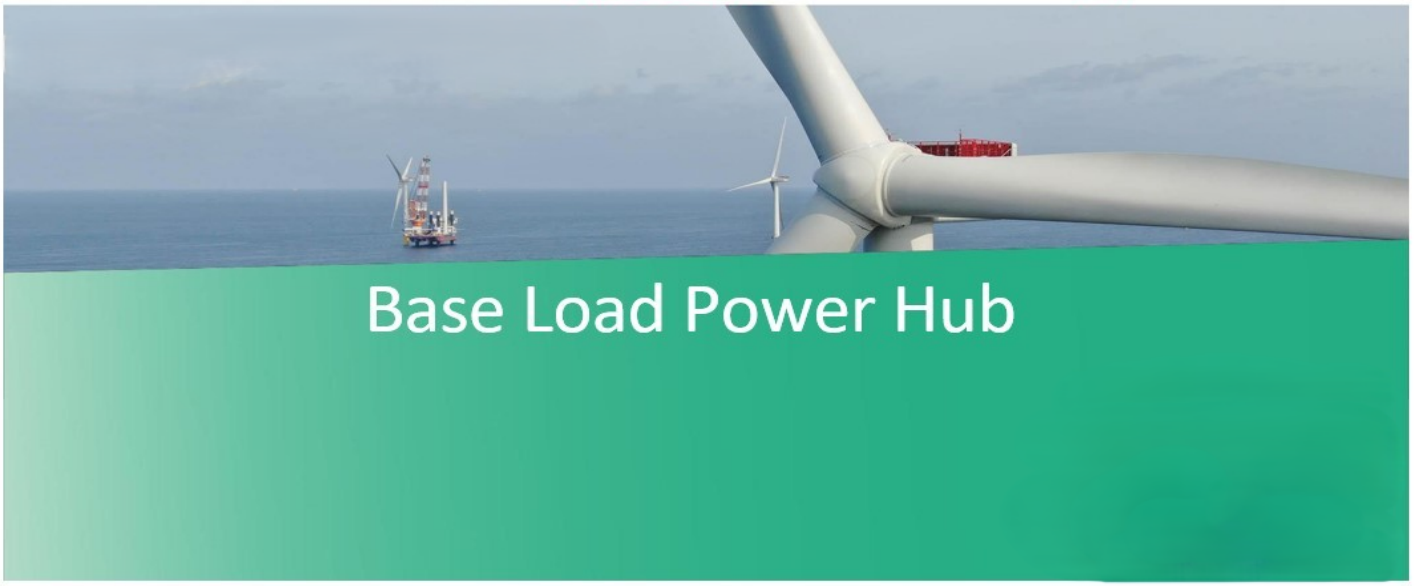
CROSSWIND

ROSETTI MARINO

PROVERLIS

PROJECT **123A90 - HOLLANDSE KUST NOORD WIND PARK**
BLPH Project



COMMISSIONING DOSSIER (ONSHORE)

SYSTEM	43 Hydrogen Vent System
SUBSYSTEM	43-00 Hydrogen Vent Header & Drum System

CROSSWIND

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

COMMISSIONING DOSSIER INDEX

ROSETTI MARINO

Sub System N°:	43-00	**Tick as appropriate**	ONSHORE	OK
Description:	Hydrogen Vent Header & Drum System		OFFSHORE	

1. *SUB-SYSTEM DEFINITION*	OK
1.1 Sub-System Description / Boundary Limit Drawings	
2. *READY FOR OPERATION CERTIFICATE*	OK
2.1 Achievement Of Ready for Operation Certificate (RFO)	
2.2 Exception Punch Lists (per discipline)	
2.3 “As-Commissioned” P&ID’s / SLD’s / D&ID’s / C&E’s	
3. *CONSOLIDATED PUNCH LISTS*	OK
3.1 Cleared and Residual Items (sorted by discipline)	
4. *FUNCTIONAL TESTS SHEETS*	OK
4.1 Electrical functional test sheets index	
4.2 Electrical “As-Commissioned” interconnection diagrams	
4.3 Instrumentation Functional Test Sheets Index	
4.4 Instrumentation “As-Commissioned” interconnection diagrams	
4.5 Telecommunication Functional Test Sheets Index	
4.6 Telecommunication “As-Commissioned” I.C.D. / TSLD’s	
5. *SITE / OPERATIONAL:*	NA
5.1 Operational Test Procedure	
5.2 Operational Test Certificates	
6. *PIPING AND VESSEL PREPARATION*	OK
6.1 Final Mechanical / Vessel Inspection Checks Index	
6.2 Leak Test / Drying / Inerting Test Sheets Index	
6.3 Chemical Loading & First Fill records Index	
6.4 Chemical Cleaning Reports and Records Index	
6.5 Lubrication Schedule	
7. *VENDORS*	NA
7.1 Vendor Package Summary Index	
7.2 SAT Procedure with associated punch list and reference (Front Page)	
7.3 Vendor Spares & Special Tools lists references	
7.4 Vendor Data / Operations / Maintenance Manuals References	
8. *LIST OF MODIFICATIONS*	NA
8.1 List of changes initiated during the WORKSITE Commissioning phase pertaining to the relevant Sub-System will be incorporated in this section with relevant references (with location and position of blinds/spades, isolation LO & LC valves, list of electrical isolation status, and remaining inhibits and overrides)	
9. *SUPPORTING DOCUMENTS*	NA
9.1 Other supporting documents (as applicable)	

	Contractor Commissioning Site Leader	Company Commissioning Site Leader
Name	Anthony Iveson	Martin Taylor
Date	2025-04-30	2025-04-30
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-04-30T13:28:22.590Z	PROVERLIS Digitaly signed by Martin Taylor 2025-04-30T15:09:27.595Z

Section 1 SUB-SYSTEM DEFINITION

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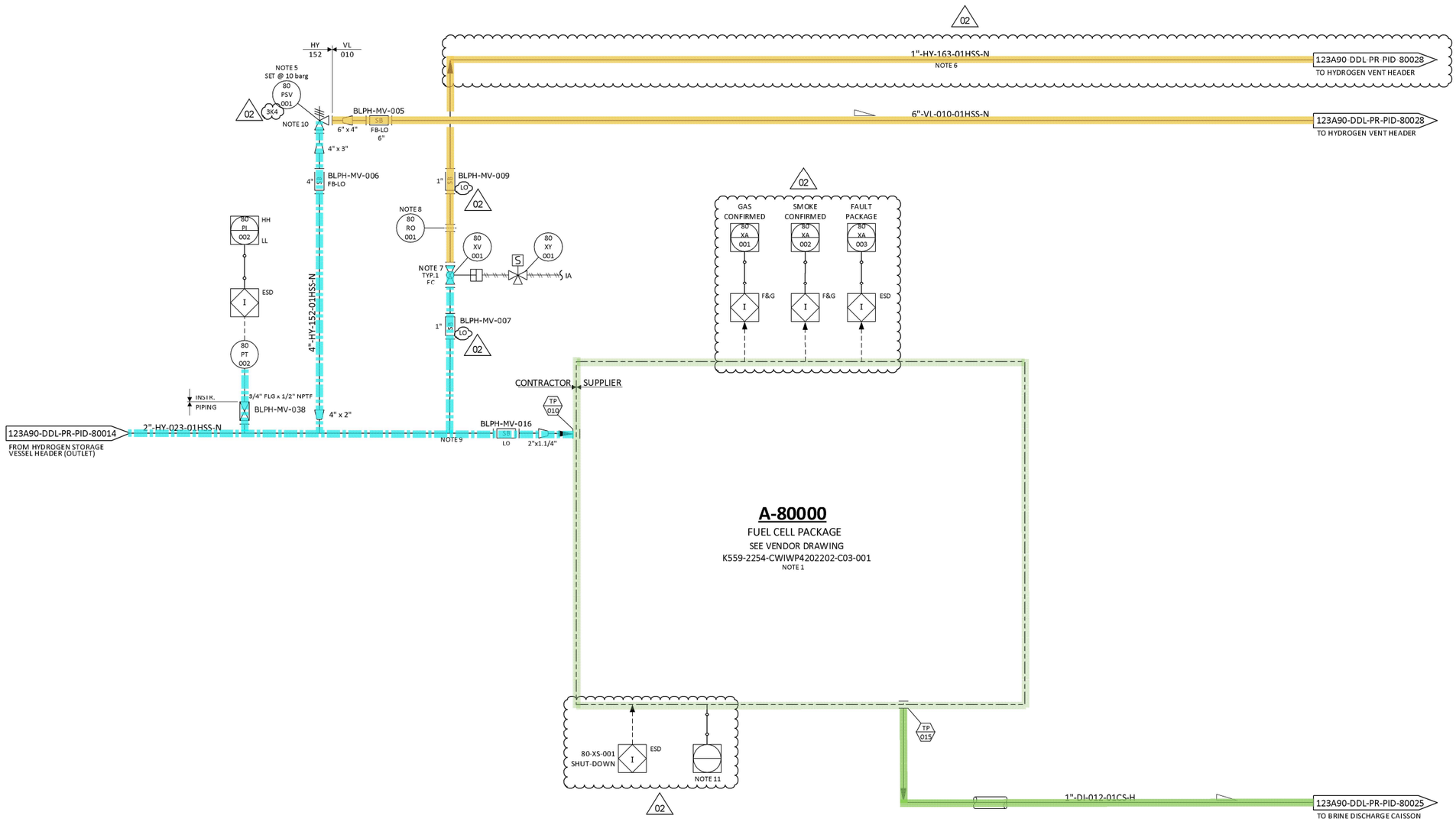
REV. REV

Hydrogen Vent Header & Drum System SS 43-00

Hydrogen Storage Vessels Header (Outlet) SS 25-08

Waste Water Brine Discharge System SS 55-01

Hydrogen Fuel Cell Package SS 80-00



NOTES

1. THE VENDOR PACKAGE WILL CONTAIN AIR INTAKE AND EXHAUST, SUITABLY SAFEGUARDED AND SEPARATED.
2. DELETED.
3. DELETED.
4. DELETED
5. ONE UNINSTALLED SPARE PSV SHALL BE AVAILABLE.
6. LINE REQUIRED FOR PURGING OF PIPING WORK.
7. TIGHT SHUT-OFF VALVE.
8. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
9. LINE 1"-HY-163-01HSS-N WILL BE LOCATED AS CLOSE TO THE PACKAGE AS POSSIBLE TO ENSURE COMPLETE PURGING OF THE LINE.
10. 80PSV001 SIZED FOR CV FAILURE OF UPSTREAM CONTROL VAVE 25PV055A/B.
11. SERIAL COMMUNICATION WITH CONTROL SYSTEM. 02

HOLDS

1. DELETED.
2. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

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TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
FUEL CELL PACKAGE

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE

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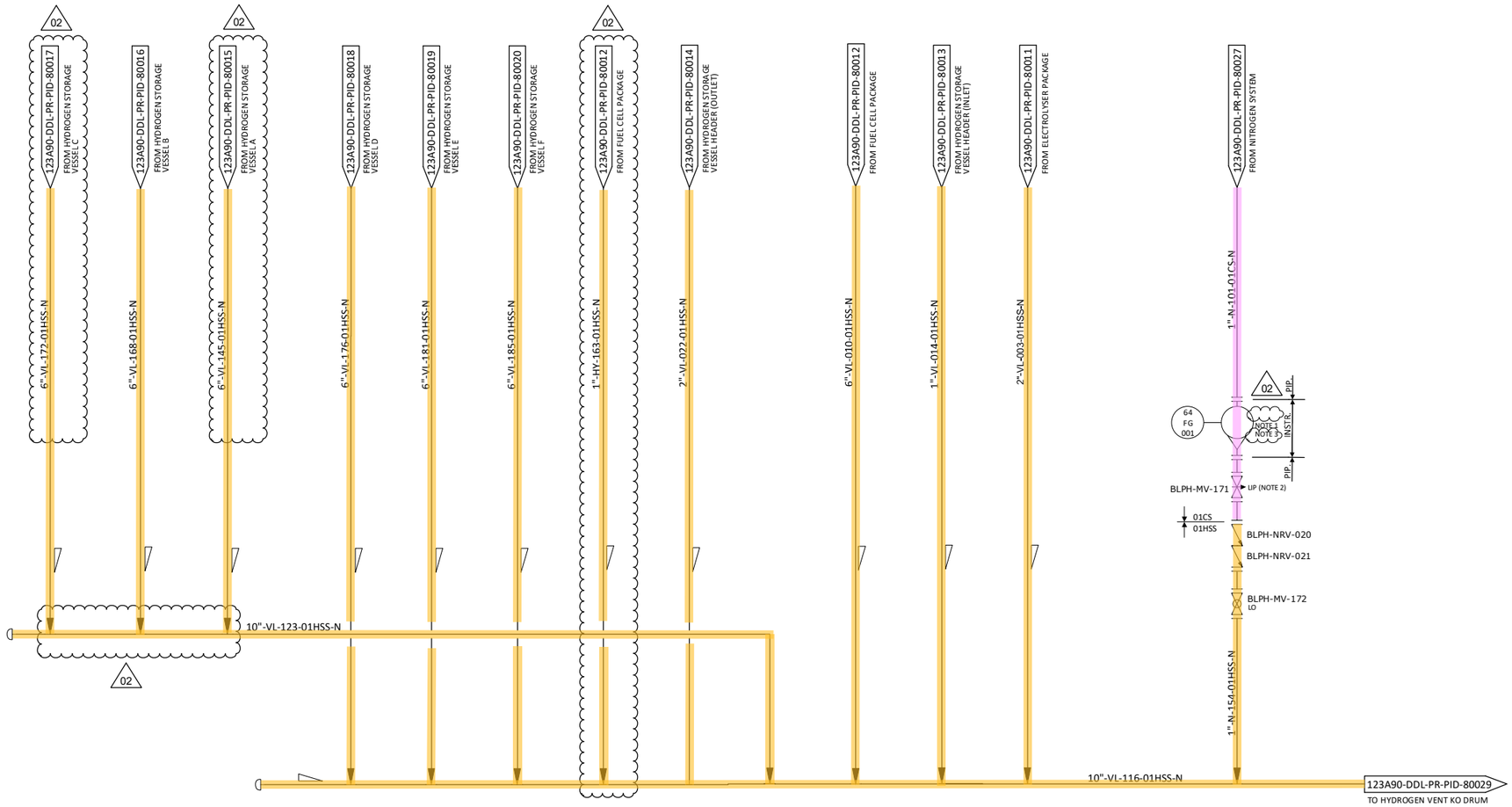
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DRAWING_NO.

REV.

Nitrogen Distrubution Network SS 64-10

Hydrogen Vent Header & Drum System SS 43-00



NOTES

1. FLOW METER 64-FG-001 SHALL BE READABLE FROM MANUAL VALVE MV-171.
2. VALVE BLPH-MV-171 TO BE LOCKED IN PLACE.
3. VERTICAL INSTALLATION. 02

HOLDS

1. DELETED.
2. DELETED. 02

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN VENT HEADER

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80028	SHEET 001	REV. 02

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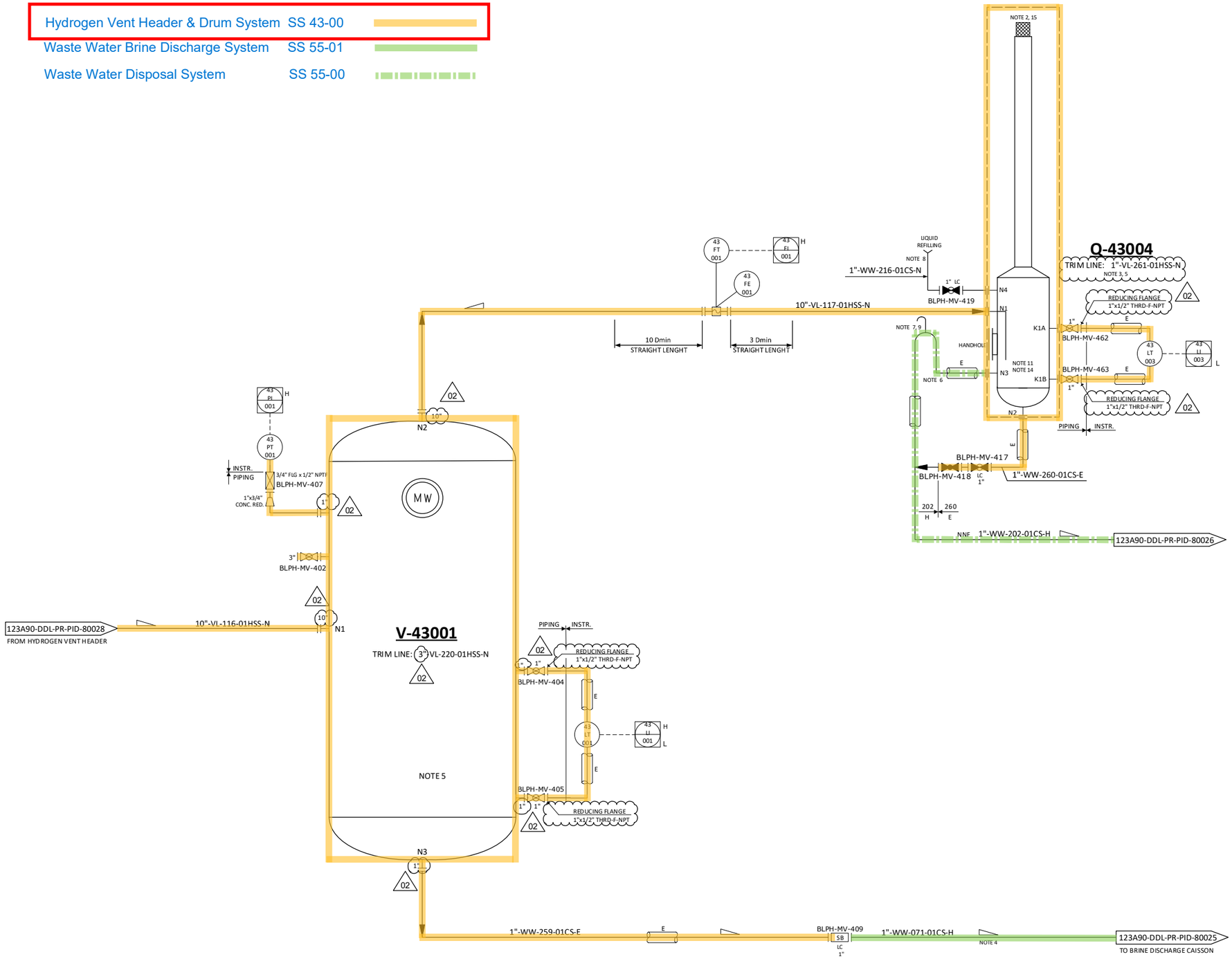
DRAWING NO. DRAWING_NO.

REV. REV

V-43001
HYDROGEN VENT KO DRUM
SIZE : 600 mm (ID) x 2350 mm (H)
DESIGN P/T : 3.5 barg / -10 / 80°C
MATERIAL : LTCS + 1 mm CA 02

Q-43004
HYDROGEN VENT NOTE 1
SIZE : 254 mm (ID)
DESIGN P/T : 3.5 barg / -10 / 80°C
MATERIAL : LTCS + 3 mm CA 02

Hydrogen Vent Header & Drum System	SS 43-00
Waste Water Brine Discharge System	SS 55-01
Waste Water Disposal System	SS 55-00



NOTES

1. VENT TO SAFE LOCATION SEGREGATED FROM OTHER VENTS.
2. VENT TO BE EQUIPPED WITH FLAME ARRESTOR AND BIRD SCREEN.
3. LIQUID SEAL DRUM IS PART OF THE VENT SYSTEM.
4. LIQUID DRAIN LINES TO BE ROUTED TO ENSURE GRAVITY DRAIN.
5. HYDROGEN VENT KO DRUM AND LIQUID SEAL DRUM TO BE HEAT TRACING.
   - V-43001 HEAT TRACED FROM B.T.L. UP TO 600 mm, BOTTOM HEAD ALSO TO BE HEAT TRACED.
6. SEAL LEG WILL BE DETERMINATED ON THE MAXIMUM BACK PRESSURE IN THE VENT. 02
7. SEAL VENT TO BE PLACED INTO A SAFE POSITION.
8. FILLING LINE TO BE PLACED IN AN ACCESSIBLE POSITION.
9. TRACED FROM NOZZLE N3 UP TO SWAN NECK.
10. DELETED. 02
11. INLET DIP LEG SUBMERSION HEIGHT OF 0.6 m. 02
12. DELETED. 02
13. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 VENT KOD.
14. LIQUID INSIDE SEAL DRUM IS A WATER - GLYCOL MIXTURE WITH 40% VOLUME OF GLYCOL.
15. TOP OF TIP OF H2 VENT SHALL BE AT AS MINIMUM 6.2 m FROM HIGHEST REACHABLE PLATFORM.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN VENT DRUM

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
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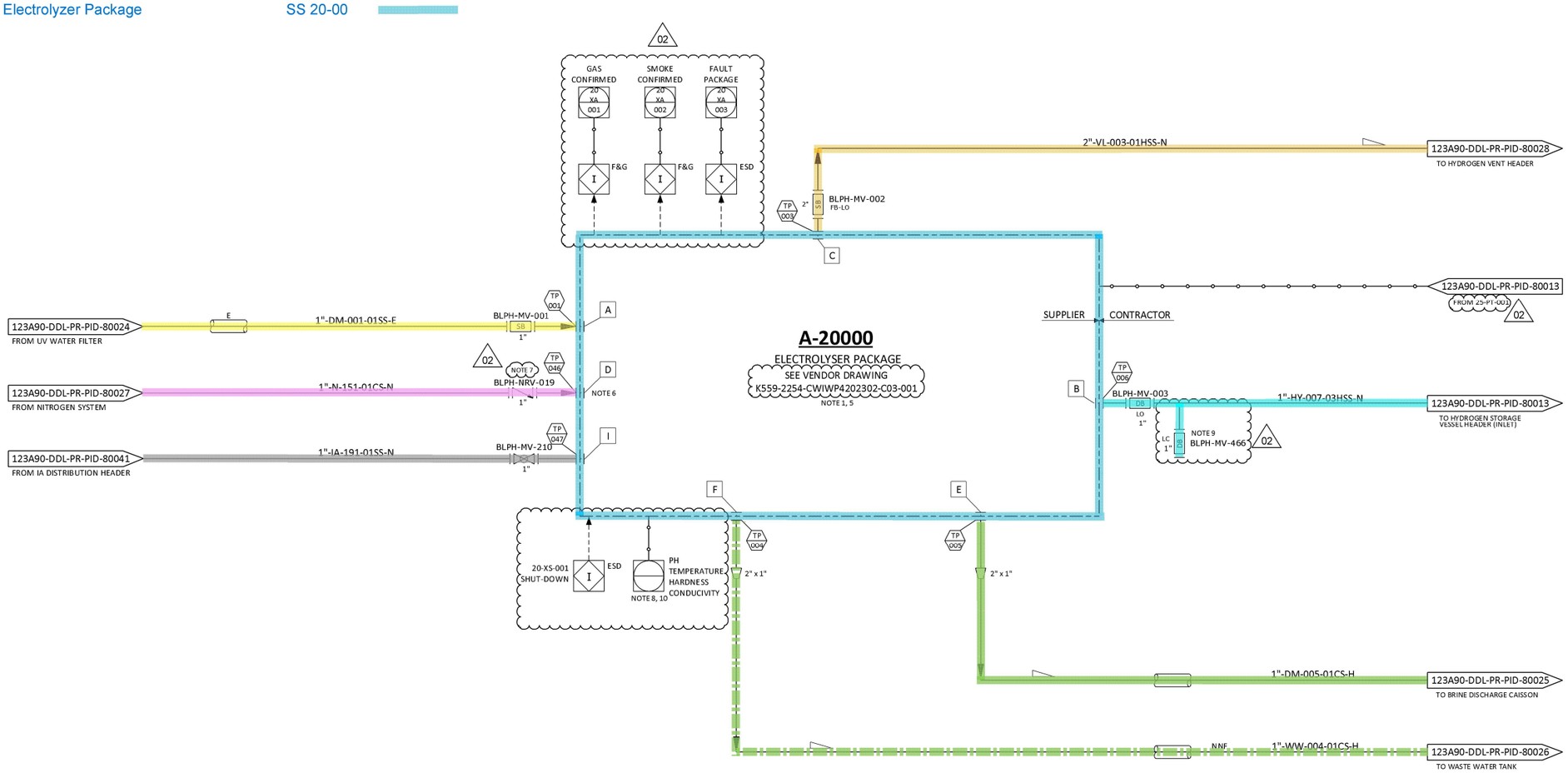
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REV. REV

Instrumen Air Distribution Network	SS 63-30
Water Desalination & Distribution System	SS 50-10
Hydrogen Storage Vessel Header (Intel)	SS 43-00
Nitrigen Distribution Network	SS 64-11
Waste Water Brine Discharge System	SS 55-01
Waste Water Disposal System	SS 55-00
Hydrigen Storage Vessel Header (Intel)	SS 25-07
Electrolyzer Package	SS 20-00

A-20000
ELECTROLYSER PACKAGE

DUTY: 2.5MW
DESIGN PRESSURE: 40 barg
DESIGN TEMPERATURE: 80 °C
H2 GENERATING CAPACITY: 500 Nm³/h



NOTES

1. PACKAGE SUPPLIED WITH POWER FROM THE BLPH ELECTRICAL SYSTEM.
2. DELETED.
3. DELETED.
4. DELETED.
5. ELECTROLYSER PACKAGE INCLUDES AN OXYGEN VENT LINE WHICH IS IN THE SCOPE OF SUPPLY OF THE ELECTROLYSER PACKAGE UP TO THE ATMOSPHERE. NO PHYSICAL INTERFACE IS PRESENT BETWEEN ELECTROLYSER PACKAGE AND CONTRACTOR ON THIS LINE.
6. AN ISOLATION VALVE DOWNSTREAM THE CHECK VALVE NRV-019 IS PROVIDED WITHIN THE PACKAGE A-20000.
7. CHECK VALVE NRV-019 TO BE INSTALLED AS CLOSE AS POSSIBLE TO THE ELECTROLYSER PACKAGE A-20000.
8. SERIAL COMMUNICATION WITH CONTROL SYSTEM.
9. NITROGEN PURGING CONNECTION TO BE LOCATED AS CLOSE AS POSSIBLE TO MANUAL VALVE BLPH-MV-003.
10. PH, TEMPERATURE, HARDNESS AND CONDUCTIVITY SHALL BE SENT FROM CONTROL SYSTEM TO ELECTROLISER UCP IN ADDITION TO THE OTHER SOFTWARE SIGNALS.

02

HOLDS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
ELECTROLYSER PACKAGE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
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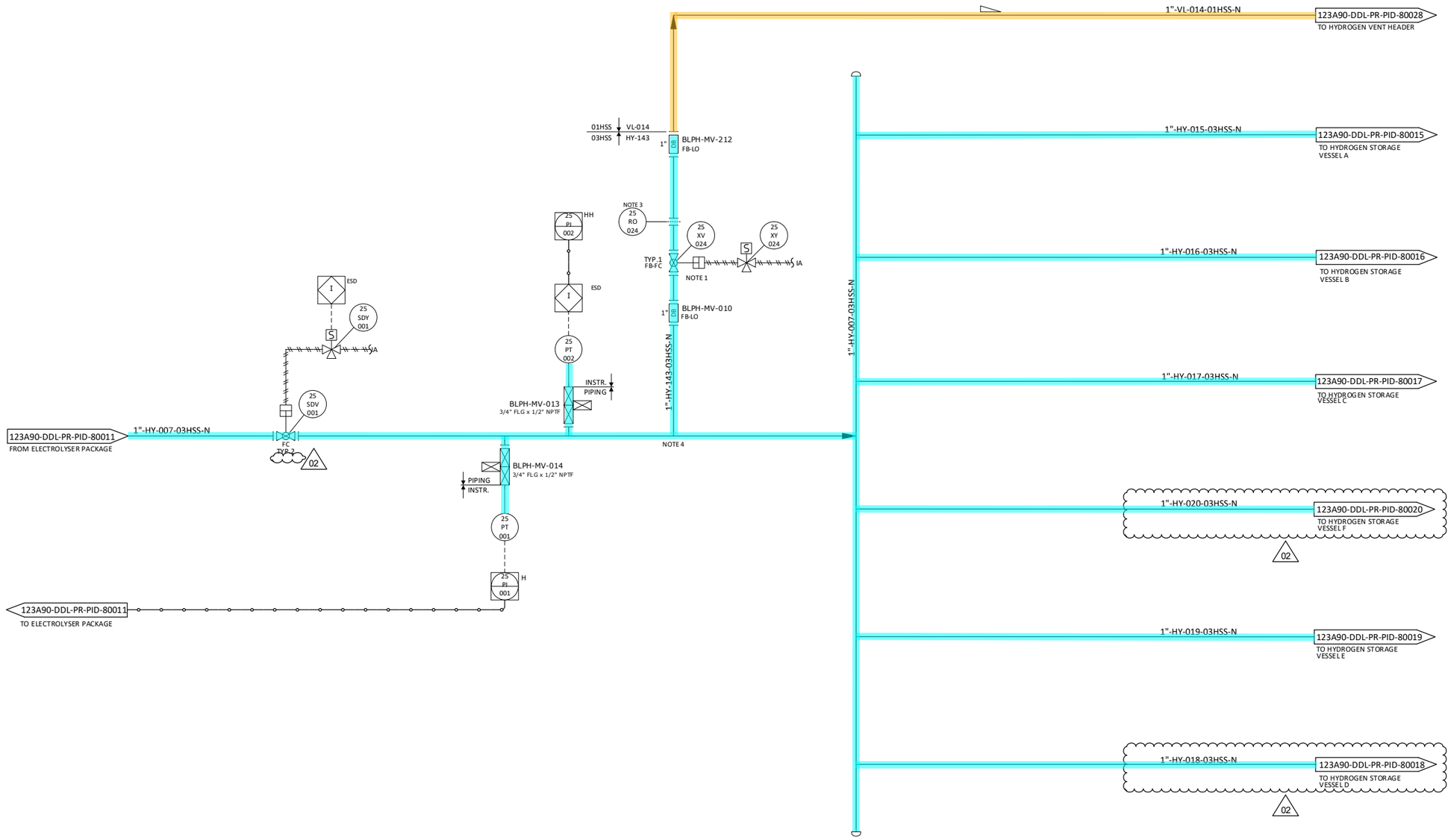
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REV. REV

Hydrogen Vent Header & Drum System SS 43-00

Hydrogen Storage Vessels Header (Inlet) SS 25-07



NOTES

1. TIGHT SHUT OFF XV.
2. DELETED. 02
3. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
4. PIPING CONNECTION TO 25-XV-003 SHALL BE AS CLOSE TO THE MANIFOLD AS POSSIBLE, TO ENSURE COMPLETE PURGING OF FEED LINE.

HOLDS

1. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSELS HEADER (INLET)

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

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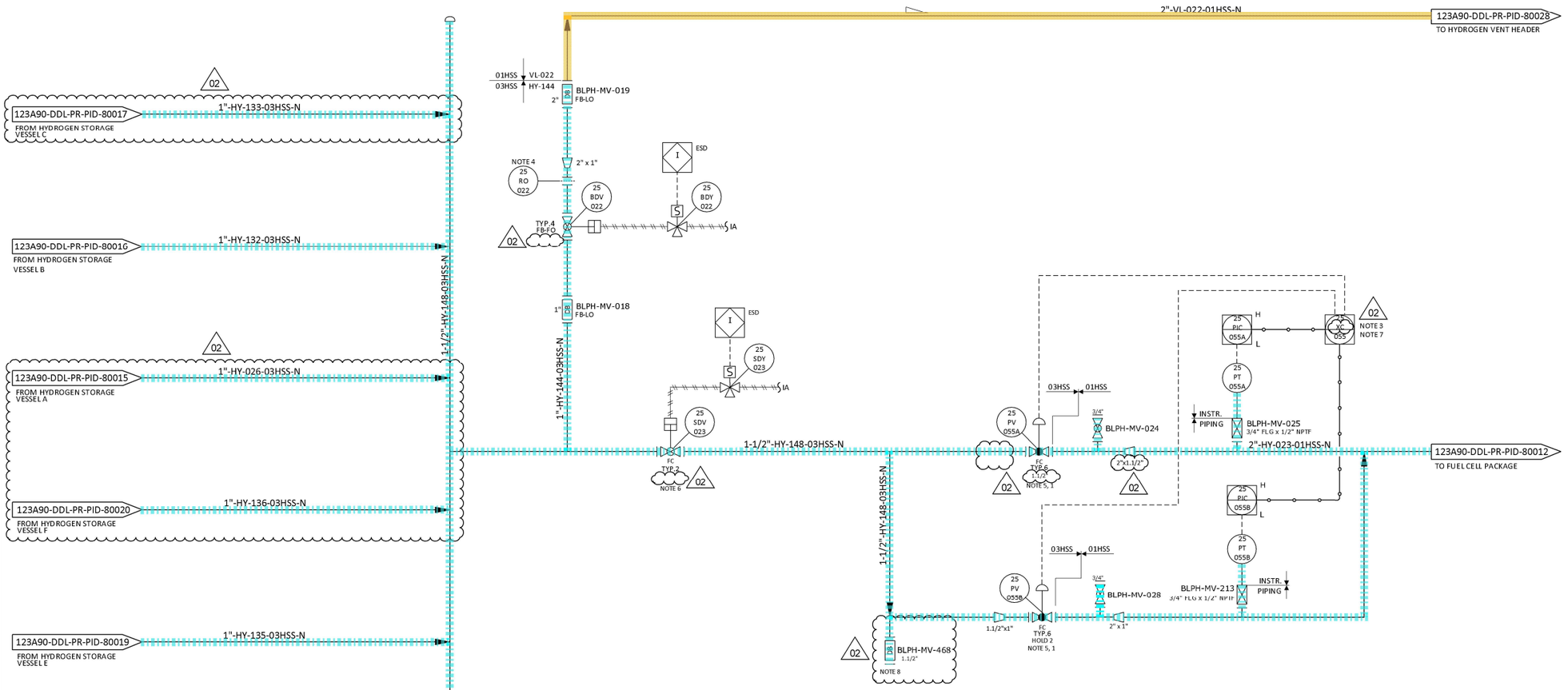
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DRAWING NO. DRAWING_NO.

REV. REV

Hydrogen Vent Header & Drum System SS 43-00

Hydrogen Storage Vessels Header (Outlet) SS 25-08



NOTES

1. TIGHT SHUT-OFF VALVE.
2. DELETED.
3. CONTROL VALVES 25-PV-055A/B WORK IN SPLIT RANGE:
   - FOR LOW OPERATING CV (UP TO 0.31) VALVE "B" IS USED
   - FOR HIGH OPERATING CV (FROM 0.31) VALVE "A" IS USED

   02
4. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
5. SOFTWARE INTERLOCK PREVENTS OPENING OF THE CONTROL VALVES 25-PV-055A/B IN CASE FUEL CELL PACKAGE (A-80000) IS NOT RUNNING.
6. SDV VALVE 25-SDV-023 TO BE INSTALLED AS CLOSE AS POSSIBLE TO THE CONTROL VALVES 25-PV-055A/B.
7. HS INCLUDES SOFTWARE INTERLOCK TO PREVENT BOTH VALVES TO BE ONLINE SIMULTANEOUSLY. SOFTWARE INTERLOCK PREVENTS VALVE 25PV055B TO OPEN IF VALVE 25PV055A IS NOT CLOSED.
8. TO BE USED DURING COMMISSIONING PHASE. 02

HOLDS

1. DELETED.
2. CONTROL VALVE SIZE (BY VENDOR).

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSELS HEADER (OUTLET)

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
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REV. REV

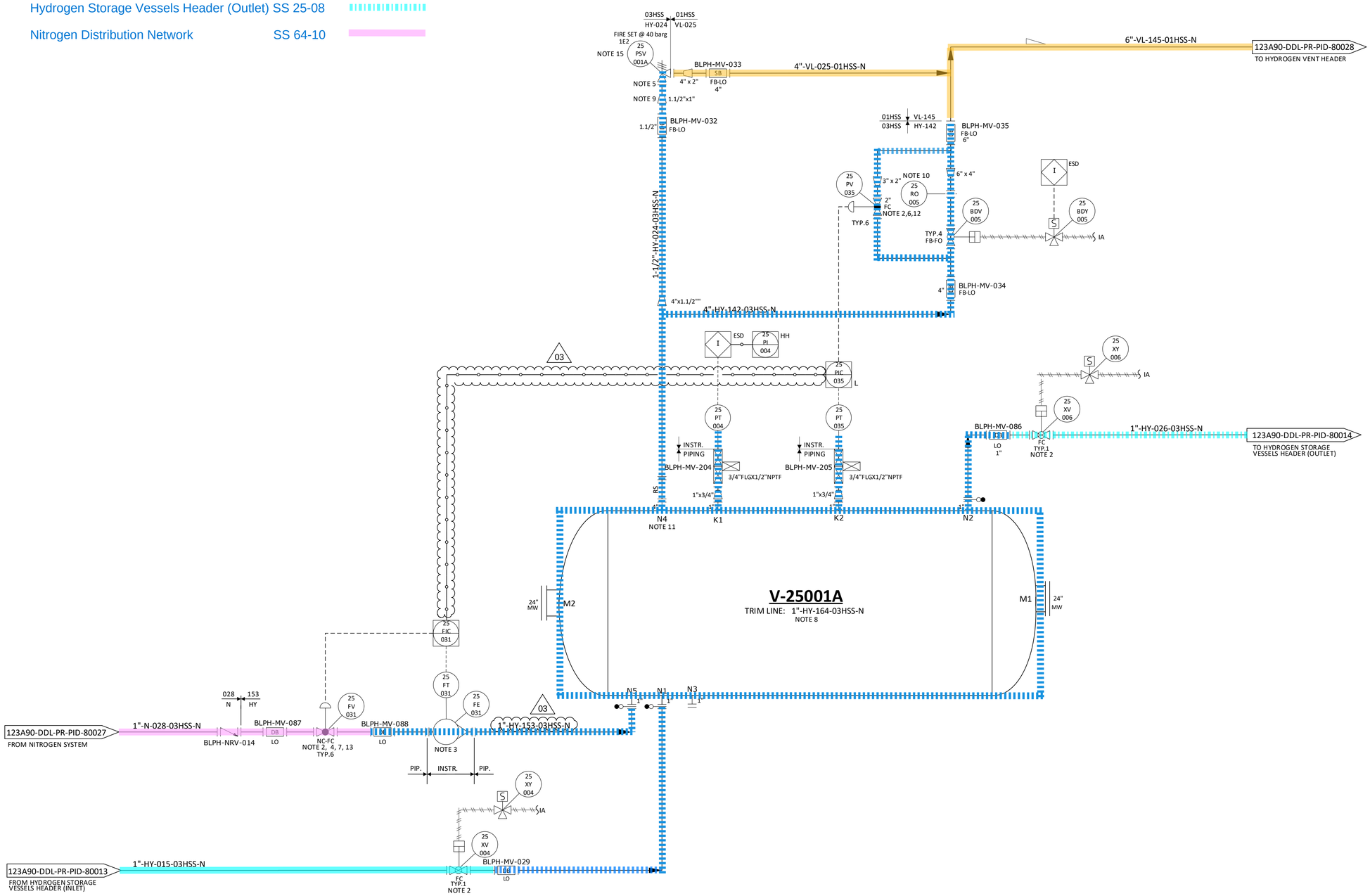
Hydrogen Storage Vessel A (V-25001A) SS 25-01

Hydrogen Vent Header & Drum System SS 43-00

Hydrogen Storage Vessels Header (inlet) SS 25-07

Hydrogen Storage Vessels Header (Outlet) SS 25-08

Nitrogen Distribution Network SS 64-10



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-031) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE. 03
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT "DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-035 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-035 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-031 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-035 HAS FAILED TO CLOSE.
15. 25-PSV-001A SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL A

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

A1	DRAWING NO. 123A90-DDL-PR-PID-80015	SHEET 001	REV. 03

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

Hydrogen Storage Vessel B (V-25001B) SS 25-02

Hydrogen Vent Header & Drum System SS 43-00

Hydrogen Storage Vessels Header (inlet) SS 25-07

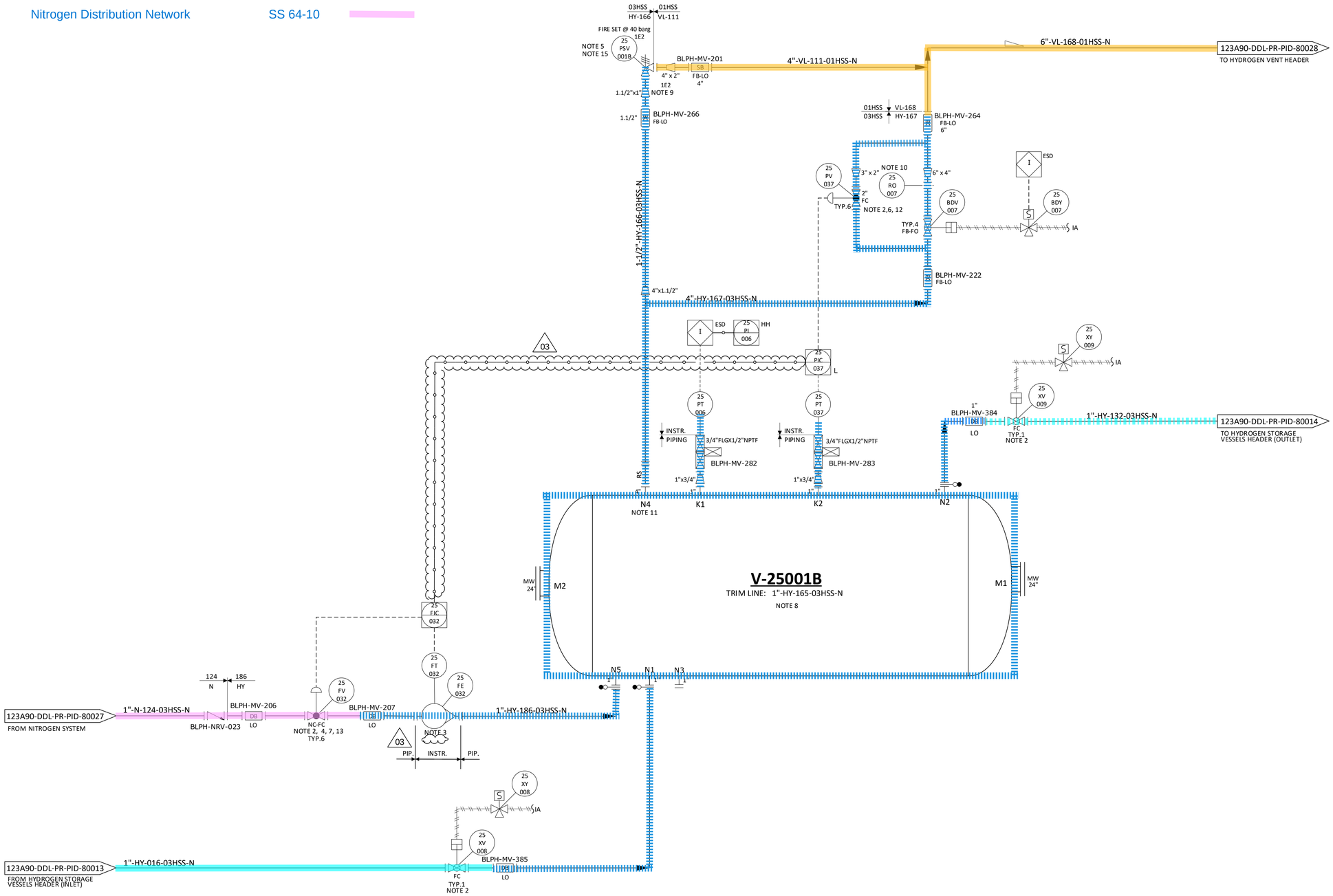
Hydrogen Storage Vessels Header (Outlet) SS 25-08

Nitrogen Distribution Network SS 64-10

V-25001 B

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-032) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE. 03
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT "DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-037 BEING OPENED OUTSIDE OR A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC."PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-037 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-032 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-037 HAS FAILED TO CLOSE.
15. 25-PSV-001B SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL B

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

	DRAWING NO.	SHEET	REV.
A1	123A90-DDL-PR-PID-80016	001	03

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

Hydrogen Storage Vessel C (V-25001C) SS 25-03

Hydrogen Vent Header & Drum System SS 43-00

Hydrogen Storage Vessels Header (inlet) SS 25-07

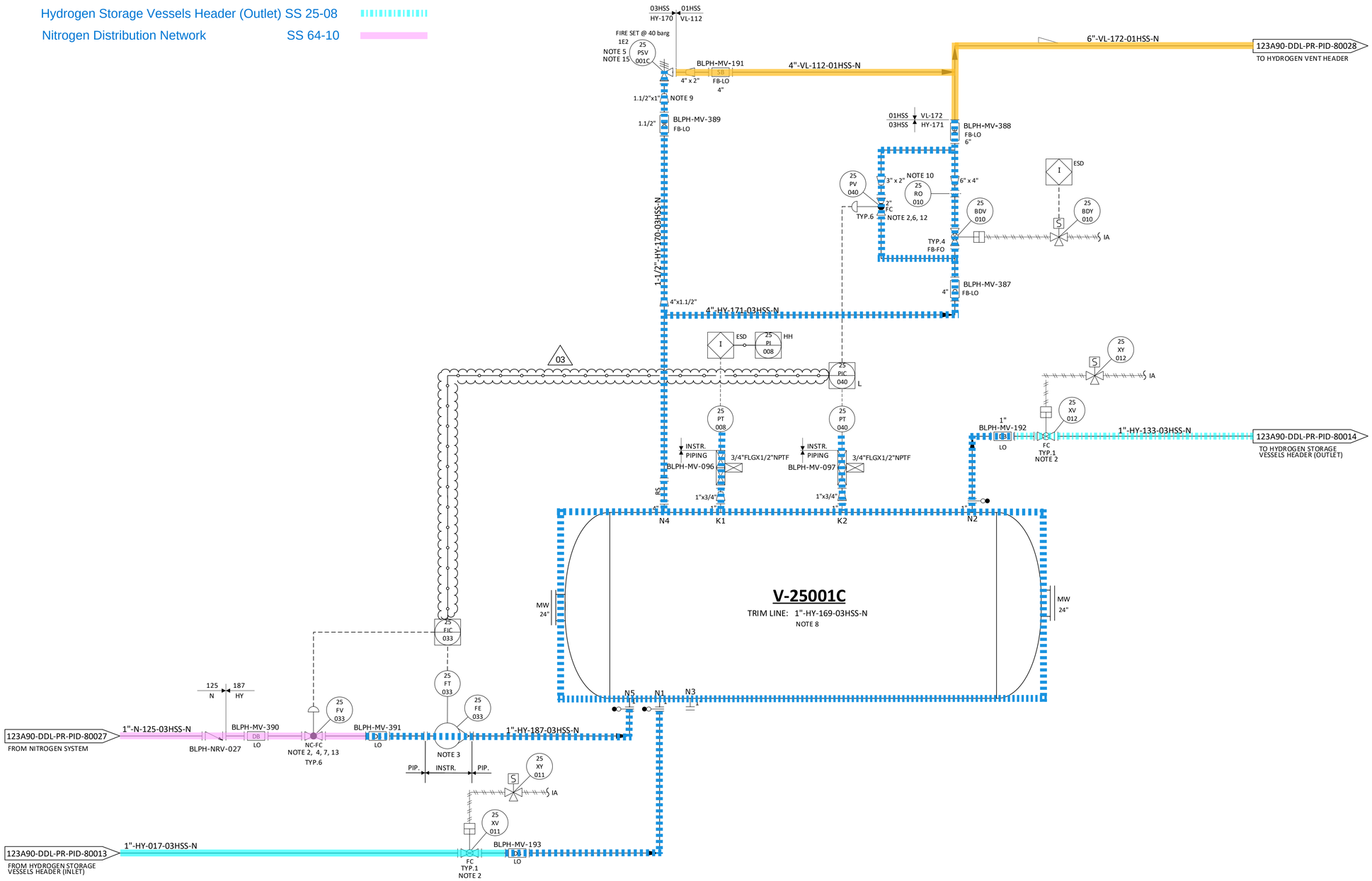
Hydrogen Storage Vessels Header (Outlet) SS 25-08

Nitrogen Distribution Network SS 64-10

V-25001 C

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-033) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE. 03
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-040 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-040 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-033 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-040 HAS FAILED TO CLOSE.
15. 25-PS-V001C SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL C

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80017	SHEET 001	REV. 03

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

Hydrogen Storage Vessel D (V-25001D) SS 25-04

Hydrogen Vent Header & Drum System SS 43-00

Hydrogen Storage Vessels Header (inlet) SS 25-07

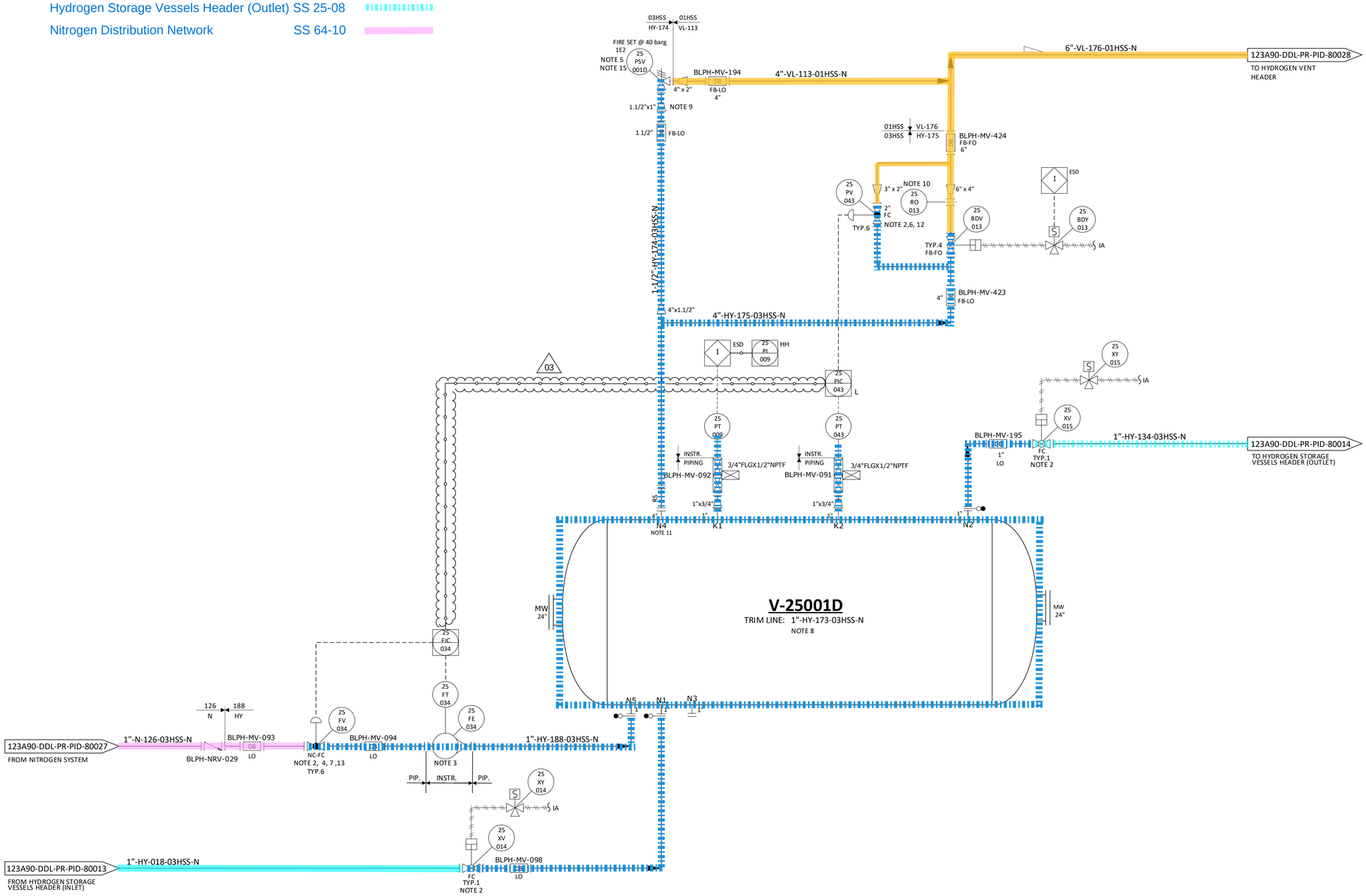
Hydrogen Storage Vessels Header (Outlet) SS 25-08

Nitrogen Distribution Network SS 64-10

V-25001_D

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS. 03
4. NITROGEN CONTROL VALVE (25-FV-034) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-043 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-043 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-034 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-043 HAS FAILED TO CLOSE.
15. 25-PSV-001D SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL D

