-3,beg	182.94	kNm	
	M-2	-20.74	kNm	V-2	-33.85	kN	M-3,end	198.38	kNm	
	Reduction factor Kappa									
	s-K,2	1.300	m	Kappa-2 b	0.974		Ksl-3	c		
	N-Cr,2	1329770.0	kN	s-K,3	1.300	m	Kappa-3 b	0.965		
	Lambda-K,	0.080	< 0.2	N-Cr,3	662000.0	kN	Kappa bar	0.965		
	Ksl-2	c		Lambda-K,	0.114	< 0.2				
	Coefficient k-2 and k-3									
	Psi-2	0.852		k-2	1.000	<= 1.5	a-3	-0.0460	<= 0.8	
	Beta-M,Psi	1.203		Psi-3	0.922		k-3	1.000	<= 1.5	
	V-load 3	Nein		Beta-M,Psi	1.154					
	a-2	0.0451	<= 0.8	V-load 2	Nein					
	Design									
	D-N	0.002		D-M,3	0.210					
	D-M,2	0.016		D-NM	0.228	< 1.0				
	382	2600.000	CO97	0.323	1) Design to (28) fulfilled					
		Section properties RO 127x5,6								
A		21.36	cm^2	Ksl-2	a		Ksl-3	a		
I-2		394.30	cm^4	I-3	394.30	cm^4				
W-2		-62.09	cm^3	W-3	62.09	cm^3				
Forces and moments										
N		-57.00	kN	M-2,beg	2.46	kNm	M-3,beg	1.59	kNm	
M-T		0.12	kNm	M-2,end	0.84	kNm	M-3,end	0.19	kNm	
V-3		-2.32	kN	V-2	1.22	kN	VT	2.50	kN	
M-2		-2.52	kNm	M-3	-1.56	kNm				
Reduction factor Kappa										
s-K,2		2.600	m	Kappa-2 b	0.730		Ksl-3	a		
N-Cr,2		1208.93	kN	s-K,3	2.600	m	Kappa-3 b	0.730		
Lambda-K,		0.797		N-Cr,3	1208.93	kN	Kappa bar	0.730		
Ksl-2		a		Lambda-K,	0.797					
Coefficient k-2 and k-3										
Psi-2		0.393		Beta-M,2	1.446		Beta-M,V,3	1.300		
Beta-M,Psi		1.525		a-2	-0.5540	<= 0.8	M-V,3	0.87	kNm	
V-load 3		Ja		k-2	1.062	<= 1.5	Delta-M,3	3.15	kNm	
C-load 3		Nein		Psi-3	0.119		Beta-M,3	1.601		
Beta-M,V,2		1.300		Beta-M,Psi	1.716		a-3	-0.3057	<= 0.8	
M-V,2		1.75	kNm	V-load 2	Ja		k-3	1.034	<= 1.5	
Delta-M,2		4.98	kNm	C-load 2	Nein					
Design										
D-N		0.112		D-M,3	0.079					
D-M,2	0.132		D-NM	0.323	< 1.0					
383	0.000	CO97	0.236	1) Design to (28) fulfilled						
	Section properties Kasten(A) 374/15/12/350/550/374/15									
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3	
	A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3	
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c		
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4				
	Forces and moments									
	N	-12.43	kN	M-2,beg	0.00	kNm	M-3	198.64	kNm	
	V-3	20.55	kN	M-2,end	0.54	kNm	M-3,beg	198.64	kNm	
	M-2	-30.80	kNm	V-2	-33.85	kN	M-3,end	182.94	kNm	
	Reduction factor Kappa									
	s-K,2	1.300	m	Kappa-2 b	0.974		Ksl-3	c		
	N-Cr,2	1329770.0	kN	s-K,3	1.300	m	Kappa-3 b	0.965		
	Lambda-K,	0.080	< 0.2	N-Cr,3	662000.0	kN	Kappa bar	0.965		
	Ksl-2	c		Lambda-K,	0.114	< 0.2				

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
384	Coefficient k-2 and k-3						
	Psi-2	0.574	k-2	1.000	<= 1.5	a-3	-0.0583 <= 0.8
	Beta-M,Psi	1.398	Psi-3	0.999		k-3	1.000 <= 1.5
	V-load 3	Nein	Beta-M,Psi	1.100			
	a-2	0.0763 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.002	D-M,3	0.210			
	D-M,2	0.024	D-NM	0.236	< 1.0		
	0.000 CO97 0.878			1) Design to (28) fulfilled			
	Section properties IS 292/250/8/15						
385	A	95.96 cm ²	Ksl-2	b		Ksl-3	c
	I-2	15599.70 cm ⁴	I-3	3907.37 cm ⁴			
	W-2	-1068.46 cm ³	W-3	312.59 cm ³			
	Forces and moments						
	N	-883.95 kN	M-2,beg	16.28 kNm		M-3	-12.51 kNm
	V-3	-4.35 kN	M-2,end	0.48 kNm		M-3,beg	4.53 kNm
	M-2	16.28 kNm	V-2	-4.50 kN		M-3,end	12.24 kNm
	Reduction factor Kappa						
	s-K,2	5.500 m	Kappa-2 b	0.847		Ksl-3	c
	N-Cr,2	10688.40 kN	s-K,3	5.500 m		Kappa-3 b	0.437
386	Lambda-K,	0.569	N-Cr,3	2677.18 kN		Kappa bar	0.437
	Ksl-2	b	Lambda-K,	1.136			
	Coefficient k-2 and k-3						
	Psi-2	0.504	Beta-M,2	1.421		Beta-M,V,3	1.300
	Beta-M,Psi	1.447	a-2	-0.5575 <= 0.8		M-V,3	8.20 kNm
	V-load 3	Ja	k-2	1.185 <= 1.5		Delta-M,3	24.75 kNm
	C-load 3	Nein	Psi-3	0.370		Beta-M,3	1.461
	Beta-M,V,2	1.300	Beta-M,Psi	1.541		a-3	-0.7113 <= 0.8
	M-V,2	4.42 kNm	V-load 2	Ja		k-3	1.458 <= 1.5
	Delta-M,2	25.20 kNm	C-load 2	Nein			
387	Design						
	D-N	0.644	D-M,3	0.178			
	D-M,2	0.055	D-NM	0.878	< 1.0		
	430.000 CO97 0.239			1) Design to (28) fulfilled			
	Section properties Kasten(A) 374/15/12/350/550/374/15						
	A	237.00 cm ²	W-2,max	3942.86 cm ³		W-3,min	-2886.58 cm ³
	A-2	79.10 cm ²	Ksl-2	c		W-3,max	2886.58 cm ³
	I-2	108429.0 cm ⁴	A-3	115.22 cm ²		Ksl-3	c
	W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴			
	Forces and moments						
388	N	-10.66 kN	M-2,beg	0.87 kNm		M-3	209.52 kNm
	V-3	-51.72 kN	M-2,end	0.00 kNm		M-3,beg	56.97 kNm
	M-2	-21.08 kNm	V-2	-915.70 kN		M-3,end	209.52 kNm
	Reduction factor Kappa						
	s-K,2	0.425 m	Kappa-2 b	0.992		Ksl-3	c
	N-Cr,2	12441900 kN	s-K,3	0.425 m		Kappa-3 b	0.988
	Lambda-K,	0.026 < 0.2	N-Cr,3	6193940. kN		Kappa bar	0.988
	Ksl-2	c	Lambda-K,	0.037 < 0.2			
	Coefficient k-2 and k-3						
	Psi-2	0.000	k-2	1.000 <= 1.5		a-3	0.1170 <= 0.8
389	Beta-M,Psi	1.800	Psi-3	0.272		k-3	1.000 <= 1.5
	V-load 3	Nein	Beta-M,Psi	1.610			
	a-2	0.1622 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.001	D-M,3	0.222			
	D-M,2	0.016	D-NM	0.239	< 1.0		
	0.000 CO97 0.661			1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00 cm ²	Ksl-2	a		Ksl-3	b
390	I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴			
	W-2	-7660.00 cm ³	W-3	1240.00 cm ³			
	Forces and moments						
	N	-4220.60 kN	M-2,beg	0.00 kNm		M-3	-127.79 kNm
	V-3	44.13 kN	M-2,end	0.00 kNm		M-3,beg	18.89 kNm
	M-2	-117.25 kNm	V-2	-192.11 kN		M-3,end	22.35 kNm
	Reduction factor Kappa						
	s-K,2	0.176 m	Kappa-2 b	0.998		Ksl-3	b
	N-Cr,2	1.5884e8 kN	s-K,3	0.176 m		Kappa-3 b	0.986
	Lambda-K,	0.009 < 0.2	N-Cr,3	12699500 kN		Kappa bar	0.986
391	Ksl-2	a	Lambda-K,	0.032 < 0.2			
	Coefficient k-2 and k-3						
	Psi-2	0.944	Beta-M,2	1.140		Beta-M,V,3	1.300
	Beta-M,Psi	1.139	a-2	0.1306 <= 0.8		M-V,3	0.08 kNm
	V-load 3	Ja	k-2	0.954 <= 1.5		Delta-M,3	150.14 kNm
	C-load 3	Nein	Psi-3	0.845		Beta-M,3	1.208
	Beta-M,V,2	1.300	Beta-M,Psi	1.208		a-3	0.5059 <= 0.8
	M-V,2	0.15 kNm	V-load 2	Ja		k-3	0.818 <= 1.5
	Delta-M,2	117.25 kNm	C-load 2	Nein			
	Design						
392	D-N	0.359	D-M,3	0.258			
	D-M,2	0.045	D-NM	0.661	< 1.0		
	0.000 CO97 0.609			1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00 cm ²	Ksl-2	a		Ksl-3	b
	I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴			
	W-2	-7660.00 cm ³	W-3	1240.00 cm ³			
	Forces and moments						
	N	-4220.60 kN	M-2,beg	0.00 kNm		M-3	-127.79 kNm
	V-3	44.13 kN	M-2,end	0.00 kNm		M-3,beg	18.89 kNm
	M-2	-117.25 kNm	V-2	-192.11 kN		M-3,end	22.35 kNm

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	N	-3840.51	kN	M-2,beg	4.29	kNm	M-3	116.96	kNm
	V-3	37.29	kN	M-2,end	8.82	kNm	M-3,beg	116.96	kNm
	M-2	-107.65	kNm	V-2	168.38	kN	M-3,end	87.32	kNm
	Reduction factor Kappa								
	s-K,2	0.176	m	Kappa-2 b	0.998		Ksl-3	b	
	N-Cr,2	1.5884e8	kN	s-K,3	0.176	m	Kappa-3 b	0.986	
	Lambda-K,	0.009	< 0.2	N-Cr,3	12699500	kN	Kappa bar	0.986	
	Ksl-2	a		Lambda-K,	0.032	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.940		Beta-M,2	1.142		Beta-M,V,3	1.300	
	Beta-M,Psi	1.142		a-2	0.1306	<= 0.8	M-V,3	0.05	kNm
	V-load 3	Ja		k-2	0.958	<= 1.5	Delta-M,3	139.64	kNm
	C-load 3	Nein		Psi-3	0.906		Beta-M,3	1.166	
	Beta-M,V,2	1.300		Beta-M,Psi	1.166		a-3	0.5032	<= 0.8
	M-V,2	0.15	kNm	V-load 2	Ja		k-3	0.836	<= 1.5
	Delta-M,2	116.47	kNm	C-load 2	Nein				
	Design								
D-N	0.327		D-M,3	0.241					
D-M,2	0.041		D-NM	0.609	< 1.0				
388	0.000	CO97	0.637	1) Design to (28) fulfilled					
Section properties HE-M 600									
A	364.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	237400.0	cm^4	I-3	18980.00	cm^4				
W-2	-7660.00	cm^3	W-3	1240.00	cm^3				
Forces and moments									
N	-3805.12	kN	M-2,end	50.04	kNm	M-3	-90.47	kNm	
V-3	42.85	kN	M-2,max	50.04	kNm	M-3,beg	21.27	kNm	
M-2	-111.46	kNm	x-M2,max	2.320	m	M-3,end	6.48	kNm	
M-2,beg	0.00	kNm	V-2	-41.10	kN				
Reduction factor Kappa									
s-K,2	2.324	m	Kappa-2 b	0.976		Ksl-3	b		
N-Cr,2	911018.0	kN	s-K,3	2.324	m	Kappa-3 b	0.824		
Lambda-K,	0.120	< 0.2	N-Cr,3	72835.39	kN	Kappa bar	0.824		
Ksl-2	a		Lambda-K,	0.424					
Coefficient k-2 and k-3									
Psi-2	0.409		Beta-M,2	1.507		Beta-M,V,3	1.300		
Beta-M,Psi	1.514		a-2	0.0279	<= 0.8	M-V,3	3.27	kNm	
V-load 3	Ja		k-2	0.991	<= 1.5	Delta-M,3	111.74	kNm	
C-load 3	Nein		Psi-3	0.305		Beta-M,3	1.578		
Beta-M,V,2	1.300		Beta-M,Psi	1.587		a-3	0.1991	<= 0.8	
M-V,2	5.40	kNm	V-load 2	Ja		k-3	0.923	<= 1.5	
Delta-M,2	161.50	kNm	C-load 2	Nein					
Design									
D-N	0.388		D-M,3	0.206					
D-M,2	0.044		D-NM	0.637	< 1.0				
389	2470.000	CO97	0.686	1) Design to (28) fulfilled					
Section properties RO 127x10									
A	36.76	cm^2	Ksl-2	a		Ksl-3	a		
I-2	633.55	cm^4	I-3	633.55	cm^4				
W-2	-99.77	cm^3	W-3	99.77	cm^3				
Forces and moments									
N	-442.05	kN	M-2,beg	1.03	kNm	M-3,beg	1.08	kNm	
M-T	-0.47	kNm	M-2,end	0.33	kNm	M-3,end	2.43	kNm	
V-3	-2.06	kN	V-2	-2.47	kN	VT	2.75	kN	
M-2	-2.38	kNm	M-3	2.43	kNm				
Reduction factor Kappa									
s-K,2	2.468	m	Kappa-2 b	0.732		Ksl-3	a		
N-Cr,2	2155.48	kN	s-K,3	2.468	m	Kappa-3 b	0.732		
Lambda-K,	0.784		N-Cr,3	2155.48	kN	Kappa bar	0.732		
Ksl-2	a		Lambda-K,	0.784					
Coefficient k-2 and k-3									
Psi-2	0.366		Beta-M,2	1.447		Beta-M,V,3	1.300		
Beta-M,Psi	1.544		a-2	-0.4907	<= 0.8	M-V,3	1.44	kNm	
V-load 3	Ja		k-2	1.246	<= 1.5	Delta-M,3	6.17	kNm	
C-load 3	Nein		Psi-3	0.444		Beta-M,3	1.445		
Beta-M,V,2	1.300		Beta-M,Psi	1.489		a-3	-0.4946	<= 0.8	
M-V,2	1.35	kNm	V-load 2	Ja		k-3	1.248	<= 1.5	
Delta-M,2	3.41	kNm	C-load 2	Nein					
Design									
D-N	0.502		D-M,3	0.093					
D-M,2	0.091		D-NM	0.686	< 1.0				
390	0.000	CO98	0.599	1) Design to (28) fulfilled					
Section properties RO 127x10									
A	36.76	cm^2	Ksl-2	a		Ksl-3	a		
I-2	633.55	cm^4	I-3	633.55	cm^4				
W-2	-99.77	cm^3	W-3	99.77	cm^3				
Forces and moments									
N	-379.89	kN	M-2,beg	0.99	kNm	M-3,beg	3.23	kNm	
M-T	0.41	kNm	M-2,end	0.50	kNm	M-3,end	0.70	kNm	
V-3	1.17	kN	V-2	2.04	kN	VT	1.94	kN	
M-2	0.99	kNm	M-3	3.23	kNm				
Reduction factor Kappa									
s-K,2	2.468	m	Kappa-2 b	0.732		Ksl-3	a		
N-Cr,2	2155.48	kN	s-K,3	2.468	m	Kappa-3 b	0.732		
Lambda-K,	0.784		N-Cr,3	2155.48	kN	Kappa bar	0.732		
Ksl-2	a		Lambda-K,	0.784					
Coefficient k-2 and k-3									
Psi-2	0.505		Beta-M,2	1.387		Beta-M,V,3	1.300		

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				a-2	-0.5852 <= 0.8	M-V,3	1.16 kNm
				k-2	1.253 <= 1.5	Delta-M,3	5.03 kNm
				Psi-3	0.700	Beta-M,3	1.308
				Beta-M,Psi	1.310	a-3	-0.7095 <= 0.8
				V-load 2	Ja	k-3	1.306 <= 1.5
				C-load 2	Nein		
				D-N	0.432	D-M,3	0.129
				D-M,2	0.038	D-NM	0.599 < 1.0
391	0.000	CO97	0.589	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				A	364.00 cm ²	Ksl-2	a
				I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴
				W-2	-7660.00 cm ³	W-3	1240.00 cm ³
				Forces and moments			
				N	-3483.41 kN	M-2,end	52.47 kNm
				V-3	36.39 kN	M-2,max	52.47 kNm
				M-2	-102.00 kNm	x-M2,max	2.320 m
				M-2,beg	8.28 kNm	V-2	38.64 kN
				Reduction factor Kappa			
				s-K,2	2.324 m	Kappa-2 b	0.976
				N-Cr,2	911018.0 kN	s-K,3	2.324 m
				Lambda-K,	0.120 < 0.2	N-Cr,3	72835.39 kN
				Ksl-2	a	Lambda-K,	0.424
				Coefficient k-2 and k-3			
				Psi-2	0.403	Beta-M,2	1.509
				Beta-M,Psi	1.518	a-2	0.0285 <= 0.8
				V-load 3	Ja	k-2	0.991 <= 1.5
				C-load 3	Nein	Psi-3	0.334
				Beta-M,V,2	1.300	Beta-M,Psi	1.566
				M-V,2	6.02 kNm	V-load 2	Ja
				Delta-M,2	154.47 kNm	C-load 2	Nein
				Design			
				D-N	0.355	D-M,3	0.194
				D-M,2	0.040	D-NM	0.589 < 1.0
392	830.000	CO98	0.348	1) Design to (28) fulfilled			
				Section properties HE-A 160			
				A	38.80 cm ²	Ksl-2	b
				I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴
				W-2	-220.00 cm ³	W-3	76.90 cm ³
				Forces and moments			
				N	-24.75 kN	M-2,min	-4.21 kNm
				V-3	-3.86 kN	x-M2,min	0.830 m
				M-2	-4.21 kNm	V-2	12.11 kN
				M-2,beg	1.58 kNm	M-3	-6.74 kNm
				M-2,end	0.61 kNm	M-3,beg	3.33 kNm
				Reduction factor Kappa			
				s-K,2	0.831 m	Kappa-2 b	0.961
				N-Cr,2	50096.30 kN	s-K,3	0.831 m
				Lambda-K,	0.167 < 0.2	N-Cr,3	18478.69 kN
				Ksl-2	b	Lambda-K,	0.275
				Coefficient k-2 and k-3			
				Psi-2	0.482	k-2	1.001 <= 1.5
				Beta-M,Psi	1.462	Psi-3	0.751
				V-load 3	Nein	Beta-M,Psi	1.274
				a-2	-0.0613 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.022	D-M,3	0.267
				D-M,2	0.059	D-NM	0.348 < 1.0
393	0.000	CO98	0.124	1) Design to (28) fulfilled			
				Section properties HE-A 160			
				A	38.80 cm ²	Ksl-2	b
				I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴
				W-2	-220.00 cm ³	W-3	76.90 cm ³
				Forces and moments			
				N	-37.64 kN	M-2,end	1.16 kNm
				V-3	0.53 kN	M-2,max	1.38 kNm
				M-2	-3.78 kNm	x-M2,max	0.890 m
				M-2,beg	1.16 kNm	V-2	0.70 kN
				Reduction factor Kappa			
				s-K,2	1.788 m	Kappa-2 b	0.913
				N-Cr,2	10832.09 kN	s-K,3	1.788 m
				Lambda-K,	0.359	N-Cr,3	3995.55 kN
				Ksl-2	b	Lambda-K,	0.591
				Coefficient k-2 and k-3			
				Psi-2	1.000	Beta-M,2	1.108
				Beta-M,Psi	1.100	a-2	-0.5221 <= 0.8
				V-load 3	Ja	k-2	1.017 <= 1.5
				C-load 3	Nein	Psi-3	0.377
				Beta-M,V,2	1.300	Beta-M,Psi	1.536
				M-V,2	0.22 kNm	V-load 2	Ja
				Delta-M,2	5.20 kNm	C-load 2	Nein
				Design			
				D-N	0.042	D-M,3	0.029
				D-M,2	0.053	D-NM	0.124 < 1.0
394	0.000	CO97	0.301	1) Design to (28) fulfilled			
				Section properties HE-A 160			

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	A 38.80 cm ² I-2 1670.00 cm ⁴ W-2 -220.00 cm ³			Ksl-2 b I-3 616.00 cm ⁴ W-3 76.90 cm ³	Ksl-3 c		
	Forces and moments N -27.05 kN V-3 4.05 kN M-2 -4.66 kNm M-2,beg 0.34 kNm M-2,end 1.61 kNm			M-2,max 1.61 kNm x-M2,max 0.830 m V-2 -9.75 kN M-3 -5.34 kNm M-3,beg 2.10 kNm	M-3,end 2.78 kNm M-3,max 2.78 kNm x-M3,max 0.830 m		
	Reduction factor Kappa s-K,2 0.831 m N-Cr,2 50096.30 kN Lambda-K, 0.167 < 0.2			Kappa-2 b 0.961 s-K,3 0.831 m N-Cr,3 18478.59 kN Lambda-K, 0.275	Ksl-3 c Kappa-3 b 0.870 Kappa bar 0.870		
	Coefficient k-2 and k-3 Psi-2 0.545 Beta-M,Psi 1.418 V-load 3 Nein a-2 -0.0760 <= 0.8			k-2 1.002 <= 1.5 Psi-3 0.755 Beta-M,Psi 1.271 V-load 2 Nein	a-3 0.1289 <= 0.8 k-3 0.997 <= 1.5		
	Design D-N 0.024 D-M,2 0.065			D-M,3 0.212 D-NM 0.301 < 1.0			
395	0.000 CO98		0.377	1) Design to (28) fulfilled			
	Section properties HE-M 300 A 303.00 cm ² I-2 59200.00 cm ⁴ W-2 -3480.00 cm ³			Ksl-2 b I-3 19400.00 cm ⁴ W-3 1250.00 cm ³	Ksl-3 c		
	Forces and moments N -1378.65 kN V-3 -24.00 kN M-2 72.77 kNm M-2,beg 72.77 kNm			M-2,end 27.46 kNm V-2 14.11 kN M-3 21.99 kNm M-3,beg 21.99 kNm	M-3,end 20.74 kNm M-3,min -11.48 kNm x-M3,min 2.640 m		
	Reduction factor Kappa s-K,2 5.286 m N-Cr,2 43912.30 kN Lambda-K, 0.498			Kappa-2 b 0.865 s-K,3 5.286 m N-Cr,3 14390.20 kN Lambda-K, 0.871	Ksl-3 c Kappa-3 b 0.571 Kappa bar 0.571		
	Coefficient k-2 and k-3 Psi-2 0.389 Beta-M,Psi 1.528 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 40.60 kNm Delta-M,2 127.65 kNm			Beta-M,2 1.455 a-2 -0.3707 <= 0.8 k-2 1.060 <= 1.5 Psi-3 0.943 Beta-M,Psi 1.140 V-load 2 Ja C-load 2 Nein	Beta-M,V,3 1.300 M-V,3 8.95 kNm Delta-M,3 33.47 kNm Beta-M,3 1.183 a-3 -0.8927 <= 0.8 k-3 1.218 <= 1.5		
	Design D-N 0.244 D-M,2 0.068			D-M,3 0.065 D-NM 0.377 < 1.0			
396	7630.000 CO98		0.835	1) Design to (28) fulfilled			
	Section properties IS 292/250/10/15 A 101.20 cm ² I-2 15899.50 cm ⁴ W-2 -1089.01 cm ³			Ksl-2 b I-3 3908.43 cm ⁴ W-3 312.67 cm ³	Ksl-3 c		
	Forces and moments N -526.12 kN V-3 4.37 kN M-2 24.03 kNm M-2,beg 1.69 kNm			M-2,end 24.03 kNm V-2 -5.02 kN M-3 10.91 kNm M-3,beg 7.10 kNm	M-3,end 10.91 kNm M-3,min -3.06 kNm x-M3,min 3.050 m		
	Reduction factor Kappa s-K,2 7.628 m N-Cr,2 5662.92 kN Lambda-K, 0.802			Kappa-2 b 0.736 s-K,3 7.628 m N-Cr,3 1392.07 kN Lambda-K, 1.618	Ksl-3 c Kappa-3 b 0.267 Kappa bar 0.267		
	Coefficient k-2 and k-3 Psi-2 0.649 Beta-M,Psi 1.345 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 6.77 kNm Delta-M,2 33.64 kNm			Beta-M,2 1.336 a-2 -0.9532 <= 0.8 k-2 1.206 <= 1.5 Psi-3 0.651 Beta-M,Psi 1.344 V-load 2 Ja C-load 2 Nein	Beta-M,V,3 1.300 M-V,3 2.77 kNm Delta-M,3 13.97 kNm Beta-M,3 1.336 a-3 -1.6294 <= 0.8 k-3 1.500 <= 1.5		
	Design D-N 0.594 D-M,2 0.081			D-M,3 0.160 D-NM 0.835 < 1.0			
398	0.000 CO98		0.379	1) Design to (28) fulfilled			
	Section properties HE-M 300 A 303.00 cm ² I-2 59200.00 cm ⁴ W-2 -3480.00 cm ³			Ksl-2 b I-3 19400.00 cm ⁴ W-3 1250.00 cm ³	Ksl-3 c		
	Forces and moments N -1416.31 kN V-3 -20.70 kN M-2 68.42 kNm M-2,beg 68.42 kNm			M-2,end 22.25 kNm V-2 13.84 kN M-3 21.34 kNm M-3,beg 21.34 kNm	M-3,end 20.88 kNm M-3,min -11.49 kNm x-M3,min 2.640 m		
	Reduction factor Kappa s-K,2 5.286 m N-Cr,2 43912.30 kN Lambda-K, 0.498			Kappa-2 b 0.865 s-K,3 5.286 m N-Cr,3 14390.20 kN	Ksl-3 c Kappa-3 b 0.571 Kappa bar 0.571		

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				Lambda-K,	0.871		
				Coefficient k-2 and k-3			
				Psi-2	0.539	Beta-M,2	1.388
				Beta-M,Psi	1.423	a-2	-0.4381 <= 0.8
				V-load 3	Ja	k-2	1.072 <= 1.5
				C-load 3	Nein	Psi-3	0.978
				Beta-M,V,2	1.300	Beta-M,Psi	1.115
				M-V,2	31.43 kNm	V-load 2	Ja
				Delta-M,2	110.04 kNm	C-load 2	Nein
				Design			
				D-N	0.250	D-M,3	0.064
				D-M,2	0.064	D-NM	0.379 < 1.0
399	7630.000	CO98	0.825	1) Design to (28) fulfilled			
				Section properties IS 292/250/10/15			
				A	101.20 cm ²	Ksl-2	b
				I-2	15899.50 cm ⁴	I-3	3908.43 cm ⁴
				W-2	-1089.01 cm ³	W-3	312.67 cm ³
				Forces and moments			
				N	-540.46 kN	M-2,end	5.28 kNm
				V-3	-3.71 kN	V-2	-4.94 kN
				M-2	-17.28 kNm	M-3	10.58 kNm
				M-2,beg	7.44 kNm	M-3,beg	7.22 kNm
				Reduction factor Kappa			
				s-K,2	7.628 m	Kappa-2 b	0.736
				N-Cr,2	5662.92 kN	s-K,3	7.628 m
				Lambda-K,	0.802	N-Cr,3	1392.07 kN
				Ksl-2	b	Lambda-K,	1.618
				Coefficient k-2 and k-3			
				Psi-2	0.710	Beta-M,2	1.302
				Beta-M,Psi	1.303	a-2	-1.0077 <= 0.8
				V-load 3	Ja	k-2	1.223 <= 1.5
				C-load 3	Nein	Psi-3	0.682
				Beta-M,V,2	1.300	Beta-M,Psi	1.322
				M-V,2	6.47 kNm	V-load 2	Ja
				Delta-M,2	24.72 kNm	C-load 2	Nein
				Design			
				D-N	0.610	D-M,3	0.155
				D-M,2	0.059	D-NM	0.825 < 1.0
400	2790.000	CO97	0.537	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				A	364.00 cm ²	Ksl-2	a
				I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴
				W-2	-7660.00 cm ³	W-3	1240.00 cm ³
				Forces and moments			
				N	-3795.66 kN	M-2,beg	48.36 kNm
				V-3	-24.53 kN	M-2,end	75.61 kNm
				M-2	75.61 kNm	V-2	-16.97 kN
				Reduction factor Kappa			
				s-K,2	2.786 m	Kappa-2 b	0.971
				N-Cr,2	633925.0 kN	s-K,3	2.786 m
				Lambda-K,	0.144 < 0.2	N-Cr,3	50681.89 kN
				Ksl-2	a	Lambda-K,	0.508
				Coefficient k-2 and k-3			
				Psi-2	0.864	Beta-M,2	1.208
				Beta-M,Psi	1.195	a-2	-0.0816 <= 0.8
				V-load 3	Ja	k-2	1.027 <= 1.5
				C-load 3	Nein	Psi-3	0.070
				Beta-M,V,2	1.300	Beta-M,Psi	1.751
				M-V,2	15.38 kNm	V-load 2	Ja
				Delta-M,2	130.81 kNm	C-load 2	Nein
				Design			
				D-N	0.406	D-M,3	0.100
				D-M,2	0.031	D-NM	0.537 < 1.0
401	2930.000	CO97	0.653	1) Design to (28) fulfilled			
				Section properties RO 127x10			
				A	36.76 cm ²	Ksl-2	a
				I-2	633.55 cm ⁴	I-3	633.55 cm ⁴
				W-2	-99.77 cm ³	W-3	99.77 cm ³
				Forces and moments			
				N	-445.85 kN	M-2,beg	0.66 kNm
				M-T	0.36 kNm	M-2,end	0.21 kNm
				V-3	-1.28 kN	V-2	-0.69 kN
				M-2	-0.79 kNm	M-3	0.99 kNm
				Reduction factor Kappa			
				s-K,2	2.926 m	Kappa-2 b	0.648
				N-Cr,2	1533.88 kN	s-K,3	2.926 m
				Lambda-K,	0.929	N-Cr,3	1533.88 kN
				Ksl-2	a	Lambda-K,	0.929
				Coefficient k-2 and k-3			
				Psi-2	0.949	Beta-M,2	1.223
				Beta-M,Psi	1.135	a-2	-1.0683 <= 0.8
				V-load 3	Ja	k-2	1.500 <= 1.5
				C-load 3	Nein	Psi-3	0.627
				Beta-M,V,2	1.300	Beta-M,Psi	1.361
				M-V,2	0.77 kNm	V-load 2	Ja
				Delta-M,2	1.45 kNm	C-load 2	Nein
				Design			
				D-N	0.572	D-M,3	0.045

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	D-M,2	0.036	D-NM	0.653	< 1.0			
402	2930.000	CO98	0.579	1) Design to (28) fulfilled				
	Section properties RO 127x10							
	A	36.76	cm^2	Ksl-2	a	Ksl-3	a	
	I-2	633.55	cm^4	I-3	633.55			
	W-2	-99.77	cm^3	W-3	99.77			
	Forces and moments							
	N	-382.81	kN	M-2,beg	0.45	M-3,beg	0.46	
	M-T	-0.39	kNm	M-2,end	0.23	M-3,end	1.22	
	V-3	-1.09	kN	V-2	-0.77	VT	0.94	
	M-2	-0.80	kNm	M-3	1.22			
	Reduction factor Kappa							
	s-K,2	2.926	m	Kappa-2 b	0.648	Ksl-3	a	
	N-Cr,2	1533.88	kN	s-K,3	2.926	Kappa-3 b	0.648	
	Lambda-K,	0.929		N-Cr,3	1533.88	Kappa bar	0.648	
	Ksl-2	a		Lambda-K,	0.929			
	Coefficient k-2 and k-3							
	Psi-2	0.941		Beta-M,2	1.242	Beta-M,V,3	1.300	
	Beta-M,Psi	1.141		a-2	-1.0327	M-V,3	0.72	
	V-load 3	Ja		k-2	1.500	Delta-M,3	2.26	
	C-load 3	Nein		Psi-3	0.510	Beta-M,3	1.398	
	Beta-M,V,2	1.300		Beta-M,Psi	1.443	a-3	-0.7435	
	M-V,2	0.83	kNm	V-load 2	Ja	k-3	1.365	
	Delta-M,2	1.30	kNm	C-load 2	Nein			
	Design							
	D-N	0.491		D-M,3	0.051			
	D-M,2	0.037		D-NM	0.579	< 1.0		
403	2790.000	CO98	0.481	1) Design to (28) fulfilled				
	Section properties HE-M 600							
	A	364.00	cm^2	Ksl-2	a	Ksl-3	b	
	I-2	237400.0	cm^4	I-3	18980.00			
	W-2	-7660.00	cm^3	W-3	1240.00			
	Forces and moments							
	N	-3489.43	kN	M-2,end	45.71	M-3	-38.70	
	V-3	-25.35	kN	M-2,max	57.78	M-3,beg	0.00	
	M-2	-54.22	kNm	x-M2,max	1.390	M-3,end	17.13	
	M-2,beg	54.62	kNm	V-2	13.69			
	Reduction factor Kappa							
	s-K,2	2.786	m	Kappa-2 b	0.971	Ksl-3	b	
	N-Cr,2	633925.0	kN	s-K,3	2.786	Kappa-3 b	0.785	
	Lambda-K,	0.144	< 0.2	N-Cr,3	50681.89	Kappa bar	0.785	
	Ksl-2	a		Lambda-K,	0.508			
	Coefficient k-2 and k-3							
	Psi-2	0.871		Beta-M,2	1.202	Beta-M,V,3	1.300	
	Beta-M,Psi	1.190		a-2	-0.0832	M-V,3	0.33	
	V-load 3	Ja		k-2	1.025	Delta-M,3	55.83	
	C-load 3	Nein		Psi-3	0.109	Beta-M,3	1.722	
	Beta-M,V,2	1.300		Beta-M,Psi	1.724	a-3	0.2736	
	M-V,2	12.27	kNm	V-load 2	Ja	k-3	0.898	
	Delta-M,2	112.00	kNm	C-load 2	Nein			
	Design							
	D-N	0.373		D-M,3	0.086			
	D-M,2	0.022		D-NM	0.481	< 1.0		
404	0.000	CO99	0.280	1) Design to (28) fulfilled				
	Section properties Kasten(A) 374/15/12/350/550/374/15							
	A	237.00	cm^2	W-2,max	3942.86	W-3,min	-2886.58	
	A-2	79.10	cm^2	Ksl-2	c	W-3,max	2886.58	
	I-2	108429.0	cm^4	A-3	115.22	Ksl-3	c	
	W-2,min	-3942.86	cm^3	I-3	53979.10			
	Forces and moments							
	N	-0.46	kN	M-2,beg	0.00	M-3	140.79	
	V-3	396.95	kN	M-2,end	0.52	M-3,beg	140.79	
	M-2	-168.83	kNm	V-2	482.37	M-3,end	23.91	
	Reduction factor Kappa							
	s-K,2	0.425	m	Kappa-2 b	0.992	Ksl-3	c	
	N-Cr,2	12441900	kN	s-K,3	0.425	Kappa-3 b	0.988	
	Lambda-K,	0.026	< 0.2	N-Cr,3	6193940.	Kappa bar	0.988	
	Ksl-2	c		Lambda-K,	0.037			
	Coefficient k-2 and k-3							
	Psi-2	0.043		k-2	1.000	a-3	0.0967	
	Beta-M,Psi	1.770		Psi-3	0.662	k-3	1.000	
	V-load 3	Nein		Beta-M,Psi	1.336			
	a-2	0.1606	<= 0.8	V-load 2	Nein			
	Design							
	D-N	0.000		D-M,3	0.149			
	D-M,2	0.131		D-NM	0.280	< 1.0		
	405	0.000	CO97	0.766	1) Design to (28) fulfilled			
		Section properties IS 302/250/8/20						
		A	120.96	cm^2	Ksl-2	b	Ksl-3	c
I-2		21113.30	cm^4	I-3	5209.45			
W-2		-1398.22	cm^3	W-3	416.76			
Forces and moments								
N		-852.85	kN	M-2,beg	57.48	M-3	-15.24	
V-3		-12.54	kN	M-2,end	14.15	M-3,beg	6.96	
M-2		57.48	kNm	V-2	-5.37	M-3,end	14.31	
Reduction factor Kappa								
s-K,2		5.500	m	Kappa-2 b	0.854	Ksl-3	c	

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	N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	14466.09 0.549 b 0.331 1.569 Ja Nein 1.300 15.31 69.37 0.473 0.139	kN kNm kNm kNm kNm 0.473 0.139	s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	5.500 3569.32 1.105 1.509 -0.4318 1.109 0.486 1.460 Ja Nein 0.154 0.766	m kN =< 0.8 =< 1.5 =< 0.8 =< 1.5 =< 1.0	Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	0.455 0.455 1.300 8.86 29.55 1.412 -0.7899 1.374
406	220.000	CO97	0.367	1) Design to (28) fulfilled				
	Section properties Kasten(A) 374/15/12/350/550/374/15 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	237.00 79.10 108429.0 -3942.86 -15.63 -25.72 -212.92 0.219 46857100 0.013 c 0.974 1.118 Nein 0.1489 0.002 0.165	cm^2 cm^2 cm^4 cm^3 kN kN kNm m kN < 0.2 c k k =< 0.8 0.002 0.165	W-2,max Ksl-2 A-3 I-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	3942.86 c 115.22 53979.10 0.00 0.00 -204.66 0.996 0.219 23326900 0.019 1.000 0.778 1.255 Nein 0.200 0.367	cm^3 c cm^2 cm^4 kNm kNm kN m m kN < 0.2 =< 1.5 =< 1.5 =< 1.5 =< 1.5 =< 1.0	W-3,min W-3,max Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	-2886.58 2886.58 c 188.97 147.03 188.97 c 0.994 0.994 0.1175 1.000
407	2180.000	CO97	0.731	1) Design to (28) fulfilled				
	Section properties RO 127x10 A I-2 W-2 Forces and moments N M-T V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	36.76 633.55 -99.77 -599.60 -0.27 0.51 1.28 2.178 2767.53 0.691 a 0.266 1.614 Ja Nein 1.300 0.67 2.62 0.640 0.046	cm^2 cm^4 cm^3 kN kNm kN kNm m kN a k k =< 0.8 =< 1.5 =< 1.5 =< 0.8 =< 1.5 =< 0.8 =< 1.5 0.640 0.046	Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	a 633.55 99.77 0.34 1.28 -0.86 1.11 0.779 2.178 2767.53 0.691 1.534 -0.2693 1.172 0.568 1.403 Ja Nein 0.045 0.731	cm^4 cm^3 kNm kNm kN kNm m m kN kN =< 0.8 =< 1.5 =< 1.5 =< 0.8 =< 1.5 =< 1.0	Ksl-3 M-3,beg M-3,end VT Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	a 0.63 1.11 0.73 a 0.779 0.779 1.300 0.59 1.89 1.370 -0.4953 1.317
408	1080.000	CO97	0.318	1) Design to (28) fulfilled				
	Section properties Kasten(A) 374/15/12/350/550/374/15 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 M-2,beg M-2,end Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	237.00 79.10 108429.0 -3942.86 -15.63 -24.96 -207.38 0.00 0.00 1.081 1923150. 0.067 c 0.882 1.182 Nein 0.0638 0.002 0.161	cm^2 cm^2 cm^4 cm^3 kN kN kNm kNm kNm m kN < 0.2 c k k =< 0.8 0.002 0.161	W-2,max Ksl-2 A-3 I-3 M-2,min x-M2,min V-2 M-3 M-3,beg Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	3942.86 c 115.22 53979.10 -207.38 1.080 -204.66 147.03 31.89 0.979 1.081 957400.0 0.094 1.000 0.660 1.338 Nein 0.156 0.318	cm^3 c cm^2 cm^4 kNm m kN kNm kNm m m kN kN =< 0.2 =< 1.5 =< 1.5 =< 1.5 =< 1.5 =< 1.0	W-3,min W-3,max Ksl-3 M-3,end M-3,max x-M3,max Ksl-3 Kappa-3 b Kappa bar a-3 k-3	-2886.58 2886.58 c 147.03 147.03 1.080 c 0.971 0.971 0.0210 1.000

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409	0.000	CO97	0.295	1) Design to (28) fulfilled					
	Section properties Kasten(A) 374/15/12/350/550/374/15								
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3
	A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c	
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4			
	Forces and moments								
	N	-18.89	kN	M-2,end	0.00	kNm	M-3,end	31.89	kNm
	V-3	-14.11	kN	V-2	201.78	kN	M-3,min	-78.03	kNm
	M-2	-186.06	kNm	M-3	140.08	kNm	x-M3,min	1.080	m
	M-2,beg	0.00	kNm	M-3,beg	140.08	kNm			
	Reduction factor Kappa								
	s-K,2	1.081	m	Kappa-2 b	0.979		Ksl-3	c	
	N-Cr,2	1923150.	kN	s-K,3	1.081	m	Kappa-3 b	0.971	
	Lambda-K,	0.067	< 0.2	N-Cr,3	957400.0	kN	Kappa bar	0.971	
	Ksl-2	c		Lambda-K,	0.094	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.983		k-2	1.000	<= 1.5	a-3	0.0176	<= 0.8
	Beta-M,Psi	1.112		Psi-3	0.686		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.320				
	a-2	0.0543	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.003		D-M,3	0.148				
D-M,2	0.144		D-NM	0.295	< 1.0				
410	2600.000	CO97	0.264	1) Design to (28) fulfilled					
	Section properties RO 127x5,6								
	A	21.36	cm^2	Ksl-2	a		Ksl-3	a	
	I-2	394.30	cm^4	I-3	394.30	cm^4			
	W-2	-62.09	cm^3	W-3	62.09	cm^3			
	Forces and moments								
	N	-35.16	kN	M-2,beg	1.31	kNm	M-3,beg	2.55	kNm
	M-T	0.03	kNm	M-2,end	0.50	kNm	M-3,end	0.28	kNm
	V-3	-0.99	kN	V-2	1.56	kN	VT	1.82	kN
	M-2	-1.28	kNm	M-3	-2.58	kNm			
	Reduction factor Kappa								
	s-K,2	2.600	m	Kappa-2 b	0.730		Ksl-3	a	
	N-Cr,2	1208.93	kN	s-K,3	2.600	m	Kappa-3 b	0.730	
	Lambda-K,	0.797		N-Cr,3	1208.93	kN	Kappa bar	0.730	
	Ksl-2	a		Lambda-K,	0.797				
	Coefficient k-2 and k-3								
	Psi-2	0.469		Beta-M,2	1.413		Beta-M,V,3	1.300	
	Beta-M,Psi	1.472		a-2	-0.6054	<= 0.8	M-V,3	1.15	kNm
	V-load 3	Ja		k-2	1.042	<= 1.5	Delta-M,3	5.13	kNm
	C-load 3	Nein		Psi-3	0.171		Beta-M,3	1.595	
	Beta-M,V,2	1.300		Beta-M,Psi	1.681		a-3	-0.3154	<= 0.8
	M-V,2	0.88	kNm	V-load 2	Ja		k-3	1.022	<= 1.5
	Delta-M,2	2.59	kNm	C-load 2	Nein				
Design									
D-N	0.069		D-M,3	0.130					
D-M,2	0.066		D-NM	0.264	< 1.0				
411	0.000	CO97	0.343	1) Design to (28) fulfilled					
	Section properties Kasten(A) 374/15/12/350/550/374/15								
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3
	A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c	
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4			
	Forces and moments								
	N	-18.87	kN	M-2,beg	0.00	kNm	M-3	184.27	kNm
	V-3	-13.35	kN	M-2,end	0.00	kNm	M-3,beg	184.27	kNm
	M-2	-187.27	kNm	V-2	201.78	kN	M-3,end	140.08	kNm
	Reduction factor Kappa								
	s-K,2	0.219	m	Kappa-2 b	0.996		Ksl-3	c	
	N-Cr,2	46857100	kN	s-K,3	0.219	m	Kappa-3 b	0.994	
	Lambda-K,	0.013	< 0.2	N-Cr,3	23326900	kN	Kappa bar	0.994	
	Ksl-2	c		Lambda-K,	0.019	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.994		k-2	1.000	<= 1.5	a-3	0.1180	<= 0.8
	Beta-M,Psi	1.105		Psi-3	0.760		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.268				
	a-2	0.1485	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.002		D-M,3	0.195				
	D-M,2	0.145		D-NM	0.343	< 1.0			
412	0.000	CO98	0.662	1) Design to (28) fulfilled					
	Section properties IS 302/250/8/20								
	A	120.96	cm^2	Ksl-2	b		Ksl-3	c	
	I-2	21113.30	cm^4	I-3	5209.45	cm^4			
	W-2	-1398.22	cm^3	W-3	416.76	cm^3			
	Forces and moments								
	N	-801.18	kN	M-2,beg	14.88	kNm	M-3	-14.09	kNm
	V-3	6.26	kN	M-2,end	8.11	kNm	M-3,beg	8.02	kNm
	M-2	-29.02	kNm	V-2	-4.95	kN	M-3,end	13.19	kNm
	Reduction factor Kappa								
	s-K,2	5.500	m	Kappa-2 b	0.854		Ksl-3	c	
	N-Cr,2	14466.09	kN	s-K,3	5.500	m	Kappa-3 b	0.455	
Lambda-K,	0.549		N-Cr,3	3569.32	kN	Kappa bar	0.455		
Ksl-2	b		Lambda-K,	1.105					

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	Coefficient k-2 and k-3							
	Psi-2	0.545	Beta-M,2	1.394	Beta-M,V,3	1.300		
	Beta-M,Psi	1.418	a-2	-0.5588	M-V,3	9.17	kNm	
	V-load 3	Ja	k-2	1.132	Delta-M,3	27.28	kNm	
	C-load 3	Nein	Psi-3	0.608	Beta-M,3	1.349		
	Beta-M,V,2	1.300	Beta-M,Psi	1.374	a-3	-0.9275	<= 0.8	
	M-V,2	9.21 kNm	V-load 2	Ja	k-3	1.412	<= 1.5	
	Delta-M,2	43.90 kNm	C-load 2	Nein				
	Design							
	D-N	0.445	D-M,3	0.146				
D-M,2	0.072	D-NM	0.662	< 1.0				
413	430.000	CO97	0.379	1) Design to (28) fulfilled				
Section properties Kasten(A) 374/15/12/350/550/374/15								
A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3
A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3
I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c	
W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4			
Forces and moments								
N	-10.65	kN	M-2,beg	4.51	kNm	M-3	189.10	kNm
V-3	-539.25	kN	M-2,end	0.00	kNm	M-3,beg	39.19	kNm
M-2	-229.35	kNm	V-2	-625.26	kN	M-3,end	189.10	kNm
Reduction factor Kappa								
s-K,2	0.425	m	Kappa-2 b	0.992		Ksl-3	c	
N-Cr,2	12441900	kN	s-K,3	0.425	m	Kappa-3 b	0.988	
Lambda-K,	0.026	< 0.2	N-Cr,3	6193940.	kN	Kappa bar	0.988	
Ksl-2	c		Lambda-K,	0.037	< 0.2			
Coefficient k-2 and k-3								
Psi-2	0.003		k-2	1.000	<= 1.5	a-3	0.0871	<= 0.8
Beta-M,Psi	1.798		Psi-3	0.848		k-3	1.000	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.207				
a-2	0.1621	<= 0.8	V-load 2	Nein				
Design								
D-N	0.001		D-M,3	0.200				
D-M,2	0.178		D-NM	0.379	< 1.0			
414	520.000	CO97	0.526	1) Design to (28) fulfilled				
Section properties HE-M 600								
A	364.00	cm^2	Ksl-2	a		Ksl-3	b	
I-2	237400.0	cm^4	I-3	18980.00	cm^4			
W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
Forces and moments								
N	-3122.21	kN	M-2,beg	34.41	kNm	M-3	-47.25	kNm
V-3	676.95	kN	M-2,end	386.04	kNm	M-3,beg	15.90	kNm
M-2	386.04	kNm	V-2	-29.15	kN	M-3,end	14.64	kNm
Reduction factor Kappa								
s-K,2	0.518	m	Kappa-2 b	0.995		Ksl-3	b	
N-Cr,2	18337300	kN	s-K,3	0.518	m	Kappa-3 b	0.961	
Lambda-K,	0.027	< 0.2	N-Cr,3	1466060.	kN	Kappa bar	0.961	
Ksl-2	a		Lambda-K,	0.095	< 0.2			
Coefficient k-2 and k-3								
Psi-2	0.828		k-2	0.972	<= 1.5	a-3	0.3971	<= 0.8
Beta-M,Psi	1.220		Psi-3	0.921		k-3	0.892	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.155				
a-2	0.1045	<= 0.8	V-load 2	Nein				
Design								
D-N	0.273		D-M,3	0.104				
D-M,2	0.150		D-NM	0.526	< 1.0			
415	520.000	CO97	0.448	1) Design to (28) fulfilled				
Section properties HE-M 600								
A	364.00	cm^2	Ksl-2	a		Ksl-3	b	
I-2	237400.0	cm^4	I-3	18980.00	cm^4			
W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
Forces and moments								
N	-2850.62	kN	M-2,beg	23.84	kNm	M-3	38.32	kNm
V-3	519.29	kN	M-2,end	293.82	kNm	M-3,beg	46.11	kNm
M-2	293.82	kNm	V-2	15.05	kN	M-3,end	38.32	kNm
Reduction factor Kappa								
s-K,2	0.518	m	Kappa-2 b	0.995		Ksl-3	b	
N-Cr,2	18337300	kN	s-K,3	0.518	m	Kappa-3 b	0.961	
Lambda-K,	0.027	< 0.2	N-Cr,3	1466060.	kN	Kappa bar	0.961	
Ksl-2	a		Lambda-K,	0.095	< 0.2			
Coefficient k-2 and k-3								
Psi-2	0.827		k-2	0.975	<= 1.5	a-3	0.4009	<= 0.8
Beta-M,Psi	1.221		Psi-3	0.892		k-3	0.900	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.176				
a-2	0.1046	<= 0.8	V-load 2	Nein				
Design								
D-N	0.249		D-M,3	0.085				
D-M,2	0.114		D-NM	0.448	< 1.0			
416	0.000	CO97	0.367	1) Design to (28) fulfilled				
Section properties RO 127x10								
A	36.76	cm^2	Ksl-2	a		Ksl-3	a	
I-2	633.55	cm^4	I-3	633.55	cm^4			
W-2	-99.77	cm^3	W-3	99.77	cm^3			
Forces and moments								
N	-204.18	kN	M-2,end	0.50	kNm	M-3,beg	1.00	kNm
M-T	0.69	kNm	M-2,max	0.63	kNm	M-3,end	1.13	kNm
V-3	1.65	kN	x-M2,max	1.330	m	M-3,max	1.13	kNm

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	M-2	-2.00	kNm	V-2	-0.93	kN	x-M3,max	2.650	m
	M-2,beg	0.51	kNm	M-3	-1.29	kNm	VT	1.20	kN
	Reduction factor Kappa								
	s-K,2	2.654	m	Kappa-2 b	0.699		Ksl-3	a	
	N-Cr,2	1864.18	kN	s-K,3	2.654	m	Kappa-3 b	0.699	
	Lambda-K,	0.843		N-Cr,3	1864.18	kN	Kappa bar	0.699	
	Ksl-2	a		Lambda-K,	0.843				
	Coefficient k-2 and k-3								
	Psi-2	0.980		Beta-M,2	1.185		Beta-M,V,3	1.300	
	Beta-M,Psi	1.114		a-2	-0.9982	<= 0.8	M-V,3	0.88	kNm
	V-load 3	Ja		k-2	1.242	<= 1.5	Delta-M,3	2.42	kNm
	C-load 3	Nein		Psi-3	0.885		Beta-M,3	1.224	
	Beta-M,V,2	1.300		Beta-M,Psi	1.181		a-3	-0.9326	<= 0.8
	M-V,2	1.00	kNm	V-load 2	Ja		k-3	1.227	<= 1.5
	Delta-M,2	2.63	kNm	C-load 2	Nein				
	Design								
	D-N	0.243		D-M,3	0.048				
D-M,2	0.076		D-NM	0.367	< 1.0				
417	0.000	CO97	0.392	1) Design to (28) fulfilled					
Section properties RO 127x10									
A	36.76	cm^2	Ksl-2	a		Ksl-3	a		
I-2	633.55	cm^4	I-3	633.55	cm^4				
W-2	-99.77	cm^3	W-3	99.77	cm^3				
Forces and moments									
N	-232.11	kN	M-2,end	0.87	kNm	M-3,beg	0.72	kNm	
M-T	-0.72	kNm	M-2,max	0.87	kNm	M-3,end	0.66	kNm	
V-3	1.83	kN	x-M2,max	2.650	m	VT	1.22	kN	
M-2	-2.09	kNm	V-2	-0.63	kN				
M-2,beg	0.63	kNm	M-3	-0.97	kNm				
Reduction factor Kappa									
s-K,2	2.654	m	Kappa-2 b	0.699		Ksl-3	a		
N-Cr,2	1864.18	kN	s-K,3	2.654	m	Kappa-3 b	0.699		
Lambda-K,	0.843		N-Cr,3	1864.18	kN	Kappa bar	0.699		
Ksl-2	a		Lambda-K,	0.843					
Coefficient k-2 and k-3									
Psi-2	0.724		Beta-M,2	1.296		Beta-M,V,3	1.300		
Beta-M,Psi	1.293		a-2	-0.8115	<= 0.8	M-V,3	0.63	kNm	
V-load 3	Ja		k-2	1.224	<= 1.5	Delta-M,3	1.69	kNm	
C-load 3	Nein		Psi-3	0.917		Beta-M,3	1.211		
Beta-M,V,2	1.300		Beta-M,Psi	1.158		a-3	-0.9539	<= 0.8	
M-V,2	1.08	kNm	V-load 2	Ja		k-3	1.263	<= 1.5	
Delta-M,2	2.96	kNm	C-load 2	Nein					
Design									
D-N	0.276		D-M,3	0.038					
D-M,2	0.078		D-NM	0.392	< 1.0				
418	830.000	CO98	0.465	1) Design to (28) fulfilled					
Section properties HE-A 160									
A	38.80	cm^2	Ksl-2	b		Ksl-3	c		
I-2	1670.00	cm^4	I-3	616.00	cm^4				
W-2	-220.00	cm^3	W-3	76.90	cm^3				
Forces and moments									
N	-34.07	kN	M-2,max	5.70	kNm	M-3	-7.17	kNm	
V-3	-5.94	kN	x-M2,max	0.830	m	M-3,beg	3.74	kNm	
M-2	-10.76	kNm	M-2,min	-10.76	kNm	M-3,end	3.24	kNm	
M-2,beg	4.93	kNm	x-M2,min	0.830	m	M-3,min	-7.17	kNm	
M-2,end	5.70	kNm	V-2	13.12	kN	x-M3,min	0.830	m	
Reduction factor Kappa									
s-K,2	0.831	m	Kappa-2 b	0.961		Ksl-3	c		
N-Cr,2	50096.30	kN	s-K,3	0.831	m	Kappa-3 b	0.870		
Lambda-K,	0.167	< 0.2	N-Cr,3	18478.59	kN	Kappa bar	0.870		
Ksl-2	b		Lambda-K,	0.275					
Coefficient k-2 and k-3									
Psi-2	0.865		k-2	1.004	<= 1.5	a-3	0.0863	<= 0.8	
Beta-M,Psi	1.195		Psi-3	0.866		k-3	0.997	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.194					
a-2	-0.1508	<= 0.8	V-load 2	Nein					
Design									
D-N	0.031		D-M,3	0.284					
D-M,2	0.150		D-NM	0.465	< 1.0				
419	1790.000	CO98	0.199	1) Design to (28) fulfilled					
Section properties HE-A 160									
A	38.80	cm^2	Ksl-2	b		Ksl-3	c		
I-2	1670.00	cm^4	I-3	616.00	cm^4				
W-2	-220.00	cm^3	W-3	76.90	cm^3				
Forces and moments									
N	-38.33	kN	M-2,end	5.55	kNm	M-3	1.61	kNm	
V-3	-3.51	kN	M-2,max	5.72	kNm	M-3,beg	0.41	kNm	
M-2	-6.52	kNm	x-M2,max	0.890	m	M-3,end	1.61	kNm	
M-2,beg	5.51	kNm	V-2	-1.49	kN				
Reduction factor Kappa									
s-K,2	1.788	m	Kappa-2 b	0.913		Ksl-3	c		
N-Cr,2	10832.09	kN	s-K,3	1.788	m	Kappa-3 b	0.714		
Lambda-K,	0.359		N-Cr,3	3995.55	kN	Kappa bar	0.714		
Ksl-2	b		Lambda-K,	0.591					
Coefficient k-2 and k-3									
Psi-2	0.993		Beta-M,2	1.122		Beta-M,V,3	1.300		
Beta-M,Psi	1.105		a-2	-0.5124	<= 0.8	M-V,3	0.69	kNm	
V-load 3	Ja		k-2	1.017	<= 1.5	Delta-M,3	2.89	kNm	

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	Nein 1.300 1.07 kNm 12.24 kNm 0.042 0.092		Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	0.352 1.554 Ja Nein 0.064 0.199 < 1.0	Beta-M,3 a-3 k-3	1.494 -0.0693 <= 0.8 1.003 <= 1.5
420	0.000	CO98	0.344	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	38.80 cm ² 1670.00 cm ⁴ -220.00 cm ³ -34.03 kN 3.46 kN -6.12 kNm 0.831 m 50096.30 kN 0.167 < 0.2 b 0.867 1.193 Nein -0.1513 <= 0.8 0.031 0.085		Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	b 616.00 cm ⁴ 76.90 cm ³ 5.56 kNm 4.82 kNm -10.66 kN 0.961 0.831 m 18478.59 kN 0.275 1.004 <= 1.5 0.957 1.130 Nein 0.228 0.344 < 1.0	Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	c -5.75 kNm 3.25 kNm 3.11 kNm c 0.870 0.870 0.0514 <= 0.8 0.998 <= 1.5
421	5280.000	CO98	0.335	1) Design to (28) fulfilled			
	Section properties HE-M 300 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg M-2,end Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	303.00 cm ² 59200.00 cm ⁴ -3480.00 cm ³ -1366.50 kN 16.01 kN 46.22 kNm 22.34 kNm 46.22 kNm 5.285 m 43928.89 kN 0.498 b 0.599 1.381 Ja Nein 1.300 29.83 kNm 87.89 kNm 0.241 0.044		Ksl-2 I-3 W-3 M-2,max x-M2,max V-2 M-3 M-3,beg Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	b 19400.00 cm ⁴ 1250.00 cm ³ 46.22 kNm 5.280 m -12.51 kN 17.04 kNm 14.63 kNm 0.865 5.285 m 14395.59 kN 0.870 1.353 -0.4720 <= 0.8 1.075 <= 1.5 0.859 1.199 Ja Nein 0.050 0.335 < 1.0	Ksl-3 M-3,end M-3,max x-M3,max M-3,min x-M3,min Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	c 17.04 kNm 17.04 kNm 5.280 m -13.30 kNm 2.640 m c 0.571 0.571 1.300 11.87 kNm 30.34 kNm 1.239 -0.7952 <= 0.8 1.192 <= 1.5
422	7630.000	CO98	0.809	1) Design to (28) fulfilled			
	Section properties IS 302/250/15/20 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	139.30 cm ² 22162.40 cm ⁴ -1467.70 cm ³ -651.85 kN 9.53 kN 53.33 kNm 12.78 kNm 7.628 m 7895.02 kN 0.797 b 0.642 1.350 Ja Nein 1.300 18.61 kNm 83.76 kNm 0.550 0.131		Ksl-2 I-3 W-3 M-2,end V-2 M-3 M-3,beg Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	b 5215.70 cm ⁴ 417.26 cm ³ 53.33 kNm -6.03 kN 11.65 kNm 8.01 kNm 0.734 7.628 m 1858.01 kN 1.643 1.339 -0.9174 <= 0.8 1.179 <= 1.5 0.688 1.319 Ja Nein 0.128 0.809 < 1.0	Ksl-3 M-3,end M-3,min x-M3,min Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	c 11.65 kNm -5.49 kNm 4.580 m c 0.260 0.260 1.300 5.49 kNm 17.14 kNm 1.313 -1.7250 <= 0.8 1.500 <= 1.5
424	5280.000	CO98	0.340	1) Design to (28) fulfilled			
	Section properties HE-M 300 A I-2 W-2	303.00 cm ² 59200.00 cm ⁴ -3480.00 cm ³		Ksl-2 I-3 W-3	b 19400.00 cm ⁴ 1250.00 cm ³	Ksl-3	c

Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method				
	D-M.2	0.036	D-NM	0.603 < 1.0				
433	170.000	CO98	0.553	1) Design to (28) fulfilled				
	Section properties HE-M 600							
	A	364.00	cm^2	Ksl-2	a	Ksl-3	b	
	I-2	237400.0	cm^4	I-3	18980.00	cm^4		
	W-2	-7660.00	cm^3	W-3	1240.00	cm^3		
	Forces and moments							
	N	-3029.54	kN	M-2,min	-77.88	kNm	M-3,end	102.55 kNm
	V-3	-493.40	kN	x-M2,min	0.170	m	M-3,max	102.55 kNm
	M-2	-77.88	kNm	V-2	-79.47	kN	x-M3,max	0.170 m
	M-2,beg	60.17	kNm	M-3	-123.74	kNm		
	M-2,end	8.82	kNm	M-3,beg	89.21	kNm		
	Reduction factor Kappa							
	s-K,2	0.174	m	Kappa-2 b	0.998	Ksl-3	b	
	N-Cr,2	1.6251e8	kN	s-K,3	0.174	m	Kappa-3 b	0.987
	Lambda-K,	0.009	< 0.2	N-Cr,3	12993300	kN	Kappa bar	0.987
	Ksl-2	a		Lambda-K,	0.032	< 0.2		
	Coefficient k-2 and k-3							
	Psi-2	0.941		Beta-M,2	1.143	Beta-M,V,3	1.300	
	Beta-M,Psi	1.142		a-2	0.1308	<= 0.8	M-V,3	0.00 kNm
	V-load 3	Ja		k-2	0.967	<= 1.5	Delta-M,3	226.48 kNm
	C-load 3	Nein		Psi-3	0.998		Beta-M,3	1.101
	Beta-M,V,2	1.300		Beta-M,Psi	1.101		a-3	0.4997 <= 0.8
	M-V,2	1.18	kNm	V-load 2	Ja		k-3	0.871 <= 1.5
Delta-M,2	138.05	kNm	C-load 2	Nein				
Design								
D-N	0.258		D-M,3	0.266				
D-M,2	0.030		D-NM	0.553	< 1.0			
434	0.000	CO97	0.615	1) Design to (28) fulfilled				
	Section properties Kasten(A) 374/15/12/350/550/374/15							
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58 cm^3
	A-2	79.10	cm^2	Ksl-2	c	W-3,max	2886.58 cm^3	
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4		
	Forces and moments							
	N	-81.47	kN	M-2,beg	0.00	kNm	M-3	332.86 kNm
	V-3	763.40	kN	M-2,end	1.93	kNm	M-3,beg	332.86 kNm
	M-2	-326.58	kNm	V-2	1451.58	kN	M-3,end	181.65 kNm
	Reduction factor Kappa							
	s-K,2	0.425	m	Kappa-2 b	0.992	Ksl-3	c	
	N-Cr,2	12441900	kN	s-K,3	0.425	m	Kappa-3 b	0.988
	Lambda-K,	0.026	< 0.2	N-Cr,3	6193940.	kN	Kappa bar	0.988
	Ksl-2	c		Lambda-K,	0.037	< 0.2		
	Coefficient k-2 and k-3							
	Psi-2	0.012		k-2	0.998	<= 1.5	a-3	0.0939 <= 0.8
	Beta-M,Psi	1.792		Psi-3	0.717		k-3	0.999 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.298			
	a-2	0.1618	<= 0.8	V-load 2	Nein			
	Design							
	D-N	0.011		D-M,3	0.352			
	D-M,2	0.253		D-NM	0.615	< 1.0		
435	0.000	CO97	0.195	1) Design to (28) fulfilled				
	Section properties IS 292/250/8/15							
	A	95.96	cm^2	Ksl-2	b	Ksl-3	c	
	I-2	15599.70	cm^4	I-3	3907.37	cm^4		
	W-2	-1068.46	cm^3	W-3	312.59	cm^3		
	Forces and moments							
	N	-33.57	kN	M-2,beg	33.76	kNm	M-3	-7.29 kNm
	V-3	-7.74	kN	M-2,end	0.15	kNm	M-3,beg	6.67 kNm
	M-2	33.76	kNm	V-2	-2.49	kN	M-3,end	6.38 kNm
	Reduction factor Kappa							
	s-K,2	5.500	m	Kappa-2 b	0.847	Ksl-3	c	
	N-Cr,2	10688.40	kN	s-K,3	5.500	m	Kappa-3 b	0.437
	Lambda-K,	0.569		N-Cr,3	2677.18	kN	Kappa bar	0.437
	Ksl-2	b		Lambda-K,	1.136			
	Coefficient k-2 and k-3							
	Psi-2	0.026		Beta-M,2	1.707	Beta-M,V,3	1.300	
	Beta-M,Psi	1.782		a-2	-0.2328	<= 0.8	M-V,3	5.43 kNm
	V-load 3	Ja		k-2	1.003	<= 1.5	Delta-M,3	13.96 kNm
	C-load 3	Nein		Psi-3	0.957		Beta-M,3	1.196
	Beta-M,V,2	1.300		Beta-M,Psi	1.130		a-3	-1.3129 <= 0.8
	M-V,2	6.66	kNm	V-load 2	Ja		k-3	1.032 <= 1.5
	Delta-M,2	42.67	kNm	C-load 2	Nein			
	Design							
D-N	0.024		D-M,3	0.074				
D-M,2	0.097		D-NM	0.195	< 1.0			
436	1300.000	CO97	0.487	1) Design to (28) fulfilled				
	Section properties Kasten(A) 374/15/12/350/550/374/15							
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58 cm^3
	A-2	79.10	cm^2	Ksl-2	c	W-3,max	2886.58 cm^3	
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4		
	Forces and moments							
	N	-90.72	kN	M-2,beg	0.00	kNm	M-3	265.30 kNm
	V-3	-48.89	kN	M-2,end	0.00	kNm	M-3,beg	251.76 kNm
	M-2	-250.79	kNm	V-2	43.51	kN	M-3,end	265.30 kNm
	Reduction factor Kappa							
	s-K,2	0.425	m	Kappa-2 b	0.992	Ksl-3	c	
	N-Cr,2	12441900	kN	s-K,3	0.425	m	Kappa-3 b	0.988
	Lambda-K,	0.026	< 0.2	N-Cr,3	6193940.	kN	Kappa bar	0.988
	Ksl-2	c		Lambda-K,	0.037	< 0.2		
	Coefficient k-2 and k-3							
	Psi-2	0.012		k-2	0.998	<= 1.5	a-3	0.0939 <= 0.8
	Beta-M,Psi	1.792		Psi-3	0.717		k-3	0.999 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.298			
	a-2	0.1618	<= 0.8	V-load 2	Nein			
	Design							
	D-N	0.011		D-M,3	0.352			
	D-M,2	0.253		D-NM	0.615	< 1.0		

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	1.300 m 1329770. kN 0.080 < 0.2 c 0.758 1.269 Nein 0.0556 <= 0.8 0.012 0.194		Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	0.974 1.300 m 662000.0 kN 0.114 < 0.2 0.999 <= 1.5 0.979 1.114 Nein 0.281 0.487 < 1.0	Ksl-3 Kappa-3 b Kappa bar a-3 k-3	c 0.965 0.965 -0.0551 <= 0.8 1.001 <= 1.5
437	0.000	CO97	0.264	1) Design to (28) fulfilled			
	Section properties IS 374/200/5/12 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	65.50 cm ² 17517.50 cm ⁴ -936.76 cm ³ -29.94 kN 17.81 kN -23.09 kNm 214835.0 kN 0.105 < 0.2 b 0.208 1.654 Nein 0.0185 <= 0.8 0.017 0.075		Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	b 1600.36 cm ⁴ 160.04 cm ³ 6.77 kNm 1.41 kNm 9.69 kN 0.976 1.300 m 19626.90 kN 0.347 1.000 <= 1.5 0.000 1.800 Nein 0.172 0.264 < 1.0	Ksl-3 c M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	c 9.06 kNm 9.06 kNm 0.00 kNm 0.835 0.835 0.3747 <= 0.8 0.994 <= 1.5
438	0.000	CO97	0.434	1) Design to (28) fulfilled			
	Section properties Kasten(A) 374/15/12/350/550/374/15 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	237.00 cm ² 79.10 cm ² 108429.0 cm ⁴ -3942.86 cm ³ -90.72 kN -39.82 kN -191.33 kNm 1.300 m 1329770. kN 0.080 < 0.2 c 0.994 1.104 Nein 0.0292 <= 0.8 0.012 0.148		W-2,max Ksl-2 A-3 I-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	3942.86 cm ³ c 115.22 cm ² 53979.10 cm ⁴ 0.00 kNm 0.00 kNm 43.51 kN 0.974 1.300 m 662000.0 kN 0.114 < 0.2 1.000 <= 1.5 0.980 1.114 Nein 0.274 0.434 < 1.0	W-3,min W-3,max Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	-2886.58 cm ³ 2886.58 cm ³ c 258.27 kNm 258.27 kNm 251.76 kNm 0.965 0.965 -0.0552 <= 0.8 1.001 <= 1.5
439	0.000	CO98	0.160	1) Design to (28) fulfilled			
	Section properties IS 292/250/8/15 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	95.96 cm ² 15599.70 cm ⁴ -1068.46 cm ³ -31.63 kN 4.50 kN -19.04 kNm 5.500 m 10688.40 kN 0.569 b 0.037 1.774 Ja Nein 1.300 2.79 kNm 22.20 kNm 0.023 0.055		Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	b 3907.37 cm ⁴ 312.59 cm ³ 0.01 kNm 3.16 kNm 5.10 kN 0.847 5.500 m 2677.18 kN 1.136 1.715 -0.2237 <= 0.8 1.003 <= 1.5 0.812 1.232 Ja Nein 0.082 0.160 < 1.0	Ksl-3 c M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	c -8.18 kNm 7.17 kNm 5.82 kNm 0.437 0.437 1.300 4.11 kNm 15.35 kNm 1.250 -1.1909 <= 0.8 1.027 <= 1.5
440	430.000	CO97	0.540	1) Design to (28) fulfilled			
	Section properties Kasten(A) 374/15/12/350/550/374/15 A A-2 I-2	237.00 cm ² 79.10 cm ² 108429.0 cm ⁴		W-2,max Ksl-2 A-3	3942.86 cm ³ c 115.22 cm ²	W-3,min W-3,max Ksl-3	-2886.58 cm ³ 2886.58 cm ³ c

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4			
	Forces and moments								
	N	-109.18	kN	M-2,beg	6.00	kNm	M-3	318.35	kNm
	V-3	-579.24	kN	M-2,end	0.00	kNm	M-3,beg	181.89	kNm
	M-2	-244.26	kNm	V-2	-1364.94	kN	M-3,end	318.35	kNm
	Reduction factor Kappa								
	s-K,2	0.425	m	Kappa-2 b	0.992		Ksl-3	c	
	N-Cr,2	12441900	kN	s-K,3	0.425	m	Kappa-3 b	0.988	
	Lambda-K,	0.026	< 0.2	N-Cr,3	6193940.	kN	Kappa bar	0.988	
	Ksl-2	c		Lambda-K,	0.037	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.000		k-2	0.998	<= 1.5	a-3	0.0896	<= 0.8
	Beta-M,Psi	1.800		Psi-3	0.800		k-3	0.999	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.240				
	a-2	0.1622	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.014		D-M,3	0.337				
D-M,2	0.189		D-NM	0.540	< 1.0				
441	0.000	CO97	0.618	1) Design to (28) fulfilled					
Section properties HE-M 600									
A	364.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	237400.0	cm^4	I-3	18980.00	cm^4				
W-2	-7660.00	cm^3	W-3	1240.00	cm^3				
Forces and moments									
N	-2938.97	kN	M-2,end	0.00	kNm	M-3,end	88.51	kNm	
V-3	32.56	kN	V-2	-140.85	kN	M-3,max	88.51	kNm	
M-2	-76.22	kNm	M-3	-157.04	kNm	x-M3,max	0.170	m	
M-2,beg	0.00	kNm	M-3,beg	86.21	kNm				
Reduction factor Kappa									
s-K,2	0.175	m	Kappa-2 b	0.998		Ksl-3	b		
N-Cr,2	1.6066e8	kN	s-K,3	0.175	m	Kappa-3 b	0.986		
Lambda-K,	0.009	< 0.2	N-Cr,3	12845300	kN	Kappa bar	0.986		
Ksl-2	a		Lambda-K,	0.032	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.929		Beta-M,2	1.150		Beta-M,V,3	1.300		
Beta-M,Psi	1.150		a-2	0.1309	<= 0.8	M-V,3	0.07	kNm	
V-load 3	Ja		k-2	0.968	<= 1.5	Delta-M,3	245.55	kNm	
C-load 3	Nein		Psi-3	0.974		Beta-M,3	1.118		
Beta-M,V,2	1.300		Beta-M,Psi	1.118		a-3	0.5004	<= 0.8	
M-V,2	0.16	kNm	V-load 2	Ja		k-3	0.875	<= 1.5	
Delta-M,2	76.22	kNm	C-load 2	Nein					
Design									
D-N	0.250		D-M,3	0.339					
D-M,2	0.029		D-NM	0.618	< 1.0				
442	0.000	CO97	0.591	1) Design to (28) fulfilled					
Section properties HE-M 600									
A	364.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	237400.0	cm^4	I-3	18980.00	cm^4				
W-2	-7660.00	cm^3	W-3	1240.00	cm^3				
Forces and moments									
N	-2709.94	kN	M-2,max	11.23	kNm	M-3,end	127.62	kNm	
V-3	35.83	kN	x-M2,max	0.170	m	M-3,min	-87.50	kNm	
M-2	-84.82	kNm	V-2	129.19	kN	x-M3,min	0.170	m	
M-2,beg	7.24	kNm	M-3	150.24	kNm				
M-2,end	11.23	kNm	M-3,beg	150.24	kNm				
Reduction factor Kappa									
s-K,2	0.175	m	Kappa-2 b	0.998		Ksl-3	b		
N-Cr,2	1.6066e8	kN	s-K,3	0.175	m	Kappa-3 b	0.986		
Lambda-K,	0.009	< 0.2	N-Cr,3	12845300	kN	Kappa bar	0.986		
Ksl-2	a		Lambda-K,	0.032	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.928		Beta-M,2	1.151		Beta-M,V,3	1.300		
Beta-M,Psi	1.151		a-2	0.1309	<= 0.8	M-V,3	0.09	kNm	
V-load 3	Ja		k-2	0.970	<= 1.5	Delta-M,3	237.74	kNm	
C-load 3	Nein		Psi-3	0.964		Beta-M,3	1.125		
Beta-M,V,2	1.300		Beta-M,Psi	1.125		a-3	0.5009	<= 0.8	
M-V,2	0.18	kNm	V-load 2	Ja		k-3	0.884	<= 1.5	
Delta-M,2	96.05	kNm	C-load 2	Nein					
Design									
D-N	0.231		D-M,3	0.327					
D-M,2	0.033		D-NM	0.591	< 1.0				
445	0.000	CO97	0.532	1) Design to (28) fulfilled					
Section properties RO 127x10									
A	36.76	cm^2	Ksl-2	a		Ksl-3	a		
I-2	633.55	cm^4	I-3	633.55	cm^4				
W-2	-99.77	cm^3	W-3	99.77	cm^3				
Forces and moments									
N	-232.13	kN	M-2,beg	1.90	kNm	M-3,beg	3.90	kNm	
M-T	0.74	kNm	M-2,end	1.72	kNm	M-3,end	2.70	kNm	
V-3	2.20	kN	V-2	-3.23	kN	VT	3.17	kN	
M-2	-2.07	kNm	M-3	-5.25	kNm				
Reduction factor Kappa									
s-K,2	2.469	m	Kappa-2 b	0.731		Ksl-3	a		
N-Cr,2	2153.84	kN	s-K,3	2.469	m	Kappa-3 b	0.731		
Lambda-K,	0.784		N-Cr,3	2153.84	kN	Kappa bar	0.731		
Ksl-2	a		Lambda-K,	0.784					
Coefficient k-2 and k-3									
Psi-2	0.905		Beta-M,2	1.227		Beta-M,V,3	1.300		

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2	1.166 Ja Nein 1.300 2.35 kNm 5.13 kNm		a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2	-0.8356 <= 0.8 1.220 <= 1.5 0.692 1.315 Ja Nein	M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	2.38 kNm 9.15 kNm 1.311 -0.7041 <= 0.8 1.186 <= 1.5
	Design D-N D-M,2	 0.264 0.077		D-M,3 D-NM	0.191 0.532 < 1.0		
446	0.000	CO97	0.494	1) Design to (28) fulfilled			
	Section properties RO 127x10 A I-2 W-2	36.76 cm ² 633.55 cm ⁴ -99.77 cm ³		Ksl-2 I-3 W-3	a 633.55 cm ⁴ 99.77 cm ³	Ksl-3	a
	Forces and moments N M-T V-3 M-2	-210.63 kN -0.62 kNm 2.19 kN -2.09 kNm		M-2,beg M-2,end V-2 M-3	1.82 kNm 1.68 kNm 3.01 kN 5.01 kNm	M-3,beg M-3,end VT	5.01 kNm 2.18 kNm 3.10 kN
	Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2	2.469 m 2153.84 kN 0.784 a		Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.731 2.469 m 2153.84 kN 0.784	Ksl-3 Kappa-3 b Kappa bar	a 0.731 0.731
	Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2	0.923 1.154 Ja Nein 1.300 2.36 kNm 4.94 kNm		Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2	1.224 -0.8415 <= 0.8 1.201 <= 1.5 0.648 1.346 Ja Nein	Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	1.300 2.24 kNm 8.85 kNm 1.334 -0.6680 <= 0.8 1.160 <= 1.5
	Design D-N D-M,2	 0.239 0.077		D-M,3 D-NM	0.178 0.494 < 1.0		
447	0.000	CO97	0.615	1) Design to (28) fulfilled			
	Section properties HE-M 600 A I-2 W-2	364.00 cm ² 237400.0 cm ⁴ -7660.00 cm ³		Ksl-2 I-3 W-3	a 18980.00 cm ⁴ 1240.00 cm ³	Ksl-3	b
	Forces and moments N V-3 M-2 M-2,beg M-2,end	-3108.03 kN -724.74 kN 288.86 kNm 288.86 kNm 55.00 kNm		M-2,min x-M2,min V-2 M-3 M-3,beg	-64.93 kNm 0.340 m -56.07 kN 108.65 kNm 108.65 kNm	M-3,end M-3,max x-M3,max M-3,min x-M3,min	127.88 kNm 127.88 kNm 0.340 m -77.67 kNm 0.340 m
	Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2	0.343 m 41822500 kN 0.018 < 0.2 a		Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.996 0.343 m 3343690. kN 0.063 < 0.2	Ksl-3 Kappa-3 b Kappa bar	b 0.974 0.974
	Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2	0.878 1.185 Nein 0.1174 <= 0.8		k-2 Psi-3 Beta-M,Psi V-load 2	0.969 <= 1.5 0.850 1.205 Nein	a-3 k-3	0.4573 <= 0.8 0.877 <= 1.5
	Design D-N D-M,2	 0.268 0.112		D-M,3 D-NM	0.235 0.615 < 1.0		
448	0.000	CO97	0.557	1) Design to (28) fulfilled			
	Section properties HE-M 600 A I-2 W-2	364.00 cm ² 237400.0 cm ⁴ -7660.00 cm ³		Ksl-2 I-3 W-3	a 18980.00 cm ⁴ 1240.00 cm ³	Ksl-3	b
	Forces and moments N V-3 M-2 M-2,beg M-2,end	-2839.76 kN -543.59 kN 243.20 kNm 243.20 kNm 69.17 kNm		M-2,min x-M2,min V-2 M-3 M-3,beg	-79.47 kNm 0.340 m 50.48 kN -99.35 kNm 67.15 kNm	M-3,end M-3,max x-M3,max M-3,min x-M3,min	79.23 kNm 79.23 kNm 0.340 m -116.67 kNm 0.340 m
	Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2	0.343 m 41822500 kN 0.018 < 0.2 a		Kappa-2 b s-K,3 N-Cr,3 Lambda-K,	0.996 0.343 m 3343690. kN 0.063 < 0.2	Ksl-3 Kappa-3 b Kappa bar	b 0.974 0.974
	Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2	0.876 1.187 Nein 0.1174 <= 0.8		k-2 Psi-3 Beta-M,Psi V-load 2	0.972 <= 1.5 0.852 1.204 Nein	a-3 k-3	0.4571 <= 0.8 0.888 <= 1.5
	Design D-N D-M,2	 0.245 0.094		D-M,3 D-NM	0.217 0.557 < 1.0		
449	830.000	CO97	0.405	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2	38.80 cm ² 1670.00 cm ⁴		Ksl-2 I-3	b 616.00 cm ⁴	Ksl-3	c

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	W-2	-220.00	cm^3	W-3	76.90	cm^3	
	Forces and moments						
	N	-50.31	kN	M-2,min	-8.63	kNm	M-3,end 4.65 kNm
	V-3	-5.19	kN	x-M2,min	0.830	m	M-3,max 4.65 kNm
	M-2	-8.63	kNm	V-2	10.80	kN	x-M3,max 0.830 m
	M-2,beg	4.63	kNm	M-3	-6.05	kNm	M-3,min -6.05 kNm
	M-2,end	4.59	kNm	M-3,beg	2.94	kNm	x-M3,min 0.830 m
	Reduction factor Kappa						
	s-K,2	0.831	m	Kappa-2 b	0.961		Ksl-3 c
	N-Cr,2	50096.30	kN	s-K,3	0.831	m	Kappa-3 b 0.870
	Lambda-K,	0.167	< 0.2	N-Cr,3	18478.69	kN	Kappa bar 0.870
	Ksl-2	b		Lambda-K,	0.275		
	Coefficient k-2 and k-3						
	Psi-2	0.991		k-2	1.007	<= 1.5	a-3 0.1763 <= 0.8
	Beta-M,Psi	1.106		Psi-3	0.632		k-3 0.992 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.357		
	a-2	-0.1804	<= 0.8	V-load 2	Nein		
Design							
D-N	0.046		D-M,3	0.238			
D-M,2	0.121		D-NM	0.405	< 1.0		
450	1790.000	CO97	0.175	1) Design to (28) fulfilled			
Section properties HE-A 160							
A	38.80	cm^2	Ksl-2	b		Ksl-3 c	
I-2	1670.00	cm^4	I-3	616.00	cm^4		
W-2	-220.00	cm^3	W-3	76.90	cm^3		
Forces and moments							
N	-56.15	kN	M-2,end	3.21	kNm	M-3 -0.83 kNm	
V-3	-0.75	kN	M-2,max	3.42	kNm	M-3,beg 0.50 kNm	
M-2	-5.61	kNm	x-M2,max	0.890	m	M-3,end 0.28 kNm	
M-2,beg	3.18	kNm	V-2	0.72	kN		
Reduction factor Kappa							
s-K,2	1.788	m	Kappa-2 b	0.913		Ksl-3 c	
N-Cr,2	10832.09	kN	s-K,3	1.788	m	Kappa-3 b 0.714	
Lambda-K,	0.359		N-Cr,3	3995.55	kN	Kappa bar 0.714	
Ksl-2	b		Lambda-K,	0.591			
Coefficient k-2 and k-3							
Psi-2	0.995		Beta-M,2	1.110		Beta-M,V,3 1.300	
Beta-M,Psi	1.104		a-2	-0.5212	<= 0.8	M-V,3 0.28 kNm	
V-load 3	Ja		k-2	1.025	<= 1.5	Delta-M,3 1.33 kNm	
C-load 3	Nein		Psi-3	0.560		Beta-M,3 1.385	
Beta-M,V,2	1.300		Beta-M,Psi	1.408		a-3 -0.1973 <= 0.8	
M-V,2	0.27	kNm	V-load 2	Ja		k-3 1.012 <= 1.5	
Delta-M,2	9.03	kNm	C-load 2	Nein			
Design							
D-N	0.062		D-M,3	0.033			
D-M,2	0.080		D-NM	0.175	< 1.0		
451	0.000	CO97	0.379	1) Design to (28) fulfilled			
Section properties HE-A 160							
A	38.80	cm^2	Ksl-2	b		Ksl-3 c	
I-2	1670.00	cm^4	I-3	616.00	cm^4		
W-2	-220.00	cm^3	W-3	76.90	cm^3		
Forces and moments							
N	-50.93	kN	M-2,end	4.70	kNm	M-3 -5.36 kNm	
V-3	5.13	kN	M-2,max	4.70	kNm	M-3,beg 5.12 kNm	
M-2	-8.74	kNm	x-M2,max	0.830	m	M-3,end 2.65 kNm	
M-2,beg	4.63	kNm	V-2	-9.63	kN		
Reduction factor Kappa							
s-K,2	0.831	m	Kappa-2 b	0.961		Ksl-3 c	
N-Cr,2	50096.30	kN	s-K,3	0.831	m	Kappa-3 b 0.870	
Lambda-K,	0.167	< 0.2	N-Cr,3	18478.59	kN	Kappa bar 0.870	
Ksl-2	b		Lambda-K,	0.275			
Coefficient k-2 and k-3							
Psi-2	0.985		k-2	1.007	<= 1.5	a-3 0.2205 <= 0.8	
Beta-M,Psi	1.110		Psi-3	0.518		k-3 0.990 <= 1.5	
V-load 3	Nein		Beta-M,Psi	1.438			
a-2	-0.1789	<= 0.8	V-load 2	Nein			
Design							
D-N	0.046		D-M,3	0.211			
D-M,2	0.122		D-NM	0.379	< 1.0		
452	0.000	CO98	0.329	1) Design to (28) fulfilled			
Section properties HE-M 300							
A	303.00	cm^2	Ksl-2	b		Ksl-3 c	
I-2	59200.00	cm^4	I-3	19400.00	cm^4		
W-2	-3480.00	cm^3	W-3	1250.00	cm^3		
Forces and moments							
N	-1364.83	kN	M-2,end	24.23	kNm	M-3,end 13.36 kNm	
V-3	-15.74	kN	V-2	12.64	kN	M-3,min -10.10 kNm	
M-2	42.63	kNm	M-3	16.24	kNm	x-M3,min 2.640 m	
M-2,beg	42.63	kNm	M-3,beg	16.24	kNm		
Reduction factor Kappa							
s-K,2	5.286	m	Kappa-2 b	0.865		Ksl-3 c	
N-Cr,2	43912.30	kN	s-K,3	5.286	m	Kappa-3 b 0.571	
Lambda-K,	0.498		N-Cr,3	14390.20	kN	Kappa bar 0.571	
Ksl-2	b		Lambda-K,	0.871			
Coefficient k-2 and k-3							
Psi-2	0.612		Beta-M,2	1.347		Beta-M,V,3 1.300	
Beta-M,Psi	1.372		a-2	-0.4783	<= 0.8	M-V,3 10.10 kNm	
V-load 3	Ja		k-2	1.076	<= 1.5	Delta-M,3 26.34 kNm	

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	Nein 1.300 28.86 kNm 84.41 kNm 0.241 0.040		Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	0.823 1.224 Ja Nein 0.047 0.329 < 1.0	Beta-M,3 a-3 k-3	1.253 -0.7698 <= 0.8 1.186 <= 1.5
453	0.000	CO98	0.892	1) Design to (28) fulfilled			
	Section properties IS 302/250/15/25						
	A	162.80 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	26043.30 cm ⁴	I-3	6517.50 cm ⁴			
	W-2	-1724.71 cm ³	W-3	521.40 cm ³			
	Forces and moments						
	N	-983.76 kN	M-2,end	17.39 kNm	M-3,end	10.60 kNm	
	V-3	9.10 kN	V-2	7.99 kN	M-3,min	-5.01 kNm	
	M-2	-50.57 kNm	M-3	13.42 kNm	x-M3,min	4.580 m	
	M-2,beg	41.05 kNm	M-3,beg	13.42 kNm			
	Reduction factor Kappa						
	s-K,2	7.628 m	Kappa-2 b	0.736	Ksl-3	c	
	N-Cr,2	9275.84 kN	s-K,3	7.628 m	Kappa-3 b	0.276	
	Lambda-K,	0.795	N-Cr,3	2321.34 kN	Kappa bar	0.276	
	Ksl-2	b	Lambda-K,	1.589			
	Coefficient k-2 and k-3						
	Psi-2	0.424	Beta-M,2	1.462	Beta-M,V,3	1.300	
	Beta-M,Psi	1.503	a-2	-0.7133 <= 0.8	M-V,3	5.01 kNm	
	V-load 3	Ja	k-2	1.179 <= 1.5	Delta-M,3	18.43 kNm	
	C-load 3	Nein	Psi-3	0.790	Beta-M,3	1.261	
	Beta-M,V,2	1.300	Beta-M,Psi	1.247	a-3	-1.8214 <= 0.8	
	M-V,2	18.63 kNm	V-load 2	Ja	k-3	1.500 <= 1.5	
	Delta-M,2	91.62 kNm	C-load 2	Nein			
	Design						
	D-N	0.669	D-M,3	0.118			
	D-M,2	0.106	D-NM	0.892 < 1.0			
454	1300.000	CO99	0.212	1) Design to (28) fulfilled			
	Section properties IS 374/200/5/12						
	A	65.50 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	17517.50 cm ⁴	I-3	1600.36 cm ⁴			
	W-2	-936.76 cm ³	W-3	160.04 cm ³			
	Forces and moments						
	N	-28.95 kN	M-2,beg	0.81 kNm	M-3	3.08 kNm	
	V-3	32.40 kN	M-2,end	42.05 kNm	M-3,beg	0.00 kNm	
	M-2	42.05 kNm	V-2	-3.30 kN	M-3,end	3.08 kNm	
	Reduction factor Kappa						
	s-K,2	1.300 m	Kappa-2 b	0.976	Ksl-3	c	
	N-Cr,2	214835.0 kN	s-K,3	1.300 m	Kappa-3 b	0.835	
	Lambda-K,	0.105 < 0.2	N-Cr,3	19626.90 kN	Kappa bar	0.835	
	Ksl-2	b	Lambda-K,	0.347			
	Coefficient k-2 and k-3						
	Psi-2	0.029	k-2	0.999 <= 1.5	a-3	0.3667 <= 0.8	
	Beta-M,Psi	1.780	Psi-3	0.016	k-3	0.994 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.788			
	a-2	0.0448 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.016	D-M,3	0.058			
	D-M,2	0.137	D-NM	0.212 < 1.0			
455	0.000	CO98	0.333	1) Design to (28) fulfilled			
	Section properties HE-M 300						
	A	303.00 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	59200.00 cm ⁴	I-3	19400.00 cm ⁴			
	W-2	-3480.00 cm ³	W-3	1250.00 cm ³			
	Forces and moments						
	N	-1394.25 kN	M-2,end	14.55 kNm	M-3,end	13.26 kNm	
	V-3	-16.47 kN	V-2	12.68 kN	M-3,min	-10.14 kNm	
	M-2	41.24 kNm	M-3	16.61 kNm	x-M3,min	2.640 m	
	M-2,beg	41.24 kNm	M-3,beg	16.61 kNm			
	Reduction factor Kappa						
	s-K,2	5.286 m	Kappa-2 b	0.865	Ksl-3	c	
	N-Cr,2	43912.30 kN	s-K,3	5.286 m	Kappa-3 b	0.571	
	Lambda-K,	0.498	N-Cr,3	14390.20 kN	Kappa bar	0.571	
	Ksl-2	b	Lambda-K,	0.871			
	Coefficient k-2 and k-3						
	Psi-2	0.472	Beta-M,2	1.415	Beta-M,V,3	1.300	
	Beta-M,Psi	1.470	a-2	-0.4106 <= 0.8	M-V,3	10.14 kNm	
	V-load 3	Ja	k-2	1.067 <= 1.5	Delta-M,3	26.75 kNm	
	C-load 3	Nein	Psi-3	0.798	Beta-M,3	1.263	
	Beta-M,V,2	1.300	Beta-M,Psi	1.241	a-3	-0.7520 <= 0.8	
	M-V,2	28.06 kNm	V-load 2	Ja	k-3	1.185 <= 1.5	
	Delta-M,2	87.06 kNm	C-load 2	Nein			
	Design						
	D-N	0.246	D-M,3	0.048			
	D-M,2	0.039	D-NM	0.333 < 1.0			
456	0.000	CO98	0.865	1) Design to (28) fulfilled			
	Section properties IS 302/250/15/25						
	A	162.80 cm ²	Ksl-2	b	Ksl-3	c	
	I-2	26043.30 cm ⁴	I-3	6517.50 cm ⁴			
	W-2	-1724.71 cm ³	W-3	521.40 cm ³			
	Forces and moments						

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	N	-936.41	kN	M-2.end	12.30	kNm	M-3.end	10.49	kNm
	V-3	-9.26	kN	V-2	8.01	kN	M-3,min	-5.01	kNm
	M-2	53.23	kNm	M-3	13.47	kNm	x-M3,min	4.580	m
	M-2,beg	53.23	kNm	M-3,beg	13.47	kNm			
	Reduction factor Kappa								
	s-K,2	7.628	m	Kappa-2 b	0.736		Ksl-3		c
	N-Cr,2	9275.84	kN	s-K,3	7.628	m	Kappa-3 b	0.276	
	Lambda-K,	0.795		N-Cr,3	2321.34	kN	Kappa bar	0.276	
	Ksl-2	b		Lambda-K,	1.589				
	Coefficient k-2 and k-3								
	Psi-2	0.423		Beta-M,2	1.464		Beta-M,V,3	1.300	
	Beta-M,Psi	1.504		a-2	-0.7110	<= 0.8	M-V,3	5.01	kNm
	V-load 3	Ja		k-2	1.170	<= 1.5	Delta-M,3	18.48	kNm
	C-load 3	Nein		Psi-3	0.779		Beta-M,3	1.267	
	Beta-M,V,2	1.300		Beta-M,Psi	1.255		a-3	-1.8035	<= 0.8
	M-V,2	18.91	kNm	V-load 2	Ja		k-3	1.500	<= 1.5
	Delta-M,2	95.70	kNm	C-load 2	Nein				
	Design								
	D-N	0.636		D-M,3	0.118				
	D-M,2	0.110		D-NM	0.865	< 1.0			
457	2790.000	CO97	0.415	1) Design to (28) fulfilled					
Section properties HE-M 600									
A	364.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	237400.0	cm^4	I-3	18980.00	cm^4				
W-2	-7660.00	cm^3	W-3	1240.00	cm^3				
Forces and moments									
N	-2757.34	kN	M-2,beg	28.14	kNm	M-3	36.57	kNm	
V-3	-28.94	kN	M-2,end	9.67	kNm	M-3,beg	8.58	kNm	
M-2	-88.20	kNm	V-2	12.91	kN	M-3,end	36.57	kNm	
Reduction factor Kappa									
s-K,2	2.786	m	Kappa-2 b	0.971		Ksl-3	b		
N-Cr,2	633925.0	kN	s-K,3	2.786	m	Kappa-3 b	0.785		
Lambda-K,	0.144	< 0.2	N-Cr,3	50681.89	kN	Kappa bar	0.785		
Ksl-2	a		Lambda-K,	0.508					
Coefficient k-2 and k-3									
Psi-2	0.456		Beta-M,2	1.468		Beta-M,V,3	1.300		
Beta-M,Psi	1.481		a-2	-0.0067	<= 0.8	M-V,3	1.17	kNm	
V-load 3	Ja		k-2	1.002	<= 1.5	Delta-M,3	71.92	kNm	
C-load 3	Nein		Psi-3	0.235		Beta-M,3	1.630		
Beta-M,V,2	1.300		Beta-M,Psi	1.636		a-3	0.1808	<= 0.8	
M-V,2	8.31	kNm	V-load 2	Ja		k-3	0.947	<= 1.5	
Delta-M,2	116.34	kNm	C-load 2	Nein					
Design									
D-N	0.295		D-M,3	0.085					
D-M,2	0.035		D-NM	0.415	< 1.0				
458	2930.000	CO97	0.421	1) Design to (28) fulfilled					
Section properties RO 127x10									
A	36.76	cm^2	Ksl-2	a		Ksl-3	a		
I-2	633.55	cm^4	I-3	633.55	cm^4				
W-2	-99.77	cm^3	W-3	99.77	cm^3				
Forces and moments									
N	-239.51	kN	M-2,beg	0.28	kNm	M-3,beg	0.62	kNm	
M-T	0.54	kNm	M-2,end	0.84	kNm	M-3,end	1.26	kNm	
V-3	-1.42	kN	V-2	-0.75	kN	VT	1.07	kN	
M-2	-1.57	kNm	M-3	1.26	kNm				
Reduction factor Kappa									
s-K,2	2.926	m	Kappa-2 b	0.648		Ksl-3	a		
N-Cr,2	1533.88	kN	s-K,3	2.926	m	Kappa-3 b	0.648		
Lambda-K,	0.929		N-Cr,3	1533.88	kN	Kappa bar	0.648		
Ksl-2	a		Lambda-K,	0.929					
Coefficient k-2 and k-3									
Psi-2	0.917		Beta-M,2	1.237		Beta-M,V,3	1.300		
Beta-M,Psi	1.158		a-2	-1.0416	<= 0.8	M-V,3	0.78	kNm	
V-load 3	Ja		k-2	1.320	<= 1.5	Delta-M,3	2.22	kNm	
C-load 3	Nein		Psi-3	0.792		Beta-M,3	1.265		
Beta-M,V,2	1.300		Beta-M,Psi	1.246		a-3	-0.9902	<= 0.8	
M-V,2	1.34	kNm	V-load 2	Ja		k-3	1.304	<= 1.5	
Delta-M,2	2.41	kNm	C-load 2	Nein					
Design									
D-N	0.307		D-M,3	0.050					
D-M,2	0.063		D-NM	0.421	< 1.0				
459	2930.000	CO97	0.383	1) Design to (28) fulfilled					
Section properties RO 127x10									
A	36.76	cm^2	Ksl-2	a		Ksl-3	a		
I-2	633.55	cm^4	I-3	633.55	cm^4				
W-2	-99.77	cm^3	W-3	99.77	cm^3				
Forces and moments									
N	-210.60	kN	M-2,beg	0.31	kNm	M-3,beg	0.36	kNm	
M-T	-0.56	kNm	M-2,end	0.87	kNm	M-3,end	1.41	kNm	
V-3	-1.44	kN	V-2	-0.93	kN	VT	1.15	kN	
M-2	-1.59	kNm	M-3	1.41	kNm				
Reduction factor Kappa									
s-K,2	2.926	m	Kappa-2 b	0.648		Ksl-3	a		
N-Cr,2	1533.88	kN	s-K,3	2.926	m	Kappa-3 b	0.648		
Lambda-K,	0.929		N-Cr,3	1533.88	kN	Kappa bar	0.648		
Ksl-2	a		Lambda-K,	0.929					
Coefficient k-2 and k-3									
Psi-2	0.981		Beta-M,2	1.221		Beta-M,V,3	1.300		

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				a-2	-1.0709 <= 0.8	M-V,3	0.81 kNm
				k-2	1.289 <= 1.5	Delta-M,3	2.73 kNm
				Psi-3	0.341	Beta-M,3	1.484
				Beta-M,Psi	1.561	a-3	-0.5828 <= 0.8
				V-load 2	Ja	k-3	1.157 <= 1.5
				C-load 2	Nein		
				D-M,3	0.050		
				D-NM	0.383 < 1.0		
460	2790.000	CO97	0.396	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				Ksl-2	a	Ksl-3	b
				I-2	18980.00 cm ⁴		
				W-2	1240.00 cm ³		
				Forces and moments			
				N	-2538.87 kN	M-2,beg	40.23 kNm
				V-3	-28.77 kN	M-2,end	8.98 kNm
				M-2	-86.15 kNm	V-2	-15.48 kN
				Reduction factor Kappa			
				s-K,2	2.786 m	Kappa-2 b	0.971
				N-Cr,2	633925.0 kN	s-K,3	2.786 m
				Lambda-K,	0.144 < 0.2	N-Cr,3	50681.89 kN
				Ksl-2	a	Lambda-K,	0.508
				Coefficient k-2 and k-3			
				Psi-2	0.508	Beta-M,2	1.434
				Beta-M,Psi	1.444	a-2	-0.0166 <= 0.8
				V-load 3	Ja	k-2	1.004 <= 1.5
				C-load 3	Nein	Psi-3	0.301
				Beta-M,V,2	1.300	Beta-M,Psi	1.589
				M-V,2	9.23 kNm	V-load 2	Ja
				Delta-M,2	126.38 kNm	C-load 2	Nein
				Design			
				D-N	0.271	D-M,3	0.090
				D-M,2	0.034	D-NM	0.396 < 1.0
461	0.000	CO97	0.208	1) Design to (28) fulfilled			
				Section properties Kasten(A) 374/15/12/350/550/374/15			
				A	237.00 cm ²	W-2,max	3942.86 cm ³
				A-2	79.10 cm ²	Ksl-2	c
				I-2	108429.0 cm ⁴	A-3	115.22 cm ²
				W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴
				Forces and moments			
				N	-0.63 kN	M-2,beg	0.00 kNm
				V-3	48.30 kN	M-2,end	0.64 kNm
				M-2	-19.62 kNm	V-2	-521.88 kN
				Reduction factor Kappa			
				s-K,2	0.425 m	Kappa-2 b	0.992
				N-Cr,2	12441900 kN	s-K,3	0.425 m
				Lambda-K,	0.026 < 0.2	N-Cr,3	619394.0 kN
				Ksl-2	c	Lambda-K,	0.037 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.047	k-2	1.000 <= 1.5
				Beta-M,Psi	1.767	Psi-3	0.523
				V-load 3	Nein	Beta-M,Psi	1.434
				a-2	0.1605 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.000	D-M,3	0.193
				D-M,2	0.015	D-NM	0.208 < 1.0
462	0.000	CO97	0.647	1) Design to (28) fulfilled			
				Section properties IS 292/250/8/15			
				A	95.96 cm ²	Ksl-2	b
				I-2	15599.70 cm ⁴	I-3	3907.37 cm ⁴
				W-2	-1068.46 cm ³	W-3	312.59 cm ³
				Forces and moments			
				N	-682.53 kN	M-2,beg	9.90 kNm
				V-3	-3.84 kN	M-2,end	10.07 kNm
				M-2	9.90 kNm	V-2	2.71 kN
				Reduction factor Kappa			
				s-K,2	5.500 m	Kappa-2 b	0.847
				N-Cr,2	10688.40 kN	s-K,3	5.500 m
				Lambda-K,	0.569	N-Cr,3	2677.18 kN
				Ksl-2	b	Lambda-K,	1.136
				Coefficient k-2 and k-3			
				Psi-2	0.983	Beta-M,2	1.182
				Beta-M,Psi	1.112	a-2	-0.8292 <= 0.8
				V-load 3	Ja	k-2	1.213 <= 1.5
				C-load 3	Nein	Psi-3	0.920
				Beta-M,V,2	1.300	Beta-M,Psi	1.156
				M-V,2	8.01 kNm	V-load 2	Ja
				Delta-M,2	21.41 kNm	C-load 2	Nein
				Design			
				D-N	0.498	D-M,3	0.115
				D-M,2	0.034	D-NM	0.647 < 1.0
463	220.000	CO97	0.204	1) Design to (28) fulfilled			
				Section properties Kasten(A) 374/15/12/350/550/374/15			
				A	237.00 cm ²	W-2,max	3942.86 cm ³
				A-2	79.10 cm ²	Ksl-2	c
				I-2	108429.0 cm ⁴	A-3	115.22 cm ²
						Ksl-3	c
						W-3,min	-2886.58 cm ³
						W-3,max	2886.58 cm ³

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	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4			
	Forces and moments								
	N	-0.72	kN	M-2,beg	0.00	kNm	M-3	-176.76	kNm
	V-3	-11.51	kN	M-2,end	0.00	kNm	M-3,beg	94.69	kNm
	M-2	-22.31	kNm	V-2	176.96	kN	M-3,end	124.33	kNm
	Reduction factor Kappa								
	s-K,2	0.219	m	Kappa-2 b	0.996		Ksl-3	c	
	N-Cr,2	46857100	kN	s-K,3	0.219	m	Kappa-3 b	0.994	
	Lambda-K,	0.013	< 0.2	N-Cr,3	23326900	kN	Kappa bar	0.994	
	Ksl-2	c		Lambda-K,	0.019	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.891		k-2	1.000	<= 1.5	a-3	0.1174	<= 0.8
	Beta-M,Psi	1.176		Psi-3	0.781		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.253				
	a-2	0.1505	<= 0.8	V-load 2	Nein				
	Design								
D-N	0.000		D-M,3	0.187					
D-M,2	0.017		D-NM	0.204	< 1.0				
464	1740.000	CO98	0.693	1) Design to (28) fulfilled					
Section properties RO 127x10									
A	36.76	cm^2	Ksl-2	a		Ksl-3	a		
I-2	633.55	cm^4	I-3	633.55	cm^4				
W-2	-99.77	cm^3	W-3	99.77	cm^3				
Forces and moments									
N	-543.17	kN	M-2,end	0.00	kNm	M-3,beg	1.77	kNm	
M-T	0.43	kNm	M-2,min	-2.71	kNm	M-3,end	1.47	kNm	
V-3	-3.20	kN	x-M2,min	1.740	m	M-3,min	-1.92	kNm	
M-2	-2.71	kNm	V-2	2.12	kN	x-M3,min	1.740	m	
M-2,beg	2.12	kNm	M-3	-1.92	kNm	VT	3.41	kN	
Reduction factor Kappa									
s-K,2	1.741	m	Kappa-2 b	0.839		Ksl-3	a		
N-Cr,2	4334.05	kN	s-K,3	1.741	m	Kappa-3 b	0.839		
Lambda-K,	0.553		N-Cr,3	4334.05	kN	Kappa bar	0.839		
Ksl-2	a		Lambda-K,	0.553					
Coefficient k-2 and k-3									
Psi-2	0.033		Beta-M,2	1.680		Beta-M,V,3	1.300		
Beta-M,Psi	1.777		a-2	0.0217	<= 0.8	M-V,3	1.32	kNm	
V-load 3	Ja		k-2	0.988	<= 1.5	Delta-M,3	3.69	kNm	
C-load 3	Nein		Psi-3	0.831		Beta-M,3	1.248		
Beta-M,V,2	1.300		Beta-M,Psi	1.219		a-3	-0.4559	<= 0.8	
M-V,2	0.98	kNm	V-load 2	Ja		k-3	1.245	<= 1.5	
Delta-M,2	4.83	kNm	C-load 2	Nein					
Design									
D-N	0.538		D-M,3	0.073					
D-M,2	0.082		D-NM	0.693	< 1.0				
465	1080.000	CO97	0.162	1) Design to (28) fulfilled					
Section properties Kasten(A) 374/15/12/350/550/374/15									
A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3	
A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3	
I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c		
W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4				
Forces and moments									
N	-0.72	kN	M-2,min	-19.88	kNm	M-3,end	94.69	kNm	
V-3	-10.74	kN	x-M2,min	1.080	m	M-3,max	94.69	kNm	
M-2	-19.88	kNm	V-2	176.96	kN	x-M3,max	1.080	m	
M-2,beg	0.00	kNm	M-3	-138.00	kNm	M-3,min	-138.00	kNm	
M-2,end	0.00	kNm	M-3,beg	56.07	kNm	x-M3,min	1.080	m	
Reduction factor Kappa									
s-K,2	1.081	m	Kappa-2 b	0.979		Ksl-3	c		
N-Cr,2	1923150.	kN	s-K,3	1.081	m	Kappa-3 b	0.971		
Lambda-K,	0.067	< 0.2	N-Cr,3	957400.0	kN	Kappa bar	0.971		
Ksl-2	c		Lambda-K,	0.094	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.544		k-2	1.000	<= 1.5	a-3	0.0300	<= 0.8	
Beta-M,Psi	1.419		Psi-3	0.592		k-3	1.000	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.386					
a-2	0.0953	<= 0.8	V-load 2	Nein					
Design									
D-N	0.000		D-M,3	0.146					
D-M,2	0.015		D-NM	0.162	< 1.0				
466	0.000	CO97	0.131	1) Design to (28) fulfilled					
Section properties Kasten(A) 374/15/12/350/550/374/15									
A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3	
A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3	
I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c		
W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4				
Forces and moments									
N	-3.54	kN	M-2,beg	0.00	kNm	M-3	-108.69	kNm	
V-3	12.93	kN	M-2,end	0.00	kNm	M-3,beg	93.92	kNm	
M-2	-19.51	kNm	V-2	-149.49	kN	M-3,end	56.34	kNm	
Reduction factor Kappa									
s-K,2	1.081	m	Kappa-2 b	0.979		Ksl-3	c		
N-Cr,2	1923150.	kN	s-K,3	1.081	m	Kappa-3 b	0.971		
Lambda-K,	0.067	< 0.2	N-Cr,3	957400.0	kN	Kappa bar	0.971		
Ksl-2	c		Lambda-K,	0.094	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.555		k-2	1.000	<= 1.5	a-3	0.0289	<= 0.8	
Beta-M,Psi	1.411		Psi-3	0.600		k-3	1.000	<= 1.5	

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	V-load 3 a-2 Design D-N D-M,2	Nein 0.0943 0.000 0.015	<= 0.8	Beta-M,Psi V-load 2 D-M,3 D-NM	1.380 Nein 0.115 0.131		< 1.0
467	0.000	CO97	0.167	1) Design to (28) fulfilled			
	Section properties RO 127x5,6						
	A	21.36	cm ²	Ksl-2	a	Ksl-3	a
	I-2	394.30	cm ⁴	I-3	394.30		
	W-2	-62.09	cm ³	W-3	62.09		
	Forces and moments						
	N	-32.15	kN	M-2,beg	0.94	M-3,beg	0.87
	M-T	-0.08	kNm	M-2,end	1.17	M-3,end	0.36
	V-3	0.88	kN	V-2	0.76	VT	1.08
	M-2	-1.14	kNm	M-3	0.87		
	Reduction factor Kappa						
	s-K,2	2.600	m	Kappa-2 b	0.730	Ksl-3	a
	N-Cr,2	1208.93	kN	s-K,3	2.600	Kappa-3 b	0.730
	Lambda-K,	0.797		N-Cr,3	1208.93	Kappa bar	0.730
	Ksl-2	a		Lambda-K,	0.797		
	Coefficient k-2 and k-3						
	Psi-2	0.816		Beta-M,2	1.260	Beta-M,V,3	1.300
	Beta-M,Psi	1.229		a-2	-0.8499	M-V,3	0.14
	V-load 3	Ja		k-2	1.054	Delta-M,3	1.39
	C-load 3	Nein		Psi-3	0.865	Beta-M,3	1.205
	Beta-M,V,2	1.300		Beta-M,Psi	1.194	a-3	-0.9375
	M-V,2	1.01	kNm	V-load 2	Ja	k-3	1.059
	Delta-M,2	2.31	kNm	C-load 2	Nein		
	Design						
	D-N	0.063		D-M,3	0.045		
	D-M,2	0.059		D-NM	0.167		< 1.0
468	0.000	CO98	0.168	1) Design to (28) fulfilled			
	Section properties Kasten(A) 374/15/12/350/550/374/15						
	A	237.00	cm ²	W-2,max	3942.86	W-3,min	-2886.58
	A-2	79.10	cm ²	Ksl-2	c	W-3,max	2886.58
	I-2	108429.0	cm ⁴	A-3	115.22	Ksl-3	c
	W-2,min	-3942.86	cm ³	I-3	53979.10		
	Forces and moments						
	N	-8.82	kN	M-2,beg	0.00	M-3	-144.46
	V-3	8.28	kN	M-2,end	0.00	M-3,beg	120.74
	M-2	-17.58	kNm	V-2	-155.18	M-3,end	91.34
	Reduction factor Kappa						
	s-K,2	0.219	m	Kappa-2 b	0.996	Ksl-3	c
	N-Cr,2	46857100	kN	s-K,3	0.219	Kappa-3 b	0.994
	Lambda-K,	0.013	< 0.2	N-Cr,3	23326900	Kappa bar	0.994
	Ksl-2	c		Lambda-K,	0.019		
	Coefficient k-2 and k-3						
	Psi-2	0.901		k-2	1.000	a-3	0.1178
	Beta-M,Psi	1.169		Psi-3	0.765	k-3	1.000
	V-load 3	Nein		Beta-M,Psi	1.265		
	a-2	0.1503	<= 0.8	V-load 2	Nein		
	Design						
	D-N	0.001		D-M,3	0.153		
	D-M,2	0.014		D-NM	0.168		< 1.0
469	0.000	CO98	0.607	1) Design to (28) fulfilled			
	Section properties IS 292/250/8/15						
	A	95.96	cm ²	Ksl-2	b	Ksl-3	c
	I-2	15599.70	cm ⁴	I-3	3907.37		
	W-2	-1068.46	cm ³	W-3	312.59		
	Forces and moments						
	N	-634.11	kN	M-2,beg	3.66	M-3	-9.02
	V-3	3.25	kN	M-2,end	11.80	M-3,beg	8.76
	M-2	-4.51	kNm	V-2	3.98	M-3,end	5.70
	Reduction factor Kappa						
	s-K,2	5.500	m	Kappa-2 b	0.847	Ksl-3	c
	N-Cr,2	10688.40	kN	s-K,3	5.500	Kappa-3 b	0.437
	Lambda-K,	0.569		N-Cr,3	2677.18	Kappa bar	0.437
	Ksl-2	b		Lambda-K,	1.136		
	Coefficient k-2 and k-3						
	Psi-2	0.545		Beta-M,2	1.392	Beta-M,V,3	1.300
	Beta-M,Psi	1.419		a-2	-0.5901	M-V,3	6.39
	V-load 3	Ja		k-2	1.141	Delta-M,3	17.78
	C-load 3	Nein		Psi-3	0.671	Beta-M,3	1.320
	Beta-M,V,2	1.300		Beta-M,Psi	1.330	a-3	-1.0330
	M-V,2	4.44	kNm	V-load 2	Ja	k-3	1.478
	Delta-M,2	20.08	kNm	C-load 2	Nein		
	Design						
	D-N	0.462		D-M,3	0.130		
	D-M,2	0.015		D-NM	0.607		< 1.0
470	430.000	CO98	0.175	1) Design to (28) fulfilled			
	Section properties Kasten(A) 374/15/12/350/550/374/15						
	A	237.00	cm ²	W-2,max	3942.86	W-3,min	-2886.58
	A-2	79.10	cm ²	Ksl-2	c	W-3,max	2886.58
	I-2	108429.0	cm ⁴	A-3	115.22	Ksl-3	c
	W-2,min	-3942.86	cm ³	I-3	53979.10		
	Forces and moments						
	N	-4.56	kN	M-2,beg	0.70	M-3	-150.86

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
				M-2.end	0.00 kNm	M-3.beg	63.23 kNm
				V-2	503.70 kN	M-3.end	123.20 kNm
				Reduction factor Kappa			
				s-K,2	0.425 m	Kappa-2 b	c
				N-Cr,2	12441900 kN	s-K,3	0.988
				Lambda-K,	0.026 < 0.2	N-Cr,3	6193940. kN
				Ksl-2	c	Lambda-K,	0.037 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.050	k-2	1.000 <= 1.5
				Beta-M,Psi	1.765	Psi-3	0.513
				V-load 3	Nein	Beta-M,Psi	1.441
				a-2	0.1604 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.001	D-M,3	0.160
				D-M,2	0.014	D-NM	0.175 < 1.0
471	0.000	CO97	0.439	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				A	364.00 cm ²	Ksl-2	a
				I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴
				W-2	-7660.00 cm ³	W-3	1240.00 cm ³
				Forces and moments			
				N	-3190.84 kN	M-2.end	33.58 kNm
				V-3	26.30 kN	M-2,max	41.83 kNm
				M-2	-70.54 kNm	x-M2,max	1.250 m
				M-2.beg	39.69 kNm	V-2	-13.82 kN
				Reduction factor Kappa			
				s-K,2	2.500 m	Kappa-2 b	0.974
				N-Cr,2	787263.0 kN	s-K,3	2.500 m
				Lambda-K,	0.129 < 0.2	N-Cr,3	62941.19 kN
				Ksl-2	a	Lambda-K,	0.456
				Coefficient k-2 and k-3			
				Psi-2	0.846	M-V,2	6.39 kNm
				Beta-M,Psi	1.208	Delta-M,2	112.37 kNm
				V-load 3	Ja	Beta-M,2	1.213
				C-load 3	Nein	a-2	-0.0569 <= 0.8
				Beta-M,V,2	1.300	k-2	1.016 <= 1.5
				Design			
				D-N	0.331	D-M,3	0.079
				D-M,2	0.029	D-NM	0.439 < 1.0
472	0.000	CO97	0.511	1) Design to (28) fulfilled			
				Section properties RO 127x10			
				A	36.76 cm ²	Ksl-2	a
				I-2	633.55 cm ⁴	I-3	633.55 cm ⁴
				W-2	-99.77 cm ³	W-3	99.77 cm ³
				Forces and moments			
				N	-354.66 kN	M-2.end	0.11 kNm
				M-T	-0.18 kNm	M-2,max	0.51 kNm
				V-3	1.00 kN	x-M2,max	1.310 m
				M-2	-0.83 kNm	V-2	-1.02 kN
				M-2.beg	0.27 kNm	M-3	-1.50 kNm
				Reduction factor Kappa			
				s-K,2	2.626 m	Kappa-2 b	0.704
				N-Cr,2	1904.78 kN	s-K,3	2.626 m
				Lambda-K,	0.833	N-Cr,3	1904.78 kN
				Ksl-2	a	Lambda-K,	0.833
				Coefficient k-2 and k-3			
				Psi-2	0.699	Beta-M,2	1.306
				Beta-M,Psi	1.311	a-2	-0.7821 <= 0.8
				V-load 3	Ja	k-2	1.328 <= 1.5
				C-load 3	Nein	Psi-3	0.529
				Beta-M,V,2	1.300	Beta-M,Psi	1.429
				M-V,2	0.65 kNm	V-load 2	Ja
				Delta-M,2	1.34 kNm	C-load 2	Nein
				Design			
				D-N	0.419	D-M,3	0.058
				D-M,2	0.034	D-NM	0.511 < 1.0
473	0.000	CO97	0.512	1) Design to (28) fulfilled			
				Section properties RO 127x10			
				A	36.76 cm ²	Ksl-2	a
				I-2	633.55 cm ⁴	I-3	633.55 cm ⁴
				W-2	-99.77 cm ³	W-3	99.77 cm ³
				Forces and moments			
				N	-352.92 kN	M-2.end	0.24 kNm
				M-T	0.30 kNm	M-2,max	0.47 kNm
				V-3	1.10 kN	x-M2,max	1.310 m
				M-2	-0.88 kNm	V-2	-1.13 kN
				M-2.beg	0.04 kNm	M-3	-1.59 kNm
				Reduction factor Kappa			
				s-K,2	2.626 m	Kappa-2 b	0.704
				N-Cr,2	1904.78 kN	s-K,3	2.626 m
				Lambda-K,	0.833	N-Cr,3	1904.78 kN
				Ksl-2	a	Lambda-K,	0.833
				Coefficient k-2 and k-3			
				Psi-2	0.545	Beta-M,2	1.359
				Beta-M,Psi	1.418	a-2	-0.6938 <= 0.8
				V-load 3	Ja	k-2	1.289 <= 1.5
				C-load 3	Nein	Psi-3	0.438
				Beta-M,V,2	1.300	Beta-M,Psi	1.493
						Beta-M,V,3	1.300
						M-V,3	0.89 kNm
						Delta-M,3	2.96 kNm
						Beta-M,3	1.435
						a-3	-0.5665 <= 0.8

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	M-V,2 Delta-M,2 Design D-N D-M,2	0.68 kNm 1.35 kNm 0.417 0.035		V-load 2 C-load 2 D-M,3 D-NM	Ja Nein 0.060 0.512 < 1.0	k-3	1.236 <= 1.5
474	0.000	CO97	0.427	1) Design to (28) fulfilled			
	Section properties HE-M 600 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 Design D-N D-M,2	364.00 cm ² 237400.0 cm ⁴ -7660.00 cm ³ -2978.71 kN 26.26 kN -68.77 kNm 25.28 kNm 2.500 m 787263.0 kN 0.129 < 0.2 a 0.705 1.306 Ja Nein 1.300 0.309 0.028		Ksl-2 I-3 W-3 M-2,end M-2,max x-M2,max V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, M-V,2 Delta-M,2 Beta-M,2 a-2 k-2 D-M,3 D-NM	a 18980.00 cm ⁴ 1240.00 cm ³ 36.30 kNm 36.69 kNm 1.250 m -14.51 kN 0.974 2.500 m 62941.19 kN 0.456 7.03 kNm 105.46 kNm 1.306 -0.0329 <= 0.8 1.008 <= 1.5 0.091 0.427 < 1.0	Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar Psi-3 Beta-M,Psi V-load 2 a-3 k-3	b -40.51 kNm 29.31 kNm 1.42 kNm b 0.809 0.809 0.132 1.707 Nein 0.2897 <= 0.8 0.911 <= 1.5
475	920.000	CO98	0.245	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg M-2,end Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	38.80 cm ² 1670.00 cm ⁴ -220.00 cm ³ -16.85 kN -2.86 kN -3.09 kNm 1.90 kNm 0.89 kNm 0.923 m 406566.60 kN 0.185 < 0.2 b 0.468 1.472 Nein -0.0775 <= 0.8 0.016 0.043		Ksl-2 I-3 W-3 M-2,min x-M2,min V-2 M-3 M-3,beg Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	b 616.00 cm ⁴ 76.90 cm ³ -3.09 kNm 0.920 m -7.61 kN 4.70 kNm 1.74 kNm 0.957 0.923 m 14996.70 kN 0.305 1.001 <= 1.5 0.682 1.322 Nein 0.186 0.245 < 1.0	Ksl-3 M-3,end M-3,max x-M3,max M-3,min x-M3,min Ksl-3 Kappa-3 b Kappa bar a-3 k-3	c 4.70 kNm 4.70 kNm 0.920 m -3.43 kNm 0.920 m c 0.856 0.856 0.1161 <= 0.8 0.998 <= 1.5
476	1600.000	CO97	0.081	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg M-2,end Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	38.80 cm ² 1670.00 cm ⁴ -220.00 cm ³ -22.60 kN -0.56 kN -1.83 kNm 1.35 kNm 1.38 kNm 1.605 m 13442.59 kN 0.322 b 0.995 1.104 Nein -0.4596 <= 0.8 0.024 0.026		Ksl-2 I-3 W-3 M-2,max x-M2,max M-2,min x-M2,min V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	b 616.00 cm ⁴ 76.90 cm ³ 1.38 kNm 1.600 m -1.83 kNm 1.600 m 0.88 kN 0.923 1.605 m 4958.46 kN 0.531 1.009 <= 1.5 0.658 1.339 Nein 0.032 0.081 < 1.0	Ksl-3 M-3 M-3,beg M-3,end M-3,min x-M3,min Ksl-3 Kappa-3 b Kappa bar a-3 k-3	c -0.79 kNm 0.64 kNm 0.30 kNm -0.79 kNm 1.600 m c 0.745 0.745 -0.1717 <= 0.8 1.004 <= 1.5
477	0.000	CO97	0.282	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beg	38.80 cm ² 1670.00 cm ⁴ -220.00 cm ³ -17.04 kN 3.05 kN -3.16 kNm 0.79 kNm		Ksl-2 I-3 W-3 M-2,end M-2,max x-M2,max V-2	b 616.00 cm ⁴ 76.90 cm ³ 2.04 kNm 2.04 kNm 0.920 m 9.15 kN	Ksl-3 M-3 M-3,beg M-3,end	c 5.60 kNm 5.60 kNm 1.50 kNm

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	Reduction factor Kappa						
	s-K,2	0.923 m		Kappa-2 b	0.957	Ksl-3	c
	N-Cr,2	40656.60 kN		s-K,3	0.923 m	Kappa-3 b	0.856
	Lambda-K,	0.185 < 0.2		N-Cr,3	14996.70 kN	Kappa bar	0.856
	Ksl-2	b		Lambda-K,	0.305		
	Coefficient k-2 and k-3						
	Psi-2	0.387		k-2	1.001 <= 1.5	a-3	-0.0094 <= 0.8
	Beta-M,Psi	1.529		Psi-3	0.976	k-3	1.000 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.117		
	a-2	-0.0565 <= 0.8		V-load 2	Nein		
	Design						
	D-N	0.016		D-M,3	0.223		
	D-M,2	0.044		D-NM	0.282 < 1.0		
478	0.000	CO98	0.248	1) Design to (28) fulfilled			
	Section properties HE-M 300						
	A	303.00 cm ²		Ksl-2	b	Ksl-3	c
	I-2	59200.00 cm ⁴		I-3	19400.00 cm ⁴		
	W-2	-3480.00 cm ³		W-3	1250.00 cm ³		
	Forces and moments						
	N	-814.68 kN		M-2,end	49.96 kNm	M-3,end	11.18 kNm
	V-3	18.60 kN		V-2	14.13 kN	M-3,min	-9.76 kNm
	M-2	-47.74 kNm		M-3	23.37 kNm	x-M3,min	2.640 m
	M-2,beg	14.90 kNm		M-3,beg	23.37 kNm		
	Reduction factor Kappa						
	s-K,2	5.286 m		Kappa-2 b	0.865	Ksl-3	c
	N-Cr,2	43912.30 kN		s-K,3	5.286 m	Kappa-3 b	0.571
	Lambda-K,	0.498		N-Cr,3	14390.20 kN	Kappa bar	0.571
	Ksl-2	b		Lambda-K,	0.871		
	Coefficient k-2 and k-3						
	Psi-2	0.298		Beta-M,2	1.510	Beta-M,V,3	1.300
	Beta-M,Psi	1.591		a-2	-0.3160 <= 0.8	M-V,3	9.76 kNm
	V-load 3	Ja		k-2	1.030 <= 1.5	Delta-M,3	33.13 kNm
	C-load 3	Nein		Psi-3	0.478	Beta-M,3	1.416
	Beta-M,V,2	1.300		Beta-M,Psi	1.465	a-3	-0.4855 <= 0.8
	M-V,2	27.25 kNm		V-load 2	Ja	k-3	1.070 <= 1.5
	Delta-M,2	97.70 kNm		C-load 2	Nein		
	Design						
	D-N	0.144		D-M,3	0.061		
	D-M,2	0.043		D-NM	0.248 < 1.0		
479	0.000	CO98	0.891	1) Design to (28) fulfilled			
	Section properties IS 302/250/15/20						
	A	139.30 cm ²		Ksl-2	b	Ksl-3	c
	I-2	22162.40 cm ⁴		I-3	5215.70 cm ⁴		
	W-2	-1467.70 cm ³		W-3	417.26 cm ³		
	Forces and moments						
	N	-860.22 kN		M-2,end	2.36 kNm	M-3,end	11.97 kNm
	V-3	2.04 kN		V-2	6.48 kN	M-3,min	-4.70 kNm
	M-2	-10.65 kNm		M-3	12.65 kNm	x-M3,min	4.580 m
	M-2,beg	8.95 kNm		M-3,beg	12.65 kNm		
	Reduction factor Kappa						
	s-K,2	7.628 m		Kappa-2 b	0.734	Ksl-3	c
	N-Cr,2	7893.59 kN		s-K,3	7.628 m	Kappa-3 b	0.260
	Lambda-K,	0.797		N-Cr,3	1857.68 kN	Kappa bar	0.260
	Ksl-2	b		Lambda-K,	1.643		
	Coefficient k-2 and k-3						
	Psi-2	0.389		Beta-M,2	1.481	Beta-M,V,3	1.300
	Beta-M,Psi	1.528		a-2	-0.6915 <= 0.8	M-V,3	4.29 kNm
	V-load 3	Ja		k-2	1.178 <= 1.5	Delta-M,3	17.35 kNm
	C-load 3	Nein		Psi-3	0.946	Beta-M,3	1.178
	Beta-M,V,2	1.300		Beta-M,Psi	1.138	a-3	-2.1688 <= 0.8
	M-V,2	4.04 kNm		V-load 2	Ja	k-3	1.500 <= 1.5
	Delta-M,2	19.60 kNm		C-load 2	Nein		
	Design						
	D-N	0.726		D-M,3	0.139		
	D-M,2	0.026		D-NM	0.891 < 1.0		
481	0.000	CO98	0.243	1) Design to (28) fulfilled			
	Section properties HE-M 300						
	A	303.00 cm ²		Ksl-2	b	Ksl-3	c
	I-2	59200.00 cm ⁴		I-3	19400.00 cm ⁴		
	W-2	-3480.00 cm ³		W-3	1250.00 cm ³		
	Forces and moments						
	N	-819.10 kN		M-2,end	49.63 kNm	M-3,end	10.91 kNm
	V-3	17.44 kN		V-2	13.99 kN	M-3,min	-9.84 kNm
	M-2	-42.11 kNm		M-3	22.73 kNm	x-M3,min	2.640 m
	M-2,beg	22.83 kNm		M-3,beg	22.73 kNm		
	Reduction factor Kappa						
	s-K,2	5.286 m		Kappa-2 b	0.865	Ksl-3	c
	N-Cr,2	43912.30 kN		s-K,3	5.286 m	Kappa-3 b	0.571
	Lambda-K,	0.498		N-Cr,3	14390.20 kN	Kappa bar	0.571
	Ksl-2	b		Lambda-K,	0.871		
	Coefficient k-2 and k-3						
	Psi-2	0.460		Beta-M,2	1.421	Beta-M,V,3	1.300
	Beta-M,Psi	1.478		a-2	-0.4046 <= 0.8	M-V,3	9.84 kNm
	V-load 3	Ja		k-2	1.039 <= 1.5	Delta-M,3	32.57 kNm
	C-load 3	Nein		Psi-3	0.480	Beta-M,3	1.414
	Beta-M,V,2	1.300		Beta-M,Psi	1.464	a-3	-0.4890 <= 0.8
	M-V,2	29.32 kNm		V-load 2	Ja	k-3	1.071 <= 1.5
	Delta-M,2	91.74 kNm		C-load 2	Nein		

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	Design						
	D-N	0.145	D-M,3	0.059			
	D-M,2	0.038	D-NM	0.243	< 1.0		
482	0.000	CO98	0.854	1) Design to (28) fulfilled			
Section properties IS 302/250/15/20							
	A	139.30 cm^2	Ksl-2	b	Ksl-3	c	
	I-2	22162.40 cm^4	I-3	5215.70 cm^4			
	W-2	-1467.70 cm^3	W-3	417.26 cm^3			
Forces and moments							
	N	-810.36 kN	M-2,end	4.64 kNm	M-3,end	11.68 kNm	
	V-3	2.52 kN	V-2	6.51 kN	M-3,min	-4.74 kNm	
	M-2	-11.85 kNm	M-3	12.66 kNm	x-M3,min	4.580 m	
	M-2,beg	5.28 kNm	M-3,beg	12.66 kNm			
Reduction factor Kappa							
	s-K,2	7.628 m	Kappa-2 b	0.734	Ksl-3	c	
	N-Cr,2	7893.59 kN	s-K,3	7.628 m	Kappa-3 b	0.260	
	Lambda-K,	0.797	N-Cr,3	1857.68 kN	Kappa bar	0.260	
	Ksl-2	b	Lambda-K,	1.643			
Coefficient k-2 and k-3							
	Psi-2	0.879	Beta-M,2	1.216	Beta-M,V,3	1.300	
	Beta-M,Psi	1.185	a-2	-1.1135 <= 0.8	M-V,3	4.26 kNm	
	V-load 3	Ja	k-2	1.270 <= 1.5	Delta-M,3	17.40 kNm	
	C-load 3	Nein	Psi-3	0.923	Beta-M,3	1.190	
	Beta-M,V,2	1.300	Beta-M,Psi	1.154	a-3	-2.1289 <= 0.8	
	M-V,2	4.65 kNm	V-load 2	Ja	k-3	1.500 <= 1.5	
	Delta-M,2	17.13 kNm	C-load 2	Nein			
Design							
	D-N	0.684	D-M,3	0.139			
	D-M,2	0.031	D-NM	0.854	< 1.0		
483	2610.000	CO97	0.537	1) Design to (28) fulfilled			
Section properties HE-M 600							
	A	364.00 cm^2	Ksl-2	a	Ksl-3	b	
	I-2	237400.0 cm^4	I-3	18980.00 cm^4			
	W-2	-7660.00 cm^3	W-3	1240.00 cm^3			
Forces and moments							
	N	-3194.15 kN	M-2,min	-146.57 kNm	M-3,end	45.30 kNm	
	V-3	-52.71 kN	x-M2,min	2.610 m	M-3,max	45.30 kNm	
	M-2	-146.57 kNm	V-2	27.69 kN	x-M3,max	2.610 m	
	M-2,beg	34.97 kNm	M-3	-62.83 kNm	M-3,min	-62.83 kNm	
	M-2,end	0.00 kNm	M-3,beg	9.15 kNm	x-M3,min	2.610 m	
Reduction factor Kappa							
	s-K,2	2.610 m	Kappa-2 b	0.973	Ksl-3	b	
	N-Cr,2	722302.0 kN	s-K,3	2.610 m	Kappa-3 b	0.800	
	Lambda-K,	0.135 < 0.2	N-Cr,3	57747.60 kN	Kappa bar	0.800	
	Ksl-2	a	Lambda-K,	0.476			
Coefficient k-2 and k-3							
	Psi-2	0.339	Beta-M,2	1.544	Beta-M,V,3	1.300	
	Beta-M,Psi	1.563	a-2	0.0233 <= 0.8	M-V,3	6.45 kNm	
	V-load 3	Ja	k-2	0.994 <= 1.5	Delta-M,3	108.13 kNm	
	C-load 3	Nein	Psi-3	0.202	Beta-M,3	1.637	
	Beta-M,V,2	1.300	Beta-M,Psi	1.659	a-3	0.2111 <= 0.8	
	M-V,2	13.09 kNm	V-load 2	Ja	k-3	0.929 <= 1.5	
	Delta-M,2	181.54 kNm	C-load 2	Nein			
Design							
	D-N	0.335	D-M,3	0.144			
	D-M,2	0.058	D-NM	0.537	< 1.0		
484	2770.000	CO97	0.603	1) Design to (28) fulfilled			
Section properties RO 127x10							
	A	36.76 cm^2	Ksl-2	a	Ksl-3	a	
	I-2	633.55 cm^4	I-3	633.55 cm^4			
	W-2	-99.77 cm^3	W-3	99.77 cm^3			
Forces and moments							
	N	-353.36 kN	M-2,beg	0.81 kNm	M-3,beg	1.69 kNm	
	M-T	0.24 kNm	M-2,end	0.27 kNm	M-3,end	2.13 kNm	
	V-3	-1.49 kN	V-2	1.61 kN	VT	1.95 kN	
	M-2	-1.25 kNm	M-3	-2.68 kNm			
Reduction factor Kappa							
	s-K,2	2.768 m	Kappa-2 b	0.678	Ksl-3	a	
	N-Cr,2	1713.46 kN	s-K,3	2.768 m	Kappa-3 b	0.678	
	Lambda-K,	0.879	N-Cr,3	1713.46 kN	Kappa bar	0.678	
	Ksl-2	a	Lambda-K,	0.879			
Coefficient k-2 and k-3							
	Psi-2	0.912	Beta-M,2	1.231	Beta-M,V,3	1.300	
	Beta-M,Psi	1.161	a-2	-0.9757 <= 0.8	M-V,3	1.41 kNm	
	V-load 3	Ja	k-2	1.423 <= 1.5	Delta-M,3	4.81 kNm	
	C-load 3	Nein	Psi-3	0.793	Beta-M,3	1.261	
	Beta-M,V,2	1.300	Beta-M,Psi	1.245	a-3	-0.9237 <= 0.8	
	M-V,2	1.10 kNm	V-load 2	Ja	k-3	1.400 <= 1.5	
	Delta-M,2	2.18 kNm	C-load 2	Nein			
Design							
	D-N	0.433	D-M,3	0.115			
	D-M,2	0.054	D-NM	0.603	< 1.0		
485	2770.000	CO97	0.607	1) Design to (28) fulfilled			
Section properties RO 127x10							
	A	36.76 cm^2	Ksl-2	a	Ksl-3	a	
	I-2	633.55 cm^4	I-3	633.55 cm^4			
	W-2	-99.77 cm^3	W-3	99.77 cm^3			

