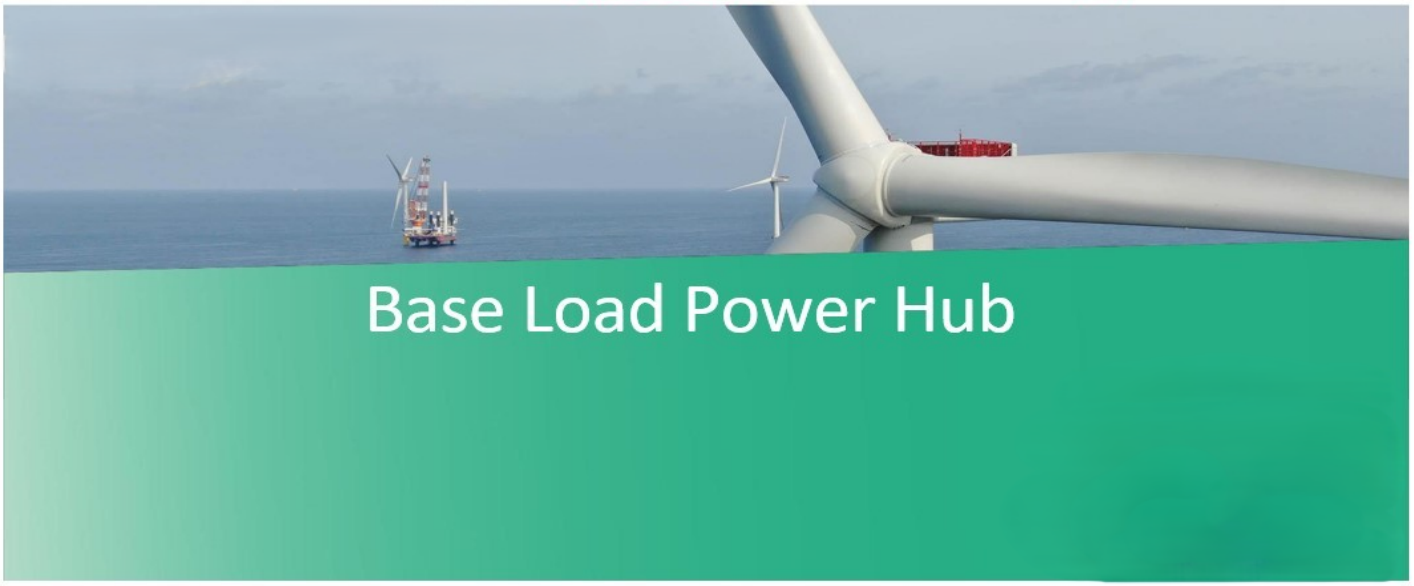
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PROVERUS

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



COMMISSIONING DOSSIER (ONSHORE)

SYSTEM	25 Hydrogen Storage
SUBSYSTEM	25-05 Hydrogen Storage Vessel E (V-25001E)

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123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

COMMISSIONING DOSSIER INDEX

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Sub System N°:	25-05	**Tick as appropriate**	ONSHORE	OK
Description:	Hydrogen Storage Vessel E (V-25001E)		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:*	OK
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*	OK
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)	

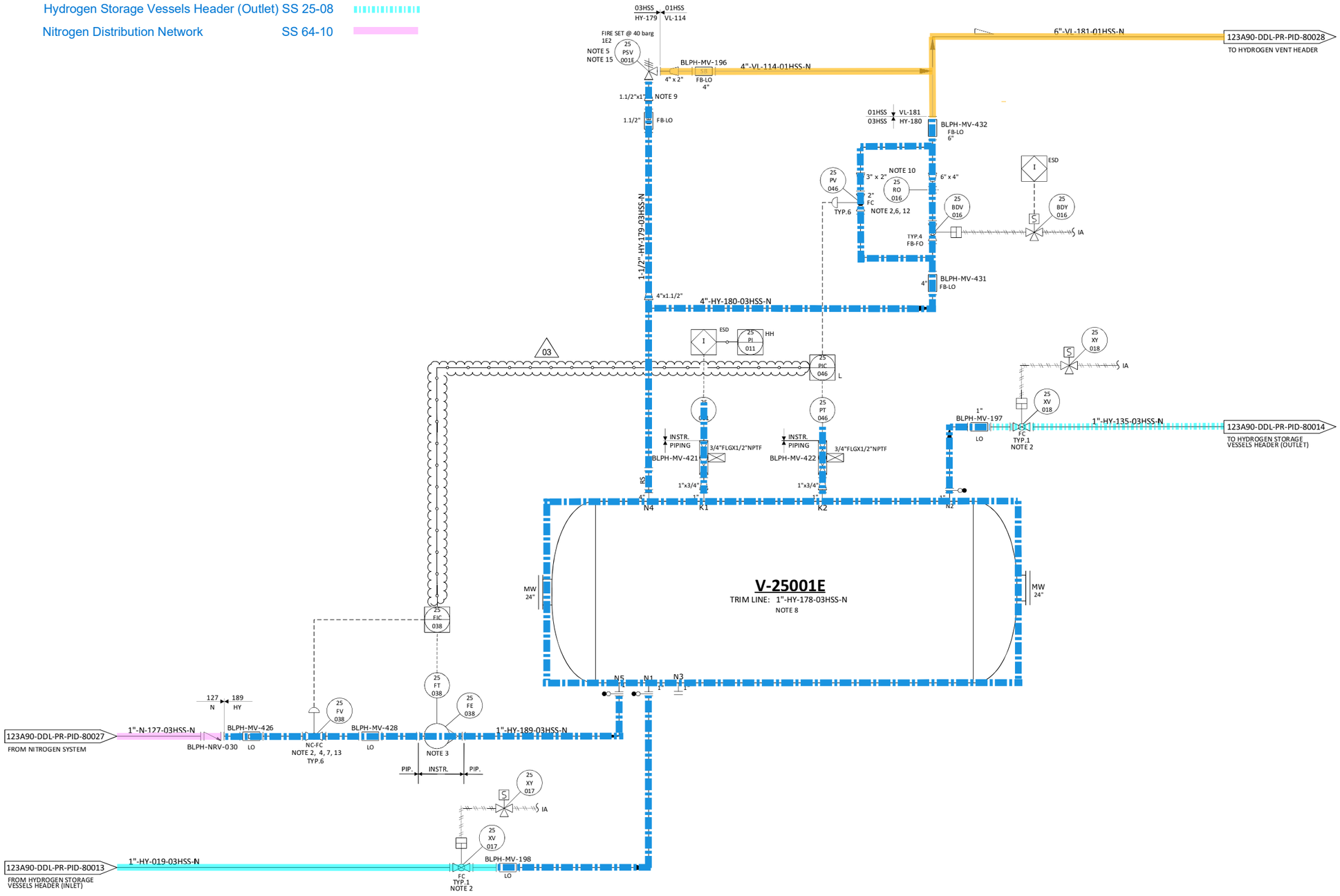
	Contractor Commissioning Site Leader	Company Commissioning Site Leader
Name	Anthony Iveson	Martin Taylor
Date	2025-05-20	2025-05-20
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-05-20T07:33:10.992Z	PROVERLIS Digitaly signed by Martin Taylor 2025-05-20T10:47:45.776Z

Section 1 SUB-SYSTEM DEFINITION

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. 03
4. NITROGEN CONTROL VALVE (25-FV-038) 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-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)

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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

Section 2 READY FOR OPERATION

Section 2.1 Achievement Of Ready for Operation Certificate (RFO)

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

Ready For Operation (RFO) Certificate

COMPLETE	●	PARTIAL	

Revision:	2		Issued on:	2025-05-09	
System:	25	/	Hydrogen Storage		
SubSystem:	25-05	/	Hydrogen Storage Vessel E (V-25001E)		

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:

	CONTRACTOR Commissioning Manager	COMPANY Commissioning Lead
Name	Anthony Iveson	Gerry McCann
Date	2025-05-12	2025-05-13
Signature	PROVERLIS Digitaly signed by Anthony Iveson 2025-05-12T08:42:15.447Z	PROVERLIS Digitaly signed by Gerry McCann 2025-05-13T09:47:08.823Z

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Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 25-05 & process: COMM

Instrumental	25-05 Hydrogen Storage Vessel E (V-25001E)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
25-BDV-016	On/Off Valve - Vessel V-25001E Hydrogen Vent System	ONSHORE	C10003206	FJ01V	100	2025-03-26	RFO 2
25-FIC-038	Nitrogen to V-25001E vessel	ONSHORE	C10003748	FJ01C	100	2025-03-26	RFO 2
25-FT-038	Flow Transmitter - Nitrogen to V-25001E Vessel	ONSHORE	C10003160	FJ01A	100	2025-03-19	RFO 2
25-FV-038	Control Valve - Nitrogen to V-25001E Vessel	ONSHORE	C10004380	FJ04	100	2025-03-17	RFO 2
25-PIC-046	Vessel V-25001E pressure control	ONSHORE	C10003753	FJ01C	100	2025-03-26	RFO 2
25-PT-011	Pressure Transmitter - Vessel V-25001E Hydrogen Vent System	ONSHORE	C10003167	FJ01A	100	2025-03-26	RFO 2
25-PT-046	Pressure Transmitter - Vessel V-25001E Pressure Control	ONSHORE	C10003173	FJ01A	100	2025-03-19	RFO 2
25-PV-046	Control Valve - Vessel V-25001E Pressure Control	ONSHORE	C10004385	FJ04	100	2025-03-17	RFO 2

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 25-05 & process: COMM

Piping	25-05 Hydrogen Storage Vessel E (V-25001E)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
TP-006	H2 Inlet System and Storage Vessel V-25001E	ONSHORE	C10004902	4241	100	2025-03-14	RFO 2

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage

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

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003212	A	25-ZSHL-038 C10001747	The enclosure gasket is damage. To be replace	.		APolo 2025-01-27	2025-01-31	APolo 2025-01-31	2025-01-31
C30003191	B	25-FT-038 C10001481	Documentation: document 123A90-DDL-EL-LIS-20094 does not report what was installed in the field	.		APolo 2025-01-24			
C30003192	B	25-FT-038 C10001481	The plug is not installed according to the specifications. To be replaced with plug Ex-d/e IIC , (see 123A90-DDL-IN-HD-40079_Rev.02 sh.	.		APolo 2025-01-24	2025-03-08	Gtangianu 2025-03-08	2025-03-08
C30003210	B	25-FY-038 C10001703	On ATEX register (123A90-DDL-LIS-20094) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.	.		APolo 2025-01-25			
C30003260	B	25-PSV-038 C10004755	On ATEX register (123A90-DDL-EL-LIS-20094 sheet 6) SN is 24-03795 but actual is 24-03803	.		Lmussi 2025-01-28	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30003350	B	25-PG-038 C10004741	On ATEX register equipment model is MBS6P4S2PN07-ATEX while actual is MBS6P4S2PN6S-ATEX	.		Lmussi 2025-01-30	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30003351	B	25-PG-038 C10004741	Equipment ATEX label is missing	.		Lmussi 2025-01-30	2025-02-03	Lmussi 2025-02-03	2025-02-03
C30003800	B	25-PSV-001E C10001162	Scratches on painting, general touch-up to be performed	.		Lmussi 2025-02-13	2025-04-11	LNovaga 2025-04-11	2025-04-11
C30003856	B	25-PG-016 C10004809	On ATEX register (123A90-DDL-EL-LIS-20094) equipment is missing	.		Lmussi 2025-02-17			

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage
SUBSYSTEM 25-05 Hydrogen Storage Vessel E (V-25001E)

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003857	B	25-PSV-016 C10004816	Equipment ATEX identification label is missing	.		Lmussi 2025-02-17	2025-04-24	Gtangianu 2025-04-24	2025-04-24
C30003858	B	25-PSV-016 C10004816	ATEX Declaration of Conformity by Manufacturer is missing	.		Lmussi 2025-02-17	2025-04-24	Gtangianu 2025-04-24	2025-04-24
C30003859	B	25-PSV-016 C10004816	On ATEX register (123A90-DDL-EL-LIS-20094) equipment is missing	.		Lmussi 2025-02-17			
C30003861	B	25-PG-046 C10004746	On ATEX register (123A90-DDL-EL-LIS-20094) equipment model is MBS6P4S2PN07-ATEX while actual is MBS6P4S2PN6S-ATEX	.		Lmussi 2025-02-17	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30003862	B	25-PSV-046 C10004760	On ATEX register (123A90-DDL-EL-LIS-20094 sheet 6) equipment SN is 24-03800 but actual is 24-03797	.		Lmussi 2025-02-17	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30003896	B	25-PCV-016 C10001614	On ATEX register (123A90-DDL-EL-LIS-20094) equipment is missing	.		Lmussi 2025-02-17			
C30003922	B	25-BDV-016 C10001564	Scratches on painting, general touch-up to be performed	.		Lmussi 2025-02-17	2025-04-08	LNovaga 2025-04-08	2025-04-08
C30003923	B	25-BDV-016 C10001564	On ATEX register (123A90-DDL-LIS-20094 sheet 8) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.	.		Lmussi 2025-02-17			
C30003983	B	25-PT-046 C10001494	Missing tag SS , on the instrument.	.		APolo 2025-02-18	2025-03-01	JKrizanic 2025-03-01	2025-03-01

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PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage

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

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003989	B	25-PT-011 C10001488	Missing tag SS , on the instrument.	.		APolo 2025-02-18	2025-03-01	JKrizanic 2025-03-01	2025-03-01
C30003990	B	25-PY-046 C10001708	missing SS tag	.		AAndreani 2025-02-18	2025-03-03	JKrizanic 2025-03-03	2025-03-03
C30003991	B	25-PY-046 C10001708	On ATEX register (123A90-DDL-LIS-20094 sheet 7) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.	.		AAndreani 2025-02-18			
C30003992	B	25-PV-046 C10001584	Scratches on painting, general touch-up to be performed	.		Lmussi 2025-02-18	2025-04-04	LNovaga 2025-04-04	2025-04-04
C30003994	B	25-ZSHL-046 C10001750	missing SS tag	.		AAndreani 2025-02-18	2025-03-03	JKrizanic 2025-03-03	2025-03-03
C30003997	B	25-BDY-016 C10001571	On ATEX register (123A90-DDL-LIS-20094 sheet 8) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.	.		AAndreani 2025-02-18			

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage
SUBSYSTEM 25-05 Hydrogen Storage Vessel E (V-25001E)

Mechanical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003241	A	V-25001E C10002391	The vessel has not been positioned as for layout document 123A90-DDL-IN-DL-40081 but has been positioned in place of the vessel B.	.		MBiaggioni 2025-01-28	2025-02-12	KAlbonetti 2025-02-12	2025-02-12
C30003364	A	V-25001E C10002391	Earthing lug not connected.	.		KAlbonetti 2025-01-30	2025-02-18	KAlbonetti 2025-02-18	2025-02-18
C30003248	B	V-25001E C10002391	Internal inspection of Vessel has not been performed. Manway shall be opened to carry out internal inspection.	.	Manways have been opened and the vessel has been cleaned inside.	MBiaggioni 2025-01-28	KAlbonetti 2025-02-12	KAlbonetti 2025-02-12	JDuinhoven 2025-02-12
C30003359	B	V-25001E C10002391	Bolts and nuts of manholes are rusted.	.		MBiaggioni 2025-01-30	2025-02-25	KAlbonetti 2025-02-25	2025-02-25
C30003374	B	V-25001E C10002391	Painting touch-ups to be made after installation.	.		KAlbonetti 2025-01-30	2025-04-11	LNovaga 2025-04-11	2025-04-11
C30003391	B	V-25001E C10002391	There is an unacceptable gap between saddle and basement. Not fixed to the structure.	.		KAlbonetti 2025-01-30	2025-03-01	KAlbonetti 2025-03-01	2025-03-01
C30003401	B	V-25001E C10002391	Access platform to the vessel not installed.	.		KAlbonetti 2025-01-30	2025-04-23	LNovaga 2025-04-23	2025-04-23

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PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage
SUBSYSTEM 25-05 Hydrogen Storage Vessel E (V-25001E)

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003285	A	25-05-TP-012 C10003318	MIssing earthing connection on earthing plate (Vessel V -25001E side)	MIssing earthing connection on earthing plate (Vessel V -25001E side)		AMancini 2025-01-29	2025-02-14	Lmussi 2025-02-14	2025-02-14
C30003428	A	25-05-TP-018 C10003366	Missing earthing connection on earthing plate	.		AMancini 2025-01-31	2025-02-12	Ecarotenuto 2025-02-12	2025-02-12
C30003446	A	25-05-TP-042 C10003560	The spools have not been properly cleaned inside and in some there are debris and/or rust points.	.		KAlbonetti 2025-01-31	2025-02-12	KAlbonetti 2025-02-12	2025-02-12
C30003772	A	25-05-TP-036 C10003506	Earthing lug not connected to earth.	.		LNovaga 2025-02-12	2025-02-15	Lmussi 2025-02-15	2025-02-15
C30004058	A	25-05-TP-042 C10003555	Earthing plate totally painted.	.		LNovaga 2025-02-20	2025-02-26	LNovaga 2025-02-26	2025-02-26
C30004060	A	25-05-TP-042 C10003554	Earthing lug not connected to earth.	.		LNovaga 2025-02-20	2025-02-26	2025-02-26	2025-02-26
C30002199	B	25-05-TP-012 C10003317	Sk.013 (Sh.1/1): Support PS-02016.2: position R1 has not been assembled yet.	.		KAlbonetti 2024-12-28	2025-01-30	AMancini 2025-01-30	2025-01-30
C30002418	B	25-05-TP-036 C10003505	Spool has not been installed in erection. Inspection points from 4 to 5 of ITR "Inspection before test" to be checked during reinstatement.	.		LNovaga 2025-01-07	2025-02-14	LNovaga 2025-02-14	2025-02-14
C30002670	B	25-05-TP-042 C10003553	For all piping supports the materials for the S-211, S-212 and C-16 standards have not yet been installed.	.		KAlbonetti 2025-01-10	2025-02-20	LNovaga 2025-02-20	2025-02-20

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PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage
SUBSYSTEM 25-05 Hydrogen Storage Vessel E (V-25001E)

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002674	B	25-05-TP-042 C10003553	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 2025-01-10	2025-02-19	KAlbonetti 2025-02-19	2025-02-19
C30002678	B	25-05-TP-042 C10003553	Valves installation to be checked after test.	.		KAlbonetti 2025-01-10	2025-02-19	KAlbonetti 2025-02-19	2025-02-19
C30002897	B	25-05-TP-018 C10003365	SK.093; PS-02017.1/.2/.3/.4: Positions R1, R2 and R3 have not been assembled.	.		KAlbonetti 2025-01-16	2025-02-03	AMancini 2025-02-03	2025-02-03
C30002906	B	25-05-TP-018 C10003365	Spools have not been installed in erection. Inspection points from 4 to 6 to be checked during flange management in the reinstatement phase.	.		KAlbonetti 2025-01-16	2025-02-03	AMancini 2025-02-03	2025-02-03
C30003430	B	25-05-TP-018 C10003366	Isolation rubber on Support PS-02017.1 is damaged	.		AMancini 2025-01-31	2025-02-07	LNovaga 2025-02-07	2025-02-07
C30003432	B	25-05-TP-018 C10003366	Missing PTFE isolation pad on support PS-02017.4	.		AMancini 2025-01-31	2025-02-07	LNovaga 2025-02-07	2025-02-07
C30003533	B	25-05-TP-012 C10003319	Color coding and fluid direction are missing.	.		KAlbonetti 2025-02-05	2025-03-21	LNovaga 2025-03-21	2025-03-21
C30003538	B	25-05-TP-012 C10003319	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
C30003544	B	25-05-TP-018 C10003367	Color coding and fluid direction are missing.	.		KAlbonetti 2025-02-05	2025-03-21	LNovaga 2025-03-21	2025-03-21

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PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage
SUBSYSTEM 25-05 Hydrogen Storage Vessel E (V-25001E)

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003548	B	25-05-TP-018 C10003367	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
C30003645	B	25-05-TP-056 C10003647	Color coding and fluid direction are missing.	.		KAlbonetti 2025-02-11	2025-03-20	LNovaga 2025-03-20	2025-03-20
C30003738	B	25-05-TP-018 C10003366	Missing PTFE isolation pad on support PS-02017.4	.		LNovaga 2025-02-12	2025-02-14	LNovaga 2025-02-14	2025-02-14
C30003740	B	25-05-TP-018 C10003366	Isolation rubber on Support PS-02017.1 (S-211) is damaged	.		LNovaga 2025-02-12	2025-03-03	LNovaga 2025-03-03	2025-03-03
C30003741	B	25-05-TP-018 C10003367	Spool F needs touch up	.		LNovaga 2025-02-12	2025-03-20	LNovaga 2025-03-20	2025-03-20
C30003742	B	25-05-TP-018 C10003367	Touch up under the plastic ties	.		LNovaga 2025-02-12	2025-03-20	LNovaga 2025-03-20	2025-03-20
C30004055	B	25-05-TP-042 C10003555	Color coding and fluid direction are missing.	.		LNovaga 2025-02-20	2025-02-27	KAlbonetti 2025-02-27	2025-02-27
C30004203	B	25-05-TP-042 C10003555	Color coding and fluid direction are missing.	.		LNovaga 2025-03-06	2025-03-20	LNovaga 2025-03-20	2025-03-20
C30004204	B	25-05-TP-036 C10003507	Color coding and fluid direction are missing.	.		LNovaga 2025-03-06	2025-03-20	LNovaga 2025-03-20	2025-03-20

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PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage

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

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003193	B	C-25-FT-038/00-JE-11003 C10000034	Missing cores identification tag. side JB 00-JE-11003 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2025-01-24	2025-02-12	APolo 2025-02-12	2025-02-12
C30003938	B	AV-63012/25-BDV-016 C10001983	Missing support on the tubing side the 25-BDV-016 . See attached photo.	.		Gtangianu 2025-02-17	2025-02-24	AAndreani 2025-02-24	2025-02-24
C30003940	B	AV-63012/25-BDV-016 C10001983	Missing SS tag both side the tubing.	.		Gtangianu 2025-02-17	2025-02-20	AAndreani 2025-02-20	2025-02-20
C30003942	B	AV-63012/25-PV-046 C10001982	Missing SS tag both side the tubing.	.		Gtangianu 2025-02-17	2025-02-20	AAndreani 2025-02-20	2025-02-20
C30003948	B	C-25-BDY-016/00-JE-23001 C10000174	the cable installed is temporary. To be replaced	.		AAndreani 2025-02-17	2025-04-08	Gtangianu 2025-04-08	2025-04-08

Section 2.2 Exception Punch Lists (per discipline)

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PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage

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

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003191	B	25-FT-038 C10001481	Documentation: document 123A90-DDL-EL-LIS-20094 does not report what was installed in the field	.		APolo 2025-01-24			
C30003210	B	25-FY-038 C10001703	On ATEX register (123A90-DDL-LIS-20094) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.	.		APolo 2025-01-25			
C30003856	B	25-PG-016 C10004809	On ATEX register (123A90-DDL-EL-LIS-20094) equipment is missing	.		Lmussi 2025-02-17			
C30003857	B	25-PSV-016 C10004816	Equipment ATEX identification label is missing	.		Lmussi 2025-02-17			
C30003858	B	25-PSV-016 C10004816	ATEX Declaration of Conformity by Manufacturer is missing	.		Lmussi 2025-02-17			
C30003859	B	25-PSV-016 C10004816	On ATEX register (123A90-DDL-EL-LIS-20094) equipment is missing	.		Lmussi 2025-02-17			
C30003896	B	25-PCV-016 C10001614	On ATEX register (123A90-DDL-EL-LIS-20094) equipment is missing	.		Lmussi 2025-02-17			
C30003923	B	25-BDV-016 C10001564	On ATEX register (123A90-DDL-LIS-20094 sheet 8) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.	.		Lmussi 2025-02-17			
C30003991	B	25-PY-046 C10001708	On ATEX register (123A90-DDL-LIS-20094 sheet 7) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.	.		AAndreani 2025-02-18			

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PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage

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

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003997	B	25-BDY-016 C10001571	On ATEX register (123A90-DDL-LIS-20094 sheet 8) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.	.		AAndreani 2025-02-18			

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PUNCH LIST REPORT

SYSTEM	25	Hydrogen Storage
SUBSYSTEM	25-05	Hydrogen Storage Vessel E (V-25001E)

Mechanical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003401	B	V-25001E C10002391	Access platform to the vessel not installed.	.		KAlbonetti 2025-01-30			

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

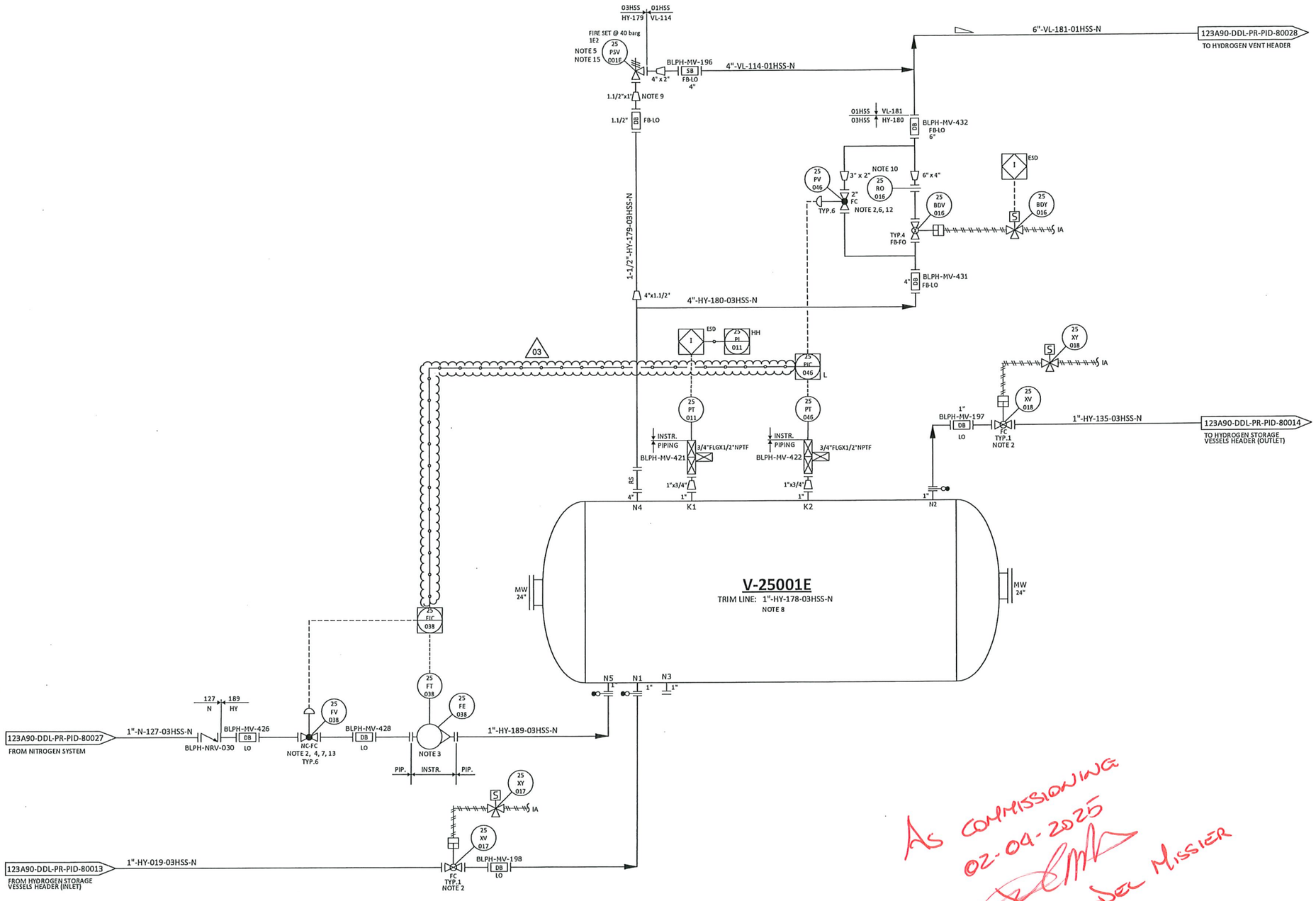
DRAWING NO. DRAWING_NO.