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

A1	DRAWING NO. 123A90-DDL-PR-PID-80018	SHEET 001	REV. 03

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

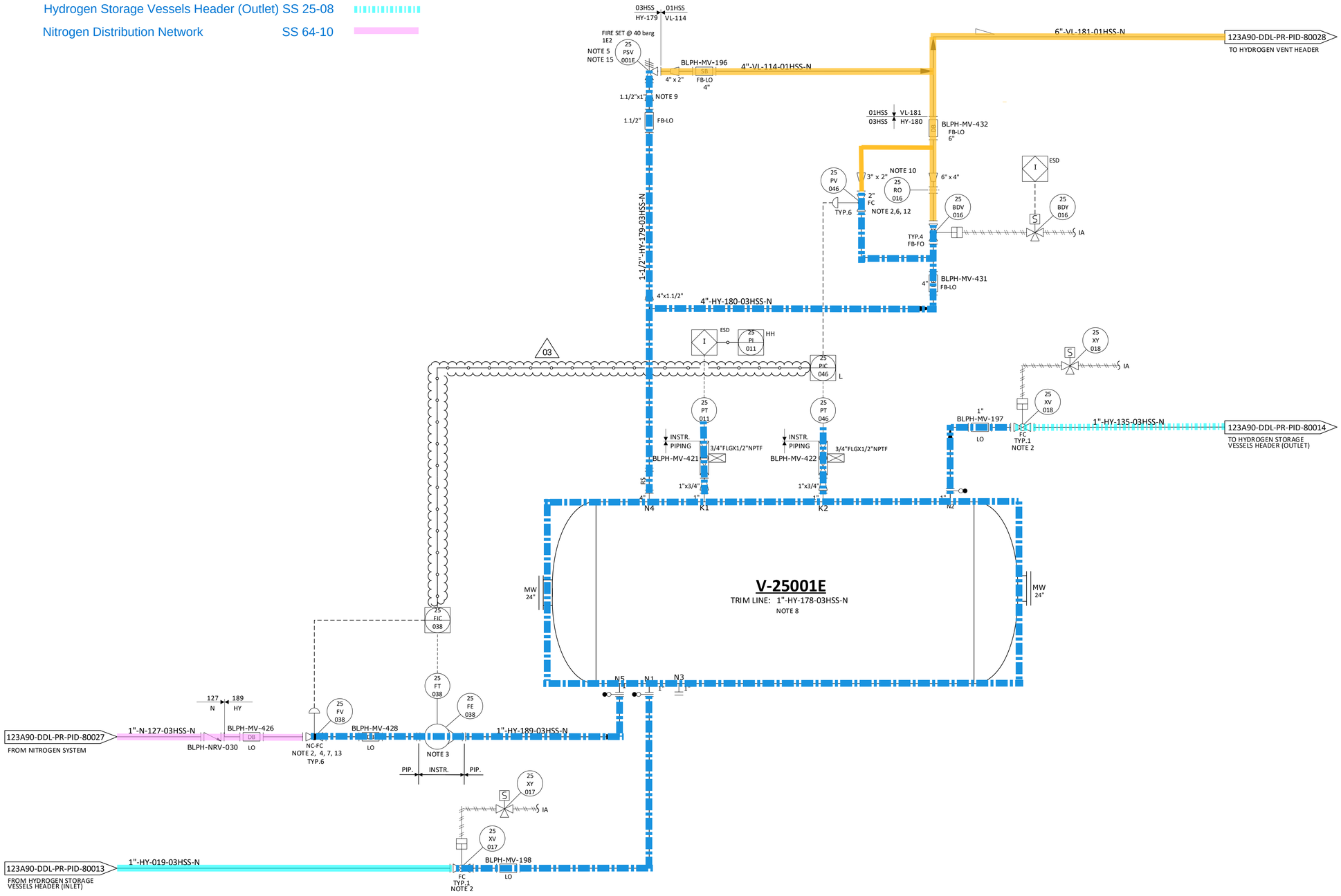
Hydrogen Storage Vessel E (V-25001E) SS 25-05

Hydrogen Vent Header & Drum System SS 43-00

Hydrogen Storage Vessels Header (inlet) SS 25-07

Hydrogen Storage Vessels Header (Outlet) SS 25-08

Nitrogen Distribution Network SS 64-10



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-038) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE. 03
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-046 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-046 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-038 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-046 HAS FAILED TO CLOSE.
15. 25-PSV-001E SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL E

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

A1	DRAWING NO. 123A90-DDL-PR-PID-80019	SHEET 001	REV. 03

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

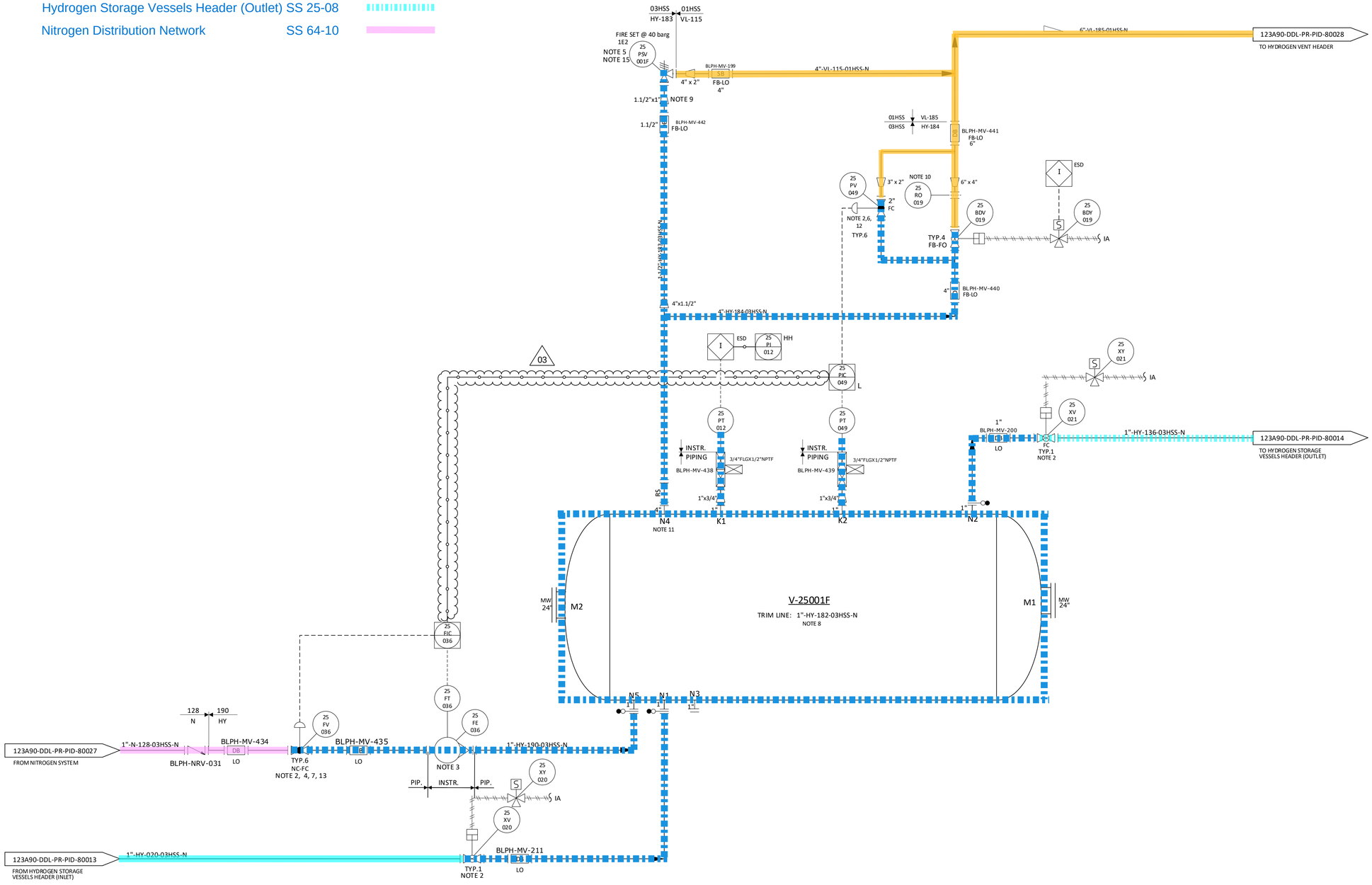
Hydrogen Storage Vessel F (V-25001F) SS 25-06

Hydrogen Vent Header & Drum System SS 43-00

Hydrogen Storage Vessels Header (inlet) SS 25-07

Hydrogen Storage Vessels Header (Outlet) SS 25-08

Nitrogen Distribution Network SS 64-10



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-036) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE. 03
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-049 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-049 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25FV036 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-049 HAS FAILED TO CLOSE.
15. 25-PSV-001F SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR HAZOP (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :

BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL F

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80020		SHEET 001	REV. 03

File Name : FILE_NAME

Section 2 READY FOR OPERATION

Section 2.1 Achievement Of Ready for Operation Certificate (RFO)

ROSETTI MARINO

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

CROSSWIND

Ready For Operation (RFO) Certificate

COMPLETE		PARTIAL	●

Revision:	3		Issued on:	2025-04-29	

System:	43	/	Hydrogen Vent System
SubSystem:	43-00	/	Hydrogen Vent Header & Drum System

We hereby confirm that all Mechanical Completion (MC) and Pre-Commissioning/Commissioning (Pre-Comm./Comm.) activities for the above-mentioned System/Sub-System have been successfully completed in accordance with project specifications, relevant standards and contractual requirements. The System/Sub-System has been tested and verified to ensure readiness for operation. Issuance of this Certificate shall not release CONTRACTOR from any of his obligations, responsibilities or liabilities under the CONTRACT.

	Mechanical Completion: All required MC activities have been completed and approved
	Pre-Commissioning & Commissioning: All required Pre-Comm. and Comm. activities and OTPs have been completed and approved (Status Index attached)
	Punch List: All Punch items categorized as A and B have been cleared (PL report attached)
	Documentation: As-built documentation and Commissioning dossier has been completed, reviewed and approved

PUNCH LIST	PENDING POINTS	
Note: All Category "A" and "B" Items must be cleared prior to issuance of the Ready For Operation (RFO) Certificate	B: 8	

REMARKS: This Partial RFO certificate is valid for polarization and Hydrogen production from Electrolyzer directly to the vent only, awaiting final solution for liquid seal in order to enable hydrogen production into H2 vessels.

	CONTRACTOR Commissioning Manager	**COMPANY** Commissioning Lead
Name	Anthony Iveson	Martin Taylor
Date	2025-04-29	2025-04-29
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-04-29T14:47:35.219Z	PROVERLIS Digitaly signed by Martin Taylor 2025-04-29T14:59:33.814Z

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 43-00 & process: COMM

Instrumental	43-00 Hydrogen Vent Header & Drum System

ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
43-FT-001	Flow Transmitter - Hydrogen form KO DRUM V-43001 to vent stack Q-43004	ONSHORE	C10003177	FJ01A	100	2025-04-14	RFO 3
43-LT-001	Level DP Transmitter - KO Drum V-43001 High/Low Level	ONSHORE	C10003224	FJ01A	100	2025-04-03	RFO 3
43-LT-003	Level DP Transmitter - H2 Vent Q-43004 Low Level	ONSHORE	C10003225	FJ01A	100	2025-04-02	RFO 3
43-PT-001	Pressure Transmitter - KO Drum V-43001 Pressure	ONSHORE	C10003178	FJ01A	100	2025-03-19	RFO 3

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 43-00 & process: COMM

Piping	43-00 Hydrogen Vent Header & Drum System						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
Q-43004	Hydrogen Vent	ONSHORE	C10004876	TMX00	100	2025-04-09	RFO 3
TP-001	H2 Vent System	ONSHORE	C10004897	4241	100	2025-03-14	RFO 3

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System

SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003263	A	125-2-J3 C10004299	Body length of Valve BLPH-MV-463 does not allow the installation of washers from insulation kit on the valve side.	.As agreed with Engineering Dpt. they have not been installed on that side.		LNovaga 2025-01-28	2025-01-28	LNovaga 2025-01-28	2025-01-28
C30003264	A	125-1-J1 C10004297	Body length of Valve BLPH-MV-462 does not allow the installation of washers from insulation kit on the valve side.	As agreed with Engineering Dpt. they have not been installed on that side.		LNovaga 2025-01-28	2025-01-28	LNovaga 2025-01-28	2025-01-28
C30004110	A	43-00-TP-024 C10003414	Missing earthing connection (SK 042)	.		LNovaga 2025-02-25	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30004111	A	43-00-TP-024 C10003414	Earthing plate completly painted.	.		LNovaga 2025-02-25	2025-02-26	KAlbonetti 2025-02-26	2025-02-26
C30004126	A	43-00-TP-044 C10003570	Missing earthing connection	.		LNovaga 2025-02-25	2025-03-10	LNovaga 2025-03-10	2025-03-10
C30004127	A	43-00-TP-044 C10003570	Clean the earthing plate before installing the cable. See attached.	.		LNovaga 2025-02-25	2025-02-26	LNovaga 2025-02-26	2025-02-26
C30004129	A	43-00-TP-066 C10004556	Flow element not installed to arrange sensitive test.	.		LNovaga 2025-02-25	2025-03-17	LNovaga 2025-03-17	2025-03-17
C30002338	B	43-00-TP-022 C10003397	Spool has not been installed in erection. Inspection points from 4 to 6 of the ITR to be checked during reinstatement.	.		KAlbonetti 2025-01-03	2025-02-07	KAlbonetti 2025-02-07	2025-02-07
C30002954	B	43-00-TP-044 C10003569	SK.043, PS-03054: the support is different in field compared to construction. See DWG attached.	.		KAlbonetti 2025-01-16			

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	43	Hydrogen Vent System
SUBSYSTEM	43-00	Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002955	B	43-00-TP-044 C10003569	Sk.43, PS-03053: Position R1 has not been prepared.	.		KAlbonetti 2025-01-16	2025-02-25	LNovaga 2025-02-25	2025-02-25
C30002956	B	43-00-TP-044 C10003569	Spool has not been installed in erection. Inspection points from 4 to 6 to be checked during flange management in the after test phase.	.		KAlbonetti 2025-01-16	2025-02-19	KAlbonetti 2025-02-19	2025-02-19
C30003114	B	43-00-TP-065 C10003704	PS-02134: the structural part of the support is 5 mm shorter and the position R1 is missing.	.		KAlbonetti 2025-01-21	2025-02-11	KAlbonetti 2025-02-11	2025-02-11
C30003117	B	43-00-TP-065 C10003704	In the Spool A, the section between W1 and W2 has been cut of 70 mm due the fact that the nozzle of the Vent was longer.	.		KAlbonetti 2025-01-21	2025-04-02	LNovaga 2025-04-02	2025-04-02
C30003181	B	43-00-TP-064 C10003697	Supports type "S-211" not assembled as for Standard. To be checked again during reinstatement.	.		KAlbonetti 2025-01-24	2025-02-22	LNovaga 2025-02-22	2025-02-22
C30003200	B	43-00-TP-066 C10004555	Nameplate on the spool belonging to the equipment 43-FE-001 is empty.	.		KAlbonetti 2025-01-25	2025-03-31	LNovaga 2025-03-31	2025-03-31
C30003262	B	43-00-TP-024 C10003413	All stopper type "S-205" are missing. They shall be installed and welded to the pads.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003265	B	43-00-TP-024 C10003413	Vlaves have not been installed before test. Flanged joints before test are only temporary. Inspection points from 5 to 7 are going to be	.		KAlbonetti 2025-01-28	2025-02-19	KAlbonetti 2025-02-19	2025-02-19
C30003266	B	43-00-TP-024 C10003413	Sketch 038: Piping support PS-03025 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System
SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003267	B	43-00-TP-024 C10003413	Sketch 037: Piping support PS-03023 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003268	B	43-00-TP-024 C10003413	Sketch 018: Piping support PS-03548 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003269	B	43-00-TP-024 C10003413	Sketch 044: Piping supports PS-03017 and PS-3018 have not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003270	B	43-00-TP-024 C10003413	Sketch 041: Piping support PS-03132 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-03-03	LNovaga 2025-03-03	2025-03-03
C30003271	B	43-00-TP-024 C10003413	Sketch 006: Piping support PS-03051 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003272	B	43-00-TP-024 C10003413	Sketch 039: Piping support PS-03032 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003273	B	43-00-TP-024 C10003413	Sketch 039: Piping support PS-03134 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003274	B	43-00-TP-024 C10003413	Sketch 008: Piping support PS-03127 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-03-03	LNovaga 2025-03-03	2025-03-03
C30003403	B	43-00-TP-024 C10003413	PS-02035 is different from the drawing. See as-built.	.		KAlbonetti 2025-01-30			

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System
SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003404	B	43-00-TP-024 C10003413	PS-03058 is not as for the drawing. See as-built.	.		KAlbonetti 2025-01-30			
C30003515	B	43-00-TP-067 C10004786	Support "PS-02133" is unmounted. ISO 123A90-FDL-PP-DI-00002-01	.		MBruschi 2025-02-03	2025-02-21	LNovaga 2025-02-21	2025-02-21
C30003516	B	43-00-TP-067 C10004786	SK.002-01: All piping supports type "S-75", "C-34", "C-16" and "-S-211" will be check during reinstatement phase.	.		MBruschi 2025-02-03	2025-02-21	LNovaga 2025-02-21	2025-02-21
C30003546	B	43-00-TP-022 C10003400	General touch up do to, especially near the supports of the piping line.	.		KAlbonetti 2025-02-05	2025-02-06	KAlbonetti 2025-02-06	2025-02-06
C30004051	B	43-00-TP-058 C10003663	Color coding and fluid direction are missing.	.		LNovaga 2025-02-20			
C30004083	B	43-00-TP-067 C10004787	Support PS-20289.1 doesn't touch structural support.	.		LNovaga 2025-02-21	2025-02-25	LNovaga 2025-02-25	2025-02-25
C30004084	B	43-00-TP-067 C10004787	Correct the gap on support PS-02132.1 (SK 002 1/2).	.		LNovaga 2025-02-21	2025-02-25	LNovaga 2025-02-25	2025-02-25
C30004085	B	43-00-TP-067 C10004787	Support PS-02080.1 doesn't touch the structural support (SK 002 1/2).	.		LNovaga 2025-02-21	2025-02-25	LNovaga 2025-02-25	2025-02-25
C30004086	B	43-00-TP-067 C10004787	Spool-B has a vertical misalignment about 1.3°.	.		LNovaga 2025-02-21	2025-02-25	KAlbonetti 2025-02-25	2025-02-25

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System
SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004087	B	43-00-TP-064 C10003699	Color coding and fluid direction are missing.	.		LNovaga 2025-02-22	2025-03-25	LNovaga 2025-03-25	2025-03-25
C30004088	B	43-00-TP-064 C10003698	BLPH-MV-419 has stem direction north and gear east. the valve was rotated because there was a clash with the structure.	.		LNovaga 2025-02-22	2025-02-22	LNovaga 2025-02-22	2025-02-22
C30004090	B	43-00-TP-024 C10003414	BLPH-MV-199 has stem direction north and gear east. the valve was rotated because there was a clash with piping.	.		LNovaga 2025-02-22	2025-02-22	LNovaga 2025-02-22	2025-02-22
C30004112	B	43-00-TP-024 C10003414	Support PS-03127.1 SK 008 missing gap.	.		LNovaga 2025-02-25	2025-02-26	KAlbonetti 2025-02-26	2025-02-26
C30004113	B	43-00-TP-024 C10003414	Support PS-03052.1 is missing.	.		LNovaga 2025-02-25	2025-03-03	LNovaga 2025-03-03	2025-03-03
C30004114	B	43-00-TP-024 C10003414	Support PS-03056.2 SK042 sh 1/2 lateral gap is missing.	.		LNovaga 2025-02-25	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30004115	B	43-00-TP-024 C10003414	Support PS-03055.2 SK042 sh 1/2 lateral gap is missing.	.		LNovaga 2025-02-25	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30004116	B	43-00-TP-024 C10003414	Support PS-03017.2 SK044 correct the gap.	.		LNovaga 2025-02-25	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30004117	B	43-00-TP-024 C10003414	Support PS-03018 SK044 is not alligned with pipe.	.		LNovaga 2025-02-25	2025-02-27	LNovaga 2025-02-27	2025-02-27

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System
SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004118	B	43-00-TP-024 C10003414	Support PS-03134.2 SK041, there is a gap between pad and structural support, corret it.	.		LNovaga 2025-02-25	2025-02-28	LNovaga 2025-02-28	2025-02-28
C30004119	B	43-00-TP-024 C10003414	Support PS-03045.1 SK 040 correct the gap.	.		LNovaga 2025-02-25	2025-03-03	LNovaga 2025-03-03	2025-03-03
C30004120	B	43-00-TP-024 C10003414	Support PS-03033.1 SK 039 is not clamped.	.		LNovaga 2025-02-25	2025-03-03	LNovaga 2025-03-03	2025-03-03
C30004125	B	43-00-TP-044 C10003570	The distance between the welds EW5 and W6 has an inverse inclination of 1.4° with respect to the isometric.	.		LNovaga 2025-02-25	2025-03-06	LNovaga 2025-03-06	2025-03-06
C30004128	B	43-00-TP-044 C10003570	Support PS-03053.1 doesn't touch structure, correct the gap. See attached.	.		LNovaga 2025-02-25	2025-02-26	LNovaga 2025-02-26	2025-02-26
C30004136	B	43-00-TP-067 C10004788	Color coding and fluid direction are missing.	.		KAlbonetti 2025-02-25	2025-03-21	LNovaga 2025-03-21	2025-03-21
C30004152	B	43-00-TP-067 C10004787	Support PS-02090 is UPN80 and not UPN100, correct drawings.	.		LNovaga 2025-02-26			
C30004260	B	43-00-TP-044 C10003571	Touch up near the support PS-03053 and joint 043-1-J3 to do.	.		LNovaga 2025-03-24	2025-04-04	LNovaga 2025-04-04	2025-04-04
C30004261	B	43-00-TP-024 C10003415	General touch up to do, especially near the supports and joints.	.		LNovaga 2025-03-24	2025-04-22	LNovaga 2025-04-22	2025-04-22

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System
SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004269	B	43-00-TP-065 C10004858	Color coding and fluid direction are missing.	.		LNovaga 2025-03-25			
C30004270	B	43-00-TP-065 C10004858	Missing the insulation pillow around the valve BLPH-MV-417, BLPH-MV-418 and joint 124-1J1.	.		LNovaga 2025-03-25	2025-04-04	LNovaga 2025-04-04	2025-04-04
C30004271	B	43-00-TP-050 C10003606	Missing the insulation pillow around the valve BLPH-MV-462 and BLPH-MV-463.	.		LNovaga 2025-03-25	2025-04-04	LNovaga 2025-04-04	2025-04-04
C30004272	B	43-00-TP-022 C10003399	Color coding and fluid direction are missing.	.		LNovaga 2025-03-25	2025-04-08	LNovaga 2025-04-08	2025-04-08
C30004273	B	43-00-TP-022 C10003399	Missing the insulation pillow around the valve BLPH-MV-409 and joint 123-1J1.	.		LNovaga 2025-03-25	2025-04-04	LNovaga 2025-04-04	2025-04-04

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System
SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003508	A	43-LT-003 C10000899	Missing drain tubing below the manifold (VENT). See Attached photo.	.		Gtangianu 2025-02-03	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30003506	B	43-LT-003 C10000899	The support bracket is not aligned. The bracket is damaged. See attached photo.	.		Gtangianu 2025-02-03	2025-02-28	AAndreani 2025-02-28	2025-02-28
C30003509	B	43-LT-003 C10000899	Elevation of instrument is not in accordance with Layout. See attached photo.	.		Gtangianu 2025-02-03	2025-03-05	Gtangianu 2025-03-05	2025-03-05
C30003522	B	43-LT-001 C10000898	The support bracket is not aligned. The bracket is damaged. See attached photo.	.		Gtangianu 2025-02-04	2025-02-28	AAndreani 2025-02-28	2025-02-28
C30004025	B	43-PT-001 C10000900	missing trafolite and SS tag	.		AAndreani 2025-02-19	2025-02-24	AAndreani 2025-02-24	2025-02-24
C30004153	B	43-FT-001 C10001470	Not installed the trafolite tag on the instrument 43-FT-001.See Attached photo.	.		Gtangianu 2025-02-26	2025-03-26	Gtangianu 2025-03-26	2025-03-26

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System
SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Mechanical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003582	A	Q-43004 C10004526	Vent Tip n ot installed	.		AMancini 2025-02-07	2025-03-05	MBruschi 2025-03-05	2025-03-05
C30003583	A	Q-43004 C10004526	Missing earthing connections on earthing plates	.		AMancini 2025-02-07	2025-02-26	KAlbonetti 2025-02-26	2025-02-26
C30003585	A	V-43001 C10004521	Missing earthing connections on earthing plates	.		AMancini 2025-02-07	2025-02-26	Ecarotenuto 2025-02-26	2025-02-26
C30003586	A	V-43001 C10004521	V-43001 to be tightened	.		AMancini 2025-02-07	2025-02-11	LNovaga 2025-02-11	2025-02-11
C30003587	A	V-43001 C10004521	Some lines still need to be connected	.		AMancini 2025-02-07	2025-02-20	LNovaga 2025-02-20	2025-02-20
C30000150	B	V-43001	NCR 2024-Q-123A90-0007		NCR CLOSED	SLinari 2024-10-04	SLinari 2024-12-05	SLinari 2024-12-05	2024-12-05
C30003584	B	Q-43004 C10004526	Ladder not completely installed	.		AMancini 2025-02-07	2025-03-06	LNovaga 2025-03-06	2025-03-06
C30003653	B	V-43001 C10004521	The KO drum is not vertically levelled. Due the cut of one of the vessel feet there a 1° pending towards North and 1° degree pending towards	.		KAlbonetti 2025-02-11	2025-02-26	KAlbonetti 2025-02-26	2025-02-26
C30004170	B	V-43001 C10004521	There are three earthing lugs instead of two and all of them have been connected to earth. Approved but drawing shall be updated.	.		KAlbonetti 2025-02-28			

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System
SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003145	B	C-43-LT-003/00-JE-11002 C10000138	Missing cable tag SS project, near the instrument (43-LT-003.)	.		Gtangianu 2025-01-22	2025-02-03	APolo 2025-02-03	2025-02-03
C30003573	B	BLPH-MV-404/43-LT-001 C10001996	Missing tubing SS tags on both ends	.		Pschintu 2025-02-06	2025-02-27	JKrizanic 2025-02-27	2025-02-27
C30003574	B	BLPH-MV-405/43-LT-001 C10001997	Missing tubing SS tags on both ends	.		Pschintu 2025-02-06	2025-02-27	JKrizanic 2025-02-27	2025-02-27
C30003575	B	BLPH-MV-462/43-LT-003 C10001998	Missing tubing SS tags on both ends	.		Pschintu 2025-02-06	2025-02-27	JKrizanic 2025-02-27	2025-02-27
C30003576	B	BLPH-MV-463/43-LT-003 C10001999	Missing tubing SS tags on both ends	.		Pschintu 2025-02-06	2025-02-27	JKrizanic 2025-02-27	2025-02-27
C30004248	B	C-43-FT-001/43-FE-001A C10004547	General arrangment doc: SK18028/1706864 need to be update. See attached the Mark-up.	.		Gtangianu 2025-03-13			

Section 2.2 Exception Punch Lists (per discipline)

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System

SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002954	B	43-00-TP-044 C10003569	SK.043, PS-03054: the support is different in field compared to construction. See DWG attached.	.		KAlbonetti 2025-01-16			
C30003403	B	43-00-TP-024 C10003413	PS-02035 is different from the drawing. See as-built.	.		KAlbonetti 2025-01-30			
C30003404	B	43-00-TP-024 C10003413	PS-03058 is not as for the drawing. See as-built.	.		KAlbonetti 2025-01-30			
C30004051	B	43-00-TP-058 C10003663	Color coding and fluid direction are missing.	.		LNovaga 2025-02-20			
C30004152	B	43-00-TP-067 C10004787	Support PS-02090 is UPN80 and not UPN100, correct drawings.	.		LNovaga 2025-02-26			
C30004269	B	43-00-TP-065 C10004858	Color coding and fluid direction are missing.	.		LNovaga 2025-03-25			

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System

SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Mechanical									
CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004170	B	V-43001 C10004521	There are three earthing lugs instead of two and all of them have been connected to earth. Approved but drawing shall be updated.	.		KAlbonetti 2025-02-28			

CROSSWIND

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System

SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004248	B	C-43-FT-001/43-FE-001A C10004547	General arrangment doc: SK18028/1706864 need to be update. See attached the Mark-up.	.		Gtangianu 2025-03-13			

Section 2.3 “As-Commissioned” P&ID's / SLD's / D&ID's / C&E's

DRAWING NO. DRAWING_NO.

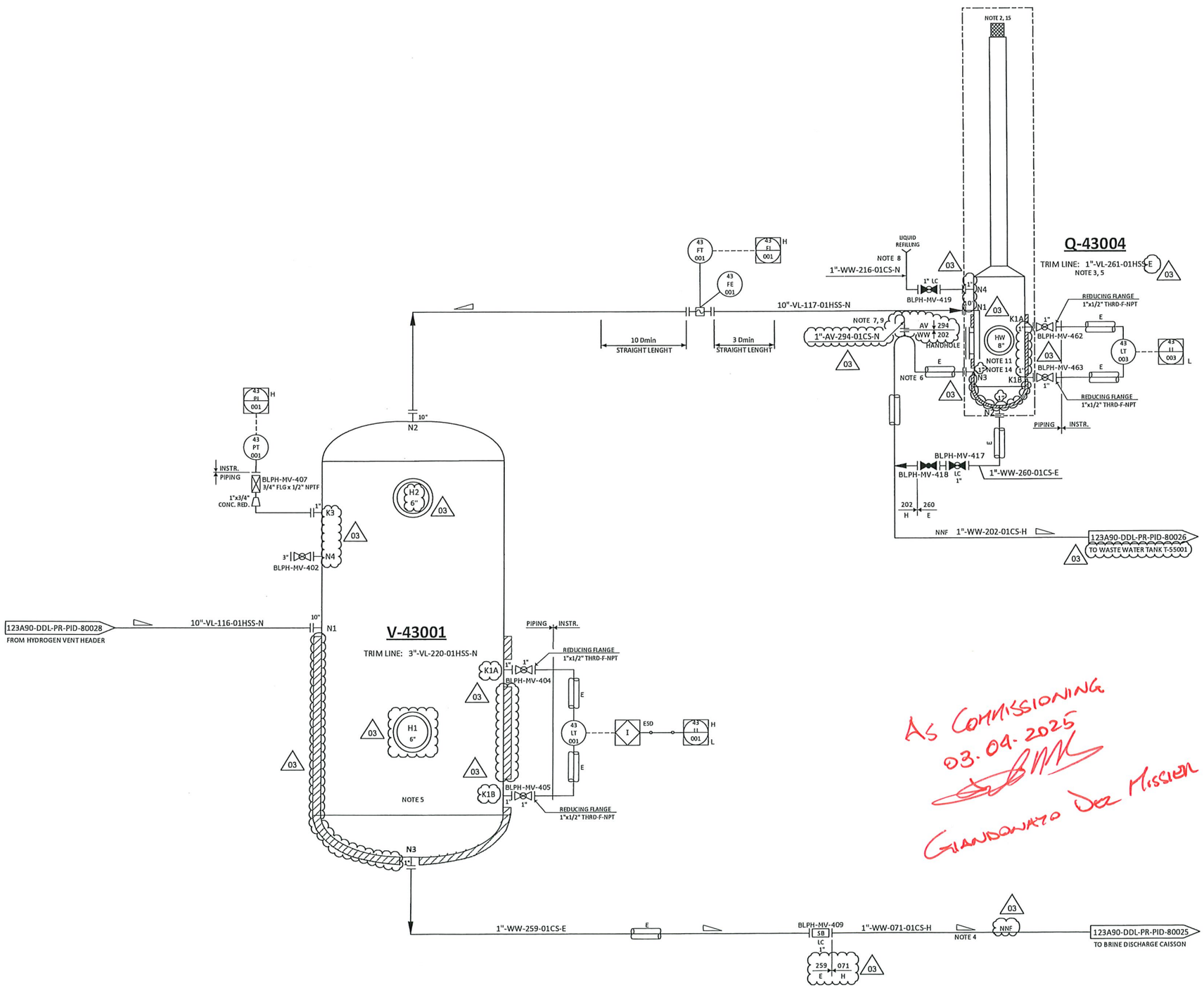
REV. REV

V-43001

HYDROGEN VENT KO DRUM
SIZE : 600 mm (ID) x 2350 mm (H)
DESIGN P/T : 3.5 barg / -10 / 80°C
MATERIAL : LTCS + 1 mm CA

Q-43004

HYDROGEN VENT NOTE 1
SIZE : 254 mm (ID)
DESIGN P/T : 3.5 barg / -10 / 80°C
MATERIAL : LTCS + 3 mm CA



NOTES

1. VENT TO SAFE LOCATION SEGREGATED FROM OTHER VENTS.
2. VENT TO BE EQUIPPED WITH BIRD SCREEN.
3. LIQUID SEAL DRUM IS PART OF THE VENT SYSTEM.
4. LIQUID DRAIN LINES TO BE ROUTED TO ENSURE GRAVITY DRAIN.
5. HYDROGEN VENT KO DRUM AND LIQUID SEAL DRUM TO BE HEAT TRACING.
   - V-43001 HEAT TRACED FROM B.T.L. UP TO 600 mm, BOTTOM HEAD ALSO TO BE HEAT TRACED.
6. SEAL LEG WILL BE DETERMINATED ON THE MAXIMUM BACK PRESSURE IN THE VENT.
7. SEAL VENT TO BE PLACED INTO A SAFE POSITION.
8. FILLING LINE TO BE PLACED IN AN ACCESSIBLE POSITION.
9. TRACED FROM NOZZLE N3 UP TO SWAN NECK.
10. DELETED.
11. INLET DIP LEG SUBMERSION HEIGHT OF 0.6 m.
12. DELETED.
13. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 VENT KOD.
14. LIQUID INSIDE SEAL DRUM IS A WATER - GLYCOL MIXTURE WITH 50% VOLUME OF GLYCOL. (03)
15. TOP OF TIP OF H2 VENT SHALL BE AT AS MINIMUM 6.2 m FROM HIGHEST REACHABLE PLATFORM.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.

As Commissioning
03.09.2025
Giandonato Dal Missier

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

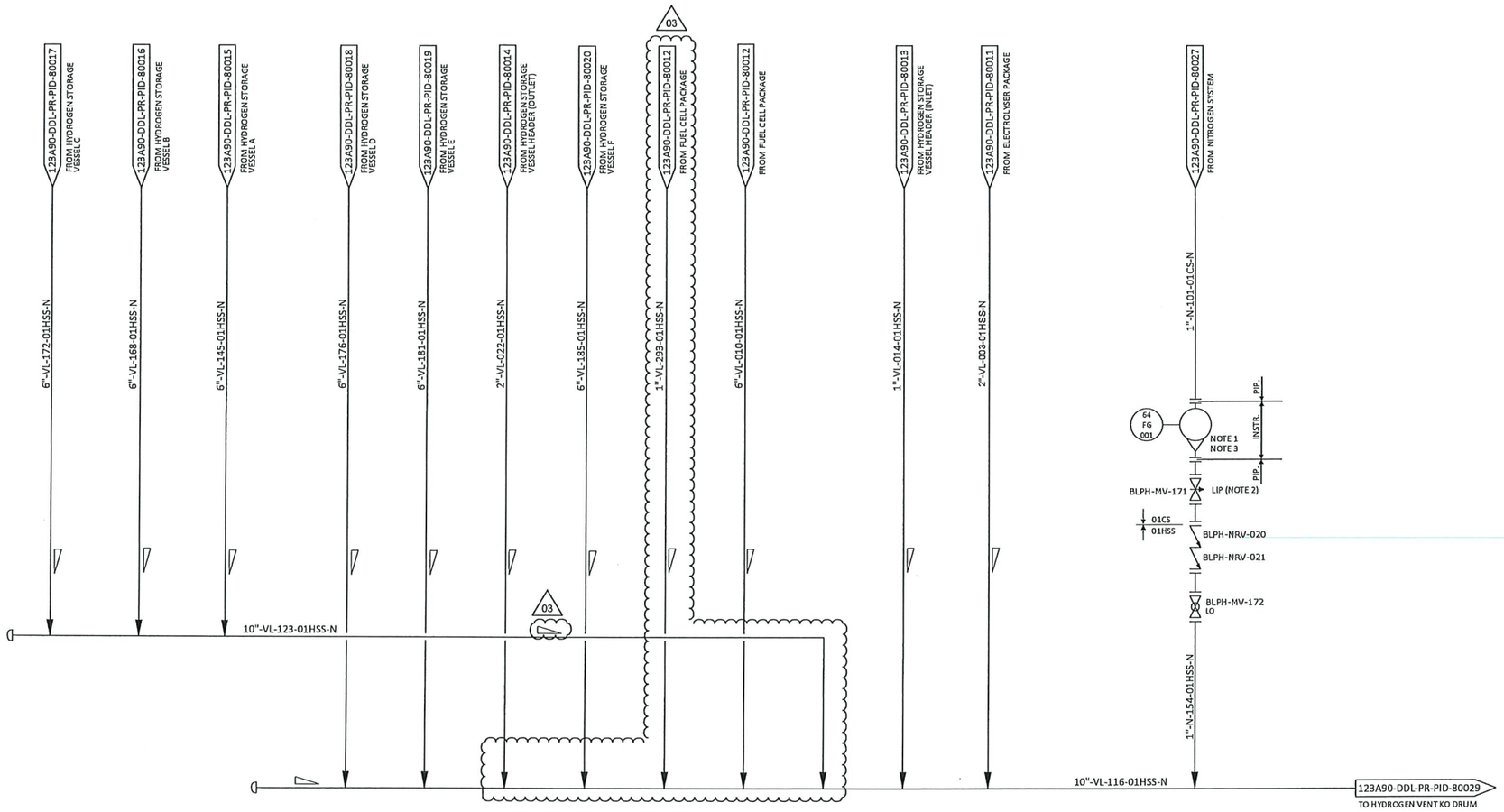
TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN VENT DRUM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80029		SHEET 001 / REV. 03

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



NOTES

1. FLOW METER 64-FG-001 SHALL BE READABLE FROM MANUAL VALVE MV-171.
2. VALVE BLPH-MV-171 TO BE LOCKED IN PLACE.
3. VERTICAL INSTALLATION.

HOLDS

1. DELETED.
2. DELETED.

As Commissioning
03-04-2025
Giandonato Da Missier

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN VENT HEADER

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80028		SHEET 001	REV. 03

File Name : FILE_NAME

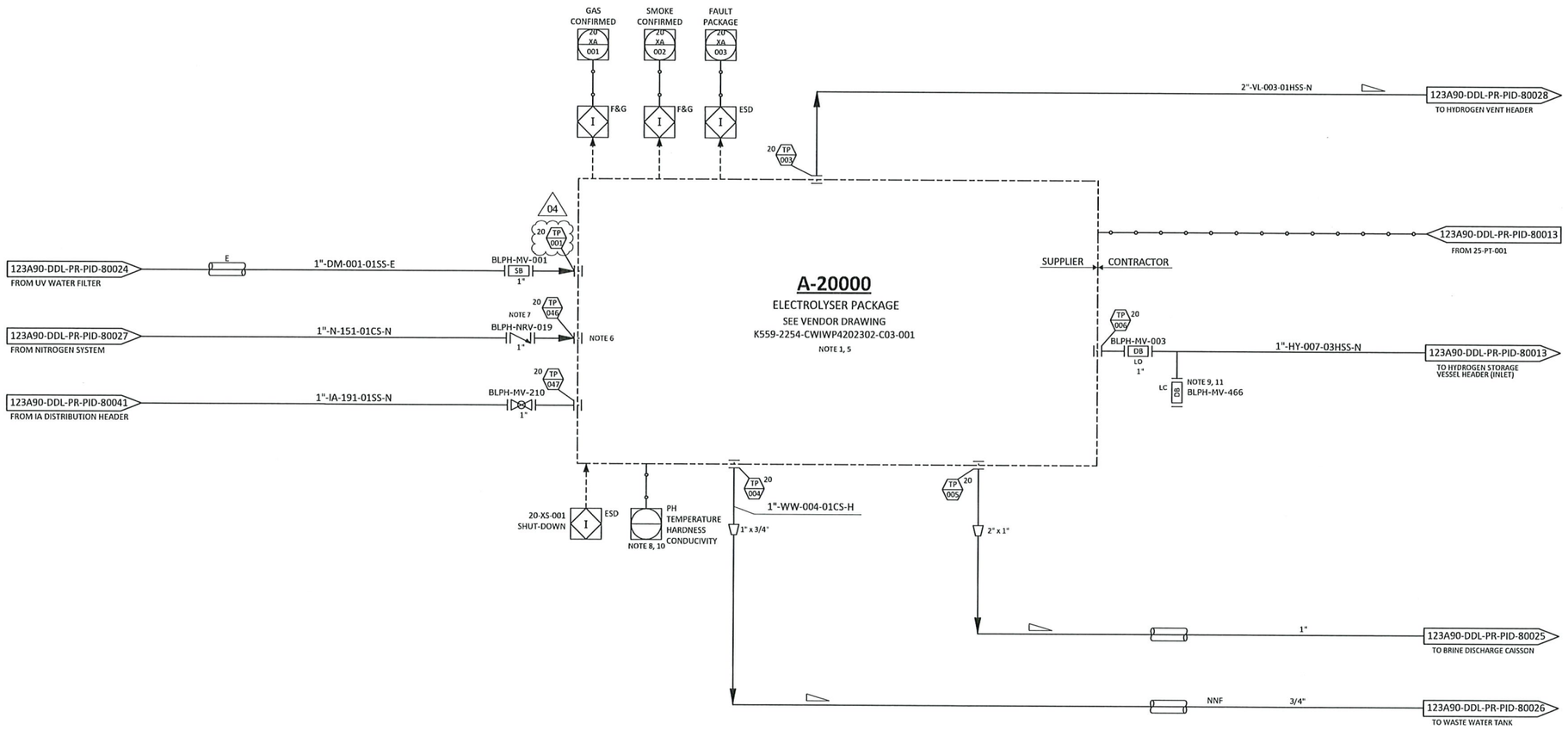
DRAWING NO. DRAWING_NO.

REV. REV

A-20000

ELECTROLYSER PACKAGE

DUTY: 2.5MW
DESIGN PRESSURE: 40 barg
DESIGN TEMPERATURE: 80 °C
H2 GENERATING CAPACITY: 500 Nm³/h



NOTES

1. PACKAGE SUPPLIED WITH POWER FROM THE BLPH ELECTRICAL SYSTEM.
2. DELETED.
3. DELETED.
4. DELETED.
5. ELECTROLYSER PACKAGE INCLUDES AN OXYGEN VENT LINE WHICH IS IN THE SCOPE OF SUPPLY OF THE ELECTROLYSER PACKAGE UP TO THE ATMOSPHERE. NO PHYSICAL INTERFACE IS PRESENT BETWEEN ELECTROLYSER PACKAGE AND CONTRACTOR ON THIS LINE.
6. AN ISOLATION VALVE DOWNSTREAM THE CHECK VALVE NRV-019 IS PROVIDED WITHIN THE PACKAGE A-20000.
7. CHECK VALVE NRV-019 TO BE INSTALLED AS CLOSE AS POSSIBLE TO THE ELECTROLYSER PACKAGE A-20000.
8. SERIAL COMMUNICATION WITH CONTROL SYSTEM.
9. NITROGEN PURGING CONNECTION TO BE LOCATED AS CLOSE AS POSSIBLE TO MANUAL VALVE BLPH-MV-003.
10. PH, TEMPERATURE, HARDNESS AND CONDUCTIVITY SHALL BE SENT FROM CONTROL SYSTEM TO ELECTROLISER UCP IN ADDITION TO THE OTHER SOFTWARE SIGNALS.
11. MANUAL VALVE BLPH-MV-466 TO BE CONNECTED WITH MANUAL VALVE BLPH-MV-275 (INSTALLED ON NITROGEN GENERATION PACKAGE EXIT LINE) BY MEAN ON A FLEXIBLE HOSE DURING COMMISSIONING PHASE FOR PURGING OPERATION.

HOLDS

As Commissioning
02-04-2025
Giandonato De Missier

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	16/04/2025	CIM	RZI	CGI	ACCEPTED FOR CONSTRUCTION (AFC)
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

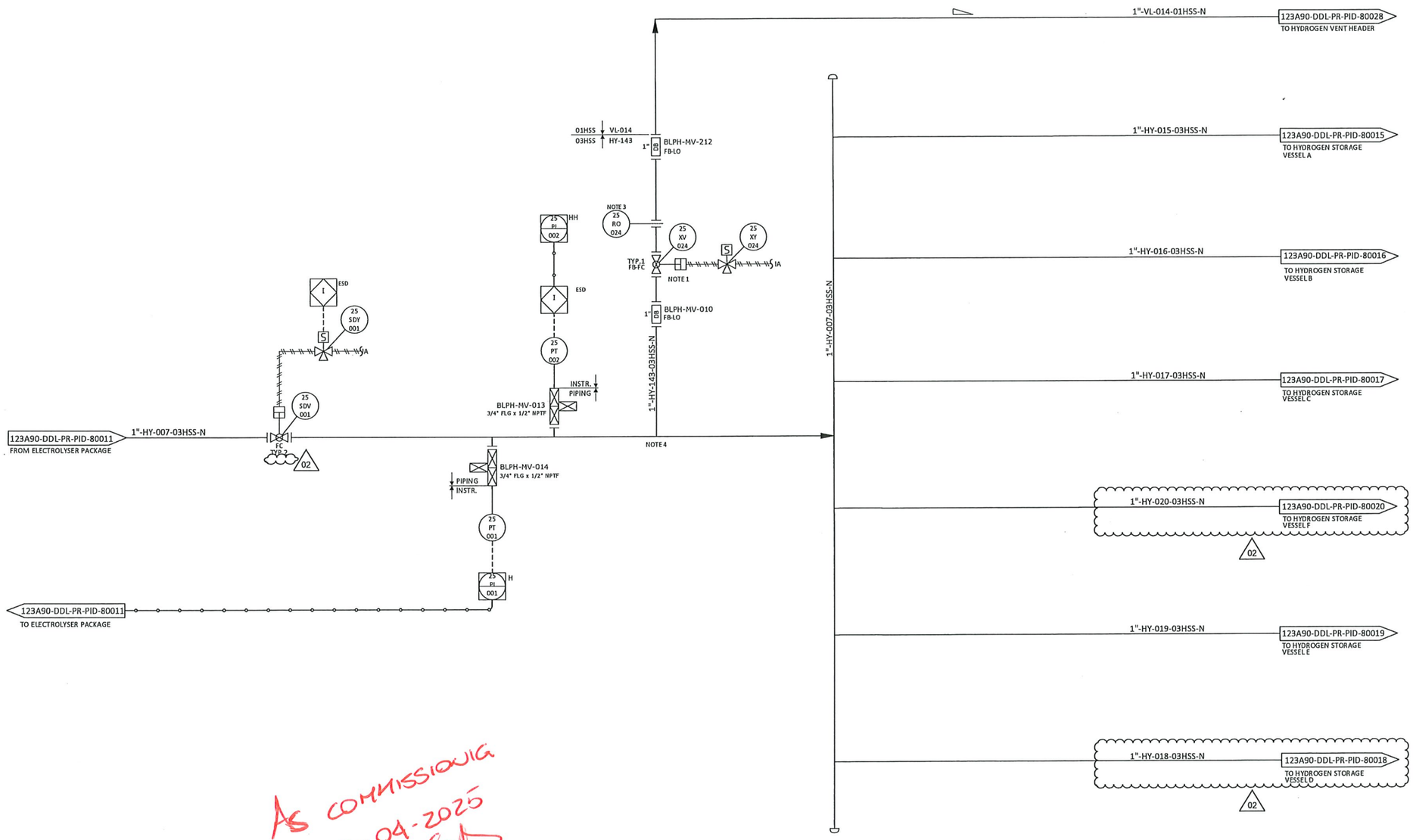
TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
ELECTROLYSER PACKAGE

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80011		SHEET 001	REV. 04

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



NOTES

1. TIGHT SHUT OFF XV.
2. DELETED. 02
3. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
4. PIPING CONNECTION TO 25-XV-003 SHALL BE AS CLOSE TO THE MANIFOLD AS POSSIBLE, TO ENSURE COMPLETE PURGING OF FEED LINE.

HOLDS

1. DELETED.

As commissioning
02-04-2025
Giandonato Del Missier

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSELS HEADER (INLET)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80013		SHEET 001 / REV. 02

File Name : FILE_NAME

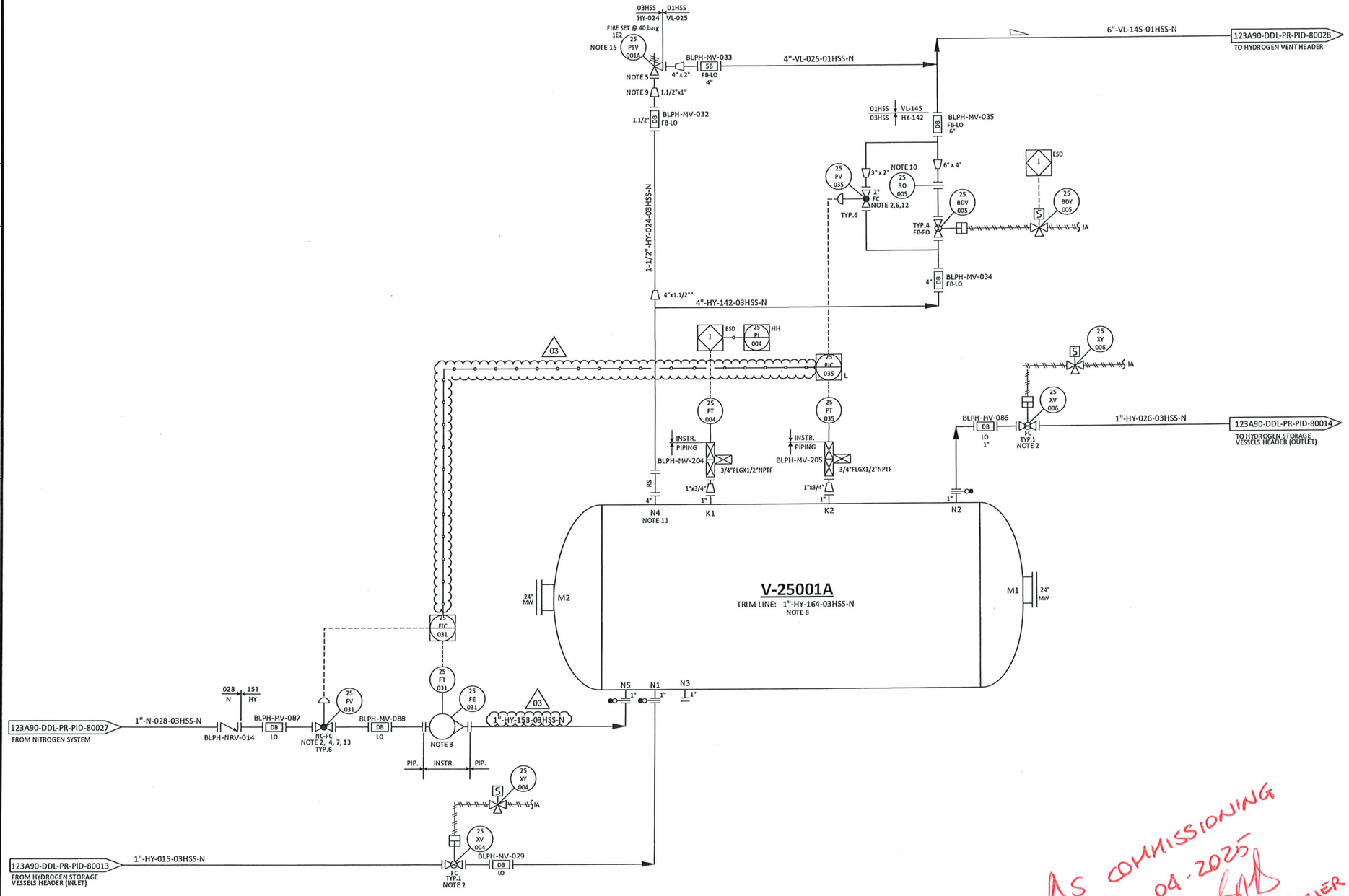
DRAWING NO. DRAWING_NO.