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	0.931 1.148 Ja Nein 1.300 0.20 kNm 128.40 kNm 0.278 0.049	Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	1.148 0.1307 0.964 0.959 1.129 Ja Nein 0.176 0.504	Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3 0.176 0.504	1.300 0.04 128.02 1.129 0.5008 0.861 0.176 0.504	 kNm kNm 0.8 1.5 1.0
489	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Kasten(A) 374/15/12/350/550/374/15						
	A A-2 I-2 W-2,min Forces and moments N V-3 M-2	237.00 cm^2 79.10 cm^2 108429.0 cm^4 -3942.86 cm^3 0.00 kN 250.62 kN -104.96 kNm	W-2,max Ksl-2 A-3 I-3 M-2,beg M-2,end V-2	3942.86 cm^3 c 115.22 cm^2 53979.10 cm^4 4.51 kNm 1.47 kNm -715.56 kN	W-3,min W-3,max Ksl-3 M-3 M-3,beg M-3,end	-2886.58 cm^3 2886.58 cm^3 c -197.83 kNm 106.29 kNm 146.67 kNm	 <

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
				W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴
				Forces and moments			
				N	0.00 kN	M-2,beg	25.83 kNm
				V-3	-14.39 kN	M-2,end	18.48 kNm
				M-2	-65.65 kNm	V-2	43.83 kN
						M-3	-145.38 kNm
						M-3,beg	97.46 kNm
						M-3,end	84.99 kNm
494	0.000	CO98	0.671	1) Design to (28) fulfilled			
				Section properties IS 292/250/8/15			
				A	95.96 cm ²	Ksl-2	b
				I-2	15599.70 cm ⁴	I-3	3907.37 cm ⁴
				W-2	-1068.46 cm ³	W-3	312.59 cm ³
				Forces and moments			
				N	-706.58 kN	M-2,beg	2.63 kNm
				V-3	1.94 kN	M-2,end	3.01 kNm
				M-2	-7.30 kNm	V-2	3.40 kN
						M-3	8.91 kNm
						M-3,beg	8.91 kNm
						M-3,end	6.79 kNm
				Reduction factor Kappa			
				s-K,2	5.500 m	Kappa-2 b	0.847
				N-Cr,2	10688.40 kN	s-K,3	5.500 m
				Lambda-K,	0.569	N-Cr,3	2677.18 kN
				Ksl-2	b	Lambda-K,	1.136
				Coefficient k-2 and k-3			
				Psi-2	0.874	Beta-M,2	1.214
				Beta-M,Psi	1.188	a-2	-0.7930 <= 0.8
				V-load 3	Ja	k-2	1.211 <= 1.5
				C-load 3	Nein	Psi-3	0.762
				Beta-M,V,2	1.300	Beta-M,Psi	1.267
				M-V,2	2.37 kNm	V-load 2	Ja
				Delta-M,2	10.31 kNm	C-load 2	Nein
				Design			
				D-N	0.515	D-M,3	0.131
				D-M,2	0.025	D-NM	0.671 < 1.0
495	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
				Section properties Kasten(A) 374/15/12/350/550/374/15			
				A	237.00 cm ²	W-2,max	3942.86 cm ³
				A-2	79.10 cm ²	Ksl-2	c
				I-2	108429.0 cm ⁴	A-3	115.22 cm ²
				W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴
				Forces and moments			
				N	0.00 kN	M-2,beg	1.66 kNm
				V-3	-197.43 kN	M-2,end	0.34 kNm
				M-2	1.66 kNm	V-2	695.85 kN
						M-3	162.19 kNm
						M-3,beg	162.19 kNm
						M-3,end	101.63 kNm
496	0.000	CO97	0.556	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				A	364.00 cm ²	Ksl-2	a
				I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴
				W-2	-7660.00 cm ³	W-3	1240.00 cm ³
				Forces and moments			
				N	-4097.45 kN	M-2,beg	0.00 kNm
				V-3	194.51 kN	M-2,end	0.00 kNm
				M-2	-163.33 kNm	V-2	-63.85 kN
						M-3	71.32 kNm
						M-3,beg	71.32 kNm
						M-3,end	67.38 kNm
				Reduction factor Kappa			
				s-K,2	0.174 m	Kappa-2 b	0.998
				N-Cr,2	1.6251e8 kN	s-K,3	0.174 m
				Lambda-K,	0.009 < 0.2	N-Cr,3	12993300 kN
				Ksl-2	a	Lambda-K,	0.032 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.794	Beta-M,2	1.245
				Beta-M,Psi	1.244	a-2	0.1327 <= 0.8
				V-load 3	Ja	k-2	0.954 <= 1.5
				C-load 3	Nein	Psi-3	0.945
				Beta-M,V,2	1.300	Beta-M,Psi	1.139
				M-V,2	0.77 kNm	V-load 2	Ja
				Delta-M,2	163.33 kNm	C-load 2	Nein
				Design			
				D-N	0.349	D-M,3	0.145
				D-M,2	0.062	D-NM	0.556 < 1.0
497	0.000	CO97	0.541	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				A	364.00 cm ²	Ksl-2	a
				I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴
				W-2	-7660.00 cm ³	W-3	1240.00 cm ³
				Forces and moments			
				N	-3885.85 kN	M-2,beg	0.00 kNm
				V-3	146.37 kN	M-2,end	0.00 kNm
				M-2	-124.02 kNm	V-2	68.10 kN
						M-3	-79.53 kNm
						M-3,beg	53.01 kNm
						M-3,end	44.78 kNm
				Reduction factor Kappa			
				s-K,2	0.174 m	Kappa-2 b	0.998
				N-Cr,2	1.6251e8 kN	s-K,3	0.174 m
				Lambda-K,	0.009 < 0.2	N-Cr,3	12993300 kN
				Ksl-2	a	Lambda-K,	0.032 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.796	Beta-M,2	1.243
				Beta-M,Psi	1.243	a-2	0.1326 <= 0.8
				V-load 3	Ja	k-2	0.957 <= 1.5
				C-load 3	Nein	Psi-3	0.874
				Beta-M,V,2	1.300	Beta-M,Psi	1.189
				M-V,2	0.58 kNm	V-load 2	Ja
				Delta-M,2	124.02 kNm	C-load 2	Nein
						M-3	1.189
						Beta-M,3	1.189
						a-3	0.5052 <= 0.8
						k-3	0.833 <= 1.5

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Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method			
	Design						
	D-N	0.331	D-M,3	0.163			
	D-M,2	0.047	D-NM	0.541	< 1.0		
498	0.000	CO97	0.506	1) Design to (28) fulfilled			
	Section properties RO 127x10						
	A	36.76 cm ²	Ksl-2	a		Ksl-3	a
	I-2	633.55 cm ⁴	I-3	633.55 cm ⁴			
	W-2	-99.77 cm ³	W-3	99.77 cm ³			
	Forces and moments						
	N	-272.65 kN	M-2,beg	0.47 kNm		M-3,beg	3.38 kNm
	M-T	0.36 kNm	M-2,end	1.77 kNm		M-3,end	1.03 kNm
	V-3	1.96 kN	V-2	2.31 kN		VT	2.67 kN
	M-2	-1.82 kNm	M-3	3.38 kNm			
	Reduction factor Kappa						
	s-K,2	2.469 m	Kappa-2 b	0.731		Ksl-3	a
	N-Cr,2	2153.84 kN	s-K,3	2.469 m		Kappa-3 b	0.731
	Lambda-K,	0.784	N-Cr,3	2153.84 kN		Kappa bar	0.731
	Ksl-2	a	Lambda-K,	0.784			
	Coefficient k-2 and k-3						
	Psi-2	0.654	Beta-M,2	1.325		Beta-M,V,3	1.300
	Beta-M,Psi	1.342	a-2	-0.6824	<= 0.8	M-V,3	1.38 kNm
	V-load 3	Ja	k-2	1.211	<= 1.5	Delta-M,3	5.76 kNm
	C-load 3	Nein	Psi-3	0.798		Beta-M,3	1.255
	Beta-M,V,2	1.300	Beta-M,Psi	1.241		a-3	-0.7921 <= 0.8
	M-V,2	1.45 kNm	V-load 2	Ja		k-3	1.245 <= 1.5
	Delta-M,2	3.59 kNm	C-load 2	Nein			
	Design						
	D-N	0.310	D-M,3	0.129			
	D-M,2	0.068	D-NM	0.506	< 1.0		
499	0.000	CO97	0.512	1) Design to (28) fulfilled			
	Section properties RO 127x10						
	A	36.76 cm ²	Ksl-2	a		Ksl-3	a
	I-2	633.55 cm ⁴	I-3	633.55 cm ⁴			
	W-2	-99.77 cm ³	W-3	99.77 cm ³			
	Forces and moments						
	N	-282.33 kN	M-2,beg	0.39 kNm		M-3,beg	1.74 kNm
	M-T	-0.36 kNm	M-2,end	1.63 kNm		M-3,end	2.16 kNm
	V-3	2.04 kN	V-2	-2.18 kN		VT	2.63 kN
	M-2	-1.80 kNm	M-3	-3.23 kNm			
	Reduction factor Kappa						
	s-K,2	2.469 m	Kappa-2 b	0.731		Ksl-3	a
	N-Cr,2	2153.84 kN	s-K,3	2.469 m		Kappa-3 b	0.731
	Lambda-K,	0.784	N-Cr,3	2153.84 kN		Kappa bar	0.731
	Ksl-2	a	Lambda-K,	0.784			
	Coefficient k-2 and k-3						
	Psi-2	0.639	Beta-M,2	1.330		Beta-M,V,3	1.300
	Beta-M,Psi	1.353	a-2	-0.6748	<= 0.8	M-V,3	1.32 kNm
	V-load 3	Ja	k-2	1.217	<= 1.5	Delta-M,3	5.39 kNm
	C-load 3	Nein	Psi-3	0.806		Beta-M,3	1.252
	Beta-M,V,2	1.300	Beta-M,Psi	1.236		a-3	-0.7976 <= 0.8
	M-V,2	1.48 kNm	V-load 2	Ja		k-3	1.256 <= 1.5
	Delta-M,2	3.43 kNm	C-load 2	Nein			
	Design						
	D-N	0.321	D-M,3	0.124			
	D-M,2	0.067	D-NM	0.512	< 1.0		
500	0.000	CO97	0.589	1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00 cm ²	Ksl-2	a		Ksl-3	b
	I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴			
	W-2	-7660.00 cm ³	W-3	1240.00 cm ³			
	Forces and moments						
	N	-3900.02 kN	M-2,beg	0.00 kNm		M-3	64.13 kNm
	V-3	191.31 kN	M-2,end	296.07 kNm		M-3,beg	64.13 kNm
	M-2	-128.40 kNm	V-2	30.21 kN		M-3,end	6.33 kNm
	Reduction factor Kappa						
	s-K,2	2.325 m	Kappa-2 b	0.976		Ksl-3	b
	N-Cr,2	910235.0 kN	s-K,3	2.325 m		Kappa-3 b	0.824
	Lambda-K,	0.120 < 0.2	N-Cr,3	72772.79 kN		Kappa bar	0.824
	Ksl-2	a	Lambda-K,	0.424			
	Coefficient k-2 and k-3						
	Psi-2	0.667	Beta-M,2	1.329		Beta-M,V,3	1.300
	Beta-M,Psi	1.333	a-2	-0.0148	<= 0.8	M-V,3	6.30 kNm
	V-load 3	Ja	k-2	1.005	<= 1.5	Delta-M,3	109.74 kNm
	C-load 3	Nein	Psi-3	0.143		Beta-M,3	1.677
	Beta-M,V,2	1.300	Beta-M,Psi	1.700		a-3	0.2826 <= 0.8
	M-V,2	56.91 kNm	V-load 2	Ja		k-3	0.888 <= 1.5
	Delta-M,2	488.46 kNm	C-load 2	Nein			
	Design						
	D-N	0.397	D-M,3	0.140			
	D-M,2	0.051	D-NM	0.589	< 1.0		
501	0.000	CO97	0.562	1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00 cm ²	Ksl-2	a		Ksl-3	b
	I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴			
	W-2	-7660.00 cm ³	W-3	1240.00 cm ³			
	Forces and moments						
	N	-3679.28 kN	M-2,beg	0.00 kNm		M-3	-66.39 kNm

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method					
	V-3	143.07	kN	M-2.end	212.85	kNm	M-3.beg	43.03	kNm
	M-2	-97.37	kNm	V-2	-31.44	kN	M-3.end	8.23	kNm
	Reduction factor Kappa								
	s-K,2	2.325	m	Kappa-2 b	0.976		Ksl-3	b	
	N-Cr,2	910235.0	kN	s-K,3	2.325	m	Kappa-3 b	0.824	
	Lambda-K,	0.120	< 0.2	N-Cr,3	72772.79	kN	Kappa bar	0.824	
	Ksl-2	a		Lambda-K,	0.424				
	Coefficient k-2 and k-3								
	Psi-2	0.530		Beta-M,2	1.416		Beta-M,V,3	1.300	
	Beta-M,Psi	1.429		a-2	0.0060	<= 0.8	M-V,3	6.53	kNm
	V-load 3	Ja		k-2	0.998	<= 1.5	Delta-M,3	109.42	kNm
	C-load 3	Nein		Psi-3	0.191		Beta-M,3	1.644	
	Beta-M,V,2	1.300		Beta-M,Psi	1.666		a-3	0.2548	<= 0.8
M-V,2	40.17	kNm	V-load 2	Ja		k-3	0.904	<= 1.5	
Delta-M,2	396.47	kNm	C-load 2	Nein					
Design									
D-N	0.375		D-M,3	0.148					
D-M,2	0.039		D-NM	0.562	< 1.0				
502	5280.000	CO98	0.215	1) Design to (28) fulfilled					
Section properties HE-M 300									
A	303.00	cm^2	Ksl-2	b		Ksl-3	c		
I-2	59200.00	cm^4	I-3	19400.00	cm^4				
W-2	-3480.00	cm^3	W-3	1250.00	cm^3				
Forces and moments									
N	-164.82	kN	M-2,min	-81.84	kNm	M-3,end	45.70	kNm	
V-3	-24.25	kN	x-M2,min	5.280	m	M-3,max	45.70	kNm	
M-2	-81.84	kNm	V-2	-19.98	kN	x-M3,max	5.280	m	
M-2,beg	48.15	kNm	M-3	45.70	kNm	M-3,min	-16.42	kNm	
M-2,end	18.00	kNm	M-3,beg	23.85	kNm	x-M3,min	3.960	m	
Reduction factor Kappa									
s-K,2	5.285	m	Kappa-2 b	0.865		Ksl-3	c		
N-Cr,2	43928.89	kN	s-K,3	5.285	m	Kappa-3 b	0.571		
Lambda-K,	0.498		N-Cr,3	14395.59	kN	Kappa bar	0.571		
Ksl-2	b		Lambda-K,	0.870					
Coefficient k-2 and k-3									
Psi-2	0.374		Beta-M,2	1.488		Beta-M,V,3	1.300		
Beta-M,Psi	1.538		a-2	-0.3375	<= 0.8	M-V,3	4.46	kNm	
V-load 3	Ja		k-2	1.006	<= 1.5	Delta-M,3	62.12	kNm	
C-load 3	Nein		Psi-3	0.522		Beta-M,3	1.425		
Beta-M,V,2	1.300		Beta-M,Psi	1.435		a-3	-0.4705	<= 0.8	
M-V,2	27.23	kNm	V-load 2	Ja		k-3	1.014	<= 1.5	
Delta-M,2	129.99	kNm	C-load 2	Nein					
Design									
D-N	0.029		D-M,3	0.113					
D-M,2	0.072		D-NM	0.215	< 1.0				
503	5280.000	CO98	0.220	1) Design to (28) fulfilled					
Section properties HE-M 300									
A	303.00	cm^2	Ksl-2	b		Ksl-3	c		
I-2	59200.00	cm^4	I-3	19400.00	cm^4				
W-2	-3480.00	cm^3	W-3	1250.00	cm^3				
Forces and moments									
N	-172.67	kN	M-2,min	-86.78	kNm	M-3,end	45.63	kNm	
V-3	-26.01	kN	x-M2,min	5.280	m	M-3,max	45.63	kNm	
M-2	-86.78	kNm	V-2	-20.16	kN	x-M3,max	5.280	m	
M-2,beg	51.04	kNm	M-3	45.63	kNm	M-3,min	-15.36	kNm	
M-2,end	17.85	kNm	M-3,beg	22.94	kNm	x-M3,min	3.960	m	
Reduction factor Kappa									
s-K,2	5.285	m	Kappa-2 b	0.865		Ksl-3	c		
N-Cr,2	43928.89	kN	s-K,3	5.285	m	Kappa-3 b	0.571		
Lambda-K,	0.498		N-Cr,3	14395.59	kN	Kappa bar	0.571		
Ksl-2	b		Lambda-K,	0.870					
Coefficient k-2 and k-3									
Psi-2	0.350		Beta-M,2	1.502		Beta-M,V,3	1.300		
Beta-M,Psi	1.555		a-2	-0.3243	<= 0.8	M-V,3	4.20	kNm	
V-load 3	Ja		k-2	1.007	<= 1.5	Delta-M,3	60.99	kNm	
C-load 3	Nein		Psi-3	0.503		Beta-M,3	1.438		
Beta-M,V,2	1.300		Beta-M,Psi	1.448		a-3	-0.4481	<= 0.8	
M-V,2	28.96	kNm	V-load 2	Ja		k-3	1.014	<= 1.5	
Delta-M,2	137.82	kNm	C-load 2	Nein					
Design									
D-N	0.031		D-M,3	0.113					
D-M,2	0.077		D-NM	0.220	< 1.0				
504	0.000	CO98	0.789	1) Design to (28) fulfilled					
Section properties IS 302/250/15/20									
A	139.30	cm^2	Ksl-2	b		Ksl-3	c		
I-2	22162.40	cm^4	I-3	5215.70	cm^4				
W-2	-1467.70	cm^3	W-3	417.26	cm^3				
Forces and moments									
N	-718.11	kN	M-2,end	11.54	kNm	M-3,end	8.63	kNm	
V-3	-6.41	kN	V-2	5.14	kN	M-3,min	-3.65	kNm	
M-2	30.05	kNm	M-3	9.69	kNm	x-M3,min	3.050	m	
M-2,beg	30.05	kNm	M-3,beg	9.69	kNm				
Reduction factor Kappa									
s-K,2	7.628	m	Kappa-2 b	0.734		Ksl-3	c		
N-Cr,2	7895.02	kN	s-K,3	7.628	m	Kappa-3 b	0.260		
Lambda-K,	0.797		N-Cr,3	1858.01	kN	Kappa bar	0.260		
Ksl-2	b		Lambda-K,	1.643					
Coefficient k-2 and k-3									

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
				Beta-M,2	1.249	Beta-M,V,3	1.300
				a-2	-1.0610 <= 0.8	M-V,3	3.65 kNm
				k-2	1.228 <= 1.5	Delta-M,3	13.34 kNm
				Psi-3	0.891	Beta-M,3	1.210
				Beta-M,Psi	1.177	a-3	-2.0614 <= 0.8
				M-V,2	18.82 kNm	V-load 2	Ja
				Delta-M,2	52.78 kNm	k-3	1.500 <= 1.5
				C-load 2	Nein		
				D-N	0.606	D-M,3	0.106
				D-M,2	0.077	D-NM	0.789 < 1.0
506	0.000	CO98	0.728	1) Design to (28) fulfilled			
				Section properties IS 302/250/15/20			
				A	139.30 cm ²	Ksl-2	b
				I-2	22162.40 cm ⁴	I-3	5215.70 cm ⁴
				W-2	-1467.70 cm ³	W-3	417.26 cm ³
				Forces and moments			
				N	-661.86 kN	M-2,end	12.42 kNm
				V-3	4.95 kN	V-2	5.14 kN
				M-2	-25.41 kNm	M-3	9.67 kNm
				M-2,beg	16.24 kNm	M-3,beg	9.67 kNm
				Reduction factor Kappa			
				s-K,2	7.628 m	Kappa-2 b	0.734
				N-Cr,2	7895.02 kN	s-K,3	7.628 m
				Lambda-K,	0.797	N-Cr,3	1858.01 kN
				Ksl-2	b	Lambda-K,	1.643
				Coefficient k-2 and k-3			
				Psi-2	0.765	Beta-M,2	1.276
				Beta-M,Psi	1.265	a-2	-1.0185 <= 0.8
				V-load 3	Ja	k-2	1.201 <= 1.5
				C-load 3	Nein	Psi-3	0.895
				Beta-M,V,2	1.300	Beta-M,Psi	1.174
				M-V,2	12.95 kNm	V-load 2	Ja
				Delta-M,2	41.65 kNm	C-load 2	Nein
				Design			
				D-N	0.558	D-M,3	0.106
				D-M,2	0.064	D-NM	0.728 < 1.0
507	1740.000	CO97	0.732	1) Design to (28) fulfilled			
				Section properties RO 127x10			
				A	36.76 cm ²	Ksl-2	a
				I-2	633.55 cm ⁴	I-3	633.55 cm ⁴
				W-2	-99.77 cm ³	W-3	99.77 cm ³
				Forces and moments			
				N	-601.56 kN	M-2,end	0.00 kNm
				M-T	-0.48 kNm	M-2,min	-2.63 kNm
				V-3	-2.68 kN	x-M2,min	1.740 m
				M-2	-2.63 kNm	V-2	1.23 kN
				M-2,beg	1.56 kNm	M-3	-1.42 kNm
				Reduction factor Kappa			
				s-K,2	1.741 m	Kappa-2 b	0.839
				N-Cr,2	4334.05 kN	s-K,3	1.741 m
				Lambda-K,	0.553	N-Cr,3	4334.05 kN
				Ksl-2	a	Lambda-K,	0.553
				Coefficient k-2 and k-3			
				Psi-2	0.034	Beta-M,2	1.676
				Beta-M,Psi	1.776	a-2	0.0175 <= 0.8
				V-load 3	Ja	k-2	0.990 <= 1.5
				C-load 3	Nein	Psi-3	0.889
				Beta-M,V,2	1.300	Beta-M,Psi	1.178
				M-V,2	0.88 kNm	V-load 2	Ja
				Delta-M,2	4.19 kNm	C-load 2	Nein
				Design			
				D-N	0.596	D-M,3	0.056
				D-M,2	0.080	D-NM	0.732 < 1.0
510	660.000	CO97	0.523	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				A	364.00 cm ²	Ksl-2	a
				I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴
				W-2	-7660.00 cm ³	W-3	1240.00 cm ³
				Forces and moments			
				N	-3910.32 kN	x-M2,max	0.660 m
				V-3	167.81 kN	M-2,min	-231.24 kNm
				M-2	408.12 kNm	x-M2,min	0.660 m
				M-2,beg	296.63 kNm	V-2	12.38 kN
				M-2,end	408.12 kNm	M-3	-9.19 kNm
				M-2,max	408.12 kNm	M-3,beg	6.03 kNm
				Reduction factor Kappa			
				s-K,2	0.661 m	Kappa-2 b	0.993
				N-Cr,2	11261500 kN	s-K,3	0.661 m
				Lambda-K,	0.034 < 0.2	N-Cr,3	900354.0 kN
				Ksl-2	a	Lambda-K,	0.121 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.823	k-2	0.969 <= 1.5
				Beta-M,Psi	1.224	Psi-3	0.761
				V-load 3	Nein	Beta-M,Psi	1.267
				a-2	0.0933 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.345	D-M,3	0.020
				D-M,2	0.158	D-NM	0.523 < 1.0

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
511	660.000	CO97	0.466	1) Design to (28) fulfilled					
	Section properties HE-M 600								
	A	364.00	cm^2	Ksl-2	a	Ksl-3	b		
	I-2	237400.0	cm^4	I-3	18980.00	cm^4			
	W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
	Forces and moments								
	N	-3688.29	kN	M-2,max	292.64	kNm	M-3	12.34	kNm
	V-3	119.16	kN	x-M2,max	0.660	m	M-3,beg	8.22	kNm
	M-2	292.64	kNm	M-2,min	-220.21	kNm	M-3,end	12.34	kNm
	M-2,beg	213.30	kNm	x-M2,min	0.660	m	M-3,max	12.34	kNm
	M-2,end	292.64	kNm	V-2	-10.99	kN	x-M3,max	0.660	m
	Reduction factor Kappa								
	s-K,2	0.661	m	Kappa-2 b	0.993	Ksl-3	b		
	N-Cr,2	11261500	kN	s-K,3	0.661	m	Kappa-3 b	0.950	
	Lambda-K,	0.034	< 0.2	N-Cr,3	900354.0	kN	Kappa bar	0.950	
	Ksl-2	a		Lambda-K,	0.121	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.826		k-2	0.971	<= 1.5	a-3	0.3912	<= 0.8
	Beta-M,Psi	1.222		Psi-3	0.694		k-3	0.873	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.314				
a-2	0.0931	<= 0.8	V-load 2	Nein					
Design									
D-N	0.326		D-M,3	0.027					
D-M,2	0.113		D-NM	0.466	< 1.0				
512	2930.000	CO97	0.477	1) Design to (28) fulfilled					
	Section properties RO 127x10								
	A	36.76	cm^2	Ksl-2	a	Ksl-3	a		
	I-2	633.55	cm^4	I-3	633.55	cm^4			
	W-2	-99.77	cm^3	W-3	99.77	cm^3			
	Forces and moments								
	N	-263.46	kN	M-2,beg	1.44	kNm	M-3,beg	0.94	kNm
	M-T	-0.47	kNm	M-2,end	0.51	kNm	M-3,end	0.75	kNm
	V-3	-2.18	kN	V-2	0.69	kN	VT	1.82	kN
	M-2	-2.63	kNm	M-3	-1.02	kNm			
	Reduction factor Kappa								
	s-K,2	2.926	m	Kappa-2 b	0.648	Ksl-3	a		
	N-Cr,2	1533.88	kN	s-K,3	2.926	m	Kappa-3 b	0.648	
	Lambda-K,	0.929		N-Cr,3	1533.88	kN	Kappa bar	0.648	
	Ksl-2	a		Lambda-K,	0.929				
	Coefficient k-2 and k-3								
	Psi-2	0.380		Beta-M,2	1.464		Beta-M,V,3	1.300	
	Beta-M,Psi	1.534		a-2	-0.6201	<= 0.8	M-V,3	0.79	kNm
	V-load 3	Ja		k-2	1.210	<= 1.5	Delta-M,3	1.96	kNm
	C-load 3	Nein		Psi-3	0.798		Beta-M,3	1.265	
Beta-M,V,2	1.300		Beta-M,Psi	1.241		a-3	-0.9901	<= 0.8	
M-V,2	1.21	kNm	V-load 2	Ja		k-3	1.335	<= 1.5	
Delta-M,2	4.07	kNm	C-load 2	Nein					
Design									
D-N	0.338		D-M,3	0.042					
D-M,2	0.097		D-NM	0.477	< 1.0				
513	2930.000	CO97	0.498	1) Design to (28) fulfilled					
	Section properties RO 127x10								
	A	36.76	cm^2	Ksl-2	a	Ksl-3	a		
	I-2	633.55	cm^4	I-3	633.55	cm^4			
	W-2	-99.77	cm^3	W-3	99.77	cm^3			
	Forces and moments								
	N	-274.35	kN	M-2,beg	1.65	kNm	M-3,beg	0.64	kNm
	M-T	0.54	kNm	M-2,end	0.52	kNm	M-3,end	1.11	kNm
	V-3	-2.28	kN	V-2	-0.70	kN	VT	1.85	kN
	M-2	-2.71	kNm	M-3	1.11	kNm			
	Reduction factor Kappa								
	s-K,2	2.926	m	Kappa-2 b	0.648	Ksl-3	a		
	N-Cr,2	1533.88	kN	s-K,3	2.926	m	Kappa-3 b	0.648	
	Lambda-K,	0.929		N-Cr,3	1533.88	kN	Kappa bar	0.648	
	Ksl-2	a		Lambda-K,	0.929				
	Coefficient k-2 and k-3								
	Psi-2	0.387		Beta-M,2	1.460		Beta-M,V,3	1.300	
	Beta-M,Psi	1.529		a-2	-0.6275	<= 0.8	M-V,3	0.73	kNm
	V-load 3	Ja		k-2	1.221	<= 1.5	Delta-M,3	2.07	kNm
	C-load 3	Nein		Psi-3	0.646		Beta-M,3	1.331	
Beta-M,V,2	1.300		Beta-M,Psi	1.348		a-3	-0.8673	<= 0.8	
M-V,2	1.31	kNm	V-load 2	Ja		k-3	1.305	<= 1.5	
Delta-M,2	4.36	kNm	C-load 2	Nein					
Design									
D-N	0.352		D-M,3	0.044					
D-M,2	0.101		D-NM	0.498	< 1.0				
514	2130.000	CO97	0.762	1) Design to (28) fulfilled					
	Section properties HE-M 600								
	A	364.00	cm^2	Ksl-2	a	Ksl-3	b		
	I-2	237400.0	cm^4	I-3	18980.00	cm^4			
	W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
	Forces and moments								
	N	-3910.32	kN	M-2,beg	408.12	kNm	M-3	-35.81	kNm
	V-3	-534.35	kN	M-2,end	30.12	kNm	M-3,beg	7.92	kNm
	M-2	-711.07	kNm	V-2	13.01	kN	M-3,end	8.81	kNm
	Reduction factor Kappa								
	s-K,2	2.125	m	Kappa-2 b	0.978	Ksl-3	b		

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	1089640. kN 0.110 < 0.2 a 0.325 1.572 Ja Nein 1.300 180.49 kNm 1119.19 kNm 0.391 0.280		s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	2.125 m 87115.89 kN 0.388 1.528 0.0428 <= 0.8 0.986 <= 1.5 0.899 1.171 Ja Nein 0.091 0.762 < 1.0	Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	0.840 0.840 1.300 0.09 kNm 44.62 kNm 1.171 -0.0863 <= 0.8 1.034 <= 1.5
515	2130.000	CO97	0.669	1) Design to (28) fulfilled			
	Section properties HE-M 600 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	364.00 cm ² 237400.0 cm ⁴ -7660.00 cm ³ -3688.29 kN -414.69 kN -574.82 kNm 2.125 m 1089640. kN 0.110 < 0.2 a 0.383 1.532 Ja Nein 1.300 124.76 kNm 867.46 kNm 0.369 0.227		Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	a 18980.00 cm ⁴ 1240.00 cm ³ 292.64 kNm 17.88 kNm -10.99 kN 0.978 2.125 m 87115.89 kN 0.388 1.498 0.0362 <= 0.8 0.989 <= 1.5 0.431 1.499 Ja Nein 0.074 0.669 < 1.0	Ksl-3 b M-3 M-3,beg M-3,end b Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	31.71 kNm 12.34 kNm 31.71 kNm 0.840 0.840 1.300 1.97 kNm 42.00 kNm 1.489 0.1606 <= 0.8 0.941 <= 1.5
518	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Rundstahl 140 A A-2 I-2 Forces and moments N V-3	153.94 cm ² 136.79 cm ² 1885.74 cm ⁴ 0.00 kN 0.06 kN		W-2,min W-2,max Ksl-2 M-2 M-2,beg	-179.45 cm ³ 269.39 cm ³ c 0.00 kNm 0.00 kNm	I-3 Ksl-3 M-2,end	1885.74 cm ⁴ c 0.00 kNm
519	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Rundstahl 140 A A-2 I-2 Forces and moments N V-3	153.94 cm ² 136.79 cm ² 1885.74 cm ⁴ 0.00 kN 0.06 kN		W-2,min W-2,max Ksl-2 M-2 M-2,beg	-179.45 cm ³ 269.39 cm ³ c 0.00 kNm 0.00 kNm	I-3 Ksl-3 M-2,end	1885.74 cm ⁴ c 0.00 kNm
520	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Rundstahl 140 A A-2 I-2 Forces and moments N V-3	153.94 cm ² 136.79 cm ² 1885.74 cm ⁴ 0.00 kN 0.06 kN		W-2,min W-2,max Ksl-2 M-2 M-2,beg	-179.45 cm ³ 269.39 cm ³ c 0.00 kNm 0.00 kNm	I-3 Ksl-3 M-2,end	1885.74 cm ⁴ c 0.00 kNm
521	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Rundstahl 140 A A-2 I-2 Forces and moments N V-3	153.94 cm ² 136.79 cm ² 1885.74 cm ⁴ 0.00 kN 0.00 kN		W-2,min W-2,max Ksl-2 M-2 M-2,beg	-179.45 cm ³ 269.39 cm ³ c 0.00 kNm 0.00 kNm	I-3 Ksl-3 M-2,end	1885.74 cm ⁴ c 0.00 kNm
522	0.000	CO97	0.135	1) Design to (28) fulfilled			
	Section properties Flachstahl 350/40 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K,	140.00 cm ² 116.67 cm ² 186.67 cm ⁴ -93.33 cm ³ -0.45 kN 0.86 kN -0.14 kNm 0.198 m 98686.00 kN 0.226		W-2,max Ksl-2 A-3 I-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3	93.33 cm ³ c 116.67 cm ² 14291.70 cm ⁴ 0.01 kNm 0.03 kNm 176.63 kN 0.906 0.198 m 7555650. kN	W-3,min W-3,max Ksl-3 M-3 M-3,beg M-3,end c Kappa-3 b Kappa bar	-816.67 cm ³ 816.67 cm ³ c 34.89 kNm 34.89 kNm 0.00 kNm 0.906 0.906

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	Ksl-2	c	Lambda-K,	0.026	< 0.2			
	Coefficient k-2 and k-3							
	Psi-2	0.333	k-2	1.000	<= 1.5	a-3	0.4897 <= 0.8	
	Beta-M,Psi	1.567	Psi-3	0.000		k-3	1.000 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.800				
	a-2	0.3041	<= 0.8	V-load 2	Nein			
	Design							
	D-N	0.000	D-M,3	0.131				
	D-M,2	0.005	D-NM	0.135	< 1.0			
523	0.000	CO97	0.233	1) Design to (28) fulfilled				
Section properties Flachstahl 350/40								
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
Forces and moments								
N	-0.03	kN	M-2,beg	0.23	kNm	M-3	-60.23	kNm
V-3	-1.26	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm
M-2	0.23	kNm	V-2	-304.24	kN	M-3,end	0.04	kNm
Reduction factor Kappa								
s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906	
Ksl-2	c		Lambda-K,	0.026	< 0.2			
Coefficient k-2 and k-3								
Psi-2	1.000		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
Beta-M,Psi	1.100		Psi-3	0.000		k-3	1.000	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.800				
a-2	0.0932	<= 0.8	V-load 2	Nein				
Design								
D-N	0.000		D-M,3	0.225				
D-M,2	0.008		D-NM	0.233	< 1.0			
524	200.000	CO97	0.135	1) Design to (28) fulfilled				
Section properties Flachstahl 350/40								
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
Forces and moments								
N	-0.08	kN	M-2,beg	0.00	kNm	M-3	34.89	kNm
V-3	0.86	kN	M-2,end	0.14	kNm	M-3,beg	0.00	kNm
M-2	0.14	kNm	V-2	-176.63	kN	M-3,end	34.89	kNm
Reduction factor Kappa								
s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906	
Ksl-2	c		Lambda-K,	0.026	< 0.2			
Coefficient k-2 and k-3								
Psi-2	0.333		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
Beta-M,Psi	1.567		Psi-3	0.000		k-3	1.000	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.800				
a-2	0.3041	<= 0.8	V-load 2	Nein				
Design								
D-N	0.000		D-M,3	0.131				
D-M,2	0.005		D-NM	0.135	< 1.0			
525	200.000	CO97	0.233	1) Design to (28) fulfilled				
Section properties Flachstahl 350/40								
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
Forces and moments								
N	-0.36	kN	M-2,beg	0.03	kNm	M-3	-60.23	kNm
V-3	-1.26	kN	M-2,end	0.03	kNm	M-3,beg	0.04	kNm
M-2	-0.23	kNm	V-2	304.24	kN	M-3,end	0.00	kNm
Reduction factor Kappa								
s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906	
Ksl-2	c		Lambda-K,	0.026	< 0.2			
Coefficient k-2 and k-3								
Psi-2	1.000		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
Beta-M,Psi	1.100		Psi-3	0.000		k-3	1.000	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.800				
a-2	0.0932	<= 0.8	V-load 2	Nein				
Design								
D-N	0.000		D-M,3	0.225				
D-M,2	0.008		D-NM	0.233	< 1.0			
526	200.000	CO97	0.133	1) Design to (28) fulfilled				
Section properties Flachstahl 350/40								
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
Forces and moments								
N	-0.45	kN	M-2,beg	0.00	kNm	M-3	34.24	kNm
V-3	0.86	kN	M-2,end	0.14	kNm	M-3,beg	0.00	kNm

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	M-2	0.14	kNm	V-2	-173.33	kN	M-3,end	34.24	kNm
	Reduction factor Kappa								
	s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
	N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
	Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906	
	Ksl-2	c		Lambda-K,	0.026	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.333		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
	Beta-M,Psi	1.567		Psi-3	0.000		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.3041	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.128				
D-M,2	0.005		D-NM	0.133	< 1.0				
527	0.000	CO97	0.229	1) Design to (28) fulfilled					
Section properties Flachstahl 350/40									
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3	
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3	
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c		
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4				
Forces and moments									
N	-0.03	kN	M-2,beg	0.23	kNm	M-3	-59.10	kNm	
V-3	-1.26	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm	
M-2	0.23	kNm	V-2	-298.56	kN	M-3,end	0.04	kNm	
Reduction factor Kappa									
s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c		
N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906		
Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906		
Ksl-2	c		Lambda-K,	0.026	< 0.2				
Coefficient k-2 and k-3									
Psi-2	1.000		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8	
Beta-M,Psi	1.100		Psi-3	0.000		k-3	1.000	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.800					
a-2	0.0932	<= 0.8	V-load 2	Nein					
Design									
D-N	0.000		D-M,3	0.221					
D-M,2	0.008		D-NM	0.229	< 1.0				
528	0.000	CO97	0.133	1) Design to (28) fulfilled					
Section properties Flachstahl 350/40									
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3	
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3	
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c		
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4				
Forces and moments									
N	-0.08	kN	M-2,beg	0.01	kNm	M-3	34.24	kNm	
V-3	0.86	kN	M-2,end	0.03	kNm	M-3,beg	34.24	kNm	
M-2	-0.14	kNm	V-2	173.33	kN	M-3,end	0.00	kNm	
Reduction factor Kappa									
s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c		
N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906		
Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906		
Ksl-2	c		Lambda-K,	0.026	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.333		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8	
Beta-M,Psi	1.567		Psi-3	0.000		k-3	1.000	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.800					
a-2	0.3041	<= 0.8	V-load 2	Nein					
Design									
D-N	0.000		D-M,3	0.128					
D-M,2	0.005		D-NM	0.133	< 1.0				
529	200.000	CO97	0.229	1) Design to (28) fulfilled					
Section properties Flachstahl 350/40									
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3	
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3	
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c		
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4				
Forces and moments									
N	-0.36	kN	M-2,beg	0.03	kNm	M-3	-59.10	kNm	
V-3	-1.26	kN	M-2,end	0.03	kNm	M-3,beg	0.04	kNm	
M-2	-0.23	kNm	V-2	298.56	kN	M-3,end	0.00	kNm	
Reduction factor Kappa									
s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c		
N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906		
Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906		
Ksl-2	c		Lambda-K,	0.026	< 0.2				
Coefficient k-2 and k-3									
Psi-2	1.000		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8	
Beta-M,Psi	1.100		Psi-3	0.000		k-3	1.000	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.800					
a-2	0.0932	<= 0.8	V-load 2	Nein					
Design									
D-N	0.000		D-M,3	0.221					
D-M,2	0.008		D-NM	0.229	< 1.0				
530	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Rundstahl 140									
A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3	
A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3	

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	W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
	Forces and moments								
	N	-0.11	kN	M-2,beg	0.03	kNm	M-3	-23.67	kNm
	V-3	-0.45	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm
	M-2	0.03	kNm	V-2	-176.06	kN	M-3,end	0.11	kNm
	Reduction factor Kappa								
	s-K,2	0.135	m	Kappa-2 b	0.799		Ksl-3	c	
	N-Cr,2	11194.29	kN	s-K,3	0.135	m	Kappa-3 b	0.799	
	Lambda-K,	0.597		N-Cr,3	6094690.	kN	Kappa bar	0.799	
	Ksl-2	c		Lambda-K,	0.026	< 0.2			
	Taper conditions								
	TapCon1-2	92515.20	> 1.20	TapCon2-2	1.000	> 0.05			
	TapCon1-3	50369400	> 1.20	TapCon2-3	1.000	> 0.05			
	Coefficient k-2 and k-3								
	Psi-2	0.000		Beta-M,2	1.791		Beta-M,V,3	1.300	
	Beta-M,Psi	1.800		a-2	0.2500	<= 0.8	M-V,3	0.00	kNm
	V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	23.78	kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4898	<= 0.8
	M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
Delta-M,2	0.06	kNm	C-load 2	Nein					
Design									
D-N	0.000		D-M,3	0.053					
D-M,2	0.003		D-NM	0.056	< 1.0				
537	0.000	CO97	0.055	1) Design to (28) fulfilled					
Section properties Flachstahl 740/15									
A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3	
A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3	
I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c		
W-2,min	-27.75	cm^3	I-3	50653.00	cm^4				
Forces and moments									
N	-0.86	kN	M-2,beg	0.03	kNm	M-3	-23.24	kNm	
V-3	-0.45	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm	
M-2	0.03	kNm	V-2	-172.76	kN	M-3,end	0.11	kNm	
Reduction factor Kappa									
s-K,2	0.135	m	Kappa-2 b	0.799		Ksl-3	c		
N-Cr,2	11194.29	kN	s-K,3	0.135	m	Kappa-3 b	0.799		
Lambda-K,	0.597		N-Cr,3	6094690.	kN	Kappa bar	0.799		
Ksl-2	c		Lambda-K,	0.026	< 0.2				
Taper conditions									
TapCon1-2	11833.29	> 1.20	TapCon2-2	1.000	> 0.05				
TapCon1-3	6442590.	> 1.20	TapCon2-3	1.000	> 0.05				
Coefficient k-2 and k-3									
Psi-2	0.000		Beta-M,2	1.791		Beta-M,V,3	1.300		
Beta-M,Psi	1.800		a-2	0.2500	<= 0.8	M-V,3	0.00	kNm	
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	23.35	kNm	
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800		
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4898	<= 0.8	
M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5	
Delta-M,2	0.06	kNm	C-load 2	Nein					
Design									
D-N	0.000		D-M,3	0.052					
D-M,2	0.003		D-NM	0.055	< 1.0				
538	0.000	CO97	0.535	4) Design to (3) fulfilled (axial compression)					
Section properties Flachstahl 200/60									
A	120.00	cm^2	W-2,min	-120.00	cm^3	I-3	4000.00	cm^4	
A-2	100.00	cm^2	W-2,max	120.00	cm^3	Ksl-3	c		
I-2	360.00	cm^4	Ksl-2	c					
Forces and moments									
N	-1369.89	kN	M-2	0.00	kNm	M-2,end	0.00	kNm	
V-3	0.00	kN	M-2,beg	0.00	kNm				
Reduction factor Kappa									
s-K,2	1.000	m	Kappa-2 b	0.651		Ksl-3	c		
N-Cr,2	7461.42	kN	s-K,3	1.000	m	Kappa-3 b	0.651		
Lambda-K,	0.761		N-Cr,3	82904.70	kN	Kappa bar	0.651		
Ksl-2	c		Lambda-K,	0.228					
Design									
D-N	0.535	< 1.0							
539	0.000	CO97	0.055	1) Design to (28) fulfilled					
Section properties Flachstahl 740/15									
A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3	
A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3	
I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c		
W-2,min	-27.75	cm^3	I-3	50653.00	cm^4				
Forces and moments									
N	-0.11	kN	M-2,beg	0.03	kNm	M-3	-23.24	kNm	
V-3	-0.45	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm	
M-2	0.03	kNm	V-2	-172.76	kN	M-3,end	0.11	kNm	
Reduction factor Kappa									
s-K,2	0.135	m	Kappa-2 b	0.799		Ksl-3	c		
N-Cr,2	11194.29	kN	s-K,3	0.135	m	Kappa-3 b	0.799		
Lambda-K,	0.597		N-Cr,3	6094690.	kN	Kappa bar	0.799		
Ksl-2	c		Lambda-K,	0.026	< 0.2				
Taper conditions									
TapCon1-2	92515.20	> 1.20	TapCon2-2	1.000	> 0.05				
TapCon1-3	50369400	> 1.20	TapCon2-3	1.000	> 0.05				
Coefficient k-2 and k-3									
Psi-2	0.000		Beta-M,2	1.791		Beta-M,V,3	1.300		

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	Beta-M,Psi	1.800		a-2	0.2500	<= 0.8	M-V,3	0.00	kNm
	V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	23.35	kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4898	<= 0.8
	M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
	Delta-M,2	0.06	kNm	C-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.052				
	D-M,2	0.003		D-NM	0.055	< 1.0			
540	0.000	CO97	0.128	1) Design to (28) fulfilled					
Section properties Flachstahl 740/15									
A	111.00	cm^2		W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
A-2	92.50	cm^2		Ksl-2	c		W-3,max	1369.00	cm^3
I-2	20.81	cm^4		A-3	92.50	cm^2	Ksl-3	c	
W-2,min	-27.75	cm^3		I-3	50653.00	cm^4			
Forces and moments									
N	-0.16	kN		M-2,beg	0.00	kNm	M-3	55.71	kNm
V-3	0.36	kN		M-2,end	0.03	kNm	M-3,beg	55.71	kNm
M-2	-0.03	kNm		V-2	304.88	kN	M-3,end	0.00	kNm
Reduction factor Kappa									
s-K,2	0.185	m		Kappa-2 b	0.686		Ksl-3	c	
N-Cr,2	5961.39	kN		s-K,3	0.185	m	Kappa-3 b	0.686	
Lambda-K,	0.819			N-Cr,3	3245650.	kN	Kappa bar	0.686	
Ksl-2	c			Lambda-K,	0.035	< 0.2			
Taper conditions									
TapCon1-2	33871.50	> 1.20		TapCon2-2	1.000	> 0.05			
TapCon1-3	18441200	> 1.20		TapCon2-3	1.000	> 0.05			
Coefficient k-2 and k-3									
Psi-2	0.000			Beta-M,2	1.793		Beta-M,V,3	1.300	
Beta-M,Psi	1.800			a-2	0.1614	<= 0.8	M-V,3	0.02	kNm
V-load 3	Ja			k-2	1.000	<= 1.5	Delta-M,3	56.37	kNm
C-load 3	Nein			Psi-3	0.000		Beta-M,3	1.800	
Beta-M,V,2	1.300			Beta-M,Psi	1.800		a-3	0.4860	<= 0.8
M-V,2	0.00	kNm		V-load 2	Ja		k-3	1.000	<= 1.5
Delta-M,2	0.06	kNm		C-load 2	Nein				
Design									
D-N	0.000			D-M,3	0.124				
D-M,2	0.003			D-NM	0.128	< 1.0			
541	0.000	CO97	0.128	1) Design to (28) fulfilled					
Section properties Flachstahl 740/15									
A	111.00	cm^2		W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
A-2	92.50	cm^2		Ksl-2	c		W-3,max	1369.00	cm^3
I-2	20.81	cm^4		A-3	92.50	cm^2	Ksl-3	c	
W-2,min	-27.75	cm^3		I-3	50653.00	cm^4			
Forces and moments									
N	-1.26	kN		M-2,beg	0.00	kNm	M-3	55.71	kNm
V-3	0.36	kN		M-2,end	0.03	kNm	M-3,beg	55.71	kNm
M-2	-0.03	kNm		V-2	304.88	kN	M-3,end	0.00	kNm
Reduction factor Kappa									
s-K,2	0.185	m		Kappa-2 b	0.686		Ksl-3	c	
N-Cr,2	5961.39	kN		s-K,3	0.185	m	Kappa-3 b	0.686	
Lambda-K,	0.819			N-Cr,3	3245650.	kN	Kappa bar	0.686	
Ksl-2	c			Lambda-K,	0.035	< 0.2			
Taper conditions									
TapCon1-2	4301.149	> 1.20		TapCon2-2	1.000	> 0.05			
TapCon1-3	2341740.	> 1.20		TapCon2-3	1.000	> 0.05			
Coefficient k-2 and k-3									
Psi-2	0.000			Beta-M,2	1.793		Beta-M,V,3	1.300	
Beta-M,Psi	1.800			a-2	0.1614	<= 0.8	M-V,3	0.02	kNm
V-load 3	Ja			k-2	1.000	<= 1.5	Delta-M,3	56.37	kNm
C-load 3	Nein			Psi-3	0.000		Beta-M,3	1.800	
Beta-M,V,2	1.300			Beta-M,Psi	1.800		a-3	0.4860	<= 0.8
M-V,2	0.00	kNm		V-load 2	Ja		k-3	1.000	<= 1.5
Delta-M,2	0.06	kNm		C-load 2	Nein				
Design									
D-N	0.001			D-M,3	0.124				
D-M,2	0.003			D-NM	0.128	< 1.0			
542	0.000	CO97	0.125	1) Design to (28) fulfilled					
Section properties Flachstahl 740/15									
A	111.00	cm^2		W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
A-2	92.50	cm^2		Ksl-2	c		W-3,max	1369.00	cm^3
I-2	20.81	cm^4		A-3	92.50	cm^2	Ksl-3	c	
W-2,min	-27.75	cm^3		I-3	50653.00	cm^4			
Forces and moments									
N	-0.16	kN		M-2,beg	0.00	kNm	M-3	54.68	kNm
V-3	0.36	kN		M-2,end	0.03	kNm	M-3,beg	54.68	kNm
M-2	-0.03	kNm		V-2	299.19	kN	M-3,end	0.00	kNm
Reduction factor Kappa									
s-K,2	0.185	m		Kappa-2 b	0.686		Ksl-3	c	
N-Cr,2	5961.39	kN		s-K,3	0.185	m	Kappa-3 b	0.686	
Lambda-K,	0.819			N-Cr,3	3245650.	kN	Kappa bar	0.686	
Ksl-2	c			Lambda-K,	0.035	< 0.2			
Taper conditions									
TapCon1-2	33871.50	> 1.20		TapCon2-2	1.000	> 0.05			
TapCon1-3	18441200	> 1.20		TapCon2-3	1.000	> 0.05			
Coefficient k-2 and k-3									
Psi-2	0.000			Beta-M,2	1.793		Beta-M,V,3	1.300	
Beta-M,Psi	1.800			a-2	0.1614	<= 0.8	M-V,3	0.02	kNm

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	V-load 3	Ja	k-2	1.000	<= 1.5	Delta-M,3	55.32 kNm
	C-load 3	Nein	Psi-3	0.000		Beta-M,3	1.800
	Beta-M,V,2	1.300	Beta-M,Psi	1.800		a-3	0.4860 <= 0.8
	M-V,2	0.00 kNm	V-load 2	Ja		k-3	1.000 <= 1.5
	Delta-M,2	0.06 kNm	C-load 2	Nein			
	Design						
	D-N	0.000	D-M,3	0.122			
	D-M,2	0.003	D-NM	0.125	< 1.0		
543	0.000	CO97	0.126	1) Design to (28) fulfilled			
	Section properties Flachstahl 740/15						
	A	111.00 cm ²	W-2,max	27.75 cm ³		W-3,min	-1369.00 cm ³
	A-2	92.50 cm ²	Ksl-2	c		W-3,max	1369.00 cm ³
	I-2	20.81 cm ⁴	A-3	92.50 cm ²		Ksl-3	c
	W-2,min	-27.75 cm ³	I-3	50653.00 cm ⁴			
	Forces and moments						
	N	-1.26 kN	M-2,beg	0.00 kNm		M-3	54.68 kNm
	V-3	0.36 kN	M-2,end	0.03 kNm		M-3,beg	54.68 kNm
	M-2	-0.03 kNm	V-2	299.19 kN		M-3,end	0.00 kNm
	Reduction factor Kappa						
	s-K,2	0.185 m	Kappa-2 b	0.686		Ksl-3	c
	N-Cr,2	5961.39 kN	s-K,3	0.185 m		Kappa-3 b	0.686
	Lambda-K,	0.819	N-Cr,3	3245650. kN		Kappa bar	0.686
	Ksl-2	c	Lambda-K,	0.035 < 0.2			
	Taper conditions						
	TapCon1-2	4301.149 > 1.20	TapCon2-2	1.000 > 0.05			
	TapCon1-3	2341740. > 1.20	TapCon2-3	1.000 > 0.05			
	Coefficient k-2 and k-3						
	Psi-2	0.000	Beta-M,2	1.793		Beta-M,V,3	1.300
	Beta-M,Psi	1.800	a-2	0.1614 <= 0.8		M-V,3	0.02 kNm
	V-load 3	Ja	k-2	1.000 <= 1.5		Delta-M,3	55.32 kNm
	C-load 3	Nein	Psi-3	0.000		Beta-M,3	1.800
	Beta-M,V,2	1.300	Beta-M,Psi	1.800		a-3	0.4860 <= 0.8
	M-V,2	0.00 kNm	V-load 2	Ja		k-3	1.000 <= 1.5
	Delta-M,2	0.06 kNm	C-load 2	Nein			
	Design						
	D-N	0.001	D-M,3	0.122			
	D-M,2	0.003	D-NM	0.126 < 1.0			
544	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Rundstahl 140						
	A	153.94 cm ²	W-2,max	269.39 cm ³		W-3,min	-179.45 cm ³
	A-2	136.79 cm ²	Ksl-2	c		W-3,max	269.39 cm ³
	I-2	1885.74 cm ⁴	A-3	136.79 cm ²		Ksl-3	c
	W-2,min	-179.45 cm ³	I-3	1885.74 cm ⁴			
	Forces and moments						
	N	0.00 kN	M-2,beg	46.59 kNm		M-3	1.56 kNm
	V-3	-1040.56 kN	M-2,end	0.00 kNm		M-3,beg	1.56 kNm
	M-2	46.59 kNm	V-2	-0.90 kN		M-3,end	1.62 kNm
545	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Rundstahl 140						
	A	153.94 cm ²	W-2,max	269.39 cm ³		W-3,min	-179.45 cm ³
	A-2	136.79 cm ²	Ksl-2	c		W-3,max	269.39 cm ³
	I-2	1885.74 cm ⁴	A-3	136.79 cm ²		Ksl-3	c
	W-2,min	-179.45 cm ³	I-3	1885.74 cm ⁴			
	Forces and moments						
	N	0.00 kN	M-2,beg	45.72 kNm		M-3	1.57 kNm
	V-3	-1021.13 kN	M-2,end	0.00 kNm		M-3,beg	1.57 kNm
	M-2	45.72 kNm	V-2	-0.90 kN		M-3,end	1.63 kNm
546	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Rundstahl 140						
	A	153.94 cm ²	W-2,max	269.39 cm ³		W-3,min	-179.45 cm ³
	A-2	136.79 cm ²	Ksl-2	c		W-3,max	269.39 cm ³
	I-2	1885.74 cm ⁴	A-3	136.79 cm ²		Ksl-3	c
	W-2,min	-179.45 cm ³	I-3	1885.74 cm ⁴			
	Forces and moments						
	N	0.00 kN	M-2,beg	0.00 kNm		M-3	-1.39 kNm
	V-3	787.91 kN	M-2,end	39.74 kNm		M-3,beg	0.18 kNm
	M-2	-52.83 kNm	V-2	0.75 kN		M-3,end	0.18 kNm
547	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties Rundstahl 140						
	A	153.94 cm ²	W-2,max	269.39 cm ³		W-3,min	-179.45 cm ³
	A-2	136.79 cm ²	Ksl-2	c		W-3,max	269.39 cm ³
	I-2	1885.74 cm ⁴	A-3	136.79 cm ²		Ksl-3	c
	W-2,min	-179.45 cm ³	I-3	1885.74 cm ⁴			
	Forces and moments						
	N	0.00 kN	M-2,beg	0.18 kNm		M-3	51.84 kNm
	V-3	-0.75 kN	M-2,end	0.18 kNm		M-3,beg	51.84 kNm
	M-2	-1.39 kNm	V-2	773.23 kN		M-3,end	0.00 kNm
570	50.000	CO98	0.034	1) Design to (28) fulfilled			
	Section properties Rundstahl 140						
	A	153.94 cm ²	W-2,max	269.39 cm ³		W-3,min	-179.45 cm ³
	A-2	136.79 cm ²	Ksl-2	c		W-3,max	269.39 cm ³
	I-2	1885.74 cm ⁴	A-3	136.79 cm ²		Ksl-3	c
	W-2,min	-179.45 cm ³	I-3	1885.74 cm ⁴			
	Forces and moments						
	N	-0.11 kN	M-2,max	3.25 kNm		M-3	0.01 kNm

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	V-3	59.25	kN	x-M2,max	0.050	m	M-3,beg	0.00	kNm
	M-2	3.25	kNm	M-2,min	-1.09	kNm	M-3,end	0.01	kNm
	M-2,beg	0.00	kNm	x-M2,min	0.050	m	M-3,max	0.01	kNm
	M-2,end	3.25	kNm	V-2	-0.15	kN	x-M3,max	0.050	m
	Reduction factor Kappa								
	s-K,2	0.055	m	Kappa-2 b	0.985		Ksl-3	c	
	N-Cr,2	12920200	kN	s-K,3	0.055	m	Kappa-3 b	0.985	
	Lambda-K,	0.027	< 0.2	N-Cr,3	12920200	kN	Kappa bar	0.985	
	Ksl-2	c		Lambda-K,	0.027	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.000		Beta-M,2	1.766		Beta-M,V,3	1.300	
	Beta-M,Psi	1.800		a-2	0.8000	<= 0.8	M-V,3	0.00	kNm
	V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	0.01	kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.8000	<= 0.8
	M-V,2	0.30	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
	Delta-M,2	4.34	kNm	C-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.000				
	D-M,2	0.034		D-NM	0.034	< 1.0			
	576	7000.000	CO98	0.475	1) Design to (28) fulfilled				
	Section properties Kasten(A) 770/15/12/710/772/770/15								
	A	409.08	cm^2	W-2,max	10691.29	cm^3	W-3,min	-8992.99	cm^3
	A-2	178.68	cm^2	Ksl-2	b		W-3,max	8992.99	cm^3
	I-2	412683.0	cm^4	A-3	157.21	cm^2	Ksl-3	b	
W-2,min	-10691.2	cm^3	I-3	346230.0	cm^4				
Forces and moments									
N	-2605.28	kN	M-2,beg	203.19	kNm	M-3	-137.24	kNm	
V-3	134.34	kN	M-2,end	728.64	kNm	M-3,beg	103.06	kNm	
M-2	728.64	kNm	V-2	-38.11	kN	M-3,end	43.06	kNm	
Reduction factor Kappa									
s-K,2	7.000	m	Kappa-2 b	0.928		Ksl-3	b		
N-Cr,2	174558.0	kN	s-K,3	7.000	m	Kappa-3 b	0.914		
Lambda-K,	0.290		N-Cr,3	146450.0	kN	Kappa bar	0.914		
Ksl-2	b		Lambda-K,	0.317					
Taper conditions									
TapCon1-2	60.911	> 1.20	TapCon2-2	0.558	> 0.05				
TapCon1-3	51.102	> 1.20	TapCon2-3	0.714	> 0.05				
Coefficient k-2 and k-3									
Psi-2	0.279		Beta-M,2	1.526		Beta-M,V,3	1.300		
Beta-M,Psi	1.605		a-2	-0.1488	<= 0.8	M-V,3	5.73	kNm	
V-load 3	Ja		k-2	1.031	<= 1.5	Delta-M,3	430.64	kNm	
C-load 3	Nein		Psi-3	0.419		Beta-M,3	1.504		
Beta-M,V,2	1.300		Beta-M,Psi	1.507		a-3	-0.1053	<= 0.8	
M-V,2	248.13	kNm	V-load 2	Ja		k-3	1.022	<= 1.5	
Delta-M,2	954.50	kNm	C-load 2	Nein					
Design									
D-N	0.213		D-M,3	0.048					
D-M,2	0.215		D-NM	0.475	< 1.0				
580	3370.000	CO99	0.369	1) Design to (28) fulfilled					
Section properties BOX(A) 700/8/8/650/842.644/700/8									
A	244.28	cm^2	W-2,max	6418.47	cm^3	W-3,min	-5397.75	cm^3	
A-2	84.10	cm^2	Ksl-2	b		W-3,max	5397.76	cm^3	
I-2	270458.0	cm^4	A-3	117.27	cm^2	Ksl-3	b		
W-2,min	-6418.47	cm^3	I-3	188922.0	cm^4				
Forces and moments									
N	-38.97	kN	x-M2,max	1.680	m	M-3,end	27.54	kNm	
V-3	-56.62	kN	M-2,min	-426.93	kNm	M-3,max	27.54	kNm	
M-2	-327.89	kNm	x-M2,min	5.050	m	x-M3,max	5.050	m	
M-2,beg	175.46	kNm	V-2	37.32	kN	M-3,min	-429.96	kNm	
M-2,end	159.36	kNm	M-3	-367.07	kNm	x-M3,min	5.050	m	
M-2,max	175.65	kNm	M-3,beg	15.46	kNm				
Reduction factor Kappa									
s-K,2	5.054	m	Kappa-2 b	0.949		Ksl-3	b		
N-Cr,2	170941.0	kN	s-K,3	5.054	m	Kappa-3 b	0.939		
Lambda-K,	0.227		N-Cr,3	141085.0	kN	Kappa bar	0.939		
Ksl-2	b		Lambda-K,	0.250					
Taper conditions									
TapCon1-2	3987.709	> 1.20	TapCon2-2	0.780	> 0.05				
TapCon1-3	3291.219	> 1.20	TapCon2-3	0.863	> 0.05				
Coefficient k-2 and k-3									
Psi-2	0.908		M-V,2	10.97	kNm	Psi-3	0.561		
Beta-M,Psi	1.164		Delta-M,2	602.58	kNm	Beta-M,Psi	1.407		
V-load 3	Ja		Beta-M,2	1.167		V-load 2	Nein		
C-load 3	Nein		a-2	-0.2237	<= 0.8	a-3	-0.1267	<= 0.8	
Beta-M,V,2	1.300		k-2	1.001	<= 1.5	k-3	1.001	<= 1.5	
Design									
D-N	0.005		D-M,3	0.208					
D-M,2	0.156		D-NM	0.369	< 1.0				
581	270.000	CO99	0.126	1) Design to (28) fulfilled					
Section properties Flat 656/35									
A	229.60	cm^2	W-2,max	133.93	cm^3	W-3,min	-2510.29	cm^3	
A-2	191.33	cm^2	Ksl-2	c		W-3,max	2510.29	cm^3	
I-2	234.38	cm^4	A-3	191.33	cm^2	Ksl-3	c		
W-2,min	-133.93	cm^3	I-3	82337.50	cm^4				
Forces and moments									
N	-451.44	kN	M-2,min	-0.41	kNm	M-3,end	38.84	kNm	
V-3	-1.95	kN	x-M2,min	0.270	m	M-3,max	38.84	kNm	

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	M-2	-0.41	kNm	V-2	-149.69	kN	x-M3,max	0.270	m
	M-2,beg	0.12	kNm	M-3	38.84	kNm	M-3,min	-2.49	kNm
	M-2,end	0.06	kNm	M-3,beg	0.10	kNm	x-M3,min	0.270	m
	Reduction factor Kappa								
	s-K,2	0.270	m	Kappa-2 b	0.848		Ksl-3		c
	N-Cr,2	50790.60	kN	s-K,3	0.270	m	Kappa-3 b	0.848	
	Lambda-K,	0.403		N-Cr,3	10365400	kN	Kappa bar	0.848	
	Ksl-2		c	Lambda-K,	0.028	< 0.2			
	Taper conditions								
	TapCon1-2	102.280	> 1.20	TapCon2-2	0.762	> 0.05			
	TapCon1-3	20873.40	> 1.20	TapCon2-3	0.581	> 0.05			
	Coefficient k-2 and k-3								
	Psi-2	0.500		k-2	0.996	<= 1.5	a-3	0.4638	<= 0.8
	Beta-M,Psi	1.450		Psi-3	0.631		k-3	0.972	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.359				
	a-2	0.0563	<= 0.8	V-load 2	Nein				
Design									
D-N	0.071		D-M,3	0.046					
D-M,2	0.009		D-NM	0.126	< 1.0				
582	0.000	CO99	0.101	1) Design to (28) fulfilled					
Section properties Rundstahl 220									
A	380.13	cm^2	W-2,max	1045.36	cm^3	W-3,min	-696.36	cm^3	
A-2	337.79	cm^2	Ksl-2		c	W-3,max	1045.36	cm^3	
I-2	11499.00	cm^4	A-3	337.79	cm^2	Ksl-3		c	
W-2,min	-696.36	cm^3	I-3	11499.00	cm^4				
Forces and moments									
N	-1.95	kN	M-2,beg	8.61	kNm	M-3	29.11	kNm	
V-3	-149.69	kN	M-2,end	0.00	kNm	M-3,beg	29.11	kNm	
M-2	8.61	kNm	V-2	509.86	kN	M-3,end	0.12	kNm	
Reduction factor Kappa									
s-K,2	0.057	m	Kappa-2 b	0.990		Ksl-3		c	
N-Cr,2	72087504	kN	s-K,3	0.057	m	Kappa-3 b	0.990		
Lambda-K,	0.018	< 0.2	N-Cr,3	72087504	kN	Kappa bar	0.990		
Ksl-2		c	Lambda-K,	0.018	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.000		Beta-M,2	1.780		Beta-M,V,3	1.300		
Beta-M,Psi	1.800		a-2	0.8000	<= 0.8	M-V,3	1.11	kNm	
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	54.91	kNm	
C-load 3	Nein		Psi-3	0.008		Beta-M,3	1.785		
Beta-M,V,2	1.300		Beta-M,Psi	1.795		a-3	0.8000	<= 0.8	
M-V,2	0.37	kNm	V-load 2	Ja		k-3	1.000	<= 1.5	
Delta-M,2	9.16	kNm	C-load 2	Nein					
Design									
D-N	0.000		D-M,3	0.078					
D-M,2	0.023		D-NM	0.101	< 1.0				
583	0.000	CO97	0.249	1) Design to (28) fulfilled					
Section properties Flachstahl 656/70									
A	459.20	cm^2	W-2,max	535.73	cm^3	W-3,min	-5020.58	cm^3	
A-2	382.67	cm^2	Ksl-2		c	W-3,max	5020.59	cm^3	
I-2	1875.07	cm^4	A-3	382.67	cm^2	Ksl-3		c	
W-2,min	-535.73	cm^3	I-3	164675.0	cm^4				
Forces and moments									
N	-496.85	kN	M-2,end	0.00	kNm	M-3	-34.43	kNm	
V-3	-216.62	kN	M-2,min	-24.22	kNm	M-3,beg	4.32	kNm	
M-2	34.28	kNm	x-M2,min	0.270	m	M-3,end	0.00	kNm	
M-2,beg	34.28	kNm	V-2	-127.49	kN				
Reduction factor Kappa									
s-K,2	0.270	m	Kappa-2 b	0.926		Ksl-3		c	
N-Cr,2	406324.0	kN	s-K,3	0.270	m	Kappa-3 b	0.926		
Lambda-K,	0.202		N-Cr,3	20730800	kN	Kappa bar	0.926		
Ksl-2		c	Lambda-K,	0.028	< 0.2				
Taper conditions									
TapCon1-2	743.455	> 1.20	TapCon2-2	0.762	> 0.05				
TapCon1-3	37931.39	> 1.20	TapCon2-3	0.581	> 0.05				
Coefficient k-2 and k-3									
Psi-2	0.000		k-2	0.985	<= 1.5	a-3	0.4887	<= 0.8	
Beta-M,Psi	1.800		Psi-3	0.000		k-3	0.984	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.800					
a-2	0.4193	<= 0.8	V-load 2	Nein					
Design									
D-N	0.036		D-M,3	0.021					
D-M,2	0.193		D-NM	0.249	< 1.0				
585	60.000	CO99	0.136	1) Design to (28) fulfilled					
Section properties Rundstahl 220									
A	380.13	cm^2	W-2,max	1045.36	cm^3	W-3,min	-696.36	cm^3	
A-2	337.79	cm^2	Ksl-2		c	W-3,max	1045.36	cm^3	
I-2	11499.00	cm^4	A-3	337.79	cm^2	Ksl-3		c	
W-2,min	-696.36	cm^3	I-3	11499.00	cm^4				
Forces and moments									
N	-19.76	kN	x-M2,max	0.060	m	M-3,end	41.80	kNm	
V-3	137.41	kN	M-2,min	-0.55	kNm	M-3,max	41.80	kNm	
M-2	8.50	kNm	x-M2,min	0.060	m	x-M3,max	0.060	m	
M-2,beg	0.02	kNm	V-2	-667.36	kN	M-3,min	-21.77	kNm	
M-2,end	8.50	kNm	M-3	41.80	kNm	x-M3,min	0.060	m	
M-2,max	8.50	kNm	M-3,beg	0.12	kNm				
Reduction factor Kappa									
s-K,2	0.065	m	Kappa-2 b	0.988		Ksl-3		c	
N-Cr,2	57286100	kN	s-K,3	0.065	m	Kappa-3 b	0.988		

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				N-Cr,3	57286100 kN	Kappa bar	0.988
				Lambda-K,	0.020 < 0.2		
				Coefficient k-2 and k-3			
				Psi-2	0.655	Beta-M,V,3	1.300
				Beta-M,Psi	1.342	M-V,3	1.34 kNm
				V-load 3	Ja	Delta-M,3	63.57 kNm
				C-load 3	Nein	Beta-M,3	1.710
				Beta-M,V,2	1.300	a-3	0.8000 <= 0.8
				M-V,2	0.59 kNm	k-3	0.999 <= 1.5
				Delta-M,2	9.05 kNm		
				Design			
				D-N	0.001		
				D-M,2	0.023		
				D-M,3	0.112		
				D-NM	0.136 < 1.0		
586	0.000	CO99	0.133	1) Design to (28) fulfilled			
				Section properties Pi(A) 656/35/12/435/376			
				A	325.60 cm ²	W-2,max	1275.10 cm ³
				A-2	139.57 cm ²	Ksl-2	c
				I-2	45058.50 cm ⁴	A-3	82.48 cm ²
				W-2,min	-5520.00 cm ³	I-3	118480.0 cm ⁴
				Forces and moments			
				N	-321.33 kN	M-2,beg	29.78 kNm
				V-3	-116.22 kN	M-2,end	0.12 kNm
				M-2	29.78 kNm	V-2	137.41 kN
				M-3	39.50 kNm	M-3,beg	39.50 kNm
				M-3,end	1.62 kNm		
				Reduction factor Kappa			
				s-K,2	0.276 m	Kappa-2 b	0.994
				N-Cr,2	365333.0 kN	s-K,3	0.276 m
				Lambda-K,	0.179 < 0.2	N-Cr,3	12400800 kN
				Ksl-2	c	Lambda-K,	0.031 < 0.2
				Taper conditions			
				TapCon1-2	1033.579 > 1.20	TapCon2-2	1.000 > 0.05
				TapCon1-3	35083.80 > 1.20	TapCon2-3	1.000 > 0.05
				Coefficient k-2 and k-3			
				Psi-2	0.374	k-2	0.982 <= 1.5
				Beta-M,Psi	1.539	Psi-3	0.041
				V-load 3	Nein	Beta-M,Psi	1.771
				a-2	0.6022 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.030	D-M,3	0.033
				D-M,2	0.070	D-NM	0.133 < 1.0
587	5600.000	CO98	0.256	1) Design to (28) fulfilled			
				Section properties BOX(A) 770/20/12/710/2297.6/770/20			
				A	849.82 cm ²	W-2,max	54802.69 cm ³
				A-2	131.64 cm ²	Ksl-2	b
				I-2	6295740. cm ⁴	A-3	518.32 cm ²
				W-2,min	-54802.6 cm ³	I-3	858353.0 cm ⁴
				Forces and moments			
				N	-2439.36 kN	M-2,end	355.97 kNm
				V-3	153.44 kN	M-2,max	358.65 kNm
				M-2	-2290.67 kNm	x-M2,max	5.600 m
				M-2,beg	335.31 kNm	V-2	28.11 kN
				M-3	-243.41 kNm	M-3,beg	14.07 kNm
				M-3,end	89.19 kNm		
				Reduction factor Kappa			
				s-K,2	7.000 m	Kappa-2 b	0.972
				N-Cr,2	2524760. kN	s-K,3	7.000 m
				Lambda-K,	0.110 < 0.2	N-Cr,3	356374.0 kN
				Ksl-2	b	Lambda-K,	0.293
				Taper conditions			
				TapCon1-2	940.916 > 1.20	TapCon2-2	0.861 > 0.05
				TapCon1-3	132.812 > 1.20	TapCon2-3	0.914 > 0.05
				Coefficient k-2 and k-3			
				Psi-2	0.942	Beta-M,2	1.141
				Beta-M,Psi	1.141	a-2	0.0089 <= 0.8
				V-load 3	Ja	k-2	0.999 <= 1.5
				C-load 3	Nein	Psi-3	0.158
				Beta-M,V,2	1.300	Beta-M,Psi	1.690
				M-V,2	10.32 kNm	V-load 2	Ja
				Delta-M,2	3535.97 kNm	C-load 2	Nein
				Design			
				D-N	0.094	D-M,3	0.033
				D-M,2	0.128	D-NM	0.256 < 1.0
590	0.000	CO98	0.636	1) Design to (28) fulfilled			
				Section properties Kasten(A) 770/15/10/710/1640/770/15			
				A	553.00 cm ²	W-2,max	27079.90 cm ³
				A-2	126.74 cm ²	Ksl-2	b
				I-2	2220550. cm ⁴	A-3	305.31 cm ²
				W-2,min	-27079.9 cm ³	I-3	531472.0 cm ⁴
				Forces and moments			
				N	-2300.28 kN	M-2,beg	4419.67 kNm
				V-3	-522.42 kN	M-2,end	3703.33 kNm
				M-2	4419.67 kNm	V-2	-45.56 kN
				M-3	-74.74 kNm	M-3,beg	23.52 kNm
				M-3,end	3.87 kNm		
				Reduction factor Kappa			
				s-K,2	1.370 m	Kappa-2 b	0.993
				N-Cr,2	24521100 kN	s-K,3	1.370 m
				Lambda-K,	0.028 < 0.2	N-Cr,3	5868930. kN
				Ksl-2	b	Lambda-K,	0.058 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.958	k-2	0.984 <= 1.5
				Beta-M,Psi	1.129	Psi-3	0.165
				V-load 3	Nein	Beta-M,Psi	1.685
				a-3	0.1251 <= 0.8		
				k-3	0.984 <= 1.5		

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	a-2 Design D-N D-M,2	0.1221 0.129 0.491	<= 0.8	V-load 2	Nein				
				D-M,3 D-NM	0.016 0.636	< 1.0			
591	0.000	CO98	0.359	1) Design to (28) fulfilled					
	Section properties Kasten(A) 770/20/15/710/1680/770/20								
	A	800.00	cm^2	W-2,max	38388.69	cm^3	W-3,min	-20747.8	cm^3
	A-2	172.86	cm^2	Ksl-2	b		W-3,max	20747.80	cm^3
	I-2	3224650.	cm^4	A-3	465.10	cm^2	Ksl-3	b	
	W-2,min	-38388.6	cm^3	I-3	798789.0	cm^4			
	Forces and moments								
	N	-2317.77	kN	M-2,beg	3420.74	kNm	M-3	12.30	kNm
	V-3	-523.33	kN	M-2,end	3177.32	kNm	M-3,beg	12.30	kNm
	M-2	3420.74	kNm	V-2	-45.56	kN	M-3,end	33.49	kNm
	Reduction factor Kappa								
	s-K,2	0.465	m	Kappa-2 b	0.997		Ksl-3	b	
	N-Cr,2	3.0909e8	kN	s-K,3	0.465	m	Kappa-3 b	0.995	
	Lambda-K,	0.010	< 0.2	N-Cr,3	76567600	kN	Kappa bar	0.995	
	Ksl-2	b		Lambda-K,	0.019	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.986		k-2	0.985	<= 1.5	a-3	0.1276	<= 0.8
	Beta-M,Psi	1.110		Psi-3	0.367		k-3	0.989	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.543				
	a-2	0.1742	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.089		D-M,3	0.002				
	D-M,2	0.268		D-NM	0.359	< 1.0			
594	0.000	CO98	0.242	1) Design to (28) fulfilled					
	Section properties Pi(A) 656/35/12/435/376								
	A	325.60	cm^2	W-2,max	1275.10	cm^3	W-3,min	-3612.18	cm^3
	A-2	139.57	cm^2	Ksl-2	c		W-3,max	3612.19	cm^3
	I-2	45058.50	cm^4	A-3	82.48	cm^2	Ksl-3	c	
	W-2,min	-5520.00	cm^3	I-3	118480.0	cm^4			
	Forces and moments								
	N	-1928.96	kN	M-2,beg	25.97	kNm	M-3	-5.48	kNm
	V-3	-97.83	kN	M-2,end	0.46	kNm	M-3,beg	4.66	kNm
	M-2	25.97	kNm	V-2	-19.10	kN	M-3,end	0.19	kNm
	Reduction factor Kappa								
	s-K,2	0.276	m	Kappa-2 b	0.994		Ksl-3	c	
	N-Cr,2	365333.0	kN	s-K,3	0.276	m	Kappa-3 b	0.992	
	Lambda-K,	0.179	< 0.2	N-Cr,3	12400800	kN	Kappa bar	0.992	
	Ksl-2	c		Lambda-K,	0.031	< 0.2			
	Taper conditions								
	TapCon1-2	172.175	> 1.20	TapCon2-2	1.000	> 0.05			
	TapCon1-3	5844.299	> 1.20	TapCon2-3	1.000	> 0.05			
	Coefficient k-2 and k-3								
	Psi-2	0.184		k-2	0.882	<= 1.5	a-3	0.5440	<= 0.8
	Beta-M,Psi	1.671		Psi-3	0.041		k-3	0.901	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.771				
	a-2	0.6497	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.183		D-M,3	0.004				
	D-M,2	0.055		D-NM	0.242	< 1.0			
595	0.000	CO98	0.346	1) Design to (28) fulfilled					
	Section properties Rundstahl 220								
	A	380.13	cm^2	W-2,max	1045.36	cm^3	W-3,min	-696.36	cm^3
	A-2	337.79	cm^2	Ksl-2	c		W-3,max	1045.36	cm^3
	I-2	11499.00	cm^4	A-3	337.79	cm^2	Ksl-3	c	
	W-2,min	-696.36	cm^3	I-3	11499.00	cm^4			
	Forces and moments								
	N	-295.95	kN	M-2,beg	1.19	kNm	M-3	-124.01	kNm
	V-3	-19.10	kN	M-2,end	0.04	kNm	M-3,beg	6.24	kNm
	M-2	1.19	kNm	V-2	-1907.36	kN	M-3,end	0.46	kNm
	Reduction factor Kappa								
	s-K,2	0.064	m	Kappa-2 b	0.988		Ksl-3	c	
	N-Cr,2	57287800	kN	s-K,3	0.064	m	Kappa-3 b	0.988	
	Lambda-K,	0.020	< 0.2	N-Cr,3	57287800	kN	Kappa bar	0.988	
	Ksl-2	c		Lambda-K,	0.020	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.050		Beta-M,2	1.748		Beta-M,V,3	1.300	
	Beta-M,Psi	1.765		a-2	0.8000	<= 0.8	M-V,3	0.40	kNm
	V-load 3	Ja		k-2	0.988	<= 1.5	Delta-M,3	130.25	kNm
	C-load 3	Nein		Psi-3	0.074		Beta-M,3	1.747	
	Beta-M,V,2	1.300		Beta-M,Psi	1.748		a-3	0.8000	<= 0.8
	M-V,2	0.08	kNm	V-load 2	Ja		k-3	0.988	<= 1.5
	Delta-M,2	2.19	kNm	C-load 2	Nein				
	Design								
	D-N	0.015		D-M,3	0.328				
	D-M,2	0.003		D-NM	0.346	< 1.0			
597	270.000	CO98	0.553	1) Design to (28) fulfilled					
	Section properties Flat 500/70								
	A	350.00	cm^2	W-2,max	408.33	cm^3	W-3,min	-2916.66	cm^3
	A-2	291.67	cm^2	Ksl-2	c		W-3,max	2916.67	cm^3
	I-2	1429.17	cm^4	A-3	291.67	cm^2	Ksl-3	c	
	W-2,min	-408.33	cm^3	I-3	72916.79	cm^4			
	Forces and moments								
	N	-3464.25	kN	M-2 end	0.00	kNm	M-3	0.00	kNm

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				M-2,min	-35.14 kNm	M-3,beq	9.14 kNm
				x-M2,min	0.270 m	M-3,end	0.00 kNm
				M-2,beq	43.86 kNm	V-2	-39.56 kN
				Reduction factor Kappa			
				s-K,2	0.270 m	Kappa-2 b	0.926
				N-Cr,2	406324.0 kN	s-K,3	0.270 m
				Lambda-K,	0.176 < 0.2	N-Cr,3	20730800 kN
				Ksl-2	c	Lambda-K,	0.025 < 0.2
				Taper conditions			
				TapCon1-2	106.628 > 1.20	TapCon2-2	0.762 > 0.05
				TapCon1-3	5440.200 > 1.20	TapCon2-3	0.581 > 0.05
				Coefficient k-2 and k-3			
				Psi-2	0.000	k-2	0.860 <= 1.5
				Beta-M,Psi	1.800	Psi-3	0.000
				V-load 3	Nein	Beta-M,Psi	1.800
				a-2	0.4296 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.326	D-M,3	0.000
				D-M,2	0.226	D-NM	0.553 < 1.0
598	60.000	CO98	0.241	1) Design to (28) fulfilled			
				Section properties Rundstahl 220			
				A	380.13 cm ²	W-2,max	1045.36 cm ³
				A-2	337.79 cm ²	Ksl-2	c
				I-2	11499.00 cm ⁴	A-3	337.79 cm ²
				W-2,min	-696.36 cm ³	I-3	11499.00 cm ⁴
				Forces and moments			
				N	-3.39 kN	M-2,beq	0.00 kNm
				V-3	20.45 kN	M-2,end	1.17 kNm
				M-2	1.17 kNm	V-2	1556.89 kN
				Reduction factor Kappa			
				s-K,2	0.057 m	Kappa-2 b	0.990
				N-Cr,2	72085104 kN	s-K,3	0.057 m
				Lambda-K,	0.018 < 0.2	N-Cr,3	72085104 kN
				Ksl-2	c	Lambda-K,	0.018 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.000	Beta-M,2	1.788
				Beta-M,Psi	1.800	a-2	0.8000 <= 0.8
				V-load 3	Ja	k-2	1.000 <= 1.5
				C-load 3	Nein	Psi-3	0.095
				Beta-M,V,2	1.300	Beta-M,Psi	1.733
				M-V,2	0.05 kNm	V-load 2	Ja
				Delta-M,2	2.18 kNm	C-load 2	Nein
				Design			
				D-N	0.000	D-M,3	0.238
				D-M,2	0.003	D-NM	0.241 < 1.0
599	0.000	CO98	0.337	1) Design to (28) fulfilled			
				Section properties Flachstahl 500/35			
				A	175.00 cm ²	W-2,max	102.08 cm ³
				A-2	145.83 cm ²	Ksl-2	c
				I-2	178.65 cm ⁴	A-3	145.83 cm ²
				W-2,min	-102.08 cm ³	I-3	36458.30 cm ⁴
				Forces and moments			
				N	-1557.17 kN	M-2,max	0.26 kNm
				V-3	3.39 kN	x-M2,max	0.270 m
				M-2	-0.65 kNm	V-2	-20.45 kN
				M-2,beq	0.04 kNm	M-3	-0.20 kNm
				M-2,end	0.26 kNm	M-3,beq	0.19 kNm
				Reduction factor Kappa			
				s-K,2	0.270 m	Kappa-2 b	0.853
				N-Cr,2	50790.60 kN	s-K,3	0.270 m
				Lambda-K,	0.352	N-Cr,3	10365400 kN
				Ksl-2	c	Lambda-K,	0.025 < 0.2
				Taper conditions			
				TapCon1-2	29.652 > 1.20	TapCon2-2	0.762 > 0.05
				TapCon1-3	6051.430 > 1.20	TapCon2-3	0.581 > 0.05
				Coefficient k-2 and k-3			
				Psi-2	0.154	k-2	0.910 <= 1.5
				Beta-M,Psi	1.692	Psi-3	0.044
				V-load 3	Nein	Beta-M,Psi	1.769
				a-2	0.2833 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.319	D-M,3	0.000
				D-M,2	0.018	D-NM	0.337 < 1.0
600	0.000	CO97	0.494	1) Design to (28) fulfilled			
				Section properties Kasten(A) 770/25/12/710/2540/770/25			
				A	982.60 cm ²	W-2,max	72251.00 cm ³
				A-2	140.27 cm ²	Ksl-2	b
				I-2	9175880.0 cm ⁴	A-3	577.03 cm ²
				W-2,min	-72251.0 cm ³	I-3	969092.0 cm ⁴
				Forces and moments			
				N	-495.15 kN	M-2,beq	10728.59 kNm
				V-3	-2362.06 kN	M-2,end	368.49 kNm
				M-2	10728.59 kNm	V-2	1.02 kN
				Reduction factor Kappa			
				s-K,2	5.600 m	Kappa-2 b	0.980
				N-Cr,2	6064440.0 kN	s-K,3	5.600 m
				Lambda-K,	0.076 < 0.2	N-Cr,3	640484.0 kN
				Ksl-2	b	Lambda-K,	0.235
				Taper conditions			
				TapCon1-2	29.652 > 1.20	TapCon2-2	0.762 > 0.05
				TapCon1-3	6051.430 > 1.20	TapCon2-3	0.581 > 0.05
				Coefficient k-2 and k-3			
				Psi-2	0.154	k-2	0.910 <= 1.5
				Beta-M,Psi	1.692	Psi-3	0.044
				V-load 3	Nein	Beta-M,Psi	1.769
				a-2	0.2833 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.319	D-M,3	0.000
				D-M,2	0.018	D-NM	0.337 < 1.0

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	Coefficient k-2 and k-3							
	Psi-2	0.103		Beta-M,2	1.673	Beta-M,V,3	1.300	
	Beta-M,Psi	1.728		a-2	0.1351 <= 0.8	M-V,3	0.00 kNm	
	V-load 3	Ja		k-2	0.998 <= 1.5	Delta-M,3	230.87 kNm	
	C-load 3	Nein		Psi-3	0.972	Beta-M,3	1.119	
	Beta-M,V,2	1.300		Beta-M,Psi	1.119	a-3	-0.2624 <= 0.8	
	M-V,2	1802.46 kNm		V-load 2	Ja	k-3	1.004 <= 1.5	
	Delta-M,2	14189.40 kNm		C-load 2	Nein			
	Design							
	D-N	0.016		D-M,3	0.025			
	D-M,2	0.453		D-NM	0.494 < 1.0			
	601	3790.000	CO99	0.186	1) Design to (28) fulfilled			
Section properties Kasten(A) 700/8/8/650/1016/700/8								
A	272.00	cm^2	W-2,max	8225.14	cm^3	W-3,min	-6255.06	cm^3
A-2	79.35	cm^2	Ksl-2		b	W-3,max	6255.07	cm^3
I-2	417837.0	cm^4	A-3	145.02	cm^2	Ksl-3		b
W-2,min	-8225.13	cm^3	I-3	218927.0	cm^4			
Forces and moments								
N	-39.14	kN	x-M2,max	3.790	m	M-3,end	15.24	kNm
V-3	-53.81	kN	M-2,min	-162.64	kNm	M-3,max	15.24	kNm
M-2	175.46	kNm	x-M2,min	3.790	m	x-M3,max	3.790	m
M-2,beq	150.26	kNm	V-2	37.32	kN	M-3,min	-237.70	kNm
M-2,end	175.46	kNm	M-3	-237.70	kNm	x-M3,min	3.790	m
M-2,max	175.46	kNm	M-3,beq	6.16	kNm			
Reduction factor Kappa								
s-K,2	3.794	m	Kappa-2 b	0.967		Ksl-3		b
N-Cr,2	601530.0	kN	s-K,3	3.794	m	Kappa-3 b	0.957	
Lambda-K,	0.128 < 0.2		N-Cr,3	315174.0	kN	Kappa bar	0.957	
Ksl-2	b		Lambda-K,	0.176 < 0.2				
Coefficient k-2 and k-3								
Psi-2	0.856		M-V,2	18.08	kNm	Psi-3	0.404	
Beta-M,Psi	1.201		Delta-M,2	338.10	kNm	Beta-M,Psi	1.517	
V-load 3	Ja		Beta-M,2	1.206		V-load 2	Nein	
C-load 3	Nein		a-2	-0.0300 <= 0.8		a-3	-0.0153 <= 0.8	
Beta-M,V,2	1.300		k-2	1.000 <= 1.5		k-3	1.000 <= 1.5	
Design								
D-N	0.005		D-M,3	0.116				
D-M,2	0.065		D-NM	0.186 < 1.0				
603	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
Section properties Kasten(A) 700/8/8/650/716/700/8								
A	224.00	cm^2	W-2,min	-5198.12	cm^3	I-3	166969.0	cm^4
A-2	87.74	cm^2	W-2,max	5198.13	cm^3	Ksl-3		b
I-2	186093.0	cm^4	Ksl-2		b			
Forces and moments								
N	0.00	kN	M-2	-0.16	kNm	M-2,end	0.00	kNm
V-3	0.18	kN	M-2,beq	0.00	kNm			
604	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
Section properties Kasten(A) 700/8/8/650/716/700/8								
A	224.00	cm^2	W-2,min	-5198.12	cm^3	I-3	166969.0	cm^4
A-2	87.74	cm^2	W-2,max	5198.13	cm^3	Ksl-3		b
I-2	186093.0	cm^4	Ksl-2		b			
Forces and moments								
N	0.00	kN	M-2	-0.11	kNm	M-2,end	0.00	kNm
V-3	0.15	kN	M-2,beq	0.00	kNm			
605	0.000	CO97	0.529	1) Design to (28) fulfilled				
Section properties Kasten(A) 770/25/12/710/2540/770/25								
A	982.60	cm^2	W-2,max	72251.00	cm^3	W-3,min	-25171.1	cm^3
A-2	140.27	cm^2	Ksl-2		b	W-3,max	25171.19	cm^3
I-2	917588.0	cm^4	A-3	577.03	cm^2	Ksl-3		b
W-2,min	-72251.0	cm^3	I-3	969092.0	cm^4			
Forces and moments								
N	-494.97	kN	M-2,end	10728.59	kNm	M-3	205.53	kNm
V-3	-2356.29	kN	M-2,min	-357.61	kNm	M-3,beq	205.53	kNm
M-2	11592.59	kNm	x-M2,min	0.400	m	M-3,end	205.13	kNm
M-2,beq	11592.59	kNm	V-2	1.02	kN			
Reduction factor Kappa								
s-K,2	0.400	m	Kappa-2 b	0.999		Ksl-3		b
N-Cr,2	1.1886e9	kN	s-K,3	0.400	m	Kappa-3 b	0.996	
Lambda-K,	0.005 < 0.2		N-Cr,3	1.2553e8	kN	Kappa bar	0.996	
Ksl-2	b		Lambda-K,	0.017 < 0.2				
Coefficient k-2 and k-3								
Psi-2	0.932		k-2	0.997 <= 1.5		a-3	0.1213 <= 0.8	
Beta-M,Psi	1.147		Psi-3	0.998		k-3	0.998 <= 1.5	
V-load 3	Nein		Beta-M,Psi	1.101				
a-2	0.1757 <= 0.8		V-load 2	Nein				
Design								
D-N	0.015		D-M,3	0.025				
D-M,2	0.489		D-NM	0.529 < 1.0				
606	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
Section properties Kasten(A) 570/10/15/540/730/570/10								
A	327.00	cm^2	W-2,max	6499.49	cm^3	W-3,min	-6839.60	cm^3
A-2	91.44	cm^2	Ksl-2		b	W-3,max	6839.61	cm^3
I-2	237231.0	cm^4	A-3	184.16	cm^2	Ksl-3		b
W-2,min	-6499.49	cm^3	I-3	194929.0	cm^4			
Forces and moments								
N	0.00	kN	M-2,beq	0.00	kNm	M-3	858.14	kNm

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	V-3 M-2	237.49 -181.40	kN kNm	M-2.end V-2	36.38 1064.61	kNm kN	M-3.beq M-3.end	858.14 1.26	kNm kNm
608	0.000	CO97	0.039	1) Design to (28) fulfilled					
	Section properties Kasten(A) 770/25/12/710/2540/770/25								
	A	982.60	cm^2	W-2,max	72251.00	cm^3	W-3,min	-25171.1	cm^3
	A-2	140.27	cm^2	Ksl-2	b		W-3,max	25171.19	cm^3
	I-2	9175880.	cm^4	A-3	577.03	cm^2	Ksl-3	b	
	W-2,min	-72251.0	cm^3	I-3	969092.0	cm^4			
	Forces and moments								
	N	-31.95	kN	M-2,min	-85.64	kNm	M-3,end	51.04	kNm
	V-3	-1193.28	kN	x-M2,min	0.380	m	M-3,max	51.04	kNm
	M-2	752.25	kNm	V-2	-19.41	kN	x-M3,max	0.380	m
	M-2,beq	752.25	kNm	M-3	49.77	kNm	M-3,min	-0.54	kNm
	M-2,end	613.62	kNm	M-3,beq	49.77	kNm	x-M3,min	0.380	m
	Reduction factor Kappa								
	s-K,2	0.383	m	Kappa-2 b	0.999		Ksl-3	b	
	N-Cr,2	1.2964e9	kN	s-K,3	0.383	m	Kappa-3 b	0.996	
	Lambda-K,	0.005	< 0.2	N-Cr,3	1.3692e8	kN	Kappa bar	0.996	
	Ksl-2	b		Lambda-K,	0.016	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.816		k-2	1.000	<= 1.5	a-3	0.1231	<= 0.8
	Beta-M,Psi	1.229		Psi-3	0.975		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.117				
	a-2	0.1769	<= 0.8	V-load 2	Nein				
	Design								
D-N	0.001		D-M,3	0.006					
D-M,2	0.032		D-NM	0.039	< 1.0				
609	0.000	CO98	0.140	1) Design to (28) fulfilled					
	Section properties Kasten(A) 1066/10/15/1036/730/1066/10								
	A	426.20	cm^2	W-2,max	10022.00	cm^3	W-3,min	-14824.2	cm^3
	A-2	191.13	cm^2	Ksl-2	b		W-3,max	14824.29	cm^3
	I-2	365803.0	cm^4	A-3	152.56	cm^2	Ksl-3	b	
	W-2,min	-10022.0	cm^3	I-3	790133.0	cm^4			
	Forces and moments								
	N	-31.97	kN	M-2,beq	70.88	kNm	M-3	561.98	kNm
	V-3	52.95	kN	M-2,end	130.71	kNm	M-3,beq	561.98	kNm
	M-2	70.88	kNm	V-2	228.43	kN	M-3,end	33.63	kNm
	Reduction factor Kappa								
	s-K,2	4.240	m	Kappa-2 b	0.953		Ksl-3	b	
	N-Cr,2	421730.0	kN	s-K,3	4.240	m	Kappa-3 b	0.953	
	Lambda-K,	0.191	< 0.2	N-Cr,3	910935.0	kN	Kappa bar	0.953	
	Ksl-2	b		Lambda-K,	0.130	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.900		Beta-M,2	1.208		Beta-M,V,3	1.300	
	Beta-M,Psi	1.170		a-2	-0.1591	<= 0.8	M-V,3	168.92	kNm
	V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	968.56	kNm
	C-load 3	Nein		Psi-3	0.060		Beta-M,3	1.678	
	Beta-M,V,2	1.300		Beta-M,Psi	1.758		a-3	0.0548	<= 0.8
	M-V,2	54.34	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
	Delta-M,2	186.03	kNm	C-load 2	Nein				
Design									
D-N	0.002		D-M,3	0.116					
D-M,2	0.022		D-NM	0.140	< 1.0				
610	0.000	CO97	0.231	1) Design to (28) fulfilled					
	Section properties Kasten(A) 570/10/15/540/730/570/10								
	A	327.00	cm^2	W-2,max	6499.49	cm^3	W-3,min	-6839.60	cm^3
	A-2	91.44	cm^2	Ksl-2	b		W-3,max	6839.61	cm^3
	I-2	237231.0	cm^4	A-3	184.16	cm^2	Ksl-3	b	
	W-2,min	-6499.49	cm^3	I-3	194929.0	cm^4			
	Forces and moments								
	N	-141.85	kN	M-2,beq	0.00	kNm	M-3	153.98	kNm
	V-3	249.72	kN	M-2,end	0.00	kNm	M-3,beq	153.98	kNm
	M-2	-316.88	kNm	V-2	-129.56	kN	M-3,end	273.95	kNm
	Reduction factor Kappa								
	s-K,2	0.917	m	Kappa-2 b	0.988		Ksl-3	b	
	N-Cr,2	5847260.	kN	s-K,3	0.917	m	Kappa-3 b	0.988	
	Lambda-K,	0.045	< 0.2	N-Cr,3	4804590.	kN	Kappa bar	0.988	
	Ksl-2	b		Lambda-K,	0.049	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.372		k-2	0.998	<= 1.5	a-3	0.0430	<= 0.8
	Beta-M,Psi	1.540		Psi-3	0.562		k-3	0.999	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.407				
	a-2	0.1718	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.013		D-M,3	0.069				
	D-M,2	0.149		D-NM	0.231	< 1.0			
612	1830.000	CO97	0.030	1) Design to (28) fulfilled					
	Section properties Kasten(A) 770/25/12/710/2540/770/25								
	A	982.60	cm^2	W-2,max	72251.00	cm^3	W-3,min	-25171.1	cm^3
	A-2	140.27	cm^2	Ksl-2	b		W-3,max	25171.19	cm^3
	I-2	9175880.	cm^4	A-3	577.03	cm^2	Ksl-3	b	
	W-2,min	-72251.0	cm^3	I-3	969092.0	cm^4			
	Forces and moments								
	N	-2.85	kN	x-M2,max	1.830	m	M-3,end	3.70	kNm
	V-3	51.94	kN	M-2,min	-9.93	kNm	M-3,max	3.70	kNm
	M-2	644.01	kNm	x-M2,min	1.830	m	x-M3,max	1.830	m
M-2,beq	633.46	kNm	V-2	8.36	kN	M-3,min	-24.87	kNm	

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	M-2,end	644.01	kNm	M-3	-24.87	kNm	x-M3,min 1.830 m
	M-2,max	644.01	kNm	M-3,beg	1.32	kNm	
	Reduction factor Kappa			Kappa-2 b	0.993		Ksl-3 b
	s-K,2	1.834	m	s-K,3	1.834	m	Kappa-3 b 0.981
	N-Cr,2	56541600	kN	N-Cr,3	5971530.	kN	Kappa bar 0.981
	Lambda-K,	0.025	< 0.2	Lambda-K,	0.077	< 0.2	
	Ksl-2	b					
	Coefficient k-2 and k-3			Beta-M,2	1.116		Beta-M,V,3 1.300
	Psi-2	0.984		a-2	0.1408	<= 0.8	M-V,3 2.51 kNm
	Beta-M,Psi	1.111		k-2	1.000	<= 1.5	Delta-M,3 28.57 kNm
	V-load 3	Ja		Psi-3	0.730		Beta-M,3 1.290
	C-load 3	Nein		Beta-M,Psi	1.289		a-3 0.0422 <= 0.8
	Beta-M,V,2	1.300		V-load 2	Ja		k-3 1.000 <= 1.5
	M-V,2	16.79	kNm	C-load 2	Nein		
	Delta-M,2	653.94	kNm				
	Design			D-M,3	0.003		
	D-N	0.000		D-NM	0.030	< 1.0	
	D-M,2	0.027					
613	920.000	CO97	0.231	1) Design to (28) fulfilled			
	Section properties Kasten(A) 570/10/15/540/730/570/10			W-2,max	6499.49	cm^3	W-3,min -6839.60 cm^3
	A	327.00	cm^2	Ksl-2	b		W-3,max 6839.61 cm^3
	A-2	91.44	cm^2	A-3	184.16	cm^2	Ksl-3 b
	I-2	237231.0	cm^4	I-3	194929.0	cm^4	
	W-2,min	-6499.49	cm^3				
	Forces and moments			M-2,beg	0.00	kNm	M-3 153.96 kNm
	N	-145.49	kN	M-2,end	0.00	kNm	M-3,beg 207.66 kNm
	V-3	-226.62	kN	V-2	-125.82	kN	M-3,end 153.96 kNm
	M-2	-316.56	kNm				
	Reduction factor Kappa			Kappa-2 b	0.988		Ksl-3 b
	s-K,2	0.917	m	s-K,3	0.917	m	Kappa-3 b 0.988
	N-Cr,2	5847260.	kN	N-Cr,3	4804590.	kN	Kappa bar 0.988
	Lambda-K,	0.045	< 0.2	Lambda-K,	0.049	< 0.2	
	Ksl-2	b					
	Coefficient k-2 and k-3			k-2	0.998	<= 1.5	a-3 0.0305 <= 0.8
	Psi-2	0.439		Psi-3	0.741		k-3 1.000 <= 1.5
	Beta-M,Psi	1.493		Beta-M,Psi	1.281		
	V-load 3	Nein		V-load 2	Nein		
	a-2	0.1676	<= 0.8				
	Design			D-M,3	0.069		
	D-N	0.014		D-NM	0.231	< 1.0	
	D-M,2	0.148					
614	0.000	CO99	0.074	1) Design to (28) fulfilled			
	Section properties Kasten(A) 1066/10/15/1036/730/1066/10			W-2,max	10022.00	cm^3	W-3,min -14824.2 cm^3
	A	426.20	cm^2	Ksl-2	b		W-3,max 14824.29 cm^3
	A-2	191.13	cm^2	A-3	152.56	cm^2	Ksl-3 b
	I-2	365803.0	cm^4	I-3	790133.0	cm^4	
	W-2,min	-10022.0	cm^3				
	Forces and moments			M-2,beg	43.46	kNm	M-3 -286.18 kNm
	N	-22.07	kN	M-2,end	8.13	kNm	M-3,beg 55.29 kNm
	V-3	-17.53	kN	V-2	-93.76	kN	M-3,end 134.10 kNm
	M-2	43.46	kNm				
	Reduction factor Kappa			Kappa-2 b	0.953		Ksl-3 b
	s-K,2	4.240	m	s-K,3	4.240	m	Kappa-3 b 0.953
	N-Cr,2	421730.0	kN	N-Cr,3	910935.0	kN	Kappa bar 0.953
	Lambda-K,	0.191	< 0.2	Lambda-K,	0.130	< 0.2	
	Ksl-2	b					
	Coefficient k-2 and k-3			Beta-M,2	1.202		Beta-M,V,3 1.300
	Psi-2	0.891		a-2	-0.1612	<= 0.8	M-V,3 81.50 kNm
	Beta-M,Psi	1.176		k-2	1.000	<= 1.5	Delta-M,3 420.28 kNm
	V-load 3	Ja		Psi-3	0.589		Beta-M,3 1.371
	C-load 3	Nein		Beta-M,Psi	1.388		a-3 -0.0250 <= 0.8
	Beta-M,V,2	1.300		V-load 2	Ja		k-3 1.000 <= 1.5
	M-V,2	15.86	kNm	C-load 2	Nein		
	Delta-M,2	75.79	kNm				
	Design			D-M,3	0.059		
	D-N	0.002		D-NM	0.074	< 1.0	
	D-M,2	0.013					
615	380.000	CO98	0.036	1) Design to (28) fulfilled			
	Section properties Kasten(A) 770/25/12/710/2540/770/25			W-2,max	72251.00	cm^3	W-3,min -25171.1 cm^3
	A	982.60	cm^2	Ksl-2	b		W-3,max 25171.19 cm^3
	A-2	140.27	cm^2	A-3	577.03	cm^2	Ksl-3 b
	I-2	9175880.	cm^4	I-3	969092.0	cm^4	
	W-2,min	-72251.0	cm^3				
	Forces and moments			M-2,end	725.68	kNm	M-3 36.95 kNm
	N	-28.46	kN	M-2,max	725.68	kNm	M-3,beg 40.82 kNm
	V-3	935.55	kN	x-M2,max	0.380	m	M-3,end 36.95 kNm
	M-2	725.68	kNm	V-2	-30.36	kN	
	M-2,beg	597.58	kNm				
	Reduction factor Kappa			Kappa-2 b	0.999		Ksl-3 b
	s-K,2	0.383	m	s-K,3	0.383	m	Kappa-3 b 0.996
	N-Cr,2	1.2964e9	kN	N-Cr,3	1.3692e8	kN	Kappa bar 0.996
	Lambda-K,	0.005	< 0.2	Lambda-K,	0.016	< 0.2	
	Ksl-2	b					
	Coefficient k-2 and k-3			k-2	1.000	<= 1.5	a-3 0.1247 <= 0.8
	Psi-2	0.823		Psi-3	0.905		k-3 1.000 <= 1.5
	Beta-M,Psi	1.224		Beta-M,Psi	1.166		
	V-load 3	Nein		V-load 2	Nein		
	a-2	0.1768	<= 0.8				

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	Design						
	D-N	0.001	D-M,3	0.004			
	D-M,2	0.031	D-NM	0.036	< 1.0		
617	810.000	CO97	0.384	1) Design to (28) fulfilled			
	Section properties	Kasten(A) 570/10/15/540/730/570/10					
	A	327.00 cm^2	W-2,max	6499.49 cm^3	W-3,min	-6839.60 cm^3	
	A-2	91.44 cm^2	Ksl-2	b	W-3,max	6839.61 cm^3	
	I-2	237231.0 cm^4	A-3	184.16 cm^2	Ksl-3	b	
	W-2,min	-6499.49 cm^3	I-3	194929.0 cm^4			
	Forces and moments						
	N	-0.94 kN	M-2,beg	19.53 kNm	M-3	663.90 kNm	
	V-3	-212.92 kN	M-2,end	0.00 kNm	M-3,beg	0.00 kNm	
	M-2	-184.82 kNm	V-2	-827.22 kN	M-3,end	663.90 kNm	
	Reduction factor Kappa						
	s-K,2	0.808 m	Kappa-2 b	0.989	Ksl-3	b	
	N-Cr,2	7531270. kN	s-K,3	0.808 m	Kappa-3 b	0.989	
	Lambda-K,	0.040 < 0.2	N-Cr,3	6188310. kN	Kappa bar	0.989	
	Ksl-2	b	Lambda-K,	0.044 < 0.2			
	Coefficient k-2 and k-3						
	Psi-2	0.199	k-2	1.000 <= 1.5	a-3	0.0843 <= 0.8	
	Beta-M,Psi	1.661	Psi-3	0.000	k-3	1.000 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.800			
	a-2	0.1863 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.000	D-M,3	0.297			
	D-M,2	0.087	D-NM	0.384	< 1.0		
618	400.000	CO97	0.518	1) Design to (28) fulfilled			
	Section properties	Kasten(A) 770/25/12/710/2540/770/25					
	A	982.60 cm^2	W-2,max	72251.00 cm^3	W-3,min	-25171.1 cm^3	
	A-2	140.27 cm^2	Ksl-2	b	W-3,max	25171.19 cm^3	
	I-2	9175880. cm^4	A-3	577.03 cm^2	Ksl-3	b	
	W-2,min	-72251.0 cm^3	I-3	969092.0 cm^4			
	Forces and moments						
	N	-464.97 kN	M-2,max	11351.09 kNm	M-3,end	25.78 kNm	
	V-3	2235.52 kN	x-M2,max	0.400 m	M-3,max	25.78 kNm	
	M-2	11351.09 kNm	V-2	1.02 kN	x-M3,max	0.400 m	
	M-2,beg	10535.50 kNm	M-3	-205.41 kNm	M-3,min	-205.41 kNm	
	M-2,end	11351.09 kNm	M-3,beg	25.74 kNm	x-M3,min	0.400 m	
	Reduction factor Kappa						
	s-K,2	0.400 m	Kappa-2 b	0.999	Ksl-3	b	
	N-Cr,2	1.1886e9 kN	s-K,3	0.400 m	Kappa-3 b	0.996	
	Lambda-K,	0.005 < 0.2	N-Cr,3	1.2553e8 kN	Kappa bar	0.996	
	Ksl-2	b	Lambda-K,	0.017 < 0.2			
	Coefficient k-2 and k-3						
	Psi-2	0.928	k-2	0.997 <= 1.5	a-3	0.1213 <= 0.8	
	Beta-M,Psi	1.150	Psi-3	0.998	k-3	0.998 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.101			
	a-2	0.1757 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.015	D-M,3	0.025			
	D-M,2	0.479	D-NM	0.518	< 1.0		
619	0.000	CO99	0.212	1) Design to (28) fulfilled			
	Section properties	Kasten(A) 700/8/8/650/1016/700/8					
	A	272.00 cm^2	W-2,max	8225.14 cm^3	W-3,min	-6255.06 cm^3	
	A-2	79.35 cm^2	Ksl-2	b	W-3,max	6255.07 cm^3	
	I-2	417837.0 cm^4	A-3	145.02 cm^2	Ksl-3	b	
	W-2,min	-8225.13 cm^3	I-3	218927.0 cm^4			
	Forces and moments						
	N	-39.14 kN	M-2,beg	254.18 kNm	M-3	231.16 kNm	
	V-3	36.75 kN	M-2,end	150.26 kNm	M-3,beg	231.16 kNm	
	M-2	254.18 kNm	V-2	37.32 kN	M-3,end	6.16 kNm	
	Reduction factor Kappa						
	s-K,2	8.766 m	Kappa-2 b	0.922	Ksl-3	b	
	N-Cr,2	112692.0 kN	s-K,3	8.766 m	Kappa-3 b	0.893	
	Lambda-K,	0.295	N-Cr,3	59045.19 kN	Kappa bar	0.893	
	Ksl-2	b	Lambda-K,	0.407			
	Coefficient k-2 and k-3						
	Psi-2	0.591	Beta-M,2	1.372	Beta-M,V,3	1.300	
	Beta-M,Psi	1.386	a-2	-0.1975 <= 0.8	M-V,3	68.10 kNm	
	V-load 3	Ja	k-2	1.001 <= 1.5	Delta-M,3	327.22 kNm	
	C-load 3	Nein	Psi-3	0.154	Beta-M,3	1.610	
	Beta-M,V,2	1.300	Beta-M,Psi	1.692	a-3	-0.1624 <= 0.8	
	M-V,2	54.58 kNm	V-load 2	Ja	k-3	1.001 <= 1.5	
	Delta-M,2	335.23 kNm	C-load 2	Nein			
	Design						
	D-N	0.005	D-M,3	0.113			
	D-M,2	0.095	D-NM	0.212	< 1.0		
620	5600.000	CO97	0.485	1) Design to (28) fulfilled			
	Section properties	Kasten(A) 770/25/12/710/2540/770/25					
	A	982.60 cm^2	W-2,max	72251.00 cm^3	W-3,min	-25171.1 cm^3	
	A-2	140.27 cm^2	Ksl-2	b	W-3,max	25171.19 cm^3	
	I-2	9175880. cm^4	A-3	577.03 cm^2	Ksl-3	b	
	W-2,min	-72251.0 cm^3	I-3	969092.0 cm^4			
	Forces and moments						
	N	-464.97 kN	M-2,beg	306.60 kNm	M-3	-205.01 kNm	
	V-3	2241.30 kN	M-2,end	10535.50 kNm	M-3,beg	25.02 kNm	
	M-2	10535.50 kNm	V-2	1.02 kN	M-3,end	25.74 kNm	

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method			
	Reduction factor Kappa						
	s-K,2	5.600	m	Kappa-2 b	0.980	Ksl-3	b
	N-Cr,2	6064440.	kN	s-K,3	5.600	m	Kappa-3 b
	Lambda-K,	0.076	< 0.2	N-Cr,3	640484.0	kN	Kappa bar
	Ksl-2	b		Lambda-K,	0.235		0.942
	Coefficient k-2 and k-3						
	Psi-2	0.097		M-V,2	1524.31	kNm	Psi-3
	Beta-M,Psi	1.732		Delta-M,2	13504.40	kNm	Beta-M,Psi
	V-load 3	Ja		Beta-M,2	1.683		V-load 2
	C-load 3	Nein		a-2	0.1365	<= 0.8	a-3
	Beta-M,V,2	1.300		k-2	0.998	<= 1.5	k-3
							0.972
						1.119	
						Nein	
						-0.2624	
						<= 0.8	
						1.004	
						<= 1.5	
Design							
D-N	0.015		D-M,3	0.025			
D-M,2	0.445		D-NM	0.485	< 1.0		
621	0.000	CO97	0.243	1) Design to (28) fulfilled			
Section properties Flachstahl 500/35							
A	175.00	cm^2	W-2,max	102.08	cm^3	W-3,min	
A-2	145.83	cm^2	Ksl-2	c		W-3,max	
I-2	178.65	cm^4	A-3	145.83	cm^2	Ksl-3	
W-2,min	-102.08	cm^3	I-3	36458.30	cm^4		
Forces and moments							
N	-1111.07	kN	M-2,min	-0.08	kNm	M-3,end	
V-3	-2.13	kN	x-M2,min	0.270	m	M-3,max	
M-2	0.50	kNm	V-2	-65.90	kN	x-M3,max	
M-2,beg	0.50	kNm	M-3	-0.69	kNm	M-3,min	
M-2,end	0.15	kNm	M-3,beg	0.09	kNm	x-M3,min	
Reduction factor Kappa							
s-K,2	0.270	m	Kappa-2 b	0.853		Ksl-3	
N-Cr,2	50790.60	kN	s-K,3	0.270	m	Kappa-3 b	
Lambda-K,	0.352		N-Cr,3	10365400	kN	Kappa bar	
Ksl-2	c		Lambda-K,	0.025	< 0.2		
Taper conditions							
TapCon1-2	41.557	> 1.20	TapCon2-2	0.762	> 0.05		
TapCon1-3	8481.030	> 1.20	TapCon2-3	0.581	> 0.05		
Coefficient k-2 and k-3							
Psi-2	0.375		k-2	0.960	<= 1.5	a-3	
Beta-M,Psi	1.538		Psi-3	0.322		k-3	
V-load 3	Nein		Beta-M,Psi	1.574			
a-2	0.1742	<= 0.8	V-load 2	Nein			
Design							
D-N	0.227		D-M,3	0.001			
D-M,2	0.014		D-NM	0.243	< 1.0		
622	0.000	CO97	0.180	1) Design to (28) fulfilled			
Section properties Rundstahl 220							
A	380.13	cm^2	W-2,max	1045.36	cm^3	W-3,min	
A-2	337.79	cm^2	Ksl-2	c		W-3,max	
I-2	11499.00	cm^4	A-3	337.79	cm^2	Ksl-3	
W-2,min	-696.36	cm^3	I-3	11499.00	cm^4		
Forces and moments							
N	-2.13	kN	M-2,beg	63.38	kNm	M-3	
V-3	-1110.77	kN	M-2,end	0.03	kNm	M-3,beg	
M-2	63.38	kNm	V-2	65.90	kN	M-3,end	
Reduction factor Kappa							
s-K,2	0.058	m	Kappa-2 b	0.990		Ksl-3	
N-Cr,2	72083904	kN	s-K,3	0.058	m	Kappa-3 b	
Lambda-K,	0.018	< 0.2	N-Cr,3	72083904	kN	Kappa bar	
Ksl-2	c		Lambda-K,	0.018	< 0.2		
Coefficient k-2 and k-3							
Psi-2	0.071		Beta-M,2	1.733		Beta-M,V,3	
Beta-M,Psi	1.750		a-2	0.8000	<= 0.8	M-V,3	
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	
C-load 3	Nein		Psi-3	0.000		Beta-M,3	
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	
M-V,2	2.75	kNm	V-load 2	Ja		k-3	
Delta-M,2	70.43	kNm	C-load 2	Nein			
Design							
D-N	0.000		D-M,3	0.010			
D-M,2	0.170		D-NM	0.180	< 1.0		
623	270.000	CO97	0.456	1) Design to (28) fulfilled			
Section properties Flat 500/70							
A	350.00	cm^2	W-2,max	408.33	cm^3	W-3,min	
A-2	291.67	cm^2	Ksl-2	c		W-3,max	
I-2	14						

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
				k-2	0.896 <= 1.5	a-3	0.4901 <= 0.8
				Psi-3	0.000	k-3	0.888 <= 1.5
				Beta-M,Psi	1.800		
				V-load 3	Nein		
				a-2	0.4296 <= 0.8		
				Design			
				D-N	0.243		
				D-M,2	0.213		
				D-M,3	0.000		
				D-NM	0.456 < 1.0		
625	60.000	CO97	0.275	1) Design to (28) fulfilled			
				Section properties Rundstahl 220			
				A	380.13 cm ²	W-2,max	1045.36 cm ³
				A-2	337.79 cm ²	Ksl-2	c
				I-2	11499.00 cm ⁴	A-3	337.79 cm ²
				W-2,min	-696.36 cm ³	I-3	11499.00 cm ⁴
				Forces and moments			
				N	-265.13 kN	x-M2,max	0.060 m
				V-3	1470.57 kN	M-2,min	-5.79 kNm
				M-2	94.98 kNm	x-M2,min	0.060 m
				M-2,beg	0.24 kNm	V-2	-60.51 kN
				M-2,end	94.98 kNm	M-3	3.75 kNm
				M-2,max	94.98 kNm	M-3,beg	0.01 kNm
				Reduction factor Kappa			
				s-K,2	0.064 m	Kappa-2 b	0.988
				N-Cr,2	57287800 kN	s-K,3	0.064 m
				Lambda-K,	0.020 < 0.2	N-Cr,3	57287800 kN
				Ksl-2	c	Lambda-K,	0.020 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.159	Beta-M,2	1.663
				Beta-M,Psi	1.689	a-2	0.8000 <= 0.8
				V-load 3	Ja	k-2	0.989 <= 1.5
				C-load 3	Nein	Psi-3	0.340
				Beta-M,V,2	1.300	Beta-M,Psi	1.562
				M-V,2	6.61 kNm	V-load 2	Ja
				Delta-M,2	100.77 kNm	C-load 2	Nein
				Design			
				D-N	0.013	D-M,3	0.010
				D-M,2	0.252	D-NM	0.275 < 1.0
626	0.000	CO97	0.257	1) Design to (28) fulfilled			
				Section properties Pi(A) 500/35/12/135/376			
				A	199.00 cm ²	W-2,max	122.56 cm ³
				A-2	141.01 cm ²	Ksl-2	c
				I-2	1340.27 cm ⁴	A-3	26.28 cm ²
				W-2,min	-522.71 cm ³	I-3	45493.89 cm ⁴
				Forces and moments			
				N	-1493.93 kN	M-2,beg	0.92 kNm
				V-3	-41.46 kN	M-2,end	10.92 kNm
				M-2	0.92 kNm	V-2	60.51 kN
				Reduction factor Kappa			
				s-K,2	0.276 m	Kappa-2 b	0.966
				N-Cr,2	365333.0 kN	s-K,3	0.276 m
				Lambda-K,	0.140 < 0.2	N-Cr,3	12400800 kN
				Ksl-2	c	Lambda-K,	0.024 < 0.2
				Taper conditions			
				TapCon1-2	222.312 > 1.20	TapCon2-2	1.000 > 0.05
				TapCon1-3	7546.140 > 1.20	TapCon2-3	1.000 > 0.05
				Coefficient k-2 and k-3			
				Psi-2	0.084	k-2	0.810 <= 1.5
				Beta-M,Psi	1.741	Psi-3	0.041
				V-load 3	Nein	Beta-M,Psi	1.771
				a-2	0.8000 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.238	D-M,3	0.001
				D-M,2	0.019	D-NM	0.257 < 1.0
629	0.000	CO97	0.460	1) Design to (28) fulfilled			
				Section properties Kasten(A) 770/15/10/710/1640/770/15			
				A	553.00 cm ²	W-2,max	27079.90 cm ³
				A-2	126.74 cm ²	Ksl-2	b
				I-2	2220550.0 cm ⁴	A-3	305.31 cm ²
				W-2,min	-27079.9 cm ³	I-3	531472.0 cm ⁴
				Forces and moments			
				N	-2322.16 kN	M-2,beg	306.60 kNm
				V-3	464.97 kN	M-2,end	397.36 kNm
				M-2	-2968.91 kNm	V-2	1.02 kN
				Reduction factor Kappa			
				s-K,2	1.370 m	Kappa-2 b	0.993
				N-Cr,2	24521100 kN	s-K,3	1.370 m
				Lambda-K,	0.028 < 0.2	N-Cr,3	5868930.0 kN
				Ksl-2	b	Lambda-K,	0.058 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.786	k-2	0.983 <= 1.5
				Beta-M,Psi	1.250	Psi-3	0.163
				V-load 3	Nein	Beta-M,Psi	1.686
				a-2	0.1290 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.130	D-M,3	0.000
				D-M,2	0.329	D-NM	0.460 < 1.0
630	0.000	CO97	0.253	1) Design to (28) fulfilled			
				Section properties Kasten(A) 770/20/15/710/1680/770/20			
				A	553.00 cm ²	W-2,max	27079.90 cm ³
				A-2	126.74 cm ²	Ksl-2	b
				I-2	2220550.0 cm ⁴	A-3	305.31 cm ²
				W-2,min	-27079.9 cm ³	I-3	531472.0 cm ⁴
				Forces and moments			
				N	-2322.16 kN	M-2,beg	306.60 kNm
				V-3	464.97 kN	M-2,end	397.36 kNm
				M-2	-2968.91 kNm	V-2	1.02 kN
				Reduction factor Kappa			
				s-K,2	1.370 m	Kappa-2 b	0.993
				N-Cr,2	24521100 kN	s-K,3	1.370 m
				Lambda-K,	0.028 < 0.2	N-Cr,3	5868930.0 kN
				Ksl-2	b	Lambda-K,	0.058 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.786	k-2	0.983 <= 1.5
				Beta-M,Psi	1.250	Psi-3	0.163
				V-load 3	Nein	Beta-M,Psi	1.686
				a-2	0.1290 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.130	D-M,3	0.000
				D-M,2	0.329	D-NM	0.460 < 1.0

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	A	800.00	cm^2	W-2,max	38388.69	cm^3	W-3,min	-20747.8	cm^3
	A-2	172.86	cm^2	Ksl-2	b		W-3,max	20747.80	cm^3
	I-2	3224650.	cm^4	A-3	465.10	cm^2	Ksl-3	b	
	W-2,min	-38388.6	cm^3	I-3	798789.0	cm^4			
	Forces and moments								
	N	-2341.60	kN	M-2,beg	454.96	kNm	M-3	-0.27	kNm
	V-3	464.97	kN	M-2,end	504.45	kNm	M-3,beg	0.03	kNm
	M-2	-2081.89	kNm	V-2	1.02	kN	M-3,end	0.09	kNm
	Reduction factor Kappa								
	s-K,2	0.465	m	Kappa-2 b	0.997		Ksl-3	b	
	N-Cr,2	3.0909e8	kN	s-K,3	0.465	m	Kappa-3 b	0.995	
	Lambda-K,	0.010	< 0.2	N-Cr,3	76567600	kN	Kappa bar	0.995	
	Ksl-2	b		Lambda-K,	0.019	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.902		k-2	0.984	<= 1.5	a-3	0.1278	<= 0.8
	Beta-M,Psi	1.169		Psi-3	0.360		k-3	0.989	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.548				
	a-2	0.1753	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.090		D-M,3	0.000				
	D-M,2	0.163		D-NM	0.253	< 1.0			
633	7000.000	CO98	0.201	1) Design to (28) fulfilled					
Section properties Kasten(A) 770/20/12/710/2247/770/20									
A	837.68	cm^2	W-2,max	53128.00	cm^3	W-3,min	-21883.8	cm^3	
A-2	133.81	cm^2	Ksl-2	b		W-3,max	21883.80	cm^3	
I-2	5968930.	cm^4	A-3	506.74	cm^2	Ksl-3	b		
W-2,min	-53128.0	cm^3	I-3	842526.0	cm^4				
Forces and moments									
N	-2302.71	kN	M-2,beg	1573.60	kNm	M-3	279.95	kNm	
V-3	63.56	kN	M-2,end	1239.42	kNm	M-3,beg	37.44	kNm	
M-2	1239.42	kNm	V-2	-23.73	kN	M-3,end	279.95	kNm	
Reduction factor Kappa									
s-K,2	7.000	m	Kappa-2 b	0.971		Ksl-3	b		
N-Cr,2	2524760.	kN	s-K,3	7.000	m	Kappa-3 b	0.928		
Lambda-K,	0.109	< 0.2	N-Cr,3	356374.0	kN	Kappa bar	0.928		
Ksl-2	b		Lambda-K,	0.291					
Taper conditions									
TapCon1-2	996.749	> 1.20	TapCon2-2	0.861	> 0.05				
TapCon1-3	140.693	> 1.20	TapCon2-3	0.914	> 0.05				
Coefficient k-2 and k-3									
Psi-2	0.788		Beta-M,2	1.249		Beta-M,V,3	1.300		
Beta-M,Psi	1.249		a-2	0.0314	<= 0.8	M-V,3	5.73	kNm	
V-load 3	Ja		k-2	0.997	<= 1.5	Delta-M,3	369.90	kNm	
C-load 3	Nein		Psi-3	0.168		Beta-M,3	1.677		
Beta-M,V,2	1.300		Beta-M,Psi	1.683		a-3	-0.0433	<= 0.8	
M-V,2	12.20	kNm	V-load 2	Ja		k-3	1.004	<= 1.5	
Delta-M,2	2731.71	kNm	C-load 2	Nein					
Design									
D-N	0.091		D-M,3	0.039					
D-M,2	0.071		D-NM	0.201	< 1.0				
634	0.000	CO98	0.174	1) Design to (28) fulfilled					
Section properties Pi(A) 500/35/12/135/376									
A	199.00	cm^2	W-2,max	122.56	cm^3	W-3,min	-1819.75	cm^3	
A-2	141.01	cm^2	Ksl-2	c		W-3,max	1819.75	cm^3	
I-2	1340.27	cm^4	A-3	26.28	cm^2	Ksl-3	c		
W-2,min	-522.71	cm^3	I-3	45493.89	cm^4				
Forces and moments									
N	-526.76	kN	M-2,beg	0.00	kNm	M-3	-0.19	kNm	
V-3	202.78	kN	M-2,end	52.07	kNm	M-3,beg	0.16	kNm	
M-2	-3.87	kNm	V-2	16.32	kN	M-3,end	4.06	kNm	
Reduction factor Kappa									
s-K,2	0.276	m	Kappa-2 b	0.966		Ksl-3	c		
N-Cr,2	365333.0	kN	s-K,3	0.276	m	Kappa-3 b	0.966		
Lambda-K,	0.140	< 0.2	N-Cr,3	12400800	kN	Kappa bar	0.966		
Ksl-2	c		Lambda-K,	0.024	< 0.2				
Taper conditions									
TapCon1-2	630.498	> 1.20	TapCon2-2	1.000	> 0.05				
TapCon1-3	21401.59	> 1.20	TapCon2-3	1.000	> 0.05				
Coefficient k-2 and k-3									
Psi-2	0.506		k-2	0.933	<= 1.5	a-3	0.4470	<= 0.8	
Beta-M,Psi	1.445		Psi-3	0.040		k-3	0.963	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.772					
a-2	0.8000	<= 0.8	V-load 2	Nein					
Design									
D-N	0.084		D-M,3	0.000					
D-M,2	0.090		D-NM	0.174	< 1.0				
635	0.000	CO98	0.101	1) Design to (28) fulfilled					
Section properties Rundstahl 220									
A	380.13	cm^2	W-2,max	1045.36	cm^3	W-3,min	-696.36	cm^3	
A-2	337.79	cm^2	Ksl-2	c		W-3,max	1045.36	cm^3	
I-2	11499.00	cm^4	A-3	337.79	cm^2	Ksl-3	c		
W-2,min	-696.36	cm^3	I-3	11499.00	cm^4				
Forces and moments									
N	-2.09	kN	M-2,beg	36.68	kNm	M-3	-1.01	kNm	
V-3	-538.50	kN	M-2,end	3.87	kNm	M-3,beg	0.88	kNm	
M-2	36.68	kNm	V-2	-16.32	kN	M-3,end	0.04	kNm	
Reduction factor Kappa									
s-K,2	0.064	m	Kappa-2 b	0.988		Ksl-3	c		

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	57287800 kN 0.020 < 0.2 c 0.106 1.726 Ja Nein 1.300 2.29 kNm 52.42 kNm 0.000 0.098	< 0.2 c 0.106 1.726 Ja Nein 1.300 2.29 kNm 52.42 kNm 0.000 0.098	s-K,3 N-Cr,3 Lambda-K, s-K,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	0.064 m 57287800 kN 0.020 < 0.2 1.708 0.8000 <= 0.8 1.000 <= 1.5 0.045 1.768 Ja Nein 0.003 0.101 < 1.0	Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	0.988 0.988 1.300 0.06 kNm 1.89 kNm 1.754 0.8000 <= 0.8 1.000 <= 1.5
637	270.000	CO98	0.266	1) Design to (28) fulfilled			
	Section properties Flat 500/70 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Taper conditions TapCon1-2 TapCon1-3 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	350.00 cm^2 291.67 cm^2 1429.17 cm^4 -408.33 cm^3 -1320.50 kN 178.42 kN 19.94 kNm 0.27 kNm 0.270 m 406324.0 kN 0.176 < 0.2 c 279.732 > 1.20 14272.00 > 1.20 0.014 1.791 Nein 0.4262 <= 0.8 0.124 0.141	0.266 c cm^2 cm^4 cm^3 kN kN kNm kNm m kN < 0.2 c > 1.20 > 1.20 0.014 1.791 Nein 0.4262 <= 0.8 0.124 0.141	W-2,max Ksl-2 A-3 I-3 M-2,end M-2,max x-M2,max V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, TapCon2-2 TapCon2-3 k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	408.33 cm^3 c 291.67 cm^2 72916.79 cm^4 19.94 kNm 19.94 kNm 0.270 m 34.09 kN 0.926 0.270 m 20730800 kN 0.025 < 0.2 0.762 > 0.05 0.581 > 0.05 0.947 <= 1.5 0.000 1.800 Nein 0.000 0.266 < 1.0	W-3,min W-3,max Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	-2916.66 cm^3 2916.67 cm^3 c 0.00 kNm 9.21 kNm 0.00 kNm c 0.926 0.926 0.4901 <= 0.8 0.943 <= 1.5
638	60.000	CO98	0.130	1) Design to (28) fulfilled			
	Section properties Rundstahl 220 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	380.13 cm^2 337.79 cm^2 11499.00 cm^4 -696.36 cm^3 -3.46 kN 831.25 kN 47.57 kNm 47.57 kNm 0.057 m 72085104 kN 0.018 < 0.2 c 0.023 1.784 Ja Nein 1.300 2.07 kNm 57.48 kNm 0.000 0.127	0.130 cm^2 cm^2 cm^4 cm^3 kN kN kNm kNm m kN < 0.2 c 0.023 1.784 Ja Nein 1.300 2.07 kNm 57.48 kNm 0.000 0.127	W-2,max Ksl-2 A-3 I-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	1045.36 cm^3 c 337.79 cm^2 11499.00 cm^4 0.07 kNm 47.57 kNm 17.77 kN 0.990 0.057 m 72085104 kN 0.018 < 0.2 1.766 0.8000 <= 0.8 1.000 <= 1.5 0.000 1.800 Ja Nein 0.003 0.130 < 1.0	W-3,min W-3,max Ksl-3 M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	-696.36 cm^3 1045.36 cm^3 c -1.03 kNm 0.00 kNm 0.89 kNm c 0.990 0.990 1.300 0.04 kNm 1.92 kNm 1.790 0.8000 <= 0.8 1.000 <= 1.5
639	0.000	CO98	0.177	1) Design to (28) fulfilled			
	Section properties Flachstahl 500/35 A A-2 I-2 W-2,min Forces and moments N V-3 M-2 M-2,beg M-2,end Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Taper conditions TapCon1-2 TapCon1-3 Coefficient k-2 and k-3	175.00 cm^2 145.83 cm^2 178.65 cm^4 -102.08 cm^3 -831.53 kN 3.46 kN -0.23 kNm 0.07 kNm 0.70 kNm 0.270 m 50790.60 kN 0.352 c 55.528 > 1.20 11332.29 > 1.20	0.177 cm^2 cm^2 cm^4 cm^3 kN kN kNm kNm kNm m kN < 0.2 c > 1.20 > 1.20	W-2,max Ksl-2 A-3 I-3 M-2,max x-M2,max V-2 M-3 M-3,beg Kappa-2 b s-K,3 N-Cr,3 Lambda-K, TapCon2-2 TapCon2-3 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	102.08 cm^3 c 145.83 cm^2 36458.30 cm^4 0.70 kNm 0.270 m 17.77 kN 0.19 kNm 0.19 kNm 0.853 0.270 m 10365400 kN 0.025 < 0.2 0.762 > 0.05 0.581 > 0.05 0.947 <= 1.5 0.000 1.800 Ja Nein 0.003 0.130 < 1.0	W-3,min W-3,max Ksl-3 M-3,end M-3,max x-M3,max M-3,min x-M3,min	-1458.32 cm^3 1458.33 cm^3 c 4.00 kNm 4.00 kNm 0.270 m -4.62 kNm 0.270 m

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	Psi-2	0.100		k-2	0.947 <= 1.5	a-3	0.4885 <= 0.8
	Beta-M,Psi	1.730		Psi-3	0.047	k-3	0.928 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.767		
	a-2	0.3098 <= 0.8		V-load 2	Nein		
	Design						
	D-N	0.170		D-M,3	0.000		
	D-M,2	0.007		D-NM	0.177 < 1.0		
640	0.000	CO99	0.448	1) Design to (28) fulfilled			
	Section properties Kasten(A) 700/8/8/650/756/700/8						
	A	230.40 cm ²		W-2,max	5573.99 cm ³	W-3,min	-4968.49 cm ³
	A-2	86.58 cm ²		Ksl-2	b	W-3,max	4968.49 cm ³
	I-2	210697.0 cm ⁴		A-3	103.28 cm ²	Ksl-3	b
	W-2,min	-5573.99 cm ³		I-3	173897.0 cm ⁴		
	Forces and moments						
	N	-37.93 kN		M-2,beg	325.26 kNm	M-3	429.58 kNm
	V-3	49.07 kN		M-2,end	254.18 kNm	M-3,beg	429.58 kNm
	M-2	325.26 kNm		V-2	37.32 kN	M-3,end	234.64 kNm
	Reduction factor Kappa						
	s-K,2	5.222 m		Kappa-2 b	0.943	Ksl-3	b
	N-Cr,2	160123.0 kN		s-K,3	5.222 m	Kappa-3 b	0.936
	Lambda-K,	0.228		N-Cr,3	132156.0 kN	Kappa bar	0.936
	Ksl-2	b		Lambda-K,	0.251		
	Taper conditions						
	TapCon1-2	3837.770 > 1.20		TapCon2-2	0.678 > 0.05		
	TapCon1-3	3167.469 > 1.20		TapCon2-3	0.794 > 0.05		
	Coefficient k-2 and k-3						
	Psi-2	0.781		M-V,2	7.73 kNm	Psi-3	0.547
	Beta-M,Psi	1.253		Delta-M,2	627.22 kNm	Beta-M,Psi	1.417
	V-load 3	Ja		Beta-M,2	1.254	V-load 2	Nein
	C-load 3	Nein		a-2	-0.1953 <= 0.8	a-3	-0.1134 <= 0.8
	Beta-M,V,2	1.300		k-2	1.001 <= 1.5	k-3	1.001 <= 1.5
	Design						
	D-N	0.005		D-M,3	0.264		
	D-M,2	0.178		D-NM	0.448 < 1.0		
641	1700.000	CO97	0.485	1) Design to (28) fulfilled			
	Section properties HE-B 600						
	A	270.00 cm ²		Ksl-2	a	Ksl-3	b
	I-2	171000.0 cm ⁴		I-3	13530.00 cm ⁴		
	W-2	-5700.00 cm ³		W-3	902.00 cm ³		
	Forces and moments						
	N	-858.45 kN		M-2,min	-129.81 kNm	M-3,end	0.00 kNm
	V-3	-337.14 kN		x-M2,min	1.700 m	M-3,min	-93.45 kNm
	M-2	-129.81 kNm		V-2	48.78 kN	x-M3,min	1.700 m
	M-2,beg	435.81 kNm		M-3	-93.45 kNm		
	M-2,end	1.74 kNm		M-3,beg	6.16 kNm		
	Reduction factor Kappa						
	s-K,2	1.700 m		Kappa-2 b	0.982	Ksl-3	b
	N-Cr,2	1226360. kN		s-K,3	1.700 m	Kappa-3 b	0.871
	Lambda-K,	0.089 < 0.2		N-Cr,3	97032.79 kN	Kappa bar	0.871
	Ksl-2	a		Lambda-K,	0.317		
	Coefficient k-2 and k-3						
	Psi-2	0.004		k-2	0.991 <= 1.5	a-3	0.3316 <= 0.8
	Beta-M,Psi	1.797		Psi-3	0.190	k-3	0.963 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.667		
	a-2	0.0902 <= 0.8		V-load 2	Nein		
	Design						
	D-N	0.112		D-M,3	0.305		
	D-M,2	0.069		D-NM	0.485 < 1.0		
644	7000.000	CO97	0.358	1) Design to (28) fulfilled			
	Section properties Kasten(A) 770/15/12/710/772/770/15						
	A	409.08 cm ²		W-2,max	10691.29 cm ³	W-3,min	-8992.99 cm ³
	A-2	178.68 cm ²		Ksl-2	b	W-3,max	8992.99 cm ³
	I-2	412683.0 cm ⁴		A-3	157.21 cm ²	Ksl-3	b
	W-2,min	-10691.2 cm ³		I-3	346230.0 cm ⁴		
	Forces and moments						
	N	-2644.88 kN		M-2,beg	270.00 kNm	M-3	2.47 kNm
	V-3	70.18 kN		M-2,end	471.36 kNm	M-3,beg	9.57 kNm
	M-2	471.36 kNm		V-2	1.02 kN	M-3,end	2.47 kNm
	Reduction factor Kappa						
	s-K,2	7.000 m		Kappa-2 b	0.928	Ksl-3	b
	N-Cr,2	174558.0 kN		s-K,3	7.000 m	Kappa-3 b	0.914
	Lambda-K,	0.290		N-Cr,3	146450.0 kN	Kappa bar	0.914
	Ksl-2	b		Lambda-K,	0.317		
	Taper conditions						
	TapCon1-2	59.998 > 1.20		TapCon2-2	0.558 > 0.05		
	TapCon1-3	50.337 > 1.20		TapCon2-3	0.714 > 0.05		
	Coefficient k-2 and k-3						
	Psi-2	0.573		M-V,2	156.68 kNm	Psi-3	0.258
	Beta-M,Psi	1.399		Delta-M,2	515.73 kNm	Beta-M,Psi	1.619
	V-load 3	Ja		Beta-M,2	1.369	V-load 2	Nein
	C-load 3	Nein		a-2	-0.2398 <= 0.8	a-3	-0.0322 <= 0.8
	Beta-M,V,2	1.300		k-2	1.051 <= 1.5	k-3	1.007 <= 1.5
	Design						
	D-N	0.216		D-M,3	0.001		
	D-M,2	0.142		D-NM	0.358 < 1.0		
648	50.000	CO98	0.191	1) Design to (28) fulfilled			
	Section properties Rundstahl 140						