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

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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

Section 3 CONSOLIDATED PUNCH LISTS

CROSSWIND

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage

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

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003212	A	25-ZSHL-038 C10001747	The enclosure gasket is damage. To be replace	.		APolo 2025-01-27	2025-01-31	APolo 2025-01-31	2025-01-31
C30003191	B	25-FT-038 C10001481	Documentation: document 123A90-DDL-EL-LIS-20094 does not report what was installed in the field	.	The verified information related to the item has been recorded in the AVEVA	APolo 2025-01-24	RDegliEsposti 2025-05-27	RDegliEsposti 2025-05-27	2025-05-27
C30003192	B	25-FT-038 C10001481	The plug is not installed according to the specifications. To be replaced with plug Ex-d/e IIC , (see 123A90-DDL-IN-HD-40079_Rev.02 sh.	.		APolo 2025-01-24	2025-03-08	Gtangianu 2025-03-08	2025-03-08
C30003210	B	25-FY-038 C10001703	On ATEX register (123A90-DDL-LIS-20094) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.	.	The verified information related to the item has been recorded in the AVEVA	APolo 2025-01-25	RDegliEsposti 2025-05-27	RDegliEsposti 2025-05-27	2025-05-27
C30003260	B	25-PSV-038 C10004755	On ATEX register (123A90-DDL-EL-LIS-20094 sheet 6) SN is 24-03795 but actual is 24-03803	.		Lmussi 2025-01-28	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30003350	B	25-PG-038 C10004741	On ATEX register equipment model is MBS6P4S2PN07-ATEX while actual is MBS6P4S2PN6S-ATEX	.		Lmussi 2025-01-30	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30003351	B	25-PG-038 C10004741	Equipment ATEX label is missing	.		Lmussi 2025-01-30	2025-02-03	Lmussi 2025-02-03	2025-02-03
C30003800	B	25-PSV-001E C10001162	Scratches on painting, general touch-up to be performed	.		Lmussi 2025-02-13	2025-04-11	LNovaga 2025-04-11	2025-04-11
C30003856	B	25-PG-016 C10004809	On ATEX register (123A90-DDL-EL-LIS-20094) equipment is missing	.	The ATEX Register issued by FLUITEK has been updated and now reflects the	Lmussi 2025-02-17	RDegliEsposti 2025-06-10	RDegliEsposti 2025-06-10	2025-06-10

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage
SUBSYSTEM 25-05 Hydrogen Storage Vessel E (V-25001E)

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003857	B	25-PSV-016 C10004816	Equipment ATEX identification label is missing	.		Lmussi 2025-02-17	2025-04-24	Gtangianu 2025-04-24	2025-04-24
C30003858	B	25-PSV-016 C10004816	ATEX Declaration of Conformity by Manufacturer is missing	.		Lmussi 2025-02-17	2025-04-24	Gtangianu 2025-04-24	2025-04-24
C30003859	B	25-PSV-016 C10004816	On ATEX register (123A90-DDL-EL-LIS-20094) equipment is missing	.	The ATEX Register issued by FLUITEK has been updated and now reflects the	Lmussi 2025-02-17	RDegliEsposti 2025-06-10	RDegliEsposti 2025-06-10	2025-06-10
C30003861	B	25-PG-046 C10004746	On ATEX register (123A90-DDL-EL-LIS-20094) equipment model is MBS6P4S2PN07-ATEX while actual is MBS6P4S2PN6S-ATEX	.		Lmussi 2025-02-17	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30003862	B	25-PSV-046 C10004760	On ATEX register (123A90-DDL-EL-LIS-20094 sheet 6) equipment SN is 24-03800 but actual is 24-03797	.		Lmussi 2025-02-17	2025-04-17	Gtangianu 2025-04-17	2025-04-17
C30003896	B	25-PCV-016 C10001614	On ATEX register (123A90-DDL-EL-LIS-20094) equipment is missing	.	The ATEX Register issued by FLUITEK has been updated and now reflects the	Lmussi 2025-02-17	RDegliEsposti 2025-06-10	RDegliEsposti 2025-06-10	2025-06-10
C30003922	B	25-BDV-016 C10001564	Scratches on painting, general touch-up to be performed	.		Lmussi 2025-02-17	2025-04-08	LNovaga 2025-04-08	2025-04-08
C30003923	B	25-BDV-016 C10001564	On ATEX register (123A90-DDL-LIS-20094 sheet 8) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.	.	The ATEX Register issued by FLUITEK has been updated and now reflects the	Lmussi 2025-02-17	RDegliEsposti 2025-06-09	RDegliEsposti 2025-06-09	2025-06-09
C30003983	B	25-PT-046 C10001494	Missing tag SS , on the instrument.	.		APolo 2025-02-18	2025-03-01	JKrizanic 2025-03-01	2025-03-01

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage
SUBSYSTEM 25-05 Hydrogen Storage Vessel E (V-25001E)

ATEX

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003989	B	25-PT-011 C10001488	Missing tag SS , on the instrument.	.		APolo 2025-02-18	2025-03-01	JKrizanic 2025-03-01	2025-03-01
C30003990	B	25-PY-046 C10001708	missing SS tag	.		AAndreani 2025-02-18	2025-03-03	JKrizanic 2025-03-03	2025-03-03
C30003991	B	25-PY-046 C10001708	On ATEX register (123A90-DDL-LIS-20094 sheet 7) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.	.	The verified information related to the item has been recorded in the AVEVA	AAndreani 2025-02-18	RDegliEsposti 2025-05-28	RDegliEsposti 2025-05-28	2025-05-28
C30003992	B	25-PV-046 C10001584	Scratches on painting, general touch-up to be performed	.		Lmussi 2025-02-18	2025-04-04	LNovaga 2025-04-04	2025-04-04
C30003994	B	25-ZSHL-046 C10001750	missing SS tag	.		AAndreani 2025-02-18	2025-03-03	JKrizanic 2025-03-03	2025-03-03
C30003997	B	25-BDY-016 C10001571	On ATEX register (123A90-DDL-LIS-20094 sheet 8) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.	.	The ATEX Register issued by FLUITEK has been updated and now reflects the	AAndreani 2025-02-18	RDegliEsposti 2025-06-12	2025-06-12	2025-06-12

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage
SUBSYSTEM 25-05 Hydrogen Storage Vessel E (V-25001E)

Mechanical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003241	A	V-25001E C10002391	The vessel has not been positioned as for layout document 123A90-DDL-IN-DL-40081 but has been positioned in place of the vessel B.	.		MBiaggioni 2025-01-28	2025-02-12	KAlbonetti 2025-02-12	2025-02-12
C30003364	A	V-25001E C10002391	Earthing lug not connected.	.		KAlbonetti 2025-01-30	2025-02-18	KAlbonetti 2025-02-18	2025-02-18
C30003248	B	V-25001E C10002391	Internal inspection of Vessel has not been performed. Manway shall be opened to carry out internal inspection.	.	Manways have been opened and the vessel has been cleaned inside.	MBiaggioni 2025-01-28	KAlbonetti 2025-02-12	KAlbonetti 2025-02-12	JDuinhoven 2025-02-12
C30003359	B	V-25001E C10002391	Bolts and nuts of manholes are rusted.	.		MBiaggioni 2025-01-30	2025-02-25	KAlbonetti 2025-02-25	2025-02-25
C30003374	B	V-25001E C10002391	Painting touch-ups to be made after installation.	.		KAlbonetti 2025-01-30	2025-04-11	LNovaga 2025-04-11	2025-04-11
C30003391	B	V-25001E C10002391	There is an unacceptable gap between saddle and basement. Not fixed to the structure.	.		KAlbonetti 2025-01-30	2025-03-01	KAlbonetti 2025-03-01	2025-03-01
C30003401	B	V-25001E C10002391	Access platform to the vessel not installed.	.		KAlbonetti 2025-01-30	2025-04-23	LNovaga 2025-04-23	2025-04-23

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage
SUBSYSTEM 25-05 Hydrogen Storage Vessel E (V-25001E)

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003285	A	25-05-TP-012 C10003318	MIssing earthing connection on earthing plate (Vessel V -25001E side)	MIssing earthing connection on earthing plate (Vessel V -25001E side)		AMancini 2025-01-29	2025-02-14	Lmussi 2025-02-14	2025-02-14
C30003428	A	25-05-TP-018 C10003366	Missing earthing connection on earthing plate	.		AMancini 2025-01-31	2025-02-12	Ecarotenuto 2025-02-12	2025-02-12
C30003446	A	25-05-TP-042 C10003560	The spools have not been properly cleaned inside and in some there are debris and/or rust points.	.		KAlbonetti 2025-01-31	2025-02-12	KAlbonetti 2025-02-12	2025-02-12
C30003772	A	25-05-TP-036 C10003506	Earthing lug not connected to earth.	.		LNovaga 2025-02-12	2025-02-15	Lmussi 2025-02-15	2025-02-15
C30004058	A	25-05-TP-042 C10003555	Earthing plate totally painted.	.		LNovaga 2025-02-20	2025-02-26	LNovaga 2025-02-26	2025-02-26
C30004060	A	25-05-TP-042 C10003554	Earthing lug not connected to earth.	.		LNovaga 2025-02-20	2025-02-26	2025-02-26	2025-02-26
C30002199	B	25-05-TP-012 C10003317	Sk.013 (Sh.1/1): Support PS-02016.2: position R1 has not been assembled yet.	.		KAlbonetti 2024-12-28	2025-01-30	AMancini 2025-01-30	2025-01-30
C30002418	B	25-05-TP-036 C10003505	Spool has not been installed in erection. Inspection points from 4 to 5 of ITR "Inspection before test" to be checked during reinstatement.	.		LNovaga 2025-01-07	2025-02-14	LNovaga 2025-02-14	2025-02-14
C30002670	B	25-05-TP-042 C10003553	For all piping supports the materials for the S-211, S-212 and C-16 standards have not yet been installed.	.		KAlbonetti 2025-01-10	2025-02-20	LNovaga 2025-02-20	2025-02-20

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage
SUBSYSTEM 25-05 Hydrogen Storage Vessel E (V-25001E)

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002674	B	25-05-TP-042 C10003553	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 2025-01-10	2025-02-19	KAlbonetti 2025-02-19	2025-02-19
C30002678	B	25-05-TP-042 C10003553	Valves installation to be checked after test.	.		KAlbonetti 2025-01-10	2025-02-19	KAlbonetti 2025-02-19	2025-02-19
C30002897	B	25-05-TP-018 C10003365	SK.093; PS-02017.1/.2/.3/.4: Positions R1, R2 and R3 have not been assembled.	.		KAlbonetti 2025-01-16	2025-02-03	AMancini 2025-02-03	2025-02-03
C30002906	B	25-05-TP-018 C10003365	Spools have not been installed in erection. Inspection points from 4 to 6 to be checked during flange management in the reinstatement phase.	.		KAlbonetti 2025-01-16	2025-02-03	AMancini 2025-02-03	2025-02-03
C30003430	B	25-05-TP-018 C10003366	Isolation rubber on Support PS-02017.1 is damaged	.		AMancini 2025-01-31	2025-02-07	LNovaga 2025-02-07	2025-02-07
C30003432	B	25-05-TP-018 C10003366	Missing PTFE isolation pad on support PS-02017.4	.		AMancini 2025-01-31	2025-02-07	LNovaga 2025-02-07	2025-02-07
C30003533	B	25-05-TP-012 C10003319	Color coding and fluid direction are missing.	.		KAlbonetti 2025-02-05	2025-03-21	LNovaga 2025-03-21	2025-03-21
C30003538	B	25-05-TP-012 C10003319	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
C30003544	B	25-05-TP-018 C10003367	Color coding and fluid direction are missing.	.		KAlbonetti 2025-02-05	2025-03-21	LNovaga 2025-03-21	2025-03-21

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage

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

Piping

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003548	B	25-05-TP-018 C10003367	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
C30003645	B	25-05-TP-056 C10003647	Color coding and fluid direction are missing.	.		KAlbonetti 2025-02-11	2025-03-20	LNovaga 2025-03-20	2025-03-20
C30003738	B	25-05-TP-018 C10003366	Missing PTFE isolation pad on support PS-02017.4	.		LNovaga 2025-02-12	2025-02-14	LNovaga 2025-02-14	2025-02-14
C30003740	B	25-05-TP-018 C10003366	Isolation rubber on Support PS-02017.1 (S-211) is damaged	.		LNovaga 2025-02-12	2025-03-03	LNovaga 2025-03-03	2025-03-03
C30003741	B	25-05-TP-018 C10003367	Spool F needs touch up	.		LNovaga 2025-02-12	2025-03-20	LNovaga 2025-03-20	2025-03-20
C30003742	B	25-05-TP-018 C10003367	Touch up under the plastic ties	.		LNovaga 2025-02-12	2025-03-20	LNovaga 2025-03-20	2025-03-20
C30004055	B	25-05-TP-042 C10003555	Color coding and fluid direction are missing.	.		LNovaga 2025-02-20	2025-02-27	KAlbonetti 2025-02-27	2025-02-27
C30004203	B	25-05-TP-042 C10003555	Color coding and fluid direction are missing.	.		LNovaga 2025-03-06	2025-03-20	LNovaga 2025-03-20	2025-03-20
C30004204	B	25-05-TP-036 C10003507	Color coding and fluid direction are missing.	.		LNovaga 2025-03-06	2025-03-20	LNovaga 2025-03-20	2025-03-20

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 25 Hydrogen Storage

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

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003193	B	C-25-FT-038/00-JE-11003 C10000034	Missing cores identification tag. side JB 00-JE-11003 . (see document 123A90-DDL-IN-DG-40016 sh.3)	.		APolo 2025-01-24	2025-02-12	APolo 2025-02-12	2025-02-12
C30003938	B	AV-63012/25-BDV-016 C10001983	Missing support on the tubing side the 25-BDV-016 . See attached photo.	.		Gtangianu 2025-02-17	2025-02-24	AAndreani 2025-02-24	2025-02-24
C30003940	B	AV-63012/25-BDV-016 C10001983	Missing SS tag both side the tubing.	.		Gtangianu 2025-02-17	2025-02-20	AAndreani 2025-02-20	2025-02-20
C30003942	B	AV-63012/25-PV-046 C10001982	Missing SS tag both side the tubing.	.		Gtangianu 2025-02-17	2025-02-20	AAndreani 2025-02-20	2025-02-20
C30003948	B	C-25-BDY-016/00-JE-23001 C10000174	the cable installed is temporary. To be replaced	.		AAndreani 2025-02-17	2025-04-08	Gtangianu 2025-04-08	2025-04-08

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004204

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003507	1.4 Discipline	Piping
1.2 Item	25-05-TP-036	Test Pack 25-05-TP-036	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Color coding and fluid direction are missing.

Name: Lorenzo Novaga

Date: 2025-03-06

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	2025-03-06
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-03-20

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003401

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002391	1.4 Discipline	Mechanical
1.2 Item	V-25001E	Hydrogen storage vessel A	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Access platform to the vessel not installed.

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	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-04-23

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Lorenzo Novaga

Date: 2025-04-23

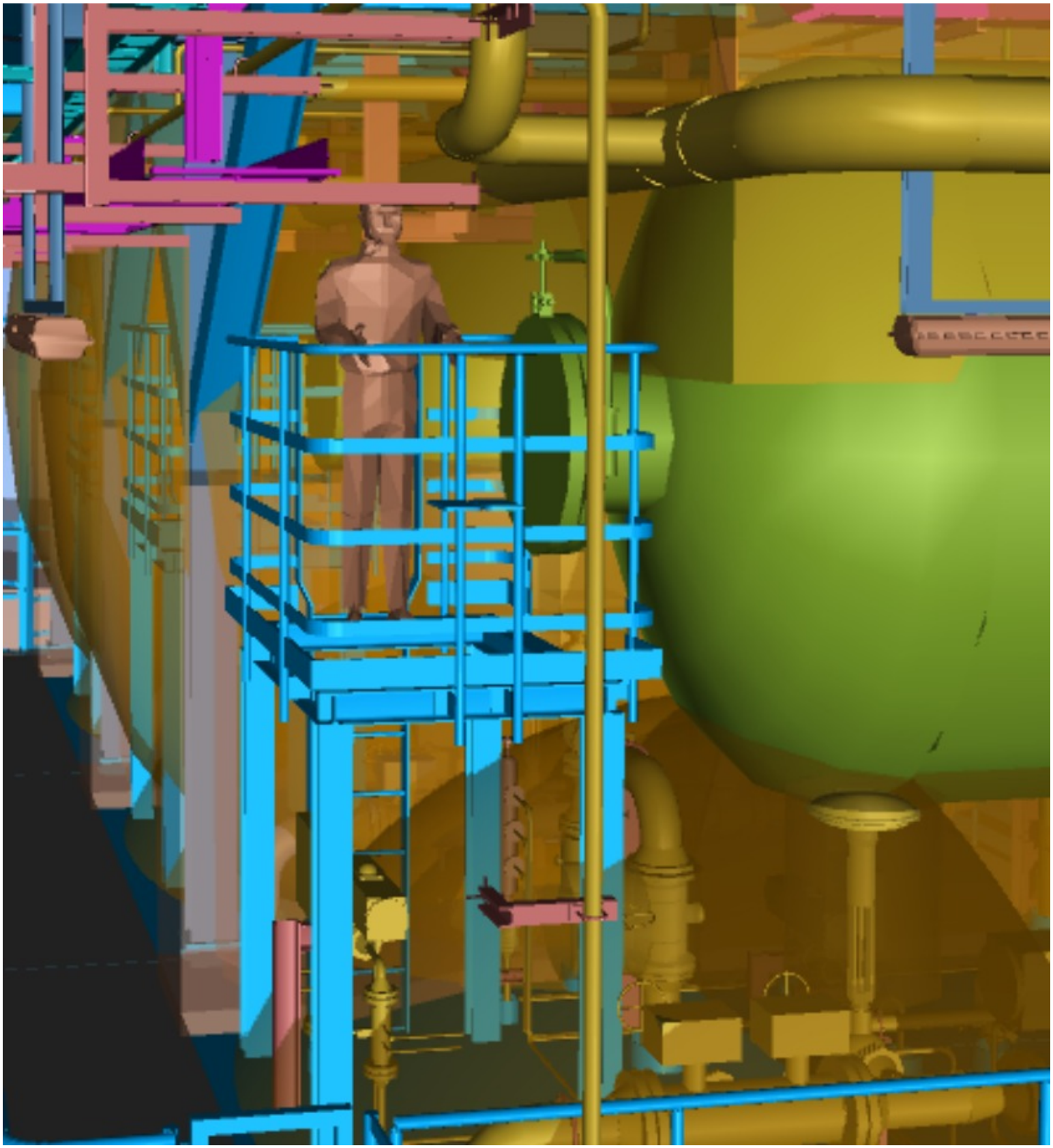
Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-04-23

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003428

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003366	1.4 Discipline	Piping
1.2 Item	25-05-TP-018	Test Pack 25-05-TP-018	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Missing earthing connection on earthing plate

Name: Andrea Mancini

Date: 2025-01-31

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	2025-01-31
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Eleonora Carotenuto

Date: 2025-02-12

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003430

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003366	1.4 Discipline	Piping
1.2 Item	25-05-TP-018	Test Pack 25-05-TP-018	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Isolation rubber on Support PS-02017.1 is damaged

Name: Andrea Mancini

Date: 2025-01-31

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	2025-01-31
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Activity done.

Name: Lorenzo Novaga

Date: 2025-02-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003432

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003366	1.4 Discipline	Piping
1.2 Item	25-05-TP-018	Test Pack 25-05-TP-018	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Missing PTFE isolation pad on support PS-02017.4

Name: Andrea Mancini

Date: 2025-01-31

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	2025-01-31
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Activity done.

Name: Lorenzo Novaga

Date: 2025-02-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003446

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003560	1.4 Discipline	Piping
1.2 Item	25-05-TP-042	Test Pack 25-05-TP-042	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

The spools have not been properly cleaned inside and in some there are debris and/or rust points.

Name: Kangi Albonetti

Date: 2025-01-31

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-31
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Cleaned.

Name: Kangi Albonetti

Date: 2025-02-12

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003533

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003319	1.4 Discipline	Piping
1.2 Item	25-05-TP-012	Test Pack 25-05-TP-012	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Color coding and fluid direction are missing.

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: 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

C30003538

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003319	1.4 Discipline	Piping
1.2 Item	25-05-TP-012	Test Pack 25-05-TP-012	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

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

C30003544

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003367	1.4 Discipline	Piping
1.2 Item	25-05-TP-018	Test Pack 25-05-TP-018	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Color coding and fluid direction are missing.

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: 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

C30003548

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003367	1.4 Discipline	Piping
1.2 Item	25-05-TP-018	Test Pack 25-05-TP-018	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

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

C30003645

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003647	1.4 Discipline	Piping
1.2 Item	25-05-TP-056	Test Pack 25-05-TP-056	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Color coding and fluid direction are 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	2025-02-11
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Not applicable.

Name: Lorenzo Novaga

Date: 2025-03-20

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003738

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003366	1.4 Discipline	Piping
1.2 Item	25-05-TP-018	Test Pack 25-05-TP-018	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Missing PTFE isolation pad on support PS-02017.4

Name: Lorenzo Novaga

Date: 2025-02-12

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	2025-02-12
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Activity done.

Name: Lorenzo Novaga

Date: 2025-02-14

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003740

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003366	1.4 Discipline	Piping
1.2 Item	25-05-TP-018	Test Pack 25-05-TP-018	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Isolation rubber on Support PS-02017.1 (S-211) is damaged

Name: Lorenzo Novaga

Date: 2025-02-12

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	2025-02-12
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

C30003741

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003367	1.4 Discipline	Piping
1.2 Item	25-05-TP-018	Test Pack 25-05-TP-018	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Spool F needs touch up

Name: Lorenzo Novaga

Date: 2025-02-12

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	2025-02-12
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-03-20

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003742

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003367	1.4 Discipline	Piping
1.2 Item	25-05-TP-018	Test Pack 25-05-TP-018	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Touch up under the plastic ties

Name: Lorenzo Novaga

Date: 2025-02-12

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	2025-02-12
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-03-20

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003772

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003506	1.4 Discipline	Piping
1.2 Item	25-05-TP-036	Test Pack 25-05-TP-036	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Earthing lug not connected to earth.

Name: Lorenzo Novaga

Date: 2025-02-12

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	2025-02-12
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done

Name: Luca Mussi

Date: 2025-02-15

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003800

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001162	1.4 Discipline	ATEX
1.2 Item	25-PSV-001E		Pressure Safety Valve - Vessel V-25001E Hydrogen Vent System
1.3 Subsystem	25-05		Hydrogen Storage Vessel E (V-25001E)

2 - OBSERVATION

Scratches on painting, general touch-up to be performed

Name: Luca Mussi

Date: 2025-02-13

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-13
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-04-11

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-04-11

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-04-11

Signature:


OK


023-36
JHP2

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003856

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004809	1.4 Discipline	ATEX
1.2 Item	25-PG-016		Air Set Pressure Gauge Filter - Vessel V-25001E Hydrogen Vent System
1.3 Subsystem	25-05		Hydrogen Storage Vessel E (V-25001E)

2 - OBSERVATION

On ATEX register (123A90-DDL-EL-LIS-20094) equipment is missing

Name: Luca Mussi
Date: 2025-02-17
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-17
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

The ATEX Register issued by FLUITEK has been updated and now reflects the equipment actually installed on BLPH. Document 123A90-DDL-EL-LIS-20094 will endorse and confirm the information contained in the updated ATEX Register.

Name: Raffaele Degli Esposti
Date: 2025-06-10
Signature:

5 - CLEARANCE CHECK

Gap fixed. Vessel torqued to structure.

Name: Raffaele Degli Esposti
Date: 2025-06-10
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003857

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004816	1.4 Discipline	ATEX
1.2 Item	25-PSV-016	Safety Valve - Vessel V-25001E Hydrogen Vent System	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Equipment ATEX identification label is missing

Name: Luca Mussi

Date: 2025-02-17

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-17
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Equipment ATEX label was installed by vendor on site.

Name: Giovanni Tangianu

Date: 2025-04-24

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003858

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004816	1.4 Discipline	ATEX
1.2 Item	25-PSV-016	Safety Valve - Vessel V-25001E Hydrogen Vent System	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

ATEX Declaration of Conformity by Manufacturer is missing

Name: Luca Mussi

Date: 2025-02-17

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-17
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Declaration of conformity has been provide by vendor.

Name: Giovanni Tangianu

Date: 2025-04-24

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003859

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004816	1.4 Discipline	ATEX
1.2 Item	25-PSV-016	Safety Valve - Vessel V-25001E Hydrogen Vent System	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

On ATEX register (123A90-DDL-EL-LIS-20094) equipment is missing

Name: Luca Mussi
Date: 2025-02-17
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-17
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

The ATEX Register issued by FLUITEK has been updated and now reflects the equipment actually installed on BLPH. Document 123A90-DDL-EL-LIS-20094 will endorse and confirm the information contained in the updated ATEX Register.

Name: Raffaele Degli Esposti
Date: 2025-06-10
Signature:

5 - CLEARANCE CHECK

Gap fixed. Vessel torqued to structure.

Name: Raffaele Degli Esposti
Date: 2025-06-10
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003861

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004746	1.4 Discipline	ATEX
1.2 Item	25-PG-046	Air Set Pressure Gauge Filter	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

On ATEX register (123A90-DDL-EL-LIS-20094) equipment model is MBS6P4S2PN07-ATEX while actual is MBS6P4S2PN6S-ATEX

Name: Luca Mussi
Date: 2025-02-17
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-17
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

ATEX register updated.

Name: Giovanni Tangianu
Date: 2025-04-17
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003862

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004760	1.4 Discipline	ATEX
1.2 Item	25-PSV-046	Safety Valve	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

On ATEX register (123A90-DDL-EL-LIS-20094 sheet 6) equipment SN is 24-03800 but actual is 24-03797

Name: Luca Mussi

Date: 2025-02-17

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-17
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

ATEX register updated.