REV. REV

V-25001 A

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg /AMB



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-031) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT "DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-035 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-035 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-031 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-035 HAS FAILED TO CLOSE.
15. 25-PSV-001A SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

AS COMMISSIONING
02-04-2025
GIANDONATO DEL MISSIER

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL A

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80015		SHEET 001 / REV. 03

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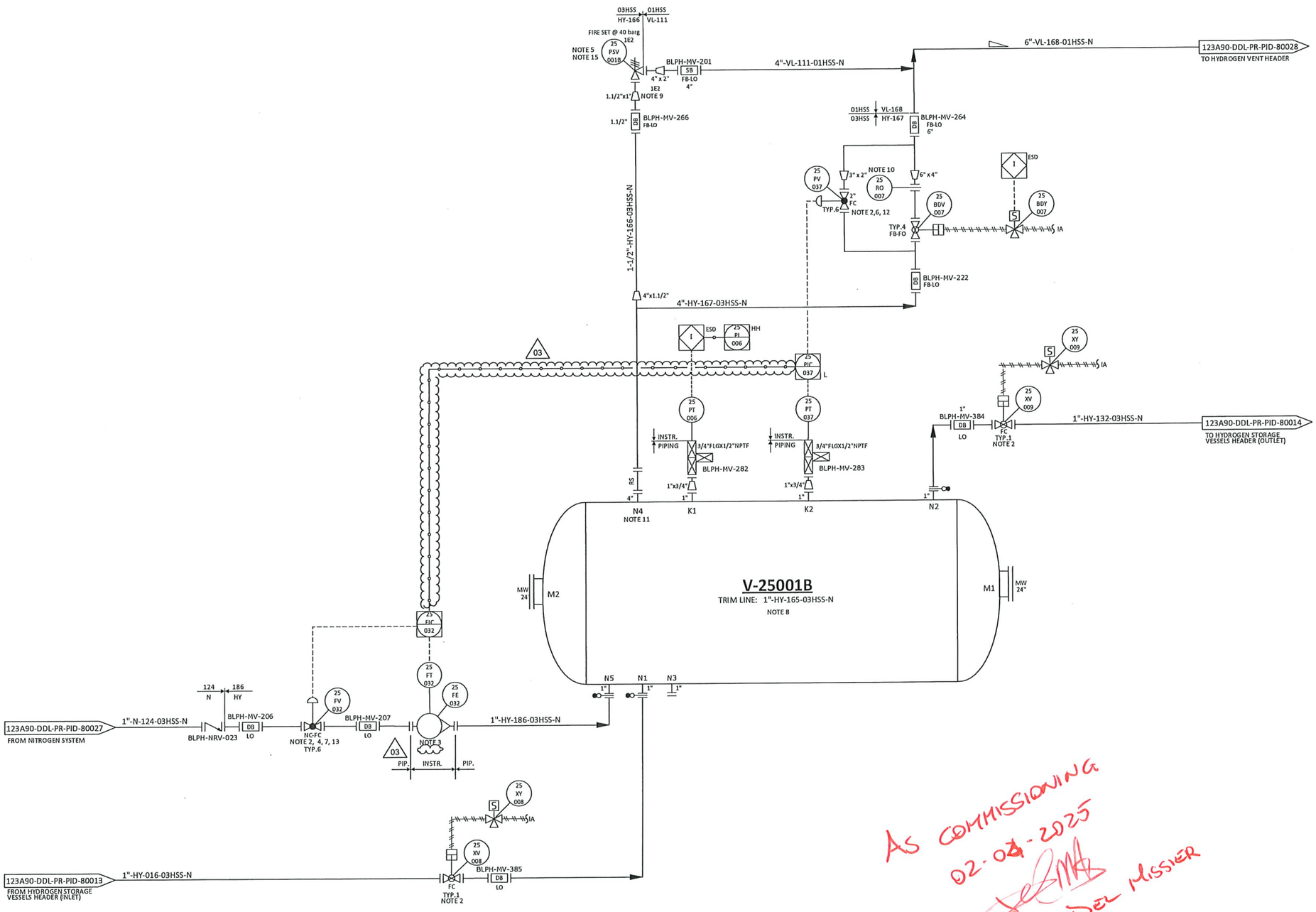
DRAWING NO. DRAWING_NO.

REV. REV

V-25001 B

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-032) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE. 03
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT "DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-037 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC."PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-037 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-032 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-037 HAS FAILED TO CLOSE.
15. 25-PSV-001B SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

AS COMMISSIONING
02-04-2025
GIANDONATO DEL MISSIER

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL B

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80016		SHEET 001 / REV. 03

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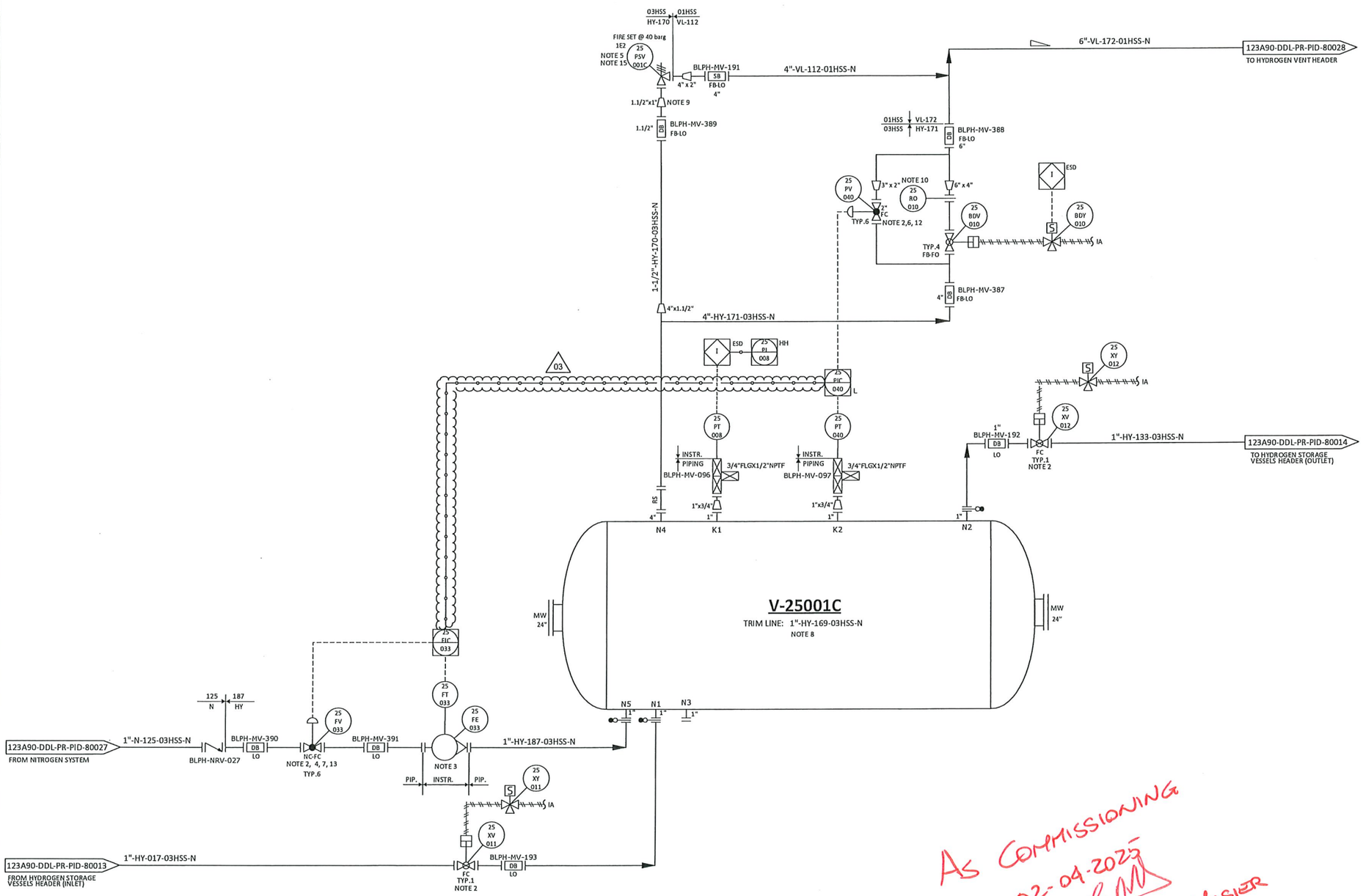
DRAWING NO. DRAWING_NO.

REV. REV

V-25001 C

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-033) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE. 03
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-040 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-040 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-033 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-040 HAS FAILED TO CLOSE.
15. 25-PS-V001C SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

As Commissioning
02-09-2025
Giandonato De Missier

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND | ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL C

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80017	SHEET 001	REV. 03

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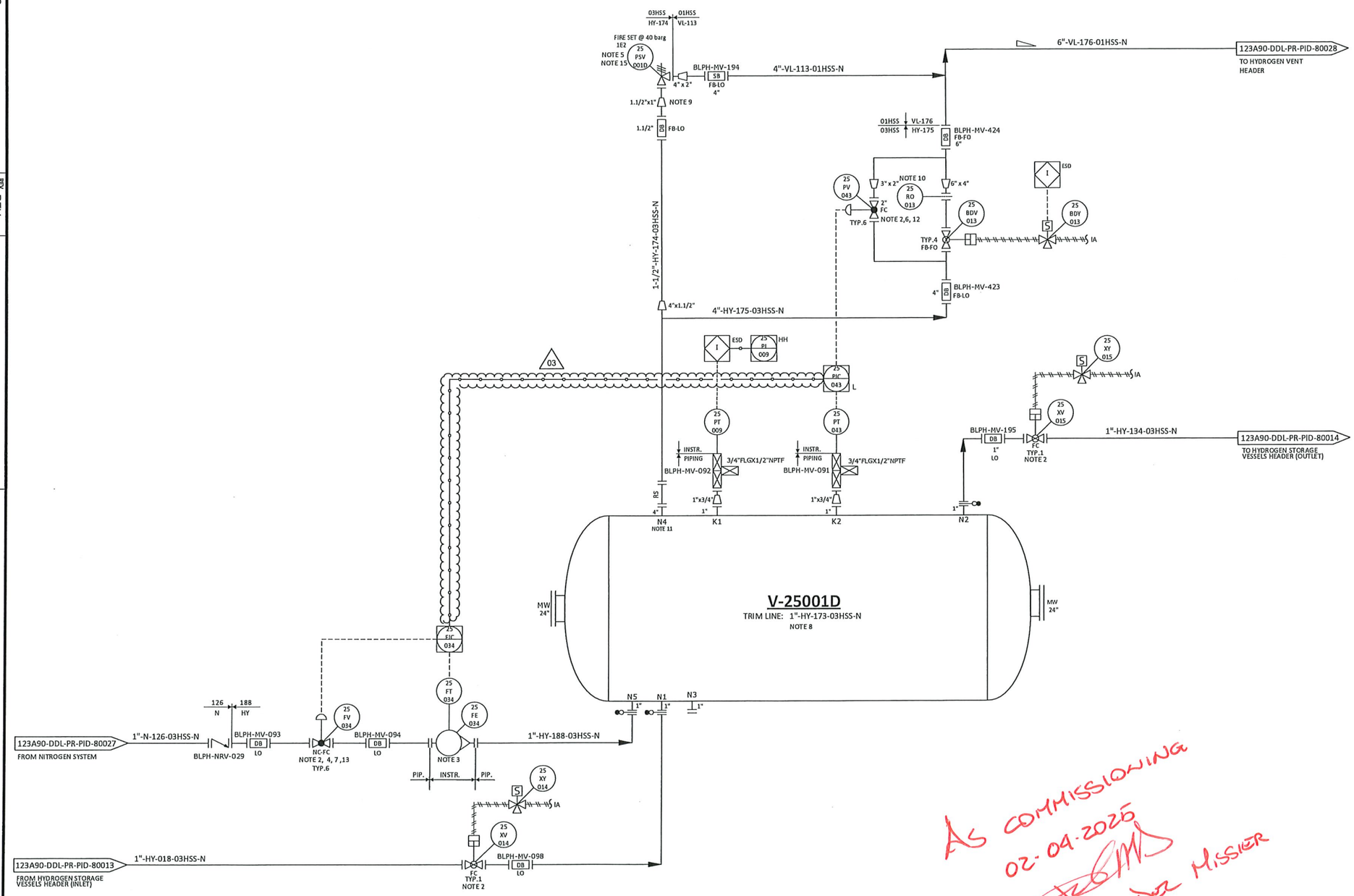
DRAWING NO. DRAWING_NO.

REV. REV

V-25001 D

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS. 03
4. NITROGEN CONTROL VALVE (25-FV-034) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-043 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-043 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-034 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-043 HAS FAILED TO CLOSE.
15. 25-PSV-001D SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

As commissioning
02.09.2025
Giandonato Del Missier

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL D

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS	
DRAWN	CHECKED	APPROVED	DATE	
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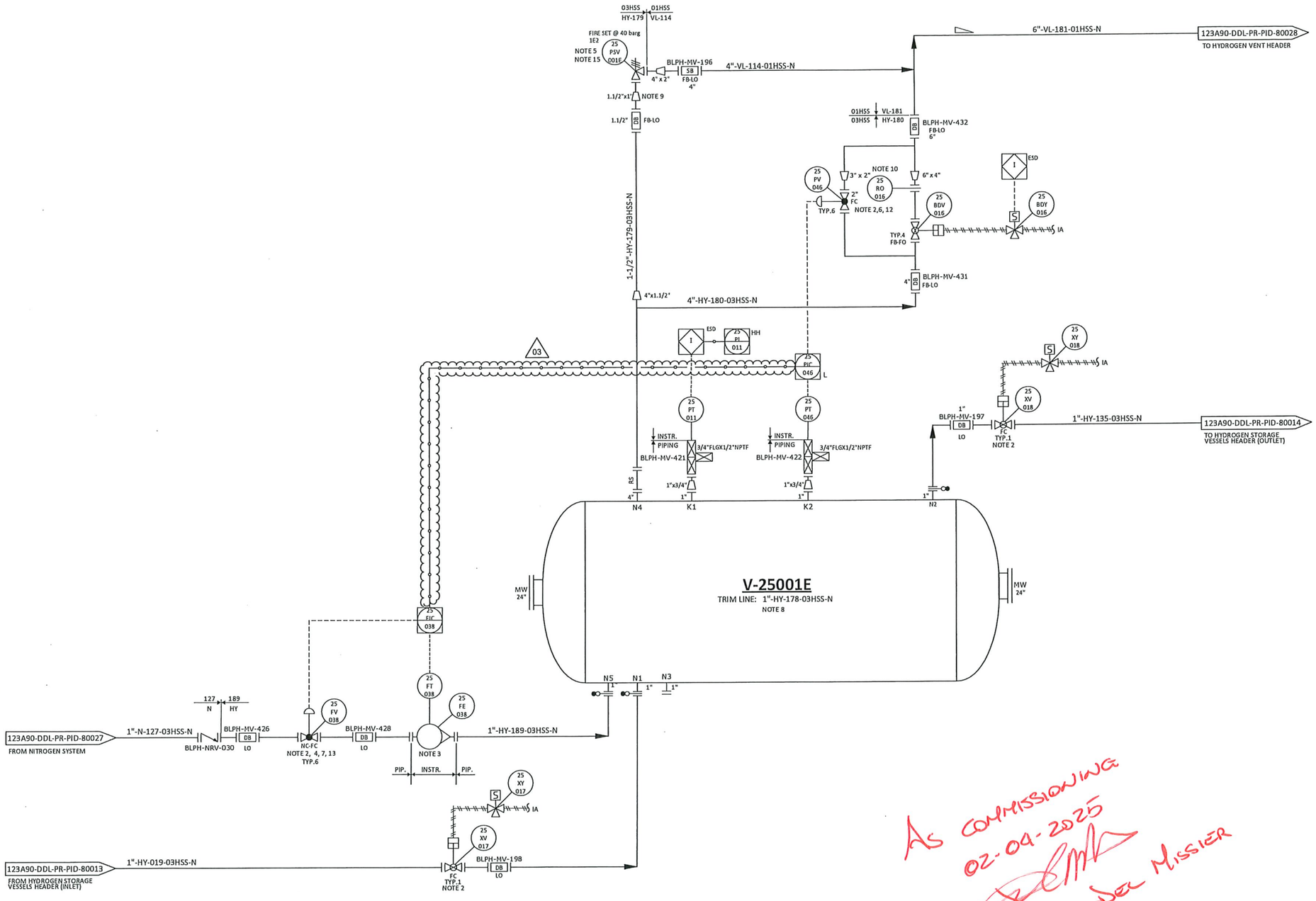
DRAWING NO. DRAWING_NO.

REV. REV

V-25001 E

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-038) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE. 03
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-046 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-046 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-038 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-046 HAS FAILED TO CLOSE.
15. 25-PSV-001E SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

As commissioning
02-09-2025
Giandonato Del Missier

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL E

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS	
DRAWN	CHECKED	APPROVED	DATE	
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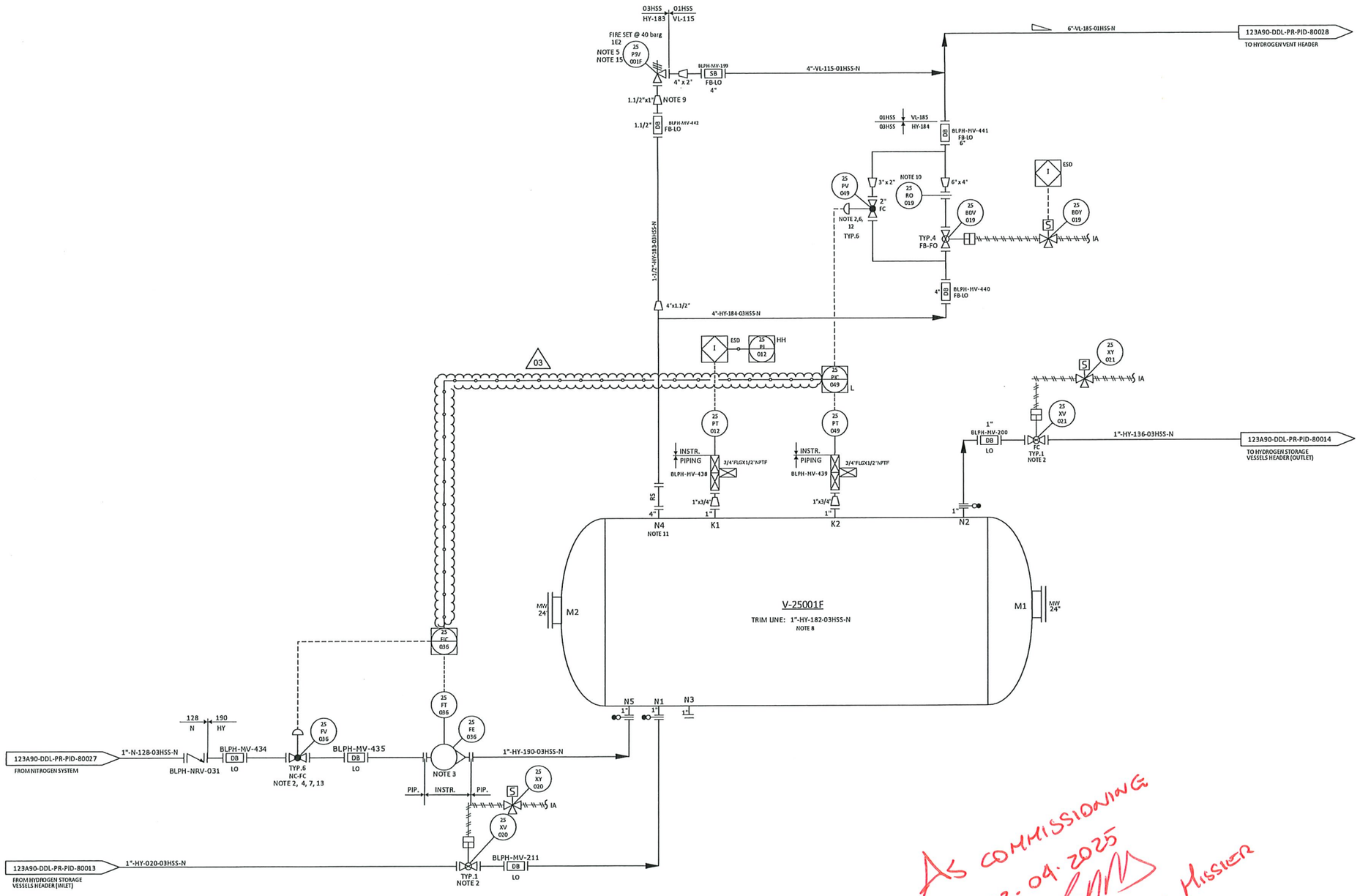
DRAWING NO. DRAWING_NO.

REV. REV

V-25001 F

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS. 03
4. NITROGEN CONTROL VALVE (25-FV-036) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-049 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-049 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25FV036 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-049 HAS FAILED TO CLOSE.
15. 25-PSV-001F SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

As commissioning
02.09.2025
Giandonato De Missier

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR HAZOP (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

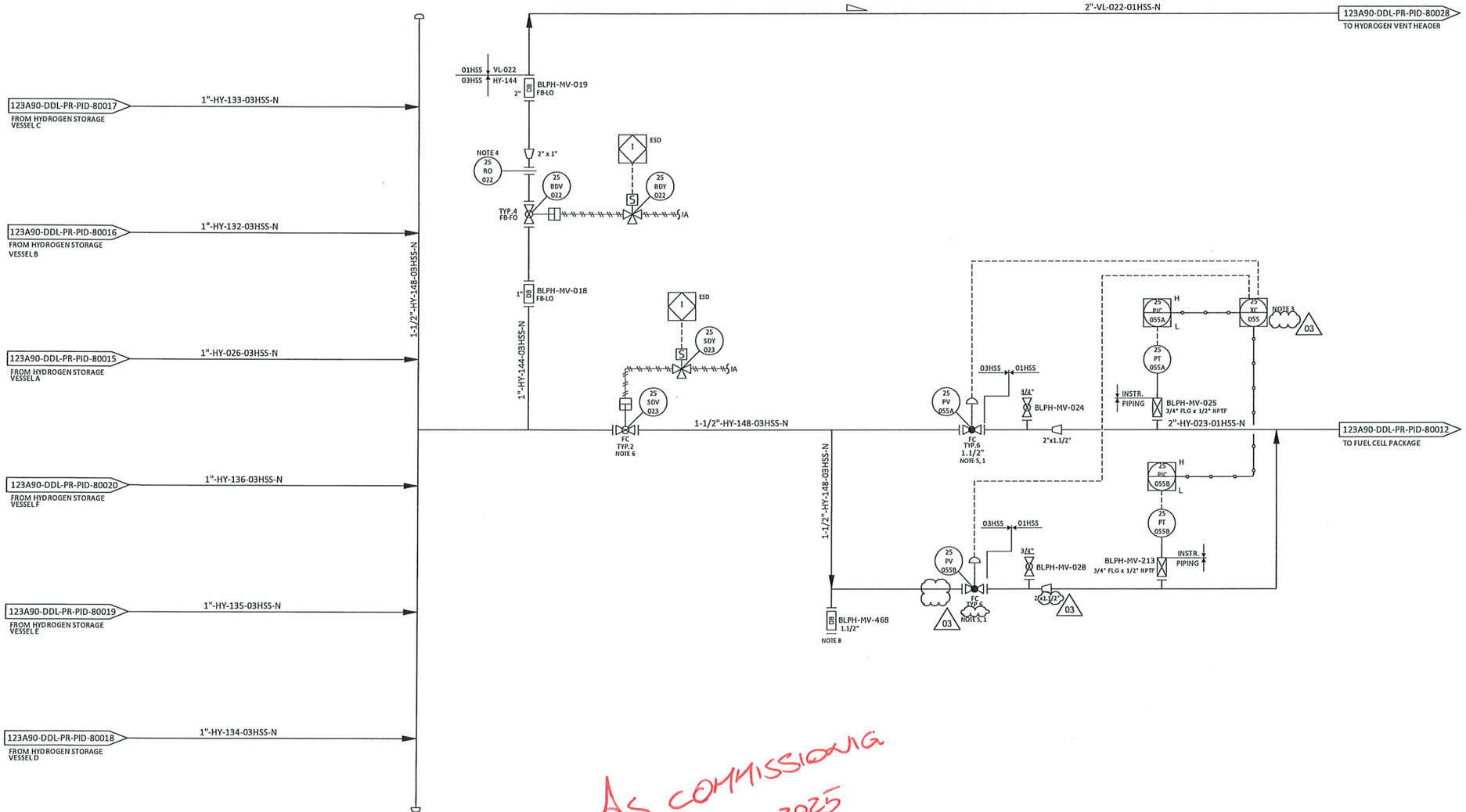
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BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL F

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE	NTS
DRAWN	CHECKED	APPROVED		DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80020			SHEET 001	REV. 03

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



NOTES

1. TIGHT SHUT-OFF VALVE.
2. DELETED.
3. CONTROL VALVES 25-PV-055A/B WORK IN SPLIT RANGE:
   - FOR LOW OPERATING CV (UP TO 0.31) VALVE "B" IS USED
   - FOR HIGH OPERATING CV (FROM 0.31) VALVE "A" IS USED
4. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
5. SOFTWARE INTERLOCK PREVENTS OPENING OF THE CONTROL VALVES 25-PV-055A/B IN CASE FUEL CELL PACKAGE (A-80000) IS NOT READY TO START.
6. SDV VALVE 25-SDV-023 TO BE INSTALLED AS CLOSE AS POSSIBLE TO THE CONTROL VALVES 25-PV-055A/B. 03
7. DELETED. 03
8. TO BE USED DURING COMMISSIONING PHASE.

HOLDS

1. DELETED.
2. DELETED. 03

As commissioning
02-09-2025
Giandonato Del Missier

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSELS HEADER (OUTLET)

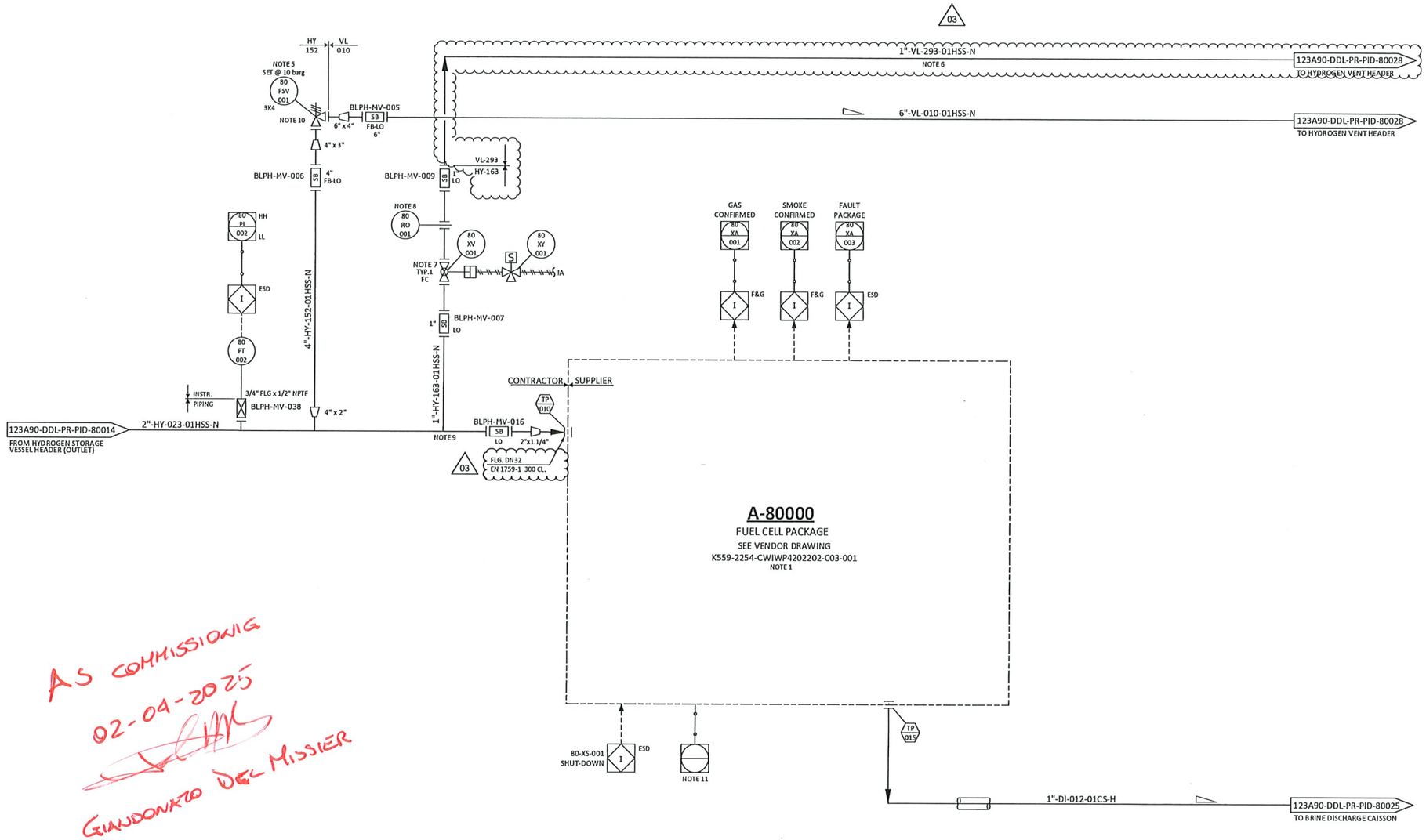
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DRAWN	CHECKED	APPROVED	DATE

A1	DRAWING NO. 123A90-DDL-PR-PID-80014	SHEET 001	REV. 03

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



NOTES

1. THE VENDOR PACKAGE WILL CONTAIN AIR INTAKE AND EXHAUST, SUITABLY SAFEGUARDED AND SEPARATED.
2. DELETED.
3. DELETED.
4. DELETED
5. ONE UNINSTALLED SPARE PSV SHALL BE AVAILABLE.
6. LINE REQUIRED FOR PURGING OF PIPING WORK.
7. TIGHT SHUT-OFF VALVE.
8. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
9. LINE 1"-HY-163-01HSS-N WILL BE LOCATED AS CLOSE TO THE PACKAGE AS POSSIBLE TO ENSURE COMPLETE PURGING OF THE LINE.
10. 80-PSV-001 SIZED FOR CV FAILURE OF UPSTREAM CONTROL VALVE 25-PV-055A/B.
11. SERIAL COMMUNICATION WITH CONTROL SYSTEM.

HOLDS

1. DELETED.
2. DELETED.

AS COMMISSIONIG
02-09-2025
GIANDONATO DEL MISSIER

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
FUEL CELL PACKAGE

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80012	SHEET 001	REV. 03

File Name : FILE_NAME

Section 3 CONSOLIDATED PUNCH LISTS

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System

SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003263	A	125-2-J3 C10004299	Body length of Valve BLPH-MV-463 does not allow the installation of washers from insulation kit on the valve side.	.As agreed with Engineering Dpt. they have not been installed on that side.		LNovaga 2025-01-28	2025-01-28	LNovaga 2025-01-28	2025-01-28
C30003264	A	125-1-J1 C10004297	Body length of Valve BLPH-MV-462 does not allow the installation of washers from insulation kit on the valve side.	As agreed with Engineering Dpt. they have not been installed on that side.		LNovaga 2025-01-28	2025-01-28	LNovaga 2025-01-28	2025-01-28
C30004110	A	43-00-TP-024 C10003414	Missing earthing connection (SK 042)	.		LNovaga 2025-02-25	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30004111	A	43-00-TP-024 C10003414	Earthing plate completly painted.	.		LNovaga 2025-02-25	2025-02-26	KAlbonetti 2025-02-26	2025-02-26
C30004126	A	43-00-TP-044 C10003570	Missing earthing connection	.		LNovaga 2025-02-25	2025-03-10	LNovaga 2025-03-10	2025-03-10
C30004127	A	43-00-TP-044 C10003570	Clean the earthing plate before installing the cable. See attached.	.		LNovaga 2025-02-25	2025-02-26	LNovaga 2025-02-26	2025-02-26
C30004129	A	43-00-TP-066 C10004556	Flow element not installed to arrange sensitive test.	.		LNovaga 2025-02-25	2025-03-17	LNovaga 2025-03-17	2025-03-17
C30002338	B	43-00-TP-022 C10003397	Spool has not been installed in erection. Inspection points from 4 to 6 of the ITR to be checked during reinstatement.	.		KAlbonetti 2025-01-03	2025-02-07	KAlbonetti 2025-02-07	2025-02-07
C30002954	B	43-00-TP-044 C10003569	SK.043, PS-03054: the support is different in field compared to construction. See DWG attached.	.	Changes have been recorded on RLMUs	KAlbonetti 2025-01-16	RDegliEsposti 2025-06-25	RDegliEsposti 2025-06-25	2025-06-25

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	43	Hydrogen Vent System
SUBSYSTEM	43-00	Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002955	B	43-00-TP-044 C10003569	Sk.43, PS-03053: Position R1 has not been prepared.	.		KAlbonetti 2025-01-16	2025-02-25	LNovaga 2025-02-25	2025-02-25
C30002956	B	43-00-TP-044 C10003569	Spool has not been installed in erection. Inspection points from 4 to 6 to be checked during flange management in the after test phase.	.		KAlbonetti 2025-01-16	2025-02-19	KAlbonetti 2025-02-19	2025-02-19
C30003114	B	43-00-TP-065 C10003704	PS-02134: the structural part of the support is 5 mm shorter and the position R1 is missing.	.		KAlbonetti 2025-01-21	2025-02-11	KAlbonetti 2025-02-11	2025-02-11
C30003117	B	43-00-TP-065 C10003704	In the Spool A, the section between W1 and W2 has been cut of 70 mm due the fact that the nozzle of the Vent was longer.	.		KAlbonetti 2025-01-21	2025-04-02	LNovaga 2025-04-02	2025-04-02
C30003181	B	43-00-TP-064 C10003697	Supports type "S-211" not assembled as for Standard. To be checked again during reinstatement.	.		KAlbonetti 2025-01-24	2025-02-22	LNovaga 2025-02-22	2025-02-22
C30003200	B	43-00-TP-066 C10004555	Nameplate on the spool belonging to the equipment 43-FE-001 is empty.	.		KAlbonetti 2025-01-25	2025-03-31	LNovaga 2025-03-31	2025-03-31
C30003262	B	43-00-TP-024 C10003413	All stopper type "S-205" are missing. They shall be installed and welded to the pads.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003265	B	43-00-TP-024 C10003413	Vlaves have not been installed before test. Flanged joints before test are only temporary. Inspection points from 5 to 7 are going to be	.		KAlbonetti 2025-01-28	2025-02-19	KAlbonetti 2025-02-19	2025-02-19
C30003266	B	43-00-TP-024 C10003413	Sketch 038: Piping support PS-03025 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System
SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003267	B	43-00-TP-024 C10003413	Sketch 037: Piping support PS-03023 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003268	B	43-00-TP-024 C10003413	Sketch 018: Piping support PS-03548 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003269	B	43-00-TP-024 C10003413	Sketch 044: Piping supports PS-03017 and PS-3018 have not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003270	B	43-00-TP-024 C10003413	Sketch 041: Piping support PS-03132 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-03-03	LNovaga 2025-03-03	2025-03-03
C30003271	B	43-00-TP-024 C10003413	Sketch 006: Piping support PS-03051 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003272	B	43-00-TP-024 C10003413	Sketch 039: Piping support PS-03032 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003273	B	43-00-TP-024 C10003413	Sketch 039: Piping support PS-03134 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30003274	B	43-00-TP-024 C10003413	Sketch 008: Piping support PS-03127 has not been assembled in erection.	.		KAlbonetti 2025-01-28	2025-03-03	LNovaga 2025-03-03	2025-03-03
C30003403	B	43-00-TP-024 C10003413	PS-02035 is different from the drawing. See as-built.	.	Changes have been recorded on RLMUs	KAlbonetti 2025-01-30	RDegliEsposti 2025-06-25	RDegliEsposti 2025-06-25	2025-06-25

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	43	Hydrogen Vent System
SUBSYSTEM	43-00	Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003404	B	43-00-TP-024 C10003413	PS-03058 is not as for the drawing. See as-built.	.	Changes have been recorded on RLMUs	KAlbonetti 2025-01-30	RDegliEsposti 2025-06-25	RDegliEsposti 2025-06-25	2025-06-25
C30003515	B	43-00-TP-067 C10004786	Support "PS-02133" is unmounted. ISO 123A90-FDL-PP-DI-00002-01	.		MBruschi 2025-02-03	2025-02-21	LNovaga 2025-02-21	2025-02-21
C30003516	B	43-00-TP-067 C10004786	SK.002-01: All piping supports type "S-75", "C-34", "C-16" and "-S-211" will be check during reinstatement phase.	.		MBruschi 2025-02-03	2025-02-21	LNovaga 2025-02-21	2025-02-21
C30003546	B	43-00-TP-022 C10003400	General touch up do to, especially near the supports of the piping line.	.		KAlbonetti 2025-02-05	2025-02-06	KAlbonetti 2025-02-06	2025-02-06
C30004051	B	43-00-TP-058 C10003663	Color coding and fluid direction are missing.	.	Colour code and flow direction arrow added.	LNovaga 2025-02-20	RDegliEsposti 2025-07-07	RDegliEsposti 2025-07-07	2025-07-07
C30004083	B	43-00-TP-067 C10004787	Support PS-20289.1 doesn't touch structural support.	.		LNovaga 2025-02-21	2025-02-25	LNovaga 2025-02-25	2025-02-25
C30004084	B	43-00-TP-067 C10004787	Correct the gap on support PS-02132.1 (SK 002 1/2).	.		LNovaga 2025-02-21	2025-02-25	LNovaga 2025-02-25	2025-02-25
C30004085	B	43-00-TP-067 C10004787	Support PS-02080.1 doesn't touch the structural support (SK 002 1/2).	.		LNovaga 2025-02-21	2025-02-25	LNovaga 2025-02-25	2025-02-25
C30004086	B	43-00-TP-067 C10004787	Spool-B has a vertical misalignment about 1.3°.	.		LNovaga 2025-02-21	2025-02-25	KAlbonetti 2025-02-25	2025-02-25

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	43	Hydrogen Vent System
SUBSYSTEM	43-00	Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004087	B	43-00-TP-064 C10003699	Color coding and fluid direction are missing.	.		LNovaga 2025-02-22	2025-03-25	LNovaga 2025-03-25	2025-03-25
C30004088	B	43-00-TP-064 C10003698	BLPH-MV-419 has stem direction north and gear east. the valve was rotated because there was a clash with the structure.	.		LNovaga 2025-02-22	2025-02-22	LNovaga 2025-02-22	2025-02-22
C30004090	B	43-00-TP-024 C10003414	BLPH-MV-199 has stem direction north and gear east. the valve was rotated because there was a clash with piping.	.		LNovaga 2025-02-22	2025-02-22	LNovaga 2025-02-22	2025-02-22
C30004112	B	43-00-TP-024 C10003414	Support PS-03127.1 SK 008 missing gap.	.		LNovaga 2025-02-25	2025-02-26	KAlbonetti 2025-02-26	2025-02-26
C30004113	B	43-00-TP-024 C10003414	Support PS-03052.1 is missing.	.		LNovaga 2025-02-25	2025-03-03	LNovaga 2025-03-03	2025-03-03
C30004114	B	43-00-TP-024 C10003414	Support PS-03056.2 SK042 sh 1/2 lateral gap is missing.	.		LNovaga 2025-02-25	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30004115	B	43-00-TP-024 C10003414	Support PS-03055.2 SK042 sh 1/2 lateral gap is missing.	.		LNovaga 2025-02-25	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30004116	B	43-00-TP-024 C10003414	Support PS-03017.2 SK044 correct the gap.	.		LNovaga 2025-02-25	2025-02-27	LNovaga 2025-02-27	2025-02-27
C30004117	B	43-00-TP-024 C10003414	Support PS-03018 SK044 is not alligned with pipe.	.		LNovaga 2025-02-25	2025-02-27	LNovaga 2025-02-27	2025-02-27

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	43	Hydrogen Vent System
SUBSYSTEM	43-00	Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004118	B	43-00-TP-024 C10003414	Support PS-03134.2 SK041, there is a gap between pad and structural support, corret it.	.		LNovaga 2025-02-25	2025-02-28	LNovaga 2025-02-28	2025-02-28
C30004119	B	43-00-TP-024 C10003414	Support PS-03045.1 SK 040 correct the gap.	.		LNovaga 2025-02-25	2025-03-03	LNovaga 2025-03-03	2025-03-03
C30004120	B	43-00-TP-024 C10003414	Support PS-03033.1 SK 039 is not clamped.	.		LNovaga 2025-02-25	2025-03-03	LNovaga 2025-03-03	2025-03-03
C30004125	B	43-00-TP-044 C10003570	The distance between the welds EW5 and W6 has an inverse inclination of 1.4° with respect to the isometric.	.		LNovaga 2025-02-25	2025-03-06	LNovaga 2025-03-06	2025-03-06
C30004128	B	43-00-TP-044 C10003570	Support PS-03053.1 doesn't touch structure, correct the gap. See attached.	.		LNovaga 2025-02-25	2025-02-26	LNovaga 2025-02-26	2025-02-26
C30004136	B	43-00-TP-067 C10004788	Color coding and fluid direction are missing.	.		KAlbonetti 2025-02-25	2025-03-21	LNovaga 2025-03-21	2025-03-21
C30004152	B	43-00-TP-067 C10004787	Support PS-02090 is UPN80 and not UPN100, correct drawings.	.	Changes have been recorded on RLMUs	LNovaga 2025-02-26	RDegliEsposti 2025-06-25	RDegliEsposti 2025-06-25	2025-06-25
C30004260	B	43-00-TP-044 C10003571	Touch up near the support PS-03053 and joint 043-1-J3 to do.	.		LNovaga 2025-03-24	2025-04-04	LNovaga 2025-04-04	2025-04-04
C30004261	B	43-00-TP-024 C10003415	General touch up to do, especially near the supports and joints.	.		LNovaga 2025-03-24	2025-04-22	LNovaga 2025-04-22	2025-04-22

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	43	Hydrogen Vent System
SUBSYSTEM	43-00	Hydrogen Vent Header & Drum System

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004269	B	43-00-TP-065 C10004858	Color coding and fluid direction are missing.	.	Colour code and fluid direction flow added	LNovaga 2025-03-25	RDegliEsposti 2025-07-07	RDegliEsposti 2025-07-07	2025-07-07
C30004270	B	43-00-TP-065 C10004858	Missing the insulation pillow around the valve BLPH-MV-417, BLPH-MV-418 and joint 124-1J1.	.		LNovaga 2025-03-25	2025-04-04	LNovaga 2025-04-04	2025-04-04
C30004271	B	43-00-TP-050 C10003606	Missing the insulation pillow around the valve BLPH-MV-462 and BLPH-MV-463.	.		LNovaga 2025-03-25	2025-04-04	LNovaga 2025-04-04	2025-04-04
C30004272	B	43-00-TP-022 C10003399	Color coding and fluid direction are missing.	.		LNovaga 2025-03-25	2025-04-08	LNovaga 2025-04-08	2025-04-08
C30004273	B	43-00-TP-022 C10003399	Missing the insulation pillow around the valve BLPH-MV-409 and joint 123-1J1.	.		LNovaga 2025-03-25	2025-04-04	LNovaga 2025-04-04	2025-04-04

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System
SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003508	A	43-LT-003 C10000899	Missing drain tubing below the manifold (VENT). See Attached photo.	.		Gtangianu 2025-02-03	2025-02-04	Gtangianu 2025-02-04	2025-02-04
C30003506	B	43-LT-003 C10000899	The support bracket is not aligned. The bracket is damaged. See attached photo.	.		Gtangianu 2025-02-03	2025-02-28	AAndreani 2025-02-28	2025-02-28
C30003509	B	43-LT-003 C10000899	Elevation of instrument is not in accordance with Layout. See attached photo.	.		Gtangianu 2025-02-03	2025-03-05	Gtangianu 2025-03-05	2025-03-05
C30003522	B	43-LT-001 C10000898	The support bracket is not aligned. The bracket is damaged. See attached photo.	.		Gtangianu 2025-02-04	2025-02-28	AAndreani 2025-02-28	2025-02-28
C30004025	B	43-PT-001 C10000900	missing trafolite and SS tag	.		AAndreani 2025-02-19	2025-02-24	AAndreani 2025-02-24	2025-02-24
C30004153	B	43-FT-001 C10001470	Not installed the trafolite tag on the instrument 43-FT-001.See Attached photo.	.		Gtangianu 2025-02-26	2025-03-26	Gtangianu 2025-03-26	2025-03-26

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System
SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Mechanical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003582	A	Q-43004 C10004526	Vent Tip n ot installed	.		AMancini 2025-02-07	2025-03-05	MBruschi 2025-03-05	2025-03-05
C30003583	A	Q-43004 C10004526	Missing earthing connections on earthing plates	.		AMancini 2025-02-07	2025-02-26	KAlbonetti 2025-02-26	2025-02-26
C30003585	A	V-43001 C10004521	Missing earthing connections on earthing plates	.		AMancini 2025-02-07	2025-02-26	Ecarotenuto 2025-02-26	2025-02-26
C30003586	A	V-43001 C10004521	V-43001 to be tightened	.		AMancini 2025-02-07	2025-02-11	LNovaga 2025-02-11	2025-02-11
C30003587	A	V-43001 C10004521	Some lines still need to be connected	.		AMancini 2025-02-07	2025-02-20	LNovaga 2025-02-20	2025-02-20
C30000150	B	V-43001	NCR 2024-Q-123A90-0007		NCR CLOSED	SLinari 2024-10-04	SLinari 2024-12-05	SLinari 2024-12-05	2024-12-05
C30003584	B	Q-43004 C10004526	Ladder not completely installed	.		AMancini 2025-02-07	2025-03-06	LNovaga 2025-03-06	2025-03-06
C30003653	B	V-43001 C10004521	The KO drum is not vertically levelled. Due the cut of one of the vessel feet there a 1° pending towards North and 1° degree pending towards	.		KAlbonetti 2025-02-11	2025-02-26	KAlbonetti 2025-02-26	2025-02-26
C30004170	B	V-43001 C10004521	There are three earthing lugs instead of two and all of them have been connected to earth. Approved but drawing shall be updated.	.		KAlbonetti 2025-02-28	2025-06-20	Ecarotenuto 2025-06-20	2025-06-20

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 43 Hydrogen Vent System

SUBSYSTEM 43-00 Hydrogen Vent Header & Drum System

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003145	B	C-43-LT-003/00-JE-11002 C10000138	Missing cable tag SS project, near the instrument (43-LT-003.)	.		Gtangianu 2025-01-22	2025-02-03	APolo 2025-02-03	2025-02-03
C30003573	B	BLPH-MV-404/43-LT-001 C10001996	Missing tubing SS tags on both ends	.		Pschintu 2025-02-06	2025-02-27	JKrizanic 2025-02-27	2025-02-27
C30003574	B	BLPH-MV-405/43-LT-001 C10001997	Missing tubing SS tags on both ends	.		Pschintu 2025-02-06	2025-02-27	JKrizanic 2025-02-27	2025-02-27
C30003575	B	BLPH-MV-462/43-LT-003 C10001998	Missing tubing SS tags on both ends	.		Pschintu 2025-02-06	2025-02-27	JKrizanic 2025-02-27	2025-02-27
C30003576	B	BLPH-MV-463/43-LT-003 C10001999	Missing tubing SS tags on both ends	.		Pschintu 2025-02-06	2025-02-27	JKrizanic 2025-02-27	2025-02-27
C30004248	B	C-43-FT-001/43-FE-001A C10004547	General arrangment doc: SK18028/1706864 need to be update. See attached the Mark-up.	.	The SK 18028/1706864, as marked up, has been included in the Vendor MRB	Gtangianu 2025-03-13	RDegliEsposti 2025-10-17	RDegliEsposti 2025-10-17	2025-10-17

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004129

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004556	1.4 Discipline	Piping
1.2 Item	43-00-TP-066	Test Pack 43-00-TP-066	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Flow element not installed to arrange sensitive test.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

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3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Lorenzo Novaga

Date: 2025-03-17

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004136

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004788	1.4 Discipline	Piping
1.2 Item	43-00-TP-067	Test Pack 43-00-TP-067	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Color coding and fluid direction are missing.

Name: Kangi Albonetti

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

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3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-03-21

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-03-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-03-21

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004152

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004787	1.4 Discipline	Piping
1.2 Item	43-00-TP-067	Test Pack 43-00-TP-067	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-02090 is UPN80 and not UPN100, correct drawings.

Name: Lorenzo Novaga

Date: 2025-02-26

Signature:

3 - DEFECT ASSESSMENT

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3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-26
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Changes have been recorded on RLMUs

Name: Raffaele Degli Esposti

Date: 2025-06-25

Signature:

5 - CLEARANCE CHECK

Ref. to RLMU 123A90-DDL-PP-DD-72000-PS-02090_01_01A

Name: Raffaele Degli Esposti

Date: 2025-06-25

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-06-25

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004153

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001470	1.4 Discipline	ATEX
1.2 Item	43-FT-001		Flow Transmitter - Hydrogen form KO DRUM V-43001 to vent stack Q-43004
1.3 Subsystem	43-00		Hydrogen Vent Header & Drum System

2 - OBSERVATION

Not installed the trafolite tag on the instrument 43-FT-001.See Attached photo.

Name: Giovanni Tangianu

Date: 2025-02-26

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-26
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-03-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


950-GDZ-02
DO NOT OPEN WHILE ENERGIZED
DigitalFlow™ XGF868i

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004170

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004521	1.4 Discipline	Mechanical
1.2 Item	V-43001	Hydrogen Vent KO Drum	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

There are three earthing lugs instead of two and all of them have been connected to earth. Approved but drawing shall be updated.

Name: Kangi Albonetti

Date: 2025-02-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-02-28
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Document alligned

Name: Eleonora Carotenuto

Date: 2025-06-20

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004248

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004547	1.4 Discipline	Instrumental
1.2 Item	C-43-FT-001/43-FE-001A	43-FT-001/43-FE-001A	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

General arrangment doc: SK18028/1706864 need to be update.
See attached the Mark-up.

Name: Giovanni Tangianu
Date: 2025-03-13
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-03-13
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

The SK 18028/1706864, as marked up, has been included in the Vendor MRB

Name: Raffaele Degli Esposti
Date: 2025-10-17
Signature:

5 - CLEARANCE CHECK

Done.

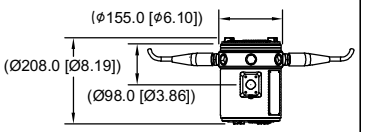
Name: Raffaele Degli Esposti
Date: 2025-10-17
Signature:

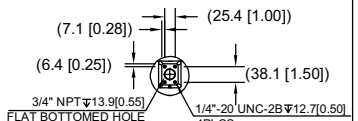
6- CLEARANCE APPROVAL

Name:
Date: 2025-10-17
Signature:

L:\COMMON\DRA\FLOW\170XXXX\1706864\GA\SK18028B | GRIFTOM

1. FLOWMETER (QTY: 1)		2. FLOWMETER CABLE (QTY: 1 PAIR)		3. PRE-AMPLIFIER (QTY: 2)		4. TRANSDUCER (QTY: 2)		5. INSERTION MECHANISM (QTY: 2)		6. ISOLATION VALVE (QTY: 2)		7. FLOWCELL (QTY : 1)
TYPE:	XGF868I	TYPE:	FLAME RETARDENT RG-62	TYPE :	XAMP	TYPE :	T5	TYPE:	IMA72	TYPE :	GATE VALVE	FOR DETAILS OF THE FLOWCELL, PLEASE REFER TO THE FLOWCELL FABRICATION DRAWING, REF: 182M4103
ENCLOSURE:	316SS	ARMOUR:	SWA	ENCLOSURE :	316SS	MATERIAL :	TITANIUM	SIZE:	2" x 2"	SIZE :	2", 150# RF	WEIGHT : 98 kg [216 lb] B
VOLTAGE:	12 - 28 VDC	LENGTH:	10 M	IP RATING :	IP65/66	TEMP RANGE :	-55 to 150°C (-67 to 302°F) (NT)	RATING:	150#	F/F LENGTH:	177.8MM (7")	
POWER USAGE:	20W	CONNECTION (METER):	3/4" NPT	HAZ. AREA :	Ex d IIC T6 Gb	HAZ. AREA :	Ex d IIC T6 Gb	MATERIAL		MATERIAL		
IP RATING:	IP66	CONNECTION (XDUCER):	3/4" NPT	CERT NUMBER :	SIRA 20ATEX1001X	CERT NUMBER :	SIRA 20ATEX1001X	PACKING GLAND :	316SS	BODY:	A351 CF8M	
HAZ AREA:	EX dIIC T6 Gb	GLAND MAT'L:	316SS	WEIGHT :	2 kg [4.4 lb] EA B	MAT'L CERTS :	EN10204 3.1 & NACE MR-01-75	BARREL HOLDER:	316 / 316L SS	TRIM:	316SS	
CERT NUMBER:	SIRA 17ATEX1304X	HAZ AREA :	Ex nR IIC Gc			JUNCTION BOX:	316SS	HYDROTEST:	PER ASME B31.3	MAT'L CERTS:	EN10204 3.1 & NACE MR-01-75	
WEIGHT:	11 kg [24 lb] B	CERT. NUMBER :	CML-19ATEX4109X			IP RATING :	IP66	MAT'L CERTS:	EN10204 3.1 & NACE MR-01-75	WEIGHT:	18 kg [39.7 lb] EA B	
		WEIGHT:	0.28 kg/m B			WEIGHT :	2 kg [4.4 lb] EA B	WEIGHT:	12.7 kg [28 lb] EA B			
FINISH :	AS PER MANUFACTURER STANDARD	FINISH :	N/A	FINISH :	AS PER MANUFACTURER STANDARD	FINISH :	AS PER MANUFACTURER STANDARD	FINISH :	PAINTED PER SPEC: NORSOK M-501 SYSTEM 6A	FINISH :	PAINTED PER SPEC: NORSOK M-501 SYSTEM 6A	FINISH : PAINTED PER SPEC: NORSOK M-501 SYSTEM 6A



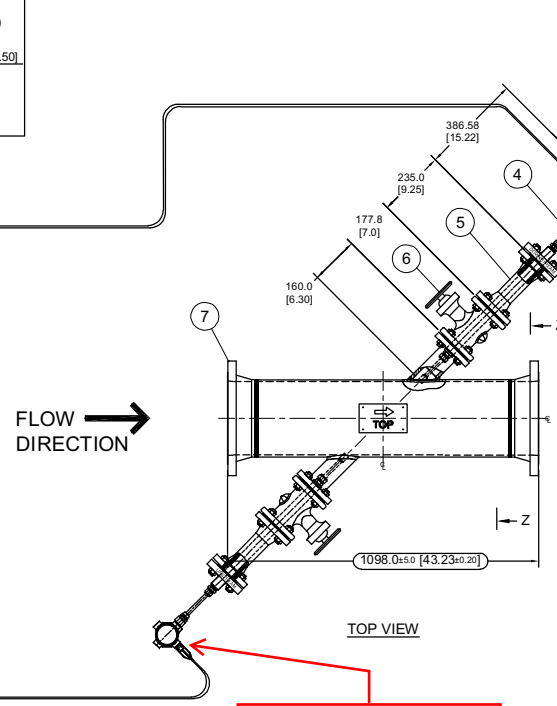


DETAIL-C
(FOR 2" PIPE MOUNTING)

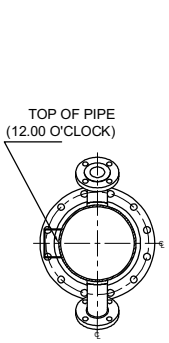
8. 2" PIPE MOUNTING BRACKET (QTY: 1)
MATERIAL : 316SS
WEIGHT : 5 kg B

MISC ITEMS (NOT SHOWN)
-1x NAMEPLATE
-5x 3/4" x M20 ADAPTORS SS

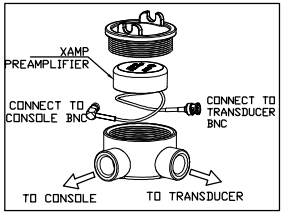
FRONT VIEW OF METER



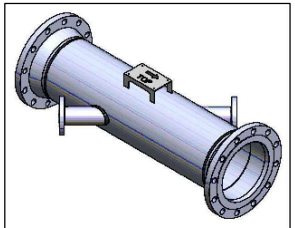
TOP VIEW



SECTION Z-Z



XAMP DETAIL

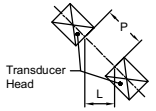


ISOMETRIC VIEW

NOTES:

1. EACH PAIR OF CABLES MUST BE CONTINUOUS IN LENGTH (NO JOINTS) AND EACH CABLE (WITHIN THE PAIR) MUST BE EQUAL IN LENGTH TO WITHIN 2.0 INCHS (50mm) OF EACH OTHER.
2. WHEN USING ARMOURED CABLE, ENSURE THAT THE ARMOURING OF THE COAXIAL CABLE AT THE INSTRUMENT ENCLOSURE END IS CONNECTED TO THE INSTRUMENT SUPPLY EARTH LINE.
3. USE ONLY Ex d CERTIFIED CABLE GLANDS / ADAPTORS PROVIDED.