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3
	A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3
	I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c	
	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4			
	Forces and moments								
	N	-0.11	kN	x-M2,max	0.050	m	M-3,end	4.21	kNm
	V-3	59.43	kN	M-2,min	-1.13	kNm	M-3,max	4.21	kNm
	M-2	3.27	kNm	x-M2,min	0.050	m	x-M3,max	0.050	m
	M-2,beg	0.00	kNm	V-2	274.60	kN	M-3,min	-15.11	kNm
	M-2,end	3.27	kNm	M-3	-15.11	kNm	x-M3,min	0.050	m
	M-2,max	3.27	kNm	M-3,beg	0.00	kNm			
	Reduction factor Kappa								
	s-K,2	0.055	m	Kappa-2 b	0.985		Ksl-3	c	
	N-Cr,2	12920200	kN	s-K,3	0.055	m	Kappa-3 b	0.985	
	Lambda-K,	0.027	< 0.2	N-Cr,3	12920200	kN	Kappa bar	0.985	
	Ksl-2	c		Lambda-K,	0.027	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.000		Beta-M,2	1.766		Beta-M,V,3	1.300	
	Beta-M,Psi	1.800		a-2	0.8000	<= 0.8	M-V,3	0.38	kNm
	V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	19.32	kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.790	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.8000	<= 0.8
	M-V,2	0.30	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
	Delta-M,2	4.40	kNm	C-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.157				
	D-M,2	0.034		D-NM	0.191	< 1.0			
661	0.000	CO97	0.715	1) Design to (28) fulfilled					
Section properties HE-M 600									
A	364.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	237400.0	cm^4	I-3	18980.00	cm^4				
W-2	-7660.00	cm^3	W-3	1240.00	cm^3				
Forces and moments									
N	-4139.58	kN	M-2,end	0.00	kNm	M-3,end	41.86	kNm	
V-3	526.40	kN	V-2	-180.58	kN	M-3,max	41.86	kNm	
M-2	-710.84	kNm	M-3	-42.57	kNm	x-M3,max	0.350	m	
M-2,beg	0.00	kNm	M-3,beg	15.72	kNm				
Reduction factor Kappa									
s-K,2	0.355	m	Kappa-2 b	0.996		Ksl-3	b		
N-Cr,2	39043100	kN	s-K,3	0.355	m	Kappa-3 b	0.973		
Lambda-K,	0.018	< 0.2	N-Cr,3	3121470.	kN	Kappa bar	0.973		
Ksl-2	a		Lambda-K,	0.065	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.738		k-2	0.958	<= 1.5	a-3	0.4968	<= 0.8	
Beta-M,Psi	1.284		Psi-3	0.376		k-3	0.823	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.537					
a-2	0.1200	<= 0.8	V-load 2	Nein					
Design									
D-N	0.357		D-M,3	0.086					
D-M,2	0.272		D-NM	0.715	< 1.0				
662	0.000	CO97	0.681	1) Design to (28) fulfilled					
Section properties HE-M 600									
A	364.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	237400.0	cm^4	I-3	18980.00	cm^4				
W-2	-7660.00	cm^3	W-3	1240.00	cm^3				
Forces and moments									
N	-3893.03	kN	M-2,end	0.00	kNm	M-3,end	0.00	kNm	
V-3	408.64	kN	V-2	212.60	kN	M-3,min	-34.17	kNm	
M-2	-571.86	kNm	M-3	61.62	kNm	x-M3,min	0.350	m	
M-2,beg	0.00	kNm	M-3,beg	61.62	kNm				
Reduction factor Kappa									
s-K,2	0.355	m	Kappa-2 b	0.996		Ksl-3	b		
N-Cr,2	39043100	kN	s-K,3	0.355	m	Kappa-3 b	0.973		
Lambda-K,	0.018	< 0.2	N-Cr,3	3121470.	kN	Kappa bar	0.973		
Ksl-2	a		Lambda-K,	0.065	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.747		k-2	0.961	<= 1.5	a-3	0.5047	<= 0.8	
Beta-M,Psi	1.277		Psi-3	0.288		k-3	0.830	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.598					
a-2	0.1197	<= 0.8	V-load 2	Nein					
Design									
D-N	0.336		D-M,3	0.126					
D-M,2	0.219		D-NM	0.681	< 1.0				
671	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Rundstahl 140									
A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3	
A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3	
I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c		
W-2,min	-179.45	cm^3	I-3	1885.74	cm^4				
Forces and moments									
N	0.00	kN	M-2,beg	0.00	kNm	M-3	-1.39	kNm	
V-3	790.21	kN	M-2,end	39.85	kNm	M-3,beg	0.16	kNm	
M-2	-52.98	kNm	V-2	0.72	kN	M-3,end	0.18	kNm	
Design									
D-N	0.000								
D-M,2	0.000								
672	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Rundstahl 140									
A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3	
A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3	
I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c		
W-2,min	-179.45	cm^3	I-3	1885.74	cm^4				
Forces and moments									
N	0.00	kN	M-2,beg	0.00	kNm	M-3	-1.39	kNm	
V-3	790.21	kN	M-2,end	39.85	kNm	M-3,beg	0.16	kNm	
M-2	-52.98	kNm	V-2	0.72	kN	M-3,end	0.18	kNm	
Design									
D-N	0.000								
D-M,2	0.000								

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method				
	I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c
	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4		
	Forces and moments							
	N	0.00	kN	M-2,beg	0.16	kNm	M-3	50.01 kNm
	V-3	-0.72	kN	M-2,end	0.18	kNm	M-3,beg	50.01 kNm
	M-2	-1.39	kNm	V-2	745.82	kN	M-3,end	0.00 kNm
673	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
Section properties Rundstahl 140								
A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3
A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3
I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c	
W-2,min	-179.45	cm^3	I-3	1885.74	cm^4			
Forces and moments								
N	0.00	kN	M-2,beg	46.72	kNm	M-3	1.56	kNm
V-3	-1043.63	kN	M-2,end	0.00	kNm	M-3,beg	1.56	kNm
M-2	46.72	kNm	V-2	-0.92	kN	M-3,end	1.62	kNm
674	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
Section properties Rundstahl 140								
A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3
A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3
I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c	
W-2,min	-179.45	cm^3	I-3	1885.74	cm^4			
Forces and moments								
N	0.00	kN	M-2,beg	44.10	kNm	M-3	1.57	kNm
V-3	-984.87	kN	M-2,end	0.00	kNm	M-3,beg	1.57	kNm
M-2	44.10	kNm	V-2	-0.92	kN	M-3,end	1.63	kNm
675	0.000	CO97	0.129	1) Design to (28) fulfilled				
Section properties Flachstahl 740/15								
A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
Forces and moments								
N	-1.26	kN	M-2,beg	0.00	kNm	M-3	55.88	kNm
V-3	0.36	kN	M-2,end	0.03	kNm	M-3,beg	55.88	kNm
M-2	-0.03	kNm	V-2	305.78	kN	M-3,end	0.00	kNm
Reduction factor Kappa								
s-K,2	0.185	m	Kappa-2 b	0.686		Ksl-3	c	
N-Cr,2	5960.90	kN	s-K,3	0.185	m	Kappa-3 b	0.686	
Lambda-K,	0.819		N-Cr,3	3245380.	kN	Kappa bar	0.686	
Ksl-2	c		Lambda-K,	0.035	< 0.2			
Taper conditions								
TapCon1-2	4300.790	> 1.20	TapCon2-2	1.000	> 0.05			
TapCon1-3	2341540.	> 1.20	TapCon2-3	1.000	> 0.05			
Coefficient k-2 and k-3								
Psi-2	0.000		Beta-M,2	1.793		Beta-M,V,3	1.300	
Beta-M,Psi	1.800		a-2	0.1614	<= 0.8	M-V,3	0.02	kNm
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	56.54	kNm
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800	
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4860	<= 0.8
M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
Delta-M,2	0.06	kNm	C-load 2	Nein				
Design								
D-N	0.001		D-M,3	0.125				
D-M,2	0.003		D-NM	0.129	< 1.0			
676	0.000	CO97	0.128	1) Design to (28) fulfilled				
Section properties Flachstahl 740/15								
A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
Forces and moments								
N	-0.15	kN	M-2,beg	0.00	kNm	M-3	55.88	kNm
V-3	0.36	kN	M-2,end	0.03	kNm	M-3,beg	55.88	kNm
M-2	-0.03	kNm	V-2	305.78	kN	M-3,end	0.00	kNm
Reduction factor Kappa								
s-K,2	0.185	m	Kappa-2 b	0.686		Ksl-3	c	
N-Cr,2	5960.90	kN	s-K,3	0.185	m	Kappa-3 b	0.686	
Lambda-K,	0.819		N-Cr,3	3245380.	kN	Kappa bar	0.686	
Ksl-2	c		Lambda-K,	0.035	< 0.2			
Taper conditions								
TapCon1-2	36126.69	> 1.20	TapCon2-2	1.000	> 0.05			
TapCon1-3	19669000	> 1.20	TapCon2-3	1.000	> 0.05			
Coefficient k-2 and k-3								
Psi-2	0.000		Beta-M,2	1.793		Beta-M,V,3	1.300	
Beta-M,Psi	1.800		a-2	0.1614	<= 0.8	M-V,3	0.02	kNm
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	56.54	kNm
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800	
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4860	<= 0.8
M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
Delta-M,2	0.06	kNm	C-load 2	Nein				
Design								
D-N	0.000		D-M,3	0.125				
D-M,2	0.003		D-NM	0.128	< 1.0			
677	0.000	CO97	0.122	1) Design to (28) fulfilled				
Section properties Flachstahl 740/15								

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	A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
	A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
	I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
	W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
	Forces and moments								
	N	-1.26	kN	M-2,beg	0.00	kNm	M-3	52.74	kNm
	V-3	0.36	kN	M-2,end	0.03	kNm	M-3,beg	52.74	kNm
	M-2	-0.03	kNm	V-2	288.60	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	0.185	m	Kappa-2 b	0.686		Ksl-3	c	
	N-Cr,2	5960.90	kN	s-K,3	0.185	m	Kappa-3 b	0.686	
	Lambda-K,	0.819		N-Cr,3	3245380.	kN	Kappa bar	0.686	
	Ksl-2	c		Lambda-K,	0.035	< 0.2			
	Taper conditions								
	TapCon1-2	4300.790	> 1.20	TapCon2-2	1.000	> 0.05			
	TapCon1-3	2341540.	> 1.20	TapCon2-3	1.000	> 0.05			
	Coefficient k-2 and k-3								
	Psi-2	0.000		Beta-M,2	1.793		Beta-M,V,3	1.300	
	Beta-M,Psi	1.800		a-2	0.1614	<= 0.8	M-V,3	0.02	kNm
	V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	53.37	kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4860	<= 0.8
	M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
	Delta-M,2	0.06	kNm	C-load 2	Nein				
	Design								
	D-N	0.001		D-M,3	0.118				
	D-M,2	0.003		D-NM	0.122	< 1.0			
678	0.000	CO97	0.121	1) Design to (28) fulfilled					
Section properties Flachstahl 740/15									
A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3	
A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3	
I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c		
W-2,min	-27.75	cm^3	I-3	50653.00	cm^4				
Forces and moments									
N	-0.15	kN	M-2,beg	0.00	kNm	M-3	52.74	kNm	
V-3	0.36	kN	M-2,end	0.03	kNm	M-3,beg	52.74	kNm	
M-2	-0.03	kNm	V-2	288.60	kN	M-3,end	0.00	kNm	
Reduction factor Kappa									
s-K,2	0.185	m	Kappa-2 b	0.686		Ksl-3	c		
N-Cr,2	5960.90	kN	s-K,3	0.185	m	Kappa-3 b	0.686		
Lambda-K,	0.819		N-Cr,3	3245380.	kN	Kappa bar	0.686		
Ksl-2	c		Lambda-K,	0.035	< 0.2				
Taper conditions									
TapCon1-2	36126.69	> 1.20	TapCon2-2	1.000	> 0.05				
TapCon1-3	19669000	> 1.20	TapCon2-3	1.000	> 0.05				
Coefficient k-2 and k-3									
Psi-2	0.000		Beta-M,2	1.793		Beta-M,V,3	1.300		
Beta-M,Psi	1.800		a-2	0.1614	<= 0.8	M-V,3	0.02	kNm	
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	53.37	kNm	
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800		
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4860	<= 0.8	
M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5	
Delta-M,2	0.06	kNm	C-load 2	Nein					
Design									
D-N	0.000		D-M,3	0.118					
D-M,2	0.003		D-NM	0.121	< 1.0				
679	0.000	CO97	0.056	1) Design to (28) fulfilled					
Section properties Flachstahl 740/15									
A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3	
A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3	
I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c		
W-2,min	-27.75	cm^3	I-3	50653.00	cm^4				
Forces and moments									
N	-0.11	kN	M-2,beg	0.03	kNm	M-3	-23.74	kNm	
V-3	-0.45	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm	
M-2	0.03	kNm	V-2	-176.57	kN	M-3,end	0.11	kNm	
Reduction factor Kappa									
s-K,2	0.135	m	Kappa-2 b	0.799		Ksl-3	c		
N-Cr,2	11194.29	kN	s-K,3	0.135	m	Kappa-3 b	0.799		
Lambda-K,	0.597		N-Cr,3	6094690.	kN	Kappa bar	0.799		
Ksl-2	c		Lambda-K,	0.026	< 0.2				
Taper conditions									
TapCon1-2	92515.20	> 1.20	TapCon2-2	1.000	> 0.05				
TapCon1-3	50369400	> 1.20	TapCon2-3	1.000	> 0.05				
Coefficient k-2 and k-3									
Psi-2	0.000		Beta-M,2	1.791		Beta-M,V,3	1.300		
Beta-M,Psi	1.800		a-2	0.2500	<= 0.8	M-V,3	0.00	kNm	
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	23.85	kNm	
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800		
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4898	<= 0.8	
M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5	
Delta-M,2	0.06	kNm	C-load 2	Nein					
Design									
D-N	0.000		D-M,3	0.053					
D-M,2	0.003		D-NM	0.056	< 1.0				
680	1000.000	CO97	0.547	4) Design to (3) fulfilled (axial compression)					
Section properties Flachstahl 200/60									
A	120.00	cm^2	W-2,min	-120.00	cm^3	I-3	4000.00	cm^4	

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	A	111.00	cm^2	W-2,max	27.75	cm^3	W-3,min	-1369.00	cm^3
	A-2	92.50	cm^2	Ksl-2	c		W-3,max	1369.00	cm^3
	I-2	20.81	cm^4	A-3	92.50	cm^2	Ksl-3	c	
	W-2,min	-27.75	cm^3	I-3	50653.00	cm^4			
	Forces and moments								
	N	-0.86	kN	M-2,beg	0.03	kNm	M-3	-22.41	kNm
	V-3	-0.45	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm
	M-2	0.03	kNm	V-2	-166.58	kN	M-3,end	0.09	kNm
	Reduction factor Kappa								
	s-K,2	0.135	m	Kappa-2 b	0.799		Ksl-3	c	
	N-Cr,2	11194.29	kN	s-K,3	0.135	m	Kappa-3 b	0.799	
	Lambda-K,	0.597		N-Cr,3	6094690.	kN	Kappa bar	0.799	
	Ksl-2	c		Lambda-K,	0.026	< 0.2			
	Taper conditions								
	TapCon1-2	11833.29	> 1.20	TapCon2-2	1.000	> 0.05			
	TapCon1-3	6442590.	> 1.20	TapCon2-3	1.000	> 0.05			
	Coefficient k-2 and k-3								
	Psi-2	0.000		Beta-M,2	1.791		Beta-M,V,3	1.300	
	Beta-M,Psi	1.800		a-2	0.2500	<= 0.8	M-V,3	0.00	kNm
	V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	22.50	kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.800	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.4898	<= 0.8
	M-V,2	0.00	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
	Delta-M,2	0.06	kNm	C-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.050				
	D-M,2	0.003		D-NM	0.054	< 1.0			
685	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Rundstahl 140									
A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3	
A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3	
I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c		
W-2,min	-179.45	cm^3	I-3	1885.74	cm^4				
Forces and moments									
N	0.00	kN	M-2,beg	0.00	kNm	M-3	-0.34	kNm	
V-3	354.48	kN	M-2,end	0.21	kNm	M-3,beg	0.04	kNm	
M-2	-23.72	kNm	V-2	-0.90	kN	M-3,end	0.03	kNm	
686	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Rundstahl 140									
A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3	
A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3	
I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c		
W-2,min	-179.45	cm^3	I-3	1885.74	cm^4				
Forces and moments									
N	0.00	kN	M-2,beg	39.85	kNm	M-3	0.48	kNm	
V-3	-610.08	kN	M-2,end	0.00	kNm	M-3,beg	0.48	kNm	
M-2	39.85	kNm	V-2	0.72	kN	M-3,end	0.44	kNm	
687	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Rundstahl 140									
A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3	
A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3	
I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c		
W-2,min	-179.45	cm^3	I-3	1885.74	cm^4				
Forces and moments									
N	0.00	kN	M-2,beg	0.00	kNm	M-3	-0.34	kNm	
V-3	334.50	kN	M-2,end	0.19	kNm	M-3,beg	0.04	kNm	
M-2	-22.38	kNm	V-2	-0.90	kN	M-3,end	0.03	kNm	
688	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Rundstahl 140									
A	153.94	cm^2	W-2,max	269.39	cm^3	W-3,min	-179.45	cm^3	
A-2	136.79	cm^2	Ksl-2	c		W-3,max	269.39	cm^3	
I-2	1885.74	cm^4	A-3	136.79	cm^2	Ksl-3	c		
W-2,min	-179.45	cm^3	I-3	1885.74	cm^4				
Forces and moments									
N	0.00	kN	M-2,beg	0.48	kNm	M-3	-37.60	kNm	
V-3	-0.72	kN	M-2,end	0.44	kNm	M-3,beg	0.00	kNm	
M-2	0.48	kNm	V-2	-575.73	kN	M-3,end	1.26	kNm	
689	0.000	CO97	0.136	1) Design to (28) fulfilled					
Section properties Flachstahl 350/40									
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3	
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3	
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c		
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4				
Forces and moments									
N	-0.04	kN	M-2,beg	0.01	kNm	M-3	34.99	kNm	
V-3	0.86	kN	M-2,end	0.03	kNm	M-3,beg	34.99	kNm	
M-2	-0.14	kNm	V-2	177.13	kN	M-3,end	0.00	kNm	
Reduction factor Kappa									
s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c		
N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906		
Lambda-K,	0.226		N-Cr,3	7555650.	kN	Kappa bar	0.906		
Ksl-2	c		Lambda-K,	0.026	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.333		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8	
Beta-M,Psi	1.567		Psi-3	0.000		k-3	1.000	<= 1.5	
V-load 3	Nein		Beta-M,Psi	1.800					

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	a-2 Design D-N D-M,2	0.3041 0.000 0.005	<= 0.8	V-load 2 D-M,3 D-NM	Nein 0.131 0.136	< 1.0			
690	0.000	CO97	0.234	1) Design to (28) fulfilled					
	Section properties Flachstahl 350/40								
	A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
	A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
	I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
	W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
	Forces and moments								
	N	-0.36	kN	M-2,beg	0.23	kNm	M-3	-60.40	kNm
	V-3	-1.26	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm
	M-2	0.23	kNm	V-2	-305.14	kN	M-3,end	0.04	kNm
	Reduction factor Kappa								
	s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
	N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
	Lambda-K,	0.226		N-Cr,3	7555650.0	kN	Kappa bar	0.906	
	Ksl-2	c		Lambda-K,	0.026	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	1.000		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
	Beta-M,Psi	1.100		Psi-3	0.000		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.0932	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.226				
	D-M,2	0.008		D-NM	0.234	< 1.0			
691	200.000	CO97	0.136	1) Design to (28) fulfilled					
	Section properties Flachstahl 350/40								
	A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
	A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
	I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
	W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
	Forces and moments								
	N	-0.45	kN	M-2,beg	0.00	kNm	M-3	34.99	kNm
	V-3	0.86	kN	M-2,end	0.14	kNm	M-3,beg	0.00	kNm
	M-2	0.14	kNm	V-2	-177.13	kN	M-3,end	34.99	kNm
	Reduction factor Kappa								
	s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
	N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
	Lambda-K,	0.226		N-Cr,3	7555650.0	kN	Kappa bar	0.906	
	Ksl-2	c		Lambda-K,	0.026	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.333		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
	Beta-M,Psi	1.567		Psi-3	0.000		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.3041	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.131				
	D-M,2	0.005		D-NM	0.136	< 1.0			
692	200.000	CO97	0.234	1) Design to (28) fulfilled					
	Section properties Flachstahl 350/40								
	A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
	A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
	I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
	W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
	Forces and moments								
	N	-0.06	kN	M-2,beg	0.03	kNm	M-3	-60.40	kNm
	V-3	-1.26	kN	M-2,end	0.03	kNm	M-3,beg	0.04	kNm
	M-2	-0.23	kNm	V-2	305.14	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
	N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
	Lambda-K,	0.226		N-Cr,3	7555650.0	kN	Kappa bar	0.906	
	Ksl-2	c		Lambda-K,	0.026	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	1.000		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
	Beta-M,Psi	1.100		Psi-3	0.000		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.0932	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.226				
	D-M,2	0.008		D-NM	0.234	< 1.0			
693	0.000	CO97	0.128	1) Design to (28) fulfilled					
	Section properties Flachstahl 350/40								
	A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
	A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
	I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
	W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
	Forces and moments								
	N	-0.04	kN	M-2,beg	0.01	kNm	M-3	33.01	kNm
	V-3	0.86	kN	M-2,end	0.03	kNm	M-3,beg	33.01	kNm
	M-2	-0.14	kNm	V-2	167.15	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
	N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
	Lambda-K,	0.226		N-Cr,3	7555650.0	kN	Kappa bar	0.906	

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	Ksl-2	c	Lambda-K,	0.026	< 0.2			
	Coefficient k-2 and k-3							
	Psi-2	0.333	k-2	1.000	<= 1.5	a-3	0.4897 <= 0.8	
	Beta-M,Psi	1.567	Psi-3	0.000		k-3	1.000 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.800				
	a-2	0.3041 <= 0.8	V-load 2	Nein				
	Design							
	D-N	0.000	D-M,3	0.124				
	D-M,2	0.005	D-NM	0.128	< 1.0			
694	0.000	CO97	0.221	1) Design to (28) fulfilled				
Section properties Flachstahl 350/40								
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
Forces and moments								
N	-0.36	kN	M-2,beg	0.23	kNm	M-3	-57.01	kNm
V-3	-1.26	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm
M-2	0.23	kNm	V-2	-287.97	kN	M-3,end	0.04	kNm
Reduction factor Kappa								
s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
Lambda-K,	0.226		N-Cr,3	7555650.0	kN	Kappa bar	0.906	
Ksl-2	c		Lambda-K,	0.026	< 0.2			
Coefficient k-2 and k-3								
Psi-2	1.000		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
Beta-M,Psi	1.100		Psi-3	0.000		k-3	1.000	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.800				
a-2	0.0932 <= 0.8		V-load 2	Nein				
Design								
D-N	0.000		D-M,3	0.213				
D-M,2	0.008		D-NM	0.221	< 1.0			
695	200.000	CO97	0.128	1) Design to (28) fulfilled				
Section properties Flachstahl 350/40								
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
Forces and moments								
N	-0.45	kN	M-2,beg	0.00	kNm	M-3	33.01	kNm
V-3	0.86	kN	M-2,end	0.14	kNm	M-3,beg	0.00	kNm
M-2	0.14	kNm	V-2	-167.15	kN	M-3,end	33.01	kNm
Reduction factor Kappa								
s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
Lambda-K,	0.226		N-Cr,3	7555650.0	kN	Kappa bar	0.906	
Ksl-2	c		Lambda-K,	0.026	< 0.2			
Coefficient k-2 and k-3								
Psi-2	0.333		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
Beta-M,Psi	1.567		Psi-3	0.000		k-3	1.000	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.800				
a-2	0.3041 <= 0.8		V-load 2	Nein				
Design								
D-N	0.000		D-M,3	0.124				
D-M,2	0.005		D-NM	0.128	< 1.0			
696	200.000	CO97	0.221	1) Design to (28) fulfilled				
Section properties Flachstahl 350/40								
A	140.00	cm^2	W-2,max	93.33	cm^3	W-3,min	-816.67	cm^3
A-2	116.67	cm^2	Ksl-2	c		W-3,max	816.67	cm^3
I-2	186.67	cm^4	A-3	116.67	cm^2	Ksl-3	c	
W-2,min	-93.33	cm^3	I-3	14291.70	cm^4			
Forces and moments								
N	-0.06	kN	M-2,beg	0.03	kNm	M-3	-57.01	kNm
V-3	-1.26	kN	M-2,end	0.03	kNm	M-3,beg	0.04	kNm
M-2	-0.23	kNm	V-2	287.97	kN	M-3,end	0.00	kNm
Reduction factor Kappa								
s-K,2	0.198	m	Kappa-2 b	0.906		Ksl-3	c	
N-Cr,2	98686.00	kN	s-K,3	0.198	m	Kappa-3 b	0.906	
Lambda-K,	0.226		N-Cr,3	7555650.0	kN	Kappa bar	0.906	
Ksl-2	c		Lambda-K,	0.026	< 0.2			
Coefficient k-2 and k-3								
Psi-2	1.000		k-2	1.000	<= 1.5	a-3	0.4897	<= 0.8
Beta-M,Psi	1.100		Psi-3	0.000		k-3	1.000	<= 1.5
V-load 3	Nein		Beta-M,Psi	1.800				
a-2	0.0932 <= 0.8		V-load 2	Nein				
Design								
D-N	0.000		D-M,3	0.213				
D-M,2	0.008		D-NM	0.221	< 1.0			
697	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
Section properties Rundstahl 140								
A	153.94	cm^2	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4
A-2	136.79	cm^2	W-2,max	269.39	cm^3	Ksl-3	c	
I-2	1885.74	cm^4	Ksl-2	c				
Forces and moments								
N	0.00	kN	M-2	0.00	kNm	M-2,end	0.00	kNm
V-3	0.06	kN	M-2,beg	0.00	kNm			

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698	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
	Section properties Rundstahl 140								
	A	153.94	cm^2	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4
	A-2	136.79	cm^2	W-2,max	269.39	cm^3	Ksl-3		c
	I-2	1885.74	cm^4	Ksl-2		c			
	Forces and moments								
	N	0.00	kN	M-2	0.00	kNm	M-2.end	0.00	kNm
	V-3	0.06	kN	M-2,beg	0.00	kNm			
699	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
	Section properties Rundstahl 140								
	A	153.94	cm^2	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4
	A-2	136.79	cm^2	W-2,max	269.39	cm^3	Ksl-3		c
	I-2	1885.74	cm^4	Ksl-2		c			
	Forces and moments								
	N	0.00	kN	M-2	0.00	kNm	M-2.end	0.00	kNm
	V-3	0.06	kN	M-2,beg	0.00	kNm			
700	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
	Section properties Rundstahl 140								
	A	153.94	cm^2	W-2,min	-179.45	cm^3	I-3	1885.74	cm^4
	A-2	136.79	cm^2	W-2,max	269.39	cm^3	Ksl-3		c
	I-2	1885.74	cm^4	Ksl-2		c			
	Forces and moments								
	N	0.00	kN	M-2	0.00	kNm	M-2.end	0.00	kNm
	V-3	0.00	kN	M-2,beg	0.00	kNm			
701	0.000	CO97	0.654	1) Design to (28) fulfilled					
	Section properties HE-M 600								
	A	364.00	cm^2	Ksl-2	a		Ksl-3	b	
	I-2	237400.0	cm^4	I-3	18980.00	cm^4			
	W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
	Forces and moments								
	N	-3757.00	kN	M-2,end	388.77	kNm	M-3	37.17	kNm
	V-3	519.91	kN	M-2,max	388.77	kNm	M-3,beg	37.17	kNm
	M-2	-521.01	kNm	x-M2,max	1.770	m	M-3,end	7.20	kNm
	M-2,beg	0.00	kNm	V-2	22.14	kN			
	Reduction factor Kappa								
	s-K,2	1.770	m	Kappa-2 b	0.982		Ksl-3	b	
	N-Cr,2	1570550.0	kN	s-K,3	1.770	m	Kappa-3 b	0.868	
	Lambda-K,	0.091	< 0.2	N-Cr,3	125565.0	kN	Kappa bar	0.868	
	Ksl-2	a		Lambda-K,	0.323				
	Coefficient k-2 and k-3								
	Psi-2	0.535		Beta-M,2	1.399		Beta-M,V,3	1.300	
	Beta-M,Psi	1.426		a-2	0.0364	<= 0.8	M-V,3	2.66	kNm
	V-load 3	Ja		k-2	0.988	<= 1.5	Delta-M,3	42.35	kNm
	C-load 3	Nein		Psi-3	0.508		Beta-M,3	1.436	
	Beta-M,V,2	1.300		Beta-M,Psi	1.445		a-3	0.1920	<= 0.8
	M-V,2	193.29	kNm	V-load 2	Ja		k-3	0.930	<= 1.5
	Delta-M,2	909.78	kNm	C-load 2	Nein				
	Design								
	D-N	0.363		D-M,3	0.085				
	D-M,2	0.205		D-NM	0.654	< 1.0			
702	0.000	CO97	0.565	1) Design to (28) fulfilled					
	Section properties HE-M 600								
	A	364.00	cm^2	Ksl-2	a		Ksl-3	b	
	I-2	237400.0	cm^4	I-3	18980.00	cm^4			
	W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
	Forces and moments								
	N	-3437.28	kN	M-2,max	276.81	kNm	M-3,end	8.94	kNm
	V-3	402.12	kN	x-M2,max	1.770	m	M-3,max	8.94	kNm
	M-2	-424.01	kNm	V-2	-18.06	kN	x-M3,max	1.770	m
	M-2,beg	0.00	kNm	M-3	-30.30	kNm			
	M-2,end	276.81	kNm	M-3,beg	0.00	kNm			
	Reduction factor Kappa								
	s-K,2	1.770	m	Kappa-2 b	0.982		Ksl-3	b	
	N-Cr,2	1570550.0	kN	s-K,3	1.770	m	Kappa-3 b	0.868	
	Lambda-K,	0.091	< 0.2	N-Cr,3	125565.0	kN	Kappa bar	0.868	
	Ksl-2	a		Lambda-K,	0.323				
	Coefficient k-2 and k-3								
	Psi-2	0.594		Beta-M,2	1.368		Beta-M,V,3	1.300	
	Beta-M,Psi	1.384		a-2	0.0307	<= 0.8	M-V,3	1.18	kNm
	V-load 3	Ja		k-2	0.991	<= 1.5	Delta-M,3	39.24	kNm
	C-load 3	Nein		Psi-3	0.021		Beta-M,3	1.771	
	Beta-M,V,2	1.300		Beta-M,Psi	1.785		a-3	0.4085	<= 0.8
	M-V,2	137.62	kNm	V-load 2	Ja		k-3	0.864	<= 1.5
	Delta-M,2	700.82	kNm	C-load 2	Nein				
	Design								
	D-N	0.332		D-M,3	0.065				
	D-M,2	0.168		D-NM	0.565	< 1.0			
703	0.000	CO97	0.579	1) Design to (28) fulfilled					
	Section properties RO 168,3x10								
	A	49.73	cm^2	Ksl-2	a		Ksl-3	a	
	I-2	1563.98	cm^4	I-3	1563.98	cm^4			
	W-2	-185.86	cm^3	W-3	185.86	cm^3			
	Forces and moments								
	N	-555.35	kN	M-2,beg	0.00	kNm	M-3,beg	4.70	kNm
	M-T	0.72	kNm	M-2,end	2.79	kNm	M-3,end	1.13	kNm
	V-3	4.44	kN	V-2	2.95	kN	VT	4.61	kN

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				M-2	-5.87 kNm	M-3	4.70 kNm
				Reduction factor Kappa			
				s-K,2	2.288 m	Kappa-2 b	0.847
				N-Cr,2	6191.38 kN	s-K,3	2.288 m
				Lambda-K,	0.538	N-Cr,3	6191.38 kN
				Ksl-2	a	Lambda-K,	0.538
				Coefficient k-2 and k-3			
				Psi-2	0.000	Beta-M,2	1.725
				Beta-M,Psi	1.800	a-2	0.0545 <= 0.8
				V-load 3	Ja	k-2	0.978 <= 1.5
				C-load 3	Nein	Psi-3	0.275
				Beta-M,V,2	1.300	Beta-M,Psi	1.607
				M-V,2	1.30 kNm	V-load 2	Ja
				Delta-M,2	8.66 kNm	C-load 2	Nein
				Design			
				D-N	0.403	D-M,3	0.082
				D-M,2	0.094	D-NM	0.579 < 1.0
704	0.000	CO97	0.615	1) Design to (28) fulfilled			
				Section properties RO 168,3x10			
				A	49.73 cm ²	Ksl-2	a
				I-2	1563.98 cm ⁴	I-3	1563.98 cm ⁴
				W-2	-185.86 cm ³	W-3	185.86 cm ³
				Forces and moments			
				N	-633.78 kN	M-2,beg	0.00 kNm
				M-T	-0.45 kNm	M-2,end	2.49 kNm
				V-3	3.84 kN	V-2	-2.20 kN
				M-2	-5.43 kNm	M-3	-3.87 kNm
				Reduction factor Kappa			
				s-K,2	2.288 m	Kappa-2 b	0.847
				N-Cr,2	6191.38 kN	s-K,3	2.288 m
				Lambda-K,	0.538	N-Cr,3	6191.38 kN
				Ksl-2	a	Lambda-K,	0.538
				Coefficient k-2 and k-3			
				Psi-2	0.057	Beta-M,2	1.694
				Beta-M,Psi	1.760	a-2	0.0214 <= 0.8
				V-load 3	Ja	k-2	0.990 <= 1.5
				C-load 3	Nein	Psi-3	0.310
				Beta-M,V,2	1.300	Beta-M,Psi	1.583
				M-V,2	1.13 kNm	V-load 2	Ja
				Delta-M,2	7.92 kNm	C-load 2	Nein
				Design			
				D-N	0.460	D-M,3	0.068
				D-M,2	0.088	D-NM	0.615 < 1.0
705	0.000	CO97	0.489	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				A	364.00 cm ²	Ksl-2	a
				I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴
				W-2	-7660.00 cm ³	W-3	1240.00 cm ³
				Forces and moments			
				N	-3757.00 kN	M-2,beg	388.77 kNm
				V-3	-179.42 kN	M-2,end	321.95 kNm
				M-2	388.77 kNm	V-2	22.14 kN
				Reduction factor Kappa			
				s-K,2	0.375 m	Kappa-2 b	0.996
				N-Cr,2	34989500 kN	s-K,3	0.375 m
				Lambda-K,	0.019 < 0.2	N-Cr,3	2797390. kN
				Ksl-2	a	Lambda-K,	0.068 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.907	k-2	0.964 <= 1.5
				Beta-M,Psi	1.165	Psi-3	0.621
				V-load 3	Nein	Beta-M,Psi	1.365
				a-2	0.1139 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.325	D-M,3	0.015
				D-M,2	0.149	D-NM	0.489 < 1.0
706	0.000	CO97	0.423	1) Design to (28) fulfilled			
				Section properties HE-M 600			
				A	364.00 cm ²	Ksl-2	a
				I-2	237400.0 cm ⁴	I-3	18980.00 cm ⁴
				W-2	-7660.00 cm ³	W-3	1240.00 cm ³
				Forces and moments			
				N	-3437.28 kN	M-2,beg	276.81 kNm
				V-3	-128.35 kN	M-2,end	229.14 kNm
				M-2	276.81 kNm	V-2	-17.78 kN
				Reduction factor Kappa			
				s-K,2	0.375 m	Kappa-2 b	0.996
				N-Cr,2	34989500 kN	s-K,3	0.375 m
				Lambda-K,	0.019 < 0.2	N-Cr,3	2797390. kN
				Ksl-2	a	Lambda-K,	0.068 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.907	k-2	0.967 <= 1.5
				Beta-M,Psi	1.165	Psi-3	0.923
				V-load 3	Nein	Beta-M,Psi	1.154
				a-2	0.1139 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.297	D-M,3	0.019
				D-M,2	0.107	D-NM	0.423 < 1.0

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method				
707	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
	Section properties HE-A 160							
	A	38.80	cm^2	Ksl-2	b	Ksl-3	c	
	I-2	1670.00	cm^4	I-3	616.00	cm^4		
	W-2	-220.00	cm^3	W-3	76.90	cm^3		
	Forces and moments							
	N	0.00	kN	M-2,beg	4.59	kNm	M-3	-2.64 kNm
	V-3	-3.43	kN	M-2,end	6.77	kNm	M-3,beg	0.90 kNm
	M-2	4.59	kNm	V-2	-6.33	kN	M-3,end	2.41 kNm
	708	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
Section properties HE-M 300								
A		303.00	cm^2	Ksl-2	b	Ksl-3	c	
I-2		59200.00	cm^4	I-3	19400.00	cm^4		
W-2		-3480.00	cm^3	W-3	1250.00	cm^3		
Forces and moments								
N		0.00	kN	M-2,beg	0.00	kNm	M-3	80.72 kNm
V-3		38.10	kN	M-2,end	66.33	kNm	M-3,beg	80.72 kNm
M-2		-122.97	kNm	V-2	29.78	kN	M-3,end	5.60 kNm
709		0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties IS 302/250/15/20							
	A	139.30	cm^2	Ksl-2	b	Ksl-3	c	
	I-2	22162.40	cm^4	I-3	5215.70	cm^4		
	W-2	-1467.70	cm^3	W-3	417.26	cm^3		
	Forces and moments							
	N	0.00	kN	M-2,max	20.99	kNm	M-3,end	11.34 kNm
	V-3	4.24	kN	x-M2,max	7.430	m	M-3,max	11.34 kNm
	M-2	-12.21	kNm	V-2	5.95	kN	x-M3,max	7.430 m
	M-2,beg	0.28	kNm	M-3	9.40	kNm	M-3,min	-3.48 kNm
M-2,end	20.99	kNm	M-3,beg	9.40	kNm	x-M3,min	4.460 m	
711	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
	Section properties HE-A 160							
	A	38.80	cm^2	Ksl-2	b	Ksl-3	c	
	I-2	1670.00	cm^4	I-3	616.00	cm^4		
	W-2	-220.00	cm^3	W-3	76.90	cm^3		
	Forces and moments							
	N	0.00	kN	M-2,end	3.45	kNm	M-3	1.10 kNm
	V-3	-1.74	kN	M-2,max	3.70	kNm	M-3,beg	1.10 kNm
	M-2	3.55	kNm	x-M2,max	0.930	m	M-3,end	1.63 kNm
	M-2,beg	3.55	kNm	V-2	-1.15	kN		
712	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
	Section properties HE-M 300							
	A	303.00	cm^2	Ksl-2	b	Ksl-3	c	
	I-2	59200.00	cm^4	I-3	19400.00	cm^4		
	W-2	-3480.00	cm^3	W-3	1250.00	cm^3		
	Forces and moments							
	N	0.00	kN	M-2,beg	0.00	kNm	M-3	72.21 kNm
	V-3	44.16	kN	M-2,end	83.08	kNm	M-3,beg	72.21 kNm
	M-2	-136.27	kNm	V-2	27.28	kN	M-3,end	5.38 kNm
	713	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
Section properties IS 302/250/15/20								
A		139.30	cm^2	Ksl-2	b	Ksl-3	c	
I-2		22162.40	cm^4	I-3	5215.70	cm^4		
W-2		-1467.70	cm^3	W-3	417.26	cm^3		
Forces and moments								
N		0.00	kN	M-2,min	-11.55	kNm	M-3,end	11.07 kNm
V-3		-2.30	kN	x-M2,min	7.430	m	M-3,max	11.07 kNm
M-2		8.89	kNm	V-2	5.74	kN	x-M3,max	7.430 m
M-2,beg		8.89	kNm	M-3	8.95	kNm	M-3,min	-3.18 kNm
M-2,end	0.00	kNm	M-3,beg	8.95	kNm	x-M3,min	4.460 m	
714	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
	Section properties HE-A 160							
	A	38.80	cm^2	Ksl-2	b	Ksl-3	c	
	I-2	1670.00	cm^4	I-3	616.00	cm^4		
	W-2	-220.00	cm^3	W-3	76.90	cm^3		
	Forces and moments							
	N	0.00	kN	M-2,beg	6.39	kNm	M-3	-5.13 kNm
	V-3	-4.50	kN	M-2,end	4.39	kNm	M-3,beg	0.70 kNm
	M-2	6.39	kNm	V-2	-9.78	kN	M-3,end	2.71 kNm
	715	2500.000	CO97	0.559	1) Design to (28) fulfilled			
Section properties HE-M 600								
A		364.00	cm^2	Ksl-2	a	Ksl-3	b	
I-2		237400.0	cm^4	I-3	18980.00	cm^4		
W-2		-7660.00	cm^3	W-3	1240.00	cm^3		
Forces and moments								
N		-3760.40	kN	M-2,beg	322.20	kNm	M-3	48.78 kNm
V-3		-200.13	kN	M-2,end	0.00	kNm	M-3,beg	4.63 kNm
M-2		-154.44	kNm	V-2	-23.16	kN	M-3,end	48.78 kNm
Reduction factor Kappa								
s-K,2	2.500	m	Kappa-2 b	0.974	Ksl-3	b		
N-Cr,2	787263.0	kN	s-K,3	2.500	m	Kappa-3 b	0.809	
Lambda-K,	0.129	< 0.2	N-Cr,3	62941.19	kN	Kappa bar	0.809	
Ksl-2	a		Lambda-K,	0.456				
Coefficient k-2 and k-3								
Psi-2	0.614		Beta-M,2	1.362	Beta-M,V,3	1.300		

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	Beta-M,Psi	1.370		a-2	-0.0185 <= 0.8	M-V,3	4.80 kNm
	V-load 3	Ja		k-2	1.006 <= 1.5	Delta-M,3	58.39 kNm
	C-load 3	Nein		Psi-3	0.095	Beta-M,3	1.698
	Beta-M,V,2	1.300		Beta-M,Psi	1.734	a-3	0.2811 <= 0.8
	M-V,2	70.14 kNm		V-load 2	Ja	k-3	0.890 <= 1.5
	Delta-M,2	573.84 kNm		C-load 2	Nein		
	Design						
	D-N	0.390		D-M,3	0.107		
	D-M,2	0.062		D-NM	0.559 < 1.0		
716	2670.000	CO98	0.572	1) Design to (28) fulfilled			
	Section properties RO 168,3x10						
	A	49.73 cm ²		Ksl-2	a	Ksl-3	a
	I-2	1563.98 cm ⁴		I-3	1563.98 cm ⁴		
	W-2	-185.86 cm ³		W-3	185.86 cm ³		
	Forces and moments						
	N	-596.11 kN		M-2,beg	3.05 kNm	M-3,beg	0.89 kNm
	M-T	-0.99 kNm		M-2,end	0.00 kNm	M-3,end	3.21 kNm
	V-3	-3.05 kN		V-2	-2.12 kN	VT	2.72 kN
	M-2	-3.58 kNm		M-3	3.21 kNm		
	Reduction factor Kappa						
	s-K,2	2.667 m		Kappa-2 b	0.811	Ksl-3	a
	N-Cr,2	4557.87 kN		s-K,3	2.667 m	Kappa-3 b	0.811
	Lambda-K,	0.627		N-Cr,3	4557.87 kN	Kappa bar	0.811
	Ksl-2	a		Lambda-K,	0.627		
	Coefficient k-2 and k-3						
	Psi-2	0.008		Beta-M,2	1.674	Beta-M,V,3	1.300
	Beta-M,Psi	1.794		a-2	-0.0584 <= 0.8	M-V,3	1.22 kNm
	V-load 3	Ja		k-2	1.026 <= 1.5	Delta-M,3	5.65 kNm
	C-load 3	Nein		Psi-3	0.369	Beta-M,3	1.490
	Beta-M,V,2	1.300		Beta-M,Psi	1.542	a-3	-0.2898 <= 0.8
	M-V,2	1.61 kNm		V-load 2	Ja	k-3	1.131 <= 1.5
	Delta-M,2	6.63 kNm		C-load 2	Nein		
	Design						
	D-N	0.451		D-M,3	0.060		
	D-M,2	0.060		D-NM	0.572 < 1.0		
717	2670.000	CO97	0.620	1) Design to (28) fulfilled			
	Section properties RO 168,3x10						
	A	49.73 cm ²		Ksl-2	a	Ksl-3	a
	I-2	1563.98 cm ⁴		I-3	1563.98 cm ⁴		
	W-2	-185.86 cm ³		W-3	185.86 cm ³		
	Forces and moments						
	N	-643.77 kN		M-2,beg	3.36 kNm	M-3,beg	2.18 kNm
	M-T	1.11 kNm		M-2,end	0.00 kNm	M-3,end	2.07 kNm
	V-3	-3.55 kN		V-2	1.79 kN	VT	2.87 kN
	M-2	-4.51 kNm		M-3	-2.58 kNm		
	Reduction factor Kappa						
	s-K,2	2.667 m		Kappa-2 b	0.811	Ksl-3	a
	N-Cr,2	4557.87 kN		s-K,3	2.667 m	Kappa-3 b	0.811
	Lambda-K,	0.627		N-Cr,3	4557.87 kN	Kappa bar	0.811
	Ksl-2	a		Lambda-K,	0.627		
	Coefficient k-2 and k-3						
	Psi-2	0.000		Beta-M,2	1.687	Beta-M,V,3	1.300
	Beta-M,Psi	1.800		a-2	-0.0423 <= 0.8	M-V,3	1.47 kNm
	V-load 3	Ja		k-2	1.021 <= 1.5	Delta-M,3	4.76 kNm
	C-load 3	Nein		Psi-3	0.950	Beta-M,3	1.186
	Beta-M,V,2	1.300		Beta-M,Psi	1.135	a-3	-0.6702 <= 0.8
	M-V,2	1.78 kNm		V-load 2	Ja	k-3	1.327 <= 1.5
	Delta-M,2	7.87 kNm		C-load 2	Nein		
	Design						
	D-N	0.488		D-M,3	0.056		
	D-M,2	0.076		D-NM	0.620 < 1.0		
718	2500.000	CO97	0.521	1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00 cm ²		Ksl-2	a	Ksl-3	b
	I-2	237400.0 cm ⁴		I-3	18980.00 cm ⁴		
	W-2	-7660.00 cm ³		W-3	1240.00 cm ³		
	Forces and moments						
	N	-3435.50 kN		M-2,beg	228.92 kNm	M-3	-54.54 kNm
	V-3	-149.17 kN		M-2,end	0.00 kNm	M-3,beg	9.73 kNm
	M-2	-117.92 kNm		V-2	25.71 kN	M-3,end	0.00 kNm
	Reduction factor Kappa						
	s-K,2	2.500 m		Kappa-2 b	0.974	Ksl-3	b
	N-Cr,2	787263.0 kN		s-K,3	2.500 m	Kappa-3 b	0.809
	Lambda-K,	0.129 < 0.2		N-Cr,3	62941.19 kN	Kappa bar	0.809
	Ksl-2	a		Lambda-K,	0.456		
	Coefficient k-2 and k-3						
	Psi-2	0.515		Beta-M,2	1.424	Beta-M,V,3	1.300
	Beta-M,Psi	1.439		a-2	-0.0025 <= 0.8	M-V,3	4.80 kNm
	V-load 3	Ja		k-2	1.001 <= 1.5	Delta-M,3	64.27 kNm
	C-load 3	Nein		Psi-3	0.000	Beta-M,3	1.763
	Beta-M,V,2	1.300		Beta-M,Psi	1.800	a-3	0.3402 <= 0.8
	M-V,2	51.13 kNm		V-load 2	Ja	k-3	0.879 <= 1.5
	Delta-M,2	457.82 kNm		C-load 2	Nein		
	Design						
	D-N	0.356		D-M,3	0.118		
	D-M,2	0.047		D-NM	0.521 < 1.0		
719	0.000	CO97	0.434	1) Design to (28) fulfilled			

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	Section properties Kasten(A) 374/15/12/350/550/374/15								
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3
	A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c	
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4			
	Forces and moments								
	N	-0.99	kN	M-2,beg	1.88	kNm	M-3	330.69	kNm
	V-3	254.97	kN	M-2,end	1.75	kNm	M-3,beg	330.69	kNm
	M-2	-107.77	kNm	V-2	976.71	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	0.425	m	Kappa-2 b	0.992		Ksl-3	c	
	N-Cr,2	12441900	kN	s-K,3	0.425	m	Kappa-3 b	0.988	
	Lambda-K,	0.026	< 0.2	N-Cr,3	6193940	kN	Kappa bar	0.988	
	Ksl-2	c		Lambda-K,	0.037	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.931		k-2	1.000	<= 1.5	a-3	0.1311	<= 0.8
	Beta-M,Psi	1.148		Psi-3	0.000		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.1281	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.000		D-M,3	0.350				
	D-M,2	0.084		D-NM	0.434	< 1.0			
720	0.000	CO97	0.847	1) Design to (28) fulfilled					
	Section properties IS 302/250/8/25								
	A	145.16	cm^2	Ksl-2	b		Ksl-3	c	
	I-2	25109.80	cm^4	I-3	6511.49	cm^4			
	W-2	-1662.90	cm^3	W-3	520.92	cm^3			
	Forces and moments								
	N	-1411.44	kN	M-2,beg	15.63	kNm	M-3	-26.63	kNm
	V-3	5.85	kN	M-2,end	13.77	kNm	M-3,beg	0.00	kNm
	M-2	-17.47	kNm	V-2	-9.99	kN	M-3,end	28.31	kNm
	Reduction factor Kappa								
	s-K,2	5.500	m	Kappa-2 b	0.853		Ksl-3	c	
	N-Cr,2	17204.30	kN	s-K,3	5.500	m	Kappa-3 b	0.469	
	Lambda-K,	0.551		N-Cr,3	4461.43	kN	Kappa bar	0.469	
	Ksl-2	b		Lambda-K,	1.082				
	Coefficient k-2 and k-3								
	Psi-2	0.881		Beta-M,2	1.211		Beta-M,V,3	1.300	
	Beta-M,Psi	1.183		a-2	-0.7520	<= 0.8	M-V,3	12.32	kNm
	V-load 3	Ja		k-2	1.262	<= 1.5	Delta-M,3	54.94	kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.688	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	-0.1682	<= 0.8
	M-V,2	7.90	kNm	V-load 2	Ja		k-3	1.107	<= 1.5
	Delta-M,2	33.10	kNm	C-load 2	Nein				
	Design								
D-N	0.634		D-M,3	0.173					
D-M,2	0.041		D-NM	0.847	< 1.0				
721	1300.000	CO97	0.403	1) Design to (28) fulfilled					
	Section properties Kasten(A) 374/15/12/350/550/374/15								
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3
	A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c	
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4			
	Forces and moments								
	N	-6.33	kN	M-2,beg	11.43	kNm	M-3	318.58	kNm
	V-3	-23.34	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm
	M-2	-84.17	kNm	V-2	-340.14	kN	M-3,end	318.58	kNm
	Reduction factor Kappa								
	s-K,2	1.300	m	Kappa-2 b	0.974		Ksl-3	c	
	N-Cr,2	1329770	kN	s-K,3	1.300	m	Kappa-3 b	0.965	
	Lambda-K,	0.080	< 0.2	N-Cr,3	662000.0	kN	Kappa bar	0.965	
	Ksl-2	c		Lambda-K,	0.114	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.681		k-2	1.000	<= 1.5	a-3	0.1006	<= 0.8
	Beta-M,Psi	1.323		Psi-3	0.000		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.0643	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.001		D-M,3	0.337				
	D-M,2	0.065		D-NM	0.403	< 1.0			
722	0.000	CO97	0.343	1) Design to (28) fulfilled					
	Section properties Kasten(A) 374/15/12/350/550/374/15								
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3
	A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c	
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4			
	Forces and moments								
	N	-8.94	kN	M-2,beg	11.17	kNm	M-3	273.29	kNm
	V-3	10.99	kN	M-2,end	11.39	kNm	M-3,beg	273.29	kNm
	M-2	-68.19	kNm	V-2	302.79	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	1.300	m	Kappa-2 b	0.974		Ksl-3	c	
	N-Cr,2	1329770	kN	s-K,3	1.300	m	Kappa-3 b	0.965	
	Lambda-K,	0.080	< 0.2	N-Cr,3	662000.0	kN	Kappa bar	0.965	
	Ksl-2	c		Lambda-K,	0.114	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.981		k-2	1.000	<= 1.5	a-3	0.1006	<= 0.8
	Beta-M,Psi	1.114		Psi-3	0.000		k-3	1.000	<= 1.5

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	V-load 3 a-2 Design D-N D-M,2	Nein 0.0307 0.001 0.053	<= 0.8	Beta-M,Psi V-load 2 D-M,3 D-NM	1.800 Nein 0.289 0.343	< 1.0			
723	5500.000	CO97	0.765	1) Design to (28) fulfilled					
	Section properties IS 302/250/8/25								
	A	145.16	cm^2	Ksl-2	b	Ksl-3	c		
	I-2	25109.80	cm^4	I-3	6511.49	cm^4			
	W-2	-1662.90	cm^3	W-3	520.92	cm^3			
	Forces and moments								
	N	-1250.07	kN	M-2,beg	1.56	kNm	M-3	25.26	kNm
	V-3	-2.97	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm
	M-2	-18.97	kNm	V-2	-8.91	kN	M-3,end	25.26	kNm
	Reduction factor Kappa								
	s-K,2	5.500	m	Kappa-2 b	0.853	Ksl-3	c		
	N-Cr,2	17204.30	kN	s-K,3	5.500	m	Kappa-3 b	0.469	
	Lambda-K,	0.551		N-Cr,3	4461.43	kN	Kappa bar	0.469	
	Ksl-2	b		Lambda-K,	1.082				
	Coefficient k-2 and k-3								
	Psi-2	0.587		Beta-M,2	1.369	Beta-M,V,3	1.300		
	Beta-M,Psi	1.389		a-2	-0.5781	<= 0.8	M-V,3	11.13 kNm	
	V-load 3	Ja		k-2	1.178	<= 1.5	Delta-M,3	48.98 kNm	
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.686	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	-0.1713 <= 0.8	
	M-V,2	4.69	kNm	V-load 2	Ja		k-3	1.096 <= 1.5	
	Delta-M,2	20.53	kNm	C-load 2	Nein				
	Design								
	D-N	0.561		D-M,3	0.162				
	D-M,2	0.041		D-NM	0.765	< 1.0			
724	430.000	CO97	0.361	1) Design to (28) fulfilled					
	Section properties Kasten(A) 374/15/12/350/550/374/15								
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3
	A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c	
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4			
	Forces and moments								
	N	-5.45	kN	M-2,beg	1.66	kNm	M-3	279.03	kNm
	V-3	-199.15	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm
	M-2	-83.75	kNm	V-2	-874.52	kN	M-3,end	279.03	kNm
	Reduction factor Kappa								
	s-K,2	0.425	m	Kappa-2 b	0.992	Ksl-3	c		
	N-Cr,2	12441900	kN	s-K,3	0.425	m	Kappa-3 b	0.988	
	Lambda-K,	0.026	< 0.2	N-Cr,3	6193940	kN	Kappa bar	0.988	
	Ksl-2	c		Lambda-K,	0.037	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.000		k-2	1.000	<= 1.5	a-3	0.1311 <= 0.8	
	Beta-M,Psi	1.800		Psi-3	0.000		k-3	1.000 <= 1.5	
	V-load 3	Nein		Beta-M,Psi	1.800				
	a-2	0.1622	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.001		D-M,3	0.295				
	D-M,2	0.065		D-NM	0.361	< 1.0			
725	0.000	CO97	0.475	1) Design to (28) fulfilled					
	Section properties HE-M 600								
	A	364.00	cm^2	Ksl-2	a	Ksl-3	b		
	I-2	237400.0	cm^4	I-3	18980.00	cm^4			
	W-2	-7660.00	cm^3	W-3	1240.00	cm^3			
	Forces and moments								
	N	-2793.78	kN	M-2,beg	0.00	kNm	M-3	-65.10	kNm
	V-3	53.63	kN	M-2,end	7.73	kNm	M-3,beg	0.00	kNm
	M-2	-159.67	kNm	V-2	-24.61	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	1.500	m	Kappa-2 b	0.984	Ksl-3	b		
	N-Cr,2	2186840	kN	s-K,3	1.500	m	Kappa-3 b	0.888	
	Lambda-K,	0.077	< 0.2	N-Cr,3	174837.0	kN	Kappa bar	0.888	
	Ksl-2	a		Lambda-K,	0.274				
	Coefficient k-2 and k-3								
	Psi-2	0.554		k-2	0.987	<= 1.5	a-3	0.2803 <= 0.8	
	Beta-M,Psi	1.412		Psi-3	0.436		k-3	0.926 <= 1.5	
	V-load 3	Nein		Beta-M,Psi	1.495				
	a-2	0.0553	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.264		D-M,3	0.149				
	D-M,2	0.063		D-NM	0.475	< 1.0			
726	0.000	CO98	0.098	1) Design to (28) fulfilled					
	Section properties HE-M 300								
	A	303.00	cm^2	Ksl-2	b	Ksl-3	c		
	I-2	59200.00	cm^4	I-3	19400.00	cm^4			
	W-2	-3480.00	cm^3	W-3	1250.00	cm^3			
	Forces and moments								
	N	-96.08	kN	M-2,beg	56.55	kNm	M-3	15.43	kNm
	V-3	-18.21	kN	M-2,end	29.70	kNm	M-3,beg	15.43	kNm
	M-2	56.55	kNm	V-2	10.85	kN	M-3,end	3.74	kNm
	Reduction factor Kappa								
	s-K,2	1.500	m	Kappa-2 b	0.966	Ksl-3	c		
	N-Cr,2	545329.0	kN	s-K,3	1.500	m	Kappa-3 b	0.886	

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	Lambda-K, Ksl-2	0.141 < 0.2		N-Cr,3 178706.0 kN	Kappa bar	0.886	
	Coefficient k-2 and k-3			Lambda-K, 0.247			
	Psi-2	0.525		k-2 1.000 <= 1.5	a-3	0.3479 <= 0.8	
	Beta-M,Psi	1.432		Psi-3 0.242	k-3	0.996 <= 1.5	
	V-load 3	Nein		Beta-M,Psi 1.630			
	a-2	0.0119 <= 0.8		V-load 2 Nein			
	Design						
	D-N	0.011		D-M,3 0.038			
	D-M,2	0.050		D-NM 0.098 < 1.0			
727	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties HE-M 300						
	A	303.00 cm ²	Ksl-2 b	Ksl-3 c			
	I-2	59200.00 cm ⁴	I-3				
	W-2	-3480.00 cm ³	W-3				
	Forces and moments						
	N	0.00 kN	M-2,beg	62.04 kNm	M-3	16.86 kNm	
	V-3	-18.97 kN	M-2,end	33.63 kNm	M-3,beg	16.86 kNm	
	M-2	62.04 kNm	V-2	12.05 kN	M-3,end	3.81 kNm	
728	0.000	CO97	0.454	1) Design to (28) fulfilled			
	Section properties HE-M 600						
	A	364.00 cm ²	Ksl-2 a	Ksl-3 b			
	I-2	237400.0 cm ⁴	I-3				
	W-2	-7660.00 cm ³	W-3				
	Forces and moments						
	N	-2571.20 kN	M-2,beg	0.00 kNm	M-3	67.68 kNm	
	V-3	48.75 kN	M-2,end	8.11 kNm	M-3,beg	67.68 kNm	
	M-2	-141.35 kNm	V-2	25.33 kN	M-3,end	29.67 kNm	
	Reduction factor Kappa						
	s-K,2	1.500 m	Kappa-2 b	0.984	Ksl-3	b	
	N-Cr,2	2186840. kN	s-K,3	1.500 m	Kappa-3 b	0.888	
	Lambda-K,	0.077 < 0.2	N-Cr,3	174837.0 kN	Kappa bar	0.888	
	Ksl-2 a		Lambda-K,	0.274			
	Coefficient k-2 and k-3						
	Psi-2	0.562	k-2	0.988 <= 1.5	a-3	0.2792 <= 0.8	
	Beta-M,Psi	1.406	Psi-3	0.438	k-3	0.932 <= 1.5	
	V-load 3	Nein	Beta-M,Psi	1.493			
	a-2	0.0543 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.243	D-M,3	0.155			
	D-M,2	0.056	D-NM	0.454 < 1.0			
729	0.000	CO97	0.536	1) Design to (28) fulfilled			
	Section properties RO 127x10						
	A	36.76 cm ²	Ksl-2 a	Ksl-3 a			
	I-2	633.55 cm ⁴	I-3				
	W-2	-99.77 cm ³	W-3				
	Forces and moments						
	N	-344.37 kN	M-2,end	0.00 kNm	M-3,beg	1.23 kNm	
	M-T	0.58 kNm	M-2,max	0.09 kNm	M-3,end	1.11 kNm	
	V-3	1.41 kN	x-M2,max	1.330 m	VT	1.10 kN	
	M-2	-1.98 kNm	V-2	-0.92 kN			
	M-2,beg	0.00 kNm	M-3	-1.28 kNm			
	Reduction factor Kappa						
	s-K,2	2.655 m	Kappa-2 b	0.699	Ksl-3	a	
	N-Cr,2	1862.86 kN	s-K,3	2.655 m	Kappa-3 b	0.699	
	Lambda-K,	0.843	N-Cr,3	1862.86 kN	Kappa bar	0.699	
	Ksl-2 a		Lambda-K,	0.843			
	Coefficient k-2 and k-3						
	Psi-2	0.293	Beta-M,2	1.504	Beta-M,V,3	1.300	
	Beta-M,Psi	1.595	a-2	-0.4608 <= 0.8	M-V,3	1.01 kNm	
	V-load 3	Ja	k-2	1.189 <= 1.5	Delta-M,3	2.51 kNm	
	C-load 3	Nein	Psi-3	0.902	Beta-M,3	1.221	
	Beta-M,V,2	1.300	Beta-M,Psi	1.168	a-3	-0.9372 <= 0.8	
	M-V,2	0.64 kNm	V-load 2	Ja	k-3	1.384 <= 1.5	
	Delta-M,2	2.07 kNm	C-load 2	Nein			
	Design						
	D-N	0.410	D-M,3	0.054			
	D-M,2	0.072	D-NM	0.536 < 1.0			
730	0.000	CO98	0.515	1) Design to (28) fulfilled			
	Section properties RO 127x10						
	A	36.76 cm ²	Ksl-2 a	Ksl-3 a			
	I-2	633.55 cm ⁴	I-3				
	W-2	-99.77 cm ³	W-3				
	Forces and moments						
	N	-308.50 kN	M-2,end	1.43 kNm	M-3,beg	0.45 kNm	
	M-T	-0.51 kNm	M-2,max	1.43 kNm	M-3,end	2.23 kNm	
	V-3	1.88 kN	x-M2,max	2.650 m	M-3,max	2.23 kNm	
	M-2	-1.97 kNm	V-2	-1.73 kN	x-M3,max	2.650 m	
	M-2,beg	0.00 kNm	M-3	-2.36 kNm	VT	2.04 kN	
	Reduction factor Kappa						
	s-K,2	2.655 m	Kappa-2 b	0.699	Ksl-3	a	
	N-Cr,2	1862.86 kN	s-K,3	2.655 m	Kappa-3 b	0.699	
	Lambda-K,	0.843	N-Cr,3	1862.86 kN	Kappa bar	0.699	
	Ksl-2 a		Lambda-K,	0.843			
	Coefficient k-2 and k-3						
	Psi-2	0.152	Beta-M,2	1.614	Beta-M,V,3	1.300	
	Beta-M,Psi	1.693	a-2	-0.2747 <= 0.8	M-V,3	1.23 kNm	

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	V-load 3	Ja	k-2	1.101	<= 1.5	Delta-M,3	4.59 kNm
	C-load 3	Nein	Psi-3	0.202		Beta-M,3	1.563
	Beta-M,V,2	1.300	Beta-M,Psi	1.659		a-3	-0.3617 <= 0.8
	M-V,2	0.68 kNm	V-load 2	Ja		k-3	1.133 <= 1.5
	Delta-M,2	3.40 kNm	C-load 2	Nein			
	Design						
	D-N	0.367	D-M,3	0.082			
	D-M,2	0.066	D-NM	0.515	< 1.0		
731	0.000	CO97	0.471	1) Design to (28) fulfilled			
	Section properties HE-B 600						
	A	270.00 cm ²	Ksl-2	a		Ksl-3	b
	I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴			
	W-2	-5700.00 cm ³	W-3	902.00 cm ³			
	Forces and moments						
	N	-2793.78 kN	M-2,beg	7.73 kNm		M-3	-28.36 kNm
	V-3	41.76 kN	M-2,end	14.46 kNm		M-3,beg	0.00 kNm
	M-2	-88.40 kNm	V-2	-24.36 kN		M-3,end	1.41 kNm
	Reduction factor Kappa						
	s-K,2	1.000 m	Kappa-2 b	0.990		Ksl-3	b
	N-Cr,2	3544180. kN	s-K,3	1.000 m		Kappa-3 b	0.924
	Lambda-K,	0.052 < 0.2	N-Cr,3	280425.0 kN		Kappa bar	0.924
	Ksl-2	a	Lambda-K,	0.186 < 0.2			
	Coefficient k-2 and k-3						
	Psi-2	0.568	k-2	0.980	<= 1.5	a-3	0.4297 <= 0.8
	Beta-M,Psi	1.402	Psi-3	0.146		k-3	0.853 <= 1.5
	V-load 3	Nein	Beta-M,Psi	1.698			
	a-2	0.0637 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.342	D-M,3	0.082			
	D-M,2	0.046	D-NM	0.471	< 1.0		
732	0.000	CO97	0.444	1) Design to (28) fulfilled			
	Section properties HE-B 600						
	A	270.00 cm ²	Ksl-2	a		Ksl-3	b
	I-2	171000.0 cm ⁴	I-3	13530.00 cm ⁴			
	W-2	-5700.00 cm ³	W-3	902.00 cm ³			
	Forces and moments						
	N	-2571.20 kN	M-2,beg	8.11 kNm		M-3	29.67 kNm
	V-3	35.69 kN	M-2,end	15.18 kNm		M-3,beg	29.67 kNm
	M-2	-79.50 kNm	V-2	25.33 kN		M-3,end	4.41 kNm
	Reduction factor Kappa						
	s-K,2	1.000 m	Kappa-2 b	0.990		Ksl-3	b
	N-Cr,2	3544180. kN	s-K,3	1.000 m		Kappa-3 b	0.924
	Lambda-K,	0.052 < 0.2	N-Cr,3	280425.0 kN		Kappa bar	0.924
	Ksl-2	a	Lambda-K,	0.186 < 0.2			
	Coefficient k-2 and k-3						
	Psi-2	0.611	k-2	0.982	<= 1.5	a-3	0.4290 <= 0.8
	Beta-M,Psi	1.373	Psi-3	0.149		k-3	0.865 <= 1.5
	V-load 3	Nein	Beta-M,Psi	1.696			
	a-2	0.0606 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.315	D-M,3	0.087			
	D-M,2	0.042	D-NM	0.444	< 1.0		
733	830.000	CO98	0.531	1) Design to (28) fulfilled			
	Section properties HE-A 160						
	A	38.80 cm ²	Ksl-2	b		Ksl-3	c
	I-2	1670.00 cm ⁴	I-3	616.00 cm ⁴			
	W-2	-220.00 cm ³	W-3	76.90 cm ³			
	Forces and moments						
	N	-1.93 kN	M-2,max	3.82 kNm		M-3	-10.03 kNm
	V-3	-7.56 kN	x-M2,max	0.830 m		M-3,beg	5.17 kNm
	M-2	-9.45 kNm	M-2,min	-9.45 kNm		M-3,end	0.00 kNm
	M-2,beg	3.52 kNm	x-M2,min	0.830 m		M-3,min	-10.03 kNm
	M-2,end	3.82 kNm	V-2	18.29 kN		x-M3,min	0.830 m
	Reduction factor Kappa						
	s-K,2	0.831 m	Kappa-2 b	0.961		Ksl-3	c
	N-Cr,2	50096.30 kN	s-K,3	0.831 m		Kappa-3 b	0.870
	Lambda-K,	0.167 < 0.2	N-Cr,3	18478.69 kN		Kappa bar	0.870
	Ksl-2	b	Lambda-K,	0.275			
	Coefficient k-2 and k-3						
	Psi-2	0.921	k-2	1.000	<= 1.5	a-3	0.4197 <= 0.8
	Beta-M,Psi	1.155	Psi-3	0.000		k-3	0.999 <= 1.5
	V-load 3	Nein	Beta-M,Psi	1.800			
	a-2	-0.1640 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.002	D-M,3	0.398			
	D-M,2	0.131	D-NM	0.531	< 1.0		
734	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties IS 302/250/15/20						
	A	139.30 cm ²	Ksl-2	b		Ksl-3	c
	I-2	22162.40 cm ⁴	I-3	5215.70 cm ⁴			
	W-2	-1467.70 cm ³	W-3	417.26 cm ³			
	Forces and moments						
	N	0.00 kN	M-2,max	41.25 kNm		M-3,end	16.17 kNm
	V-3	7.58 kN	x-M2,max	7.430 m		M-3,max	16.17 kNm
	M-2	-17.25 kNm	V-2	4.78 kN		x-M3,max	7.430 m
	M-2,beg	1.26 kNm	M-3	4.89 kNm		M-3,min	-4.85 kNm
	M-2,end	41.25 kNm	M-3,beg	4.89 kNm		x-M3,min	1.490 m

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736	0.000	CO98	0.156	1) Design to (28) fulfilled
Section properties HE-A 160				
A	38.80	cm ²	Ksl-2	b
I-2	1670.00	cm ⁴	I-3	616.00
W-2	-220.00	cm ³	W-3	76.90
Forces and moments				
N	-2.51	kN	M-2,beg	5.55
V-3	-4.83	kN	M-2,end	3.32
M-2	5.55	kNm	V-2	-2.17
Reduction factor Kappa				
s-K,2	1.788	m	Kappa-2 b	0.913
N-Cr,2	10832.09	kN	s-K,3	1.788
Lambda-K,	0.359		N-Cr,3	3995.55
Ksl-2	b		Lambda-K,	0.591
Coefficient k-2 and k-3				
Psi-2	0.598		Beta-M,2	1.363
Beta-M,Psi	1.381		a-2	-0.3390
V-load 3	Ja		k-2	1.001
C-load 3	Nein		Psi-3	0.568
Beta-M,V,2	1.300		Beta-M,Psi	1.403
M-V,2	2.17	kNm	V-load 2	Ja
Delta-M,2	9.90	kNm	C-load 2	Nein
Design				
D-N	0.003		D-M,3	0.076
D-M,2	0.077		D-NM	0.156
737	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required
Section properties IS 302/250/15/20				
A	139.30	cm ²	Ksl-2	b
I-2	22162.40	cm ⁴	I-3	5215.70
W-2	-1467.70	cm ³	W-3	417.26
Forces and moments				
N	0.00	kN	M-2,min	-46.32
V-3	-9.35	kN	x-M2,min	7.430
M-2	27.14	kNm	V-2	4.74
M-2,beg	27.14	kNm	M-3	4.73
M-2,end	0.00	kNm	M-3,beg	4.73
738	0.000	CO97	0.438	1) Design to (28) fulfilled
Section properties HE-A 160				
A	38.80	cm ²	Ksl-2	b
I-2	1670.00	cm ⁴	I-3	616.00
W-2	-220.00	cm ³	W-3	76.90
Forces and moments				
N	-2.24	kN	M-2,end	3.84
V-3	1.77	kN	V-2	-17.37
M-2	4.07	kNm	M-3	-9.56
M-2,beg	4.07	kNm	M-3,beg	0.44
Reduction factor Kappa				
s-K,2	0.831	m	Kappa-2 b	0.961
N-Cr,2	50096.30	kN	s-K,3	0.831
Lambda-K,	0.167	< 0.2	N-Cr,3	18478.59
Ksl-2	b		Lambda-K,	0.275
Coefficient k-2 and k-3				
Psi-2	0.943		k-2	1.000
Beta-M,Psi	1.140		Psi-3	0.090
V-load 3	Nein		Beta-M,Psi	1.737
a-2	-0.1692	<= 0.8	V-load 2	Nein
Design				
D-N	0.002		D-M,3	0.380
D-M,2	0.057		D-NM	0.438
739	3500.000	CO98	0.125	1) Design to (28) fulfilled
Section properties HE-B 300				
A	149.00	cm ²	Ksl-2	b
I-2	25170.00	cm ⁴	I-3	8560.00
W-2	-1680.00	cm ³	W-3	571.00
Forces and moments				
N	-96.08	kN	M-2,beg	29.70
V-3	-18.64	kN	M-2,end	0.00
M-2	-35.60	kNm	V-2	-6.09
Reduction factor Kappa				
s-K,2	3.500	m	Kappa-2 b	0.914
N-Cr,2	42585.89	kN	s-K,3	3.500
Lambda-K,	0.355		N-Cr,3	14482.90
Ksl-2	b		Lambda-K,	0.609
Coefficient k-2 and k-3				
Psi-2	0.000		Beta-M,2	1.710
Beta-M,Psi	1.800		a-2	-0.0937
V-load 3	Ja		k-2	1.002
C-load 3	Nein		Psi-3	0.622
Beta-M,V,2	1.300		Beta-M,Psi	1.364
M-V,2	11.71	kNm	V-load 2	Ja
Delta-M,2	65.30	kNm	C-load 2	Nein
Design				
D-N	0.028		D-M,3	0.032
D-M,2	0.065		D-NM	0.125
740	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required
Section properties HE-B 300				

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	A 149.00 cm ² I-2 25170.00 cm ⁴ W-2 -1680.00 cm ³			Ksl-2 b I-3 8560.00 cm ⁴ W-3 571.00 cm ³	Ksl-3 c		
	Forces and moments N 0.00 kN V-3 -19.07 kN M-2 33.63 kNm			M-2,beg 33.63 kNm M-2,end 0.00 kNm V-2 5.37 kN	M-3 -3.87 kNm M-3,beg 3.81 kNm M-3,end 6.66 kNm		
741	2330.000	CO97	0.671	1) Design to (28) fulfilled			
	Section properties HE-B 600 A 270.00 cm ² I-2 171000.0 cm ⁴ W-2 -5700.00 cm ³			Ksl-2 a I-3 13530.00 cm ⁴ W-3 902.00 cm ³	Ksl-3 b		
	Forces and moments N -2783.45 kN V-3 19.62 kN M-2 17.25 kNm			M-2,beg 13.89 kNm M-2,end 17.25 kNm V-2 -45.74 kN	M-3 94.27 kNm M-3,beg 0.09 kNm M-3,end 94.27 kNm		
	Reduction factor Kappa s-K,2 2.325 m N-Cr,2 655645.0 kN Lambda-K, 0.122 < 0.2			Kappa-2 b 0.976 s-K,3 2.325 m N-Cr,3 51876.50 kN Lambda-K, 0.433	Ksl-3 b Kappa-3 b 0.820 Kappa bar 0.820		
	Coefficient k-2 and k-3 Psi-2 0.805 Beta-M,Psi 1.236 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 6.18 kNm Delta-M,2 69.10 kNm			Beta-M,2 1.242 a-2 -0.0583 <= 0.8 k-2 1.019 <= 1.5 Psi-3 0.001 Beta-M,Psi 1.799 V-load 2 Ja C-load 2 Nein	Beta-M,V,3 1.300 M-V,3 6.04 kNm Delta-M,3 106.65 kNm Beta-M,3 1.771 a-3 0.3440 <= 0.8 k-3 0.868 <= 1.5		
	Design D-N 0.384 D-M,2 0.009			D-M,3 0.277 D-NM 0.671 < 1.0			
742	2470.000	CO97	0.661	1) Design to (28) fulfilled			
	Section properties RO 127x10 A 36.76 cm ² I-2 633.55 cm ⁴ W-2 -99.77 cm ³			Ksl-2 a I-3 633.55 cm ⁴ W-3 99.77 cm ³	Ksl-3 a		
	Forces and moments N -352.17 kN M-T -0.42 kNm V-3 -2.63 kN M-2 -2.22 kNm			M-2,beg 2.61 kNm M-2,end 0.00 kNm V-2 -3.95 kN M-3 6.02 kNm	M-3,beg 0.00 kNm M-3,end 6.02 kNm VT 4.33 kN		
	Reduction factor Kappa s-K,2 2.469 m N-Cr,2 2153.84 kN Lambda-K, 0.784			Kappa-2 b 0.731 s-K,3 2.469 m N-Cr,3 2153.84 kN Lambda-K, 0.784	Ksl-3 a Kappa-3 b 0.731 Kappa bar 0.731		
	Coefficient k-2 and k-3 Psi-2 0.000 Beta-M,Psi 1.800 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 1.11 kNm Delta-M,2 4.83 kNm			Beta-M,2 1.686 a-2 -0.1176 <= 0.8 k-2 1.047 <= 1.5 Psi-3 0.000 Beta-M,Psi 1.800 V-load 2 Ja C-load 2 Nein	Beta-M,V,3 1.300 M-V,3 1.59 kNm Delta-M,3 9.78 kNm Beta-M,3 1.719 a-3 -0.0655 <= 0.8 k-3 1.026 <= 1.5		
	Design D-N 0.400 D-M,2 0.071			D-M,3 0.189 D-NM 0.661 < 1.0			
743	2470.000	CO98	0.589	1) Design to (28) fulfilled			
	Section properties RO 127x10 A 36.76 cm ² I-2 633.55 cm ⁴ W-2 -99.77 cm ³			Ksl-2 a I-3 633.55 cm ⁴ W-3 99.77 cm ³	Ksl-3 a		
	Forces and moments N -312.84 kN M-T 0.26 kNm V-3 -2.19 kN M-2 -1.89 kNm			M-2,beg 2.04 kNm M-2,end 0.00 kNm V-2 3.13 kN M-3 -4.97 kNm	M-3,beg 2.77 kNm M-3,end 0.35 kNm VT 3.56 kN		
	Reduction factor Kappa s-K,2 2.469 m N-Cr,2 2153.84 kN Lambda-K, 0.784			Kappa-2 b 0.731 s-K,3 2.469 m N-Cr,3 2153.84 kN Lambda-K, 0.784	Ksl-3 a Kappa-3 b 0.731 Kappa bar 0.731		
	Coefficient k-2 and k-3 Psi-2 0.243 Beta-M,Psi 1.630 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 1.09 kNm Delta-M,2 3.93 kNm			Beta-M,2 1.538 a-2 -0.3488 <= 0.8 k-2 1.124 <= 1.5 Psi-3 0.231 Beta-M,Psi 1.638 V-load 2 Ja C-load 2 Nein	Beta-M,V,3 1.300 M-V,3 1.56 kNm Delta-M,3 7.74 kNm Beta-M,3 1.570 a-3 -0.2992 <= 0.8 k-3 1.106 <= 1.5		
	Design D-N 0.356 D-M,2 0.065			D-M,3 0.168 D-NM 0.589 < 1.0			
744	2330.000	CO97	0.655	1) Design to (28) fulfilled			
	Section properties HE-B 600 A 270.00 cm ²			Ksl-2 a	Ksl-3 b		

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	I-2	171000.0	cm^4	I-3	13530.00	cm^4			
	W-2	-5700.00	cm^3	W-3	902.00	cm^3			
	Forces and moments								
	N	-2558.79	kN	M-2,beq	14.68	kNm	M-3	-97.46	kNm
	V-3	-15.32	kN	M-2,end	11.97	kNm	M-3,beq	13.89	kNm
	M-2	-18.42	kNm	V-2	47.90	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	2.325	m	Kappa-2 b	0.976		Ksl-3	b	
	N-Cr,2	655645.0	kN	s-K,3	2.325	m	Kappa-3 b	0.820	
	Lambda-K,	0.122	< 0.2	N-Cr,3	51876.50	kN	Kappa bar	0.820	
	Ksl-2	a		Lambda-K,	0.433				
	Coefficient k-2 and k-3								
	Psi-2	0.815		Beta-M,2	1.237		Beta-M,V,3	1.300	
	Beta-M,Psi	1.229		a-2	-0.0594	<= 0.8	M-V,3	6.96	kNm
	V-load 3	Ja		k-2	1.018	<= 1.5	Delta-M,3	111.35	kNm
	C-load 3	Nein		Psi-3	0.020		Beta-M,3	1.756	
	Beta-M,V,2	1.300		Beta-M,Psi	1.786		a-3	0.3306	<= 0.8
	M-V,2	7.62	kNm	V-load 2	Ja		k-3	0.883	<= 1.5
	Delta-M,2	65.33	kNm	C-load 2	Nein				
	Design								
D-N	0.353		D-M,3	0.292					
D-M,2	0.010		D-NM	0.655	< 1.0				
745	170.000	CO97	0.645	1) Design to (28) fulfilled					
Section properties HE-B 600									
A	270.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	171000.0	cm^4	I-3	13530.00	cm^4				
W-2	-5700.00	cm^3	W-3	902.00	cm^3				
Forces and moments									
N	-3058.76	kN	M-2,max	19.65	kNm	M-3,end	101.00	kNm	
V-3	16.38	kN	x-M2,max	0.170	m	M-3,max	101.00	kNm	
M-2	19.65	kNm	V-2	79.23	kN	x-M3,max	0.170	m	
M-2,beq	16.72	kNm	M-3	101.00	kNm				
M-2,end	19.65	kNm	M-3,beq	100.31	kNm				
Reduction factor Kappa									
s-K,2	0.175	m	Kappa-2 b	0.998		Ksl-3	b		
N-Cr,2	1.1572e8	kN	s-K,3	0.175	m	Kappa-3 b	0.986		
Lambda-K,	0.009	< 0.2	N-Cr,3	9156820.	kN	Kappa bar	0.986		
Ksl-2	a		Lambda-K,	0.033	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.864		Beta-M,2	1.196		Beta-M,V,3	1.300		
Beta-M,Psi	1.195		a-2	0.1116	<= 0.8	M-V,3	0.00	kNm	
V-load 3	Ja		k-2	0.961	<= 1.5	Delta-M,3	101.00	kNm	
C-load 3	Nein		Psi-3	0.993		Beta-M,3	1.105		
Beta-M,V,2	1.300		Beta-M,Psi	1.105		a-3	0.4839	<= 0.8	
M-V,2	0.08	kNm	V-load 2	Ja		k-3	0.830	<= 1.5	
Delta-M,2	28.60	kNm	C-load 2	Nein					
Design									
D-N	0.351		D-M,3	0.284					
D-M,2	0.010		D-NM	0.645	< 1.0				
746	170.000	CO97	0.643	1) Design to (28) fulfilled					
Section properties HE-B 600									
A	270.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	171000.0	cm^4	I-3	13530.00	cm^4				
W-2	-5700.00	cm^3	W-3	902.00	cm^3				
Forces and moments									
N	-2742.27	kN	M-2,max	12.85	kNm	M-3	-110.65	kNm	
V-3	-17.72	kN	x-M2,max	0.170	m	M-3,beq	0.00	kNm	
M-2	-20.61	kNm	M-2,min	-20.61	kNm	M-3,end	0.00	kNm	
M-2,beq	11.46	kNm	x-M2,min	0.170	m	M-3,min	-110.65	kNm	
M-2,end	12.85	kNm	V-2	46.62	kN	x-M3,min	0.170	m	
Reduction factor Kappa									
s-K,2	0.175	m	Kappa-2 b	0.998		Ksl-3	b		
N-Cr,2	1.1572e8	kN	s-K,3	0.175	m	Kappa-3 b	0.986		
Lambda-K,	0.009	< 0.2	N-Cr,3	9156820.	kN	Kappa bar	0.986		
Ksl-2	a		Lambda-K,	0.033	< 0.2				
Coefficient k-2 and k-3									
Psi-2	0.993		Beta-M,2	1.105		Beta-M,V,3	1.300		
Beta-M,Psi	1.105		a-2	0.1099	<= 0.8	M-V,3	0.00	kNm	
V-load 3	Ja		k-2	0.966	<= 1.5	Delta-M,3	110.65	kNm	
C-load 3	Nein		Psi-3	0.938		Beta-M,3	1.144		
Beta-M,V,2	1.300		Beta-M,Psi	1.144		a-3	0.4864	<= 0.8	
M-V,2	0.04	kNm	V-load 2	Ja		k-3	0.847	<= 1.5	
Delta-M,2	33.46	kNm	C-load 2	Nein					
Design									
D-N	0.315		D-M,3	0.317					
D-M,2	0.011		D-NM	0.643	< 1.0				
747	0.000	CO99	0.215	1) Design to (28) fulfilled					
Section properties Kasten(A) 374/15/12/350/550/374/15									
A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3	
A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3	
I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c		
W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4				
Forces and moments									
N	-1.65	kN	M-2,beq	0.01	kNm	M-3	195.17	kNm	
V-3	27.05	kN	M-2,end	0.37	kNm	M-3,beq	195.17	kNm	
M-2	-10.90	kNm	V-2	816.35	kN	M-3,end	0.00	kNm	
Reduction factor Kappa									
s-K,2	0.425	m	Kappa-2 b	0.992		Ksl-3	c		

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	N-Cr,2	12441900	kN	s-K,3	0.425	m	Kappa-3 b	0.988
	Lambda-K,	0.026	< 0.2	N-Cr,3	6193940.	kN	Kappa bar	0.988
	Ksl-2		c	Lambda-K,	0.037	< 0.2		
	Coefficient k-2 and k-3							
	Psi-2	0.027		k-2	1.000	<= 1.5	a-3	0.1308 <= 0.8
	Beta-M,Psi	1.781		Psi-3	0.006		k-3	1.000 <= 1.5
	V-load 3	Nein		Beta-M,Psi	1.796			
	a-2	0.1612	<= 0.8	V-load 2	Nein			
	Design							
	D-N	0.000		D-M,3	0.207			
D-M,2	0.008		D-NM	0.215	< 1.0			
748	5500.000	CO97	0.772	1) Design to (28) fulfilled				
Section properties IS 302/250/8/25								
A	145.16	cm^2	Ksl-2	b		Ksl-3	c	
I-2	25109.80	cm^4	I-3	6511.49	cm^4			
W-2	-1662.90	cm^3	W-3	520.92	cm^3			
Forces and moments								
N	-1386.03	kN	M-2,beg	2.38	kNm	M-3	18.78	kNm
V-3	2.97	kN	M-2,end	13.31	kNm	M-3,beg	0.00	kNm
M-2	13.31	kNm	V-2	-7.07	kN	M-3,end	18.78	kNm
Reduction factor Kappa								
s-K,2	5.500	m	Kappa-2 b	0.853		Ksl-3	c	
N-Cr,2	17204.30	kN	s-K,3	5.500	m	Kappa-3 b	0.469	
Lambda-K,	0.551		N-Cr,3	4461.43	kN	Kappa bar	0.469	
Ksl-2	b		Lambda-K,	1.082				
Coefficient k-2 and k-3								
Psi-2	0.179		Beta-M,2	1.621		Beta-M,V,3	1.300	
Beta-M,Psi	1.675		a-2	-0.3003	<= 0.8	M-V,3	9.16	kNm
V-load 3	Ja		k-2	1.103	<= 1.5	Delta-M,3	38.85	kNm
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.682	
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	-0.1806	<= 0.8
M-V,2	2.49	kNm	V-load 2	Ja		k-3	1.112	<= 1.5
Delta-M,2	17.33	kNm	C-load 2	Nein				
Design								
D-N	0.622		D-M,3	0.123				
D-M,2	0.027		D-NM	0.772	< 1.0			
749	0.000	CO97	0.199	1) Design to (28) fulfilled				
Section properties RO 127x5,6								
A	21.36	cm^2	Ksl-2	a		Ksl-3	a	
I-2	394.30	cm^4	I-3	394.30	cm^4			
W-2	-62.09	cm^3	W-3	62.09	cm^3			
Forces and moments								
N	-39.40	kN	M-2,beg	0.81	kNm	M-3,beg	0.00	kNm
M-T	0.12	kNm	M-2,end	1.02	kNm	M-3,end	1.32	kNm
V-3	0.76	kN	V-2	-1.47	kN	VT	1.53	kN
M-2	-0.97	kNm	M-3	-1.42	kNm			
Reduction factor Kappa								
s-K,2	2.600	m	Kappa-2 b	0.730		Ksl-3	a	
N-Cr,2	1208.93	kN	s-K,3	2.600	m	Kappa-3 b	0.730	
Lambda-K,	0.797		N-Cr,3	1208.93	kN	Kappa bar	0.730	
Ksl-2	a		Lambda-K,	0.797				
Coefficient k-2 and k-3								
Psi-2	0.794		Beta-M,2	1.269		Beta-M,V,3	1.300	
Beta-M,Psi	1.244		a-2	-0.8359	<= 0.8	M-V,3	0.45	kNm
V-load 3	Ja		k-2	1.065	<= 1.5	Delta-M,3	2.74	kNm
C-load 3	Nein		Psi-3	0.134		Beta-M,3	1.640	
Beta-M,V,2	1.300		Beta-M,Psi	1.706		a-3	-0.2447	<= 0.8
M-V,2	0.88	kNm	V-load 2	Ja		k-3	1.019	<= 1.5
Delta-M,2	1.99	kNm	C-load 2	Nein				
Design								
D-N	0.077		D-M,3	0.071				
D-M,2	0.051		D-NM	0.199	< 1.0			
750	1300.000	CO99	0.201	1) Design to (28) fulfilled				
Section properties Kasten(A) 374/15/12/350/550/374/15								
A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3
A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3
I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c	
W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4			
Forces and moments								
N	-2.29	kN	M-2,end	16.34	kNm	M-3	176.12	kNm
V-3	4.17	kN	M-2,max	18.37	kNm	M-3,beg	174.74	kNm
M-2	18.37	kNm	x-M2,max	1.300	m	M-3,end	177.51	kNm
M-2,beg	16.09	kNm	V-2	27.48	kN			
Reduction factor Kappa								
s-K,2	2.600	m	Kappa-2 b	0.949		Ksl-3	c	
N-Cr,2	332443.0	kN	s-K,3	2.600	m	Kappa-3 b	0.930	
Lambda-K,	0.160	< 0.2	N-Cr,3	165500.0	kN	Kappa bar	0.930	
Ksl-2	c		Lambda-K,	0.227				
Coefficient k-2 and k-3								
Psi-2	0.985		Beta-M,2	1.137		Beta-M,V,3	1.300	
Beta-M,Psi	1.111		a-2	-0.1040	<= 0.8	M-V,3	0.00	kNm
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	184.07	kNm
C-load 3	Nein		Psi-3	0.984		Beta-M,3	1.111	
Beta-M,V,2	1.300		Beta-M,Psi	1.111		a-3	-0.2578	<= 0.8
M-V,2	3.89	kNm	V-load 2	Ja		k-3	1.000	<= 1.5
Delta-M,2	28.56	kNm	C-load 2	Nein				
Design								
D-N	0.000		D-M,3	0.186				

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method					
	D-M,2	0.014	D-NM	0.201 < 1.0					
751	0.000	CO97	0.689	1) Design to (28) fulfilled					
	Section properties IS 302/250/8/25								
	A	145.16	cm^2	Ksl-2	b	Ksl-3	c		
	I-2	25109.80	cm^4	I-3	6511.49	cm^4			
	W-2	-1662.90	cm^3	W-3	520.92	cm^3			
	Forces and moments								
	N	-1210.97	kN	M-2,beg	16.13	kNm	M-3	-17.46	kNm
	V-3	-4.70	kN	M-2,end	1.26	kNm	M-3,beg	0.00	kNm
	M-2	16.13	kNm	V-2	-6.14	kN	M-3,end	16.26	kNm
	Reduction factor Kappa								
	s-K,2	5.500	m	Kappa-2 b	0.853		Ksl-3	c	
	N-Cr,2	17204.30	kN	s-K,3	5.500	m	Kappa-3 b	0.469	
	Lambda-K,	0.551		N-Cr,3	4461.43	kN	Kappa bar	0.469	
	Ksl-2	b		Lambda-K,	1.082				
	Coefficient k-2 and k-3								
	Psi-2	0.272		Beta-M,2	1.547		Beta-M,V,3	1.300	
	Beta-M,Psi	1.610		a-2	-0.3820	<= 0.8	M-V,3	7.89	kNm
	V-load 3	Ja		k-2	1.114	<= 1.5	Delta-M,3	33.72	kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.683	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	-0.1787	<= 0.8
M-V,2	5.39	kNm	V-load 2	Ja		k-3	1.097	<= 1.5	
Delta-M,2	26.58	kNm	C-load 2	Nein					
Design									
D-N	0.544		D-M,3	0.112					
D-M,2	0.033		D-NM	0.689	< 1.0				
752	430.000	CO99	0.219	1) Design to (28) fulfilled					
	Section properties Kasten(A) 374/15/12/350/550/374/15								
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3
	A-2	79.10	cm^2	Ksl-2	c	W-3,max	2886.58	cm^3	
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c	
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4			
	Forces and moments								
	N	-1.08	kN	M-2,beg	0.36	kNm	M-3	197.99	kNm
	V-3	-30.07	kN	M-2,end	0.00	kNm	M-3,beg	5.92	kNm
	M-2	-12.19	kNm	V-2	-820.61	kN	M-3,end	197.99	kNm
	Reduction factor Kappa								
	s-K,2	0.425	m	Kappa-2 b	0.992		Ksl-3	c	
	N-Cr,2	12441900	kN	s-K,3	0.425	m	Kappa-3 b	0.988	
	Lambda-K,	0.026	< 0.2	N-Cr,3	6193940.	kN	Kappa bar	0.988	
	Ksl-2	c		Lambda-K,	0.037	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.000		k-2	1.000	<= 1.5	a-3	0.1296	<= 0.8
	Beta-M,Psi	1.800		Psi-3	0.030		k-3	1.000	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.779				
	a-2	0.1622	<= 0.8	V-load 2	Nein				
Design									
D-N	0.000		D-M,3	0.210					
D-M,2	0.009		D-NM	0.219	< 1.0				
753	0.000	CO97	0.604	1) Design to (28) fulfilled					
	Section properties HE-B 600								
	A	270.00	cm^2	Ksl-2	a	Ksl-3	b		
	I-2	171000.0	cm^4	I-3	13530.00	cm^4			
	W-2	-5700.00	cm^3	W-3	902.00	cm^3			
	Forces and moments								
	N	-1858.42	kN	M-2,max	10.23	kNm	M-3	-121.63	kNm
	V-3	20.09	kN	x-M2,max	0.170	m	M-3,beg	0.00	kNm
	M-2	-42.97	kNm	M-2,min	-43.14	kNm	M-3,end	0.00	kNm
	M-2,beg	7.82	kNm	x-M2,min	0.170	m			
	M-2,end	10.23	kNm	V-2	-152.40	kN			
	Reduction factor Kappa								
	s-K,2	0.175	m	Kappa-2 b	0.998		Ksl-3	b	
	N-Cr,2	1.1572e8	kN	s-K,3	0.175	m	Kappa-3 b	0.986	
	Lambda-K,	0.009	< 0.2	N-Cr,3	9156820.	kN	Kappa bar	0.986	
	Ksl-2	a		Lambda-K,	0.033	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.996		Beta-M,2	1.103		Beta-M,V,3	1.300	
	Beta-M,Psi	1.103		a-2	0.1099	<= 0.8	M-V,3	0.00	kNm
	V-load 3	Ja		k-2	0.977	<= 1.5	Delta-M,3	121.63	kNm
C-load 3	Nein		Psi-3	0.781		Beta-M,3	1.253		
Beta-M,V,2	1.300		Beta-M,Psi	1.253		a-3	0.4935	<= 0.8	
M-V,2	0.07	kNm	V-load 2	Ja		k-3	0.895	<= 1.5	
Delta-M,2	53.37	kNm	C-load 2	Nein					
Design									
D-N	0.213		D-M,3	0.369					
D-M,2	0.023		D-NM	0.604	< 1.0				
754	0.000	CO97	0.623	1) Design to (28) fulfilled					
	Section properties HE-B 600								
	A	270.00	cm^2	Ksl-2	a	Ksl-3	b		
	I-2	171000.0	cm^4	I-3	13530.00	cm^4			
	W-2	-5700.00	cm^3	W-3	902.00	cm^3			
	Forces and moments								
	N	-1632.09	kN	M-2,end	3.70	kNm	M-3	134.34	kNm
	V-3	23.04	kN	M-2,max	3.70	kNm	M-3,beg	134.34	kNm
	M-2	-43.28	kNm	x-M2,max	0.170	m	M-3,end	101.33	kNm
	M-2,beg	0.66	kNm	V-2	188.73	kN			
	Reduction factor Kappa								

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	s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	0.175 m 1.1572e8 kN 0.009 < 0.2 a 0.958 1.129 Ja Nein 1.300 0.09 kNm 46.98 kNm 0.187 0.023		Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	0.998 0.175 m 9156820. kN 0.033 < 0.2 1.130 0.1104 <= 0.8 0.980 <= 1.5 0.754 1.272 Ja Nein 0.413 0.623 < 1.0	Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	b 0.986 0.986 1.300 0.00 kNm 134.34 kNm 1.272 0.4948 <= 0.8 0.907 <= 1.5
755	0.000	CO97	0.538	1) Design to (28) fulfilled			
	Section properties HE-B 600 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	270.00 cm ² 171000.0 cm ⁴ -5700.00 cm ³ -1705.65 kN 18.36 kN -43.78 kNm 2.325 m 655645.0 kN 0.122 < 0.2 a 0.666 1.334 Ja Nein 1.300 5.15 kNm 88.01 kNm 0.235 0.024		Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	a 13530.00 cm ⁴ 902.00 cm ³ 10.36 kNm 22.24 kNm -43.56 kN 0.976 2.325 m 51876.50 kN 0.433 1.332 -0.0363 <= 0.8 1.007 <= 1.5 0.000 1.800 Ja Nein 0.279 0.538 < 1.0	Ksl-3 b M-3 M-3,beg M-3,end	b -89.79 kNm 0.00 kNm 11.13 kNm
756	0.000	CO98	0.624	1) Design to (28) fulfilled			
	Section properties RO 127x10 A I-2 W-2 Forces and moments N M-T V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	36.76 cm ² 633.55 cm ⁴ -99.77 cm ³ -372.09 kN -0.27 kNm -0.89 kN 1.13 kNm 2.469 m 2153.84 kN 0.784 a 0.079 1.745 Ja Nein 1.300 1.03 kNm 3.67 kNm 0.423 0.038		Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	a 633.55 cm ⁴ 99.77 cm ³ 1.13 kNm 0.00 kNm -3.46 kN -5.14 kNm 0.731 2.469 m 2153.84 kN 0.784 1.621 -0.2195 <= 0.8 1.093 <= 1.5 0.000 1.800 Ja Nein 0.163 0.624 < 1.0	Ksl-3 a M-3,beg M-3,end VT	a 0.00 kNm 3.39 kNm 3.30 kN
757	2470.000	CO97	0.696	1) Design to (28) fulfilled			
	Section properties RO 127x10 A I-2 W-2 Forces and moments N M-T V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2	36.76 cm ² 633.55 cm ⁴ -99.77 cm ³ -408.39 kN 0.31 kNm -2.41 kN -3.09 kNm 2.469 m 2153.84 kN 0.784 a 0.097 1.732 Ja Nein 1.300 1.17 kNm		Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2	a 633.55 cm ⁴ 99.77 cm ³ 1.22 kNm 0.00 kNm 3.95 kN -3.99 kNm 0.731 2.469 m 2153.84 kN 0.784 1.615 -0.2285 <= 0.8 1.106 <= 1.5 0.005 1.796 Ja	Ksl-3 a M-3,beg M-3,end VT	a 5.74 kNm 0.03 kNm 4.32 kN

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	Delta-M,2	4.31	kNm	C-load 2	Nein				
	Design								
	D-N	0.464		D-M,3	0.127				
	D-M,2	0.105		D-NM	0.696	< 1.0			
758	0.000	CO97	0.517	1) Design to (28) fulfilled					
	Section properties HE-B 600								
	A	270.00	cm^2	Ksl-2	a	Ksl-3	b		
	I-2	171000.0	cm^4	I-3	13530.00	cm^4			
	W-2	-5700.00	cm^3	W-3	902.00	cm^3			
	Forces and moments								
	N	-1390.79	kN	M-2,beg	3.87	kNm	M-3	95.57	kNm
	V-3	21.05	kN	M-2,end	21.90	kNm	M-3,beg	95.57	kNm
	M-2	-42.26	kNm	V-2	47.53	kN	M-3,end	0.00	kNm
	Reduction factor Kappa								
	s-K,2	2.325	m	Kappa-2 b	0.976		Ksl-3	b	
	N-Cr,2	655645.0	kN	s-K,3	2.325	m	Kappa-3 b	0.820	
	Lambda-K,	0.122	< 0.2	N-Cr,3	51876.50	kN	Kappa bar	0.820	
	Ksl-2	a		Lambda-K,	0.433				
	Coefficient k-2 and k-3								
	Psi-2	0.948		Beta-M,2	1.151		Beta-M,V,3	1.300	
	Beta-M,Psi	1.136		a-2	-0.0805	<= 0.8	M-V,3	7.46	kNm
	V-load 3	Ja		k-2	1.013	<= 1.5	Delta-M,3	110.52	kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.766	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	0.3398	<= 0.8
	M-V,2	5.73	kNm	V-load 2	Ja		k-3	0.935	<= 1.5
	Delta-M,2	64.16	kNm	C-load 2	Nein				
	Design								
	D-N	0.192		D-M,3	0.303				
	D-M,2	0.023		D-NM	0.517	< 1.0			
	759	830.000	CO98	0.419	1) Design to (28) fulfilled				
		Section properties HE-A 160							
A		38.80	cm^2	Ksl-2	b	Ksl-3	c		
I-2		1670.00	cm^4	I-3	616.00	cm^4			
W-2		-220.00	cm^3	W-3	76.90	cm^3			
Forces and moments									
N		-25.03	kN	M-2,min	-5.18	kNm	M-3,end	0.00	kNm
V-3		-3.31	kN	x-M2,min	0.830	m	M-3,min	-8.23	kNm
M-2		-5.18	kNm	V-2	14.42	kN	x-M3,min	0.830	m
M-2,beg		0.22	kNm	M-3	-8.23	kNm			
M-2,end		0.00	kNm	M-3,beg	3.74	kNm			
Reduction factor Kappa									
s-K,2		0.831	m	Kappa-2 b	0.961		Ksl-3	c	
N-Cr,2		50096.30	kN	s-K,3	0.831	m	Kappa-3 b	0.870	
Lambda-K,		0.167	< 0.2	N-Cr,3	18478.59	kN	Kappa bar	0.870	
Ksl-2		b		Lambda-K,	0.275				
Coefficient k-2 and k-3									
Psi-2		0.504		k-2	1.001	<= 1.5	a-3	0.4197	<= 0.8
Beta-M,Psi		1.447		Psi-3	0.000		k-3	0.990	<= 1.5
V-load 3		Nein		Beta-M,Psi	1.800				
a-2		-0.0664	<= 0.8	V-load 2	Nein				
Design									
D-N		0.023		D-M,3	0.324				
D-M,2		0.072		D-NM	0.419	< 1.0			
760		0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
		Section properties HE-B 300							
		A	149.00	cm^2	Ksl-2	b	Ksl-3	c	
	I-2	25170.00	cm^4	I-3	8560.00	cm^4			
	W-2	-1680.00	cm^3	W-3	571.00	cm^3			
	Forces and moments								
	N	0.00	kN	M-2,beg	0.00	kNm	M-3	17.03	kNm
	V-3	13.13	kN	M-2,end	32.01	kNm	M-3,beg	17.03	kNm
	M-2	-32.74	kNm	V-2	10.65	kN	M-3,end	5.22	kNm
	761	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
		Section properties IS 302/250/15/20							
A		139.30	cm^2	Ksl-2	b	Ksl-3	c		
I-2		22162.40	cm^4	I-3	5215.70	cm^4			
W-2		-1467.70	cm^3	W-3	417.26	cm^3			
Forces and moments									
N		0.00	kN	M-2,max	45.70	kNm	M-3,end	17.01	kNm
V-3		7.93	kN	x-M2,max	7.430	m	M-3,max	17.01	kNm
M-2		-17.86	kNm	V-2	4.98	kN	x-M3,max	7.430	m
M-2,beg		0.00	kNm	M-3	5.64	kNm	M-3,min	-3.63	kNm
M-2,end		45.70	kNm	M-3,beg	5.64	kNm	x-M3,min	1.490	m
763	1790.000	CO97	0.120	1) Design to (28) fulfilled					
	Section properties HE-A 160								
	A	38.80	cm^2	Ksl-2	b	Ksl-3	c		
	I-2	1670.00	cm^4	I-3	616.00	cm^4			
	W-2	-220.00	cm^3	W-3	76.90	cm^3			
	Forces and moments								
	N	-25.22	kN	M-2,end	0.11	kNm	M-3	1.32	kNm
	V-3	-0.56	kN	M-2,max	0.31	kNm	M-3,beg	0.63	kNm
	M-2	-2.79	kNm	x-M2,max	0.890	m	M-3,end	1.32	kNm
	M-2,beg	0.09	kNm	V-2	-1.26	kN			
	Reduction factor Kappa								
s-K,2	1.788	m	Kappa-2 b	0.913		Ksl-3	c		
N-Cr,2	10832.09	kN	s-K,3	1.788	m	Kappa-3 b	0.714		

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	Lambda-K, 0.359 Ksl-2 b Coefficient k-2 and k-3 Psi-2 0.989 Beta-M,Psi 1.107 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 0.29 kNm Delta-M,2 3.13 kNm Design D-N 0.028 D-M,2 0.039			N-Cr,3 3995.55 kN Lambda-K, 0.591 Beta-M,2 1.125 a-2 -0.5102 <= 0.8 k-2 1.011 <= 1.5 Psi-3 0.477 Beta-M,Psi 1.466 V-load 2 Ja C-load 2 Nein D-M,3 0.053 D-NM 0.120 < 1.0		Kappa bar 0.714 Beta-M,V,3 1.300 M-V,3 0.73 kNm Delta-M,3 2.32 kNm Beta-M,3 1.414 a-3 -0.1633 <= 0.8 k-3 1.005 <= 1.5	
764	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties HE-B 300 A 149.00 cm ² I-2 25170.00 cm ⁴ W-2 -1680.00 cm ³ Forces and moments N 0.00 kN V-3 17.78 kN M-2 -41.10 kNm			Ksl-2 b I-3 8560.00 cm ⁴ W-3 571.00 cm ³ M-2,beg 0.00 kNm M-2,end 46.95 kNm V-2 9.80 kN		Ksl-3 c M-3 14.72 kNm M-3,beg 14.72 kNm M-3,end 4.41 kNm	
765	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties IS 302/250/15/20 A 139.30 cm ² I-2 22162.40 cm ⁴ W-2 -1467.70 cm ³ Forces and moments N 0.00 kN V-3 -3.88 kN M-2 12.42 kNm M-2,beg 12.42 kNm M-2,end 0.57 kNm			Ksl-2 b I-3 5215.70 cm ⁴ W-3 417.26 cm ³ M-2,min -22.84 kNm x-M2,min 7.430 m V-2 4.93 kN M-3 5.46 kNm M-3,beg 5.46 kNm		Ksl-3 c M-3,end 15.12 kNm M-3,max 15.12 kNm x-M3,max 7.430 m M-3,min -3.24 kNm x-M3,min 2.970 m	
766	0.000	CO97	0.489	1) Design to (28) fulfilled			
	Section properties HE-A 160 A 38.80 cm ² I-2 1670.00 cm ⁴ W-2 -220.00 cm ³ Forces and moments N -27.99 kN V-3 3.59 kN M-2 -5.72 kNm M-2,beg 0.00 kNm M-2,end 0.24 kNm Reduction factor Kappa s-K,2 0.831 m N-Cr,2 50096.30 kN Lambda-K, 0.167 < 0.2 Ksl-2 b Coefficient k-2 and k-3 Psi-2 0.514 Beta-M,Psi 1.440 V-load 3 Nein a-2 -0.0688 <= 0.8 Design D-N 0.025 D-M,2 0.080			Ksl-2 b I-3 616.00 cm ⁴ W-3 76.90 cm ³ M-2,max 0.24 kNm x-M2,max 0.830 m V-2 -17.24 kN M-3 -9.75 kNm M-3,beg 0.48 kNm Kappa-2 b 0.961 s-K,3 0.831 m N-Cr,3 18478.59 kN Lambda-K, 0.275 k-2 1.002 <= 1.5 Psi-3 0.105 Beta-M,Psi 1.726 V-load 2 Nein D-M,3 0.384 D-NM 0.489 < 1.0		Ksl-3 c M-3,end 4.57 kNm M-3,max 4.57 kNm x-M3,max 0.830 m Ksl-3 c Kappa-3 b 0.870 Kappa bar 0.870 a-3 0.3793 <= 0.8 k-3 0.990 <= 1.5	
767	2500.000	CO97	0.457	1) Design to (28) fulfilled			
	Section properties HE-B 600 A 270.00 cm ² I-2 171000.0 cm ⁴ W-2 -5700.00 cm ³ Forces and moments N -1699.13 kN V-3 -38.10 kN M-2 -142.07 kNm Reduction factor Kappa s-K,2 2.500 m N-Cr,2 567068.0 kN Lambda-K, 0.131 < 0.2 Ksl-2 a Coefficient k-2 and k-3 Psi-2 0.473 Beta-M,Psi 1.469 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 Design D-N 0.239 D-M,2 0.076			Ksl-2 a I-3 13530.00 cm ⁴ W-3 902.00 cm ³ M-2,beg 21.96 kNm M-2,end 0.00 kNm V-2 -16.45 kN Kappa-2 b 0.974 s-K,3 2.500 m N-Cr,3 44868.00 kN Lambda-K, 0.465 M-V,2 5.09 kNm Delta-M,2 164.03 kNm Beta-M,2 1.464 a-2 -0.0141 <= 0.8 k-2 1.003 <= 1.5 D-M,3 0.142 D-NM 0.457 < 1.0		Ksl-3 b M-3 44.99 kNm M-3,beg 3.96 kNm M-3,end 44.99 kNm Ksl-3 b Kappa-3 b 0.805 Kappa bar 0.805 Psi-3 0.088 Beta-M,Psi 1.738 V-load 2 Nein a-3 0.2987 <= 0.8 k-3 0.929 <= 1.5	
768	2650.000	CO98	0.527	1) Design to (28) fulfilled			
	Section properties RO 127x10 A 36.76 cm ² I-2 633.55 cm ⁴ W-2 -99.77 cm ³ Forces and moments			Ksl-2 a I-3 633.55 cm ⁴ W-3 99.77 cm ³		Ksl-3 a	

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	N	-385.24	kN	M-2,end	0.00	kNm	M-3,beg	0.05	kNm
	M-T	0.31	kNm	M-2,min	-0.70	kNm	M-3,end	1.32	kNm
	V-3	-1.05	kN	x-M2,min	2.650	m	M-3,max	1.32	kNm
	M-2	-0.70	kNm	V-2	-0.97	kN	x-M3,max	2.650	m
	M-2,beg	0.39	kNm	M-3	1.32	kNm	VT	1.12	kN
	Reduction factor Kappa								
	s-K,2	2.655	m	Kappa-2 b	0.699		Ksl-3	a	
	N-Cr,2	1862.86	kN	s-K,3	2.655	m	Kappa-3 b	0.699	
	Lambda-K,	0.843		N-Cr,3	1862.86	kN	Kappa bar	0.699	
	Ksl-2	a		Lambda-K,	0.843				
	Coefficient k-2 and k-3								
	Psi-2	0.129		Beta-M,2	1.561		Beta-M,V,3	1.300	
	Beta-M,Psi	1.710		a-2	-0.3643	<= 0.8	M-V,3	0.60	kNm
	V-load 3	Ja		k-2	1.167	<= 1.5	Delta-M,3	2.58	kNm
	C-load 3	Nein		Psi-3	0.038		Beta-M,3	1.664	
	Beta-M,V,2	1.300		Beta-M,Psi	1.773		a-3	-0.1909	<= 0.8
	M-V,2	0.40	kNm	V-load 2	Ja		k-3	1.087	<= 1.5
	Delta-M,2	1.09	kNm	C-load 2	Nein				
	Design								
	D-N	0.458		D-M,3	0.044				
	D-M,2	0.025		D-NM	0.527	< 1.0			
	769	2650.000	CO97	0.621	1) Design to (28) fulfilled				
	Section properties RO 127x10								
	A	36.76	cm^2	Ksl-2	a		Ksl-3	a	
	I-2	633.55	cm^4	I-3	633.55	cm^4			
W-2	-99.77	cm^3	W-3	99.77	cm^3				
Forces and moments									
N	-424.39	kN	M-2,end	0.00	kNm	M-3,beg	1.53	kNm	
M-T	-0.57	kNm	M-2,min	-1.17	kNm	M-3,end	0.64	kNm	
V-3	-1.32	kN	x-M2,min	2.650	m	M-3,min	-1.83	kNm	
M-2	-1.17	kNm	V-2	1.26	kN	x-M3,min	2.650	m	
M-2,beg	0.45	kNm	M-3	-1.83	kNm	VT	1.25	kN	
Reduction factor Kappa									
s-K,2	2.655	m	Kappa-2 b	0.699		Ksl-3	a		
N-Cr,2	1862.86	kN	s-K,3	2.655	m	Kappa-3 b	0.699		
Lambda-K,	0.843		N-Cr,3	1862.86	kN	Kappa bar	0.699		
Ksl-2	a		Lambda-K,	0.843					
Coefficient k-2 and k-3									
Psi-2	0.197		Beta-M,2	1.506		Beta-M,V,3	1.300		
Beta-M,Psi	1.662		a-2	-0.4580	<= 0.8	M-V,3	0.96	kNm	
V-load 3	Ja		k-2	1.231	<= 1.5	Delta-M,3	3.36	kNm	
C-load 3	Nein		Psi-3	0.418		Beta-M,3	1.448		
Beta-M,V,2	1.300		Beta-M,Psi	1.507		a-3	-0.5555	<= 0.8	
M-V,2	0.70	kNm	V-load 2	Ja		k-3	1.281	<= 1.5	
Delta-M,2	1.62	kNm	C-load 2	Nein					
Design									
D-N	0.505		D-M,3	0.072					
D-M,2	0.044		D-NM	0.621	< 1.0				
770	2500.000	CO97	0.418	1) Design to (28) fulfilled					
Section properties HE-B 600									
A	270.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	171000.0	cm^4	I-3	13530.00	cm^4				
W-2	-5700.00	cm^3	W-3	902.00	cm^3				
Forces and moments									
N	-1379.93	kN	M-2,beg	21.61	kNm	M-3	-54.07	kNm	
V-3	-30.15	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm	
M-2	-94.89	kNm	V-2	19.71	kN	M-3,end	0.25	kNm	
Reduction factor Kappa									
s-K,2	2.500	m	Kappa-2 b	0.974		Ksl-3	b		
N-Cr,2	567068.0	kN	s-K,3	2.500	m	Kappa-3 b	0.805		
Lambda-K,	0.131	< 0.2	N-Cr,3	44868.00	kN	Kappa bar	0.805		
Ksl-2	a		Lambda-K,	0.465					
Coefficient k-2 and k-3									
Psi-2	0.448		Beta-M,2	1.477		Beta-M,V,3	1.300		
Beta-M,Psi	1.487		a-2	-0.0105	<= 0.8	M-V,3	0.05	kNm	
V-load 3	Ja		k-2	1.002	<= 1.5	Delta-M,3	54.32	kNm	
C-load 3	Nein		Psi-3	0.098		Beta-M,3	1.731		
Beta-M,V,2	1.300		Beta-M,Psi	1.731		a-3	0.2915	<= 0.8	
M-V,2	5.74	kNm	V-load 2	Ja		k-3	0.943	<= 1.5	
Delta-M,2	116.50	kNm	C-load 2	Nein					
Design									
D-N	0.194		D-M,3	0.173					
D-M,2	0.051		D-NM	0.418	< 1.0				
771	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required					
Section properties Kasten(A) 374/15/12/350/550/374/15									
A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3	
A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3	
I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c		
W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4				
Forces and moments									
N	0.00	kN	M-2,beg	0.00	kNm	M-3	323.31	kNm	
V-3	656.15	kN	M-2,end	0.27	kNm	M-3,beg	323.31	kNm	
M-2	-281.91	kNm	V-2	937.83	kN	M-3,end	0.00	kNm	
772	0.000	CO97	0.694	1) Design to (28) fulfilled					
Section properties IS 302/250/8/20									
A	120.96	cm^2	Ksl-2	b		Ksl-3	c		
I-2	21113.30	cm^4	I-3	5209.45	cm^4				

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				W-2	-1398.22 cm ³	W-3	416.76 cm ³
				Forces and moments			
				N	-774.75 kN	M-2,beg	53.00 kNm
				V-3	-14.98 kN	M-2,end	0.00 kNm
				M-2	53.00 kNm	V-2	-5.73 kN
				M-3,beg	-18.16 kNm	M-3,end	13.36 kNm
				Reduction factor Kappa			
				s-K,2	5.500 m	Kappa-2 b	0.854
				N-Cr,2	14466.09 kN	s-K,3	5.500 m
				Lambda-K,	0.549	N-Cr,3	3569.32 kN
				Ksl-2	b	Lambda-K,	1.105
				Coefficient k-2 and k-3			
				Psi-2	0.000	Beta-M,2	1.711
				Beta-M,Psi	1.800	a-2	-0.2109 <= 0.8
				V-load 3	Ja	k-2	1.048 <= 1.5
				C-load 3	Nein	Psi-3	0.000
				Beta-M,V,2	1.300	Beta-M,Psi	1.800
				M-V,2	14.73 kNm	V-load 2	Ja
				Delta-M,2	82.47 kNm	C-load 2	Nein
				Design			
				D-N	0.430	D-M,3	0.142
				D-M,2	0.121	D-NM	0.694 < 1.0
773	220.000	CO97	0.472	1) Design to (28) fulfilled			
				Section properties Kasten(A) 374/15/12/350/550/374/15			
				A	237.00 cm ²	W-2,max	3942.86 cm ³
				A-2	79.10 cm ²	Ksl-2	c
				I-2	108429.0 cm ⁴	A-3	115.22 cm ²
				W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴
				Forces and moments			
				N	-42.90 kN	M-2,beg	0.00 kNm
				V-3	-34.44 kN	M-2,end	0.00 kNm
				M-2	-189.72 kNm	V-2	-316.44 kN
				M-3	302.19 kNm	M-3,beg	232.89 kNm
				M-3,end	302.19 kNm	M-3,end	302.19 kNm
				Reduction factor Kappa			
				s-K,2	0.219 m	Kappa-2 b	0.996
				N-Cr,2	46857100 kN	s-K,3	0.219 m
				Lambda-K,	0.013 < 0.2	N-Cr,3	23326900 kN
				Ksl-2	c	Lambda-K,	0.019 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.961	k-2	0.999 <= 1.5
				Beta-M,Psi	1.127	Psi-3	0.771
				V-load 3	Nein	Beta-M,Psi	1.261
				a-2	0.1491 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.006	D-M,3	0.320
				D-M,2	0.147	D-NM	0.472 < 1.0
775	1080.000	CO97	0.393	1) Design to (28) fulfilled			
				Section properties Kasten(A) 374/15/12/350/550/374/15			
				A	237.00 cm ²	W-2,max	3942.86 cm ³
				A-2	79.10 cm ²	Ksl-2	c
				I-2	108429.0 cm ⁴	A-3	115.22 cm ²
				W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴
				Forces and moments			
				N	-42.90 kN	M-2,min	-182.37 kNm
				V-3	-33.69 kN	x-M2,min	1.080 m
				M-2	-182.37 kNm	V-2	-316.44 kN
				M-2,beg	0.00 kNm	M-3	232.89 kNm
				M-2,end	0.00 kNm	M-3,beg	0.00 kNm
				M-3,end	232.89 kNm	M-3,max	232.89 kNm
				x-M3,max	1.080 m	x-M3,max	1.080 m
				Reduction factor Kappa			
				s-K,2	1.081 m	Kappa-2 b	0.979
				N-Cr,2	1923150. kN	s-K,3	1.081 m
				Lambda-K,	0.067 < 0.2	N-Cr,3	957400.0 kN
				Ksl-2	c	Lambda-K,	0.094 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.815	k-2	1.000 <= 1.5
				Beta-M,Psi	1.230	Psi-3	0.000
				V-load 3	Nein	Beta-M,Psi	1.800
				a-2	0.0701 <= 0.8	V-load 2	Nein
				Design			
				D-N	0.006	D-M,3	0.246
				D-M,2	0.141	D-NM	0.393 < 1.0
776	0.000	CO97	0.334	1) Design to (28) fulfilled			
				Section properties Kasten(A) 374/15/12/350/550/374/15			
				A	237.00 cm ²	W-2,max	3942.86 cm ³
				A-2	79.10 cm ²	Ksl-2	c
				I-2	108429.0 cm ⁴	A-3	115.22 cm ²
				W-2,min	-3942.86 cm ³	I-3	53979.10 cm ⁴
				Forces and moments			
				N	-6.08 kN	M-2,end	0.00 kNm
				V-3	-21.48 kN	V-2	286.05 kN
				M-2	-155.81 kNm	M-3	201.17 kNm
				M-2,beg	0.00 kNm	M-3,beg	201.17 kNm
				M-3,end	0.00 kNm	M-3,min	-108.06 kNm
				x-M3,min	1.080 m	x-M3,min	1.080 m
				Reduction factor Kappa			
				s-K,2	1.081 m	Kappa-2 b	0.979
				N-Cr,2	1923150. kN	s-K,3	1.081 m
				Lambda-K,	0.067 < 0.2	N-Cr,3	957400.0 kN
				Ksl-2	c	Lambda-K,	0.094 < 0.2
				Coefficient k-2 and k-3			
				Psi-2	0.953	k-2	1.000 <= 1.5
				Beta-M,Psi	1.133	Psi-3	0.000
				a-3	0.1082 <= 0.8	k-3	1.000 <= 1.5

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	V-load 3 a-2 Design D-N D-M,2	Nein 0.0572 0.001 0.121	Nein 0.0572 0.001 0.121	Beta-M,Psi V-load 2 D-M,3 D-NM	1.800 Nein 0.213 0.334		< 1.0
777	0.000	CO97	0.339	1) Design to (28) fulfilled			
	Section properties IS 374/260/8/20						
	A	130.72	cm^2	Ksl-2	b	Ksl-3	c
	I-2	35100.80	cm^4	I-3	5860.09	cm^4	
	W-2	-1877.05	cm^3	W-3	450.78	cm^3	
	Forces and moments						
	N	-3.55	kN	M-2,beg	49.81	kNm	M-3
	V-3	-49.10	kN	M-2,end	0.00	kNm	M-3,beg
	M-2	49.81	kNm	V-2	-58.90	kN	M-3,end
	Reduction factor Kappa						
	s-K,2	1.300	m	Kappa-2 b	0.976	Ksl-3	c
	N-Cr,2	430477.0	kN	s-K,3	1.300	m	Kappa-3 b
	Lambda-K,	0.105	< 0.2	N-Cr,3	71868.20	kN	Kappa bar
	Ksl-2	b		Lambda-K,	0.256		
	Coefficient k-2 and k-3						
	Psi-2	0.019		k-2	1.000	<= 1.5	a-3
	Beta-M,Psi	1.787		Psi-3	0.139		k-3
	V-load 3	Nein		Beta-M,Psi	1.703		
	a-2	0.0550	<= 0.8	V-load 2	Nein		
	Design						
	D-N	0.001		D-M,3	0.257		
	D-M,2	0.081		D-NM	0.339	< 1.0	
778	0.000	CO97	0.402	1) Design to (28) fulfilled			
	Section properties Kasten(A) 374/15/12/350/550/374/15						
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min
	A-2	79.10	cm^2	Ksl-2	c		W-3,max
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4	c
	Forces and moments						
	N	-6.06	kN	M-2,beg	0.00	kNm	M-3
	V-3	-20.72	kN	M-2,end	0.00	kNm	M-3,beg
	M-2	-157.96	kNm	V-2	286.05	kN	M-3,end
	Reduction factor Kappa						
	s-K,2	0.219	m	Kappa-2 b	0.996	Ksl-3	c
	N-Cr,2	46857100	kN	s-K,3	0.219	m	Kappa-3 b
	Lambda-K,	0.013	< 0.2	N-Cr,3	23326900	kN	Kappa bar
	Ksl-2	c		Lambda-K,	0.019	< 0.2	
	Coefficient k-2 and k-3						
	Psi-2	0.986		k-2	1.000	<= 1.5	a-3
	Beta-M,Psi	1.110		Psi-3	0.763		k-3
	V-load 3	Nein		Beta-M,Psi	1.266		
	a-2	0.1487	<= 0.8	V-load 2	Nein		
	Design						
	D-N	0.001		D-M,3	0.279		
	D-M,2	0.122		D-NM	0.402	< 1.0	
779	0.000	CO97	0.512	1) Design to (28) fulfilled			
	Section properties IS 302/250/8/20						
	A	120.96	cm^2	Ksl-2	b	Ksl-3	c
	I-2	21113.30	cm^4	I-3	5209.45	cm^4	
	W-2	-1398.22	cm^3	W-3	416.76	cm^3	
	Forces and moments						
	N	-586.76	kN	M-2,beg	2.50	kNm	M-3
	V-3	9.05	kN	M-2,end	18.38	kNm	M-3,beg
	M-2	-30.56	kNm	V-2	-4.74	kN	M-3,end
	Reduction factor Kappa						
	s-K,2	5.500	m	Kappa-2 b	0.854	Ksl-3	c
	N-Cr,2	14466.09	kN	s-K,3	5.500	m	Kappa-3 b
	Lambda-K,	0.549		N-Cr,3	3569.32	kN	Kappa bar
	Ksl-2	b		Lambda-K,	1.105		
	Coefficient k-2 and k-3						
	Psi-2	0.136		Beta-M,2	1.628		Beta-M,V,3
	Beta-M,Psi	1.705		a-2	-0.3011	<= 0.8	M-V,3
	V-load 3	Ja		k-2	1.052	<= 1.5	Delta-M,3
	C-load 3	Nein		Psi-3	0.000		Beta-M,3
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3
	M-V,2	9.23	kNm	V-load 2	Ja		k-3
	Delta-M,2	48.94	kNm	C-load 2	Nein		
	Design						
	D-N	0.326		D-M,3	0.116		
	D-M,2	0.070		D-NM	0.512	< 1.0	
780	430.000	CO97	0.451	1) Design to (28) fulfilled			
	Section properties Kasten(A) 374/15/12/350/550/374/15						
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min
	A-2	79.10	cm^2	Ksl-2	c		W-3,max
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4	c
	Forces and moments						
	N	-19.09	kN	M-2,beg	3.88	kNm	M-3
	V-3	-489.95	kN	M-2,end	0.00	kNm	M-3,beg
	M-2	-207.66	kNm	V-2	-797.40	kN	M-3,end
	Reduction factor Kappa						
	s-K,2	0.425	m	Kappa-2 b	0.992	Ksl-3	c

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	12441900 kN 0.026 < 0.2 c 0.000 1.800 Nein 0.1622 <= 0.8 0.002 0.161		s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	0.425 m 6193940. kN 0.037 < 0.2 1.000 <= 1.5 0.021 1.785 Nein 0.287 0.451 < 1.0	Kappa-3 b Kappa bar a-3 k-3	0.988 0.988 0.1300 <= 0.8 1.000 <= 1.5
781	0.000	CO97	0.407	1) Design to (28) fulfilled			
	Section properties HE-B 600 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	270.00 cm ² 171000.0 cm ⁴ -5700.00 cm ³ -764.27 kN 616.56 kN -241.72 kNm 0.875 m 4629130. kN 0.046 < 0.2 a 0.011 1.792 Nein 0.1073 <= 0.8 0.093 0.128		Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	a 13530.00 cm ⁴ 902.00 cm ³ 0.00 kNm 299.86 kNm -31.67 kN 0.991 0.875 m 366269.0 kN 0.163 < 0.2 0.991 <= 1.5 0.537 1.424 Nein 0.186 0.407 < 1.0	Ksl-3 b M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	b -56.65 kNm 0.00 kNm 0.00 kNm b 0.933 0.933 0.3546 <= 0.8 0.967 <= 1.5
782	880.000	CO97	0.297	1) Design to (28) fulfilled			
	Section properties HE-B 600 A I-2 W-2 Forces and moments N V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	270.00 cm ² 171000.0 cm ⁴ -5700.00 cm ³ -585.87 kN 451.90 kN 252.12 kNm 0.875 m 4629130. kN 0.046 < 0.2 a 0.001 1.799 Nein 0.1079 <= 0.8 0.071 0.134		Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	a 13530.00 cm ⁴ 902.00 cm ³ 0.00 kNm 252.12 kNm 15.48 kN 0.991 0.875 m 366269.0 kN 0.163 < 0.2 0.993 <= 1.5 0.695 1.314 Nein 0.091 0.297 < 1.0	Ksl-3 b M-3 M-3,beg M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	b 27.58 kNm 39.69 kNm 27.58 kNm b 0.933 0.933 0.3186 <= 0.8 0.977 <= 1.5
783	0.000	CO97	0.106	1) Design to (28) fulfilled			
	Section properties RO 127x10 A I-2 W-2 Forces and moments N M-T V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	36.76 cm ² 633.55 cm ⁴ -99.77 cm ³ -17.41 kN -0.23 kNm 1.68 kN -1.90 kNm 0.00 kNm 2.655 m 1862.86 kN 0.843 a 0.200 1.660 Ja Nein 1.300 0.91 kNm 2.78 kNm 0.021 0.059		Ksl-2 I-3 W-3 M-2,end M-2,max x-M2,max V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	a 633.55 cm ⁴ 99.77 cm ³ 0.88 kNm 0.88 kNm 2.650 m -0.64 kN -0.86 kNm 0.699 2.655 m 1862.86 kN 0.843 1.542 -0.3961 <= 0.8 1.008 <= 1.5 0.595 1.384 Ja Nein 0.027 0.106 < 1.0	Ksl-3 a M-3,beg M-3,end M-3,max x-M3,max VT Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	a 0.47 kNm 0.79 kNm 0.79 kNm 2.650 m 1.57 kN a 0.699 0.699 1.300 0.48 kNm 1.65 kNm 1.359 -0.7047 <= 0.8 1.015 <= 1.5
784	0.000	CO98	0.317	1) Design to (28) fulfilled			
	Section properties RO 127x10 A I-2 W-2	36.76 cm ² 633.55 cm ⁴ -99.77 cm ³		Ksl-2 I-3 W-3	a 633.55 cm ⁴ 99.77 cm ³	Ksl-3 a	

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	D-N	0.002		D-M,3	0.343		
	D-M,2	0.030		D-NM	0.375	< 1.0	
788	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
Section properties IS 302/250/15/20							
A	139.30	cm^2	Ksl-2	b	Ksl-3	c	
I-2	22162.40	cm^4	I-3	5215.70	cm^4		
W-2	-1467.70	cm^3	W-3	417.26	cm^3		
Forces and moments							
N	0.00	kN	M-2,max	97.53	kNm	M-3,end	7.95 kNm
V-3	20.20	kN	x-M2,max	7.430	m	M-3,max	7.95 kNm
M-2	-51.18	kNm	V-2	5.13	kN	x-M3,max	7.430 m
M-2,beg	0.00	kNm	M-3	6.18	kNm	M-3,min	-3.18 kNm
M-2,end	97.53	kNm	M-3,beg	6.18	kNm	x-M3,min	2.970 m
789	0.000	CO98	0.075	1) Design to (28) fulfilled			
Section properties HE-A 160							
A	38.80	cm^2	Ksl-2	b	Ksl-3	c	
I-2	1670.00	cm^4	I-3	616.00	cm^4		
W-2	-220.00	cm^3	W-3	76.90	cm^3		
Forces and moments							
N	-2.65	kN	M-2,beg	1.58	kNm	M-3	1.26 kNm
V-3	0.65	kN	M-2,end	0.99	kNm	M-3,beg	1.26 kNm
M-2	1.58	kNm	V-2	1.34	kN	M-3,end	0.07 kNm
Reduction factor Kappa							
s-K,2	1.788	m	Kappa-2 b	0.913	Ksl-3	c	
N-Cr,2	10832.09	kN	s-K,3	1.788	m	Kappa-3 b	0.714
Lambda-K,	0.359		N-Cr,3	3995.54	kN	Kappa bar	0.714
Ksl-2	b		Lambda-K,	0.591			
Coefficient k-2 and k-3							
Psi-2	0.627		Beta-M,2	1.353	Beta-M,V,3	1.300	
Beta-M,Psi	1.361		a-2	-0.3465	<= 0.8	M-V,3	0.58 kNm
V-load 3	Ja		k-2	1.001	<= 1.5	Delta-M,3	2.43 kNm
C-load 3	Nein		Psi-3	0.056		Beta-M,3	1.651
Beta-M,V,2	1.300		Beta-M,Psi	1.761		a-3	0.1165 <= 0.8
M-V,2	0.25	kNm	V-load 2	Ja		k-3	1.000 <= 1.5
Delta-M,2	1.80	kNm	C-load 2	Nein			
Design							
D-N	0.003		D-M,3	0.050			
D-M,2	0.022		D-NM	0.075	< 1.0		
790	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
Section properties IS 302/250/15/20							
A	139.30	cm^2	Ksl-2	b	Ksl-3	c	
I-2	22162.40	cm^4	I-3	5215.70	cm^4		
W-2	-1467.70	cm^3	W-3	417.26	cm^3		
Forces and moments							
N	0.00	kN	M-2,min	-51.17	kNm	M-3,end	7.32 kNm
V-3	-10.35	kN	x-M2,min	7.430	m	M-3,max	7.32 kNm
M-2	25.99	kNm	V-2	5.18	kN	x-M3,max	7.430 m
M-2,beg	25.99	kNm	M-3	6.36	kNm	M-3,min	-3.18 kNm
M-2,end	14.13	kNm	M-3,beg	6.36	kNm	x-M3,min	2.970 m
791	0.000	CO97	0.222	1) Design to (28) fulfilled			
Section properties HE-A 160							
A	38.80	cm^2	Ksl-2	b	Ksl-3	c	
I-2	1670.00	cm^4	I-3	616.00	cm^4		
W-2	-220.00	cm^3	W-3	76.90	cm^3		
Forces and moments							
N	-3.27	kN	M-2,end	2.06	kNm	M-3,end	2.16 kNm
V-3	1.86	kN	V-2	-7.76	kN	M-3,max	2.16 kNm
M-2	3.39	kNm	M-3	-4.34	kNm	x-M3,max	0.830 m
M-2,beg	3.39	kNm	M-3,beg	0.86	kNm		
Reduction factor Kappa							
s-K,2	0.831	m	Kappa-2 b	0.961	Ksl-3	c	
N-Cr,2	50096.39	kN	s-K,3	0.831	m	Kappa-3 b	0.870
Lambda-K,	0.167	< 0.2	N-Cr,3	18478.69	kN	Kappa bar	0.870
Ksl-2	b		Lambda-K,	0.275			
Coefficient k-2 and k-3							
Psi-2	0.608		k-2	1.000	<= 1.5	a-3	0.2665 <= 0.8
Beta-M,Psi	1.375		Psi-3	0.398		k-3	0.999 <= 1.5
V-load 3	Nein		Beta-M,Psi	1.521			
a-2	-0.0907	<= 0.8	V-load 2	Nein			
Design							
D-N	0.003		D-M,3	0.172			
D-M,2	0.047		D-NM	0.222	< 1.0		
792	2330.000	CO98	0.342	1) Design to (28) fulfilled			
Section properties HE-B 600							
A	270.00	cm^2	Ksl-2	a	Ksl-3	b	
I-2	171000.0	cm^4	I-3	13530.00	cm^4		
W-2	-5700.00	cm^3	W-3	902.00	cm^3		
Forces and moments							
N	-709.15	kN	M-2,beg	125.83	kNm	M-3	68.19 kNm
V-3	-77.33	kN	M-2,end	7.90	kNm	M-3,beg	1.24 kNm
M-2	-38.16	kNm	V-2	-33.32	kN	M-3,end	68.19 kNm
Reduction factor Kappa							
s-K,2	2.325	m	Kappa-2 b	0.976	Ksl-3	b	
N-Cr,2	655647.0	kN	s-K,3	2.325	m	Kappa-3 b	0.820
Lambda-K,	0.122	< 0.2	N-Cr,3	51876.69	kN	Kappa bar	0.820
Ksl-2	a		Lambda-K,	0.433			

