KRAKATAU POSCO

Mill Test Certificate

Certificate No. : 221202-FPQ8IS-0002A3-0008
Date of Issue : Dec., 23, 2022

Order No. : Q8S1028752
PO No. : ST1Z221104LC
Supplier :
Commodity : CARBON STEEL PLATE
Customer : ZIMMER STAAL BV
Spec & Type : EN10025-2 S355J2+N

Size	Product No.	Quantity	Weight (kg)	Heat No.	Position	Tensile Test YP (MPa)	Tensile Test TS (MPa)	Tensile Test EL (%)	Impact Test V Notch -20 ℃ Energy (Joule)	U.S.T	Division	Chemical Composition C (%)	Si (%)	Mn (%)	P (%)	S (%)	Cr (%)	Ni (%)	B (ppm)	Cu (%)	Mo (%)	N (ppm)	Nb (%)	Ti (%)
20x2500x12000	PK04758302	1	4,710	SK86024	T	401	531	31	1: 179 2: 178 3: 183 A: 180	Good	L P	0.1552 0.1565	0.203 0.193	1.538 1.507	0.0102 0.0110	0.0029 0.0027	0.011 0.012	0.003 0.005	4 3	0.007 0.006	0.001 0.001	43 41	0.030 0.026	0.0127 0.0125
20x2500x12000	PK04758401-8402	2	9,420	SK86024	T	401	531	31	1: 179 2: 178 3: 183 A: 180	Good	L P	0.1552 0.1565	0.203 0.193	1.538 1.507	0.0102 0.0110	0.0029 0.0027	0.011 0.012	0.003 0.005	4 3	0.007 0.006	0.001 0.001	43 41	0.030 0.026	0.0127 0.0125
20x2500x12000	PK04749901	1	4,710	SK86084	T	397	539	31	1: 196 2: 166 3: 179 A: 180	Good	L P	0.1557 0.1553	0.207 0.199	1.539 1.517	0.0118 0.0131	0.0027 0.0032	0.010 0.011	0.003 0.004	3 0	0.006 0.005	0.001 0.002	39 38	0.029 0.028	0.0125 0.0130
20x2500x12000	PK04749902	1	4,710	SK86084	T	397	539	31	1: 196 2: 166 3: 179 A: 180	Good	L P	0.1557 0.1553	0.207 0.199	1.539 1.517	0.0118 0.0131	0.0027 0.0032	0.010 0.011	0.003 0.004	3 0	0.006 0.005	0.001 0.002	39 38	0.029 0.028	0.0125 0.0130
*** Sub Total (1 0) ***		5	23,550 (kg)																					
*** Heat Treatment ===> Normalizing rolling ***																								
*** Grade Total ***		5	23,550 (kg)																					

CEQ (G) = C + Mn/6 + (Ni + Cu)/15 + (Cr + Mo + V)/5

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* Position - T : Top, M : Middle, B : Bottom
* Tensile Test. Direction : Transversal, Gauge Length : 5.65 √A₀ (Rectangular), YP Method : Upper Point
* Impact Test. Direction : Surface Longitudinal, Full-Size : 10 ㎜X10 ㎜
* U.S.T : Ultrasonic Test.
* Division - L : Ladle Analysis, P : Products Analysis
* Supply Condition : As-Rolled unless otherwise Heat Treated.

This material has been fully killed and made by basic oxygen process. This material is fine grained steel.
This material has been made by vacuum degassing process.
No repair welding was performed to the products. Test Certificate is issued according to ISO 10474/EN 10204 3.1.
We hereby certify that the material herein has been made in accordance with PED2014/68/EU and AD2000-W0 / AD2000-W1:2006 (Certificate No. 01 202 ROK/Q-16 0081).
Thickness tolerance according to EN 10029 –Class B
Flatness tolerance according to EN 10029 - Class N
Surface according to EN 10163-2 Class B Subclass 3

Legal sanction can be imposed on forging. Improper use of product can cause safety issues.