WARNING
DO NOT REMOVE / REINSTALL TRANSDUCERS IF LINE PRESSURE EXCEEDS 5.5 BARG.



Path Length, P = 368.20mm[14.496"]
Axial Length, L = 260.32mm[10.248"]

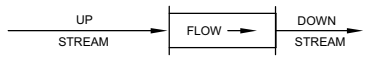
Final P & L Values will be provided on Flowcell Nameplate

TAG NUMBER : 43-FT-001
PIPE SIZE : 10", 150#, SCH 20, RF
XDCR CONFIG : TILTED DIA, 1P/1T

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN "MM[INCHES]".

FLOWCELL INSTALLATION RECOMMENDATION

INSTALL FLOWCELL ON PIPELINE TO ENSURE A FULLY DEVELOPED FLOW PROFILE IS PRESENTED TO THE FLOWMETER. BAKER HUGHES RECOMMENDS A MINIMUM OF 20 DIAMETERS OF UNOBSTRUCTED STRAIGHT RUN OF PIPELINE EXIST UPSTREAM OF THE FLOWCELL LOCATION AND 10 DIAMETERS OF SAME DOWNSTREAM.



Rev	Description of Changes	Drawn	Checked	Date
B	Issued for Approval	TG	TG	14/10/24
A	Issued for Approval	TG	TG	19/09/24
-	Issued for Approval	SG	TG	12/07/24

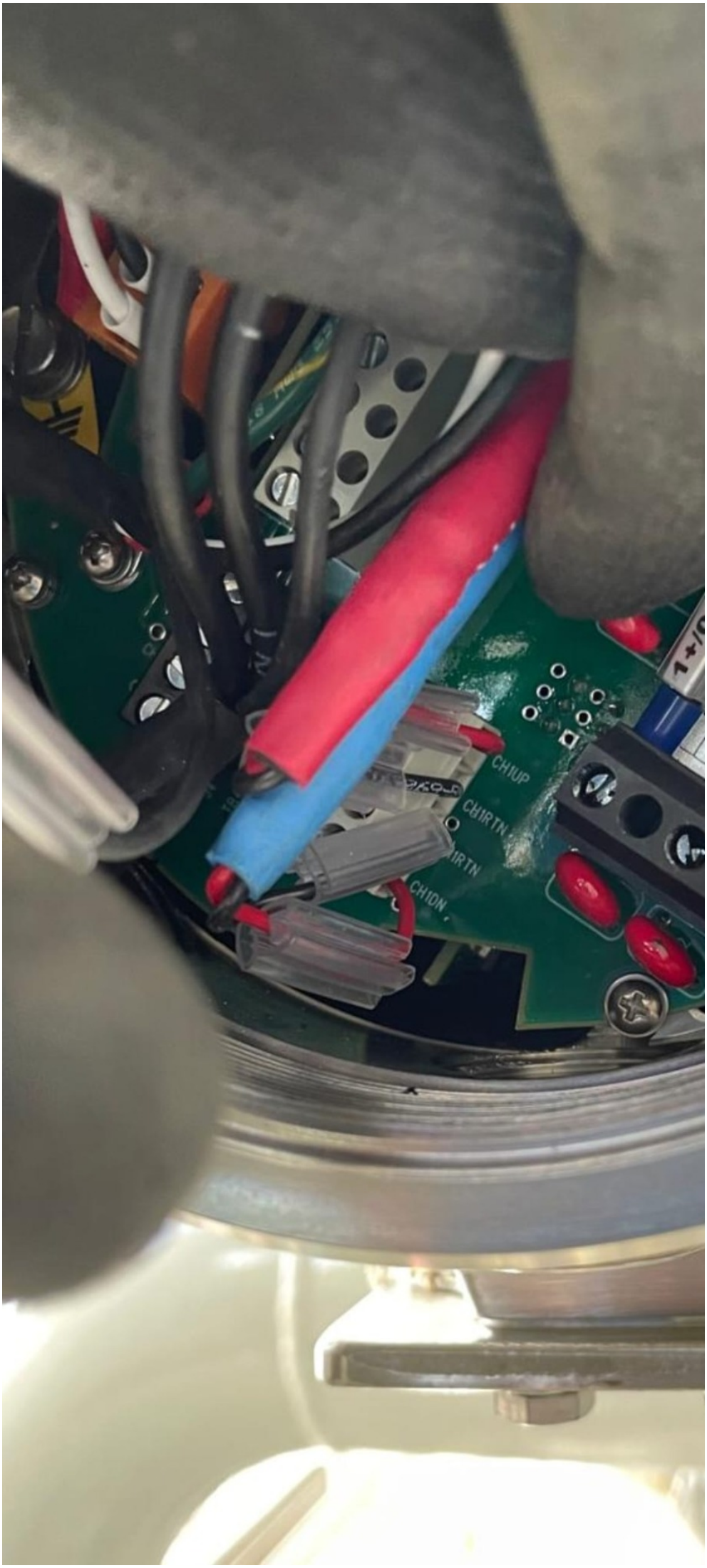
BAKER HUGHES CO.
COPYRIGHT
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TITLE
GENERAL ARRANGEMENT FOR XGF868i FLOWMETER C/W T5 TRANSDUCERS

SCALE	NTS	DO NOT SCALE DRAWING	SHEET 1 OF 1
SIZE	A3	DRAWING NUMBER SK18028 / 1706864	REV B






CH1UP
CH1RTN
CH1DN

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004260

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003571	1.4 Discipline	Piping
1.2 Item	43-00-TP-044	Test Pack 43-00-TP-044	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Touch up near the support PS-03053 and joint 043-1-J3 to do.

Name: Lorenzo Novaga

Date: 2025-03-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-03-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-04-04

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-04-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-04-04

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004261

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003415	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

General touch up to do, especially near the supports and joints.

Name: Lorenzo Novaga

Date: 2025-03-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-03-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-04-22

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-04-22

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-04-22

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004269

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004858	1.4 Discipline	Piping
1.2 Item	43-00-TP-065	Test Pack 43-00-TP-065	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Color coding and fluid direction are missing.

Name: Lorenzo Novaga
Date: 2025-03-25
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-03-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Colour code and fluid direction flow added

Name: Raffaele Degli Esposti
Date: 2025-07-07
Signature:

5 - CLEARANCE CHECK

Done.

Name: Raffaele Degli Esposti
Date: 2025-07-07
Signature:

6- CLEARANCE APPROVAL

Name:
Date: 2025-07-08
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004270

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004858	1.4 Discipline	Piping
1.2 Item	43-00-TP-065	Test Pack 43-00-TP-065	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Missing the insulation pillow around the valve BLPH-MV-417, BLPH-MV-418 and joint 124-1J1.

Name: Lorenzo Novaga

Date: 2025-03-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-03-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Lorenzo Novaga

Date: 2025-04-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004271

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003606	1.4 Discipline	Piping
1.2 Item	43-00-TP-050	Test Pack 43-00-TP-050	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Missing the insulation pillow around the valve BLPH-MV-462 and BLPH-MV-463.

Name: Lorenzo Novaga

Date: 2025-03-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-03-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Lorenzo Novaga

Date: 2025-04-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004272

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003399	1.4 Discipline	Piping
1.2 Item	43-00-TP-022	Test Pack 43-00-TP-022	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Color coding and fluid direction are missing.

Name: Lorenzo Novaga

Date: 2025-03-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-03-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-04-08

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004273

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003399	1.4 Discipline	Piping
1.2 Item	43-00-TP-022	Test Pack 43-00-TP-022	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Missing the insulation pillow around the valve BLPH-MV-409 and joint 123-1J1.

Name: Lorenzo Novaga

Date: 2025-03-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-03-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Lorenzo Novaga

Date: 2025-04-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003522

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000898	1.4 Discipline	ATEX
1.2 Item	43-LT-001		Level DP Transmitter - KO Drum V-43001 High/Low Level
1.3 Subsystem	43-00		Hydrogen Vent Header & Drum System

2 - OBSERVATION

The support bracket is not aligned. The bracket is damaged.
See attached photo.

Name: Giovanni Tangianu
Date: 2025-02-04
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-04
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

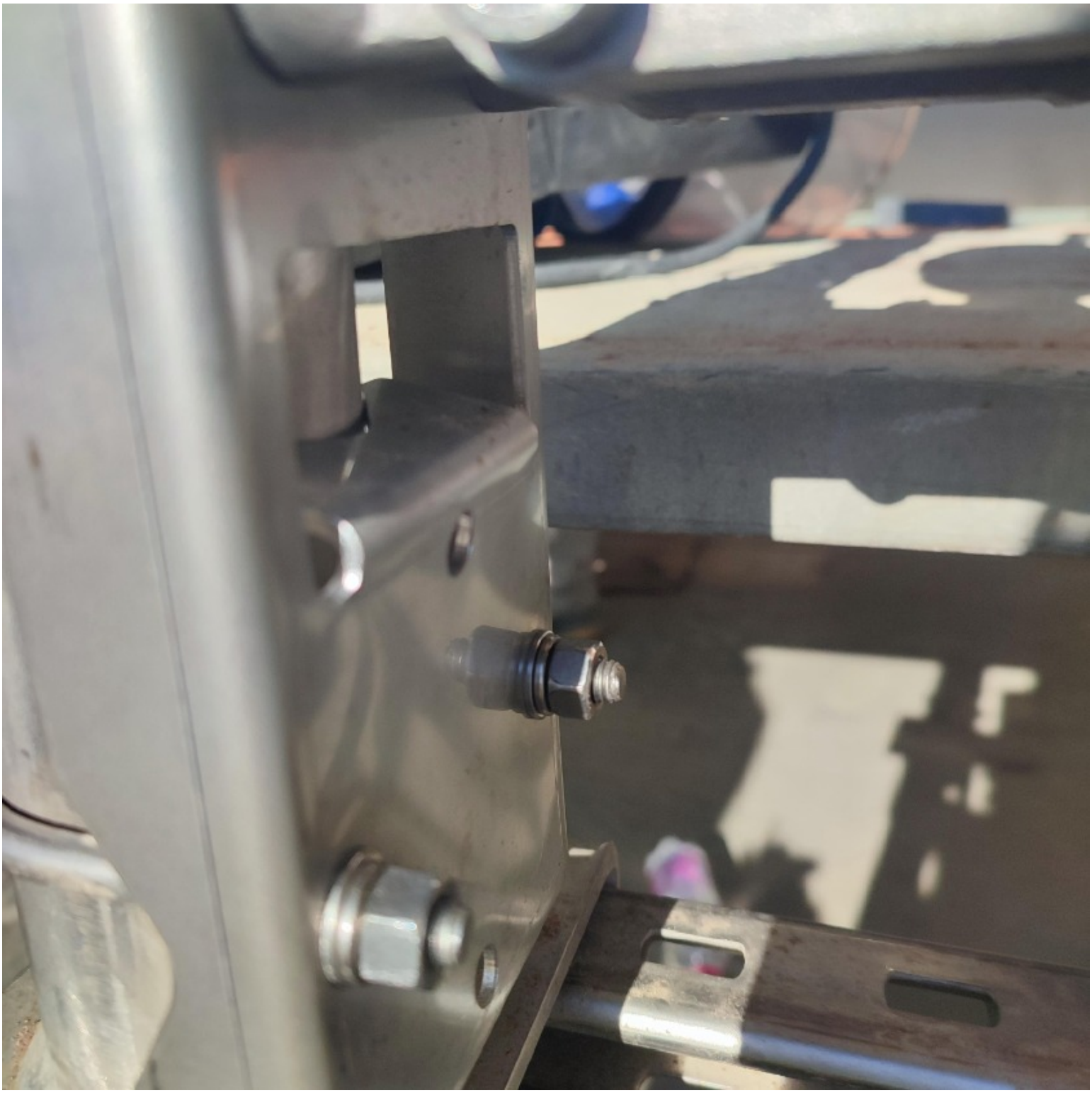
DONE

Name: Andrea Andreani
Date: 2025-02-28
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


MENU



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003546

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003400	1.4 Discipline	Piping
1.2 Item	43-00-TP-022	Test Pack 43-00-TP-022	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

General touch up do to, especially near the supports of the piping line.

Name: Kangi Albonetti

Date: 2025-02-05

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-02-05
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Activity done

Name: Kangi Albonetti

Date: 2025-02-06

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003573

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001996	1.4 Discipline	Instrumental
1.2 Item	BLPH-MV-404/43-LT-001	Process Connection Water - 43-LT-001	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Missing tubing SS tags on both ends

Name: Paolo Schintu

Date: 2025-02-06

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-06
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003574

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001997	1.4 Discipline	Instrumental
1.2 Item	BLPH-MV-405/43-LT-001	Process Connection Water - 43-LT-001	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Missing tubing SS tags on both ends

Name: Paolo Schintu

Date: 2025-02-06

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-06
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003575

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001998	1.4 Discipline	Instrumental
1.2 Item	BLPH-MV-462/43-LT-003	Process Connection Water - 43-LT-003	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Missing tubing SS tags on both ends

Name: Paolo Schintu

Date: 2025-02-06

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-06
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003576

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001999	1.4 Discipline	Instrumental
1.2 Item	BLPH-MV-463/43-LT-003	Process Connection Water - 43-LT-003	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Missing tubing SS tags on both ends

Name: Paolo Schintu

Date: 2025-02-06

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-06
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003582

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004526	1.4 Discipline	Mechanical
1.2 Item	Q-43004	Hydrogen Vent	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Vent Tip n ot installed

Name: Andrea Mancini

Date: 2025-02-07

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Andrea Mancini
3.4 Activity code	MC Mechanical Completion	Date	2025-02-07
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Massimo Bruschi

Date: 2025-03-05

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003583

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004526	1.4 Discipline	Mechanical
1.2 Item	Q-43004	Hydrogen Vent	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Missing earthing connections on earthing plates

Name: Andrea Mancini

Date: 2025-02-07

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Andrea Mancini
3.4 Activity code	MC Mechanical Completion	Date	2025-02-07
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Connected.

Name: Kangi Albonetti

Date: 2025-02-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003584

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004526	1.4 Discipline	Mechanical
1.2 Item	Q-43004	Hydrogen Vent	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Ladder not completely installed

Name: Andrea Mancini

Date: 2025-02-07

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Mancini
3.4 Activity code	MC Mechanical Completion	Date	2025-02-07
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Accepted by Rosetti Marino.

Name: Lorenzo Novaga

Date: 2025-03-06

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003585

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004521	1.4 Discipline	Mechanical
1.2 Item	V-43001	Hydrogen Vent KO Drum	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Missing earthing connections on earthing plates

Name: Andrea Mancini

Date: 2025-02-07

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Andrea Mancini
3.4 Activity code	MC Mechanical Completion	Date	2025-02-07
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-02-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003586

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004521	1.4 Discipline	Mechanical
1.2 Item	V-43001	Hydrogen Vent KO Drum	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

V-43001 to be tightened

Name: Andrea Mancini

Date: 2025-02-07

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Andrea Mancini
3.4 Activity code	MC Mechanical Completion	Date	2025-02-07
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Activity done.

Name: Lorenzo Novaga

Date: 2025-02-08

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003587

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004521	1.4 Discipline	Mechanical
1.2 Item	V-43001	Hydrogen Vent KO Drum	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Some lines still need to be connected

Name: Andrea Mancini

Date: 2025-02-07

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Andrea Mancini
3.4 Activity code	MC Mechanical Completion	Date	2025-02-07
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Flange management activity done for this item.

Name: Lorenzo Novaga

Date: 2025-02-20

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003653

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004521	1.4 Discipline	Mechanical
1.2 Item	V-43001	Hydrogen Vent KO Drum	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

The KO drum is not vertically levelled. Due the cut of one of the vessel feet there a 1° pending towards North and 1° degree pending towards East.

Name: Kangi Albonetti
Date: 2025-02-11
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-02-11
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Shim plate added under one feet. KO-Drum levelled correctly.

Name: Kangi Albonetti
Date: 2025-02-26
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:



LaserRuler

Laserliner
PPG

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004025

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000900	1.4 Discipline	ATEX
1.2 Item	43-PT-001		Pressure Transmitter - KO Drum V-43001 Pressure
1.3 Subsystem	43-00		Hydrogen Vent Header & Drum System

2 - OBSERVATION

missing trafolite and SS tag

Name: Andrea Andreani

Date: 2025-02-19

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Andrea Andreani
3.4 Activity code	MC Mechanical Completion	Date	2025-02-19
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-24

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004051

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003663	1.4 Discipline	Piping
1.2 Item	43-00-TP-058	Test Pack 43-00-TP-058	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Color coding and fluid direction are missing.

Name: Lorenzo Novaga
Date: 2025-02-20
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-20
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Colour code and flow direction arrow added.

Name: Raffaele Degli Esposti
Date: 2025-07-07
Signature:

5 - CLEARANCE CHECK

Done.

Name: Raffaele Degli Esposti
Date: 2025-07-07
Signature:

6- CLEARANCE APPROVAL

Name:
Date: 2025-07-08
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004083

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004787	1.4 Discipline	Piping
1.2 Item	43-00-TP-067	Test Pack 43-00-TP-067	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-20289.1 doesn't touch structural support.

Name: Lorenzo Novaga

Date: 2025-02-21

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-21
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004084

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004787	1.4 Discipline	Piping
1.2 Item	43-00-TP-067	Test Pack 43-00-TP-067	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Correct the gap on support PS-02132.1 (SK 002 1/2).

Name: Lorenzo Novaga

Date: 2025-02-21

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-21
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004085

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004787	1.4 Discipline	Piping
1.2 Item	43-00-TP-067	Test Pack 43-00-TP-067	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-02080.1 doesn't touch the structural support (SK 002 1/2).

Name: Lorenzo Novaga

Date: 2025-02-21

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-21
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004086

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004787	1.4 Discipline	Piping
1.2 Item	43-00-TP-067	Test Pack 43-00-TP-067	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Spool-B has a vertical misalignment about 1.3°.

Name: Lorenzo Novaga

Date: 2025-02-21

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-21
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Accepted.

Name: Kangi Albonetti

Date: 2025-02-25

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004087

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003699	1.4 Discipline	Piping
1.2 Item	43-00-TP-064	Test Pack 43-00-TP-064	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Color coding and fluid direction are missing.

Name: Lorenzo Novaga

Date: 2025-02-22

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-22
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-03-25

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004088

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003698	1.4 Discipline	Piping
1.2 Item	43-00-TP-064	Test Pack 43-00-TP-064	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

BLPH-MV-419 has stem direction north and gear east. the valve was rotated because there was a clash with the structure.

Name: Lorenzo Novaga
Date: 2025-02-22
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-22
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

In accordance with ENG dpt is accetable.

Name: Lorenzo Novaga
Date: 2025-02-22
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004090

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003414	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

BLPH-MV-199 has stem direction north and gear east. the valve was rotated because there was a clash with piping.

Name: Lorenzo Novaga

Date: 2025-02-22

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-22
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

In accordance with ENG dpt is accetable.

Name: Lorenzo Novaga

Date: 2025-02-22

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004110

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003414	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Missing earthing connection (SK 042)

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004111

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003414	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Earthing plate completly painted.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-02-26

Signature:

5 - CLEARANCE CHECK

Paint removed.

Name: Kangi Albonetti

Date: 2025-02-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-02-26

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004112

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003414	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-03127.1 SK 008 missing gap.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

The standard has been changed to S-212. See engineering mark-up.

Name: Kangi Albonetti

Date: 2025-02-26

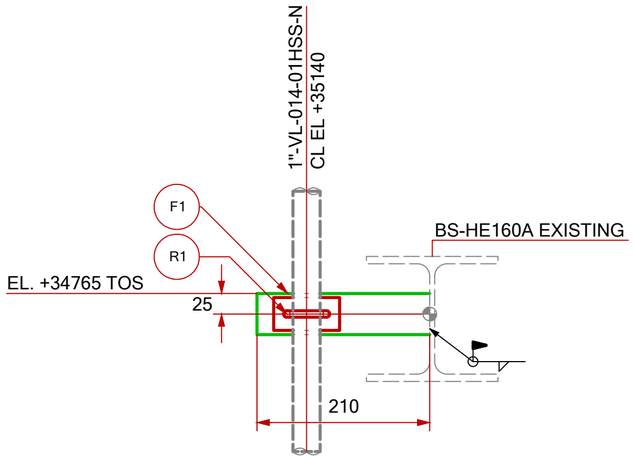
Signature:

6- CLEARANCE APPROVAL

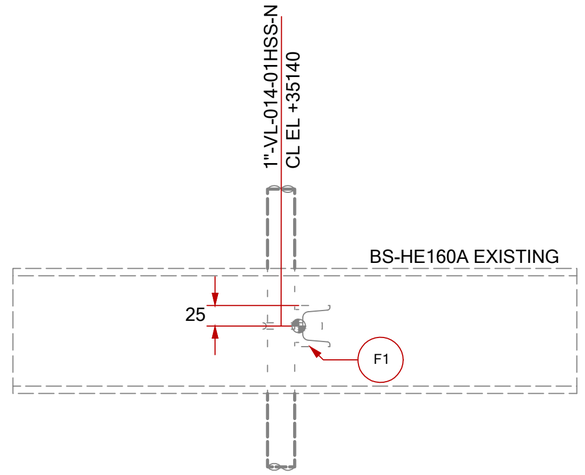
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Date:

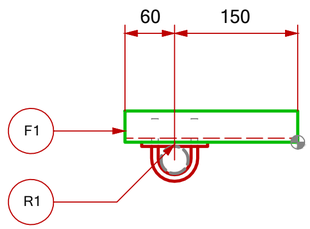
Signature:



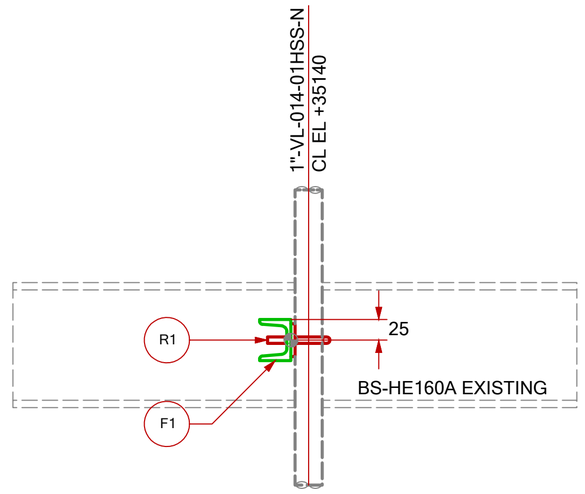
VIEW LOOKING NORTH



VIEW LOOKING WEST



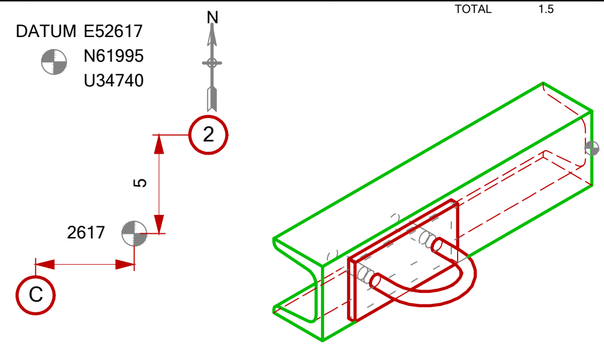
PLAN VIEW



VIEW LOOKING EAST

SUPPORT MATERIAL LIST

POS.	TYPE	DESCRIPTION	MATERIAL	LENGHT (mm)	Q.TY (n°)	UNIT WEIGHT (Kg/mt)	TOTAL WEIGHT (Kg)	PAINT SURF. (m2)
R1	STD	~~S-211-1~~ S-212-1"	-	-	1	-	0.29	-
F1	BEAM	UPN50	Carbon Steel	210	1	5.61	1.18	0.050
						TOTAL	1.5	0.05



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	04/11/24	MMA	SLO	DLO	ACCEPTED FOR CONSTRUCTION
00	19/08/24	MMA	SLO	DLO	ISSUE FOR REVIEW

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
Support Drawings
PS-03127

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1 : 5
DRAWN	CHECKED	APPROVED	DATE 04/11/24
	DRAWING NO. 123A90-DDL-PP-DD-72000		SHEET 1 of 1 / REV. 01

File Name :

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004113

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003414	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-03052.1 is missing.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-03-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004114

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003414	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-03056.2 SK042 sh 1/2 lateral gap is missing.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004115

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003414	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-03055.2 SK042 sh 1/2 lateral gap is missing.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004116

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003414	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-03017.2 SK044 correct the gap.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004117

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003414	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-03018 SK044 is not alligned with pipe.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004118

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003414	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-03134.2 SK041, there is a gap between pad and structural support, corret it.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-28

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004119

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003414	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-03045.1 SK 040 correct the gap.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-03-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004120

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003414	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-03033.1 SK 039 is not clamped.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-03-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004125

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003570	1.4 Discipline	Piping
1.2 Item	43-00-TP-044	Test Pack 43-00-TP-044	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

The distance between the welds EW5 and W6 has an inverse inclination of 1.4° with respect to the isometric.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Accepted by Rosetti Marino.

Name: Lorenzo Novaga

Date: 2025-03-06

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004126

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003570	1.4 Discipline	Piping
1.2 Item	43-00-TP-044	Test Pack 43-00-TP-044	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Missing earthing connection

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-03-10

Signature:

5 - CLEARANCE CHECK

Done

Name: Lorenzo Novaga

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-03-10

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004127

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003570	1.4 Discipline	Piping
1.2 Item	43-00-TP-044	Test Pack 43-00-TP-044	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Clean the earthing plate before installing the cable. See attached.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004128

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003570	1.4 Discipline	Piping
1.2 Item	43-00-TP-044	Test Pack 43-00-TP-044	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support PS-03053.1 doesn't touch structure, correct the gap. See attached.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-02-25
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-26

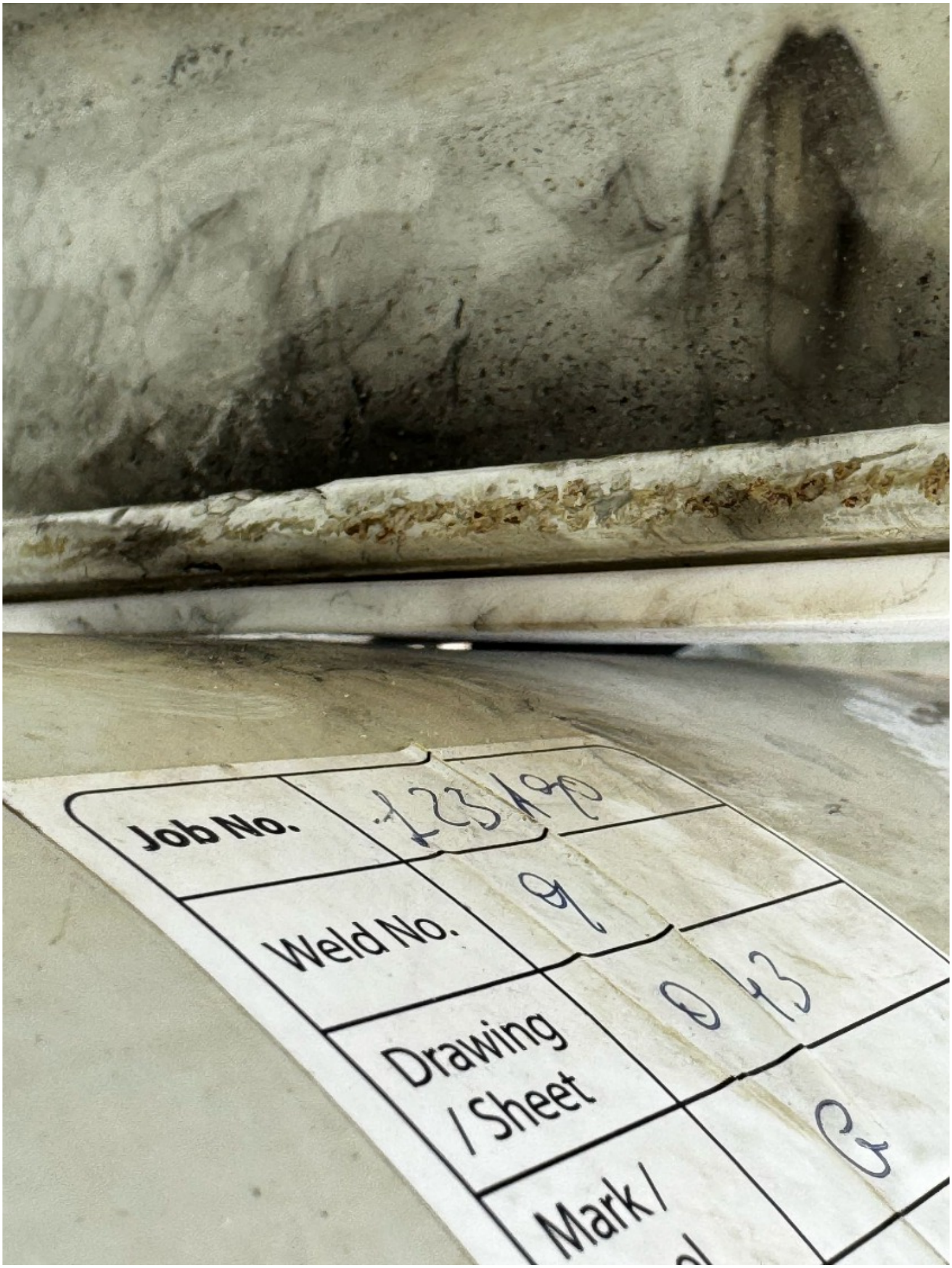
Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


Job No.
123190
Weld No.
9
Drawing /Sheet
013
Mark/


BIZ 217006 24.0/8,0

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000150

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Mechanical
1.2 Item	V-43001		Hydrogen Vent KO Drum
1.3 Subsystem	43-00		Hydrogen Vent Header & Drum System

2 - OBSERVATION

NCR 2024-Q-123A90-0007

Name: Stefano Linari

Date: 2024-10-08

Signature:

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal

3.2 Material required

3.3 Priority: B PL B

3.4 Activity code: FAT factory acceptance test

3.5 Action by

Name: Stefano Linari

Date: 2024-10-04

Signature: --- Proverlis ---
Duplicata issued from database information
Signature is on original form

4 - PERFORMED ACTION

NCR CLOSED

Name: Raffaele Degli esposti

Date: 2024-12-05

Signature:

5 - CLEARANCE CHECK

NCR CLOSED

Name: Stefano Linari

Date: 2024-12-05

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO	NON CONFORMITY REPORT	NCR n° 2024-Q-123A90-0007 rev. 0

DESCRIPTION

Project:	123A90	**Client:**	CROSSWIND C.V.	**Originator:** VENDOR		**Subcontractor name:** C.A.M.P.I. Srl	
Process:	SUPPLY MANAGEMENT			**Procedure:**	1724000163-QC-PRO-00010: HYDROSTATIC TEST PROCEDURES AND PNEUMATIC TEST PROCEDURE (FAT PROCEDURE) 1724000163-MD-LIS-00001: SUPPLIER MASTER INDEX REGISTER (SMIR) 1724000163-QC-ITP-00002: INSPECTION AND TEST PLAN		
Activity:	QC INSPECTIONS						
Short Title:	EXECUTION OF HYDROSTATIC TEST WITH TEST PROCEDURE AND ITP NOT APPROVED UNDER CODE 1						

Description:

On September 18, 2024, an "health check" was conducted at C.A.M.P.I. Srl, the supplier of the H2 KO Drum for the BLPH project. Concurrently, a notification for the execution of the final hydrostatic test following the PWHT (Post Weld Heat Treatment) was issued.

One of the key aspects of the health check was to review the activities leading up to the final hydrostatic test phase, including the verification of the approval status of the related documentation. During the review, it was found that almost all the documents under verification were marked with approval code 2 by Crosswind. It is important to note that although code 2 does not block activities, the high number of documents affected by this code, many of which had significant comments, were not addressed. No responses were provided, nor were the comments discussed.

As a result, the hydrostatic test was conducted, with the Notified Body (NO.BO.) present due to the PED (Pressure Equipment Directive) stamp, without having at least the procedure and the ITP (Inspection Test Plan) in approval code 1 (approved).

Please be informed that the test was nevertheless successful.

Noted by:	Degli Esposti Raffaele	**Role:**	PQM	**Date:**	18/09/2024
Accepted by:	Degli Esposti Raffaele	**Role:**		**Date:**	23/09/2024

MANAGEMENT

☐ **Use as is** ☐ **Rework** ☐ **Rejected**

Root-Cause Analysis

Classification: DOCUMENTATION NOT APPROVED

Notes:

REFER TO THE ATTACHED NOTES

Reaction Plan

Activities	Person in charge	Scheduled Closing Date	Actual Closing Date	Notes
Respond to comments received on documents and revise accordingly	SUPPLIER C.A.M.P.I.	27/09/2024	31/10/2024	
Hold the HT report until comments are closed. Vessel is still accepted with reservation.	Degli Esposti Raffaele	07/10/2024	31/10/2024	

Defined by:	Degli Esposti Raffaele	**Role:**	PQM	**Date:**	23/09/2024
Approved by:	Degli Esposti Raffaele	**Role:**	PQM	**Date:**	23/09/2024
Client's / AI Approval:		**Role:**		**Date:**	

COMPLETION

Checked by:	Degli Esposti Raffaele	**Role:**	PQM	**Date:**	31/10/2024

Effective Closing Date:

ROSETTI MARINO	NON CONFORMITY REPORT	NCR n° 2024-Q-123A90-0007 rev. 0

Client's / AI Approval:	Role:	Date:

Notes:

The client has approved the documents in code 1- Refer to the ACONEX Client DataBase

Distribution:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002338

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003397	1.4 Discipline	Piping
1.2 Item	43-00-TP-022	Test Pack 43-00-TP-022	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Spool has not been installed in erection. Inspection points from 4 to 6 of the ITR to be checked during reinstatement.

Name: Kangi Albonetti
Date: 2025-01-03
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Reinstatement activities complete.

Name: Kangi Albonetti
Date: 2025-02-06
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002954

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003569	1.4 Discipline	Piping
1.2 Item	43-00-TP-044	Test Pack 43-00-TP-044	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

SK.043, PS-03054: the support is different in field compared to construction. See DWG attached.

Name: Kangi Albonetti
Date: 2025-01-16
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-16
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Changes have been recorded on RLMUs

Name: Raffaele Degli Esposti
Date: 2025-06-25
Signature:

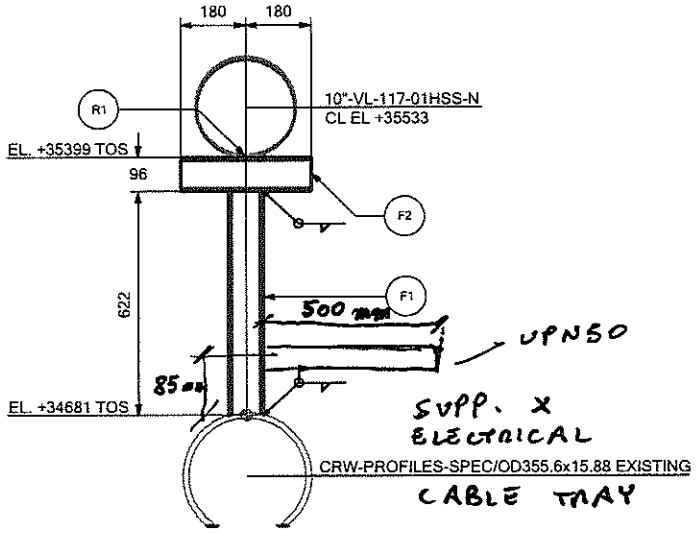
5 - CLEARANCE CHECK

Ref. to RLMU 123A90-DDL-PP-DD-72000-PS-03054_01_01A

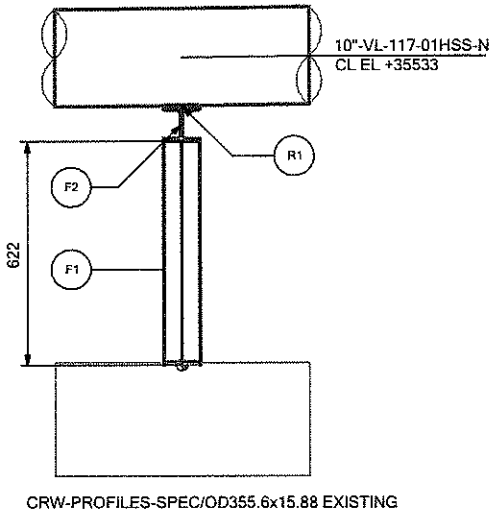
Name: Raffaele Degli Esposti
Date: 2025-06-25
Signature:

6- CLEARANCE APPROVAL

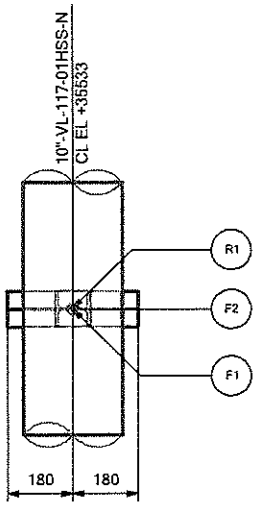
Name:
Date: 2025-06-25
Signature:



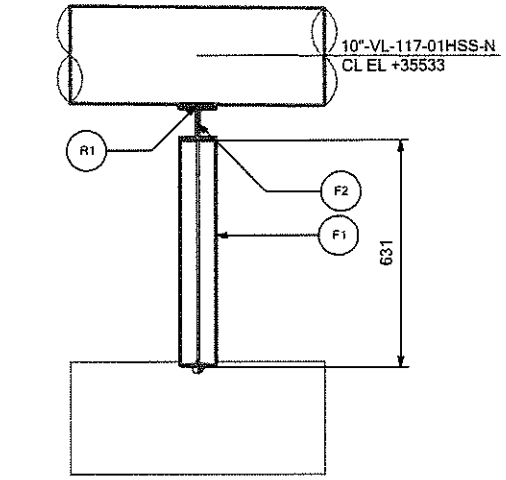
VIEW LOOKING NORTH



VIEW LOOKING WEST



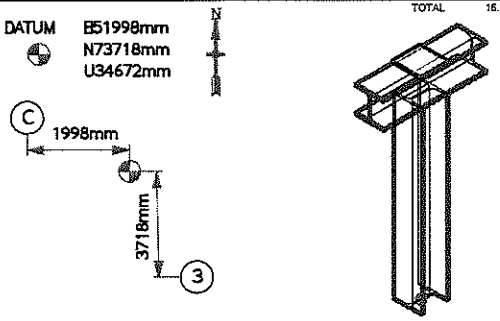
PLAN VIEW



VIEW LOOKING EAST

SUPPORT MATERIAL LIST

POS.	TYPE	DESCRIPTION	MATERIAL	LENGHT (mm)	Q.TY (n°)	UNIT WEIGHT (Kg/m)	TOTAL WEIGHT (Kg)	PAINT SURF. (m2)
R1	STD	C-10-100-500-S	-	-	1	-	0.11	-
F1	BEAM	HEA100	Carbon Steel	631	1	16.76	10.58	0.358
F2	BEAM	HEA100	Carbon Steel	360	1	16.76	6.03	0.206
						TOTAL	16.7	0.56



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	19/06/24	MMA	SLO	DLO	ISSUE FOR REVIEW

CROSSWIND

ROSETTI MARINO

TITLE:
BASE LOAD POWER HUB (BLPH)
Support Drawings
PS-03054

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1 : 10
DRAWN	CHECKED	APPROVED	DATE 19/06/24
DRAWING NO. 123A90-DDL-PP-DD-72000			SHEET 1 of 1 / REV 00

File Name:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002955

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003569	1.4 Discipline	Piping
1.2 Item	43-00-TP-044	Test Pack 43-00-TP-044	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Sk.43, PS-03053: Position R1 has not been prepared.

Name: Kangi Albonetti

Date: 2025-01-16

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-16
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-25

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002956

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003569	1.4 Discipline	Piping
1.2 Item	43-00-TP-044	Test Pack 43-00-TP-044	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Spool has not been installed in erection. Inspection points from 4 to 6 to be checked during flange management in the after test phase.

Name: Kangi Albonetti

Date: 2025-01-16

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-16
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Checked

Name: Kangi Albonetti

Date: 2025-02-19

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003114

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003704	CLX02A	1.4 Discipline	Piping
1.2 Item	43-00-TP-065		Test Pack 43-00-TP-065	
1.3 Subsystem	43-00		Hydrogen Vent Header & Drum System	

2 - OBSERVATION

PS-02134: the structural part of the support is 5 mm shorter and the position R1 is missing.

Name: Kangi Albonetti

Date: 2025-02-11

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-21
3.5 Action by	RM_CONSTR RM	Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Corrected.

Name: Kangi Albonetti

Date: 2025-02-11

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003117

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003704	1.4 Discipline	Piping
1.2 Item	43-00-TP-065	Test Pack 43-00-TP-065	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

In the Spool A, the section between W1 and W2 has been cut of 70 mm due the fact that the nozzle of the Vent was longer.

Name: Kangi Albonetti

Date: 2025-01-21

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-21
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Document marked-up.

Name: Lorenzo Novaga

Date: 2025-04-02

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003145

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000138	1.4 Discipline	Instrumental
1.2 Item	C-43-LT-003/00-JE-11002	LEVEL TRANSMITTER / MARSHALLING PCS	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Missing cable tag SS project, near the instrument (43-LT-003.)

Name: Giovanni Tangianu

Date: 2025-01-22

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-22
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-02-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003181

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003697	1.4 Discipline	Piping
1.2 Item	43-00-TP-064	Test Pack 43-00-TP-064	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Supports type "S-211" not assembled as for Standard. To be checked again during reinstatement.

Name: Kangi Albonetti

Date: 2025-01-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-24
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Activity done.

Name: Lorenzo Novaga

Date: 2025-02-22

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003200

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004555	1.4 Discipline	Piping
1.2 Item	43-00-TP-066	Test Pack 43-00-TP-066	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Nameplate on the spool belonging to the equipment 43-FE-001 is empty.

Name: Kangi Albonetti

Date: 2025-01-25

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-25
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-03-31

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Lorenzo Novaga

Date: 2025-03-31

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-03-31

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003262

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

All stopper type "S-205" are missing. They shall be installed and welded to the pads.

Name: Kangi Albonetti

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003263

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004299	1.4 Discipline	Piping
1.2 Item	125-2-J3	Joint 125-2-J3	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Body length of Valve BLPH-MV-463 does not allow the installation of washers from insulation kit on the valve side.

Name: Lorenzo Novaga

Date: 2025-01-27

Signature:

3 - DEFECT ASSESSMENT

.As agreed with Engineering Dpt. they have not been installed on that side.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-01-28

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003264

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004297	1.4 Discipline	Piping
1.2 Item	125-1-J1	Joint 125-1-J1	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Body length of Valve BLPH-MV-462 does not allow the installation of washers from insulation kit on the valve side.

Name: Lorenzo Novaga

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal: As agreed with Engineering Dpt. they have not been installed on that side.

3.2 Material required:

3.3 Priority	A PL A	Name	Lorenzo Novaga
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-01-28

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003265

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Vlaves have not been installed before test. Flanged joints before test are only temporary. Inspection points from 5 to 7 are going to be checked during flange management and reinstatement.

Name: Kangi Albonetti
Date: 2025-01-28
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Done

Name: Kangi Albonetti
Date: 2025-02-19
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003266

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Sketch 038: Piping support PS-03025 has not been assembled in erection.

Name: Kangi Albonetti

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003267

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Sketch 037: Piping support PS-03023 has not been assembled in erection.

Name: Kangi Albonetti

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003268

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Sketch 018: Piping support PS-03548 has not been assembled in erection.

Name: Kangi Albonetti

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003269

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Sketch 044: Piping supports PS-03017 and PS-3018 have not been assembled in erection.

Name: Kangi Albonetti

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003270

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Sketch 041: Piping support PS-03132 has not been assembled in erection.

Name: Kangi Albonetti

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-03-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003271

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Sketch 006: Piping support PS-03051 has not been assembled in erection.

Name: Kangi Albonetti

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003272

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Sketch 039: Piping support PS-03032 has not been assembled in erection.

Name: Kangi Albonetti

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003273

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Sketch 039: Piping support PS-03134 has not been assembled in erection.

Name: Kangi Albonetti

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003274

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Sketch 008: Piping support PS-03127 has not been assembled in erection.

Name: Kangi Albonetti

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-03-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003403

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

PS-02035 is different from the drawing. See as-built.

Name: Kangi Albonetti

Date: 2025-01-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-30
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Changes have been recorded on RLMUs

Name: Raffaele Degli Esposti

Date: 2025-06-25

Signature:

5 - CLEARANCE CHECK

Ref. to RLMU 123A90-DDL-PP-DD-72000-PS-02035_01_01A

Name: Raffaele Degli Esposti

Date: 2025-06-25

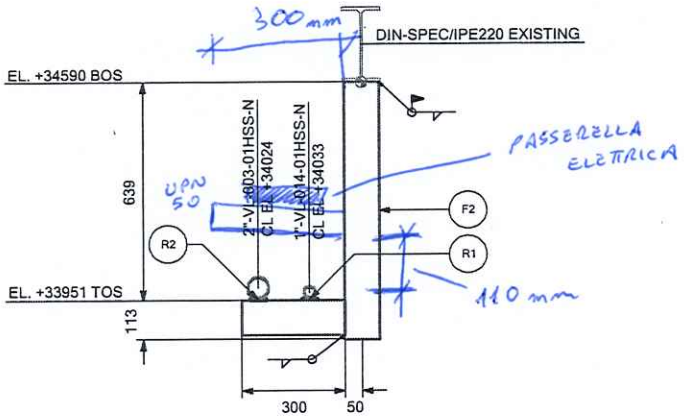
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6- CLEARANCE APPROVAL

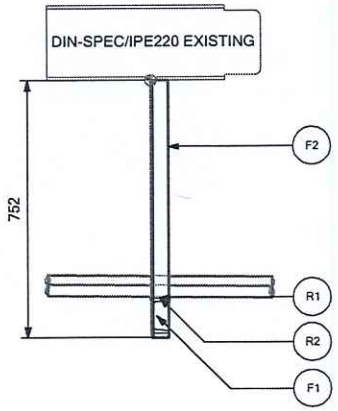
Name:

Date: 2025-06-25

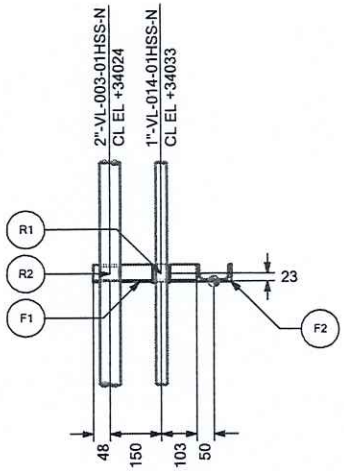
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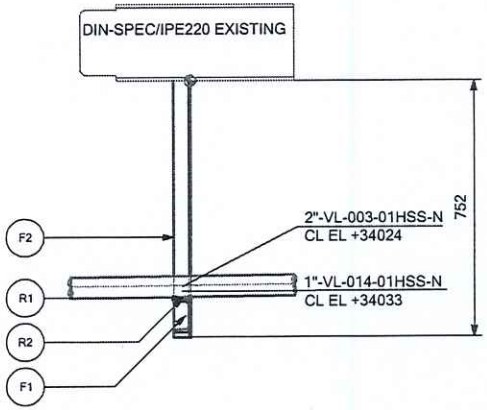
VIEW LOOKING NORTH



VIEW LOOKING WEST



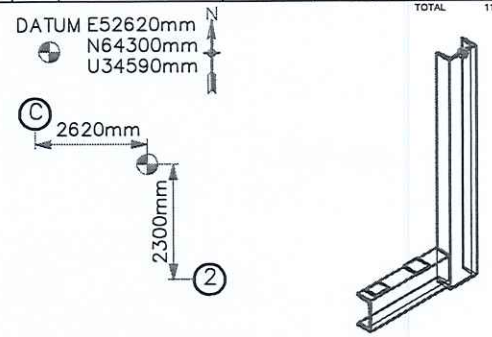
PLAN VIEW



VIEW LOOKING EAST

SUPPORT MATERIAL LIST

POS.	TYPE	DESCRIPTION	MATERIAL	LENGHT (mm)	Q.TY (n°)	UNIT WEIGHT (Kg/mt)	TOTAL WEIGHT (Kg)	PAINT SURF. (m2)
R1	STD	C-16-50-50-5	-	-	1	-	0.03	-
R2	STD	C-16-50-40-5	-	-	1	-	0.02	-
F1	BEAM	UPN100	Carbon Steel	300	1	10.57	3.17	0.114
F2	BEAM	UPN100	Carbon Steel	752	1	10.57	7.95	0.282
						TOTAL	11.2	0.40



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	04/11/24	MMA	SLO	DLO	ACCEPTED FOR CONSTRUCTION
00	19/08/24	MMA	SLO	DLO	ISSUE FOR REVIEW

CROSSWIND

ROSETTI MARINO

TITLE:

BASE LOAD POWER HUB (BLPH)
Support Drawings
PS-02035

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1:10
DRAWN	CHECKED	APPROVED	DATE 04/11/24
DRAWING NO. 123A90-DDL-PP-DD-72000			SHEET 1 of 1 / REV. 01

File Name:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003404

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003413	1.4 Discipline	Piping
1.2 Item	43-00-TP-024	Test Pack 43-00-TP-024	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

PS-03058 is not as for the drawing. See as-built.