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	Coefficient k-2 and k-3						
	Psi-2	0.063		Beta-M,2	1.703	Beta-M,V,3	1.300
	Beta-M,Psi	1.756		a-2	0.0540 <= 0.8	M-V,3	4.73 kNm
	V-load 3	Ja		k-2	0.996 <= 1.5	Delta-M,3	77.63 kNm
	C-load 3	Nein		Psi-3	0.018	Beta-M,3	1.758
	Beta-M,V,2	1.300		Beta-M,Psi	1.787	a-3	0.3323 <= 0.8
	M-V,2	19.13 kNm		V-load 2	Ja	k-3	0.967 <= 1.5
	Delta-M,2	163.99 kNm		C-load 2	Nein		
	Design						
	D-N	0.098		D-M,3	0.223		
D-M,2	0.020		D-NM	0.342 < 1.0			
793	2470.000	CO97	0.221	1) Design to (28) fulfilled			
Section properties RO 127x10							
A	36.76 cm^2		Ksl-2	a	Ksl-3	a	
I-2	633.55 cm^4		I-3	633.55 cm^4			
W-2	-99.77 cm^3		W-3	99.77 cm^3			
Forces and moments							
N	-22.71 kN		M-2,beg	2.67 kNm	M-3,beg	0.00 kNm	
M-T	-0.90 kNm		M-2,end	0.00 kNm	M-3,end	3.78 kNm	
V-3	-2.73 kN		V-2	-2.44 kN	VT	2.76 kN	
M-2	-2.57 kNm		M-3	3.78 kNm			
Reduction factor Kappa							
s-K,2	2.469 m		Kappa-2 b	0.731	Ksl-3	a	
N-Cr,2	2153.85 kN		s-K,3	2.469 m	Kappa-3 b	0.731	
Lambda-K,	0.784		N-Cr,3	2153.85 kN	Kappa bar	0.731	
Ksl-2	a		Lambda-K,	0.784			
Coefficient k-2 and k-3							
Psi-2	0.000		Beta-M,2	1.678	Beta-M,V,3	1.300	
Beta-M,Psi	1.800		a-2	-0.1296 <= 0.8	M-V,3	1.10 kNm	
V-load 3	Ja		k-2	1.003 <= 1.5	Delta-M,3	6.06 kNm	
C-load 3	Nein		Psi-3	0.000	Beta-M,3	1.709	
Beta-M,V,2	1.300		Beta-M,Psi	1.800	a-3	-0.0808 <= 0.8	
M-V,2	1.28 kNm		V-load 2	Ja	k-3	1.002 <= 1.5	
Delta-M,2	5.24 kNm		C-load 2	Nein			
Design							
D-N	0.026		D-M,3	0.116			
D-M,2	0.079		D-NM	0.221 < 1.0			
794	2470.000	CO98	0.360	1) Design to (28) fulfilled			
Section properties RO 127x10							
A	36.76 cm^2		Ksl-2	a	Ksl-3	a	
I-2	633.55 cm^4		I-3	633.55 cm^4			
W-2	-99.77 cm^3		W-3	99.77 cm^3			
Forces and moments							
N	-163.20 kN		M-2,beg	2.23 kNm	M-3,beg	1.70 kNm	
M-T	0.57 kNm		M-2,end	0.01 kNm	M-3,end	1.23 kNm	
V-3	-2.34 kN		V-2	1.93 kN	VT	2.46 kN	
M-2	-2.05 kNm		M-3	-3.05 kNm			
Reduction factor Kappa							
s-K,2	2.469 m		Kappa-2 b	0.731	Ksl-3	a	
N-Cr,2	2153.85 kN		s-K,3	2.469 m	Kappa-3 b	0.731	
Lambda-K,	0.784		N-Cr,3	2153.85 kN	Kappa bar	0.731	
Ksl-2	a		Lambda-K,	0.784			
Coefficient k-2 and k-3							
Psi-2	0.356		Beta-M,2	1.469	Beta-M,V,3	1.300	
Beta-M,Psi	1.551		a-2	-0.4563 <= 0.8	M-V,3	1.47 kNm	
V-load 3	Ja		k-2	1.085 <= 1.5	Delta-M,3	4.75 kNm	
C-load 3	Nein		Psi-3	0.724	Beta-M,3	1.296	
Beta-M,V,2	1.300		Beta-M,Psi	1.294	a-3	-0.7290 <= 0.8	
M-V,2	1.39 kNm		V-load 2	Ja	k-3	1.135 <= 1.5	
Delta-M,2	4.28 kNm		C-load 2	Nein			
Design							
D-N	0.185		D-M,3	0.106			
D-M,2	0.068		D-NM	0.360 < 1.0			
795	2330.000	CO97	0.292	1) Design to (28) fulfilled			
Section properties HE-B 600							
A	270.00 cm^2		Ksl-2	a	Ksl-3	b	
I-2	171000.0 cm^4		I-3	13530.00 cm^4			
W-2	-5700.00 cm^3		W-3	902.00 cm^3			
Forces and moments							
N	-578.13 kN		M-2,beg	142.44 kNm	M-3	-56.79 kNm	
V-3	-88.26 kN		M-2,end	5.82 kNm	M-3,beg	5.43 kNm	
M-2	-46.36 kNm		V-2	26.88 kN	M-3,end	0.00 kNm	
Reduction factor Kappa							
s-K,2	2.325 m		Kappa-2 b	0.976	Ksl-3	b	
N-Cr,2	655647.0 kN		s-K,3	2.325 m	Kappa-3 b	0.820	
Lambda-K,	0.122 < 0.2		N-Cr,3	51876.69 kN	Kappa bar	0.820	
Ksl-2	a		Lambda-K,	0.433			
Coefficient k-2 and k-3							
Psi-2	0.041		Beta-M,2	1.714	Beta-M,V,3	1.300	
Beta-M,Psi	1.771		a-2	0.0566 <= 0.8	M-V,3	2.72 kNm	
V-load 3	Ja		k-2	0.996 <= 1.5	Delta-M,3	62.22 kNm	
C-load 3	Nein		Psi-3	0.021	Beta-M,3	1.764	
Beta-M,V,2	1.300		Beta-M,Psi	1.785	a-3	0.3379 <= 0.8	
M-V,2	23.13 kNm		V-load 2	Ja	k-3	0.973 <= 1.5	
Delta-M,2	188.80 kNm		C-load 2	Nein			
Design							
D-N	0.080		D-M,3	0.187			
D-M,2	0.025		D-NM	0.292 < 1.0			

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796	170.000	CO98	0.385	1) Design to (28) fulfilled						
	Section properties HE-B 600									
	A	270.00	cm^2	Ksl-2	a	Ksl-3	b			
	I-2	171000.0	cm^4	I-3	13530.00	cm^4				
	W-2	-5700.00	cm^3	W-3	902.00	cm^3				
	Forces and moments									
	N	-541.86	kN	M-2,min	-53.93	kNm	M-3,end	89.53	kNm	
	V-3	-80.69	kN	x-M2,min	0.170	m	M-3,max	89.53	kNm	
	M-2	-53.93	kNm	V-2	-96.43	kN	x-M3,max	0.170	m	
	M-2,beg	7.09	kNm	M-3	89.53	kNm				
	M-2,end	5.52	kNm	M-3,beg	72.66	kNm				
	Reduction factor Kappa									
	s-K,2	0.175	m	Kappa-2 b	0.998	Ksl-3	b			
	N-Cr,2	1.1572e8	kN	s-K,3	0.175	m	Kappa-3 b	0.986		
	Lambda-K,	0.009	< 0.2	N-Cr,3	9156420.	kN	Kappa bar	0.986		
	Ksl-2	a		Lambda-K,	0.033	< 0.2				
	Coefficient k-2 and k-3									
	Psi-2	0.779		Beta-M,2	1.255	Beta-M,V,3	1.300			
	Beta-M,Psi	1.255		a-2	0.1127	<= 0.8	M-V,3	0.00	kNm	
	V-load 3	Ja		k-2	0.993	<= 1.5	Delta-M,3	89.53	kNm	
	C-load 3	Nein		Psi-3	0.812	Beta-M,3	1.232			
	Beta-M,V,2	1.300		Beta-M,Psi	1.232	a-3	0.4921	<= 0.8		
	M-V,2	0.40	kNm	V-load 2	Ja	k-3	0.969	<= 1.5		
	Delta-M,2	61.02	kNm	C-load 2	Nein					
	Design									
	D-N	0.062		D-M,3	0.294					
D-M,2	0.029		D-NM	0.385	< 1.0					
797	170.000	CO97	0.314	1) Design to (28) fulfilled						
	Section properties HE-B 600									
	A	270.00	cm^2	Ksl-2	a	Ksl-3	b			
	I-2	171000.0	cm^4	I-3	13530.00	cm^4				
	W-2	-5700.00	cm^3	W-3	902.00	cm^3				
	Forces and moments									
	N	-567.18	kN	M-2,min	-61.77	kNm	M-3,end	1.41	kNm	
	V-3	-92.06	kN	x-M2,min	0.170	m	M-3,max	1.41	kNm	
	M-2	-61.77	kNm	V-2	42.05	kN	x-M3,max	0.170	m	
	M-2,beg	5.37	kNm	M-3	-65.94	kNm	M-3,min	-65.94	kNm	
	M-2,end	2.65	kNm	M-3,beg	0.00	kNm	x-M3,min	0.170	m	
	Reduction factor Kappa									
	s-K,2	0.175	m	Kappa-2 b	0.998	Ksl-3	b			
	N-Cr,2	1.1572e8	kN	s-K,3	0.175	m	Kappa-3 b	0.986		
	Lambda-K,	0.009	< 0.2	N-Cr,3	9156420.	kN	Kappa bar	0.986		
	Ksl-2	a		Lambda-K,	0.033	< 0.2				
	Coefficient k-2 and k-3									
	Psi-2	0.780		Beta-M,2	1.255	Beta-M,V,3	1.300			
	Beta-M,Psi	1.254		a-2	0.1127	<= 0.8	M-V,3	0.04	kNm	
	V-load 3	Ja		k-2	0.993	<= 1.5	Delta-M,3	67.35	kNm	
	C-load 3	Nein		Psi-3	0.913	Beta-M,3	1.161			
	Beta-M,V,2	1.300		Beta-M,Psi	1.161	a-3	0.4875	<= 0.8		
	M-V,2	0.39	kNm	V-load 2	Ja	k-3	0.968	<= 1.5		
	Delta-M,2	67.14	kNm	C-load 2	Nein					
	Design									
	D-N	0.065		D-M,3	0.216					
D-M,2	0.033		D-NM	0.314	< 1.0					
798	0.000	CO97	0.524	1) Design to (28) fulfilled						
	Section properties Kasten(A) 374/15/12/350/550/374/15									
	A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3	
	A-2	79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3	
	I-2	108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c		
	W-2,min	-3942.86	cm^3	I-3	53979.10	cm^4				
	Forces and moments									
	N	-33.81	kN	M-2,beg	0.00	kNm	M-3	242.73	kNm	
	V-3	791.43	kN	M-2,end	2.18	kNm	M-3,beg	242.73	kNm	
	M-2	-339.12	kNm	V-2	738.35	kN	M-3,end	0.00	kNm	
	Reduction factor Kappa									
	s-K,2	0.425	m	Kappa-2 b	0.992	Ksl-3	c			
	N-Cr,2	12441900	kN	s-K,3	0.425	m	Kappa-3 b	0.988		
	Lambda-K,	0.026	< 0.2	N-Cr,3	6193940.	kN	Kappa bar	0.988		
	Ksl-2	c		Lambda-K,	0.037	< 0.2				
	Coefficient k-2 and k-3									
	Psi-2	0.015		k-2	0.999	<= 1.5	a-3	0.1311	<= 0.8	
	Beta-M,Psi	1.789		Psi-3	0.000		k-3	0.999	<= 1.5	
	V-load 3	Nein		Beta-M,Psi	1.800					
	a-2	0.1616	<= 0.8	V-load 2	Nein					
	Design									
	D-N	0.004		D-M,3	0.257					
	D-M,2	0.263		D-NM	0.524	< 1.0				
	799	2600.000	CO97	0.405	1) Design to (28) fulfilled					
		Section properties Kasten(A) 374/15/12/350/550/374/15								
		A	237.00	cm^2	W-2,max	3942.86	cm^3	W-3,min	-2886.58	cm^3
A-2		79.10	cm^2	Ksl-2	c		W-3,max	2886.58	cm^3	
I-2		108429.0	cm^4	A-3	115.22	cm^2	Ksl-3	c		
W-2,min		-3942.86	cm^3	I-3	53979.10	cm^4				
Forces and moments										
N		-43.26	kN	M-2,beg	0.00	kNm	M-3	180.52	kNm	
V-3		-41.11	kN	M-2,end	0.00	kNm	M-3,beg	147.87	kNm	
M-2		-267.53	kNm	V-2	-30.57	kN	M-3,end	180.52	kNm	

Elem.- No.	x [mm]	LS LG	Design- Criterion	Comment on design method				
	Reduction factor Kappa							
	s-K,2	2.600 m		Kappa-2 b	0.949	Ksl-3	c	
	N-Cr,2	332443.0 kN		s-K,3	2.600 m	Kappa-3 b	0.930	
	Lambda-K,	0.160 < 0.2		N-Cr,3	165500.0 kN	Kappa bar	0.930	
	Ksl-2	c		Lambda-K,	0.227			
	Coefficient k-2 and k-3							
	Psi-2	0.824		Beta-M,2	1.231	Beta-M,V,3	1.300	
	Beta-M,Psi	1.223		a-2	-0.0738 <= 0.8	M-V,3	0.00 kNm	
	V-load 3	Ja		k-2	1.000 <= 1.5	Delta-M,3	180.52 kNm	
	C-load 3	Nein		Psi-3	0.819	Beta-M,3	1.227	
	Beta-M,V,2	1.300		Beta-M,Psi	1.227	a-3	-0.2052 <= 0.8	
	M-V,2	26.81 kNm		V-load 2	Ja	k-3	1.001 <= 1.5	
	Delta-M,2	267.53 kNm		C-load 2	Nein			
	Design							
	D-N	0.006		D-M,3	0.191			
	D-M,2	0.207		D-NM	0.405 < 1.0			
	800	430.000	CO97	0.394	1) Design to (28) fulfilled			
	Section properties			Kasten(A) 374/15/12/350/550/374/15				
	A	237.00 cm^2		W-2,max	3942.86 cm^3	W-3,min	-2886.58 cm^3	
A-2	79.10 cm^2		Ksl-2	c	W-3,max	2886.58 cm^3		
I-2	108429.0 cm^4		A-3	115.22 cm^2	Ksl-3	c		
W-2,min	-3942.86 cm^3		I-3	53979.10 cm^4				
Forces and moments								
N	-43.13 kN		M-2,beg	7.23 kNm	M-3	178.88 kNm		
V-3	-611.76 kN		M-2,end	0.00 kNm	M-3,beg	3.18 kNm		
M-2	-257.78 kNm		V-2	-567.18 kN	M-3,end	178.88 kNm		
Reduction factor Kappa								
s-K,2	0.425 m		Kappa-2 b	0.992	Ksl-3	c		
N-Cr,2	12441900 kN		s-K,3	0.425 m	Kappa-3 b	0.988		
Lambda-K,	0.026 < 0.2		N-Cr,3	6193940. kN	Kappa bar	0.988		
Ksl-2	c		Lambda-K,	0.037 < 0.2				
Coefficient k-2 and k-3								
Psi-2	0.000		k-2	0.999 <= 1.5	a-3	0.1302 <= 0.8		
Beta-M,Psi	1.800		Psi-3	0.018	k-3	0.999 <= 1.5		
V-load 3	Nein		Beta-M,Psi	1.788				
a-2	0.1622 <= 0.8		V-load 2	Nein				
Design								
D-N	0.006		D-M,3	0.189				
D-M,2	0.200		D-NM	0.394 < 1.0				
801	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
Section properties			HE-B 600					
A	270.00 cm^2		Ksl-2	a	Ksl-3	b		
I-2	171000.0 cm^4		I-3	13530.00 cm^4				
W-2	-5700.00 cm^3		W-3	902.00 cm^3				
Forces and moments								
N	0.00 kN		M-2,beg	0.00 kNm	M-3	-1.77 kNm		
V-3	688.18 kN		M-2,end	0.00 kNm	M-3,beg	0.00 kNm		
M-2	-88.47 kNm		V-2	-13.80 kN	M-3,end	0.00 kNm		
802	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required				
Section properties			HE-B 600					
A	270.00 cm^2		Ksl-2	a	Ksl-3	b		
I-2	171000.0 cm^4		I-3	13530.00 cm^4				
W-2	-5700.00 cm^3		W-3	902.00 cm^3				
Forces and moments								
N	0.00 kN		M-2,beg	0.00 kNm	M-3	-1.77 kNm		
V-3	518.22 kN		M-2,end	0.00 kNm	M-3,beg	0.00 kNm		
M-2	-67.53 kNm		V-2	-13.80 kN	M-3,end	0.00 kNm		
803	8020.000	CO98	0.334	1) Design to (28) fulfilled				
Section properties			BOX(A) 770/15/12/710/1601.99/770/15					
A	608.28 cm^2		W-2,max	27858.19 cm^3	W-3,min	-15736.4 cm^3		
A-2	134.41 cm^2		Ksl-2	b	W-3,max	15736.40 cm^3		
I-2	2231420. cm^4		A-3	354.66 cm^2	Ksl-3	b		
W-2,min	-27858.1 cm^3		I-3	605851.0 cm^4				
Forces and moments								
N	-2527.07 kN		V-2	-1.27 kN	x-M3,max	8.020 m		
V-3	142.52 kN		M-3	-369.79 kNm	M-3,min	-369.79 kNm		
M-2	-901.92 kNm		M-3,beg	89.19 kNm	x-M3,min	8.020 m		
M-2,beg	355.97 kNm		M-3,end	103.06 kNm				
M-2,end	203.19 kNm		M-3,max	116.64 kNm				
Reduction factor Kappa								
s-K,2	12.832 m		Kappa-2 b	0.920	Ksl-3	b		
N-Cr,2	146576.0 kN		s-K,3	12.832 m	Kappa-3 b	0.841		
Lambda-K,	0.387		N-Cr,3	61024.80 kN	Kappa bar	0.841		
Ksl-2	b		Lambda-K,	0.599				
Taper conditions								
TapCon1-2	52.729 > 1.20		TapCon2-2	0.426 > 0.05				
TapCon1-3	21.953 > 1.20		TapCon2-3	0.600 > 0.05				
Coefficient k-2 and k-3								
Psi-2	0.571		Beta-M,2	1.399	Beta-M,V,3	1.300		
Beta-M,Psi	1.400		a-2	-0.2741 <= 0.8	M-V,3	20.04 kNm		
V-load 3	Ja		k-2	1.038 <= 1.5	Delta-M,3	486.43 kNm		
C-load 3	Nein		Psi-3	0.865	Beta-M,3	1.199		
Beta-M,V,2	1.300		Beta-M,Psi	1.194	a-3	-0.8121 <= 0.8		
M-V,2	26.58 kNm		V-load 2	Ja	k-3	1.123 <= 1.5		
Delta-M,2	2433.51 kNm		C-load 2	Nein				
Design								
D-N	0.151		D-M,3	0.081				

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	D-M,2	0.103		D-NM	0.334	< 1.0		
804	1) Design to (28) fulfilled							
	Section properties BOX(A) 770/15/12/710/1215.15/770/15							
	A	515.43	cm^2	W-2,max	19170.80	cm^3	W-3,min -12593.4 cm^3	
	A-2	153.07	cm^2	Ksl-2	b		W-3,max 12593.40 cm^3	
	I-2	1164770.	cm^4	A-3	263.61	cm^2	Ksl-3 b	
	W-2,min	-19170.8	cm^3	I-3	484846.0	cm^4		
	Forces and moments							
	N	-2409.93	kN	V-2	16.28	kN	x-M3,max 8.020 m	
	V-3	-75.55	kN	M-3	327.70	kNm	M-3,min -117.13 kNm	
	M-2	395.62	kNm	M-3,beg	279.95	kNm	x-M3,min 8.020 m	
	M-2,beg	1239.42	kNm	M-3,end	327.70	kNm		
	M-2,end	395.62	kNm	M-3,max	369.97	kNm		
	Reduction factor Kappa							
	s-K,2	12.832	m	Kappa-2 b	0.906		Ksl-3 b	
	N-Cr,2	146576.0	kN	s-K,3	12.832	m	Kappa-3 b 0.842	
	Lambda-K,	0.356		N-Cr,3	61024.80	kN	Kappa bar 0.842	
	Ksl-2	b		Lambda-K,	0.551			
	Taper conditions							
	TapCon1-2	55.292	> 1.20	TapCon2-2	0.426	> 0.05		
	TapCon1-3	23.020	> 1.20	TapCon2-3	0.600	> 0.05		
	Coefficient k-2 and k-3							
	Psi-2	0.319		Beta-M,2	1.570		Beta-M,V,3 1.300	
	Beta-M,Psi	1.577		a-2	-0.1432	<= 0.8	M-V,3 20.04 kNm	
	V-load 3	Ja		k-2	1.023	<= 1.5	Delta-M,3 487.10 kNm	
	C-load 3	Nein		Psi-3	0.870		Beta-M,3 1.195	
	Beta-M,V,2	1.300		Beta-M,Psi	1.191		a-3 -0.7189 <= 0.8	
	M-V,2	44.38	kNm	V-load 2	Ja		k-3 1.122 <= 1.5	
	Delta-M,2	1910.22	kNm	C-load 2	Nein			
Design								
D-N	0.170		D-M,3	0.089				
D-M,2	0.064		D-NM	0.323	< 1.0			
806	1) Design to (28) fulfilled							
	Section properties HE-B 600							
	A	270.00	cm^2	Ksl-2	a		Ksl-3 b	
	I-2	171000.0	cm^4	I-3	13530.00	cm^4		
	W-2	-5700.00	cm^3	W-3	902.00	cm^3		
	Forces and moments							
	N	-631.64	kN	M-2,min	-48.01	kNm	M-3,end 80.70 kNm	
	V-3	-238.24	kN	x-M2,min	1.700	m	M-3,max 80.70 kNm	
	M-2	52.69	kNm	V-2	-38.30	kN	x-M3,max 1.700 m	
	M-2,beg	349.29	kNm	M-3	80.70	kNm	M-3,min -0.04 kNm	
	M-2,end	52.69	kNm	M-3,beg	22.60	kNm	x-M3,min 1.700 m	
	Reduction factor Kappa							
	s-K,2	1.700	m	Kappa-2 b	0.982		Ksl-3 b	
	N-Cr,2	1226360.	kN	s-K,3	1.700	m	Kappa-3 b 0.871	
	Lambda-K,	0.089	< 0.2	N-Cr,3	97032.79	kN	Kappa bar 0.871	
	Ksl-2	a		Lambda-K,	0.317			
	Coefficient k-2 and k-3							
	Psi-2	0.151		k-2	0.995	<= 1.5	a-3 0.2915 <= 0.8	
	Beta-M,Psi	1.694		Psi-3	0.280		k-3 0.976 <= 1.5	
	V-load 3	Nein		Beta-M,Psi	1.604			
	a-2	0.0719	<= 0.8	V-load 2	Nein			
	Design							
	D-N	0.082		D-M,3	0.267			
	D-M,2	0.028		D-NM	0.377	< 1.0		
	807	1) Design to (28) fulfilled						
		Section properties HE-M 600						
		A	364.00	cm^2	Ksl-2	a		Ksl-3 b
		I-2	237400.0	cm^4	I-3	18980.00	cm^4	
W-2		-7660.00	cm^3	W-3	1240.00	cm^3		
Forces and moments								
N		-5462.66	kN	M-2,beg	280.62	kNm	M-3 39.53 kNm	
V-3		-109.35	kN	M-2,end	106.49	kNm	M-3,beg 39.53 kNm	
M-2		-313.62	kNm	V-2	22.11	kN	M-3,end 7.79 kNm	
Reduction factor Kappa								
s-K,2		1.518	m	Kappa-2 b	0.984		Ksl-3 b	
N-Cr,2		2136610.	kN	s-K,3	1.518	m	Kappa-3 b 0.887	
Lambda-K,		0.078	< 0.2	N-Cr,3	170821.0	kN	Kappa bar 0.887	
Ksl-2		a		Lambda-K,	0.277			
Coefficient k-2 and k-3								
Psi-2		0.690		k-2	0.982	<= 1.5	a-3 0.1980 <= 0.8	
Beta-M,Psi		1.317		Psi-3	0.639		k-3 0.898 <= 1.5	
V-load 3		Nein		Beta-M,Psi	1.352			
a-2		0.0393	<= 0.8	V-load 2	Nein			
Design								
D-N		0.517		D-M,3	0.087			
D-M,2		0.123		D-NM	0.727	< 1.0		
808		1) Design to (28) fulfilled						
		Section properties HE-M 600						
		A	364.00	cm^2	Ksl-2	a		Ksl-3 b
		I-2	237400.0	cm^4	I-3	18980.00	cm^4	
		W-2	-7660.00	cm^3	W-3	1240.00	cm^3	
		Forces and moments						
	N	-5201.75	kN	M-2,beg	280.49	kNm	M-3 40.20 kNm	
	V-3	-108.27	kN	M-2,end	107.16	kNm	M-3,beg 40.20 kNm	
	M-2	-308.39	kNm	V-2	24.00	kN	M-3,end 4.62 kNm	

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822	0.000	CO97	0.570	1) Design to (28) fulfilled			
Section properties HE-M 600							
A	364.00	cm^2	Ksl-2	a	Ksl-3	b	
I-2	237400.0	cm^4	I-3	18980.00	cm^4		
W-2	-7660.00	cm^3	W-3	1240.00	cm^3		
Forces and moments							
N	-2532.43	kN	M-2,beg	11.98	kNm	M-3	122.61
V-3	35.46	kN	M-2,end	39.01	kNm	M-3,beg	122.61
M-2	-80.08	kNm	V-2	57.98	kN	M-3,end	7.11
Reduction factor Kappa							
s-K,2	2.325	m	Kappa-2 b	0.976		Ksl-3	b
N-Cr,2	910235.0	kN	s-K,3	2.325	m	Kappa-3 b	0.824
Lambda-K,	0.120	< 0.2	N-Cr,3	72772.79	kN	Kappa bar	0.824
Ksl-2	a		Lambda-K,	0.424			
Coefficient k-2 and k-3							
Psi-2	0.567		Beta-M,2	1.392		Beta-M,V,3	1.300
Beta-M,Psi	1.403		a-2	0.0002	<= 0.8	M-V,3	9.62
V-load 3	Ja		k-2	1.000	<= 1.5	Delta-M,3	206.26
C-load 3	Nein		Psi-3	0.157		Beta-M,3	1.672
Beta-M,V,2	1.300		Beta-M,Psi	1.690		a-3	0.2783
M-V,2	13.62	kNm	V-load 2	Ja		k-3	0.928
Delta-M,2	119.09	kNm	C-load 2	Nein			<= 1.5
Design							
D-N	0.258		D-M,3	0.280			
D-M,2	0.032		D-NM	0.570	< 1.0		
825	830.000	CO98	0.311	1) Design to (28) fulfilled			
Section properties HE-A 160							
A	38.80	cm^2	Ksl-2	b	Ksl-3	c	
I-2	1670.00	cm^4	I-3	616.00	cm^4		
W-2	-220.00	cm^3	W-3	76.90	cm^3		
Forces and moments							
N	-24.21	kN	M-2,max	4.44	kNm	M-3	5.75
V-3	-3.75	kN	x-M2,max	0.830	m	M-3,beg	0.80
M-2	4.44	kNm	M-2,min	-4.39	kNm	M-3,end	5.75
M-2,beg	4.23	kNm	x-M2,min	0.830	m	M-3,max	5.75
M-2,end	4.44	kNm	V-2	-10.80	kN	x-M3,max	0.830
Reduction factor Kappa							
s-K,2	0.831	m	Kappa-2 b	0.961		Ksl-3	c
N-Cr,2	50096.30	kN	s-K,3	0.831	m	Kappa-3 b	0.870
Lambda-K,	0.167	< 0.2	N-Cr,3	18478.59	kN	Kappa bar	0.870
Ksl-2	b		Lambda-K,	0.275			
Coefficient k-2 and k-3							
Psi-2	0.953		k-2	1.003	<= 1.5	a-3	0.2099
Beta-M,Psi	1.133		Psi-3	0.545		k-3	0.995
V-load 3	Nein		Beta-M,Psi	1.418			<= 1.5
a-2	-0.1713	<= 0.8	V-load 2	Nein			
Design							
D-N	0.022		D-M,3	0.227			
D-M,2	0.062		D-NM	0.311	< 1.0		
826	0.000	CO97	0.115	1) Design to (28) fulfilled			
Section properties HE-A 160							
A	38.80	cm^2	Ksl-2	b	Ksl-3	c	
I-2	1670.00	cm^4	I-3	616.00	cm^4		
W-2	-220.00	cm^3	W-3	76.90	cm^3		
Forces and moments							
N	-24.66	kN	M-2,end	3.69	kNm	M-3	0.90
V-3	-1.53	kN	M-2,max	3.91	kNm	M-3,beg	0.90
M-2	3.68	kNm	x-M2,max	0.890	m	M-3,end	0.42
M-2,beg	3.68	kNm	V-2	0.90	kN		
Reduction factor Kappa							
s-K,2	1.788	m	Kappa-2 b	0.913		Ksl-3	c
N-Cr,2	10832.09	kN	s-K,3	1.788	m	Kappa-3 b	0.714
Lambda-K,	0.359		N-Cr,3	3995.55	kN	Kappa bar	0.714
Ksl-2	b		Lambda-K,	0.591			
Coefficient k-2 and k-3							
Psi-2	0.997		Beta-M,2	1.112		Beta-M,V,3	1.300
Beta-M,Psi	1.102		a-2	-0.5196	<= 0.8	M-V,3	0.41
V-load 3	Ja		k-2	1.011	<= 1.5	Delta-M,3	1.66
C-load 3	Nein		Psi-3	0.474		Beta-M,3	1.427
Beta-M,V,2	1.300		Beta-M,Psi	1.468		a-3	-0.1480
M-V,2	0.29	kNm	V-load 2	Ja		k-3	1.004
Delta-M,2	5.77	kNm	C-load 2	Nein			<= 1.5
Design							
D-N	0.027		D-M,3	0.036			
D-M,2	0.052		D-NM	0.115	< 1.0		
827	0.000	CO99	0.286	1) Design to (28) fulfilled			
Section properties HE-A 160							
A	38.80	cm^2	Ksl-2	b	Ksl-3	c	
I-2	1670.00	cm^4	I-3	616.00	cm^4		
W-2	-220.00	cm^3	W-3	76.90	cm^3		
Forces and moments							
N	-16.63	kN	M-2,end	3.80	kNm	M-3,end	1.02
V-3	-3.12	kN	V-2	8.35	kN	M-3,min	-2.33
M-2	6.38	kNm	M-3	4.61	kNm	x-M3,min	0.830
M-2,beg	6.38	kNm	M-3,beg	4.61	kNm		
Reduction factor Kappa							
s-K,2	0.831	m	Kappa-2 b	0.961		Ksl-3	c

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	N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	50096.30 kN 0.167 < 0.2 b 0.596 1.383 Nein -0.0878 <= 0.8 0.015 0.089	< 0.2 b k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	0.831 m 18478.59 kN 0.275 1.001 <= 1.5 0.519 1.436 Nein 0.183 0.286 < 1.0	Kappa-3 b Kappa bar a-3 k-3	0.870 0.870 0.2198 <= 0.8 0.997 <= 1.5	
828	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties HE-B 600 A I-2 W-2 Forces and moments N V-3 M-2	270.00 cm ² 171000.0 cm ⁴ -5700.00 cm ³ 0.00 kN 5.72 kN -2.49 kNm	Ksl-2 I-3 W-3 M-2,beg M-2,end V-2	a 13530.00 cm ⁴ 902.00 cm ³ 0.00 kNm 0.00 kNm -0.11 kN	Ksl-3 b M-3 M-3,beg M-3,end	b -0.04 kNm 0.00 kNm 0.00 kNm	
829	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
	Section properties HE-B 600 A I-2 W-2 Forces and moments N V-3 M-2	270.00 cm ² 171000.0 cm ⁴ -5700.00 cm ³ 0.00 kN 6.42 kN -2.81 kNm	Ksl-2 I-3 W-3 M-2,beg M-2,end V-2	a 13530.00 cm ⁴ 902.00 cm ³ 0.00 kNm 0.00 kNm -0.11 kN	Ksl-3 b M-3 M-3,beg M-3,end	b -0.04 kNm 0.00 kNm 0.00 kNm	
830	0.000	CO97	0.255	1) Design to (28) fulfilled			
	Section properties RO 127x5,6 A I-2 W-2 Forces and moments N M-T V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	21.36 cm ² 394.30 cm ⁴ -62.09 cm ³ -22.28 kN -0.21 kNm -2.57 kN 3.30 kNm 2.600 m 1208.93 kN 0.797 a 0.000 1.800 Ja Nein 1.300 1.65 kNm 6.68 kNm 0.044 0.164	Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	a 394.30 cm ⁴ 62.09 cm ³ 3.30 kNm 0.00 kNm -0.69 kN 0.94 kNm 0.730 2.600 m 1208.93 kN 0.797 1.676 -0.1859 <= 0.8 1.008 <= 1.5 0.640 1.352 Ja Nein 0.048 0.255 < 1.0	Ksl-3 a M-3,beg M-3,end VT Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	a 0.94 kNm 0.24 kNm 2.45 kN 0.730 0.730 1.300 0.23 kNm 1.69 kNm 1.345 -0.7148 <= 0.8 1.031 <= 1.5	
831	0.000	CO97	0.275	1) Design to (28) fulfilled			
	Section properties RO 127x5,6 A I-2 W-2 Forces and moments N M-T V-3 M-2 Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	21.36 cm ² 394.30 cm ⁴ -62.09 cm ³ -55.89 kN 0.15 kNm 0.66 kN 1.32 kNm 2.600 m 1208.93 kN 0.797 a 0.328 1.570 Ja Nein 1.300 0.83 kNm 2.57 kNm 0.110 0.068	Ksl-2 I-3 W-3 M-2,beg M-2,end V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	a 394.30 cm ⁴ 62.09 cm ³ 1.32 kNm 0.27 kNm 1.50 kN 1.93 kNm 0.730 2.600 m 1208.93 kN 0.797 1.483 -0.4944 <= 0.8 1.054 <= 1.5 0.020 1.786 Ja Nein 0.097 0.275 < 1.0	Ksl-3 a M-3,beg M-3,end VT Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	a 1.93 kNm 0.03 kNm 1.49 kN 0.730 0.730 1.300 0.98 kNm 3.91 kNm 1.664 -0.2057 <= 0.8 1.023 <= 1.5	
832	1260.000	CO98	0.406	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2 W-2	38.80 cm ² 1670.00 cm ⁴ -220.00 cm ³	Ksl-2 I-3 W-3	b 616.00 cm ⁴ 76.90 cm ³	Ksl-3 c	c	

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	Forces and moments						
	N	-34.94 kN	M-2,max	12.24 kNm	M-3	5.08 kNm	
	V-3	8.92 kN	x-M2,max	1.260 m	M-3,beg	1.36 kNm	
	M-2	12.24 kNm	M-2,min	-6.44 kNm	M-3,end	5.08 kNm	
	M-2,beg	0.63 kNm	x-M2,min	1.260 m	M-3,max	5.08 kNm	
	M-2,end	12.24 kNm	V-2	-7.01 kN	x-M3,max	1.260 m	
	Reduction factor Kappa						
	s-K,2	1.261 m	Kappa-2 b	0.941	Ksl-3	c	
	N-Cr,2	21754.80 kN	s-K,3	1.261 m	Kappa-3 b	0.802	
	Lambda-K,	0.253 b	N-Cr,3	8024.54 kN	Kappa bar	0.802	
	Ksl-2	b	Lambda-K,	0.417			
	Coefficient k-2 and k-3						
	Psi-2	0.071	k-2	1.000	<= 1.5	a-3	0.0870 <= 0.8
	Beta-M,Psi	1.750	Psi-3	0.472		k-3	0.997 <= 1.5
	V-load 3	Nein	Beta-M,Psi	1.469			
	a-2	-0.0085 <= 0.8	V-load 2	Nein			
	Design						
	D-N	0.034	D-M,3	0.201			
D-M,2	0.170	D-NM	0.406 < 1.0				
833	0.000	CO97	0.000	5) Tensile forces only -> No buckling check required			
Section properties IS 374/260/8/20							
A	130.72 cm^2	Ksl-2	b	Ksl-3	c		
I-2	35100.80 cm^4	I-3	5860.09 cm^4				
W-2	-1877.05 cm^3	W-3	450.78 cm^3				
Forces and moments							
N	0.00 kN	M-2,beg	0.00 kNm	M-3	44.20 kNm		
V-3	-39.89 kN	M-2,end	0.00 kNm	M-3,beg	44.20 kNm		
M-2	-14.59 kNm	V-2	87.09 kN	M-3,end	0.00 kNm		
834	0.000	CO99	0.397	1) Design to (28) fulfilled			
Section properties HE-A 160							
A	38.80 cm^2	Ksl-2	b	Ksl-3	c		
I-2	1670.00 cm^4	I-3	616.00 cm^4				
W-2	-220.00 cm^3	W-3	76.90 cm^3				
Forces and moments							
N	-8.80 kN	M-2,end	0.78 kNm	M-3,end	0.85 kNm		
V-3	-5.81 kN	V-2	10.65 kN	M-3,min	-6.49 kNm		
M-2	8.04 kNm	M-3	6.99 kNm	x-M3,min	1.260 m		
M-2,beg	8.04 kNm	M-3,beg	6.99 kNm				
Reduction factor Kappa							
s-K,2	1.261 m	Kappa-2 b	0.941	Ksl-3	c		
N-Cr,2	21754.80 kN	s-K,3	1.261 m	Kappa-3 b	0.802		
Lambda-K,	0.253 b	N-Cr,3	8024.54 kN	Kappa bar	0.802		
Ksl-2	b	Lambda-K,	0.417				
Coefficient k-2 and k-3							
Psi-2	0.473	k-2	1.001	<= 1.5	a-3	0.2827 <= 0.8	
Beta-M,Psi	1.469	Psi-3	0.137		k-3	0.998 <= 1.5	
V-load 3	Nein	Beta-M,Psi	1.704				
a-2	-0.1509 <= 0.8	V-load 2	Nein				
Design							
D-N	0.009	D-M,3	0.277				
D-M,2	0.112	D-NM	0.397 < 1.0				
836	930.000	CO99	0.307	1) Design to (28) fulfilled			
Section properties HE-A 160							
A	38.80 cm^2	Ksl-2	b	Ksl-3	c		
I-2	1670.00 cm^4	I-3	616.00 cm^4				
W-2	-220.00 cm^3	W-3	76.90 cm^3				
Forces and moments							
N	-8.92 kN	M-2,beg	2.06 kNm	M-3	-6.95 kNm		
V-3	-4.09 kN	M-2,end	0.97 kNm	M-3,beg	6.47 kNm		
M-2	-1.64 kNm	V-2	14.48 kN	M-3,end	2.67 kNm		
Reduction factor Kappa							
s-K,2	0.927 m	Kappa-2 b	0.957	Ksl-3	c		
N-Cr,2	40254.80 kN	s-K,3	0.927 m	Kappa-3 b	0.855		
Lambda-K,	0.186 < 0.2	N-Cr,3	14848.50 kN	Kappa bar	0.855		
Ksl-2	b	Lambda-K,	0.307				
Coefficient k-2 and k-3							
Psi-2	0.471	k-2	1.001	<= 1.5	a-3	0.1531 <= 0.8	
Beta-M,Psi	1.470	Psi-3	0.591		k-3	0.999 <= 1.5	
V-load 3	Nein	Beta-M,Psi	1.386				
a-2	-0.0791 <= 0.8	V-load 2	Nein				
Design							
D-N	0.008	D-M,3	0.276				
D-M,2	0.023	D-NM	0.307 < 1.0				
837	1150.000	CO98	0.216	1) Design to (28) fulfilled			
Section properties HE-A 160							
A	38.80 cm^2	Ksl-2	b	Ksl-3	c		
I-2	1670.00 cm^4	I-3	616.00 cm^4				
W-2	-220.00 cm^3	W-3	76.90 cm^3				
Forces and moments							
N	-6.94 kN	x-M2,max	1.150 m	M-3,end	3.19 kNm		
V-3	-4.52 kN	M-2,min	-5.04 kNm	M-3,max	3.19 kNm		
M-2	-5.04 kNm	x-M2,min	1.150 m	x-M3,max	1.150 m		
M-2,beg	3.06 kNm	V-2	-5.62 kN	M-3,min	-3.50 kNm		
M-2,end	4.63 kNm	M-3	-3.50 kNm	x-M3,min	1.150 m		
M-2,max	4.63 kNm	M-3,beg	2.05 kNm				
Reduction factor Kappa							
s-K,2	1.150 m	Kappa-2 b	0.946	Ksl-3	c		

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	26166.00 kN 0.231 b 0.661 1.337 Nein -0.1880 <= 0.8 0.007 0.070		s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	1.150 m 9651.64 kN 0.380 1.001 <= 1.5 0.937 1.144 Nein 0.139 0.216 < 1.0	Kappa-3 b Kappa bar a-3 k-3	0.820 0.820 -0.1216 <= 0.8 1.001 <= 1.5
839	0.000	CO98	0.323	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beq Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	38.80 cm ² 1670.00 cm ⁴ -220.00 cm ³ -6.95 kN -4.55 kN 8.32 kNm 8.32 kNm 1.150 m 26166.00 kN 0.231 b 0.365 1.544 Nein -0.0924 <= 0.8 0.007 0.116		Ksl-2 I-3 W-3 M-2,end V-2 M-3 M-3,beq Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	b 616.00 cm ⁴ 76.90 cm ³ 3.04 kNm -8.17 kN -5.06 kNm 1.09 kNm 0.946 1.150 m 9651.64 kN 0.380 1.001 <= 1.5 0.252 1.623 Nein 0.201 0.323 < 1.0	Ksl-3 c M-3,end M-3,max x-M3,max Ksl-3 Kappa-3 b Kappa bar a-3 k-3	c 4.32 kNm 4.32 kNm 1.150 m 0.820 0.820 0.2431 <= 0.8 0.998 <= 1.5
841	0.000	CO98	0.288	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beq Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	38.80 cm ² 1670.00 cm ⁴ -220.00 cm ³ -2.30 kN -8.11 kN 12.08 kNm 12.08 kNm 2.589 m 5165.78 kN 0.520 b 0.189 1.668 Ja Nein 1.300 5.54 kNm 23.11 kNm 0.003 0.168		Ksl-2 I-3 W-3 M-2,beq M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	b 616.00 cm ⁴ 76.90 cm ³ 12.08 kNm 2.28 kNm 2.24 kN 0.863 2.589 m 1905.46 kN 0.856 1.580 -0.3189 <= 0.8 1.001 <= 1.5 0.102 1.729 Ja Nein 0.117 0.288 < 1.0	Ksl-3 c M-3 M-3,beq M-3,end Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3	c 2.94 kNm 2.94 kNm 0.30 kNm 0.572 0.572 1.300 1.43 kNm 5.83 kNm 1.623 -0.1157 <= 0.8 1.000 <= 1.5
842	0.000	CO98	0.341	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2 W-2 Forces and moments N V-3 M-2 M-2,beq Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 a-2 Design D-N D-M,2	38.80 cm ² 1670.00 cm ⁴ -220.00 cm ³ -5.59 kN -11.54 kN 16.43 kNm 16.43 kNm 0.431 m 186550.0 kN 0.087 < 0.2 b 0.714 1.300 Nein -0.0029 <= 0.8 0.005 0.228		Ksl-2 I-3 W-3 M-2,beq M-2,end V-2 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, k-2 Psi-3 Beta-M,Psi V-load 2 D-M,3 D-NM	b 616.00 cm ⁴ 76.90 cm ³ 16.43 kNm 11.73 kNm 9.65 kN 0.980 0.431 m 68811.20 kN 0.142 < 0.2 1.000 <= 1.5 0.979 1.114 Nein 0.108 0.341 < 1.0	Ksl-3 c M-3 M-3,beq M-3,end Ksl-3 Kappa-3 b Kappa bar a-3 k-3	c 2.73 kNm 2.73 kNm 0.76 kNm 0.931 0.931 0.2773 <= 0.8 0.999 <= 1.5
844	430.000	CO98	0.372	1) Design to (28) fulfilled			
	Section properties HE-A 160 A I-2 W-2 Forces and moments	38.80 cm ² 1670.00 cm ⁴ -220.00 cm ³		Ksl-2 I-3 W-3	b 616.00 cm ⁴ 76.90 cm ³	Ksl-3 c	c

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	N	-2.05	kN	M-2,min	-16.31	kNm	M-3,end	1.71	kNm
	V-3	-14.51	kN	x-M2,min	0.430	m	M-3,max	1.71	kNm
	M-2	-16.31	kNm	V-2	11.43	kN	x-M3,max	0.430	m
	M-2,beg	2.38	kNm	M-3	-3.63	kNm	M-3,min	-3.63	kNm
	M-2,end	1.54	kNm	M-3,beg	1.30	kNm	x-M3,min	0.430	m
	Reduction factor Kappa								
	s-K,2	0.431	m	Kappa-2 b	0.980		Ksl-3	c	
	N-Cr,2	186550.0	kN	s-K,3	0.431	m	Kappa-3 b	0.931	
	Lambda-K,	0.087	< 0.2	N-Cr,3	68811.20	kN	Kappa bar	0.931	
	Ksl-2	b		Lambda-K,	0.142	< 0.2			
	Coefficient k-2 and k-3								
	Psi-2	0.647		k-2	1.000	<= 1.5	a-3	0.3211	<= 0.8
	Beta-M,Psi	1.347		Psi-3	0.760		k-3	0.999	<= 1.5
	V-load 3	Nein		Beta-M,Psi	1.268				
	a-2	0.0052	<= 0.8	V-load 2	Nein				
	Design								
	D-N	0.002		D-M,3	0.144				
D-M,2	0.227		D-NM	0.372	< 1.0				
845	0.000	CO98	0.171	1) Design to (28) fulfilled					
Section properties HE-A 160									
A	38.80	cm^2		Ksl-2	b		Ksl-3	c	
I-2	1670.00	cm^4		I-3	616.00	cm^4			
W-2	-220.00	cm^3		W-3	76.90	cm^3			
Forces and moments									
N	-7.09	kN		M-2,beg	4.01	kNm	M-3	2.73	kNm
V-3	-4.48	kN		M-2,end	2.74	kNm	M-3,beg	2.73	kNm
M-2	4.01	kNm		V-2	4.10	kN	M-3,end	0.99	kNm
Reduction factor Kappa									
s-K,2	1.150	m		Kappa-2 b	0.946		Ksl-3	c	
N-Cr,2	26184.59	kN		s-K,3	1.150	m	Kappa-3 b	0.820	
Lambda-K,	0.231			N-Cr,3	9658.51	kN	Kappa bar	0.820	
Ksl-2	b			Lambda-K,	0.380				
Coefficient k-2 and k-3									
Psi-2	0.683			k-2	1.001	<= 1.5	a-3	0.1845	<= 0.8
Beta-M,Psi	1.322			Psi-3	0.363		k-3	0.999	<= 1.5
V-load 3	Nein			Beta-M,Psi	1.546				
a-2	-0.1951	<= 0.8		V-load 2	Nein				
Design									
D-N	0.007			D-M,3	0.108				
D-M,2	0.056			D-NM	0.171	< 1.0			
846	0.000	CO98	0.368	1) Design to (28) fulfilled					
Section properties RO 127x10									
A	36.76	cm^2		Ksl-2	a		Ksl-3	a	
I-2	633.55	cm^4		I-3	633.55	cm^4			
W-2	-99.77	cm^3		W-3	99.77	cm^3			
Forces and moments									
N	-52.10	kN		M-2,end	0.00	kNm	M-3,beg	1.28	kNm
M-T	0.46	kNm		M-2,max	0.80	kNm	M-3,end	0.26	kNm
V-3	1.90	kN		x-M2,max	2.940	m	VT	1.49	kN
M-2	-3.42	kNm		V-2	0.42	kN			
M-2,beg	0.00	kNm		M-3	1.28	kNm			
Reduction factor Kappa									
s-K,2	5.890	m		Kappa-2 b	0.242		Ksl-3	a	
N-Cr,2	378.51	kN		s-K,3	5.890	m	Kappa-3 b	0.242	
Lambda-K,	1.870			N-Cr,3	378.51	kN	Kappa bar	0.242	
Ksl-2	a			Lambda-K,	1.870				
Coefficient k-2 and k-3									
Psi-2	0.447			Beta-M,2	1.377		Beta-M,V,3	1.300	
Beta-M,Psi	1.487			a-2	-1.9536	<= 0.8	M-V,3	0.56	kNm
V-load 3	Ja			k-2	1.350	<= 1.5	Delta-M,3	2.51	kNm
C-load 3	Nein			Psi-3	0.203		Beta-M,3	1.577	
Beta-M,V,2	1.300			Beta-M,Psi	1.658		a-3	-1.2050	<= 0.8
M-V,2	2.48	kNm		V-load 2	Ja		k-3	1.216	<= 1.5
Delta-M,2	4.22	kNm		C-load 2	Nein				
Design									
D-N	0.179			D-M,3	0.048				
D-M,2	0.141			D-NM	0.368	< 1.0			
847	0.000	CO97	0.815	1) Design to (28) fulfilled					
Section properties RO 127x10									
A	36.76	cm^2		Ksl-2	a		Ksl-3	a	
I-2	633.55	cm^4		I-3	633.55	cm^4			
W-2	-99.77	cm^3		W-3	99.77	cm^3			
Forces and moments									
N	-199.93	kN		M-2,max	1.06	kNm	M-3,beg	0.23	kNm
M-T	-0.30	kNm		x-M2,max	2.950	m	M-3,end	0.96	kNm
V-3	1.65	kN		M-2,min	-1.79	kNm	M-3,max	0.96	kNm
M-2	-1.62	kNm		x-M2,min	5.890	m	x-M3,max	5.890	m
M-2,beg	0.00	kNm		V-2	-0.39	kN	VT	1.40	kN
M-2,end	0.00	kNm		M-3	-1.17	kNm			
Reduction factor Kappa									
s-K,2	5.891	m		Kappa-2 b	0.242		Ksl-3	a	
N-Cr,2	378.40	kN		s-K,3	5.891	m	Kappa-3 b	0.242	
Lambda-K,	1.870			N-Cr,3	378.40	kN	Kappa bar	0.242	
Ksl-2	a			Lambda-K,	1.870				
Coefficient k-2 and k-3									
Psi-2	0.905			Beta-M,2	1.248		Beta-M,V,3	1.300	
Beta-M,Psi	1.166			a-2	-2.4358	<= 0.8	M-V,3	0.57	kNm
V-load 3	Ja			k-2	1.500	<= 1.5	Delta-M,3	2.13	kNm

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	Nein 1.300 1.75 kNm 2.85 kNm 0.687 0.074		Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	0.385 1.531 Ja Nein 0.054 0.815 < 1.0	Beta-M,3 a-3 k-3	1.469 -1.6087 <= 0.8 1.500 <= 1.5
848	0.000	CO98	0.410	1) Design to (28) fulfilled			
	Section properties RO 127x5,6 A I-2 W-2 Forces and moments N M-T V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	 21.36 cm ² 394.30 cm ⁴ 62.09 cm ³ -51.84 kN 0.14 kNm 0.96 kN -1.09 kNm 0.00 kNm 5.891 m 235.50 kN 1.807 a 0.954 1.132 Ja Nein 1.300 1.06 kNm 1.64 kNm 0.287 0.080		Ksl-2 I-3 W-3 M-2,end M-2,max x-M2,max V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	 a 394.30 cm ⁴ 62.09 cm ³ 0.00 kNm 0.55 kNm 2.950 m 0.19 kN 0.58 kNm 0.258 5.891 m 235.50 kN 1.807 1.241 -2.4123 <= 0.8 1.500 <= 1.5 0.415 1.509 Ja Nein 0.042 0.410 < 1.0	Ksl-3 M-3,beg M-3,end M-3,min x-M3,min VT Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3 a 0.258 0.258 1.300 0.34 kNm 1.11 kNm 1.445 -1.6744 <= 0.8 1.481 <= 1.5	
849	5890.000	CO99	0.877	1) Design to (28) fulfilled			
	Section properties RO 127x5,6 A I-2 W-2 Forces and moments N M-T V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	 21.36 cm ² 394.30 cm ⁴ 62.09 cm ³ -145.06 kN -0.08 kNm -0.70 kN -0.76 kNm 0.00 kNm 5.890 m 235.57 kN 1.807 a 0.842 1.211 Ja Nein 1.300 0.73 kNm 1.23 kNm 0.803 0.056		Ksl-2 I-3 W-3 M-2,end M-2,max x-M2,max V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	 a 394.30 cm ⁴ 62.09 cm ³ 0.00 kNm 0.47 kNm 2.940 m -0.09 kN 0.24 kNm 0.258 5.890 m 235.57 kN 1.807 1.264 -2.3306 <= 0.8 1.500 <= 1.5 0.708 1.304 Ja Nein 0.018 0.877 < 1.0	Ksl-3 M-3,beg M-3,end VT Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3 a 0.258 0.258 1.300 0.14 kNm 0.50 kNm 1.303 -2.1885 <= 0.8 1.500 <= 1.5	
850	0.000	CO97	0.739	1) Design to (28) fulfilled			
	Section properties RO 127x5,6 A I-2 W-2 Forces and moments N M-T V-3 M-2 M-2,beg Reduction factor Kappa s-K,2 N-Cr,2 Lambda-K, Ksl-2 Coefficient k-2 and k-3 Psi-2 Beta-M,Psi V-load 3 C-load 3 Beta-M,V,2 M-V,2 Delta-M,2 Design D-N D-M,2	 21.36 cm ² 394.30 cm ⁴ 62.09 cm ³ -115.23 kN 0.09 kNm 0.96 kN -1.03 kNm 0.00 kNm 5.891 m 235.50 kN 1.807 a 0.913 1.161 Ja Nein 1.300 1.01 kNm 1.66 kNm 0.638 0.076		Ksl-2 I-3 W-3 M-2,end M-2,max x-M2,max V-2 M-3 Kappa-2 b s-K,3 N-Cr,3 Lambda-K, Beta-M,2 a-2 k-2 Psi-3 Beta-M,Psi V-load 2 C-load 2 D-M,3 D-NM	 a 394.30 cm ⁴ 62.09 cm ³ 0.00 kNm 0.63 kNm 2.950 m 0.12 kN 0.34 kNm 0.258 5.891 m 235.50 kN 1.807 1.245 -2.3968 <= 0.8 1.500 <= 1.5 0.676 1.326 Ja Nein 0.025 0.739 < 1.0	Ksl-3 M-3,beg M-3,end M-3,min x-M3,min VT Ksl-3 Kappa-3 b Kappa bar Beta-M,V,3 M-V,3 Delta-M,3 Beta-M,3 a-3 k-3 a 0.258 0.258 1.300 0.19 kNm 0.75 kNm 1.320 -2.1288 <= 0.8 1.500 <= 1.5	

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
851	0.000	CO99	0.921	1) Design to (28) fulfilled			
Section properties RO 127x5,6							
A	21.36	cm ²		Ksl-2	a	Ksl-3	a
I-2	394.30	cm ⁴		I-3	394.30		
W-2	-62.09	cm ³		W-3	62.09		
Forces and moments							
N	-149.84	kN		M-2,end	0.00	M-3,beg	0.18
M-T	-0.09	kNm		M-2,max	0.42	M-3,end	0.33
V-3	0.74	kN		x-M2,max	2.950	M-3,max	0.33
M-2	-0.88	kNm		V-2	-0.17	x-M3,max	5.890
M-2,beg	0.00	kNm		M-3	-0.35	VT	0.67
Reduction factor Kappa							
s-K,2	5.891	m		Kappa-2 b	0.258	Ksl-3	a
N-Cr,2	235.50	kN		s-K,3	5.891	Kappa-3 b	0.258
Lambda-K,	1.807			N-Cr,3	235.50	Kappa bar	0.258
Ksl-2	a			Lambda-K,	1.807		
Coefficient k-2 and k-3							
Psi-2	0.761			Beta-M,2	1.287	Beta-M,V,3	1.300
Beta-M,Psi	1.267			a-2	-2.2477	M-V,3	0.20
V-load 3	Ja			k-2	1.500	Delta-M,3	0.68
C-load 3	Nein			Psi-3	0.545	Beta-M,3	1.384
Beta-M,V,2	1.300			Beta-M,Psi	1.418	a-3	-1.8950
M-V,2	0.77	kNm		V-load 2	Ja	k-3	1.500
Delta-M,2	1.30	kNm		C-load 2	Nein		
Design							
D-N	0.830			D-M,3	0.026		
D-M,2	0.065			D-NM	0.921		
852	5890.000	CO97	0.697	1) Design to (28) fulfilled			
Section properties RO 127x5,6							
A	21.36	cm ²		Ksl-2	a	Ksl-3	a
I-2	394.30	cm ⁴		I-3	394.30		
W-2	-62.09	cm ³		W-3	62.09		
Forces and moments							
N	-97.67	kN		M-2,end	0.00	M-3,beg	0.47
M-T	0.16	kNm		M-2,max	0.54	M-3,end	0.09
V-3	-1.10	kN		x-M2,max	2.940	VT	0.95
M-2	-1.59	kNm		V-2	0.18		
M-2,beg	0.00	kNm		M-3	-0.52		
Reduction factor Kappa							
s-K,2	5.890	m		Kappa-2 b	0.258	Ksl-3	a
N-Cr,2	235.57	kN		s-K,3	5.890	Kappa-3 b	0.258
Lambda-K,	1.807			N-Cr,3	235.57	Kappa bar	0.258
Ksl-2	a			Lambda-K,	1.807		
Coefficient k-2 and k-3							
Psi-2	0.717			Beta-M,2	1.299	Beta-M,V,3	1.300
Beta-M,Psi	1.298			a-2	-2.2016	M-V,3	0.19
V-load 3	Ja			k-2	1.500	Delta-M,3	0.99
C-load 3	Nein			Psi-3	0.231	Beta-M,3	1.573
Beta-M,V,2	1.300			Beta-M,Psi	1.638	a-3	-1.2113
M-V,2	1.36	kNm		V-load 2	Ja	k-3	1.500
Delta-M,2	2.13	kNm		C-load 2	Nein		
Design							
D-N	0.541			D-M,3	0.038		
D-M,2	0.117			D-NM	0.697		
853	0.000	CO97	0.692	1) Design to (28) fulfilled			
Section properties RO 127x10							
A	36.76	cm ²		Ksl-2	a	Ksl-3	a
I-2	633.55	cm ⁴		I-3	633.55		
W-2	-99.77	cm ³		W-3	99.77		
Forces and moments							
N	-155.22	kN		M-2,end	0.00	M-3,beg	0.00
M-T	-0.54	kNm		M-2,max	0.66	M-3,end	0.74
V-3	2.07	kN		x-M2,max	4.230	VT	1.56
M-2	-3.24	kNm		V-2	-0.38		
M-2,beg	0.00	kNm		M-3	-1.22		
Reduction factor Kappa							
s-K,2	5.636	m		Kappa-2 b	0.261	Ksl-3	a
N-Cr,2	413.44	kN		s-K,3	5.636	Kappa-3 b	0.261
Lambda-K,	1.789			N-Cr,3	413.44	Kappa bar	0.261
Ksl-2	a			Lambda-K,	1.789		
Coefficient k-2 and k-3							
Psi-2	0.404			Beta-M,2	1.390	Beta-M,V,3	1.300
Beta-M,Psi	1.517			a-2	-1.8056	M-V,3	0.36
V-load 3	Ja			k-2	1.500	Delta-M,3	1.96
C-load 3	Nein			Psi-3	0.000	Beta-M,3	1.708
Beta-M,V,2	1.300			Beta-M,Psi	1.800	a-3	-0.6691
M-V,2	2.27	kNm		V-load 2	Ja	k-3	1.330
Delta-M,2	3.90	kNm		C-load 2	Nein		
Design							
D-N	0.494			D-M,3	0.050		
D-M,2	0.149			D-NM	0.692		
854	0.000	CO97	0.764	1) Design to (28) fulfilled			
Section properties RO 168,3x10							
A	49.73	cm ²		Ksl-2	a	Ksl-3	a
I-2	1563.98	cm ⁴		I-3	1563.98		
W-2	-185.86	cm ³		W-3	185.86		
Forces and moments							

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	N	-227.71	kN	M-2,end	0.00	kNm	M-3,beg	0.00	kNm
	M-T	-0.23	kNm	M-2,max	1.29	kNm	M-3,end	1.20	kNm
	V-3	2.19	kN	x-M2,max	2.820	m	VT	2.02	kN
	M-2	-2.54	kNm	V-2	-0.50	kN			
	M-2,beg	0.00	kNm	M-3	-1.46	kNm			
	Reduction factor Kappa								
	s-K,2	5.636	m	Kappa-2 b	0.210		Ksl-3	a	
	N-Cr,2	413.44	kN	s-K,3	5.636	m	Kappa-3 b	0.210	
	Lambda-K, Ksl-2	2.081	a	N-Cr,3	413.44	kN	Kappa bar	0.210	
	Lambda-K,			Lambda-K,	2.081				
	Taper conditions								
	TapCon1-2	1.651	> 1.20	TapCon2-2	0.635	> 0.05			
	TapCon1-3	1.651	> 1.20	TapCon2-3	0.635	> 0.05			
	Coefficient k-2 and k-3								
	Psi-2	0.594		Beta-M,2	1.337		Beta-M,V,3	1.300	
	Beta-M,Psi	1.384		a-2	-2.4085	<= 0.8	M-V,3	0.46	kNm
	V-load 3	Ja		k-2	1.500	<= 1.5	Delta-M,3	2.66	kNm
	C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.714	
	Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	-0.8417	<= 0.8
	M-V,2	2.13	kNm	V-load 2	Ja		k-3	1.500	<= 1.5
	Delta-M,2	3.83	kNm	C-load 2	Nein				
	Design								
	D-N	0.665		D-M,3	0.036				
	D-M,2	0.063		D-NM	0.764	< 1.0			
855	0.000	CO97	0.102	1) Design to (28) fulfilled					
Section properties RO 168,3x10									
A	49.73	cm^2	Ksl-2	a		Ksl-3	a		
I-2	1563.98	cm^4	I-3	1563.98	cm^4				
W-2	-185.86	cm^3	W-3	185.86	cm^3				
Forces and moments									
N	-5.05	kN	M-2,end	0.00	kNm	M-3,beg	2.88	kNm	
M-T	0.64	kNm	M-2,max	1.34	kNm	M-3,end	0.00	kNm	
V-3	2.34	kN	x-M2,max	2.820	m	VT	1.88	kN	
M-2	-2.87	kNm	V-2	0.93	kN				
M-2,beg	0.00	kNm	M-3	2.88	kNm				
Reduction factor Kappa									
s-K,2	5.636	m	Kappa-2 b	0.427		Ksl-3	a		
N-Cr,2	1020.64	kN	s-K,3	5.636	m	Kappa-3 b	0.427		
Lambda-K, Ksl-2	1.324	a	N-Cr,3	1020.64	kN	Kappa bar	0.427		
Lambda-K,			Lambda-K,	1.324					
Coefficient k-2 and k-3									
Psi-2	0.767		Beta-M,2	1.285		Beta-M,V,3	1.300		
Beta-M,Psi	1.263		a-2	-1.5427	<= 0.8	M-V,3	1.10	kNm	
V-load 3	Ja		k-2	1.011	<= 1.5	Delta-M,3	5.28	kNm	
C-load 3	Nein		Psi-3	0.000		Beta-M,3	1.696		
Beta-M,V,2	1.300		Beta-M,Psi	1.800		a-3	-0.4553	<= 0.8	
M-V,2	2.53	kNm	V-load 2	Ja		k-3	1.003	<= 1.5	
Delta-M,2	4.21	kNm	C-load 2	Nein					
Design									
D-N	0.007		D-M,3	0.048					
D-M,2	0.048		D-NM	0.102	< 1.0				
856	0.000	CO97	0.587	1) Design to (28) fulfilled					
Section properties IS 374/200/5/12									
A	65.50	cm^2	Ksl-2	b		Ksl-3	c		
I-2	17517.50	cm^4	I-3	1600.36	cm^4				
W-2	-936.76	cm^3	W-3	160.04	cm^3				
Forces and moments									
N	-297.20	kN	M-2,min	-0.52	kNm	M-3,end	4.92	kNm	
V-3	-3.29	kN	x-M2,min	5.650	m	M-3,max	4.92	kNm	
M-2	18.06	kNm	V-2	0.81	kN	x-M3,max	5.650	m	
M-2,beg	18.06	kNm	M-3	-2.40	kNm				
M-2,end	0.15	kNm	M-3,beg	1.11	kNm				
Reduction factor Kappa									
s-K,2	5.652	m	Kappa-2 b	0.886		Ksl-3	c		
N-Cr,2	11367.29	kN	s-K,3	5.652	m	Kappa-3 b	0.297		
Lambda-K, Ksl-2	0.455	b	N-Cr,3	1038.49	kN	Kappa bar	0.297		
Lambda-K,			Lambda-K,	1.507					
Coefficient k-2 and k-3									
Psi-2	0.008		Beta-M,2	1.783		Beta-M,V,3	1.300		
Beta-M,Psi	1.794		a-2	-0.1063	<= 0.8	M-V,3	0.87	kNm	
V-load 3	Ja		k-2	1.017	<= 1.5	Delta-M,3	7.32	kNm	
C-load 3	Nein		Psi-3	0.226		Beta-M,3	1.602		
Beta-M,V,2	1.300		Beta-M,Psi	1.642		a-3	-0.6876	<= 0.8	
M-V,2	0.40	kNm	V-load 2	Ja		k-3	1.321	<= 1.5	
Delta-M,2	18.58	kNm	C-load 2	Nein					
Design									
D-N	0.467		D-M,3	0.061					
D-M,2	0.060		D-NM	0.587	< 1.0				
857	5650.000	CO97	0.290	1) Design to (28) fulfilled					
Section properties IS 374/200/5/12									
A	65.50	cm^2	Ksl-2	b		Ksl-3	c		
I-2	17517.50	cm^4	I-3	1600.36	cm^4				
W-2	-936.76	cm^3	W-3	160.04	cm^3				
Forces and moments									
N	-63.94	kN	M-2,max	28.57	kNm	M-3,end	4.77	kNm	
V-3	5.07	kN	x-M2,max	5.650	m	M-3,max	4.77	kNm	
M-2	28.57	kNm	V-2	-2.24	kN	x-M3,max	5.650	m	
M-2 beg	0.39	kNm	M-3	4.77	kNm				

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	M-2,end 28.57 kNm Reduction factor Kappa s-K,2 5.652 m N-Cr,2 11367.29 kN Lambda-K, 0.455 Ksl-2 b Coefficient k-2 and k-3 Psi-2 0.014 Beta-M,Psi 1.790 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 0.29 kNm Delta-M,2 28.82 kNm Design D-N 0.100 D-M,2 0.094			M-3,beq 0.57 kNm Kappa-2 b 0.886 s-K,3 5.652 m N-Cr,3 1038.49 kN Lambda-K, 1.507 Beta-M,2 1.785 a-2 -0.1045 <= 0.8 k-2 1.004 <= 1.5 Psi-3 0.119 Beta-M,Psi 1.716 V-load 2 Ja C-load 2 Nein D-M,3 0.096 D-NM 0.290 < 1.0			
858	5650.000	CO97	0.352	1) Design to (28) fulfilled			
	Section properties IS 374/200/5/12 A 65.50 cm ² I-2 17517.50 cm ⁴ W-2 -936.76 cm ³ Forces and moments N -150.26 kN V-3 -2.04 kN M-2 -11.68 kNm M-2,beq 0.23 kNm M-2,end 3.72 kNm Reduction factor Kappa s-K,2 5.652 m N-Cr,2 11367.29 kN Lambda-K, 0.455 Ksl-2 b Coefficient k-2 and k-3 Psi-2 0.150 Beta-M,Psi 1.695 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 1.17 kNm Delta-M,2 15.40 kNm Design D-N 0.236 D-M,2 0.039			Ksl-2 b I-3 1600.36 cm ⁴ W-3 160.04 cm ³ M-2,max 3.72 kNm x-M2,max 5.650 m M-2,min -11.68 kNm x-M2,min 5.650 m V-2 -1.38 kN Kappa-2 b 0.886 s-K,3 5.652 m N-Cr,3 1038.49 kN Lambda-K, 1.507 Beta-M,2 1.665 a-2 -0.2141 <= 0.8 k-2 1.017 <= 1.5 Psi-3 0.480 Beta-M,Psi 1.464 V-load 2 Ja C-load 2 Nein D-M,3 0.078 D-NM 0.352 < 1.0		Ksl-3 c M-3 3.21 kNm M-3,beq 1.54 kNm M-3,end 3.21 kNm M-3,max 3.21 kNm x-M3,max 5.650 m Kappa-3 b 0.297 Kappa bar 0.297 Beta-M,V,3 1.300 M-V,3 0.16 kNm Delta-M,3 3.88 kNm Beta-M,3 1.458 a-3 -1.1216 <= 0.8 k-3 1.265 <= 1.5	
859	5650.000	CO97	0.201	1) Design to (28) fulfilled			
	Section properties IS 374/200/5/12 A 65.50 cm ² I-2 17517.50 cm ⁴ W-2 -936.76 cm ³ Forces and moments N -31.38 kN V-3 3.12 kN M-2 16.08 kNm M-2,beq 0.25 kNm M-2,end 16.08 kNm Reduction factor Kappa s-K,2 5.652 m N-Cr,2 11367.29 kN Lambda-K, 0.455 Ksl-2 b Coefficient k-2 and k-3 Psi-2 0.412 Beta-M,Psi 1.512 V-load 3 Ja C-load 3 Nein Beta-M,V,2 1.300 M-V,2 1.32 kNm Delta-M,2 20.38 kNm Design D-N 0.049 D-M,2 0.053			Ksl-2 b I-3 1600.36 cm ⁴ W-3 160.04 cm ³ M-2,max 16.08 kNm x-M2,max 5.650 m M-2,min -4.30 kNm x-M2,min 5.650 m V-2 -1.96 kN Kappa-2 b 0.886 s-K,3 5.652 m N-Cr,3 1038.49 kN Lambda-K, 1.507 Beta-M,2 1.498 a-2 -0.3662 <= 0.8 k-2 1.006 <= 1.5 Psi-3 0.155 Beta-M,Psi 1.691 V-load 2 Ja C-load 2 Nein D-M,3 0.099 D-NM 0.201 < 1.0		Ksl-3 c M-3 5.02 kNm M-3,beq 0.78 kNm M-3,end 5.02 kNm M-3,max 5.02 kNm x-M3,max 5.650 m Kappa-3 b 0.297 Kappa bar 0.297 Beta-M,V,3 1.300 M-V,3 1.04 kNm Delta-M,3 7.60 kNm Beta-M,3 1.638 a-3 -0.5782 <= 0.8 k-3 1.029 <= 1.5	
860	5650.000	CO97	0.593	1) Design to (28) fulfilled			
	Section properties IS 374/200/5/12 A 65.50 cm ² I-2 17517.50 cm ⁴ W-2 -936.76 cm ³ Forces and moments N -270.38 kN V-3 4.76 kN M-2 26.40 kNm M-2,beq 1.37 kNm M-2,end 26.40 kNm Reduction factor Kappa s-K,2 5.652 m N-Cr,2 11367.29 kN Lambda-K, 0.455 Ksl-2 b Coefficient k-2 and k-3			Ksl-2 b I-3 1600.36 cm ⁴ W-3 160.04 cm ³ M-2,max 26.40 kNm x-M2,max 5.650 m V-2 -1.29 kN M-3 2.82 kNm M-3,beq 3.95 kNm Kappa-2 b 0.886 s-K,3 5.652 m N-Cr,3 1038.49 kN Lambda-K, 1.507		Ksl-3 c M-3,end 2.82 kNm M-3,min -1.20 kNm x-M3,min 5.650 m Kappa-3 b 0.297 Kappa bar 0.297	

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DESIGN BY ELEMENT

Elem.-No.	x [mm]	LS LG	Design- Criterion	Comment on design method			
	Psi-2	0.052	Beta-M,2	1.743	Beta-M,V,3	1.300	
	Beta-M,Psi	1.764	a-2	-0.1436 <= 0.8	M-V,3	0.58 kNm	
	V-load 3	Ja	k-2	1.020 <= 1.5	Delta-M,3	5.15 kNm	
	C-load 3	Nein	Psi-3	0.714	Beta-M,3	1.300	
	Beta-M,V,2	1.300	Beta-M,Psi	1.300	a-3	-1.5956 <= 0.8	
	M-V,2	1.22 kNm	V-load 2	Ja	k-3	1.500 <= 1.5	
	Delta-M,2	26.88 kNm	C-load 2	Nein			
	Design						
	D-N	0.425	D-M,3	0.081			
	D-M,2	0.088	D-NM	0.593 < 1.0			
861	5650.000	CO97	0.347	1) Design to (28) fulfilled			
Section properties IS 374/200/5/12							
A	65.50	cm^2	Ksl-2	b	Ksl-3	c	
I-2	17517.50	cm^4	I-3	1600.36	cm^4		
W-2	-936.76	cm^3	W-3	160.04	cm^3		
Forces and moments							
N	-72.35	kN	M-2,min	-34.77	kNm	M-3,end	5.89 kNm
V-3	-6.40	kN	x-M2,min	5.650	m	M-3,max	5.89 kNm
M-2	-34.77	kNm	V-2	-2.46	kN	x-M3,max	5.650 m
M-2,beg	1.51	kNm	M-3	5.89	kNm		
M-2,end	0.00	kNm	M-3,beg	0.64	kNm		
Reduction factor Kappa							
s-K,2	5.652	m	Kappa-2 b	0.886	Ksl-3	c	
N-Cr,2	11367.29	kN	s-K,3	5.652	m	Kappa-3 b	0.297
Lambda-K,	0.455		N-Cr,3	1038.49	kN	Kappa bar	0.297
Ksl-2	b		Lambda-K,	1.507			
Coefficient k-2 and k-3							
Psi-2	0.007		Beta-M,2	1.780	Beta-M,V,3	1.300	
Beta-M,Psi	1.795		a-2	-0.1099 <= 0.8	M-V,3	1.95 kNm	
V-load 3	Ja		k-2	1.004 <= 1.5	Delta-M,3	10.45 kNm	
C-load 3	Nein		Psi-3	0.109	Beta-M,3	1.645	
Beta-M,V,2	1.300		Beta-M,Psi	1.724	a-3	-0.5566 <= 0.8	
M-V,2	1.13	kNm	V-load 2	Ja	k-3	1.063 <= 1.5	
Delta-M,2	36.28	kNm	C-load 2	Nein			
Design							
D-N	0.114		D-M,3	0.120			
D-M,2	0.114		D-NM	0.347 < 1.0			

DESIGN BY SET OF ELEMENTS

Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method				
Set of elements 5, 89 - Kasten(A) 770/20/12/710/2500/770/20, 94 - Kasten(A) 770/20/12/710/2247/770/20, 95 - Kasten(A) 770/15/12/710/2247/770/15, 91 - Kasten(A) 770/15/12/710/1215/770/15, 92 - Kasten(A) 770/15/12/710/2500/770/20, 94 - Kasten(A) 770/20/12/710/2247/770/15								
644	26831.8	CO97	0.618	1) Design to (28) fulfilled				
Section properties Kasten(A) 770/15/12/710/772/770/15								
A	409.08	cm^2	W-2,max	10691.29	cm^3	W-3,min	-8992.99	cm^3
A-2	178.68	cm^2	Ksl-2	b		W-3,max	8992.99	cm^3
I-2	412683.0	cm^4	A-3	157.21	cm^2	Ksl-3	b	
W-2,min	-10691.2	cm^3	I-3	346230.0	cm^4			
Forces and moments								
N	-2644.88	kN	M-2,end	471.36	kNm	M-3	2.47	kNm
V-3	70.18	kN	M-2,max	522.39	kNm	M-3,beg	29.66	kNm
M-2	471.36	kNm	x-M2,max	4.200	m	M-3,end	2.47	kNm
M-2,beg	504.45	kNm	V-2	1.02	kN			
Limiting plastic and elastic forces and moments								
N-pl,k	14726.90	kN	M-el,2,d	3498.96	kNm			
N-pl,d	13388.09	kN	M-el,3,d	2943.16	kNm			
Reduction factor Kappa								
s-K,2	26.832	m	Kappa-2 b	0.544		Ksl-3	b	
N-Cr,2	11880.50	kN	s-K,3	26.832	m	Kappa-3 b	0.476	
Lambda-K,	1.113		N-Cr,3	9967.46	kN	Kappa bar	0.476	
Ksl-2	b		Lambda-K,	1.216				
Taper conditions								
TapCon1-2	4.084	> 1.20	TapCon2-2	0.339	> 0.05			
TapCon1-3	3.426	> 1.20	TapCon2-3	0.554	> 0.05			
Coefficient k-2 and k-3								
Psi-2	0.934		M-V,2	442.55	kNm	Psi-3	0.083	
Beta-M,Psi	1.146		Delta-M,2	2388.34	kNm	Beta-M,Psi	1.742	
V-load 3	Ja		Beta-M,2	1.174		V-load 2	Nein	
C-load 3	Nein		a-2	-1.7115	<= 0.8	a-3	-0.4187	<= 0.8
Beta-M,V,2	1.300		k-2	1.500	<= 1.5	k-3	1.174	<= 1.5
Design								
D-N	0.415		D-M,3	0.001				
D-M,2	0.202		D-NM	0.618	< 1.0			
Set of elements 6, 92 - Kasten(A) 770/15/12/710/1215/770/15, 90 - Kasten(A) 770/15/12/710/772/770/15, 95 - Kasten(A) 770/15/12/710/2247/770/15, 91 - Kasten(A) 770/15/12/710/1215/770/15, 89 - Kasten(A) 770/20/12/710/2500/770/20, 94 - Kasten(A) 770/20/12/710/2247/770/20								
803	19831.8	CO98	0.885	1) Design to (28) fulfilled				
Section properties BOX(A) 770/15/12/710/1215.15/770/15								
A	515.43	cm^2	W-2,max	19170.80	cm^3	W-3,min	-12593.4	cm^3
A-2	153.07	cm^2	Ksl-2	b		W-3,max	12593.40	cm^3
I-2	1164770.0	cm^4	A-3	263.61	cm^2	Ksl-3	b	
W-2,min	-19170.8	cm^3	I-3	484846.0	cm^4			
Forces and moments								
N	-2454.80	kN	V-2	23.75	kN	x-M3,max	11.812	m

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method					
	V-3	151.05	kN	M-3	-279.69	kNm	M-3,min	-369.79	kNm
	M-2	-2077.54	kNm	M-3,beg	43.06	kNm	x-M3,min	11.812	m
	M-2,beg	728.64	kNm	M-3,end	14.07	kNm			
	M-2,end	335.31	kNm	M-3,max	116.64	kNm			
	Limiting plastic and elastic forces and moments								
	N-pl,k	18555.69	kN	M-el,2,d	6274.10	kNm			
	N-pl,d	16868.80	kN	M-el,3,d	4121.47	kNm			
	Reduction factor Kappa								
	s-K,2	26.832	m	Kappa-2 b	0.511		Ksl-3	b	
	N-Cr,2	11880.50	kN	s-K,3	26.832	m	Kappa-3 b	0.422	
	Lambda-K,	1.250		N-Cr,3	9967.46	kN	Kappa bar	0.422	
	Ksl-2	b		Lambda-K,	1.364				
	Taper conditions								
	TapCon1-2	4.400	> 1.20	TapCon2-2	0.358	> 0.05			
	TapCon1-3	3.691	> 1.20	TapCon2-3	0.548	> 0.05			
	Coefficient k-2 and k-3								
	Psi-2	0.460		Beta-M,2	1.449		Beta-M,V,3	1.300	
	Beta-M,Psi	1.478		a-2	-1.2142	<= 0.8	M-V,3	87.60	kNm
	V-load 3	Ja		k-2	1.346	<= 1.5	Delta-M,3	486.43	kNm
	C-load 3	Nein		Psi-3	0.327		Beta-M,3	1.522	
	Beta-M,V,2	1.300		Beta-M,Psi	1.571		a-3	-1.1348	<= 0.8
	M-V,2	630.66	kNm	V-load 2	Ja		k-3	1.391	<= 1.5
	Delta-M,2	3905.96	kNm	C-load 2	Nein				
	Design								
	D-N	0.345		D-M,3	0.094				
D-M,2	0.446		D-NM	0.885	< 1.0				
Set of elements 9, 19 - HE-M 600									
515	2791.000	CO97	0.704	1) Design to (28) fulfilled					
Section dimensions HE-M 600									
b	305.0	mm	s	21.0	mm				
t	40.0	mm	h	620.0	mm				
Section properties HE-M 600									
A	364.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	237400.0	cm^4	I-3	18980.00	cm^4				
W-2	-7660.00	cm^3	W-3	1240.00	cm^3				
Forces and moments									
N	-3688.29	kN	M-2,end	17.88	kNm	M-3	31.71	kNm	
V-3	-414.69	kN	M-2,max	292.64	kNm	M-3,beg	8.22	kNm	
M-2	-574.82	kNm	x-M2,max	0.660	m	M-3,end	31.71	kNm	
M-2,beg	213.30	kNm	V-2	-10.99	kN				
Limiting plastic and elastic forces and moments									
N-pl,k	13104.00	kN	M-el,2,d	2506.91	kNm				
N-pl,d	11912.70	kN	M-el,3,d	405.82	kNm				
Reduction factor Kappa									
s-K,2	2.786	m	Kappa-2 b	0.971		Ksl-3	b		
N-Cr,2	633925.0	kN	s-K,3	2.786	m	Kappa-3 b	0.785		
Lambda-K,	0.144	< 0.2	N-Cr,3	50681.89	kN	Kappa bar	0.785		
Ksl-2	a		Lambda-K,	0.508					
Coefficient k-2 and k-3									
Psi-2	0.317		Beta-M,2	1.535		Beta-M,V,3	1.300		
Beta-M,Psi	1.578		a-2	0.0125	<= 0.8	M-V,3	2.70	kNm	
V-load 3	Ja		k-2	0.996	<= 1.5	Delta-M,3	42.00	kNm	
C-load 3	Nein		Psi-3	0.620		Beta-M,3	1.362		
Beta-M,V,2	1.300		Beta-M,Psi	1.366		a-3	-0.0923	<= 0.8	
M-V,2	134.96	kNm	V-load 2	Ja		k-3	1.036	<= 1.5	
Delta-M,2	867.46	kNm	C-load 2	Nein					
Design									
D-N	0.394		D-M,3	0.081					
D-M,2	0.228		D-NM	0.704	< 1.0				
Set of elements 10, 19 - HE-M 600									
514	2791.000	CO97	0.793	1) Design to (28) fulfilled					
Section dimensions HE-M 600									
b	305.0	mm	s	21.0	mm				
t	40.0	mm	h	620.0	mm				
Section properties HE-M 600									
A	364.00	cm^2	Ksl-2	a		Ksl-3	b		
I-2	237400.0	cm^4	I-3	18980.00	cm^4				
W-2	-7660.00	cm^3	W-3	1240.00	cm^3				
Forces and moments									
N	-3910.32	kN	M-2,end	30.12	kNm	M-3	-35.81	kNm	
V-3	-534.35	kN	M-2,max	408.12	kNm	M-3,beg	6.03	kNm	
M-2	-711.07	kNm	x-M2,max	0.660	m	M-3,end	8.81	kNm	
M-2,beg	296.63	kNm	V-2	13.01	kN				
Limiting plastic and elastic forces and moments									
N-pl,k	13104.00	kN	M-el,2,d	2506.91	kNm				
N-pl,d	11912.70	kN	M-el,3,d	405.82	kNm				
Reduction factor Kappa									
s-K,2	2.786	m	Kappa-2 b	0.971		Ksl-3	b		
N-Cr,2	633925.0	kN	s-K,3	2.786	m	Kappa-3 b	0.785		
Lambda-K,	0.144	< 0.2	N-Cr,3	50681.89	kN	Kappa bar	0.785		
Ksl-2	a		Lambda-K,	0.508					
Coefficient k-2 and k-3									
Psi-2	0.268		Beta-M,2	1.555		Beta-M,V,3	1.300		
Beta-M,Psi	1.613		a-2	0.0182	<= 0.8	M-V,3	1.64	kNm	
V-load 3	Ja		k-2	0.994	<= 1.5	Delta-M,3	44.62	kNm	
C-load 3	Nein		Psi-3	0.684		Beta-M,3	1.320		
Beta-M,V,2	1.300		Beta-M,Psi	1.321		a-3	-0.1347	<= 0.8	
M-V,2	207.62	kNm	V-load 2	Ja		k-3	1.056	<= 1.5	
Delta-M,2	1119.19	kNm	C-load 2	Nein					

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Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	Design						
	D-N	0.418	D-M,3	0.093			
	D-M,2	0.282	D-NM	0.793	< 1.0		
Set of elements 11, 19 - HE-M 600, 17 - HE-B 600							
728	0.000	CO97	0.481	1) Design to (28) fulfilled			
	Section dimensions HE-M 600						
	b	305.0 mm	s	21.0 mm			
	t	40.0 mm	h	620.0 mm			
	Section properties HE-M 600						
	A	364.00 cm^2	Ksl-2	a	Ksl-3	b	
	I-2	237400.0 cm^4	I-3	18980.00 cm^4			
	W-2	-7660.00 cm^3	W-3	1240.00 cm^3			
	Forces and moments						
	N	-2571.20 kN	M-2,beg	0.00 kNm	M-3	67.68 kNm	
	V-3	48.75 kN	M-2,end	15.18 kNm	M-3,beg	67.68 kNm	
	M-2	-141.35 kNm	V-2	25.33 kN	M-3,end	4.41 kNm	
	Limiting plastic and elastic forces and moments						
	N-pl,k	13104.00 kN	M-el,2,d	2506.91 kNm			
	N-pl,d	11912.70 kN	M-el,3,d	405.82 kNm			
	Reduction factor Kappa						
	s-K,2	2.500 m	Kappa-2 b	0.974	Ksl-3	b	
	N-Cr,2	567068.0 kN	s-K,3	2.500 m	Kappa-3 b	0.797	
	Lambda-K,	0.152 < 0.2	N-Cr,3	44868.00 kN	Kappa bar	0.797	
	Ksl-2	a	Lambda-K,	0.540			
	Coefficient k-2 and k-3						
	Psi-2	0.343	Beta-M,2	1.549	Beta-M,V,3	1.300	
	Beta-M,Psi	1.560	a-2	0.0092 <= 0.8	M-V,3	0.05 kNm	
	V-load 3	Ja	k-2	0.998 <= 1.5	Delta-M,3	69.36 kNm	
	C-load 3	Nein	Psi-3	0.065	Beta-M,3	1.754	
	Beta-M,V,2	1.300	Beta-M,Psi	1.754	a-3	0.2909 <= 0.8	
	M-V,2	6.16 kNm	V-load 2	Ja	k-3	0.921 <= 1.5	
	Delta-M,2	156.53 kNm	C-load 2	Nein			
	Design						
	D-N	0.271	D-M,3	0.154			
	D-M,2	0.056	D-NM	0.481	< 1.0		
Set of elements 12, 19 - HE-M 600, 17 - HE-B 600							
725	0.000	CO97	0.504	1) Design to (28) fulfilled			
	Section dimensions HE-M 600						
	b	305.0 mm	s	21.0 mm			
	t	40.0 mm	h	620.0 mm			
	Section properties HE-M 600						
	A	364.00 cm^2	Ksl-2	a	Ksl-3	b	
	I-2	237400.0 cm^4	I-3	18980.00 cm^4			
	W-2	-7660.00 cm^3	W-3	1240.00 cm^3			
	Forces and moments						
	N	-2793.78 kN	M-2,beg	0.00 kNm	M-3	-65.10 kNm	
	V-3	53.63 kN	M-2,end	14.46 kNm	M-3,beg	0.00 kNm	
	M-2	-159.67 kNm	V-2	-24.61 kN	M-3,end	1.41 kNm	
	Limiting plastic and elastic forces and moments						
	N-pl,k	13104.00 kN	M-el,2,d	2506.91 kNm			
	N-pl,d	11912.70 kN	M-el,3,d	405.82 kNm			
	Reduction factor Kappa						
	s-K,2	2.500 m	Kappa-2 b	0.974	Ksl-3	b	
	N-Cr,2	567068.0 kN	s-K,3	2.500 m	Kappa-3 b	0.797	
	Lambda-K,	0.152 < 0.2	N-Cr,3	44868.00 kN	Kappa bar	0.797	
	Ksl-2	a	Lambda-K,	0.540			
	Coefficient k-2 and k-3						
	Psi-2	0.314	Beta-M,2	1.571	Beta-M,V,3	1.300	
	Beta-M,Psi	1.580	a-2	0.0158 <= 0.8	M-V,3	0.16 kNm	
	V-load 3	Ja	k-2	0.996 <= 1.5	Delta-M,3	66.51 kNm	
	C-load 3	Nein	Psi-3	0.064	Beta-M,3	1.754	
	Beta-M,V,2	1.300	Beta-M,Psi	1.755	a-3	0.2913 <= 0.8	
	M-V,2	5.59 kNm	V-load 2	Ja	k-3	0.914 <= 1.5	
	Delta-M,2	174.13 kNm	C-load 2	Nein			
	Design						
	D-N	0.294	D-M,3	0.147			
	D-M,2	0.063	D-NM	0.504	< 1.0		
Set of elements 13, 19 - HE-M 600							
376	2610.000	CO97	0.702	1) Design to (28) fulfilled			
	Section dimensions HE-M 600						
	b	305.0 mm	s	21.0 mm			
	t	40.0 mm	h	620.0 mm			
	Section properties HE-M 600						
	A	364.00 cm^2	Ksl-2	a	Ksl-3	b	
	I-2	237400.0 cm^4	I-3	18980.00 cm^4			
	W-2	-7660.00 cm^3	W-3	1240.00 cm^3			
	Forces and moments						
	N	-4461.60 kN	M-2,max	24.72 kNm	M-3,end	24.18 kNm	
	V-3	-25.43 kN	x-M2,max	1.000 m	M-3,max	24.18 kNm	
	M-2	-81.18 kNm	V-2	35.31 kN	x-M3,max	2.610 m	
	M-2,beg	17.47 kNm	M-3	-84.17 kNm	M-3,min	-84.17 kNm	
	M-2,end	18.06 kNm	M-3,beg	9.90 kNm	x-M3,min	2.610 m	
	Limiting plastic and elastic forces and moments						
	N-pl,k	13104.00 kN	M-el,2,d	2506.91 kNm			
	N-pl,d	11912.70 kN	M-el,3,d	405.82 kNm			
	Reduction factor Kappa						
	s-K,2	2.611 m	Kappa-2 b	0.973	Ksl-3	b	
	N-Cr,2	721748.0 kN	s-K,3	2.611 m	Kappa-3 b	0.800	

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DESIGN BY SET OF ELEMENTS

Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
	Lambda-K,	0.135	< 0.2	N-Cr,3	57703.30 kN	Kappa bar	0.800
	Ksl-2	a		Lambda-K,	0.477		
	Coefficient k-2 and k-3			Beta-M,2	1.133	Beta-M,V,3	1.300
	Psi-2	0.967		a-2	-0.0873	M-V,3	9.68 kNm
	Beta-M,Psi	1.123		k-2	1.034	Delta-M,3	108.35 kNm
	V-load 3	Ja		Psi-3	0.409	Beta-M,3	1.494
	C-load 3	Nein		Beta-M,Psi	1.513	a-3	0.0748
	Beta-M,V,2	1.300		V-load 2	Ja	k-3	0.965
	M-V,2	7.02 kNm		C-load 2	Nein		
	Delta-M,2	117.60 kNm					
	Design			D-M,3	0.200		
	D-N	0.468		D-NM	0.702		
	D-M,2	0.033					
Set of elements 14, 19 - HE-M 600							
375	2610.000	CO97	0.798	1) Design to (28) fulfilled			
Section dimensions HE-M 600				s	21.0 mm		
				h	620.0 mm		
Section properties HE-M 600				Ksl-2	a	Ksl-3	b
A				I-3	18980.00 cm ⁴		
I-2				W-3	1240.00 cm ³		
W-2							
Forces and moments				M-2,max	21.61 kNm	M-3,end	95.13 kNm
N				x-M2,max	1.000 m	M-3,max	95.13 kNm
V-3				V-2	-41.39 kN	x-M3,max	2.610 m
M-2				M-3	95.13 kNm	M-3,min	-20.34 kNm
M-2,beg				M-3,beg	4.34 kNm	x-M3,min	2.610 m
M-2,end							
Limiting plastic and elastic forces and moments				M-el,2,d	2506.91 kNm		
N-pl,k				M-el,3,d	405.82 kNm		
N-pl,d							
Reduction factor Kappa				Kappa-2 b	0.973	Ksl-3	b
s-K,2				s-K,3	2.611 m	Kappa-3 b	0.800
N-Cr,2				N-Cr,3	57703.30 kN	Kappa bar	0.800
Lambda-K,				Lambda-K,	0.477		
Ksl-2							
Coefficient k-2 and k-3				Beta-M,2	1.128	Beta-M,V,3	1.300
Psi-2				a-2	-0.0889	M-V,3	10.83 kNm
Beta-M,Psi				k-2	1.038	Delta-M,3	115.47 kNm
V-load 3				Psi-3	0.665	Beta-M,3	1.331
C-load 3				Beta-M,Psi	1.335	a-3	-0.0804
Beta-M,V,2				V-load 2	Ja	k-3	1.042
M-V,2				C-load 2	Nein		
Delta-M,2							
Design				D-M,3	0.244		
D-N				D-NM	0.798		
D-M,2							
Set of elements 15, 19 - HE-M 600							
431	518.003	CO97	0.506	1) Design to (28) fulfilled			
Section dimensions HE-M 600				s	21.0 mm		
				h	620.0 mm		
Section properties HE-M 600				Ksl-2	a	Ksl-3	b
A				I-3	18980.00 cm ⁴		
I-2				W-3	1240.00 cm ³		
W-2							
Forces and moments				M-2,end	292.71 kNm	M-3	38.32 kNm
N				M-2,max	297.54 kNm	M-3,beg	46.11 kNm
V-3				x-M2,max	1.508 m	M-3,end	8.89 kNm
M-2				V-2	15.60 kN		
M-2,beg							
Limiting plastic and elastic forces and moments				M-el,2,d	2506.91 kNm		
N-pl,k				M-el,3,d	405.82 kNm		
N-pl,d							
Reduction factor Kappa				Kappa-2 b	0.974	Ksl-3	b
s-K,2				s-K,3	2.499 m	Kappa-3 b	0.810
N-Cr,2				N-Cr,3	62991.50 kN	Kappa bar	0.810
Lambda-K,				Lambda-K,	0.456		
Ksl-2							
Coefficient k-2 and k-3				M-V,2	214.25 kNm	Psi-3	0.512
Psi-2				Delta-M,2	362.27 kNm	Beta-M,Psi	1.441
Beta-M,Psi				Beta-M,2	1.353	V-load 2	Nein
V-load 3				a-2	-0.0207	a-3	0.0472
C-load 3				k-2	1.005	k-3	0.986
Beta-M,V,2							
M-V,2							
Delta-M,2							
Design				D-M,3	0.093		
D-N				D-NM	0.506		
D-M,2							
Set of elements 16, 19 - HE-M 600							
430	518.003	CO97	0.596	1) Design to (28) fulfilled			
Section dimensions HE-M 600				s	21.0 mm		
				h	620.0 mm		
Section properties HE-M 600				Ksl-2	a	Ksl-3	b
A				I-3	18980.00 cm ⁴		
I-2				W-3	1240.00 cm ³		
W-2							
Forces and moments							

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DESIGN BY SET OF ELEMENTS

Elem.-No.	x [mm]	LS LG	Design-Criterion	Comment on design method			
N	-3122.21	kN	M-2.end	361.20	kNm	M-3	-47.25 kNm
V-3	20.25	kN	M-2,max	386.04	kNm	M-3,beg	15.90 kNm
M-2	386.04	kNm	x-M2,max	0.518	m	M-3,end	9.84 kNm
M-2,beg	34.41	kNm	V-2	-18.75	kN		
Limiting plastic and elastic forces and moments							
N-pl,k	13104.00	kN	M-el,2,d	2506.91	kNm		
N-pl,d	11912.70	kN	M-el,3,d	405.82	kNm		
Reduction factor Kappa							
s-K,2	2.499	m	Kappa-2 b	0.974		Ksl-3	b
N-Cr,2	787892.0	kN	s-K,3	2.499	m	Kappa-3 b	0.810
Lambda-K,	0.129	< 0.2	N-Cr,3	62991.50	kN	Kappa bar	0.810
Ksl-2	a		Lambda-K,	0.456			
Coefficient k-2 and k-3							
Psi-2	0.489		M-V,2	283.89	kNm	Psi-3	0.619
Beta-M,Psi	1.458		Delta-M,2	450.97	kNm	Beta-M,Psi	1.367
V-load 3	Ja		Beta-M,2	1.359		V-load 2	Nein
C-load 3	Nein		a-2	-0.0192	<= 0.8	a-3	-0.0209 <= 0.8
Beta-M,V,2	1.300		k-2	1.005	<= 1.5	k-3	1.007 <= 1.5
Design							
D-N	0.324		D-M,3	0.117			
D-M,2	0.155		D-NM	0.596	< 1.0		

PARTS' LIST BY ELEMENT

Pos.-No.	Number Elements	Section	Length [m]	T-Length [m]	S-Weight [kg/m]	Weight [kg]	T-Weight [kg]
1	2	32 - IS 618/300/12/15	0.425	0.850	126.040	53.567	107.134
2	1	32 - IS 618/300/12/15	2.600	2.600	126.040	327.703	327.703
3	2	17 - HE-B 600	0.150	0.300	211.950	31.792	63.585
4	2	17 - HE-B 600	1.081	2.162	211.950	229.118	458.236
5	2	17 - HE-B 600	1.125	2.250	211.950	238.444	476.888
6	26	22 - Kasten(A) 374/15/12/35	0.425	11.050	186.045	79.069	2055.800
7	12	22 - Kasten(A) 374/15/12/35	1.300	15.600	186.045	241.858	2902.300
8	6	17 - HE-B 600	2.500	15.000	211.950	529.875	3179.250
9	9	29 - RO 127x10	2.655	23.895	28.854	76.606	689.457
10	2	17 - HE-B 600	0.625	1.250	211.950	132.469	264.938
11	5	41 - HE-A 160	0.831	4.156	30.458	25.317	126.586
12	14	33 - IS 302/250/15/20	7.433	104.062	109.351	812.806	11379.300
13	4	41 - HE-A 160	1.788	7.150	30.458	54.446	217.783
14	4	41 - HE-A 160	0.831	3.325	30.458	25.317	101.269
15	12	29 - RO 127x10	2.469	29.629	28.854	71.244	854.926
16	8	17 - HE-B 600	0.175	1.400	211.950	37.091	296.729
17	12	30 - IS 302/250/8/20	5.500	66.000	94.954	522.245	6266.940
18	10	22 - Kasten(A) 374/15/12/35	0.219	2.190	186.045	40.744	407.439
19	1	22 - Kasten(A) 374/15/12/35	2.162	2.162	186.045	402.229	402.229
20	4	97 - IS 374/260/8/20	1.300	5.200	102.615	133.400	533.599
21	6	17 - HE-B 600	2.325	13.950	211.950	492.784	2956.700
22	6	41 - HE-A 160	0.831	4.987	30.458	25.317	151.903
23	4	18 - HE-B 300	5.000	20.000	116.965	584.825	2339.300
24	1	28 - RO 127x5,6	5.636	5.636	16.766	94.486	94.486
25	4	41 - HE-A 160	1.788	7.150	30.458	54.446	217.783
26	2	18 - HE-B 300	1.500	3.000	116.965	175.447	350.895
27	2	17 - HE-B 600	3.454	6.908	211.950	732.075	1464.150
28	2	44 - RO 168,3x10	3.572	7.143	39.039	139.435	278.870
29	2	44 - RO 168,3x10	5.636	11.271	39.039	220.009	440.018
30	2	21 - HE-M 300	3.500	7.000	237.855	832.492	1664.980
31	2	41 - HE-A 160	0.816	1.632	30.458	24.847	49.694
32	1	41 - HE-A 160	1.818	1.818	30.458	55.386	55.386
33	2	17 - HE-B 600	1.600	3.200	211.950	339.120	678.240
34	2	44 - RO 168,3x10	3.205	6.409	39.039	125.104	250.208
35	2	40 - Venlo TREAGER 1A	0.400	0.800	526.586	210.634	421.269
36	2	40 - Venlo TREAGER 1A	0.383	0.766	526.586	201.682	403.365
37	1	40 - Venlo TREAGER 1A	1.834	1.834	526.586	965.758	965.758
38	1	40 - Venlo TREAGER 1A / 3	5.623	5.623	449.734	2528.650	2528.650
39	1	39 - Venlo TREAGER 2A / 4	5.623	5.623	449.734	2528.650	2528.650
40	2	14 - TO 600/600/12/12/12/12	1.048	2.096	216.545	226.939	453.878
41	2	19 - HE-M 600	1.499	2.998	285.740	428.324	856.649
42	2	27 - Kasten(A) 1070/10/15/1	4.922	9.844	335.195	1649.770	3299.540
43	8	21 - HE-M 300	2.500	20.000	237.855	594.638	4757.100
44	3	44 - RO 168,3x10	2.818	8.453	39.039	110.005	330.014
45	4	19 - HE-M 600	0.355	1.420	285.740	101.438	405.750
46	2	24 - Venlo TREAGER 3	0.808	1.616	298.818	241.445	482.890
47	2	24 - Venlo TREAGER 3	0.917	1.834	298.818	274.016	548.032
48	2	19 - HE-M 600	0.355	0.710	285.740	101.438	202.875
49	4	42 - IS 302/450/15/20	7.433	29.732	172.150	1279.600	5118.400
50	4	41 - HE-A 160	1.300	5.200	30.458	39.595	158.382
51	2	14 - TO 600/600/12/12/12/12	12.359	24.717	216.545	2676.190	5352.370
52	2	19 - HE-M 600	2.737	5.474	285.740	782.070	1564.140
53	2	44 - RO 168,3x10	3.235	6.470	39.039	126.301	252.602
54	2	98 - Kasten(A) 480/35/15/35	0.425	0.850	381.510	162.142	324.284
55	2	43 - Kasten(A) 480/30/15/35	1.300	2.600	346.185	450.040	900.081
56	1	44 - RO 168,3x10	2.600	2.600	39.039	101.502	101.502
57	2	19 - HE-M 600	1.249	2.498	285.740	356.889	713.779
58	2	99 - RO 168,3x12,5	1.332	2.665	48.028	63.987	127.974
59	1	44 - RO 168,3x10	2.118	2.118	39.039	82.677	82.677
60	2	14 - TO 600/600/12/12/12/12	15.472	30.944	216.545	3350.380	6700.770
61	2	14 - TO 600/600/12/12/12/12	5.489	10.978	216.545	1188.570	2377.140
62	2	19 - HE-M 600	1.626	3.252	285.740	464.613	929.226

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PARTS' LIST BY ELEMENT

Pos.- No.	Number Elements	Section	Length [m]	T-Length [m]	S-Weight [kg/m]	Weight [kg]	T-Weight [kg]
63	2	99 - RO 168,3x12,5	1.971	3.942	48.028	94.664	189.328
64	2	19 - HE-M 600	0.222	0.444	285.740	63.434	126.869
65	1	41 - HE-A 160	2.300	2.300	30.458	70.046	70.046
66	2	41 - HE-A 160	0.575	1.150	30.458	17.517	35.034
67	2	99 - RO 168,3x12,5	1.652	3.303	48.028	79.327	158.655
68	2	19 - HE-M 600	1.548	3.096	285.740	442.326	884.651
69	2	65 - Flachstahl 35/666 / 66 -	0.350	0.700	160.179	56.065	112.129
70	2	65 - Flachstahl 35/666 / 66 -	0.350	0.700	160.179	56.065	112.129
71	6	52 - Rundstahl 140	0.067	0.405	120.841	8.157	48.940
72	10	52 - Rundstahl 140	0.068	0.675	120.841	8.157	81.569
73	2	64 - Flachstahl 40/953 / 63 -	0.350	0.700	229.377	80.282	160.564
74	4	52 - Rundstahl 140	0.025	0.100	120.841	3.021	12.084
75	16	55 - Flachstahl 350/40	0.198	3.168	109.900	21.760	348.163
76	4	53 - Flachstahl 740/15 / 54 -	0.135	0.540	64.174	8.664	34.654
77	4	56 - Flachstahl 200/60	1.000	4.000	94.200	94.200	376.800
78	4	53 - Flachstahl 740/15 / 54 -	0.185	0.740	64.174	11.872	47.489
79	4	52 - Rundstahl 140	0.118	0.470	120.841	14.199	56.796
80	4	88 - Venlo TRAEGER5	0.355	1.420	361.571	128.358	513.431
81	2	52 - Rundstahl 140	0.055	0.110	120.841	6.646	13.293
82	1	4 - Kasten(A) 770/15/10/710/	15.099	15.099	394.305	5953.780	5953.780
83	1	50 - Kasten(A) 700/8/8/650/1	4.967	4.967	197.192	979.527	979.527
84	1	5 - Kasten(A) 770/15/10/710/	11.099	11.099	524.851	5825.540	5825.540
85	1	6 - Kasten(A) 770/15/10/710/	1.725	1.725	568.811	981.199	981.199
86	2	7 - Kasten(A) 770/25/12/710/	1.720	3.440	771.341	1326.710	2653.410
87	1	50 - Kasten(A) 700/8/8/650/1	3.794	3.794	213.520	810.045	810.045
88	2	7 - Kasten(A) 770/25/12/710/	3.880	7.760	771.341	2992.800	5985.610
89	1	60 - Kasten(A) 700/8/8/650/7	0.370	0.370	175.840	65.061	65.061
90	1	60 - Kasten(A) 700/8/8/650/7	1.442	1.442	175.840	253.561	253.561
91	4	7 - Kasten(A) 770/25/12/710/	0.400	1.600	771.341	308.536	1234.150
92	4	23 - Kasten(A) 570/10/15/54	0.808	3.232	256.695	207.410	829.638
93	4	7 - Kasten(A) 770/25/12/710/	0.383	1.532	771.341	295.424	1181.690
94	4	26 - Kasten(A) 1066/10/15/1	4.240	16.960	334.567	1418.560	5674.260
95	2	7 - Kasten(A) 770/25/12/710/	1.834	3.668	771.341	1414.640	2829.280
96	1	23 - Kasten(A) 570/10/15/54	1.834	1.834	256.695	470.779	470.779
97	1	50 - Kasten(A) 700/8/8/650/1	8.766	8.766	213.520	1871.790	1871.790
98	1	5 - Kasten(A) 770/15/10/710/	1.725	1.725	568.811	981.199	981.199
99	1	4 - Kasten(A) 770/15/10/710/	11.099	11.099	524.851	5825.540	5825.540
100	1	51 - Kasten(A) 700/8/8/650/7	5.244	5.244	197.192	1034.130	1034.130
101	1	2 - Kasten(A) 770/15/10/710/	15.099	15.099	394.306	5953.780	5953.780
102	4	53 - Flachstahl 740/15 / 54 -	0.185	0.740	64.174	11.872	47.488
103	4	53 - Flachstahl 740/15 / 54 -	0.135	0.540	64.174	8.663	34.654
104	4	52 - Rundstahl 140	0.025	0.100	120.841	3.021	12.085
105	2	19 - HE-M 600	1.231	2.462	285.740	351.762	703.524
106	2	29 - RO 127x10	1.304	2.608	28.854	37.632	75.265
107	4	21 - HE-M 300	5.285	21.140	237.855	1257.060	5028.250
108	2	29 - RO 127x10	2.178	4.356	28.854	62.850	125.701
109	2	19 - HE-M 600	0.538	1.077	285.740	153.863	307.726
110	2	34 - IS 292/250/10/15	7.628	15.255	79.442	605.957	1211.910
111	2	19 - HE-M 600	1.183	2.366	285.740	338.014	676.028
112	2	19 - HE-M 600	0.460	0.920	285.740	131.440	262.881
113	8	22 - Kasten(A) 374/15/12/35	1.081	8.648	186.045	201.115	1608.920
114	8	28 - RO 127x5,6	2.600	20.800	16.766	43.591	348.730
115	6	19 - HE-M 600	2.500	15.000	285.740	714.350	4286.100
116	3	29 - RO 127x10	2.655	7.965	28.854	76.606	229.819
117	1	41 - HE-A 160	0.831	0.831	30.458	25.317	25.317
118	1	41 - HE-A 160	1.788	1.788	30.458	54.446	54.446
119	2	21 - HE-M 300	5.286	10.572	237.855	1257.300	2514.600
120	2	34 - IS 292/250/10/15	7.628	15.257	79.442	606.012	1212.020
121	2	19 - HE-M 600	1.000	2.000	285.740	285.740	571.480
122	1	29 - RO 127x10	2.740	2.740	28.854	79.063	79.063
123	1	29 - RO 127x10	2.740	2.740	28.854	79.063	79.063
124	2	19 - HE-M 600	1.611	3.222	285.740	460.328	920.655
125	2	19 - HE-M 600	0.175	0.350	285.740	50.004	100.008
126	8	31 - IS 292/250/8/15	5.500	44.000	75.329	414.307	3314.460
127	2	19 - HE-M 600	0.176	0.352	285.740	50.290	100.581
128	2	19 - HE-M 600	2.324	4.648	285.740	664.060	1328.120
129	2	29 - RO 127x10	2.468	4.936	28.854	71.217	142.433
130	2	21 - HE-M 300	5.286	10.572	237.855	1257.300	2514.600
131	2	34 - IS 292/250/10/15	7.628	15.257	79.442	606.012	1212.020
132	4	19 - HE-M 600	2.786	11.144	285.740	796.071	3184.290
133	4	29 - RO 127x10	2.926	11.703	28.854	84.423	337.690
134	2	19 - HE-M 600	0.518	1.036	285.740	148.014	296.028
135	2	29 - RO 127x10	2.654	5.308	28.854	76.579	153.158
136	2	21 - HE-M 300	5.285	10.570	237.855	1257.060	2514.130
137	2	33 - IS 302/250/15/20	7.628	15.255	109.351	834.089	1668.180
138	2	29 - RO 127x10	2.741	5.482	28.854	79.091	158.181
139	2	19 - HE-M 600	1.981	3.962	285.740	566.051	1132.100
140	4	19 - HE-M 600	0.174	0.696	285.740	49.719	198.875
141	2	25 - IS 374/200/5/12	1.300	2.600	51.418	66.843	133.686
142	2	19 - HE-M 600	0.175	0.350	285.740	50.004	100.009
143	2	19 - HE-M 600	0.343	0.686	285.740	98.009	196.018
144	4	21 - HE-M 300	5.286	21.144	237.855	1257.300	5029.210
145	2	93 - IS 302/250/15/25	7.628	15.257	127.798	974.888	1949.780
146	2	29 - RO 127x10	1.741	3.481	28.854	50.224	100.447
147	2	29 - RO 127x10	2.626	5.251	28.854	75.759	151.517
148	2	41 - HE-A 160	0.923	1.845	30.458	28.103	56.206
149	1	41 - HE-A 160	1.605	1.605	30.458	48.874	48.874
150	2	33 - IS 302/250/15/20	7.628	15.257	109.350	834.164	1668.330
151	2	19 - HE-M 600	2.610	5.220	285.740	745.782	1491.560
152	2	29 - RO 127x10	2.768	5.537	28.854	79.876	159.752
153	2	19 - HE-M 600	0.176	0.352	285.740	50.290	100.580

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 610
		17.05.2009

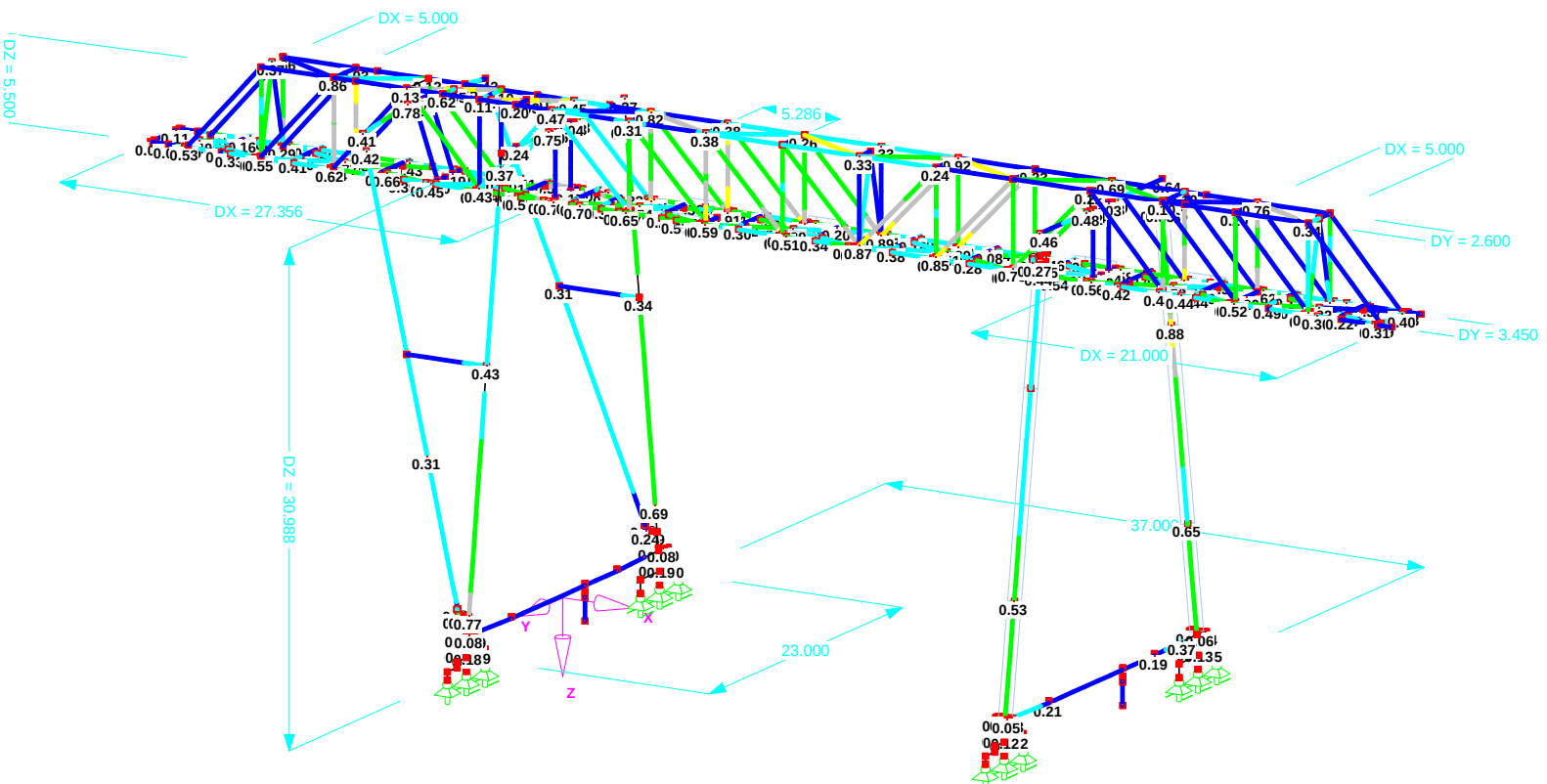
PARTS' LIST BY ELEMENT

Pos.- No.	Number Elements	Section	Length [m]	T-Length [m]	S-Weight [kg/m]	Weight [kg]	T-Weight [kg]
154	4	19 - HE-M 600	2.325	9.300	285.740	664.346	2657.380
155	2	33 - IS 302/250/15/20	7.628	15.255	109.351	834.089	1668.180
156	2	19 - HE-M 600	0.661	1.322	285.740	188.874	377.748
157	2	29 - RO 127x10	2.926	5.852	28.854	84.423	168.845
158	2	19 - HE-M 600	2.125	4.250	285.740	607.198	1214.400
159	8	69 - Rundstahl 140	0.025	0.200	120.841	3.021	24.170
160	16	72 - Flachstahl 350/40	0.198	3.168	109.900	21.760	348.163
161	8	69 - Rundstahl 140	0.067	0.540	120.841	8.156	65.252
162	8	70 - Flachstahl 740/15 / 71 -	0.135	1.080	64.174	8.664	69.309
163	4	73 - Flachstahl 200/60	1.000	4.000	94.200	94.200	376.800
164	4	70 - Flachstahl 740/15 / 71 -	0.185	0.740	64.174	11.872	47.488
165	4	69 - Rundstahl 140	0.068	0.270	120.841	8.157	32.630
166	2	69 - Rundstahl 140	0.118	0.235	120.841	14.199	28.398
167	2	69 - Rundstahl 140	0.055	0.110	120.841	6.646	13.293
168	2	92 - Kasten(A) 770/15/12/71	7.000	14.000	362.858	2540.010	5080.020
169	1	67 - Kasten(A) 700/8/8/650/1	5.054	5.054	197.192	996.677	996.677
170	4	81 - Flachstahl 500/35 / 82 -	0.270	1.080	158.805	42.878	171.510
171	1	80 - Rundstahl 220	0.057	0.057	298.404	17.158	17.158
172	4	83 - Flachstahl 656/70 / 84 -	0.270	1.080	317.611	85.755	343.020
173	1	80 - Rundstahl 220	0.065	0.065	298.404	19.247	19.247
174	2	86 - Pi(A) 656/35/12/435/376	0.276	0.551	205.906	56.778	113.556
175	2	89 - Kasten(A) 770/20/12/71	7.000	14.000	681.411	4769.880	9539.760
176	2	87 - Kasten(A) 770/15/10/71	1.370	2.740	434.105	594.723	1189.450
177	2	79 - Kasten(A) 770/20/15/71	0.465	0.930	628.000	292.020	584.040
178	3	80 - Rundstahl 220	0.064	0.193	298.404	19.247	57.741
179	2	80 - Rundstahl 220	0.057	0.115	298.404	17.158	34.316
180	2	7 - Kasten(A) 770/25/12/710/	5.600	11.200	771.341	4319.510	8639.020
181	1	67 - Kasten(A) 700/8/8/650/1	3.794	3.794	213.520	810.164	810.164
182	1	76 - Kasten(A) 700/8/8/650/7	0.370	0.370	175.840	65.061	65.061
183	1	76 - Kasten(A) 700/8/8/650/7	1.442	1.442	175.840	253.561	253.561
184	2	23 - Kasten(A) 570/10/15/54	0.917	1.834	256.695	235.389	470.779
185	1	67 - Kasten(A) 700/8/8/650/1	8.766	8.766	213.520	1871.790	1871.790
186	1	80 - Rundstahl 220	0.058	0.058	298.404	17.158	17.158
187	2	85 - Pi(A) 500/35/12/135/376	0.276	0.551	205.906	56.778	113.556
188	1	68 - Kasten(A) 700/8/8/650/7	5.222	5.222	197.192	1029.790	1029.790
189	2	17 - HE-B 600	1.700	3.400	211.950	360.315	720.630
190	2	69 - Rundstahl 140	0.118	0.235	120.841	14.200	28.400
191	4	70 - Flachstahl 740/15 / 71 -	0.185	0.740	64.174	11.872	47.490
192	2	19 - HE-M 600	1.770	3.540	285.740	505.760	1011.520
193	2	44 - RO 168,3x10	2.288	4.576	39.039	89.327	178.654
194	2	19 - HE-M 600	0.375	0.750	285.740	107.152	214.305
195	2	41 - HE-A 160	0.797	1.593	30.458	24.262	48.525
196	2	21 - HE-M 300	5.000	10.000	237.855	1189.280	2378.550
197	1	41 - HE-A 160	1.857	1.857	30.458	56.555	56.555
198	2	44 - RO 168,3x10	2.667	5.334	39.039	104.111	208.221
199	4	96 - IS 302/250/8/25	5.500	22.000	113.951	626.728	2506.910
200	2	19 - HE-M 600	1.500	3.000	285.740	428.610	857.220
201	2	21 - HE-M 300	1.500	3.000	237.855	356.783	713.565
202	2	17 - HE-B 600	1.000	2.000	211.950	211.950	423.900
203	2	18 - HE-B 300	3.500	7.000	116.965	409.378	818.755
204	2	22 - Kasten(A) 374/15/12/35	2.600	5.200	186.045	483.717	967.434
205	4	17 - HE-B 600	0.875	3.500	211.950	185.456	741.825
206	2	17 - HE-B 600	1.625	3.250	211.950	344.419	688.838
207	2	41 - HE-A 160	0.831	1.662	30.458	25.317	50.634
208	1	41 - HE-A 160	1.788	1.788	30.458	54.446	54.446
209	2	17 - HE-B 600	2.325	4.650	211.950	492.783	985.566
210	2	29 - RO 127x10	2.469	4.938	28.854	71.244	142.488
211	2	17 - HE-B 600	0.175	0.350	211.950	37.092	74.184
212	2	17 - HE-B 600	0.125	0.250	211.950	26.494	52.987
213	2	95 - Kasten(A) 770/15/12/71	12.832	25.664	501.803	6439.040	12878.100
214	2	19 - HE-M 600	1.518	3.035	285.740	433.619	867.237
215	2	19 - HE-M 600	2.269	4.538	285.740	648.344	1296.690
216	1	41 - HE-A 160	0.831	0.831	30.458	25.317	25.317
217	1	41 - HE-A 160	0.831	0.831	30.458	25.317	25.317
218	1	41 - HE-A 160	1.261	1.261	30.458	38.419	38.419
219	1	41 - HE-A 160	1.261	1.261	30.458	38.419	38.419
220	1	41 - HE-A 160	0.927	0.927	30.458	28.243	28.243
221	2	41 - HE-A 160	1.150	2.300	30.458	35.031	70.062
222	1	41 - HE-A 160	2.589	2.589	30.458	78.841	78.841
223	2	41 - HE-A 160	0.431	0.861	30.458	13.120	26.239
224	1	41 - HE-A 160	1.150	1.150	30.458	35.018	35.018
225	1	29 - RO 127x10	5.890	5.890	28.854	169.948	169.948
226	1	29 - RO 127x10	5.891	5.891	28.854	169.974	169.974
227	1	28 - RO 127x5,6	5.891	5.891	16.766	98.765	98.765
228	1	28 - RO 127x5,6	5.890	5.890	16.766	98.750	98.750
229	2	28 - RO 127x5,6	5.891	11.782	16.766	98.765	197.530
230	1	28 - RO 127x5,6	5.890	5.890	16.766	98.750	98.750
231	1	29 - RO 127x10	5.636	5.636	28.854	162.609	162.609
232	1	44 - RO 168,3x10 / 29 - RO 1	5.636	5.636	33.947	191.309	191.309
233	6	100 - IS 374/200/5/12	5.652	33.909	51.418	290.589	1743.530
Total	678			1455.160			260546.00

KAPPA-NACHWEISKRITERIUM

KAPPA1 - Biegeknicknachweis

Isometric



Design criterion, Max: 0.95

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

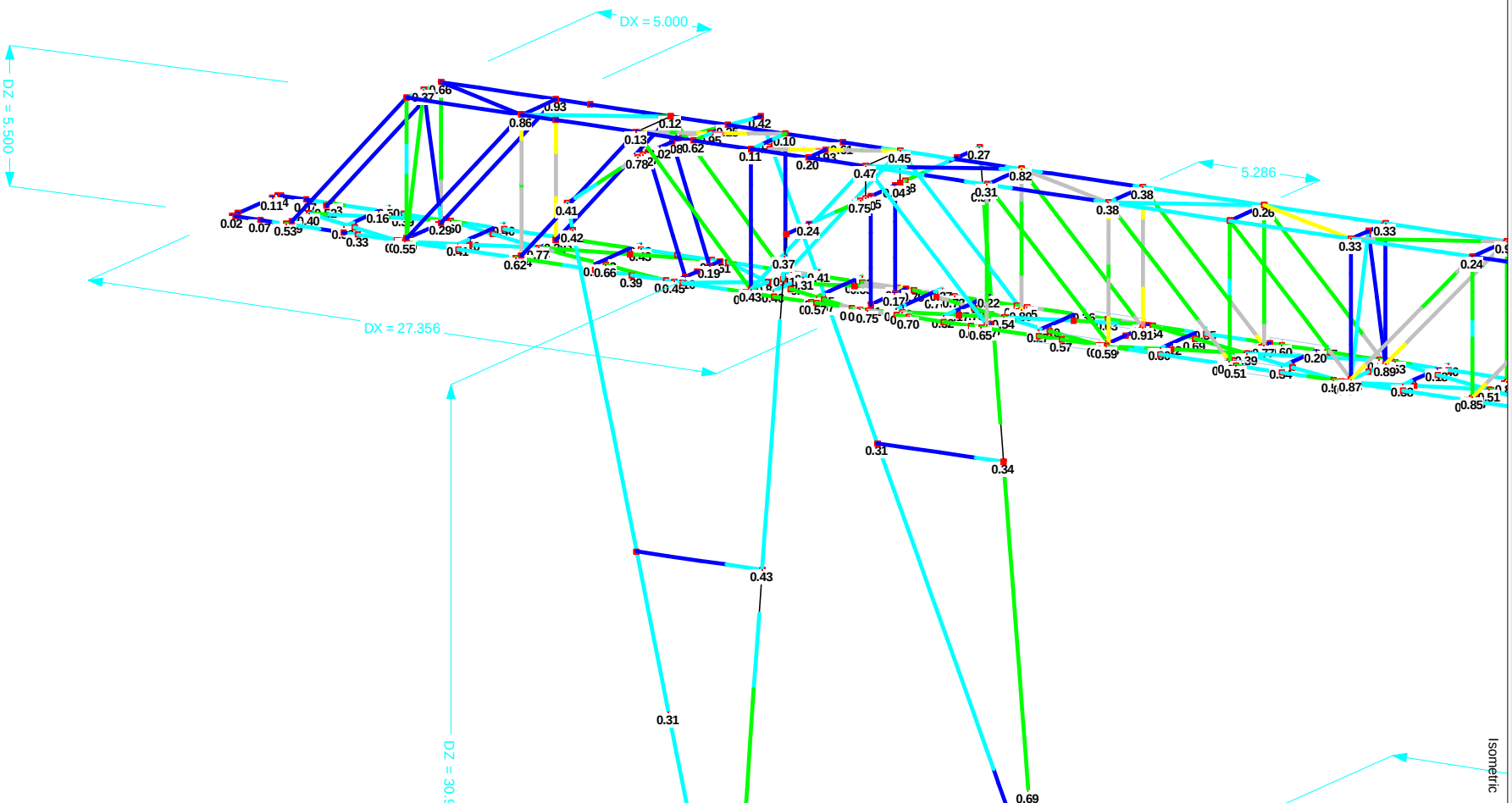
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KAPPA-NACHWEISKRITERIUM

KAPPA1 - Biegeknicknachweis

Design criterion, Max: 0.95



Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

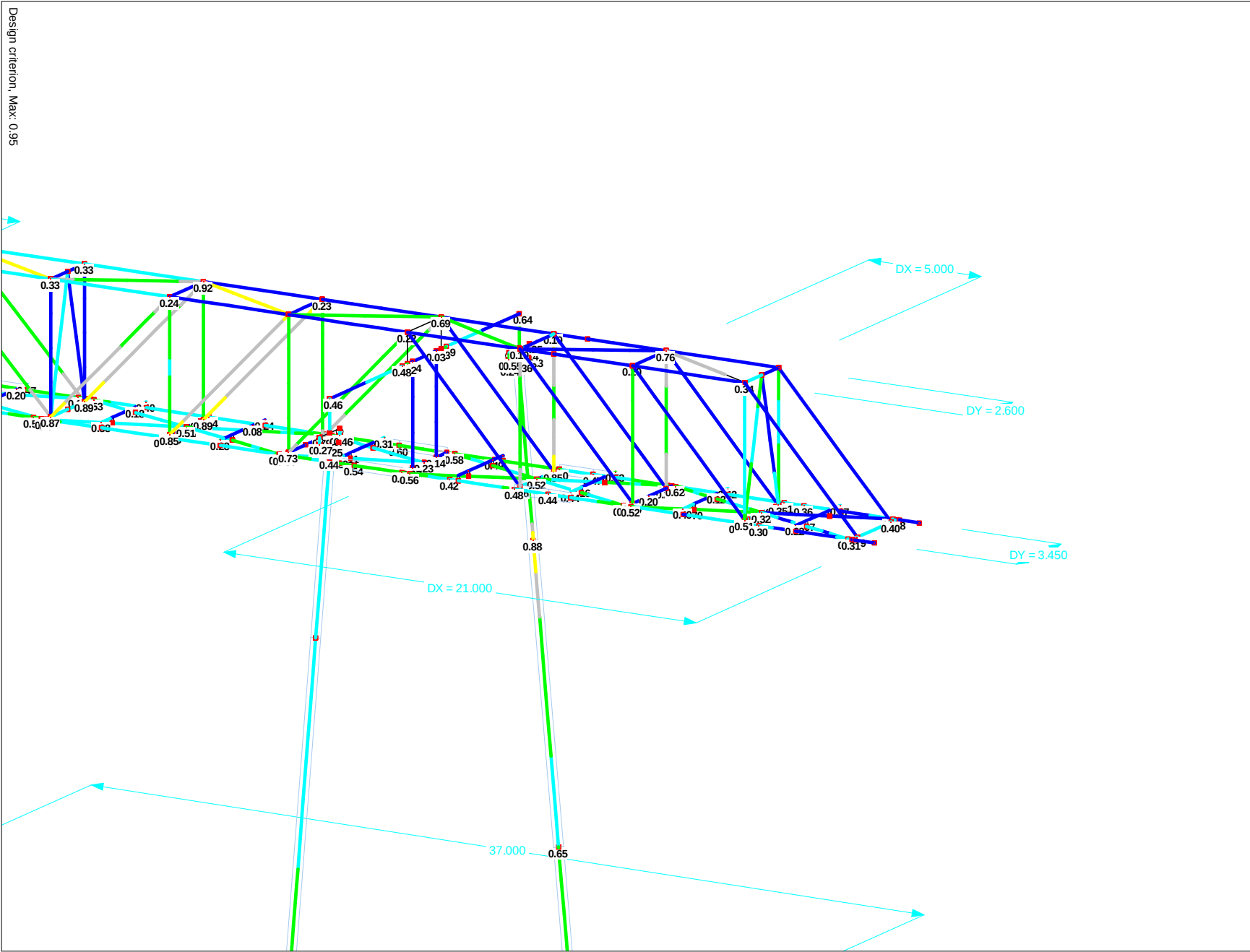
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KAPPA-NACHWEISKRITERIUM

KAPPA1 - Biegeknicknachweis

Isometric



Design criterion, Max: 0.95

Project: VENLO

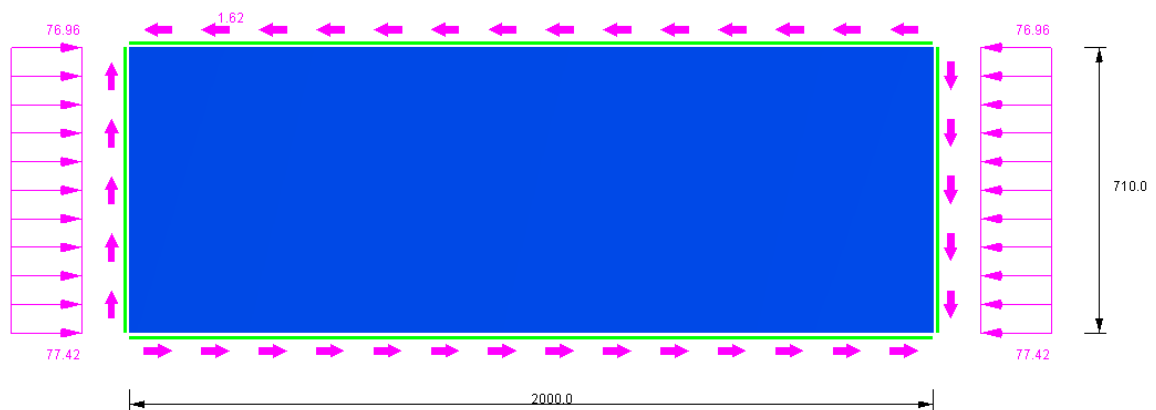
Position: CTK 41 T x (24+37+18)m-M

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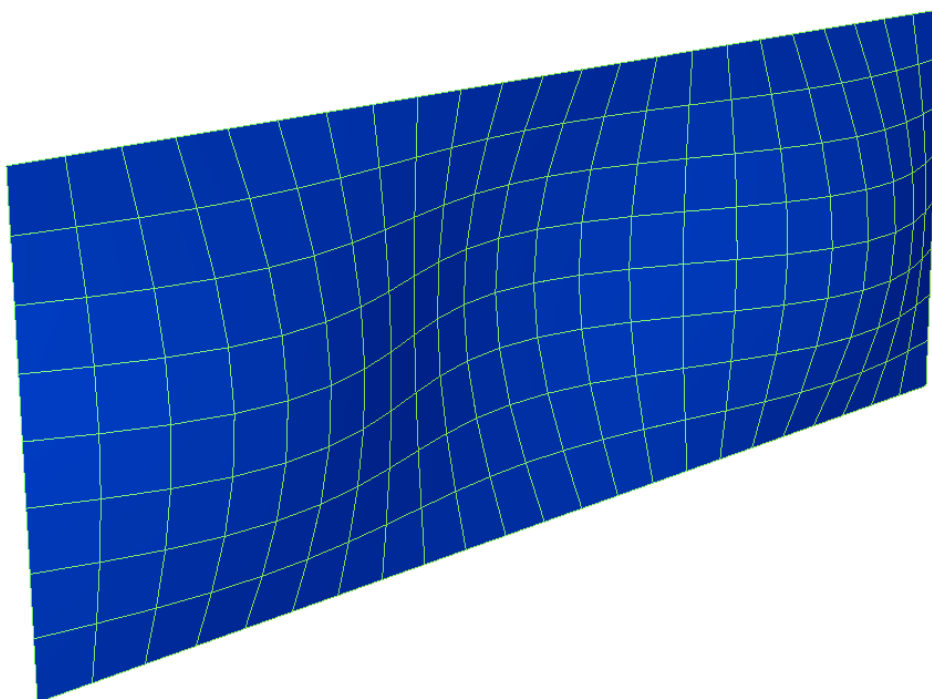
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PLATE-BUCKLING1 - BEUL-PS-GURT EL- 125-OBEN-15

BEULFELD MIT RANDSPANNUNGEN



BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

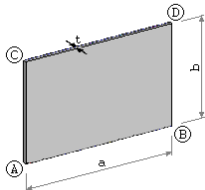
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MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f-yk [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	710.0	2.817	15.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

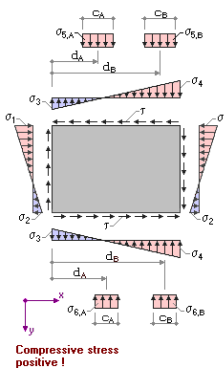
CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible

DESIGN FORCES IMPORTED FROM RSTAB

Load cases	For stresses	Govern. x [mm]	N [kN]	V-2 [kN]	V-3 [kN]	T [kN]	M-2 [kNm]	M-3 [kNm]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	Sigma, Tau	355.0	-2458	0.23	150.65	45.93	-2024	-2024

NORMAL AND SHEAR STRESSES



Load cases	Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	77.0	77.4	0.994	1.6

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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EXPLANATIONS

Name	Explanations
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

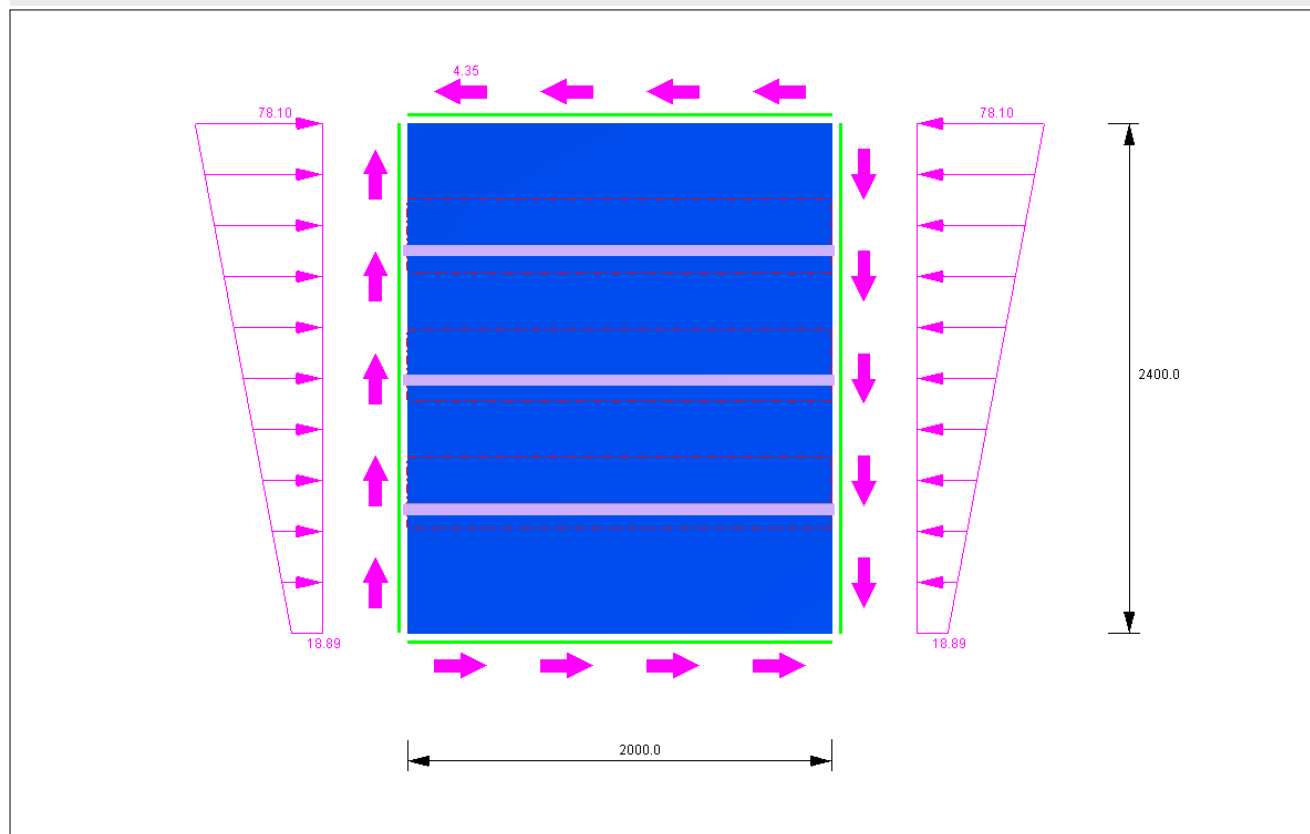
DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC2 EXTREM MAX/MIN Fall HZ (aus RSTAB, LK98)				
1	4.406	333.872		4.405
2	4.880	345.111		4.879
3	5.025	466.910		5.024
4	6.218	475.900		6.217
5	7.894	694.390		7.892
6	10.064	784.754		10.062
7	10.901	1157.860		10.894
8	12.786	1298.930		12.784

PLATE-BUCKLING2 - BEUL-PS-STEIG- EL- 803-OBEN-12

BEULFELD MIT RANDSPANNUNGEN



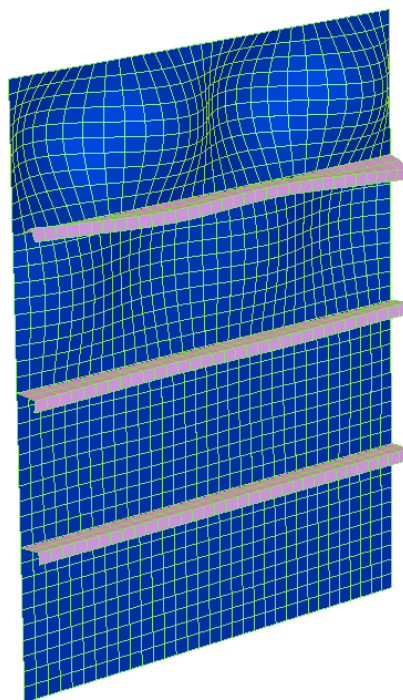
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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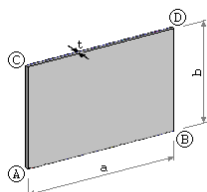
BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f _{yk} [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	2400.0	0.833	12.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	40
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible
FE-Model of stiffener	Real 3D-Model

STIFFENERS IN X-DIRECTION

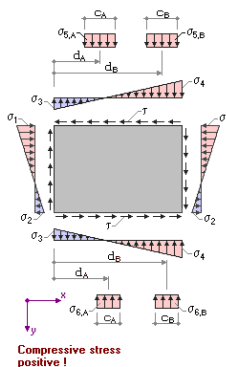
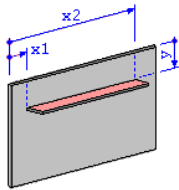
Stiffener- No.	Position [mm]			Type	Parameter [mm]	Effective flange width [mm]			
	y	x1	x2			b1	b2	b1'	b2'
1	585.0	0.0	2000.0	Rolled section L	L 100x50x6 LDR	226.7	228.3	0.0	0.0
2	1185.0	0.0	2000.0	Rolled section L	L 100x50x6 LDR	213.3	228.3	0.0	0.0
3	1785.0	0.0	2000.0	Rolled section L	L 100x50x6 LDR	213.3	229.8	0.0	0.0

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC2 - Exstrem MAX/MIN Fall HZ (aus RSTAB, L	78.1	18.9	0.242	4.3

DESIGN

LC2 - EXSTREM MAX/MIN FALL HZ (AUS RSTAB, LK92)

Occurance of Sigma-x only			
Sigma	78.100	N/mm ²	Par. (110)
Psi	0.242		Par. (110)
k	86.779		Par. (113), determined using FEM
Sigma-Pi	411.767	N/mm ²	Par. (113)
Lambda-P	70.947		Par. (113)
Lambda-P-bar	0.888		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	295.455	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	395.456	N/mm ²	Par. (602), determined analytically
Rho	0.959		Par. (602), Eq. (21)
Kappa-PK	0.695		Par. (603), Eq. (24)
Sigma-PKRd	205.458	N/mm ²	Par. (502), Gl. (11)
Sigma / Sigma-PKRd	0.380		Par. (501), Gl. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	4.350	N/mm ²	Par. (110)
k	55.416		Par. (113), determined using FEM
Tau-Pi	262.948	N/mm ²	Par. (113)
Lambda-P	67.460		Par. (113)
Lambda-P-bar	0.845		Par. (113)
Kappa	0.994		Par. (601), Table 1
Tau-PRd	169.622	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.026		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurrence (Interaction condition)			
Critical stresses Sigma-x	78.100	N/mm ²	Corner C
Critical stresses Sigma-y	0.000	N/mm ²	
e1	1.234		Par. (504), EQ. (15)
Inter-Sigma-x	0.380		Par. (504), Eq. (14)
e3	1.688		Par. (504), Eq. (17)
Inter-Tau	0.026		Par. (504), Eq. (14)
Inter	0.305		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurrence (FEM)			
Eta	5.245		determined using FEM

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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EXPLANATIONS

Name	Explanations
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

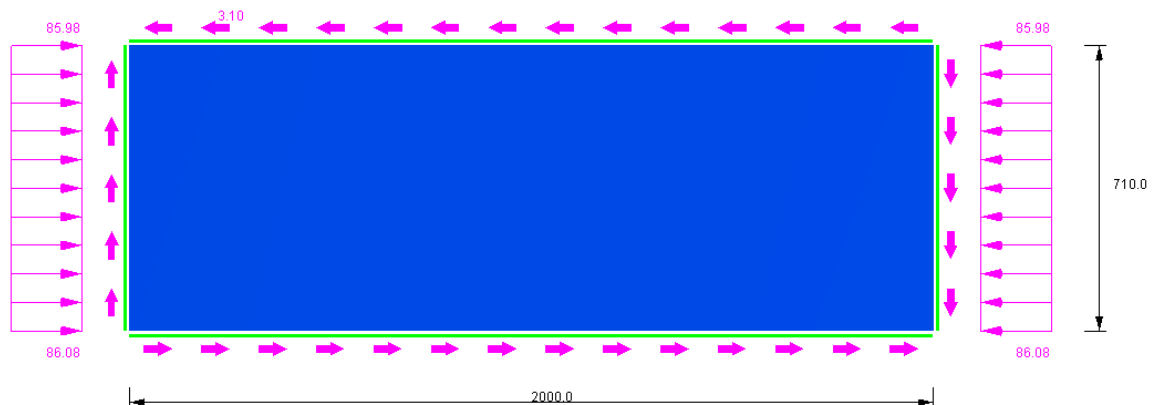
DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC2 Extrem MAX/MIN Fall HZ (aus RSTAB, LK92)				
1	5.272	60.448		5.245
2	5.332	69.082		5.323
3	5.643	82.853		5.604
4	5.839	93.230		5.829
5	6.773	104.833		6.767
6	6.872	109.304		6.847
7	7.547	121.471		7.514
8	7.847	125.347		7.811

PLATE-BUCKLING3 - BEUL-PS-GURT EL- 576-UNTEN-15

BEULFELD MIT RANDSPANNUNGEN



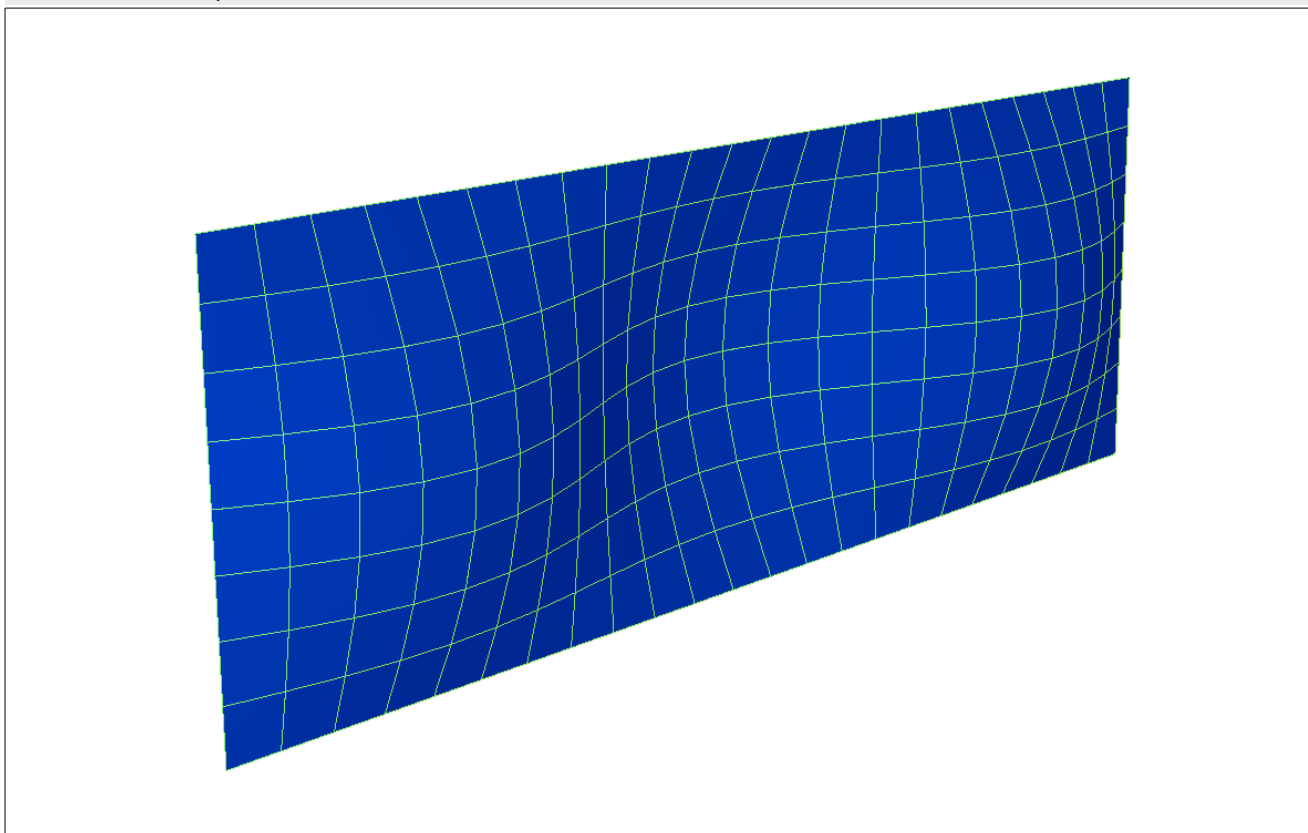
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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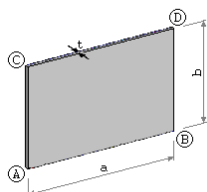
BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f _{yk} [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	710.0	2.817	15.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible

DESIGN FORCES IMPORTED FROM RSTAB

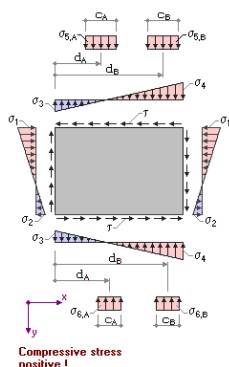
Load cases	For stresses	Govern. x [mm]	N [kN]	V-2 [kN]	V-3 [kN]	T [kN]	M-2 [kNm]	M-3 [kNm]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	Sigma Tau	6645.0 355.0	-2603	5.51	66.88	23.04	680.84	680.84

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm^2]	Sigma-2 [N/mm^2]	Psi [-]	Tau [N/mm^2]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	86.0	86.1	0.999	3.1

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC2 EXTREM MAX/MIN Fall HZ (aus RSTAB, LK98)				
1	3.953	174.593		3.951
2	4.378	180.470		4.376
3	4.509	244.162		4.507
4	5.579	248.864		5.577
5	7.083	363.119		7.080
6	9.030	410.374		9.026
7	9.781	605.481		9.763
8	11.472	679.253		11.467

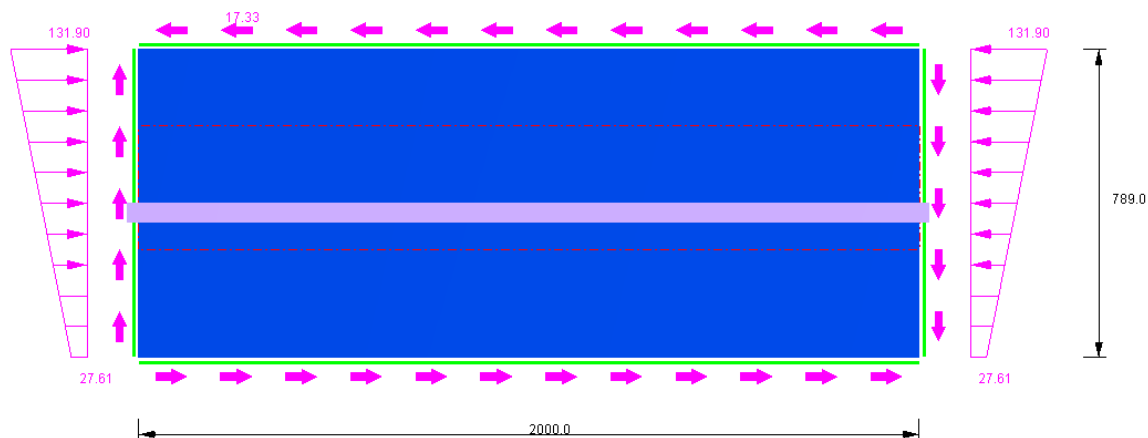
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

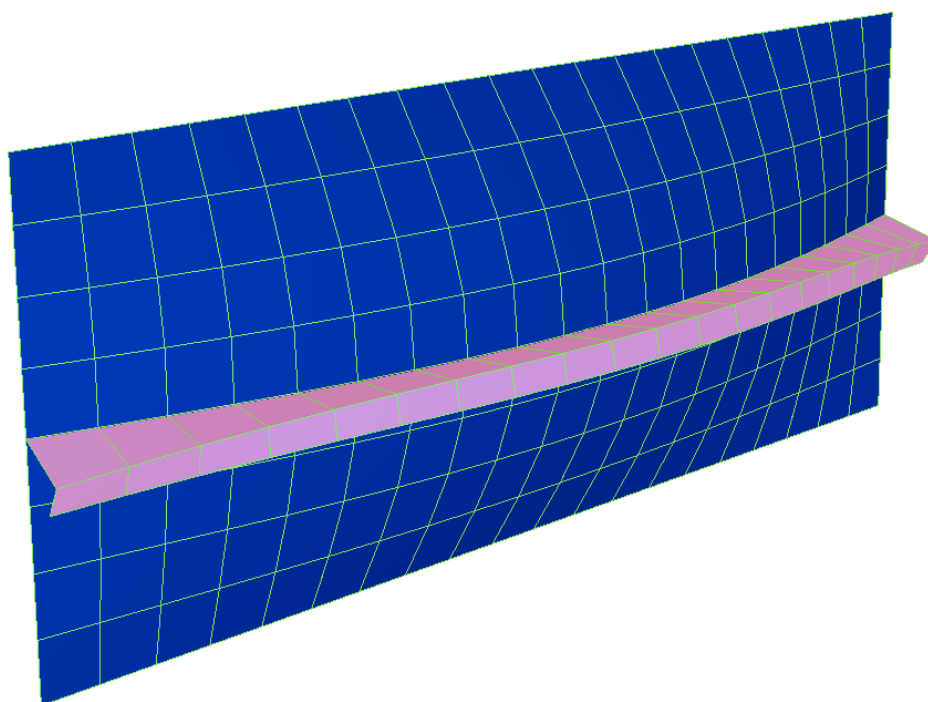
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BEULFELD MIT RANDSPANNUNGEN



BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



DESIGN

LC2 - EXTREM MAX/MIN FALL HZ (AUS RSTAB, LK98)

Occurance of Sigma-x only

Sigma	86.079	N/mm ²	Par. (110)
Psi	0.999		Par. (110)

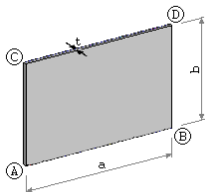
Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 623
		17.05.2009

LC2 - EXTREM MAX/MIN FALL HZ (AUS RSTAB, LK98)

k	4.002		Par. (113), determined analytically
Sigma-Pi	339.045	N/mm ²	Par. (113)
Lambda-P	78.186		Par. (113)
Lambda-P-bar	0.979		Par. (113)
Kappa	0.792		Par. (601), Table 1
Sigma-PRd	234.028	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	9.715	N/mm ²	Par. (602), determined analytically
Rho	-32.898		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.368		Par. (501), Eq. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	3.096	N/mm ²	Par. (110)
k	5.844		Par. (113), determined analytically
Tau-Pi	495.085	N/mm ²	Par. (113)
Lambda-P	49.163		Par. (113)
Lambda-P-bar	0.616		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	170.581	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.018		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurance (Interaction condition)			
Critical stresses Sigma-x	86.079	N/mm ²	Corner A
Critical stresses Sigma-y	0.000	N/mm ²	
e1	1.394		Par. (504), EQ. (15)
Inter-Sigma-x	0.368		Par. (504), Eq. (14)
e3	1.792		Par. (504), Eq. (17)
Inter-Tau	0.018		Par. (504), Eq. (14)
Inter	0.249		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurance (FEM)			
Eta	3.951		determined using FEM

MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f-yk [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300



PANEL DIMENSIONS

a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	789.0	2.535	15.0

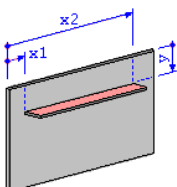
BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible
FE-Model of stiffener	Real 3D-Model

STIFFENERS IN X-DIRECTION



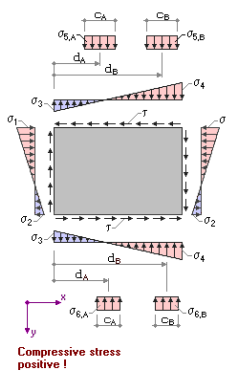
Stiffener- No.	Position [mm]			Type	Parameter [mm]	Effective flange width [mm]			
	y	x1	x2			b1	b2	b1'	b2'
1	394.5	0.0	2000.0	Rolled section L	L 100x50x6 LDR	197.3	197.3	0.0	0.0

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC1 - Exstrem MAX/MIN Fall HZ (aus RSTAB, L	131.9	27.6	0.209	17.3

DESIGN

LC1 - EXSTREM MAX/MIN FALL HZ (AUS RSTAB, LK92)

Occurance of Sigma-x only			
Sigma	131.900	N/mm ²	Par. (110)
Psi	0.209		Par. (110)
k	22.078		Par. (113), determined using FEM
Sigma-Pi	1514.570	N/mm ²	Par. (113)
Lambda-P	36.993		Par. (113)
Lambda-P-bar	0.463		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	295.455	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	382.864	N/mm ²	Par. (602), determined analytically
Rho	-1.956		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.446		Par. (501), Eq. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	17.330	N/mm ²	Par. (110)
k	11.435		Par. (113), determined using FEM
Tau-Pi	784.474	N/mm ²	Par. (113)
Lambda-P	39.056		Par. (113)
Lambda-P-bar	0.489		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	170.581	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.102		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurance (Interaction condition)			
Critical stresses Sigma-x	131.900	N/mm ²	Corner C
Critical stresses Sigma-y	0.000	N/mm ²	
e1	2.000		Par. (504), EQ. (15)
Inter-Sigma-x	0.446		Par. (504), Eq. (14)
e3	2.000		Par. (504), Eq. (17)
Inter-Tau	0.102		Par. (504), Eq. (14)
Inter	0.210		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurance (FEM)			
Eta	10.566		determined using FEM

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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EXPLANATIONS

Name	Explanations
Inter Eta	Interaction condition Buckling load factor

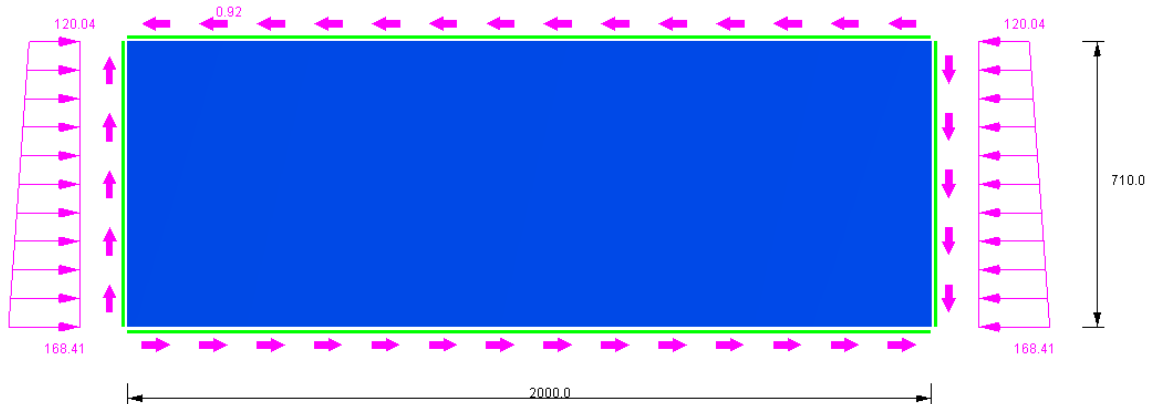
DESIGN

BUCKLING LOAD FACTORS

Eigen- value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC1 Exstrem MAX/MIN Fall HZ (aus RSTAB, LK92)				
1	11.483	45.267		10.566
2	13.201	59.101		12.850
3	13.581	83.468		13.492
4	13.865	101.712		13.691
5	15.132	134.061		13.895
6	15.320	153.151		15.050
7	15.652	174.834		16.385
8	17.272	175.231		17.176

PLATE-BUCKLING5 - BEUL-FS-GURT EL- 241-OBEN-15MM

BEULFELD MIT RANDSPANNUNGEN



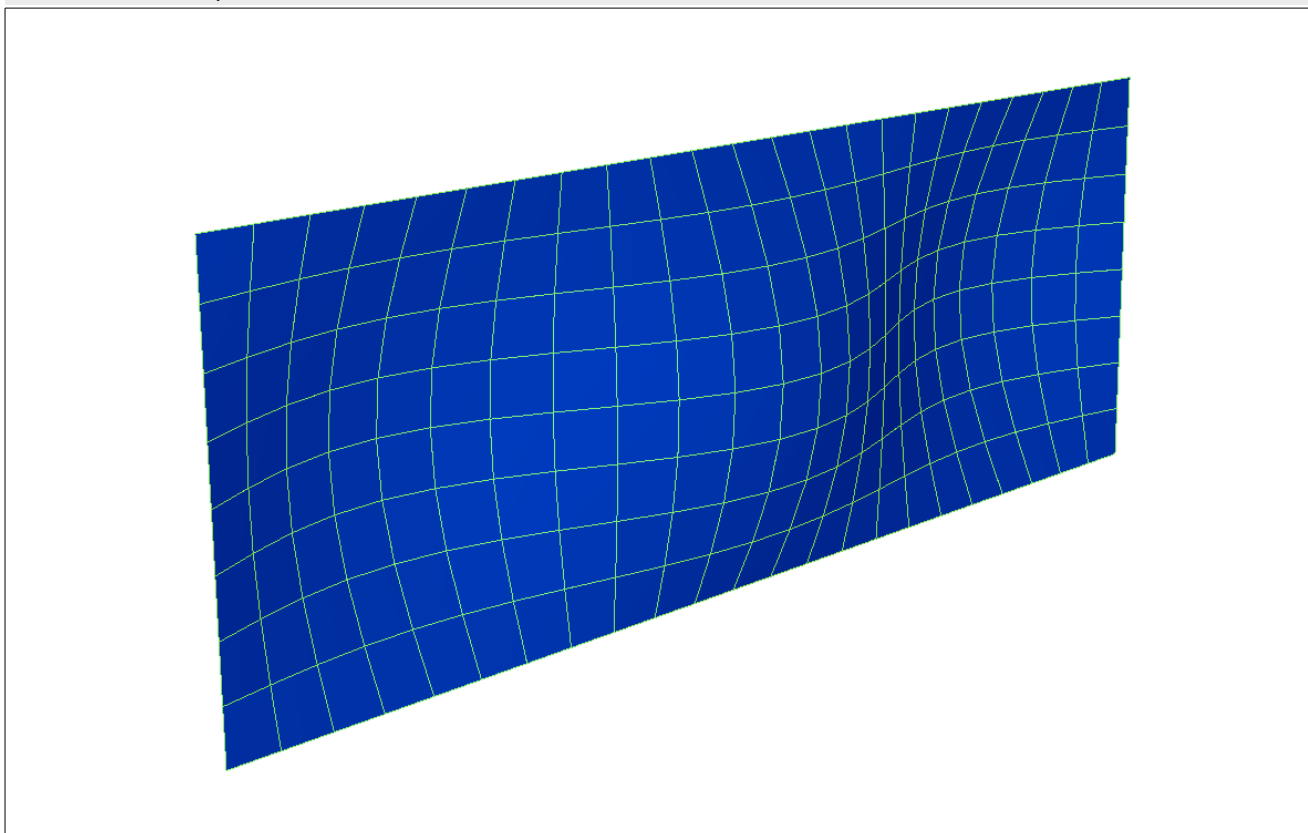
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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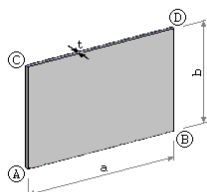
BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f-yk [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	710.0	2.817	15.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible

DESIGN FORCES IMPORTED FROM RSTAB

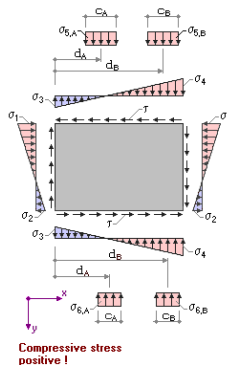
Load cases	For stresses	Govern. x [mm]	N [kN]	V-2 [kN]	V-3 [kN]	T [kN]	M-2 [kNm]	M-3 [kNm]
LC1 - EXTREM MAX/MIN Fall H (aus RSTAB, L	Sigma Tau	355.0 10744.4	-3499	8.51	226.65	-20.97	-4553	-4553

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm^2]	Sigma-2 [N/mm^2]	Psi [-]	Tau [N/mm^2]
LC1 - EXTREM MAX/MIN Fall H (aus RSTAB, L	120.0	168.4	0.713	0.9

DESIGN

LC1 - EXTREM MAX/MIN FALL H (AUS RSTAB, LK97)

Occurance of Sigma-x only				
Sigma	168.411	N/mm^2	Par. (110)	
Psi	0.713		Par. (110)	
k	4.634		Par. (113), determined analytically	
Sigma-Pi	392.557	N/mm^2	Par. (113)	
Lambda-P	72.662		Par. (113)	
Lambda-P-bar	0.910		Par. (113)	
Kappa	0.893		Par. (601), Table 1	
Sigma-PRd	263.882	N/mm^2	Par. (502), Eq. (11)	
LAMBDA	2.000		El. (602), Gl. (22)	
Sigma-Ki	9.715	N/mm^2	Par. (602), determined analytically	
Rho	-38.406		Par. (602), Eq. (21)	
Sigma / Sigma-PRd	0.638		Par. (501), Eq. (9)	
ANALYSIS OK				
Occurance of Tau only				
Tau	0.923	N/mm^2	Par. (110)	
k	5.844		Par. (113), determined analytically	
Tau-Pi	495.085	N/mm^2	Par. (113)	
Lambda-P	49.163		Par. (113)	
Lambda-P-bar	0.616		Par. (113)	
Kappa	1.000		Par. (601), Table 1	
Tau-PRd	170.581	N/mm^2	Par. (502), Eq. (12)	
Tau / Tau-PRd	0.005		Par. (501), Eq. (10)	
ANALYSIS OK				
Simultaneous occurance (Interaction condition)				
Critical stresses Sigma-x	168.411	N/mm^2	Corner A	
Critical stresses Sigma-y	0.000	N/mm^2		
e1	1.636		Par. (504), EQ. (15)	
Inter-Sigma-x	0.638		Par. (504), Eq. (14)	
e3	1.893		Par. (504), Eq. (17)	
Inter-Tau	0.005		Par. (504), Eq. (14)	
Inter	0.480		Par. (504), Eq. (14)	
ANALYSIS OK				
Simultaneous occurance (FEM)				
Eta	2.356		determined using FEM	

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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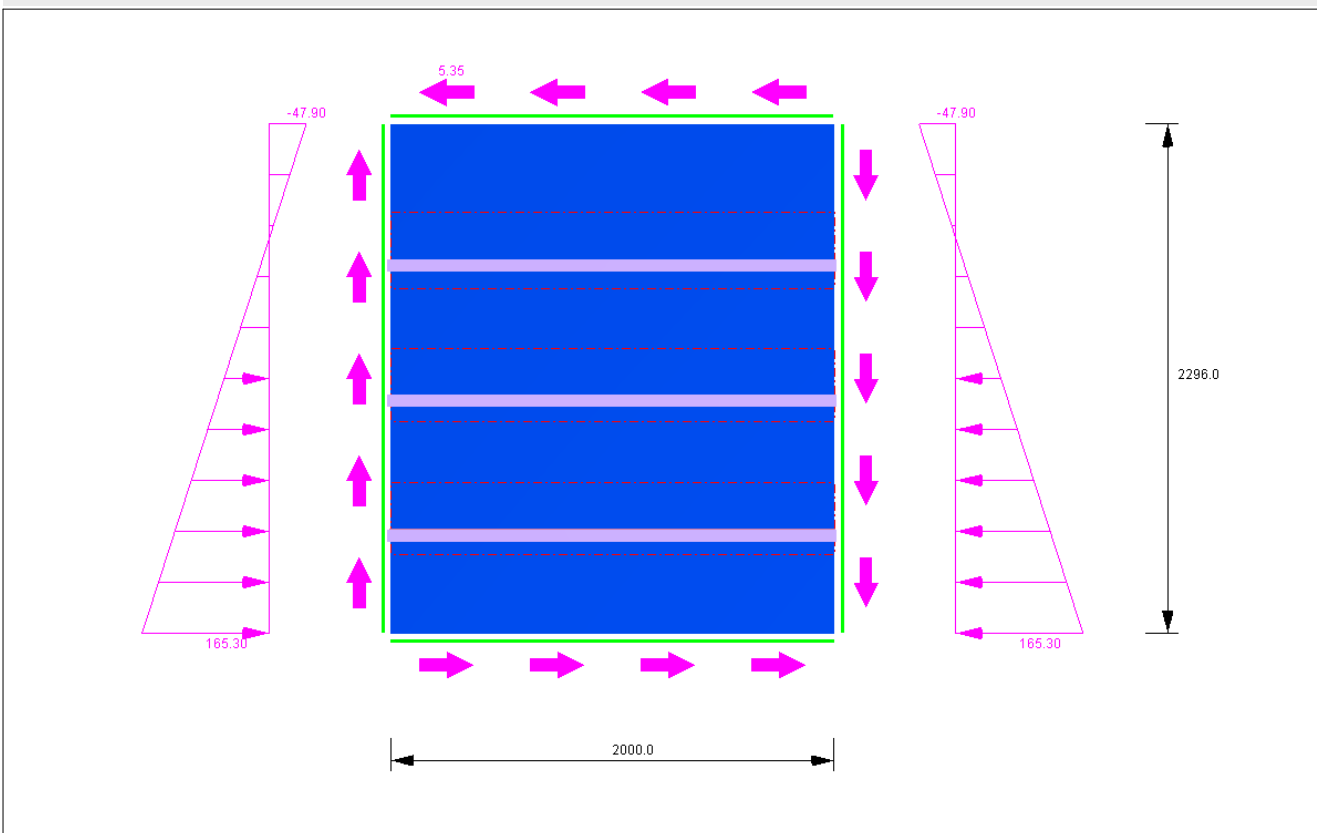
DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC1 EXTREM MAX/MIN Fall H (aus RSTAB, LK97)				
1	2.356	585.632		2.356
2	2.611	605.346		2.611
3	2.686	818.989		2.686
4	3.323	834.759		3.322
5	4.215	1218.000		4.215
6	5.369	1376.510		5.369
7	5.833	2030.950		5.832
8	6.815	2278.400		6.815

PLATE-BUCKLING6 - BEUL-FS-STEG EL- 241-OBEN-10MM

BEULFELD MIT RANDSPANNUNGEN



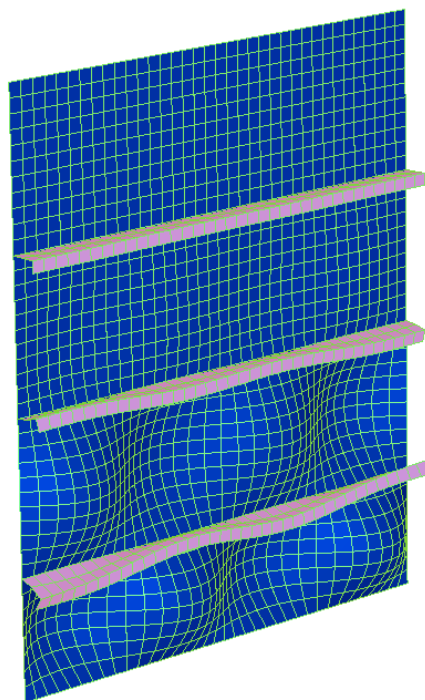
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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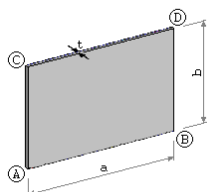
BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f _{yk} [N/mm ²]	Mue [-]
Stahl, DIN 18800, t <= 40 mm	210000.0	240.0	0.300

PANEL DIMENSIONS



a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	2296.0	0.871	10.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	41
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible
FE-Model of stiffener	Real 3D-Model

STIFFENERS IN X-DIRECTION

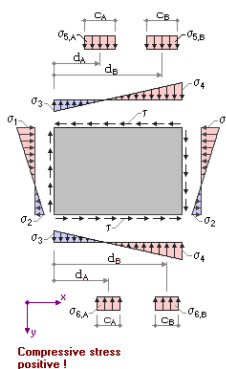
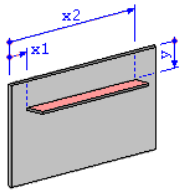
Stiffener- No.	Position [mm]			Type	Parameter [mm]	Effective flange width [mm]			
	y	x1	x2			b1	b2	b1'	b2'
1	624.0	0.0	2000.0	Rolled section L	L 100x50x6 LDR	225.4	223.2	0.0	0.0
2	1224.0	0.0	2000.0	Rolled section L	L 100x50x6 LDR	209.1	223.2	0.0	0.0
3	1824.0	0.0	2000.0	Rolled section L	L 100x50x6 LDR	209.1	207.5	0.0	0.0

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC1 - Exstrem MAX/MIN Fall HZ (aus RSTAB, L	-47.9	165.3	-0.290	5.3

DESIGN

LC1 - EXSTREM MAX/MIN FALL HZ (AUS RSTAB, LK92)

Occurance of Sigma-x only			
Sigma	165.300	N/mm ²	Par. (110)
Psi	-0.290		Par. (110)
k	125.668		Par. (113), determined using FEM
Sigma-Pi	452.457	N/mm ²	Par. (113)
Lambda-P	67.682		Par. (113)
Lambda-P-bar	0.728		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	218.182	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	448.810	N/mm ²	Par. (602), determined analytically
Rho	0.992		Par. (602), Eq. (21)
Kappa-PK	0.771		Par. (603), Eq. (24)
Sigma-PKRd	168.272	N/mm ²	Par. (502), Gl. (11)
Sigma / Sigma-PKRd	0.982		Par. (501), Gl. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	5.350	N/mm ²	Par. (110)
k	59.949		Par. (113), determined using FEM
Tau-Pi	215.842	N/mm ²	Par. (113)
Lambda-P	74.458		Par. (113)
Lambda-P-bar	0.801		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	125.967	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.042		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurance (Interaction condition)			
Critical stresses Sigma-x	165.300	N/mm ²	Corner A
Critical stresses Sigma-y	0.000	N/mm ²	
e1	1.354		Par. (504), EQ. (15)
Inter-Sigma-x	0.982		Par. (504), Eq. (14)
e3	1.771		Par. (504), Eq. (17)
Inter-Tau	0.042		Par. (504), Eq. (14)
Inter	0.980		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurance (FEM)			
Eta	2.734		determined using FEM

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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EXPLANATIONS

Name	Explanations
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

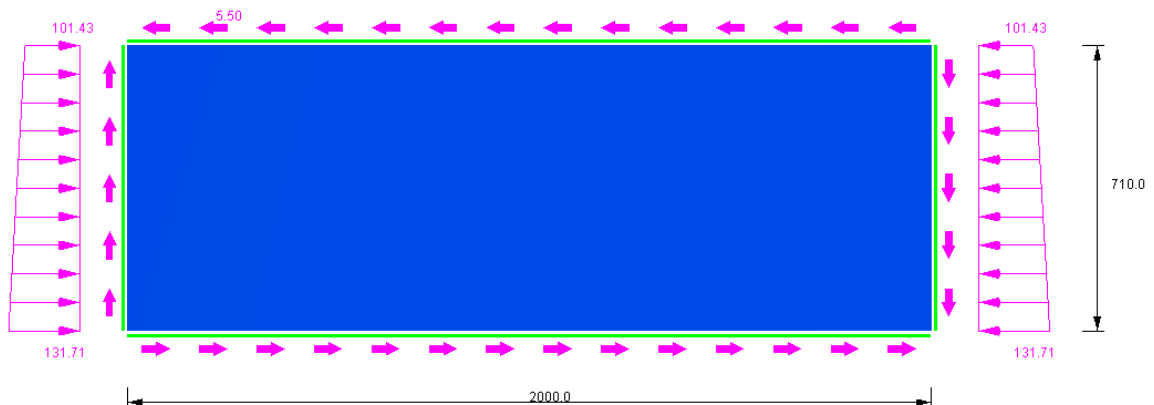
DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC1 Extrem MAX/MIN Fall HZ (aus RSTAB, LK92)				
1	2.737	40.344		2.734
2	2.831	50.517		2.829
3	2.938	54.518		2.932
4	3.117	59.613		3.114
5	3.507	65.628		3.505
6	3.581	70.763		3.569
7	3.587	74.187		3.587
8	3.695	77.680		3.645

PLATE-BUCKLING7 - BEUL-FS-GURT EL- 238-UNTEN-15MM

BEULFELD MIT RANDSPANNUNGEN



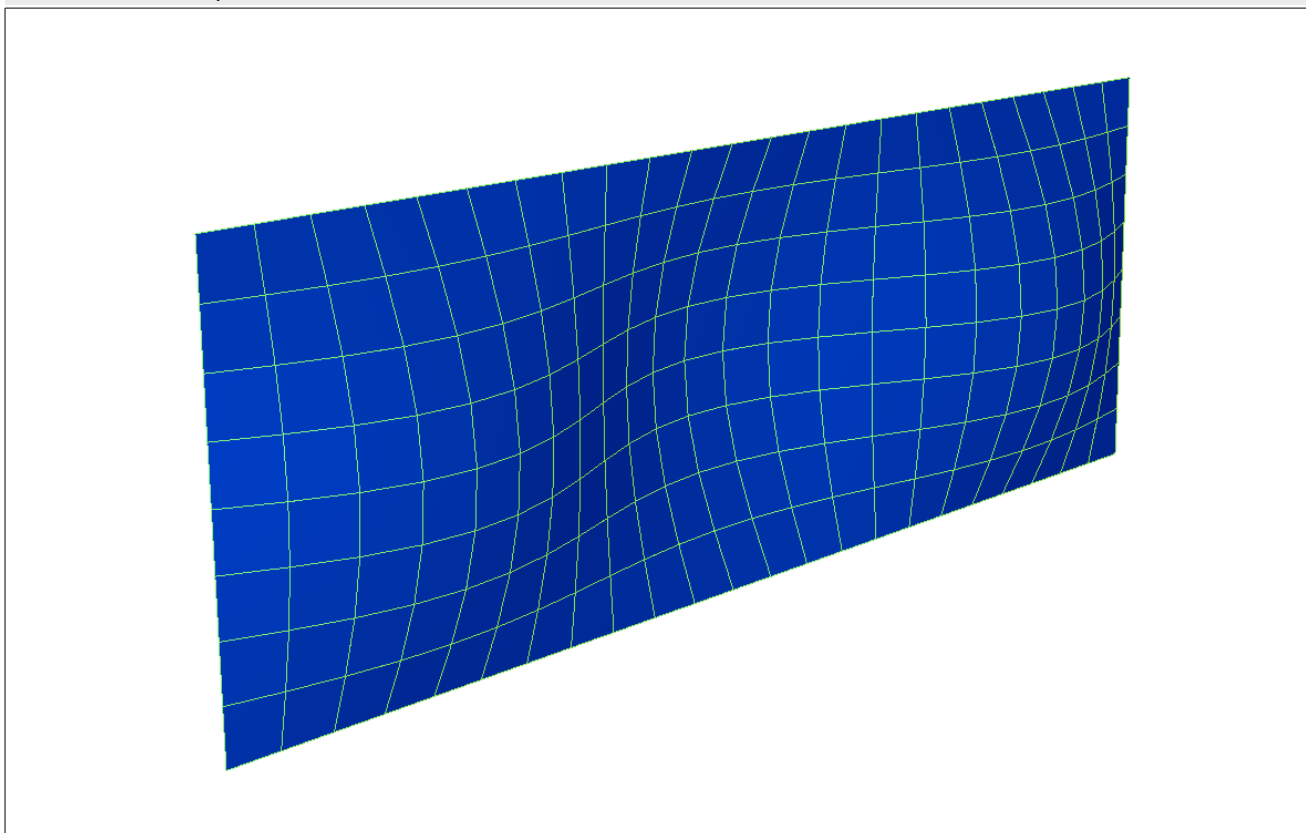
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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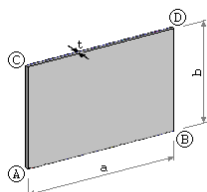
BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f _{yk} [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	710.0	2.817	15.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible

DESIGN FORCES IMPORTED FROM RSTAB

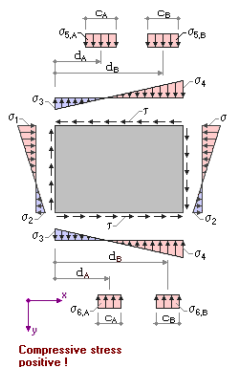
Load cases	For stresses	Govern. x [mm]	N [kN]	V-2 [kN]	V-3 [kN]	T [kN]	M-2 [kNm]	M-3 [kNm]
LC1 - EXTREM MAX/MIN Fall H (aus RSTAB, L	Sigma Tau	355.0 1680.0	-3659	12.70	190.63	139.15	-1996	-1996

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC1 - EXTREM MAX/MIN Fall H (aus RSTAB, L	101.4	131.7	0.770	5.5

DESIGN

LC1 - EXTREM MAX/MIN FALL H (AUS RSTAB, LK97)

Occurance of Sigma-x only				
Sigma	131.709	N/mm ²	Par. (110)	
Psi	0.770		Par. (110)	
k	4.492		Par. (113), determined analytically	
Sigma-Pi	380.522	N/mm ²	Par. (113)	
Lambda-P	73.802		Par. (113)	
Lambda-P-bar	0.924		Par. (113)	
Kappa	0.872		Par. (601), Table 1	
Sigma-PRd	257.594	N/mm ²	Par. (502), Eq. (11)	
LAMBDA	2.000		El. (602), Gl. (22)	
Sigma-Ki	9.715	N/mm ²	Par. (602), determined analytically	
Rho	-37.167		Par. (602), Eq. (21)	
Sigma / Sigma-PRd	0.511		Par. (501), Eq. (9)	
ANALYSIS OK				
Occurance of Tau only				
Tau	5.503	N/mm ²	Par. (110)	
k	5.844		Par. (113), determined analytically	
Tau-Pi	495.085	N/mm ²	Par. (113)	
Lambda-P	49.163		Par. (113)	
Lambda-P-bar	0.616		Par. (113)	
Kappa	1.000		Par. (601), Table 1	
Tau-PRd	170.581	N/mm ²	Par. (502), Eq. (12)	
Tau / Tau-PRd	0.032		Par. (501), Eq. (10)	
ANALYSIS OK				
Simultaneous occurance (Interaction condition)				
Critical stresses Sigma-x	131.709	N/mm ²	Corner A	
Critical stresses Sigma-y	0.000	N/mm ²		
e1	1.578		Par. (504), EQ. (15)	
Inter-Sigma-x	0.511		Par. (504), Eq. (14)	
e3	1.872		Par. (504), Eq. (17)	
Inter-Tau	0.032		Par. (504), Eq. (14)	
Inter	0.349		Par. (504), Eq. (14)	
ANALYSIS OK				
Simultaneous occurance (FEM)				
Eta	2.914		determined using FEM	

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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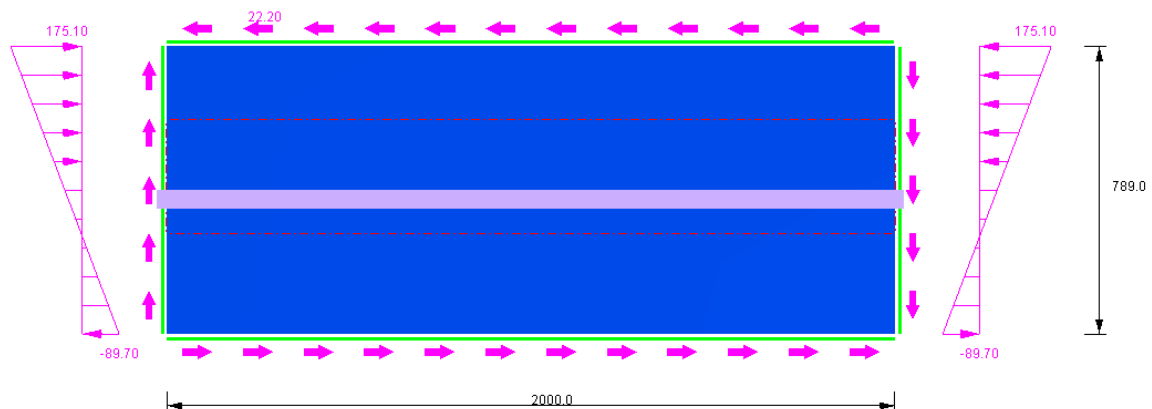
DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC1 EXTREM MAX/MIN Fall H (aus RSTAB, LK97)				
1	2.916	98.226		2.914
2	3.231	101.533		3.227
3	3.325	137.366		3.323
4	4.114	140.011		4.111
5	5.220	204.292		5.216
6	6.651	230.877		6.646
7	7.217	340.645		7.195
8	8.446	382.149		8.439

PLATE-BUCKLING8 - BEUL-FS-STEG EL- 238-UNTEN-10MM

BEULFELD MIT RANDSPANNUNGEN



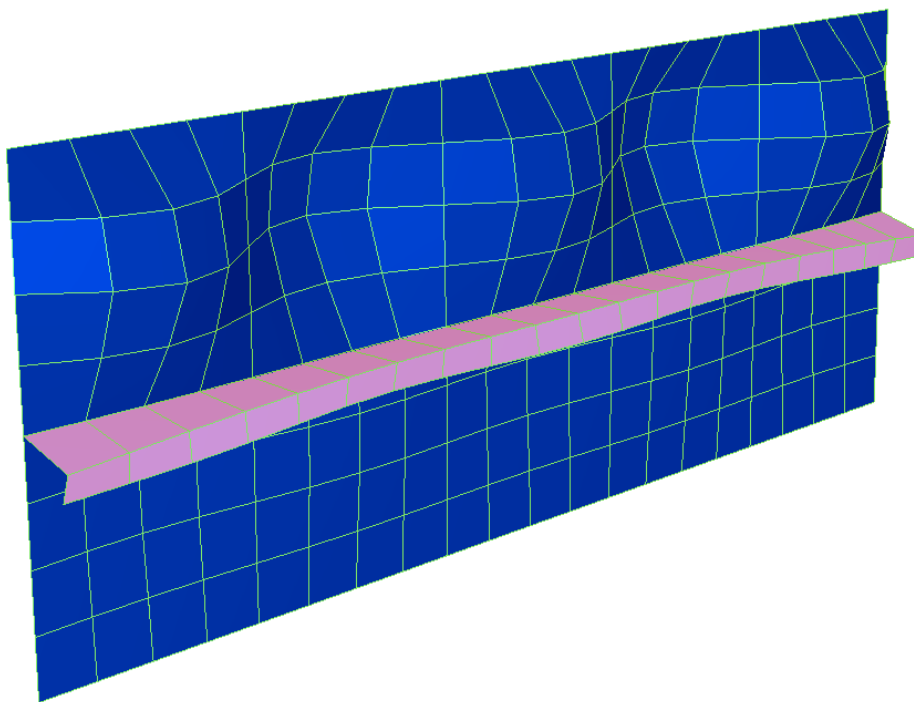
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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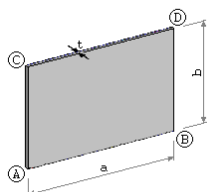
BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f _{yk} [N/mm ²]	Mue [-]
Stahl, DIN 18800, t <= 40 mm	210000.0	240.0	0.300

PANEL DIMENSIONS



a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	789.0	2.535	10.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible
FE-Model of stiffener	Real 3D-Model

STIFFENERS IN X-DIRECTION

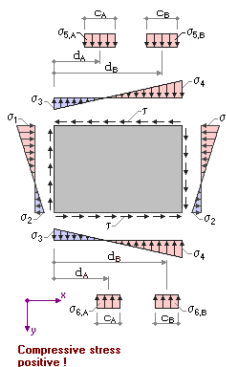
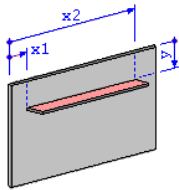
Stiffener- No.	Position [mm]			Type	Parameter [mm]	Effective flange width [mm]			
	y	x1	x2			b1	b2	b1'	b2'
1	394.5	0.0	2000.0	Rolled section L	L 100x50x6 LDR	193.0	193.0	0.0	0.0

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC1 - aus STAHL	175.1	-89.7	-0.512	22.2

DESIGN

LC1 - AUS STAHL

Occurance of Sigma-x only			
Sigma	175.100	N/mm ²	Par. (110)
Psi	-0.512		Par. (110)
k	34.416		Par. (113), determined using FEM
Sigma-Pi	1049.300	N/mm ²	Par. (113)
Lambda-P	44.444		Par. (113)
Lambda-P-bar	0.478		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	218.182	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	484.649	N/mm ²	Par. (602), determined analytically
Rho	-0.165		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.803		Par. (501), Eq. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	22.200	N/mm ²	Par. (110)
k	15.656		Par. (113), determined using FEM
Tau-Pi	477.349	N/mm ²	Par. (113)
Lambda-P	50.068		Par. (113)
Lambda-P-bar	0.539		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	125.967	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.176		Par. (501), Eq. (9)
ANALYSIS OK			
Simultaneous occurance (Interaction condition)			
Critical stresses Sigma-x	175.100	N/mm ²	Corner C
Critical stresses Sigma-y	0.000	N/mm ²	
e1	2.000		Par. (504), EQ. (15)
Inter-Sigma-x	0.803		Par. (504), Eq. (14)
e3	2.000		Par. (504), Eq. (17)
Inter-Tau	0.176		Par. (504), Eq. (14)
Inter	0.675		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurance (FEM)			
Eta	5.908		determined using FEM

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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EXPLANATIONS

Name	Explanations
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

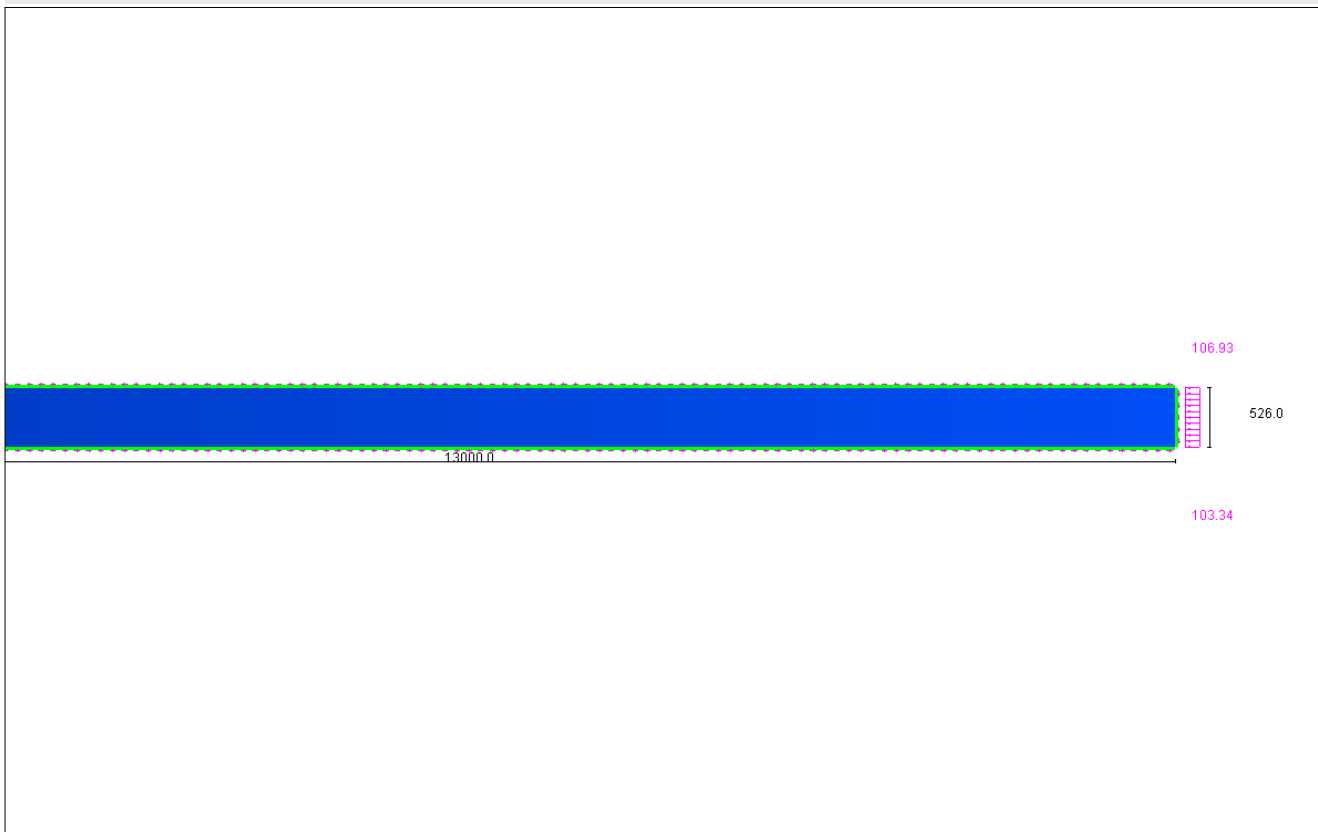
DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC1 aus STAHL				
1	5.993	21.502		5.908
2	6.072	31.345		6.011
3	6.510	40.006		6.357
4	6.563	45.711		6.512
5	7.392	55.181		7.333
6	8.118	61.547		7.815
7	8.567	64.433		8.509
8	10.125	64.440		9.416

PLATE-BUCKLING9 - BEUL-FS-DIAG.-EL114-ROHR-12MM

BEULFELD MIT RANDSPANNUNGEN



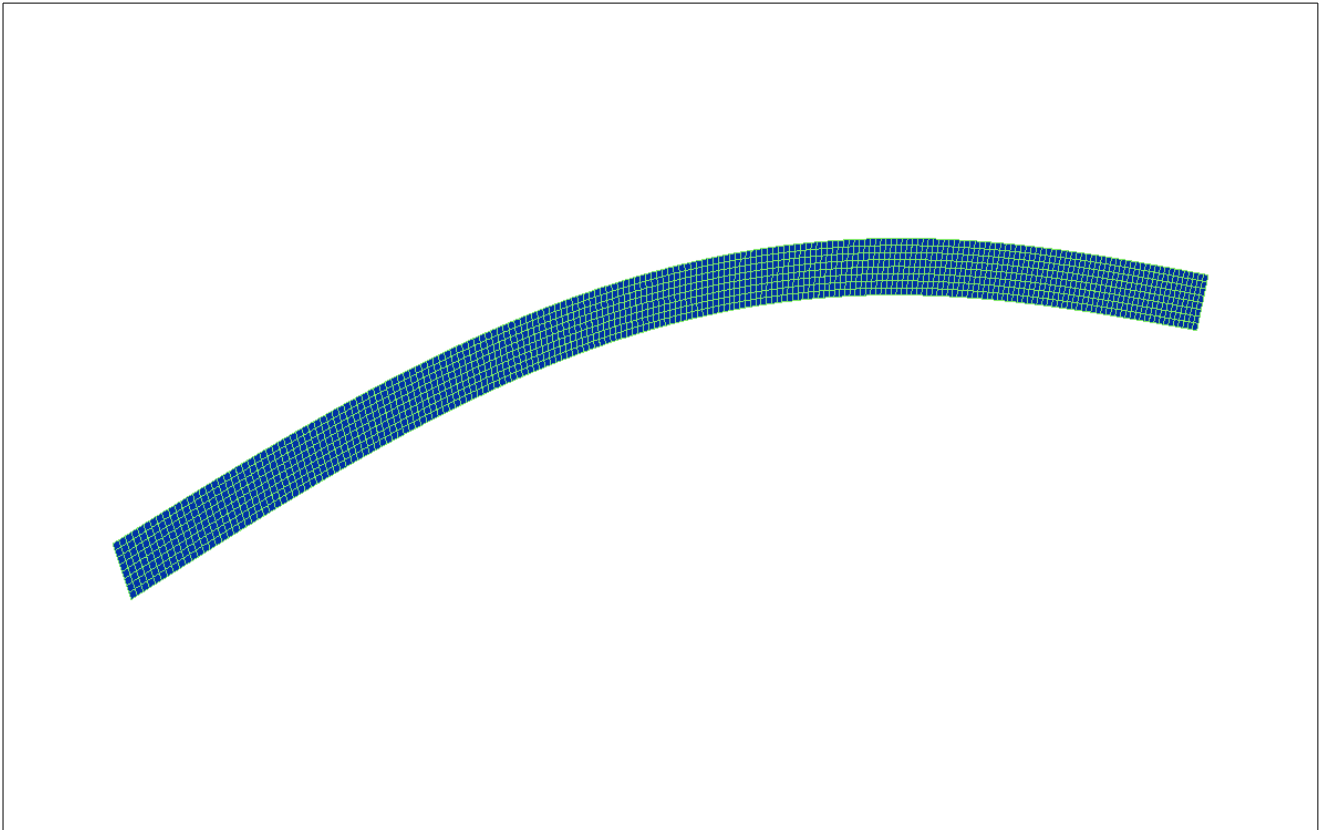
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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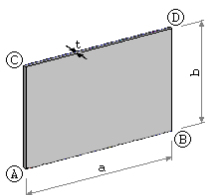
BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f _{yk} [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
13000.0	526.0	24.715	12.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible

DESIGN FORCES IMPORTED FROM RSTAB

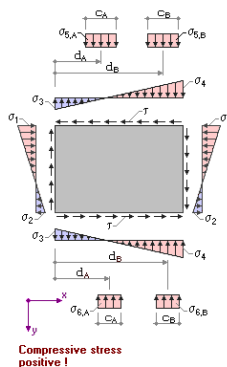
Load cases	For stresses	Govern. x [mm]	N [kN]	V-2 [kN]	V-3 [kN]	T [kN]	M-2 [kNm]	M-3 [kNm]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	Sigma, Tau	263.0	-1224	-22.89	28.31	-9.68	-317.	-317.

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm^2]	Sigma-2 [N/mm^2]	Psi [-]	Tau [N/mm^2]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	106.9	103.3	0.966	4.1

DESIGN

LC2 - EXTREM MAX/MIN FALL HZ (AUS RSTAB, LK98)

Occurance of Sigma-x only			
Sigma	106.927	N/mm^2	Par. (110)
Psi	0.966		Par. (110)
k	4.065		Par. (113), determined analytically
Sigma-Pi	401.547	N/mm^2	Par. (113)
Lambda-P	71.844		Par. (113)
Lambda-P-bar	0.900		Par. (113)
Kappa	0.847		Par. (601), Table 1
Sigma-PRd	250.180	N/mm^2	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	0.147	N/mm^2	Par. (602), determined analytically
Rho	-2726.490		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.427		Par. (501), Eq. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	4.148	N/mm^2	Par. (110)
k	5.347		Par. (113), determined analytically
Tau-Pi	528.155	N/mm^2	Par. (113)
Lambda-P	47.599		Par. (113)
Lambda-P-bar	0.596		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	170.581	N/mm^2	Par. (502), Eq. (12)
Tau / Tau-PRd	0.024		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurance (Interaction condition)			
Critical stresses Sigma-x	106.927	N/mm^2	Corner C
Critical stresses Sigma-y	0.000	N/mm^2	
e1	1.514		Par. (504), EQ. (15)
Inter-Sigma-x	0.427		Par. (504), Eq. (14)
e3	1.847		Par. (504), Eq. (17)
Inter-Tau	0.024		Par. (504), Eq. (14)
Inter	0.277		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurance (FEM)			
Eta	2.582		determined using FEM

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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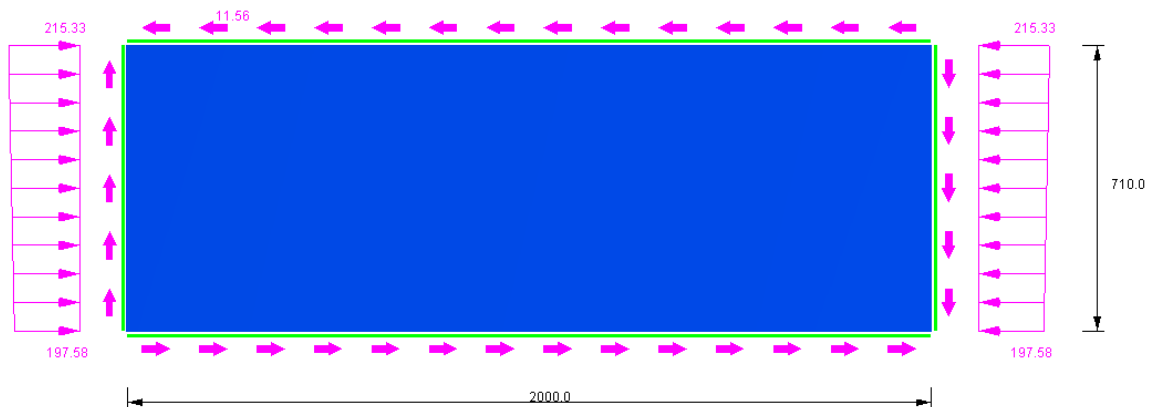
DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC2 EXTREM MAX/MIN Fall HZ (aus RSTAB, LK98)				
1	2.582	137.125		2.582
2	3.751	137.324		3.748
3	3.753	137.390		3.751
4	3.763	137.476		3.760
5	3.768	140.053		3.765
6	3.790	140.613		3.787
7	3.793	141.075		3.790
8	3.829	141.341		3.826

PLATE-BUCKLING10 - BEUL-FS-QT-GURT EL- 264--25MM

BEULFELD MIT RANDSPANNUNGEN



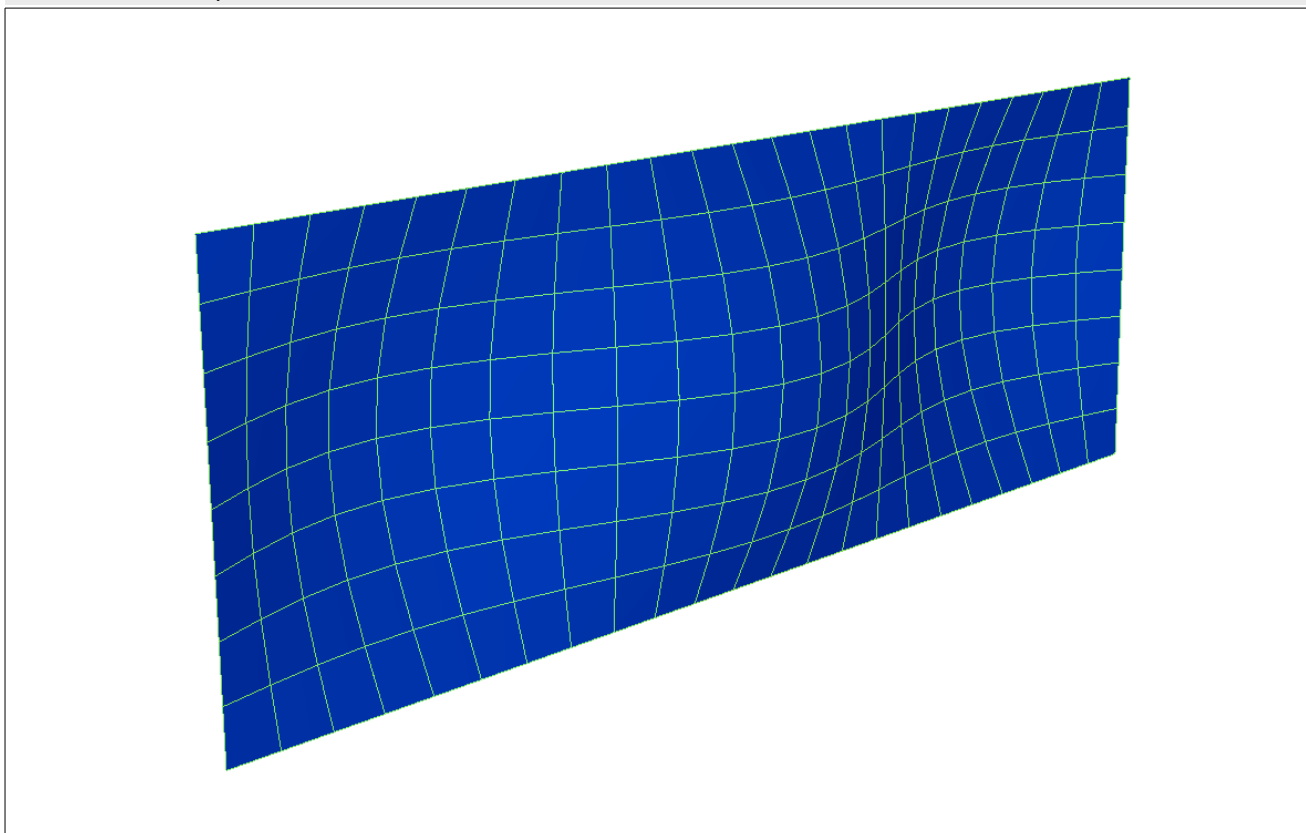
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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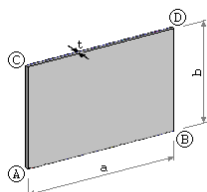
BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f _{yk} [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	710.0	2.817	25.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible

DESIGN FORCES IMPORTED FROM RSTAB

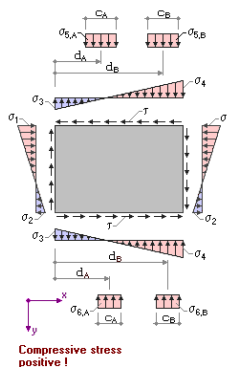
Load cases	For stresses	Govern. x [mm]	N [kN]	V-2 [kN]	V-3 [kN]	T [kN]	M-2 [kNm]	M-3 [kNm]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	Sigma, Tau	3525.0	-521.	29.54	2926.	329.89	14533	14533

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm^2]	Sigma-2 [N/mm^2]	Psi [-]	Tau [N/mm^2]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	215.3	197.6	0.918	11.6

DESIGN

LC2 - EXTREM MAX/MIN FALL HZ (AUS RSTAB, LK98)

Occurance of Sigma-x only				
Sigma	215.330	N/mm^2	Par. (110)	
Psi	0.918		Par. (110)	
k	4.163		Par. (113), determined analytically	
Sigma-Pi	979.750	N/mm^2	Par. (113)	
Lambda-P	45.994		Par. (113)	
Lambda-P-bar	0.576		Par. (113)	
Kappa	1.000		Par. (601), Table 1	
Sigma-PRd	295.455	N/mm^2	Par. (502), Eq. (11)	
LAMBDA	2.000		El. (602), Gl. (22)	
Sigma-Ki	26.987	N/mm^2	Par. (602), determined analytically	
Rho	-34.304		Par. (602), Eq. (21)	
Sigma / Sigma-PRd	0.729		Par. (501), Eq. (9)	
ANALYSIS OK				
Occurance of Tau only				
Tau	11.558	N/mm^2	Par. (110)	
k	5.844		Par. (113), determined analytically	
Tau-Pi	1375.240	N/mm^2	Par. (113)	
Lambda-P	29.498		Par. (113)	
Lambda-P-bar	0.369		Par. (113)	
Kappa	1.000		Par. (601), Table 1	
Tau-PRd	170.581	N/mm^2	Par. (502), Eq. (12)	
Tau / Tau-PRd	0.068		Par. (501), Eq. (10)	
ANALYSIS OK				
Simultaneous occurance (Interaction condition)				
Critical stresses Sigma-x	215.330	N/mm^2	Corner C	
Critical stresses Sigma-y	0.000	N/mm^2		
e1	2.000		Par. (504), EQ. (15)	
Inter-Sigma-x	0.729		Par. (504), Eq. (14)	
e3	2.000		Par. (504), Eq. (17)	
Inter-Tau	0.068		Par. (504), Eq. (14)	
Inter	0.536		Par. (504), Eq. (14)	
ANALYSIS OK				
Simultaneous occurance (FEM)				
Eta	4.559		determined using FEM	

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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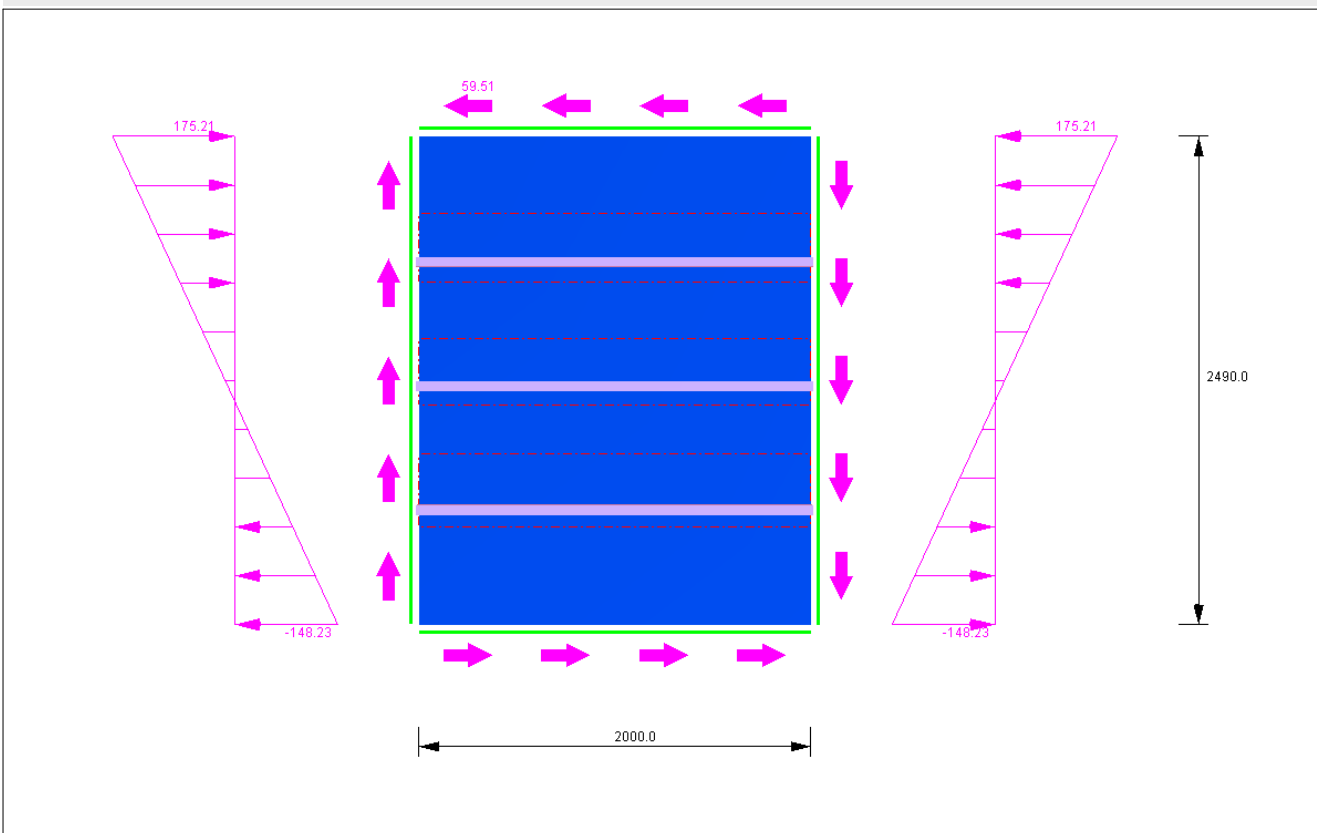
DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC2 EXTREM MAX/MIN Fall HZ (aus RSTAB, LK98)				
1	4.564	129.205		4.559
2	5.059	133.529		5.051
3	5.199	180.433		5.194
4	6.422	183.754		6.415
5	8.132	267.371		8.124
6	10.335	301.646		10.325
7	11.303	442.762		11.254
8	13.080	495.904		13.066

PLATE-BUCKLING11 - BEUL-FS-QT-STEG EL- 264--12MM

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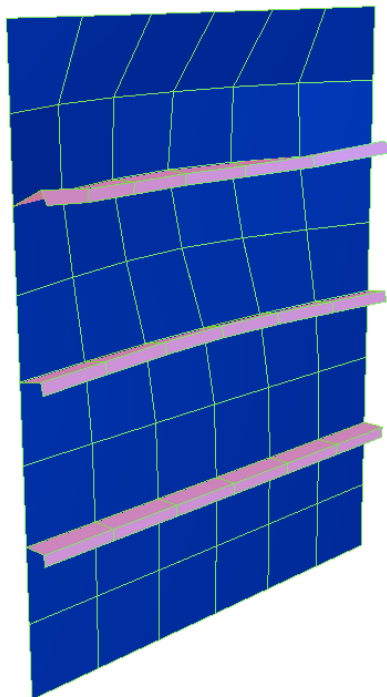
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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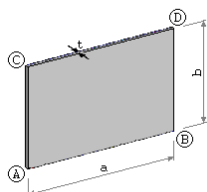
BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f _{yk} [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	2490.0	0.803	12.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible
FE-Model of stiffener	Real 3D-Model

STIFFENERS IN X-DIRECTION

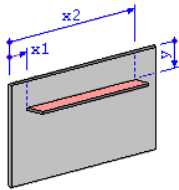
Stiffener- No.	Position [mm]			Type	Parameter [mm]	Effective flange width [mm]			
	y	x1	x2			b1	b2	b1'	b2'
1	625.0	0.0	2000.0	Rolled section L	L 100x50x6 (EN 1005	230.8	230.8	0.0	0.0
2	1250.0	0.0	2000.0	Rolled section L	L 100x50x6 (EN 1005	217.0	230.8	0.0	0.0
3	1875.0	0.0	2000.0	Rolled section L	L 100x50x6 (EN 1005	253.6	307.5	0.0	0.0

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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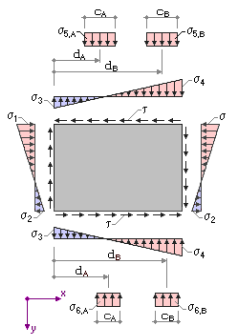


DESIGN FORCES IMPORTED FROM RSTAB

Load cases	For stresses	Govern. x [mm]	N [kN]	V-2 [kN]	V-3 [kN]	T [kN]	M-2 [kNm]	M-3 [kNm]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	Sigma Tau	2635.0 1245.0	-520.	25.86	2937.	331.06	11918	11918

NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	175.2	-148.2	-0.846	59.5



Compressive stress
positive !

DESIGN

LC2 - EXTREM MAX/MIN FALL HZ (AUS RSTAB, LK98)

Occurance of Sigma-x only			
Sigma	175.207	N/mm ²	Par. (110)
Psi	-0.846		Par. (110)
k	163.889		Par. (113), determined using FEM
Sigma-Pi	722.454	N/mm ²	Par. (113)
Lambda-P	53.562		Par. (113)
Lambda-P-bar	0.671		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	295.455	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	137.758	N/mm ²	Par. (602), determined analytically
Rho	-3.244		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.593		Par. (501), Eq. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	59.515	N/mm ²	Par. (110)
k	98.384		Par. (113), determined using FEM
Tau-Pi	433.694	N/mm ²	Par. (113)
Lambda-P	52.528		Par. (113)
Lambda-P-bar	0.658		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	170.581	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.349		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurance (Interaction condition)			
Critical stresses Sigma-x	175.207	N/mm ²	Corner C
Critical stresses Sigma-y	0.000	N/mm ²	
e1	2.000		Par. (504), EQ. (15)
Inter-Sigma-x	0.593		Par. (504), Eq. (14)
e3	2.000		Par. (504), Eq. (17)
Inter-Tau	0.349		Par. (504), Eq. (14)
Inter	0.473		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurance (FEM)			
Eta	3.133		determined using FEM

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 646
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EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC2 EXTREM MAX/MIN Fall HZ (aus RSTAB, LK98)				
1	4.123	7.287		3.133
2	4.495	7.583		4.302
3	4.893	12.248		5.417
4	5.498	14.934		5.725
5	7.889	31.863		7.057
6	12.649	42.840		7.884
7	12.896	45.746		11.037
8	14.160	54.326		15.050

PLATE-BUCKLING13 - BEUL-PS-QT-GURT EL- 600--25MM

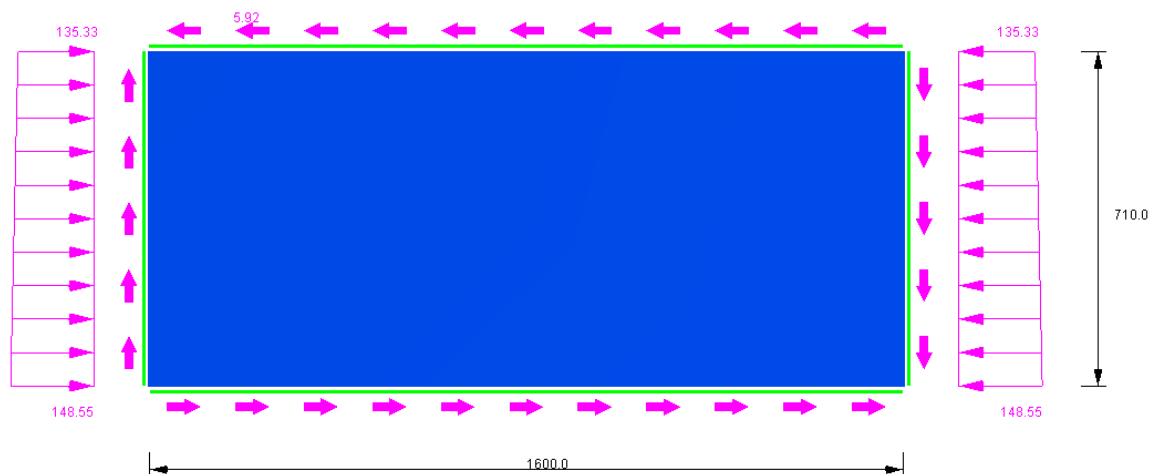
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

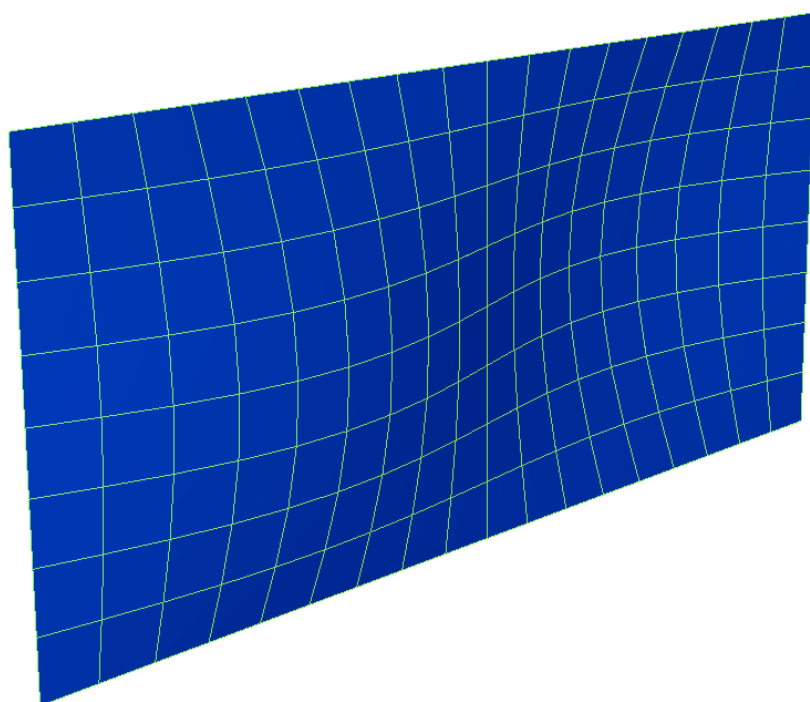
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BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X

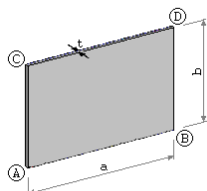


Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 648
		17.05.2009

MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f _{yk} [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
1600.0	710.0	2.254	25.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

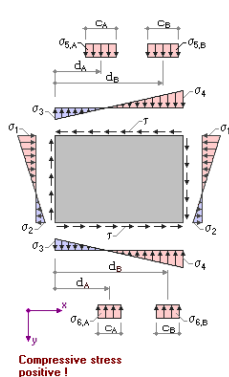
CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible

DESIGN FORCES IMPORTED FROM RSTAB

Load cases	For stresses	Govern. x [mm]	N [kN]	V-2 [kN]	V-3 [kN]	T [kN]	M-2 [kNm]	M-3 [kNm]
LC1 - EXTREM MAX/MIN Fall H (aus RSTAB, L	Sigma Tau	355.0 5245.0	-406.	0.26	-2346	-0.43	9956.	9956.

NORMAL AND SHEAR STRESSES



Load cases	Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC1 - EXTREM MAX/MIN Fall H (aus RSTAB, L	135.3	148.6	0.911	5.9

DESIGN

LC1 - EXTREM MAX/MIN FALL H (AUS RSTAB, LK97)

Occurance of Sigma-x only			
Sigma	148.551	N/mm ²	Par. (110)
Psi	0.911		Par. (110)
k	4.177		Par. (113), determined analytically
Sigma-Pi	982.949	N/mm ²	Par. (113)
Lambda-P	45.919		Par. (113)
Lambda-P-bar	0.575		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	295.455	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	42.168	N/mm ²	Par. (602), determined analytically
Rho	-21.311		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.503		Par. (501), Eq. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	5.918	N/mm ²	Par. (110)
k	6.128		Par. (113), determined analytically
Tau-Pi	1441.960	N/mm ²	Par. (113)
Lambda-P	28.807		Par. (113)
Lambda-P-bar	0.361		Par. (113)
Kappa	1.000		Par. (601), Table 1

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 649
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LC1 - EXTREM MAX/MIN FALL H (AUS RSTAB, LK97)

Tau-PRd	170.581	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.035		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurrence (Interaction condition)			
Critical stresses Sigma-x	148.551	N/mm ²	Corner A
Critical stresses Sigma-y	0.000	N/mm ²	
e1	2.000		Par. (504), EQ. (15)
Inter-Sigma-x	0.503		Par. (504), Eq. (14)
e3	2.000		Par. (504), Eq. (17)
Inter-Tau	0.035		Par. (504), Eq. (14)
Inter	0.254		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurrence (FEM)			
Eta	6.675		determined using FEM

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC1 EXTREM MAX/MIN Fall H (aus RSTAB, LK97)				
1	6.679	270.387		6.675
2	7.251	276.378		7.247
3	9.371	409.899		9.366
4	11.894	467.432		11.877
5	12.627	756.146		12.621
6	17.060	867.889		17.050
7	22.858	1451.110		22.843
8	29.519	1582.470		29.538

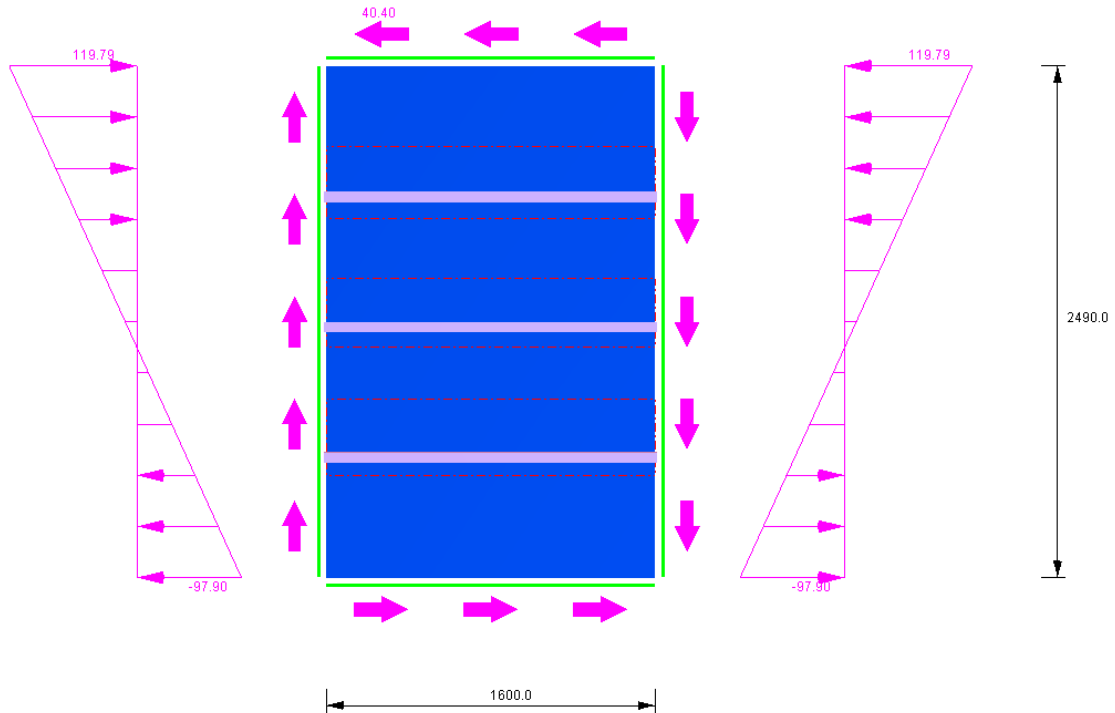
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

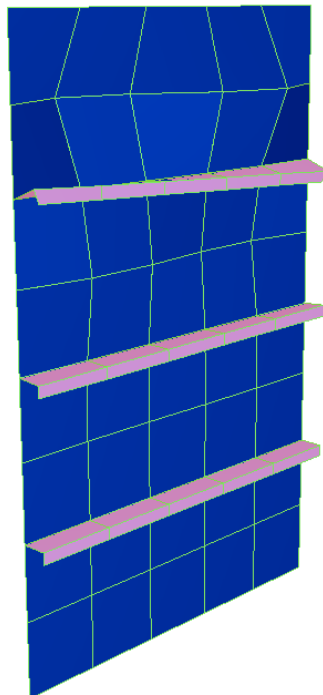
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BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X

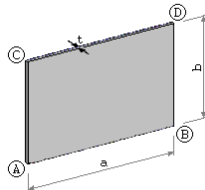


Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 651
		17.05.2009

MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f _{yk} [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



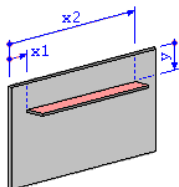
a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
1600.0	2490.0	0.643	12.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible
FE-Model of stiffener	Real 3D-Model



STIFFENERS IN X-DIRECTION

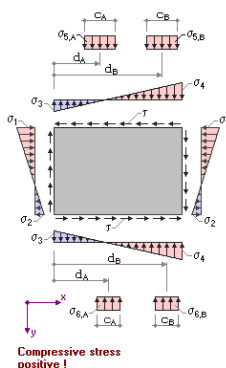
Stiffener- No.	Position [mm]			Type	Parameter [mm]	Effective flange width [mm]			
	y	x1	x2			b1	b2	b1'	b2'
1	625.0	0.0	1600.0	Rolled section L	L 100x50x6 (EN 1005	230.8	230.8	0.0	0.0
2	1250.0	0.0	1600.0	Rolled section L	L 100x50x6 (EN 1005	217.0	230.8	0.0	0.0
3	1875.0	0.0	1600.0	Rolled section L	L 100x50x6 (EN 1005	253.6	266.7	0.0	0.0

DESIGN FORCES IMPORTED FROM RSTAB

Load cases	For stresses	Govern. x [mm]	N [kN]	V-2 [kN]	V-3 [kN]	T [kN]	M-2 [kNm]	M-3 [kNm]
LC1 - EXTREM MAX/MIN Fall H (aus RSTAB, L	Sigma Tau	1245.0 4355.0	-406.	0.80	-2241	-1.32	8022.	8022.

NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC1 - EXTREM MAX/MIN Fall H (aus RSTAB, L	119.8	-97.9	-0.817	40.4



DESIGN

LC1 - EXTREM MAX/MIN FALL H (AUS RSTAB, LK97)

Occurance of Sigma-x only

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 652
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LC1 - EXTREM MAX/MIN FALL H (AUS RSTAB, LK97)

Sigma	119.791	N/mm ²	Par. (110)
Psi	-0.817		Par. (110)
k	175.990		Par. (113), determined using FEM
Sigma-Pi	775.797	N/mm ²	Par. (113)
Lambda-P	51.687		Par. (113)
Lambda-P-bar	0.647		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	295.455	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	219.634	N/mm ²	Par. (602), determined analytically
Rho	-1.532		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.405		Par. (501), Eq. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	40.397	N/mm ²	Par. (110)
k	132.762		Par. (113), determined using FEM
Tau-Pi	585.241	N/mm ²	Par. (113)
Lambda-P	45.218		Par. (113)
Lambda-P-bar	0.566		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	170.581	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.237		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurance (Interaction condition)			
Critical stresses Sigma-x	119.791	N/mm ²	Corner C
Critical stresses Sigma-y	0.000	N/mm ²	
e1	2.000		Par. (504), EQ. (15)
Inter-Sigma-x	0.405		Par. (504), Eq. (14)
e3	2.000		Par. (504), Eq. (17)
Inter-Tau	0.237		Par. (504), Eq. (14)
Inter	0.220		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurance (FEM)			
Eta	5.288		determined using FEM

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC1 EXTREM MAX/MIN Fall H (aus RSTAB, LK97)				
1	6.476	14.487		5.288
2	7.114	16.817		7.076
3	7.259	28.263		8.155
4	10.853	30.013		10.822
5	16.446	59.361		12.300
6	19.078	93.835		16.971
7	21.522	155.297		20.731
8	29.716	181.632		29.051

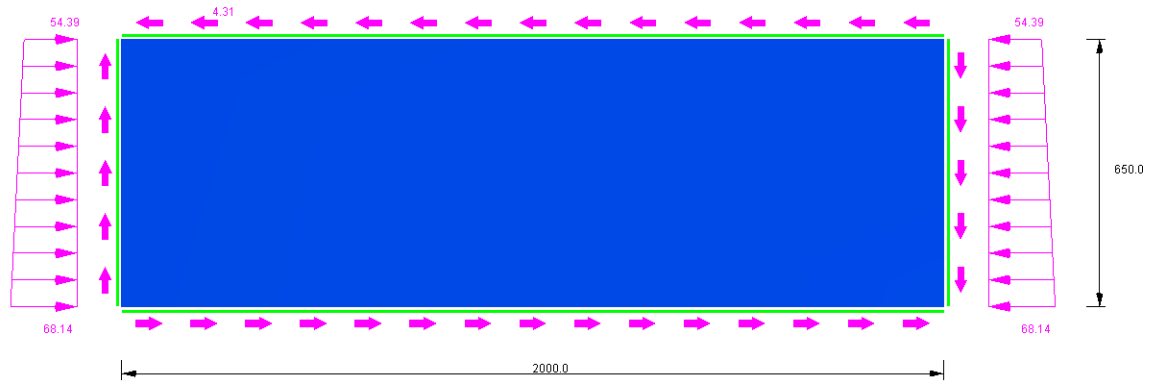
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

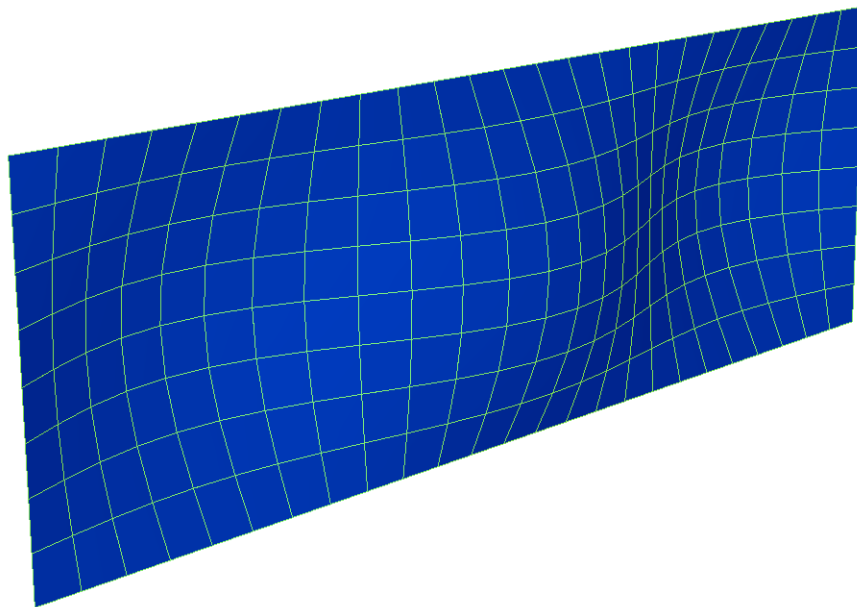
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BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f-yk [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS

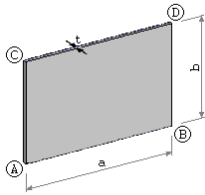
a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	650.0	3.077	8.0

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

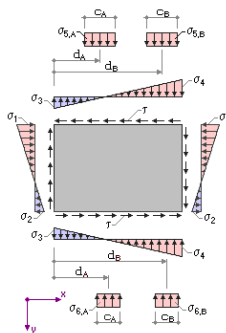
Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible

DESIGN FORCES IMPORTED FROM RSTAB

Load cases	For stresses	Govern. x [mm]	N [kN]	V-2 [kN]	V-3 [kN]	T [kN]	M-2 [kNm]	M-3 [kNm]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	Sigma, Tau	4642.4	418.61	-4.67	-78.65	14.84	-630.	-630.

NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm^2]	Sigma-2 [N/mm^2]	Psi [-]	Tau [N/mm^2]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	54.4	68.1	0.798	4.3



Compressive stress positive!

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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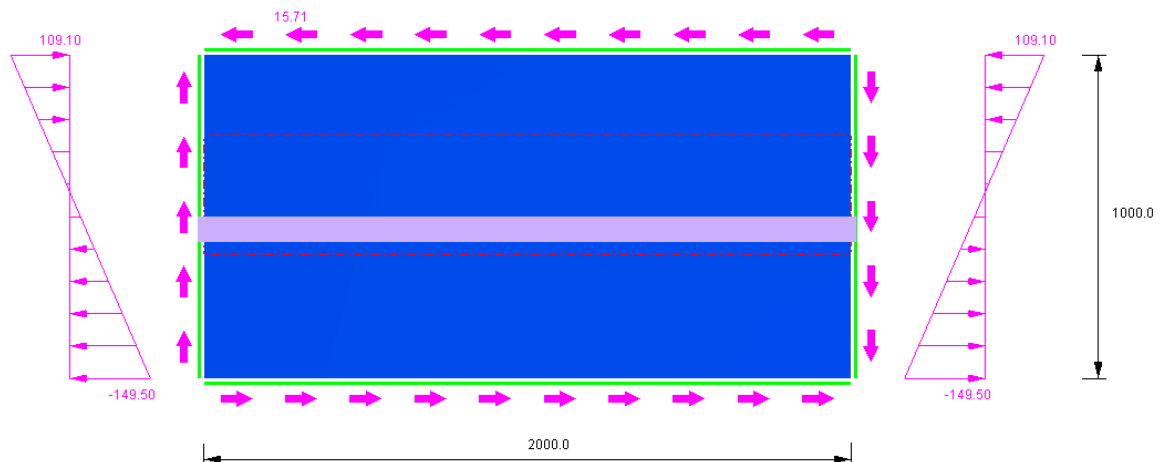
DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC2 EXTREM MAX/MIN Fall HZ (aus RSTAB, LK98)				
1	1.872	42.009		1.869
2	2.027	42.857		2.024
3	2.224	55.909		2.219
4	2.417	57.263		2.413
5	2.986	79.681		2.982
6	3.728	87.479		3.722
7	4.653	124.543		4.645
8	5.360	139.954		5.316

PLATE-BUCKLING16 - BEUL-KT-STEG EL- 264--8MM

BEULFELD MIT RANDSPANNUNGEN



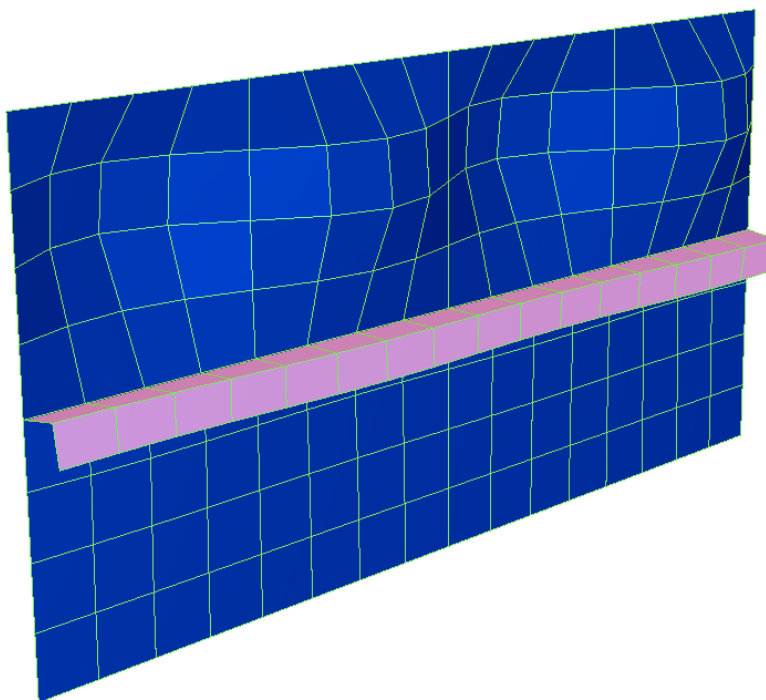
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



DESIGN

LC2 - EXTREM MAX/MIN FALL HZ (AUS RSTAB, LK98)

Occurance of Sigma-x only

Sigma	68.137	N/mm ²	Par. (110)
Psi	0.798		Par. (110)
k	4.425		Par. (113), determined analytically
Sigma-Pi	127.224	N/mm ²	Par. (113)
Lambda-P	127.637		Par. (113)
Lambda-P-bar	1.598		Par. (113)
Kappa	0.567		Par. (601), Table 1
Sigma-PRd	167.450	N/mm ²	Par. (502), Eq. (11)
LAMBDA	3.055		El. (602), Gl. (22)
Sigma-Ki	2.763	N/mm ²	Par. (602), determined analytically
Rho	-20.921		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.407		Par. (501), Eq. (9)

ANALYSIS OK

Occurance of Tau only

Tau	4.310	N/mm ²	Par. (110)
k	5.763		Par. (113), determined analytically
Tau-Pi	165.676	N/mm ²	Par. (113)
Lambda-P	84.986		Par. (113)
Lambda-P-bar	1.064		Par. (113)
Kappa	0.789		Par. (601), Table 1
Tau-PRd	134.641	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.032		Par. (501), Eq. (10)

ANALYSIS OK

Simultaneous occurance (Interaction condition)

Critical stresses Sigma-x	68.137	N/mm ²	Corner A
Critical stresses Sigma-y	0.000	N/mm ²	
e1	1.103		Par. (504), EQ. (15)
Inter-Sigma-x	0.407		Par. (504), Eq. (14)
e3	1.353		Par. (504), Eq. (17)
Inter-Tau	0.032		Par. (504), Eq. (14)
Inter	0.380		Par. (504), Eq. (14)

ANALYSIS OK

Simultaneous occurance (FEM)

Eta	1.869		determined using FEM

MATERIAL

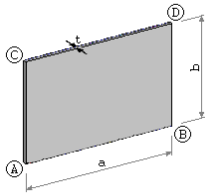
Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f-yk [N/mm ²]	Mue [-]
Stahl, DIN 18800, t <= 40 mm	210000.0	240.0	0.300

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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PANEL DIMENSIONS

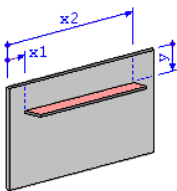
a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	1000.0	2.000	8.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible
FE-Model of stiffener	Real 3D-Model

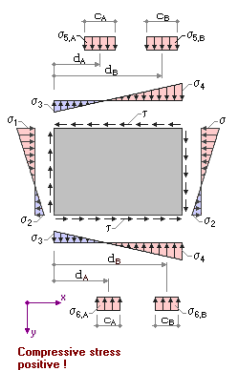


STIFFENERS IN X-DIRECTION

Stiffener- No.	Position [mm]			Type	Parameter [mm]	Effective flange width [mm]			
	y	x1	x2			b1	b2	b1'	b2'
1	500.0	0.0	2000.0	Rolled section L	L 80x80x8 (EN 10056-	250.0	250.0	0.0	0.0

NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm^2]	Sigma-2 [N/mm^2]	Psi [-]	Tau [N/mm^2]
LC1 - R-STAB	109.1	-149.5	-1.370	15.7



DESIGN

LC1 - R-STAB

Occurance of Sigma-x only			
Sigma	109.100	N/mm^2	Par. (110)
Psi	-1.370		Par. (110)
k	50.837		Par. (113), determined using FEM
Sigma-Pi	617.531	N/mm^2	Par. (113)
Lambda-P	57.934		Par. (113)
Lambda-P-bar	0.623		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	218.182	N/mm^2	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	425.257	N/mm^2	Par. (602), determined analytically
Rho	0.548		Par. (602), Eq. (21)
Kappa-PK	0.948		Par. (603), Eq. (24)
Sigma-PKRd	206.730	N/mm^2	Par. (502), Gl. (11)
Sigma / Sigma-PKRd	0.528		Par. (501), Gl. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	15.710	N/mm^2	Par. (110)
k	22.858		Par. (113), determined using FEM

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 658
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LC1 - R-STAB

Tau-Pi	277.657	N/mm ²	Par. (113)
Lambda-P	65.648		Par. (113)
Lambda-P-bar	0.706		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	125.967	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.125		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurrence (Interaction condition)			
Critical stresses Sigma-x	-149.500	N/mm ²	Corner A
Critical stresses Sigma-y	0.000	N/mm ²	
e1	2.000		Par. (504), EQ. (15)
Inter-Sigma-x	0.685		Par. (504), Eq. (14)
e3	2.000		Par. (504), Eq. (17)
Inter-Tau	0.125		Par. (504), Eq. (14)
Inter	0.485		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurrence (FEM)			
Eta	5.499		determined using FEM

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC1 R-STAB				
1	5.660	17.674		5.499
2	5.685	24.949		5.595
3	6.287	30.951		6.181
4	6.611	34.486		6.375
5	7.366	38.463		7.267
6	8.939	39.154		8.836
7	10.009	42.570		8.847
8	11.096	45.041		10.990

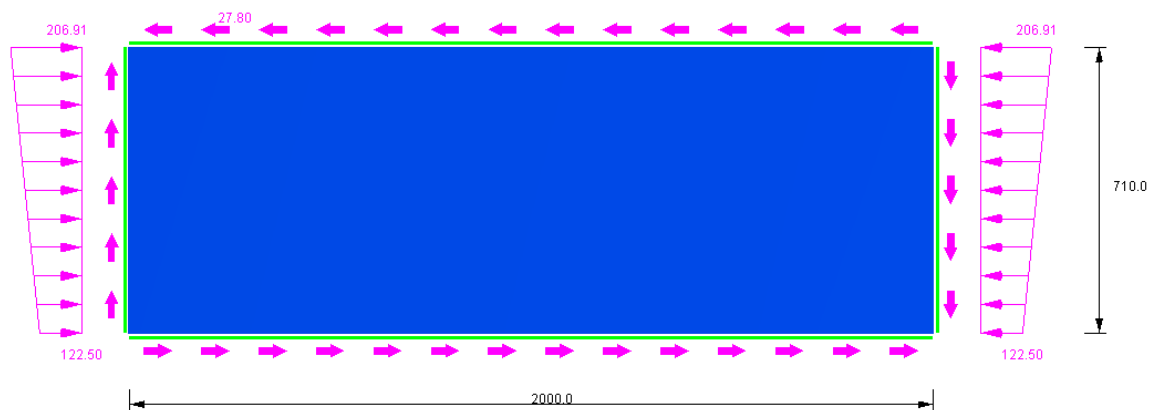
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

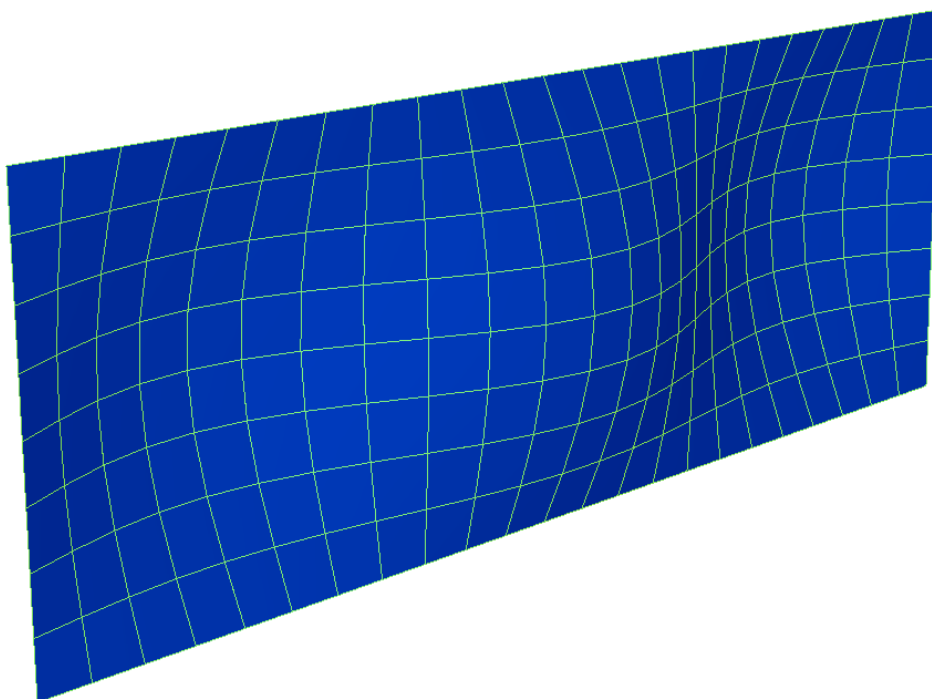
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BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

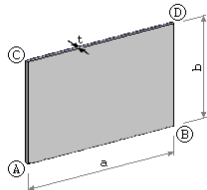
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MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f-yk [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	710.0	2.817	25.0

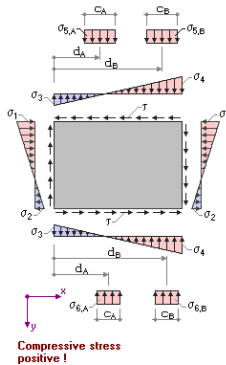
BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible

NORMAL AND SHEAR STRESSES



Load cases	Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC2 - R-STAB	206.9	122.5	0.592	27.8

DESIGN

LC2 - R-STAB

Occurance of Sigma-x only			
Sigma	206.910	N/mm ²	Par. (110)
Psi	0.592		Par. (110)
k	4.964		Par. (113), determined analytically
Sigma-Pi	1168.230	N/mm ²	Par. (113)
Lambda-P	42.121		Par. (113)
Lambda-P-bar	0.527		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	295.455	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	26.987	N/mm ²	Par. (602), determined analytically
Rho	-41.288		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.700		Par. (501), Eq. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	27.800	N/mm ²	Par. (110)
k	5.844		Par. (113), determined analytically
Tau-Pi	1375.240	N/mm ²	Par. (113)
Lambda-P	29.498		Par. (113)
Lambda-P-bar	0.369		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	170.581	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.163		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurance (Interaction condition)			
Critical stresses Sigma-x	206.910	N/mm ²	Corner C
Critical stresses Sigma-y	0.000	N/mm ²	
e1	2.000		Par. (504), EQ. (15)
Inter-Sigma-x	0.700		Par. (504), Eq. (14)
e3	2.000		Par. (504), Eq. (17)

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 661
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LC2 - R-STAB

Inter-Tau	0.163	Par. (504), Eq. (14)
Inter	0.517	Par. (504), Eq. (14)
ANALYSIS OK		
Simultaneous occurrence (FEM)		
Eta	5.657	determined using FEM

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC2 R-STAB				
1	5.712	53.718		5.657
2	6.335	55.515		6.251
3	6.500	75.016		6.445
4	8.019	76.397		7.949
5	10.139	111.161		10.050
6	12.861	125.411		12.744
7	14.159	184.081		13.652
8	16.242	206.175		16.096

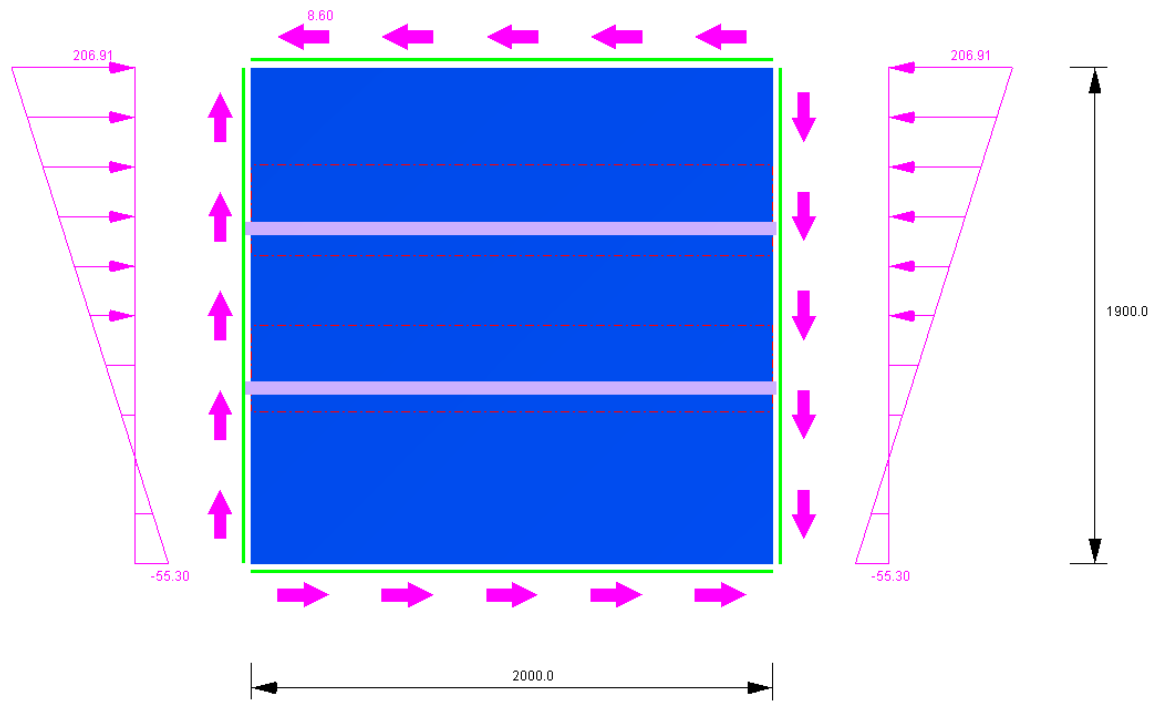
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

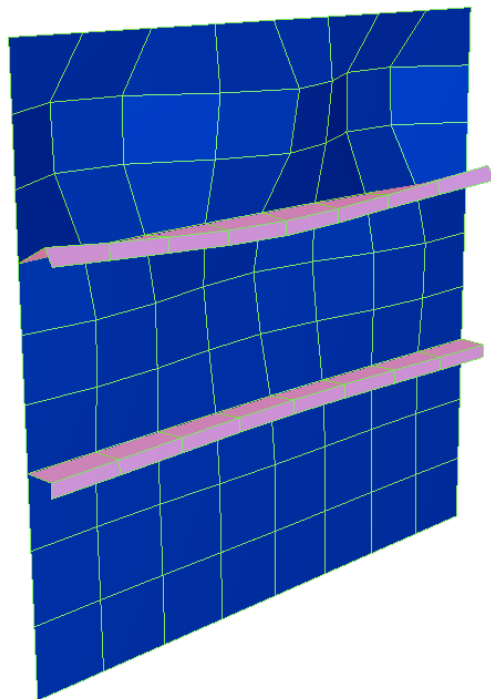
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BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

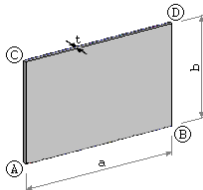
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MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f _{yk} [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



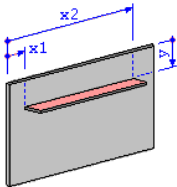
a [mm]	Side length b [mm]	Aspect ratio Alpha	Plate thickness t [mm]
2000.0	1900.0	1.053	12.0

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible
FE-Model of stiffener	Real 3D-Model

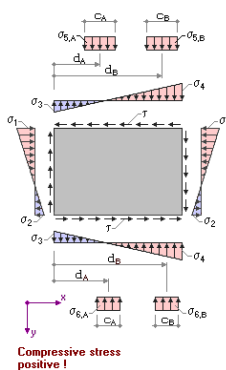


STIFFENERS IN X-DIRECTION

Stiffener- No.	Position [mm]			Type	Parameter [mm]	Effective flange width [mm]			
	y	x1	x2			b1	b2	b1'	b2'
1	600.0	0.0	2000.0	Rolled section L	L 100x50x6 (EN 1005	228.3	228.3	0.0	0.0
2	1200.0	0.0	2000.0	Rolled section L	L 100x50x6 (EN 1005	213.3	237.1	0.0	0.0

NORMAL AND SHEAR STRESSES

Load cases	Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC2 - EXTREM MAX/MIN Fall HZ (aus RSTAB,	206.9	-55.3	-0.267	8.6



DESIGN

LC2 - EXTREM MAX/MIN FALL HZ (AUS RSTAB, LK98)

Occurance of Sigma-x only			
Sigma	206.910	N/mm ²	Par. (110)
Psi	-0.267		Par. (110)
k	78.745		Par. (113), determined using FEM
Sigma-Pi	596.176	N/mm ²	Par. (113)
Lambda-P	58.962		Par. (113)
Lambda-P-bar	0.738		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	295.455	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	145.593	N/mm ²	Par. (602), determined analytically

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 664
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LC2 - EXTREM MAX/MIN FALL HZ (AUS RSTAB, LK98)

Rho	-2.095		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.700		Par. (501), Eq. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	8.600	N/mm ²	Par. (110)
k	41.931		Par. (113), determined using FEM
Tau-Pi	317.461	N/mm ²	Par. (113)
Lambda-P	61.395		Par. (113)
Lambda-P-bar	0.769		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	170.581	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.050		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurance (Interaction condition)			
Critical stresses Sigma-x	206.910	N/mm ²	Corner C
Critical stresses Sigma-y	0.000	N/mm ²	
e1	2.000		Par. (504), EQ. (15)
Inter-Sigma-x	0.700		Par. (504), Eq. (14)
e3	2.000		Par. (504), Eq. (17)
Inter-Tau	0.050		Par. (504), Eq. (14)
Inter	0.493		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurance (FEM)			
Eta	2.876		determined using FEM

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC2 EXTREM MAX/MIN Fall HZ (aus RSTAB, LK98)				
1	2.881	36.914		2.876
2	3.092	50.546		3.031
3	3.261	65.385		3.272
4	3.365	90.025		3.422
5	4.435	134.433		4.433
6	6.699	149.484		6.697
7	7.178	156.448		6.752
8	7.209	176.900		7.151

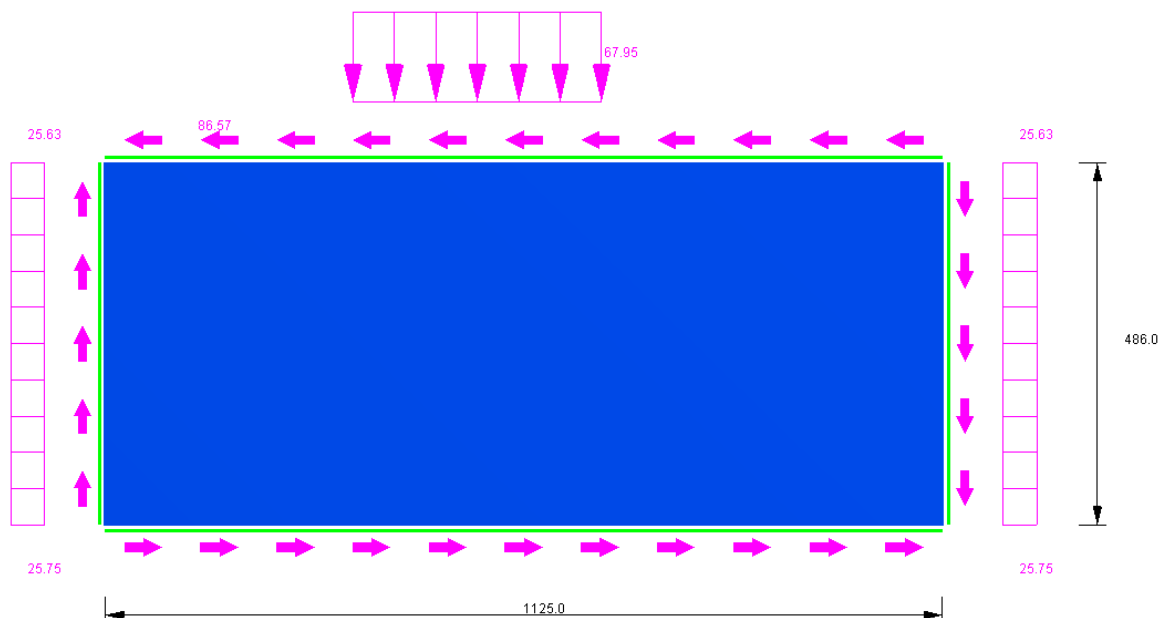
Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

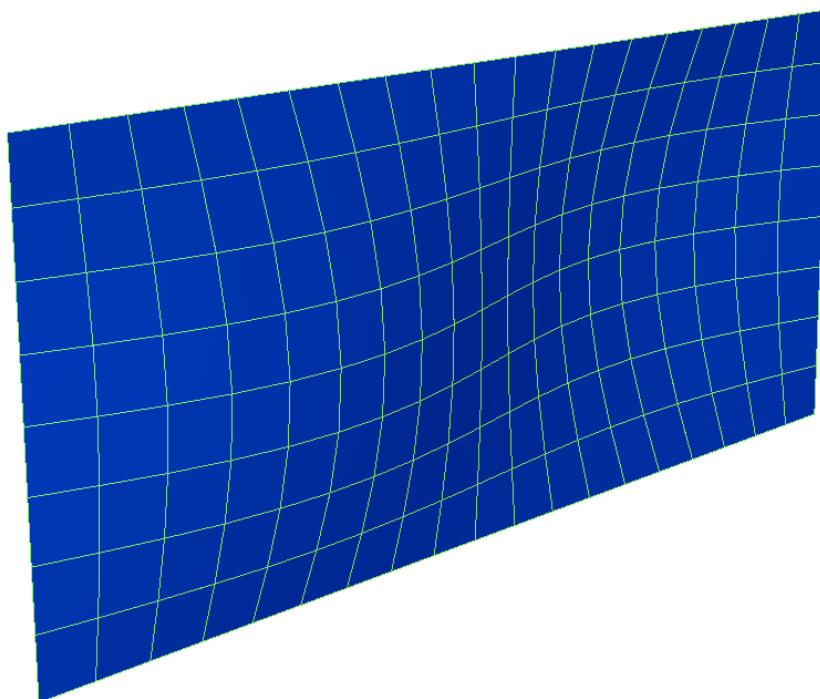
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BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

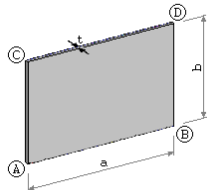
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MATERIAL

Material-Description	Elast.-Mod E [N/mm ²]	Yield stress f-yk [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS



Side length	Aspect ratio Alpha	Plate thickness t [mm]
a [mm] 1125.0 (aus RSTAB, Stab 8)	b [mm] 486.0 2.315	15.5

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

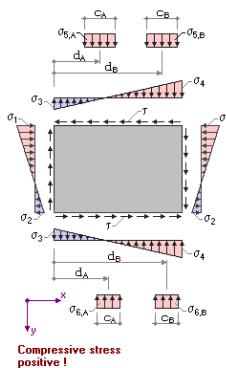
CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible

PANEL IMPORTED FROM RSTAB

Imported from El.-No.	Panel-No.	Position of panel in Element Begin x1 [mm]	End x2 [mm]	Section Name
8	5	0.00	1125.00	HE-B 600

NORMAL AND SHEAR STRESSES



Load cases	Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC1 - EXTREM MAX/MIN Fall H (aus RSTAB, L	25.6	25.8	0.995	86.6

TRANSVERS STRESSES

Load cases	Sigma-3 [N/mm ²]	Sigma-4 [N/mm ²]	Sigma-5,A d, c [mm]	Sigma-5,B d, c [mm]	Sigma-6,A d, c [mm]	Sigma-6,B d, c [mm]
LC1	0	0	68 500 334	0 - -	0 - -	0 - -

DESIGN

LC1 - EXTREM MAX/MIN FALL H (AUS RSTAB, LK97)

Occurance of Sigma-x only			
Sigma	25.750	N/mm ²	Par. (110)
Psi	0.995		Par. (110)
k	4.009		Par. (113), determined analytically
Sigma-Pi	773.949	N/mm ²	Par. (113)
Lambda-P	51.749		Par. (113)
Lambda-P-bar	0.648		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	295.455	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	32.787	N/mm ²	Par. (602), determined analytically
Rho	-21.606		Par. (602), Eq. (21)

Project: VENLO	Position: CTK 41 T x (24+37+18)m-M	Page: 667
		17.05.2009

LC1 - EXTREM MAX/MIN FALL H (AUS RSTAB, LK97)

Sigma / Sigma-PRd ANALYSIS OK	0.087		Par. (501), Eq. (9)
Occurance of Sigma-y only			
Sigma	67.950	N/mm ²	Par. (110)
Psi	1.000		Par. (110)
k	21.249		Par. (113), determined using FEM
Sigma-Pi	765.594	N/mm ²	Par. (113)
Lambda-P	52.031		Par. (113)
Lambda-P-bar	0.652		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	295.455	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		Par. (602), Eq. (22)
Sigma-Ki	175.683	N/mm ²	Par. (602), determined analytically
Rho	-2.358		Par. (602), Eq. (21)
Sigma / Sigma-PRd ANALYSIS OK	0.230		Par. (501), Eq. (9)
Occurance of Tau only			
Tau	86.570	N/mm ²	Par. (110)
k	6.086		Par. (113), determined analytically
Tau-Pi	1175.050	N/mm ²	Par. (113)
Lambda-P	31.912		Par. (113)
Lambda-P-bar	0.400		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	170.581	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd ANALYSIS OK	0.508		Par. (501), Eq. (10)
Simultaneous occurance (Interaction condition)			
Critical stresses Sigma-x	25.630	N/mm ²	Rand CD, Distance : 333.000 mm
Critical stresses Sigma-y	67.950	N/mm ²	
e1	2.000		Par. (504), EQ. (15)
Inter-Sigma-x	0.087		Par. (504), Eq. (14)
e2	2.000		Par. (504), Eq. (16)
Inter-Sigma-y	0.230		Par. (504), Eq. (14)
V	1.000		Par. (504), Eq. (18) or (19)
e3	2.000		Par. (504), Eq. (17)
Inter-Tau	0.508		Par. (504), Eq. (14)
Inter ANALYSIS OK	0.298		Par. (504), Eq. (14)
Simultaneous occurance (FEM)			
Eta	7.487		determined using FEM

EXPLANATIONS

Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

DESIGN

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC1 EXTREM MAX/MIN Fall H (aus RSTAB, LK97)				
1	30.491	15.021	11.267	7.487
2	32.354	15.443	26.883	9.459
3	41.191	22.452	28.072	13.977
4	54.932	25.309	43.029	17.429
5	55.963	40.207	48.032	23.215
6	73.628	46.228	65.426	28.312
7	97.991	75.781	75.643	38.419
8	129.189	82.914	80.705	44.319

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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DESIGN

LC2 - EXTREM MAX/MIN FALL HZ (AUS RSTAB, LK98)

Occurance of Sigma-x only			
Sigma	77.420	N/mm ²	Par. (110)
Psi	0.994		Par. (110)
k	4.011		Par. (113), determined analytically
Sigma-Pi	339.814	N/mm ²	Par. (113)
Lambda-P	78.098		Par. (113)
Lambda-P-bar	0.978		Par. (113)
Kappa	0.794		Par. (601), Table 1
Sigma-PRd	234.495	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	9.715	N/mm ²	Par. (602), determined analytically
Rho	-32.977		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.330		Par. (501), Eq. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	1.619	N/mm ²	Par. (110)
k	5.844		Par. (113), determined analytically
Tau-Pi	495.085	N/mm ²	Par. (113)
Lambda-P	49.163		Par. (113)
Lambda-P-bar	0.616		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	170.581	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.009		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurance (Interaction condition)			
Critical stresses Sigma-x	77.420	N/mm ²	Corner A
Critical stresses Sigma-y	0.000	N/mm ²	
e1	1.397		Par. (504), EQ. (15)
Inter-Sigma-x	0.330		Par. (504), Eq. (14)
e3	1.794		Par. (504), Eq. (17)
Inter-Tau	0.009		Par. (504), Eq. (14)
Inter	0.213		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurance (FEM)			
Eta	4.405		determined using FEM

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

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DYNAM1 - DYNAMISCHE ANALYSE

GENERAL DATA

- Selected method:
- ☒ Eigenvibrations
 - ☐ Forced Vibrations
 - ☐ Equivalent Lateral Forces Analysis
- Number of lowest Eigenvalues: 10
- ☒ Consider self-weight
- with factor: 1.00
- Effect of Masses in
- ☒ X-direction
 - ☒ Y-direction
 - ☒ Z-direction
- ☒ X-rotational
 - ☒ Y-rotational
 - ☒ Z-rotational
- Internal Partition for
- Approximation Method: 1
 - Tapering/EI Foundations: 6
- Type of Mass Matrix
- ☐ Diagonal
 - ☒ Consistent
 - ☐ Standard matrix
- ☐ Considering geometrical stiffness matrix
- Details
- Gravity acceleration: 10.00 [ms⁻²]
 - Max number of iterations: 100
 - Break Off Limit: 0.00001

RESULTS

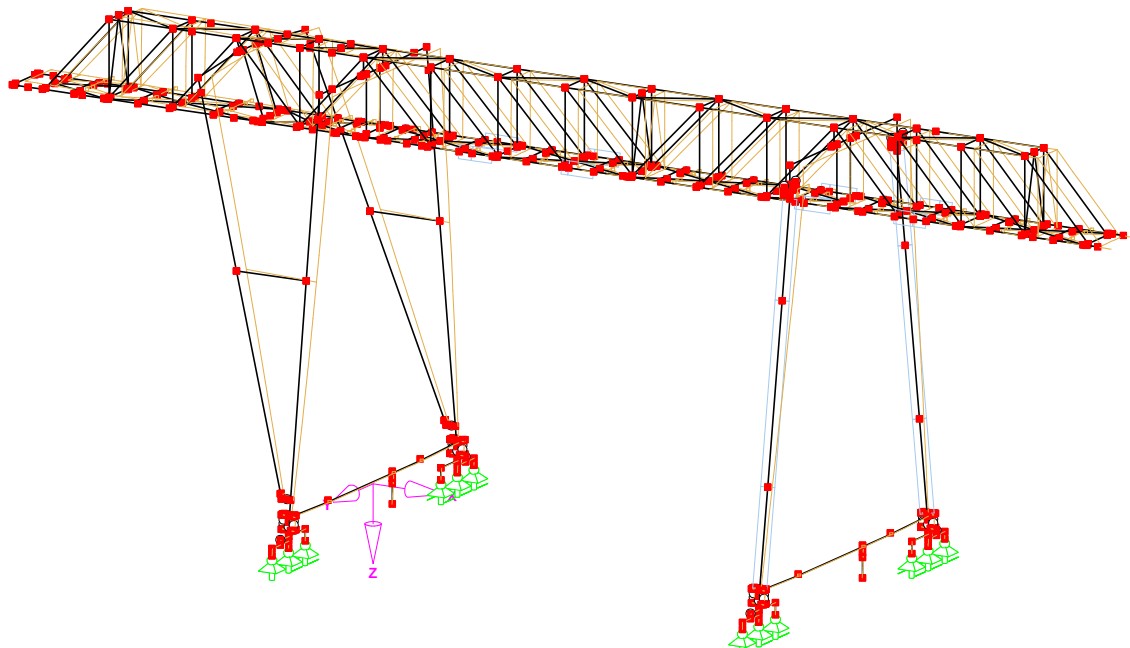
EIGENVALUES AND EIGENFREQUENCIES

Eigen No.	Eigenvalue λ_i [1/s ²]	Angular Frequency ω_i [rad/s]	Frequency f_i [Hz]	Eigenperiod T_i [s]	
1	16.19332	4.02409	0.64045	1.561392	
2	32.81614	5.72854	0.91173	1.096822	
3	51.05328	7.14516	1.13719	0.879363	
4	287.52142	16.95646	2.69870	0.370548	
5	299.55405	17.30763	2.75459	0.363030	
6	355.82908	18.86343	3.00221	0.333088	
7	531.67210	23.05802	3.66980	0.272495	
8	571.79665	23.91227	3.80576	0.262760	
9	847.24663	29.10750	4.63260	0.215861	
10	909.27725	30.15422	4.79919	0.208368	

DYNAMISCHE ANALYSE

DYNAM1 - Dynamische Analyse
Eigenshape No.: 1

Isometric



Angular Frequency: 4.024 [1/sec]

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

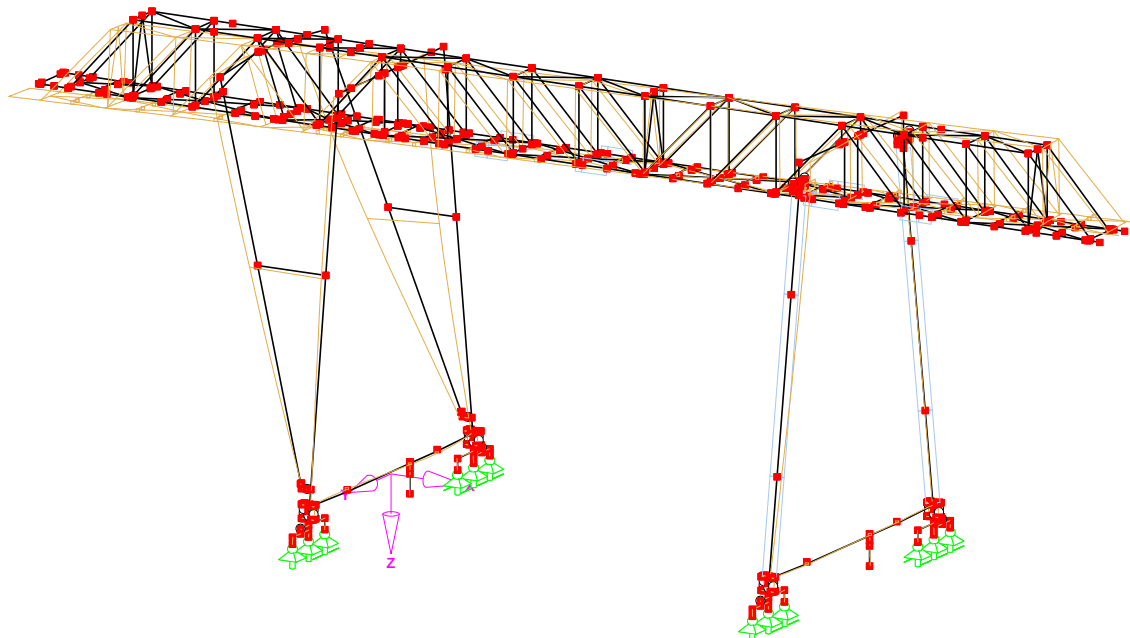
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DYNAMISCHE ANALYSE

