

Equipment Nr.: D-101  
Description: Separator  
Volume: 240 liter  
Design Pressure: FV / 69 barg  
Design Temperature: -50..50°C  
Material: SS316L  
Comments: Uniflow separator

Equipment Nr.: D-102  
Description: Dump vessel (existing vessel)  
Volume: 0,17 m<sup>3</sup>  
Design Pressure: 205 barg  
Design Temperature: 0..60 °C  
Material: SS316  
Comments: See drawing GA 12.0039-1

Equipment Nr.: E-107  
Description: Compressor preheater  
FlowRate: 10 kW  
Heating Area: 0,74 m<sup>2</sup>  
Shell Design Pressure: 100 barg  
Shell Design Temperature: 100 °C  
Shell Material of Construction: SS316  
Tube Design Pressure: -  
Tube Design Temperature: -  
Tube Material of Construction: Plate type heat exchanger  
Comments: SWEP B18Hx20/1P

Equipment Nr.: C-104  
Description: CO2 compressor  
Flow Capacity: max 1800 kg/h  
Total Dynamic Head: max 45 barg  
Type: C  
Material of Construction: SS316  
Power: Bock HX34/230-4 S CO2 T  
Comments: -

Equipment Nr.: E-105A  
Description: Recycle cooler (high pressure)  
FlowRate: 28 kW  
Heating Area: 1,15 m<sup>2</sup>  
Shell Design Pressure: 100 barg  
Shell Design Temperature: -55..100 °C  
Shell Material of Construction: SS316  
Tube Design Pressure: -  
Tube Design Temperature: -  
Tube Material of Construction: SWEP B18Hx30/1P  
Comments: Plate type heat exchanger

Equipment Nr.: E-103A  
Description: CO2 gas cooler (high pressure)  
FlowRate: 28 kW  
Heating Area: 1,15 m<sup>2</sup>  
Shell Design Pressure: 100 barg  
Shell Design Temperature: -55..100 °C  
Shell Material of Construction: SS316  
Tube Design Pressure: -  
Tube Design Temperature: -  
Tube Material of Construction: SWEP B18Hx30/1P  
Comments: Plate type heat exchanger

Equipment Nr.: P-102  
Description: Diaphragm Pump  
FlowRate: 0,035 -2,6 m<sup>3</sup>/h  
Total Dynamic Head: P  
Material of Construction: SS316  
Power: Novados H6-3 DA 50x60x200  
Comments: -

To safe location  
Sample connection  
To safe location

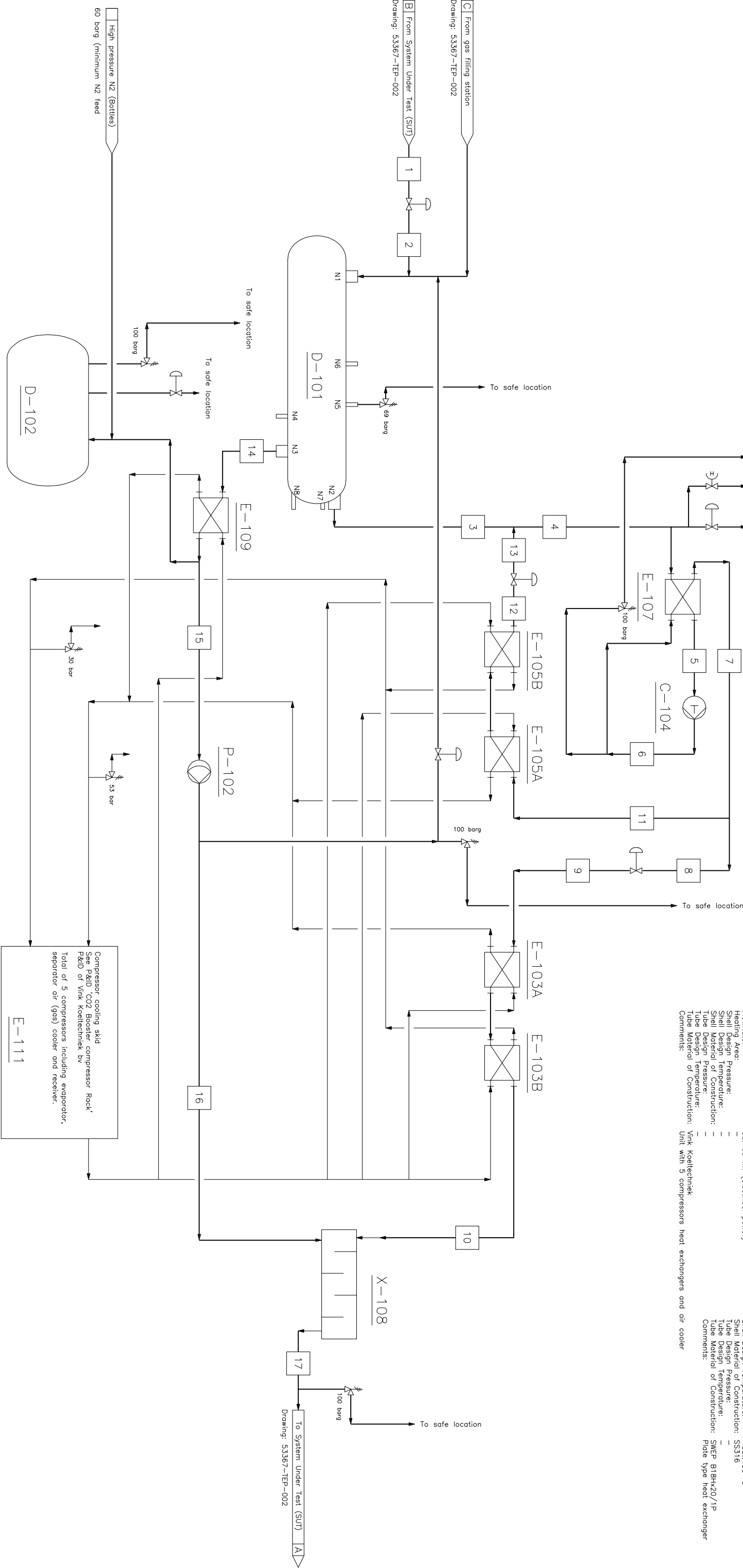
Equipment Nr.: E-105B  
Description: Recycle cooler (low pressure)  
FlowRate: 18,3 kW  
Heating Area: 0,74 m<sup>2</sup>  
Shell Design Pressure: 100 barg  
Shell Design Temperature: -55..100 °C  
Shell Material of Construction: SS316  
Tube Design Pressure: -  
Tube Design Temperature: -  
Tube Material of Construction: SWEP B18Hx20/1P  
Comments: Plate type heat exchanger