Name: Kangi Albonetti

Date: 2025-01-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-30
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Changes have been recorded on RLMUs

Name: Raffaele Degli Esposti

Date: 2025-06-25

Signature:

5 - CLEARANCE CHECK

Ref. to RLMU 123A90-DDL-PP-DD-72000-PS-03058_01_01A

Name: Raffaele Degli Esposti

Date: 2025-06-25

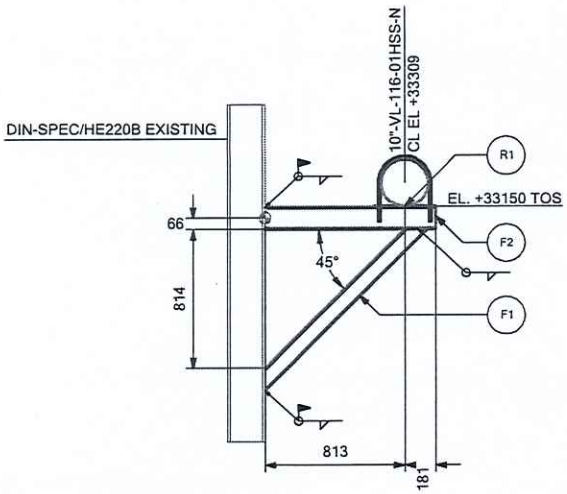
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6- CLEARANCE APPROVAL

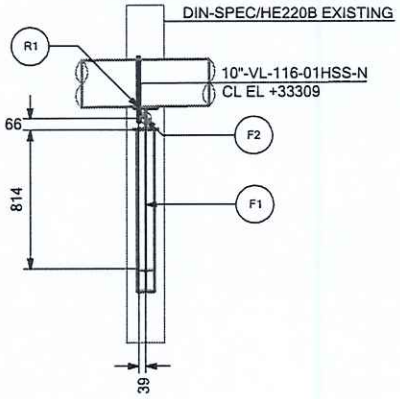
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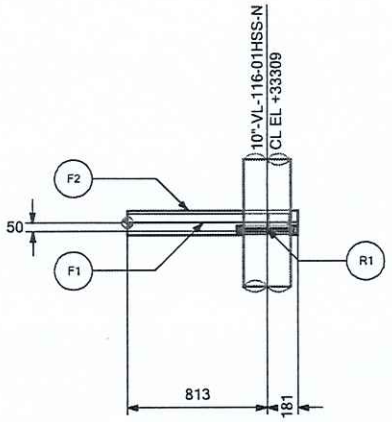
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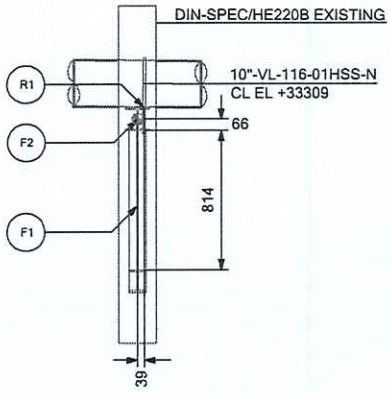
VIEW LOOKING NORTH



VIEW LOOKING WEST



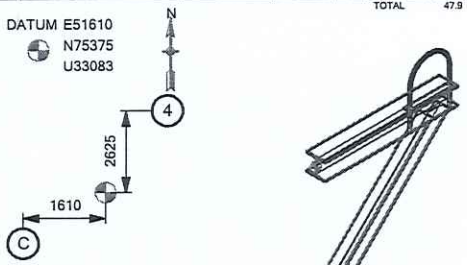
PLAN VIEW



VIEW LOOKING EAST

SUPPORT MATERIAL LIST

POS.	TYPE	DESCRIPTION	MATERIAL	LENGHT (mm)	Q.TY (n°)	UNIT WEIGHT (Kg/mt)	TOTAL WEIGHT (Kg)	PAINT SURF. (m2)
R1	STD	S-211-10"	-	-	1	-	2.35	-
F1	BEAM	HEA100	EN 10025 S355J2	1344	1	15.56	20.91	0.706
F2	BEAM	~~HEA140~~ HEA100	EN 10025 S355J2	994	1	24.75	24.60	0.795
						TOTAL	47.9	1.50



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	04/11/24	MMA	SLO	DLO	ACCEPTED FOR CONSTRUCTION
00	19/08/24	MMA	SLO	DLO	ISSUE FOR REVIEW

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
Support Drawings
PS-03058

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE 1 : 20
DRAWN	CHECKED	APPROVED	DATE 04/11/24
DRAWING NO. 123A90-DDL-PP-DD-72000			SHEET 1 of 1 / REV. 01

File Name :

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003506

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000899	1.4 Discipline	ATEX
1.2 Item	43-LT-003		Level DP Transmitter - H2 Vent Q-43004 Low Level
1.3 Subsystem	43-00		Hydrogen Vent Header & Drum System

2 - OBSERVATION

The support bracket is not aligned. The bracket is damaged.
See attached photo.

Name: Giovanni Tangianu
Date: 2025-02-03
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani
Date: 2025-02-28
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


DON'T REMOVE WITH POWER
DRAIN



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003508

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000899	1.4 Discipline	ATEX
1.2 Item	43-LT-003		Level DP Transmitter - H2 Vent Q-43004 Low Level
1.3 Subsystem	43-00		Hydrogen Vent Header & Drum System

2 - OBSERVATION

Missing drain tubing below the manifold (VENT). See Attached photo.

Name: Giovanni Tangianu

Date: 2025-02-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed during ispection.

Name: Giovanni Tangianu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


DON'T REMOVE WITH POWER
DRAIN

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003509

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000899	1.4 Discipline	ATEX
1.2 Item	43-LT-003		Level DP Transmitter - H2 Vent Q-43004 Low Level
1.3 Subsystem	43-00		Hydrogen Vent Header & Drum System

2 - OBSERVATION

Elevation of instrument is not in accordance with Layout.

See attached photo.

Name: Giovanni Tangianu

Date: 2025-02-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

RLMU "done".

Name: Giovanni Tangianu

Date: 2025-03-05

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178
DON'T RE
AIN

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003515

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004786	1.4 Discipline	Piping
1.2 Item	43-00-TP-067	Test Pack 43-00-TP-067	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

Support "PS-02133" is unmounted. ISO 123A90-FDL-PP-DI-00002-01

Name: Massimo Bruschi

Date: 2025-02-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Massimo Bruschi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003516

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004786	1.4 Discipline	Piping
1.2 Item	43-00-TP-067	Test Pack 43-00-TP-067	
1.3 Subsystem	43-00	Hydrogen Vent Header & Drum System	

2 - OBSERVATION

SK.002-01: All piping supports type "S-75", "C-34", "C-16" and "-S-211" will be check during reinstatement phase.

Name: Massimo Bruschi

Date: 2025-02-03

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Massimo Bruschi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-03
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-02-21

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

Section 4 FUNCTIONAL TESTS SHEETS

Section 4.1 Electrical functional test sheets index

NOT APPLICABLE

Section 4.2 Electrical
“As-Commissioned” interconnection diagrams

NOT APPLICABLE

Section 4.3 Instrumentation functional test sheets index

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 43-00 & discipline : I

Instrumental	43-00 Hydrogen Vent Header & Drum System

ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
43-FT-001	Flow Transmitter - Hydrogen form KO DRUM V-43001 to vent stack Q-43004	ONSHORE	C10003177	FJ01A	100	2025-04-14	RFO 3
43-LT-001	Level DP Transmitter - KO Drum V-43001 High/Low Level	ONSHORE	C10003224	FJ01A	100	2025-04-03	RFO 3
43-LT-003	Level DP Transmitter - H2 Vent Q-43004 Low Level	ONSHORE	C10003225	FJ01A	100	2025-04-02	RFO 3
43-PT-001	Pressure Transmitter - KO Drum V-43001 Pressure	ONSHORE	C10003178	FJ01A	100	2025-03-19	RFO 3

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	43-FT-001	: Flow Transmitter - Hydrogen form KO DRUM V-43001 to vent stack Q-43004			Dwg	123A90-DDL-PR-PID-80029
	S/Sys	43-00	: Hydrogen Vent Header & Drum System			Module	
TASK	code	C10003177		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	PRE-COMM	Activity FTS	Discipline	Instrumental	Form FJ01A	Analog Loop

LOOP DATA

Loop TAG	43-FT-001			TSLD	123A90-FDL-IN-DG-40014 rev.1_A		
IO Type	Input	Yes	Output No	Energy by transmitter	No	Energy by system	Yes
Marshalling	B400-PCS-001	Terminal	07A/07B	Slot	01	Rack 01	Chanel 07

LOOP TEST

1	Check earth isolation of the loop						OK
2	Connect loop to terminal						OK
3	Confirm Process Scale	Unit	kg/h	Min	0	Max 3095	OK

LOOP RANGE			0%	25%	50%	75%	100%
4	Physical value applied for test	Unit mA	4	8	12	16	20
5	Control System Display	Unit kg/h	0	774	1547	2322	3095

LOOP SERVICE

		Value	Trip	Gen Alarm	DCS Alarm	SOE	DCS display	
6	Threshold 1	H 900 kg/h	No		Yes		OK	OK
7	Threshold 2		NA	NA	NA	NA	NA	NA
8	Threshold 3		NA	NA	NA	NA	NA	NA
9	Threshold 4		NA	NA	NA	NA	NA	NA
10	Checking of line monitoring		NA	NA	NA	NA	NA	NA
11	Checking of Maintenance Inhibition		NA	NA	NA	NA	NA	NA
12	Associated safety Level / bar							NA
13	Associated outputs							NA

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
PROCESS CALIBRATOR FLUKE 725	4498694	7717/24	10/07/2025

LOOP DOCUMENTATION

14	Loop diagram is marked up and attached to this test sheet	OK
15	Cause and effect chart is highlighted accordingly	NA
16	Any defect is recorded for punch list issuance	OK

Comments:

Page 1/1	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW
Name	Laurentiu Grozavu	Giandonato Delmissier	John Mackillop
Date	2025-04-11	2025-04-11	2025-04-14
Signature	PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-04-11T12:12:21.700Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-04-11T13:43:29.294Z	PROVERLIS Digitaly signed by John Mackillop 2025-04-14T09:53:41.336Z

G-FAST RESULTS SUMMARY

Flowmeter Application Calculator and Test System® Ver. 2.73, Dec-6-2023

Customer Name: ROSSETTI MARINO
CPO#: 2721420
Tag Number: 43-FT-001

Pipe Data

Pipe Material:	316 Stainless Steel	
Pipe Size:	10	in
Pipe Schedule:	10S	
Outer Diameter:	10.75	in
Inner Diameter:	10.42	in
Wall thickness:	0.165	in
Interal Area:	0.59219	ft²

Fluid Data

Fluid Name/Type: Gas Composition Tab 100%H2

Variables	Min	Nom	Max	Units
Provided Flowrate	153.00	1,067.00	2,381.50	kg/Hour
Velocity	6.43	44.80	100.00	m/s
Temperature	25.00	25.00	25.00	°C
Pressure	40	40	40	kPa
Density	0.120	0.120	0.120	kg/m^3
Sound Speed	1314.8	1314.8	1314.8	m/s
Reynold's No.	23,059	160,787	358,874	

Base Temperature	15.6	°C
Base Pressure	101	kPa
Barometric Pressure	101	kPa
Molecular Weight	2.02	
Max Allowed Vel.	100	m/s

Configuration Data

Transducer Configuration:	Custom, Diameter (45°)
Traverses/Paths:	1 Traverse , 1 Path
Transducer Material:	316SS
PREAMP GAIN:	40

minimun measurable	0.75 kg/h / 0.03 m/s
estimated accuracy	155%

Repeatability Results (% of Reading)

Accuracy/repeatability calculated is based on velocity

	Temperature		
Flow Rate:	Min	Nom	Max
Min	0.76%		
Nom		0.75%	
Max			0.75%

Calculations evaluated at **specified** conditions:

Min Flow @ Min Temp, Min Pressure, and Min Density (if applicable)
Max Flow @ Max Temp, Max Pressure, and Max Density (if applicable)

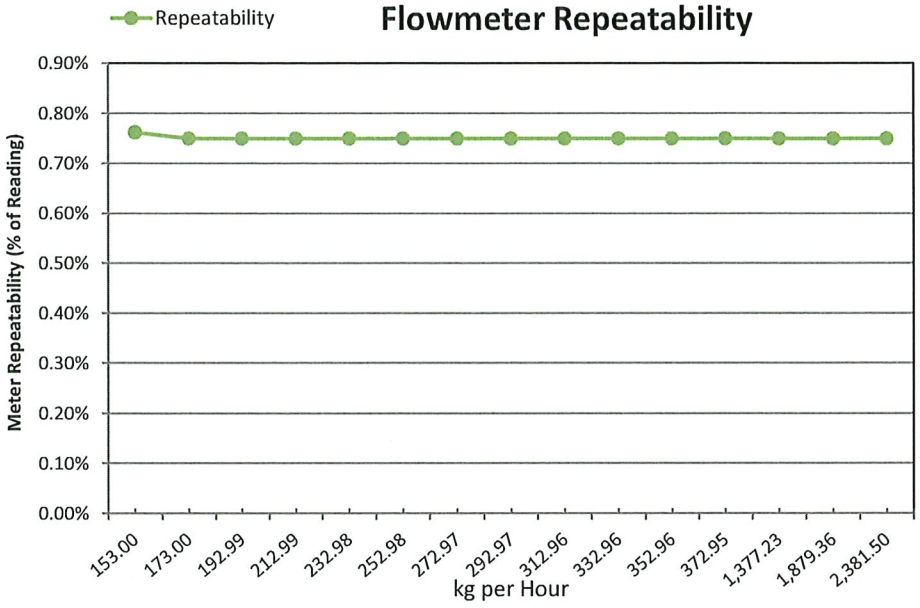
Calibrated Accuracy Results (% of Reading)

	Temperature		
Flow Rate:	Min	Nom	Max
Min	0.76%		
Nom		0.75%	
Max			0.75%

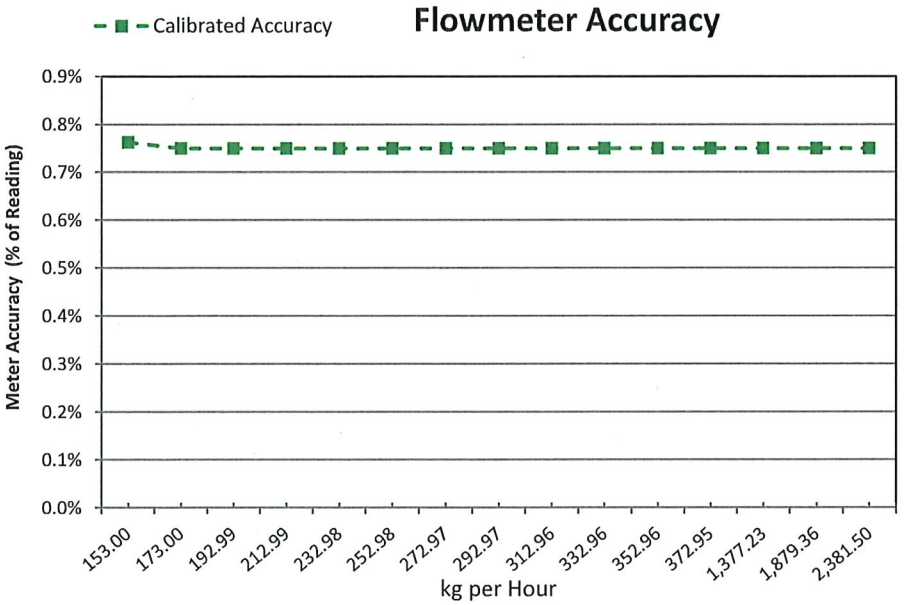
Calculations evaluated at **specified** conditions:

Min Flow @ Min Temp, Min Pressure, and Min Density (if applicable)
Max Flow @ Max Temp, Max Pressure, and Max Density (if applicable)

Baker Hughes Confidential



kg / Hour	Repeat-ability
153	0.8%
173	0.8%
193	0.8%
213	0.8%
233	0.8%
253	0.8%
273	0.8%
293	0.8%
313	0.8%
333	0.8%
353	0.8%
373	0.8%
1,377	0.8%
1,879	0.8%
2,382	0.8%



kg / Hour	Calibrate d Accuracy
153	0.8%
173	0.8%
193	0.8%
213	0.8%
233	0.8%
253	0.8%
273	0.8%
293	0.8%
313	0.8%
333	0.8%
353	0.8%
373	0.8%
1,377	0.8%
1,879	0.8%
2,382	0.8%

GENERAL	1	Tag Number				43-FT-001		
	2	Service				HDROGEN FROM KO DRUM TO HYDROGEN VENT (Q-43004)		
	3	P&ID Number		Special Regulation		123A901-DDL-PR-PID-80029	-	
	4	Line Size		Line No.		10"	10"-VL-117-01HSS-N	
	5	Line Schedule		Area Classification		Thk (mm) = 4.19	ATEX Zone2 - IIC (IIB+H2) T1	
PROCESS CONDITIONS	6	Fluid	Phase		State	HYDROGEN	SINGLE	GAS
	7	Spec Cond.		Sour Serv.				
	8	Flow		Min. / Norm. / Max.	Units		note 17	
	9	Oper. Pressure		Oper. Temperature		0 / 0.5 barg	AMB	
	10	Des. Pressure		Des. Temp. Max. / Min.		3.5 barg	80 °C	
	11	Density @ Fl. Norm.		Viscosity @ Fl. Norm.		0.11 kg/m^3 (@25°C, 0.4 barg)	0.01	
	12	Max. Allowable DP across Meter				N/A		
	13	Molecul. Wt. @ Fl. Nor.		Entrained Gas		2		
	14	Vapour Pressure		Critical Pressure		N/A	N/A	
METER	15	Meter Type				Spool Piece		
	16	Size	Rating	Facing		10" #150	RF	
	17	Range From	To	Eng. Units				
	18	Housing				ASTM A312 Gr.TP316/316L (ASME B31.12)		
	19	Electrical Connections				M20		
	20	Accuracy		Tracing		See Vendor Calculation Sheet	-	
	21	Trace Size	Rating	Facing		-	-	-
	22							
METER MATERIALS	23	Process Flanges				10" FLANGED #150		
	24	Tube Material				ASTM A312 Gr.TP316/316L		
	25	Sensor Housing Material				AISI 316/316L		
TRANSMITTER	26	Measurement Type		Beam / PATH No.		TRANSIT TIME	SINGLE / SINGLE	
	27	Mounting		Housing Material		Remote	AISI 316	
	28	Calibration Range				See Vendor Calculation Sheet		
	29	Electrical Connection		Electrical Class		M20x1,5MM	-	
	30	Output Signal		Load		4-20mA	600Ω	
	31	Other Output Signal				-		
	32	Power Supply		Consumption		24Vdc	20W	
	33	Ingress Protection		ATEX Certification		IP66	Ex-d IIC T6 Gb	
COMMUNICATION AND SOFTWARE	34	Communication Type		Signal Type		Conventional + HART Rev.7	4-20mA	
	35	DD Revision		CFF Revision		-	-	
	36	Hart Desciptor		Hart Tag		-	-	
	37	Internal Diagnostics		Capacitance		-	-	
	38	Segment		Device Address		-	-	
	39	Device Class		Simulate		-	-	
	40	Nominal Current		Operating Voltage		-	-	
ACCESSORIES	41	Environ. Protection				-		
	42	Measuring Cable Length		Special Cable Length		-	10m (Sensor - Transmitter)	
	43	Mounting Kit		Cable Glands		Mounting Bracket for 2" pole	Required	
	44	Isolating Ball Valve				Required according to piping class 01HSS		
PURCHASE	45	Manufacturer				Panametrics		
	46	Model	Sensor	Transmitter		Flowcell	XGF868I	
	47	Purchase Order Number				1724001317		
	48	Weight				See Sheet 9		

No.	Date	By	Chkd	Appr	Description
01	06/09/2024	VBA	LCA	DLO	Accepted for Construction (AFC)
00	13/03/2024	VBA	LCA	DLO	Issued for Review (IFR)

INSTRUMENT DATASHEET

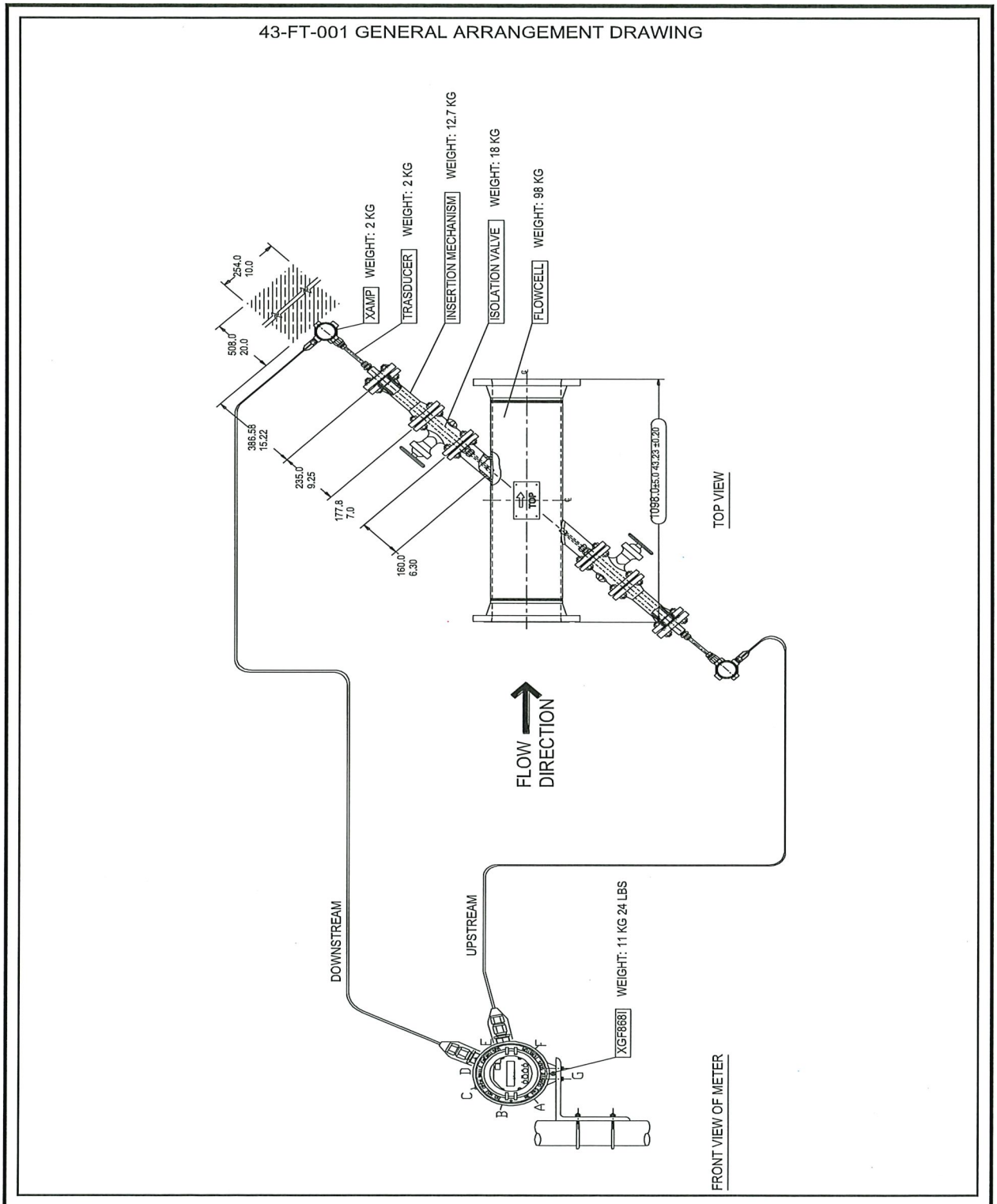
Ultrasonic Flowmeter

CROSSWIND

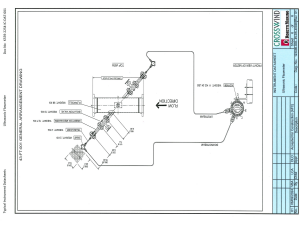
ROSETTI MARINO

Sheet 5 of 6

Code : Dwg. No.: 123A90-DDL-IN-DS-40048 Rev 01



						INSTRUMENT DATASHEET	
						Ultrasonic Flowmeter	
01	06/09/2024	VBA	LCA	DLO	Accepted for Construction (AFC)		Sh
No.	Date	By	Chkd	Appr	Description	Code :	Dwg. No.: 123A90-DI



Baker Hughes

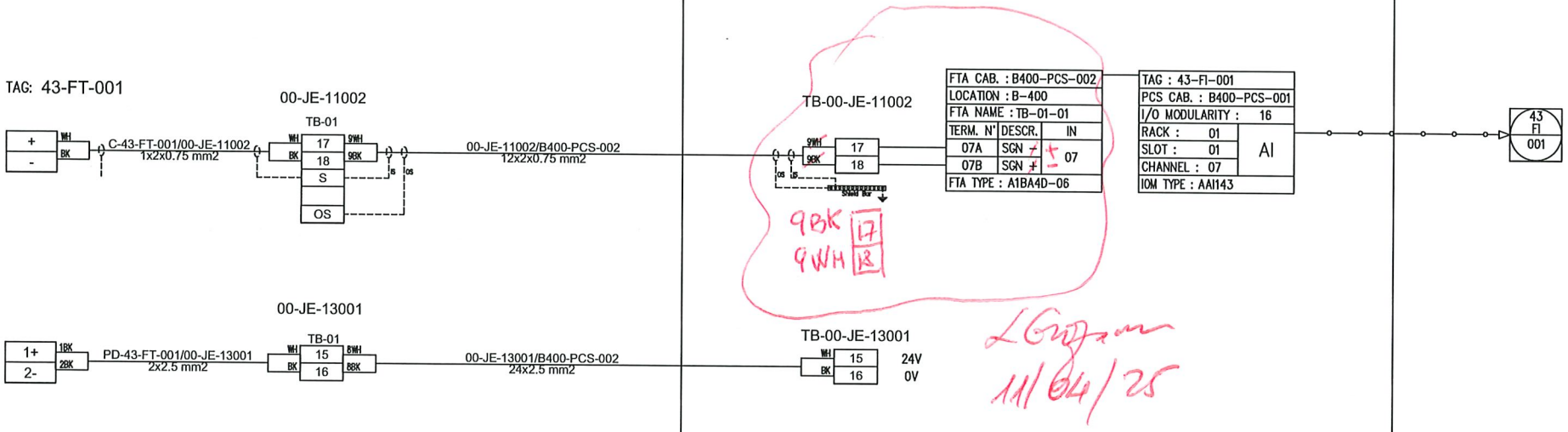
ULTRSONIC FLOWMETER APPLICATION DATA SHEET
Rev B

1	Tag Number	43-FT-001				
2	P&ID Number	123A901-DDL-PR-PID-80029				
3	Service	HDROGEN FROM KO DRUM TO HYDROGEN VENT (Q-43004)				
4	Line Size/Schedule	10"/Sch 10				
5	Line Material	ASTM 316/316L				
6	Flowcell	A312 Gr TP316/316L, Sch 40 (pipe), taper bored to Sch 10, A182 Gr F316/316L (flanges)				
7	Pre-amplifer	Xamp, 316SS enclosure, IP65/66				
8	IVA	2" 150# Gate valve, Body A351 CF8M, Trim 316SS				
9	Fluid / Phase	Gas/Single				
7		**MIN**	**NORMAL**	**MAX**	**UNIT**	
8	Operating Flow Rate	690	1067	3095	kg/hr	
9	Operating Pressure	0	50	50	kPa	
10	Operating Temperature	-8.4	10.5	25	°C	
11	Viscosity	0.01	0.01	0.01	cP	
12	Density	0.11	0.11	0.11	kg/m³	
13	Power Supply	12-28 VDC				
14	Measurement Mode	Transit Time				
15	Meter Range	bi-directional -100 to 100 m/s				
16	Accuracy	± 0.8% full scale				
17	Input/Output Signals	2x 4-20mA ip, 2x 4-20mA op				
18	Hazardous Protection	Exd IIG/C T6				
19	Ingress Protection	IP66				
20	Housing Material	Stainless Steel				
21	Mounting	Remote (c/w 2" pipe mount bracket)				
22	Flowmeter cable Length	10m				
23	Transducer Type	T5MAXS				
24	No of Paths/Traverse	1x Path/ 1x Traverse				
25	Transducer Material	316SS				
26	Insertion/retraction Type	IMA72				
27	Size/Rating	2" 150#				
28	Material Of Construction	316/316LSS				
29	Connection	Flange				
30	Clamping Fixture	Bolt on				
31	Material Of Construction	316SS				
32	Manufacturer	Baker Hughes				
33	Meter Model No.	XGF868i-2-2-OI-H7-3-4-0-CC				
34	Accessories	-1 x NAMEPLATE - 5 x REDUCER STAINLESS STEEL, 3/4" NPT X M20				

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DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	PROCESS CONTROL SYSTEM	OPERATOR CONSOLE



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
43-FI-001
HYDROGEN FROM KO DRUM V-43001 TO VENT STACK Q-43004

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024
A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 018	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV.01

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	43-PT-001	: Pressure Transmitter - KO Drum V-43001 Pressure	Dwg	123A90-DDL-IN-DS-40039		
	S/Sys	43-00	: Hydrogen Vent Header & Drum System	Module	UD		
TASK	code	C10003178	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline	Instrumental	Form FJ01A	Analog Loop

LOOP DATA

Loop TAG	43-PT-001			TSLD	123A90-FDL-IN-DG-40014 rev.1A		
IO Type	Input	Yes	Output No	Energy by transmitter	No	Energy by system	Yes
Marshalling	B400-PCS-001	Terminal	03A/03B	Slot	01	Rack 02	Chanel 03

LOOP TEST

1	Check earth isolation of the loop						OK
2	Connect loop to terminal						OK
3	Confirm Process Scale	Unit	barg	Min	0	Max 3,5	OK

LOOP RANGE

			0%	25%	50%	75%	100%
4	Physical value applied for test	Unit barg	0	0,87	1,75	2,625	3,5
5	Control System Display	Unit barg	0	0,88	1,75	2,63	3,5

LOOP SERVICE

		Value	Trip	Gen Alarm	DCS Alarm	SOE	DCS display	
6	Threshold 1		NA	NA	Yes	NA	OK	OK
7	Threshold 2		NA	NA	NA	NA	NA	NA
8	Threshold 3		NA	NA	NA	NA	NA	NA
9	Threshold 4		NA	NA	NA	NA	NA	NA
10	Checking of line monitoring		NA	NA	NA	NA	NA	NA
11	Checking of Maintenance Inhibition		NA	NA	NA	NA	NA	NA
12	Associated safety Level / bar							NA
13	Associated outputs							NA

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
HYDRAULIC PUMP	06/190151		
PRESSURE SENSOR	930547		

LOOP DOCUMENTATION

14	Loop diagram is marked up and attached to this test sheet	OK
15	Cause and effect chart is highlighted accordingly	NA
16	Any defect is recorded for punch list issuance	OK

Comments:

Page 1/1	Performed by	☉ WITNESS ☐ REVIEW	☉ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW
Name	Laurentiu Grozavu	Giandonato Delmissier	John Mackillop
Date	2025-03-17	2025-03-18	2025-03-19
Signature	PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-03-17T14:29:25.086Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-03-18T06:54:51.211Z	PROVERLIS Digitaly signed by John Mackillop 2025-03-19T12:14:43.994Z

ABR SERVICE S.r.l.
Via Manlio Monti, 40 – 48123 RAVENNA
Tel. +39 0544 685411 info@abrservice.net
C.F. Part. IVA 02764420390

Plant	CROSSWIND	Description	HYDROGEN VENT KO DRUM V-43001		
Area	V-43001	Loop Tag	43-PI-001	Instrument Tag	43-PT-001
Type of verification	periodic	Calibration range	0,00 ÷ 3,50 bar	Report N°	017
Type of instrument	Pressure meter	Max uncertainty required	± 0,070 % s.r.	Reference procedure data sheet	123A90-PML-QHSE-PRO-00122 Page N°8

UNDER EXAMINATION INSTRUMENT 'S DATA

Tag	Manufacture	Model	S/N
43-PT-001	SPRIANO	SST76	SE240650

USED REFERENCE SAMPLE 'S DATA

Manufacture	Model	S/N	n° of certification and calibration center	uncertainty (u.m.)	Date of issue
BEAMEX	MC5-IS	20177766	0640/MP/2024 _LAT 150	± 0,001 c.s.	24/04/2024
Digital pressure gauge				± 0,001 c.s.	24/04/2024

environment temperature at the time of check 25 °C

Value indicated before starting the check 0 bar

CHECK RESULT: *as found*

Verification functionality loop check

Generated value	Expected value	Read value	Error	Error % on s.r.
bar	mA	mA	mA	
0,000	4,000	4,001	+0,001	+0,006
0,875	8,000	8,001	+0,001	+0,006
1,750	12,000	12,001	+0,001	+0,006
2,625	16,000	16,000	+0,000	+0,001
3,500	20,000	20,002	+0,002	+0,011
2,625	16,000	16,001	+0,001	+0,006
1,750	12,000	12,002	+0,002	+0,013
0,875	8,000	8,000	+0,000	+0,000
0,000	4,000	4,000	+0,000	+0,000

max error detected % 0,013

Check: PASSED

Verification activation of blocks/threshold alarms

Alarm signalling	Type of activation	Alarm intervention	Block description	Action type	Block intervention
bar					

Blocks/alarms check:

Corrective action

CHECK RESULT: *as left*

Verification functionality loop check

Generated value	Expected value	Read value	Error	Error % on s.r.
bar	mA	mA	mA	

errore massimo rilevato % 0,00

Check:

Verification activation of blocks/threshold alarms

Alarm signalling	Type of activation	Alarm intervention	Block description	Action type	Block intervention
bar	DESCENT				

Blocks/alarms check:

Value indicated after the check 0 bar

Note:

FINAL OUTCOME OF THE VERIFICATION: *The instrument is SUITABLE*

Verification Date	Verification Expiration	Technical Executor	Viewed	Approved by
18/09/2024	09/2025	PENSO SILVIO		
		signature	*signature*	*signature*

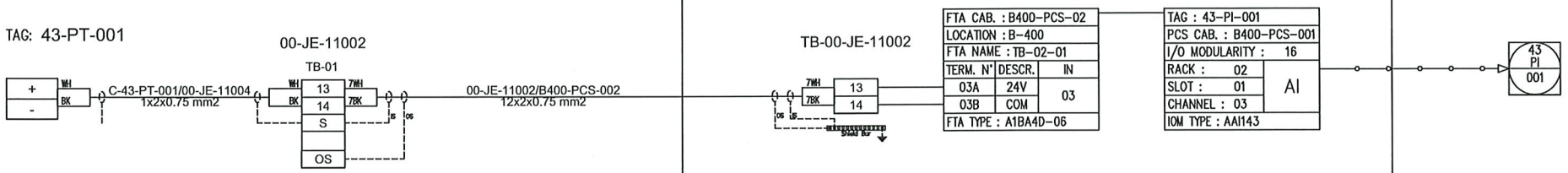
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Via M. Monti, 40 - 48123 RAVENNA
Tel. 0544 685411
C.F. e P.IVA 02764420390

GENERAL	1	Tag Number		43-PT-001	
	2	Service		HYDROGEN VENT KO DRUM (V-43001)	
	3	P&ID Number	Location	123A90-DDL-PR-PID-80029	V-43001
	4	Function		PRESSURE MEASUREMENT	
	5	Mounting		DIRECT ON-LINE	
	6	Area Classification		ATEX Zone2 - IIC (IIB+H2) T1	
	7	Ambient Temperature		Min: -8.4 °C, Norm: 10.5 °C, Max: +25.0 °C.	
PROCESS CONDITIONS	8	Fluid		HYDROGEN	
	9	Pressure Des.	Oper. [barg]	3.5	Atm
	10	Temperature Des.	Oper. [°C]	-10 / + 80	Amb.
	11	Oper. Spec. Gravity	Oper. Viscosity	-	-
	12	Flow Rate	Allowable Temp.	-	-
TRANSMITTER	13	Instrument Range Min.	Max. [barg]	0	5
	14	Calibration Range Min.	Max. [barg]	0	3.5
	15	Elevation	Suppression	-	-
	16	Element Type		Diaphragm	
	17	Element Material		SS AISI 316/316L GOLD PLATED	
	18	Body Material	Body Rating	AISI 316 SS	50 bar
	19	Process Connection		1/2" NPT-M	
	20	Wetted O-Rings Material		-	
	21	Fill Fluid		-	
	22	Bolts	Housing	Manifold/Instrument assembly	SS AISI 316/316L
	23	Paint		N/A	
	24	ATEX Certification	Ingress Protection	ATEX Ex II 2G Ex db IIC T5	IP66
	25	Process Connection	Electrical Connection	1/2" NPT-M	2 X M20X1.5
	26	Accuracy		0.07% of Nominal Range	
	27	SIL Certification	PED Certification	-	Required
DIAPHRAGM SEAL	28	Process Connection & Rating		-	
	29	Diaphragm Material	Housing Material	-	-
	30	Fill Fluid	Capillary Material	-	-
	31	Capillary Type	Capillary Length	-	-
	32	Flushing Connection		-	
OPTIONS	33	Integral Meter	Scale	Required	-
	34	Hydrostatic Testing	Cleaning	Required	-
	35	Mounting Brackets	Manifold Model No	Required	MAN2-R6
	36	Lightning Protection	Barrier Manuf./Model	-	-
COMMUNICATION AND SOFTWARE	37	Communication Type	Signal Type	HART 6	4-20mA Loop Powered 24 Vdc
	38	D D Revision	CFF Revision	-	-
	39	Device Tag	Hart Tag	-	-
	40	Internal Diagnostics	Capacitance	-	-
	41	Segment	Device Address	-	-
	42	Device Class	Simulate	-	-
	43	Nominal Current	Operating Voltage	-	-
PURCHASE	44	Manufacturer		TERRANOVA SRL	
	45	Model		SST76-H-7-G-2-9-2-1-4 + MAN2-R6	
	46	Purchase Order Number		4718_OS	

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DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	PROCESS CONTROL SYSTEM	OPERATOR CONSOLE



NO MARK UP
Longoni
12/03/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
43-PI-001
KO DRUM V-43001 PRESSURE

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 012	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV.01

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	43-LT-001	: Level DP Transmitter - KO Drum V-43001 High/Low Level	Dwg	123A90-DDL-IN-DS-40039		
	S/Sys	43-00	: Hydrogen Vent Header & Drum System	Module	UD		
TASK	code	C10003224	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form	FJ01A		Analog Loop

LOOP DATA

Loop TAG	43-LT-001			TSLD	123A90-DDL-IN-DG-40014 rev. 1_A		
IO Type	Input	Yes	Output	No	Energy by transmitter	No	Energy by system	Yes
Marshalling	B400-SIS-001	Terminal	14A/14B	Slot	01	Rack	01	Chanel	14

LOOP TEST

1	Check earth isolation of the loop						OK
2	Connect loop to terminal						OK
3	Confirm Process Scale	Unit	mm H2O	Min	0	Max	560	OK

LOOP RANGE

			0%	25%	50%	75%	100%
4	Physical value applied for test	Unit mmH2O	0	140	280	420	560
5	Control System Display	Unit mmH2O	0	140	280	420	560

LOOP SERVICE

		Value		Trip	Gen Alarm	DCS Alarm	SOE	DCS display	
6	Threshold 1	200	(L)	No	Yes	Yes	Yes	OK	OK
7	Threshold 2	500	(H)	No	Yes	Yes	Yes	OK	OK
8	Threshold 3	650	(HH)	Yes	Yes	Yes	Yes	OK	OK
9	Threshold 4			NA	NA	NA	NA	NA	NA
10	Checking of line monitoring			Yes	Yes	Yes	Yes	OK	OK
11	Checking of Maintenance Inhibition			Yes	Yes	Yes	Yes	OK	OK
12	Associated safety Level / bar								NA
13	Associated outputs								NA

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
PRESSURE GAUGE WIKA MOD. CPG 1500	1A014ILJJIM	LAT 114 0435-SM-24	20-09-2025

LOOP DOCUMENTATION

14	Loop diagram is marked up and attached to this test sheet	OK
15	Cause and effect chart is highlighted accordingly	OK
16	Any defect is recorded for punch list issuance	NA

Comments:

Following threshold shall be considered (full range: 710-150= 560mm):

- Low Level Alarm +200mm (200-50)/560= 8.9% of range)
- High Level Aalrm +500mm (200-500)/560= 62.5% of range)
- High High Level Trip +650mm (650-150)/560= 89.3% of range)

Page 1/1	Performed by	☉ WITNESS ☐ REVIEW	☉ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW
Name	Marco Di Maria	Giandonato Delmissier	John Mackillop
Date	2025-03-27	2025-03-27	2025-04-03
Signature	PROVERLIS Digitaly signed by Marco Di Maria 2025-03-27T07:40:13.494Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-03-27T17:07:05.372Z	PROVERLIS Digitaly signed by John Mackillop 2025-04-03T12:33:13.943Z

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C.F. Part. IVA 02764420390

Plant	CROSSWIND	Description	HYDROGEN VENT KO DRUM V-43001		
Area	V-43001	Loop Tag	43-LI-001	Instrument Tag	43-LT-001
Type of verification	periodic	Calibration range	0,00 ÷ 560,00 mmH2O	Report N°	029
Type of Instrument	Level meter diaphragm	Max uncertainty required	± 0,1 % s.r.	Reference procedure data sheet	123A90-PML-QHSE-PRO-00122 Page N°10

UNDER EXAMINATION INSTRUMENT 'S DATA

Tag	Manufacture	Model	S/N
43-LT-001	SPRIANO	SST77B	SE240632

USED REFERENCE SAMPLE 'S DATA

Manufacture	Model	S/N	n° of certification and calibration center	uncertainty (u.m.)	Date of issue
BEAMEX	MC5-IS	20177766	0640/MP/2024 _LAT 150	± 0,001 c.s.	24/04/2024
Digital pressure gauge				± 0,001 c.s.	24/04/2024

environment temperature at the time of check 25 °C

Value indicated before starting the check 0 mmH2O

CHECK RESULT: *as found*

Verification functionality loop check

Generated value	Expected value	Read value	Error	Error % on s.r.
mmH2O	mA	mA	mA	
0,0	4,000	4,002	+0,002	+0,012
140,0	8,000	8,002	+0,002	+0,013
280,0	12,000	12,001	+0,001	+0,006
420,0	16,000	16,004	+0,004	+0,028
560,0	20,000	20,001	+0,001	+0,006
420,0	16,000	16,003	+0,003	+0,019
280,0	12,000	12,000	+0,000	+0,000
140,0	8,000	8,003	+0,003	+0,019
0,0	4,000	4,001	+0,001	+0,006
		max error detected %		0,028

Check: PASSED

Verification activation of blocks/threshold alarms

Alarm signalling	Type of activation	Alarm intervention	Block description	Action type	Block intervention
mmH2O					

Blocks/alarms check:

Corrective action

CHECK RESULT: *as left*

Verification functionality loop check

Generated value	Expected value	Read value	Error	Error % on s.r.
mmH2O	mA	mA	mA	
		errore massimo rilevato %		0,00

Check:

Verification activation of blocks/threshold alarms

Alarm signalling	Type of activation	Alarm intervention	Block description	Action type	Block intervention
mmH2O	DESCENT				

Blocks/alarms check:

Value indicated after the check 0 mmH2O

Note:

FINAL OUTCOME OF THE VERIFICATION: *The instrument is SUITABLE*

Verification Date	Verification Expiration	Technical Executor	Viewed	Approved by
18/09/2024	09/2025	PENSO SILVIO		
		signature	*signature*	*signature*

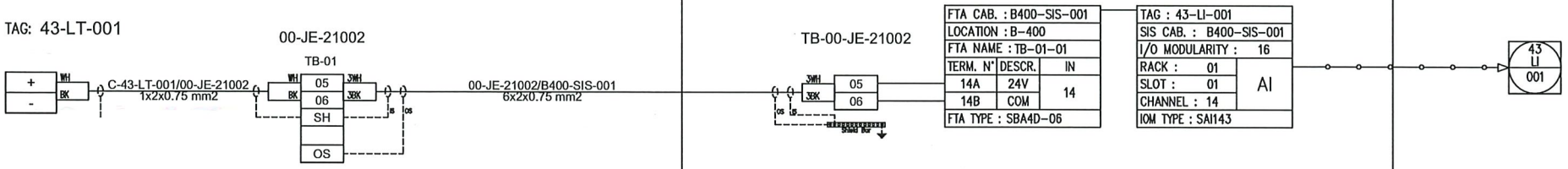
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Tel. 0544 685411
C.F. e P.IVA 02764420390

GENERAL	1	Tag Number							43-LT-001		
	2	Service							HYDROGEN VENT KO DRUM (V-43001)		
	3	P&ID Number							123A90-DDL-PR-PID-80029		
	4	Equipment Number			Line Number				V-43001	-	
	5	Area Classification							ATEX Zone2 - IIC (IIB+H2) T1		
	6	Mounting							REMOTE		
PROCESS CONDITIONS	7	Fluid			State				WATER	LIQUID	
	8	Pressure	Unit		Min.	Oper.	Max.			Atm (op.)	
	9	Temperature	Unit		Min.	Oper.	Max.			Amb. (op)	
	10	Design Pressure			Min.		Max.		3.5 barg		
	11	Design Temperature			Min.		Max.		-10 / + 80 °C		
	12	Lower Oper. S.G.			Lower Oper. Visc.				1	1 cP	
	13	Vacuum			Over Pressure				-		
	14	Ambient Temperature							Min: -8.4 °C, Norm: 10.5 °C, Max: +25.0 °C.		
TRANSMITTER	15	Application							LEVEL MEASUREMENT		
	16	Type							Diaphragm		
	17	ATEX Certification			Ingress Protection				ATEX Ex II 2G Ex db IIC T5	IP66	
	18	Housing			Paint				SS AISI 316/316L	N/A	
	19	Power Supply							24 Vdc		
	20	Process Connection			Electrical Connection				2 x 1/4" NPT-F	2 x M20x1.5	
	21	Accuracy							0.07% of Nominal Range		
	22	Max. Static Pressure			Element Material				100 bar	SS AISI 316/316L Gold Plated	
	23	Fill Fluid							Dow Corning Siliconic Oil		
	24	Instrument Range			Min.		Max.		0 mbar	350 mbar	
	25	Calibration Range			Min.		Max.		0 mmH_2O	560 mmH_2O	
	26	Elevation			Suppression				-	-	
	27	Allow. Oper. Pressure			Allow. Oper. Temp.				Static Pressure 100 bar	85 °C	
	28	SIL Certification			PED Certification				-	Required	
DIAPHRAGM SEAL	29	Process Conn. & Rating			Diaphragm Material				-	-	
	30	Capillary Material			Fill Fluid				-	-	
	31	Housing Material			Allow.Oper.Temp.				-	-	
COMMUNICATION AND SOFTWARE	32	Communication Type			Signal Type				HART 6	4-20mA Loop Powered 24 Vdc	
	33	DD Revision			CFF Revision				-	-	
	34	Hart Descriptor			Hart Tag				-	-	
	35	Internal Diagnostics			Capacitance				-	-	
	36	Segment			Device Address				-	-	
	37	Device Class			Simulate				-	-	
	38	Nominal Current			Operating Voltage				-	-	
OPTIONS	39	Manifold Supplied			Manifold Rating				Required (5-valves)	6000 psi	
	40	Process Connection			Manifold Model				1/2" NPT-F	MAN5-D1	
	41	Integral Meter			Scale				Required	-	
	42	Lightning Protection			Hydrostatic Testing				-	Required	
	43	Mounting Brackets							Required		
	44	Barrier - Manufacturer / Model							-		
PURCHASE	45	Manufacturer							TERRANOVA SRL		
	46	Model							SST77B-H-9-D-2-3-0-0-4 + MAN5-D1		
	47	Purchase Order Number							4718_OS		

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DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	SAFETY INSTRUMENTED SYSTEM	OPERATOR CONSOLE



NO MARK UP
21/03/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND | ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
43-LI-001
KO DRUM V-43001 HIGH/LOW LEVEL

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 086	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV.01

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	43-LT-003	: Level DP Transmitter - H2 Vent Q-43004 Low Level	Dwg	123A90-DDL-IN-DS-40039		
	S/Sys	43-00	: Hydrogen Vent Header & Drum System	Module	UD		
TASK	code	C10003225	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form	FJ01A	Analog Loop

LOOP DATA

Loop TAG	43-LT-003			TSLD	123A90-FDL-IN-DG-40014 rev.1-A				
IO Type	Input	Yes	Output	No	Energy by transmitter	No	Energy by system	Yes	
Marshalling	B400-PCS-001	Terminal	05A/05B	Slot	01	Rack	02	Chanel	05

LOOP TEST

1	Check earth isolation of the loop					OK
2	Connect loop to terminal					OK
3	Confirm Process Scale	Unit	mm H2O	Min	0	Max 1000 OK

LOOP RANGE			0%	25%	50%	75%	100%
4	Physical value applied for test	Unit	mA	4	8	12	16	20
5	Control System Display	Unit	mm H2O	0	250	500	750	999,8

LOOP SERVICE

		Value	Trip	Gen Alarm	DCS Alarm	SOE	DCS display	
6	Threshold 1	LL 200 mmH2O	No		Yes		OK	OK
7	Threshold 2	H 650 mmH2O	No		Yes		OK	OK
8	Threshold 3		NA	NA	NA	NA	NA	NA
9	Threshold 4		NA	NA	NA	NA	NA	NA
10	Checking of line monitoring		No	No	No	No	OK	OK
11	Checking of Maintenance Inhibition		NA	NA	NA	NA	NA	NA
12	Associated safety Level / bar							
13	Associated outputs							

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
HART COMMUNICATOR MERIAM	1948000038		

LOOP DOCUMENTATION

14	Loop diagram is marked up and attached to this test sheet	OK
15	Cause and effect chart is highlighted accordingly	
16	Any defect is recorded for punch list issuance	

Comments:

Page 1/1	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW
Name	Laurentiu Grozavu	Giandonato Delmissier	David Musgrove
Date	2025-03-27	2025-03-27	2025-04-02
Signature	PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-03-27T13:22:53.973Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-03-27T17:08:00.748Z	PROVERLIS Digitaly signed by David Musgrove 2025-04-02T08:12:43.201Z

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Tel. +39 0544 685411 info@abrservice.net
C.F. Part. IVA 02764420390

Plant	CROSSWIND	Description	HYDROGEN VENT Q-43004		
Area	Q-43004	Loop Tag	43-LI-003	Instrument Tag	43-LT-003
Type of verification	periodic	Calibration range	0,00 ÷ 1000,00 mmH2O	Report N°	030
Type of instrument	Level meter diaphragm	Max uncertainty required	± 0,1 % s.r.	Reference procedure data sheet	123A90-PML-QHSE-PRO-00122 Page N°10

UNDER EXAMINATION INSTRUMENT 'S DATA

Tag	Manufacture	Model	S/N
43-LT-003	SPRIANO	SST77B	SE240633

USED REFERENCE SAMPLE 'S DATA

Manufacture	Model	S/N	n° of certification and calibration center	uncertainty (u.m.)	Date of issue
BEAMEX	MC5-IS	20177766	0640/MP/2024 _LAT 150	± 0,001 c.s.	24/04/2024
	Digital pressure gauge			± 0,001 c.s.	24/04/2024

environment temperature at the time of check 25 °C

Value indicated before starting the check 0 mmH2O

CHECK RESULT: *as found*

Verification functionality loop check

Generated value	Expected value	Read value	Error	Error % on s.r.
mmH2O	mA	mA	mA	
0,0	4,000	4,000	+0,000	+0,000
250,0	8,000	8,002	+0,002	+0,013
500,0	12,000	12,002	+0,002	+0,013
750,0	16,000	16,001	+0,001	+0,006
1000,0	20,000	19,997	-0,003	-0,018
750,0	16,000	16,002	+0,002	+0,012
500,0	12,000	11,998	-0,002	-0,013
250,0	8,000	8,001	+0,001	+0,006
0,0	4,000	4,001	+0,001	+0,006
		max error detected %		0,018

Check: PASSED

Verification activation of blocks/threshold alarms

Alarm signalling	Type of activation	Alarm intervention	Block description	Action type	Block intervention
mmH2O					

Blocks/alarms check:

Corrective action

CHECK RESULT: *as left*

Verification functionality loop check

Generated value	Expected value	Read value	Error	Error % on s.r.
mmH2O	mA	mA	mA	
		errore massimo rilevato %		0,00

Check:

Verification activation of blocks/threshold alarms

Alarm signalling	Type of activation	Alarm intervention	Block description	Action type	Block intervention
mmH2O	DESCENT				

Blocks/alarms check:

Value indicated after the check 0 mmH2O

Note:

FINAL OUTCOME OF THE VERIFICATION: *The instrument is SUITABLE*

Verification Date	Verification Expiration	Technical Executor	Viewed	Approved by
18/09/2024	09/2025	PENSO SILVIO		
		signature	signature	signature

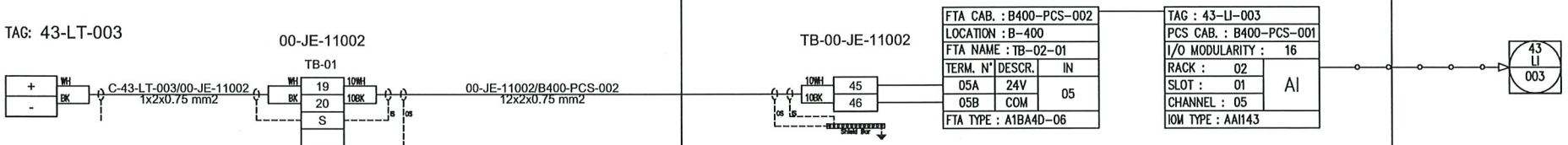
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Via M. Monti, 40 - 48123 RAVENNA
Tel. 0544 685411
C.F. e P.IVA 02764420390

GENERAL	1	Tag Number						43-LT-003			
	2	Service						HYDROGEN VENT (Q-43004)			
	3	P&ID Number						123A90-DDL-PR-PID-80029			
	4	Equipment Number		Line Number				Q-43004		-	
	5	Area Classification						ATEX Zone2 - IIC (IIB+H2) T1			
	6	Mounting						REMOTE			
PROCESS CONDITIONS	7	Fluid		State				Mono Ethylene Glyco (50%vol) + water		LIQUID	
	8	Pressure	Unit	Min.	Oper.	Max.				Atm (op.)	
	9	Temperature	Unit	Min.	Oper.	Max.				Amb. (op)	
	10	Design Pressure		Min.		Max.		3.5 barg			
	11	Design Temperature		Min.		Max.		-10 / + 80 °C			
	12	Lower Oper. S.G.		Lower Oper. Visc.				1.063		1 - 2 cP	
	13	Vacuum		Over Pressure				-			
	14	Ambient Temperature						Min: -8.4 °C, Norm: 10.5 °C, Max: +25.0 °C.			
TRANSMITTER	15	Application						LEVEL MEASUREMENT			
	16	Type						Diaphragm			
	17	ATEX Certification		Ingress Protection				ATEX Ex II 2G Ex db IIC T5		IP66	
	18	Housing		Paint				SS AISI 316/316L		N/A	
	19	Power Supply						24 Vdc			
	20	Process Connection		Electrical Connection				2 x 1/4" NPT-F		2 x M20x1.5	
	21	Accuracy						0.07% of Nominal Range			
	22	Max. Static Pressure		Element Material				100 bar		SS AISI 316/316L Gold Plated	
	23	Wetted O - Ring Material		Fill Fluid				Dow Corning Siliconic Oil			
	24	Instrument Range		Min.	0 mbar			0 mbar		350 mbar	
	25	Calibration Range		Min.	0			0 mmH_2O		1000 mmH_2O	
	26	Elevation		Suppression				-		-	
	27	Allow.Oper. Pressure		Allow.Oper.Temp.				Static Pressure 100 bar		85 °C	
	28	SIL Certification		PED Certification				-		Required	
DIAPHRAGM SEAL	29	Process Conn. & Rating		Diaphragm Material				-		-	
	30	Capillary Material		Fill Fluid				-		-	
	31	Housing Material		Allow.Oper.Temp.				-		-	
COMMUNICATION AND SOFTWARE	32	Communication Type		Signal Type				HART 6		4-20mA Loop Powered 24 Vdc	
	33	D D Revision		CFF Revision				-		-	
	34	Hart Descriptor		Hart Tag				-		-	
	35	Internal Diagnostics		Capacitance				-		-	
	36	Segment		Device Address				-		-	
	37	Device Class		Simulate				-		-	
	38	Nominal Current		Operating Voltage				-		-	
OPTIONS	39	Manifold Supplied		Manifold Rating				Required (5-valves)		6000 psi	
	40	Process Connection		Manifold Model				1/2" NPT-F		MAN5-D1	
	41	Integral Meter		Scale				Required		-	
	42	Lightning Protection		Hydrostatic Testing				-		Required	
	43	Mounting Brackets						Required			
	44	Barrier - Manufacturer / Model						-			
PURCHASE	45	Manufacturer						TERRANOVA SRL			
	46	Model						SST77B-H-9-D-2-3-0-0-4 + MAN5-D1			
	47	Purchase Order Number						4718_OS			

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DRAWING NO. 123A90-DDL-IN-DG-40014 REV. 01

FIELD	ITER – B400	CENTRAL CONTROL ROOM
	PROCESS CONTROL SYSTEM	OPERATOR CONSOLE



NO MARK UP

21/03/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	06/12/2024	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	23/10/2024	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DG-40014
REV.: 1_A | DATE: 20/12/24 | SIGNATURE: C.Pilato
ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE : INSTRUMENT LOOP DIAGRAM
43-LI-003
H2 VENT Q-43004 LOW LEVEL

CONTRACT NO./TITLE CONTRACT_NO.			SCALE 1:1
DRAWN: VBA	CHECKED: LCA	APPROVED: DLO	DATE 23/10/2024
A3	DRAWING NO. 123A90-DDL-IN-DG-40014	SHEET 011	REV. 01

File Name : 123A90-DDL-IN-DG-40014_REV.01

Section 4.4 Instrumentation “As-Commissioned” interconnection diagrams

NOT APPLICABLE

Section 4.5 Telecommunication functional test sheets index

NOT APPLICABLE

Section 4.6 Telecommunication
“As-Commissioned” I.C.D. / TSLD's

NOT APPLICABLE

Section 5 SITE / OPERATIONAL

Section 5.1 Operational Test Procedure

CROSSWIND	**123A90 - HOLLANDSE KUST NOORD WIND PARK BLPH Project** **COMMISSIONING DOSSIER INDEX**	ROSETTI MARINO

Reference Procedure **123A90-PML-COM-PRO-03041 _ OTP - Hydrogen Storage and Venting Systems** has been uploaded in the Subsystem 25-07 Commissioning Dossier Sect. 5.1

Section 5.2 Operational Test Certificates

NOT APPLICABLE

Section 6 PIPING AND VESSEL PREPARATION

Section 6.1 Final Mechanical / Vessel Inspection Checks Index

NOT APPLICABLE

Section 6.2 Leak Test / Drying / Inerting Test Sheets Index

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 43-00 & process: COMM

Piping	43-00 Hydrogen Vent Header & Drum System						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
Q-43004	Hydrogen Vent	ONSHORE	C10004876	TMX00	100	2025-04-09	RFO 3
TP-001	H2 Vent System	ONSHORE	C10004897	4241	100	2025-03-14	RFO 3

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	Q-43004	: Hydrogen Vent			Dwg	123A90-DDL-PR-PID-80029
	S/Sys	43-00	: Hydrogen Vent Header & Drum System			Module	UD
TASK	code	C10004876		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	COMM	Activity PVP	Discipline	Piping	Form	TMX00 General Purpose

DATA

Filled 800 lt of water and 800 lt of glicole.