DYNAM1 - Dynamische Analyse
Eigenshape No.: 2

Isometric

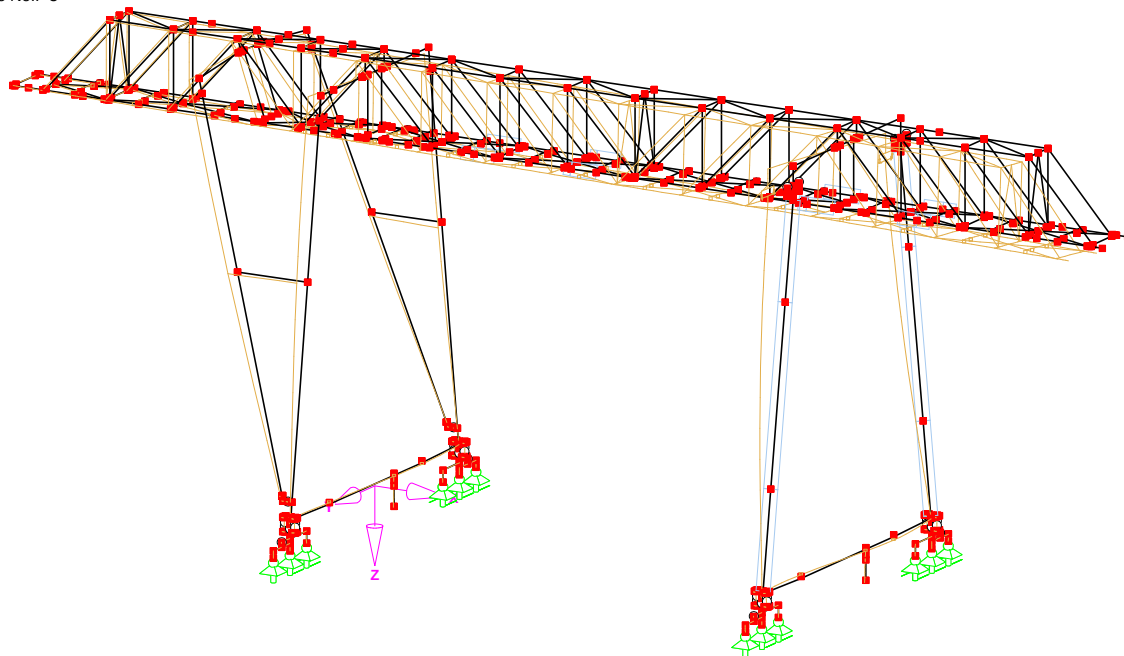


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DYNAMISCHE ANALYSE

DYNAM1 - Dynamische Analyse
Eigenshape No.: 3

Isometric



Angular Frequency: 7.145 [1/sec]

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

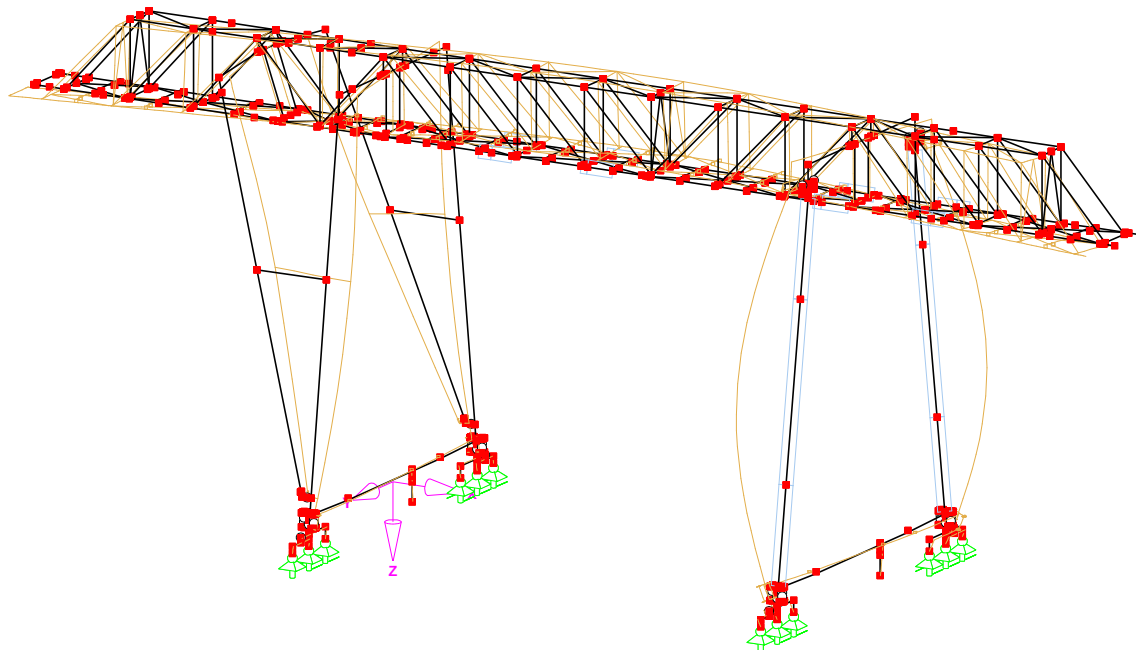
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DYNAMISCHE ANALYSE

DYNAM1 - Dynamische Analyse
Eigenshape No.: 4

Isometric

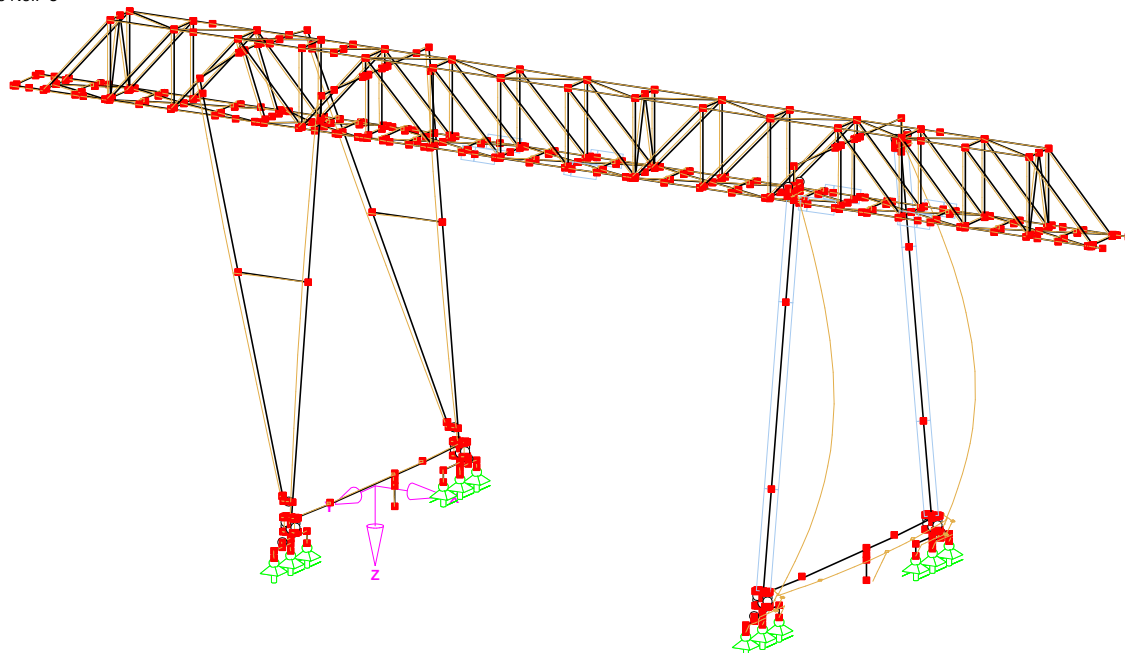


Angular Frequency: 16.956 [1/sec]

DYNAMISCHE ANALYSE

DYNAM1 - Dynamische Analyse
Eigenshape No.: 5

Isometric



Angular Frequency: 17.308 [1/sec]

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

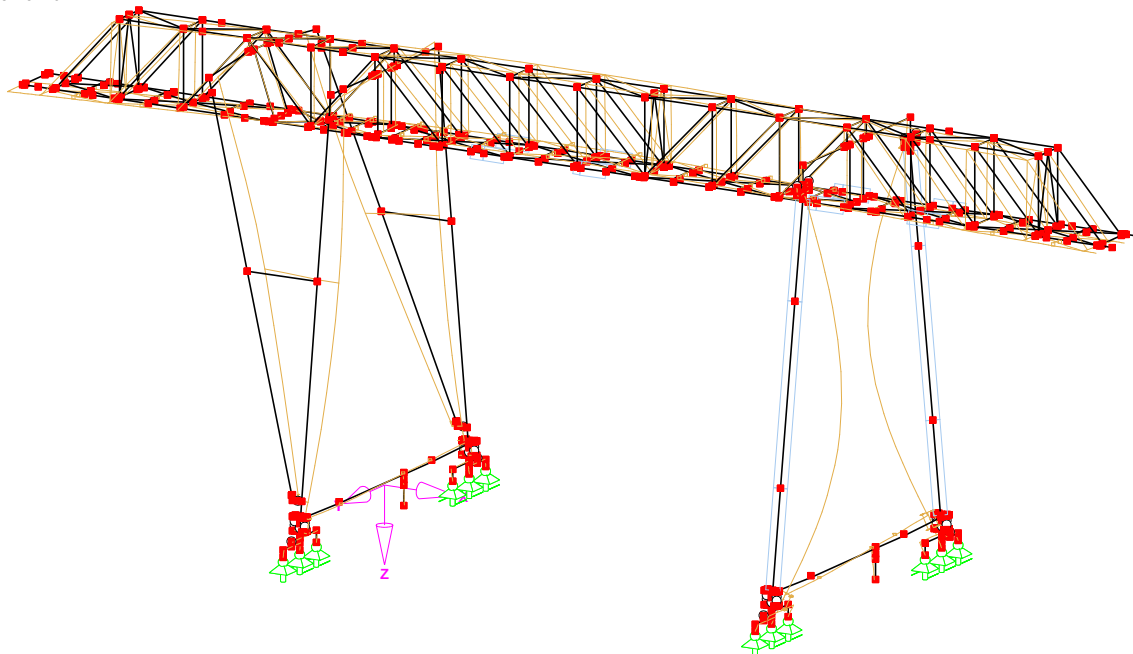
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DYNAMISCHE ANALYSE

DYNAM1 - Dynamische Analyse
Eigenshape No.: 6

Isometric

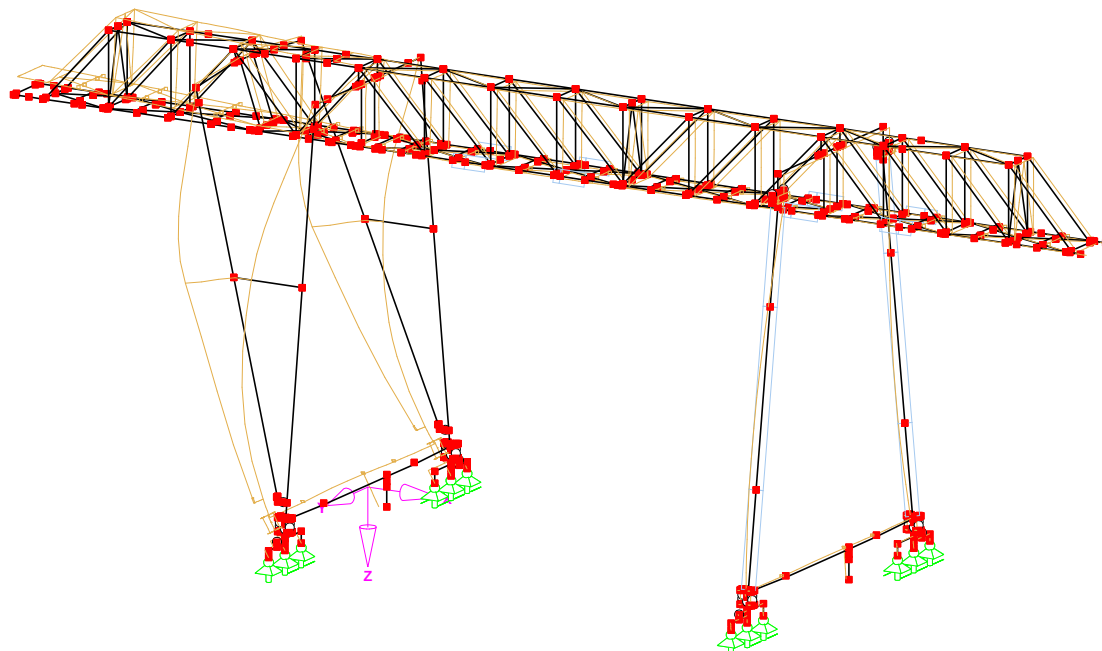


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DYNAMISCHE ANALYSE

DYNAM1 - Dynamische Analyse
Eigenshape No.: 7

Isometric



Angular Frequency: 23.058 [1/sec]

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

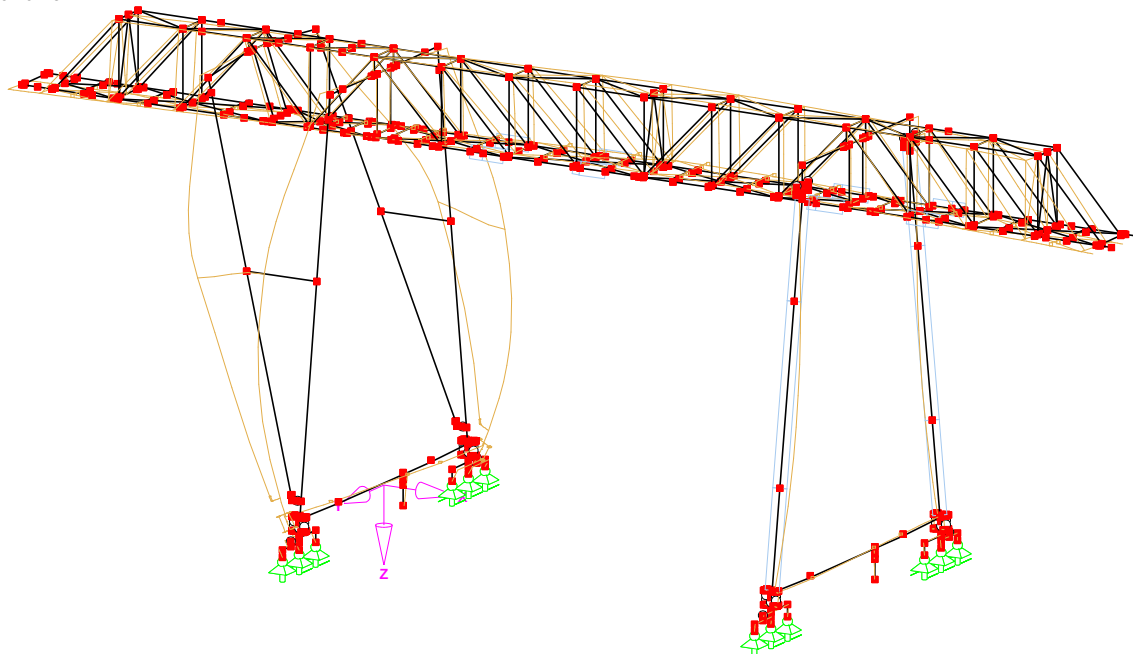
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DYNAMISCHE ANALYSE

DYNAM1 - Dynamische Analyse
Eigenshape No.: 8

Isometric

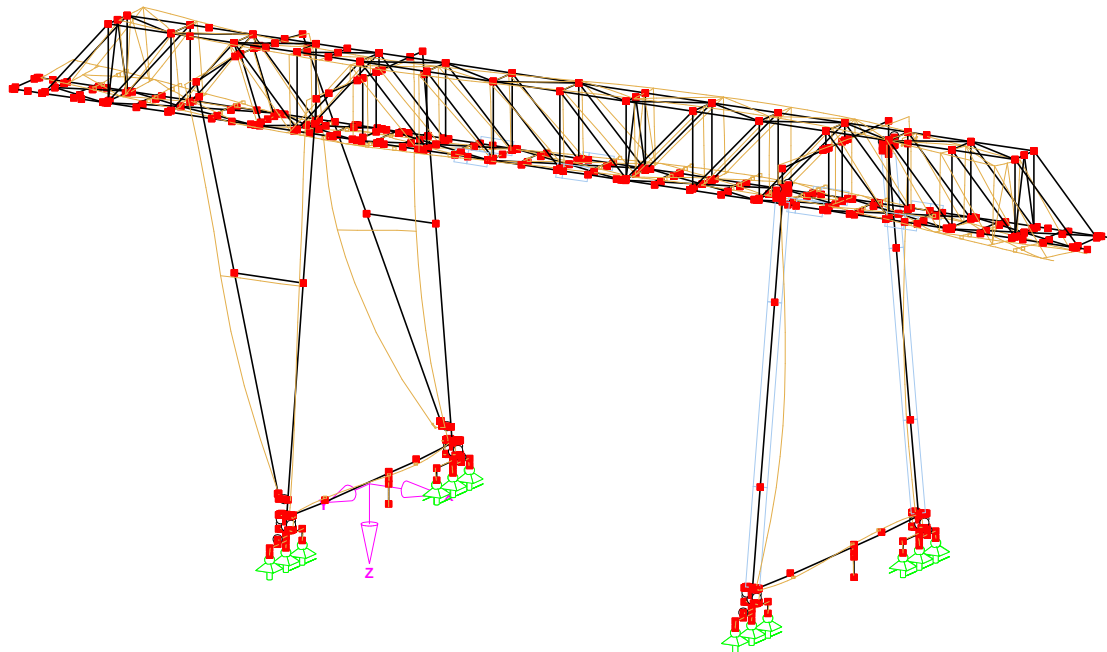


Angular Frequency: 23.912 [1/sec]

DYNAMISCHE ANALYSE

DYNAM1 - Dynamische Analyse
Eigenshape No.: 9

Isometric



Angular Frequency: 29.108 [1/sec]

Project: VENLO

Position: CTK 41 T x (24+37+18)m-M

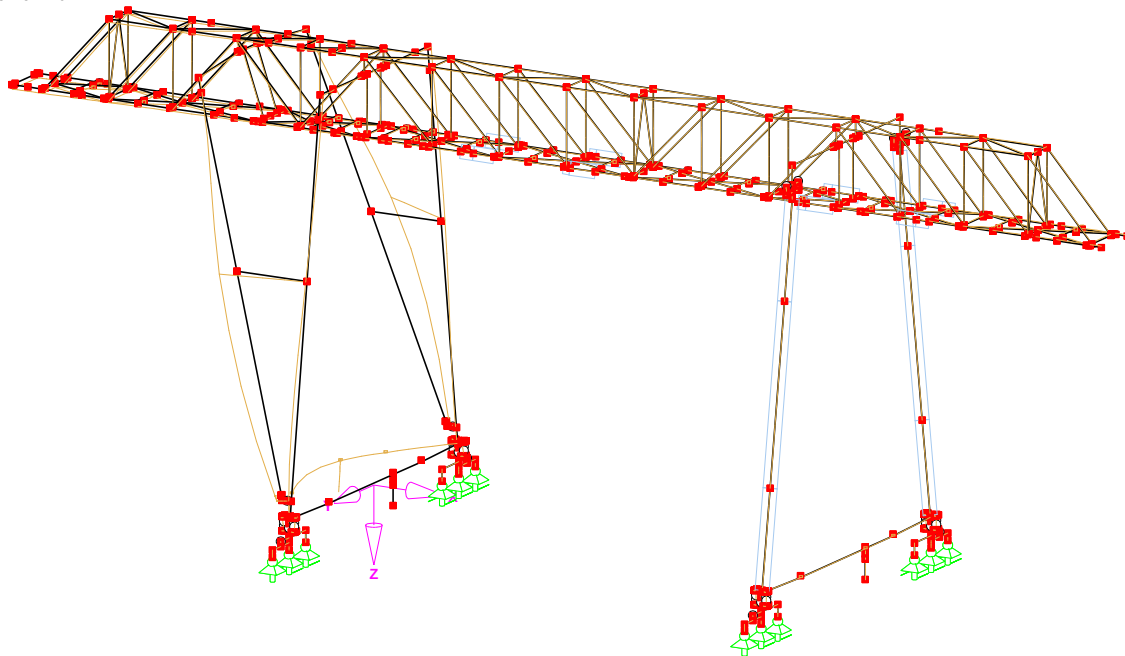
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DYNAMISCHE ANALYSE

DYNAM1 - Dynamische Analyse
Eigenshape No.: 10

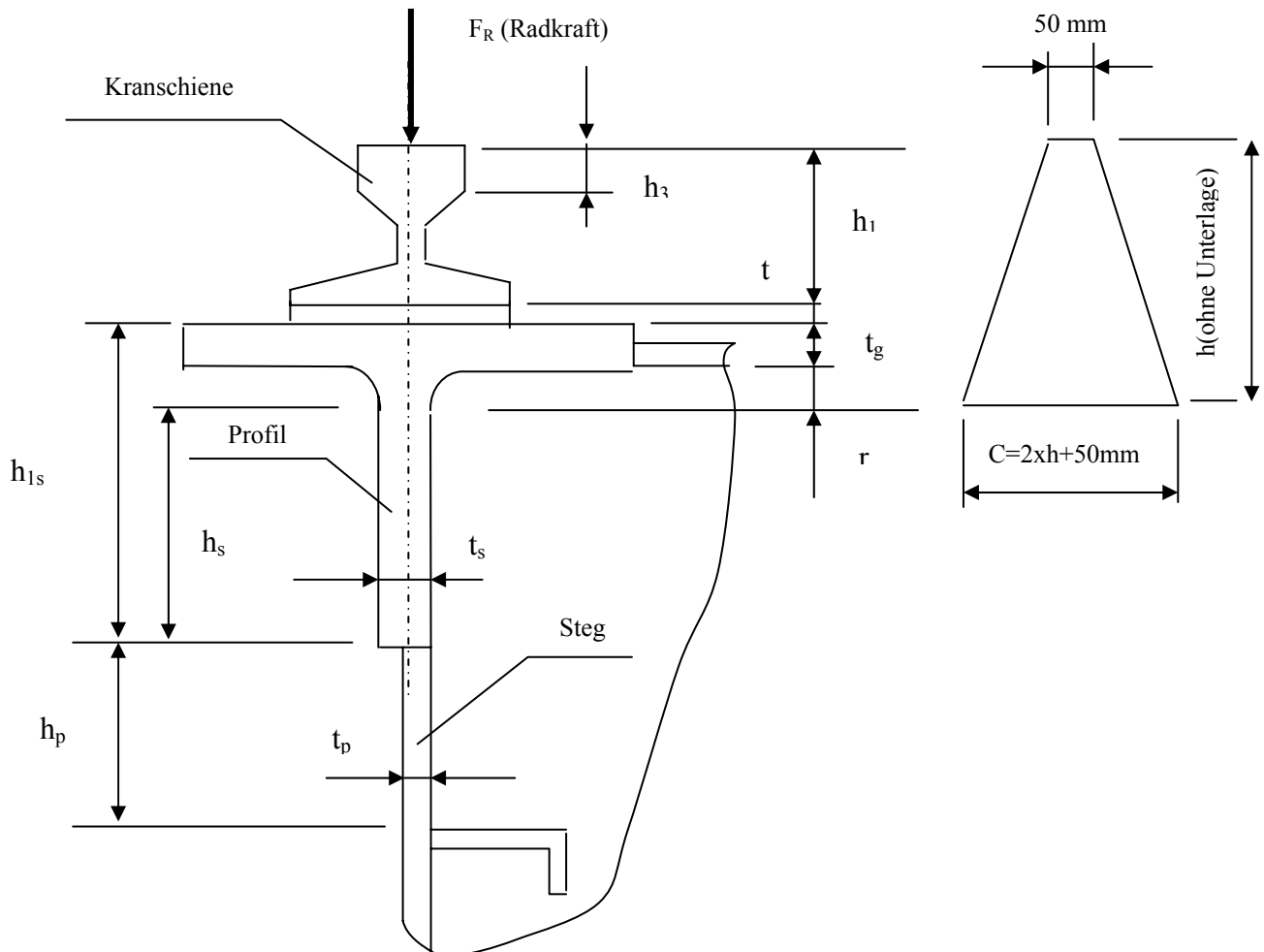
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Angular Frequency: 30.154 [1/sec]

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 Static calculations for tension under trolley rails	Seite: 675

5. Tensions under trolley rails (main girder):



Trolley rails **A 100** : h_1 h_3

Profile **HEB 600, (HEM 600)**: h_s t_s t_g r

Web: h_p t_p

Elastic underlay: t_u

Spacing h between rail head worn down by 25% up to rounding (without calculation of thickness of elastic underlay t_u)

$$h = (h_1 - 0.25 \times h_3) + t_g + r$$

$$C = 2 \times h + 50 \text{ mm}$$

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
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$\sigma_{x,d}$ = normal tension from bending => rated value (R-Stab)

σ_z = normal tension from wheel load inducement

$\sigma_{z,d}$ = normal tension from wheel load inducement => rated value

$T_{1,d}$ = shear stress => rated value (R-Stab)

γ_F = safety factor

Tensions may be reduced by 75% due to the elastic underlay.

$$\sigma_z = \sigma_{y\text{Platte}} = 0.75 \times F_R / (c \times t_s)$$

$$\sigma_{z,d} = \sigma_{y\text{Platte}} = \gamma_F \times 0.75 \times F_R / (c \times t_s)$$

$$T_{2,d} = 0.2 \times \sigma_z$$

Comparative tension:

$$\sigma_V = \sqrt{\sigma_x^2 + \sigma_z^2 + \sigma_x \times \sigma_z + 3 \times T^2}$$

Limiting tension:

$$\sigma_{R,d} = f_{yk} / 1.1$$

$$\text{Utilisation} = \sigma_V / \sigma_{R,d} \leq 1$$

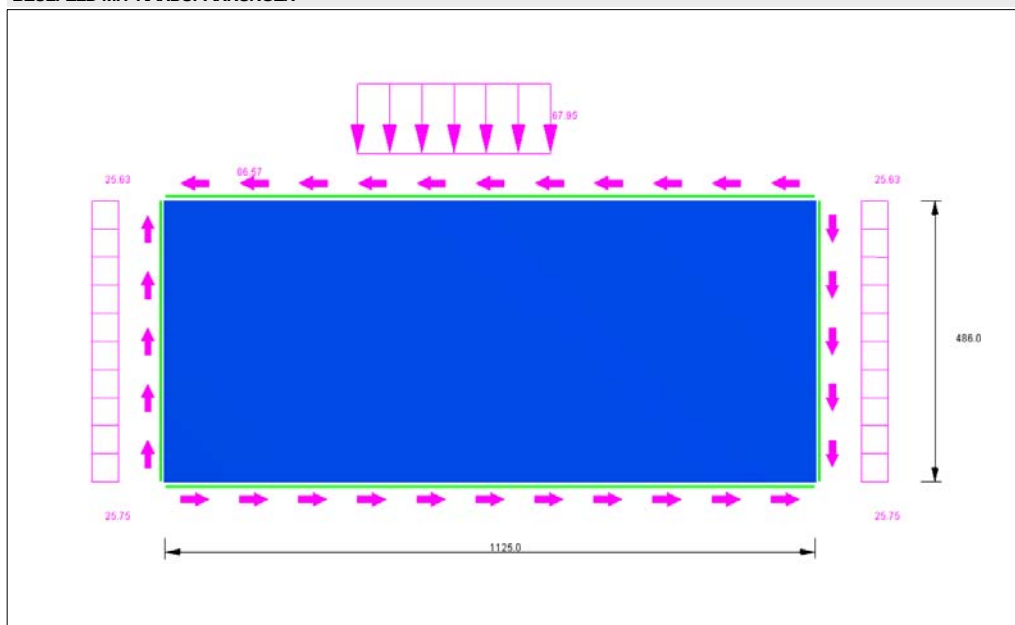
	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations for tension under trolley rails</i>	

DATA:		
Wheel load $F_R =$	312,67 kN	
Trolley rail $h_1 =$	95,00 mm	
Trolley rail $h_3 =$	40,00 mm	
Profile $t_g =$	30,00 mm	
Profile $r =$	27,00 mm	
Profile $t_s =$	15,50 mm	
Safety factor $v_F =$	1,50	
Yield strength St 52 $f_{yk} =$	360,00 N/mm ²	
R-Stab $\sigma_{x,d} =$	163,23 N/mm ² (STAHL 2 - EI 745)	
R-Stab $\tau_{1,d} =$	9,08 N/mm ²	
CALCULATION:		
$h =$	$(h_1 - 0.25 * h_3) + t_g + r$	$= 142,00 \text{ mm}$
$C =$	$2 * h + 50$	$= \underline{\underline{334,00 \text{ mm}}}$
$A_R =$	$C * t_s$	$= 5177,00 \text{ mm}^2$
Rated value $F_{R,d} =$	$v_F * F_R$	$= 469,01 \text{ kN}$
$\sigma_{z,d} =$	$0,75 * F_{R,d} * 1000 / A_R$	$= \underline{\underline{67,95 \text{ N/mm}^2}}$
$\tau_{2,d} =$	$0.2 * \sigma_{z,d}$	$= 13,59 \text{ N/mm}^2$
$m_{\tau} =$	$\text{MAX} (\tau_{1,d} ; \tau_{2,d})$	$= 13,59 \text{ N/mm}^2$
Limiting tansion $\sigma_{R,d} =$	$f_{yk} / 1.1$	$= 327,27 \text{ N/mm}^2$
Rated value $\sigma_v =$	$\sqrt{(\sigma_{x,d}^2 + \sigma_{z,d}^2 - \sigma_{x,d} * \sigma_{z,d} + 3 * m_{\tau}^2)}$	$= 143,96 \text{ N/mm}^2$
Utilisation $=$	$\sigma_v / \sigma_{R,d}$	$= \underline{\underline{0,4399 \leq 1}}$

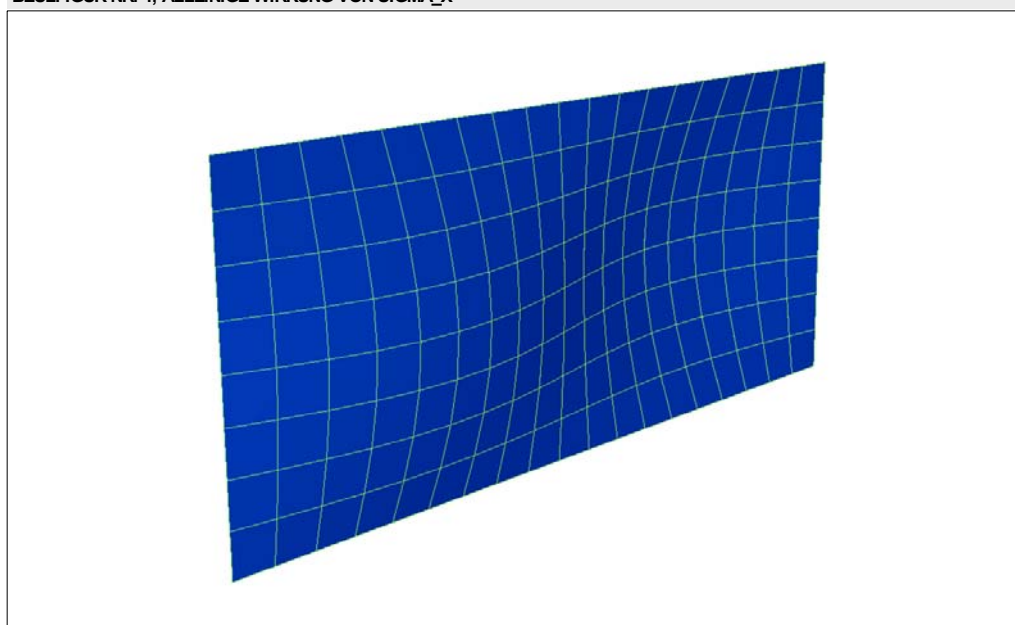
	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations for tension under trolley rails</i>	Seite: 678

PLATE-BUCKLING20 - BEUL-HT-STEIG-HEB600-EL- 8--20MM

BEULFELD MIT RANDSPANNUNGEN



BEULFIGUR NR. 1, ALLEINIGE WIRKUNG VON SIGMA_X



MATERIAL

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations for tension under trolley rails</i>	

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Material- Description	Elast.-Mod E [N/mm ²]	Yield stress f-yk [N/mm ²]	Mue [-]
Stahl St 52, DIN 18800, t > 40 mm	210000.0	325.0	0.300

PANEL DIMENSIONS

Side length		Aspect ratio	Plate thickness
a [mm]	b [mm]	Alpha	t [mm]
1125.0	486.0	2.315	15.5
(aus RSTAB, Stab 8)			

BOUNDARY CONDITIONS

Edge A-B	Edge C-D	Edge A-C	Edge B-D
Pinned	Pinned	Pinned	Pinned

CALCULATION PARAMETERS

Description	Parameter
Partial safety factor Gamma-M	1.10
Divisions for FE-Mesh	8
Eigenvalue solver method	Direct
Type of calculation	Analytical, if possible

PANEL IMPORTED FROM RSTAB

Imported from		Position of panel in Element		Section
El.-No.	Panel-No.	Begin x1 [mm]	End x2 [mm]	Name
8	5	0.00	1125.00	HE-B 600

NORMAL AND SHEAR STRESSES

Load cases		Sigma-1 [N/mm ²]	Sigma-2 [N/mm ²]	Psi [-]	Tau [N/mm ²]
LC1 - EXTREM MAX/MIN Fall H (aus RSTAB, LK97)		25.6	25.8	0.995	86.6

TRANSVERS STRESSES

Load cases	Sigma-3 [N/mm ²]	Sigma-4 [N/mm ²]	Sigma-5,A d, c [mm]	Sigma-5,B d, c [mm]	Sigma-6,A d, c [mm]	Sigma-6,B d, c [mm]
LC1	0	0	68	0	0	0
			500	-	-	-
			334	-	-	-

LC1 - EXTREM MAX/MIN FALL H (AUS RSTAB, LK97)

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations for tension under trolley rails</i>	

LC1 - EXTREM MAX/MIN FALL H (AUS RSTAB, LK97)			
Occurance of Sigma-x only			
Sigma	25.750	N/mm ²	Par. (110)
Psi	0.995		Par. (110)
k	4.009		Par. (113), determined analytically
Sigma-Pi	773.949	N/mm ²	Par. (113)
Lambda-P	51.749		Par. (113)
Lambda-P-bar	0.648		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	295.455	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		El. (602), Gl. (22)
Sigma-Ki	32.787	N/mm ²	Par. (602), determined analytically
Rho	-21.606		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.087		Par. (501), Eq. (9)
ANALYSIS OK			
Occurance of Sigma-y only			
Sigma	67.950	N/mm ²	Par. (110)
Psi	1.000		Par. (110)
k	21.249		Par. (113), determined using FEM
Sigma-Pi	765.594	N/mm ²	Par. (113)
Lambda-P	52.031		Par. (113)
Lambda-P-bar	0.652		Par. (113)
Kappa	1.000		Par. (601), Table 1
Sigma-PRd	295.455	N/mm ²	Par. (502), Eq. (11)
LAMBDA	2.000		Par. (602), Eq. (22)
Sigma-Ki	175.683	N/mm ²	Par. (602), determined analytically
Rho	-2.358		Par. (602), Eq. (21)
Sigma / Sigma-PRd	0.230		Par. (501), Eq. (9)
ANALYSIS OK			
Occurance of Tau only			
Tau	86.570	N/mm ²	Par. (110)
k	6.086		Par. (113), determined analytically
Tau-Pi	1175.050	N/mm ²	Par. (113)
Lambda-P	31.912		Par. (113)
Lambda-P-bar	0.400		Par. (113)
Kappa	1.000		Par. (601), Table 1
Tau-PRd	170.581	N/mm ²	Par. (502), Eq. (12)
Tau / Tau-PRd	0.508		Par. (501), Eq. (10)
ANALYSIS OK			
Simultaneous occurance (Interaction condition)			
Critical stresses Sigma-x	25.630	N/mm ²	Rand CD, Distance : 333.000 mm
Critical stresses Sigma-y	67.950	N/mm ²	
e1	2.000		Par. (504), EQ. (15)
Inter-Sigma-x	0.087		Par. (504), Eq. (14)
e2	2.000		Par. (504), Eq. (16)
Inter-Sigma-y	0.230		Par. (504), Eq. (14)
V	1.000		Par. (504), Eq. (18) or (19)
e3	2.000		Par. (504), Eq. (17)
Inter-Tau	0.508		Par. (504), Eq. (14)
Inter	0.298		Par. (504), Eq. (14)
ANALYSIS OK			
Simultaneous occurance (FEM)			
Eta	7.487		determined using FEM

EXPLANATIONS	
Name	Explanations
Sigma	Maximum compressive stress
Psi	Edge stress ratio
k	Buckling value
Sigma-Pi	Critical plate buckling stress

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations for tension under trolley rails</i>	Seite: 681

EXPLANATIONS

Name	Explanations
Lambda-P	Plate slenderness
Lambda-P-bar	Plate slenderness ratio
Kappa	Reduction factor
Sigma-PRd	Limiting Buckling stress
LAMBDA	Help value
Sigma-Ki	Critical plate buckling stress
Rho	Weighting factor
Sigma / Sigma-PRd	Check Sigma / Sigma-PRd
Tau	Shear stress
Tau-Pi	Critical plate buckling stress
Tau-PRd	Limiting plate buckling stress
Tau / Tau-PRd	Design check Tau / Tau-PRd
e1	Exponent for Sigma-x
Inter-Sigma-x	Proportion Sigma-x
e2	Exponent for Sigma-y
Inter-Sigma-y	Proportion Sigma-y
V	Help function V
e3	Exponent for Tau
Inter-Tau	Proportion Tau
Inter	Interaction condition
Eta	Buckling load factor

BUCKLING LOAD FACTORS

Eigen-value	Sigma-x [-]	Tau [-]	Sigma-y [-]	Total
LC1 EXTREM MAX/MIN Fall H (aus RSTAB, LK97)				
1	30.491	15.021	11.267	7.487
2	32.354	15.443	26.883	9.459
3	41.191	22.452	28.072	13.977
4	54.932	25.309	43.029	17.429
5	55.963	40.207	48.032	23.215
6	73.628	46.228	65.426	28.312
7	97.991	75.781	75.643	38.419
8	129.189	82.914	80.705	44.319

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 Static calculations –screw connections	

6. SCREW CONNECTIONS (from STAHL 2)

GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
1	0.430	CO58	-10.38	-6.83	-8.44	-0.01	-10.20	13.83
2	2.600	CO58	-10.38	-6.83	-7.77	-0.01	-6.76	10.92
3	0.000	CO58	-0.88	-6.81	-3.01	-0.01	9.86	-11.59
4	0.150	CO58	-6.83	10.38	-9.09	-10.20	-1.31	12.27
5	0.150	CO58	6.81	-0.82	2.28	-9.86	0.39	11.72
6	1.080	CO58	-6.83	10.44	-13.79	-10.20	-13.67	1.01
7	1.080	CO58	6.83	-9.94	-3.01	-9.54	-0.01	22.24
8	1.130	CO58	-6.83	62.43	-359.27	10.57	-415.10	-69.19
9	1.130	CO58	6.83	42.39	-349.10	11.23	-389.65	-25.22
10	0.430	CO13	11.21	-565.79	721.55	-51.05	-1.72	56.04
11	1.300	CO13	-14.80	134.27	-34.48	-37.57	-253.46	-141.00
12	0.000	CO58	-49.97	-146.25	4.69	-4.00	-214.44	-155.62
13	0.000	CO75	1.17	420.10	-569.97	11.94	0.34	47.13
14	0.000	CO13	-558.60	9.90	252.86	0.20	-479.21	25.48
15	0.000	CO33	-406.37	-12.23	206.26	-0.07	-389.56	-26.53
16	0.000	CO58	-249.89	1.13	1.79	-0.18	-2.15	1.57
17	0.000	CO13	-142.18	-0.42	1.56	0.41	-2.24	-0.64
18	0.000	CO13	-564.91	25.74	-238.19	0.39	290.54	11.81
19	0.000	CO67	-311.21	-25.38	-146.89	-5.85	181.43	-18.10
20	0.830	CO58	-18.23	-12.32	-1.31	0.01	-3.86	6.86
21	0.000	CO13	1027.32	5.06	-16.09	0.03	74.80	12.57
22	1.790	CO67	-12.92	-1.70	-3.50	0.00	-4.95	1.43
23	0.000	CO75	784.95	4.83	6.17	0.00	-29.52	11.24
24	0.000	CO13	-16.98	7.98	1.19	-0.01	-3.54	4.33
26	2.470	CO58	-238.74	2.72	0.46	0.09	1.04	-3.95
27	2.470	CO13	-134.35	-1.93	0.30	0.17	0.69	3.01
29	0.170	CO58	-695.73	115.00	-159.33	0.69	-69.49	-88.23
30	0.170	CO75	-531.43	-65.21	-161.93	-0.56	-60.10	69.14
31	0.430	CO13	103.13	-768.47	222.62	-68.53	-0.43	127.39
32	0.000	CO13	-706.06	3.37	-8.22	-0.03	25.73	11.34
33	0.220	CO13	68.08	34.74	-10.03	-26.43	-40.13	-195.51
35	2.160	CO13	68.08	34.74	-9.52	-26.43	-37.99	-187.90
36	1.300	CO75	7.48	-47.92	-4.18	0.04	9.38	34.81
37	0.000	CO58	67.55	-34.71	5.73	0.54	-34.82	-195.55
38	0.000	CO26	-541.06	3.83	4.47	0.04	-10.44	10.37
39	0.430	CO58	51.96	711.52	-151.63	33.34	-63.72	-211.92
40	0.000	CO58	-1364.98	35.70	-2.43	1.12	-37.96	73.08
41	0.000	CO13	-1014.02	-39.68	-7.28	-0.72	1.51	-73.89
42	0.000	CO58	-1370.43	30.80	-5.16	0.27	-36.79	62.74
43	0.000	CO13	-203.19	1.53	1.45	0.42	-1.73	2.78
44	0.000	CO58	-189.37	-1.39	1.31	-0.26	-1.32	-2.68
45	0.000	CO75	-1162.56	-27.16	-6.90	-0.28	-27.49	-57.29
46	0.830	CO58	17.20	-11.41	0.36	0.01	3.25	6.30
47	5.000	CO75	502.33	-6.17	7.31	0.01	20.24	7.22
48	0.000	CO13	1177.24	5.57	-5.30	-0.02	35.26	12.78
49	0.000	CO13	194.42	-0.04	0.69	0.04	-0.85	-0.26
50	0.000	CO13	15.47	0.82	0.21	0.00	2.53	0.82
51	5.000	CO75	530.15	-6.21	3.21	-0.03	12.09	7.38
52	0.000	CO58	1095.95	5.29	5.45	0.01	-28.31	11.57
53	0.000	CO13	17.10	10.33	-0.38	-0.01	3.26	5.73
54	2.500	CO58	-1381.84	13.86	-25.78	-0.33	-108.83	-37.20
55	2.650	CO13	-200.24	-0.64	-1.19	-0.24	-1.72	0.94
56	2.650	CO58	-187.54	0.70	-1.29	0.33	-1.69	-1.03
57	2.500	CO75	-1169.85	-11.04	-30.98	0.31	-118.55	29.65
58	0.000	CO13	4.31	-613.09	53.14	-30.89	-21.92	-230.58
59	5.500	CO13	-876.92	4.67	1.49	-0.02	3.53	-14.07
60	1.300	CO13	4.62	252.76	-6.28	-14.28	-19.68	-224.32
61	0.000	CO58	2.58	-246.30	12.11	2.79	-26.91	-216.72
62	5.500	CO58	-818.60	4.33	-1.38	0.00	-6.30	-12.90

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations –screw connections</i>	

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GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
63	0.430	CO58	1.00	583.55	-66.10	19.23	-27.41	-216.81
64	0.000	CO13	1321.75	-7.97	-13.60	0.08	8.99	-9.11
65	0.000	CO58	1389.99	-6.49	-13.55	0.02	14.76	-7.81
66	0.000	CO58	-1890.53	8.65	23.89	0.15	-95.19	24.25
67	0.000	CO58	-440.92	1.04	1.89	0.37	-2.59	1.87
68	0.000	CO13	-454.69	-1.45	2.04	-0.11	-2.96	-2.82
69	0.000	CO13	-1521.72	-10.03	25.33	-0.09	-96.77	-28.85
70	7.430	CO13	1260.72	-3.86	-2.68	0.01	-5.55	8.23
71	0.000	CO13	-145.33	0.30	2.30	0.86	-4.41	1.43
72	7.430	CO58	1231.21	-3.63	-1.66	0.01	-9.35	7.13
73	3.500	CO13	1321.75	-20.54	-13.60	0.08	-59.00	58.20
74	3.500	CO58	1389.99	-19.07	-14.27	0.02	-54.77	52.13
75	0.820	CO58	7.14	-8.81	-1.39	0.00	1.25	4.64
76	1.820	CO13	9.71	1.45	-0.19	0.00	2.00	-1.60
77	0.000	CO13	6.67	12.01	1.46	0.00	1.14	6.15
78	0.000	CO13	-1900.22	-6.18	7.77	-0.14	-44.75	-5.62
79	0.000	CO26	-1712.10	1.67	2.30	0.19	-49.47	2.94
81	0.000	CO58	-433.15	0.83	0.71	-0.23	-0.81	1.65
82	0.000	CO13	-443.70	-1.20	0.89	0.42	-1.36	-2.31
85	0.000	CO65	-139.08	73.29	-826.86	-7.35	4757.88	401.97
86	0.000	CO82	-112.55	24.42	342.74	-30.54	-517.04	-37.75
87	0.000	CO65	103.10	-2.04	4.53	-0.67	117.91	-2.17
88	0.380	CO84	129.06	-8.37	357.79	-37.37	583.42	29.74
89	0.400	CO65	-139.42	-81.94	829.52	52.20	4773.44	459.79
90	0.000	CO65	-212.84	143.81	-803.70	11.92	4377.72	755.05
DiagFS-HT 91	5.620	CO65	-213.45	-152.66	805.56	27.94	4386.99	814.23
DiagFS-QT 92	1.050	CO84	441.25	-38.95	-7.37	7.16	108.45	440.77
93	1.050	CO84	-372.23	-42.21	-3.72	16.73	-110.88	429.34
94	1.500	CO13	-1900.22	-5.88	-7.09	-0.14	-42.60	13.10
95	1.500	CO26	-1712.10	1.67	-14.23	0.19	-66.85	-2.22
96	4.920	CO84	-390.70	-132.49	-35.06	23.59	-22.78	528.41
97	4.920	CO84	417.86	-134.62	19.43	20.29	47.06	531.33
98	0.000	CO82	2343.56	-3.18	-55.68	0.44	193.39	-27.58
99	2.820	CO84	-755.98	5.75	0.44	0.59	1.85	-8.44
100	0.000	CO82	2339.33	5.31	-45.95	0.40	188.46	7.86
101	0.350	CO58	-2318.01	112.95	-10.09	-0.69	-39.56	-47.95
102	0.350	CO13	-1962.50	-117.47	-12.25	0.92	-43.50	53.30
103	0.810	CO82	178.89	-136.35	-129.83	-269.85	-11.88	-20.85
104	0.920	CO84	-4.98	246.08	128.06	-73.31	125.23	-220.49
105	0.000	CO84	-4.98	249.07	132.92	-73.31	-114.10	233.56
106	0.810	CO84	-139.25	-78.96	-103.63	-135.41	-48.20	119.98
107	0.000	CO58	-2386.05	73.29	-44.16	-0.47	58.22	50.66
108	0.000	CO82	-1510.73	-111.51	57.96	1.51	-192.56	-53.49
109	7.430	CO82	-2161.65	-3.87	-13.78	0.03	-77.66	-6.84
110	1.300	CO82	33.89	0.24	10.32	-0.01	14.18	-0.32
111	0.000	CO82	16.08	0.93	46.61	-0.01	-38.15	0.50
112	4.460	CO20	-1649.85	-1.20	2.65	0.02	10.33	-9.29
113	12.360	CO84	439.02	-39.32	-6.68	7.16	115.81	399.76
114	12.360	CO84	-374.45	-41.85	-3.03	16.73	-107.34	385.29
115	2.740	CO20	-2149.66	34.02	-103.53	-0.03	-152.25	-68.21
116	3.240	CO82	-296.32	-2.43	-2.07	0.55	-4.40	4.87
117	3.240	CO84	288.84	-2.25	0.03	0.70	2.16	4.89
118	2.740	CO20	-1996.15	-28.21	-107.65	0.06	-156.51	59.55
119	0.000	CO13	2949.62	-8.35	-15.68	0.24	40.27	-9.03
120	0.000	CO84	-792.34	4.64	0.24	1.00	2.06	10.45
121	2.500	CO20	3052.77	-16.54	-0.93	0.09	6.20	23.06
122	0.000	CO82	-12.39	-2349.04	122.51	-144.44	-49.89	-891.11
123	0.000	CO82	-19.05	6.01	-1.18	-0.08	4.38	16.57
124	1.300	CO82	-14.57	727.25	-27.52	-90.31	-41.02	-782.55

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations –screw connections</i>	

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GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
125	0.000	CO82	276.15	-19.40	-0.75	-1.74	1.19	-25.22
126	0.000	CO20	-26.34	-631.50	23.60	6.82	-36.47	-588.83
127	0.000	CO20	-28.51	4.68	-0.42	0.01	1.24	13.07
128	0.430	CO20	-28.03	1730.98	-80.21	55.16	-31.70	-609.77
129	0.000	CO20	-3655.90	58.09	-43.07	1.82	-104.97	79.94
130	0.000	CO58	-794.85	5.15	4.93	0.65	-5.19	3.96
131	0.000	CO82	-743.92	-17.33	2.54	0.55	-4.95	-15.99
132	0.000	CO20	-3641.22	-54.79	-41.88	-1.87	-107.97	-70.49
133	2.500	CO13	2840.87	-4.50	-24.96	0.36	-51.40	11.03
134	2.820	CO84	-794.00	4.71	-0.05	1.03	2.12	-10.80
135	2.500	CO82	3095.22	4.39	-23.31	0.67	-79.92	-0.46
136	1.300	CO13	-65.61	68.74	24.99	-0.06	41.52	-52.82
139	15.470	CO65	-990.79	1.83	-8.29	14.07	-38.76	19.40
140	15.470	CO65	-1032.48	-1.97	-8.37	-14.82	-39.61	-17.36
Verbin.-FS 141	5.490	CO82	-10.89	-30.11	-83.25	-32.27	-306.34	214.59
142	5.490	CO65	64.58	-18.21	98.04	-3.76	369.73	107.89
143	1.630	CO20	-3660.62	9.22	-51.72	-0.29	-238.94	-4.08
144	1.630	CO20	-3642.84	-3.62	-51.69	0.27	-240.81	2.51
145	0.000	CO58	-796.34	2.54	-0.03	0.70	1.40	2.52
146	1.970	CO82	-740.92	-3.73	0.97	1.31	1.04	4.14
147	0.000	CO82	2399.66	6.59	-14.79	0.05	83.70	30.73
148	1.300	CO82	17.51	-0.24	44.41	-0.01	36.77	0.23
149	0.000	CO82	32.81	-0.18	12.84	-0.01	-15.85	-0.24
150	0.000	CO20	1846.63	9.06	1.18	0.02	-13.15	35.94
151	0.220	CO20	-3660.62	9.25	-52.89	-0.29	-250.55	-6.13
152	0.220	CO20	-3642.84	-3.62	-52.98	0.27	-252.43	3.32
153	0.000	CO68	3.37	-1.10	-2.09	0.00	3.74	-1.34
154	0.580	CO84	12.53	31.52	0.65	-0.01	2.31	-10.10
155	0.000	CO84	-8.34	33.11	3.52	-0.01	-1.73	10.92
156	2.500	CO82	1680.03	-14.86	-45.41	0.57	-198.51	43.01
157	0.000	CO84	-763.20	5.77	-0.86	0.96	2.08	8.22
158	2.500	CO82	3108.11	-1.67	-55.60	0.47	-202.45	-4.01
159	1.650	CO20	-776.82	-0.66	-1.03	-0.19	-3.92	1.80
160	0.000	CO82	-710.02	-3.12	3.60	1.12	-5.75	-3.76
161	1.550	CO82	-3470.02	-22.19	-79.44	-0.17	-395.48	27.39
162	1.550	CO20	-3552.90	15.55	-61.40	0.90	-345.61	-20.22
167	0.350	CO65	-449.80	-1.39	-173.15	0.40	-13.20	0.65
168	0.350	CO65	-576.43	3.37	134.69	0.46	13.47	-0.66
169	0.000	CO65	-540.02	9.26	92.71	-0.24	-30.48	2.07
170	0.350	CO65	-525.13	20.77	-120.27	-0.21	-1.82	-3.80
175	0.000	CO65	-308.00	134.24	972.10	-0.68	-340.08	31.74
176	0.000	CO65	-320.68	-139.94	1011.42	0.68	-353.84	-32.93
181	0.000	CO26	0.00	186.93	0.01	0.11	0.00	36.94
182	0.000	CO26	0.00	-321.82	-0.01	-0.70	0.00	-63.69
183	0.200	CO26	0.00	-186.93	0.01	-0.11	0.00	36.94
184	0.200	CO26	0.00	321.82	-0.01	0.70	0.00	-63.69
185	0.200	CO26	-0.01	-188.85	0.02	0.11	0.00	37.32
186	0.000	CO26	0.01	-325.11	-0.03	-0.71	0.00	-64.34
187	0.000	CO26	0.01	188.85	0.02	-0.11	0.00	37.32
188	0.200	CO26	-0.01	325.11	-0.03	0.71	0.00	-64.34
193	0.140	CO26	-0.01	-186.66	0.00	0.04	0.00	0.11
194	1.000	CO26	-1476.68	0.00	0.00	0.02	0.00	0.00
195	0.140	CO26	0.01	-186.66	0.00	-0.04	0.00	0.11
196	0.140	CO26	-0.02	-188.58	-0.01	0.04	0.00	0.11
197	0.000	CO26	-1491.83	0.00	0.00	0.04	0.00	0.00
198	0.140	CO26	0.02	-188.58	-0.01	-0.04	0.00	0.11
199	0.190	CO26	0.01	322.09	0.00	-0.05	0.00	-0.70
200	0.190	CO26	-0.01	322.09	0.00	0.05	0.00	-0.70
201	0.190	CO26	0.03	325.38	0.01	-0.05	0.00	-0.71
202	0.190	CO26	-0.03	325.38	0.01	0.05	0.00	-0.71
215	0.350	CO20	-4399.92	-267.84	66.57	-2.38	366.71	91.74

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations –screw connections</i>	

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GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
216	0.350	CO20	-4189.81	-188.28	-68.21	2.87	-372.06	47.20
FS-KT 236	1.020	CO82	-2213.89	122.48	175.10	339.33	826.32	226.00
238	15.100	CO82	-2493.51	8.96	171.93	336.25	645.20	117.15
240	4.970	CO82	484.39	29.43	-64.34	-163.32	-597.41	-343.33
241	0.000	CO82	-2307.05	18.58	224.29	85.72	-4408.46	659.79
FS-QT 242	0.000	CO82	-2296.82	18.58	225.00	85.74	-4796.04	691.84
243	1.720	CO82	-544.86	18.58	-2242.58	-672.98	-4796.04	181.91
244	3.790	CO82	482.92	29.43	-66.81	-168.42	-302.45	-192.78
245	0.000	CO20	-432.46	-13.45	-2255.12	-261.12	10803.86	-111.43
247	0.000	CO66	3.31	0.00	1.12	0.00	-1.22	0.00
248	0.000	CO66	2.64	0.00	1.12	0.00	-0.81	0.00
249	0.000	CO20	-432.46	-13.45	-2251.27	-261.12	11705.14	-116.81
250	0.000	CO14	84.66	734.23	-5.13	-6.28	-13.88	589.44
252	0.380	CO14	251.33	9.16	-847.74	-57.34	224.39	-5.36
253	0.000	CO14	736.74	144.67	7.32	3.18	18.80	450.08
256	1.830	CO20	446.05	-12.31	20.54	-6.95	673.24	12.12
257	1.830	CO82	205.84	-163.42	-71.00	-36.53	-68.35	165.36
258	4.240	CO58	295.21	86.86	44.18	24.11	160.12	-287.03
259	0.000	CO59	293.79	-14.78	717.22	60.67	257.12	-4.06
261	0.810	CO21	117.99	-570.64	-12.82	-3.20	-4.34	456.09
FS-HT 262	0.400	CO20	-386.21	22.20	2160.33	244.36	12402.77	-196.08
263	0.000	CO82	484.08	29.43	-35.60	-168.42	332.60	176.90
264	3.880	CO20	-386.09	22.20	2164.18	244.36	11537.87	-187.20
265	0.000	CO20	-446.93	18.00	2354.32	211.97	-1918.41	-79.31
266	0.860	CO20	-2399.82	18.00	-111.50	108.25	-1821.87	214.28
267	7.400	CO20	-2470.22	12.55	-101.45	108.26	-1344.42	285.91
268	0.000	CO82	483.71	29.43	-36.85	-163.99	553.25	335.38
270	0.000	CO20	-2688.50	-9.39	-54.55	-6.47	273.43	178.18
272	1.020	CO65	-813.80	327.71	10.84	-4.57	131.83	-1130.14
289	0.000	CO20	-4432.08	128.80	-65.60	1.36	358.40	40.67
290	0.000	CO20	-4232.15	125.26	67.02	-1.37	-356.48	37.35
303	0.180	CO82	-2.53	323.94	0.72	0.05	0.06	-0.71
304	0.180	CO82	2.53	323.94	0.72	-0.05	0.06	-0.71
305	0.180	CO20	0.11	327.08	-0.03	0.05	0.00	-0.71
306	0.180	CO20	-0.11	327.08	-0.03	-0.05	0.00	-0.71
307	0.140	CO82	1.72	-187.83	-0.90	-0.04	-0.06	0.11
308	1.000	CO82	-1485.35	-0.02	0.00	3.94	0.00	0.00
309	0.140	CO82	-1.72	-187.83	-0.90	0.04	-0.06	0.11
310	0.140	CO20	-0.07	-189.55	0.04	-0.04	0.00	0.11
311	1.000	CO20	-1499.62	0.00	0.00	-0.17	0.00	0.00
312	0.140	CO20	0.07	-189.55	0.04	0.04	0.00	0.11
317	0.000	CO82	0.90	188.06	1.72	-0.11	-0.28	37.17
318	0.000	CO82	-0.71	-323.71	-2.53	0.71	0.44	-64.06
319	0.200	CO82	-0.90	-188.06	1.72	0.11	0.28	37.17
320	0.200	CO82	0.71	323.71	-2.53	-0.71	-0.44	-64.06
321	0.000	CO20	-0.04	189.82	-0.07	-0.11	0.01	37.52
322	0.000	CO20	0.03	-326.81	0.11	0.71	-0.02	-64.68
323	0.200	CO20	0.04	-189.82	-0.07	0.11	-0.01	37.52
324	0.200	CO20	-0.03	326.81	0.11	-0.71	0.02	-64.68
329	0.000	CO20	-4046.01	4.95	62.91	0.76	-334.30	3.97
330	0.000	CO20	-408.57	1.31	0.48	0.17	-1.34	1.08
331	0.000	CO20	-399.74	-1.26	0.46	-0.17	-1.33	-1.11
332	0.000	CO20	-3854.43	-5.57	64.17	-0.77	-331.92	-6.01
333	0.000	CO20	3528.24	18.82	-31.02	0.18	86.94	56.44
334	0.000	CO20	3404.24	19.32	-27.40	0.11	77.87	58.10
335	0.000	CO20	-400.67	0.06	0.95	0.21	-0.80	-0.04
336	0.000	CO20	-3853.95	1.60	55.24	-0.23	-257.43	1.54
337	0.000	CO20	-4045.83	-2.09	54.67	0.25	-260.88	-2.82
338	7.630	CO20	1012.17	-2.69	0.98	0.00	5.61	6.21
340	7.630	CO20	995.14	-2.61	-1.78	0.00	-8.25	5.91
341	1.180	CO20	-4043.96	-22.34	38.53	-0.95	-110.46	26.25

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations –screw connections</i>	

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GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
342	1.180	CO20	-3852.01	22.18	37.35	0.97	-108.04	-26.47
347	0.460	CO20	-4043.96	-22.29	35.86	-0.95	-93.35	36.51
348	0.460	CO20	-3852.01	22.18	34.67	0.97	-91.47	-36.68
349	0.000	CO20	-6.34	550.11	-10.50	22.69	6.17	155.37
350	5.500	CO20	-734.20	-5.75	-0.35	0.01	4.99	16.29
351	0.220	CO20	-7.98	-160.94	0.25	-0.38	13.93	153.83
353	1.080	CO20	-7.98	-160.94	0.76	-0.38	13.81	118.59
354	0.000	CO20	-6.62	159.22	13.14	-0.09	-1.09	116.56
355	0.000	CO20	-50.27	1.21	0.06	0.00	-0.09	1.22
356	0.000	CO20	-6.61	159.22	13.65	-0.09	-4.02	151.43
357	0.000	CO20	-711.86	-5.57	-3.37	-0.01	12.53	-14.79
358	0.430	CO20	-7.69	-539.75	7.77	-22.34	5.04	154.84
359	0.000	CO20	-3493.85	-15.92	24.38	0.55	-116.04	-41.92
360	0.000	CO20	-231.81	-0.44	0.80	0.46	-1.11	-0.57
361	0.000	CO82	-266.32	-0.81	1.02	-0.32	-1.07	-1.23
362	0.000	CO20	-3312.26	14.49	25.92	-0.56	-113.82	37.88
363	0.830	CO82	13.41	12.91	-0.22	-0.01	2.13	-7.14
364	1.790	CO82	11.85	0.99	-0.16	0.00	2.13	-0.87
365	0.000	CO84	-9.57	7.02	1.35	0.00	-2.04	4.02
366	0.000	CO20	2848.72	9.31	23.71	-0.19	-70.72	14.99
367	7.630	CO20	1001.73	-3.94	4.14	0.00	23.50	8.98
369	0.000	CO20	2826.72	9.13	23.34	-0.18	-71.12	14.12
370	7.630	CO20	962.32	-3.90	-2.71	-0.01	-14.23	8.78
371	1.000	CO20	-3485.08	-27.54	5.69	-0.51	-65.19	20.43
372	1.000	CO20	-3304.65	25.81	5.33	0.49	-60.65	-20.12
373	2.740	CO20	-236.83	-1.69	-1.55	-0.27	-1.59	2.93
374	2.740	CO20	-247.13	1.54	-1.48	0.26	-1.50	-2.74
375	1.610	CO20	-3485.08	-27.36	-2.80	-0.51	-62.86	64.65
376	1.610	CO20	-3304.65	25.81	-4.03	0.49	-59.61	-61.70
377	0.000	CO20	-3700.31	39.26	-4.40	-1.29	-64.35	67.73
378	0.000	CO20	-3529.63	-44.07	-5.57	1.22	-61.02	-64.60
379	0.000	CO20	169.58	703.27	32.37	21.09	-13.39	149.03
380	0.000	CO20	-686.21	-4.50	0.43	0.02	-1.71	-10.65
381	1.300	CO20	165.87	-0.33	-2.08	0.65	0.44	135.45
382	2.600	CO15	15.51	0.81	-1.54	0.07	-1.67	-1.04
383	0.000	CO20	166.06	1.25	5.10	1.46	-3.56	136.67
384	0.000	CO20	-654.06	-4.31	-0.17	-0.01	-1.96	-10.13
385	0.430	CO20	168.51	-674.69	-33.37	-18.70	-13.82	143.92
386	0.000	CO20	-2996.95	-130.27	26.06	-1.13	-86.28	-89.02
387	0.000	CO20	-2854.86	124.44	25.80	1.07	-80.78	85.95
388	0.000	CO20	-2718.77	-29.18	25.66	-0.56	-82.36	-63.68
389	0.000	CO82	-307.41	-1.51	-0.46	-0.29	0.63	-2.19
390	0.000	CO20	-281.42	1.39	-0.53	0.30	0.73	2.31
391	0.000	CO20	-2590.34	28.35	25.31	0.53	-76.92	61.74
392	0.830	CO60	-13.78	8.97	-2.14	-0.01	-2.71	-4.99
393	0.000	CO82	-19.23	0.94	0.13	0.00	-1.71	0.95
394	0.000	CO15	-14.18	-6.50	2.04	0.01	-2.76	-3.56
395	0.000	CO20	2218.56	10.37	-17.77	0.13	53.86	16.12
396	7.630	CO15	787.86	-3.56	3.78	-0.01	24.84	6.78
398	0.000	CO20	2211.81	10.20	-14.47	0.01	47.39	15.71
399	7.630	CO20	867.57	-3.66	-1.57	0.00	-7.75	7.84
400	2.790	CO20	-2712.98	-10.62	-4.13	0.47	-29.31	30.46
401	0.000	CO82	-310.75	-0.72	0.41	0.16	0.02	-1.08
402	0.000	CO20	-283.58	0.02	0.77	-0.28	-0.56	0.08
403	2.790	CO20	-2584.85	9.92	-7.22	-0.52	-32.58	-28.61
404	0.430	CO15	8.81	435.67	454.22	26.95	-3.10	-53.68
405	5.500	CO20	-625.34	-3.92	1.93	0.01	9.76	10.40
406	0.220	CO15	-9.12	-125.19	-16.94	10.56	-141.65	125.42
407	0.000	CO20	-409.21	-0.08	0.98	-0.20	-0.86	0.01
408	1.080	CO15	-9.10	-125.19	-16.43	10.56	-138.00	98.01
409	0.000	CO60	-45.56	118.78	1.14	-1.38	-121.60	91.15
410	2.600	CO82	-20.00	-0.02	-1.19	0.03	-1.58	-0.31

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations –screw connections</i>	

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GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
411	0.000	CO60	-45.56	118.78	1.65	-1.38	-121.91	117.16
412	5.500	CO20	-587.21	-3.68	-2.49	-0.01	-8.47	9.77
413	0.000	CO22	0.98	-401.17	-357.37	-16.01	-0.22	-48.84
414	0.520	CO60	806.61	-55.81	343.52	-18.64	194.78	1.64
415	0.520	CO60	404.54	-37.32	346.85	-18.11	192.27	29.63
416	2.650	CO83	158.83	-0.84	-0.80	-0.25	-0.69	1.08
417	0.000	CO82	-195.92	-0.69	1.15	-0.35	-1.18	-1.02
418	0.830	CO82	21.68	11.50	0.16	-0.01	3.50	-6.42
419	1.790	CO60	-22.06	-1.10	-2.59	0.00	-4.83	1.19
420	0.000	CO20	26.90	-7.90	-0.50	0.01	4.11	-4.26
421	5.280	CO24	1622.98	-9.01	11.10	-0.05	29.98	12.60
422	7.630	CO20	836.63	-4.47	6.87	0.02	39.51	8.63
424	0.000	CO20	1670.33	8.25	13.35	-0.01	-38.45	10.57
425	7.630	CO20	784.38	-4.43	-5.80	-0.03	-32.92	8.48
428	2.740	CO20	-140.58	-2.13	-1.94	-0.41	-2.03	3.88
429	2.740	CO20	-146.87	2.01	-1.89	0.38	-1.97	-3.69
430	0.000	CO20	-2222.85	-12.39	13.41	1.00	-41.16	-30.94
431	0.000	CO20	-2121.04	10.82	13.03	-1.04	-40.76	27.87
432	0.170	CO20	-2330.79	-2.74	-13.21	-1.93	-40.04	96.11
433	0.170	CO20	-2235.91	-0.78	-16.20	1.85	-47.50	-91.67
434	0.000	CO20	90.41	1083.63	36.25	17.26	-15.14	251.59
435	0.000	CO15	-14.63	1.34	-5.16	0.00	22.49	4.41
436	1.300	CO20	93.28	-6.39	-0.95	0.79	-12.82	199.94
437	0.000	CO83	9.39	2.71	25.80	0.00	-32.98	2.52
438	1.300	CO20	93.38	-5.81	2.44	1.33	-13.54	191.47
439	0.000	CO28	-19.29	2.35	2.89	0.01	-13.67	5.30
440	0.430	CO20	95.55	-1033.16	-41.79	-14.55	-17.53	235.19
441	0.000	CO20	-1253.18	-93.63	22.02	-1.88	-56.78	-113.45
442	0.000	CO20	-1208.75	95.28	24.66	1.83	-61.52	112.84
445	0.000	CO82	-196.38	-1.98	-0.82	-0.29	1.05	-2.99
446	0.000	CO20	-147.41	2.26	-1.07	0.38	1.40	3.77
447	0.340	CO20	-2214.00	-39.24	-10.27	-0.92	-35.74	91.48
448	0.340	CO20	-2113.15	37.73	-13.15	0.88	-42.63	-87.85
449	0.830	CO20	-37.21	6.77	-3.69	-0.01	-6.33	-3.76
450	0.000	CO20	-42.19	-0.08	0.36	0.00	-4.26	-0.10
451	0.000	CO20	-37.08	-7.06	3.69	0.01	-6.32	-3.92
452	0.000	CO20	1646.60	8.99	-11.02	-0.03	28.96	11.89
453	0.000	CO30	585.12	5.70	-5.37	-0.02	30.41	9.94
454	1.300	CO82	-14.16	-0.49	29.19	0.00	38.00	0.55
455	5.290	CO24	1697.50	-7.75	-11.86	0.02	-33.73	9.75
456	0.000	CO28	610.22	5.93	5.32	0.00	-31.46	9.91
457	2.790	CO62	-2007.89	9.44	-19.87	-0.51	-58.78	-27.55
458	2.930	CO82	-202.09	-0.80	-0.34	0.28	0.09	1.21
459	0.000	CO83	150.43	-0.77	0.55	0.09	-0.49	-1.11
460	2.790	CO5	-1645.76	-7.83	-18.42	0.55	-57.02	22.79
461	0.000	CO15	0.75	-347.91	14.37	-21.59	-5.96	-116.31
462	0.000	CO20	491.47	-3.02	-2.78	0.00	7.38	-6.94
463	0.220	CO15	1.76	117.93	-2.34	-7.87	-5.41	-117.79
464	1.740	CO20	-402.48	-0.38	-1.89	0.32	-1.84	0.55
465	1.080	CO15	1.76	117.93	-1.83	-7.87	-4.96	-91.97
466	0.000	CO28	0.80	-114.99	2.27	-0.32	-5.70	-81.82
467	0.000	CO83	11.45	-0.07	-1.05	0.00	1.38	-0.39
468	0.000	CO28	0.80	-114.94	2.78	-0.32	-6.26	-107.00
469	0.000	CO20	467.29	-2.93	2.12	0.00	-3.18	-6.68
470	0.430	CO28	0.84	373.09	-25.30	14.80	-10.47	-111.74
471	0.000	CO62	-2314.11	7.97	11.69	-0.12	-43.91	21.01
472	2.630	CO62	-252.10	0.19	-0.50	-0.09	-0.20	-0.32
473	0.000	CO84	-248.08	-0.86	0.60	0.09	-0.33	-1.16
474	0.000	CO5	-1947.13	-8.14	12.94	0.16	-45.21	-22.30
475	0.920	CO60	-9.94	-5.64	-2.01	0.00	-1.85	3.48
476	1.600	CO84	-10.85	0.85	-0.12	0.00	-0.70	-0.79
477	0.000	CO83	-6.58	6.58	1.66	0.00	-1.23	4.07

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999	
		Static calculations –screw connections

GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
478	0.000	CO24	1888.15	8.11	13.48	-0.13	-34.58	9.45
479	0.000	CO30	682.03	4.77	-0.83	-0.01	4.09	9.37
481	5.290	CO24	1953.82	-7.58	12.42	-0.05	35.93	8.00
482	0.000	CO30	682.02	4.78	1.51	0.00	-8.78	9.38
483	2.610	CO62	-2317.63	15.60	-17.26	0.24	-57.47	-37.28
484	2.770	CO62	-251.51	0.77	-0.16	0.18	0.10	-1.36
485	0.000	CO84	-244.97	-1.02	0.83	-0.15	-0.95	-1.29
486	2.610	CO30	-1886.65	-17.99	-19.69	-0.26	-60.42	42.15
487	0.180	CO62	-2554.50	100.16	-18.35	0.45	-60.58	-56.27
488	0.180	CO30	-2075.52	-85.65	-20.80	-0.47	-63.90	58.76
489	0.000	CO28	11.95	-517.75	10.08	-11.96	-3.16	-112.03
490	0.000	CO30	-514.40	2.36	1.53	-0.01	-5.96	6.24
491	1.300	CO15	11.70	29.18	-4.10	-7.01	3.18	-121.57
492	0.000	CO84	-12.81	1.06	0.92	0.02	-0.97	1.39
493	0.000	CO30	114.84	-1.96	1.29	-0.19	14.88	-98.95
494	5.500	CO28	-518.20	2.52	-0.82	0.01	-2.55	-7.24
495	0.430	CO28	11.73	523.49	-12.07	12.87	-4.01	-116.74
496	0.170	CO62	-2976.22	-20.41	-25.42	0.93	-49.13	47.17
497	0.170	CO30	-2575.45	32.34	-24.38	-0.97	-54.83	-49.04
498	0.000	CO5	-181.64	1.19	1.08	0.04	-1.04	1.87
499	0.000	CO37	-191.91	-1.06	1.01	-0.03	-0.98	-1.74
500	0.000	CO62	-2853.54	21.61	-26.71	0.41	-48.00	44.74
501	0.000	CO30	-2418.88	-22.07	-25.64	-0.48	-53.70	-46.74
502	5.280	CO77	2156.29	-13.31	-12.93	0.05	-34.59	32.02
503	5.280	CO62	2425.91	-12.48	-19.28	0.08	-64.28	28.99
504	0.000	CO30	716.27	3.81	-3.73	-0.01	18.51	7.18
506	0.000	CO28	750.65	3.66	3.67	0.01	-18.82	5.87
507	1.740	CO20	-410.80	0.38	-1.85	-0.33	-1.81	-0.58
510	0.660	CO62	-2861.54	9.79	-43.14	-0.39	-149.93	-7.85
511	0.660	CO77	-2468.98	-5.51	-40.88	0.50	-148.71	5.10
512	2.930	CO84	-195.73	-0.39	-0.79	-0.16	-0.97	0.61
513	2.930	CO62	-189.76	0.13	-0.86	0.22	-1.14	-0.25
514	2.130	CO62	-2861.54	9.90	-54.34	-0.39	-253.49	-28.77
515	2.130	CO5	-2458.86	-7.32	-52.52	0.44	-242.22	21.12
522	0.000	CO62	-0.08	122.71	0.15	0.07	-0.02	24.24
523	0.000	CO62	0.06	-211.37	-0.22	-0.46	0.04	-41.84
524	0.200	CO62	0.08	-122.71	0.15	-0.07	0.02	24.24
525	0.200	CO62	-0.06	211.37	-0.22	0.46	-0.04	-41.84
526	0.200	CO30	0.05	-119.61	-0.10	0.07	-0.02	23.63
527	0.000	CO30	-0.04	-206.03	0.15	-0.45	-0.03	-40.79
528	0.000	CO30	-0.05	119.61	-0.10	-0.07	0.02	23.63
529	0.200	CO30	0.04	206.03	0.15	0.45	0.03	-40.79
534	0.140	CO62	-0.15	-122.44	-0.08	0.03	0.00	0.07
535	1.000	CO62	-969.81	0.00	0.00	0.34	0.00	0.00
536	0.140	CO62	0.15	-122.44	-0.08	-0.03	0.00	0.07
537	0.140	CO30	0.10	-119.34	0.05	0.03	0.00	0.07
538	0.000	CO30	-945.35	0.00	0.00	-0.23	0.00	0.00
539	0.140	CO30	-0.10	-119.34	0.05	-0.03	0.00	0.07
540	0.190	CO62	0.22	211.64	0.06	-0.03	0.01	-0.46
541	0.190	CO62	-0.22	211.64	0.06	0.03	0.01	-0.46
542	0.190	CO30	-0.15	206.31	-0.04	-0.03	0.00	-0.45
543	0.190	CO30	0.15	206.31	-0.04	0.03	0.00	-0.45
PS-KT 576	7.000	CO62	-1929.83	0.17	99.51	34.02	539.75	0.43
580	5.050	CO84	153.51	32.87	-6.53	-120.41	127.58	-378.57
581	0.270	CO84	-408.86	-131.79	-1.76	0.00	-0.37	34.20
583	0.270	CO62	852.72	-21.99	-170.93	0.01	-19.15	0.00
586	0.280	CO17	-6.53	35.86	-117.46	0.01	-2.47	0.42
587	0.000	CO62	-1759.53	0.17	120.98	34.02	-2353.69	5.12
590	0.000	CO62	-1703.90	-0.17	-386.99	34.40	3273.96	-0.29
591	0.000	CO62	-1716.86	-0.17	-387.65	34.40	2534.00	0.05
594	0.280	CO71	-1354.82	6.76	-80.03	0.00	-0.89	0.08
597	0.270	CO62	-2566.19	21.81	-216.72	0.01	-26.03	0.00

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations –screw connections</i>	

Seite: 689

GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
599	0.000	CO62	-1153.50	11.37	2.51	0.00	-0.48	0.12
600	0.000	CO17	-271.15	0.60	-1441.98	-0.98	7151.76	120.54
601	3.790	CO84	153.29	32.87	-0.11	-125.84	135.09	-209.29
603	0.000	CO66	3.31	0.00	1.12	0.00	-1.22	0.00
604	0.000	CO66	2.64	0.00	1.12	0.00	-0.81	0.00
605	0.000	CO17	-271.15	0.60	-1438.13	-0.98	7727.78	120.78
606	0.000	CO16	41.17	709.74	25.79	-0.16	-20.34	572.09
608	0.380	CO16	152.54	4.28	-799.11	-3.55	62.91	8.03
609	0.000	CO16	748.74	135.80	-0.01	-6.38	-1.32	435.50
610	0.000	CO17	95.56	-71.69	166.49	11.43	-210.78	21.26
612	1.380	CO30	295.51	-0.41	-0.05	-0.25	433.94	-10.58
613	0.920	CO62	101.61	89.05	-155.97	-2.87	-210.32	21.19
614	0.000	CO29	564.19	-110.12	11.89	7.37	-14.59	-335.45
615	0.000	CO61	199.52	3.35	696.69	-3.85	118.84	3.88
617	0.810	CO29	20.87	-555.41	-33.50	12.88	-26.07	445.68
PS-HT 618	0.400	CO30	-306.64	-15.90	1544.70	17.28	7855.22	72.93
619	0.000	CO84	153.29	32.87	31.10	-125.84	-67.78	203.54
620	5.600	CO30	-306.64	-15.54	1548.55	17.28	7236.57	66.64
621	0.000	CO84	-809.35	-130.66	-1.73	0.00	0.34	-1.37
623	0.270	CO17	-1719.86	-74.28	174.72	0.03	21.06	0.00
626	0.000	CO84	-1016.33	119.98	47.00	0.03	-0.43	-1.41
629	0.000	CO84	-1264.23	2.01	283.91	395.26	-2281.32	3.29
630	0.000	CO84	-1275.03	2.01	283.91	395.26	-1739.05	-0.54
633	0.000	CO84	-1306.41	2.01	85.69	390.86	-1607.03	58.82
634	0.000	CO62	-339.25	10.52	150.22	0.00	-2.87	-0.12
637	0.000	CO84	542.37	252.65	125.26	0.09	-19.78	68.21
639	0.000	CO71	-634.18	7.41	2.50	0.00	-0.19	0.08
640	0.000	CO82	-34.20	32.11	44.53	-117.95	-272.53	369.52
641	1.700	CO13	-572.24	32.52	-224.74	1.40	-86.48	-62.31
644	7.000	CO84	-1447.73	2.01	63.90	390.86	359.77	4.92
661	0.000	CO62	-2993.57	-146.01	58.55	1.73	-279.86	-42.80
662	0.000	CO17	-2557.19	141.73	51.55	-1.90	-245.81	41.08
675	0.190	CO62	-0.22	214.79	0.06	0.04	0.01	-0.47
676	0.190	CO62	0.22	214.79	0.06	-0.04	0.01	-0.47
677	0.190	CO77	0.00	194.04	0.00	0.03	0.00	-0.42
678	0.190	CO77	0.00	194.04	0.00	-0.03	0.00	-0.42
679	0.140	CO62	0.15	-124.27	-0.08	-0.03	0.00	0.07
680	1.000	CO62	-984.23	0.00	0.00	0.34	0.00	0.00
681	0.140	CO62	-0.15	-124.27	-0.08	0.03	0.00	0.07
682	0.140	CO77	0.00	-112.20	0.00	-0.03	0.00	0.07
683	1.000	CO77	-889.05	0.00	0.00	0.00	0.00	0.00
684	0.140	CO77	0.00	-112.20	0.00	0.03	0.00	0.07
689	0.000	CO62	0.08	124.54	0.15	-0.07	-0.02	24.60
690	0.000	CO62	-0.06	-214.52	-0.22	0.47	0.04	-42.47
691	0.200	CO62	-0.08	-124.54	0.15	0.07	0.02	24.60
692	0.200	CO62	0.06	214.52	-0.22	-0.47	-0.04	-42.47
693	0.000	CO77	0.00	112.47	0.00	-0.07	0.00	22.22
694	0.000	CO77	0.00	-193.77	0.00	0.42	0.00	-38.36
695	0.200	CO77	0.00	-112.47	0.00	0.07	0.00	22.22
696	0.200	CO77	0.00	193.77	0.00	-0.42	0.00	-38.36
701	0.000	CO17	-2504.67	12.72	57.04	0.55	-278.49	20.99
702	0.000	CO77	-2305.86	-10.33	53.32	-0.64	-255.44	-17.08
703	0.000	CO62	-436.37	0.34	2.16	-0.03	-3.34	1.25
704	0.000	CO17	-422.52	-0.24	1.93	-0.12	-3.16	-1.20
705	0.380	CO17	-2504.67	12.95	45.73	0.55	-168.27	-6.54
706	0.380	CO77	-2305.86	-10.33	40.86	-0.64	-154.42	5.08
707	0.800	CO62	22.70	5.33	1.28	0.00	3.80	-2.94
708	0.000	CO17	1859.94	19.83	23.37	-0.22	-72.97	53.70
709	7.430	CO17	1289.35	-3.60	1.95	0.00	12.39	7.56
711	0.000	CO70	4.04	1.29	-2.75	0.00	3.57	1.27
712	0.000	CO62	2048.25	18.45	21.94	-0.08	-64.74	49.03
713	7.430	CO62	1192.37	-3.61	-0.19	-0.01	-4.03	7.39

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations –screw connections</i>	

Seite: 690

GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
714	0.000	CO17	22.25	-6.52	-1.24	0.00	3.76	-3.42
715	2.500	CO62	-2579.06	-16.85	31.32	-0.68	-57.85	35.00
716	2.670	CO62	-441.56	-0.85	-2.26	-0.69	-2.65	1.00
717	2.670	CO17	-429.18	1.12	-2.37	0.47	-3.01	-1.54
718	2.500	CO17	-2154.50	17.11	21.83	0.53	-65.02	-36.36
719	0.000	CO17	-0.13	650.90	3.24	38.21	0.00	220.46
720	0.000	CO17	-940.41	-6.66	2.79	0.04	-11.31	-17.75
721	1.300	CO17	0.59	-226.76	-8.56	12.92	-2.38	212.39
722	0.000	CO62	-4.52	217.59	4.13	-2.64	3.75	200.79
723	5.500	CO62	-858.54	-5.98	-0.13	-0.01	-4.70	17.00
724	0.430	CO62	-3.95	-594.58	-10.43	-25.86	-3.13	203.06
725	0.000	CO62	-2026.83	-19.32	28.26	0.43	-80.73	-51.94
726	0.000	CO77	1075.41	8.06	-12.75	0.02	40.51	11.48
727	0.000	CO62	1166.71	8.05	-11.67	0.04	36.98	11.20
728	0.000	CO17	-1654.22	16.89	26.64	-0.53	-75.74	45.12
729	0.000	CO17	-229.58	0.46	0.94	0.24	-1.32	0.73
730	0.000	CO62	-228.52	-0.61	1.05	-0.32	-1.31	-0.93
731	0.000	CO62	-2026.83	-19.24	20.35	0.43	-44.27	-23.02
732	0.000	CO77	-1725.88	14.38	22.70	-0.40	-51.63	16.68
733	0.830	CO62	15.36	13.55	0.11	-0.01	2.83	-7.43
734	7.430	CO17	1246.08	-5.08	3.89	0.03	25.99	10.78
736	0.000	CO61	0.09	-1.61	-3.58	0.00	4.11	-1.42
737	7.430	CO62	1143.06	-4.99	-5.00	-0.02	-27.44	10.46
738	0.000	CO17	15.04	-11.58	-0.02	0.01	2.71	-6.37
739	0.000	CO77	1075.41	3.61	-12.75	0.02	21.39	2.73
740	3.500	CO62	1166.71	-1.51	-12.39	0.04	-23.15	-1.17
741	2.330	CO62	-2013.28	-34.42	6.00	-0.18	-3.41	68.93
742	2.470	CO17	-234.78	-1.81	-1.40	-0.28	-1.31	3.17
743	2.470	CO62	-231.73	1.50	-1.28	0.19	-1.15	-2.82
744	2.330	CO17	-1642.64	31.93	1.69	0.13	-12.28	-64.97
745	0.170	CO62	-2040.57	-28.01	3.29	-0.89	-4.23	78.39
746	0.170	CO17	-1666.87	26.29	-1.01	0.70	-13.74	-73.77
747	0.000	CO17	99.41	802.88	-10.02	36.79	4.66	232.27
748	5.500	CO17	-923.47	-4.71	0.82	0.07	4.59	12.52
749	0.000	CO17	-26.27	-0.98	0.40	0.08	-0.50	-0.95
750	2.600	CO17	96.44	-43.79	3.22	12.64	23.31	214.69
751	0.000	CO62	-831.09	-4.16	-1.81	-0.07	8.74	-11.88
752	0.430	CO62	99.47	-747.15	-4.10	-25.86	-1.39	214.90
753	0.000	CO62	-1320.30	-126.59	1.36	-0.67	-21.36	-90.19
754	0.000	CO17	-999.22	125.82	9.31	0.50	-20.08	89.56
755	0.000	CO62	-1061.63	-31.39	1.26	-0.21	-21.91	-64.23
756	0.000	CO62	-275.62	-2.56	-0.66	-0.19	0.84	-3.81
757	0.000	CO17	-272.26	2.63	-0.72	0.09	0.81	3.83
758	0.000	CO77	-937.37	27.66	5.68	0.23	-27.33	57.66
759	0.830	CO62	-18.54	10.68	-2.45	-0.01	-3.84	-6.10
760	0.000	CO17	487.56	7.08	8.42	-0.03	-21.40	11.30
761	7.430	CO17	1225.55	-5.04	4.73	-0.01	28.82	11.34
763	0.000	CO62	-16.99	0.89	0.27	0.00	-1.79	0.93
764	0.000	CO62	424.38	6.58	8.96	0.01	-23.08	9.91
765	7.430	CO62	1092.24	-4.78	-1.98	0.00	-11.40	10.13
766	0.000	CO17	-18.66	-11.49	2.39	0.01	-3.81	-6.50
767	2.500	CO62	-1050.95	-12.59	-22.18	0.11	-74.98	34.13
768	2.650	CO62	-285.36	-0.72	-0.78	0.23	-0.52	0.98
769	2.650	CO17	-282.93	0.84	-0.88	-0.38	-0.78	-1.22
770	2.500	CO77	-930.12	10.21	-20.23	-0.08	-64.21	-28.09
771	0.000	CO17	4.63	625.22	434.67	67.03	-184.34	215.54
772	0.000	CO17	-514.79	-3.79	-9.99	0.01	35.33	-12.02
773	0.220	CO17	-27.82	-210.96	-22.00	21.10	-125.56	201.46
775	1.080	CO17	-27.82	-210.96	-21.49	21.10	-120.80	155.26
776	0.000	CO62	7.16	204.05	8.51	-0.29	-106.42	146.96
777	1.300	CO77	6.57	-41.53	-11.89	-0.07	-9.61	27.27
778	0.000	CO62	7.16	204.05	9.02	-0.29	-108.34	191.64

	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 Static calculations –screw connections	

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GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
779	0.000	CO24	-390.55	-4.17	5.76	-0.01	-19.11	-10.95
780	0.430	CO62	-3.68	-540.48	-321.59	-37.27	-136.29	195.36
781	0.000	CO17	-509.14	-21.08	411.04	-2.30	-161.15	-37.67
782	0.000	CO24	-363.20	1.32	304.48	-2.66	-96.96	19.47
783	0.000	CO62	143.01	-1.08	0.74	0.10	-0.70	-1.53
784	0.000	CO62	-115.51	-0.96	1.39	-0.03	-1.26	-1.39
785	0.000	CO62	-536.66	-15.62	-37.35	0.25	156.66	-25.80
786	0.000	CO5	-363.54	10.48	-40.54	1.01	168.06	18.39
787	0.830	CO62	9.22	11.37	0.49	-0.01	1.55	-6.40
788	7.430	CO17	752.19	-3.70	13.31	-0.01	65.02	5.28
789	0.000	CO62	7.10	0.99	0.47	0.00	0.50	0.93
790	7.430	CO77	566.34	-3.61	-7.01	-0.01	-34.49	4.88
791	0.000	CO62	-3.51	5.67	1.45	0.00	-0.82	3.22
792	2.330	CO62	-525.30	-24.63	-54.04	-0.27	-26.19	50.51
793	2.470	CO62	132.44	-2.37	-2.11	-0.47	-1.86	3.30
794	0.000	CO62	-120.89	-0.86	0.67	0.00	-0.54	-1.20
795	2.330	CO77	-390.90	18.06	-59.13	0.25	-28.82	-38.39
796	0.170	CO62	-401.38	-71.43	-56.91	-1.33	-37.68	66.32
797	0.170	CO77	-383.68	22.18	-61.73	1.17	-40.86	-44.56
798	0.430	CO17	-15.42	491.95	526.05	20.15	-2.22	-49.72
799	2.600	CO17	-28.83	-20.37	-26.40	14.38	-177.04	120.34
800	0.000	CO77	-22.18	-383.68	-412.72	-4.85	1.17	-44.56
801	0.000	CO62	0.00	-51.98	4.35	-20.77	-2.17	-6.52
802	0.000	CO62	0.00	-52.28	4.89	-20.77	-2.44	-6.67
803	0.000	CO62	-1818.36	0.17	111.90	34.02	-1539.00	3.90
804	12.830	CO84	-1421.62	2.01	67.92	390.86	-101.09	18.98
806	1.700	CO75	-427.30	-25.89	-161.27	-0.23	-32.61	54.55
807	0.000	CO20	-4045.83	-2.03	52.03	0.25	-232.20	-1.71
808	0.000	CO20	-3853.95	1.60	52.30	-0.23	-228.53	0.68
811	2.270	CO20	-2113.15	37.73	-11.16	0.88	-38.46	-74.91
812	2.270	CO20	-2214.00	-39.28	-8.46	-0.92	-32.53	78.01
821	0.000	CO20	-1127.42	-44.12	22.22	-1.04	-54.47	-93.23
822	0.000	CO20	-1077.14	43.70	24.75	1.01	-58.65	92.35
825	0.830	CO62	11.98	-8.00	-0.69	0.01	1.88	4.26
826	0.000	CO70	6.21	0.79	-2.46	0.00	3.13	0.75
827	0.000	CO84	7.44	7.57	0.54	-0.01	1.11	4.18
828	0.000	CO1	0.00	0.00	3.81	0.00	-1.66	0.00
829	0.000	CO1	0.00	0.00	4.28	0.00	-1.87	0.00
830	2.600	CO13	-8.71	0.38	-1.71	-0.13	-2.25	-0.08
831	2.600	CO17	-37.19	1.00	-0.85	0.09	-0.72	-1.32
832	1.260	CO20	49.19	-4.73	6.51	-0.01	8.91	3.47
833	1.300	CO17	15.04	56.39	-26.59	0.08	-44.29	-44.92
834	0.000	CO82	15.18	9.44	-2.52	0.00	2.82	6.26
836	0.930	CO84	12.46	12.82	-3.66	-0.01	-1.46	-6.17
837	1.150	CO59	10.63	-4.16	-3.31	0.00	-3.69	2.36
839	0.000	CO59	6.22	-6.05	-3.36	0.00	6.16	-3.75
841	0.000	CO59	0.92	1.66	-6.01	0.00	8.93	2.17
842	0.000	CO59	-3.97	-0.01	-7.67	0.01	12.01	0.37
844	0.430	CO59	7.17	0.32	-9.86	0.00	-11.92	-0.73
845	0.000	CO59	10.38	3.04	-3.28	0.00	2.62	2.02
846	0.000	CO82	234.11	0.14	1.11	0.20	-1.87	0.26
847	5.890	CO82	-174.58	0.08	-0.92	-0.03	-0.90	-0.27
848	0.000	CO82	194.24	0.10	0.56	0.02	-0.69	0.30
849	5.890	CO83	-130.67	0.05	-0.53	-0.02	-0.45	-0.08
850	5.890	CO82	150.23	0.09	-0.51	-0.01	-0.54	-0.27
851	0.000	CO82	-135.64	0.04	0.56	-0.03	-0.61	0.10
852	5.890	CO84	143.62	0.05	-0.60	0.08	-0.85	-0.05
853	0.000	CO17	-103.48	-0.20	1.29	-0.28	-1.84	-0.66
854	5.640	CO17	-151.77	-0.18	-1.17	-0.12	-0.94	0.59
855	0.000	CO17	261.71	0.59	1.56	0.27	-1.91	1.91
856	5.650	CO13	-194.86	-1.31	-0.99	0.01	0.00	3.26
857	5.650	CO13	90.39	-1.49	3.38	0.00	19.02	3.18



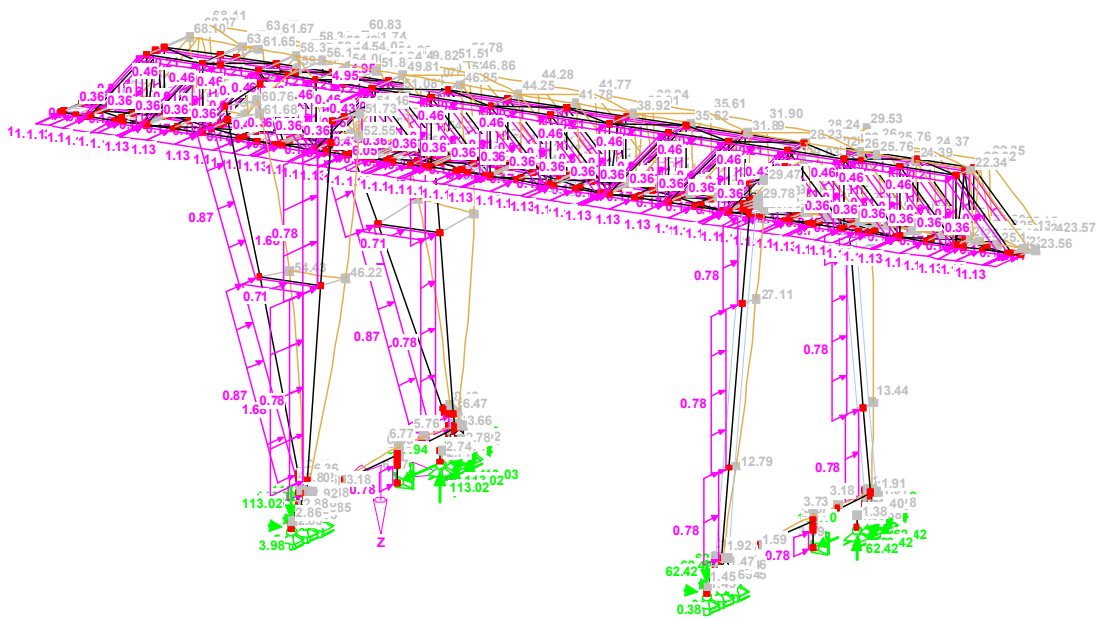
GOVERNING INTERNAL FORCES - [SIGMA EQ]

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
858	5.650	CO15	-99.98	-0.50	-0.58	0.00	-4.44	0.93
859	5.650	CO15	84.04	-1.30	2.08	0.00	10.72	3.35
860	0.000	CO17	-176.75	0.95	1.88	0.00	0.77	2.40
861	5.650	CO17	89.82	-1.64	-4.26	0.00	-23.16	3.93

RESULTS

LF 51 - Wind ausser Betrieb (-Vsy)
Verschiebungen
Auflagerreaktionen

Isometrie

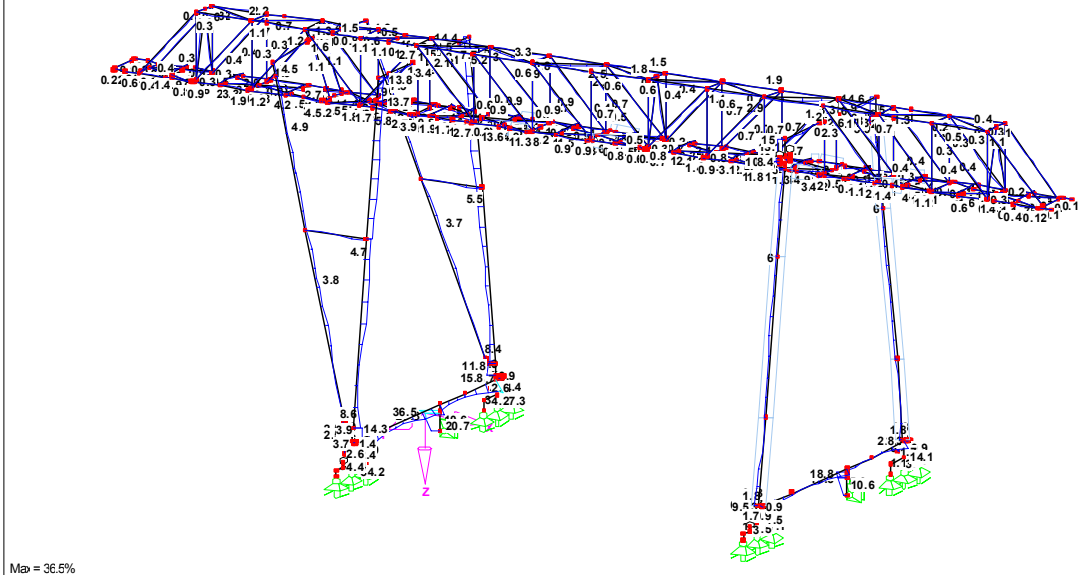


Maßstab: 82.57 mm
Faktor für Verschiebungen: 100

SPANNUNGSAUSNUTZUNG

STAHL2 - analyse fuer alle LK
Sigma-v

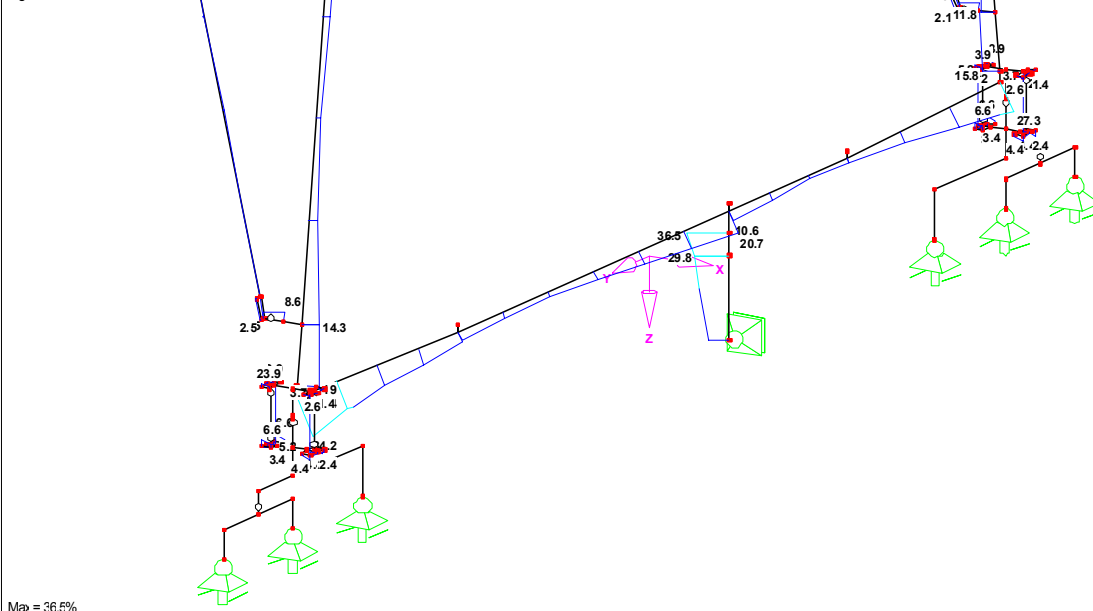
Isometrie



SPANNUNGSAUSNUTZUNG

STAHL2 - analyse fuer alle LK
Sigma-v

Isometrie



	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations –screw connections</i>	

Seite: 694

GOVERNING INTERNAL FORCES - [SIGMA EQ]]- from STAHL2

Elem No	x Location [m]	LC No	Forces [kN]			Moments [kNm]		
			N	V-2	V-3	M-T	M-2	M-3
Schienenz ange 247	0.000	LC51	0.00	0.00	-326.83	0.00	593.01	0.00

6.1. Flange connection head beam- oscilating leg (PS)

$$\begin{aligned}
 n_y &= 11 \text{ Schr} \\
 n_z &= 13 \text{ Schr} \\
 n &= 2 \cdot n_y + 2 \cdot (n_z - 2) = \underline{\underline{44 \text{ Schr}}} \\
 e_y &= 0,670 \text{ m} \\
 e_z &= 0,770 \text{ m}
 \end{aligned}$$

$$\begin{aligned}
 M24A_{sch} &= 353,00 \text{ mm}^2 \\
 &\text{Elem 576, LK 62 (Fall HZ)}
 \end{aligned}$$

$$\begin{aligned}
 F_x &= -1929,83 \text{ kN} \\
 M_y &= 539,75 \text{ kNm} \\
 M_z &= 0,43 \text{ kNm} \\
 F_y &= 0,17 \text{ kN} \\
 F_z &= 99,51 \text{ kN} \\
 M_x &= 34,02 \text{ kNm}
 \end{aligned}$$

44 HV M24 / 10.9

$$F_v = 209,8 \text{ kN}, l_k/d = 80/24 = 3,33 \Rightarrow \Phi = 0,33$$

$$S1 = 22,45 \text{ kN (H)}, S1 = 25,60 \text{ (HZ)}, S1 = 28,45 \text{ kN (HS)}$$

$$Z_{zul} = S1/\Phi = 22,45/0,33 = 68,03 \text{ kN (H)}, Z_{zul} = S1/\Phi = 25,60/0,33 = \underline{\underline{77,58 \text{ kN (HZ)}}},$$

$$Z_{zul} = S1/\ddot{\Phi} = 28,45/0,33 = 86,21 \text{ kN (HS)}$$

Rough check:

$$\begin{aligned}
 F_{a1} &= F_x/n = -43,86 \text{ kN} \\
 F_{My} &= M_y/e_z = 700,97 \text{ kN} \\
 F_{My1} &= F_{My}/(1 \cdot n_y) = 63,72 \text{ kN} \\
 F_{Mz} &= M_z/e_y = 0,64 \text{ kN} \\
 F_{Mz1} &= F_{Mz}/(1 \cdot n_z) = 0,05 \text{ kN} \\
 F_1 &= F_{a1} + F_{My1} + F_{Mz1} = \underline{\underline{19,91 \text{ kN}}}
 \end{aligned}$$

$$F_1 = 19,91 \text{ kN} \leq Z_{zul} = 77,58 \text{ kN (Fall HZ) OK}$$

Final check:

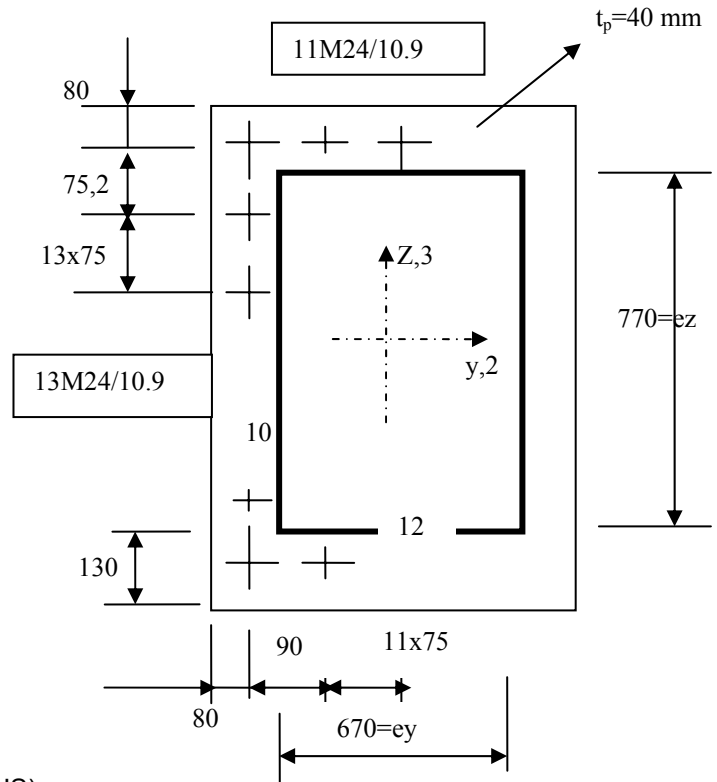
$$F_1 = -1,26 \text{ kN} < Z_{zul} = 77,58 \text{ kN (Fall HZ) OK.}$$

$$\text{-torsion: } Q_{dop} = 0,6 \cdot Z_{zul}$$

$$Q_{zul} = 0,6 \cdot 77,58 = \underline{\underline{46,55 \text{ kN}}}$$

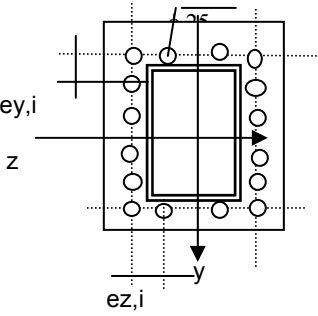
$$Q_{v1} = (F_y + F_z + (M_x/e_y))/n = \underline{\underline{3,42 \text{ kN}}}$$

$$Q_{v1} = 3,42 \leq Q_{zul} = 46,55 \text{ kN}$$



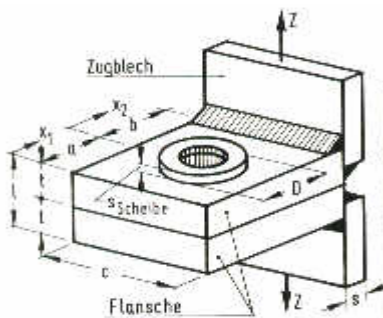
Flanschverbindungen nach "Stahlbau", C. Petersen, seite 506-516

KT-PSuetzeseite

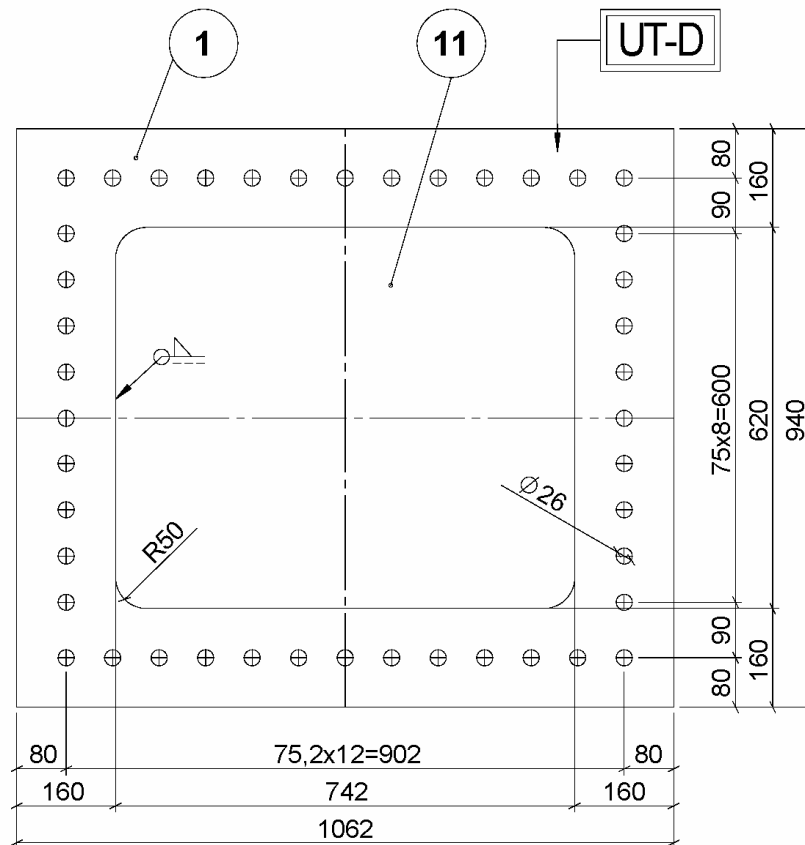
		Nx = -1929,83 kN	
		My = 539,75 kNm	
		Mz = 0,43 kNm	
		n schrau = 11+11+13+13) 44	
		ey9= 0	ey1= 75
		ey10= 0	ey2= 150
		ey11= 0	ey3= 225
		ey12= 0	ey4= 300
		ey13= 0	ey5= 390
		ey14= 0	ey6= 0
		ey15= 0	ey7= 0
		ey16= 0	ey8= 0
		ez1= 75,2 mm	
		ez2= 150,4 mm	
		ez3= 225,6 mm	
		ez4= 300,8 mm	
		ez5= 376 mm	
		lz,schrau= 4,63E+06	451
		ly,schrau= 5,72E+06	
emax,y = 390		Fx,1 = Nx / (n schrau) =	-43,86 kN
emax,z = 451		Fx,2 = My *1000*ewz / (ly,schr) =	42,57 kN
		Fx,3 = Mz *1000*ewy / (lz,schr) =	0,04 kN
		R1 schr. zugkraft = Fx,1+Fx,2+Fx,3=	-1,26 kN
			<zul Z1

E =	210000	N/mm ²
A schraubenschaft=	353	mm ²
l schraube=	88	mm
l klemmlange =	80	mm
D scheibe=	44	mm
d loch =	26	mm
s sheibe =	4	mm
a =	80	mm
b =	40	mm
c flansche =	75	mm
t flansche =	40	mm
s steg =	12	mm
l steg =	95	mm
Z zugkraft im steg =	-0,84	kN
Fv vorspannkraft=	209,8	kN
Material: St-53-3	360	N/mm ²
M24, 10.9		
Schraube		
Sicherheit v	1,35	
d schraube=	24	mm
Φ	0,330	
S1 =	25,60	kN
S2=	99,95	kN
Gamma M	1,1	

Cs=	8,4239E+05	N/mm
Cd1=	4,1811E+06	N/mm
Cd2=	5,1954E+07	N/mm
Cd=	3,6014E+06	N/mm
C=	4,4438E+06	N/mm
El=	8,4000E+10	Nmm ²
Is =	1,0800E+04	mm ⁴
K=	9,5495E+07	Nmm
γ =	2,000	
γ/3 =	0,667	
δ =	13,543	
ε =	0,0454737	
β =	0,0000000	
α =	0,0000000	
F =	-1,24	kN
Schraube: M24, 10.9		
Fvs' =	209,57	kN
Fvd' =	210,80	kN
σ schraube =	593,67	N/mm ² <900 N/mm ²
zulZ1nach DIN=	77,64	kN
Flansche:		
M2(x2=0)=	31,75	kNmm
W flansche =	13066,67	mm ³
σ =	-3,61	N/mm ² < 360 N/mm ²
σ =	3,61	N/mm ² < 360 N/mm ²
Steg:		
M2(x2=b)=	-1,81	kNmm
W steg =	2280,00	mm ³
A steg =	1140,00	mm ²
σ =	-2,27	N/mm ² < 360 N/mm ²
σ =	0,09	N/mm ² < 360 N/mm ²



	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 <i>Static calculations –screw connections</i>	Seite: 697



6.2. Flange connection head beam- fixed leg (FS)

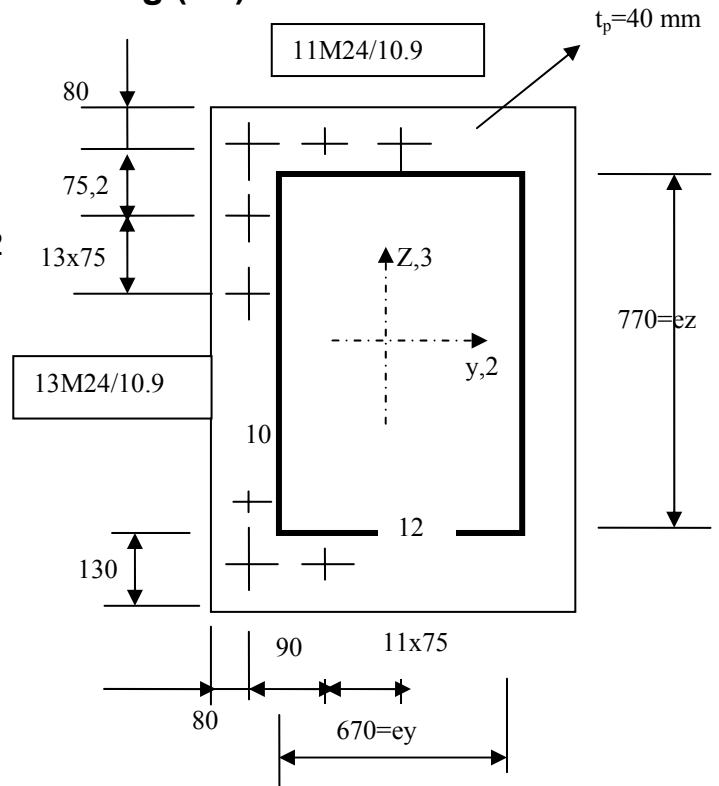
$$\begin{aligned}
 n_y &= 11 \text{ Schr} \\
 n_z &= 13 \text{ Schr} \\
 n &= 2 \cdot n_y + 2 \cdot (n_z - 2) = \underline{\underline{44 \text{ Schr}}} \\
 e_y &= 0,670 \text{ m} \\
 e_z &= 0,770 \text{ m}
 \end{aligned}$$

$$\begin{aligned}
 M24A_{\text{sch}} &= 353,00 \text{ mm}^2 \\
 \text{Elem 236, LK 82 (Fall HS)}
 \end{aligned}$$

$$\begin{aligned}
 F_x &= -2213,89 \text{ kN} \\
 M_y &= 826,32 \text{ kNm} \\
 M_z &= 226,00 \text{ kNm} \\
 F_y &= 122,48 \text{ kN} \\
 F_z &= 175,10 \text{ kN} \\
 M_x &= 339,33 \text{ kNm}
 \end{aligned}$$

44 HV M24 / 10.9

$$\begin{aligned}
 F_v &= 209,8 \text{ kN}, l_k/d = 80/24 = 3,33 \Rightarrow \Phi = 0,33 \\
 S1 &= 22,45 \text{ kN (H)}, S1 = 25,60 \text{ (HZ)}, S1 = 28,45 \text{ kN (HS)} \\
 z_{ul} Z &= S1/\Phi = 22,45/0,33 = 68,03 \text{ kN (H)}, z_{ul} Z = S1/\Phi = 25,60/0,33 = 77,58 \text{ kN (HZ)}, \\
 z_{ul} Z &= S1/\ddot{\Phi} = 28,45/0,33 = \underline{\underline{86,21 \text{ kN (HS)}}}
 \end{aligned}$$



Rough check:

$$\begin{aligned}
 F_{a1} &= F_x/n = -50,32 \text{ kN} \\
 F_{My} &= M_y/e_z = 1073,14 \text{ kN} \\
 F_{My1} &= F_{My}/(1 \cdot n_y) = 97,56 \text{ kN} \\
 F_{Mz} &= M_z/e_y = 337,31 \text{ kN} \\
 F_{Mz1} &= F_{Mz}/(1 \cdot n_z) = 25,95 \text{ kN} \\
 F_1 &= F_{a1} + F_{My1} + F_{Mz1} = \underline{\underline{73,19 \text{ kN}}}
 \end{aligned}$$

$$F_1 = 73,19 \text{ kN} \leq z_{ul} Z = 86,21 \text{ kN (Fall HS) OK}$$

Final check:

$$F_1 = 73,19 \text{ kN} < z_{ul} Z = 86,21 \text{ kN (Fall HS) OK.}$$

$$\text{-torsion: } Q_{dop} = 0,6 \cdot z_{ul} Z$$

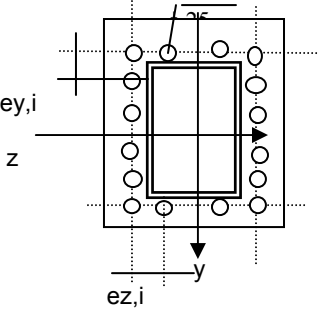
$$Q_{zul} = 0,6 \cdot 86,21 = \underline{\underline{51,73 \text{ kN}}}$$

$$Q_{v1} = (F_y + F_z + (M_x/e_y))/n = \underline{\underline{18,27 \text{ kN}}}$$

$$Q_{v1} = 18,27 \leq Q_{zul} = 51,73 \text{ kN}$$

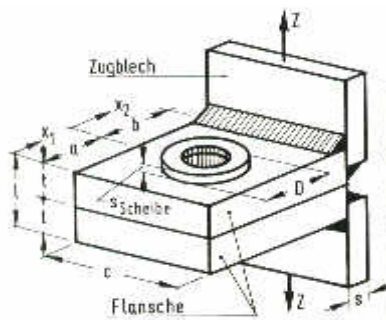
Flanschverbindungen nach "Stahlbau", C. Petersen, seite 506-516

KT-FStuetzeseite

		Nx = -2213,89 kN	
		My = 826,32 kNm	
		Mz = 226 kNm	
		n schrau = 11+11+13+13) 44	
		ey9= 0	ey1= 75
		ey10= 0	ey2= 150
		ey11= 0	ey3= 225
		ey12= 0	ey4= 300
		ey13= 0	ey5= 390
		ey14= 0	ey6= 0
		ey15= 0	ey7= 0
		ey16= 0	ey8= 0
emax,y = 390		Fx,1 = Nx / (n schrau) = -50,32 kN	
emax,z = 451		Fx,2 = My *1000*ewz / (ly,schr) = 65,16 kN	
		Fx,3 = Mz *1000*ewy / (lz,schr) = 19,04 kN	
		R1 schr. zugkraft = Fx,1+Fx,2+Fx,3= 33,89 kN	
		<zul Z1	

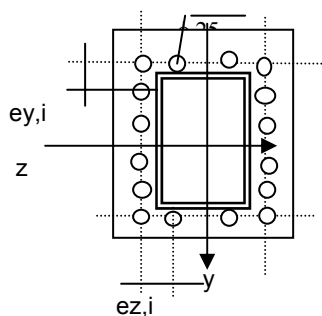
E =	210000	N/mm ²
A schraubenschaft=	353	mm ²
l schraube=	88	mm
l klemmlange =	80	mm
D scheibe=	44	mm
d loch =	26	mm
s sheibe =	4	mm
a =	80	mm
b =	40	mm
c flansche =	75	mm
t flansche =	40	mm
s steg =	12	mm
l steg =	95	mm
Z zugkraft im steg =	22,59	kN
Fv vorspannkraft=	209,8	kN
Material: St-53-3	360	N/mm ²
M24, 10.9		
Schraube		
Sicherheit v	1,1	
d schraube=	24	mm
Φ	0,330	
S1 =	28,45	kN
S2=	99,95	kN
Gamma M	1,1	

Cs=	8,4239E+05	N/mm
Cd1=	4,1811E+06	N/mm
Cd2=	5,1954E+07	N/mm
Cd=	3,6014E+06	N/mm
C=	4,4438E+06	N/mm
EI=	8,4000E+10	Nmm ²
Is =	1,0800E+04	mm ⁴
K=	9,5495E+07	Nmm
γ =	2,000	
γ/3 =	0,667	
δ =	13,543	
ε =	0,0454737	
β =	0,0000004	
α =	0,0000006	
F =	33,28	kN
Schraube: M24, 10.9		
Fvs' =	216,11	kN
Fvd' =	182,83	kN
σ schraube =	612,20	N/mm ²
zulZ1nach DIN=	86,28	kN
Flansche:		
M2(x2=0)=	-854,94	kNmm
W flansche =	13066,67	mm ³
σ =	79,17	N/mm ²
σ =	-79,17	N/mm ²
Steg:		
M2(x2=b)=	48,72	kNmm
W steg =	2280,00	mm ³
A steg =	1140,00	mm ²
σ =	49,83	N/mm ²
σ =	-1,88	N/mm ²



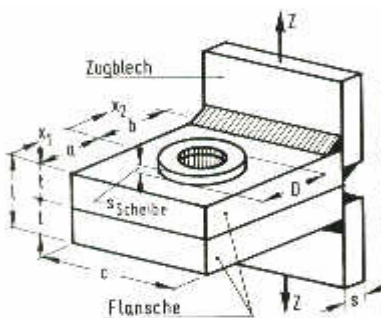
Flanschverbindungen nach "Stahlbau", C. Petersen, seite 506-516

Haupttraeger-FStuetzeseite

		Nx = -386,21	kN					
		My = 196,08	kNm					
		Mz = 12402,77	kNm					
		$n_{\text{schrau}} = 2 \times (12+12) + 2 \times (35+35)$	180					
	ey9=	675	ey1=	75	ez1=	35	mm	
	ey10=	750	ey2=	150	ez2=	105	mm	
	ey11=	825	ey3=	225	ez3=	175	mm	
	ey12=	900	ey4=	300	ez4=	245	mm	
	ey13=	975	ey5=	375	ez5=	315	mm	
	ey14=	1050	ey6=	450	Iz,schrau=	1,32E+08	407	
	ey15=	1125	ey7=	525	Iy,schrau=	1,94E+07		
	ey16=	1210	ey8=	600				
	ey17=	1315	Fx,1 = Nx / (n_schrau) =	-2,15				kN
	emax,y =	1315	Fx,2 = My *1000*ewz /(Iy,schr) =	4,12				kN
emax,z =	407	Fx,3 = Mz*1000*ewy /(Iz,schr) =	121,15	kN				
		R1 schr. zugkraft = Fx,1+Fx,2+Fx,3=	123,12	kN	>zul Z1			

E =	210000	N/mm ²
A schraubenschaft=	353	mm ²
l schraube=	205	mm
l klemmlänge =	195	mm
D scheibe=	44	mm
d loch =	26	mm
s sheibe =	4	mm
a =	80	mm
b =	40	mm
c flansche =	75	mm
t flansche =	40	mm
s steg =	15	mm
l steg =	95	mm
Z zugkraft im steg =	83,42	kN
Fv vorspannkraft=	209,8	kN
Material: St-53-3	360	N/mm ²
M24, 10.9		
Schraube		
Sicherheit v	1,35	
d schraube=	24	mm
Φ	0,198	
S1 =	25,60	kN
S2=	99,95	kN
Gamma M	1,1	

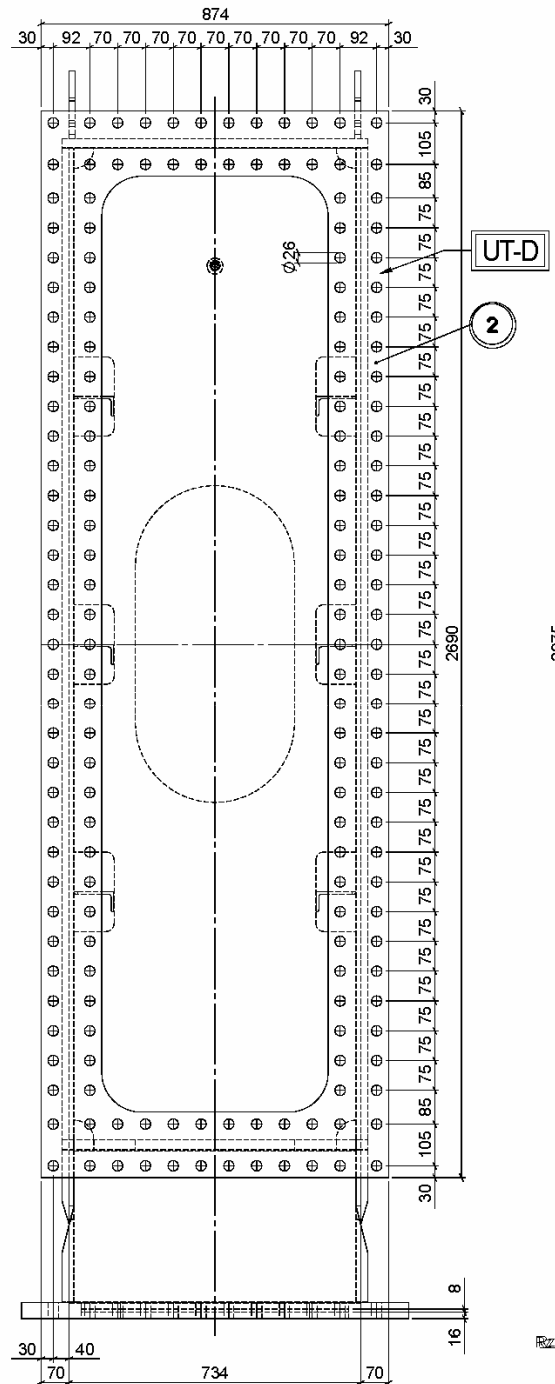
Cs=	3,6161E+05	N/mm
Cd1=	2,8388E+06	N/mm
Cd2=	5,1954E+07	N/mm
Cd=	2,5591E+06	N/mm
C=	2,9207E+06	N/mm
EI=	8,4000E+10	Nmm ²
Is =	2,1094E+04	mm ⁴
K=	1,8651E+08	Nmm
γ =	2,000	
γ/3 =	0,667	
δ =	8,901	
ε =	0,0888158	
β =	0,0000016	
α =	0,0000023	
F =	120,83	kN
Schraube:	M24, 10.9	
Fvs' =	224,76	kN
Fvd' =	103,93	kN
σ schraube =	636,71	N/mm ²
zulZ1nach DIN=	124,57	kN
Flansche:		
M ₂ (x ₂ =0)=	-2993,45	kNmm
W flansche =	13066,67	mm ³
σ =	340,20	N/mm ² < 360 N/mm ²
σ =	-340,20	N/mm ² < 360 N/mm ²
Steg:		
M ₂ (x ₂ =b)=	343,16	kNmm
W steg =	3562,50	mm ³
A steg =	1425,00	mm ²
σ =	229,97	N/mm ² < 360 N/mm ²
σ =	-56,12	N/mm ² < 360 N/mm ²





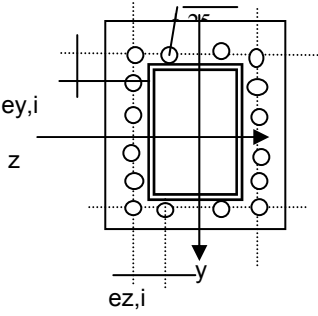
Static calculations –screw connections

Seite: 703



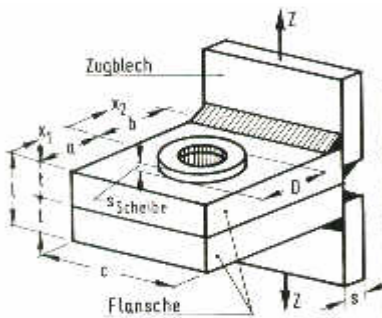
Flanschverbindungen nach "Stahlbau", C. Petersen, seite 506-516

Haupttraeger-PStuetzeseite

	$N_x = -306,64$		kN	
	$M_y = 72,93$		kNm	
	$M_z = 7855,2$		kNm	
	$n_{schrau} = 2x(12+12)+2x(35+35) = 180$			
	$ey_9 = 675$	$ey_1 = 75$	$ez_1 = 35$	mm
	$ey_{10} = 750$	$ey_2 = 150$	$ez_2 = 105$	mm
	$ey_{11} = 825$	$ey_3 = 225$	$ez_3 = 175$	mm
	$ey_{12} = 900$	$ey_4 = 300$	$ez_4 = 245$	mm
	$ey_{13} = 975$	$ey_5 = 375$	$ez_5 = 315$	mm
	$ey_{14} = 1050$	$ey_6 = 450$	$I_{z,schrau} = 1,32E+08$	407
$ey_{15} = 1125$	$ey_7 = 525$	$I_{y,schrau} = 1,94E+07$		
$ey_{16} = 1210$	$ey_8 = 600$			
$ey_{17} = 1315$	$F_{x,1} = N_x / (n_{schrau}) =$	$-1,70$	kN	
$emax,y = 1315$	$F_{x,2} = M_y * 1000 * e_{wz} / (I_{y,schr}) =$	$1,53$	kN	
$emax,z = 407$	$F_{x,3} = M_z * 1000 * e_{wy} / (I_{z,schr}) =$	$77,99$	kN	
	$R1\ schr.\ zugkraft = F_{x,1}+F_{x,2}+F_{x,3} =$	$77,82$	kN	
			<zul Z1	

E =	210000	N/mm ²
A schraubenschaft=	353	mm ²
l schraube=	205	mm
l klemmlänge =	195	mm
D scheibe=	44	mm
d loch =	26	mm
s sheibe =	4	mm
a =	80	mm
b =	40	mm
c flansche =	75	mm
t flansche =	40	mm
s steg =	15	mm
l steg =	95	mm
Z zugkraft im steg =	51,88	kN
Fv vorspannkraft=	209,8	kN
Material: St-53-3	360	N/mm ²
M24, 10.9		
Schraube		
Sicherheit v	1,35	
d schraube=	24	mm
Φ	0,198	
S1 =	25,60	kN
S2=	99,95	kN
Gamma M	1,1	

Cs=	3,6161E+05	N/mm
Cd1=	2,8388E+06	N/mm
Cd2=	5,1954E+07	N/mm
Cd=	2,5591E+06	N/mm
C=	2,9207E+06	N/mm
EI=	8,4000E+10	Nmm ²
Is =	2,1094E+04	mm ⁴
K=	1,8651E+08	Nmm
γ =	2,000	
γ/3 =	0,667	
δ =	8,901	
ε =	0,0888158	
β =	0,0000010	
α =	0,0000014	
F =	75,16	kN
Schraube:	M24, 10.9	
Fvs' =	219,10	kN
Fvd' =	143,95	kN
σ schraube =	620,69	N/mm ²
zulZ1nach DIN=	124,57	kN
Flansche:		
M2(x2=0)=	-1861,86	kNmm
W flansche =	13066,67	mm ³
σ =	211,60	N/mm ²
σ =	-211,60	N/mm ²
Steg:		
M2(x2=b)=	213,44	kNmm
W steg =	3562,50	mm ³
A steg =	1425,00	mm ²
σ =	143,04	N/mm ²
σ =	-34,90	N/mm ²

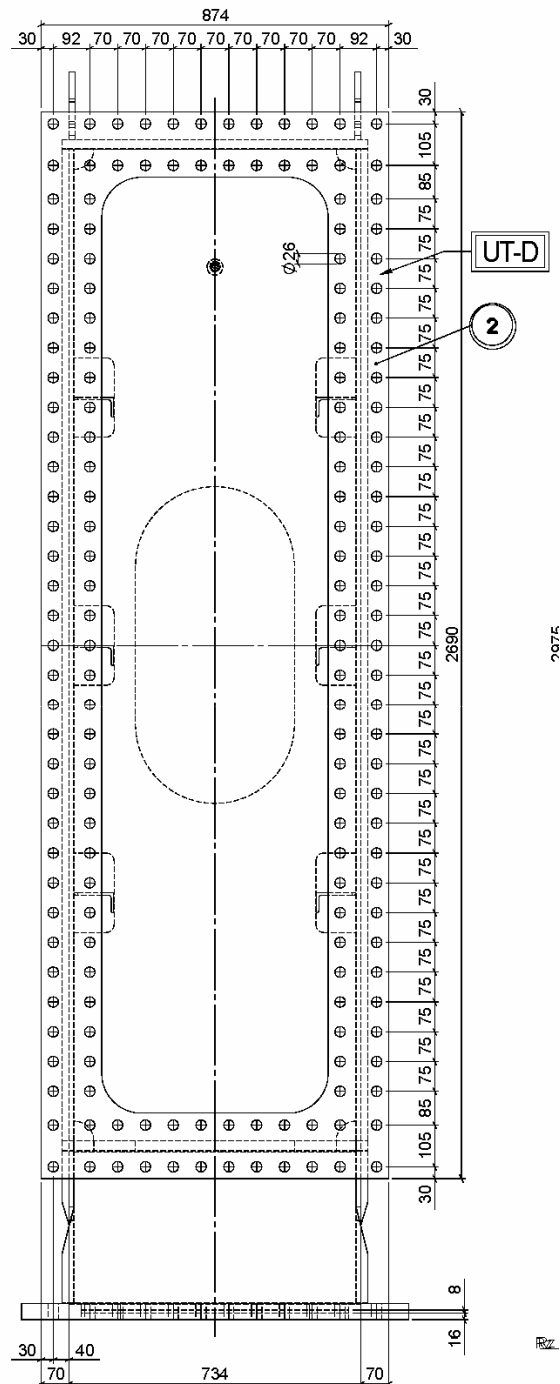




Static calculations –screw connections

künz

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6.5. Flange connection diagonaleFS- main beam (HT)

$n_y = 12 \text{ Schr}$
 $n_z = 21 \text{ Schr}$
 $n = 4 \cdot n_y + 4 \cdot (n_z - 2) - 2 = \underline{122 \text{ Schr}}$
 $e_y = 0,700 \text{ Nm}$
 $e_z = 1,748 \text{ m}$

$M24A_{sch} = 353,00 \text{ mm}^2$

Elem 91, LK 65 (Fall HZ)

$F_x = -213,45 \text{ kN}$
 $M_y = 4386,99 \text{ kNm}$
 $M_z = 814,23 \text{ kNm}$
 $F_y = 152,66 \text{ kN}$
 $F_z = 805,56 \text{ kN}$
 $M_x = 27,94 \text{ kNm}$

48 HV M24 / 10.9 + Dehnhülse L=115mm

132 HV M24 / 10.9

$\Sigma \text{ Schrauben} = 180$

$F_v = 209,8 \text{ kN}$, $l_k/d = 80/24 = 3,33 \Rightarrow \Phi = 0,33$

$S1 = 22,45 \text{ kN (H)}$, $S1 = 25,60 \text{ (HZ)}$, $S1 = 28,45 \text{ kN (HS)}$

$z_{ul} Z = S1/\Phi = 22,45/0,33 = 68,03 \text{ kN (H)}$, $z_{ul} Z = S1/\Phi = 25,60/0,33 = 77,58 \text{ kN (HZ)}$,

$z_{ul} Z = S1/\Phi = 28,45/0,33 = 86,21 \text{ kN (HS)}$

Dehnhülse $l = 115 \text{ mm} \Rightarrow l_k/d = (80+115)/24 = 8,125 \Rightarrow \Phi = 0,19 \leq 0,2038$

$S2 = 87,65 \text{ kN (H)}$, $S2 = 99,95 \text{ (HZ)}$, $S2 = 111,05 \text{ kN (HS)}$

$z_{ul} Z = S2/(1-\Phi) = 87,65/(1-0,19) = 108,21 \text{ kN (H)}$, $z_{ul} Z = S2/(1-\Phi) = 99,95/(1-0,19) = \underline{123,39 \text{ kN (HZ)}}$,

$z_{ul} Z = S2/(1-\Phi) = 111,05/(1-0,19) = 137,09 \text{ kN (HS)}$,

Rough check:

$F_{a1} = F_x/n = -1,75 \text{ kN}$
 $F_{My} = M_y/e_z = 2509,72 \text{ kN}$
 $F_{My1} = F_{My}/(2 \cdot n_y) = 104,57 \text{ kN}$
 $F_{Mz} = M_z/e_y = 1163,19 \text{ kN}$
 $F_{Mz1} = F_{Mz}/(2 \cdot n_z) = 27,70 \text{ kN}$
 $F_1 = F_{a1} + F_{My1} + F_{Mz1} = \underline{130,52 \text{ kN}}$

$F_1 = 130,52 \text{ kN} \geq z_{ul} Z = 123,39 \text{ kN (Fall HZ)}$

Final check:

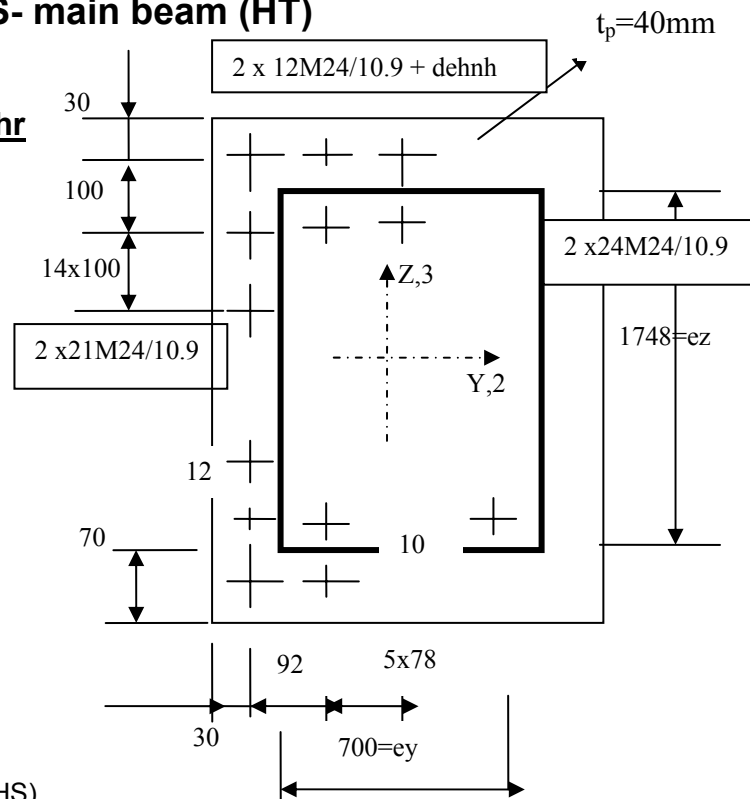
$F_1 = 99,39 \text{ kN} < z_{ul} Z = 123,39 \text{ kN (Fall HZ) OK}$