Name: Giovanni Tangianu

Date: 2025-04-17

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003896

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001614	1.4 Discipline	ATEX
1.2 Item	25-PCV-016	Air Set Filter - Vessel V-25001E Hydrogen Vent System	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

On ATEX register (123A90-DDL-EL-LIS-20094) equipment is missing

Name: Luca Mussi
Date: 2025-02-17
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-17
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

The ATEX Register issued by FLUITEK has been updated and now reflects the equipment actually installed on BLPH. Document 123A90-DDL-EL-LIS-20094 will endorse and confirm the information contained in the updated ATEX Register.

Name: Raffaele Degli Esposti
Date: 2025-06-10
Signature:

5 - CLEARANCE CHECK

Gap fixed. Vessel torqued to structure.

Name: Raffaele Degli Esposti
Date: 2025-06-10
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003922

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001564	1.4 Discipline	ATEX
1.2 Item	25-BDV-016		On/Off Valve - Vessel V-25001E Hydrogen Vent System
1.3 Subsystem	25-05		Hydrogen Storage Vessel E (V-25001E)

2 - OBSERVATION

Scratches on painting, general touch-up to be performed

Name: Luca Mussi

Date: 2025-02-17

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-17
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-04-08

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-04-08

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-04-08

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003923

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001564	1.4 Discipline	ATEX
1.2 Item	25-BDV-016		On/Off Valve - Vessel V-25001E Hydrogen Vent System
1.3 Subsystem	25-05		Hydrogen Storage Vessel E (V-25001E)

2 - OBSERVATION

On ATEX register (123A90-DDL-LIS-20094 sheet 8) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.

Name: Luca Mussi
Date: 2025-02-17
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-17
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

The ATEX Register issued by FLUITEK has been updated and now reflects the equipment actually installed on BLPH. Document 123A90-DDL-EL-LIS-20094 will endorse and confirm the information contained in the updated ATEX Register.

Name: Raffaele Degli Esposti
Date: 2025-06-09
Signature:

5 - CLEARANCE CHECK

-

Name: Raffaele Degli Esposti
Date: 2025-06-09
Signature:

6- CLEARANCE APPROVAL

Name:
Date: 2025-06-10
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003938

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001983	1.4 Discipline	Instrumental
1.2 Item	AV-63012/25-BDV-016	Pneumatic Connection Air Supply - 25-BDV-016	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Missing support on the tubing side the 25-BDV-016 . See attached photo.

Name: Giovanni Tangianu

Date: 2025-02-17

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	2025-02-17
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:


rotork
fluid systems
www.rotork.com

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003940

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001983	1.4 Discipline	Instrumental
1.2 Item	AV-63012/25-BDV-016	Pneumatic Connection Air Supply - 25-BDV-016	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Missing SS tag both side the tubing.

Name: Giovanni Tangianu

Date: 2025-02-17

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	2025-02-17
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-20

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003942

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001982	1.4 Discipline	Instrumental
1.2 Item	AV-63012/25-PV-046	Pneumatic Connection Air Supply - 25-PV-046	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Missing SS tag both side the tubing.

Name: Giovanni Tangianu

Date: 2025-02-17

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	2025-02-17
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-20

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003948

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000174	1.4 Discipline	Instrumental
1.2 Item	C-25-BDY-016/00-JE-23001	SOLENOID VALVE / MARSHALLING PCS	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

the cable installed is temporary. To be replaced

Name: Andrea Andreani

Date: 2025-02-17

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	2025-02-17
3.5 Action by	PRE-COMM	Signature	

4 - PERFORMED ACTION

Name:

Date: 2025-04-08

Signature:

5 - CLEARANCE CHECK

THE CABLE HAS BEEN REPLACED.

Name: Giovanni Tangianu

Date: 2025-04-07

Signature:

6- CLEARANCE APPROVAL

Name:

Date: 2025-04-08

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003983

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001494	1.4 Discipline	ATEX
1.2 Item	25-PT-046		Pressure Transmitter - Vessel V-25001E Pressure Control
1.3 Subsystem	25-05		Hydrogen Storage Vessel E (V-25001E)

2 - OBSERVATION

Missing tag SS , on the instrument.

Name: Alessio Polo

Date: 2025-02-18

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-18
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-01

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003989

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001488	1.4 Discipline	ATEX
1.2 Item	25-PT-011		Pressure Transmitter - Vessel V-25001E Hydrogen Vent System
1.3 Subsystem	25-05		Hydrogen Storage Vessel E (V-25001E)

2 - OBSERVATION

Missing tag SS , on the instrument.

Name: Alessio Polo
Date: 2025-02-18
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-02-18
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic
Date: 2025-03-01
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003990

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001708	1.4 Discipline	ATEX
1.2 Item	25-PY-046		Electropositioner - Vessel V-25001E Pressure Control
1.3 Subsystem	25-05		Hydrogen Storage Vessel E (V-25001E)

2 - OBSERVATION

missing SS tag

Name: Andrea Andreani

Date: 2025-02-18

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	2025-02-18
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003991

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001708	1.4 Discipline	ATEX
1.2 Item	25-PY-046		Electropositioner - Vessel V-25001E Pressure Control
1.3 Subsystem	25-05		Hydrogen Storage Vessel E (V-25001E)

2 - OBSERVATION

On ATEX register (123A90-DDL-LIS-20094 sheet 7) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.

Name: Andrea Andreani

Date: 2025-02-18

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	2025-02-18
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

The verified information related to the item has been recorded in the AVEVA database, following field verification.

Please note that AVEVA is the continuously updated project database, from which the ATEX register is derived.

The relevant extract from AVEVA corresponding to the concerned tag is attached for reference.

Name: Raffaele Degli Esposti

Date: 2025-05-28

Signature:

5 - CLEARANCE CHECK

Refer to above

Name: Raffaele Degli Esposti

Date: 2025-05-28

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

25-PY-043	Positioner Control Valve (Vessel V-25001D pressure control)	LOWER DECK	1724000740	AST SpA	TISSIN	TI-TS905LC41S30 - 24050894	TS 900 Series	ATEX ZONE 2	EPS 19 ATEX 1 112 X	1724000740-IN-DS-00007	CE Ex - II 2G Ex db IIC T5 / T6	N/A	N/A	True	N/A	True			Instrument
25-PY-046	Positioner Control Valve (Vessel V-25001E pressure control)	LOWER DECK	1724000740	AST SpA	TISSIN	TI-TS905LC41S30 - 24050885	TS 900 Series	ATEX ZONE 2	EPS 19 ATEX 1 112 X	1724000740-IN-DS-00007	CE Ex - II 2G Ex db IIC T5 / T6	N/A	N/A	True	N/A	True			Instrument
25-PY-049	Positioner Control Valve (Vessel V-25001F pressure control)	LOWER DECK	1724000740	AST SpA	TISSIN	TI-TS905LC41S30 - 24050882	TS 900 Series	ATEX ZONE 2	EPS 19 ATEX 1 112 X	1724000740-IN-DS-00007	CE Ex - II 2G Ex db IIC T5 / T6	N/A	N/A	True	N/A	True			Instrument
25-PY-055A	Positioner Control Valve (Hydrogen from vessels outlet header pressure control)	LOWER DECK	1724000740	AST SpA	TISSIN	TI-TS905LC41S30 - 240508883	TS 900 Series	ATEX ZONE 2	EPS 19 ATEX 1 112 X	1724000740-IN-DS-00007	CE Ex - II 2G Ex db IIC T5 / T6	N/A	N/A	True	N/A	True			Instrument
25-PY-055B	Positioner Control Valve (Hydrogen from vessels outlet header pressure control)	LOWER DECK	1724000740	AST SpA	TISSIN	TI-TS905LC41S30 - 24050886	TS 900 Series	ATEX ZONE 2	EPS 19 ATEX 1 112 X	1724000740-IN-DS-00007	CE Ex - II 2G Ex db IIC T5 / T6	N/A	N/A	True	N/A	True			Instrument

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003992

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001584	1.4 Discipline	ATEX
1.2 Item	25-PV-046		Control Valve - Vessel V-25001E Pressure Control
1.3 Subsystem	25-05		Hydrogen Storage Vessel E (V-25001E)

2 - OBSERVATION

Scratches on painting, general touch-up to be performed

Name: Luca Mussi

Date: 2025-02-18

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-18
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-04-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003994

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001750	1.4 Discipline	ATEX
1.2 Item	25-ZSHL-046		Open/closed Limit Switches - Vessel V-25001E Pressure Control
1.3 Subsystem	25-05		Hydrogen Storage Vessel E (V-25001E)

2 - OBSERVATION

missing SS tag

Name: Andrea Andreani

Date: 2025-02-18

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	2025-02-18
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003997

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001571	1.4 Discipline	ATEX
1.2 Item	25-BDY-016	Solenoid Valve - Vessel V-25001E Hydrogen Vent System	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

On ATEX register (123A90-DDL-LIS-20094 sheet 8) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.

Name: Andrea Andreani
Date: 2025-02-18
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	2025-02-18
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

The ATEX Register issued by FLUITEK has been updated and now reflects the equipment actually installed on BLPH. Document 123A90-DDL-EL-LIS-20094 will endorse and confirm the information contained in the updated ATEX Register.

Name: Raffaele Degli Esposti
Date: 2025-06-12
Signature:

5 - CLEARANCE CHECK

Gap fixed. Vessel torqued to structure.

Name:
Date: 2025-06-12
Signature:

6- CLEARANCE APPROVAL

Name:
Date: 2025-06-12
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004055

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003555	1.4 Discipline	Piping
1.2 Item	25-05-TP-042	Test Pack 25-05-TP-042	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

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

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

C30004058

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003555	1.4 Discipline	Piping
1.2 Item	25-05-TP-042	Test Pack 25-05-TP-042	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Earthing plate totally painted.

Name: Lorenzo Novaga

Date: 2025-02-20

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	2025-02-20
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

C30004060

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003554	1.4 Discipline	Piping
1.2 Item	25-05-TP-042	Test Pack 25-05-TP-042	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Earthing lug not connected to earth.

Name: Lorenzo Novaga

Date: 2025-02-20

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	2025-02-20
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Gap fixed. Vessel torqued to structure.

Name:

Date:

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004203

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003555	1.4 Discipline	Piping
1.2 Item	25-05-TP-042	Test Pack 25-05-TP-042	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Color coding and fluid direction are missing.

Name: Lorenzo Novaga

Date: 2025-03-06

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	2025-03-06
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-03-20

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002199

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003317	1.4 Discipline	Piping
1.2 Item	25-05-TP-012	Test Pack 25-05-TP-012	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Sk.013 (Sh.1/1): Support PS-02016.2: position R1 has not been assembled yet.

Name: Kangi Albonetti

Date: 2024-12-28

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	2024-12-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Mancini

Date: 2025-01-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002418

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003505	1.4 Discipline	Piping
1.2 Item	25-05-TP-036	Test Pack 25-05-TP-036	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Spool has not been installed in erection. Inspection points from 4 to 5 of ITR "Inspection before test" to be checked during reinstatement.

Name: Lorenzo Novaga
Date: 2025-01-07
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	2025-01-07
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Activity done.

Name: Lorenzo Novaga
Date: 2025-02-14
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002670

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003553	1.4 Discipline	Piping
1.2 Item	25-05-TP-042	Test Pack 25-05-TP-042	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

For all piping supports the materials for the S-211, S-212 and C-16 standards have not yet been installed.

Name: Kangi Albonetti

Date: 2025-01-10

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	2025-01-10
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Activity done

Name: Lorenzo Novaga

Date: 2025-02-20

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002674

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003553	1.4 Discipline	Piping
1.2 Item	25-05-TP-042	Test Pack 25-05-TP-042	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

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: 2025-01-10
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	2025-01-10
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

C30002678

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003553	1.4 Discipline	Piping
1.2 Item	25-05-TP-042	Test Pack 25-05-TP-042	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Valves installation to be checked after test.

Name: Kangi Albonetti

Date: 2025-01-10

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	2025-01-10
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

checked during reinstatement

Name: Kangi Albonetti

Date: 2025-02-19

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002897

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003365	1.4 Discipline	Piping
1.2 Item	25-05-TP-018	Test Pack 25-05-TP-018	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

SK.093; PS-02017.1/.2/.3/.4: Positions R1, R2 and R3 have not been assembled.

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: Andrea Mancini

Date: 2025-02-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002906

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003365	1.4 Discipline	Piping
1.2 Item	25-05-TP-018	Test Pack 25-05-TP-018	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Spools have not been installed in erection. Inspection points from 4 to 6 to be checked during flange management in the reinstatement 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

DONE

Name: Andrea Mancini
Date: 2025-02-03
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003191

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001481	1.4 Discipline	ATEX
1.2 Item	25-FT-038	Flow Transmitter - Nitrogen to V-25001E Vessel	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Documentation: document 123A90-DDL-EL-LIS-20094 does not report what was installed in the field

Name: Alessio Polo

Date: 2025-01-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-01-24
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

The verified information related to the item has been recorded in the AVEVA database, following field verification.

Please note that AVEVA is the continuously updated project database, from which the ATEX register is derived.

The relevant extract from AVEVA corresponding to the concerned tag is attached for reference.

Name: Raffaele Degli Easposti

Date: 2025-05-27

Signature:

5 - CLEARANCE CHECK

Refer to above

Name: Raffaele Degli Esposti

Date: 2025-05-27

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


BROOKS INSTRUMENT Hatfield PA U.S.A.
-40°C <=Tamb <= 70°C, NEC Class 2 Supplies Only 30 Volts max., 4-20 mA,
Keep Cover Tight When In Operation. A SEAL SHALL BE INSTALLED WITHIN 50mm of the enclosure.
CAUTION: Unauthorized Adjustment May Cause Faulty Operation.
ATTENTION: Un montage incorrect peut entrainer un dysfonctionnement.
Indicator Part No. 273H407AAA Serial No. 06C43100315
Year 2024

Tag Number	Tag Description	Location	P.O.	Vendor	Manufacturer	Serial Number	Model Type Catalogue Number	Installation Zone	ATEX Certificate Number	Reference Document	ATEX Certification Marking	Notes / Comments	Skid / Package	Electrical Equipment	Barrier Calculation Ref.	Special Conditions of Safe Use Applicable	3D Location	3D Object	Physical Class Name
25-FT-031	Flowmeter Nitrogen to V-25001A vessel	LOWER DECK	1724000791	Brooks Instrument	Brooks Instrument	06C43100310	3809GCA10AGBC3D2C0AC	ZONE 2	DEKRA 13ATEX0086 X	1724000791-IN-DA-00003	II 2 G Ex db IIC T6...T1 Gb	N/A	N/A	True	N/A	True	HAZARDOUS-AREA_3 HAZARDOUS-AREA_2 HAZARDOUS-AREA_5 HAZARDOUS-AREA_6		Flow Transmitter
25-FT-032	Flowmeter Nitrogen to V-25001B vessel	LOWER DECK	1724000791	Brooks Instrument	Brooks Instrument	06C43100311	3809GCA10AGBC3D2C0AC	ZONE 2	DEKRA 13ATEX0086 X	1724000791-IN-DA-00003	II 2 G Ex db IIC T6...T1 Gb	N/A	N/A	True	N/A	True	HAZARDOUS-AREA_1 HAZARDOUS-AREA_2 HAZARDOUS-AREA_5 HAZARDOUS-AREA_4		Flow Transmitter
25-FT-033	Flowmeter Nitrogen to V-25001C vessel	LOWER DECK	1724000791	Brooks Instrument	Brooks Instrument	06C43100312	3809GCA10AGBC3D2C0AC	ZONE 2	DEKRA 13ATEX0086 X	1724000791-IN-DA-00003	II 2 G Ex db IIC T6...T1 Gb	N/A	N/A	True	N/A	True	HAZARDOUS-AREA_1 HAZARDOUS-AREA_4		Flow Transmitter
25-FT-034	Flowmeter Nitrogen to V-25001D vessel	LOWER DECK	1724000791	Brooks Instrument	Brooks Instrument	06C43100313	3809GCA10AGBC3D2C0AC	ZONE 2	DEKRA 13ATEX0086 X	1724000791-IN-DA-00003	II 2 G Ex db IIC T6...T1 Gb	N/A	N/A	True	N/A	True	HAZARDOUS-AREA_4		Flow Transmitter
25-FT-036	Flowmeter Nitrogen to V-25001F vessel	LOWER DECK	1724000791	Brooks Instrument	Brooks Instrument	06C43100314	3809GCA10AGBC3D2C0AC	ZONE 2	DEKRA 13ATEX0086 X	1724000791-IN-DA-00003	II 2 G Ex db IIC T6...T1 Gb	N/A	N/A	True	N/A	True	HAZARDOUS-AREA_5 HAZARDOUS-AREA_6		Flow Transmitter
25-FT-038	Flowmeter Nitrogen to V-25001E vessel	LOWER DECK	1724000791	Brooks Instrument	Brooks Instrument	06C43100315	3809GCA10AGBC3D2C0AC	ZONE 2	DEKRA 13ATEX0086 X	1724000791-IN-DA-00003	II 2 G Ex db IIC T6...T1 Gb	N/A	N/A	True	N/A	True	HAZARDOUS-AREA_5 HAZARDOUS-AREA_4		Flow Transmitter
64-FG-001	Flowmeter Nitrogen to hydrogen vent header	LOWER DECK	1724000791	Brooks Instrument	Brooks Instrument	06C43100316	3809GCC08BFBC9A0V0AC	ZONE 1/ZONE 2 - NO ELEC	MBID 022 Rev. A	1724000791-IN-DA-00003	II 2 G Ex h IIC T6...T3 Gb	N/A	N/A	False	N/A	True			Instrument

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003192

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001481	1.4 Discipline	ATEX
1.2 Item	25-FT-038	Flow Transmitter - Nitrogen to V-25001E Vessel	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

The plug is not installed according to the specifications. To be replaced with plug Ex-d/e IIC , (see 123A90-DDL-IN-HD-40079_Rev.02 sh. 12).

Name: Alessio Polo

Date: 2025-01-24

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
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

Installed.

Name: Giovanni Tangianu

Date: 2025-03-08

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:


CAUTION
USE ASSISTANCE
Tag No: 25-FT-032
WARNING
ASSEMBLED IN:
Hungary

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003193

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000034	1.4 Discipline	Instrumental
1.2 Item	C-25-FT-038/00-JE-11003	FLOW TRANSMITTER / MARSHALLING PCS	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Missing cores identification tag. side JB 00-JE-11003 . (see document 123A90-DDL-IN-DG-40016 sh.3)

Name: Alessio Polo
Date: 2025-01-24
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
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

DONE

Name: Alessio Polo
Date: 2025-02-11
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003210

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001703	1.4 Discipline	ATEX
1.2 Item	25-FY-038	Electropositioner - Nitrogen to V-25001E Vessel	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

On ATEX register (123A90-DDL-LIS-20094) Manufacturer, Atex certificate, SN, Atex marking etc. are missing or wrong.

Name: Alessio Polo
Date: 2025-01-25
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-01-25
3.5 Action by	ENG Engineering	Signature	

4 - PERFORMED ACTION

The verified information related to the item has been recorded in the AVEVA database, following field verification.

Please note that AVEVA is the continuously updated project database, from which the ATEX register is derived.

The relevant extract from AVEVA corresponding to the concerned tag is attached for reference.

Name: Raffaele Degli Esposti
Date: 2025-05-27
Signature:

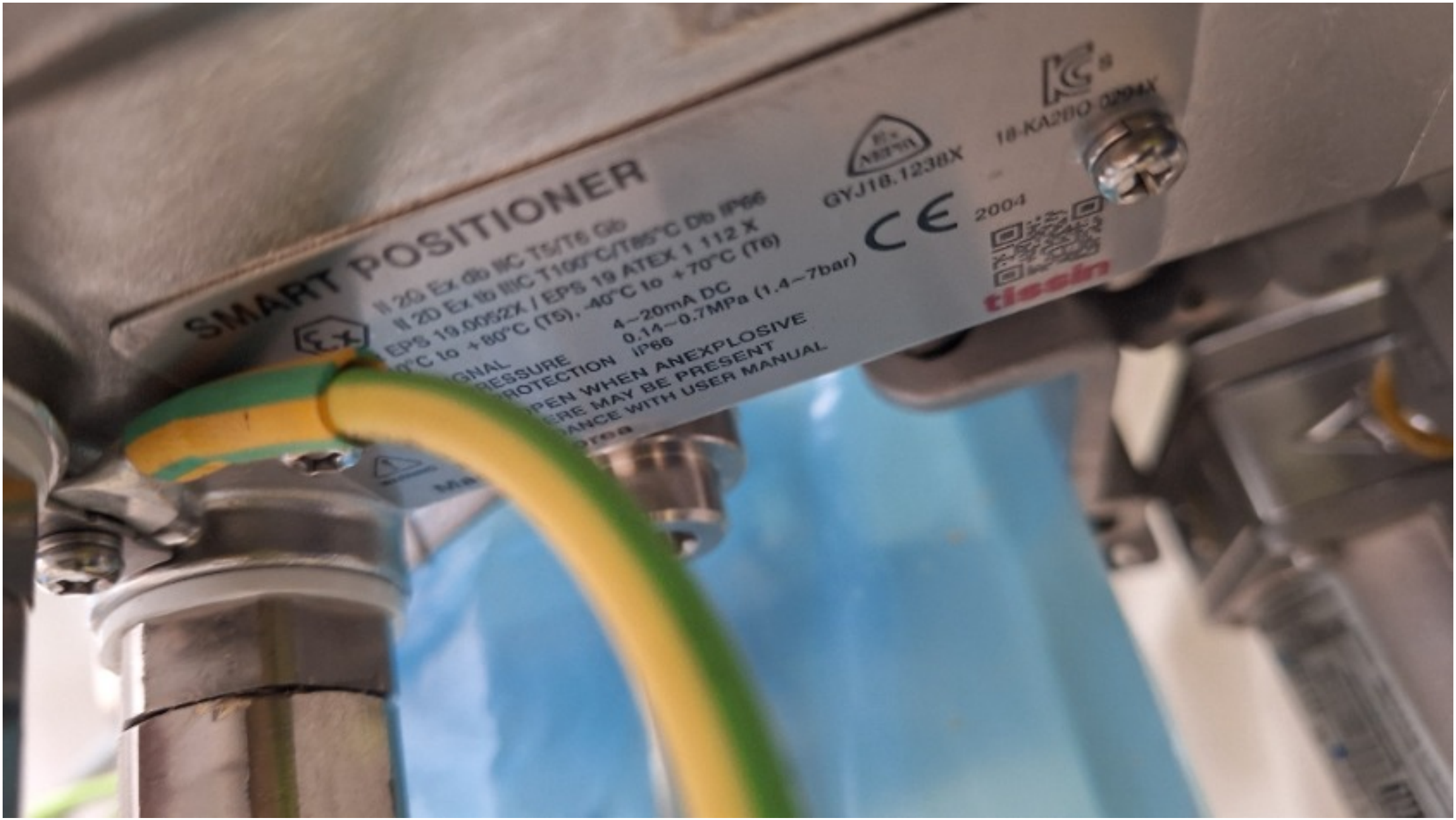
5 - CLEARANCE CHECK

Refer to above

Name: Raffaele Degli Esposti
Date: 2025-05-27
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:


SMART POSITIONER
II 2G Ex db IIC T5/T6 Gb
II 2D Ex tb IIIC T100°C/T85°C Db IP66
EPS 19.0052X / EPS 19 ATEX 1 112 X
-40°C to +80°C (T5), -40°C to +70°C (T6)
4~20mA DC
0.14~0.7MPa (1.4~7bar)
IP66
GYJ18.1238X
2004
tiesin

SMART POSITIONER
Model No.
TS905L-C41530
Serial No.
24050890
Operating Temp.
-30°C~+80°C
tiesin
www.tiesin.co.kr
Imported by LGM ENGINEERING srl -Italy-

Tag Number	Tag Description	Location	P.O.	Vendor	Manufacturer	Serial Number	Model Type Catalogue Number	Installation Zone	ATEX Certificate Number	Reference Document	ATEX Certification Marking	Notes / Comments	Skid / Package	Electrical Equipment	Barrier Calculation Ref.	Special Conditions of Safe Use Applicable	3D Location	3D Object	Physical Class Name
25-FY-031	Positioner Control Valve (Nitrogen to V-25001A vessel)	LOWER DECK	1724000740	AST SpA	TISSIN	TI-TS905LC41S30 - 24050893	TS 900 Series	ATEX ZONE 2	EPS 19 ATEX 1 112 X	1724000740-IN-DS-00007	CE Ex - II 2G Ex db IIC T5 / T6	N/A	N/A	True	N/A	True			Instrument
25-FY-032	Positioner Control Valve (Nitrogen to V-25001B vessel)	LOWER DECK	1724000740	AST SpA	TISSIN	TI-TS905LC41S30 - 24050891	TS 900 Series	ATEX ZONE 2	EPS 19 ATEX 1 112 X	1724000740-IN-DS-00007	CE Ex - II 2G Ex db IIC T5 / T6	N/A	N/A	True	N/A	True			Instrument
25-FY-033	Positioner Control Valve (Nitrogen to V-25001C vessel)	LOWER DECK	1724000740	AST SpA	TISSIN	TI-TS905LC41S30 - 24050887	TS 900 Series	ATEX ZONE 2	EPS 19 ATEX 1 112 X	1724000740-IN-DS-00007	CE Ex - II 2G Ex db IIC T5 / T6	N/A	N/A	True	N/A	True			Instrument
25-FY-034	Positioner Control Valve (Nitrogen to V-25001D vessel)	LOWER DECK	1724000740	AST SpA	TISSIN	TI-TS905LC41S30 - 24050881	TS 900 Series	ATEX ZONE 2	EPS 19 ATEX 1 112 X	1724000740-IN-DS-00007	CE Ex - II 2G Ex db IIC T5 / T6	N/A	N/A	True	N/A	True			Instrument
25-FY-036	Positioner Control Valve (Nitrogen to V-25001F vessel)	LOWER DECK	1724000740	AST SpA	TISSIN	TI-TS905LC41S30 - 24050888	TS 900 Series	ATEX ZONE 2	EPS 19 ATEX 1 112 X	1724000740-IN-DS-00007	CE Ex - II 2G Ex db IIC T5 / T6	N/A	N/A	True	N/A	True			Instrument
25-FY-038	Positioner Control Valve (Nitrogen to V-25001E vessel)	LOWER DECK	1724000740	AST SpA	TISSIN	TI-TS905LC41S30 - 24050890	TS 900 Series	ATEX ZONE 2	EPS 19 ATEX 1 112 X	1724000740-IN-DS-00007	CE Ex - II 2G Ex db IIC T5 / T6	N/A	N/A	True	N/A	True			Instrument

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003212

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001747	1.4 Discipline	ATEX
1.2 Item	25-ZSHL-038	Open/closed Limit Switches - Nitrogen to V-25001E Vessel	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

The enclosure gasket is damage. To be replace

Name: Alessio Polo

Date: 2025-01-27

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Alessio Polo
3.4 Activity code	MC Mechanical Completion	Date	2025-01-27
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-31

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003241

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002391	1.4 Discipline	Mechanical
1.2 Item	V-25001E	Hydrogen storage vessel A	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

The vessel has not been positioned as for layout document 123A90-DDL-IN-DL-40081 but has been positioned in place of the vessel B.