TEST RESULTS

TEST POSITIVE. NO LEAKS.

SKETCHES / NOTES

Level is verified with 43-LT-003

1	Perform walkdown of the system and write comments, if any	NA
2	If required, produce Red Line Mark Up for "AS BUILT"	NA
3	Confirm if all pre-commissioning tasks are completed	OK

Comments:

	Performed by	☐ WITNESS ☒ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CPY NOT PRESENT
Name	Giuseppe Bruno	Anthony Iveson	Witness waived
Date	2025-04-08	2025-04-08	2025-04-09
Signature	PROVERLIS Digitaly signed by Giuseppe Bruno 2025-04-08T15:36:40.481Z	PROVERLIS Digitaly signed by Anthony Iveson 2025-04-08T16:31:48.971Z	PROVERLIS Digitaly signed by Witness waived 2025-04-09T09:23:11.748Z

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	TP-001	: H2 Vent System			Dwg	
	S/Sys	43-00	: Hydrogen Vent Header & Drum System			Module	
TASK	code	C10004897		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	COMM	Activity PVP	Discipline	Piping	Form 4241	Leak Testing

CONDITIONS

Operating pressure: 3,5 bar g

Test Pressure 3,15 bar g

Test Fluid

Air		Nitrogen	
Water		Other	

TIGHTNESS CRITERION

Pressure variation tolerance: 10%

Test Duration: 30 min

Pressure Recording Means: attached

Adhesive Tape:	Yes
Soap Solution:	Yes
He Tracing:	NA

Rotating equipment isolated

ATTACHMENTS

Procedure:	Yes
Sketches & Drawings:	Yes
Pressure Records:	Yes

Comments: TEST PERFORMED WITH NITROGEN 99%+1% HELIUM
ATTACHED BH TEST PACK AND CERTICATE

Page 1/1

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	BAKER HUGHES	ROSETTI MARINO SPA	CPY NOT PRESENT
Name	MARIUS BEJINARU	Ignacio Vago	Witness waived
Date	26/02/2025	2025-03-12	2025-03-14
Signature		PROVERLIS Digitaly signed by Ignacio Vago 2025-03-12T11:16:19.471Z	PROVERLIS Digitaly signed by Witness waived 2025-03-14T13:51:32.968Z

Baker Hughes

Document Title	Helium Leak Detection Test Pack
Test Pack Name	H2 Vent System
Test Pack Number	TP 001
PPS Reference Number	PMCE453947M1 / HLD / TP 001
Customer Reference Number	
Revision Number	03
Customer	Rosetti Marino
Project	Leak Testing Services for Base Load Power Hub Project
Location / Facility	Piomboni Yard - Marina di Ravenna
PPS Job Number	PMCE453947M1
Customer Contract Number	123A90
Customer Work Order Number	1724002632

Signatories for Current Revision Document

Signatories	Company	Name	Job Title	Signature	Date
Originator	Baker Hughes	M.Ye Yin	Field Engineer II	Mariana Ye Yin	
Checked by	Baker Hughes	M.Bejinaru	Field Engineer General	Marius Bejinaru	
Approved by	Baker Hughes	A.Hsin	CE Operations Manager	Hsin Amara	
Approved by	Customer Rep. #1	A. IVESON	Comm. Mgr.		26-Feb-2025
Approved by	Customer Rep. #2				

Revision History

Rev.	Revision Date	Description	Baker Hughes			Customer
			Originator	Checked by	Approved by	Approved by
03	26-Feb-2025	Re-Issued for Use	MYY	MB	AH	
02	24-Feb-2025	Re-Issued for Use	MYY	MB	AH	
01	7-Feb-2025	Issued for Use	MYY	MB	AH	
00	24-Jan-2025	Issued for Customer Review	MB	MI	AH	

Distribution: Original PPS Office
Copy #1 PPS Job Site
Copy #2 Customer

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Document Amendment Record #1

Item	Revision Number	Section Number	Page Number	Description of Change	Amended By	Date

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C6	Safety Components Checklist
C8	System Depressurization Checklist
D	Task Plan
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E2	Leak Detection Completion Certificate
E3	Witness Joint Register
App. A	Test Pack Calculations
App. B	PPS Test Equipment
App. C	Test Pack Marked Drawings
App. D	Restricted Access Zone

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A1. Test Pack Information #1

System Details			
Test Pack Number	TP 001	System Design Pressure (P_D)	3.5 barg
Test Pack Name	H2 Vent System	System PSV Set Pressure	N/A barg
Customer Ref. No.		Normal Operating Pressure	3.3 barg
Rotating Equipment	No	System Free Volume	10.0 m3
		Number of Leak Test Joints	All joints

Incremental Pressures and Final Test Pressure

	Pressure	% Test Press.	% Normal Op.	% Design Press.	% System PSV	Hold Period
Increment #1	0.8 barg	25.4 %	24.1 %	22.9 %	N/A	15.0 mins
Increment #2	1.6 barg	50.8 %	48.1 %	45.7 %	N/A	15.0 mins
Increment #3	2.4 barg	76.2 %	72.2 %	68.6 %	N/A	15.0 mins
TEST PRESSURE (P_T)	**3.15 barg**	**100.0 %**	**94.7 %**	**90.0 %**		**30.0 mins**

Residual Pressure	0.0 barg

Pressure left in the system upon completion of depressurisation.

System Pressurization and Depressurization		Test Gas			
Max. Pressurization Rate	1.0 bar/min	Test Gas Type	Nitrogen Gas		
	10.0 sm3/min	Test Gas Quantity	31.2 sm3		
Max. Depressurization Rate	2.0 bar/min	LN2 Equivalent	45.8 litres		
	20.0 sm3/min	Helium Gas Qty	0.3 sm3	Conc'n:	1.0%
Vent System Max. Pressure	3.0 barg				

Verify depressurization rate using "Test Pressure Monitoring Points".

Verify vent system pressure using "Vent Path Pressure Monitoring Points".

Over Pressure Protection

Safety Equipment	Set Pressure	% Design Press.	% System PSV	PRV Relief Rate (fully open)	PRV Inlet Connection
OPPS	N/A	N/A	N/A		
Temporary PRV #1	3.3 barg	95.1%		3.0 sm3/min	1" NPT
Temporary PRV #2	barg				
Temporary PRV #3	barg				

Use the PRV Calculator in PPS Toolbox to quantify PRV relief rate. Enter data above and place calculation results in Appendix A along with PRV data sheet.

Pump	Gas Rack	Pump Max. Flow Rate	1.8 sm3/min	Pump Max. Pressure	200.0 barg
Hose MAWP	700.0 barg	Hose Field Test Press.	10.0 barg	Test Hold Period	5.0 mins

Leak Test and Acceptance Criteria

Leak Test

Pressurize the system with 1% helium / 99% nitrogen test gas mixture to the nominated test pressure (P_T).

Check all potential leak sources for leakage using a calibrated helium leak detector.

Acceptance

Pressure to be maintained within 10% of the test pressure for the duration of the test ('top up' if necessary).

Maximum allowable leak rate threshold from any single leak source not to exceed:

All the potential leak sources **20 scf/yr**

Leak rates **BELOW** the threshold are a **PASS**. Leak rates **ABOVE** the threshold are a **FAIL**.

All identified leak sources to be repaired and re-tested until **one** of the following conditions is met:

i. Leak free (no helium detected)

ii. Quantified leak rate is below the maximum allowable leak rate threshold (see above).

iii. The leak is accepted as a "Witness Joint" by the Customer Representative.

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A1. Test Pack Information #2

Adjacent Systems				
No.	System Name	Adjacent System Design Press. P_{DA}	Design Press. Ratio (%) P_D / P_{DA}	HP / LP Interface Drawing Number
#1				
#2				
#3				
#4				
#5				
#6				
#7				
#8				
#9				
#10				

System Connection and Monitoring Points			
Test Component Type	PPS Tag	Location	Drawing Number
Injection Point #1	T7	1" Test Blind Flange RF 150# tapped to 1" NPT	123A90-DDL-PR-PID-80029 Sh.001
Temporary PRV Point #1	T3	1" Test Blind Flange RF 150# tapped to 1" NPT	123A90-DDL-PR-PID-80029 Sh.001
Depressurization Point #1	T2	BLPH-MV-419	123A90-DDL-PR-PID-80029 Sh.001
Pressure Monitoring Point #1	T3	1" Test Blind Flange RF 150# tapped to 1" NPT	123A90-DDL-PR-PID-80029 Sh.001
Pressure Monitoring Point #2	d/s S1	43-PT-001	123A90-DDL-PR-PID-80029 Sh.001
Depressurization Point #2	T6	1" Ball Valve RF 150# (BLPH-MV-409)	123A90-DDL-PR-PID-80029 Sh.001
Cycle Valve #1	T38	1" Ball Valve RF 300# (BLPH-MV-172)	123A90-DDL-PR-PID-80028 Sh. 001
Cycle Valve #2	T29	1" Ball Valve RF 150# (BLPH-MV-172)	123A90-DDL-PR-PID-80012 Sh. 001
Cycle Valve #3	T31	1/2" Hand Operated Globe Valve(MV-632)	C63-PID-001-008 Page 8/16
Cycle Valve #4	T33	1/4" Hand Operated Ball Valve (HV-931)	C63-PID-001-008 Page 8/16

Test Pack Notes

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B. Drawing Number List #1

Test Pack Drawing Numbers							
No.	**Type**	**Drawing Number**	**Revision**	**No.**	**Type**	**Drawing Number**	**Revision**
1	P&ID	123A90-DDL-PR-PID-80028 Sh. 001	03	46			
2	P&ID	123A90-DDL-PR-PID-80017 Sh. 001	03	47			
3	P&ID	123A90-DDL-PR-PID-80016 Sh. 001	03	48			
4	P&ID	123A90-DDL-PR-PID-80015 Sh. 001	03	49			
5	P&ID	123A90-DDL-PR-PID-80018 Sh. 001	03	50			
6	P&ID	123A90-DDL-PR-PID-80019 Sh. 001	03	51			
7	P&ID	123A90-DDL-PR-PID-80014 Sh. 001	03	52			
8	P&ID	123A90-DDL-PR-PID-80020 Sh. 001	03	53			
9	P&ID	123A90-DDL-PR-PID-80012 Sh. 001	03	54			
10	P&ID	123A90-DDL-PR-PID-80013 Sh. 001	03	55			
11	P&ID	123A90-DDL-PR-PID-80011 Sh. 001	03	56			
12	P&ID	C63-PID-001-008 Page 7/16	7	57			
13	P&ID	123A90-DDL-PR-PID-80029 Sh.001	03	58			
14	P&ID	123A90-DDL-PR-PID-80025 Sh. 001	03	59			
15	P&ID	123A90-DDL-PR-PID-80026 Sh. 001	03	60			
16				61			
17				62			
18				63			
19				64			
20				65			
21				66			
22				67			
23				68			
24				69			
25				70			
26				71			
27				72			
28				73			
29				74			
30				75			
31				76			
32				77			
33				78			
34				79			
35				80			
36				81			
37				82			
38				83			
39				84			
40				85			
41				86			
42				87			
43				88			
44				89			
45				90			

Note: **Drawing 'Type' data entries listed as 'Plot Plan' or 'Deck Plan' represent Restricted Access Zone / Exclusion Zone boundary drawings, and / or equipment lay down area plans.**

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C1. Customer Preparatory Work

Customer	Rosetti Marino	**Test Pack Name**	H2 Vent System
Project	Leak Testing Services for Base Load Power Hub Project	**Test Pack Number**	TP 001
Location	Piomboni Yard - Marina di Ravenna	**Issue Date**	

Before the PPS crew prepare the system for testing
the Customer Representative shall confirm the following work activities are complete

Item	Customer Preparatory Work	Status
1	The system is mechanically complete, visually checked, all punch list items closed out, and released for testing.	√
2	All welds have successfully passed NDE / NDT in compliance with the applicable design code.	√
3	Post weld heat treatment is complete in compliance with the relevant design code.	√
4	All pipe supports, structural supports, anchors, and associated weld attachments are complete.	√
5	All gaskets, nuts, and bolts are correctly specified, and joints are correctly assembled.	√
6	All bolted flange joints, hub clamps, and other mechanical joint types are correctly tightened using torque or tension techniques specified by the applicable design code.	√
7	All threaded connections, compression fittings, and instrumentation that will be exposed to pressure have been checked to verify joints are correctly made up and tightened (compatible thread types, sufficient threads engaged, correctly tightened).	√
8	All system components nominated for leak testing have successfully passed a hydrostatic strength test in accordance with the applicable design code. Alternatively, water sensitive systems have successfully passed a design code compliant pneumatic strength test.	√
9	Calibrated, certified system PSVs and / or bursting discs are installed in accordance with plant design requirements. Set pressure has been confirmed by visual check of tags and certification review.	N/A
10	System internal cleanliness has been verified, and no residual water or moisture is present.	√
11	Bolted flange joints, threaded connections, and other nominated or potential leak sources within test limit boundaries are exposed and accessible to allow leak test examination. Cladding and insulation has been removed where necessary.	√
12	Ambient / pipe wall temperature is above the system minimum design temperature and expected to remain there for the entire test duration. Test to be stopped if weather conditions cause the temperature to fall below this level.	√
13	Certified scaffolding and ladders have been erected for safe access to system high points.	√
14	Adequate lighting has been provided for night time working.	√
15	Actuated valves detailed on the PPS Actuated Valve Checklist have been isolated in the positions required and their motive energy sources disconnected.	N/A
16	Action items detailed on the following PPS forms are completed (where applicable): - **PPS Mechanical Works**	√

Notes

	Name	Job Title	Signature	Time / Date
PPS Representative	M. Bejinariu	Field Engineer		26.02.2025
Customer Rep. #1	Gr. GRAVINO	COMM ENG.		26/2/25
Customer Rep. #2				

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C3. Mechanical Works #1

Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1	**Test Pack Name**	H2 Vent System
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack No.**	TP 001
Location	Piomboni Yard - Marina di Ravenna	**Customer Work Order No.**	1724002632	**Checklist No.**	1 of 1

Component Details				Mechanical Preparation			Mechanical Reinstatement		
Item No.	Drawing Number	Customer / PPS Tag No.	Description	Work Required	PPS Rep. Time / Date	Customer Rep. Time / Date	Work Required	PPS Rep. Time / Date	Customer Rep. Time / Date
1	123A90-DDL-PR-PID-80029 Sh.001	W1	1" RF 150# Spool connection for BH Injection Manifold	REMOVE			INSTALL		
2	123A90-DDL-PR-PID-80029 Sh.001	W2	1" RF 150# Spool connection for BH Instrumentation	REMOVE			INSTALL		
3	123A90-DDL-PR-PID-80029 Sh.001	W3	12" RF 150# Spool stack connection	REMOVE			INSTALL		
4	123A90-DDL-PR-PID-80029 Sh.001	T7	1" Test Blind Flange RF 150# tapped to 1" NPT	INSTALL			REMOVE		
5	123A90-DDL-PR-PID-80029 Sh.001	T3	1" Test Blind Flange RF 150# tapped to 1" NPT	INSTALL			REMOVE		
6	123A90-DDL-PR-PID-80029 Sh.001	T8	12" Blind Flange RF 150#	INSTALL			REMOVE		
7	123A90-DDL-PR-PID-80017 Sh. 001	BLPH-MV-389/W4	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
8	123A90-DDL-PR-PID-80017 Sh. 001	BLPH-MV-388/W5	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
9	123A90-DDL-PR-PID-80016 Sh. 001	BLPH-MV-266/W6	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
10	123A90-DDL-PR-PID-80016 Sh. 001	BLPH-MV-264/W7	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
11	123A90-DDL-PR-PID-80015 Sh. 001	BLPH-MV-032/W8	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
12	123A90-DDL-PR-PID-80015 Sh. 001	BLPH-MV-035/W9	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
13	123A90-DDL-PR-PID-80018 Sh. 001	N/A/W10	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
14	123A90-DDL-PR-PID-80018 Sh. 001	BLPH-MV-424/W11	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
15	123A90-DDL-PR-PID-80019 Sh. 001	N/A/W12	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
16	123A90-DDL-PR-PID-80019 Sh. 001	BLPH-MV-432/W13	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
17	123A90-DDL-PR-PID-80014 Sh. 001	BLPH-MV-019/W14	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
18	123A90-DDL-PR-PID-80020 Sh. 001	BLPH-MV-442/W15	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
19	123A90-DDL-PR-PID-80020 Sh. 001	BLPH-MV-441/W16	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
20	123A90-DDL-PR-PID-80012 Sh. 001	80-PT-002/W17	1/2" Plug removed on Instrument manifold	REMOVE			INSTALL		
21	123A90-DDL-PR-PID-80013 Sh. 001	BLPH-MV-212/W18	1/2" Plug removed on DBB Valve	REMOVE			INSTALL		
22	C63-PID-001-008 Page 7/16	BBV-632/W19	1/4" Plug removed on DBB Valve	REMOVE			INSTALL		

RT CLOSED = ROTATE CLOSED RT OPEN = ROTATE OPEN

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C5. Test Limit Isolations Checklist #1

Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1	**Test Pack Name**	H2 Vent System
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack Number**	TP 001
Location	Piomboni Yard - Marina di Ravenna	**Customer Work Order No.**	1724002632	**Checklist Number**	1 of 2

All listed Test Limit Isolations (T#) must be in the CLOSED position.

Test Limit Isolations								Test #1		Test #2		Test #3	
PPS Tag No.	Drawing Number	Customer Tag No.	Description	HP / LP Interface	Actuated Valve	LOTO	Critical Valve	PPS Rep.	Customer	PPS Rep.	Customer	PPS Rep.	Customer
T1	123A90-DDL-PR-PID-80029 Sh.001	HW	8" Manhole Vessel Q-43004										
T2	123A90-DDL-PR-PID-80029 Sh.001	BLPH-MV-419	1" Ball Valve RF 150#										
T3	123A90-DDL-PR-PID-80029 Sh.001	N/A	1" Test Blind Flange RF 150# tapped to 1" NPT										
T4	123A90-DDL-PR-PID-80029 Sh.001	H2	6" Manhole Vessel V-43001										
T5	123A90-DDL-PR-PID-80029 Sh.001	H1	6" Manhole Vessel V-43001										
T6	123A90-DDL-PR-PID-80029 Sh.001	BLPH-MV-409	1" Ball Valve RF 150#										
T7	123A90-DDL-PR-PID-80029 Sh.001	N/A	1" Test Blind Flange RF 150# tapped to 1" NPT										
T8	123A90-DDL-PR-PID-80029 Sh.001	N/A	14" Blind Flange Q-43004										
T9	123A90-DDL-PR-PID-80017 Sh. 001	25-PSV-001C	Pressure Safety Valve @ 40 barg										
T10	123A90-DDL-PR-PID-80017 Sh. 001	BLPH-MV-389	1 1/2" DBB RF 300#										
T11	123A90-DDL-PR-PID-80017 Sh. 001	BLPH-MV-388	6" DBB RF 300#										
T12	123A90-DDL-PR-PID-80016 Sh. 001	25-PSV-001B	Pressure Safety Valve @ 40 barg										
T13	123A90-DDL-PR-PID-80016 Sh. 001	BLPH-MV-266	1 1/2" DBB RF 300#										
T14	123A90-DDL-PR-PID-80016 Sh. 001	BLPH-MV-264	6" DBB RF 300#										
T15	123A90-DDL-PR-PID-80015 Sh. 001	25-PSV-001A	Pressure Safety Valve @ 40 barg										
T16	123A90-DDL-PR-PID-80015 Sh. 001	BLPH-MV-032	1 1/2" DBB RF 300#										
T17	123A90-DDL-PR-PID-80015 Sh. 001	BLPH-MV-035	6" DBB RF 300#										
T18	123A90-DDL-PR-PID-80018 Sh. 001	25-PSV-001D	Pressure Safety Valve @ 40 barg										
T19	123A90-DDL-PR-PID-80018 Sh. 001	N/A	1 1/2" DBB RF 300#										
T20	123A90-DDL-PR-PID-80018 Sh. 001	BLPH-MV-424	6" DBB RF 300#										
T21	123A90-DDL-PR-PID-80019 Sh. 001	25-PSV-001E	Pressure Safety Valve @ 40 barg										
T22	123A90-DDL-PR-PID-80019 Sh. 001	N/A	1 1/2" DBB RF 300#										
						Signature / Initials							

Tick each row under Test # column to confirm correctly isolated and sign / initial this row as verification.

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C5. Test Limit Isolations Checklist #2

Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1	**Test Pack Name**	H2 Vent System
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack Number**	TP 001
Location	Piomboni Yard - Marina di Ravenna	**Customer Work Order No.**	1724002632	**Checklist Number**	2 of 2

All listed Test Limit Isolations (T#) must be in the CLOSED position.

Test Limit Isolations								Test #1		Test #2		Test #3	
PPS Tag No.	Drawing Number	Customer Tag No.	Description	HP / LP Interface	Actuated Valve	LOTO	Critical Valve	PPS Rep.	Customer	PPS Rep.	Customer	PPS Rep.	Customer
T23	123A90-DDL-PR-PID-80019 Sh. 001	BLPH-MV-432	6" DBB RF 300#										
T24	123A90-DDL-PR-PID-80014 Sh. 001	BLPH-MV-019	2" DBB RF 300#										
T25	123A90-DDL-PR-PID-80020 Sh. 001	25-PSV-001F	Pressure Safety Valve @ 40 barg										
T26	123A90-DDL-PR-PID-80020 Sh. 001	BLPH-MV-442	1 1/2" DBB RF 300#										
T27	123A90-DDL-PR-PID-80020 Sh. 001	BLPH-MV-441	6" DBB RF 300#										
T28	123A90-DDL-PR-PID-80012 Sh. 001	80-PSV-001	Pressure Safety Valve @ 10 barg										
T29	123A90-DDL-PR-PID-80012 Sh. 001	BLPH-MV-009	1" Ball Valve RF 150#										
T30	123A90-DDL-PR-PID-80012 Sh. 001	BLPH-MV-007	1" Ball Valve RF 150#										
T31			Deleted										
T32			Deleted										
T33			Deleted										
T34			Deleted										
T35			Deleted										
T36	123A90-DDL-PR-PID-80013 Sh. 001	BLPH-MV-212	1" DBB RF 300#										
T37	123A90-DDL-PR-PID-80028 Sh. 001	BLPH-MV-171	1" Needle Valve RF 150#										
T38	123A90-DDL-PR-PID-80028 Sh. 001	BLPH-MV-172	1" Ball Valve RF 150#										
T39	123A90-DDL-PR-PID-80026 Sh. 001	N/A	1" Blind Flange RF 150#										
Tick each row under Test # column to confirm correctly isolated and sign / initial this row as verification.						**Signature / Initials**							

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C6. Safety Components Checklist #1

Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1	**Test Pack Name**	H2 Vent System
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack Number**	TP 001
Location	Piomboni Yard - Marina di Ravenna	**Customer Work Order No.**	1724002632	**Checklist Number**	1 of 2

All listed Safety Components (S#) **must be in the** OPEN **position or be** CORRECTLY ORIENTATED.
All other manual valves within test limit boundaries must be in the OPEN **position.**

Safety Components							Test #1		Test #2		Test #3	
PPS Tag No.	Drawing Number	Customer Tag No.	Description	Actuated Valve	LOTO	Critical Valve	PPS Rep.	Customer	PPS Rep.	Customer	PPS Rep.	Customer
S1	123A90-DDL-PR-PID-80029 Sh.001	BLPH-MV-407	3/4"x 1/2" Ball Valve RF 150#		Yes							
S2	123A90-DDL-PR-PID-80017 Sh. 001	BLPH-MV-389	1/2" Bleed on 1 1/2" DBB RF 300#									
S3	123A90-DDL-PR-PID-80017 Sh. 001	BLPH-MV-388	1/2" Bleed on 6" DBB RF 300#									
S4	123A90-DDL-PR-PID-80016 Sh. 001	BLPH-MV-266	1/2" Bleed on 1 1/2" DBB RF 300#									
S5	123A90-DDL-PR-PID-80016 Sh. 001	BLPH-MV-264	1/2" Bleed on 6" DBB RF 300#									
S6	123A90-DDL-PR-PID-80015 Sh. 001	BLPH-MV-032	1/2" Bleed on 1 1/2" DBB RF 300#									
S7	123A90-DDL-PR-PID-80015 Sh. 001	BLPH-MV-035	1/2" Bleed on 6" DBB RF 300#									
S8	123A90-DDL-PR-PID-80018 Sh. 001	N/A	1/2" Bleed on 1 1/2" DBB RF 300#									
S9	123A90-DDL-PR-PID-80018 Sh. 001	BLPH-MV-424	1/2" Bleed on 6" DBB RF 300#									
S10	123A90-DDL-PR-PID-80019 Sh. 001	BLPH-MV-432	1/2" Bleed on 6" DBB RF 300#									
S11	123A90-DDL-PR-PID-80019 Sh. 001	N/A	1/2" Bleed on 1 1/2" DBB RF 300#									
S12	123A90-DDL-PR-PID-80014 Sh. 001	BLPH-MV-019	1/2" Bleed on 2" DBB RF 300#									
S13	123A90-DDL-PR-PID-80020 Sh. 001	BLPH-MV-442	1/2" Bleed on 1 1/2" DBB RF 300#									
S14	123A90-DDL-PR-PID-80020 Sh. 001	BLPH-MV-441	1/2" Bleed on 6" DBB RF 300#									
S15	123A90-DDL-PR-PID-80012 Sh. 001	BLPH-MV-006	4" Ball Valve RF 150#									
S16	123A90-DDL-PR-PID-80012 Sh. 001	BLPH-MV-038	3/4" x 1/2" Ball Valve RF 150#									
S17	123A90-DDL-PR-PID-80012 Sh. 001	80-XV-001	1" Actuated Valve RF 150#		Yes							
S18	123A90-DDL-PR-PID-80013 Sh. 001	BLPH-MV-212	1" DBB RF 300#									
S19	123A90-DDL-PR-PID-80028 Sh. 001	BLPH-NRV-020	1" Non Return Valve RF 150#									
S20	123A90-DDL-PR-PID-80028 Sh. 001	BLPH-NRV-021	1" Non Return Valve RF 150#									
S21			Deleted									
S22	123A90-DDL-PR-PID-80029 Sh.001	BLPH-MV-418	1" Globe Valve RF 150#		Yes							
Tick each row under Test # column to confirm correctly isolated and sign / initial this row as verification.					**Signature / Initials**							

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C6. Safety Components Checklist #2

Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1	**Test Pack Name**	H2 Vent System
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack Number**	TP 001
Location	Piomboni Yard - Marina di Ravenna	**Customer Work Order No.**	1724002632	**Checklist Number**	2 of 2

All listed Safety Components (S#) **must be in the** OPEN **position or be** CORRECTLY ORIENTATED.
All other manual valves within test limit boundaries must be in the OPEN **position.**

Safety Components							Test #1		Test #2		Test #3	
PPS Tag No.	Drawing Number	Customer Tag No.	Description	Actuated Valve	LOTO	Critical Valve	PPS Rep.	Customer	PPS Rep.	Customer	PPS Rep.	Customer
S23	123A90-DDL-PR-PID-80017 Sh. 001	BLPH-MV-191	4" Ball Valve RF 150#				MD					
S24	123A90-DDL-PR-PID-80016 Sh. 001	BLPH-MV-201	4" Ball Valve RF 150#									
S25	123A90-DDL-PR-PID-80015 Sh. 001	BLPH-MV-033	4" Ball Valve RF 150#									
S26	123A90-DDL-PR-PID-80018 Sh. 001	BLPH-MV-194	4" Ball Valve RF 150#									
S27	123A90-DDL-PR-PID-80019 Sh. 001	BLPH-MV-196	4" Ball Valve RF 150#									
S28	123A90-DDL-PR-PID-80020 Sh. 001	BLPH-MV-199	4" Ball Valve RF 150#									
S29	123A90-DDL-PR-PID-80020 Sh. 001	BLPH-MV-005	6" Ball Valve RF 150#									
S30	123A90-DDL-PR-PID-80029 Sh.001	BLPH-MV-403	3" Ball Valve RF 150#									
S31	123A90-DDL-PR-PID-80029 Sh.001	BLPH-MV-404	1" Ball Valve RF 150#									
S32	123A90-DDL-PR-PID-80029 Sh.001	BLPH-MV-405	1" Ball Valve RF 150#									
S33	123A90-DDL-PR-PID-80029 Sh.001	BLPH-MV-462	1" Ball Valve RF 150#									
S34	123A90-DDL-PR-PID-80029 Sh.001	BLPH-MV-463	1" Ball Valve RF 150#									
S35	123A90-DDL-PR-PID-80029 Sh.001	BLPH-MV-417	1" Ball Valve RF 150#		Yes							
S36	C63-PID-001-008 Page 7/16	BBV-632	1/2" Single Valve with Bleed Instrumental									
S37	C63-PID-001-008 Page 7/16	BBV-632a	1/4" Bleed									
Tick each row under Test # column to confirm correctly isolated and sign / initial this row as verification.					**Signature / Initials**		MD					

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C8. System Depressurization Checklist #1

Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1	**Test Pack Name**	H2 Vent System
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack No.**	TP 001
Location	C8. System Depressurization Checklist #1	**Customer Work Order No.**	1724002632	**Checklist Number**	1 of 2

Complete the following instructions sequentially to safely depressurize the entire test system.
Ensure the 'Maximum Allowable Depressurization Rate' and the 'Vent System Maximum Allowable Pressure' are not exceeded.
Ensure the Customer Representative is informed of any unavoidable 'Trapped Pressure' areas, or residual pressure, left in the system.

System Depressurization Instructions			Test #1		Test #2		Test #3	
Step No.	**Description**	**Verification**	**PPS**	**Customer**	**PPS**	**Customer**	**PPS**	**Customer**
1	Preparation for Depressurization							
1-1	Confirm the test system is correctly aligned for depressurization in accordance with system alignment checklists and marked drawings. - Verify all actuated valves within test limit boundaries are in the correct position (open). - Follow Management of Change instructions if the system alignment was modififfed in any way during the pressurization or leak testing phases.	System Alignment Checklists Marked Drawings Management of Change documents (if applicable)						
1-2	Confirm the vent path is correctly prepared for routing test gas through to atmosphere and Vent Path Pressure Monitoring instruments are set up for monitoring and recording.	System Alignment Checklists Marked Drawings.						
1-3	Confirm barricades and warning signs are in place around the Restricted Access Zone.	Visual Confirmation						
2	System Depressurization							
2-1	Open Primary Depressurization Points and commence system depressurization. **Depressurization Points #1** (T2) - Ensure initial stage of depressurization is regulated at low flow rate (partially open valve) - Monitor the vent path pressure instruments and confirm the Maximum Allowable Vent Path Pressure (3 barg) is not exceeded at any time (priority over all other control parameters). - Adjust the depressurization point valve(s) position to maintain the depressurization rate at, or below, the Maximum Allowable Depressurization Rate: 2 bar/min - Monitor the system piping adjacent to the Depressurization Point(s) for signs of excessive chilling due to the Joule-Thompson expansion effect. Adjust rate if required.	Pressure Instruments Vent Path Pressure Instruments						
2-2	Confirm system is fully depressurized to atmospheric pressure (0 barg). - Pay particular attention to pressure instruments upstream & downstream of check valves.	Pressure Instruments						
2-3	Open Secondary Depressurization Points. ***Depressurization Points #2*** (T6) Follow guidance outlined for Primary Depressurization Points.	Pressure Instruments Vent Path Pressure Instruments						
3	Cycle Double Block Valves							
3-1	Cycle valve to remove Potential Trapped Pressure: T38 (BLPH-MV-172)	Marked Drawings						

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C8. System Depressurization Checklist #2

Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1	**Test Pack Name**	H2 Vent System
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack No.**	TP 001
Location	Piomboni Yard - Marina di Ravenna	**Customer Work Order No.**	1724002632	**Checklist Number**	2 of 2

System Depressurization Instructions			Test #1		Test #2		Test #3	
Step No.	**Description**	**Verification**	**PPS**	**Customer**	**PPS**	**Customer**	**PPS**	**Customer**
	(if valve could not be cycled, note "NOT CYCLED" in right hand column)							
3-2	Cycle valve to remove Potential Trapped Pressure: T29 (BLPH-MV-009) *(if valve could not be cycled, note "NOT CYCLED" in right hand column)*	Marked Drawings						
3-3	Cycle valve to remove Potential Trapped Pressure: T31 (MV-632) *(if valve could not be cycled, note "NOT CYCLED" in right hand column)*	Marked Drawings						
3-4	Cycle valve to remove Potential Trapped Pressure: T33 (HV-931) *(if valve could not be cycled, note "NOT CYCLED" in right hand column)*	Marked Drawings						
4	Isolate System							
4-1	Close all Depressurization Points: (T2, T6)	Marked Drawings						
4-2	Verify all actuated valves within test limit boundaries remain in the correct position (open).	Visual Confirmation						
5	System Handover							
5-1	Disconnect and remove all PPS test equipment from the system.	Visual Confirmation						
5-2	Inform Customer system ready for reinstatement. Once no longer required, remove PPS barricade tape and warning signs from the Restricted Access Zone perimeter.	Permit to Work C3. Mechanical Works						
5-3	Sign off the permit and inform the permit office of the system status. - Entire system fully depressurized to atmospheric pressure (0 barg). - Valves were not cycled and trapped pressure may remain the cavity space. - Refer to completed Depressurization Checklist and MOCs for any Potential Trapped Pressure	Test Pressure Data Visual Confirmation Marked Drawings						

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D. Helium Leak Test - Task Plan

Customer	Rosetti Marino	**Test Pack Name**	H2 Vent System
Project	Leak Testing Services for Base Load Power Hub Project	**Test Pack Number**	TP 001
Location	Piomboni Yard - Marina di Ravenna	**Test Number**	1

This task plan summarizes the main work activities that shall be correctly completed and verified by the PPS Supervisor and Customer Representative for safe execution of leak testing operations.
Refer to the detailed method statements in the PPS Safe Work Plan (SWP) for step-by-step instructions.

Task No.	Task Description	PPS	Customer	Third Party
	Pre-Test Work Activities			
1	Obtain confirmation from the Customer Representative that the preparatory work activities described in form C1. Customer Preparatory Work are complete.	A	A	-
2	Obtain a valid Permit to Work for all tasks associated with the leak test.	A	A	-
3	Visually inspect the test system then issue the Customer Representative with the following system preparation forms describing work that needs to be completed and party responsible: **C3. PPS Mechanical Works**	A	-	-
4	Carry out a site review to identify any additional hazards or risks not covered by the PPS standard risk assessment. Record the findings on **PPS Safe to Perform (STP)** form.	A	-	-
	PPS Equipment Rig Up and Function Test			
5	Inspect, rig up and function test the pressurization equipment: Gas Rack	A	-	-
6	No OPPS in use **N/A barg**	-	-	-
7	No OPPS in use	-	-	-
8	Confirm correct PRV(s) is selected (see App. A). Set pressure: **3.3 barg**	A	-	-
9	Confirm PRV(s) is correctly installed (non-isolatable) at approved point (A1. Test Pack Info.)	A	-	-
10	Confirm test instruments correctly specified, certified, and installed at approved point(s). Minimum: 1 x pressure gauge, 1 x pressure recorder / DAU. (**A1. Test Pack Info.**)	A	-	-
11	Rig up the test gas hose / iron / pipe. Confirm safely routed and secure using restraint devices.	A	-	-
12	Install the test gas injection manifold(s) at the approved point (**A1. Test Pack Info.**).	A	-	-
13	Rig up, function test, and calibrate the helium leak detection equipment. Confirm working OK.	A	-	-
14	Visually inspect the equipment rig up and verify components correctly specified and certified.	A	-	-
15	Confirm equipment correctly aligned for pressure test. Sign Stage 1: Hose Test drawing (**App. B**).	H	H	
16	Pressure test the hose / iron / pipe to prove integrity. Record test data. **10.0 barg**	A	-	-
	Customer System Preparation			
17	Confirm test system mechanical preparatory work is complete and forms are co-signed: **C3. PPS Mechanical Works**	A	A	-
18	Verify test system alignment against test pack checklists and marked drawings (**Appendix C**): - **C5. PPS Test Limit Isolations Checklist** co-signed (correct test limits applied). - **C6. PPS Safety Components Checklist** co-signed (correctly aligned within test limits).	A	A	-
19	Confirm all potential leak sources are exposed, taped up, and safely accessible for testing.	A	A	-
20	Erect barricades and warning signs around the perimeter of the test area (Restricted Access Zone), in compliance with the test pack marked plot plan / deck plan (Appendix D).	A	-	-
21	Confirm the work area is cleared of unauthorized personnel.	A	-	-
22	Make final system connections. Confirm all PPS test equipment is correctly aligned for leak testing as per Stage 2: Operations equipment rig up drawing (**Appendix B**). Sign as confirmation.	A	-	-
23	Perform a Toolbox Talk meeting with the PPS crew, Customer Representatives and Third Party personnel affected by the test. Ensure all attendees sign the **PPS STP** form. - Discuss the hazards, risks and control measures implemented for safe test execution. - Review **A: Test Pack Information** in detail and confirm all test parameters. - Confirm **Emergency Response Plan** and **Spill Response Plan** protocol (PPS SWP).	A	-	-
24	Confirm all preparatory tasks above are complete prior to commencing system pressurization. PPS Rep: Time / Date: 25.02.2025 Customer: Time / Date: 26/02/25	H	H	-

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D. Helium Leak Test - Task Plan

Pressurization and Leak Test

Task No.	Task Description	PPS	Customer	Third Party
25	Confirm ambient / pipe wall temperature is above the system minimum design temperature and expected to remain there for the entire test duration.	A	-	-
26	Pressurize the system, in the following increments, to the **FINAL LEAK TEST PRESSURE**. **DO NOT** exceed the **Max. Allowable Pressurization Rate:** **1.0 bar/min** Sample gas and measure helium conc'n (each increment). Adjust helium injection rate if needed. Apply hold periods at each pressure increment. Monitor for pressure drop and check for leaks. - If audible leaks or passing valves are identified assess the problem (if safe to do so). - Inform the Customer Representative of the issue, and agree a plan of action.	A	W	-
27	Confirm the hold period was successfully applied at **FINAL LEAK TEST PRESSURE** and inform the Customer Representative that the system leak test is due to commence.	H	H	-
28	Confirm all components have been checked for leaks (cross-checked against marked drawings). Tag leaking components and record details on **E1. Leak Description Report.**	A	-	-
29	Obtain permission from the Customer Representative to depressurize the test system.	H	H	-
30	Depressurize the test system in accordance with the sequential steps in **C8. System Depressurization Checklist** and co-sign the form as verification: - If valve positions changed under MoC, follow new system depressurization instructions. - **DO NOT** exceed **Maximum Depressurization Rate** **2.0 bar/min** - **DO NOT** exceed **Max. Allowable Vent Path Pressure** **3.0 barg** - Residual Pressure left in the system: No	A	A	-
31	Complete **E2. PPS Leak Detection Completion Certificate** and obtain the Customer Representative's signature confirming the test has been successfully completed.	A	A	-

Increment	Pressure barg	% Design Pressure	Hold Period mins
#1	0.8	22.9%	15.0
#2	1.6	45.7%	15.0
#3	2.4	68.6%	15.0
FINAL TEST PRESSURE	**3.2**	**90.0%**	**30.0**

PPS Equipment Rig Down

32	Verify all PPS equipment is correctly isolated and depressurized to atmospheric pressure.	A	-	-
33	Remove all PPS equipment from the test system. Confirm all leak detection tape is removed.	A	-	-
34	Remove barricades and warning signs. Visually check the work area to verify clean & tidy.	A	-	-

Customer System Reinstatement

35	Issue the following forms to the Customer Representative defining mechanical reinstatement work required: C3. PPS Mechanical Works	A	A	-
36	Complete **E3. PPS Witness Joint Register** and co-sign the form.	A	A	-
37	Confirm all required testing, equipment rig down, and system reinstatement tasks are complete. PPS Rep: Marius Beyimond Time / Date: 26.02.2025 Customer: Time / Date: 26/2/25	H	H	-

A = Action, H = Hold, M = Monitor, W = Witness, Dash (-) = Does Not Apply to Party, N/A = Not Applicable to Test Scope

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E1. Leak Description Report #1

Customer	Rosetti Marino	**Test Pack Name**	H2 Vent System
Project	Leak Testing Services for Base Load Power Hub Project	**Test Pack No.**	TP 001
Location	Piomboni Yard - Marina di Ravenna	**Checklist No.**	1 of 1

Leak No.	Drawing Number	Customer Tag No.	Leak Description	Cause of Leak	Leak Rate ()		
					Test #1	Test #2	Test #3
			No Leaks				

	Name	Job Title	Signature	Time / Date
PPS Representative	M. Bejinaru	Field Engineer		26.02.25
Customer Rep. #1		COMM. ENG.		26/2/25
Customer Rep. #2				

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E2. Leak Detection Completion Certificate

Project Information			
Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90
Location	Piomboni Yard - Marina di Ravenna	**Customer Work Order No.**	1724002632

Test Pack Information			
Test Pack Name	H2 Vent System	**Test Method**	Helium Leak Detection
Test Pack Number	TP 001	**Test Gas**	1% Helium / 99% Nitrogen

Leak Test and Acceptance Criteria	
Leak Test	The system was pressurised, in increments, to 3.15 barg using 1 % helium / 99 % nitrogen test gas. Pressure remained within **10%** of the test pressure for the duration of the test. All potential leak sources nominated for testing were checked for leakage using a calibrated helium leak detector. All identified leaks (> maximum allowable leak rate threshold) were recorded on the PPS Leak Description Report. The system was repaired and re-tested a total of **times** before the acceptance criteria were met. Refer to the PPS Witness Joint Register for a list of components that could not be tested.
Acceptance	Maximum allowable leak rate threshold from any single leak source did not exceed: **All the potential leak sources** **20** **scf/yr**

Leak Test Results

Test Number	Test Date	Test Pressure barg	Total Number of		Comments
			Joints Tested	Leaks Found	
1	26-Feb-2025	3.15	All	0	

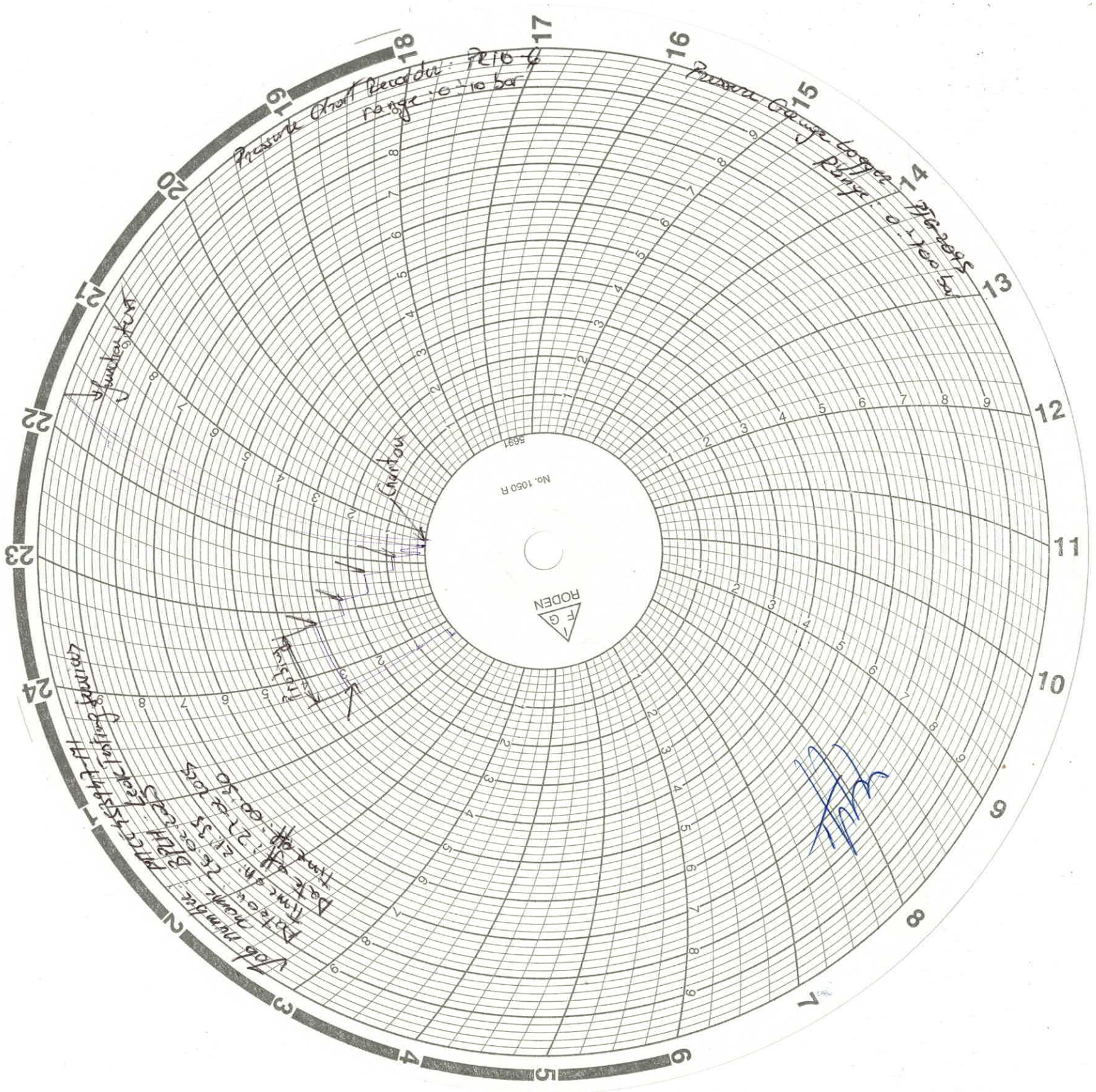
Instrumentation

Description	Serial Number	Calibration Certificate No.	Calibration Date
Pressure Chart Recorder	PR 10-6		24-Jan-2025
Pressure Gauge (Analog)	PTG-10-4		3-Sep-2024
Data Logger	PTG2095	1395944	21-Jun-2024

	Name	Job Title	Signature	Date
PPS Rep.	M.Bejinaru	Field Engineer		
Customer Rep. #1	I.Vago	Commissioning Superintendent		
Customer Rep. #2				

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Pressure Chart Recorder: PR10-G
range -10 - 10 bar
Pressure Gauge logger PR-2095
Range -0.1 - 10 bar
Yorkshire
Chatsworth
No. 1050 R
RODEN
F G
Job number
Date 24-2-15
Time 08:00
Pressure Test
Chatsworth Estate Fishing Lodge