Surveyor To :

KP001 MK. FALAH

PT.KRAKATAU POSCO Jl. Afrika, No. 2, Kawasan Industri Krakatau Cilegon, Banten, 42443, Indonesia

Physical Testing Team Leader
MK. Falah

KRAKATAU POSCO

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Order No. : Q8S1028752
PO No. : ST1Z221104LC
Supplier :
Commodity : CARBON STEEL PLATE
Customer : ZIMMER STAAL BV
Spec & Type : EN10025-2 S355J2+N

Product No.	Division	V (%)	Sol-Al (%)	Total-Al (%)	CEQ (%)
PK04758302	L	0.007	0.044	0.044	0.42
	P	0.003	0.040	0.040	
PK04758401-8402	L	0.007	0.044	0.044	0.42
	P	0.003	0.040	0.040	
PK04749901	L	0.006	0.039	0.040	0.42
	P	0.005	0.037	0.038	
PK04749902	L	0.006	0.039	0.040	0.42
	P	0.005	0.037	0.038	
*** Sub Total (110) ***				5	23,550 (kg)
*** Grade Total ***				5	23,550 (kg)

CEQ (G) = C + Mn/6 + (Ni + Cu)/15 + (Cr + Mo + V)/5

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This material has been fully killed and made by basic oxygen process. This material is fine grained steel.
This material has been made by vacuum degassing process.
No repair welding was performed to the products. Test Certificate is issued according to ISO 10474/EN 10204 3.1.
We hereby certify that the material herein has been made in accordance with PED2014/68/EU
and AD2000-W0 / AD2000-W1:2006 (Certificate No. 01 202 ROK/Q-16 0081).
Thickness tolerance according to EN 10029 –Class B
Flatness tolerance according to EN 10029 - Class N
Surface according to EN 10163-2 Class B Subclass 3

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Surveyor To :

KP001 MK. FALAH

KRAKATAU POSCO

Ultrasonic Test Report

Certificate No. : 221202-FPQ8IS-0002A3-0008
Date of Issue : Dec., 23, 2022

Order No. : Q8S1028752
PO No. : ST1Z221104LC
Supplier :
Commodity : CARBON STEEL PLATE
Customer : ZIMMER STAAL BV
Spec & Type : EN10025-2 S355J2+N

Product No.	Ultrasonic Test						Remarks
	Examination Method	Apparatus	Transducer	Frequency (MHz)	Sensitivity	Test Result	
PK04758302	2	1	1	5	H	1	
PK04758401-8402	2	1	1	5	H	1	
PK04749901	2	1	1	5	H	2	
PK04749902	2	1	1	5	H	1	
*** Sub Total (110) ***		5	23,550 (kg)				
*** Sub Total (110) ***		5	23,550 (kg)				

1. Application Spec.
: EN10160(1999) S1/E1

2. We hereby certify that the material described herein has been examined in accordance with above ultrasonic specification and fully conformed thereto.

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* Couplant : Water
* Examination method(1:Direct straight Beam, 2:Direct double beam, 3:Others)
* Apparatus(1 : Digital Flaw Detector, 2: Others)
* Transducer(1: ¢ 20 ㎜, 2: ¢ 24 ㎜, 3: ¢ 25 ㎜ or 25 ㎜ square, 4: ¢ 30 ㎜, 5:8~12.5 ㎜, 9:others)
* Sensitivity(A:RB-D-1_0=50 %+10DB, B:STB-N_1=50 %, C:STB-N_1=70 %, D:STB-G.$V_{1.5\text{-}4.0}$=50 %, E:STB-G.$V_{1.5\text{-}4.0}$=80 %, F:STB-G.$V_{1.5\text{-}2.8}$=50 %, G:BG=75±5 %, H: ¢ 5.0 ㎜DAC, I: ¢ 11.0 ㎜DAC, J: ¢ 8.0 ㎜DAC, K:GB-T2970 Sensitivity, L:B_G=100 %, M: ¢ 5.0 ㎜FBH=60 %, N:Soviet 75ATM Sens., O:BS5996-93 Sens, P: ¢ 6.0 ㎜DAC, X:Others)
* Test Result (1: Good, 2: Acceptable)

This material has been fully killed and made by basic oxygen process. This material is fine grained steel.
This material has been made by vacuum degassing process.
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We hereby certify that the material herein has been made in accordance with PED2014/68/EU and AD2000-W0 / AD2000-W1:2006 (Certificate No. 01 202 ROK/Q-16 0081).
Thickness tolerance according to EN 10029 –Class B
Flatness tolerance according to EN 10029 - Class N
Surface according to EN 10163-2 Class B Subclass 3

Legal sanction can be imposed on forging. Improper use of product can cause safety issues.

Surveyor To :

KP001 MK. FALAH