Equipment Nr.: E-103B  
Description: CO2 gas cooler (low pressure)  
FlowRate: 18,3 kW  
Heating Area: 0,74 m<sup>2</sup>  
Shell Design Pressure: 100 barg  
Shell Design Temperature: -55..100 °C  
Shell Material of Construction: SS316  
Tube Design Pressure: -  
Tube Design Temperature: -  
Tube Material of Construction: SWEP B18Hx20/1P  
Comments: Plate type heat exchanger

Equipment Nr.: X-108  
Description: Gas/liquid mixer  
Type: X  
Length: l = 5 m (static spiral)  
RPM: -  
Power: -  
Impeller Diameter: -  
Number of Blades: -  
Number of Stages: -  
Material of Construction: SS316  
Comments: -

Equipment Nr.: E-111  
Description: Cooling Unit  
FlowRate: Ca. 60 kW (electrical power)  
Heating Area: -  
Shell Design Pressure: -  
Shell Design Temperature: -  
Shell Material of Construction: -  
Tube Design Pressure: -  
Tube Design Temperature: -  
Tube Material of Construction: Vink Koeltechniek  
Comments: Unit with 5 compressors heat exchangers and air cooler

Equipment Nr.: E-109  
Description: Liquid pre-cooler  
FlowRate: 4,4 kW  
Heating Area: -  
Shell Design Pressure: 100 barg  
Shell Design Temperature: -55..100 °C  
Shell Material of Construction: SS316  
Tube Design Pressure: -  
Tube Design Temperature: -  
Tube Material of Construction: SWEP B18Hx20/1P  
Comments: Plate type heat exchanger



| Line                  | 1         | 2         | 3         | 4         | 5         | 6         | 7          | 8          | 9          | 10          | 11          | 12        | 13        | 14         | 15         | 16         | 17        |
|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|-------------|-------------|-----------|-----------|------------|------------|------------|-----------|
| Line size [DN. ]      | 25        | 50        | 50        | 50        | 50        | 25        | 25         | 25         | 25         | 25          | 25          | 50        | 50        | 50         | 25         | 25         | 25        |
| Work Pressure [barg]  | 10..58,5  | 10..58,5  | 10..40    | 10..40    | 10..40    | 40..85    | 40..85     | 40..85     | 12..85     | 12..85      | 40..85      | 10..40    | 10..40    | 10..58,6   | 10..58,6   | 12..85     | 12..85    |
| Work Temperature [°C] | -42..16,6 | -42..7,33 | -42..7,33 | -42..7,33 | -42..7,33 | 48..92,4  | 37,3..92,4 | 37,3..92,4 | 46,6..69,1 | -36,8..48,9 | 31,05..77,5 | 8,5..49,4 | -42..7,33 | -42..4,6   | -45..1,6   | -43,6..9,5 | -40..40   |
| Work Flow [kg/h]      | 270..1800 | 270..1800 | 268..1474 | 268..1474 | 334..1835 | 334..1835 | 334..1835  | 268..1657  | 268..1657  | 268..1657   | 35..1328    | 35..1328  | 268..1474 | 1,86..1800 | 1,86..1800 | 1,86..1800 | 270..1800 |

| Rev.                                 | Date       | Drawn       | Checked | Approved | TITLE:        |
|--------------------------------------|------------|-------------|---------|----------|---------------|
| 0                                    | 26.02.2023 | R. Upleiden | -       | -        | CO2 Flow Loop |
| A                                    | 27.03.2023 | R. Upleiden | -       | -        |               |
| B                                    | 19.04.2023 | R. Upleiden | -       | -        |               |
| C                                    | 10.08.2023 | R. Upleiden | -       | -        |               |
| SUBJECT: CO2 FLOW LOOP 53367-TEP-003 |            |             |         |          |               |
| DWG.NR.: TNO - Energy Transition     |            |             |         |          |               |
| PROJECT NR.: 060.53367               |            |             |         |          |               |
| DWG.SIZE: A1                         |            |             |         |          |               |