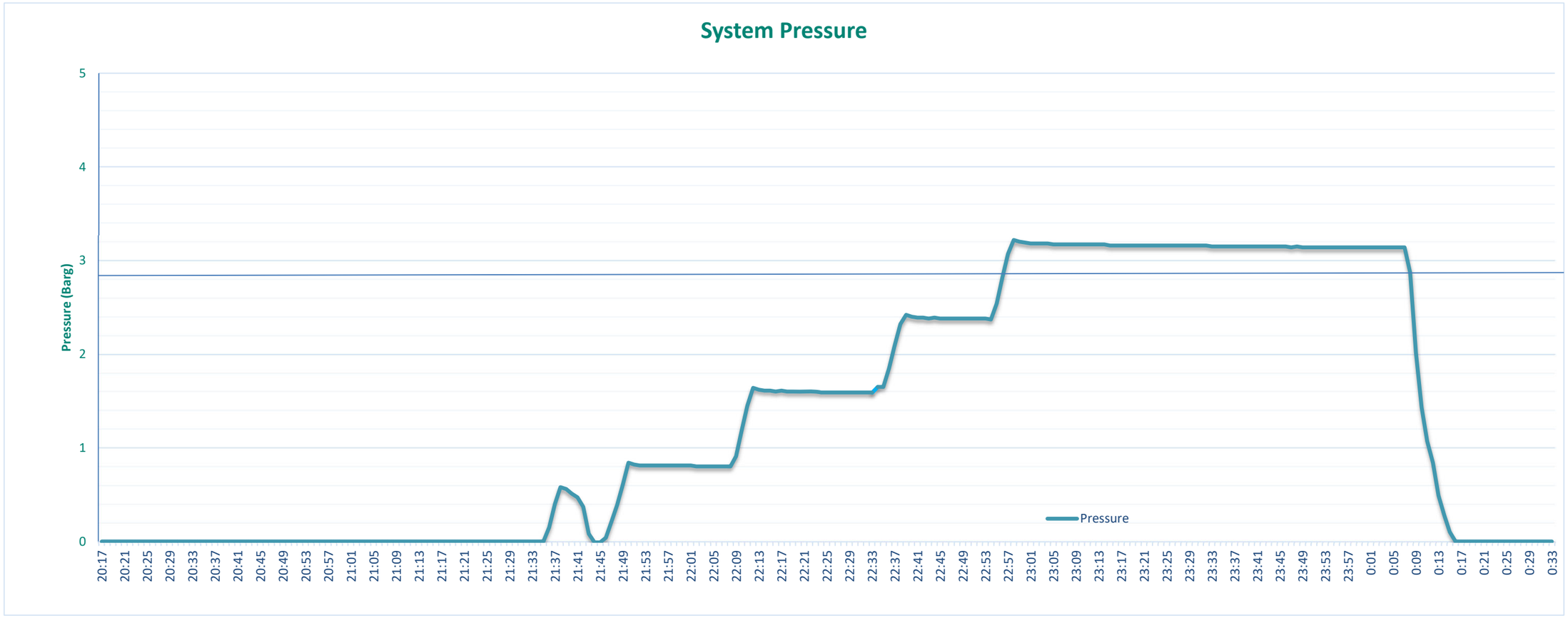
Data Collection Report

Client :	Rosetti Marino SpA
Project:	Leak Testing Services for Base Load Power Hub Project
Location:	Piombini Site
Test Type:	90% Design Pressure Leak Test
Test Pack No.:	TP-001
Test Pack Name:	H2 Vent System
BHI Gauge No:	PTG
Pressure Range:	0-700 bar
Test Medium:	1%He99%N2
Test Pressure:	3.2 barg

Test Lead Print	M.Bejinaru
Test Lead Sign	
Test Approved Print	I.Vago
Test Approver Sign	

Gauge Information	
Serial Number	PTG2095
Model	Crystal Gauge
Units	Barg

Run Info	
Start Time	26.02.2025 - 20:17
Stop Time	27.02.2025 - 0:33
Logging Interval	1 min



Data Collection Report

Client :	Rosetti Marino SpA
Project:	Leak Testing Services for Base Load Power Hub Project
Location:	Piombini Site
Test Type:	90% Design Pressure Leak Test
Test Pack No.:	TP-001
Test Pack Name:	H2 Vent System
BHI Gauge No:	PTG
Pressure Range:	0-700 bar
Test Medium:	1%He99%N2
Test Pressure:	3.2 barg

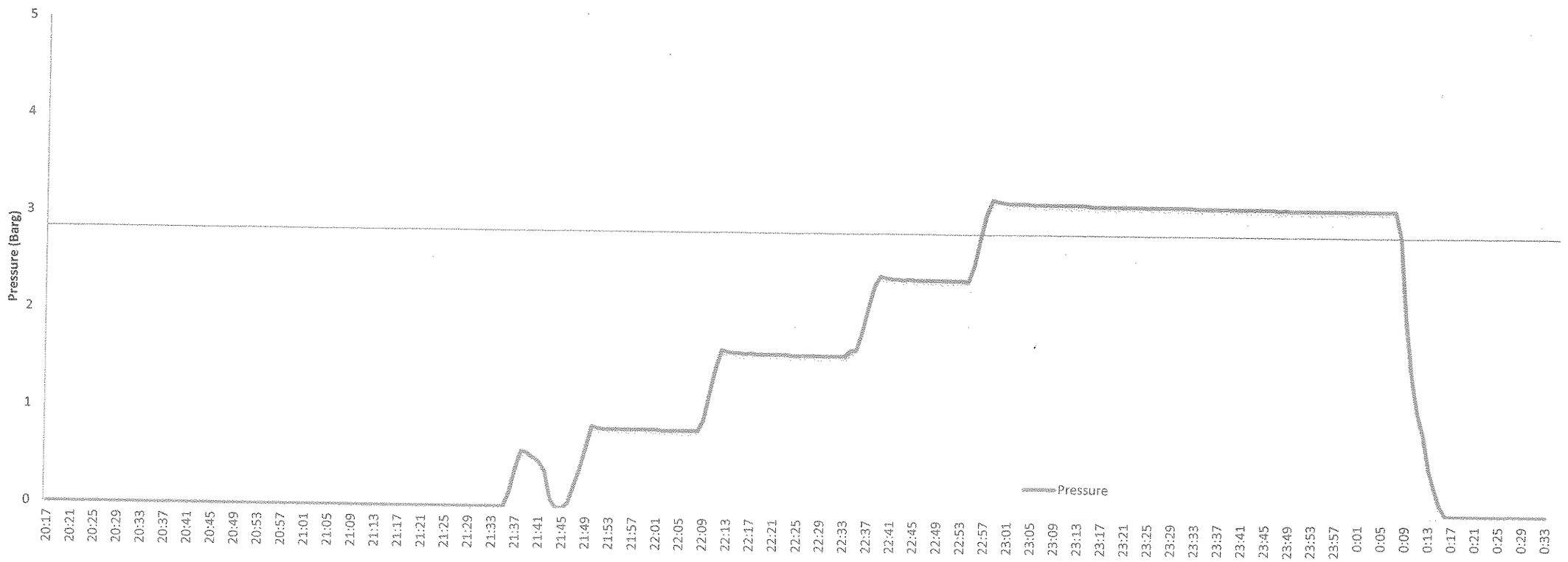
Test Lead Print	M.Bejinaru
Test Lead Sign	

Test Approved Print	I.Vago
Test Approver Sign	

Gauge Information	
Serial Number	PTG2095
Model	Crystal Gauge
Units	Barg

Run Info	
Start Time	26.02.2025 - 20:17
Stop Time	27.02.2025 - 0:33
Logging Interval	1 min

System Pressure



Scotia Instrumentation Ltd - Campus 1 - Aberdeen Science and Technology Park - Balgownie Road - Aberdeen AB22 8GT
Tel 01224-222888 eMail calibration@scotia-instrumentation.com

SCOTIA INSTRUMENTATION

Certificate No 1395944

Date of Issue 21 June 2024

CALIBRATION CERTIFICATE

Customer's Name P&M NETHERLANDS BV
Customer's Reference 320006459
Serial Number 467729 / PNo: PTG2095
Description Ametek XP2i Digital Test Gauge
Range 10000psi
Our Reference 386446/R/6
Temperature of Test 21.0 °C
Calibration Uncertainty ±0.1% of rdg +1 lsd (20-100% of fs)
Standard Used Budenberg PCU (E027)
Traceable Ref UKAS Lab 0208 Cert 039921

Applied Value	Reading	Correction
psi		
2000	1999	1
4000	3999	1
6000	5998	2
8000	7997	3
10000	9996	4

The Standard Used is traceable to National Standards. Positive corrections are to be added to the reading and negative subtracted.
Calibration is done in accordance with ISO IEC 17025:2017

Notes on Calibration:

Equipment certified has passed our check for safety compliance in accordance with our internal procedures.
No adjustments were made before calibration.

Signed:

Job Title: Technician

BMC/SJC

Date of calibration for this device is 21 June 2024
Recommended maximum recalibration date: 21 December 2024

BMC P&MN1

1982 - 2024 42 YEARS In calibration

IFG DE WIT BV
Transportweg 1
9301 ZX Roden, The Netherlands
www.ifgdewit.nl
E-mail sales@ifgdewit.nl

Tel +31 50 5017676
VAT NL800108802B01
IBAN NL48 RABO 0355 8042 12
BIC RABONL2U

calibration certificate

Instrument	:	*Pressure recorder*	Customer	:	*P&M Netherlands B.V.*
Type	:	*4888SST*	Calibration Instrument	:	*dead weight tester*
Serial Number	:	*05.00810.1-02 (PR 10-6)*	Serial Number	:	*9480*
Range	:	*0-10 bar*	Calibration carried out	:	
Accuracy	:	*cl 1.0*	by	:	*RS*
Cal. Temperature	:	*20°C*	Date	:	*24-Jan-2025*

Applied value measuring unit *bar*	Instrument readings measuring unit *bar*	
	rising	falling
0	*0,00*	*0,00*
2	*2,00*	*2,04*
4	*3,98*	*4,04*
6	*5,96*	*6,00*
8	*7,96*	*8,00*
10	*10,00*	*10,00*

CORRECTION GRAPH



Remarks:

- Uncertainty of measurement: *0,03* %
- According to EN 837-1 / EN 837-3
- The accuracy of the Calibration Instrument is traceable to national standards via RvA certification

Approved by: *G.R. de Jonge [Head of Calibration]*

IFG DE WIT BV

Minerva METROLOGY AND CALIBRATION

Ensuring carefree traceability

www.minerva-calibration.com

ilac-MRA RvA CALIBRATION RvA K 048

certificate number : 4201530a
this replaces 4201530

applicant	IFG de WIT B.V. Transportweg 1 9301 ZX Roden, The Netherlands
instrument manufacturer type serial number(s) asset number	piston cylinder IFG de Wit piston 9480
environmental conditions	Measurements are done in a climatised laboratory with an average room temperature of 20 °C
period of calibration	14-10-2020
results	In the range mentioned on page 2 of this certificate the mass to pressure conversion Kn and starting pressure p_0 are determined as :

Kn	= 1,22333	± 0,00012	(bar/kg)
p_0	= 0,33884	± 0,00073	(bar g)

To calculate the gauge pressure at reference level and 20 oC, the following formula is used :

$$p_e = (p_0 + m_t \cdot Kn) \cdot (g / g_n) \quad \text{[bar g]}$$

where	p_e	: gauge pressure at reference level	[bar g]
	m_t	: total conventional mass load (see page 2 of this cert.)	[kg]
	g	: local gravity	[N/kg]
	g_n	: normal gravity (9,80665)	[N/kg]

Using the above formula, the calculated Kn, p_0 and the total conventional mass load the estimated overall uncertainty in pressure (at conditions as during the calibration) becomes :

$$u_{pe} = 1,2 \cdot 10^{-4} \cdot p_e + 0,00073 \text{ bar} \quad (k = 2)$$

remark: To calculate the gauge pressure in psi at reference level and 20 oC, the following formula is used :

$$p_e = 14,50377018 \cdot (p_0 + m_t \cdot Kn) \cdot (g / g_n) \quad \text{[bar g]}$$

remark: certificate reissued because the serial number was incorrect

uncertainty: The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k = 2$, which provides a confidence level of approximately 95%. The standard uncertainty has been determined in accordance with EA-04/02.

traceability: The measurements have been executed using standards for which the traceability to (inter)national standards has been demonstrated towards the RvA.

Amersfoort, 22/10/20

P.J. van Werkhooven,
laboratory teamleader

type: digital certificate / paper certificate
status: original, digitally signed / signed copy

RvA is member of the European Co-operation for Accreditation (EA) and is one of the signatories to the EA Multilateral Agreement and to the ILAC Mutual Recognition Arrangements (MRA) for the mutual recognition of calibration certificates. Reproduction of the complete certificate is allowed. Parts of the certificate may only be produced with written approval of the calibration laboratory.

This certificate is issued provided that neither the Raad voor Accreditatie nor Minerva meetechniek B.V. assumes any liability.

Minerva METROLOGY AND CALIBRATION

Ensuring carefree traceability

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ilac-MRA RvA CALIBRATION RvA K 048

certificate number : 4201530a
this replaces 4201530

device under test	piston cylinder
manufacturer	IFG de Wit
type	piston
serial number(s)	9480
calibration method	During the measurements the device under test was directly connected to the above mentioned pressure standard
reference level	upper surface pressure connection

>>verification of metrological characteristics<<

Description of the used pressure standard(s)

instrument	piston gauge
manufacturer	DH Instruments
type	PG7302
platform s.n.	1167
piston cylinder s.n. / range	(105) used in Sabacate
measuring range	0,5 50 MPa g
combined uncertainty	3,1 10-5 pe + 30 Pa

reference pressure (105) [bar g]	calibration and measurement capabilities [bar]	reading DUT [bar g]	disagreement absolute [bar]	disagreement relative [%FS]	measurement uncertainty [bar]
7,34238	0,00053	7,3424	0,0000	0,0000	0,0016
14,34595	0,00074	14,3462	0,0003	0,0018	0,0025
28,3560	0,0017	28,355	-0,0006	-0,0017	0,0041
42,3675	0,0015	42,3666	-0,0010	-0,0023	0,0058
56,3787	0,0020	56,3776	0,0009	0,0016	0,0075
70,3890	0,0025	70,3888	-0,0003	-0,0004	0,0092

legenda

column 1, 2	reference pressure and corresponding CMC
column 3	calculated pressure readout DUT
column 4	absolute difference between column 3 and column 1
column 5	relative difference between column 3 and column 1
column 6	measurement uncertainty, including additional uncertainties due to calibration set-up and DUT limitations (k = 2)

calibration technician: G. Ruiter

Minerva METROLOGY AND CALIBRATION

www.minerva-calibration.com

ilac-MRA RvA CALIBRATION RvA K 048

certificate number : 4201531

applicant	IFG de WIT B.V. Transportweg 1 9301 ZX Roden, The Netherlands
instrument manufacturer type serial number(s) asset number	mass set IFG de Wit 35300 Mass set bar 9480
environmental conditions	Measurements are done in a climatised laboratory with an average room temperature of 20 °C
period of calibration	13-10-2020
results	see page 2 (and further if applicable) of this certificate

uncertainty: The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k = 2$, which provides a confidence level of approximately 95%. The standard uncertainty has been determined in accordance with EA-04/02

traceability: The measurements have been executed using standards for which the traceability to (inter)national standards has been demonstrated towards the RvA

Amersfoort, 14/10/20

C.G.M. Adolfse,
technical director

type: digital certificate / paper certificate
status: original, digitally signed / signed copy

RvA is member of the European Co-operation for Accreditation (EA) and is one of the signatories to the EA Multilateral Agreement and to the ILAC Mutual Recognition Arrangements (MRA) for the mutual recognition of calibration certificates. Reproduction of the complete certificate is allowed. Parts of the certificate may only be produced with written approval of the calibration laboratory.

This certificate is issued provided that neither the Raad voor Accreditatie nor Minerva meetechniek B.V. assumes any liability.

Minerva METROLOGY AND CALIBRATION

www.minerva-calibration.com

ilac-MRA RvA CALIBRATION RvA K 048

certificate number : 4201531

device under test	mass set
manufacturer	IFG de Wit
type	35300 Mass set bar
serial number(s)	9480
calibration method	The conventional mass is determined by comparison against masses, which are directly traceable to international standards
density reference	8000 kg/m³

description	nr.	number	conventional mass [g]	measurement uncertainty [k=2] [mg]
5 bar	N	1	4090,05	41,0
5 bar	O	2	4089,85	40,9
5 bar	P	3	4089,84	40,9
5 bar	Q	4	4089,52	40,9
5 bar	R	5	4089,96	40,9
5 bar	S	6	4089,80	40,9
5 bar	T	7	4090,52	41,0
5 bar	U	8	4090,69	41,0
5 bar	V	9	4090,27	41,0
5 bar	W	10	4090,34	41,0
5 bar	X	11	4090,09	41,0
5 bar	Y	12	4090,28	41,0
5 bar	Z1	13	4090,46	41,0
5 bar	Z2	14	4090,11	41,0
2,5 bar	M	1	2044,079	20,5
0,5 bar	I	1	408,807	4,1
0,5 bar	J	2	408,769	4,1
0,5 bar	K	3	408,802	4,1
0,5 bar	L	4	408,725	4,1
0,25 bar	H	1	204,3656	2,1
0,1 bar	F	1	81,81301	0,8
0,1 bar	G	2	81,84572	0,8
0,05 bar	E	1	40,91149	0,5
0,025 bar	D	1	20,43052	0,3
0,01 bar	B	1	8,19343	0,1
0,01 bar	C	2	8,17353	0,1
0,005 bar	A	1	4,10589	0,1
0,5 bar corr.			126,8537	1,3

reference mass set	KERN F1 nr G001448
metrologist	M. Pals

Certificate of Calibration

Date of issue: 09 January 2025

Certificate Number: 1003936.

Approved Signatory

Name [✓] R Dutton [ ] P Clark [ ] C Railton

Signature

vaseco
LEAK DETECTION TECHNOLOGY
Bromley House,
Barlow Drive,
Woodford Park Industrial Estate,
Winsford,
Cheshire,
CW7 2JZ.

Tel: +44 (0)1606 590000
Web: www.vaseco.com

CUSTOMER DETAILS

Name: P&M Netherlands B.V.

Address: Ekkersrijt 3131,
Gate 4,
5692 CD,
Son en Breugel,
Netherlands.

Purchase order No.: 320007526

Vaseco SOP No.: 106199

UNIT UNDER CALIBRATION DETAILS

Manufacturer: Vaseco Ltd

Model: Vaseco HD1

Serial No: 1301

Calibration Gas: Helium 1%

Serial No: 24/030790

Equipment condition: Functioning

CALIBRATION DETAILS

Laboratory conditions: 23 °C +/- 1 °C 50%RH +/- 15%RH

Calibration date: 09 January 2025

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of of approximately 95%, the uncertainty evaluation has been carried out in accordance with UKAS requirements.
This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service, and is subject to our standard terms and conditions. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes.
This calibration certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory - Vaseco Ltd.

Electrical Certificate

Test Conducted By: Vaseco Limited, , Bromley House, Barlow Drive, Woodford Park Industrial Estate, Winsford, Cheshire, CW7 2JZ

Site: Vaseco Limited

Customer: P_M Netherlands

Asset & Test details

Serial No.: 232171 **Description:** Vaseco HD1 AC Adapter

Make: Adapter Tech **Model:** AST065T-P240

Test	Result	Unit	Status
Plug			Pass
Flex			Pass
Enclosure			Pass
Environment			Pass
Socket			Pass
Voltage	230	V	Information
Power Rating	1.4	A	Information
Insulation Voltage	500	V	Information
Insulation	> 19.99	MOhm	Pass
Substitute Leakage	0.28	mA	Pass

Comments:

Overall Status: Pass

Date Of Test: 09/01/2025

Next Full Test: 09/01/2026

Test Instrument: Seaward Apollo 600 Plus 31J-0854

Tested By: Paul Taylor

Signed By:



Electrical Certificate

Test Conducted By: Vaseco Limited, , Bromley House, Barlow Drive, Woodford Park Industrial Estate, Winsford, Cheshire, CW7 2JZ

Site: Vaseco Limited
Customer: P_M Netherlands

Asset & Test details

Serial No.: 232171US **Description:** Power lead - US
Make: n/a **Model:** n/a

Test	Result	Unit	Status
Plug			Pass
Flex			Pass
Environment			Pass
Voltage	110	V	Information
Power Rating	10	A	Information
IEC Lead Continuity	0.1	ohm	Pass
Insulation Voltage	500	V	Information
Insulation	> 19.99	MOhm	Pass
IEC Lead Polarity			Pass

Comments:

Overall Status: Pass

Date Of Test: 09/01/2025
Next Full Test: 09/01/2026

Test Instrument: Seaward Apollo 600 Plus 31J-0854

Tested By: Paul Taylor

Signed By:



E3. Witness Joint Register #1

Customer	Rosetti Marino	**Test Pack Name**	H2 Vent System
Project	Leak Testing Services for Base Load Power Hub Project	**Test Pack Number**	TP 001
Location	Piomboni Yard - Marina di Ravenna	**Register Number**	1 of 1

The system components listed below were NOT tested as part of this test pack and are 'Witness Joints'.
The customer is responsible for checking these components for leakage in accordance with their company protocol.

Witness Joints

Witness Joint No.	Drawing Number	Customer Tag Number	Description
W1	123A90-DDL-PR-PID-80029 Sh.001	N/A	1" Flange RF 150# connection with line 1"-WW-202-01CS-H
W2	123A90-DDL-PR-PID-80029 Sh.001	N/A	1" Flange RF 150# connection with line 1"-WW-202-01CS-H
W3	123A90-DDL-PR-PID-80029 Sh.001	N/A	12" Flange RF 150# connection vent stack
W4	123A90-DDL-PR-PID-80017 Sh. 001	BLPH-MV-389	1/2" Plug removed for vent
W5	123A90-DDL-PR-PID-80017 Sh. 001	BLPH-MV-388	1/2" Plug removed for vent
W6	123A90-DDL-PR-PID-80016 Sh. 001	BLPH-MV-266	1/2" Plug removed for vent
W7	123A90-DDL-PR-PID-80016 Sh. 001	BLPH-MV-264	1/2" Plug removed for vent
W8	123A90-DDL-PR-PID-80015 Sh. 001	BLPH-MV-035	1/2" Plug removed for vent
W9	123A90-DDL-PR-PID-80015 Sh. 001	BLPH-MV-032	1/2" Plug removed for vent
W10	123A90-DDL-PR-PID-80018 Sh. 001	N/A	1/2" Plug removed for vent
W11	123A90-DDL-PR-PID-80018 Sh. 001	BLPH-MV-424	1/2" Plug removed for vent
W12	123A90-DDL-PR-PID-80019 Sh. 001	N/A	1/2" Plug removed for vent
W13	123A90-DDL-PR-PID-80019 Sh. 001	BLPH-MV-432	1/2" Plug removed for vent
W14	123A90-DDL-PR-PID-80014 Sh. 001	BLPH-MV-019	1/2" Plug removed for vent
W15	123A90-DDL-PR-PID-80020 Sh. 001	BLPH-MV-442	1/2" Plug removed for vent
W16	123A90-DDL-PR-PID-80020 Sh. 001	BLPH-MV-441	1/2" Plug removed for vent
W17	123A90-DDL-PR-PID-80012 Sh. 001	N/A	1/2" Plug removed for vent
W18	123A90-DDL-PR-PID-80013 Sh. 001	BLPH-MV-212	1/2" Plug removed for vent
W19	C63-PID-001-008 Page 7/16	BBV-632a	1/4" Plug removed for vent

	Name	Job Title	Signature	Time / Date
PPS Representative	M. Beghinelli	Field Engineer		
Customer Rep. #1		Comm. Ops		
Customer Rep. #2				

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Appendix B

PPS Test Equipment

Customer Name:	Rosetti Marino
Project Name:	Leak Testing Services for Base Load Power Hub Project
Test Pack Number:	TP 001
Test Pack Name:	H2 Vent System

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Test Pack Summary - Helium Leak Test

SYSTEM DETAILS			
Test Pack Name	Test pack 1	System Design Pressure	3.5 barg
Test Pack Number	TP-001	System PSV Set Pressure	- barg
Customer Reference No.	0	Normal Operating Pressure	3.0 barg
No. Leak Test Components	90 All Components	System Free Volume	35.0 m^3

INCREMENTAL AND FINAL TEST PRESSURE

	Hold Period min	Pressure barg	% Test Pressure	% Normal Operating Pressure	% Design Pressure	% System PSV
Increment #1	15.0	0.8	25.4%	26.7%	22.9%	N/A
Increment #2	15.0	1.6	50.8%	53.3%	45.7%	N/A
Increment #3	15.0	2.4	76.2%	80.0%	68.6%	N/A
TEST PRESSURE	**30.0**	**3.2**	**100.0%**	**105.0%**	**90.0%**	**N/A**

Residual Pressure	0.0 barg

Pressure left in the system upon completion of depressurization.

PRESSURIZATION AND DEPRESSURIZATION RATES		
Pressurization Rate	0.0 bar/min	
Volumetric Pump Rate	1.5 Sm^3/min	
Pump Maximum Flow Rate	1.8 Sm^3/min	
Depressurization Rate	2.0 bar/min	
Volumetric Vent Rate	69.1 Sm^3/min	
Vent Rate Restriction	- Sm^3/min	Not specified

TEST GAS			
Test Gas Type	Nitrogen Gas		
Test Gas Required	109.0 Sm^3		
LN2 Equivalent	160.0 L		
Helium Gas	1.1 Sm^3	Conc'n:	1.0%

Standard temperature and pressure (STP) conditions are +15C (+59F) and 1 atmosphere

SAFETY EQUIPMENT

	Set Pressure	% Design Pressure	% Test Pressure	Discharge Orifice	PRV Discharge Area	PRV Quantity	PRV Individual Relief Rate	PRV Total Relief Rate
OPPS	N/A	0.0%	0.0%					
PRV	3.3 barg	94.3%	103.1%	D	71.000 mm^2	1	4.0 Sm^3/min	4.0 Sm^3/min

PRESSURIZATION, TESTING, AND DEPRESSURIZATION

Test Time per Component	1.0 min
Pressurization Time	01:56 hr : min
Leak Testing Time	02:00 hr : min
Depressurization Time	00:02 hr : min
TOTAL TEST TIME	**03:58 hr : min**

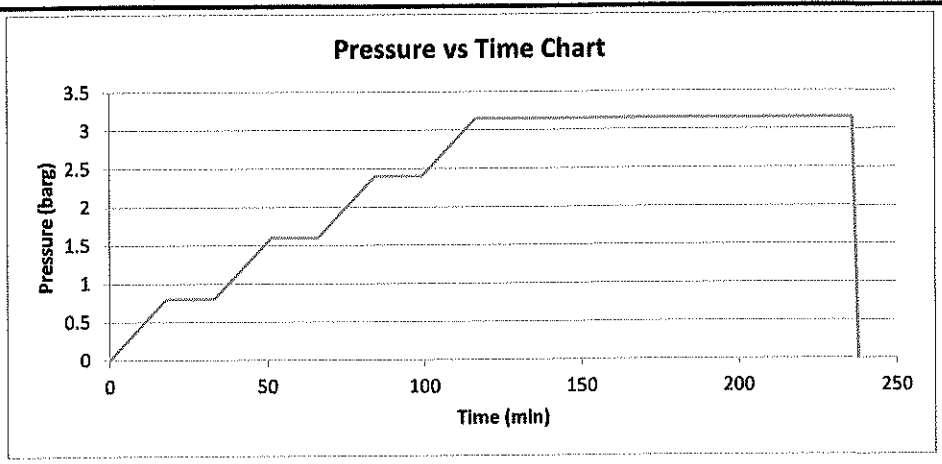
Pressurization Time includes incremental hold periods.

Testing Time includes hold period at final test pressure plus time to check all potential leak sources.

Depressurization Time is time taken to reduce system press. to atmospheric / residual pressure after testing.

Total Test Time = Pressurization Time + Leak Testing Time + Depressurization Time.

Time taken to rig up / rig down equipment and prepare the system for test is excluded.



NOTES

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Gas PRV Calculation - Verification

Calculation Summary	
Calculation Title	PRV TP-001
Calculation Purpose	Verification PRV
Standard Used	ASME BPVC XIII / ISO-4126-7
Date	27-Jan-2025

Fluid Properties	
Phase	Gas
Fluid Type	Nitrogen
Relieving Temperature	15.0 C
Molecular Weight	28.0
Specific Heat Ratio (γ)	1.40
Compressibility Factor	1.00

Pressures	
Set Pressure	3.3 barg
Set Pressure Tolerance (+/- %)	3.0 %
Minimum Opening Pressure	3.2 barg
Maximum Opening Pressure	3.4 barg
Overpressure Allowance (%)	10.0 %
Relieving Pressure (fully open)	3.7 barg
Back Pressure	0.0 barg

PRV Parameters			
Make	Niedzgodka	Certified Discharge Coefficient	0.390
Model	Type 10	Actual Orifice Area	123.000 mm^2
		Calculated Flow Capacity	3.00 Nm^3/min

Notes

PRV Terminology	Definition
Set Pressure	The value of increasing inlet static pressure at which a pressure relief valve has opening pressure characteristics.
Set Pressure Tolerance	The variation (range) against the set pressure, certified by the valve manufacturer (usually expressed as plus / minus percenta
Opening Pressure	The value of increasing static pressure at which there is a measurable lift, or at which the fluid discharge becomes continuous
Overpressure Allowance	A pressure increase over the set pressure (usually expressed as a percentage) at which the PRV is fully open.
Relieving Pressure (fully open)	Set pressure plus overpressure, representing the value at which a valve is fully open.
Back Pressure	The static pressure existing at the outlet of a pressure relief device due to pressure in the discharge system.
Certified Discharge Coefficient	The ratio of the measured flow (relieving) capacity to the certified flow (relieving) capacity.
Actual Discharge Area	A certified area of flow used with the certified discharge coefficient to calculate minimum flow (relieving) capacity.
Calculated Flow Capacity	The calculated relieving capacity at the fully open condition, using Certified Discharge Coefficient and Actual Discharge Area.

Version 2022.12.06

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Appendix B

PPS Test Equipment

Customer Name:	Rosetti Marino
Project Name:	Leak Testing Services for Base Load Power Hub Project
Test Pack Number:	TP 001
Test Pack Name:	H2 Vent System

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Test Pressure: 10 barg Hold Period: 5 mins	Stage 1: Hose Test Initial Alignment Verified		PPS Rep.		Customer Rep.	

KEY

- Ball valve
- Needle valve
- Globe valve
- Check valve
- Pressure relief valve

INSTRUMENTATION

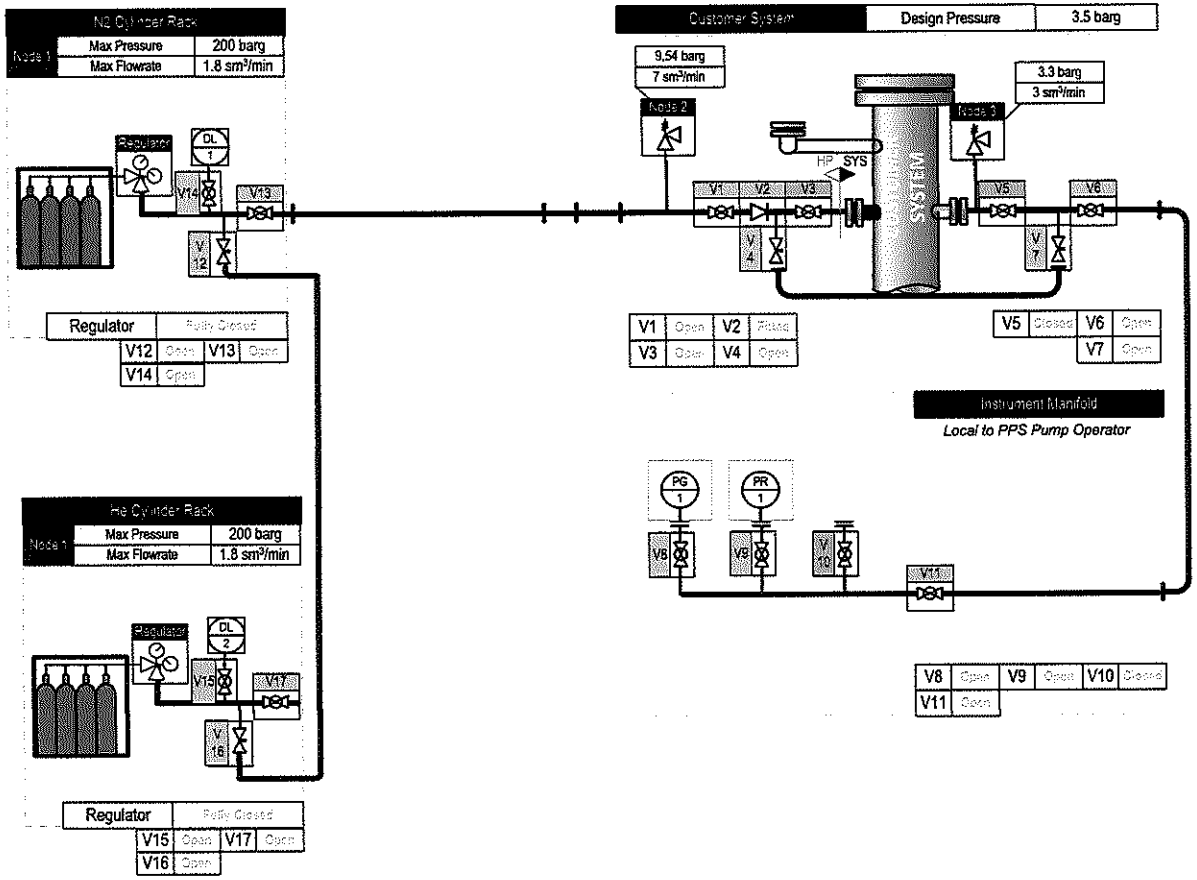
		X	Y
XY #	P	Pressure	-
	F	Flow	-
	T	Temperature	Transmitter
XT #	G	-	Gauge
	R	-	Recorder

Minimum Pressure Rating
Hoses, Valves, Fittings
HP 700 barg

Instrumentation
DL 1 Gas Cylinder Rack
DL 2 Gas Cylinder Rack
PG 2 Instrument Manifold
PR 1 Instrument Manifold

OVER PRESSURE PROTECTION
Node 2 – Function Test.
As per minimum test pressure

Node 3 – Customer System
PRV Customer System



Revision	Rev. Date	Description	Drawn	Checked	Approved
A	27-01-2025	Initial release	M.Bejinaru	M.Ienco	H.Amara

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Leak Test TP-01 – Hose Test Drawing

Scale	Drawn by	Date	Checked by	Date
NTS	M.Bejinaru	27-01-2025	M.Ienco	27-01-2025

Third Angle Projection

Drawing No.:	Page No.	Rev:
PMCE453947M1 TP01-DWG-001	1 of 2	A

Test Pressure: 3.15 barg Hold Period: 30 mins	Stage 2: Operation Initial Alignment Verified	PPS Rep.	Customer Rep.

KEY

- Ball valve
- Needle valve
- Globe valve
- Check valve
- Pressure relief valve

INSTRUMENTATION

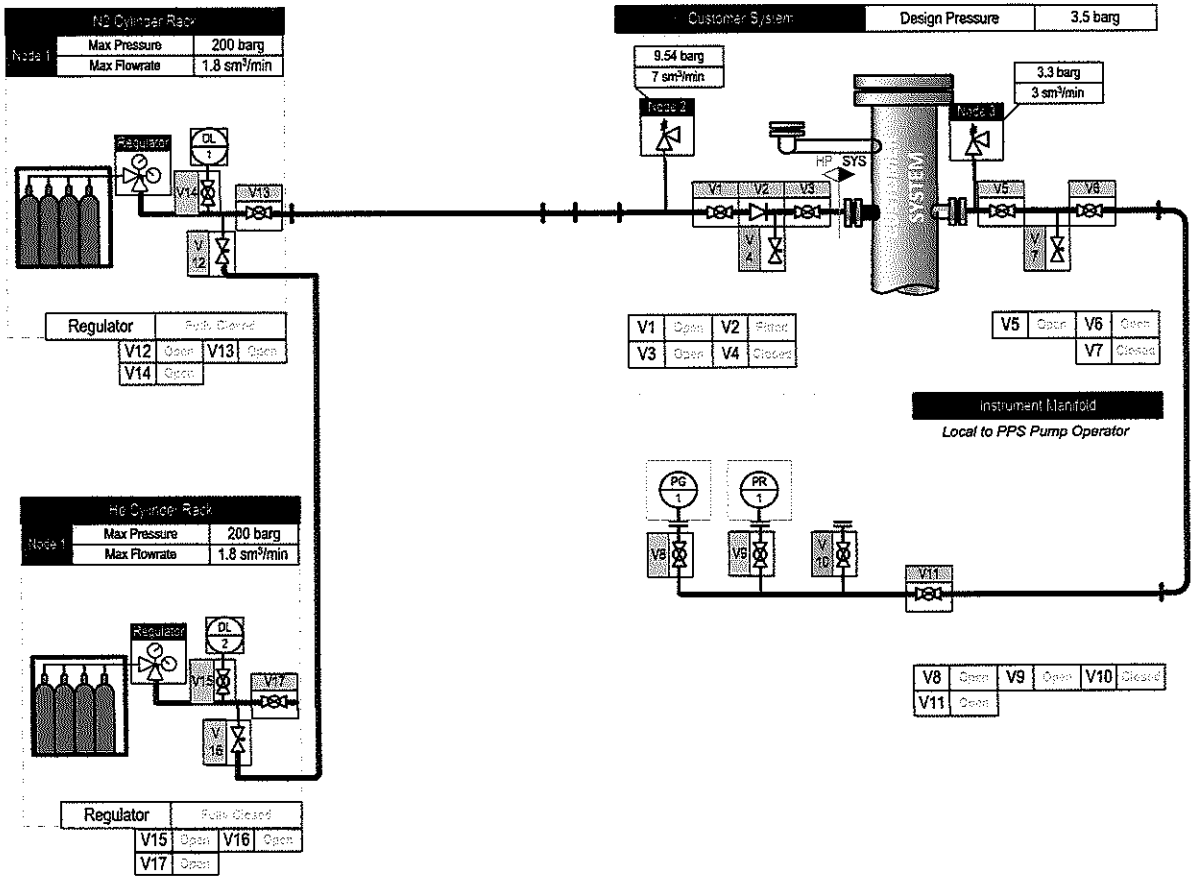
		X	Y
XY #	P	Pressure	-
	F	Flow	-
	T	Temperature	Transmitter
XT #	G	-	Gauge
	R	-	Recorder

Minimum Pressure Rating
Hoses, Valves, Fittings
HP 700 barg

Instrumentation
DL 1 Gas Cylinder Rack
DL 2 Gas Cylinder Rack
PG 1 Instrument Manifold
PR 1 Instrument Manifold

OVER PRESSURE PROTECTION
Node 2 – Function Test.
As per minimum test pressure

Node 3 – Customer System
PRV Customer System



Revision	Rev. Date	Description	Drawn	Checked	Approved
A	27-01-2025	Initial release	M.Bejinaru	M.Ienco	H.Amara

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Leak Test TP-01 – Operation Drawing

Scale	Drawn by	Date	Checked by	Date
NTS	M.Bejinaru	27-01-2025	M.Ienco	27-01-2025

Third Angle Projection

Drawing No.: PMAF453947M1 TP01-DWG-001

Page No. 2 of 2

Rev: A

Appendix D

Restricted Access Zone

Marked Plot Plan / Deck Plan

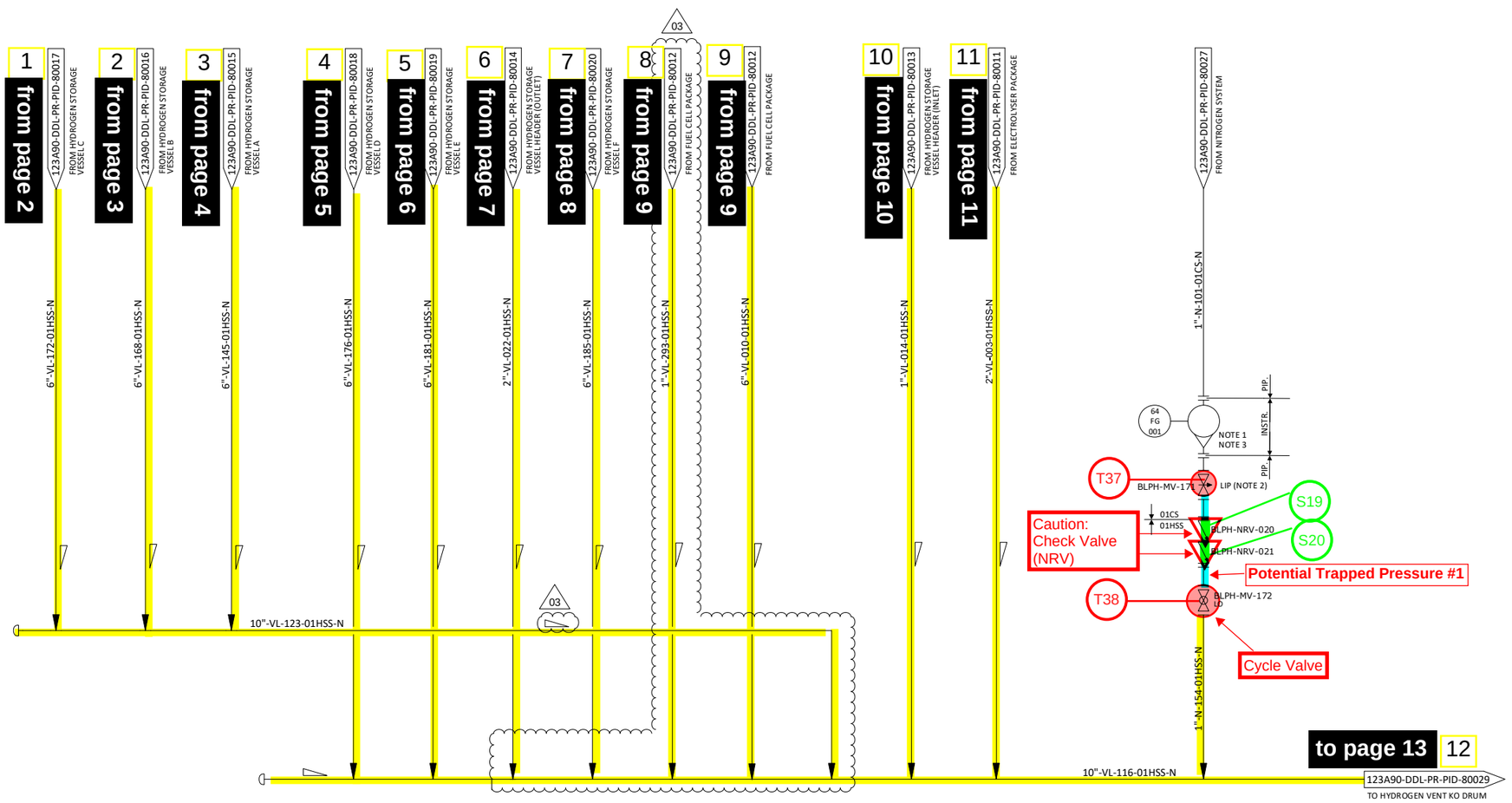
Customer Name:	Rosetti Marino
Project Name:	Leak Testing Services for Base Load Power Hub Project
Test Pack Number:	TP 001
Test Pack Name:	H2 Vent System

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DRAWING_NO. DRAWING_NO.

REV. REV



NOTES

1. FLOW METER 64-FG-001 SHALL BE READABLE FROM MANUAL VALVE MV-171.
2. VALVE BLPH-MV-171 TO BE LOCKED IN PLACE.
3. VERTICAL INSTALLATION.

HOLDS

1. DELETED.
2. DELETED.

Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN VENT HEADER

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80028	SHEET 001	REV. 03

File Name : FILE_NAME

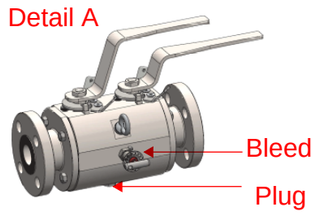
DRAWING NO. DRAWING_NO.

REV. REV

V-25001_C

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



Open Bleed and remove plug on DBB (see Detail A)

to page 1 1

6"-VL-172-01HSS-N → 123A90-DDL-PR-PID-80028 TO HYDROGEN VENT HEADER

4"-VL-112-01HSS-N

1-1/2"-HY-170-03HSS-N

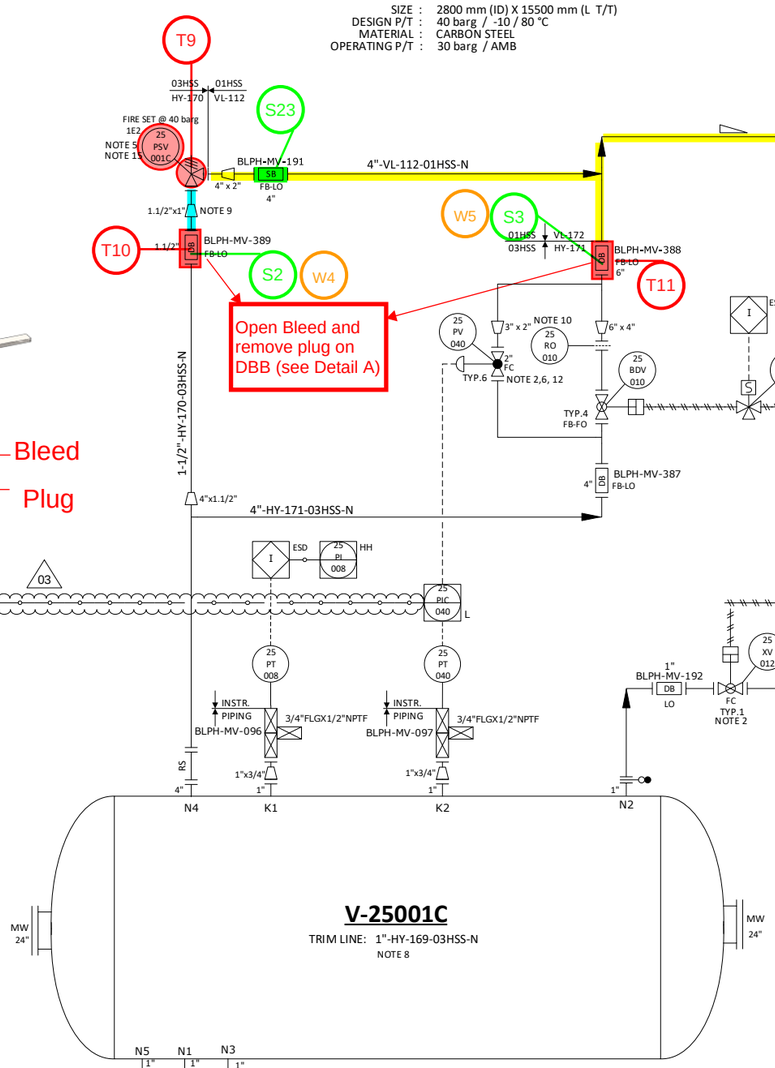
4"-HY-171-03HSS-N

1"-N-125-03HSS-N ← 123A90-DDL-PR-PID-80027 FROM NITROGEN SYSTEM

1"-HY-017-03HSS-N ← 123A90-DDL-PR-PID-80013 FROM HYDROGEN STORAGE VESSELS HEADER (INLET)

1"-HY-133-03HSS-N → 123A90-DDL-PR-PID-80014 TO HYDROGEN STORAGE VESSELS HEADER (OUTLET)

1"-HY-187-03HSS-N



Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-033) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE. (03)
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-040 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-040 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. (03)
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-033 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-040 HAS FAILED TO CLOSE.
15. 25-PS-V001C SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL C

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80017		SHEET 001	REV. 03

File Name : FILE_NAME

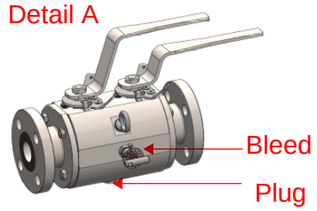
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REV. REV

V-25001 B

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-032) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE. (03)
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT "DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-037 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC."PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-037 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. (03)
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-032 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-037 HAS FAILED TO CLOSE.
15. 25-PSV-001B SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL B

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80016	SHEET 001	REV. 03

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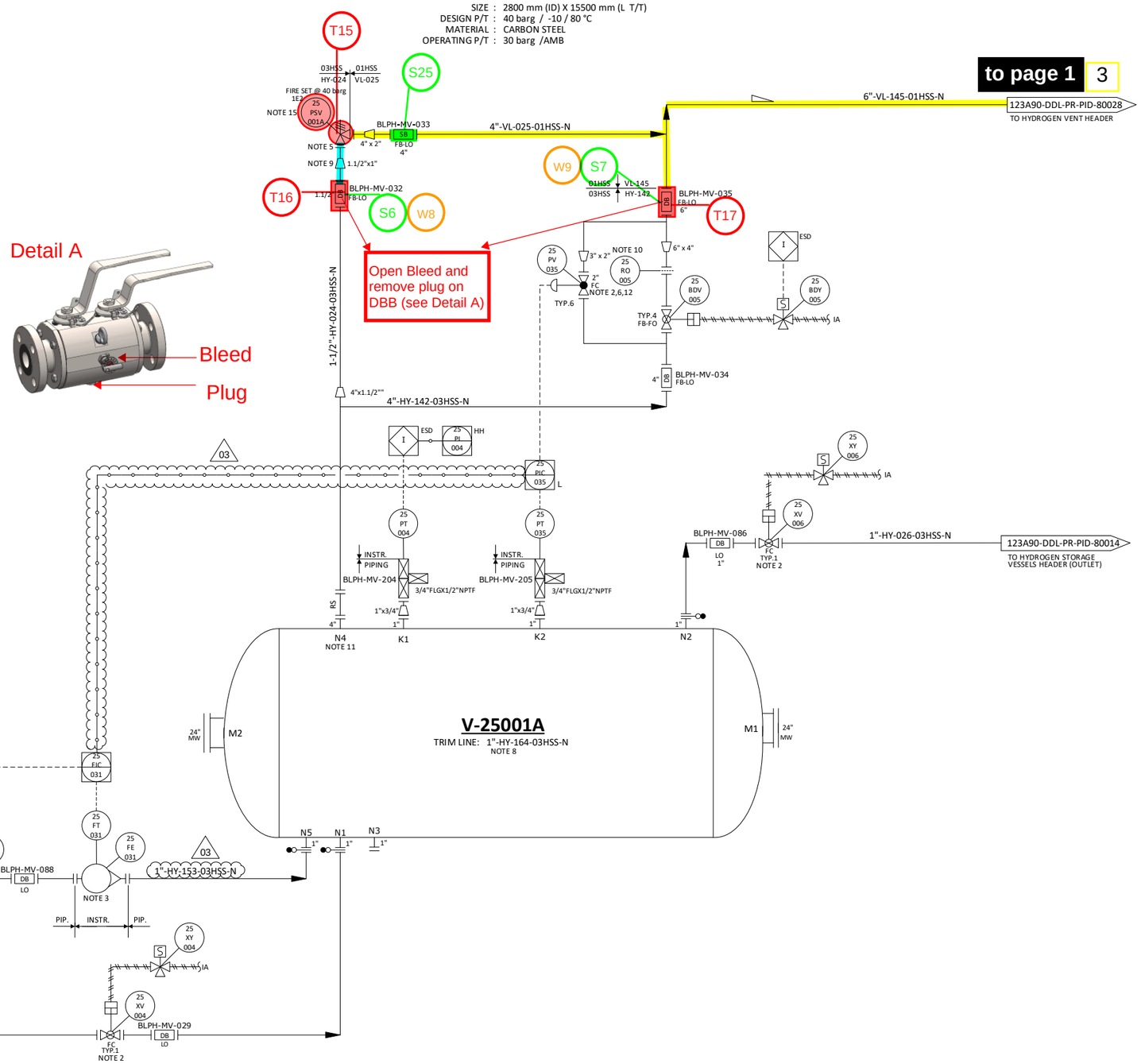
DRAWING NO. DRAWING_NO.