-torsion: $Q_{dop} = 0,6 \cdot z_{ul} Z$

$Q_{zul} = 0,6 \cdot 123,39 = \underline{74,03 \text{ kN}}$

$Q_{v1} = (F_y + F_z + (M_x/e_y))/n = \underline{8,18 \text{ kN}}$

$Q_{v1} = 8,18 \leq Q_{zul} = 74,03 \text{ kN}$



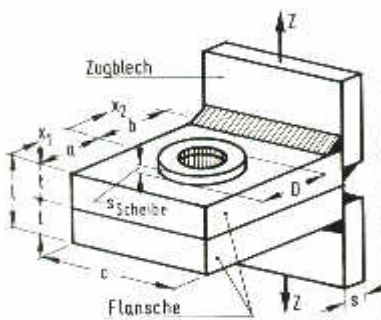
Flanschverbindungen nach "Stahlbau", C. Petersen, seite 506-516

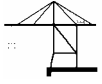
Haupttraeger-diagonaleFS

	$N_x = -213,45$	kN
	$M_y = 814,23$	kNm
	$M_z = 4386,99$	kNm
	$n_{\text{schrau}} = 2 \times (12+12) + 2 \times (21+24) = 122$	
$e_{y,i}$	$e_{y9} = 786$	$e_{y1} = 88$
z	$e_{y10} = 891$	$e_{y2} = 176$
	$e_{y11} = 0$	$e_{y3} = 264$
	$e_{y12} = 0$	$e_{y4} = 352$
	$e_{y13} = 0$	$e_{y5} = 440$
	$e_{y14} = 0$	$e_{y6} = 528$
	$e_{y15} = 0$	$e_{y7} = 616$
	$e_{y16} = 0$	$e_{y8} = 704$
	$e_{y17} = 0$	
$e_{z,i}$		$e_{z1} = 35$ mm
		$e_{z2} = 105$ mm
		$e_{z3} = 175$ mm
		$e_{z4} = 245$ mm
		$e_{z5} = 315$ mm
		$I_{z,\text{schrau}} = 4,65E+07$
		$I_{y,\text{schrau}} = 1,94E+07$
$e_{\max,y} = 891$	$F_{x,1} = N_x / (n_{\text{schrau}}) = -1,75$	kN
$e_{\max,z} = 407$	$F_{x,2} = M_y \cdot 1000 \cdot e_{wz} / (I_{y,\text{schru}}) = 17,11$	kN
	$F_{x,3} = M_z \cdot 1000 \cdot e_{wy} / (I_{z,\text{schru}}) = 84,03$	kN
	R1 schr. zugkraft = $F_{x,1} + F_{x,2} + F_{x,3} = 99,39$	kN
		<zul Z1

E =	210000	N/mm ²
A schraubenschaft=	353	mm ²
l schraube=	205	mm
l klemmlänge =	195	mm
D scheibe=	44	mm
d loch =	26	mm
s sheibe =	4	mm
a =	80	mm
b =	40	mm
c flansche =	75	mm
t flansche =	40	mm
s steg =	15	mm
l steg =	95	mm
Z zugkraft im steg =	66,26	kN
Fv vorspannkraft=	209,8	kN
Material: St-53-3	360	N/mm ²
	M24, 10.9	
Schraube		
Sicherheit v	1,35	
d schraube=	24	mm
Φ	0,198	
S1 =	25,60	kN
S2=	99,95	kN
Gamma M	1,1	

Cs=	3,6161E+05	N/mm
Cd1=	2,8388E+06	N/mm
Cd2=	5,1954E+07	N/mm
Cd=	2,5591E+06	N/mm
C=	2,9207E+06	N/mm
EI=	8,4000E+10	Nmm ²
Is =	2,1094E+04	mm ⁴
K=	1,8651E+08	Nmm
γ =	2,000	
γ/3 =	0,667	
δ =	8,901	
ε =	0,0888158	
β =	0,0000013	
α =	0,0000018	
F =	95,98	kN
Schraube:	M24, 10.9	
Fvs' =	221,68	kN
Fvd' =	125,70	kN
σ schraube =	628,00	N/mm ²
zulZ1nach DIN=	124,57	kN
Flansche:		
M ₂ (x ₂ =0)=	-2377,83	kNm
W flansche =	13066,67	mm ³
σ =	270,24	N/mm ²
σ =	-270,24	N/mm ²
Steg:		
M ₂ (x ₂ =b)=	272,59	kNm
W steg =	3562,50	mm ³
A steg =	1425,00	mm ²
σ =	182,68	N/mm ²
σ =	-44,58	N/mm ²





NOKRAN

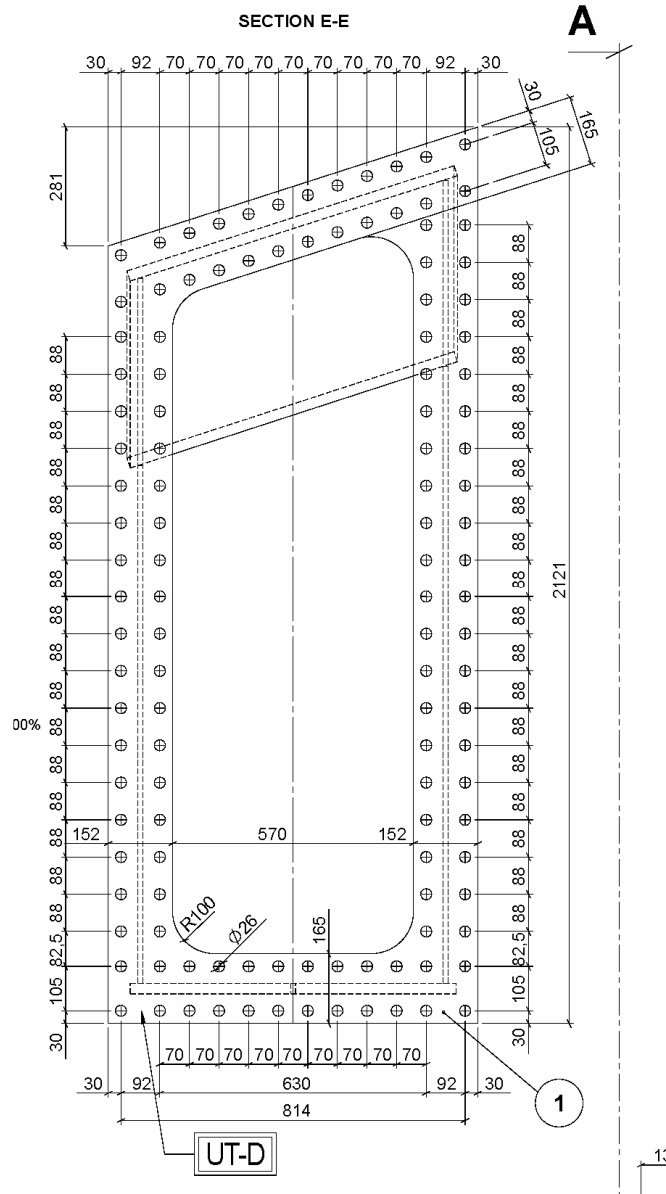
Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations –screw connections

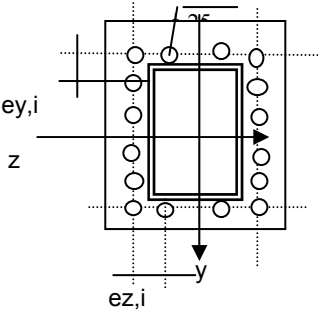
kühz

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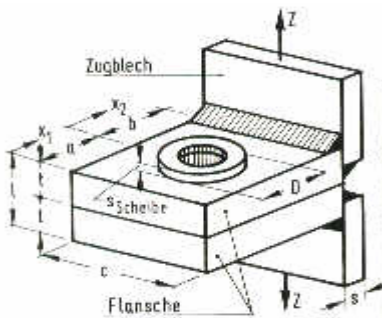
Flanschverbindungen nach "Stahlbau", C. Petersen, seite 506-516

Quertraeger-FStuetzeseite

	$N_x = -2296,82$		kN
	$M_y = 691,84$		kNm
	$M_z = 4796,04$		kNm
	$n_{\text{schrau}} = 2 \times (12+12) + 2 \times (35+35) = 90$		
	$e_{y9} = 675$	$e_{y1} = 75$	$e_{z1} = 35$ mm
	$e_{y10} = 750$	$e_{y2} = 150$	$e_{z2} = 105$ mm
	$e_{y11} = 825$	$e_{y3} = 225$	$e_{z3} = 175$ mm
	$e_{y12} = 900$	$e_{y4} = 300$	$e_{z4} = 245$ mm
	$e_{y13} = 975$	$e_{y5} = 375$	$e_{z5} = 315$ mm
	$e_{y14} = 1050$	$e_{y6} = 450$	$I_{z,\text{schrau}} = 7,45E+07$
$e_{y15} = 1125$	$e_{y7} = 525$	$I_{y,\text{schrau}} = 1,24E+07$	407
$e_{y16} = 1200$	$e_{y8} = 600$		
$e_{y17} = 1305$	$F_{x,1} = N_x / (n_{\text{schrau}}) =$	-25,52	kN
$e_{\text{max},y} = 1305$	$F_{x,2} = M_y * 1000 * e_{w_z} / (I_{y,\text{schr}}) =$	22,70	kN
$e_{\text{max},z} = 407$	$F_{x,3} = M_z * 1000 * e_{w_y} / (I_{z,\text{schr}}) =$	83,97	kN
	R1 schr. zugkraft = $F_{x,1} + F_{x,2} + F_{x,3} =$	81,15	kN
			<zul Z1

E =	210000	N/mm ²
A schraubenschaft=	353	mm ²
l schraube=	205	mm
l klemmlänge =	195	mm
D scheibe=	44	mm
d loch =	26	mm
s sheibe =	4	mm
a =	80	mm
b =	40	mm
c flansche =	75	mm
t flansche =	40	mm
s steg =	15	mm
l steg =	95	mm
Z zugkraft im steg =	54,10	kN
Fv vorspannkraft=	209,8	kN
Material: St-53-3	360	N/mm ²
	M24,	
	10.9	
Schraube		
Sicherheit v	1,1	
d schraube=	24	mm
Φ	0,198	
S1 =	28,45	kN
S2=	111,05	kN
Gamma M	1,1	

Cs=	3,6161E+05	N/mm
Cd1=	2,8388E+06	N/mm
Cd2=	5,1954E+07	N/mm
Cd=	2,5591E+06	N/mm
C=	2,9207E+06	N/mm
EI=	8,4000E+10	Nmm ²
Is =	2,1094E+04	mm ⁴
K=	1,8651E+08	Nmm
γ =	2,000	
γ/3 =	0,667	
δ =	8,901	
ε =	0,0888158	
β =	0,0000010	
α =	0,0000015	
F =	78,37	kN
Schraube:	M24, 10.9	
Fvs' =	219,50	kN
Fvd' =	141,13	kN
σ schraube =	621,82	N/mm ²
zulZ1nach DIN=	138,41	kN
Flansche:		
M ₂ (x ₂ =0)=	-1941,56	kNm
W flansche =	13066,67	mm ³
σ =	179,79	N/mm ²
σ =	-179,79	N/mm ²
Steg:		
M ₂ (x ₂ =b)=	222,58	kNm
W steg =	3562,50	mm ³
A steg =	1425,00	mm ²
σ =	121,54	N/mm ²
σ =	-29,66	N/mm ²

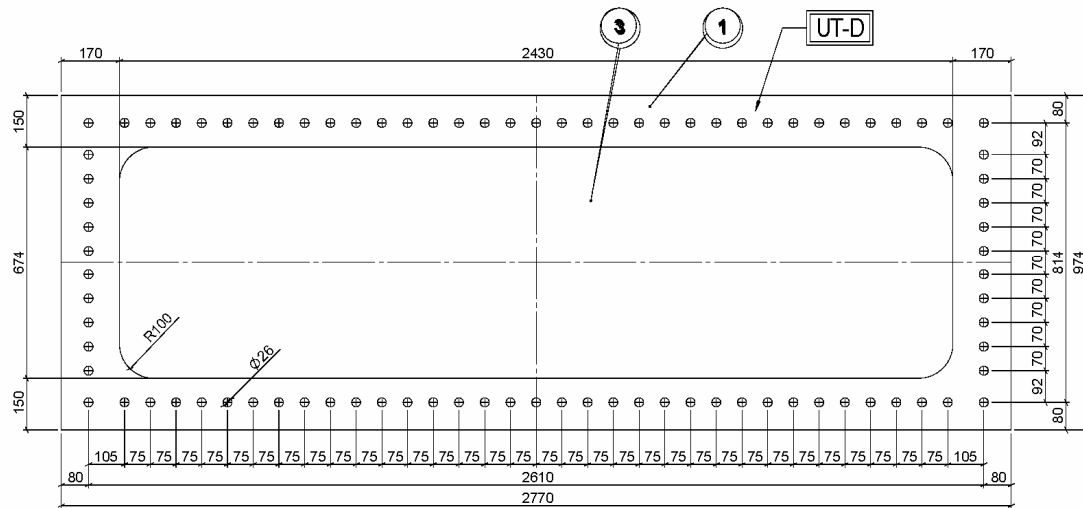




Static calculations –screw connections

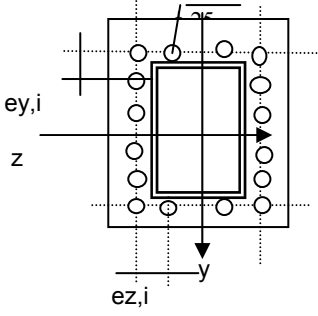
künz

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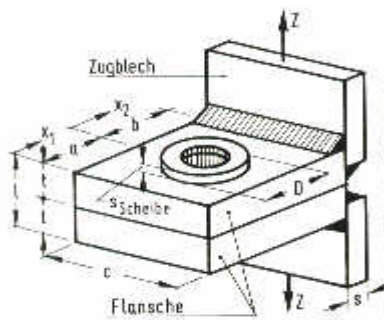
Flanschverbindungen nach "Stahlbau", C. Petersen, seite 506-516

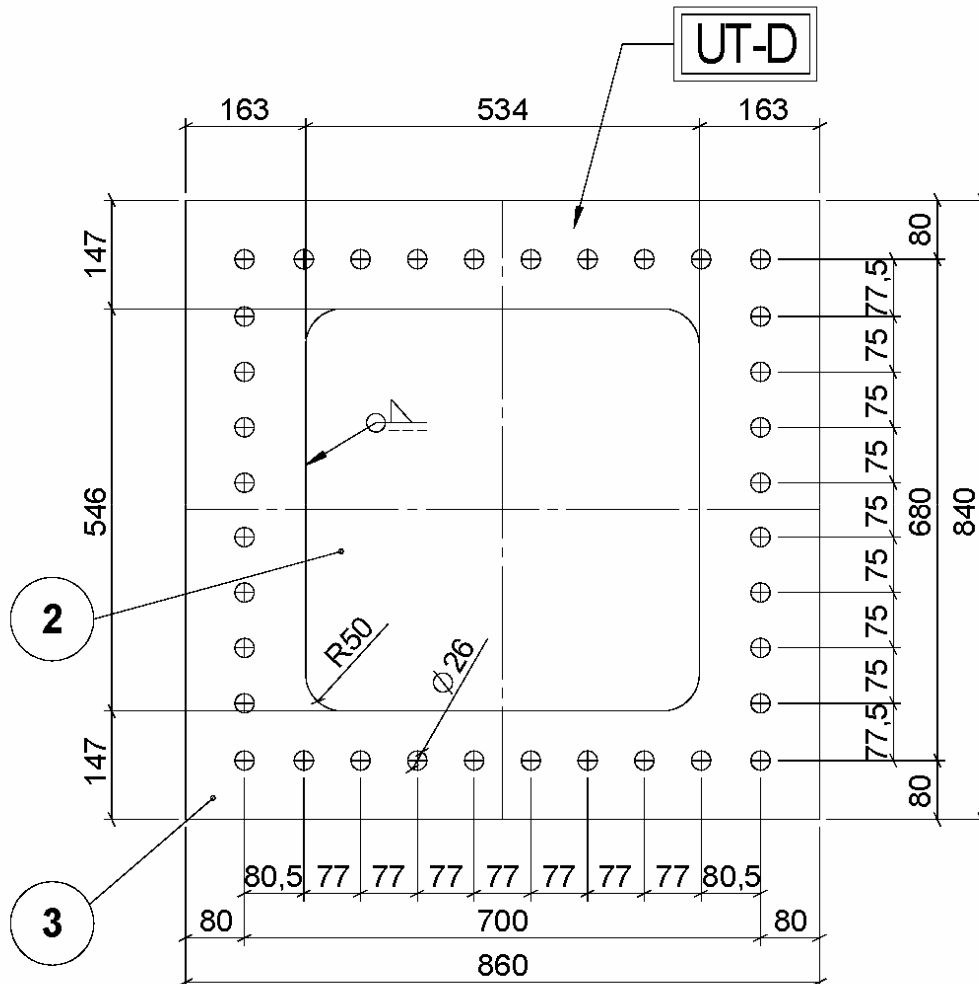
QT-Fstuetzeseite-diagonale

		Nx = 441,25 kN	
		My = 108,45 kNm	
		Mz = 440,77 kNm	
		n schrau = 10+10+10+10) 36	
		ey9= 0	ey1= 37,5
		ey10= 0	ey2= 112,5
		ey11= 0	ey3= 187,5
		ey12= 0	ey4= 262,5
		ey13= 0	ey5= 340
		ey14= 0	ey6= 0
		Iz,schrau= 2,78E+06	
		Iy,schrau= 2,95E+06	
		0	
emax,y = 340		Fx,1 = Nx / (n schrau) = 12,26 kN	
emax,z = 350		Fx,2 = My *1000*ewz / (Iy,schr) = 12,88 kN	
		Fx,3 = Mz *1000*ewy / (Iz,schr) = 53,82 kN	
		R1 schr. zugkraft = Fx,1+Fx,2+Fx,3= 78,95 kN	
		<zul Z1	

E =	210000	N/mm ²
A schraubenschaft=	353	mm ²
l schraube=	88	mm
l klemmlange =	80	mm
D scheibe=	44	mm
d loch =	26	mm
s sheibe =	4	mm
a =	80	mm
b =	40	mm
c flansche =	75	mm
t flansche =	40	mm
s steg =	12	mm
l steg =	95	mm
Z zugkraft im steg =	52,63	kN
Fv vorspannkraft=	209,8	kN
Material: St-53-3	360	N/mm ²
M24, 10.9		
Schraube		
Sicherheit v	1,1	
d schraube=	24	mm
Φ	0,330	
S1 =	28,45	kN
S2=	99,95	kN
Gamma M	1,1	

Cs=	8,4239E+05	N/mm
Cd1=	4,1811E+06	N/mm
Cd2=	5,1954E+07	N/mm
Cd=	3,6014E+06	N/mm
C=	4,4438E+06	N/mm
EI=	8,4000E+10	Nmm ²
Is =	1,0800E+04	mm ⁴
K=	9,5495E+07	Nmm
γ =	2,000	
γ/3 =	0,667	
δ =	13,543	
ε =	0,0454737	
β =	0,0000010	
α =	0,0000015	
F =	77,53	kN
Schraube: M24, 10.9		
Fvs' =	224,50	kN
Fvd' =	146,96	kN
σ schraube =	635,97	N/mm ²
zulZ1nach DIN=	86,28	kN
Flansche:		
M2(x2=0)=	-1991,89	kNmm
W flansche =	13066,67	mm ³
σ =	184,45	N/mm ²
σ =	-184,45	N/mm ²
Steg:		
M2(x2=b)=	113,51	kNmm
W steg =	2280,00	mm ³
A steg =	1140,00	mm ²
σ =	116,11	N/mm ²
σ =	-4,37	N/mm ²





	Containercrane 41t x (24 +37 + 18) m VENLO-ECT Delta Terminal - 21098	
	Projekt: 123999 Static calculations –screw connections	

6.8. Flange connection connection beam - FS

$$\begin{aligned}
 n_y &= 10 \text{ Schr} \\
 n_z &= 10 \text{ Schr} \\
 n &= 2 \cdot n_y + 2 \cdot (n_z - 2) = \underline{\underline{36 \text{ Schr}}} \\
 e_y &= 0,576 \text{ Nm} \\
 e_z &= 0,576 \text{ m}
 \end{aligned}$$

$$M_{24A_{sch}} = 353,00 \text{ mm}^2$$

Elem 141, LK 82 (Fall HS)

$$\begin{aligned}
 F_x &= -10,89 \text{ kN} \\
 M_y &= 306,34 \text{ kNm} \\
 M_z &= 214,59 \text{ kNm} \\
 F_y &= 30,11 \text{ kN} \\
 F_z &= 83,25 \text{ kN} \\
 M_x &= 32,27 \text{ kNm}
 \end{aligned}$$

36 HV M24 / 10.9

$$F_v = 209,8 \text{ kN}, l_k/d = 80/24 = 3,33 \Rightarrow \Phi = 0,33$$

$$S_1 = 22,45 \text{ kN (H)}, S_1 = 25,60 \text{ (HZ)}, S_1 = 28,45 \text{ kN (HS)}$$

$$z_{ul} Z = S_1/\Phi = 22,45/0,33 = 68,03 \text{ kN (H)}, z_{ul} Z = S_1/\Phi = 25,60/0,33 = 77,58 \text{ kN (HZ)},$$

$$z_{ul} Z = S_1/\ddot{O}\Phi = 28,45/0,33 = \underline{\underline{86,21 \text{ kN (HS)}}}$$

Rough check:

$$\begin{aligned}
 F_{a1} &= F_x/n = -0,30 \text{ kN} \\
 F_{My} &= M_y/e_z = 531,84 \text{ kN} \\
 F_{My1} &= F_{My}/(1 \cdot n_y) = 53,18 \text{ kN} \\
 F_{Mz} &= M_z/e_y = 372,55 \text{ kN} \\
 F_{Mz1} &= F_{Mz}/(1 \cdot n_z) = 37,26 \text{ kN} \\
 F_1 &= F_{a1} + F_{My1} + F_{Mz1} = \underline{\underline{90,14 \text{ kN}}}
 \end{aligned}$$

$$F_1 = 90,14 \text{ kN} \geq z_{ul} Z = 86,21 \text{ kN (Fall HS)}$$

Final check:

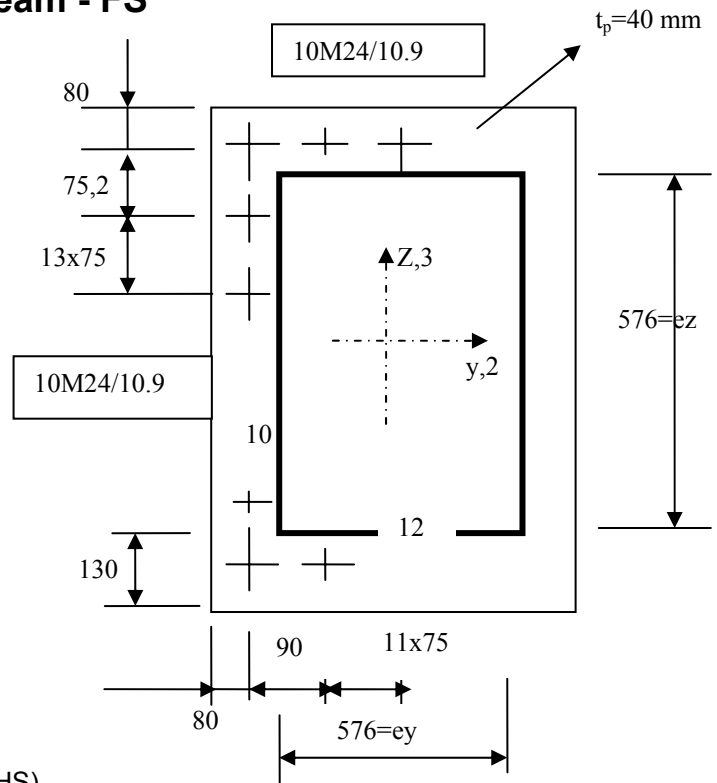
$$F_1 = 63,31 \text{ kN} < z_{ul} Z = 86,21 \text{ kN (Fall HS) OK}$$

$$\text{-torsion: } Q_{dop} = 0,6 \cdot z_{ul} Z$$

$$Q_{zul} = 0,6 \cdot 86,21 = \underline{\underline{51,73 \text{ kN}}}$$

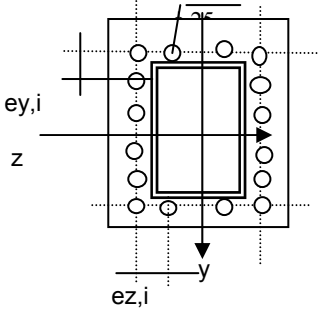
$$Q_{v1} = (F_y + F_z + (M_x/e_y))/n = \underline{\underline{4,71 \text{ kN}}}$$

$$Q_{v1} = 4,71 \leq Q_{zul} = 51,73 \text{ kN}$$



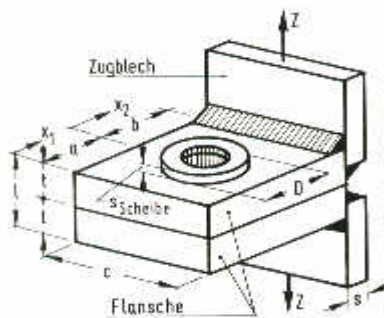
Flanschverbindungen nach "Stahlbau", C. Petersen, seite 506-516

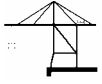
Verbindung-FS

		Nx = -10,89		kN	
		My = 306,34		kNm	
		Mz = 214,59		kNm	
		n schrau = 10+10+10+10)		36	
		ey9= 0	ey1= 37,5	ez1= 37,5	mm
		ey10= 0	ey2= 112,5	ez2= 112,5	mm
		ey11= 0	ey3= 187,5	ez3= 187,5	mm
		ey12= 0	ey4= 262,5	ez4= 262,5	mm
		ey13= 0	ey5= 340	ez5= 340	mm
		ey14= 0	ey6= 0	lz,schrau= 2,78E+06	0
emax,y = 340		Fx,1 = Nx / (n schrau) =		-0,30	kN
emax,z = 340		Fx,2 = My *1000*ewz /(ly,schr) =		37,41	kN
		Fx,3 = Mz *1000*ewy /(lz,schr) =		26,20	kN
		R1 schr. zugkraft = Fx,1+Fx,2+Fx,3=		63,31	kN
				<zul Z1	

E =	210000	N/mm ²
A schraubenschaft=	353	mm ²
l schraube=	88	mm
l klemmlänge =	80	mm
D scheibe=	44	mm
d loch =	26	mm
s sheibe =	4	mm
a =	80	mm
b =	40	mm
c flansche =	75	mm
t flansche =	40	mm
s steg =	12	mm
l steg =	95	mm
Z zugkraft im steg =	42,20	kN
Fv vorspannkraft=	209,8	kN
Material: St-53-3	360	N/mm ²
M24, 10.9		
Schraube		
Sicherheit v	1,1	
d schraube=	24	mm
Φ	0,330	
S1 =	28,45	kN
S2=	99,95	kN
Gamma M	1,1	

Cs=	8,4239E+05	N/mm
Cd1=	4,1811E+06	N/mm
Cd2=	5,1954E+07	N/mm
Cd=	3,6014E+06	N/mm
C=	4,4438E+06	N/mm
EI=	8,4000E+10	Nmm ²
Is =	1,0800E+04	mm ⁴
K=	9,5495E+07	Nmm
γ =	2,000	
γ/3 =	0,667	
δ =	13,543	
ε =	0,0454737	
β =	0,0000008	
α =	0,0000012	
F =	62,17	kN
Schraube: M24, 10.9		
Fvs' =	221,58	kN
Fvd' =	159,42	kN
σ schraube =	627,72	N/mm ² <900 N/mm ²
zulZ1nach DIN=	86,28	kN
Flansche:		
M ₂ (x ₂ =0)=	-1597,13	kNmm
W flansche =	13066,67	mm ³
σ =	147,90	N/mm ² < 360 N/mm ²
σ =	-147,90	N/mm ² < 360 N/mm ²
Steg:		
M ₂ (x ₂ =b)=	91,01	kNmm
W steg =	2280,00	mm ³
A steg =	1140,00	mm ²
σ =	93,10	N/mm ² < 360 N/mm ²
σ =	-3,51	N/mm ² < 360 N/mm ²



**NOKRAN**

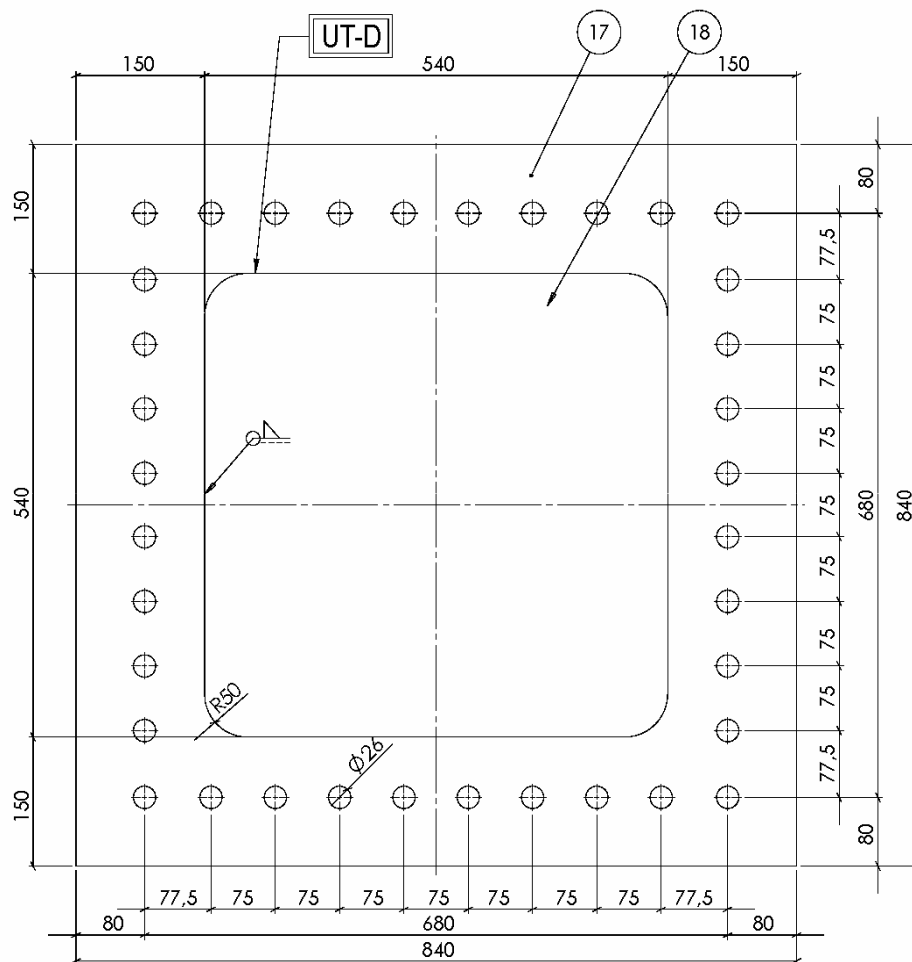
Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations –screw connections

kühn

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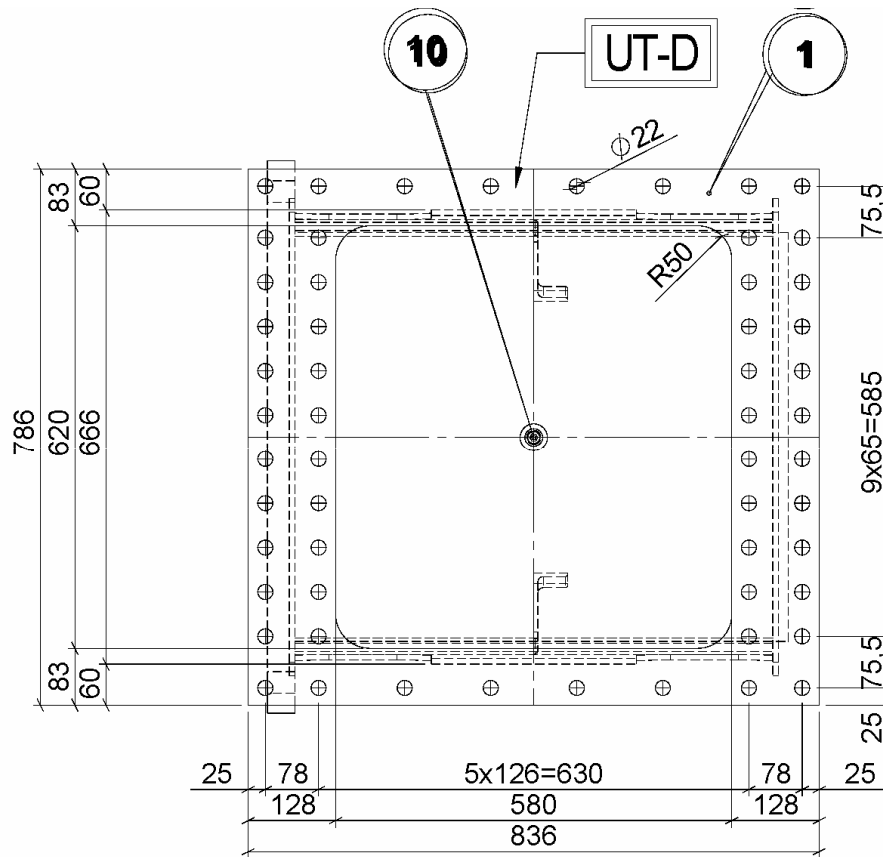




Static calculations –screw connections



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7. Fatigue proof:

In accordance with DIN 15018

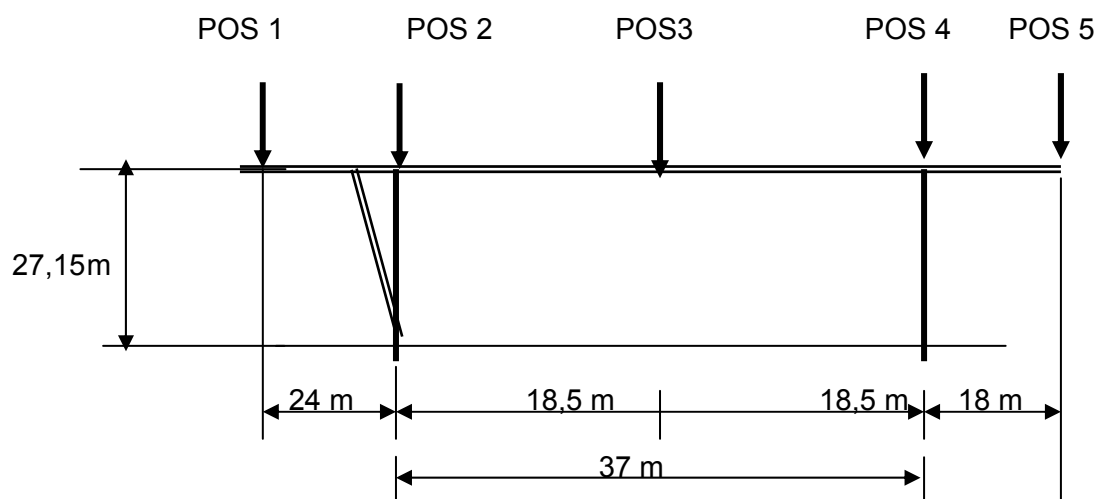
7.1. Data

Material: S355J2G2

Stress group for main girder: H3/B5

Stress group for legs: H3/B4

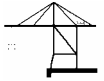
Stress load case H (trolley positions 1- 5-typical work cycle)



For fatigue calculations is for case H another model used (not the same as for main-static):

1) lifting load and self weight of trolley are now central (same wheel forces all 4 wheels (for main Statics is 1200 mm eccentric load in consideration))

2) Due to stiff trolley with load (anti-sway stabilisation) We are transforming moment for trolley + load mass at crane acceleration in vertical forces on trolleys rail (See picture on page 70)

**NOKRAN**

Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

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STAHL1 BIS STAHL11 – MAX/MIN STRESS ANALYSE FOR FATIGUE

LOAD COMBINATIONS		
CO No	CO Description	Combination Criteria
1	LT+Zutritt +Hublast pos1+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF28
2	LT+Zutritt +Hublast pos2+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF19 + LF25 + LF28
3	LT+Zutritt +Hublast pos3+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF20 + LF25 + LF28
4	LT+Zutritt +Hublast pos4+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF21 + LF25 + LF28
5	LT+Zutritt +Hublast pos5+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF28
7	LT+Zutritt +Hublast pos1+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26
8	LT+Zutritt +Hublast pos2+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF26
9	LT+Zutritt +Hublast pos3+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF26
10	LT+Zutritt +Hublast pos4+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF26
11	LT+Zutritt +Hublast pos5+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26
87	LT+Zutritt -netto	LF1/S + LF2/S

MATERIALS					
Mat No	Material Description	E Modulus [kN/cm ²]	Shear Mod [kN/cm ²]	Spec Weight [kN/cm ³]	Coeff Therm [1/°C]
1	Stahl St 52	2.100E+04	8.100E+03	7.850E-05	1.200E-05
3	Niro Stahl 1.4021	2.100E+04	8.100E+03	7.850E-05	1.200E-05

MATERIALS					
Mat No	Material Description	Material Code, Criterion	Allowable Stresses [N/mm ²]		
			Sigma	Tau	Sigma eq
1	Stahl St 52	DIN 18800 t <= 40 mm	327.3	188.9	327.3
3	NiroStahl 1.4021	DIN 18800 t > 40 mm	409	245	409

$$-1 \leq \kappa = \frac{\min \sigma}{\max \sigma} = \frac{\text{sign} \mid \min \text{value} \mid}{\text{sign} \mid \max \text{value} \mid} \leq +1$$

$\kappa = -1$ pure alternating stress condition

$\kappa = 0$ pure pulsating stress condition

$\kappa = +1$ pure static stress condition

Allowable tensile and comparative stress:

$$H \quad \sigma_H = 240 \text{ (St52-3, S 355J2G3)}$$

$$HZ \quad \sigma_{HZ} = 270 \text{ (St52-3, S 355J2G3)}$$

$$H \quad \sigma_H = 160 \text{ (St37-2, S 235JRG2)}$$

$$HZ \quad \sigma_{HZ} = 180 \text{ (St37-2, S 235JRG2)}$$

Allowable compressive stress :

$$H \quad \sigma_H = 210 \text{ (St52-3, S 355J2G3)}$$

$$HZ \quad \sigma_{HZ} = 240 \text{ (St52-3, S 355J2G3)}$$

$$H \quad \sigma_H = 140 \text{ (St37-2, S 235JRG2)}$$

$$HZ \quad \sigma_{HZ} = 160 \text{ (St37-2, S 235JRG2)}$$

Allowable shear stress:

$$H \quad \sigma_H = 138 \text{ (St52-3, S 355J2G3)}$$

$$HZ \quad \sigma_{HZ} = 156 \text{ (St52-3, S 355J2G3)}$$

$$H \quad \sigma_H = 92 \text{ (St37-2, S 235JRG2)}$$

$$HZ \quad \sigma_{HZ} = 104 \text{ (St37-2, S 235JRG2)}$$



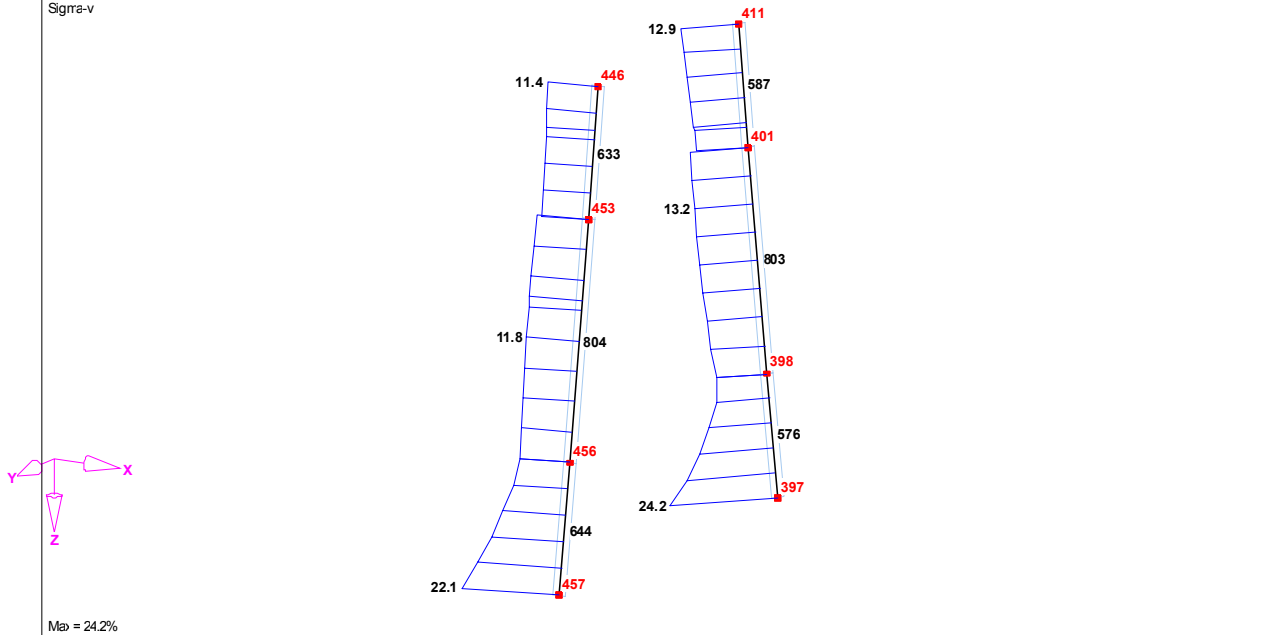
7.2. Oscilating leg (PS) : Stress group B4

ELEMENT 576 ; Qs 92/90

SPANNUNGSNUTZUNG

STAHL16 - Spannungsanalyse-MAX
Sigma-v

Isometrie

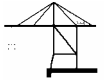


MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm²]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 576: Section No. 92 - 90: Kasten(A) 770/15/12/710/1215/770/15 - Kasten(A)						
770/15/12/710/772/770/15, x = 7.00m						
Sigma Total	7.000	9	CO5 -N	-79.27	327.30	0.24
Tau Total	7.000	13	CO5 +V-2	11.16	188.90	0.06
Sigma eq	7.000	7	CO5 -N	79.37	327.30	0.24

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm²]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 576: Section No. 92 - 90: Kasten(A) 770/15/12/710/1215/770/15 - Kasten(A)						
770/15/12/710/772/770/15, x = 7.00m						
Sigma Total	7.000	1	CO7 -N	-31.87	327.30	0.10
Tau Total	7.000	12	CO7 -N	-0.57	188.90	0.00
Sigma eq	7.000	3	CO7 -N	31.88	327.30	0.10

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 726

Proof with compress stress

Beanspruchungsgruppe: B4 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K3

Construction case picture: 333

 $\max_{\sigma} = -79,27 \text{ N/mm}^2$ $\min_{\sigma} = -31,87 \text{ N/mm}^2$ $\kappa_{\kappa} = \min_{\sigma} / \max_{\sigma} = 0,4020$ for tension is $\text{zul}_{\sigma_{Be}} = 239,00 \text{ N/mm}^2$ $\text{zul}_{\sigma_H} = 210,00 \text{ N/mm}^2$ $\text{zul}_{\sigma} = \text{MIN} (\text{zul}_{\sigma_{Be}} ; \text{zul}_{\sigma_H}) = 210,00 \text{ N/mm}^2$ utilization $r_s = \text{ABS}(\max_{\sigma} / \text{zul}_{\sigma}) = \underline{\underline{0,3775 \leq 1}}$

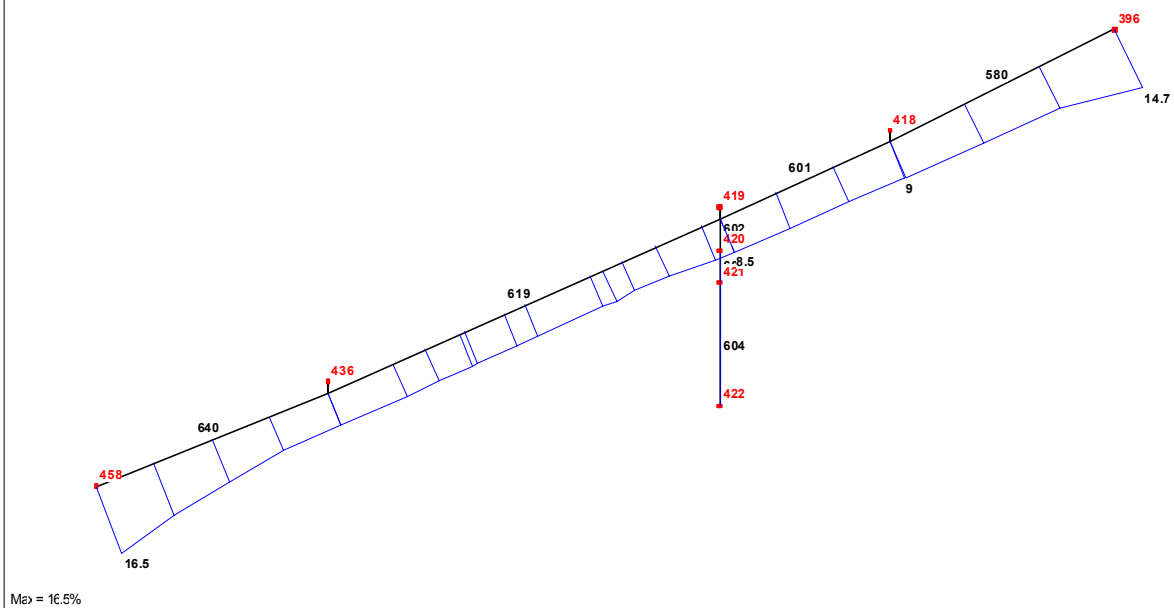
7.3. Oscilating leg - KT : Stress group B4

ELEMENT 640 ; Qs 67/68

SPANNUNGS-AUSNUTZUNG

STAHL1E - Spannungsanalyse-MAX
Sigma-v

Isometrie

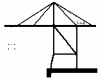


MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 640: Section No. 68 - 67: Kasten(A) 700/8/8/650/756/700/8 - Kasten(A)						
700/8/8/650/1016/700/8, x = 0.00m						
Sigma Total	0.000	1	CO5 -M-2	54.14	327.30	0.17
Tau Total	0.000	12	CO5 -N	-7.77	188.90	0.04
Sigma eq	0.000	1	CO5 -M-2	54.14	327.30	0.17

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 640: Section No. 68 - 67: Kasten(A) 700/8/8/650/756/700/8 - Kasten(A)						
700/8/8/650/1016/700/8, x = 0.00m						
Sigma Total	0.000	9	CO7 +N	16.50	327.30	0.05
Tau Total	0.000	12	CO7 -N	-2.79	188.90	0.01
Sigma eq	0.000	7	CO7 +N	16.73	327.30	0.05

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 728

Proof with tensile stress

Stress group: B4 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K3

Construction case picture: 333

max_σ = 54,14 N/mm²min_σ = 16,50 N/mm²

kappa_κ = min_σ / max_σ = 0,3048

for tension is zul_σ_{Be} = 190,00 N/mm²zul_σ_H = 240,00 N/mm²zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 190,00 N/mm²utilization r_s = ABS(max_σ / zul_σ) = 0,2849 ≤ 1max_τ = -7,77 N/mm²min_τ = -2,79 N/mm²kappa_κ_t = min_τ / max_τ = 0,3591fuer Schub ist zul_τ_{Be} = 204,00 N/mm²zul_τ_H = 138,00 N/mm²zul_τ = MIN (zul_τ_{Be} ; zul_τ_H) = 138,00 N/mm²utilization r_T = ABS(max_τ / zul_τ) = 0,0563 ≤ 1

-total security for Sigma and Tau:

r_{tot} = √(r_s² + r_T²) = 0,2904 ≤ 1

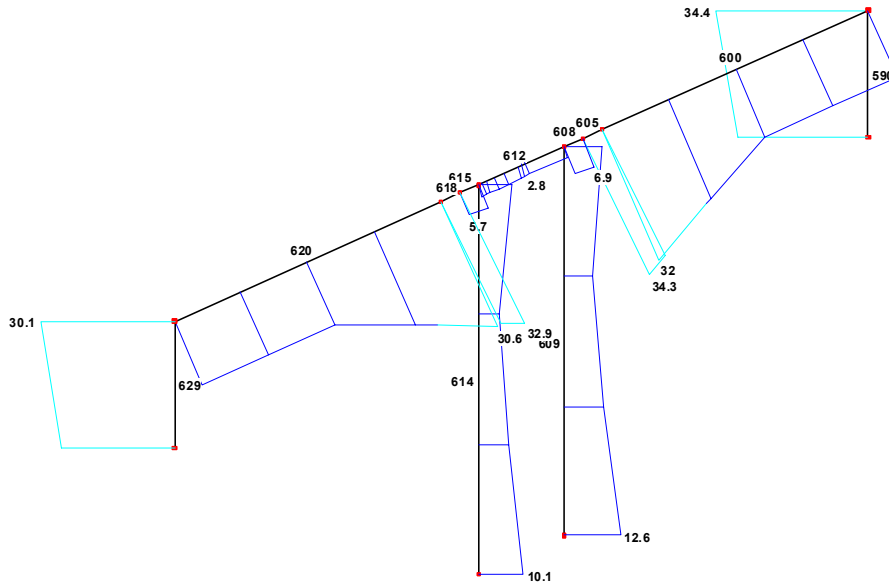
7.4. Oscilating leg - QT : Stress group B4

ELEMENT 605 ; Qs 7

SPANNUNGS-AUSNUTZUNG

STAHL18 - Spannungsanalyse-MAX
Sigma-v

Isometrie



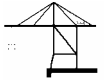
Max = 34.4%

MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 605: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25, x = 0.00m						
Sigma Total	0.000	9	CO5 +M-2	-111.08	327.30	0.34
Tau Total	0.000	13	CO5 -N	-29.93	188.90	0.16
Sigma eq	0.000	11	CO5 +M-2	112.12	327.30	0.34

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 605: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25, x = 0.00m						
Sigma Total	0.000	1	CO7 -N	-33.22	327.30	0.10
Tau Total	0.000	12	CO7 -N	9.04	188.90	0.05
Sigma eq	0.000	10	CO7 -N	33.79	327.30	0.10

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

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Proof with compress stress

Stress group: B4 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K3

Construction case picture: 333

max_σ = -111,08 N/mm²min_σ = -33,22 N/mm²

kappa_κ = min_σ / max_σ = 0,2991

for tension is zul_σ_{Be} = 208,00 N/mm²zul_σ_H = 210,00 N/mm²zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 208,00 N/mm²utilization r_s = ABS(max_σ / zul_σ) = 0,5340max_τ = -29,93 N/mm²min_τ = 9,04 N/mm²kappa_κ_t = min_τ / max_τ = -0,3020fuer Schub ist zul_τ_{Be} = 161,00 N/mm²zul_τ_H = 138,00 N/mm²zul_τ = MIN (zul_τ_{Be} ; zul_τ_H) = 138,00 N/mm²utilization r_T = ABS(max_τ / zul_τ) = 0,2169

-total security for Sigma and Tau:

r_{tot} = √(r_s² + r_T²) = 0,5764 ≤ 1

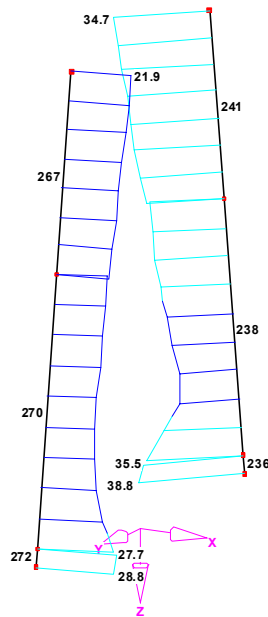
7.5. Fixed leg : Stress group B4

ELEMENT 236 ; Qs 2

SPANNUNGS-AUSNUTZUNG

STAHL18 - Spannungsanalyse-MAX
Sigma-v

Iscmetrie



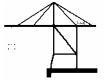
Max = 38.8%

MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 236: Section No 2 - Kasten(A) 770/15/10/710/803/770/15, x = 1.02m						
Sigma Total	1.020	9	CO1 -N	-125.94	327.30	0.38
Tau Total	1.020	13	CO1 -N	16.39	188.90	0.09
Sigma eq	1.020	7	CO1 -N	126.86	327.30	0.39

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 236: Section No 2 - Kasten(A) 770/15/10/710/803/770/15, x = 1.02m						
Sigma Total	1.020	1	CO11 +T	-62.80	327.30	0.19
Tau Total	1.020	15	CO11 +T	3.52	188.90	0.02
Sigma eq	1.020	1	CO11 +T	62.80	327.30	0.19

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

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Proof with compress stress

Stress group: B4 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K3

Construction case picture: 333

max_σ = -125,94 N/mm²min_σ = -62,80 N/mm²

kappa_κ = min_σ / max_σ = 0,4987

for tension is zul_σ_{Be} = 250,00 N/mm²zul_σ_H = 210,00 N/mm²zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 210,00 N/mm²utilization r_s = ABS(max_σ / zul_σ) = **0,5997**max_τ = 16,39 N/mm²min_τ = 3,52 N/mm²kappa_κ_t = min_τ / max_τ = 0,2148fuer Schub ist zul_τ_{Be} = 201,00 N/mm²zul_τ_H = 138,00 N/mm²zul_τ = MIN (zul_τ_{Be} ; zul_τ_H) = 138,00 N/mm²utilization r_T = ABS(max_τ / zul_τ) = **0,1188**

-total security for Sigma and Tau:

r_{tot} = √(r_s² + r_T²) = **0,6114 ≤ 1**



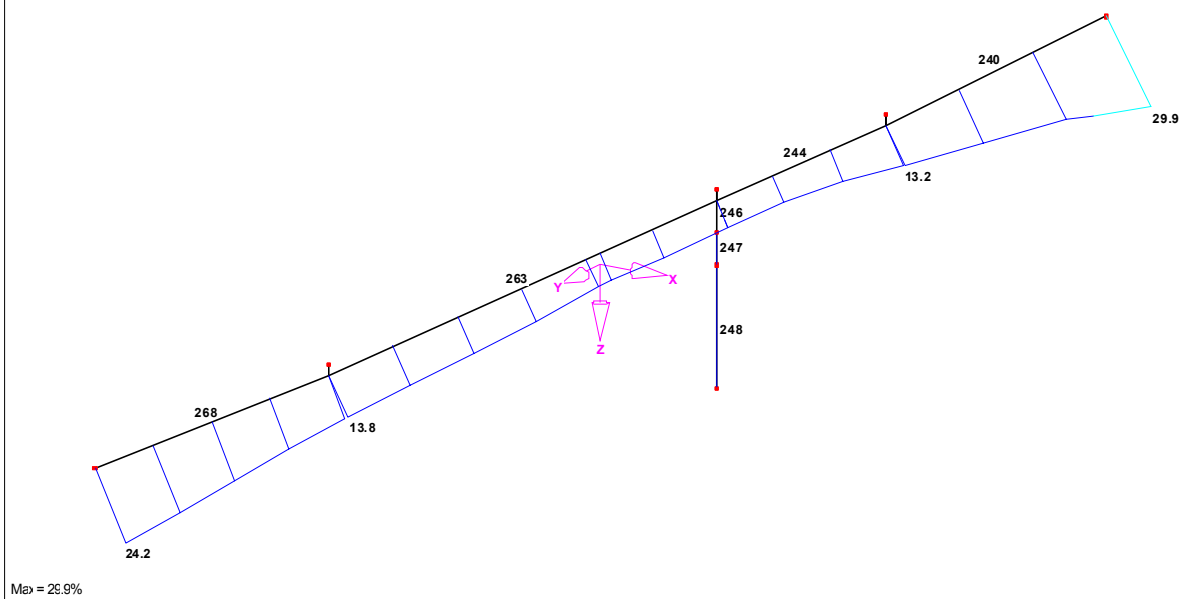
7.6. Fixed leg - KT : Stress group B4

ELEMENT 240 ; Qs 50/51

SPANNUNGS-AUSNUTZUNG

STAHL18 - Spannungsanalyse-MAX
Sigra-v

Isometrie

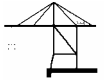


MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 240: Section No. 50 - 51: Kasten(A) 700/8/8/650/1016/700/8 - Kasten(A)						
700/8/8/650/756/700/8, x = 4.97m						
Sigma Total	4.970	9	CO1 +N	97.85	327.30	0.30
Tau Total	4.970	13	CO1 -V-3	-10.21	188.90	0.05
Sigma eq	4.970	9	CO1 +N	97.85	327.30	0.30

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 240: Section No. 50 - 51: Kasten(A) 700/8/8/650/1016/700/8 - Kasten(A)						
700/8/8/650/756/700/8, x = 4.97m						
Sigma Total	4.970	9	CO11 +N	23.04	327.30	0.07
Tau Total	4.970	12	CO11 -N	2.94	188.90	0.02
Sigma eq	4.970	7	CO11 +N	23.14	327.30	0.07

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

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Proof with tensile stress

Stress group: B4 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K3

Construction case picture: 333

max_σ = 97,85 N/mm²min_σ = 23,04 N/mm²

kappa_κ = min_σ / max_σ = 0,2355

for tension is zul_σ_{Be} = 208,00 N/mm²zul_σ_H = 240,00 N/mm²zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 208,00 N/mm²utilization r_s = ABS(max_σ / zul_σ) = **0,4704 ≤ 1**max_τ = -10,21 N/mm²min_τ = 2,94 N/mm²kappa_κ_t = min_τ / max_τ = -0,2880fuer Schub ist zul_τ_{Be} = 163,00 N/mm²zul_τ_H = 138,00 N/mm²zul_τ = MIN (zul_τ_{Be} ; zul_τ_H) = 138,00 N/mm²utilization r_T = ABS(max_τ / zul_τ) = **0,0740 ≤ 1**

-total security for Sigma and Tau:

r_{tot} = √(r_s² + r_T²) = **0,4762 ≤ 1**

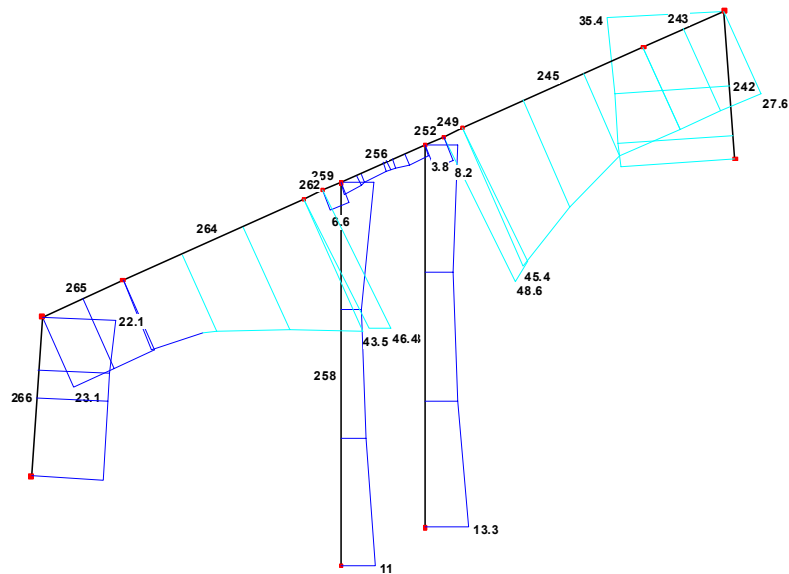
7.7. Fixed leg - QT : Stress group B4

ELEMENT 249 ; Qs 7

SPANNUNGS-AUSNUTZUNG

STAHL 18 - Spannungsanalyse-MAX
Sigma-v

Isometrie



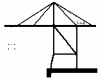
Max = 48.6%

MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 249: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25, x = 0.00m						
Sigma Total	0.000	9	CO1 +V-2	-152.38	327.30	0.47
Tau Total	0.000	13	CO1 -N	-50.91	188.90	0.27
Sigma eq	0.000	11	CO1 +V-2	159.02	327.30	0.49

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 249: Section No 7 - Kasten(A) 770/25/12/710/2540/770/25, x = 0.00m						
Sigma Total	0.000	1	CO11 -N	-63.74	327.30	0.19
Tau Total	0.000	13	CO11 -N	-17.57	188.90	0.09
Sigma eq	0.000	10	CO11 -N	63.92	327.30	0.20

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 736

Proof with compress stress

Stress group: B4 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K3

Construction case picture: 333

max_σ = -152,38 N/mm²min_σ = -63,74 N/mm²

kappa_κ = min_σ / max_σ = 0,4183

for tension is zul_σ_{Be} = 240,00 N/mm²zul_σ_H = 210,00 N/mm²zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 210,00 N/mm²utilization r_s = ABS(max_σ / zul_σ) = 0,7256max_τ = -50,91 N/mm²min_τ = -17,57 N/mm²kappa_κ_t = min_τ / max_τ = 0,3451fuer Schub ist zul_τ_{Be} = 205,00 N/mm²zul_τ_H = 138,00 N/mm²zul_τ = MIN (zul_τ_{Be} ; zul_τ_H) = 138,00 N/mm²utilization r_T = ABS(max_τ / zul_τ) = 0,3689

-total security for Sigma and Tau:

r_{tot} = √(r_s² + r_T²) = 0,8140 ≤ 1

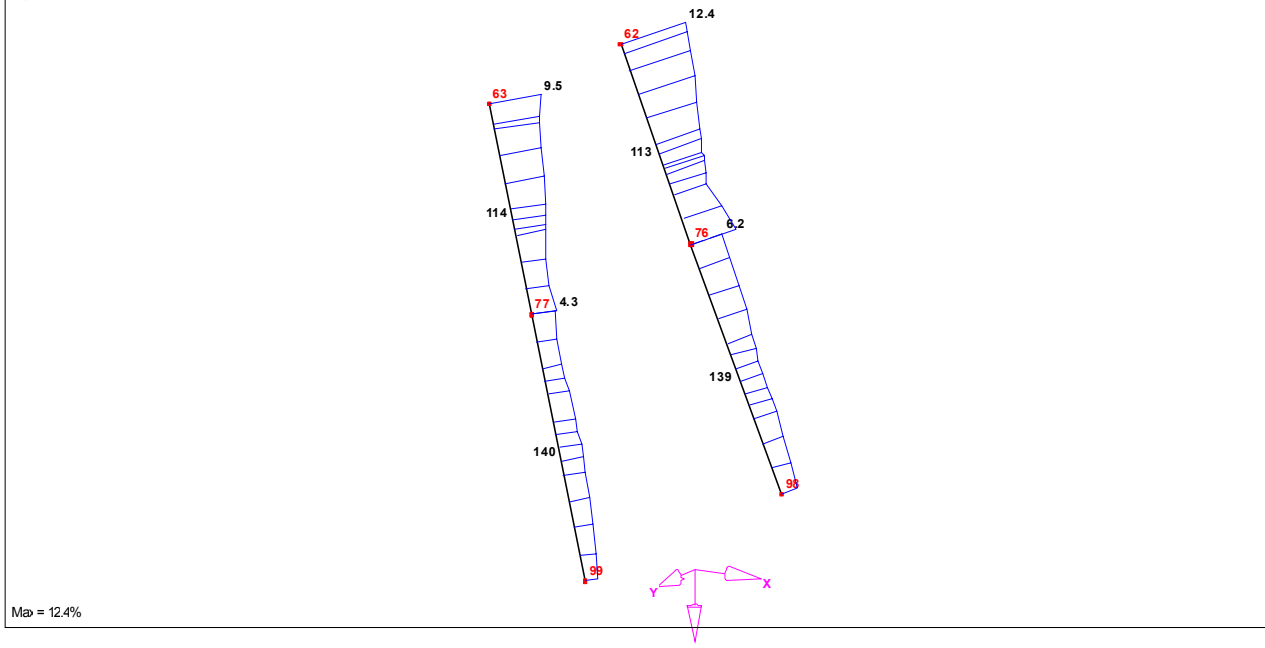
7.8. Fixed leg - inclined support : Stress group B4

ELEMENT 113 ; Qs 14

SPANNUNGS-AUSNUTZUNG

STAHL18 - Spannungsanalyse-MAX
Sigma-v

Isorretre

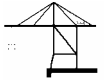


MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 113: Section No 14 - TO 600/600/12/12/12/12/37/25, x = 12.36m						
Sigma Total	12.360	9	CO2 -V-2	50.42	327.30	0.12
Tau Total	12.360	16	CO2 -N	-1.98	188.90	0.01
Sigma eq	12.360	9	CO2 -V-2	50.43	327.30	0.12

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 113: Section No 14 - TO 600/600/12/12/12/12/37/25, x = 12.36m (- LK2)						
Sigma Total	12.360	9	-CO2 -V-2	-50.42	327.30	0.12
Tau Total	12.360	16	CO2 -N	-1.98	188.90	0.01
Sigma eq	12.360	9	CO2 -V-2	50.43	327.30	0.12

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 738

Proof with tensile stress

Stress group: B4 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K3

Construction case picture: 333

max_σ = 50,42 N/mm²min_σ = -50,42 N/mm²

kappa_κ = min_σ / max_σ = -1,0000

for tension is zul_σ_{Be} = 90,00 N/mm²zul_σ_H = 240,00 N/mm²zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 90,00 N/mm²utilization r_s = ABS(max_σ / zul_σ) = **0,5602 ≤ 1**

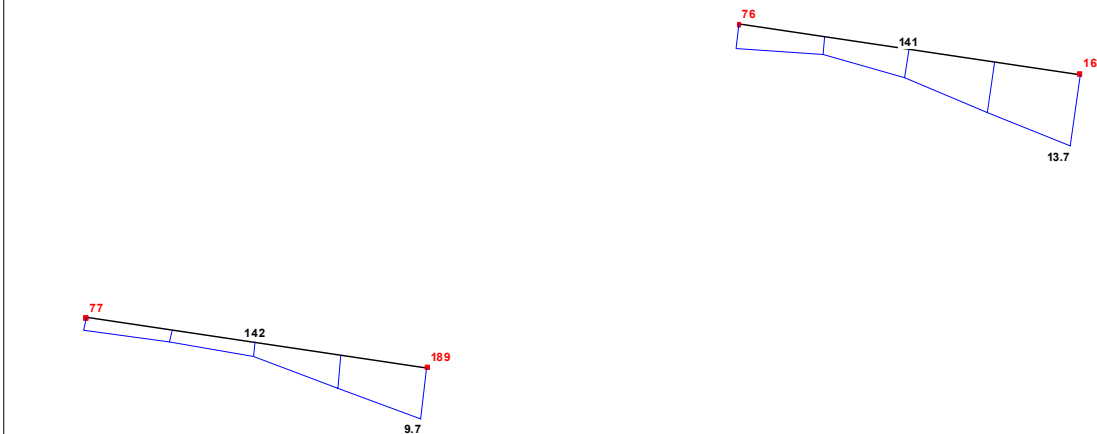
7.9. Fixed leg – connection beam : Stress group B4

ELEMENT 141 ; Qs 14

SPANNUNGS-AUSNUTZUNG

STAHL16 - Spannungsanalyse-MAX
Sigma-v

Isoretrie



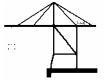
M₀ = 13.7%

MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 141: Section No 14 - TO 600/600/12/12/12/12/37/25, x = 5.49m						
Sigma Total	5.490	6	CO1 -N	44.77	327.30	0.14
Tau Total	5.490	16	CO1 -N	-4.51	188.90	0.02
Sigma eq	5.490	14	CO1 -N	44.83	327.30	0.14

MIN STRESS:

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm^2]		Stress Ratio
				existing	allowable	
Element No 141: Section No 14 - TO 600/600/12/12/12/37/25, x = 5.49m						
Sigma Total	5.490	5	CO11 -V-2	15.41	327.30	0.05
Tau Total	5.490	8	CO11 -N	2.30	188.90	0.01
Sigma eq	5.490	5	CO11 -V-2	15.58	327.30	0.05

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 740

Proof with tensile stress

Stress group: B4 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K3

Construction case picture: 333

max_σ = 44,77 N/mm²min_σ = 15,41 N/mm²

kappa_κ = min_σ / max_σ = 0,3442

for tension is zul_σ_{Be} = 190,00 N/mm²zul_σ_H = 240,00 N/mm²zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 190,00 N/mm²utilization r_s = ABS(max_σ / zul_σ) = 0,2356 ≤ 1

7.10. Main girder: Stress group B5

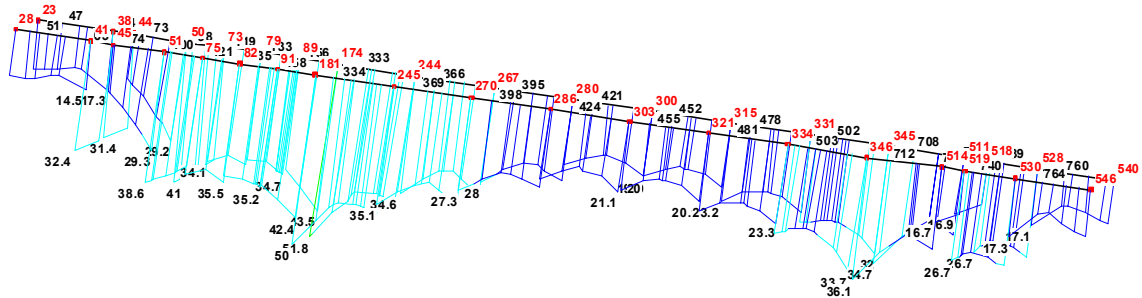
7.10.1. Upper corner (max sigma):

ELEMENT 333 ; Qs 21

SPANNUNGS-AUSNUTZUNG

STAHL18 - Spannungsanalyse-MAX
Sigra-v

Isometrie



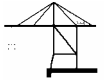
Max = 51.8%

MAX STRESS:

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²]		Stress Ratio
				existing	allowable	
Element No 333: Section No 21 - HE-M 300, x = 0.00m						
Sigma Total	0.000	6	CO1 +N	169.50	327.30	0.52
Tau Total	0.000	13	CO1 +N	-4.83	188.90	0.03
Sigma eq	0.000	6	CO1 +N	169.50	327.30	0.52

MIN STRESS:

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²]		Stress Ratio
				existing	allowable	
Element No 333: Section No 21 - HE-M 300, x = 0.00m						
Sigma Total	0.000	6	CO4 +N	43.15	327.30	0.13
Tau Total	0.000	8	CO4 -V-2	-1.07	188.90	0.01
Sigma eq	0.000	6	CO4 +N	43.15	327.30	0.13

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 742

Proof with tensile stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K2

Construction case picture: 231

 $\max_{\sigma} = 169,50 \text{ N/mm}^2$ $\min_{\sigma} = 43,15 \text{ N/mm}^2$ $\kappa_{\kappa} = \min_{\sigma} / \max_{\sigma} = 0,2546$ for tension is $\text{zul}_{\sigma_{Be}} = 175,00 \text{ N/mm}^2$ $\text{zul}_{\sigma_H} = 240,00 \text{ N/mm}^2$ $\text{zul}_{\sigma} = \text{MIN} (\text{zul}_{\sigma_{Be}} ; \text{zul}_{\sigma_H}) = 175,00 \text{ N/mm}^2$ utilization $r_s = \text{ABS}(\max_{\sigma} / \text{zul}_{\sigma}) = \underline{\underline{0,9686 \leq 1}}$

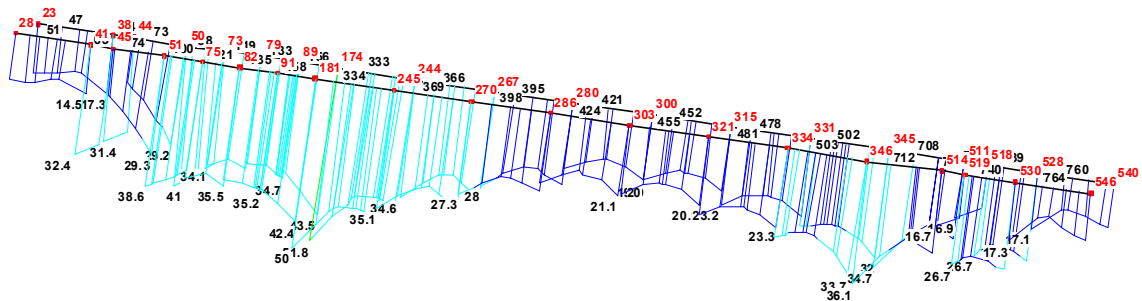
7.10.2. Upper corner (max kappa): Stress group B5

ELEMENT424 ; Qs 21

SPANNUNGS-AUSNUTZUNG

STAHL18 - Spannungsanalyse-MAX
Sigra-v

Isometrie



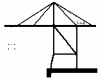
Max = 51.8%

MAX STRESS:

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm ²]		Stress Ratio
				existing	allowable	
Element No 424: Section No 21 - HE-M 300, x = 5.28m						
Sigma Total	5.280	6	CO5 +N	69.21	327.30	0.21
Tau Total	5.280	13	CO5 +V-3	1.67	188.90	0.01
Sigma eq	5.280	6	CO5 +N	69.21	327.30	0.21

MIN STRESS:

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm ²]		Stress Ratio
				existing	allowable	
Element No 424: Section No 21 - HE-M 300, x = 5.28m						
Sigma Total	5.280	10	CO3 -N	-30.04	327.30	0.09
Tau Total	5.280	3	CO3 -V-3	-0.73	188.90	0.00
Sigma eq	5.280	10	CO3 -N	30.04	327.30	0.09

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 744

Proof with tensile stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K2

Construction case picture: 231

 $\max_{\sigma} = 69,21 \text{ N/mm}^2$ $\min_{\sigma} = -30,04 \text{ N/mm}^2$ $\kappa_{\kappa} = \min_{\sigma} / \max_{\sigma} = -0,4340$ for tension is $\text{zul}_{\sigma_{Be}} = 115,00 \text{ N/mm}^2$ $\text{zul}_{\sigma_H} = 240,00 \text{ N/mm}^2$ $\text{zul}_{\sigma} = \text{MIN} (\text{zul}_{\sigma_{Be}} ; \text{zul}_{\sigma_H}) = 115,00 \text{ N/mm}^2$ utilization $r_s = \text{ABS}(\max_{\sigma} / \text{zul}_{\sigma}) = \underline{\underline{0,6018 \leq 1}}$

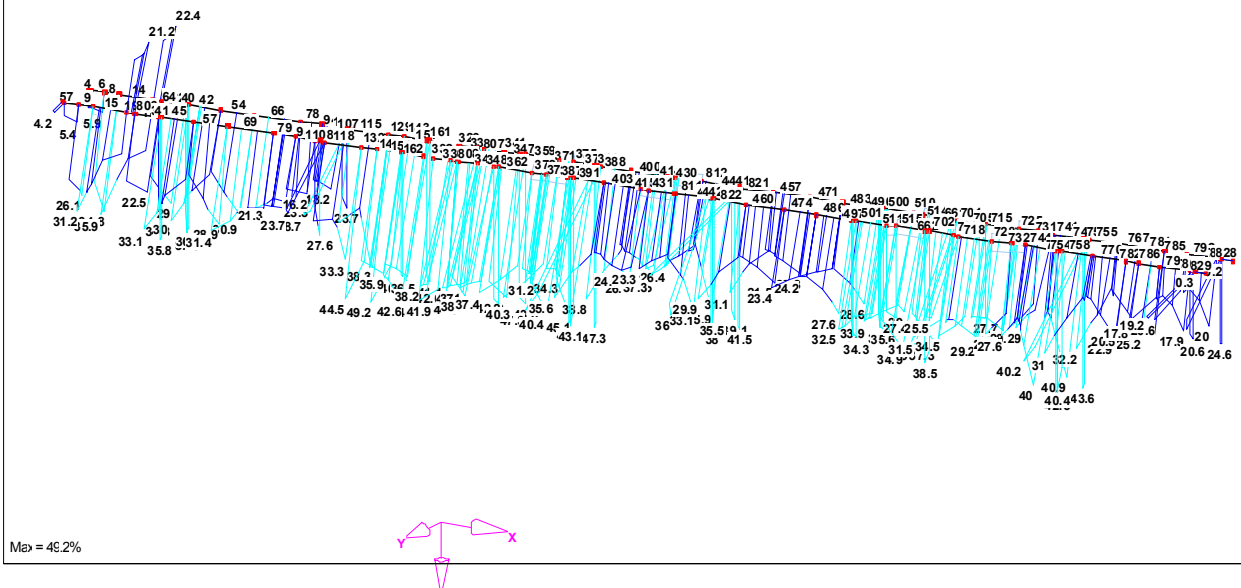
7.10.3. Lower corner (max sigma): Stress group B5

ELEMENT 375 ; Qs 19

SPANNUNGS-AUSNUTZUNG

STAHL18 - Spannungsanalyse-MAX
Sigra-v

Isometrie

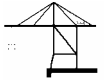


MAX STRESS:

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²]		Stress Ratio
				existing	allowable	
Element No 375: Section No 19 - HE-M 600, x = 1.61m						
Sigma Total	1.610	10	CO1 -N	-147.67	327.30	0.45
Tau Total	1.610	3	CO1 -N	-3.02	188.90	0.02
Sigma eq	1.610	10	CO1 -N	147.69	327.30	0.45

MIN STRESS:

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²]		Stress Ratio
				existing	allowable	
Element No 375: Section No 19 - HE-M 600, x = 1.61m						
Sigma Total	1.610	10	CO4 -N	-41.83	327.30	0.13
Tau Total	1.610	3	CO4 -N	-1.33	188.90	0.01
Sigma eq	1.610	10	CO4 -N	41.84	327.30	0.13

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 746

Proof with compress stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K2

Construction case picture: 231

 $\max_{\sigma} = -147,67 \text{ N/mm}^2$ $\min_{\sigma} = -41,83 \text{ N/mm}^2$ $\kappa_{\kappa} = \min_{\sigma} / \max_{\sigma} = 0,2833$ for tension is $\text{zul}_{\sigma_{Be}} = 212,00 \text{ N/mm}^2$ $\text{zul}_{\sigma_H} = 210,00 \text{ N/mm}^2$ $\text{zul}_{\sigma} = \text{MIN} (\text{zul}_{\sigma_{Be}} ; \text{zul}_{\sigma_H}) = 210,00 \text{ N/mm}^2$ utilization $r_s = \text{ABS}(\max_{\sigma} / \text{zul}_{\sigma}) = \underline{\underline{0,7032 \leq 1}}$

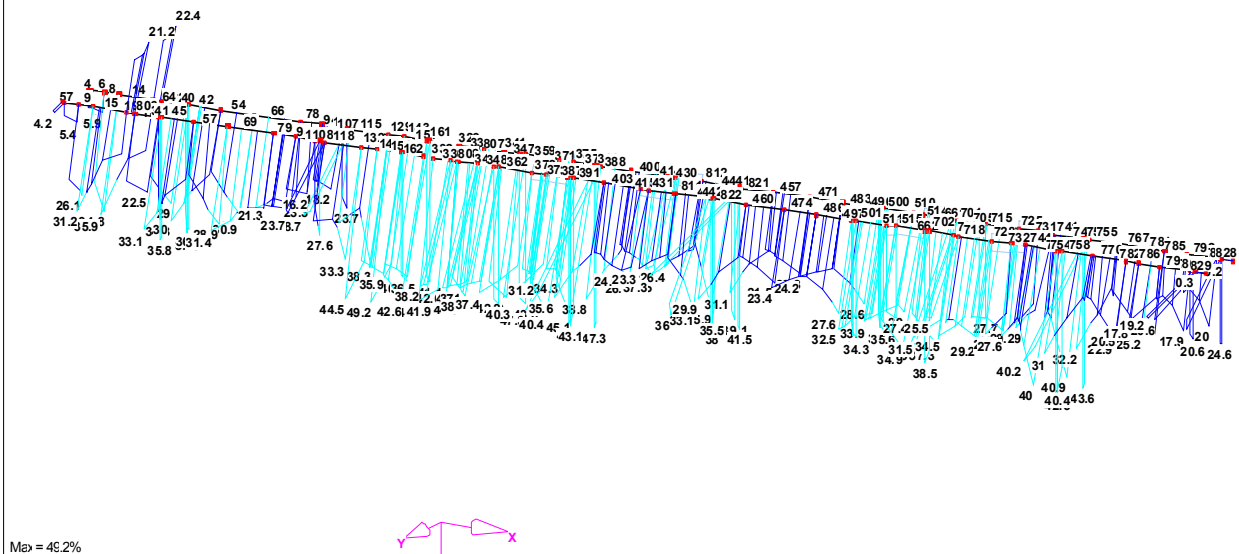
7.10.4. Lower corner (max kappa): Stress group B5

ELEMENT 812 ; Qs 19

SPANNUNGS-AUSNUTZUNG

STAHL18 - Spannungsanalyse-MAX
Sigra-v

Isometrie

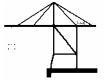


MAX STRESS:

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²]		Stress Ratio
				existing	allowable	
Element No 812: Section No 19 - HE-M 600, x = 2.27m						
Sigma Total	2.270	10	CO1 -N	-117.49	327.30	0.36
Tau Total	2.270	3	CO1 -V-2	-4.54	188.90	0.02
Sigma eq	2.270	10	CO1 -N	117.55	327.30	0.36

MIN STRESS:

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²]		Stress Ratio
				existing	allowable	
Element No 812: Section No 19 - HE-M 600, x = 2.27m						
Sigma Total	2.270	10	CO3 +N	54.23	327.30	0.17
Tau Total	2.270	13	CO3 +N	-2.54	188.90	0.01
Sigma eq	2.270	10	CO3 +N	54.25	327.30	0.17

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 748

Proof with compress stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K2

Construction case picture: 231

max_σ = -117,49 N/mm²min_σ = 54,23 N/mm²

kappa_κ = min_σ / max_σ = -0,4616

for tension is zul_σ_{Be} = 120,00 N/mm²zul_σ_H = 210,00 N/mm²zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 120,00 N/mm²utilization r_s = ABS(max_σ / zul_σ) = **0,9791 ≤ 1**

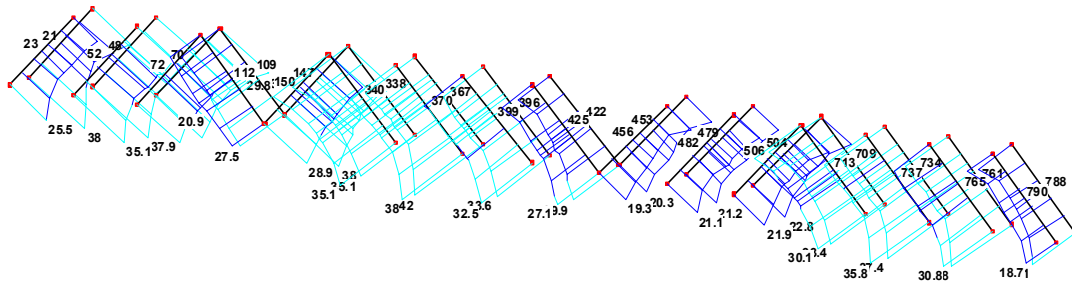
7.10.5. Diagonals (max sigma): Stress group B5

ELEMENT 367 ; Qs 34

SPANNUNGS-AUSNUTZUNG

STAHL1E - Spannungsanalyse-MAX
Sigma-v

Isometrie



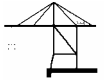
Me = 42%

MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 367: Section No 34 - IS 292/250/10/15, x = 7.63m						
Sigma Total	7.630	6	CO1 +N	137.50	327.30	0.42
Tau Total	7.630	13	CO1 +V-3	1.55	188.90	0.01
Sigma eq	7.630	6	CO1 +N	137.50	327.30	0.42

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 367: Section No 34 - IS 292/250/10/15, x = 7.63m						
Sigma Total	7.630	6	CO11 +N	48.84	327.30	0.15
Tau Total	7.630	8	CO11 +N	0.72	188.90	0.00
Sigma eq	7.630	6	CO11 +N	48.84	327.30	0.15

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 750

Proof with tensile stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K2

Construction case picture: 231

 $\max_{\sigma} = 137,50 \text{ N/mm}^2$ $\min_{\sigma} = 48,84 \text{ N/mm}^2$ $\kappa_{\kappa} = \min_{\sigma} / \max_{\sigma} = 0,3552$ for tension is $\text{zul}_{\sigma_{Be}} = 187,00 \text{ N/mm}^2$ $\text{zul}_{\sigma_H} = 240,00 \text{ N/mm}^2$ $\text{zul}_{\sigma} = \text{MIN} (\text{zul}_{\sigma_{Be}} ; \text{zul}_{\sigma_H}) = 187,00 \text{ N/mm}^2$ utilization $r_s = \text{ABS}(\max_{\sigma} / \text{zul}_{\sigma}) = \underline{\underline{0,7353 \leq 1}}$

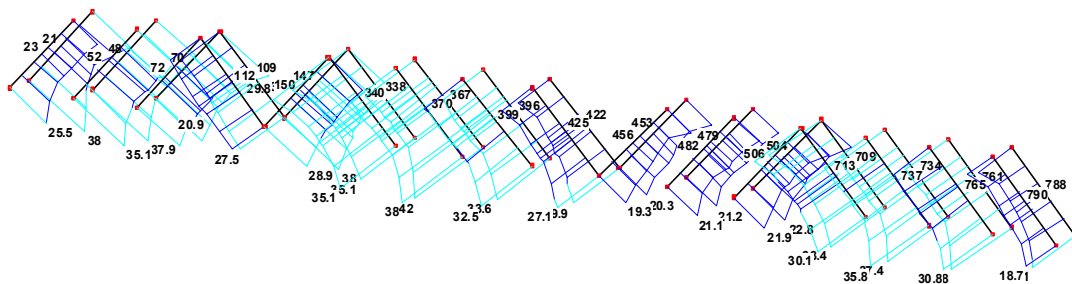
7.10.6. Diagonals (max kappa): Stress group B5

ELEMENT 422 ; Qs 33

SPANNUNGS-AUSNUTZUNG

STAHL1E - Spannungsanalyse-MAX
Sigma-v

Isometrie



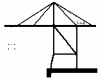
Me = 42%

MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 422: Section No 33 - IS 302/250/15/20, x = 7.63m						
Sigma Total	7.630	6	CO1 +N	97.76	327.30	0.30
Tau Total	7.630	13	CO1 +V-3	1.81	188.90	0.01
Sigma eq	7.630	6	CO1 +N	97.76	327.30	0.30

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 422: Section No 33 - IS 302/250/15/20, x = 7.63m						
Sigma Total	7.630	10	CO11 -N	-48.78	327.30	0.15
Tau Total	7.630	13	CO11 -N	-1.02	188.90	0.01
Sigma eq	7.630	10	CO11 -N	48.78	327.30	0.15

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 752

Proof with tensile stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K2

Construction case picture: 231

max_σ = 97,76 N/mm²min_σ = -48,78 N/mm²

kappa_κ = min_σ / max_σ = -0,4990

for tension is zul_σ_{Be} = 111,00 N/mm²zul_σ_H = 240,00 N/mm²zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 111,00 N/mm²utilization r_s = ABS(max_σ / zul_σ) = **0,8807 ≤ 1**

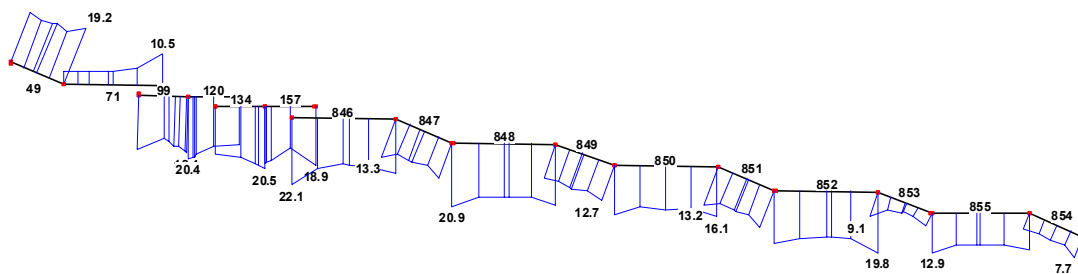
7.10.7. Diagonals- upper plane (max): Stress group B5

ELEMENT 134 ; Qs 44

SPANNUNGS-AUSNUTZUNG

STAHL18 - Spannungsanalyse-MAX
Sigra-v

Isométrie



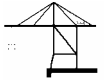
Max = 22.1%

MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 134: Section No 44 - RO 168,3x10, x = 2.82m						
Sigma Total	2.820	18	CO5 -N	-66.90	327.30	0.20
Tau Total	2.820	11	CO5 -N	1.69	188.90	0.01
Sigma eq	2.820	18	CO5 -N	66.94	327.30	0.20

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 134: Section No 44 - RO 168,3x10, x = 2.82m						
Sigma Total	2.820	1	CO7 +N	48.87	327.30	0.15
Tau Total	2.820	11	CO7 +N	1.48	188.90	0.01
Sigma eq	2.820	2	CO7 +N	48.88	327.30	0.15

**NOKRAN**

Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 754

Proof with compress stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K2

Construction case picture: 231

max_σ = -66,90 N/mm²

min_σ = 48,87 N/mm²

kappa_κ = min_σ / max_σ = -0,7305

for tension is zul_σ_{Be} = 100,00 N/mm²

zul_σ_H = 210,00 N/mm²

zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 100,00 N/mm²

utilization r_s = ABS(max_σ / zul_σ) = **0,6690 ≤ 1**

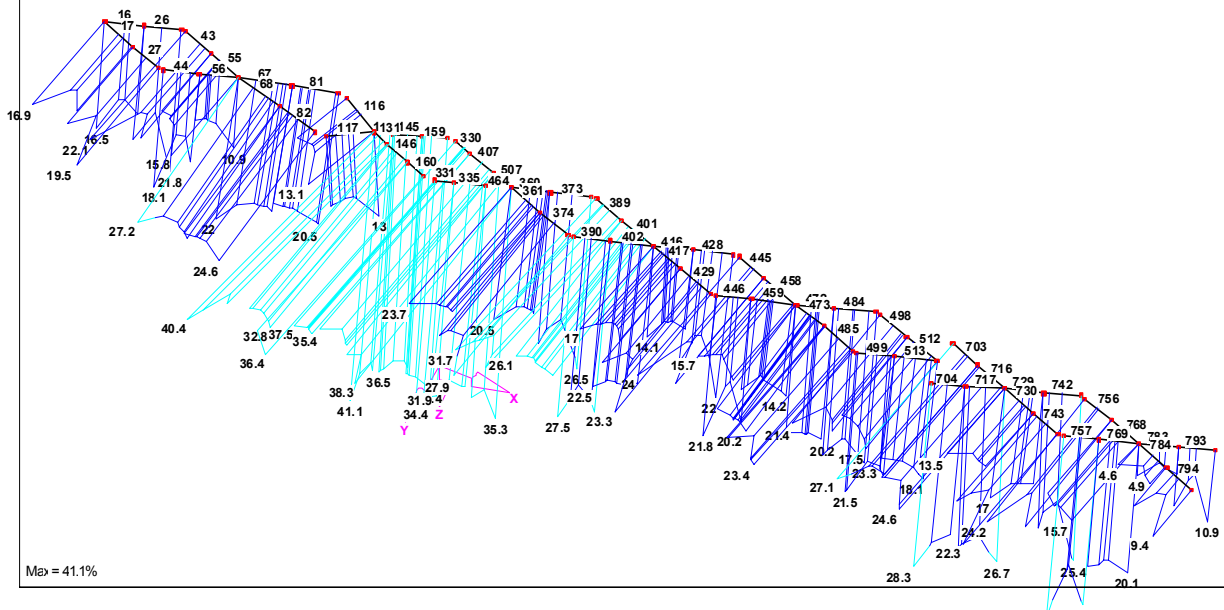
7.10.8. Tubes- lower plane (max sigma): Stress group B5

ELEMENT 507 ; Qs 29

SPANNUNGS-AUSNUTZUNG

STAHL18 - Spannungsanalyse-MAX
Sigma-v

Isometrie

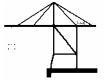


MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 507: Section No 29 - RO 127x10, x = 1.74m						
Sigma Total	1.740	27	CO1 -N	-125.26	327.30	0.38
Tau Total	1.740	1	CO1 -N	-2.42	188.90	0.01
Sigma eq	1.740	27	CO1 -N	125.28	327.30	0.38

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 507: Section No 29 - RO 127x10, x = 1.74m						
Sigma Total	1.740	27	CO11 -N	-32.84	327.30	0.10
Tau Total	1.740	1	CO11 -N	-1.18	188.90	0.01
Sigma eq	1.740	27	CO11 -N	32.86	327.30	0.10

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 756

Proof with compress stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K3

Construction case picture: 331

max_σ = -125,26 N/mm²min_σ = -32,84 N/mm²

kappa_κ = min_σ / max_σ = 0,2622

for tension is zul_σ_{Be} = 152,00 N/mm²zul_σ_H = 210,00 N/mm²zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 152,00 N/mm²utilization r_s = ABS(max_σ / zul_σ) = 0,8241 ≤ 1

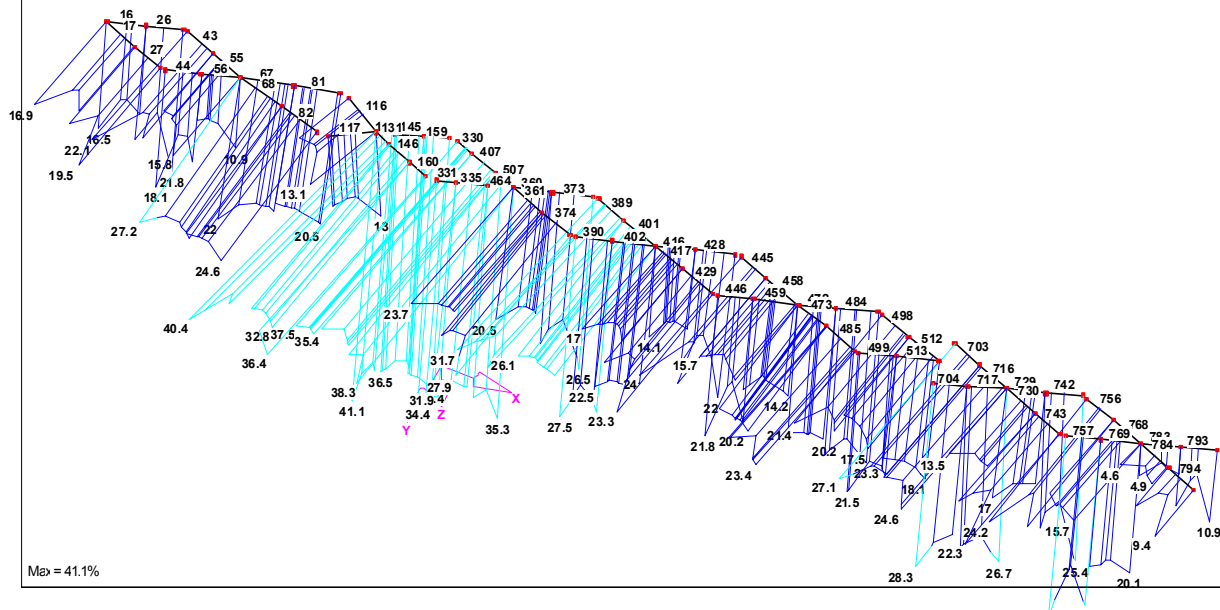
7.10.9. Tubes- lower plane (max kappa): Stress group B5

ELEMENT 445 ; Qs 29

SPANNUNGS-AUSNUTZUNG

STAHL18 - Spannungsanalyse-MAX
Sigra-v

Isometrie

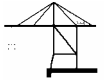


MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 445: Section No 29 - RO 127x10, x = 0.00m						
Sigma Total	0.000	17	CO1 -N	-78.47	327.30	0.24
Tau Total	0.000	8	CO1 -N	-2.88	188.90	0.02
Sigma eq	0.000	17	CO1 -N	78.51	327.30	0.24

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 445: Section No 29 - RO 127x10, x = 0.00m						
Sigma Total	0.000	14	CO3 +N	35.18	327.30	0.11
Tau Total	0.000	4	CO3 +N	2.66	188.90	0.01
Sigma eq	0.000	14	CO3 +N	35.32	327.30	0.11

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 758

Proof with compress stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K3

Construction case picture: 331

max_σ = -78,47 N/mm²min_σ = 35,18 N/mm²

kappa_κ = min_σ / max_σ = -0,4483

for tension is zul_σ_{Be} = 85,00 N/mm²zul_σ_H = 210,00 N/mm²zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 85,00 N/mm²utilization r_s = ABS(max_σ / zul_σ) = **0,9232 ≤ 1**

7.10.10. Connections – upper plane (max kappa):

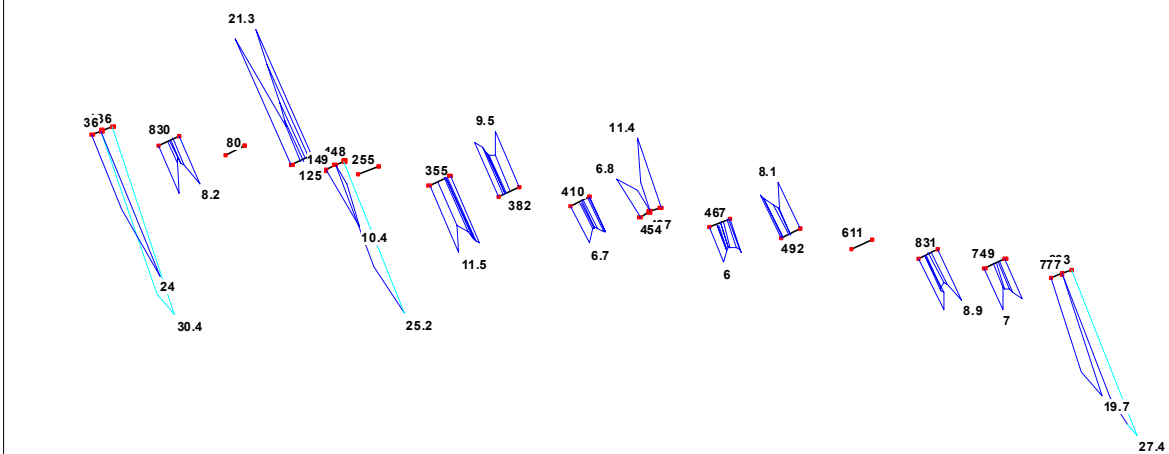
Stress group B5

ELEMENT 125 ; Qs 44

SPANNUNGS-AUSNUTZUNG

STAHL16 - Spannungsanalyse-MAX
Sigrra-v

Isometrie



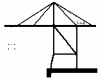
Max = 30.4%

MAX STRESS:

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²]		Stress Ratio
				existing	allowable	
Element No 125: Section No 44 - RO 168,3x10, x = 0.00m						
Sigma Total	0.000	1	CO1 -V-2	69.78	327.30	0.21
Tau Total	0.000	10	CO1 -V-2	-5.21	188.90	0.03
Sigma eq	0.000	1	CO1 -V-2	69.83	327.30	0.21

MIN STRESS:

Stress Type	x Location [m]	S Point No	LC No	Stress [N/mm²]		Stress Ratio
				existing	allowable	
Element No 125: Section No 44 - RO 168,3x10, x = 0.00m						
Sigma Total	0.000	20	CO11 -V-2	-6.98	327.30	0.02
Tau Total	0.000	14	CO11 -V-2	-0.41	188.90	0.00
Sigma eq	0.000	20	CO11 -V-2	7.00	327.30	0.02

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 760

Proof with tensile stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K3

Construction case picture: 331

 $\max_{\sigma} = 69,78 \text{ N/mm}^2$ $\min_{\sigma} = -6,98 \text{ N/mm}^2$ $\kappa_{\kappa} = \min_{\sigma} / \max_{\sigma} = -0,1000$ for tension is $\text{zul}_{\sigma_{Be}} = 99,00 \text{ N/mm}^2$ $\text{zul}_{\sigma_H} = 240,00 \text{ N/mm}^2$ $\text{zul}_{\sigma} = \text{MIN} (\text{zul}_{\sigma_{Be}} ; \text{zul}_{\sigma_H}) = 99,00 \text{ N/mm}^2$ utilization $r_s = \text{ABS}(\max_{\sigma} / \text{zul}_{\sigma}) = \underline{\underline{0,7048 \leq 1}}$

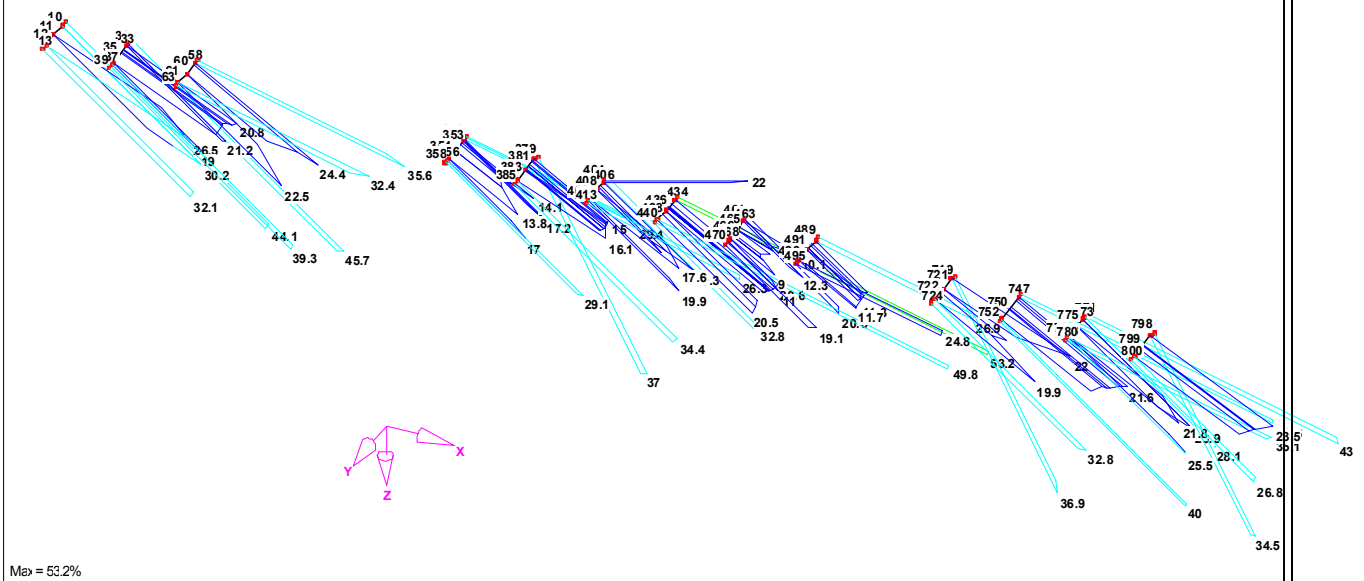
7.10.11. Connections – case-lower plane (max sigma): Stress group B5

ELEMENT 434 ; Qs 22

SPANNUNGS-AUSNUTZUNG

STAHL18 - Spannungsanalyse-MAX
Sigma-v

Isometrie

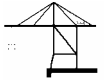


MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 434: Section No 22 - Kasten(A) 374/15/12/350/550/374/15, x = 0.00m						
Sigma Total	0.000	1	CO1 +M-3	83.30	327.30	0.25
Tau Total	0.000	5	CO1 +V-2	100.43	188.90	0.53
Sigma eq	0.000	5	CO1 +V-2	174.09	327.30	0.53

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 434: Section No 22 - Kasten(A) 374/15/12/350/550/374/15, x = 0.00m						
Sigma Total	0.000	1	CO8 +N	10.35	327.30	0.03
Tau Total	0.000	11	CO8 +N	8.79	188.90	0.05
Sigma eq	0.000	11	CO8 +N	15.58	327.30	0.05

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 762

Proof with tensile stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K3

Construction case picture: 331

 $\max_{\sigma} = 83,30 \text{ N/mm}^2$ $\min_{\sigma} = 10,35 \text{ N/mm}^2$ $\kappa_{\kappa} = \min_{\sigma} / \max_{\sigma} = 0,1242$ for tension is $\text{zul}_{\sigma_{Be}} = 115,00 \text{ N/mm}^2$ $\text{zul}_{\sigma_H} = 240,00 \text{ N/mm}^2$ $\text{zul}_{\sigma} = \text{MIN} (\text{zul}_{\sigma_{Be}} ; \text{zul}_{\sigma_H}) = 115,00 \text{ N/mm}^2$ utilization $r_s = \text{ABS}(\max_{\sigma} / \text{zul}_{\sigma}) = \underline{\underline{0,7243 \leq 1}}$

7.10.12. Vertical plane-vertical beams (max kappa):

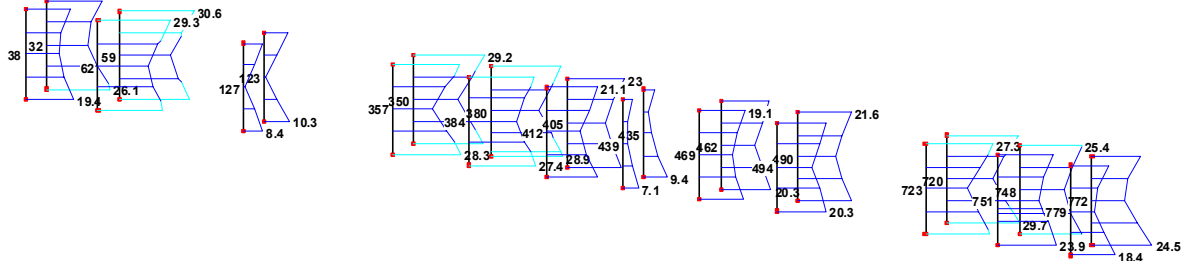
Stress group B5

ELEMENT 405 ; Qs 30

SPANNUNGS-AUSNUTZUNG

STAHL1E - Spannungsanalyse-MAX
Sigma-v

Isometrie



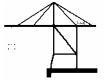
Me_v = 30.6%

MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 405: Section No 30 - IS 302/250/8/20, x = 5.50m						
Sigma Total	5.500	5	CO1 -N	-75.30	327.30	0.23
Tau Total	5.500	13	CO1 +V-3	1.03	188.90	0.01
Sigma eq	5.500	5	CO1 -N	75.30	327.30	0.23

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 405: Section No 30 - IS 302/250/8/20, x = 5.50m						
Sigma Total	5.500	5	CO11 +N	33.93	327.30	0.10
Tau Total	5.500	13	CO11 +N	-0.94	188.90	0.00
Sigma eq	5.500	5	CO11 +N	33.93	327.30	0.10

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 764

Proof with compress stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K2

Construction case picture: 231

 $\max_{\sigma} = -75,30 \text{ N/mm}^2$ $\min_{\sigma} = 33,93 \text{ N/mm}^2$ $\kappa_{\kappa} = \min_{\sigma} / \max_{\sigma} = -0,4506$ for tension is $\text{zul}_{\sigma_{Be}} = 116,00 \text{ N/mm}^2$ $\text{zul}_{\sigma_H} = 210,00 \text{ N/mm}^2$ $\text{zul}_{\sigma} = \text{MIN} (\text{zul}_{\sigma_{Be}} ; \text{zul}_{\sigma_H}) = 116,00 \text{ N/mm}^2$ utilization $r_s = \text{ABS}(\max_{\sigma} / \text{zul}_{\sigma}) = \underline{\underline{0,6491 \leq 1}}$

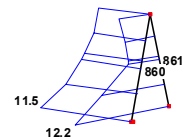
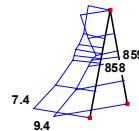
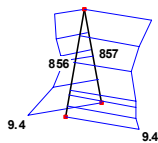
7.10.13. A-connections (max sigma): Stress group B5

ELEMENT 861 ; Qs 100

SPANNUNGS-AUSNUTZUNG

STAHL16 - Spannungsanalyse-MAX
Sigma-v

Isometrie



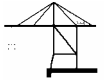
Max = 12.2%

MAX STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 861: Section No 100 - IS 374/200/5/12, x = 5.65m						
Sigma Total	5.650	1	CO5 -V-2	39.90	327.30	0.12
Tau Total	5.650	13	CO5 -V-3	-2.05	188.90	0.01
Sigma eq	5.650	1	CO5 -V-2	39.90	327.30	0.12

MIN STRESS:

Stress	x Location	S Point	LC	Stress [N/mm^2]		Stress
Type	[m]	No	No	existing	allowable	Ratio
Element No 861: Section No 100 - IS 374/200/5/12, x = 5.65m (-LK5)						
Sigma Total	5.650	1	-CO5 -V-2	-39.90	327.30	0.12
Tau Total	5.650	13	CO5 -V-3	-2.05	188.90	0.01
Sigma eq	5.650	1	CO5 -V-2	39.90	327.30	0.12

**NOKRAN**

Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations - Fatigue

künz

Seite: 766

Proof with tensile stress

Stress group: B5 (DIN 15018)

Material: S 355J2G3, (St52-3)

Construction case: K2

Construction case picture: 231

max_σ = 39,90 N/mm²

min_σ = -39,90 N/mm²

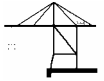
kappa_κ = min_σ / max_σ = -1,0000

for tension is zul_σ_{Be} = 89,10 N/mm²

zul_σ_H = 240,00 N/mm²

zul_σ = MIN (zul_σ_{Be} ; zul_σ_H) = 89,10 N/mm²

utilization r_s = ABS(max_σ / zul_σ) = **0,4478 ≤ 1**

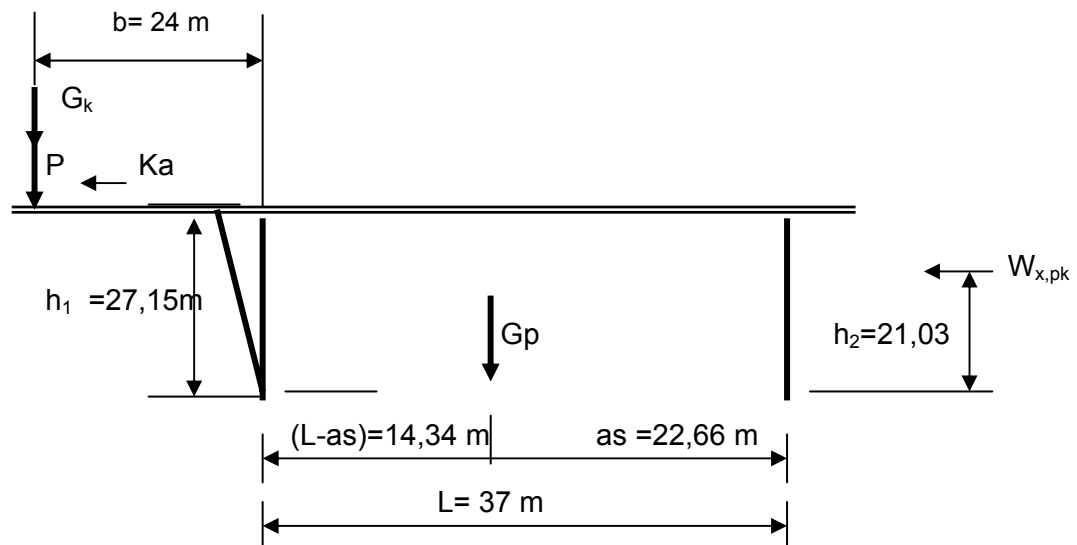
**NOKRAN**

8. Stability according to DIN 15019 Part1

8.1 Load case 1- crane in operation with wind

$$1.4 * P + 1.0 * M + 1.0. W_{in}$$

$$M_{stab} / M_{kip} \geq 1$$



$$\begin{aligned} L &= 37,00 \text{ m} \\ h_1 &= 27,15 \text{ m} \\ b &= 24,00 \text{ m} \end{aligned}$$

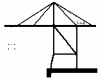
$$\begin{aligned} P &= 1,4 * 579,5 = 811,30 \text{ kN} \\ G_k &= 380,00 \text{ kN} \end{aligned}$$

$$\begin{aligned} G_p &= 3870,00 \text{ kN (aus R-stab)} \\ a_s &= 2370 * L / G_p = 22,66 \text{ m (aus R-stab)} \\ L - a_s &= 14,34 \text{ m} \\ K_a &= 91,77 \text{ kN (aus R-stab)} \end{aligned}$$

$$\begin{aligned} W_{x,pk} &= 232,21 \text{ kN (aus R-stab)} \\ h_2 &= 132,0 * L / W_{x,pk} = 21,03 \text{ m (aus R-stab)} \end{aligned}$$

$$\begin{aligned} M_{stab} &= G_p * (L - a_s) = 55495,80 \text{ kN} \\ M_{kip} &= (G_k + P) * b + K_a * h_1 + W_{x,pk} * h_2 = 35966,13 \text{ kN} \end{aligned}$$

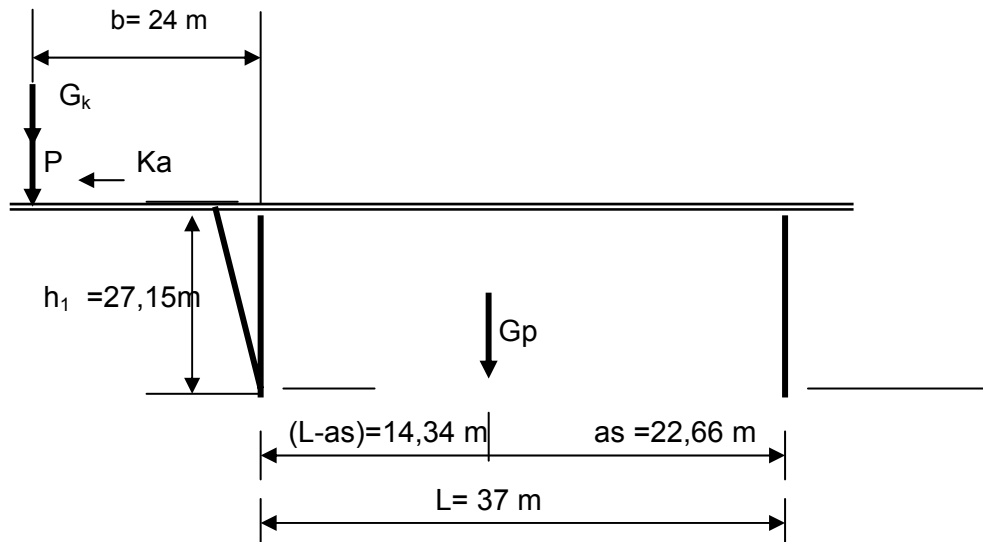
$$\begin{aligned} M_{stab} / M_{kip} &= 1,54 \\ \text{result} &= \text{WENN}(M_{stab} / M_{kip} \geq 1 ; 1; 0) = 1 \text{ (OK)} \end{aligned}$$

**NOKRAN**

8.2 Load case 2- crane in operation without wind

$$1.5 \cdot P + 1.0 \cdot M$$

$$M_{stab} / M_{kip} \geq 1$$



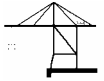
$$\begin{aligned} L &= 37,00 \text{ m} \\ h_1 &= 27,15 \text{ m} \\ b &= 24,00 \text{ m} \end{aligned}$$

$$\begin{aligned} P &= 1,5 \cdot 579,5 = 869,25 \text{ kN} \\ G_k &= 380,00 \text{ kN} \end{aligned}$$

$$\begin{aligned} G_p &= 3870,00 \text{ kN (aus R-stab)} \\ a_s &= 2370 \cdot L / G_p = 22,66 \text{ m (aus R-stab)} \\ L - a_s &= 14,34 \text{ m} \\ K_a &= 91,77 \text{ kN (aus R-stab)} \end{aligned}$$

$$\begin{aligned} M_{stab} &= G_p \cdot (L - a_s) = 55495,80 \text{ kN} \\ M_{kip} &= (G_k + P) \cdot b + K_a \cdot h_1 = 32473,56 \text{ kN} \end{aligned}$$

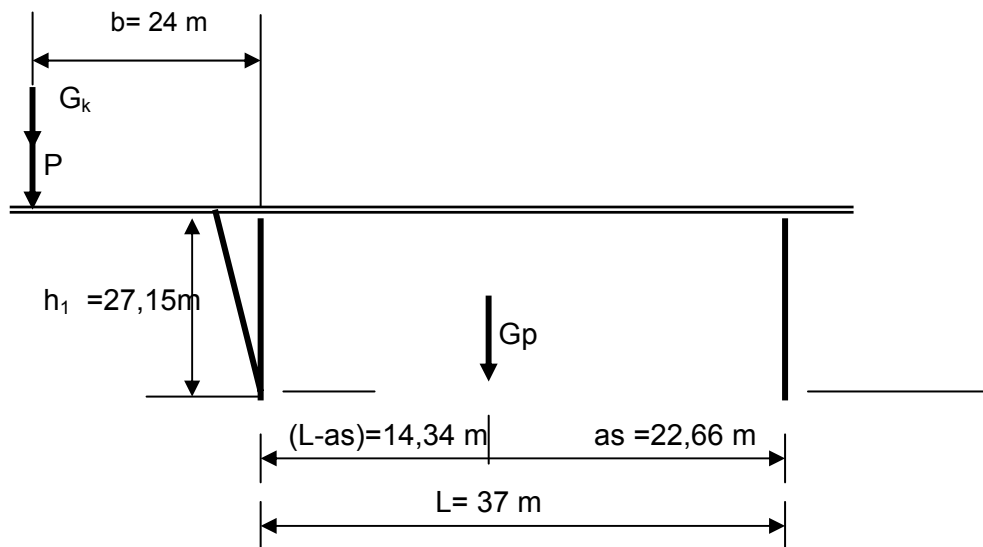
$$\begin{aligned} M_{stab} / M_{kip} &= 1,71 \\ \text{result} &= \text{WENN}(M_{stab} / M_{kip} \geq 1 ; 1 ; 0) = 1 \text{ (OK)} \end{aligned}$$

**NOKRAN**

8.3 Load case 3- crane in operation with a sudden loss of energy- Emergency

$$1.7 * P$$

$$M_{stab} / M_{kip} \geq 1$$



$$L = 37,00 \text{ m}$$

$$h_1 = 27,15 \text{ m}$$

$$b = 24,00 \text{ m}$$

$$P = 1,7 * 579,5 = 985,15 \text{ kN}$$

$$G_k = 380,00 \text{ kN}$$

$$G_p = 3870,00 \text{ kN (aus R-stab)}$$

$$a_s = 2370 * L / G_p = 22,66 \text{ m (aus R-stab)}$$

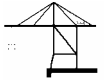
$$L - a_s = 14,34 \text{ m}$$

$$M_{stab} = G_p * (L - a_s) = 55495,80 \text{ kN}$$

$$M_{kip} = (G_k + P) * b = 32763,60 \text{ kN}$$

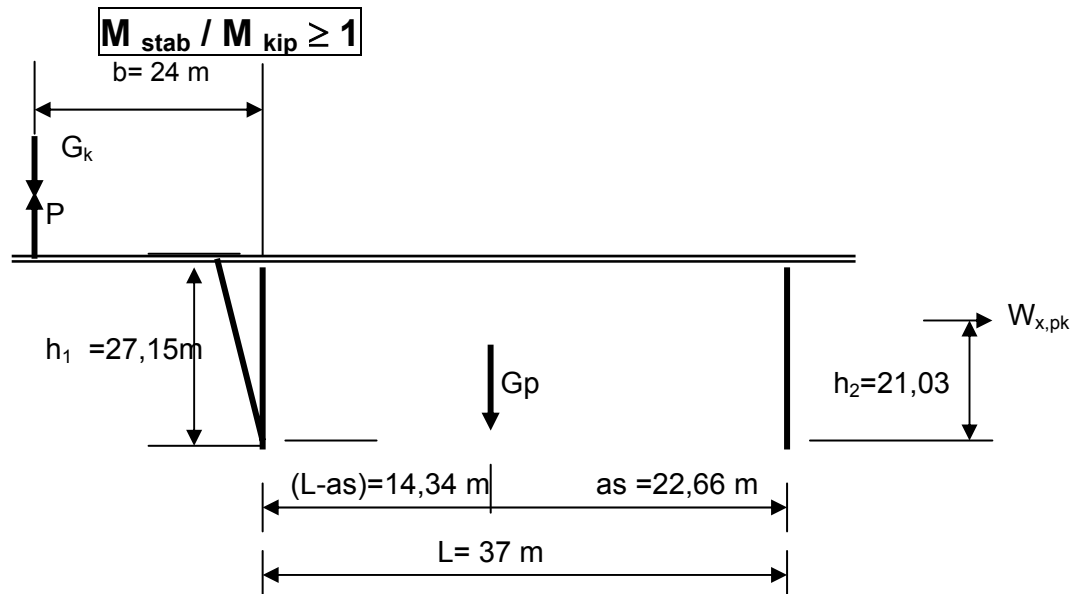
$$M_{stab} / M_{kip} = 1,69$$

$$\text{result} = \text{WENN}(M_{stab} / M_{kip} \geq 1 ; 1; 0) = 1 \text{ (OK)}$$

**NOKRAN**

8.4 Load case 4- crane operating at sudden stop or tearing of the load with wind

$$-0.1 \cdot P + 1.0 \cdot W_{in}$$



$$\begin{aligned} L &= 37,00 \text{ m} \\ h_1 &= 27,15 \text{ m} \\ b &= 24,00 \text{ m} \end{aligned}$$

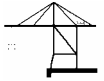
$$\begin{aligned} P &= -0,1 \cdot 579,5 = -57,95 \text{ kN} \\ G_k &= 380,00 \text{ kN} \end{aligned}$$

$$\begin{aligned} G_p &= 3870,00 \text{ kN (aus R-stab)} \\ a_s &= 2370 \cdot L / G_p = 22,66 \text{ m (aus R-stab)} \\ L - a_s &= 14,34 \text{ m} \end{aligned}$$

$$\begin{aligned} W_{x,pk} &= 232,21 \text{ kN (aus R-stab)} \\ h_2 &= 132,0 \cdot L / W_{x,pk} = 21,03 \text{ m (aus R-stab)} \end{aligned}$$

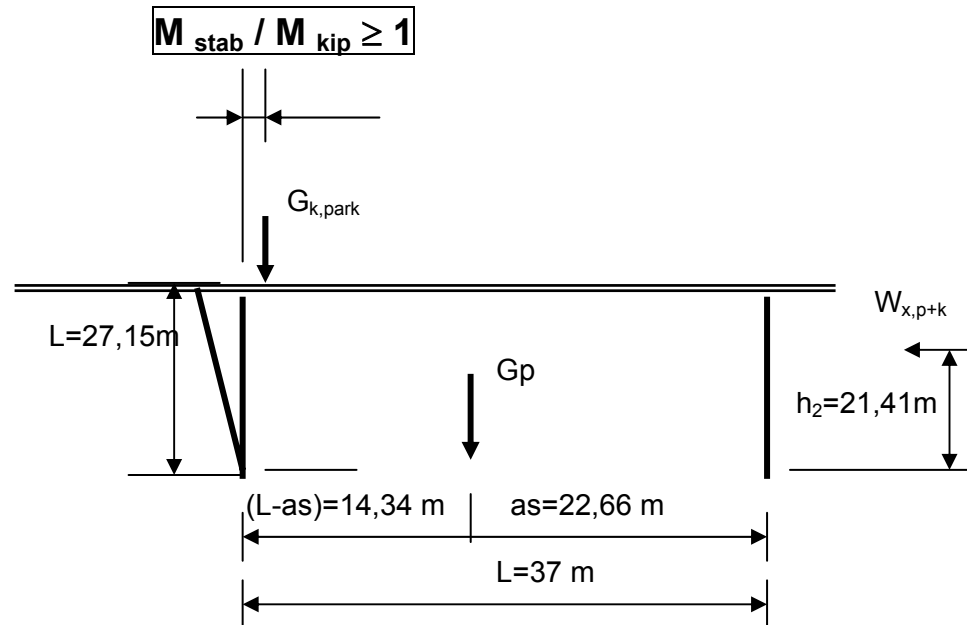
$$\begin{aligned} M_{stab} &= G_p \cdot (L - a_s) + ABS(P) \cdot b = 56886,60 \text{ kN} \\ M_{kip} &= G_k \cdot b + W_{x,pk} \cdot h_2 = 14003,38 \text{ kN} \end{aligned}$$

$$\begin{aligned} M_{stab} / M_{kip} &= 4,06 \\ \text{result} &= \text{WENN}(M_{stab} / M_{kip} \geq 1 ; 1; 0) = 1 \text{ (OK)} \end{aligned}$$

**NOKRAN**

8.5 Load case 5- crane out of operation during wind storm

1.2 W_{aus}



$$L = 37,00 \text{ m}$$

$$h_1 = 27,15 \text{ m}$$

$$G_k = 380,00 \text{ kN}$$

$$G_{kpark} = G_k + 169,5 = 549,50 \text{ kN}$$

$$G_p = 3870,00 \text{ kN (aus R-stab)}$$

$$a_s = 2370 * L / G_p = 22,66 \text{ m (aus R-stab)}$$

$$L - a_s = 14,34 \text{ m}$$

$$W_{xo,pk} = 751,90 \text{ kN (aus R-stab)}$$

$$h_{20} = 435,00 * L / W_{xo,pk} = 21,41 \text{ m (aus R-stab)}$$

$$M_{stab} = G_p * (L - a_s) = 55495,80 \text{ kN}$$

$$M_{kip} = 1,2 * W_{xo,pk} * h_{20} = 19317,81 \text{ kN}$$

$$M_{stab} / M_{kip} = 2,87$$

$$\text{result} = \text{WENN}(M_{stab} / M_{kip} \geq 1 ; 1 ; 0) = 1 \text{ (OK)}$$

9. DEFORMATION

LOAD COMBINATIONS		
CO No	CO Description	Combination Criteria
1	LT+Zutritt +Hublast pos1+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF28
2	LT+Zutritt +Hublast pos2+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF19 + LF25 + LF28
3	LT+Zutritt +Hublast pos3+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF20 + LF25 + LF28
4	LT+Zutritt +Hublast pos4+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF21 + LF25 + LF28
5	LT+Zutritt +Hublast pos5+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF28
7	LT+Zutritt +Hublast pos1+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26
8	LT+Zutritt +Hublast pos2+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF26
9	LT+Zutritt +Hublast pos3+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF26
10	LT+Zutritt +Hublast pos4+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF26
11	LT+Zutritt +Hublast pos5+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26
13	LT+Zutritt +Hublast pos1 -exzentrisch+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.20*LF11 + LF18 + LF25 + 1.564*LF74 + LF28
14	LT+Zutritt +Hublast pos2 -exzentrisch+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.20*LF12 + LF19 + LF25 + 1.564*LF75 + LF28
15	LT+Zutritt +Hublast pos3 -exzentrisch+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.20*LF13 + LF20 + LF25 + 1.564*LF76 + LF28
16	LT+Zutritt +Hublast pos4 -exzentrisch+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.20*LF14 + LF21 + LF25 + 1.564*LF77 + LF28
17	LT+Zutritt +Hublast pos5 -exzentrisch+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.20*LF15 + LF22 + LF25 + 1.564*LF78 + LF28
20	LT+Zutritt +Hublast pos1+EGkatze+Kr +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF31
21	LT+Zutritt +Hublast pos2+EGkatze+Kr +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF19 + LF25 + LF31
22	LT+Zutritt +Hublast pos3+EGkatze+Kr +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF20 + LF25 + LF31
23	LT+Zutritt +Hublast pos4+EGkatze+Kr +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF21 + LF25 + LF31
24	LT+Zutritt +Hublast pos5+EGkatze+Kr +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF31
26	LT+Zutritt +Hublast pos1+EGkatze+Ka +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26 + LF30
27	LT+Zutritt +Hublast pos2+EGkatze+Ka +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF26 + LF30
28	LT+Zutritt +Hublast pos3+EGkatze+Ka +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF26 + LF30
29	LT+Zutritt +Hublast pos4+EGkatze+Ka +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF26 + LF30
30	LT+Zutritt +Hublast pos5+EGkatze+Ka +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26 + LF30
33	LT+Zutritt +Hublast pos1+EGkatze+Kr +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF33
34	LT+Zutritt +Hublast pos2+EGkatze+Kr +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF19 + LF25 + LF33
35	LT+Zutritt +Hublast pos3+EGkatze+Kr +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF20 + LF25 + LF33
36	LT+Zutritt +Hublast pos4+EGkatze+Kr +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF21 + LF25 + LF33
37	LT+Zutritt +Hublast pos5+EGkatze+Kr +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF33
39	LT+Zutritt +Hublast pos1+EGkatze+Ka +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26 + LF33

LOAD COMBINATIONS

CO No	CO Description	Combination Criteria
40	LT+Zutritt +Hublast pos2+EGkatze+Ka +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF26 + LF33
41	LT+Zutritt +Hublast pos3+EGkatze+Ka +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF26 + LF33
42	LT+Zutritt +Hublast pos4+EGkatze+Ka +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF26 + LF33
43	LT+Zutritt +Hublast pos5+EGkatze+Ka +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26 + LF33
58	LT+Zutritt +Hublast pos1+EGkatze +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF43 + LF33
59	LT+Zutritt +Hublast pos2+EGkatze +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF5 + 1.20*LF12 + LF44 + LF33
60	LT+Zutritt +Hublast pos3+EGkatze +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF6 + 1.20*LF13 + LF45 + LF33
61	LT+Zutritt +Hublast pos4+EGkatze +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF7 + 1.20*LF14 + LF46 + LF33
62	LT+Zutritt +Hublast pos5+EGkatze +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF47 + LF33
65	LT+Zutritt +Katze im Parkposition + Sturmwind-Wx	LF1/S + LF2/S + LF52 + LF50
66	LT+Zutritt +Katze im Parkposition + Sturmwind-Wy	LF1/S + LF2/S + LF52 + LF51
67	LT+Zutritt +Hublast pos1+EGkatze +Puy	1.20*LF1/S + 1.20*LF2/S + LF4 + 1.20*LF11 + 1.50*LF60 + 1.50*LF61
68	LT+Zutritt +Hublast pos2+EGkatze +Puy	1.20*LF1/S + 1.20*LF2/S + LF5 + 1.20*LF12 + 1.50*LF60 + 1.50*LF62
69	LT+Zutritt +Hublast pos3+EGkatze +Puy	1.20*LF1/S + 1.20*LF2/S + LF6 + 1.20*LF13 + 1.50*LF60 + 1.50*LF63
70	LT+Zutritt +Hublast pos4+EGkatze +Puy	1.20*LF1/S + 1.20*LF2/S + LF7 + 1.20*LF14 + 1.50*LF60 + 1.50*LF64
71	LT+Zutritt +Hublast pos5+EGkatze +Puy	1.20*LF1/S + 1.20*LF2/S + LF8 + 1.20*LF15 + 1.50*LF60 + 1.50*LF65
73	LT+Zutritt +Hublast pos5+EGkatze +Pux	1.20*LF1/S + 1.20*LF2/S + 1.20*LF15 + LF8 + 1.50*LF70
75	LT+Zutritt +Prufast-klein pos1+EGkatze +Ka	1.20*LF1/S + 1.20*LF2/S + 1.602*LF4 + 1.20*LF11 + LF26
76	LT+Zutritt +Prufast-klein pos3+EGkatze +Ka	1.20*LF1/S + 1.20*LF2/S + 1.602*LF6 + 1.20*LF13 + LF26
77	LT+Zutritt +Prufast-klein pos5+EGkatze +Ka	1.20*LF1/S + 1.20*LF2/S + 1.602*LF8 + 1.20*LF15 + LF26
78	LT+Zutritt +Prufast-gross pos1+EGkatze	LF1/S + LF2/S + 1.33*LF4 + LF11
79	LT+Zutritt +Prufast-gross pos3+EGkatze	LF1/S + LF2/S + 1.33*LF6 + LF13
80	LT+Zutritt +Prufast-gross pos5+EGkatze	LF1/S + LF2/S + 1.33*LF8 + LF15
82	LT+Zutritt +Hublast pos1+EGkatze+Kr +	LF1/S + LF2/S + LF4 + LF11 + LF18 + LF25 + LF33
	-Wy+NOT-AUS	+ LF84
83	LT+Zutritt +Hublast pos3+EGkatze+Kr +	LF1/S + LF2/S + LF6 + LF13 + LF20 + LF25 + LF33
	-Wy+ NOT-AUS	+ LF84
84	LT+Zutritt +Hublast pos5+EGkatze+Kr +-Wy	LF1/S + LF2/S + LF8 + LF15 + LF22 + LF25 + LF33
	+ NOT-AUS	+ LF84
87	LT+Zutritt -netto	LF1/S + LF2/S
88	LT+Zutritt +Hublast pos1+EGkatze -netto	LF1/S + LF2/S + LF4 + LF11
89	LT+Zutritt +Hublast pos3+EGkatze -netto	LF1/S + LF2/S + LF7 + LF13
90	LT+Zutritt +Hublast pos5+EGkatze -netto	LF1/S + LF2/S + LF8 + LF15
91	LT+Zutritt +EGkatze-pos 1	1.20*LF1/S + 1.20*LF2/S + 1.20*LF11
92	LT+Zutritt +EGkatze-pos 3	1.20*LF1/S + 1.20*LF2/S + 1.20*LF13
93	LT+Zutritt +EGkatze-pos 5	1.20*LF1/S + 1.20*LF2/S + 1.20*LF15
94	LT+Zutritt +EGkatze-pos 1-netto	LF1/S + LF2/S + LF11
95	LT+Zutritt +EGkatze-pos 3-netto	LF1/S + LF2/S + LF13
96	LT+Zutritt +EGkatze-pos 5-netto	LF1/S + LF2/S + LF15
97	EXTREM MAX/MIN Fall H	1.50*LK1 o 1.50*LK2 o 1.50*LK3 o 1.50*LK4 o

**NOKRAN**Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations-deformation

künz

Seite: 775

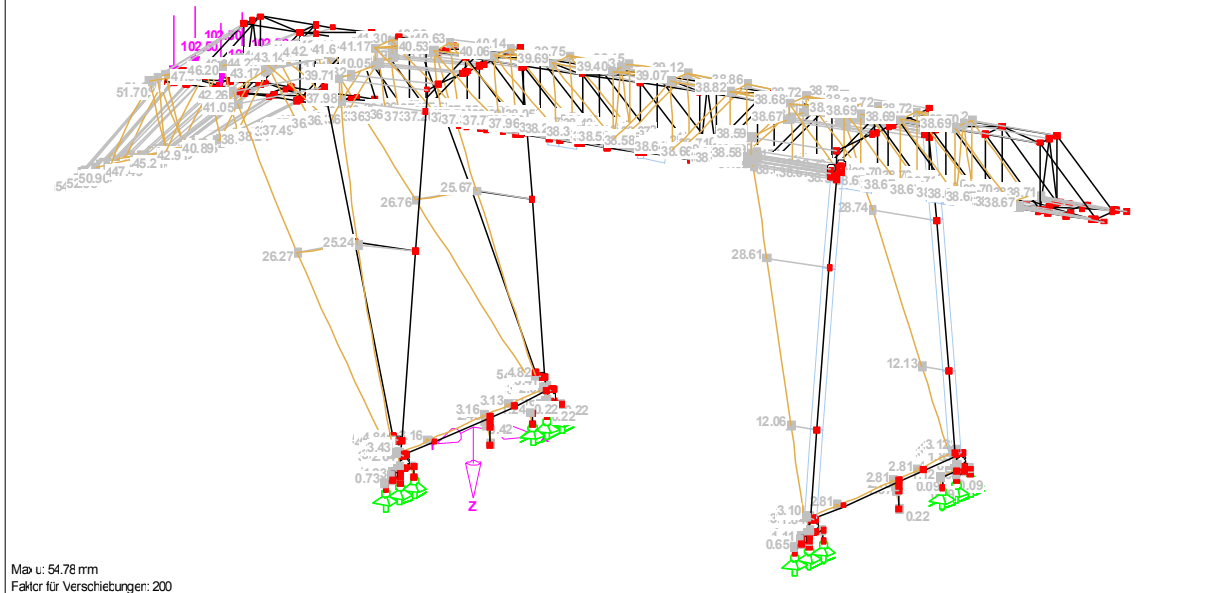
LOAD COMBINATIONS

CO No	CO Description	Combination Criteria
		1.50*LK5 o 1.50*LK7 o 1.50*LK8 o 1.50*LK9 o
		1.50*LK10 o 1.50*LK11 o 1.50*LK13 o 1.50*LK14 o
		1.50*LK15 o 1.50*LK16 o 1.50*LK17
98	EXTREM MAX/MIN Fall HZ	1.35*LK20 o 1.35*LK21 o 1.35*LK22 o 1.35*LK23 o
		1.35*LK24 o 1.35*LK26 o 1.35*LK27 o 1.35*LK28 o
		1.35*LK29 o 1.35*LK30 o 1.35*LK33 o 1.35*LK34 o
		1.35*LK35 o 1.35*LK36 o 1.35*LK37 o 1.35*LK39 o
		1.35*LK40 o 1.35*LK41 o 1.35*LK42 o 1.35*LK43 o
		1.35*LK58 o 1.35*LK59 o 1.35*LK60 o 1.35*LK61 o
		1.35*LK62 o 1.35*LK65 o 1.35*LK66
99	EXTREM MAX/MIN Fall HS	1.10*LK67 o 1.10*LK68 o 1.10*LK69 o 1.10*LK70 o
		1.10*LK71 o 1.10*LK73 o 1.10*LK75 o 1.10*LK76 o
		1.10*LK77 o 1.10*LK78 o 1.10*LK79 o 1.10*LK80 o
		1.10*LK82 o 1.10*LK83 o 1.10*LK84
100	EXTREM-netto	LK1 o LK2 o LK3 o LK4 o LK5 o LK7 o LK8 o LK9 o
		LK10 o LK11 o LK13 o LK14 o LK15 o LK16 o LK17
		o LK20 o LK21 o LK22 o LK23 o LK24 o LK26 o
		LK27 o LK28 o LK29 o LK30 o LK33 o LK34 o LK35
		o LK36 o LK37 o LK39 o LK40 o LK41 o LK42 o
		LK43 o LK58 o LK59 o LK60 o LK61 o LK62 o LK65
		o LK66 o LK67 o LK68 o LK69 o LK70 o LK71 o
		LK73 o LK75 o LK76 o LK77 o LK78 o LK79 o LK80
		o LK82 o LK83 o LK84