Name: Mattia Biaggioni
Date: 2025-01-28
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Mattia Biaggioni
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

PL closed as for Reaction plan described in NCR.2025-Q-123A90-0003.

Name: Kangi Albonetti
Date: 2025-02-12
Signature:

6- CLEARANCE APPROVAL

Name:
Date:
Signature:

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003248

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002391	1.4 Discipline	Mechanical
1.2 Item	V-25001E	Hydrogen storage vessel A	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Internal inspection of Vessel has not been performed. Manway shall be opened to carry out internal inspection.

Name: Mattia Biaggioni

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

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

4 - PERFORMED ACTION

Manways have been opened and the vessel has been cleaned inside.

Name: Daniele Cavirani

Date: 2025-02-12

Signature:

5 - CLEARANCE CHECK

Internal inspection performed after opening of manways. The internal of the vessel has been deemed acceptable both for cleanliness and congruence with design.

Name: Kangi Albonetti

Date: 2025-02-12

Signature:

6- CLEARANCE APPROVAL

Cleaniness reviewed together with Ballard representative.

Name: Jan Duinhoven

Date: 2025-02-12

Signature:





ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003260

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004755	1.4 Discipline	ATEX
1.2 Item	25-PSV-038	Safety Valve	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

On ATEX register (123A90-DDL-EL-LIS-20094 sheet 6) SN is 24-03795 but actual is 24-03803

Name: Luca Mussi

Date: 2025-01-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
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

ATEX register updated.

Name: Giovanni Tangianu

Date: 2025-04-17

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003285

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10003318	1.4 Discipline	Piping
1.2 Item	25-05-TP-012	Test Pack 25-05-TP-012	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

MIssing earthing connection on earthing plate (Vessel V -25001E side)

Name: Andrea Mancini

Date: 2025-01-29

Signature:

3 - DEFECT ASSESSMENT

MIssing earthing connection on earthing plate (Vessel V -25001E side)

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	2025-01-29
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done

Name: Luca Mussi

Date: 2025-02-14

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003350

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004741	1.4 Discipline	ATEX
1.2 Item	25-PG-038	Air Set Pressure Gauge Filter	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

On ATEX register equipment model is MBS6P4S2PN07-ATEX while actual is MBS6P4S2PN6S-ATEX

Name: Luca Mussi

Date: 2025-01-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

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

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

ATEX register updated.

Name: Giovanni Tangianu

Date: 2025-04-17

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003351

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004741	1.4 Discipline	ATEX
1.2 Item	25-PG-038	Air Set Pressure Gauge Filter	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Equipment ATEX label is missing

Name: Luca Mussi

Date: 2025-01-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-01-30
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Label provided

Name: Luca Mussi

Date: 2025-02-03

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003359

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002391	1.4 Discipline	Mechanical
1.2 Item	V-25001E	Hydrogen storage vessel A	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Bolts and nuts of manholes are rusted.

Name: Mattia Biaggioni

Date: 2025-01-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Mattia Biaggioni
3.4 Activity code	MC Mechanical Completion	Date	2025-01-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Cleaned and preserved.

Name: Kangi Albonetti

Date: 2025-02-25

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003364

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002391	1.4 Discipline	Mechanical
1.2 Item	V-25001E	Hydrogen storage vessel A	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Earthing lug not connected.

Name: Kangi Albonetti

Date: 2025-01-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Earthing connection completed.

Name: Kangi Albonetti

Date: 2025-02-18

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003374

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002391	1.4 Discipline	Mechanical
1.2 Item	V-25001E	Hydrogen storage vessel A	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

Painting touch-ups to be made after installation.

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	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-04-11

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003391

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002391	1.4 Discipline	Mechanical
1.2 Item	V-25001E	Hydrogen storage vessel A	
1.3 Subsystem	25-05	Hydrogen Storage Vessel E (V-25001E)	

2 - OBSERVATION

There is an unacceptable gap between saddle and basement. Not fixed to the structure.

Name: Kangi Albonetti

Date: 2025-01-30

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Kangi Albonetti
3.4 Activity code	MC Mechanical Completion	Date	2025-01-30
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Gap fixed. Vessel torqued to structure.

Name: Kangi Albonetti

Date: 2025-03-01

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: 25-05 & discipline : I

Instrumental	25-05 Hydrogen Storage Vessel E (V-25001E)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
25-BDV-016	On/Off Valve - Vessel V-25001E Hydrogen Vent System	ONSHORE	C10003206	FJ01V	100	2025-03-26	RFO 1
25-FIC-038	Nitrogen to V-25001E vessel	ONSHORE	C10003748	FJ01C	100	2025-03-26	RFO 1
25-FT-038	Flow Transmitter - Nitrogen to V-25001E Vessel	ONSHORE	C10003160	FJ01A	100	2025-03-19	RFO 1
25-FV-038	Control Valve - Nitrogen to V-25001E Vessel	ONSHORE	C10004380	FJ04	100	2025-03-17	RFO 1
25-PIC-046	Vessel V-25001E pressure control	ONSHORE	C10003753	FJ01C	100	2025-03-26	RFO 1
25-PT-011	Pressure Transmitter - Vessel V-25001E Hydrogen Vent System	ONSHORE	C10003167	FJ01A	100	2025-03-26	RFO 1
25-PT-046	Pressure Transmitter - Vessel V-25001E Pressure Control	ONSHORE	C10003173	FJ01A	100	2025-03-19	RFO 1
25-PV-046	Control Valve - Vessel V-25001E Pressure Control	ONSHORE	C10004385	FJ04	100	2025-03-17	RFO 1

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	25-FT-038	: Flow Transmitter - Nitrogen to V-25001E Vessel	Dwg	123A90-DDL-IN-DS-40045		
	S/Sys	25-05	: Hydrogen Storage Vessel E (V-25001E)	Module	UD		
TASK	code	C10003160	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form	FJ01A		Analog Loop

LOOP DATA

Loop TAG	25-FT-038			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	06A/06B	Slot	03	Rack	01	Chanel	06

LOOP TEST

1	Check earth isolation of the loop						OK
2	Connect loop to terminal						OK
3	Confirm Process Scale	Unit	NM3/H	Min	6,2	Max	62	OK

LOOP RANGE			**0%**	**25%**	**50%**	**75%**	**100%**
4	Physical value applied for test	Unit mA	4				20
5	Control System Display	Unit NM3/H	6,3				62

LOOP SERVICE

		Value	Trip	Gen Alarm	DCS Alarm	SOE	DCS display	
6	Threshold 1	NA	NA	NA	NA	NA	NA	NA
7	Threshold 2	NA	NA	NA	NA	NA	NA	NA
8	Threshold 3	NA	NA	NA	NA	NA	NA	NA
9	Threshold 4	NA	NA	NA	NA	NA	NA	NA
10	Checking of line monitoring	NA	NA	NA	NA	NA	NA	NA
11	Checking of Maintenance Inhibition	NA	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
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	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 2025-03-17T16:14:22.226Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-03-18T06:48:44.026Z	PROVERLIS Digitaly signed by John Mackillop 2025-03-19T12:12:33.740Z

Product/Calibration Data Sheet

PPDS: 3.2
VASE: 5.9

Device Information

Serial Number
06C43100315

Model Number
MT3809

Customer Name
ROSETTI MARINO S.p.A

Customer PO Number
6032967

Customer Fluid
N2

Full Scale Flow
62 m3/h

Reference Temperature
0.00 °C

Customer Pressure
3 bar(g)

Customer Viscosity
0.0173cP

Customer Temperature
10.50 °C

Customer Fluid Density
0.0048 GM/CC

Calibration Information

Calibration Fluid
AIR

Calibration Flow Rate
1140.045 lpm

Calibration Pressure
50.78 psig

Calibration Temperature
70.00 °F

Calibration Location
Szekesfehervar

Calibration Procedure
834P054 // CAL038

Calibration Software/Revision
VA CAL.Rev 2.8.5.0 SW PN 805E002

Calibration Date
9/20/2024

Calibration System ID
06000/004

Calibrator Clock Number
472

Mechanical Information

Tube
Size 10-A

Float
10-A, 316L SS

Meter Accuracy
1

Accuracy Scale
% FS

Customer Tag or Part #
25-FT-038

Reference Number
1

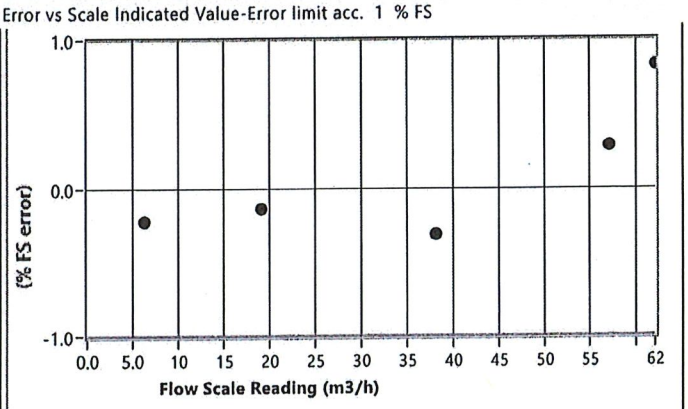
Alternate ID
N/A

Calibration Notes
WITNESSED ON 04/OCT/2024

Scale Check Data

Scale Reading	Flow (m3/h)	Error (% of FS)
62.00	62.515814	0.83
57.00	57.178111	0.29
38.00	37.808238	-0.31
19.00	18.916276	-0.14
6.20	6.064359	-0.22

Error vs Scale Indicated Value-Error limit acc. 1 % FS



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1-4-4 Kitasuna Koto-Ku
Tokyo, 136-0073, Japan
T 011-81-3-5633-7105
F 011-81-3-5633-7124

BROOKS® INSTRUMENT

This report shall not be reproduced, except in full, without written approval from Brooks Instrument.

On behalf of RM
[X] Witness [ ] Review
Name: Vince Guy
Date:

Ref. OPN-001

Witnessed by
Milad Mousavi
Fulcrum on behalf of crosswind
04.10.2024

VA Web Sizing App v5.9

Step 4: Generate scale details

User input fields are shaded.

Fluid Name	NITROGEN, N2		
Temperature	10.5 °C	Density	0.004774 GM/CC
Back Pressure	3 BARG	Viscosity	0.01725 cP
Phase	Gas		
Flow Type	Standard VolumetricFlow		
Flow Rate	62 NM3/H		
Ref Cond	0 °C & 1 atm		
Prod Family	MT3809	Tube	Size 10-A
Size	10	Float	10-A, 316L SS

This application performs VA flow meter sizing calculations only. Product pressure and temperature limitations are not considered. This application is not intended to replace the selection by a qualified person.

Scale Details

Scale Details

```
Scale range: 6.2 - 62
NM3/H  N2 @ 10.5 °C & 3 BARG
```

Comments

Tag Numbers: 25-FT-031, 25-FT-032, 25-FT-033, 25-FT-034, 25-FT-036, 25-FT-038

General Data	1	Tag Number					25-FT-038			
	2	Service					NITROGEN TO HYDROGEN STORAGE VESSEL (V-25001E)			
	3	Area Classification					ATEX Zone2 - IIC (IIB+H2) T1			
	4	Line No.		Line Class			1"-HY-190-03HSS-N			
	5	Line Size		Line Schedule			1"		Thk (mm) = 3.38	
	6	P&ID No.					123A90-DDL-PR-PID-80020			
	7									
Process Data	8	Fluid		State			NITROGEN		GAS	
	9	Ambient Temperature (min/norm/max)					-8.4 / 10.5 / 25			°C
	10	Design Pressure								bar (G)
	11	Flow Rate	Min.	Nor.	Max.	Units		40		NM3/H
	12	Press.	Min.	Nor.	Max.	Units		0 - 3		bar (G)
	13	Temp.	Min.	Nor.	Max.	Units		15		°C
	14	Density	Min.	Nor.	Max.	Units				
	15	Molecular Weight	Min.	Nor.	Max.	Units				
	16	Viscosity	Min.	Nor.	Max.	Units				cP
	17	Pressure Drop					60			mbar
	18									
Meter	19	Type					Armoured Metal Tube Variable Area Flowmeters - Magnetic			
	20	Connection Size & Type					1" ANSI 300# RF Flange			
	21	Tube Material					316SS/316L SS Dual Cert.			
	22	Float Material					316L SS			
	23	Connection Material					316SS/316L SS Dual Cert.			
	24	Meter Scale Range					6.2 - 62			NM3/H
	25	Accuracy					1% F.S. / Direct Reading Scale			
	26	Inlet Direction		Outlet Direction			Bottom		Top	
	27									
Indicator / Transmitter	28	Output Signal					Local Indicator with 4-20mA / Hart 7			
	29	Calibration Range					6.2 - 62			NM3/H
	30	Power Supply					24 VDC Loop Power / 2 wired			
	31	Elect. Connection		Elect. Material			M20 x 1.5			N/A
	32	Elect. Protect Class					Div 1 ABCD / Zone 1 IIC, Flame-proof XP - ATEX/IECEX/CSA			
	33	Surge Protection Device					3809 Transmitter designed as per IEC61000-4.5			
	34	Indicator Housing					X-proof SS Housing, IP66/67			
	35									
Accessories / Special Service	36	Adjustable Valve					N/A			
	37	Valve Connection Size & Type					N/A			
	38	Pressure Gauge		Pressure Regulator			N/A		N/A	
	39	Painting					N/A			
	40	Tag Plate (316SS wired)					Included			
	41	Name Plate (316SS wired)					Included			
	42									
Purchase	43	Manufacturer					Brooks Instrument			
	44	Model No.					3809GCA10AGBC3D2C0AC			
	45	Serial No.								
	46	Purchase Order Number					PO 1724000791			
	47									

Notes :

No.	By	Date	Revision
D	KP	08/11/2024	Issued for Approval
C	KP	19/09/2024	Issued for Approval
B	KP	01/07/2024	Issued for Approval
A	KP	05/06/2024	Issued for Review

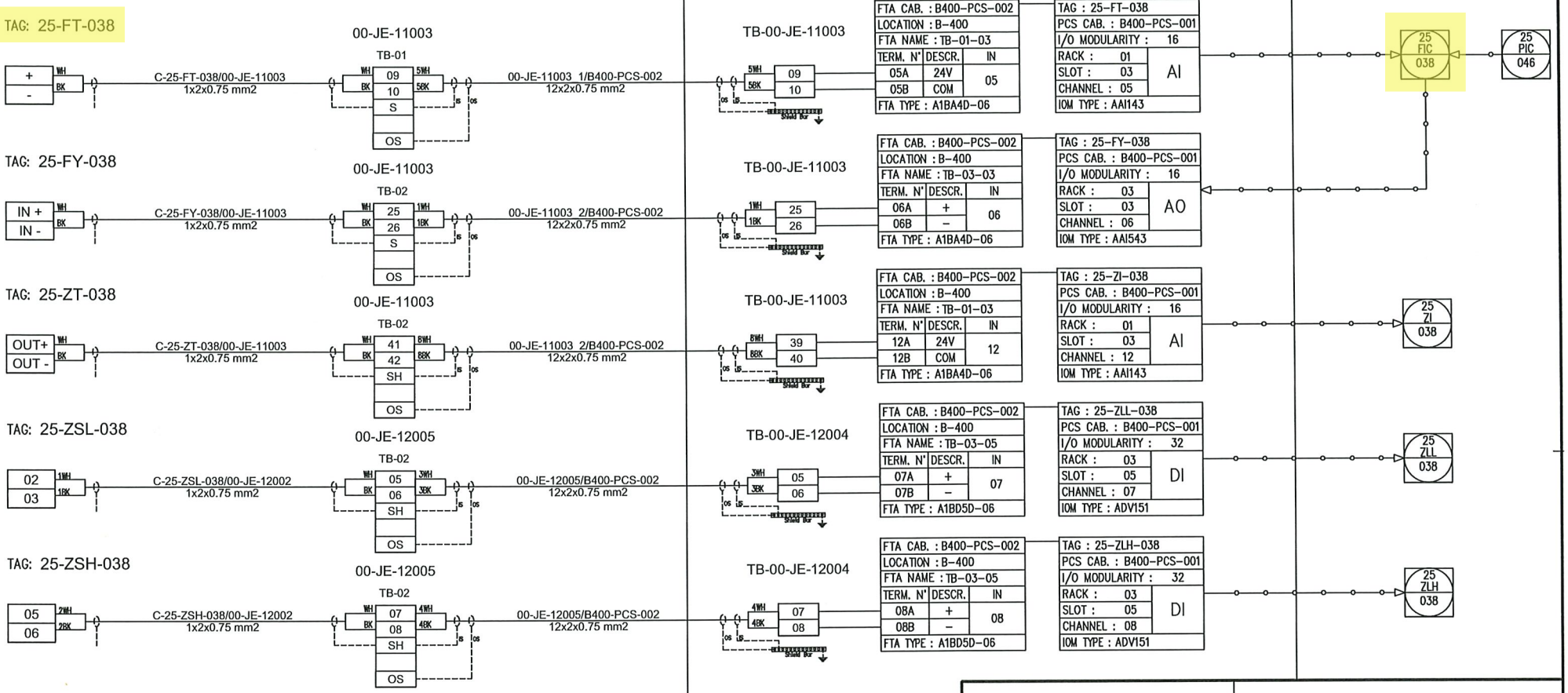
INSTRUMENT DATA SHEET FOR ROTAMETER

BROOKS® INSTRUMENT *Beyond Measure*

Doc. No.	Instrument Data Sheet	Sheet	6 of 7
		Rev.	D

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

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



NO MARK UP
LGrigoni
08/03/25

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
25-FIC-038
NITROGEN TO V-25001E VESSEL

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 028 | REV. 01

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

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	25-PT-011	: Pressure Transmitter - Vessel V-25001E Hydrogen Vent System		Dwg	123A90-DDL-IN-DS-40039	
	S/Sys	25-05	: Hydrogen Storage Vessel E (V-25001E)		Module	UD	
TASK	code	C10003167	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form	FJ01A	Analog Loop

LOOP DATA

Loop TAG	25-PT-011			TSLD	123A90-FDL-IN-DG-40014 rev.1A		
IO Type	Input	Yes	Output	No	Energy by transmitter	No	Energy by system	Yes
Marshalling	B400-SIS-001	Terminal	05A/05B	Slot	01	Rack	01	Chanel	05

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	40	OK

LOOP RANGE

			0%	25%	50%	75%	100%
4	Physical value applied for test	Unit barg	0	10	20	30	40
5	Control System Display	Unit barg	0	10	19,98	29,99	39,99

LOOP SERVICE

		Value	Trip	Gen Alarm	DCS Alarm	SOE	DCS display	
6	Threshold 1	38 barg	Yes	Yes	Yes	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		ESD-1D					OK
13	Associated outputs							NA

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
PRESSURE GAUGE WIKA MOD. CPG1500	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	OK

Comments:

Page 1/1	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CROSSWIND
Name	Laurentiu Grozavu	Giandonato Delmissier	Gerry McCann
Date	2025-03-20	2025-03-20	2025-03-26
Signature	PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-03-20T06:57:19.226Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-03-20T13:03:45.012Z	PROVERLIS Digitaly signed by Gerry McCann 2025-03-26T09:18:29.221Z

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 STORAGE VESSEL V-25001E	Instrument Tag	25-PT-011
Area	V-25001E	Loop Tag	25-PI-011	Report N°	011
Type of verification	periodic	Calibration range	0,00 ÷ 40,00 bar	Reference procedure data sheet	123A90-PML-QHSE-PRO-00122 Page N°8
Type of instrument	Pressure meter	Max uncertainty required	± 0,070 % s.r.		

UNDER EXAMINATION INSTRUMENT 'S DATA

Tag	Manufacture	Model	S/N
25-PT-011	SPRIANO	SST76	SE240644

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	0639/MP/2024 _ LAT 150	± 0,001 c.s.	24/04/2024
BEAMEX	EXT600	64024	0639/MP/2024 _ LAT 150	± 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	
0,00	4,00	4,000	+0,000	+0,000
10,00	8,00	7,999	-0,001	-0,006
20,00	12,00	11,994	-0,006	-0,039
30,00	16,00	15,996	-0,005	-0,028
40,00	20,00	19,997	-0,003	-0,020
30,00	16,00	15,995	-0,005	-0,031
20,00	12,00	11,995	-0,005	-0,031
10,00	8,00	7,999	-0,001	-0,006
0,00	4,00	3,999	-0,001	-0,006
		max error detected %		0,039

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*

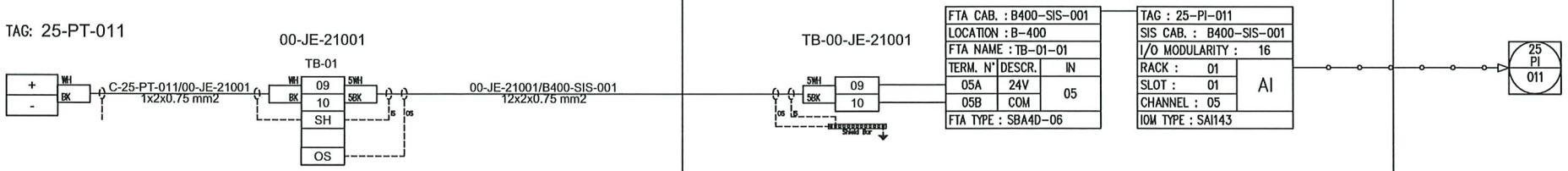
ABR SERVICE srl
Via M. Monti, 40 - 48123 RAVENNA
Tel. 0544 685411
C.F. e P.IVA 02764420390

GENERAL	1	Tag Number		25-PT-011	
	2	Service		HYDROGEN STORAGE VESSEL (V-25001E)	
	3	P&ID Number	Location	123A90-DDL-PR-PID-80019	V-25001E
	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]	40	30
	10	Temperature Des.	Oper. [°C]	-10 / + 80 °C	Amb.
	11	Oper. Spec. Gravity	Oper. Viscosity	-	-
	12	Flow Rate	Allowable Temp.	-	-
TRANSMITTER	13	Instrument Range Min.	Max. [barg]	0	100
	14	Calibration Range Min.	Max. [barg]	0	40
	15	Elevation	Suppression	-	-
	16	Element Type		Diaphragm	
	17	Element Material		SS AISI 316/316L GOLD PLATED	
	18	Body Material	Body Rating	AISI 316 SS	200 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	SIL2	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-L-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
	SAFETY INSTRUMENTED SYSTEM	OPERATOR CONSOLE



NO MARK UP
Logjam
18/03/25

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
25-PI-011
VESSELS V-25001E HYDROGEN VENT SYSTEM

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 084	REV. 01

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

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	25-PT-046	: Pressure Transmitter - Vessel V-25001E Pressure Control	Dwg	123A90-DDL-IN-DS-40039		
	S/Sys	25-05	: Hydrogen Storage Vessel E (V-25001E)	Module	UD		
TASK	code	C10003173	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form	FJ01A		Analog Loop

LOOP DATA

Loop TAG	25-PT-046			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	05A/05B	Slot	01	Rack	01	Chanel	05

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	40		OK

LOOP RANGE			0%	25%	50%	75%	100%	
4	Physical value applied for test	Unit	barg	0	10	20	30	40	
5	Control System Display	Unit	barg	-0,1	9,99	20,01	30	39,99	

LOOP SERVICE

		Value	Trip	Gen Alarm	DCS Alarm	SOE	DCS display	
6	Threshold 1	1,5 barg	No		Yes	NA	OK	OK
7	Threshold 2	4 barg	No		Yes	NA	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		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 2025-03-17T14:32:53.660Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-03-18T06:52:02.701Z	PROVERLIS Digitaly signed by John Mackillop 2025-03-19T12:13:53.844Z

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 STORAGE VESSEL V-25001E		
Area	V-25001E	Loop Tag	25-PI-046	Instrument Tag	25-PT-046
Type of verification	periodic	Calibration range	0,00 ÷ 40,00 bar	Report N°	012
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
25-PT-046	SPRIANO	SST76	SE240645

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	0639/MP/2024 _ LAT 150	± 0,001 c.s.	24/04/2024
BEAMEX	EXT600	64024	0639/MP/2024 _ LAT 150	± 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	
0,00	4,00	3,999	-0,001	-0,006
10,00	8,00	7,991	-0,009	-0,056
20,00	12,00	12,002	+0,002	+0,013
30,00	16,00	16,001	+0,001	+0,006
40,00	20,00	19,991	-0,009	-0,056
30,00	16,00	16,000	+0,000	+0,000
20,00	12,00	12,001	+0,001	+0,006
10,00	8,00	7,992	-0,008	-0,050
0,00	4,00	3,999	-0,001	-0,006
		max error detected %		0,056

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 %		0,000

Check:

Verification activation of blocks/threshold alarms

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

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
20/09/2024	09/2025	PENSO SILVIO		
		signature	*signature*	*signature*