REV. REV

V-25001 A

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg /AMB



Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-031) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE. 03
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT "DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-035 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-035 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-031 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-035 HAS FAILED TO CLOSE.
15. 25-PSV-001A SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL A

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
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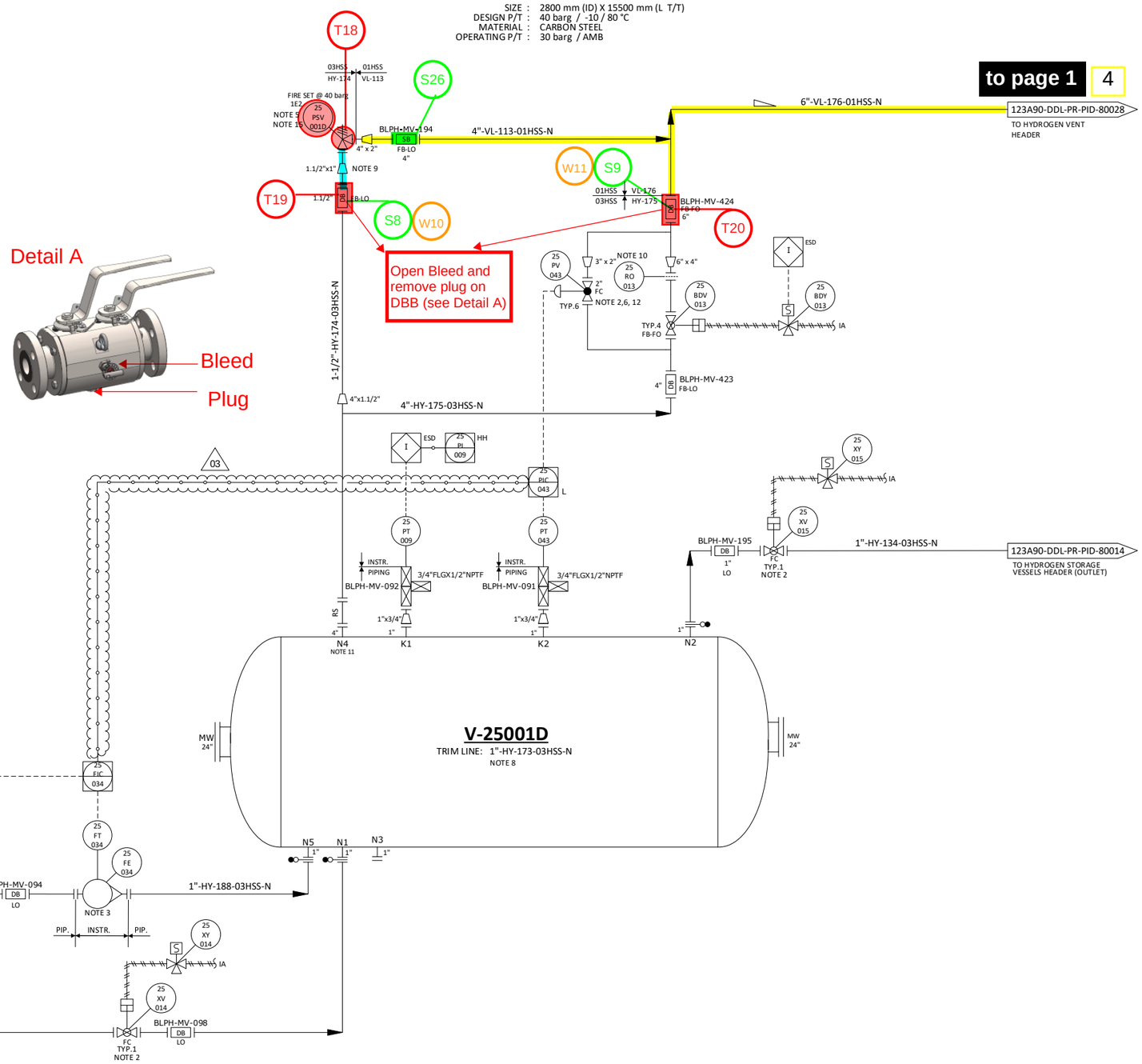
DRAWING NO. DRAWING_NO.

REV. REV

V-25001_D

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS. 03
4. NITROGEN CONTROL VALVE (25-FV-034) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-043 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-043 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-034 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-043 HAS FAILED TO CLOSE.
15. 25-PSV-001D SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL D

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
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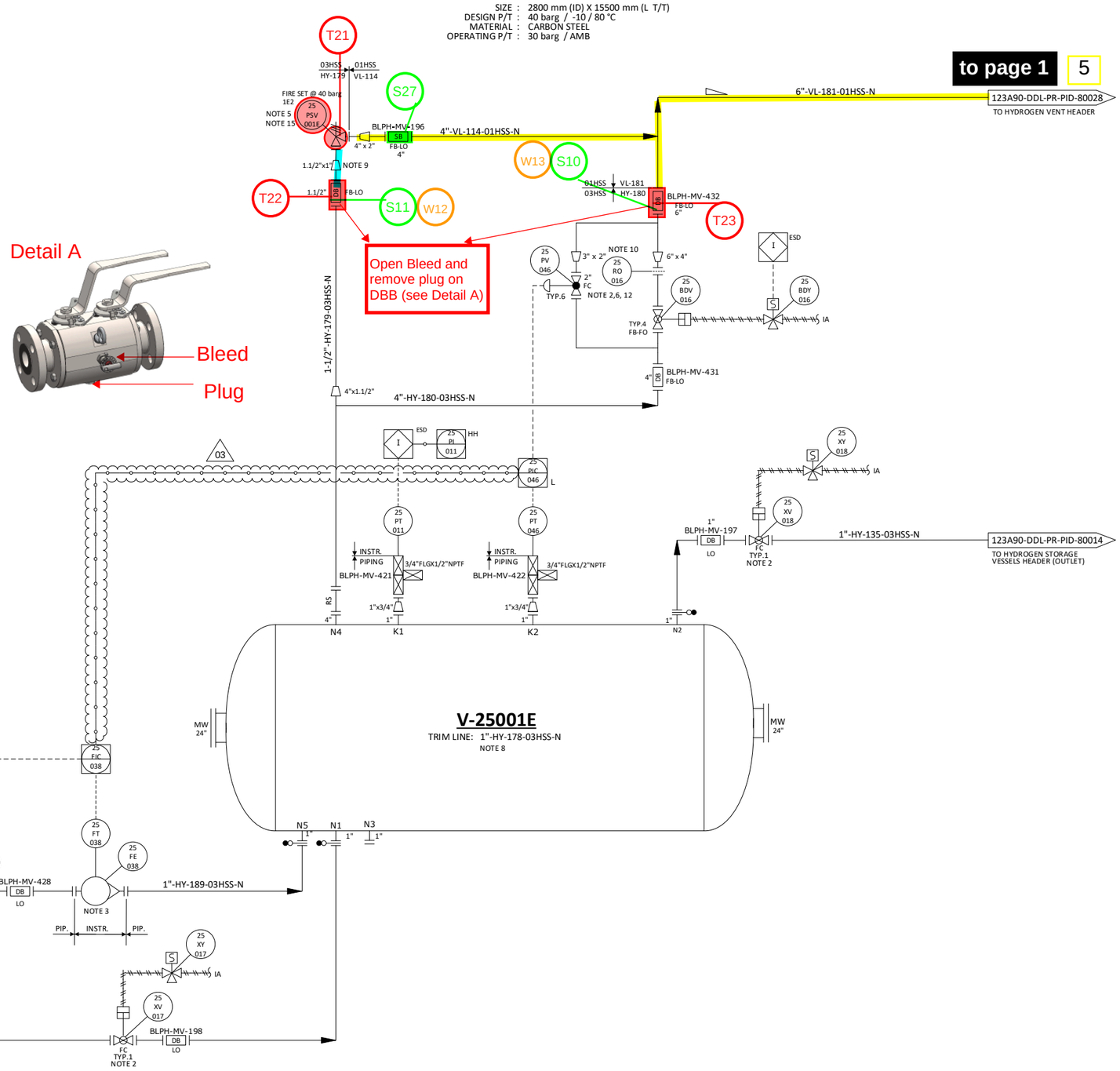
DRAWING NO. DRAWING_NO.

REV. REV

V-25001_E

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



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NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-038) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE. 03
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-046 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-046 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25-FV-038 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-046 HAS FAILED TO CLOSE.
15. 25-PSV-001E SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL E

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80019		SHEET 001 / REV. 03

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

to page 1 6

123A90-DDL-PR-PID-80017
FROM HYDROGEN STORAGE VESSEL C
1"-HY-133-03HSS-N

123A90-DDL-PR-PID-80016
FROM HYDROGEN STORAGE VESSEL B
1"-HY-132-03HSS-N

123A90-DDL-PR-PID-80015
FROM HYDROGEN STORAGE VESSEL A
1"-HY-026-03HSS-N

123A90-DDL-PR-PID-80020
FROM HYDROGEN STORAGE VESSEL F
1"-HY-136-03HSS-N

123A90-DDL-PR-PID-80019
FROM HYDROGEN STORAGE VESSEL E
1"-HY-135-03HSS-N

123A90-DDL-PR-PID-80018
FROM HYDROGEN STORAGE VESSEL D
1"-HY-134-03HSS-N

1-1/2"-HY-148-03HSS-N

2"-VL-022-01HSS-N

123A90-DDL-PR-PID-80028
TO HYDROGEN VENT HEADER

01HSS
03HSS
VL-022
HY-144
2"
DB
BLPH-MV-019
FB-LO

T24 S12 W14

Open Bleed and remove plug on DBB (see Detail A)

NOTE 4
25 RO 022
2" x 1"
25 BDV 022
ESD
25 BDY 022
TYP 4 FB-FO
IA

1" DB BLPH-MV-018 FB-LO

1"-HY-144-03HSS-N

ESD
25 SDY 023
IA
25 SDV 023
FC TYP 2 NOTE 6

1-1/2"-HY-148-03HSS-N

03HSS 01HSS
3/4"
BLPH-MV-024
2"x1.1/2"
25 PV 055A
FC TYP 6 1.1/2" NOTE 5, 1

25 PIC 055A H L
25 XC 055 NOTE 3 03
25 PT 055A
INSTR. PIPING
BLPH-MV-025 3/4" FLG x 1/2" NPTF
2"-HY-023-01HSS-N

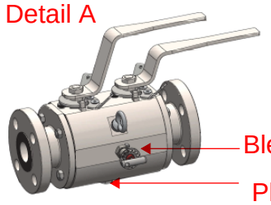
123A90-DDL-PR-PID-80012
TO FUEL CELL PACKAGE

25 PIC 055B H L
25 PT 055B
03HSS 01HSS
3/4"
BLPH-MV-028
25 PV 055B
FC TYP 6 NOTE 5, 1
2"x1.1/2"
03
BLPH-MV-213 3/4" FLG x 1/2" NPTF
INSTR. PIPING

1-1/2"-HY-148-03HSS-N

DB BLPH-MV-468 1.1/2"
NOTE 8

Detail A



NOTES

1. TIGHT SHUT-OFF VALVE.
2. DELETED.
3. CONTROL VALVES 25-PV-055A/B WORK IN SPLIT RANGE:
   - FOR LOW OPERATING CV (UP TO 0.31) VALVE "B" IS USED
   - FOR HIGH OPERATING CV (FROM 0.31) VALVE "A" IS USED
4. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
5. SOFTWARE INTERLOCK PREVENTS OPENING OF THE CONTROL VALVES 25-PV-055A/B IN CASE FUEL CELL PACKAGE (A-80000) IS NOT READY TO START. 03
6. SDV VALVE 25-SDV-023 TO BE INSTALLED AS CLOSE AS POSSIBLE TO THE CONTROL VALVES 25-PV-055A/B. 03
7. DELETED. 03
8. TO BE USED DURING COMMISSIONING PHASE.

HOLDS

1. DELETED.
2. DELETED. 03

Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSELS HEADER (OUTLET)

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80014	SHEET 001	REV. 03

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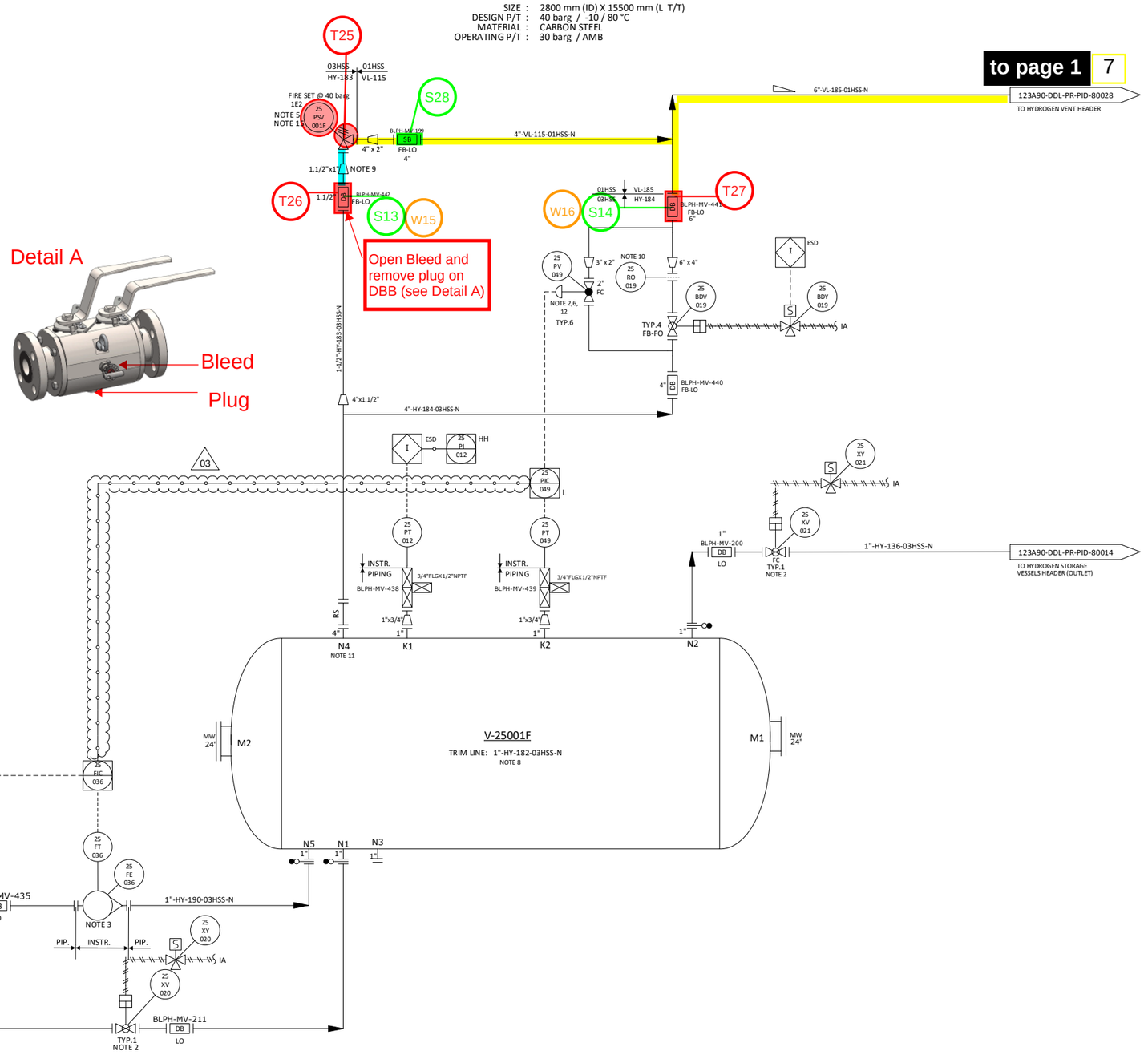
DRAWING NO. DRAWING_NO.

REV. REV

V-25001_F

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



NOTES

1. DELETED.
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS. 03
4. NITROGEN CONTROL VALVE (25-FV-036) CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25-PV-049 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION AND PROCESS START-UP CHARGING MODE (SEE DOC. "PROCESS CONTROL LOGICS DESCRIPTION" N. 123A90-DDL-IN-RE-40095). CONTROL VALVE 25-PV-049 IS USED ONLY IN CASE OF VESSEL PURGING OR PROCESS START-UP CHARGING MODES. 03
13. SOFTWARE INTERLOCK TO PREVENT 25FV036 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25-PV-049 HAS FAILED TO CLOSE.
15. 25-PSV-001F SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.
4. DELETED.

Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR HAZOP (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

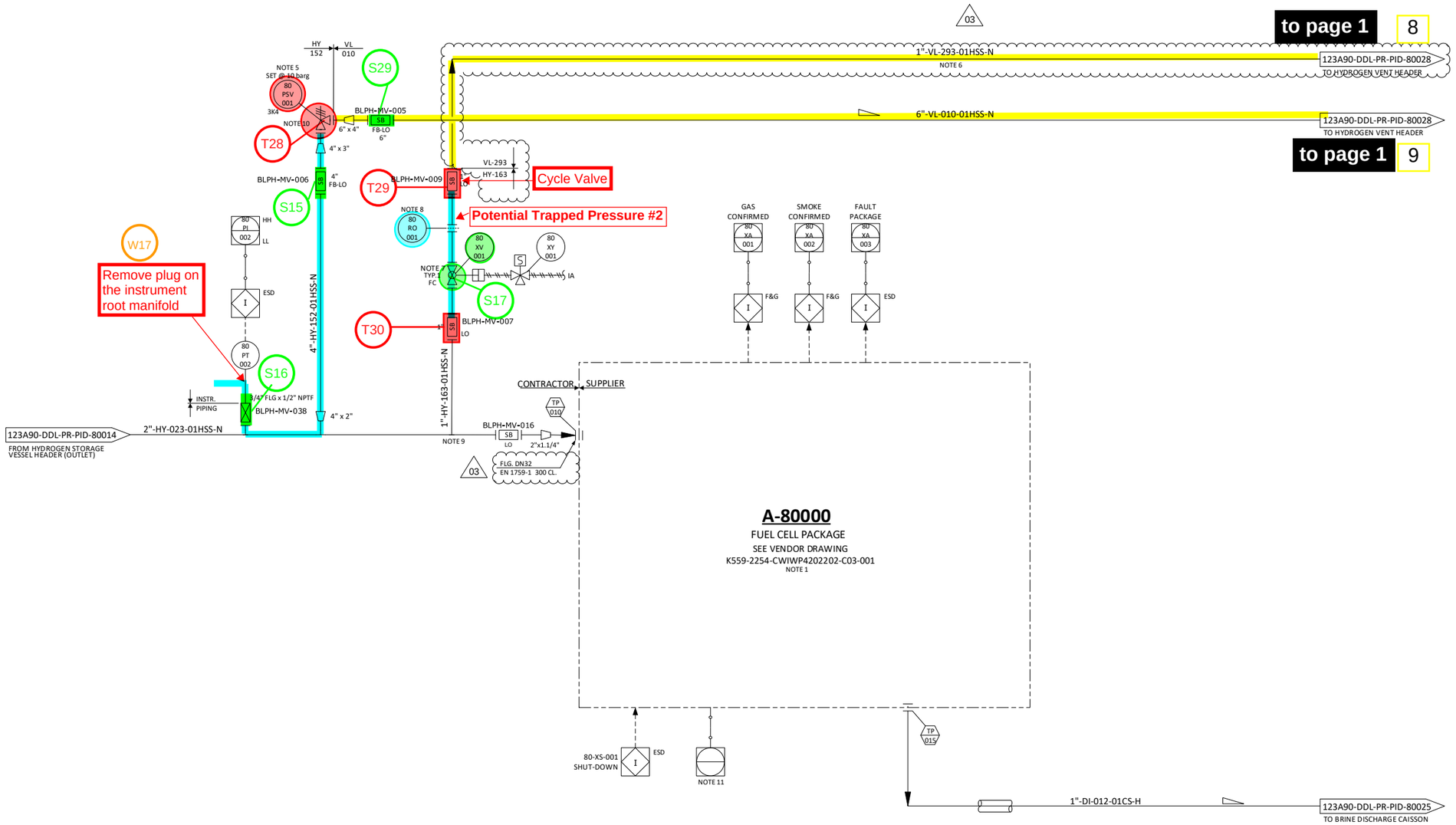
TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL F

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80020	SHEET 001	REV. 03

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



NOTES

1. THE VENDOR PACKAGE WILL CONTAIN AIR INTAKE AND EXHAUST, SUITABLY SAFEGUARDED AND SEPARATED.
2. DELETED.
3. DELETED.
4. DELETED
5. ONE UNINSTALLED SPARE PSV SHALL BE AVAILABLE.
6. LINE REQUIRED FOR PURGING OF PIPING WORK.
7. TIGHT SHUT-OFF VALVE.
8. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
9. LINE 1"-HY-163-01HSS-N WILL BE LOCATED AS CLOSE TO THE PACKAGE AS POSSIBLE TO ENSURE COMPLETE PURGING OF THE LINE.
10. 80-PSV-001 SIZED FOR CV FAILURE OF UPSTREAM CONTROL VALVE 25-PV-055A/B.
11. SERIAL COMMUNICATION WITH CONTROL SYSTEM.

HOLDS

1. DELETED.
2. DELETED.

Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
FUEL CELL PACKAGE

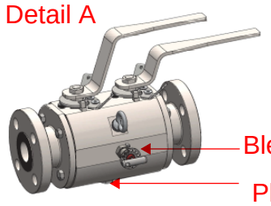
CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80012	SHEET 001	REV. 03

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

Detail A



Open Bleed and remove plug on DBB (see Detail A)

to page 1 10

1"-VL-014-01HSS-N → 123A90-DDL-PR-PID-80028 TO HYDROGEN VENT HEADER

01HSS VL-014
03HSS HY-143

1" DB BLPH-MV-212 FB-LO

W18 S18 T36

NOTE 3
25 RO 024

25 XV 024

TYP.1 FB-FC

NOTE 1

25 XY 024 S IA

1" DB BLPH-MV-010 FB-LO

1"-HY-143-03HSS-N

N-SSHE0-007-H-1"

25 PI 002 HH

ESD I

25 PT 002

INSTR. PIPING

BLPH-MV-013
3/4" FLG x 1/2" NPTF

NOTE 4

1"-HY-015-03HSS-N → 123A90-DDL-PR-PID-80015 TO HYDROGEN STORAGE VESSEL A

1"-HY-016-03HSS-N → 123A90-DDL-PR-PID-80016 TO HYDROGEN STORAGE VESSEL B

1"-HY-017-03HSS-N → 123A90-DDL-PR-PID-80017 TO HYDROGEN STORAGE VESSEL C

1"-HY-020-03HSS-N → 123A90-DDL-PR-PID-80020 TO HYDROGEN STORAGE VESSEL F

02

1"-HY-019-03HSS-N → 123A90-DDL-PR-PID-80019 TO HYDROGEN STORAGE VESSEL E

1"-HY-018-03HSS-N → 123A90-DDL-PR-PID-80018 TO HYDROGEN STORAGE VESSEL D

02

ESD I

25 SDY 001 S IA

25 SDV 001

123A90-DDL-PR-PID-80011 FROM ELECTROLYSER PACKAGE

1"-HY-007-03HSS-N

FC TYP.2

02

BLPH-MV-014
3/4" FLG x 1/2" NPTF

PIPING INSTR.

25 PT 001

25 PI 001 H

123A90-DDL-PR-PID-80011 TO ELECTROLYSER PACKAGE

NOTES

1. TIGHT SHUT OFF XV.
2. DELETED 02
3. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
4. PIPING CONNECTION TO 25-XV-003 SHALL BE AS CLOSE TO THE MANIFOLD AS POSSIBLE, TO ENSURE COMPLETE PURGING OF FEED LINE.

HOLDS

1. DELETED.

Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSELS HEADER (INLET)

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80013	SHEET 001	REV. 02

File Name : FILE_NAME

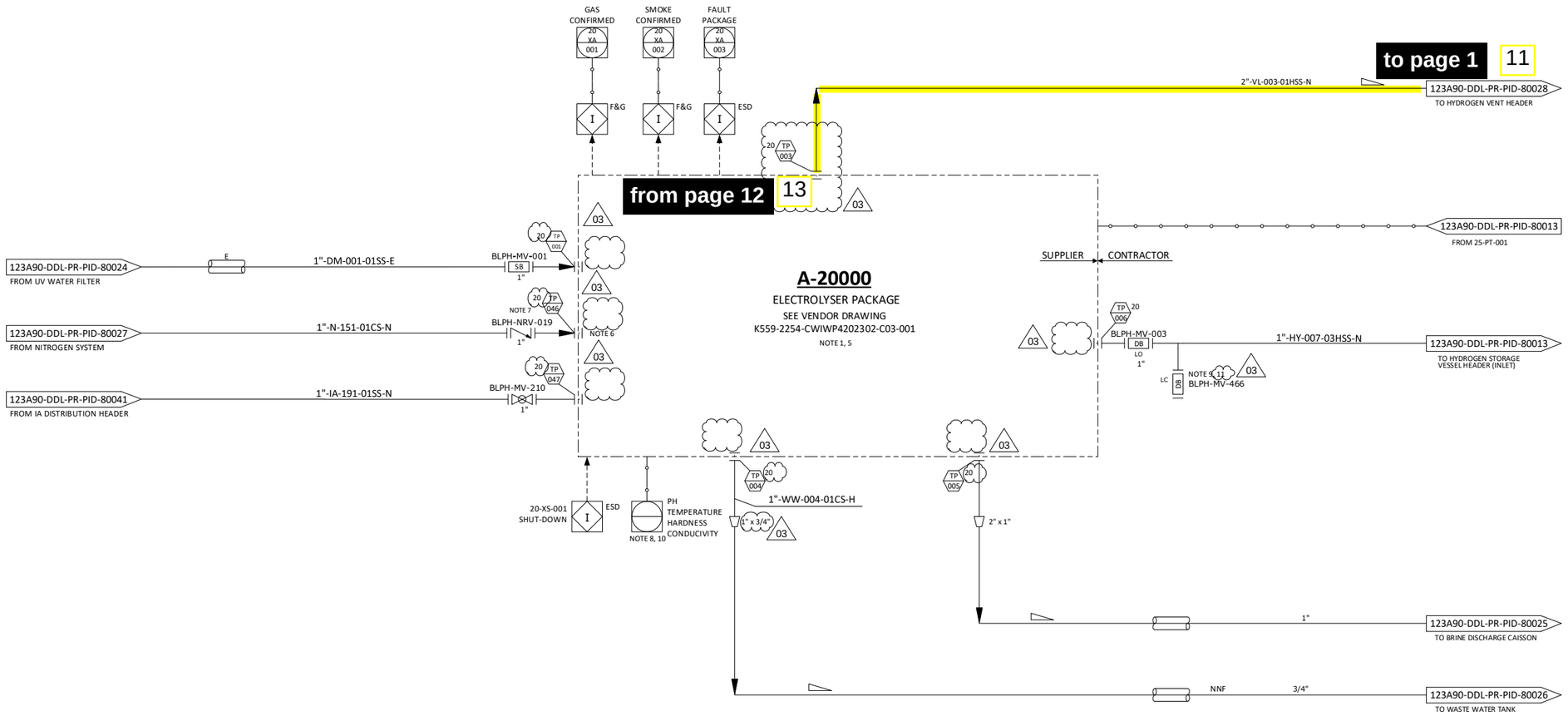
DRAWING NO. DRAWING_NO.

REV. REV

A-20000

ELECTROLYSER PACKAGE

DUTY: 2.5MW
DESIGN PRESSURE: 40 barg
DESIGN TEMPERATURE: 80 °C
H2 GENERATING CAPACITY: 500 Nm³/h



NOTES

1. PACKAGE SUPPLIED WITH POWER FROM THE BLPH ELECTRICAL SYSTEM.
2. DELETED.
3. DELETED.
4. DELETED.
5. ELECTROLYSER PACKAGE INCLUDES AN OXYGEN VENT LINE WHICH IS IN THE SCOPE OF SUPPLY OF THE ELECTROLYSER PACKAGE UP TO THE ATMOSPHERE. NO PHYSICAL INTERFACE IS PRESENT BETWEEN ELECTROLYSER PACKAGE AND CONTRACTOR ON THIS LINE.
6. AN ISOLATION VALVE DOWNSTREAM THE CHECK VALVE NRV-019 IS PROVIDED WITHIN THE PACKAGE A-20000.
7. CHECK VALVE NRV-019 TO BE INSTALLED AS CLOSE AS POSSIBLE TO THE ELECTROLYSER PACKAGE A-20000.
8. SERIAL COMMUNICATION WITH CONTROL SYSTEM.
9. NITROGEN PURGING CONNECTION TO BE LOCATED AS CLOSE AS POSSIBLE TO MANUAL VALVE BLPH-MV-003.
10. PH, TEMPERATURE, HARDNESS AND CONDUCTIVITY SHALL BE SENT FROM CONTROL SYSTEM TO ELECTROLISER UCP IN ADDITION TO THE OTHER SOFTWARE SIGNALS. 03
11. MANUAL VALVE BLPH-MV-466 TO BE CONNECTED WITH MANUAL VALVE BLPH-MV-275 (INSTALLED ON NITROGEN GENERATION PACKAGE EXIT LINE) BY MEAN ON A FLEXIBLE HOSE DURING COMMISSIONING PHASE FOR PURGING OPERATION.

HOLDS

Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
ELECTROLYSER PACKAGE

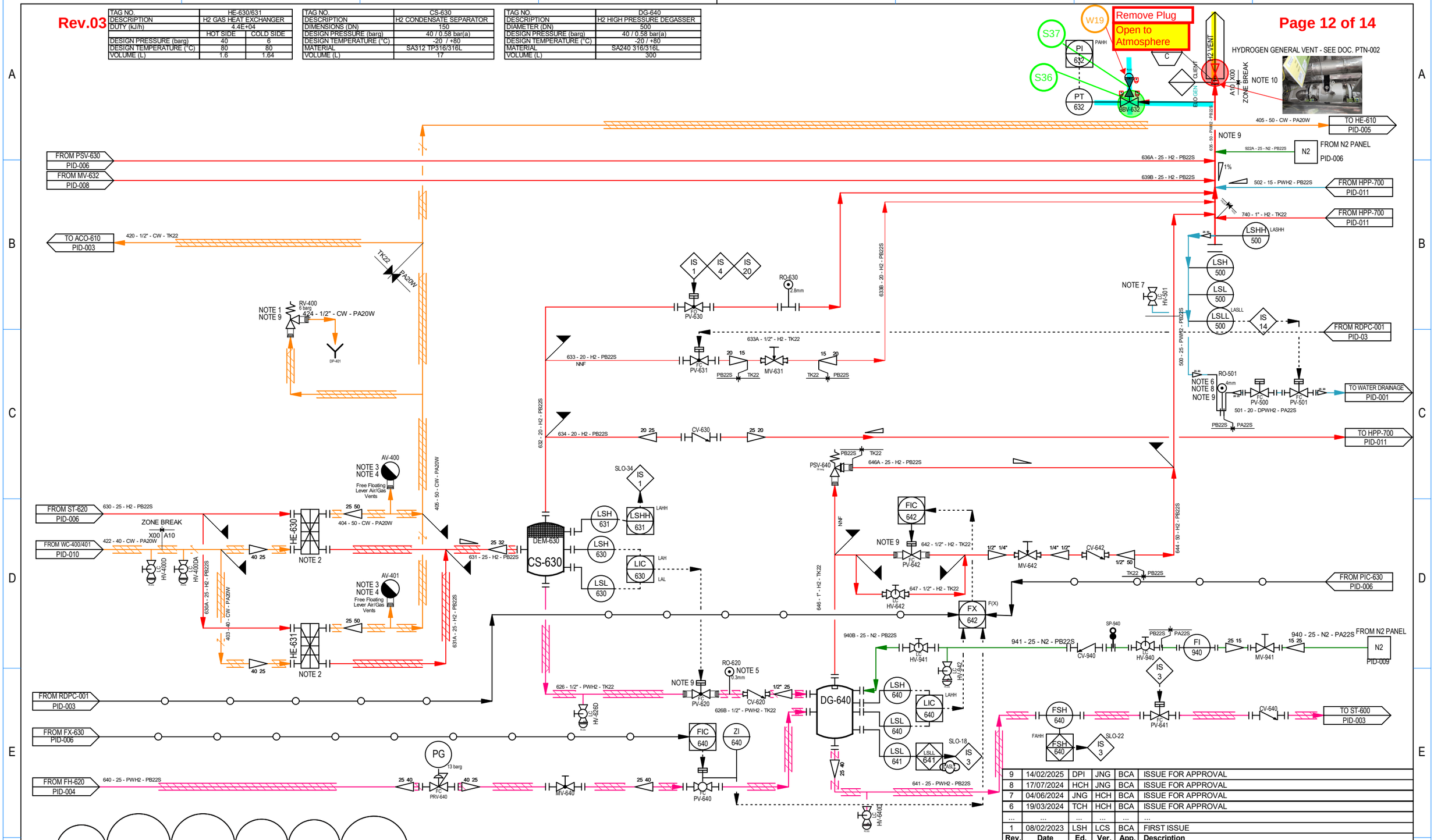
CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80011	SHEET 001	REV. 03

File Name : FILE_NAME

TAG NO.	HE-630/631	
DESCRIPTION	H2 GAS HEAT EXCHANGER	
DUTY (KJ/h)	4.4E+04	
	HOT SIDE	COLD SIDE
DESIGN PRESSURE (barg)	40	6
DESIGN TEMPERATURE (°C)	80	80
VOLUME (L)	1.6	1.64

TAG NO.	CS-630
DESCRIPTION	H2 CONDENSATE SEPARATOR
DIMENSIONS (DN)	150
DESIGN PRESSURE (barg)	40 / 0.58 bar(a)
DESIGN TEMPERATURE (°C)	-20 / +80
MATERIAL	SA312 TP316/316L
VOLUME (L)	17

TAG NO.	DG-640
DESCRIPTION	H2 HIGH PRESSURE DEGASSER
DIAMETER (DN)	500
DESIGN PRESSURE (barg)	40 / 0.58 bar(a)
DESIGN TEMPERATURE (°C)	-20 / +80
MATERIAL	SA240 316/316L
VOLUME (L)	300



Rev.	Date	Ed.	Ver.	App.	Description
9	14/02/2025	DPI	JNG	BCA	ISSUE FOR APPROVAL
8	17/07/2024	HCH	JNG	BCA	ISSUE FOR APPROVAL
7	04/06/2024	JNG	HCH	BCA	ISSUE FOR APPROVAL
6	19/03/2024	TCH	HCH	BCA	ISSUE FOR APPROVAL
...	...	...	...	...	...
1	08/02/2023	LSH	LCS	BCA	FIRST ISSUE

NOTES:
NOTE 1 : TO CONTAINER DRIP PAN
NOTE 2 : COUNTER-CURRENT INSTALLATION
NOTE 3 : CLOSEST TO AHD
NOTE 4 : HIGHEST POINT
NOTE 5 : DESIGNED FOR PV-642 & MV-642 SETTING
NOTE 6 : AWAITING 3D DEFINITION
NOTE 7 : USED FOR FILLING DURING START-UP
NOTE 8 : HYDRAULIC GUARD HEIGHT = 600MM. LSLL AND LSL DISTANCE = 200MM. LSL AND LSH DISTANCE = 400MM.
NOTE 9 : SEE PTN-002 FOR ALL THE CONNECTION LOCATION ON HYDROGEN VENT.
NOTE 10 : FOR ATEX PURPOSE, ROSETTI VALVE MV-002 WAS ADDED BEFORE TIE-IN POINT C AND INSIDE THE A10 CONTAINER.

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Responsible dept.	Technical reference	Created by	Checked by	Approved by	Scale
PROCESS	C63-PID-001-007	DPI	JNG	BCA	1:1

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Client:

Document type	Document status
P&ID	DETAILED DESIGN

Title, Supplementary title: H2 CONDENSATE SEPARATION AND PURE WATER BALANCING LOOP

Client reference: -

Rev.	Date of issue	Lang.	Page
9	14/02/2025	EN	7/16

DRAWING NO. DRAWING_NO.

REV. REV

V-43001

HYDROGEN VENT KO DRUM
SIZE : 600 mm (ID) x 2350 mm (H)
DESIGN P/T : 3.5 barg / -10 / 80°C
MATERIAL : LTCS + 1 mm CA

Q-43004

HYDROGEN VENT NOTE 1
SIZE : 254 mm (ID)
DESIGN P/T : 3.5 barg / -10 / 80°C
MATERIAL : LTCS + 3 mm CA



Remove Spool

Remove Spool W3 T8

Install 12" Blind RF 150#

Depressurisation Point #1

T2

LIQUID REFILLING

NOTE 8

1"-WW-216-01CS-N

03

BLPH-MV-419

10"-VL-117-01HSS-N

43 FT 001

43 FE 001

43 FI 001 H

10 Dmin STRAIGHT LENGHT

3 Dmin STRAIGHT LENGHT

NOTE 7, 9

1"-AV-294-01CS-N

AV 294
WW 202

HANDHOLE

NOTE 6

Disconnect Spool

Install 1" Test Blind RF 150# tapped to 1/2" NPT

Injection Point #1

W1 T7

Pressure Monitoring Point #2

43 PI 001 H

43 PT 001

LOTO S1 OPEN

INSTR. PIPING

BLPH-MV-407
3/4" FLG x 1/2" NPTF

1"x3/4" CONC. RED.

10" N2

T4

H2 6"

03

K3

3" BLPH-MV-402

S30

12

123A90-DDL-PR-PID-80028
FROM HYDROGEN VENT HEADER

10"-VL-116-01HSS-N

10" N1

from page 1

V-43001

TRIM LINE: 3"-VL-220-01HSS-N

T5

H1 6"

NOTE 5

N3

PIPING INSTR.

S31

REDUCING FLANGE 1"x1/2" THRD-F-NPT

K1A

BLPH-MV-404

K1B

BLPH-MV-405

S32

43 LT 001

ESD

43 LI 001 H L

Q-43004

NOTE 2, 15

TRIM LINE: 1"-VL-261-01HSS-E
NOTE 3, 5

S33

REDUCING FLANGE 1"x1/2" THRD-F-NPT

BLPH-MV-462

BLPH-MV-463

43 LT 003

43 LI 003 L

REDUCING FLANGE 1"x1/2" THRD-F-NPT

S34

PIPING INSTR.

N4 N1 N2 N3

NOTE 11
NOTE 14

See Detail A

BLPH-MV-417

BLPH-MV-418

1"-WW-260-01CS-E

LOTO S22 OPEN

LOTO S35 OPEN

NNF 1"-WW-264-01CS-H

123A90-DDL-PR-PID-80026
TO WASTE WATER TANK T-55001

Disconnect Spool

Install 1" Test Blind RF 150# tapped to 1/2" NPT

T3 W2

Instrumentation and PRV Connection Point (Pressure Gauge & Chart Recorder and PRV)

Depressurization Point #2

T6

1"-WW-259-01CS-E

BLPH-MV-409

SB

1"-WW-071-01CS-H

NOTE 4

NNF

123A90-DDL-PR-PID-80025
TO BRINE DISCHARGE CAISSON

259 E 071 H

to page 15 1

Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

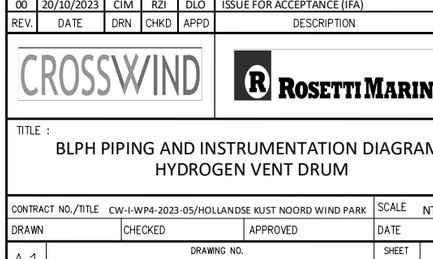
NOTES

1. VENT TO SAFE LOCATION SEGREGATED FROM OTHER VENTS.
2. VENT TO BE EQUIPPED WITH BIRD SCREEN.
3. LIQUID SEAL DRUM IS PART OF THE VENT SYSTEM.
4. LIQUID DRAIN LINES TO BE ROUTED TO ENSURE GRAVITY DRAIN.
5. HYDROGEN VENT KO DRUM AND LIQUID SEAL DRUM TO BE HEAT TRACING.
   - V-43001 HEAT TRACED FROM B.T.L. UP TO 600 mm, BOTTOM HEAD ALSO TO BE HEAT TRACED.
6. SEAL LEG WILL BE DETERMINATED ON THE MAXIMUM BACK PRESSURE IN THE VENT.
7. SEAL VENT TO BE PLACED INTO A SAFE POSITION.
8. FILLING LINE TO BE PLACED IN AN ACCESSIBLE POSITION.
9. TRACED FROM NOZZLE N3 UP TO SWAN NECK.
10. DELETED.
11. INLET DIP LEG SUBMERSION HEIGHT OF 0.6 m.
12. DELETED.
13. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 VENT KOD.
14. LIQUID INSIDE SEAL DRUM IS A WATER - GLYCOL MIXTURE WITH 50% VOLUME OF GLYCOL. 03
15. TOP OF TIP OF H2 VENT SHALL BE AT AS MINIMUM 6.2 m FROM HIGHEST REACHABLE PLATFORM.

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.

Detail A



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN VENT DRUM

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80029		SHEET 001	REV. 03

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

B-50014

BRINE DISCHARGE CAISSON
SIZE : 323 mm (ID) x 21808 mm (H)
MATERIAL : CARBON STEEL)

123A90-DDL-PR-PID-80022
FROM 50-TI-001

123A90-DDL-PR-PID-80027
FROM INSTRUMENT AIR PACKAGE
1"-WW-079-01CS-H

123A90-DDL-PR-PID-80012
FROM FUEL CELL PACKAGE
1"-DI-012-01CS-H

DM 005 | WW 073

123A90-DDL-PR-PID-80011
FROM ELECTROLYSER PACKAGE
1"-DM-005-01CS-H

123A90-DDL-PR-PID-80022
FROM WATER TREATMENT PACKAGE
1"-SWR-045-01CS-H

1-1/2"-WW-073-01CS-H

50 PI 014 H
50 PT 014
50 TDI 002 H
50 TI 002
50 PT 014
50 TT 002
50 TE 002
3/4" FLG x 1/2" NPTF BLPH-MV-411
INSTR. PIPING
E
3/4"
4"x1.1/2" ECC. RED.
1.1/2"
4"x1.1/2" ECC. RED.
50 XY 005
S
IA
04
50 XV 005
DECK HOOK-UP 005
FO TYP.1
BLPH-NRV-028
LC BLPH-MV-412

1 from page 14

123A90-DDL-PR-PID-80029
FROM HYDROGEN VENT KO DRUM
1"-WW-071-01CS-H NNF
1"-WW-071-01CS-H
DECK HOOK-UP 004

EL. +21.8 m

NOTE 2

B-50014
NOTE 1

ELEVATION
0.00m (L.A.T.)

NOTES

1. CAISSON IS OPEN TOPPED.
2. ALL LINES TO TERMINATE APPROXIMATLEY 21000 mm ABOVE SEAWATER LEVEL (LAT).

HOLDS

1. DELETED.

Test Pack Number: TP-001
Test Pack Name: H2 Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	11/10/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

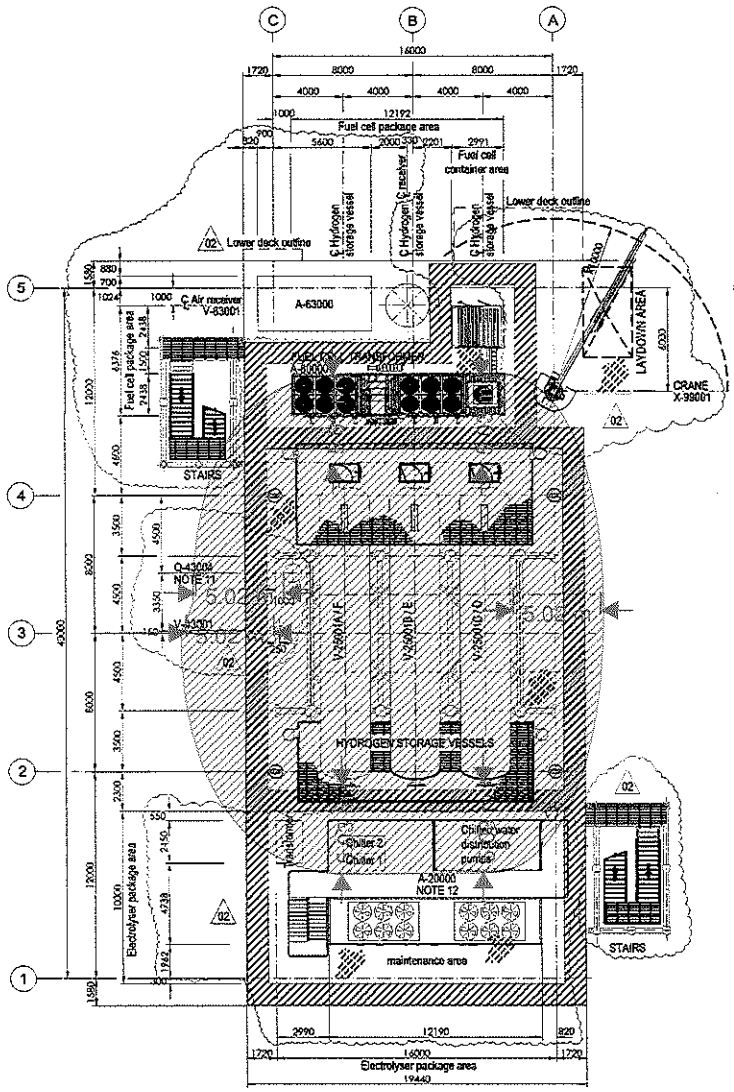
ROSETTI MARINO

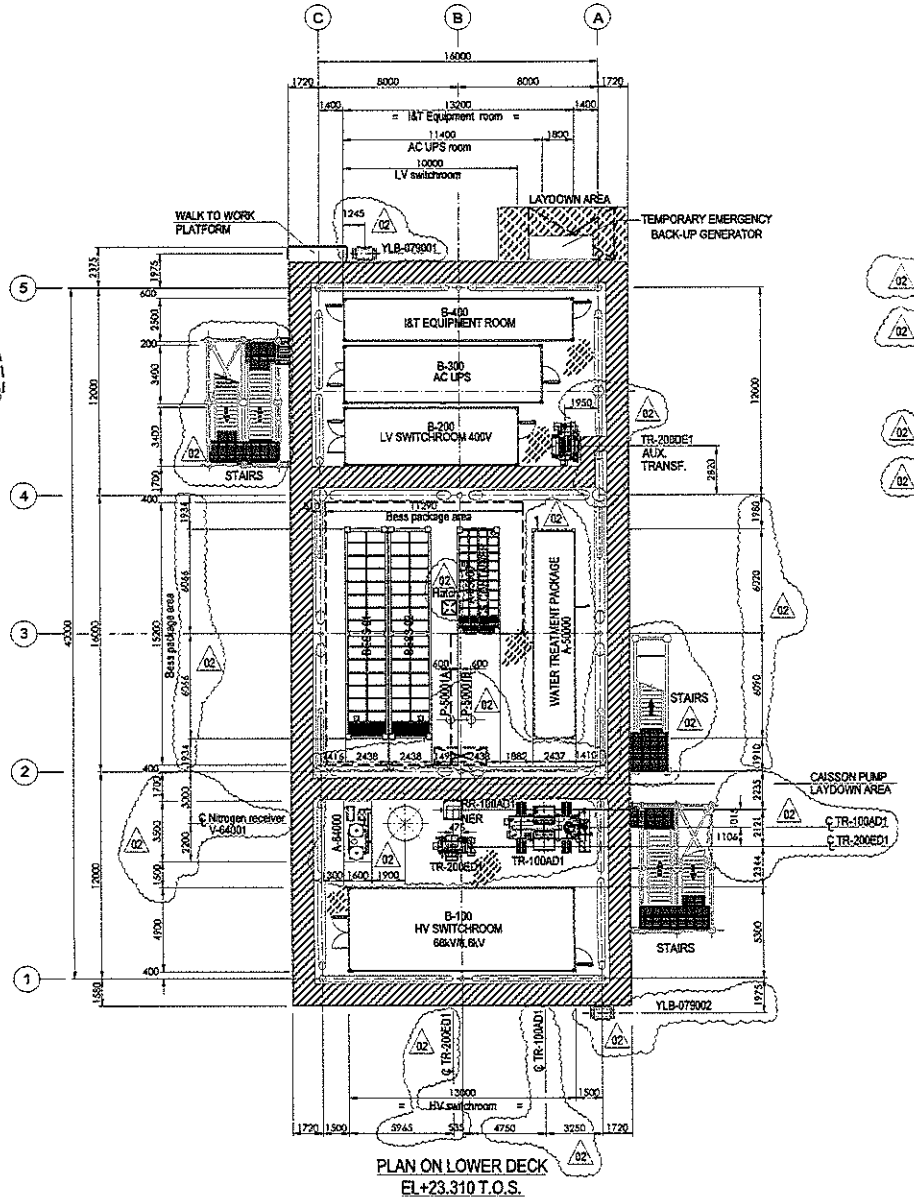
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BLPH PIPING AND INSTRUMENTATION DIAGRAM
WATER DISPOSAL SHEET 1

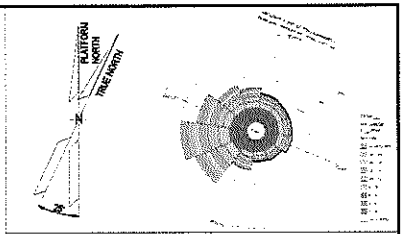
CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80025	SHEET 001	REV. 04

File Name : FILE_NAME

TP-001 (Restricted Zone) @ 3.15 barg







NOTES

1. ALL DIMENSIONS IN mm U.N.O
2. ALL ELEVATIONS IN METERS.
3. EQUIPMENT SIZES ARE BASED ON MASTER EQUIPMENT LIST 123A90-DDL-MAC-LIS-50000 AND VENDOR DWG. RECEIVED.
4. ALL ELEVATIONS RELATE TO LOWEST ASTRONOMICAL TIDE (LAT) = 0.000.
5. PLAN SHOWS PRIMARY ESCAPE/MATERIAL HANDLING ROUTES ONLY.
6. DELETED
7. MISCELLANEOUS SAFETY EQUIPMENT ARE SHOWN IN DOC. 123A90-DDL-SAF-DL-3002516_Escape Routes, Fire Fighting, Life Saving Equipment and Safety Equipment Layouts Drawings.
8. PREVAILING WIND DIRECTION INFLUENCING EQUIPMENT/VENT LAYOUT FROM THE SOUTH WEST.
9. PLATFORM NORTH DIRECTION IS N 25°W.
10. DELETED
11. LIQUID SEAL IS PART OF THE HYDROGEN VENT.
12. FOR ELECTROLYSER PACKAGE DETAILS SEE VENDOR DWG. C63-GAD-001
13. DELETED

LEGEND

DENOTES PLATED DECK

ESCAPE/MATERIAL HANDLING ROUTE

DENOTES OPEN GRATING

HOLDS

1. DELETED
2. DELETED
3. DELETED
4. DELETED
5. DELETED
6. DELETED
7. DELETED
8. DELETED
9. DELETED

REFERENCE DOCUMENTS

123A90-DDL-PP-DS-70071	PLOT PLAN - BELOW LOWER DECK
123A90-DDL-PP-DS-70072	PLOT PLAN - ELEVATION LOOKING NORTH & EAST

EQUIPMENT LIST

TAG NUMBER	DESCRIPTION	TAG NUMBER	DESCRIPTION
A-20000	ELECTROLYSER	V-25001A-F	HYDROGEN STORAGE VESSELS
		V-43001	HYDROGEN VENT KO DRUM
		YLB-079001/2	LIFE RAFTS
		B-100	HV/MV SWITCHROOM 66kV/6.6kV
		B-200	LV SWITCHROOM 400V
A-63000	INSTRUMENT AIR PACKAGE	B-300	AC UPS EQUIPMENT ROOM
A-80000	FUEL CELL	B-400	I&T EQUIPMENT ROOM
A-85000	BESS	TR-100AD1	TRANSFORMER MAIN 66kV/6.6kV
A-50000	WATER TREATMENT PACKAGE	TR-200DE1	TRANSFORMER AUX. 6.6kV/0.4kV
P-50001A/B	SEAWATER LIFT PUMPS	TR-200ED1	SOLAR TRANSFORMER PV FARM EQUIPMENT
		RR-100AD1-NER	NEUTRAL EARTHING RESISTOR
Q-43004	HYDROGEN VENT NOTE 11	V-63001	AIR RECEIVER
		V-64001	NITROGEN RECEIVER
		X-99001	CRANE
A-64000	NITROGEN SYSTEM		

Test Pack Number: TP-001
Test Pack Name: Vent System
Test Pressure: 3.15 barg
Test Type: N2He 90% Design Pressure

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	24/05/24	MMA	LMC	DLC	ACCEPTED FOR CONSTRUCTION (AFC)
01	07/05/24	MMA	CBG	DLC	ISSUE FOR REVIEW (IFR)
00	31/10/23	MMA	CBG	DLC	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE: BASE LOAD POWER HUB (BLPH)
PLOT PLAN
LOWER & UPPER DECK

CONTRACT NO./TITLE: CW-I-APA-2023-05/RELEASE KEY NOTES AND PARS | SCALE: 1:150

DRAWN: M. MACIS | CHECKED: C. BORTOLIN | APPROVED: D. LO STERZO | DATE: 24/05/24

A1 | DRAWING NO: 123A90-DDL-PP-DL-70070 | SHEET: 001 | REV: 02

123A90-DDL-PP-DL-70070 02

Section 6.3 Chemical Loading & First Fill records Index

NOT APPLICABLE

Section 6.4 Chemical Cleaning Reports and Records Index

NOT APPLICABLE

Section 6.5 Lubrication Schedule

NOT APPLICABLE

Section 7 VENDOR

Section 7.1 Vendor Package Summary Index

NOT APPLICABLE

Section 7.2 SAT Procedure with associated punch list and reference (Front Page)

NOT APPLICABLE

Section 7.3 Vendor Spares & Special Tools lists references

NOT APPLICABLE

Section 7.4 Vendor Data / Operations / Maintenance Manuals References

NOT APPLICABLE

Section 8 LIST OF MODIFICATIONS

NOT APPLICABLE

Section 8.1 List of changes

NOT APPLICABLE

Section 9 SUPPORTING DOCUMENTS

NOT APPLICABLE