RESULTS

LF 80 - Nur Hublast 41t Pcs 1
Verschiebungen

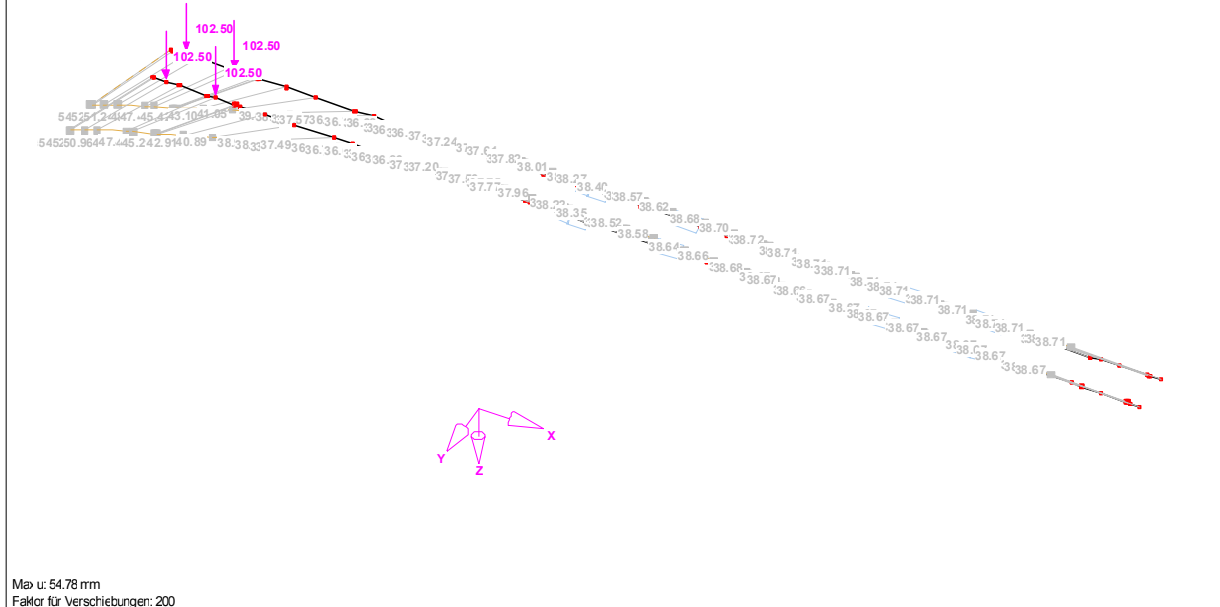
Isometrie



RESULTS

LF 80 - Nur Hublast 41t Pcs 1
Verschiebungen

Isometrie

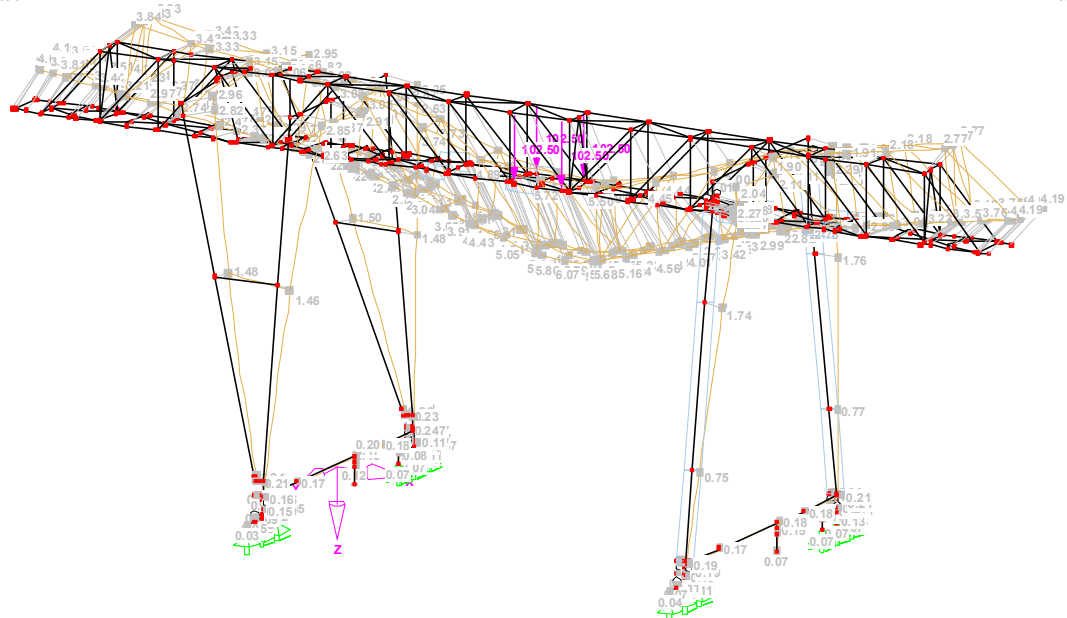


$$37\text{mm} < L/500 = 24000/500 = 48\text{mm} \quad \text{OK.}$$

RESULTS

LF 61 - Nur Hublast 41t Pos 3
Verschiebungen

Iscretreie

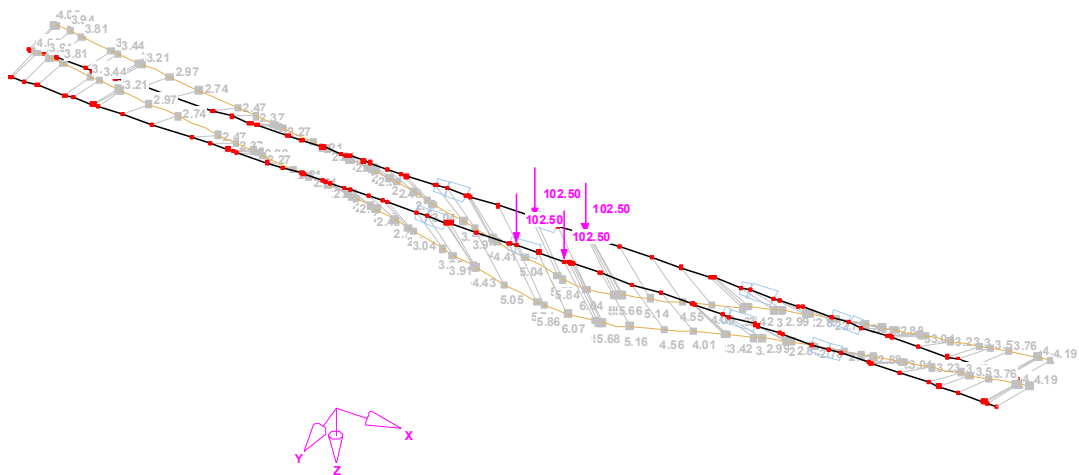


Max u: 6.07 mm
Faktor für Verschiebungen: 1000

RESULTS

LF 61 - Nur Hublast 41t Pos 3
Verschiebungen

Iscretreie



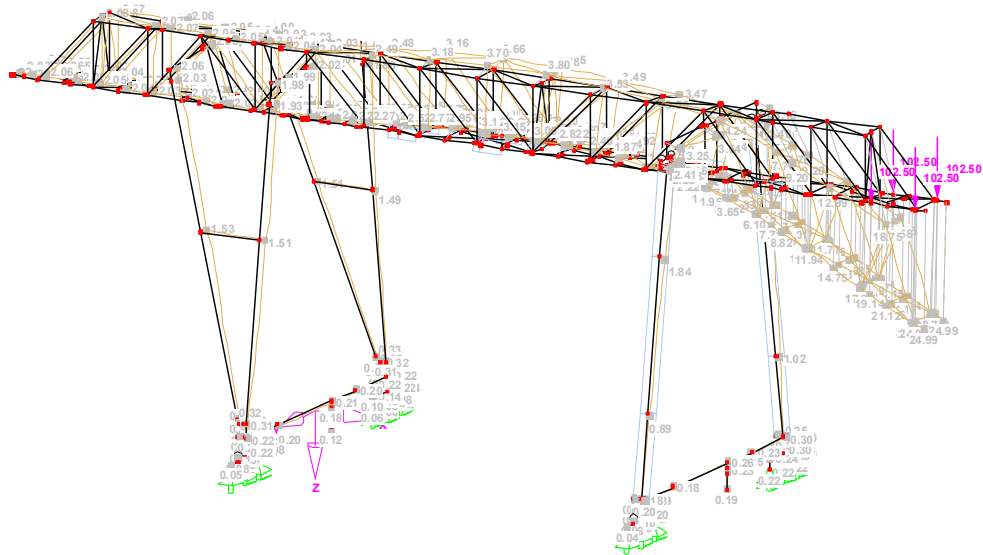
Max u: 6.07 mm
Faktor für Verschiebungen: 1000

$$6\text{mm} < L/1000 = 37000/1000 = 37\text{mm} \quad \text{OK}$$

RESULTS

LF 82 - Nur Hublast 41t Pcs 5
Verschiebungen

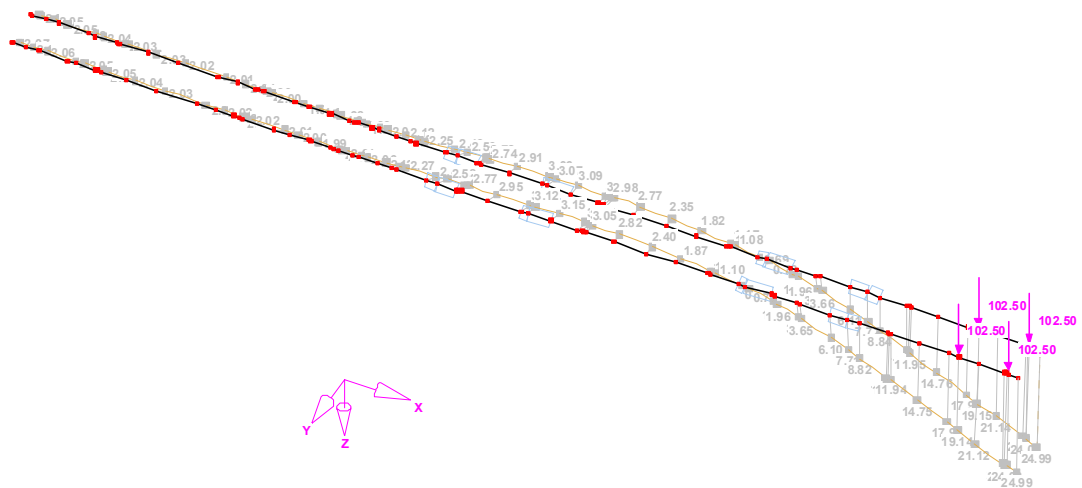
Isocretie



RESULTS

LF 82 - Nur Hublast 41t Pcs 5
Verschiebungen

Isocretie



$$21\text{mm} < L/500 = 18000/500 = 36\text{mm} \quad \text{OK}$$

Containercrane 41t x (24 + 37 + 18) m
VENLO-ECT Delta Terminal - 21098



NOKRAN

Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations-deformation

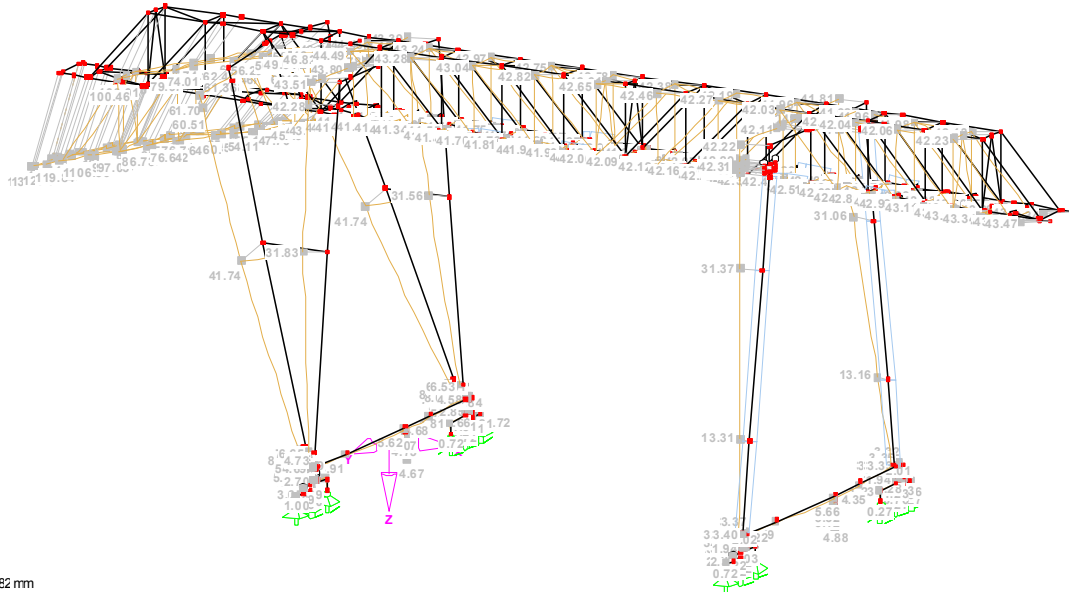
künz

Seite: 780

RESULTS

LK 88 - LT+Zutritt +Hublast pcs1+EGketze -retto
Max Verschiebungen

Iscrettrie

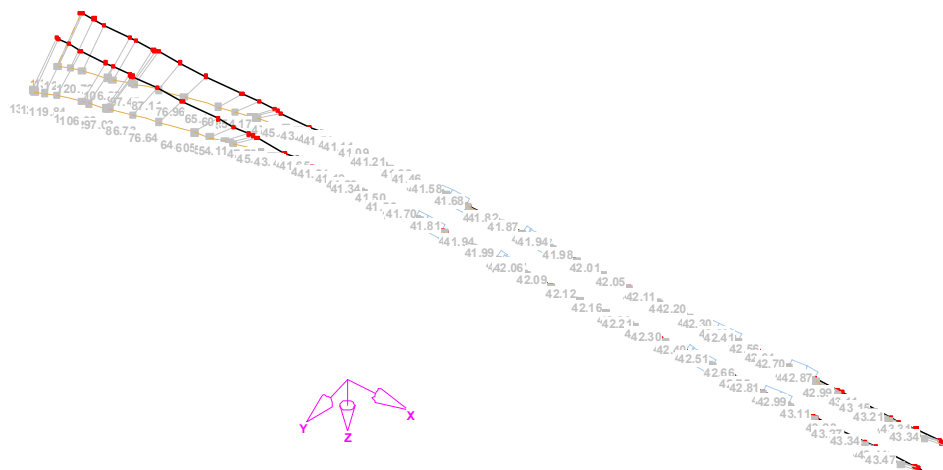


Max u: 132.82 mm
Faktor für Verschiebungen: 60

RESULTS

LK 88 - LT+Zutritt +Hublast pcs1+EGketze -netto
Max Verschiebungen

Iscrettrie



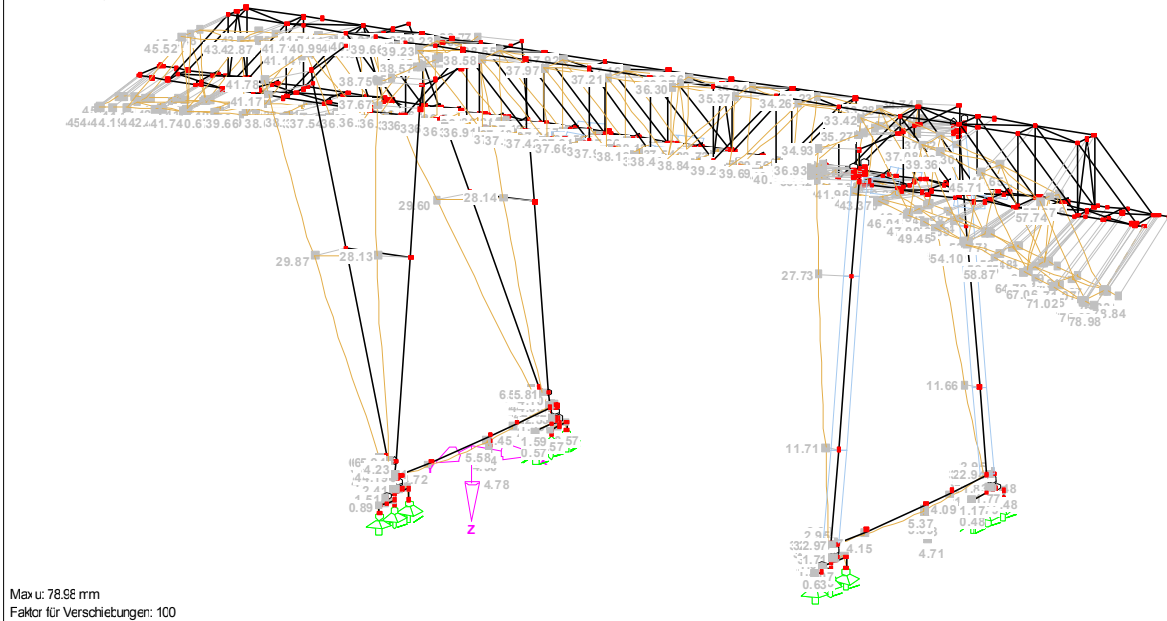
Max u: 132.81 mm
Faktor für Verschiebungen: 60

Containercrane 41t x (24 + 37 + 18) m
VENLO-ECT Delta Terminal - 21098

RESULTS

LK 9C - LT+Zutritt +Hublast pcs5+EGketze -netto
Max Verschiebungen

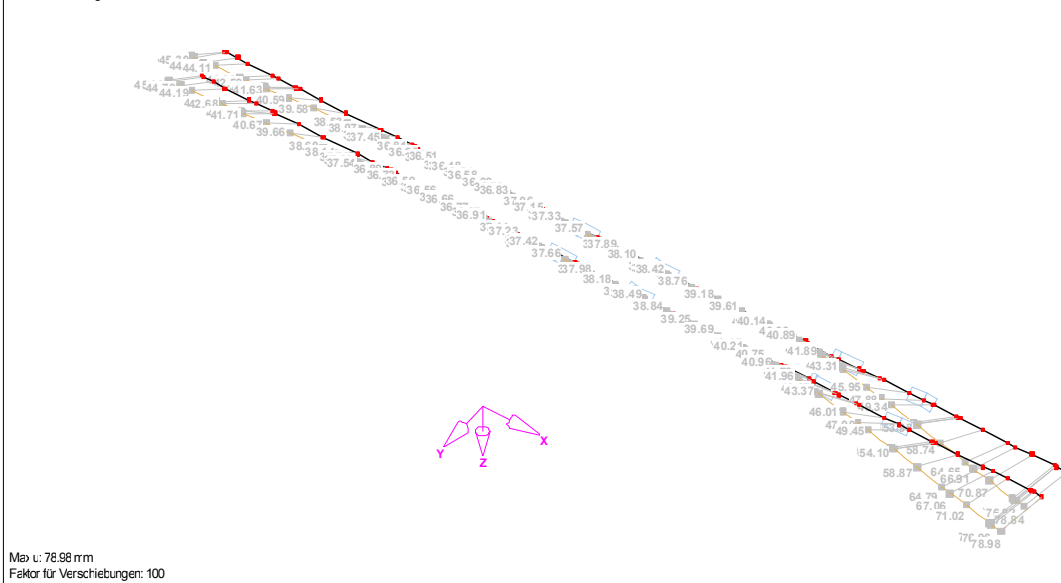
Isometrie



RESULTS

LK 9C - LT+Zutritt +Hublast pcs5+EGketze -netto
Max Verschiebungen

Isometrie





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Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

künz

Projekt: 123999

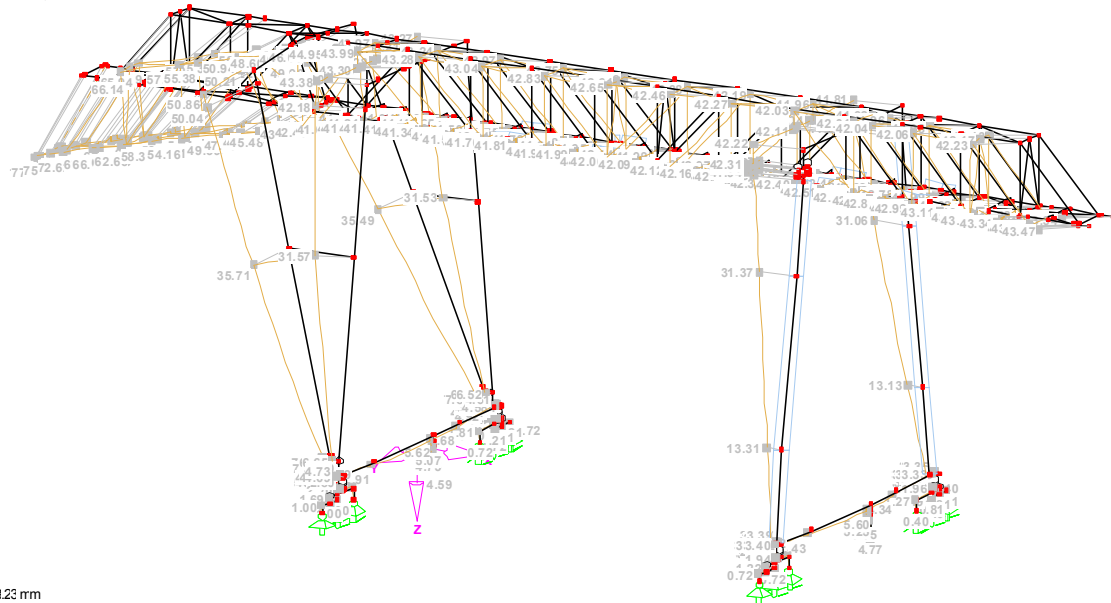
Static calculations-deformation

Seite: 783

RESULTS

LK 94 - LT+Zutritt +EGkelze-pos 1-netto
Max Verschiebungen

Isoretrie

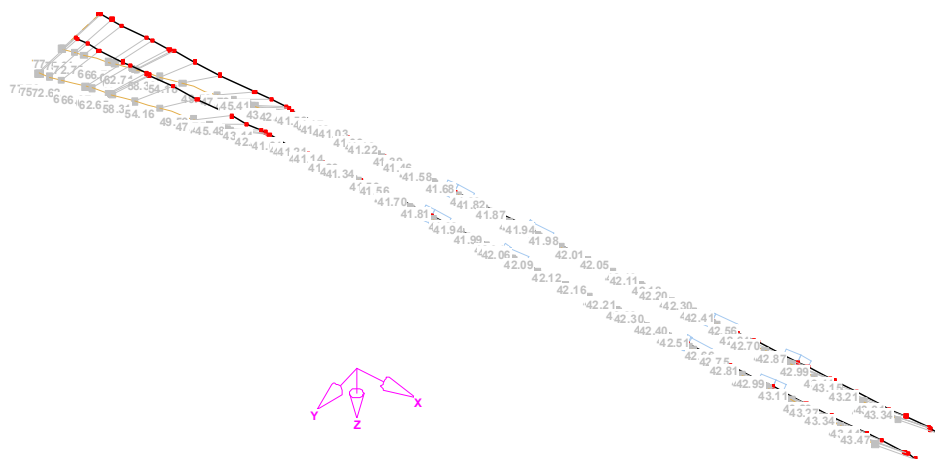


Max u: 78.23 mm
Faktor für Verschiebungen: 100

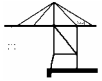
RESULTS

LK 94 - LT+Zutritt +EGkelze-pos 1-netto
Max Verschiebungen

Isoretrie



Max u: 78.23 mm
Faktor für Verschiebungen: 100



NOKRAN

Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations-deformation

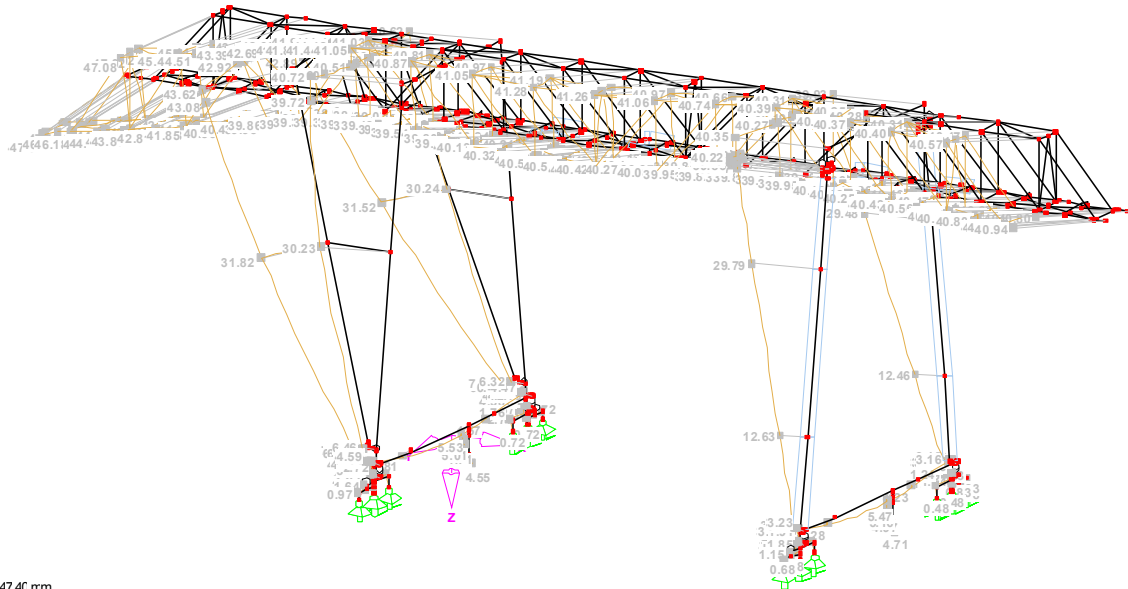
künz

Seite: 784

RESULTS

LK 95 - LT+Zutritt+EGelze-pcs 3-netto
Max Verschiebungen

Isocretie

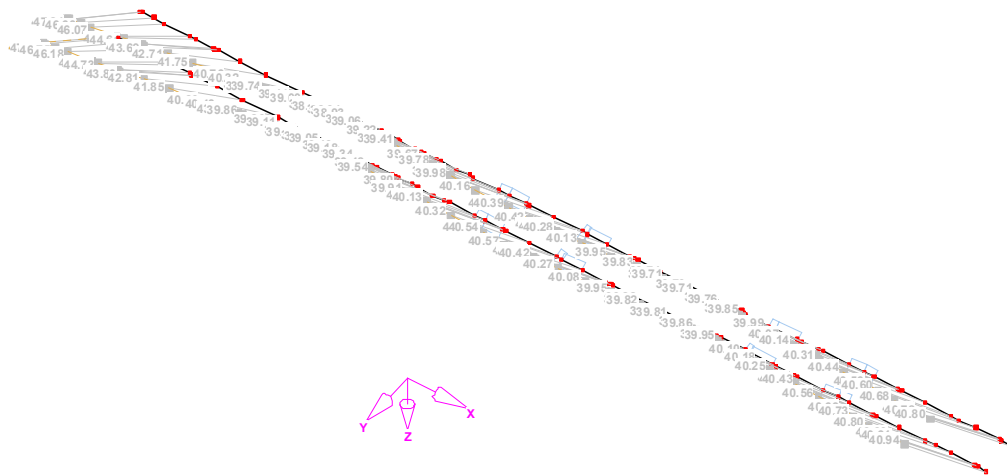


Max u: 47.40 mm
Faktor für Verschiebungen: 200

RESULTS

LK 95 - LT+Zutritt+EGelze-pcs 3-netto
Max Verschiebungen

Isocretie

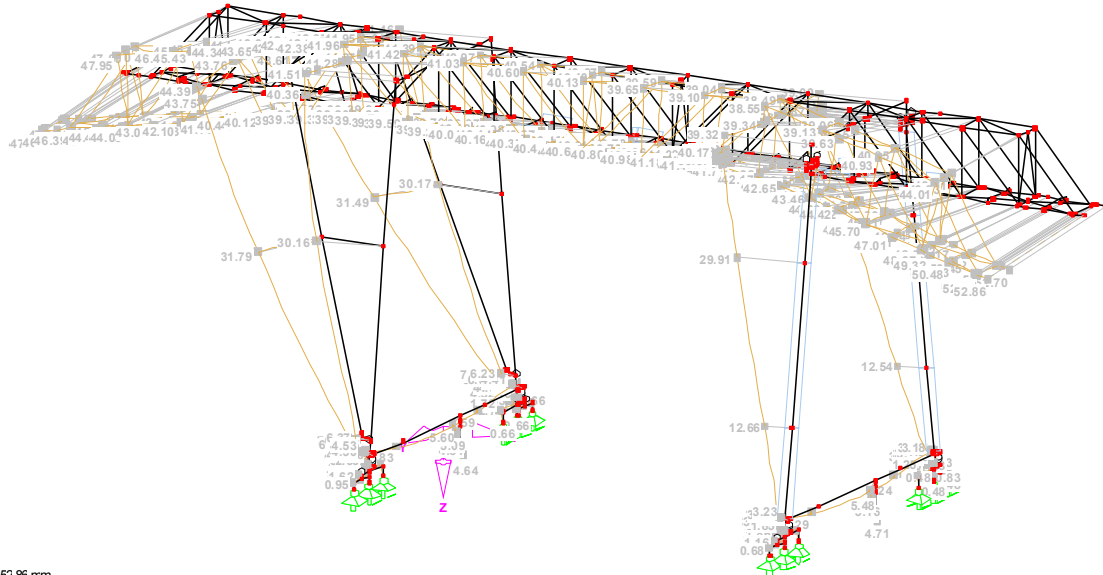


Max u: 47.40 mm
Faktor für Verschiebungen: 200

RESULTS

LK 96 - LT+Zultritt +EGkatze-pos 5-netto
Max Verschiebungen

Isometrie

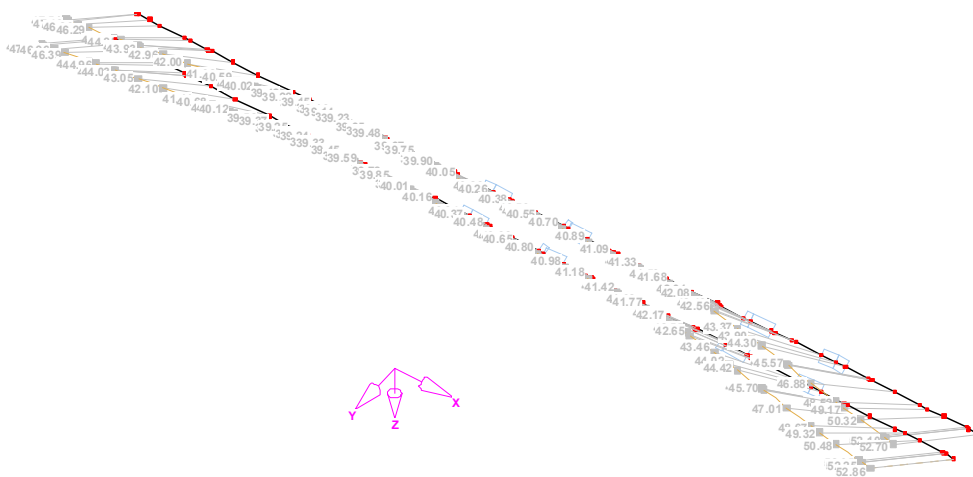


Max u: 52.86 mm
Faktor für Verschiebungen: 200

RESULTS

LK 96 - LT+Zultritt +EGkatze-pos 5-netto
Max Verschiebungen

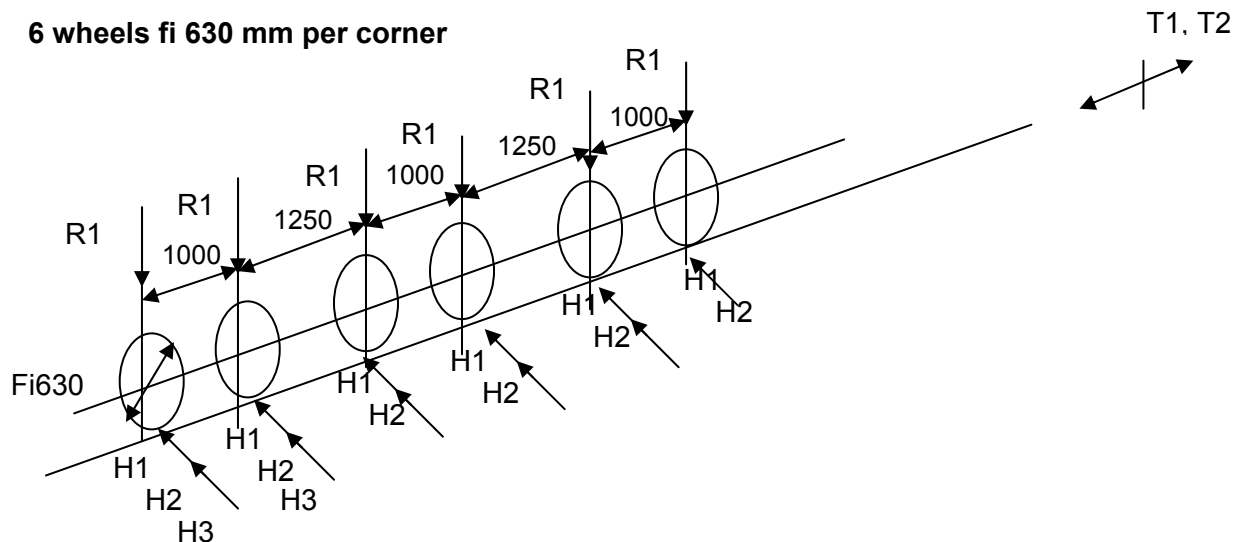
Isometrie



Max u: 52.86 mm
Faktor für Verschiebungen: 200

10. MAXIMUM WHEEL LOADS:

6 wheels fi 630 mm per corner



MAXIMUM VERTICALE WHEEL LOADS (R):

Without factoren (FS):

$$R_{\text{max statisch}} = 665 \text{ kN}$$

$$R1_{\text{max statisch}} = 665 / 2 = 332,5 \text{ kN / Rad}$$

$$R_{\text{max dynamisch}} = 749 \text{ kN}$$

$$R1_{\text{max dynamisch}} = 749 / 2 = 374,5 \text{ kN / Rad}$$

Without factoren (PS):

$$R_{\text{max statisch}} = 487 \text{ kN}$$

$$R1_{\text{max statisch}} = 487 / 2 = 243,5 \text{ kN / Rad}$$

$$R_{\text{max dynamisch}} = (562 + 520) / 2 = 541 \text{ kN}$$

$$R1_{\text{max dynamisch}} = 541 / 2 = 270,5 \text{ kN / Rad}$$

With factoren (FS):

$$R_{\text{max statisch}} = 856 \text{ kN}$$

$$R1_{\text{max statisch}} = 856 / 2 = 428 \text{ kN / Rad}$$

$$R_{\text{max dynamisch}} = 937 \text{ kN}$$

$$R1_{\text{max dynamisch}} = 937 / 2 = 468,5 \text{ kN / Rad}$$



With factoren (PS):

$R_{\text{max statisch}} = 636 \text{ kN}$

$R1_{\text{,max statisch}} = 636 / 2 = 318 \text{ kN / Rad}$

$R_{\text{max dynamisch}} = 712 \text{ kN}$

$R1_{\text{,max dynamisch}} = 712 / 2 = 356 \text{ kN / Rad}$

LOAD COMBINATIONS

CO No	CO Description	Combination Criteria
1	LT+Zutritt +Hublast pos1+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF28
2	LT+Zutritt +Hublast pos1+EGkatze+Kr-OF	LF1/S + LF2/S + LF4 + LF11 + LF18 + LF25 + LF28
3	LT+Zutritt +Hublast pos5+EGkatze+Kr-OF	LF1/S + LF2/S + LF8 + LF15 + LF22 + LF25 + LF28
5	LT+Zutritt +Hublast pos5+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF28
7	LT+Zutritt +Hublast pos1+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26
8	LT+Zutritt +Hublast pos1+EGkatze+Ka-OF	LF1/S + LF2/S + LF4 + LF11 + LF26
9	LT+Zutritt +Hublast pos5+EGkatze+Ka-OF	LF1/S + LF2/S + LF8 + LF15 + LF26
11	LT+Zutritt +Hublast pos5+EGkatze+Ka	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26
13	LT+Zutritt +Hublast pos1 -exzentrisch+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.20*LF11 + LF18 + LF25 + 1.564*LF74 + LF28
14	LT+Zutritt +Hublast pos1 -exzentrisch+EGkatze+Kr-OF	LF1/S + LF2/S + LF11 + LF18 + LF25 + LF74 + LF28
15	LT+Zutritt +Hublast pos5 -exzentrisch+EGkatze+Kr-OF	LF1/S + LF2/S + LF15 + LF22 + LF25 + LF78 + LF28
17	LT+Zutritt +Hublast pos5 -exzentrisch+EGkatze+Kr	1.20*LF1/S + 1.20*LF2/S + 1.20*LF15 + LF22 + LF25 + 1.564*LF78 + LF28
20	LT+Zutritt +Hublast pos1+EGkatze+Kr +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF31
21	LT+Zutritt +Hublast pos1+EGkatze+Kr +-Wx -OF	LF1/S + LF2/S + LF4 + LF11 + LF18 + LF25 + LF31
22	LT+Zutritt +Hublast pos5+EGkatze+Kr +-Wx -OF	LF1/S + LF2/S + LF8 + LF15 + LF22 + LF25 + LF31
24	LT+Zutritt +Hublast pos5+EGkatze+Kr +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF31
26	LT+Zutritt +Hublast pos1+EGkatze+Ka +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26 + LF30
27	LT+Zutritt +Hublast pos1+EGkatze+Ka +-Wx -OF	LF1/S + LF2/S + LF4 + LF11 + LF26 + LF30
28	LT+Zutritt +Hublast pos5+EGkatze+Ka +-Wx -OF	LF1/S + LF2/S + LF8 + LF15 + LF26 + LF30
30	LT+Zutritt +Hublast pos5+EGkatze+Ka +-Wx	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26 + LF30
33	LT+Zutritt +Hublast pos1+EGkatze+Kr +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF18 + LF25 + LF33
34	LT+Zutritt +Hublast pos1+EGkatze+Kr +-Wy -OF	LF1/S + LF2/S + LF4 + LF11 + LF18 + LF25 + LF33
35	LT+Zutritt +Hublast pos5+EGkatze+Kr +-Wy -OF	LF1/S + LF2/S + LF8 + LF15 + LF22 + LF25 + LF33
37	LT+Zutritt +Hublast pos5+EGkatze+Kr +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF22 + LF25 + LF33
39	LT+Zutritt +Hublast pos1+EGkatze+Ka +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF26 + LF33
40	LT+Zutritt +Hublast pos1+EGkatze+Ka +-Wy -OF	LF1/S + LF2/S + LF4 + LF11 + LF26 + LF33
41	LT+Zutritt +Hublast pos5+EGkatze+Ka +-Wy -OF	LF1/S + LF2/S + LF8 + LF15 + LF26 + LF33
43	LT+Zutritt +Hublast pos5+EGkatze+Ka +-Wy	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF26 + LF33
58	LT+Zutritt +Hublast pos1+EGkatze +-Wy +Ska	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11 + LF43 + LF33
59	LT+Zutritt +Hublast pos1+EGkatze +-Wy +Ska-OF	LF1/S + LF2/S + LF4 + LF11 + LF43 + LF33



LOAD COMBINATIONS

CO No	CO Description	Combination Criteria
60	LT+Zutritt +Hublast pos5+EGkatze +-Wy +Ska-OF	LF1/S + LF2/S + LF8 + LF15 + LF47 + LF33
62	LT+Zutritt +Hublast pos5+EGkatze +-Wy +Ska	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15 + LF47 + LF33
70	LT+Zutritt +Hublast pos1+EGkatze	1.20*LF1/S + 1.20*LF2/S + 1.564*LF4 + 1.20*LF11
72	LT+Zutritt +Hublast pos5+EGkatze	1.20*LF1/S + 1.20*LF2/S + 1.564*LF8 + 1.20*LF15
74	LT+Zutritt +Hublast pos1+EGkatze-OF	LF1/S + LF2/S + LF4 + LF11
75	LT+Zutritt +Hublast pos5+EGkatze-OF	LF1/S + LF2/S + LF8 + LF15
80	MAX Statische Reaktion ohne Faktoren (OF)	LK74 o LK75
81	MAX Statische Reaktion mit Faktoren (MF)	LK70 o LK72
82	MAX Dynamische Reaktion ohne Faktoren (OF)	LK2 o LK3 o LK8 o LK9 o LK14 o LK15 o LK21 o LK22 o LK27 o LK28 o LK34 o LK35 o LK40 o LK41 o LK59 o LK60
83	MAX Dynamische Reaktion mit Faktoren (MF)	LK1 o LK5 o LK7 o LK11 o LK13 o LK17 o LK20 o LK24 o LK26 o LK30 o LK33 o LK37 o LK39 o LK43 o LK58 o LK62
84	Wind im Betrieb	LF30 o LF31 o LF32 o LF33
85	Wind ausser Betrieb Wx	LF50
86	Wind ausser Betrieb Wy	LF51
88	MAX - Kranpuffer FS	LF60/S + LF61/S
89	MAX - Kranpuffer PS	LF60/S + LF65/S

MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
147	CO70	Max P-X	2.29	.00	840.18	.00	.00	.00
		Min P-X	.39	.00	467.18	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC4 LC11						
		LC in Min P-X: LC1 LC2						
		Max P-Z	2.29	.00	840.18	.00	.00	.00
		Min P-Z	.39	.00	467.18	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC4 LC11						
		LC in Min P-Z: LC1 LC2						
	CO72	Max P-X	.39	.00	467.18	.00	.00	.00
		Min P-X	.34	.00	356.81	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC8 LC15						
		Max P-Z	.39	.00	467.18	.00	.00	.00
		Min P-Z	.34	.00	356.81	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC8 LC15						
	CO74	Max P-X	1.66	.00	652.02	.00	.00	.00
		Min P-X	.32	.00	389.32	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC4 LC11						
		LC in Min P-X: LC1 LC2						
		Max P-Z	1.66	.00	652.02	.00	.00	.00
		Min P-Z	.32	.00	389.32	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC4 LC11						
		LC in Min P-Z: LC1 LC2						
	CO75	Max P-X	.32	.00	389.32	.00	.00	.00
		Min P-X	.29	.00	311.58	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC8 LC15						
		Max P-Z	.32	.00	389.32	.00	.00	.00
		Min P-Z	.29	.00	311.58	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC8 LC15						
	CO80	Max P-X	1.66	.00	652.02	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00

MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO	Support Forces [kN]			Support Moments [kNm]		
No	No	P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-X: CO74					
		LC in Min P-X:					
		Max P-Z	1.66	.00	652.02	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: CO74					
		LC in Min P-Z:					
	CO81	Max P-X	2.29	.00	840.18	.00	.00
		Min P-X	.00	.00	.00	.00	.00
		LC in Max P-X: CO70					
		LC in Min P-X:					
		Max P-Z	2.29	.00	840.18	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: CO70					
		LC in Min P-Z:					
	CO82	Max P-X	43.08	.00	618.03	.00	.00
		Min P-X	-29.06	.00	328.44	.00	.00
		LC in Max P-X: CO27					
		LC in Min P-X: CO22					
		Max P-Z	9.86	.00	749.22	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: CO59					
		LC in Min P-Z:					
	CO83	Max P-X	43.70	.00	806.19	.00	.00
		Min P-X	-29.01	.00	373.67	.00	.00
		LC in Max P-X: CO26					
		LC in Min P-X: CO24					
		Max P-Z	10.49	.00	937.38	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: CO58					
		LC in Min P-Z:					
	CO84	Max P-X	28.16	.00	-22.98	.00	.00
		Min P-X	-28.16	.00	22.98	.00	.00
		LC in Max P-X: LC30					
		LC in Min P-X: LC31					
		Max P-Z	1.53	.00	35.37	.00	.00
		Min P-Z	-1.53	.00	-35.37	.00	.00
		LC in Max P-Z: LC33					
		LC in Min P-Z: LC32					
	CO85	Max P-X	91.71	.00	-75.79	.00	.00
		Min P-X	.00	.00	.00	.00	.00
		LC in Max P-X: LC50					
		LC in Min P-X:					
		Max P-Z	.00	.00	.00	.00	.00
		Min P-Z	91.71	.00	-75.79	.00	.00
		LC in Max P-Z:					
		LC in Min P-Z: LC50					
	CO86	Max P-X	4.00	.00	103.30	.00	.00
		Min P-X	.00	.00	.00	.00	.00
		LC in Max P-X: LC51					
		LC in Min P-X:					
		Max P-Z	4.00	.00	103.30	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: LC51					
		LC in Min P-Z:					
	CO88	Max P-X	4.51	.00	72.75	.00	.00
		Min P-X	4.51	.00	72.75	.00	.00
		LC in Max P-X: LC60 LC61					
		LC in Min P-X: LC60 LC61					
		Max P-Z	4.51	.00	72.75	.00	.00
		Min P-Z	4.51	.00	72.75	.00	.00
		LC in Max P-Z: LC60 LC61					
		LC in Min P-Z: LC60 LC61					
	CO89	Max P-X	-31	.00	34.14	.00	.00
		Min P-X	-31	.00	34.14	.00	.00

MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-X: LC60 LC65						
		LC in Min P-X: LC60 LC65						
		Max P-Z	-31	.00	34.14	.00	.00	.00
		Min P-Z	-31	.00	34.14	.00	.00	.00
		LC in Max P-Z: LC60 LC65						
		LC in Min P-Z: LC60 LC65						
156	CO70	Max P-X	3.36	.00	840.17	.00	.00	.00
		Min P-X	.60	.00	467.17	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC4 LC11						
		LC in Min P-X: LC1 LC2						
		Max P-Z	3.36	.00	840.17	.00	.00	.00
		Min P-Z	.60	.00	467.17	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC4 LC11						
		LC in Min P-Z: LC1 LC2						
	CO72	Max P-X	.60	.00	467.17	.00	.00	.00
		Min P-X	.53	.00	356.81	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC8 LC15						
		Max P-Z	.60	.00	467.17	.00	.00	.00
		Min P-Z	.53	.00	356.81	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC8 LC15						
	CO74	Max P-X	2.44	.00	652.01	.00	.00	.00
		Min P-X	.50	.00	389.31	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC4 LC11						
		LC in Min P-X: LC1 LC2						
		Max P-Z	2.44	.00	652.01	.00	.00	.00
		Min P-Z	.50	.00	389.31	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC4 LC11						
		LC in Min P-Z: LC1 LC2						
	CO75	Max P-X	.50	.00	389.31	.00	.00	.00
		Min P-X	.45	.00	311.58	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC8 LC15						
		Max P-Z	.50	.00	389.31	.00	.00	.00
		Min P-Z	.45	.00	311.58	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC8 LC15						
	CO80	Max P-X	2.44	.00	652.01	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: CO74						
		LC in Min P-X:						
		Max P-Z	2.44	.00	652.01	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO74						
		LC in Min P-Z:						
	CO81	Max P-X	3.36	.00	840.17	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: CO70						
		LC in Min P-X:						
		Max P-Z	3.36	.00	840.17	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO70						
		LC in Min P-Z:						
	CO82	Max P-X	62.66	.00	618.02	.00	.00	.00
		Min P-X	-42.22	.00	328.44	.00	.00	.00
		LC in Max P-X: CO27						
		LC in Min P-X: CO22						
		Max P-Z	14.17	.00	749.20	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO59						
		LC in Min P-Z:						
	CO83	Max P-X	63.58	.00	806.18	.00	.00	.00
		Min P-X	-42.14	.00	373.66	.00	.00	.00



MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-X: CO26						
		LC in Min P-X: CO24						
		Max P-Z	15.09	.00	937.36	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO58						
		LC in Min P-Z:						
	CO84	Max P-X	40.97	.00	-22.98	.00	.00	.00
		Min P-X	-40.97	.00	22.98	.00	.00	.00
		LC in Max P-X: LC30						
		LC in Min P-X: LC31						
		Max P-Z	2.18	.00	35.37	.00	.00	.00
		Min P-Z	-2.18	.00	-35.37	.00	.00	.00
		LC in Max P-Z: LC33						
		LC in Min P-Z: LC32						
	CO85	Max P-X	133.41	.00	-75.79	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC50						
		LC in Min P-X:						
		Max P-Z	.00	.00	.00	.00	.00	.00
		Min P-Z	133.41	.00	-75.79	.00	.00	.00
		LC in Max P-Z:						
		LC in Min P-Z: LC50						
	CO86	Max P-X	5.70	.00	103.29	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC51						
		LC in Min P-X:						
		Max P-Z	5.70	.00	103.29	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: LC51						
		LC in Min P-Z:						
	CO88	Max P-X	6.45	.00	72.75	.00	.00	.00
		Min P-X	6.45	.00	72.75	.00	.00	.00
		LC in Max P-X: LC60 LC61						
		LC in Min P-X: LC60 LC61						
		Max P-Z	6.45	.00	72.75	.00	.00	.00
		Min P-Z	6.45	.00	72.75	.00	.00	.00
		LC in Max P-Z: LC60 LC61						
		LC in Min P-Z: LC60 LC61						
	CO89	Max P-X	-.44	.00	34.14	.00	.00	.00
		Min P-X	-.44	.00	34.14	.00	.00	.00
		LC in Max P-X: LC60 LC65						
		LC in Min P-X: LC60 LC65						
		Max P-Z	-.44	.00	34.14	.00	.00	.00
		Min P-Z	-.44	.00	34.14	.00	.00	.00
		LC in Max P-Z: LC60 LC65						
		LC in Min P-Z: LC60 LC65						
162	CO70	Max P-X	2.38	.00	840.18	.00	.00	.00
		Min P-X	.50	.00	467.18	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC4 LC11						
		LC in Min P-X: LC1 LC2						
		Max P-Z	2.38	.00	840.18	.00	.00	.00
		Min P-Z	.50	.00	467.18	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC4 LC11						
		LC in Min P-Z: LC1 LC2						
	CO72	Max P-X	.50	.00	467.18	.00	.00	.00
		Min P-X	.45	.00	356.81	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC8 LC15						
		Max P-Z	.50	.00	467.18	.00	.00	.00
		Min P-Z	.45	.00	356.81	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC8 LC15						
	CO74	Max P-X	1.74	.00	652.02	.00	.00	.00
		Min P-X	.42	.00	389.32	.00	.00	.00



MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO	Support Forces [kN]			Support Moments [kNm]		
No	No	P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-X: LC1 LC2 LC4 LC11					
		LC in Min P-X: LC1 LC2					
		Max P-Z	1.74	.00	652.02	.00	.00
		Min P-Z	.42	.00	389.32	.00	.00
		LC in Max P-Z: LC1 LC2 LC4 LC11					
		LC in Min P-Z: LC1 LC2					
	CO75	Max P-X	.42	.00	389.32	.00	.00
		Min P-X	.38	.00	311.58	.00	.00
		LC in Max P-X: LC1 LC2					
		LC in Min P-X: LC1 LC2 LC8 LC15					
		Max P-Z	.42	.00	389.32	.00	.00
		Min P-Z	.38	.00	311.58	.00	.00
		LC in Max P-Z: LC1 LC2					
		LC in Min P-Z: LC1 LC2 LC8 LC15					
	CO80	Max P-X	1.74	.00	652.02	.00	.00
		Min P-X	.00	.00	.00	.00	.00
		LC in Max P-X: CO74					
		LC in Min P-X:					
		Max P-Z	1.74	.00	652.02	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: CO74					
		LC in Min P-Z:					
	CO81	Max P-X	2.38	.00	840.18	.00	.00
		Min P-X	.00	.00	.00	.00	.00
		LC in Max P-X: CO70					
		LC in Min P-X:					
		Max P-Z	2.38	.00	840.18	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: CO70					
		LC in Min P-Z:					
	CO82	Max P-X	43.08	.00	618.03	.00	.00
		Min P-X	-28.91	.00	328.44	.00	.00
		LC in Max P-X: CO27					
		LC in Min P-X: CO22					
		Max P-Z	9.33	.00	749.21	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: CO59					
		LC in Min P-Z:					
	CO83	Max P-X	43.72	.00	806.19	.00	.00
		Min P-X	-28.84	.00	373.67	.00	.00
		LC in Max P-X: CO26					
		LC in Min P-X: CO24					
		Max P-Z	9.97	.00	937.37	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: CO58					
		LC in Min P-Z:					
	CO84	Max P-X	28.18	.00	-22.98	.00	.00
		Min P-X	-28.18	.00	22.98	.00	.00
		LC in Max P-X: LC30					
		LC in Min P-X: LC31					
		Max P-Z	1.39	.00	35.37	.00	.00
		Min P-Z	-1.39	.00	-35.37	.00	.00
		LC in Max P-Z: LC33					
		LC in Min P-Z: LC32					
	CO85	Max P-X	91.74	.00	-75.79	.00	.00
		Min P-X	.00	.00	.00	.00	.00
		LC in Max P-X: LC50					
		LC in Min P-X:					
		Max P-Z	.00	.00	.00	.00	.00
		Min P-Z	91.74	.00	-75.79	.00	.00
		LC in Max P-Z:					
		LC in Min P-Z: LC50					
	CO86	Max P-X	3.64	.00	103.30	.00	.00
		Min P-X	.00	.00	.00	.00	.00



MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-X: LC51						
		LC in Min P-X:						
		Max P-Z	3.64	.00	103.30	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: LC51						
		LC in Min P-Z:						
	CO88	Max P-X	4.18	.00	72.81	.00	.00	.00
		Min P-X	4.18	.00	72.81	.00	.00	.00
		LC in Max P-X: LC60 LC61						
		LC in Min P-X: LC60 LC61						
		Max P-Z	4.18	.00	72.81	.00	.00	.00
		Min P-Z	4.18	.00	72.81	.00	.00	.00
		LC in Max P-Z: LC60 LC61						
		LC in Min P-Z: LC60 LC61						
	CO89	Max P-X	-29	.00	34.19	.00	.00	.00
		Min P-X	-29	.00	34.19	.00	.00	.00
		LC in Max P-X: LC60 LC65						
		LC in Min P-X: LC60 LC65						
		Max P-Z	-29	.00	34.19	.00	.00	.00
		Min P-Z	-29	.00	34.19	.00	.00	.00
		LC in Max P-Z: LC60 LC65						
		LC in Min P-Z: LC60 LC65						
191	CO70	Max P-X	-35	.00	480.62	.00	.00	.00
		Min P-X	-2.26	.00	854.67	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC4 LC11						
		Max P-Z	-2.26	.00	854.67	.00	.00	.00
		Min P-Z	-35	.00	480.62	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC4 LC11						
		LC in Min P-Z: LC1 LC2						
	CO72	Max P-X	-31	.00	370.11	.00	.00	.00
		Min P-X	-35	.00	480.62	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC8 LC15						
		LC in Min P-X: LC1 LC2						
		Max P-Z	-35	.00	480.62	.00	.00	.00
		Min P-Z	-31	.00	370.11	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC8 LC15						
	CO74	Max P-X	-29	.00	400.51	.00	.00	.00
		Min P-X	-1.64	.00	663.96	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC4 LC11						
		Max P-Z	-1.64	.00	663.96	.00	.00	.00
		Min P-Z	-29	.00	400.51	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC4 LC11						
		LC in Min P-Z: LC1 LC2						
	CO75	Max P-X	-26	.00	322.68	.00	.00	.00
		Min P-X	-29	.00	400.51	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC8 LC15						
		LC in Min P-X: LC1 LC2						
		Max P-Z	-29	.00	400.51	.00	.00	.00
		Min P-Z	-26	.00	322.68	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC8 LC15						
	CO80	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-1.64	.00	663.96	.00	.00	.00
		LC in Max P-X:						
		LC in Min P-X: CO74						
		Max P-Z	-1.64	.00	663.96	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO74						
		LC in Min P-Z:						
	CO81	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-2.26	.00	854.67	.00	.00	.00

MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-X:						
		LC in Min P-X: CO70						
		Max P-Z	-2.26	.00	854.67	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO70						
		LC in Min P-Z:						
	CO82	Max P-X	44.09	.00	289.53	.00	.00	.00
		Min P-X	-36.07	.00	690.57	.00	.00	.00
		LC in Max P-X: CO28						
		LC in Min P-X: CO21						
		Max P-Z	-36.07	.00	690.57	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO21						
		LC in Min P-Z:						
	CO83	Max P-X	44.05	.00	336.95	.00	.00	.00
		Min P-X	-36.69	.00	881.28	.00	.00	.00
		LC in Max P-X: CO30						
		LC in Min P-X: CO20						
		Max P-Z	-36.69	.00	881.28	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO20						
		LC in Min P-Z:						
	CO84	Max P-X	31.07	.00	-22.12	.00	.00	.00
		Min P-X	-31.07	.00	22.12	.00	.00	.00
		LC in Max P-X: LC30						
		LC in Min P-X: LC31						
		Max P-Z	-31.07	.00	22.12	.00	.00	.00
		Min P-Z	31.07	.00	-22.12	.00	.00	.00
		LC in Max P-Z: LC31						
		LC in Min P-Z: LC30						
	CO85	Max P-X	100.39	.00	-73.09	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC50						
		LC in Min P-X:						
		Max P-Z	.00	.00	.00	.00	.00	.00
		Min P-Z	100.39	.00	-73.09	.00	.00	.00
		LC in Max P-Z:						
		LC in Min P-Z: LC50						
	CO86	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-3.65	.00	31.75	.00	.00	.00
		LC in Max P-X:						
		LC in Min P-X: LC51						
		Max P-Z	-3.65	.00	31.75	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: LC51						
		LC in Min P-Z:						
	CO88	Max P-X	-4.18	.00	11.73	.00	.00	.00
		Min P-X	-4.18	.00	11.73	.00	.00	.00
		LC in Max P-X: LC60 LC61						
		LC in Min P-X: LC60 LC61						
		Max P-Z	-4.18	.00	11.73	.00	.00	.00
		Min P-Z	-4.18	.00	11.73	.00	.00	.00
		LC in Max P-Z: LC60 LC61						
		LC in Min P-Z: LC60 LC61						
	CO89	Max P-X	.29	.00	9.59	.00	.00	.00
		Min P-X	.29	.00	9.59	.00	.00	.00
		LC in Max P-X: LC60 LC65						
		LC in Min P-X: LC60 LC65						
		Max P-Z	.29	.00	9.59	.00	.00	.00
		Min P-Z	.29	.00	9.59	.00	.00	.00
		LC in Max P-Z: LC60 LC65						
		LC in Min P-Z: LC60 LC65						
201	CO70	Max P-X	-.65	.00	481.00	.00	.00	.00
		Min P-X	-3.40	.00	856.63	.00	.00	.00

MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC4 LC11						
		Max P-Z	-3.40	.00	856.63	.00	.00	.00
		Min P-Z	-65	.00	481.00	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC4 LC11						
		LC in Min P-Z: LC1 LC2						
	CO72	Max P-X	-58	.00	370.44	.00	.00	.00
		Min P-X	-65	.00	481.00	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC8 LC15						
		LC in Min P-X: LC1 LC2						
		Max P-Z	-65	.00	481.00	.00	.00	.00
		Min P-Z	-58	.00	370.44	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC8 LC15						
	CO74	Max P-X	-55	.00	400.83	.00	.00	.00
		Min P-X	-2.48	.00	665.39	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC4 LC11						
		Max P-Z	-2.48	.00	665.39	.00	.00	.00
		Min P-Z	-55	.00	400.83	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC4 LC11						
		LC in Min P-Z: LC1 LC2						
	CO75	Max P-X	-50	.00	322.97	.00	.00	.00
		Min P-X	-55	.00	400.83	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC8 LC15						
		LC in Min P-X: LC1 LC2						
		Max P-Z	-55	.00	400.83	.00	.00	.00
		Min P-Z	-50	.00	322.97	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC8 LC15						
	CO80	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-2.48	.00	665.39	.00	.00	.00
		LC in Max P-X:						
		LC in Min P-X: CO74						
		Max P-Z	-2.48	.00	665.39	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO74						
		LC in Min P-Z:						
	CO81	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-3.40	.00	856.63	.00	.00	.00
		LC in Max P-X:						
		LC in Min P-X: CO70						
		Max P-Z	-3.40	.00	856.63	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO70						
		LC in Min P-Z:						
	CO82	Max P-X	64.19	.00	290.57	.00	.00	.00
		Min P-X	-52.90	.00	628.65	.00	.00	.00
		LC in Max P-X: CO28						
		LC in Min P-X: CO21						
		Max P-Z	-47.73	.00	686.70	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO21						
		LC in Min P-Z:						
	CO83	Max P-X	64.10	.00	338.04	.00	.00	.00
		Min P-X	-53.82	.00	819.89	.00	.00	.00
		LC in Max P-X: CO30						
		LC in Min P-X: CO20						
		Max P-Z	-48.65	.00	877.94	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO20						
		LC in Min P-Z:						
	CO84	Max P-X	45.25	.00	-21.31	.00	.00	.00
		Min P-X	-45.25	.00	21.31	.00	.00	.00



MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-X: LC30						
		LC in Min P-X: LC31						
		Max P-Z	2.18	.00	33.58	.00	.00	.00
		Min P-Z	-2.18	.00	-33.58	.00	.00	.00
		LC in Max P-Z: LC32						
		LC in Min P-Z: LC33						
	CO85	Max P-X	146.21	.00	-70.55	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC50						
		LC in Min P-X:						
		Max P-Z	.00	.00	.00	.00	.00	.00
		Min P-Z	146.21	.00	-70.55	.00	.00	.00
		LC in Max P-Z:						
		LC in Min P-Z: LC50						
	CO86	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-5.70	.00	-97.95	.00	.00	.00
		LC in Max P-X:						
		LC in Min P-X: LC51						
		Max P-Z	.00	.00	.00	.00	.00	.00
		Min P-Z	-5.70	.00	-97.95	.00	.00	.00
		LC in Max P-Z:						
		LC in Min P-Z: LC51						
	CO88	Max P-X	-6.45	.00	-69.41	.00	.00	.00
		Min P-X	-6.45	.00	-69.41	.00	.00	.00
		LC in Max P-X: LC60 LC61						
		LC in Min P-X: LC60 LC61						
		Max P-Z	-6.45	.00	-69.41	.00	.00	.00
		Min P-Z	-6.45	.00	-69.41	.00	.00	.00
		LC in Max P-Z: LC60 LC61						
		LC in Min P-Z: LC60 LC61						
	CO89	Max P-X	.44	.00	-32.40	.00	.00	.00
		Min P-X	.44	.00	-32.40	.00	.00	.00
		LC in Max P-X: LC60 LC65						
		LC in Min P-X: LC60 LC65						
		Max P-Z	.44	.00	-32.40	.00	.00	.00
		Min P-Z	.44	.00	-32.40	.00	.00	.00
		LC in Max P-Z: LC60 LC65						
		LC in Min P-Z: LC60 LC65						
205	CO70	Max P-X	-48	.97	481.43	.00	.00	.00
		Min P-X	-2.36	4.97	858.84	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC4 LC11						
		Max P-Y	-2.36	4.97	858.84	.00	.00	.00
		Min P-Y	-48	.97	481.43	.00	.00	.00
		LC in Max P-Y: LC1 LC2 LC4 LC11						
		LC in Min P-Y: LC1 LC2						
		Max P-Z	-2.36	4.97	858.84	.00	.00	.00
		Min P-Z	-48	.97	481.43	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC4 LC11						
		LC in Min P-Z: LC1 LC2						
	CO72	Max P-X	-43	.84	370.81	.00	.00	.00
		Min P-X	-48	.97	481.43	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC8 LC15						
		LC in Min P-X: LC1 LC2						
		Max P-Y	-48	.97	481.43	.00	.00	.00
		Min P-Y	-43	.84	370.81	.00	.00	.00
		LC in Max P-Y: LC1 LC2						
		LC in Min P-Y: LC1 LC2 LC8 LC15						
		Max P-Z	-48	.97	481.43	.00	.00	.00
		Min P-Z	-43	.84	370.81	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC8 LC15						
	CO74	Max P-X	-40	.81	401.19	.00	.00	.00
		Min P-X	-1.73	3.63	667.01	.00	.00	.00

MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO	Support Forces [kN]			Support Moments [kNm]		
No	No	P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-X: LC1 LC2					
		LC in Min P-X: LC1 LC2 LC4 LC11					
		Max P-Y	-1.73	3.63	667.01	.00	.00
		Min P-Y	-.40	.81	401.19	.00	.00
		LC in Max P-Y: LC1 LC2 LC4 LC11					
		LC in Min P-Y: LC1 LC2					
		Max P-Z	-1.73	3.63	667.01	.00	.00
		Min P-Z	-.40	.81	401.19	.00	.00
		LC in Max P-Z: LC1 LC2 LC4 LC11					
		LC in Min P-Z: LC1 LC2					
	CO75	Max P-X	-.36	.72	323.28	.00	.00
		Min P-X	-.40	.81	401.19	.00	.00
		LC in Max P-X: LC1 LC2 LC8 LC15					
		LC in Min P-X: LC1 LC2					
		Max P-Y	-.40	.81	401.19	.00	.00
		Min P-Y	-.36	.72	323.28	.00	.00
		LC in Max P-Y: LC1 LC2					
		LC in Min P-Y: LC1 LC2 LC8 LC15					
		Max P-Z	-.40	.81	401.19	.00	.00
		Min P-Z	-.36	.72	323.28	.00	.00
		LC in Max P-Z: LC1 LC2					
		LC in Min P-Z: LC1 LC2 LC8 LC15					
	CO80	Max P-X	.00	.00	.00	.00	.00
		Min P-X	-1.73	3.63	667.01	.00	.00
		LC in Max P-X:					
		LC in Min P-X: CO74					
		Max P-Y	-1.73	3.63	667.01	.00	.00
		Min P-Y	.00	.00	.00	.00	.00
		LC in Max P-Y: CO74					
		LC in Min P-Y:					
		Max P-Z	-1.73	3.63	667.01	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: CO74					
		LC in Min P-Z:					
	CO81	Max P-X	.00	.00	.00	.00	.00
		Min P-X	-2.36	4.97	858.84	.00	.00
		LC in Max P-X:					
		LC in Min P-X: CO70					
		Max P-Y	-2.36	4.97	858.84	.00	.00
		Min P-Y	.00	.00	.00	.00	.00
		LC in Max P-Y: CO70					
		LC in Min P-Y:					
		Max P-Z	-2.36	4.97	858.84	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: CO70					
		LC in Min P-Z:					
	CO82	Max P-X	44.14	2.63	291.74	.00	.00
		Min P-X	-36.46	-156.60	559.05	.00	.00
		LC in Max P-X: CO28					
		LC in Min P-X: CO21					
		Max P-Y	3.18	47.56	440.79	.00	.00
		Min P-Y	-8.60	-270.58	187.81	.00	.00
		LC in Max P-Y: CO60					
		LC in Min P-Y: CO59					
		Max P-Z	-32.84	1.58	687.40	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: CO21					
		LC in Min P-Z:					
	CO83	Max P-X	44.07	2.75	339.26	.00	.00
		Min P-X	-37.09	-155.25	750.89	.00	.00
		LC in Max P-X: CO30					
		LC in Min P-X: CO20					
		Max P-Y	3.10	47.72	521.03	.00	.00
		Min P-Y	-8.68	-270.42	268.05	.00	.00



MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO	Support Forces [kN]			Support Moments [kNm]		
No	No	P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-Y: CO62					
		LC in Min P-Y: CO58					
		Max P-Z	-33.48	2.92	879.24	.00	.00
		Min P-Z	.00	.00	.00	.00	.00
		LC in Max P-Z: CO20					
		LC in Min P-Z:					
	CO84	Max P-X	31.12	2.05	-20.40	.00	.00
		Min P-X	-31.12	-2.05	20.40	.00	.00
		LC in Max P-X: LC30					
		LC in Min P-X: LC31					
		Max P-Y	1.52	109.77	82.36	.00	.00
		Min P-Y	-1.52	-109.77	-82.36	.00	.00
		LC in Max P-Y: LC32					
		LC in Min P-Y: LC33					
		Max P-Z	1.52	109.77	82.36	.00	.00
		Min P-Z	-1.52	-109.77	-82.36	.00	.00
		LC in Max P-Z: LC32					
		LC in Min P-Z: LC33					
	CO85	Max P-X	100.55	6.43	-67.69	.00	.00
		Min P-X	.00	.00	.00	.00	.00
		LC in Max P-X: LC50					
		LC in Min P-X:					
		Max P-Y	100.55	6.43	-67.69	.00	.00
		Min P-Y	.00	.00	.00	.00	.00
		LC in Max P-Y: LC50					
		LC in Min P-Y:					
		Max P-Z	.00	.00	.00	.00	.00
		Min P-Z	100.55	6.43	-67.69	.00	.00
		LC in Max P-Z:					
		LC in Min P-Z: LC50					
	CO86	Max P-X	.00	.00	.00	.00	.00
		Min P-X	-4.00	-327.89	-243.68	.00	.00
		LC in Max P-X:					
		LC in Min P-X: LC51					
		Max P-Y	.00	.00	.00	.00	.00
		Min P-Y	-4.00	-327.89	-243.68	.00	.00
		LC in Max P-Y:					
		LC in Min P-Y: LC51					
		Max P-Z	.00	.00	.00	.00	.00
		Min P-Z	-4.00	-327.89	-243.68	.00	.00
		LC in Max P-Z:					
		LC in Min P-Z: LC51					
	CO88	Max P-X	-4.51	-205.28	-160.65	.00	.00
		Min P-X	-4.51	-205.28	-160.65	.00	.00
		LC in Max P-X: LC60 LC61					
		LC in Min P-X: LC60 LC61					
		Max P-Y	-4.51	-205.28	-160.65	.00	.00
		Min P-Y	-4.51	-205.28	-160.65	.00	.00
		LC in Max P-Y: LC60 LC61					
		LC in Min P-Y: LC60 LC61					
		Max P-Z	-4.51	-205.28	-160.65	.00	.00
		Min P-Z	-4.51	-205.28	-160.65	.00	.00
		LC in Max P-Z: LC60 LC61					
		LC in Min P-Z: LC60 LC61					
	CO89	Max P-X	.31	-106.31	-79.65	.00	.00
		Min P-X	.31	-106.31	-79.65	.00	.00
		LC in Max P-X: LC60 LC65					
		LC in Min P-X: LC60 LC65					
		Max P-Y	.31	-106.31	-79.65	.00	.00
		Min P-Y	.31	-106.31	-79.65	.00	.00
		LC in Max P-Y: LC60 LC65					
		LC in Min P-Y: LC60 LC65					
		Max P-Z	.31	-106.31	-79.65	.00	.00
		Min P-Z	.31	-106.31	-79.65	.00	.00



MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-Z: LC60 LC65						
		LC in Min P-Z: LC60 LC65						
386	CO70	Max P-X	.03	.00	298.99	.00	.00	.00
		Min P-X	-.01	.00	153.06	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC4 LC11						
		Max P-Z	.03	.00	298.99	.00	.00	.00
		Min P-Z	-.01	.00	153.06	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC4 LC11						
	CO72	Max P-X	.03	.00	298.99	.00	.00	.00
		Min P-X	.01	.00	636.42	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC8 LC15						
		Max P-Z	.01	.00	636.42	.00	.00	.00
		Min P-Z	.03	.00	298.99	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC8 LC15						
		LC in Min P-Z: LC1 LC2						
	CO74	Max P-X	.02	.00	249.16	.00	.00	.00
		Min P-X	.00	.00	146.38	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC4 LC11						
		Max P-Z	.02	.00	249.16	.00	.00	.00
		Min P-Z	.00	.00	146.38	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC4 LC11						
	CO75	Max P-X	.02	.00	249.16	.00	.00	.00
		Min P-X	.01	.00	486.81	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC8 LC15						
		Max P-Z	.01	.00	486.81	.00	.00	.00
		Min P-Z	.02	.00	249.16	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC8 LC15						
		LC in Min P-Z: LC1 LC2						
	CO80	Max P-X	.02	.00	249.16	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: CO74						
		LC in Min P-X:						
		Max P-Z	.01	.00	486.81	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO75						
		LC in Min P-Z:						
	CO81	Max P-X	.03	.00	298.99	.00	.00	.00
		Min P-X	-.01	.00	153.06	.00	.00	.00
		LC in Max P-X: CO70						
		LC in Min P-X: CO70						
		Max P-Z	.01	.00	636.42	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO72						
		LC in Min P-Z:						
	CO82	Max P-X	3.90	.00	283.15	.00	.00	.00
		Min P-X	-4.25	.00	483.42	.00	.00	.00
		LC in Max P-X: CO27						
		LC in Min P-X: CO22						
		Max P-Z	-.99	.00	562.54	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO60						
		LC in Min P-Z:						
	CO83	Max P-X	3.91	.00	332.98	.00	.00	.00
		Min P-X	-4.25	.00	633.03	.00	.00	.00
		LC in Max P-X: CO26						
		LC in Min P-X: CO24						
		Max P-Z	-.99	.00	712.15	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00

MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-Z: CO62						
		LC in Min P-Z:						
	CO84	Max P-X	3.88	.00	22.98	.00	.00	.00
		Min P-X	-3.88	.00	-22.98	.00	.00	.00
		LC in Max P-X: LC30						
		LC in Min P-X: LC31						
		Max P-Z	3.88	.00	22.98	.00	.00	.00
		Min P-Z	-3.88	.00	-22.98	.00	.00	.00
		LC in Max P-Z: LC30						
		LC in Min P-Z: LC31						
	CO85	Max P-X	12.43	.00	75.81	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC50						
		LC in Min P-X:						
		Max P-Z	12.43	.00	75.81	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: LC50						
		LC in Min P-Z:						
	CO86	Max P-X	.38	.00	57.38	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC51						
		LC in Min P-X:						
		Max P-Z	.38	.00	57.38	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: LC51						
		LC in Min P-Z:						
	CO88	Max P-X	.49	.00	18.32	.00	.00	.00
		Min P-X	.49	.00	18.32	.00	.00	.00
		LC in Max P-X: LC60 LC61						
		LC in Min P-X: LC60 LC61						
		Max P-Z	.49	.00	18.32	.00	.00	.00
		Min P-Z	.49	.00	18.32	.00	.00	.00
		LC in Max P-Z: LC60 LC61						
		LC in Min P-Z: LC60 LC61						
	CO89	Max P-X	-.44	.00	57.17	.00	.00	.00
		Min P-X	-.44	.00	57.17	.00	.00	.00
		LC in Max P-X: LC60 LC65						
		LC in Min P-X: LC60 LC65						
		Max P-Z	-.44	.00	57.17	.00	.00	.00
		Min P-Z	-.44	.00	57.17	.00	.00	.00
		LC in Max P-Z: LC60 LC65						
		LC in Min P-Z: LC60 LC65						
395	CO70	Max P-X	.03	.00	298.99	.00	.00	.00
		Min P-X	-.01	.00	153.06	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC4 LC11						
		Max P-Z	.03	.00	298.99	.00	.00	.00
		Min P-Z	-.01	.00	153.06	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC4 LC11						
	CO72	Max P-X	.03	.00	298.99	.00	.00	.00
		Min P-X	.01	.00	636.42	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC8 LC15						
		Max P-Z	.01	.00	636.42	.00	.00	.00
		Min P-Z	.03	.00	298.99	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC8 LC15						
		LC in Min P-Z: LC1 LC2						
	CO74	Max P-X	.03	.00	249.16	.00	.00	.00
		Min P-X	.00	.00	146.38	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC4 LC11						
		Max P-Z	.03	.00	249.16	.00	.00	.00
		Min P-Z	.00	.00	146.38	.00	.00	.00

MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC4 LC11						
	CO75	Max P-X	.03	.00	249.16	.00	.00	.00
		Min P-X	.01	.00	486.81	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC8 LC15						
		Max P-Z	.01	.00	486.81	.00	.00	.00
		Min P-Z	.03	.00	249.16	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC8 LC15						
		LC in Min P-Z: LC1 LC2						
	CO80	Max P-X	.03	.00	249.16	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: CO74						
		LC in Min P-X:						
		Max P-Z	.01	.00	486.81	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO75						
		LC in Min P-Z:						
	CO81	Max P-X	.03	.00	298.99	.00	.00	.00
		Min P-X	-.01	.00	153.06	.00	.00	.00
		LC in Max P-X: CO70						
		LC in Min P-X: CO70						
		Max P-Z	.01	.00	636.42	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO72						
		LC in Min P-Z:						
	CO82	Max P-X	5.75	.00	283.15	.00	.00	.00
		Min P-X	-6.21	.00	483.42	.00	.00	.00
		LC in Max P-X: CO27						
		LC in Min P-X: CO22						
		Max P-Z	-1.35	.00	562.54	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO60						
		LC in Min P-Z:						
	CO83	Max P-X	5.75	.00	332.98	.00	.00	.00
		Min P-X	-6.21	.00	633.03	.00	.00	.00
		LC in Max P-X: CO26						
		LC in Min P-X: CO24						
		Max P-Z	-1.35	.00	712.15	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO62						
		LC in Min P-Z:						
	CO84	Max P-X	5.72	.00	22.98	.00	.00	.00
		Min P-X	-5.72	.00	-22.98	.00	.00	.00
		LC in Max P-X: LC30						
		LC in Min P-X: LC31						
		Max P-Z	5.72	.00	22.98	.00	.00	.00
		Min P-Z	-5.72	.00	-22.98	.00	.00	.00
		LC in Max P-Z: LC30						
		LC in Min P-Z: LC31						
	CO85	Max P-X	18.30	.00	75.81	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC50						
		LC in Min P-X:						
		Max P-Z	18.30	.00	75.81	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: LC50						
		LC in Min P-Z:						
	CO86	Max P-X	.52	.00	57.38	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC51						
		LC in Min P-X:						
		Max P-Z	.52	.00	57.38	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00



MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-Z: LC51						
		LC in Min P-Z:						
	CO88	Max P-X	.66	.00	18.32	.00	.00	.00
		Min P-X	.66	.00	18.32	.00	.00	.00
		LC in Max P-X: LC60 LC61						
		LC in Min P-X: LC60 LC61						
		Max P-Z	.66	.00	18.32	.00	.00	.00
		Min P-Z	.66	.00	18.32	.00	.00	.00
		LC in Max P-Z: LC60 LC61						
		LC in Min P-Z: LC60 LC61						
	CO89	Max P-X	-.59	.00	57.17	.00	.00	.00
		Min P-X	-.59	.00	57.17	.00	.00	.00
		LC in Max P-X: LC60 LC65						
		LC in Min P-X: LC60 LC65						
		Max P-Z	-.59	.00	57.17	.00	.00	.00
		Min P-Z	-.59	.00	57.17	.00	.00	.00
		LC in Max P-Z: LC60 LC65						
		LC in Min P-Z: LC60 LC65						
400	CO70	Max P-X	.02	.00	298.99	.00	.00	.00
		Min P-X	.00	.00	153.06	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC4 LC11						
		Max P-Z	.02	.00	298.99	.00	.00	.00
		Min P-Z	.00	.00	153.06	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC4 LC11						
	CO72	Max P-X	.02	.00	298.99	.00	.00	.00
		Min P-X	.01	.00	636.42	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC8 LC15						
		Max P-Z	.01	.00	636.42	.00	.00	.00
		Min P-Z	.02	.00	298.99	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC8 LC15						
		LC in Min P-Z: LC1 LC2						
	CO74	Max P-X	.01	.00	249.16	.00	.00	.00
		Min P-X	.00	.00	146.38	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC4 LC11						
		Max P-Z	.01	.00	249.16	.00	.00	.00
		Min P-Z	.00	.00	146.38	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC4 LC11						
	CO75	Max P-X	.01	.00	249.16	.00	.00	.00
		Min P-X	.01	.00	486.81	.00	.00	.00
		LC in Max P-X: LC1 LC2						
		LC in Min P-X: LC1 LC2 LC8 LC15						
		Max P-Z	.01	.00	486.81	.00	.00	.00
		Min P-Z	.01	.00	249.16	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC8 LC15						
		LC in Min P-Z: LC1 LC2						
	CO80	Max P-X	.01	.00	249.16	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: CO74						
		LC in Min P-X:						
		Max P-Z	.01	.00	486.81	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO75						
		LC in Min P-Z:						
	CO81	Max P-X	.02	.00	298.99	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: CO70						
		LC in Min P-X:						
		Max P-Z	.01	.00	636.42	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00

MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-Z: CO72						
		LC in Min P-Z:						
	CO82	Max P-X	4.11	.00	283.15	.00	.00	.00
		Min P-X	-4.35	.00	483.42	.00	.00	.00
		LC in Max P-X: CO27						
		LC in Min P-X: CO22						
		Max P-Z	-.69	.00	562.54	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO60						
		LC in Min P-Z:						
	CO83	Max P-X	4.11	.00	332.98	.00	.00	.00
		Min P-X	-4.35	.00	633.03	.00	.00	.00
		LC in Max P-X: CO26						
		LC in Min P-X: CO24						
		Max P-Z	-.69	.00	712.15	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO62						
		LC in Min P-Z:						
	CO84	Max P-X	4.09	.00	22.98	.00	.00	.00
		Min P-X	-4.09	.00	-22.98	.00	.00	.00
		LC in Max P-X: LC30						
		LC in Min P-X: LC31						
		Max P-Z	4.09	.00	22.98	.00	.00	.00
		Min P-Z	-4.09	.00	-22.98	.00	.00	.00
		LC in Max P-Z: LC30						
		LC in Min P-Z: LC31						
	CO85	Max P-X	13.10	.00	75.81	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC50						
		LC in Min P-X:						
		Max P-Z	13.10	.00	75.81	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: LC50						
		LC in Min P-Z:						
	CO86	Max P-X	.27	.00	57.38	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC51						
		LC in Min P-X:						
		Max P-Z	.27	.00	57.38	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: LC51						
		LC in Min P-Z:						
	CO88	Max P-X	.34	.00	18.38	.00	.00	.00
		Min P-X	.34	.00	18.38	.00	.00	.00
		LC in Max P-X: LC60 LC61						
		LC in Min P-X: LC60 LC61						
		Max P-Z	.34	.00	18.38	.00	.00	.00
		Min P-Z	.34	.00	18.38	.00	.00	.00
		LC in Max P-Z: LC60 LC61						
		LC in Min P-Z: LC60 LC61						
	CO89	Max P-X	-.31	.00	57.22	.00	.00	.00
		Min P-X	-.31	.00	57.22	.00	.00	.00
		LC in Max P-X: LC60 LC65						
		LC in Min P-X: LC60 LC65						
		Max P-Z	-.31	.00	57.22	.00	.00	.00
		Min P-Z	-.31	.00	57.22	.00	.00	.00
		LC in Max P-Z: LC60 LC65						
		LC in Min P-Z: LC60 LC65						
455	CO70	Max P-X	.00	.00	152.67	.00	.00	.00
		Min P-X	-.02	.00	299.67	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC4 LC11						
		LC in Min P-X: LC1 LC2						
		Max P-Z	-.02	.00	299.67	.00	.00	.00
		Min P-Z	.00	.00	152.67	.00	.00	.00

MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC4 LC11						
	CO72	Max P-X	-01	.00	637.24	.00	.00	.00
		Min P-X	-02	.00	299.67	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC8 LC15						
		LC in Min P-X: LC1 LC2						
		Max P-Z	-01	.00	637.24	.00	.00	.00
		Min P-Z	-02	.00	299.67	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC8 LC15						
		LC in Min P-Z: LC1 LC2						
	CO74	Max P-X	.00	.00	146.19	.00	.00	.00
		Min P-X	-01	.00	249.72	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC4 LC11						
		LC in Min P-X: LC1 LC2						
		Max P-Z	-01	.00	249.72	.00	.00	.00
		Min P-Z	.00	.00	146.19	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC4 LC11						
	CO75	Max P-X	-01	.00	487.47	.00	.00	.00
		Min P-X	-01	.00	249.72	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC8 LC15						
		LC in Min P-X: LC1 LC2						
		Max P-Z	-01	.00	487.47	.00	.00	.00
		Min P-Z	-01	.00	249.72	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC8 LC15						
		LC in Min P-Z: LC1 LC2						
	CO80	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-01	.00	249.72	.00	.00	.00
		LC in Max P-X:						
		LC in Min P-X: CO74						
		Max P-Z	-01	.00	487.47	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO75						
		LC in Min P-Z:						
	CO81	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-02	.00	299.67	.00	.00	.00
		LC in Max P-X:						
		LC in Min P-X: CO70						
		Max P-Z	-01	.00	637.24	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO72						
		LC in Min P-Z:						
	CO82	Max P-X	4.11	.00	168.30	.00	.00	.00
		Min P-X	-4.45	.00	231.34	.00	.00	.00
		LC in Max P-X: CO27						
		LC in Min P-X: CO21						
		Max P-Z	4.10	.00	520.62	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO28						
		LC in Min P-Z:						
	CO83	Max P-X	4.12	.00	174.78	.00	.00	.00
		Min P-X	-4.45	.00	281.29	.00	.00	.00
		LC in Max P-X: CO26						
		LC in Min P-X: CO20						
		Max P-Z	4.10	.00	670.39	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO30						
		LC in Min P-Z:						
	CO84	Max P-X	4.11	.00	22.11	.00	.00	.00
		Min P-X	-4.11	.00	-22.11	.00	.00	.00
		LC in Max P-X: LC30						
		LC in Min P-X: LC31						
		Max P-Z	4.11	.00	22.11	.00	.00	.00
		Min P-Z	-4.11	.00	-22.11	.00	.00	.00

MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-Z: LC30						
		LC in Min P-Z: LC31						
	CO85	Max P-X	13.16	.00	73.07	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC50						
		LC in Min P-X:						
		Max P-Z	13.16	.00	73.07	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: LC50						
		LC in Min P-Z:						
	CO86	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-.27	.00	12.28	.00	.00	.00
		LC in Max P-X:						
		LC in Min P-X: LC51						
		Max P-Z	-.27	.00	12.28	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: LC51						
		LC in Min P-Z:						
	CO88	Max P-X	-.34	.00	7.36	.00	.00	.00
		Min P-X	-.34	.00	7.36	.00	.00	.00
		LC in Max P-X: LC60 LC61						
		LC in Min P-X: LC60 LC61						
		Max P-Z	-.34	.00	7.36	.00	.00	.00
		Min P-Z	-.34	.00	7.36	.00	.00	.00
		LC in Max P-Z: LC60 LC61						
		LC in Min P-Z: LC60 LC61						
	CO89	Max P-X	.30	.00	9.27	.00	.00	.00
		Min P-X	.30	.00	9.27	.00	.00	.00
		LC in Max P-X: LC60 LC65						
		LC in Min P-X: LC60 LC65						
		Max P-Z	.30	.00	9.27	.00	.00	.00
		Min P-Z	.30	.00	9.27	.00	.00	.00
		LC in Max P-Z: LC60 LC65						
		LC in Min P-Z: LC60 LC65						
465	CO70	Max P-X	.01	.00	150.70	.00	.00	.00
		Min P-X	-.03	.00	299.28	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC4 LC11						
		LC in Min P-X: LC1 LC2						
		Max P-Z	-.03	.00	299.28	.00	.00	.00
		Min P-Z	.01	.00	150.70	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC4 LC11						
	CO72	Max P-X	-.01	.00	636.90	.00	.00	.00
		Min P-X	-.03	.00	299.28	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC8 LC15						
		LC in Min P-X: LC1 LC2						
		Max P-Z	-.01	.00	636.90	.00	.00	.00
		Min P-Z	-.03	.00	299.28	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC8 LC15						
		LC in Min P-Z: LC1 LC2						
	CO74	Max P-X	.00	.00	144.76	.00	.00	.00
		Min P-X	-.03	.00	249.40	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC4 LC11						
		LC in Min P-X: LC1 LC2						
		Max P-Z	-.03	.00	249.40	.00	.00	.00
		Min P-Z	.00	.00	144.76	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC4 LC11						
	CO75	Max P-X	-.01	.00	487.19	.00	.00	.00
		Min P-X	-.03	.00	249.40	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC8 LC15						
		LC in Min P-X: LC1 LC2						
		Max P-Z	-.01	.00	487.19	.00	.00	.00
		Min P-Z	-.03	.00	249.40	.00	.00	.00



MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-Z: LC1 LC2 LC8 LC15						
		LC in Min P-Z: LC1 LC2						
	CO80	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-.03	.00	249.40	.00	.00	.00
		LC in Max P-X:						
		LC in Min P-X: CO74						
		Max P-Z	-.01	.00	487.19	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO75						
		LC in Min P-Z:						
	CO81	Max P-X	.01	.00	150.70	.00	.00	.00
		Min P-X	-.03	.00	299.28	.00	.00	.00
		LC in Max P-X: CO70						
		LC in Min P-X: CO70						
		Max P-Z	-.01	.00	636.90	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO72						
		LC in Min P-Z:						
	CO82	Max P-X	5.76	.00	166.06	.00	.00	.00
		Min P-X	-6.40	.00	221.98	.00	.00	.00
		LC in Max P-X: CO27						
		LC in Min P-X: CO21						
		Max P-Z	5.74	.00	519.58	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO28						
		LC in Min P-Z:						
	CO83	Max P-X	5.76	.00	172.00	.00	.00	.00
		Min P-X	-6.41	.00	271.86	.00	.00	.00
		LC in Max P-X: CO26						
		LC in Min P-X: CO20						
		Max P-Z	5.74	.00	669.30	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO30						
		LC in Min P-Z:						
	CO84	Max P-X	5.75	.00	21.30	.00	.00	.00
		Min P-X	-5.75	.00	-21.30	.00	.00	.00
		LC in Max P-X: LC30						
		LC in Min P-X: LC31						
		Max P-Z	5.75	.00	21.30	.00	.00	.00
		Min P-Z	-5.75	.00	-21.30	.00	.00	.00
		LC in Max P-Z: LC30						
		LC in Min P-Z: LC31						
	CO85	Max P-X	18.42	.00	70.53	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC50						
		LC in Min P-X:						
		Max P-Z	18.42	.00	70.53	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: LC50						
		LC in Min P-Z:						
	CO86	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-.52	.00	-54.63	.00	.00	.00
		LC in Max P-X:						
		LC in Min P-X: LC51						
		Max P-Z	.00	.00	.00	.00	.00	.00
		Min P-Z	-.52	.00	-54.63	.00	.00	.00
		LC in Max P-Z:						
		LC in Min P-Z: LC51						
	CO88	Max P-X	-.66	.00	-17.30	.00	.00	.00
		Min P-X	-.66	.00	-17.30	.00	.00	.00
		LC in Max P-X: LC60 LC61						
		LC in Min P-X: LC60 LC61						
		Max P-Z	-.66	.00	-17.30	.00	.00	.00
		Min P-Z	-.66	.00	-17.30	.00	.00	.00



MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-Z: LC60 LC61						
		LC in Min P-Z: LC60 LC61						
	CO89	Max P-X	.59	.00	-54.54	.00	.00	.00
		Min P-X	.59	.00	-54.54	.00	.00	.00
		LC in Max P-X: LC60 LC65						
		LC in Min P-X: LC60 LC65						
		Max P-Z	.59	.00	-54.54	.00	.00	.00
		Min P-Z	.59	.00	-54.54	.00	.00	.00
		LC in Max P-Z: LC60 LC65						
		LC in Min P-Z: LC60 LC65						
469	CO70	Max P-X	.01	-4.97	148.49	.00	.00	.00
		Min P-X	-.03	-.97	298.85	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC4 LC11						
		LC in Min P-X: LC1 LC2						
		Max P-Y	-.03	-.97	298.85	.00	.00	.00
		Min P-Y	.01	-4.97	148.49	.00	.00	.00
		LC in Max P-Y: LC1 LC2						
		LC in Min P-Y: LC1 LC2 LC4 LC11						
		Max P-Z	-.03	-.97	298.85	.00	.00	.00
		Min P-Z	.01	-4.97	148.49	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC4 LC11						
	CO72	Max P-X	-.01	-.84	636.53	.00	.00	.00
		Min P-X	-.03	-.97	298.85	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC8 LC15						
		LC in Min P-X: LC1 LC2						
		Max P-Y	-.01	-.84	636.53	.00	.00	.00
		Min P-Y	-.03	-.97	298.85	.00	.00	.00
		LC in Max P-Y: LC1 LC2 LC8 LC15						
		LC in Min P-Y: LC1 LC2						
		Max P-Z	-.01	-.84	636.53	.00	.00	.00
		Min P-Z	-.03	-.97	298.85	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC8 LC15						
		LC in Min P-Z: LC1 LC2						
	CO74	Max P-X	.00	-3.63	143.14	.00	.00	.00
		Min P-X	-.02	-.81	249.04	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC4 LC11						
		LC in Min P-X: LC1 LC2						
		Max P-Y	-.02	-.81	249.04	.00	.00	.00
		Min P-Y	.00	-3.63	143.14	.00	.00	.00
		LC in Max P-Y: LC1 LC2						
		LC in Min P-Y: LC1 LC2 LC4 LC11						
		Max P-Z	-.02	-.81	249.04	.00	.00	.00
		Min P-Z	.00	-3.63	143.14	.00	.00	.00
		LC in Max P-Z: LC1 LC2						
		LC in Min P-Z: LC1 LC2 LC4 LC11						
	CO75	Max P-X	-.01	-.72	486.87	.00	.00	.00
		Min P-X	-.02	-.81	249.04	.00	.00	.00
		LC in Max P-X: LC1 LC2 LC8 LC15						
		LC in Min P-X: LC1 LC2						
		Max P-Y	-.01	-.72	486.87	.00	.00	.00
		Min P-Y	-.02	-.81	249.04	.00	.00	.00
		LC in Max P-Y: LC1 LC2 LC8 LC15						
		LC in Min P-Y: LC1 LC2						
		Max P-Z	-.01	-.72	486.87	.00	.00	.00
		Min P-Z	-.02	-.81	249.04	.00	.00	.00
		LC in Max P-Z: LC1 LC2 LC8 LC15						
		LC in Min P-Z: LC1 LC2						
	CO80	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-.02	-.81	249.04	.00	.00	.00
		LC in Max P-X:						
		LC in Min P-X: CO74						
		Max P-Y	.00	.00	.00	.00	.00	.00
		Min P-Y	.00	-3.63	143.14	.00	.00	.00

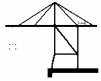


MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-Y:						
		LC in Min P-Y: CO74						
		Max P-Z	-01	-72	486.87	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO75						
		LC in Min P-Z:						
	CO81	Max P-X	.01	-4.97	148.49	.00	.00	.00
		Min P-X	-.03	-.97	298.85	.00	.00	.00
		LC in Max P-X: CO70						
		LC in Min P-X: CO70						
		Max P-Y	.00	.00	.00	.00	.00	.00
		Min P-Y	.01	-4.97	148.49	.00	.00	.00
		LC in Max P-Y:						
		LC in Min P-Y: CO70						
		Max P-Z	-.01	-.84	636.53	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO72						
		LC in Min P-Z:						
	CO82	Max P-X	3.91	-5.68	163.54	.00	.00	.00
		Min P-X	-4.39	-23.73	211.43	.00	.00	.00
		LC in Max P-X: CO27						
		LC in Min P-X: CO21						
		Max P-Y	3.18	57.85	297.85	.00	.00	.00
		Min P-Y	.98	-203.25	86.64	.00	.00	.00
		LC in Max P-Y: CO2						
		LC in Min P-Y: CO60						
		Max P-Z	3.47	39.41	520.03	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO3						
		LC in Min P-Z:						
	CO83	Max P-X	3.92	-7.02	168.88	.00	.00	.00
		Min P-X	-4.39	-23.89	261.24	.00	.00	.00
		LC in Max P-X: CO26						
		LC in Min P-X: CO20						
		Max P-Y	3.18	57.69	347.65	.00	.00	.00
		Min P-Y	.98	-203.41	136.45	.00	.00	.00
		LC in Max P-Y: CO1						
		LC in Min P-Y: CO62						
		Max P-Z	3.47	39.29	669.69	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00
		LC in Max P-Z: CO5						
		LC in Min P-Z:						
	CO84	Max P-X	3.91	-2.05	20.39	.00	.00	.00
		Min P-X	-3.91	2.05	-20.39	.00	.00	.00
		LC in Max P-X: LC30						
		LC in Min P-X: LC31						
		Max P-Y	.15	51.83	39.97	.00	.00	.00
		Min P-Y	-.15	-51.83	-39.97	.00	.00	.00
		LC in Max P-Y: LC32						
		LC in Min P-Y: LC33						
		Max P-Z	.15	51.83	39.97	.00	.00	.00
		Min P-Z	-.15	-51.83	-39.97	.00	.00	.00
		LC in Max P-Z: LC32						
		LC in Min P-Z: LC33						
	CO85	Max P-X	12.51	-6.43	67.68	.00	.00	.00
		Min P-X	.00	.00	.00	.00	.00	.00
		LC in Max P-X: LC50						
		LC in Min P-X:						
		Max P-Y	.00	.00	.00	.00	.00	.00
		Min P-Y	12.51	-6.43	67.68	.00	.00	.00
		LC in Max P-Y:						
		LC in Min P-Y: LC50						
		Max P-Z	12.51	-6.43	67.68	.00	.00	.00
		Min P-Z	.00	.00	.00	.00	.00	.00

MAX/MIN/CORR SUPPORT FORCES AND SUPPORT MOMENTS

Node	CO		Support Forces [kN]			Support Moments [kNm]		
No	No		P-X	P-Y	P-Z	M-X	M-Y	M-Z
		LC in Max P-Z: LC50						
		LC in Min P-Z:						
	CO86	Max P-X	.00	.00	.00	.00	.00	.00
		Min P-X	-.38	-169.15	-129.80	.00	.00	.00
		LC in Max P-X:						
		LC in Min P-X: LC51						
		Max P-Y	.00	.00	.00	.00	.00	.00
		Min P-Y	-.38	-169.15	-129.80	.00	.00	.00
		LC in Max P-Y:						
		LC in Min P-Y: LC51						
		Max P-Z	.00	.00	.00	.00	.00	.00
		Min P-Z	-.38	-169.15	-129.80	.00	.00	.00
		LC in Max P-Z:						
		LC in Min P-Z: LC51						
	CO88	Max P-X	-.49	-62.49	-45.08	.00	.00	.00
		Min P-X	-.49	-62.49	-45.08	.00	.00	.00
		LC in Max P-X: LC60 LC61						
		LC in Min P-X: LC60 LC61						
		Max P-Y	-.49	-62.49	-45.08	.00	.00	.00
		Min P-Y	-.49	-62.49	-45.08	.00	.00	.00
		LC in Max P-Y: LC60 LC61						
		LC in Min P-Y: LC60 LC61						
		Max P-Z	-.49	-62.49	-45.08	.00	.00	.00
		Min P-Z	-.49	-62.49	-45.08	.00	.00	.00
		LC in Max P-Z: LC60 LC61						
		LC in Min P-Z: LC60 LC61						
	CO89	Max P-X	.44	-161.46	-126.30	.00	.00	.00
		Min P-X	.44	-161.46	-126.30	.00	.00	.00
		LC in Max P-X: LC60 LC65						
		LC in Min P-X: LC60 LC65						
		Max P-Y	.44	-161.46	-126.30	.00	.00	.00
		Min P-Y	.44	-161.46	-126.30	.00	.00	.00
		LC in Max P-Y: LC60 LC65						
		LC in Min P-Y: LC60 LC65						
		Max P-Z	.44	-161.46	-126.30	.00	.00	.00
		Min P-Z	.44	-161.46	-126.30	.00	.00	.00
		LC in Max P-Z: LC60 LC65						
		LC in Min P-Z: LC60 LC65						



NOKRAAN

Containercrane 41t x (24 + 37 + 18) m
VENLO-ECT Delta Terminal - 21098

künz

Projekt: 123999

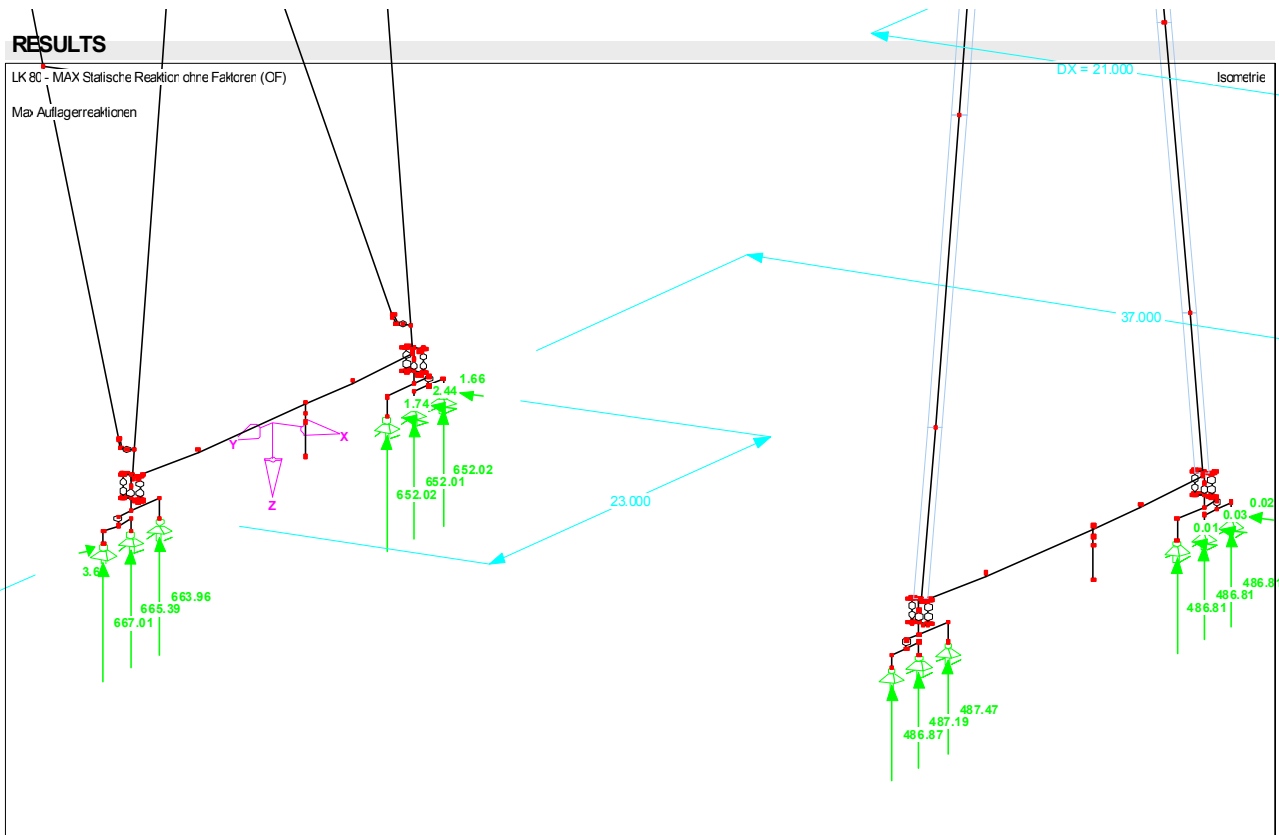
Static calculations-MAX. wheel loads

Seite: 810

RESULTS

LK 80 - MAX Statische Reaktion ohne Faktoren (OF)

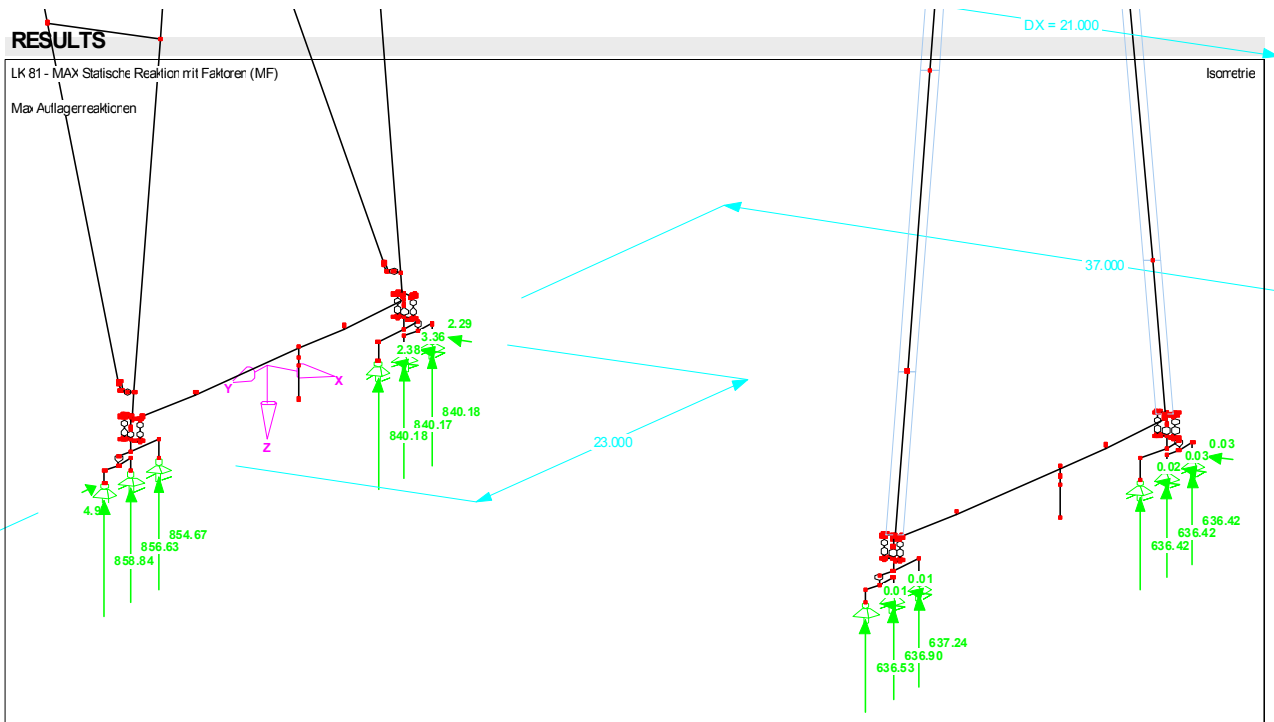
Max Auflagerreaktionen



RESULTS

LK 81 - MAX Statische Reaktion mit Faktoren (MF)

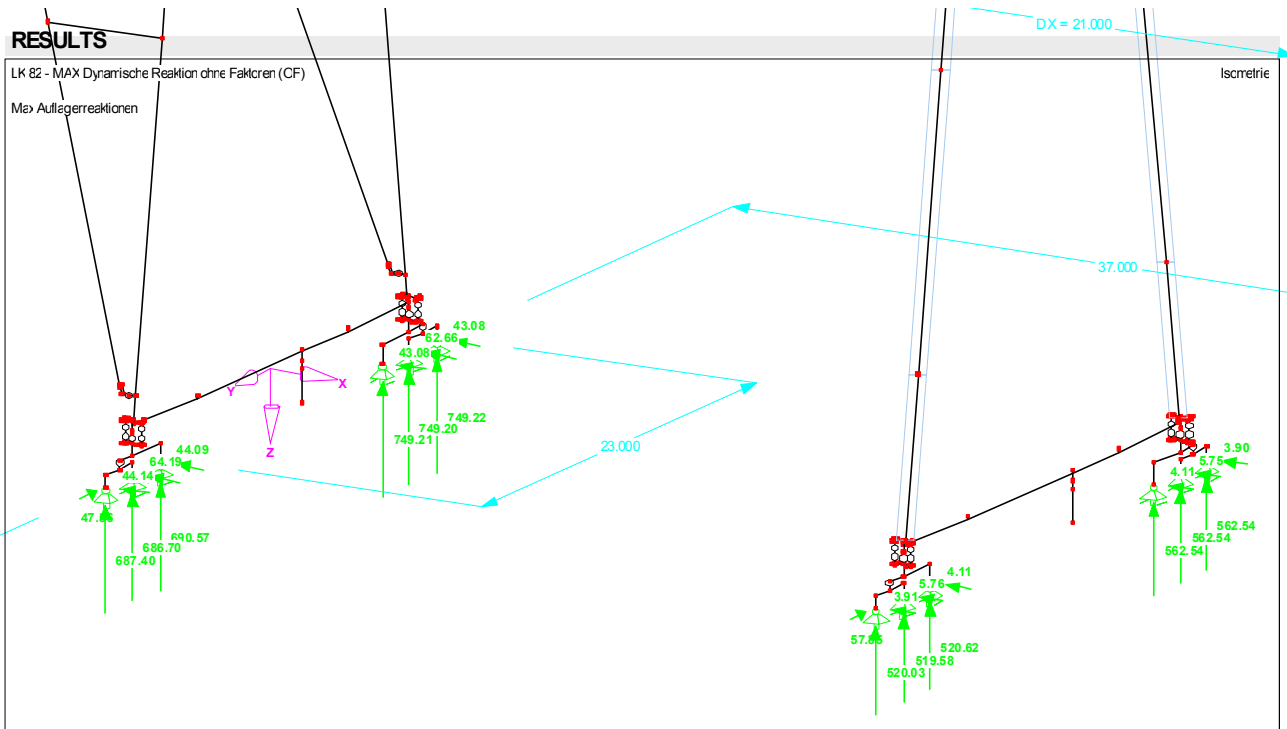
Max Auflagerreaktionen



RESULTS

LK 82 - MAX Dynamische Reaktion ohne Faktoren (CF)

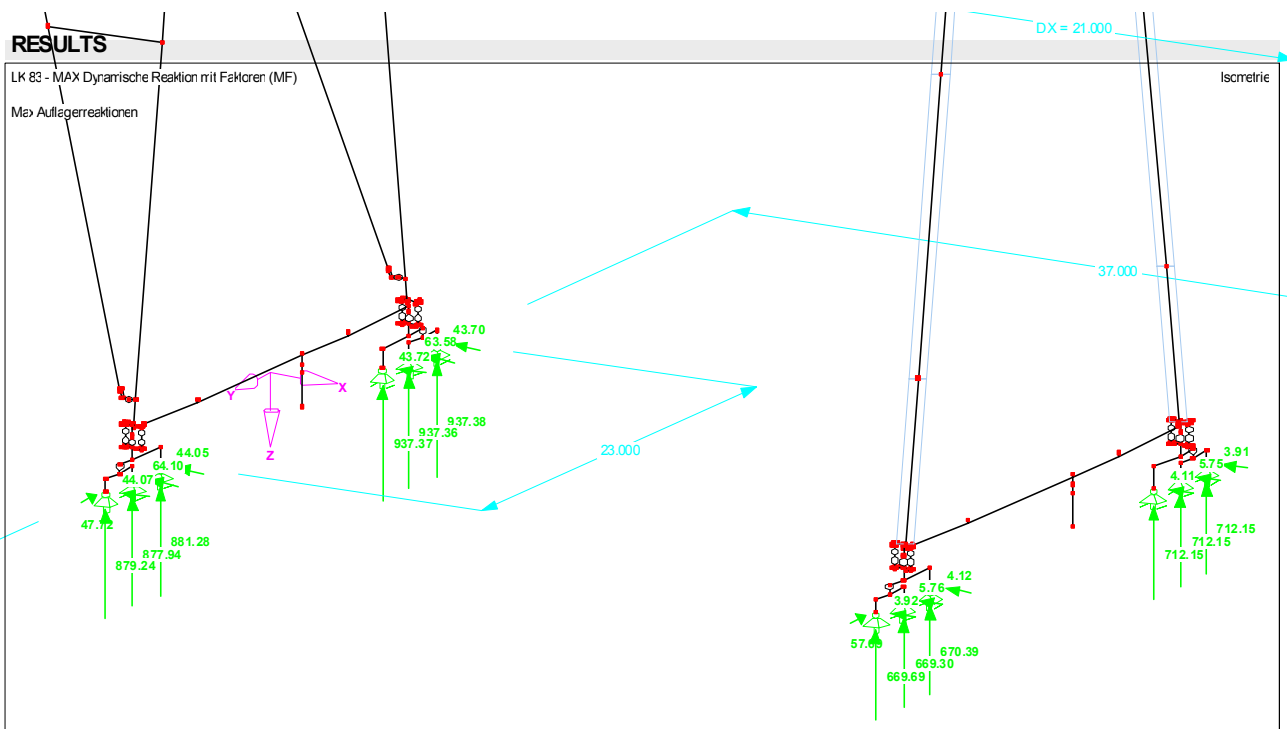
Max Auflagerreaktionen



RESULTS

LK 83 - MAX Dynamische Reaktion mit Faktoren (MF)

Max Auflagerreaktionen



MAXIMUM HORIZONTAL WHEEL LOADS:

Wind in operatin(FS):

$$H2 = 31,1 + 45,2 + 31,1 = 107,4 \text{ kN}$$

$$H2 = 107,4 / 6 = \underline{17,9 \text{ kN / Rad}}$$

Wind in operation(PS):

$$H2 = 4,1 + 5,7 + 3,9 = 13,7 \text{ kN}$$

$$H2 = 13,7 / 6 = \underline{2,3 \text{ kN / Rad}}$$

Wind out of operation(FS):

$$H2 = 100,5 + 146,2 + 100,3 = \underline{347 \text{ kN}}$$

$$H2 = 347 / 6 = \underline{57,8 \text{ kN / Rad}}$$

Wind out of operation(PS):

$$H2 = 12,5 + 18,4 + 13,1 = \underline{44 \text{ kN}}$$

$$H2 = 44 / 6 = \underline{7,3 \text{ kN / Rad}}$$

Gantry braking:

$$(FS) : T_{max} = \underline{327,8 \text{ KN}}$$

$$(PS) : T_{max} = \underline{169,1 \text{ KN}}$$

Summe = 327,8 + 169,1 = 496,9 kN (necessary braking of crane in case wind storm-
brutto- without braking assistance)

-bei Emergency-Stop (FS):

(PS)

$$H1 = 52,4 + 74,9 + 48,5 = 175,8 \text{ kN}$$

$$H1 = 11,4 + 15,5 + 7,9 = 34,8 \text{ kN}$$

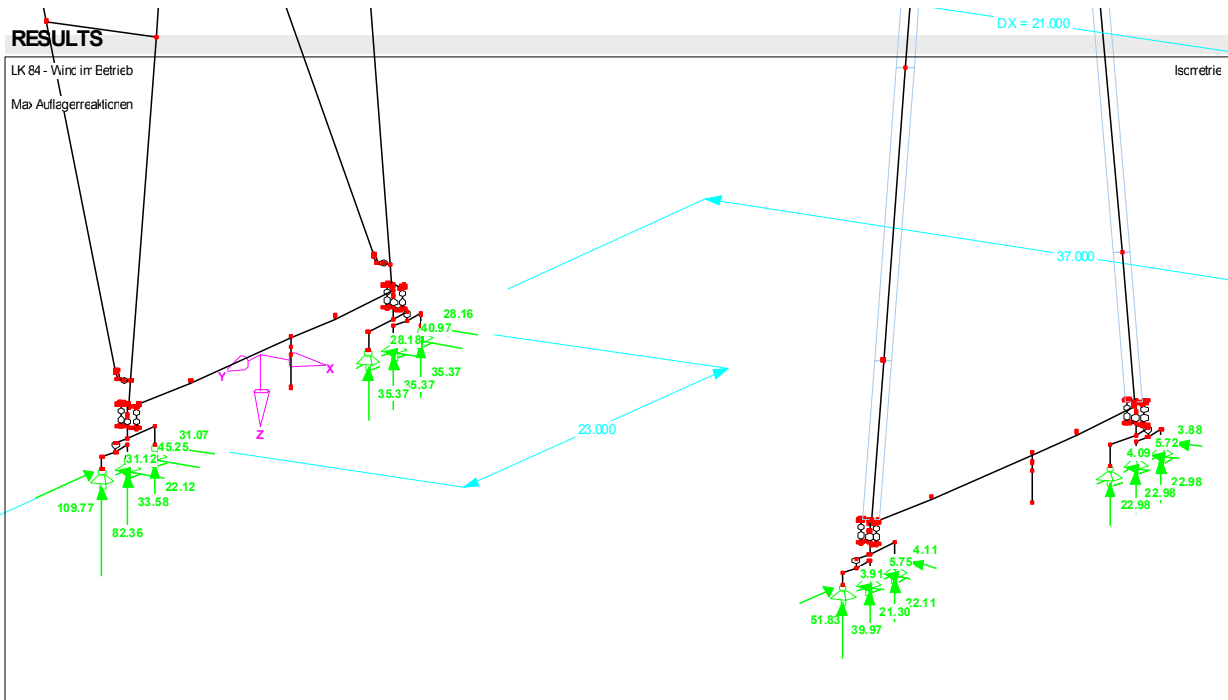
$$H1 = 175,8 / 6 = \underline{29,3 \text{ kN / Rad}}$$

$$H1 = 34,8 / 6 = \underline{5,8 \text{ kN / Rad}}$$

RESULTS

LK 84 - Wind im Betrieb

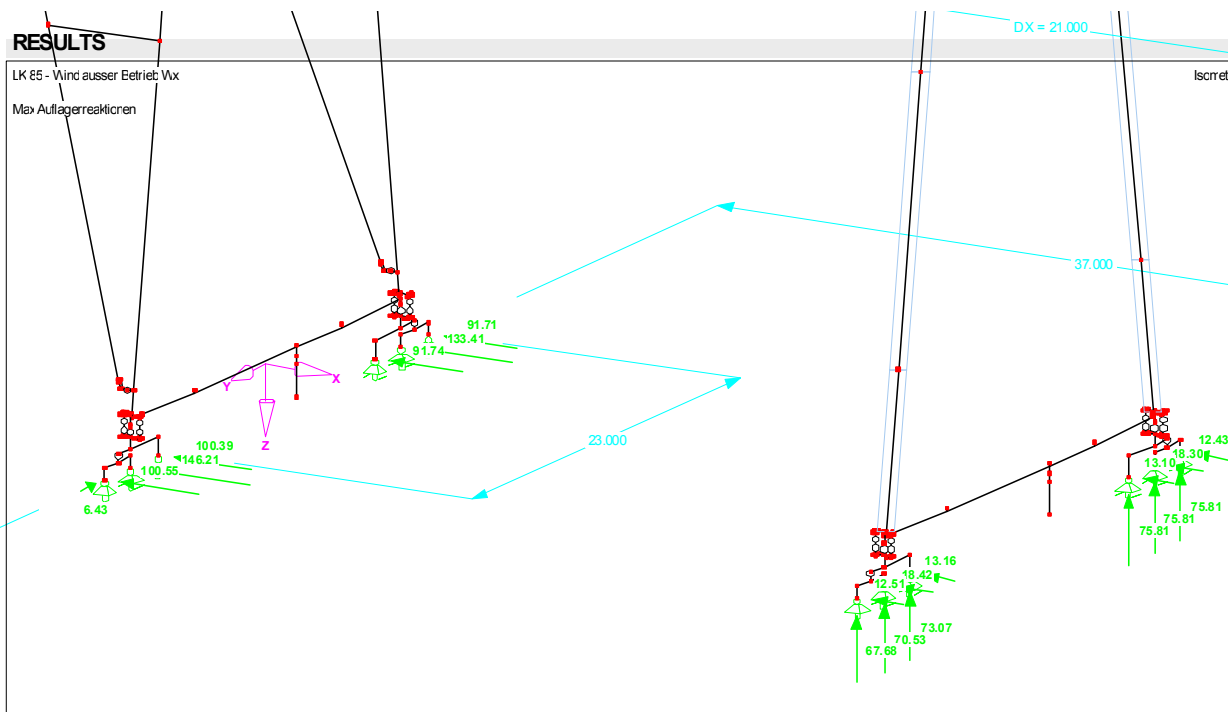
Ma) Auflagerreaktionen

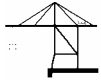


RESULTS

LK 85 - Wind ausser Betrieb Wx	

Max Auflagerreaktionen





NOKRAAN

Containercrane 41t x (24 +37 + 18) m
VENLO-ECT Delta Terminal - 21098

Projekt: 123999

Static calculations-MAX. wheel loads

künz

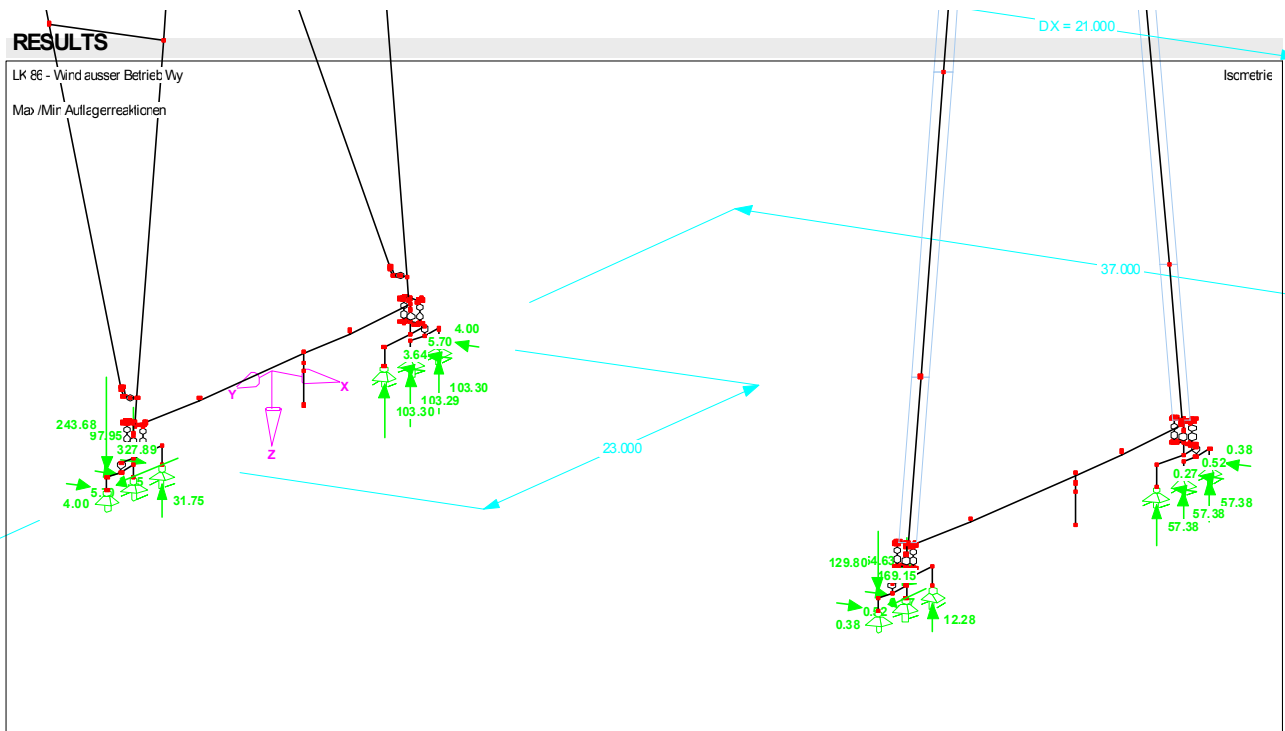
Seite: 814

RESULTS

LK 86 - Wind ausser Betrieb Vwy

Max /Min Auflagerreaktionen

Isometrie

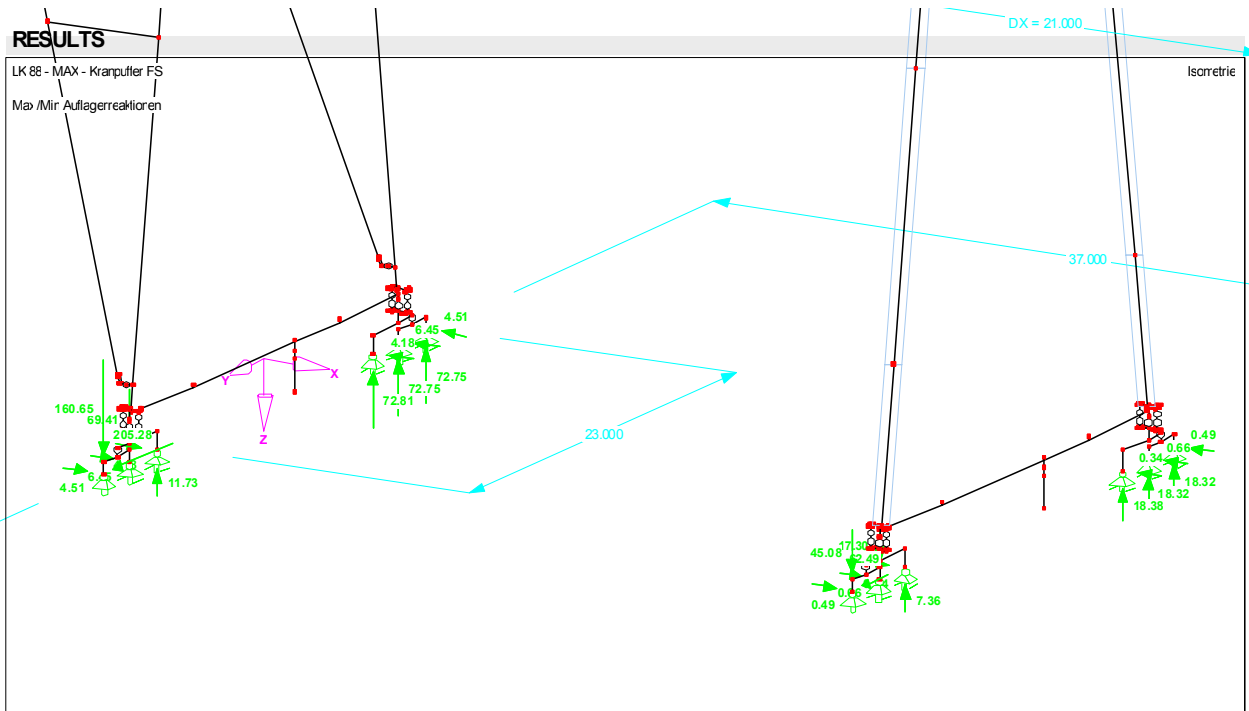


RESULTS

LK 88 - MAX - Kranpuffer FS

Max /Min Auflagerreaktionen

Isometrie

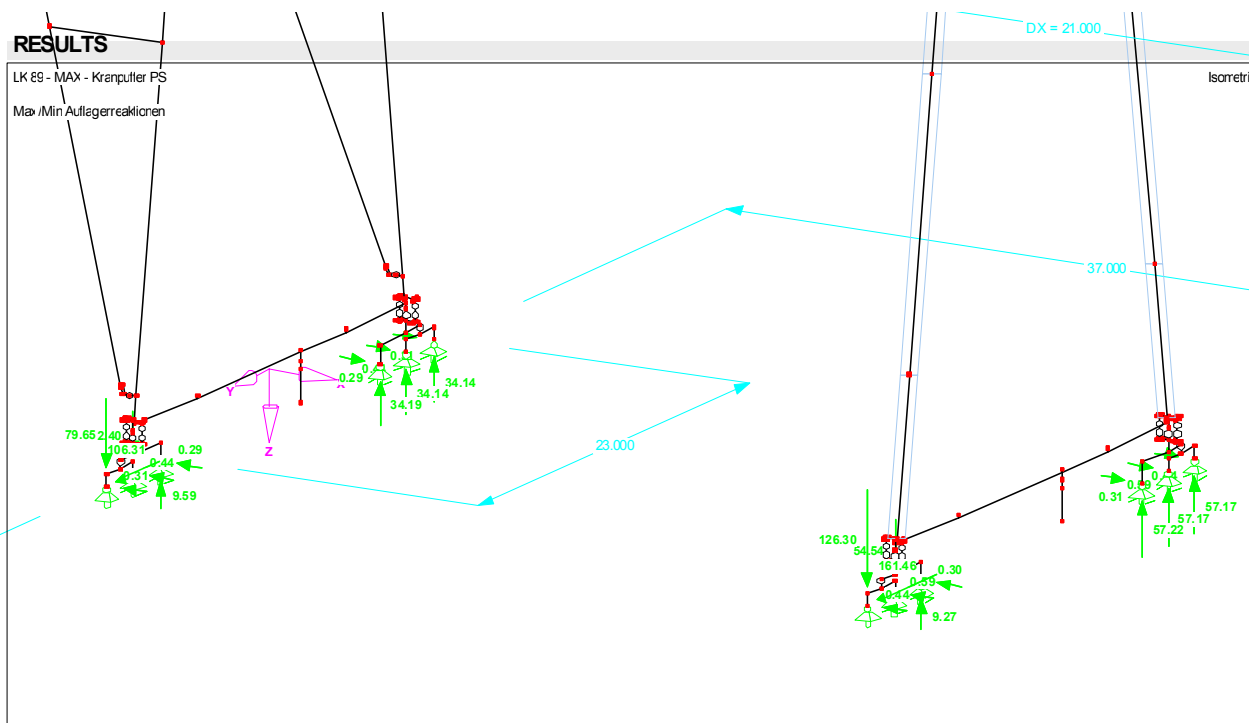


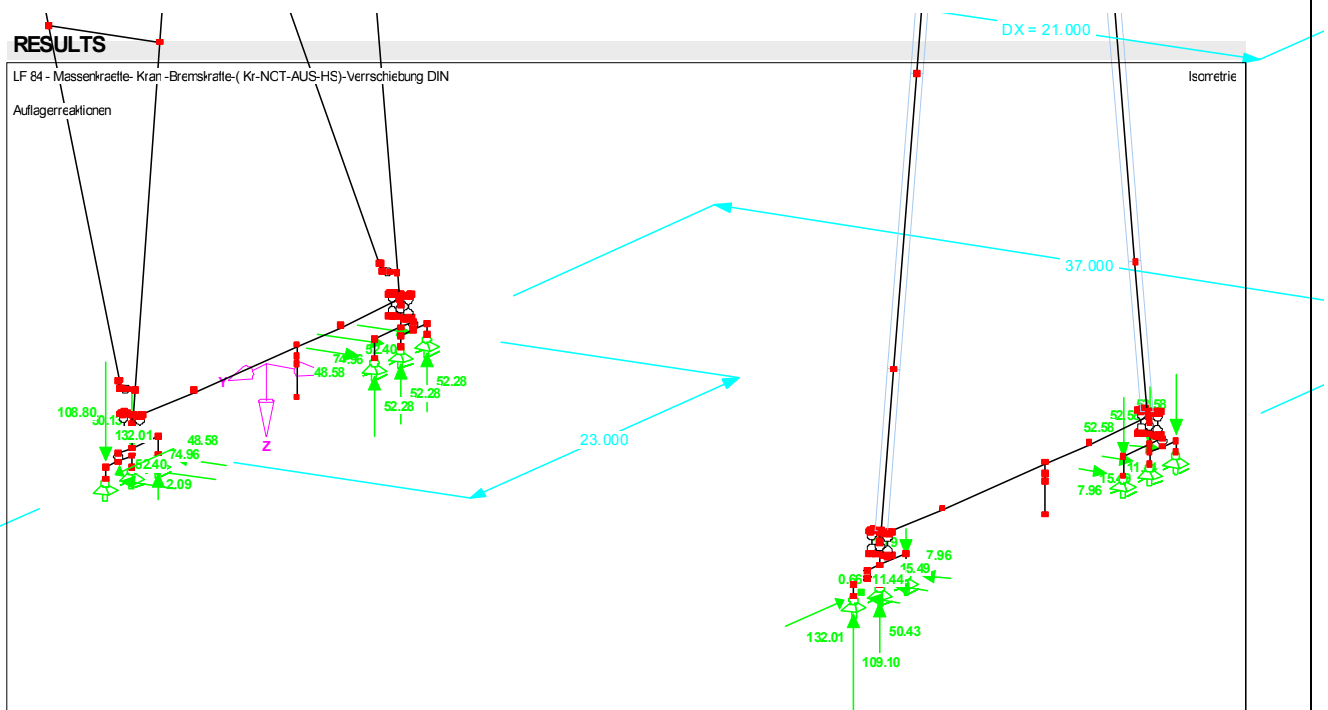
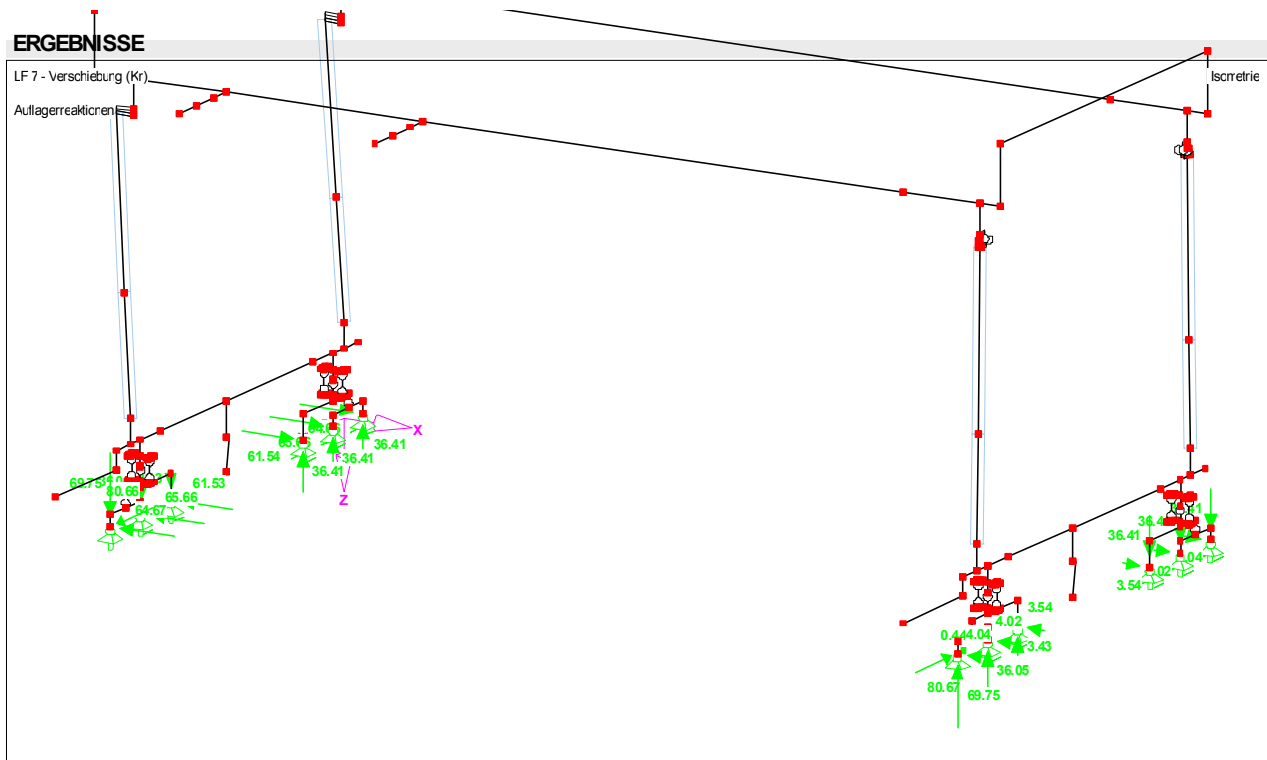
RESULTS

LK 88 - MAX - Kranpuffer PS

Max /Min Auflagerreaktionen

Isometrie





Reactions	Without factors		With factors	
	FS-fixed leg 2 x 6 wheels	PS-oscilating leg 2 x 6 wheels	FS-fixed leg 2 x 6 wheels	PS-oscilating leg 2 x 6 wheels
R1 max static	332,5 kN	243,5 kN	428 kN	318 kN
R1 min static	155,5 kN	72 kN		
R1 max dynamic (with wind)	374,5 kN	270,5 kN	468,5 kN	356 kN
H1-due to max drive(brake)- force or +-200	8,5 kN	1,8 kN		
H2 (wind in operation)	17,9 kN	2,3 kN		
H3 (wind out of operation)	57,8 kN	7,3 kN		
T1- Max drive force- total	312 kN	249,6 kN		
T2 (out of operation storm wind)	327,8 kN	169,1 kN		
Pumax (buffer force-crane)	205,2 kN	161,4 kN		
Required total crane braking force raised in storm wind T2 = 496.9 kN (brutto- rail clamps without reductions because of brakes, ...)				