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

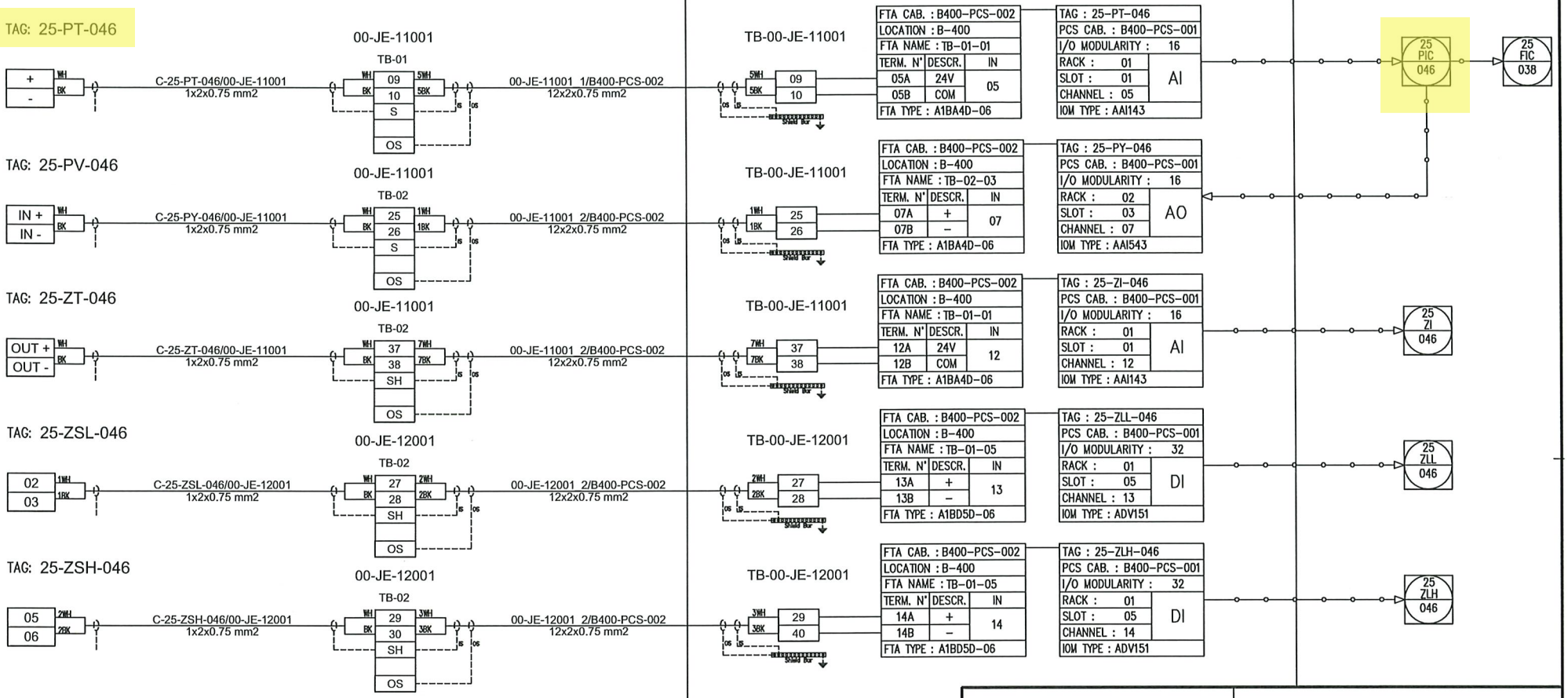
GENERAL	1	Tag Number		25-PT-046	
	2	Service		HYDROGEN STORAGE VESSEL (V-25001E)	
	3	P&ID Number	Location	123A90-DDL-PR-PID-80019	V-25001E
	4	Function		PRESSURE MEASUREMENT	
	5	Mounting		DIRECT ON-LINE	
	6	Area Classification		ATEX Zone2 - IIC (IIB+H2) T1	
	7	Ambient Temperature		Min: -8.4 °C, Norm: 10.5 °C, Max: +25.0 °C.	
PROCESS CONDITIONS	8	Fluid		HYDROGEN	
	9	Pressure Des.	Oper. [barg]	40	30
	10	Temperature Des.	Oper. [°C]	-10 / + 80 °C	Amb.
	11	Oper. Spec. Gravity	Oper. Viscosity	-	-
	12	Flow Rate	Allowable Temp.	-	-
TRANSMITTER	13	Instrument Range Min.	Max. [barg]	0	100
	14	Calibration Range Min.	Max. [barg]	0	40
	15	Elevation	Suppression	-	-
	16	Element Type		Diaphragm	
	17	Element Material		SS AISI 316/316L GOLD PLATED	
	18	Body Material	Body Rating	AISI 316 SS	200 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-L-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
LGW
02/03/25

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
25-PIC-046
V-25001E PRESSURE CONTROL

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 033 | REV. 01

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

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	25-BDV-016	: On/Off Valve - Vessel V-25001E Hydrogen Vent System			Dwg	123A90-DDL-IN-LIS-40088
	S/Sys	25-05	: Hydrogen Storage Vessel E (V-25001E)			Module	UD
TASK	code	C10003206	Location	Onshore Activities		User	Rosetti Marino Quality Control
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form FJ01V	ON/OFF Valve

Data

Loop TAG: 25-BDV-016 — TDSL Rev: 123A90-FDL-IN-DG-40014 rev.1A — Valve type: ON/OFF VALVE

Functional Test					Associated Tag	Comment	Result
Local reset							NA
Remote command : Solenoid valve 1 energized					25-BDY-016		OK
Remote command : Solenoid valve 2 energized							OK
Local indication of the valve position							NA
Open limit switch					25-ZSH-016		OK
Closed limit switch					25-ZSL-016		OK
Pressure transmitter on control line							NA
Local closing command							NA
Local opening command							NA
Opening time	1	sec	Restriction adjusted	No			OK
Closing time	1	sec	Restriction adjusted	No			OK
Interlock function							NA
Fail safe position on loss of electrical signal					OPEN		OK
Fail safe position on loss of power fluid					OPEN		OK
Timer checking						4 SEC.	OK
Number of operations on accumulator							NA
ESD signal and solenoid valve test facility							OK
Solenoid valve override indication on ICS							OK
Local indication of the solenoid valve deenergization							NA
Partial stroke cheching							NA

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity
MULTIMETER FLUKE 175	AW1/018 17140769	7715/24	10/07/2025

Comments:

	Performed by	☉ WITNESS ☐ REVIEW	☉ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CROSSWIND
Name	Laurentiu Grozavu	Giandonato Delmissier	Gerry McCann
Date	2025-03-20	2025-03-20	2025-03-26
Signature	PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-03-20T08:30:03.394Z	PROVERLIS Digitaly signed by Giandonato Delmissier 2025-03-20T13:06:36.953Z	PROVERLIS Digitaly signed by Gerry McCann 2025-03-26T09:29:41.490Z

GENERAL	1	Tag Number	Location			25-BDV-016		25
	2	Service				HYDROGEN STORAGE TANK V-25001E DEPRESS.		
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80019		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				4"-HY-180-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet		4" / 3.05 mm		4" / 3.05 mm
	6	Line Material	Line Insulation			ASTM A312/TP316/316L		NOT INSUL. (PAINTED) (35)
PROCESS DATA	7	Fluid				HYDROGEN		
	8	Fluid State	Phase			GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]	40		
	11	Operating Temperature Norm/Min/Max			[°C]	AMB	-	-
	12	Design Temperature	Minimum	Maxi	[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size			[bar]	40		
	14							
	15							
	16	Speed of	Design			Close : (12)		Open : (12)
	17	Operation (seconds)	Actual			Close : 0.3 minimum		Open : -
	18							
	19							
VALVE BODY (34)	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BA03C01RFH)		
	21	Body Size	Body Form			4"		FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F316/316L		(*)
	23	Connections	Rating			FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material			RF		Inside the valve (*) (38)
	25	Packing	Lubrication & Isolation			A479 Tp 316		(*)
	26	Bolting				A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat	A182 F316/316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class				(1)		
	29	Fire Safe				(2)		
ACTUATOR	30	Manufacturer	Type			Rotork		Spring Return
	31	Model No.	Size			CP/S		055-250A/CA
	32	Actuator Orientation	Actuator Form			Horizontal		Cylinder
	33	Ingress Protection	Certification			IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			OPEN		OPEN
	36	Fireproofing				NOT APPLICABLE		
	37	Solenoid Valve				25-BDY-016 (9, 14, 15, 16) - Bifold FP06P		
	38	Limit Switch Closed	Limit Switch Open			25-ZSL-016 (9, 17) - Soldo SS		25-ZSH-016 (9, 17) - Soldo SS
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED		
	40	Air Set	Handwheel			(*)		NOT REQUIRED
	41	Mounting Position				HORIZONTAL		
	42	Partial Stroke Test Facility				NOT REQUIRED		
	43	Control Type				-		
	44	Electrical Connection	Electrical Class			M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	-	-
	46	No of Strokes Per Capacity				-		
	47	Safety Valve	Model			-		-
	48	Check Valve	Mounting			-		-
PURCHASE	49	Manufacturer				FLUITEK		
	50	Model				FB3		
	51	Purchase Order Number				1724000204		

NOTE
(1) N.1 PSV INSTALLED DOWNSTREAM THE AIR FILTER REGULATOR, SIZE 1/4", SS, set 4.7 barg.

No.	Date	By	Chkd	Appr	Description
03	06/12/24	VBA	LCA	DLO	Accepted for Construction (AFC)
02	28/08/24	VBA	LCA	DLO	Accepted for Construction (AFC)
01	20/12/23	VBA	LCA	DLO	Issued for Review (IFR)
00	06/11/23	VBA	LCA	DLO	Issued for Review (IFR)

INSTRUMENT DATASHEET

SDV/BDV and Tight Shut-Off XV Valves

CROSSWIND

ROSETTI MARINO

Sheet 10 of 33

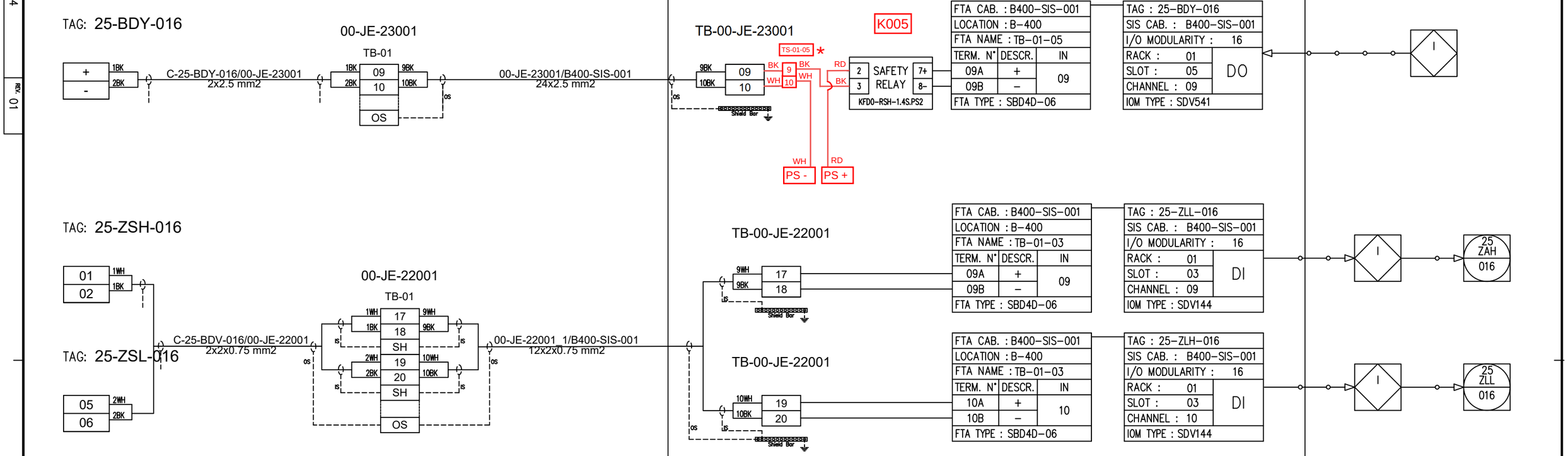
Code : Dwg. No.: 123A90-DDL-IN-DS-40030 Rev.03

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

FIELD | ITER – B400 | CENTRAL CONTROL ROOM

SAFETY INSTRUMENTED SYSTEM | OPERATOR CONSOLE



AS BUILT
25/02/25

* ALL NEGATIVE TERMINALS ON TB-01-05 ARE FUSABLE TERMINAL

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
25-BDV-016
VESSELS V-25001E HYDROGEN VENT SYSTEM

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 097 | REV. 01

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

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	25-FIC-038	: Nitrogen to V-25001E vessel		Dwg	123A90-DDL-PR-PID-80019	
	S/Sys	25-05	: Hydrogen Storage Vessel E (V-25001E)		Module		
TASK	code	C10003748	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity	FTS	Discipline	Instrumental	Form	FJ01C		Control Loop

Data

Loop TAG 25-FIC-038 TDSL Rev: 123A90-FDL-IN-DG-40014 rev.1A Valve type : CONTROL VALVE

Loop Type Direct No Reverse Yes Cascade Yes Redundant valve NA Split Range NA

Transmitter A	25-FT-038		**Transmitter B**	NA
Scale	6,2-62	OK	Scale	NA
Unit	NM3/H	OK	Unit	NA
Threshold 1 Value		NA	Threshold 1 Value	NA
Threshold 2 Value		NA	Threshold 2 Value	NA
Threshold 3 Value		NA	Threshold 3 Value	NA
Threshold 4 Value		NA	Threshold 4 Value	NA

Normal state versus faulty process conditions: NA

Associated outputs (e.g. start motor): NA

Valve 1	25-FV-038	**Valve 2**	NA
Cabinet / Rack / slot / channel	B400-PCS-001/01/03/05	Cabinet / Rack / slot / channel	
Failure position (FC/ FO/FL)	FC	Failure position (FC/ FO/FL)	
Air Supply Pressure (bar)	4 barg	Air Supply Pressure (bar)	
Stroke limitation (mech. stop)	NO	Stroke limitation (mech. stop)	

Controler in Manual Mode

Controler in manual mode	0%	25%	50%	75%	100%
Control Valve 1 position	0,3	24,9	50	74,9	99,7
Control Valve 2 position					

Controller in Auto Mode

Checking of Controller D/R Mode (Slave if cascade): OK

Checking of Master D/R (Mode cascade only): OK

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity

Comments:

	Performed by	WITNESS ☐ REVIEW ☐	WITNESS ☐ REVIEW ☐
Company	RM COMM	RM COMM	CW COM
Name	Laurentiu Grozavu	Giandonato Delmissier	Jamie McAllister
Date	2025-03-22	2025-03-24	2025-03-26

Digitaly signed by Laurentiu Grozavu 2025-03-22T13:51:50.550Z

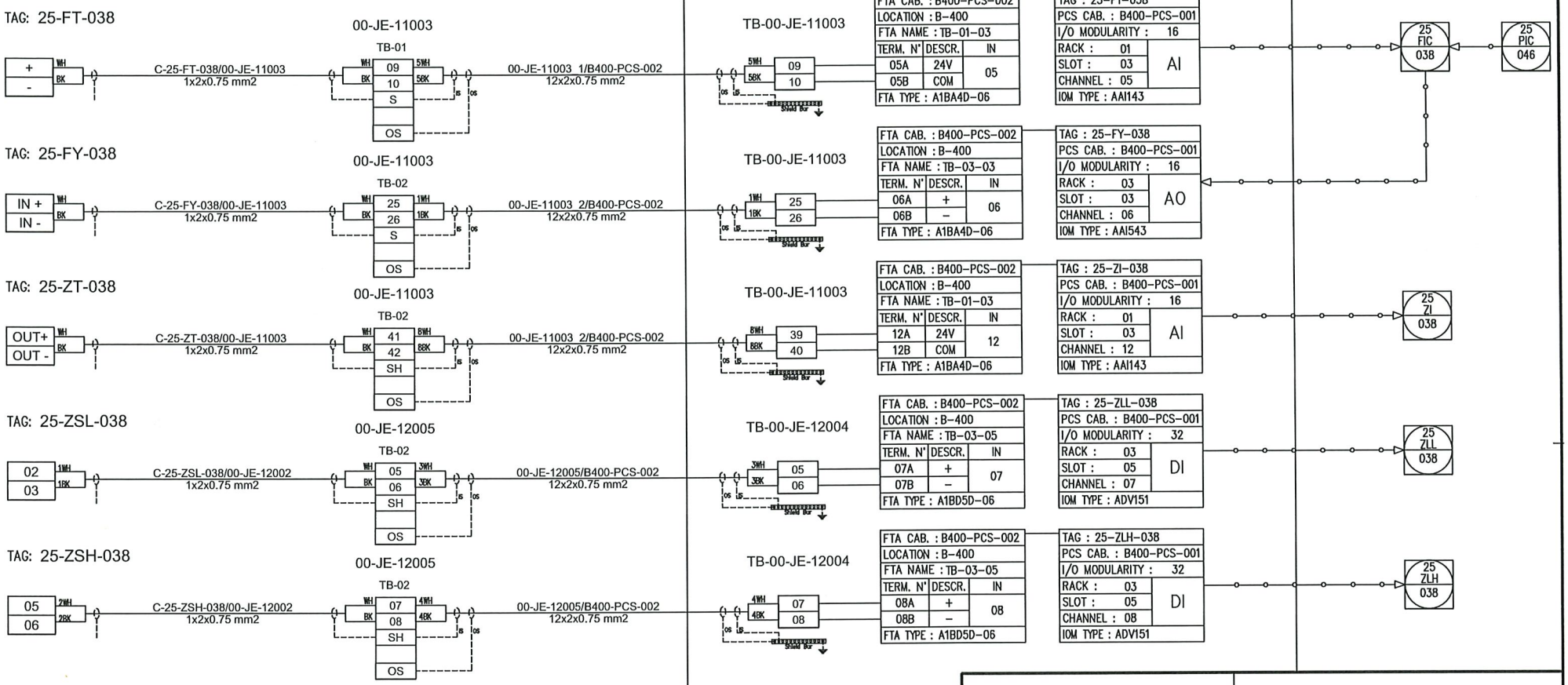
Digitaly signed by Giandonato Delmissier 2025-03-24T07:45:57.891Z

Digitaly signed by Jamie McAllister 2025-03-26T09:26:10.878Z

Signature			

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

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



NO MARK UP
LGrigoni
08/03/25

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
25-FIC-038
NITROGEN TO V-25001E VESSEL

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 028	REV. 01

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

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	25-PIC-046	: Vessel V-25001E pressure control		Dwg	123A90-DDL-PR-PID-80019	
	S/Sys	25-05	: Hydrogen Storage Vessel E (V-25001E)		Module		
TASK	code	C10003753	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline Instrumental	Form	FJ01C	Control Loop

Data

Loop TAG 25-PIC-046 TDSL Rev: 123A90-FDL-IN-DG-40014 rev.1A Valve type : CONTROL VALVE

Loop Type Direct Yes Reverse No Cascade Yes Redundant valve NA Split Range NA

Transmitter A	25-PT-046		**Transmitter B**	NA
Scale	0-40	OK	Scale	NA
Unit	barg	OK	Unit	NA
Threshold 1 Value	1,5 barg	OK	Threshold 1 Value	NA
Threshold 2 Value	4 barg	OK	Threshold 2 Value	NA
Threshold 3 Value		NA	Threshold 3 Value	NA
Threshold 4 Value		NA	Threshold 4 Value	NA

Normal state versus faulty process conditions	NA
Associated outputs (e.g. start motor)	NA

Valve 1	25-PV-046	**Valve 2**	NA
Cabinet / Rack / slot / channel	B400-PCS-001/01/01/05	Cabinet / Rack / slot / channel	
Failure position (FC/ FO/FL)	FC	Failure position (FC/ FO/FL)	
Air Supply Pressure (bar)	4 barg	Air Supply Pressure (bar)	
Stroke limitation (mech. stop)	NO	Stroke limitation (mech. stop)	

Controler in Manual Mode

Controler in manual mode	0%	25%	50%	75%	100%
Control Valve 1 position	0,3	24,9	49,8	74,9	100
Control Valve 2 position					

Controller in Auto Mode

Checking of Controller D/R Mode (Slave if cascade)	OK
Checking of Master D/R (Mode cascade only)	OK

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity

Comments:

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	CW Com
Name	Laurentiu Grozavu	Giandonato Delmissier	Jamie McAllister
Date	2025-03-22	2025-03-24	2025-03-26

PROVERLIS Digitaly signed by Laurentiu Grozavu 2025-03-22T13:49:46.327Z

PROVERLIS Digitaly signed by Giandonato Delmissier 2025-03-24T07:47:33.635Z

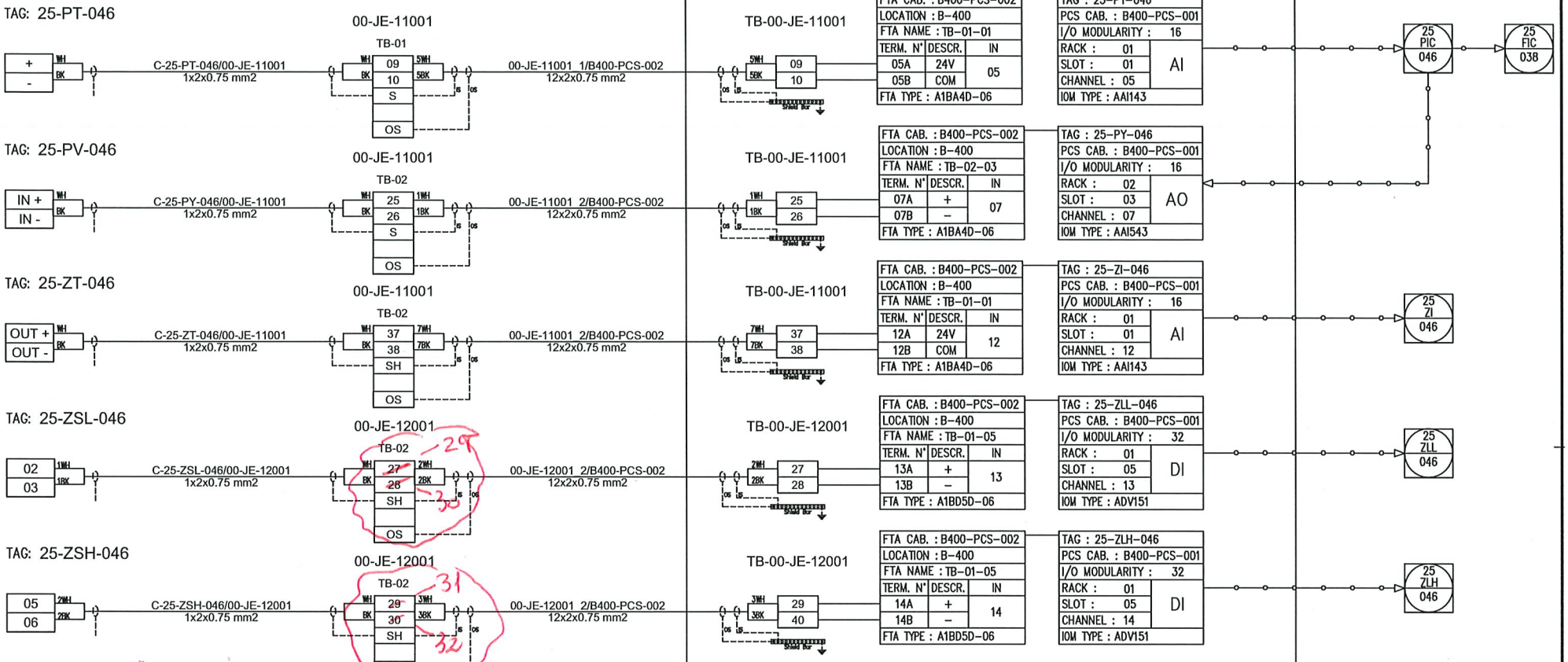
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Signature			

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

FIELD | ITER – B400 | CENTRAL CONTROL ROOM

PROCESS CONTROL SYSTEM | OPERATOR CONSOLE



AS COMMISSIONING MARK UP
LAURENTIU GROZAVU
08/05/25

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
25-PIC-046
V-25001E PRESSURE CONTROL

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 033 | REV. 01

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

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	25-FV-038	: Control Valve - Nitrogen to V-25001E Vessel	Dwg	123A90-DDL-IN-LIS-40088		
	S/Sys	25-05	: Hydrogen Storage Vessel E (V-25001E)	Module	UD		
TASK	code	C10004380	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline	Instrumental	Form FJ04	Control Valve

PRE-TEST CHECKS

Confirm all preservation measures have been removed	OK
Confirm all MC ITRs for the tags in the loop are completed	OK
Check all referent drawings/ documents are at latest revision	OK
Check that relevant loop component(s) on the loop diagram is/ are calibrated	OK
Verify device(s) configuration against data sheet to ensure all settings are aligned	OK
Confirm all necessary power/ hydraulic/ instrument air supply is available (de-isolated)	

FUNCTIONAL TESTS

Remote/ Stop/ Local selector test **Remote:** **(*)** **Stop:** **(*)** **Local:** **(**

CONTROLLER LOOP TEST

	Rising					Falling			
	0%	25%	50%	75%	100%	75%	50%	25%	0%
ICSS Output (mA)	4	8	12	16	20	16	12	8	4
Position on control valve	-0,3	24,9	50	74,9	99,7	75	50	24,9	-0,2
Control valve position on field display (if applicable)	-0,3	24,9	50	74,9	99,7	75	50	24,9	-0,2
Control valve position on ICSS (if applicable)	0	25	50	75	100	75	50	25	0

	Full Opening Time	sec.	Full Closing Time	sec.
Stroke Limitation Test	Opening	%	Closing	%
Output limitation	Opening	%	Closing	%

Communication fault alarm (ONLY for valve with redundant communication)

Communication lost position	☐	**OPENED**	●	**CLOSED**	☐ **STAY PUT**	**%**
Power lost position	☐	**OPENED**	●	**CLOSED**	☐ **STAY PUT**	**%**
Actuator fault alarm	☐	**Hard wired**	●	**Soft signal**		

ICSS/HMI CHECKS

Checking for fault mode on ICSS (short and open circuit)	OK
Verify HMI graphic and faceplate indicate all animations (i.e. Alarm, Inhibit/ Block, Fault, etc.) correctly	OK
Verify all alarms and events (i.e. Alarm, Inhibit/ Block, Fault, etc.) shows correctly on alarm list	OK

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity

Comments:

Page 1/1	Performed by	● WITNESS ☐ REVIEW	● WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	
Name	Laurentiu Grozavu	Giandonato Delmissier	David Musgrove
Date	2025-03-10	2025-03-10	2025-03-17
Signature	Digitaly signed by Laurentiu Grozavu 2025-03-10T10:36:01.447Z	Digitaly signed by Giandonato Delmissier 2025-03-10T12:21:08.645Z	Digitaly signed by David Musgrove 2025-03-17T14:48:00.852Z

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Customer: ROSETTI MARINO

Plant / Site: HOLLANDSE KUST NOORD WIND PARK Prj.

Quotation Ref./Job Ref.: OV2301646/CV2400221

DSH REV. 2 - 04/06/2024 - 0

Final Installation: NL

1	Item	10	49	Q.ty	6
2	Valve tag / S.No	25-FV-031÷034/036/038 / 2400583 ÷ 2400588	50	Valve Service	NITROGEN FROM NITROGEN SYSTEM (A-64000) TO HYDROGEN STORAGE VESSEL (V-25001A÷F)

PIPING AND DESIGN CONDITIONS

PIPING

3	Piping Size / Ext.Diam	1"	
4	Schedule / Thickness	40	
5	Pipe Insulation	No	
6	Installation Location	Outdoor	

AMBIENCE AND DESIGN CONDITIONS

51	Inlet / Outlet Design Pressure	40	bar g
52	Inlet / Outlet Design Temperature	100	°C
53	Tmin / Tmax	-8.4 / +25	°C
54	Certification / Classific.Area	PED+ATEX / Zone 2	

VALVE CONSTRUCTION

VALVE CHARACTERISTICS

7	Valve Model	CV-8407	
8	Valve Type	Globe	
9	Valve Layout	Straight	
10	Bonnet type	Bolted	
11	Guiding Type	Top Guided	
12	No.Ports	1	
13	Flow direction	to Open	
14	Trim Type	Contoured Plug	
15	Port Size	1/4"	Inch
16	CV / Characteristics	0.85 / Equal%	
17	Body Size	1"	
18	Rating Standard	ASME B16.34	
19	Pressure Class	300#	
20	End Connection Standard	ASME B16.5	
21	End Connection Type	RF	
22	End Connection Finishing	-	
23	Stroke	13	mm
24	Shut-off Direction	Direct	
25	Leakage Class	VI - IEC 60534-4	
26	Shut-off pressure	40	bar g

MATERIALS

55	Body Material	A351 CF3M
56	Bonnet Material	A479 316L
57	Boltings	A193 B8M Cl. 2 / A194 8M
58	Bellows Material	-
59	Plug / Vane Material	A479 316L+PTFE
60	Seat Material	A479 316L
61	Cage Material	-
62	Guide Material	-
63	Stem Material	A 479 316L
64	VE-CO LT Material	-
65	Seating Type	Metallic
66	Balancing Material	-

PACKING

67	Packing Material	PTFE
68	Live Loading	-
69	Stem Flushing	-

DEVICES

70	Inlet Device	-
71	Inlet Device Size	-
72	Outlet Device	-
73	Outlet Device Size	-
74	Body Heating	-

ACTUATOR AND ACCESSORIES

ACTUATOR

27	Fail Position	Closed	
28	Actuation Type / Model	Pneumatic Diaphragm	
29	Actuator Action	Reverse	
30	Actuator Size	SD11R	
31	Spring Range	15-30 psi	
32	Supply	50- psi	
33	Design Supply	11 barg	
34	Handwheel	-	
35	Mechanical Stop	-	
36	Throttling Time	<10	s
37	Quick Stroking Time	-	s
38	Yoke Material	CS	
39	Pneumatic Tubing Material	AISI 316	
40	Pneumatic Fittings	AISI 316 Double Ferrule	
41	Pneumatic Connection Size	1/4" NPT-F	

POSITIONER

42	Positioner Model	TISSIN TS900
43	Type	Smart Digital
44	Input Signal / Protocol	4-20 mA HART
45	Fail Safety	Fail safe
46	Output Signal	4-20 mA
47	Prot. Class / Encl. Material / El. Classif.	IP66 / AISI 316 / Eexd \ C T4-T6
48	El.Conn. / Pn.Conn.	M20x1.5 \ 1/4" NPT-F

FILTER REGULATOR

75	Fr. Model	FR04411S00SSNB2
76	Pn.Conn. / Body Material	1/4" NPT-F / S.Steel

BOOSTER

77	Booster Model	-
78	Pn.Conn. / Body Material	-

SOLENOID VALVE

79	SOV Model	-
80	Body Material	-
81	Prot. Class / El. Classif.	-
82	El.Conn. / Pn.Conn.	-
83	Supply	-
84	Power Consumption	-

PNEUMATIC VALVE

85	Pneumatic Discharge Model	-
86	Pn.Conn. / Body Material	-

LOCK UP VALVE

87	Lock Up Model	-
88	Pn.Conn. / Body Material	-

LIMIT SWITCH

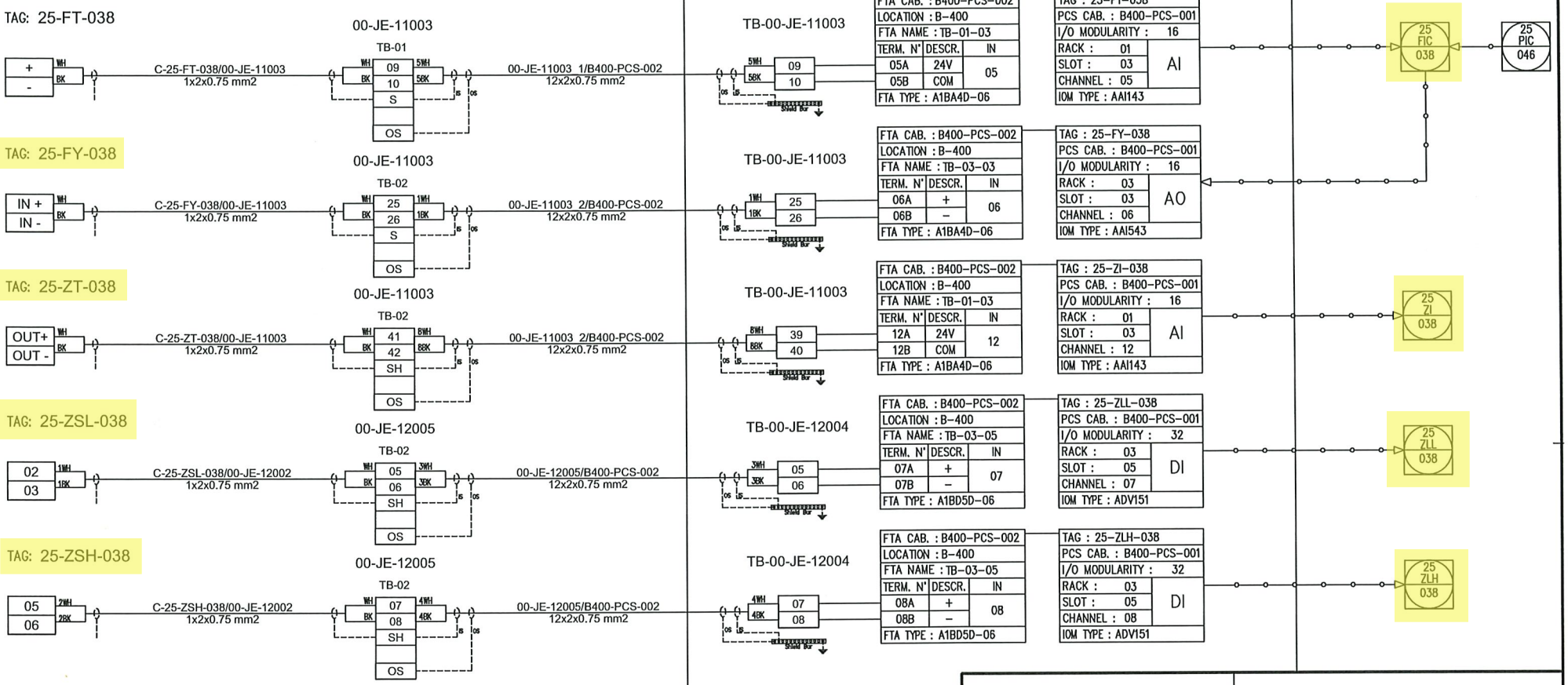
89	Limit Switch Model	1 x GDSN0LIS2MS290 EISENBAU
90	Type	SPDT
91	Contact Type	-
92	Encl.Material	316SS
93	El.Connection	M20x1,5
94	Prot. Class / El. Classif.	IP66 / MIN. Ex-d IIC (or IIB+H2) T1

NOTES

N.1	n°1 PSV installed downstream the air filter regulator, size 1/4", st.ast., set 6 barg (CE)	N.4	
N.2		N.5	
N.3		N.6	
		N.7	

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

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



NO MARK UP
LGrigoni
08/03/25

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
25-FIC-038
NITROGEN TO V-25001E VESSEL

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 028	REV. 01

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

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	25-PV-046	: Control Valve - Vessel V-25001E Pressure Control	Dwg	123A90-DDL-IN-LIS-40088		
	S/Sys	25-05	: Hydrogen Storage Vessel E (V-25001E)	Module	UD		
TASK	code	C10004385	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	PRE-COMM	Activity FTS	Discipline	Instrumental	Form FJ04	Control Valve

PRE-TEST CHECKS

Confirm all preservation measures have been removed	OK
Confirm all MC ITRs for the tags in the loop are completed	OK
Check all referent drawings/ documents are at latest revision	OK
Check that relevant loop component(s) on the loop diagram is/ are calibrated	OK
Verify device(s) configuration against data sheet to ensure all settings are aligned	OK
Confirm all necessary power/ hydraulic/ instrument air supply is available (de-isolated)	OK

FUNCTIONAL TESTS

Remote/ Stop/ Local selector test **Remote:** (*) **Stop:** (*) **Local:** (

CONTROLLER LOOP TEST

	Rising					Falling			
	0%	25%	50%	75%	100%	75%	50%	25%	0%
ICSS Output (mA)	4	8	12	16	20	16	12	8	4
Position on control valve	0,3	24,9	49,8	74,9	100	75,1	49,8	24,9	0,3
Control valve position on field display (if applicable)	0,3	24,9	49,8	74,9	100	75,1	49,8	24,9	0,3
Control valve position on ICSS (if applicable)	0	25	50	75	100	75	50	25	0

	Full Opening Time	sec.	Full Closing Time	sec.
Stroke Limitation Test	Opening %		Closing %	
Output limitation	Opening %		Closing %	

Communication fault alarm (ONLY for valve with redundant communication)

Communication lost position	☐	**OPENED**	●	**CLOSED**	☐ **STAY PUT**	**%**
Power lost position	☐	**OPENED**	●	**CLOSED**	☐ **STAY PUT**	**%**
Actuator fault alarm	☐	**Hard wired**	●	**Soft signal**		

ICSS/HMI CHECKS

Checking for fault mode on ICSS (short and open circuit)	OK
Verify HMI graphic and faceplate indicate all animations (i.e. Alarm, Inhibit/ Block, Fault, etc.) correctly	OK
Verify all alarms and events (i.e. Alarm, Inhibit/ Block, Fault, etc.) shows correctly on alarm list	OK

TESTING & MEASUREMENT INSTRUMENT USED

Type	Serial N.	Calibration Certificate	Validity

Comments:

Page 1/1	Performed by	● WITNESS ☐ REVIEW	● WITNESS ☐ REVIEW
Company	RM COMM	RM COMM	
Name	Laurentiu Grozavu	Giandonato Delmissier	David Musgrove
Date	2025-03-10	2025-03-10	2025-03-17
Signature	Digitaly signed by Laurentiu Grozavu 2025-03-10T10:50:08.076Z	Digitaly signed by Giandonato Delmissier 2025-03-10T12:23:38.782Z	Digitaly signed by David Musgrove 2025-03-17T15:05:02.270Z

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Customer: ROSETTI MARINO

Plant / Site: HOLLANDSE KUST NOORD WIND PARK Prj.

Quotation Ref./Job Ref.: OV2301646/CV2400221

DSH REV. 2 - 04/06/2024 - 0

Final Installation: NL

1	Item	**20**	49	Q.ty	6
2	Valve tag / S.No	**25-PV-035/037/040/043/046/049 / 2400589 ÷ 2400594**	50	Valve Service	HYDROGEN FROM STORAGE VESSEL (V-25001A÷F) TO HYDROGEN VENT HEADER

PIPING AND DESIGN CONDITIONS

PIPING

3	Piping Size / Ext.Diam	3"	
4	Schedule / Thickness	10S	
5	Pipe Insulation	No	
6	Installation Location	Outdoor	

AMBIENCE AND DESIGN CONDITIONS

51	Inlet / Outlet Design Pressure	40	bar g
52	Inlet / Outlet Design Temperature	80	°C
53	Tmin / Tmax	-8.4 / +25	°C
54	Certification / Classific.Area	PED+ATEX / Zone 2	

VALVE CONSTRUCTION

VALVE CHARACTERISTICS

7	Valve Model	CV-8407	
8	Valve Type	Globe	
9	Valve Layout	Straight	
10	Bonnet type	Bolted	
11	Guiding Type	Top Guided	
12	No.Ports	1	
13	Flow direction	to Open	
14	Trim Type	Contoured Plug	
15	Port Size	1"	Inch
16	CV / Characteristics	13 / Equal%	
17	Body Size	2"	
18	Rating Standard	ASME B16.34	
19	Pressure Class	300#	
20	End Connection Standard	ASME B16.5	
21	End Connection Type	RF	
22	End Connection Finishing	-	
23	Stroke	25	mm
24	Shut-off Direction	Direct	
25	Leakage Class	VI - IEC 60534-4	
26	Shut-off pressure	40	bar g

MATERIALS

55	Body Material	A351 CF3M
56	Bonnet Material	A479 316L
57	Boltings	A193 B8M Cl. 2 / A194 8M
58	Bellows Material	-
59	Plug / Vane Material	A479 316L+PTFE
60	Seat Material	A479 316L
61	Cage Material	-
62	Guide Material	-
63	Stem Material	A 479 316L
64	VE-CO LT Material	-
65	Seating Type	Metallic
66	Balancing Material	-

PACKING

67	Packing Material	GRAPHITE - VF1
68	Live Loading	-
69	Stem Flushing	-

DEVICES

70	Inlet Device	-
71	Inlet Device Size	-
72	Outlet Device	-
73	Outlet Device Size	-
74	Body Heating	-

ACTUATOR AND ACCESSORIES

ACTUATOR

27	Fail Position	Closed	
28	Actuation Type / Model	Pneumatic Diaphragm	
29	Actuator Action	Reverse	
30	Actuator Size	SD13R	
31	Spring Range	20-44 psi	
32	Supply	50- psi	
33	Design Supply	11 barg	
34	Handwheel	-	
35	Mechanical Stop	-	
36	Throttling Time	<15	s
37	Quick Stroking Time	-	s
38	Yoke Material	CS	
39	Pneumatic Tubing Material	AISI 316	
40	Pneumatic Fittings	AISI 316 Double Ferrule	
41	Pneumatic Connection Size	1/4" NPT-F	

POSITIONER

42	Positioner Model	TISSIN TS900
43	Type	Smart Digital
44	Input Signal / Protocol	4-20 mA HART
45	Fail Safety	Fail safe
46	Output Signal	4-20 mA
47	Prot. Class / Encl. Material / El. Classif.	IP66 / AISI 316 / Eexd \ C T4-T6
48	El.Conn. / Pn.Conn.	M20x1.5 \ 1/4" NPT-F

FILTER REGULATOR

75	Fr. Model	FR04411S00SSNB2
76	Pn.Conn. / Body Material	1/4" NPT-F / S.Steel

BOOSTER

77	Booster Model	-
78	Pn.Conn. / Body Material	-

SOLENOID VALVE

79	SOV Model	-
80	Body Material	-
81	Prot. Class / El. Classif.	-
82	El.Conn. / Pn.Conn.	-
83	Supply	-
84	Power Consumption	-

PNEUMATIC VALVE

85	Pneumatic Discharge Model	-
86	Pn.Conn. / Body Material	-

LOCK UP VALVE

87	Lock Up Model	-
88	Pn.Conn. / Body Material	-

LIMIT SWITCH

89	Limit Switch Model	1 x GDSN0LIS2MS290 EISENBAU
90	Type	SPDT
91	Contact Type	-
92	Encl.Material	316SS
93	El.Connection	M20x1,5
94	Prot. Class / El. Classif.	IP66 / MIN. Ex-d IIC (or IIB+H2) T1

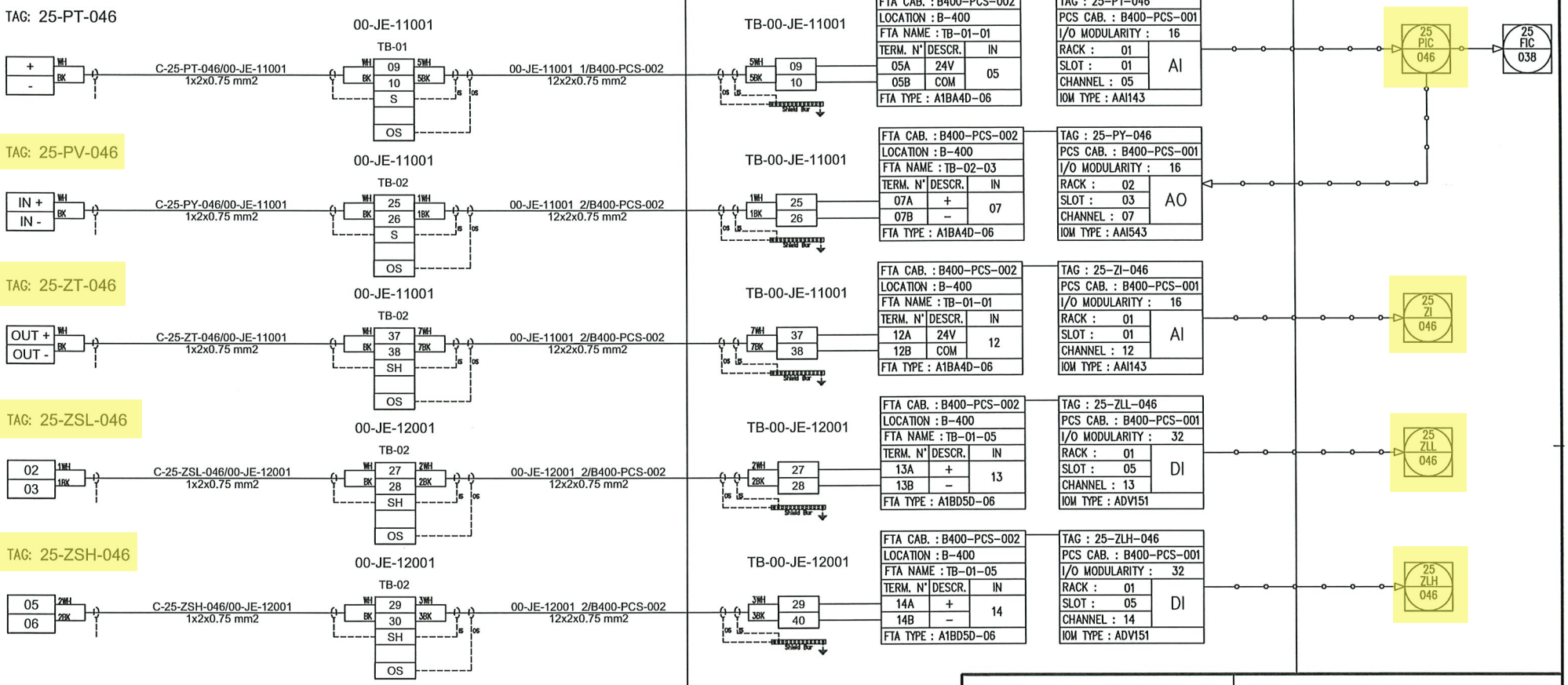
NOTES

N.1	n°1 PSV installed downstream the air filter regulator, size 1/4", st.ast., set 6 barg (CE)	N.4	
N.2	HYDROGEN SERVICE - PACKING ISO 15848-1	N.5	
N.3		N.6	
		N.7	

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

FIELD | ITER – B400 | CENTRAL CONTROL ROOM

PROCESS CONTROL SYSTEM | OPERATOR CONSOLE



NO MARK UP
LGW
02/03/25

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
25-PIC-046
V-25001E PRESSURE CONTROL

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 033	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: 25-05 & process: COMM

Piping	25-05 Hydrogen Storage Vessel E (V-25001E)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
TP-006	H2 Inlet System and Storage Vessel V-25001E	ONSHORE	C10004902	4241	100	2025-03-14	RFO 1

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	TP-006	: H2 Inlet System and Storage Vessel V-25001E	Dwg			
	S/Sys	25-05	: Hydrogen Storage Vessel E (V-25001E)	Module			
TASK	code	C10004902	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	COMM	Activity PVP	Discipline	Piping	Form 4241	Leak Testing

CONDITIONS

Operating pressure: 40 bar g

Test Pressure 36 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: No

He Tracing: No

Rotating equipment isolated

ATTACHMENTS

Procedure: Yes

Sketches & Drawings: Yes

Pressure Records: Yes

Comments: TEST PERFORMED WITH NITROGEN 99%+1%HELIUM
ATTACHED BH DOCUMENTATION AND CERTIFICATES

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	03/03/2025	2025-03-12	2025-03-14
Signature		PROVERLIS Digitaly signed by Ignacio Vago 2025-03-12T11:52:46.155Z	PROVERLIS Digitaly signed by Witness waived 2025-03-14T13:55:48.804Z

Baker Hughes

Document Title	Helium Leak Detection Test Pack
Test Pack Name	H2 Inlet System and Storage Vessel V-25001E
Test Pack Number	TP 006
PPS Reference Number	PMCE453947M1 / HLD / TP 006
Customer Reference Number	
Revision Number	02
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.Bejinaru	Field Engineer	Marius Bejinaru	
Checked by	Baker Hughes	M.Ye Yin	Field Engineer	Mariana Ye Yin	
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
02	24-Feb-2025	Re-Issued for Use	MB	MYY	AH	
01	6-Feb-2025	Issued for Use	MB	MYY	AH	
00	28-Jan-2025	Issued for Customer Review	MB	MI	AH	

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Baker Hughes

Document Amendment Record #1

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

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Baker Hughes Confidential

Contents

A1	Test Pack Information
B	Drawing Number List
C1	Customer Preparatory Work
C3	Mechanical Works
C5	Test Limit Isolations Checklist
C6	Safety Components Checklist
C7	Actuated Valve Checklist
C8	System Depressurization Checklist
D	Task Plan
E1	Leak Description Report
E2	Leak Detection Completion Certificate
E3	Witness Joint Register
E4	Test Gas Log
E6	Critical Valve Test Report - Ultrasonic
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 006	**System Design Pressure (P_D)**	40.0 barg
Test Pack Name	H2 Inlet System and Storage Vessel V-25001E	**System PSV Set Pressure**	40.0 barg
Customer Ref. No.		**Normal Operating Pressure**	30.0 barg
Rotating Equipment	No	**System Free Volume**	104.0 m^3
		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	2.0 barg	5.6 %	6.7 %	5.0 %	5.0 %	15.0 mins
Increment #2	7.2 barg	20.0 %	24.0 %	18.0 %	18.0 %	15.0 mins
Increment #3	14.4 barg	40.0 %	48.0 %	36.0 %	36.0 %	15.0 mins
Increment #4	21.6 barg	60.0 %	72.0 %	54.0 %	54.0 %	15.0 mins
Increment #5	28.8 barg	80.0 %	96.0 %	72.0 %	72.0 %	15.0 mins
TEST PRESSURE (P_T)	**36.0 barg**	**100.0 %**	**120.0 %**	**90.0 %**	**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	0.2 bar/min	**Test Gas Type**	1% Helium / 99% Nitrogen		
	19.0 sm^3/min	**Test Gas Quantity**	3,706.6 sm^3		
Max. Depressurization Rate	2.0 bar/min	**LN2 Equivalent**	5,442.6 litres		
	208.0 sm^3/min	**Helium Gas Qty**	37.4 sm^3	**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	36.7 barg	91.8%	91.8%		
Temporary PRV #1	38.2 barg	95.4%	95.4%	103.0 sm^3/min	1" NPT M
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	Nitrogen Pump Unit	**Pump Max. Flow Rate**	87.0 sm3/min	**Pump Max. Pressure**	690.0 barg
Hose MAWP	700.0 barg	**Hose Field Test Press.**	200.0 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 potential leak sources** **20 scf/yr or 0.566 sm^3/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, only after a suitable Concession Request has been raised and signed off to support such agreement.

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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	Vent System	3.5 barg	1142.9%	123A90-DDL-PR-PID-80019 sh.001
#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	T25	1/2" NPT M x 1" BSP M for BH injection manifold	123A90-DDL-PR-PID-80013 sh.001
Temporary PRV Point #1	T23	1" Test Blind Flange RF 30# tapped to 1" NPT	123A90-DDL-PR-PID-80011 sh.001
OPPS Point #1	T24	1/2" NPT M x 1" BSP M for BH sensing line and OPPS	123A90-DDL-PR-PID-80013 sh.001
Pressure Monitoring Point #1	T24	1/2" NPT M x 1" BSP M for BH sensing line and PRV	123A90-DDL-PR-PID-80013 sh.001
Pressure Monitoring Point #2	d/s S9	25-PT-011	123A90-DDL-PR-PID-80019 sh.001
Depressurization Point #1	T7	6" Ball Valve RF 300# (BLPH-MV-432)	123A90-DDL-PR-PID-80019 sh.001
Depressurization Point #2	S7	25-BDV-016	123A90-DDL-PR-PID-80019 sh.001
Vent Path Press. Monitoring Point #1	d/s S37	43-PT-001	123A90-DDL-PR-PID-80029 sh.001

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	C63-PID-001-008 sh.8/16	8	46			
2	P&ID	123A90-DDL-PR-PID-80011 sh.001	03	47			
3	P&ID	123A90-DDL-PR-PID-80013 sh.001	03	48			
4	P&ID	123A90-DDL-PR-PID-80015 sh.001	03	49			
5	P&ID	123A90-DDL-PR-PID-80016 sh.001	03	50			
6	P&ID	123A90-DDL-PR-PID-80017 sh.001	03	51			
7	P&ID	123A90-DDL-PR-PID-80018 sh.001	03	52			
8	P&ID	123A90-DDL-PR-PID-80019 sh.001	03	53			
9	P&ID	123A90-DDL-PR-PID-80020 sh.001	03	54			
10	P&ID	123A90-DDL-PR-PID-80014 sh.001	03	55			
11	P&ID	123A90-DDL-PR-PID-80028 sh.001	03	56			
12	P&ID	123A90-DDL-PR-PID-80029 sh.001	03	57			
13				58			
14				59			
15				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 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	**Test Pack Number**	TP 006
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.	V
2	All welds have successfully passed NDE / NDT in compliance with the applicable design code.	V
3	Post weld heat treatment is complete in compliance with the relevant design code.	V
4	All pipe supports, structural supports, anchors, and associated weld attachments are complete.	V
5	All gaskets, nuts, and bolts are correctly specified, and joints are correctly assembled.	V
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.	V
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).	V
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.	V
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.	V
10	System internal cleanliness has been verified, and no residual water or moisture is present.	V
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.	V
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.	V
13	Certified scaffolding and ladders have been erected for safe access to system high points.	V
14	Adequate lighting has been provided for night time working.	V
15	Actuated valves detailed on the PPS Actuated Valve Checklist have been isolated in the positions required and their motive energy sources disconnected.	V
16	Action items detailed on the following PPS forms are completed (where applicable): - **PPS Punch List** - **PPS Mechanical Works**	V

Notes

	Name	Job Title	Signature	Time / Date
PPS Representative	M. Bojkovac	Field engineer		
Customer Rep. #1		COMM. SWG.		
Customer Rep. #2				

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C3. Mechanical Works #1

Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1	**Test Pack Name**	H2 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack No.**	TP 006
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	C63-PID-001-008 sh.8/16	BBV-633/W1	1/2" Plug	REMOVE			INSTALL		
2	123A90-DDL-PR-PID-80013 sh.001	BLPH-MV-212/W2	1/2" Plug	REMOVE			INSTALL		
3	123A90-DDL-PR-PID-80011 sh.001	N/A/W3	1" Blind Flange RF 300#	REMOVE			INSTALL		
4	123A90-DDL-PR-PID-80011 sh.001	T23	1" Test Blind Flange RF 300# tapped to 1" NPT	REMOVE			INSTALL		
5	123A90-DDL-PR-PID-80013 sh.001	25-PT-001/W4	Instrument	REMOVE			INSTALL		
6	123A90-DDL-PR-PID-80013 sh.001	T24	1/2" NPT M x 1/4" NPT M	REMOVE			INSTALL		
7	123A90-DDL-PR-PID-80013 sh.001	25-PT-002/W5	Instrument	REMOVE			INSTALL		
8	123A90-DDL-PR-PID-80013 sh.001	T25	1/2" NPT M x 1" NPT M	REMOVE			INSTALL		
9	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-426/W6	1/2" Plug	REMOVE			INSTALL		
10	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-198/W7	1/2" Plug	REMOVE			INSTALL		
11	123A90-DDL-PR-PID-80019 sh.001	BLPH--MV-432/W8	1/2" Plug	REMOVE			INSTALL		
12	123A90-DDL-PR-PID-80015 sh.001	BLPH-MV-029/W9	1/2" Plug	REMOVE			INSTALL		
13	123A90-DDL-PR-PID-80016 sh.001	BLPH-MV-385/W10	1/2" Plug	REMOVE			INSTALL		
14	123A90-DDL-PR-PID-80017 sh.001	BLPH-MV-193/W11	1/2" Plug	REMOVE			INSTALL		
15	123A90-DDL-PR-PID-80018 sh.001	BLPH-MV-098/W12	1/2" Plug	REMOVE			INSTALL		
16	123A90-DDL-PR-PID-80020 sh.001	BLPH-MV-211/W13	1/2" Plug	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 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack Number**	TP 006
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	Time / PPS Rep.	Date / Customer	Time / PPS Rep.	Date / Customer	Time / PPS Rep.	Date / Customer
T1	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-087	1" DBB RF 300#										
T2	123A90-DDL-PR-PID-80019 sh.001	V-25001E N3	1" Blind Flange RF 300#										
T3	123A90-DDL-PR-PID-80019 sh.001	V-25001E M2	24" Manhole Blind Flange RF 300#										
T4	123A90-DDL-PR-PID-80019 sh.001	V-25001E M1	24" Manhole Blind Flange RF 300#										
T5	123A90-DDL-PR-PID-80019 sh.001	25-XV-018	1" Actuated Ball Valve RF 300#		Yes		Yes						
T6	123A90-DDL-PR-PID-80019 sh.001	25-PSV-001E	Pressure Safety Valve @40 barg										
T7	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-432	6" DBB RF 300#										
T8	123A90-DDL-PR-PID-80013 sh.001	BLPH-MV-212	1" DBB RF 300#										
T9	123A90-DDL-PR-PID-80018 sh.001	25-XV-014	1" Actuated Ball Valve RF 300#		Yes		Yes						
T10	123A90-DDL-PR-PID-80016 sh.001	25-XV-008	1" Actuated Ball Valve RF 300#		Yes		Yes						
T11	123A90-DDL-PR-PID-80020 sh.001	25-XV-020	1" Actuated Ball Valve RF 300#		Yes		Yes						
T12	123A90-DDL-PR-PID-80028 sh.001	BLPH-MV-172	1" Ball Valve RF 150#										
T13	C63-PID-001-008 sh.8/16	PV-635	1" Actuated Valve RF 300#		Yes								
T14	C63-PID-001-008 sh.8/16	HV-633	1" Ball Valve RF 300#										
T15	C63-PID-001-008 sh.8/16	BBV-633	1" DBB RF 300#										
T16	123A90-DDL-PR-PID-80018 sh.001	BLPH-MV-098	1" DBB RF 300#										
T17	123A90-DDL-PR-PID-80016 sh.001	BLPH-MV-385	1" DBB RF 300#										
T18	123A90-DDL-PR-PID-80020 sh.001	BLPH-MV-211	1" DBB RF 300#										
T19	123A90-DDL-PR-PID-80015 sh.001	25-XV-004	1" Actuated Ball Valve RF 300#		Yes		Yes						
T20	123A90-DDL-PR-PID-80015 sh.001	BLPH-MV-029	1" DBB RF 300#										
T21	123A90-DDL-PR-PID-80017 sh.001	25-XV-011	1" Actuated Ball Valve RF 300#		Yes		Yes						
T22	123A90-DDL-PR-PID-80017 sh.001	BLPH-MV-193	1" DBB RF 300#										
Tick each row under Test # column to confirm correctly isolated and sign / initial this row as verification.					**Signature / Initials**								

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C5. Test Limit Isolations Checklist #2

Customer	Rosetti Marino	PPS Job Number	PMCE453947M1	Test Pack Name	H2 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	Customer Contract No.	123A90	Test Pack Number	TP 006
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-80011 sh.001	N/A	1" Test Blind Flange RF 300# tapped to 1" NPT	[signature]				[signature]	[signature]				
T24	123A90-DDL-PR-PID-80013 sh.001	N/A	1/2" NPTM x 1/4" NPTM connection BH PRV and sensing line	[signature]				[signature]	[signature]				
T25	123A90-DDL-PR-PID-80013 sh.001	N/A	1/2" NPTM x 1/4" NPTM connection BH Injection Line	[signature]				[signature]	[signature]				
Tick each row under Test # column to confirm correctly isolated and sign / initial this row as verification.					Signature / Initials			[signature]	[signature]				

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C6. Safety Components Checklist #1

Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1	**Test Pack Name**	H2 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack Number**	TP 006
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	Time / PPS Rep.	Date / Customer	Time / PPS Rep.	Date / Customer	Time / PPS Rep.	Date / Customer
S1	123A90-DDL-PR-PID-80011 sh.001	BLPH-MV-466	1" DBB RF 300#		Yes							
S2	123A90-DDL-PR-PID-80013 sh.001	25-SDV-001	1" Actuated Ball Valve RF 300#	Yes								
S3	123A90-DDL-PR-PID-80013 sh.001	BLPH-MV-013	3/4" RF 300# x 1/2" NPTF DBB		Yes							
S4	123A90-DDL-PR-PID-80019 sh.001	25-XV-017	1" Actuated Ball Valve RF 300#	Yes		Yes						
S5	123A90-DDL-PR-PID-80019 sh.001	25-FV-038	1" Actuated Globe Valve RF 300#	Yes		Yes						
S6	123A90-DDL-PR-PID-80019 sh.001	25-PV-046	2" Actuated Globe Valve RF 300#	Yes		Yes						
S7	123A90-DDL-PR-PID-80019 sh.001	25-BDV-016	4" Actuated Ball Valve RF 300#	Yes								
S8	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-196	4" Ball Valve RF 150#									
S9	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-421	3/4" RF 300# x 1/2" NPTF DBB		Yes							
S10	123A90-DDL-PR-PID-80013 sh.001	25-XV-024	1" Actuated Ball Valve RF 300#	Yes		Yes						
S11	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-087	1/2" Bleed on DBB RF 300#									
S12	123A90-DDL-PR-PID-80019 sh.001	N/A	1" Spectacle Blind RF 300# - OPEN									
S13	123A90-DDL-PR-PID-80019 sh.001	N/A	1" Spectacle Blind RF 300# - OPEN									
S14	123A90-DDL-PR-PID-80019 sh.001	N/A	1" Spectacle Blind RF 300# - OPEN									
S15	123A90-DDL-PR-PID-80018 sh.001	BLPH-MV-098	1/2" Bleed on DBB RF 300#									
S16	123A90-DDL-PR-PID-80016 sh.001	BLPH-MV-385	1/2" Bleed on DBB RF 300#									
S17	123A90-DDL-PR-PID-80014 sh.001	BLPH-MV-018	1" DBB RF 300#									
S18	123A90-DDL-PR-PID-80014 sh.001	25-BDV-022	1" Actuated Valve RF 300#	Yes								
S19	123A90-DDL-PR-PID-80014 sh.001	BLPH-MV-019	2" DBB RF 300#									
S20	C63-PID-001-008 sh.8/16	BBV-633	1/2" Bleed on DBB RF 300#									
S21	123A90-DDL-PR-PID-80029 sh.001	BLPH-MV-407	3/4"" RF 300# x 1/2" NPTF Ball Valve		Yes							
S22	123A90-DDL-PR-PID-80020 sh.001	BLPH-MV-211	1/2" Bleed on DBB RF 300#									
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 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack Number**	TP 006
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	Time / PPS Rep.	Date / Customer	Time / PPS Rep.	Date / Customer	Time / PPS Rep.	Date / Customer
S23	123A90-DDL-PR-PID-80013 sh.001	BLPH-MV-212	1/2" Bleed on DBB RF 300#									
S24	123A90-DDL-PR-PID-80011 sh.001	BLPH-MV-003	1" DBB RF 300#									
S25	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-428	1" DBB RF 300#									
S26	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-198	1" DBB RF 300#									
S27	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-422	3/4"" RF 300# x 1/2" NPTF DBB									
S28	123A90-DDL-PR-PID-80013 sh.001	BLPH-MV-014	3/4"" RF 300# x 1/2" NPTF DBB		Yes							
S29	123A90-DDL-PR-PID-80013 sh.001	BLPH-MV-010	1" DBB RF 300#									
S30	123A90-DDL-PR-PID-80019 sh.001	N/A	1 1/2" DBB RF 300#									
S31	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-431	4" DBB RF 300#									
S32	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-197	1" DBB RF 300#									
S33	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-432	1/2" Bleed on DBB RF 300#									
S34	123A90-DDL-PR-PID-80015 sh.001	BLPH-MV-029	1/2" Bleed on DBB RF 300#									
S35	123A90-DDL-PR-PID-80017 sh.001	BLPH-MV-193	1/2: Bleed on DBB RF 300#									
Tick each row under Test # column to confirm correctly isolated and sign / initial this row as verification.				**Signature / Initials**								

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C8. System Depressurization Checklist #1

Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1	**Test Pack Name**	H2 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack No.**	TP 006
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	Time / Date PPS	Time / Date Customer	Time / Date PPS	Time / Date Customer	Time / Date PPS	Time / Date 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 modififed 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	**Critical Valve Testing (at Initial Test Limits)**							
2-1	Carry out Critical Valve Testing on the following valves, on initial system limits. T5, T9, T10, T11, T19, T21	E5 Critical Valve Test Report E6 Ultrasonic Crit. Valve Report *for details of testing method and to record results*						
3	**Critical Valve Testing (Stage 1)**							
3-1	Close the following valves to prepare for the next stage of Critical Valve Testing: S10, S4, S5, S6	Marked Drawings						
3-2	Open the following valves to prepare for the next stage of Critical Valve Testing: S23, S26, S11, S7, S33	Marked Drawings						
3-3	Carry out Critical Valve Testing on the following valves S10, S4, S5, S6	E5 Critical Valve Test Report E6 Ultrasonic Crit. Valve Report *for details of testing method and to record results*						
4	**System Depressurization**							

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C8. System Depressurization Checklist #2

Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1	**Test Pack Name**	H2 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack No.**	TP 006
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**	Time / **PPS**	Date / **Customer**	Time / **PPS**	Date / **Customer**	Time / **PPS**	Date / **Customer**
4-1	Open Primary Depressurization Points and commence system depressurization. **Depressurization Points #1 and #2** (T7 and S7) - 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						
4-2	Confirm system is fully depressurized to atmospheric pressure (0 barg). - Pay particular attention to pressure instruments upstream & downstream of check valves.	Pressure Instruments						
5	**Isolate System**							
5-1	Close all Depressurization Points: (T7, S7)	Marked Drawings						
5-2	Verify all actuated valves within test limit boundaries remain in the correct position (open).	Visual Confirmation						
6	**System Handover**							
6-1	Disconnect and remove all PPS test equipment from the system.	Visual Confirmation						
6-2	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						
6-3	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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C7. Actuated Valve Checklist #1

Customer	Rosetti Marino	**Test Pack Name**	H2 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	**Test Pack Number**	TP 006
Location	Piomboni Yard - Marina di Ravenna	**Checklist Number**	1 of 1
		Test Number	1

The Customer Instrument Technician is responsible for isolating the actuated valves listed in this checklist in accordance with the instructions below. All valves tagged T# must be CLOSED. All valves tagged S# must be OPEN.

Actuated Valves					Isolations Completed	
PPS Tag No.	Drawing Number	Customer Tag No.	Description	Required Position	Customer Instrument Technician	Time / Date
T5	123A90-DDL-PR-PID-80019 sh.001	25-XV-018	1" Actuated Ball Valve RF 300#	Closed		
T9	123A90-DDL-PR-PID-80018 sh.001	25-XV-014	1" Actuated Ball Valve RF 300#	Closed		
T10	123A90-DDL-PR-PID-80016 sh.001	25-XV-008	1" Actuated Ball Valve RF 300#	Closed		
T11	123A90-DDL-PR-PID-80020 sh.001	25-XV-020	1" Actuated Ball Valve RF 300#	Closed		
T13	C63-PID-001-008 sh.8/16	PV-635	1" Actuated Valve RF 300#	Closed		
T19	123A90-DDL-PR-PID-80015 sh.001	25-XV-004	1" Actuated Ball Valve RF 300#	Closed		
T21	123A90-DDL-PR-PID-80017 sh.001	25-XV-011	1" Actuated Ball Valve RF 300#	Closed		
S2	123A90-DDL-PR-PID-80013 sh.001	25-SDV-001	1" Actuated Ball Valve RF 300#	Open		
S4	123A90-DDL-PR-PID-80019 sh.001	25-XV-017	1" Actuated Ball Valve RF 300#	Open		
S5	123A90-DDL-PR-PID-80019 sh.001	25-FV-038	1" Actuated Globe Valve RF 300#	Open		
S6	123A90-DDL-PR-PID-80019 sh.001	25-PV-046	2" Actuated Globe Valve RF 300#	Open		
S7	123A90-DDL-PR-PID-80019 sh.001	25-BDV-016	4" Actuated Ball Valve RF 300#	Open		
S10	123A90-DDL-PR-PID-80013 sh.001	25-XV-024	1" Actuated Ball Valve RF 300#	Open		
S18	123A90-DDL-PR-PID-80014 sh.001	25-BDV-022	1" Actuated Valve RF 300#	Open		

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D. Helium Leak Test - Task Plan

Customer	Rosetti Marino	**Test Pack Name**	H2 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	**Test Pack Number**	TP 006
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: Nitrogen Pump Unit	A	-	-
6	Set OPPS trip pressure and function test to verify. **36.7 barg**	A	W	-
7	Confirm OPPS pressure sensing line is connected to approved point (A1. Test Pack Info.).	A	-	-
8	Confirm correct PRV(s) is selected (see App. A). Set pressure: **38.2 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. **200.0 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: _____ Customer: _____ Time / Date: _____	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**: **0.2 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** - Critical valves tested and results recorded on Critical Valve Test Reports E6 - 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	-
	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: M. Bejmare Time / Date: _____ Customer: G. Bjorn Time / Date: _____	H	H	-

Increment	Pressure barg	% Design Pressure	Hold Period mins
#1	2.0	5.0%	15.0
#2	7.2	18.0%	15.0
#3	14.4	36.0%	15.0
#4	21.6	54.0%	15.0
#5	28.8	72.0%	15.0
FINAL TEST PRESSURE	**36.0**	**90.0%**	**30.0**

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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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 Inlet System and Storage Vessel V-25001E	**Test Method**	Helium Leak Detection
Test Pack Number	TP 006	**Test Gas**	1% Helium / 99% Nitrogen

Leak Test and Acceptance Criteria	
Leak Test	The system was pressurised, in increments, to 36 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 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	2-Mar-2025	36.0	All	0	Test done from 12 bar together with TP-005 and
					TP-008

Instrumentation

Description	Serial Number	Calibration Certificate No.	Calibration Date
Pressure Chart Recorder	PR 40-2		24-Jan-2025
Pressure Gauge (Analog)	PTG 40-4		24-Jan-2025
Data Logger	PTG1632	1402706	26-Jul-2024

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

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Job number: PRCE/5324/24
Test Pack name: BLPH Leak Testing Services
Date: 02.03.2025
Time on: 15:00
Date off: 03.03.2025
Time off: 01:00

Pressure chart recorder 0-40 bar
S.N.: PR-40-2
Range: 0-40 bar
Pressure Gauge Pressure Test

Inlet System and Outlet System and Storage Vessels V-2500A and V-2500B
TP05 and TP06, TP08

Date: 02.03.2025
Time on: 15:00
Time off: 02:00
Date off: 03.03.2025

No. 1320
KAART

Depressurised
Pressure Test
Test pressure
Test duration
Date Tested

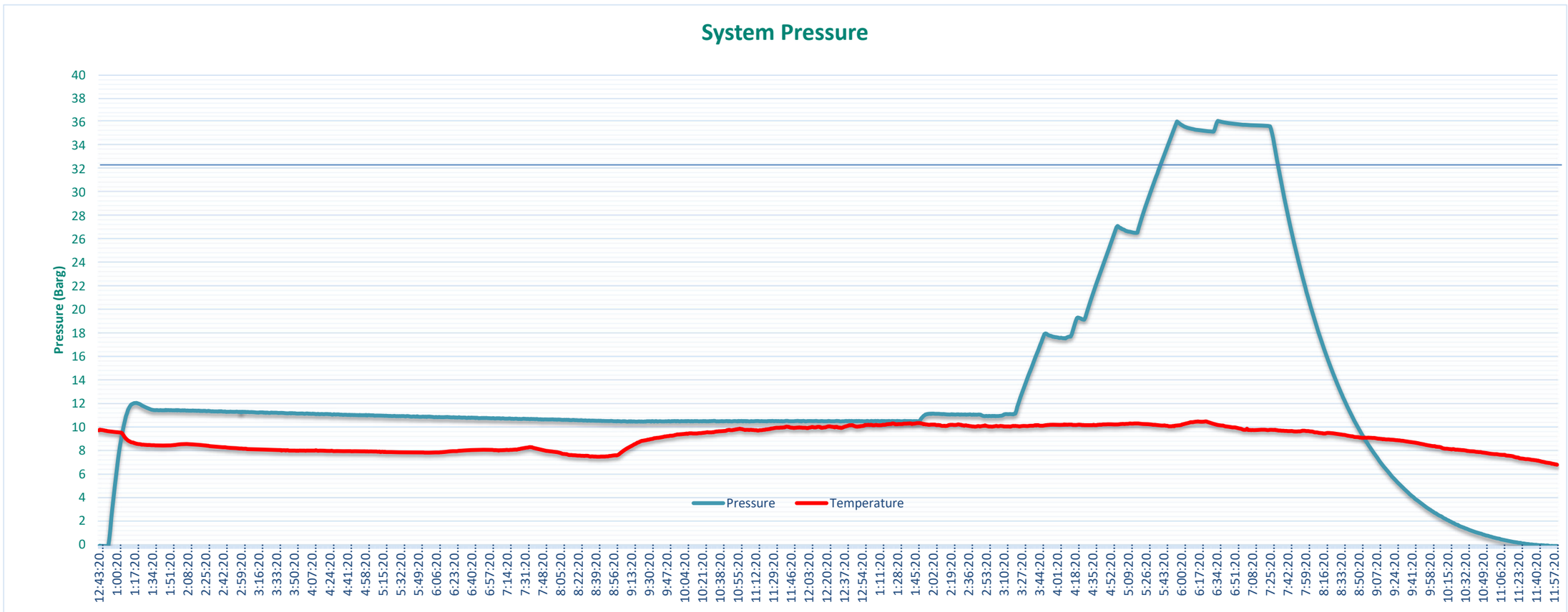
Data Collection Report

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-005, TP-006 and TP-008
Test Pack Name:	H2 Inlet System and Storage Vessel V-25001D, V25001E and H2 Outlet System
BHI Gauge No:	PTG
Pressure Range:	0-700 bar
Test Medium:	1%He99%N2
Test Pressure:	36.0 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	#REF!

Run Info	
Start Time	01.03.2025 - 00:43
Stop Time	01.03.2025 - 23:50
Logging Interval	1 min



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

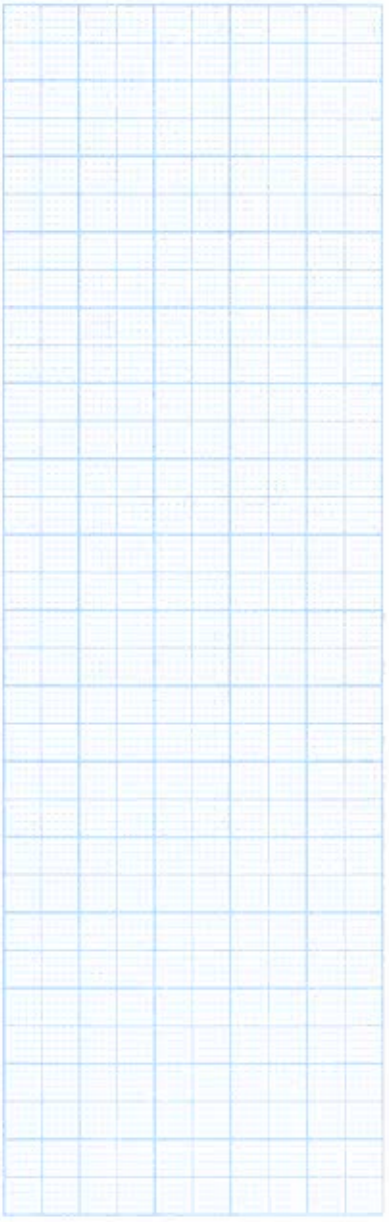
Tel +31 50 5017676
VAT NL800108802B01
IBAN NL48 RABO 0355 8042 12
BIC RABONL2U

calibration certificate

Instrument	:	*Pressure recorder*	Customer	:	*P&M Netherlands B.V.*
Type	:	*4888SST*	Calibration Instrument	:	*dead weight tester*
Serial Number	:	*07.02461.1-02 (PR 40-2)*	Serial Number	:	*9480*
Range	:	*0-40 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	*0,0*	*0,0*
10	*10,0*	*10,2*
20	*19,8*	*20,0*
30	*29,7*	*29,9*
40	*40,2*	*40,2*

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]*

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9301 ZX Roden
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ilac-MRA RvA CALIBRATION RvA K 048

certificate number : 4201630a
this replaces 4201630

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	= 0,33864	± 0,00073	[bar g]

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

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

where

p_e	gauge pressure at reference level	[bar g]
m_c	total conventional mass load (see page 2 of this cert.)	[kg]
g_l	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 (in corrections 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 :

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

remark: certificate released 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 Werkhoven,
laboratory teamleader

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

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

certificate number : 4201630a
this replaces 4201630

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 Sebacate
measuring range	0,5 ... 50 MPa g
combined uncertainty	3,1 10-6 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	0,00063	7,3424	0,0000	0,0000	0,0016
14,34585	0,00074	14,3482	0,0003	0,0018	0,0025
28,3560	0,0012	28,355	-0,0055	-0,0017	0,0041
42,3678	0,0018	42,3668	-0,0010	-0,0023	0,0058
56,3787	0,0020	56,3778	0,0009	0,0018	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 line-up and DUT limitations (k = 2)

calibration technician: G. Ruiter

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certificate number : 4201631

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 Kalibratiedienst B.V. assumes any liability.

certificate number : 4201631

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	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	4089,98	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	0,9
0,1 bar	G 2	81,84572	0,9
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 G001449
metrologist	M. Patel

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IBAN NL48 RABO 0355 8042 12
BIC RABONL2U

calibration certificate

Instrument	:	*Precision gauge*	Customer	:	*P&M Netherlands B.V.*
Type	:	*181RR/160*	Calibration Instrument	:	*dead weight tester*
Serial Number	:	*05.00810.10-04 (PTG 40-4)*	Serial Number	:	*9480*
Range	:	*0-40 bar*	Calibration carried out	:	
Accuracy	:	*cl 0.6*	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*
5	*5,00*	*5,05*
10	*10,00*	*10,10*
15	*14,95*	*15,10*
20	*19,95*	*20,10*
25	*24,95*	*25,05*
30	*29,90*	*30,00*
35	*34,90*	*34,95*
40	*39,85*	*39,85*

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 : 4201630a
this replaces 4201630

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	= 0,33864	± 0,00073	[bar g]

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

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

where

p_e	gauge pressure at reference level	[bar g]
m_c	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 (in constone 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 :

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

remark certificate released 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 Werkhoven,
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.

certificate number : 4201630a
this replaces 4201630

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 Sebacate
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 [%R]	measurement uncertainty [bar]
7,34239	0,00053	7,3424	0,0000	0,0000	0,0016
14,34595	0,00074	14,3462	0,0003	0,0018	0,0025
28,3560	0,0012	28,3555	-0,0005	-0,0017	0,0041
42,3678	0,0016	42,3668	-0,0010	-0,0023	0,0058
56,3787	0,0020	56,3778	0,0008	0,0018	0,0075
70,3893	0,0025	70,3888	-0,0003	-0,0004	0,0092

legends

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 line-up and DUT limitations (k = 2)

calibration technician G. Ruiter

Minerva METROLOGY AND CALIBRATION

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ilac-MRA RvA CALIBRATION RvA K 048

certificate number : 4201631

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 sig ned / signed copy

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Minerva METROLOGY AND CALIBRATION

www.minerva-calibration.com

ilac-MRA RvA CALIBRATION RvA K 048

certificate number : 4201631

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	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	4090,68	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	0,9
0,1 bar	G	2	81,84572	0,9
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. Pate

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 1402706

Date of Issue 26 July 2024

CALIBRATION CERTIFICATE

Customer's Name P&M NETHERLANDS BV
Customer's Reference 320006459
Serial Number 2665 / PNo: PTG1632
Description Keller LEO Rec Ei Digital Gauge
Range 700bar
Our Reference 386446/R/2
Temperature of Test 21.6 °C
Calibration Uncertainty ±0.1% of fs +1 lsd
Standard Used Budenberg PCU (D111)
Traceable Ref UKAS Lab 0208 Cert 038145/ UKAS Lab 0822 Cert 51263

Applied Value	Reading	Correction
bar		
100.00	99.9	0.1
200.00	199.8	0.2
300.00	299.9	0.1
400.00	399.8	0.2
500.00	499.8	0.2
600.00	599.8	0.2
700.00	699.8	0.2

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.
This device could not be certified without repair.

Signed:

Job Title: Technician

RJD1

1982 - 2024 42 YEARS in calibration

Date of calibration for this device is 26 July 2024
Recommended maximum recalibration date: 26 January 2025

RJD1 P&MN1

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:



E6. Critical Valve Test Report - Ultrasonic #1

Customer	Rosetti Marino	**PPS Job Number**	PMCE453947M1	**Test Pack Name**	H2 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	**Customer Contract No.**	123A90	**Test Pack No.**	TP 006
Location	Piomboni Yard - Marina di Ravenna	**Customer Work Order No.**	1724002632	**Test Date**	28-Jan-2025

Valve Closure Leak Test - Ultrasonic			**Test Instrumentation**			
Test Pressure (δP)	36.0 bar	δP = differential pressure across valve	**Description**	**Serial Number**	**Calibration Cert.**	**Calibration Date**
1	Follow System Depressurization Checklist instructions and apply differential pressure across each valve (sequentially). Upstream = Final Test Pressure Downstream = Atmospheric Pressure					
2	Place the ultrasonic probe on the pipe 6 to 12 inches upstream of the valve. Record the deibel (dB) reading.					
3	Place the ultrasonic probe on the valve body. Record the decibel (dB) reading.					
4	Place the probe on the pipe 6 to 12 inches downstream of the valve. Record the decibel (dB) reading.					
LEAK	A valve "closure leak" is indicated by higher value readings on the valve body and / or downstream.					

Critical Valves Tested				**Ultrasonic Meter Reading**				**Test Result**
PPS Tag No.	**Customer Tag No.**	**Description (valve type, size, class)**	**Drawing Number**	**Frequency Range kHz**	**Upstream dB**	**Valve Body dB**	**Downstream dB**	**Pass / Fail**
S10	25-XV-024	1" Actuated Valve RF 300#	123A90-DDL-PR-PID-80013 sh.001	0-100 kz	0.0	0.0	0.0	Pass with TP-002
S4	25-XV-017	1" Actuated Valve RF 300#	123A90-DDL-PR-PID-80019 sh.001	0-100 kz	0.0	0.0	0.0	Pass
S5	25-FV-038	1" Actuated Valve RF 300#	123A90-DDL-PR-PID-80019 sh.001	0-100 kz	0.0	0.0	0.0	Pass
T5	25-XV-018	1" Actuated Valve RF 300#	123A90-DDL-PR-PID-80019 sh.001	0-100 kz	0.0	0.0	0.0	Pass
S6	25-PV-046	2" Actuated Valve RF 300#	123A90-DDL-PR-PID-80019 sh.001	0-100 kz	0.0	0.0	0.0	Pass
T19	25-XV-004	1" Actuated Valve RF 300#	123A90-DDL-PR-PID-80015 sh.001	0-100 kz	0.0	0.0	0.0	Pass with TP-002
T21	25-XV-011	1" Actuated Valve RF 300#	123A90-DDL-PR-PID-80017 sh.001	0-100 kz	0.0	0.0	0.0	Pass with TP-002
T9	25-XV-014	1" Actuated Valve RF 300#	123A90-DDL-PR-PID-80018 sh.001	0-100 kz	0.0	0.0	0.0	Pass with TP-002
T10	25-XV-009	1" Actuated Valve RF 300#	123A90-DDL-PR-PID-80016 sh.001	0-100 kz	0.0	0.0	0.0	Pass with TP-002
T11	25-XV-020	1" Actuated Valve RF 300#	123A90-DDL-PR-PID-80020 sh.001	0-100 kz	0.0	0.0	0.0	Pass with TP-002

Note: kHz value represents the range the dB reading was measured in.

	Name	**Job Title**	**Signature**	**Time / Date**
PPS Representative	M.Bejinaru	Field Engineer General		
Customer Representative #1	I.Vago	Commissioning Superintendent		
Customer Representative #2				

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Certificate of Sensitivity Validation

Date of issue: 03 July 2023

Certificate Number: 1002858.

Page 1 of 2 pages

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: Vaseco Limited.

Address: Bromley House,
Barlow Drive,
Woodford Park Industrial Estate,
Winsford,
Cheshire,
CW7 2JZ.

Purchase order No.: Internal

Vaseco SOP No.: Internal

UNIT UNDER CALIBRATION DETAILS

Manufacturer: UE Systems Inc.

Model: Ultraprobe 9000

Equipment condition: Good external condition

Serial No: 960445-16

CALIBRATION DETAILS

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

Validation date: 03 July 2023

Certificate of Sensitivity Validation

Certificate Number: 1002858.

RESULTS

Sensitivity validation chart							
Scanning module	**Date**	**Serial No.**	**Rod used**	**WTG setting**	**Frequency**	**Mode (R,P,S,RO,PO,SO)**	**dB**
	03/07/2023	960445-16	Long	Low	40kHz	R	86
Contact module	**Date**	**Serial No.**		**WTG setting**	**Frequency**	**Mode (R,P,S,RO,PO,SO)**	**dB**
	03/07/2023	960445-16		Low	40kHz	R	34

Validated by: 

E1. Leak Description Report #1

Customer	Rosetti Marino	Test Pack Name	H2 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	Test Pack No.	TP 006
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 ()		
					Date	Date	Date
					Test #1	Test #2	Test #3
			No Leaks				

	Name	Job Title	Signature	Time / Date
PPS Representative	M. Bejinaru	Field Engineer	[signature]	
Customer Rep. #1	G. B[illegible]	COORD. SWC	[signature]	
Customer Rep. #2				

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E3. Witness Joint Register #1

Customer	Rosetti Marino	**Test Pack Name**	H2 Inlet System and Storage Vessel V-25001E
Project	Leak Testing Services for Base Load Power Hub Project	**Test Pack Number**	TP 006
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	C63-PID-001-008 sh.8/16	BBV-633	1/2" Plug Removed for vent adjacent system
W2	123A90-DDL-PR-PID-80013 sh.001	BLPH-MV-212	1/2" Plug Removed for vent adjacent system
W3	123A90-DDL-PR-PID-80011 sh.001	N/A	1" Blind Flange removed for PRV
W4	123A90-DDL-PR-PID-80013 sh.001	25-PT-001	1/2" Instrument removed for instrumentation point
W5	123A90-DDL-PR-PID-80013 sh.001	25-PT-002	1/2" Instrument removed for injection manifold
W6	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-426	1/2" Plug Removed for vent adjacent system for critical valve testing
W7	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-198	1/2" Plug Removed for vent adjacent system for critical valve testing
W8	123A90-DDL-PR-PID-80019 sh.001	BLPH-MV-432	1/2" Plug Removed for vent adjacent system
W9	123A90-DDL-PR-PID-80015 sh.001	BLPH-MV-029	1/2" Plug Removed for vent adjacent system
W10	123A90-DDL-PR-PID-80016 sh.001	BLPH-MV-385	1/2" Plug Removed for vent adjacent system
W11	123A90-DDL-PR-PID-80017 sh.001	BLPH-MV-193	1/2" Plug Removed for vent adjacent system for critical valve testing
W12	123A90-DDL-PR-PID-80018 sh.001	BLPH-MV-098	1/2" Plug Removed for vent adjacent system for critical valve testing
W13	123A90-DDL-PR-PID-80020 sh.001	BLPH-MV-029	1/2" Plug Removed for vent adjacent system for critical valve testing

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

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Appendix A

Test Pack Calculations

PRV Calculation, PRV Data Sheet, and other supporting calculation results

Customer Name:	Rosetti Marino
Project Name:	Leak Testing Services for Base Load Power Hub Project
Test Pack Number:	TP 006
Test Pack Name:	H2 Inlet System and Storage Vessel V-25001E

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Test Pack Summary - Helium Leak Test

SYSTEM DETAILS			
Test Pack Name	Test pack 7	**System Design Pressure**	40.0 barg
Test Pack Number	TP-007	**System PSV Set Pressure**	40.0 barg
Customer Reference No.		**Normal Operating Pressure**	30.0 barg
No. Leak Test Components	50 Disturbed Components	**System Free Volume**	104.0 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	2.0	5.4%	6.5%	4.9%	4.9%
Increment #2	15.0	7.2	20.0%	24.0%	18.0%	18.0%
Increment #3	15.0	14.4	40.0%	48.0%	36.0%	36.0%
Increment #4	15.0	21.6	60.0%	72.0%	54.0%	54.0%
Increment #5	15.0	28.8	80.0%	96.0%	72.0%	72.0%
TEST PRESSURE	**30.0**	**36.0**	**100.0%**	**120.0%**	**90.0%**	**90.0%**

Residual Pressure	0.0 barg

Pressure left in the system upon completion of depressurization.

PRESSURIZATION AND DEPRESSURIZATION RATES		
Pressurization Rate	0.5 bar/min	
Volumetric Pump Rate	51.3 Sm^3/min	
Pump Maximum Flow Rate	87.0 Sm^3/min	
Depressurization Rate	2.0 bar/min	
Volumetric Vent Rate	205.3 Sm^3/min	
Vent Rate Restriction	- Sm^3/min	Not specified

TEST GAS			
Test Gas Type	Nitrogen Gas		
Test Gas Required	3,707.0 Sm^3		
LN2 Equivalent	5,448.0 L		
Helium Gas	37.4 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	36.7 barg	91.8%	101.9%					
PRV	38.2 barg	95.5%	106.1%	1.00	200 mm^2	1	103.0 Sm^3/min	103.0 Sm^3/min

PRESSURIZATION, TESTING, AND DEPRESSURIZATION

Test Time per Component	1.0 min
Pressurization Time	02:27 hr : min
Leak Testing Time	01:20 hr : min
Depressurization Time	00:18 hr : min
TOTAL TEST TIME	**04:05 hr : min**

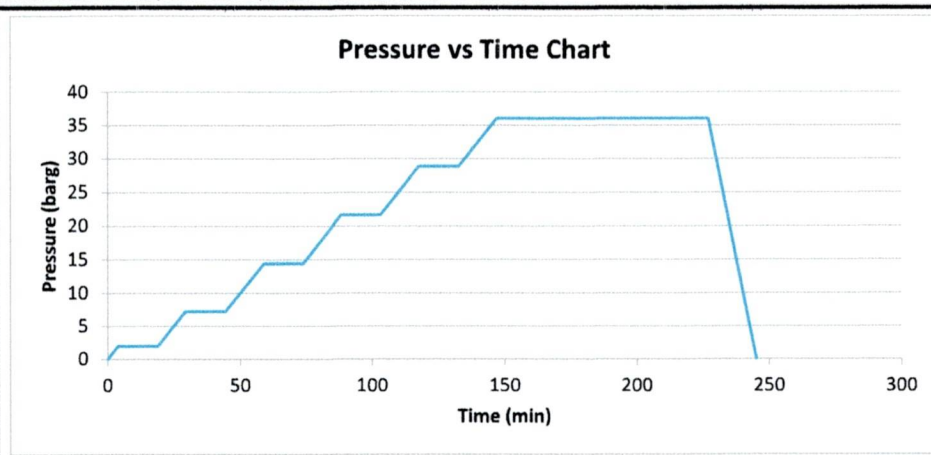
Pressurization Time includes incremental hold periods.

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	New record
Calculation Purpose	PRV Verification
Standard Used	ASME BPVC XIII / ISO-4126-7
Date	6-Feb-2025

Fluid Properties		Pressures	
Phase	Gas	**Set Pressure**	38.2 barg
Fluid Type	Nitrogen	**Set Pressure Tolerance (+/- %)**	3.0 %
Relieving Temperature	15.0 C	**Minimum Opening Pressure**	37.1 barg
Molecular Weight	28.0	**Maximum Opening Pressure**	39.4 barg
Specific Heat Ratio (γ)	1.40	**Overpressure Allowance (%)**	10.0 %
Compressibility Factor	0.99	**Relieving Pressure (fully open)**	42.0 barg
		Back Pressure	0.0 barg

PRV Parameters			
Make	Niezgodka	**Certified Discharge Coefficient**	1.000
Model	1.100	**Actual Orifice Area**	0.310 in^2
		Calculated Flow Capacity	103.00 Sm^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 006
Test Pack Name:	H2 Inlet System and Storage Vessel V-25001E

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Stage 1: Hose Test Initial Alignment Verified	Name / Date	PPS Rep.	Name / Signature	Customer Rep.	Name / Signature

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 Ratings

HP 414 barg
HHP 689 barg

Instrumentation

PG 1 Nitrogen Pump
PR 1 Nitrogen Pump
FG 1 Nitrogen Pump
TG 1 Nitrogen Pump
PG 3 OPPS
PR 2 OPPS

OVERPRESSURE PROTECTION

Node 1 – Pressure Gen. Equipment
As per equipment design

Node 2 – PPS Rig-up (Note 3)
PRV LN2 Pump Discharge

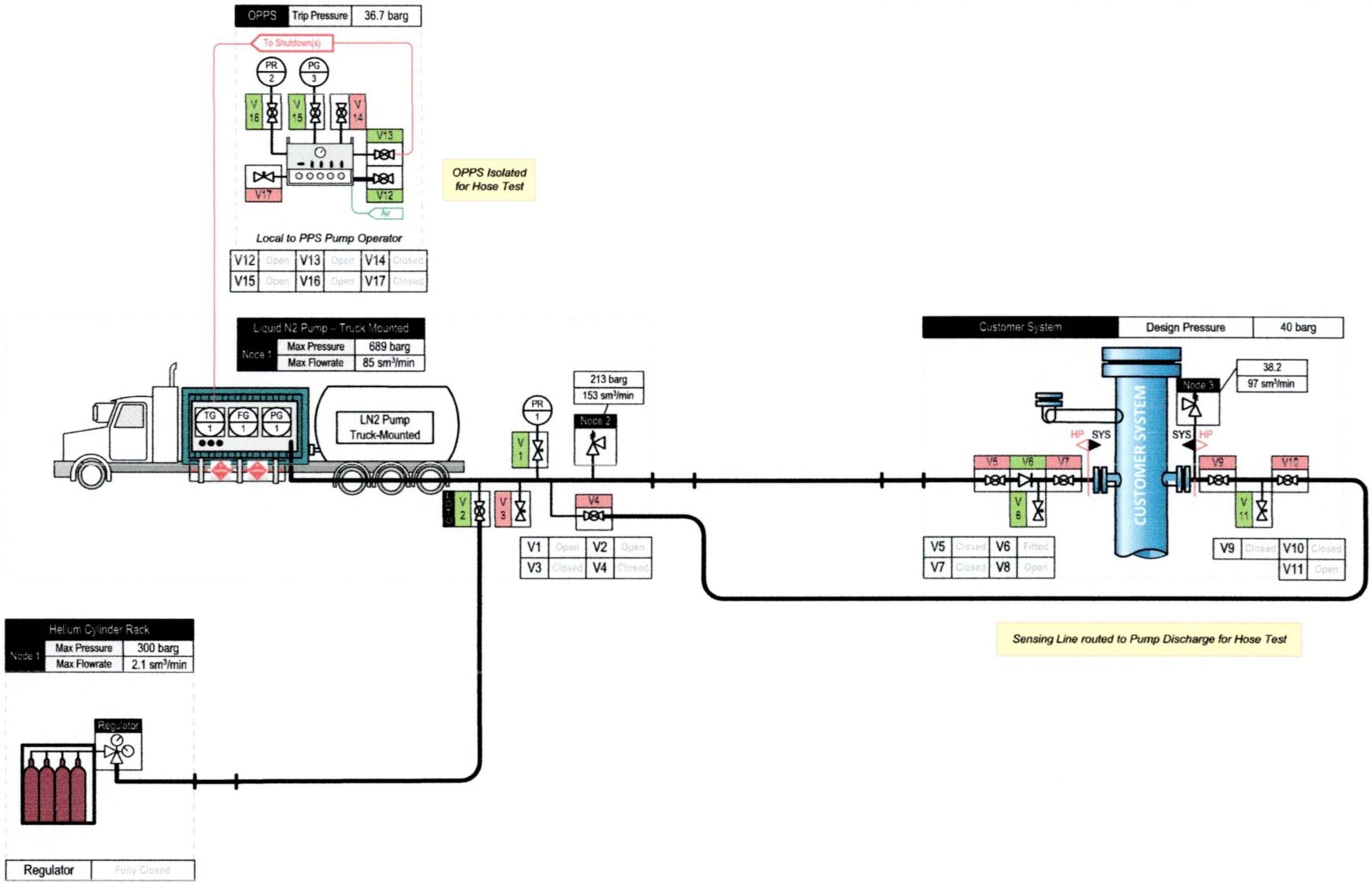
Node 3 – Customer System (Note 3)
PRV Customer System
OPPS Overpressure Protection Skid

NOTES

Note 1: Equipment integral details not shown. Refer to datasheets.

Note 2: Customer system valves / alignment not shown. Refer to Approved PPS Procedure for detail.

Note 3: Bypass valves must not be opened unless (i) downstream pressure remains below upstream pressure and (ii) downstream PRVs are suitably sized.



Revision	Rev. Date	Description	Drawn	Checked	Approved
A	28-01-2025	Initial release	M.Bejinaru	M.Ienco	A.Hsin

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Leak Test TP-006 – Hose Test Drawing

Scale	Drawn by	Date	Checked by	Date
NTS	M.Bejinaru	28-01-2025	Reviewer	28-01-2025

Third Angle Projection

Drawing No.: PMCE453947M1 TP06-DWG-001

Page No. 1 of 2

Rev: A

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 Ratings

HP 414 barg
HHP 689 barg

Instrumentation

PG 1 Nitrogen Pump
PR 1 Nitrogen Pump
FG 1 Nitrogen Pump
TG 1 Nitrogen Pump
PG 3 OPPS
PR 2 OPPS

OVERPRESSURE PROTECTION

Node 1 – Pressure Gen. Equipment
As per equipment design

Node 2 – PPS Rig-up (Note 3)
PRV LN2 Pump Discharge

Node 3 – Customer System (Note 3)
PRV Customer System
OPPS Overpressure Protection Skid

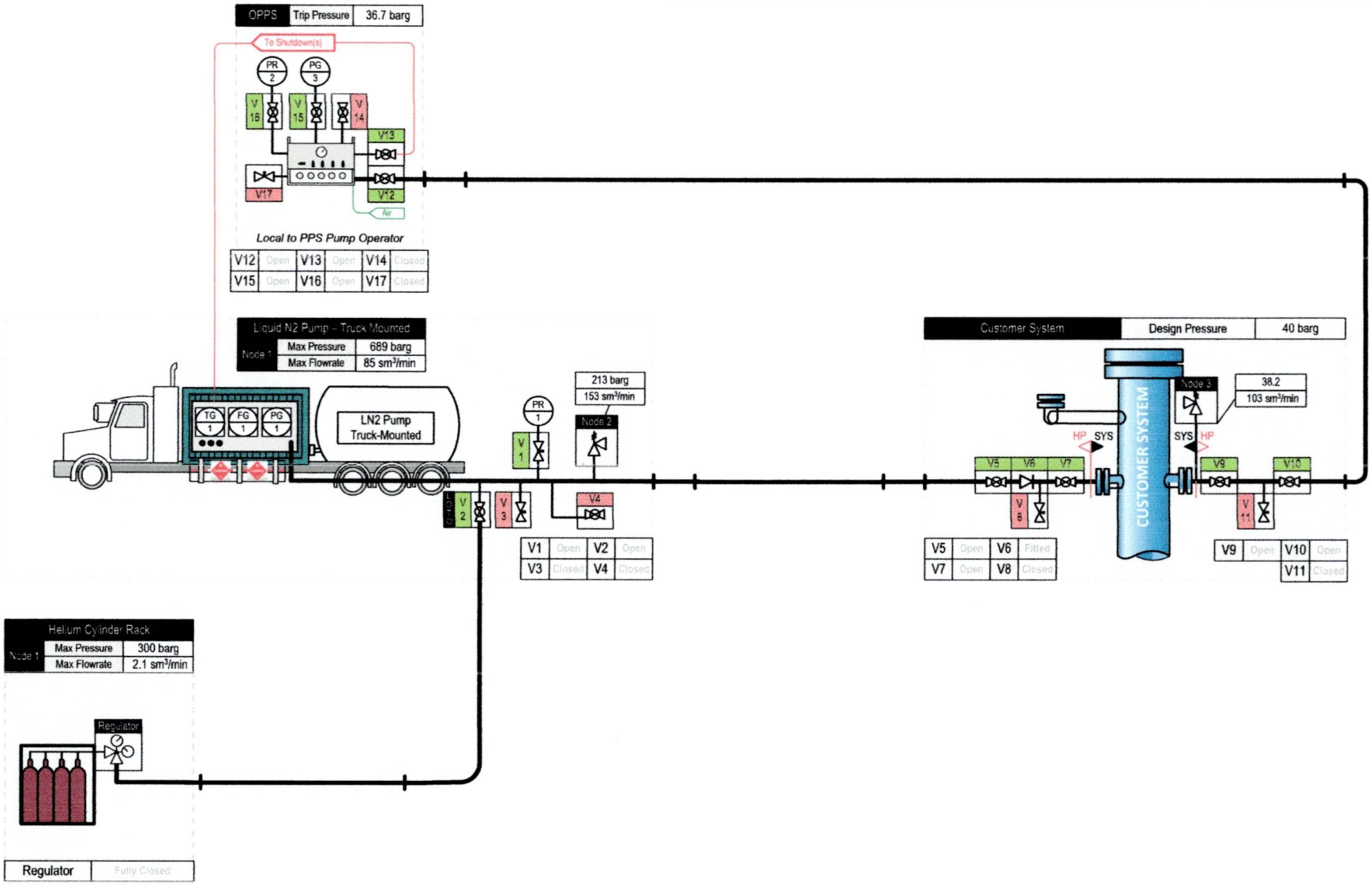
NOTES

Note 1: Equipment integral details not shown. Refer to datasheets.

Note 2: Customer system valves / alignment not shown. Refer to Approved PPS Procedure for detail.

Note 3: Bypass valves must not be opened unless (i) downstream pressure remains below upstream pressure and (ii) downstream PRVs are suitably sized.

Stage 2: Operation Initial Alignment Verified	Name	Date	PPS Rep.	Name	Signature	Customer Rep.	Name	Signature



Revision	Rev. Date	Description	Drawn	Checked	Approved
A	DD-Mmm-YY	Initial release	Author	Reviewer	Approver

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Leak Test TP-006 – Operation Drawing

Scale	Drawn by	Date	Checked by	Date
NTS	M.Bejinaru	28-01-2025	M.Ienco	28-01-2025

Third Angle Projection

Drawing No.:	Page No.	Rev:
PMCE453947M1 TP06-DWG-001	2 of 2	A

Appendix C

Test System Marked Drawings

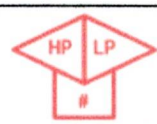
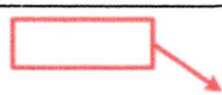
Customer Name:	Rosetti Marino
Project Name:	Leak Testing Services for Base Load Power Hub Project
Test Pack Number:	TP 006
Test Pack Name:	H2 Inlet System and Storage Vessel V-25001E

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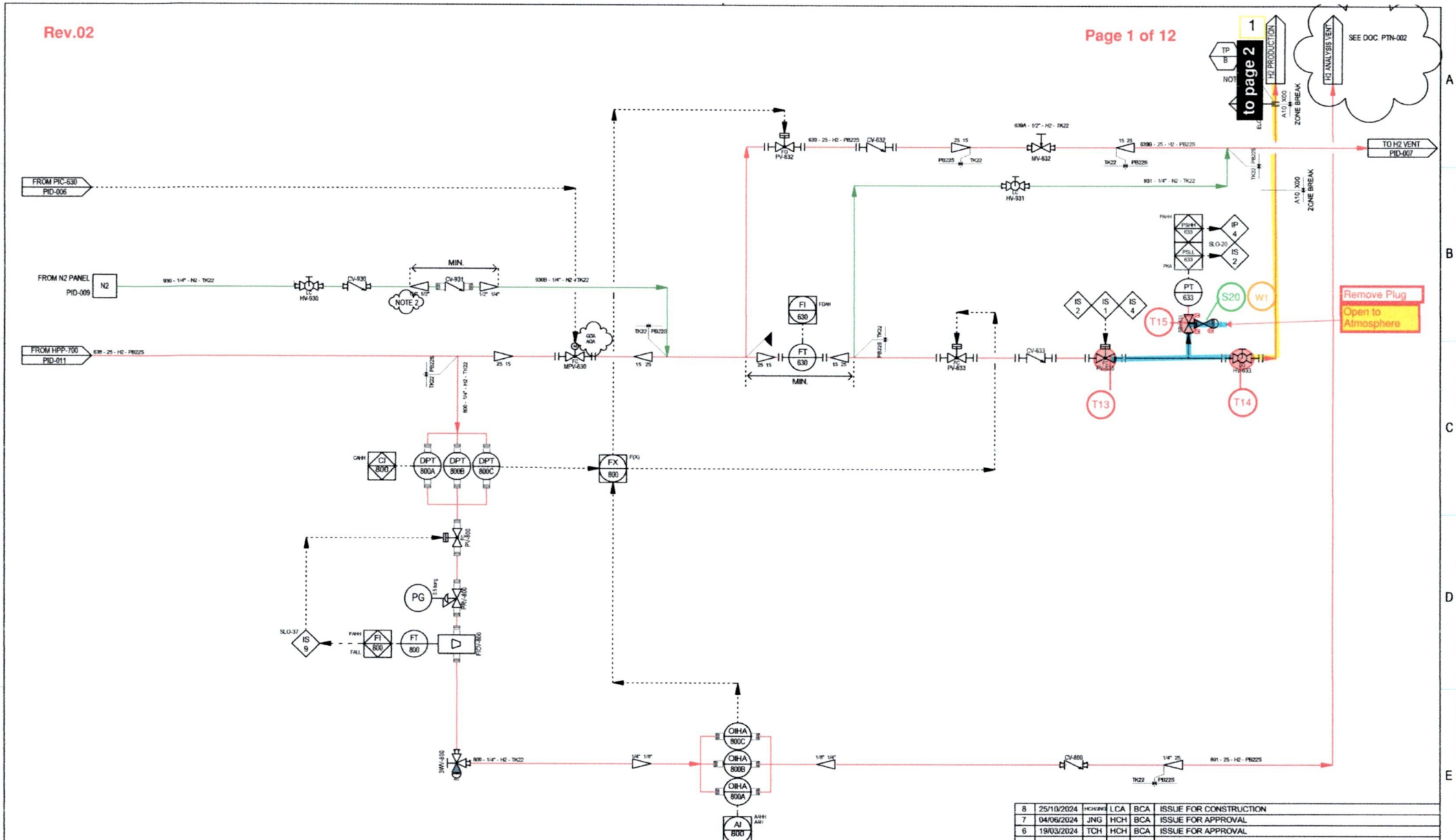
Test Limit Isolation (closed)
Safety Component (open or correctly orientated)
Test System (pressurized)
Vent Path (open to atmosphere)

P&ID Colour Coding

Symbol	Description
	Test Limit Isolation (closed)
	Safety Component (open or correctly orientated)
	Disturbed Joints
	Leak Number
	Ultrasonic Leak Number
	Witness Joint Number
	Sample Point
	Check valve (non-return valve) Point shows direction of process flow / valve orientation.
	Piping specification change: ➢ HP denotes high pressure ➢ LP denotes low pressure
	Used for highlighting: ➢ Injection point # ➢ Over pressure protection system (OPPS) ➢ Temporary pressure relief valve (PRV#) ➢ Test pressure monitoring point # ➢ Pressure recorder ➢ Depressurization point # ➢ Vent path pressure monitoring point # ➢ Caution: check valve or Caution: NRV ➢ Jumper hose # ➢ Trapped pressure # ➢ Other relevant notations

P&ID Key

Rev.02



Rev.	Date	Ed.	Ver.	App.	Description
8	25/10/2024	HCH/JNG	LCA	BCA	ISSUE FOR CONSTRUCTION
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 : ALL ONTDOOR FLANGES MUST BE EQUIPPED WITH FLANGE GUARD DUCTED TO H2 VENT
NOTE 2 : DISSIMILAR TECHNOLOGY BETWEEN THE TWO CHECK VALVES/ CHECK VALVE SHALL MEET CLASS 1 REQUIREMENT

Test Pack Number: TP-006
Test Pack Name: H2 Inlet System and Storage Vessel V-25001E
Test Pressure: 36 barg
Test Type: N2He 90% Design Pressure

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Responsible dept.	Technical reference	Created by	Checked by / Approved by / Scale
PROCESS	C63-PID-001-008	HCH/JNG	LCA / BCA / 1:1

Licensor: elogen
Client:

Document type: P&ID
Document status: DETAILED DESIGN
Title, Supplementary title: H2 PANEL
Client reference: -

Rev.	Date of issue	Lang.	Page
8	25/10/2024	EN	8/16

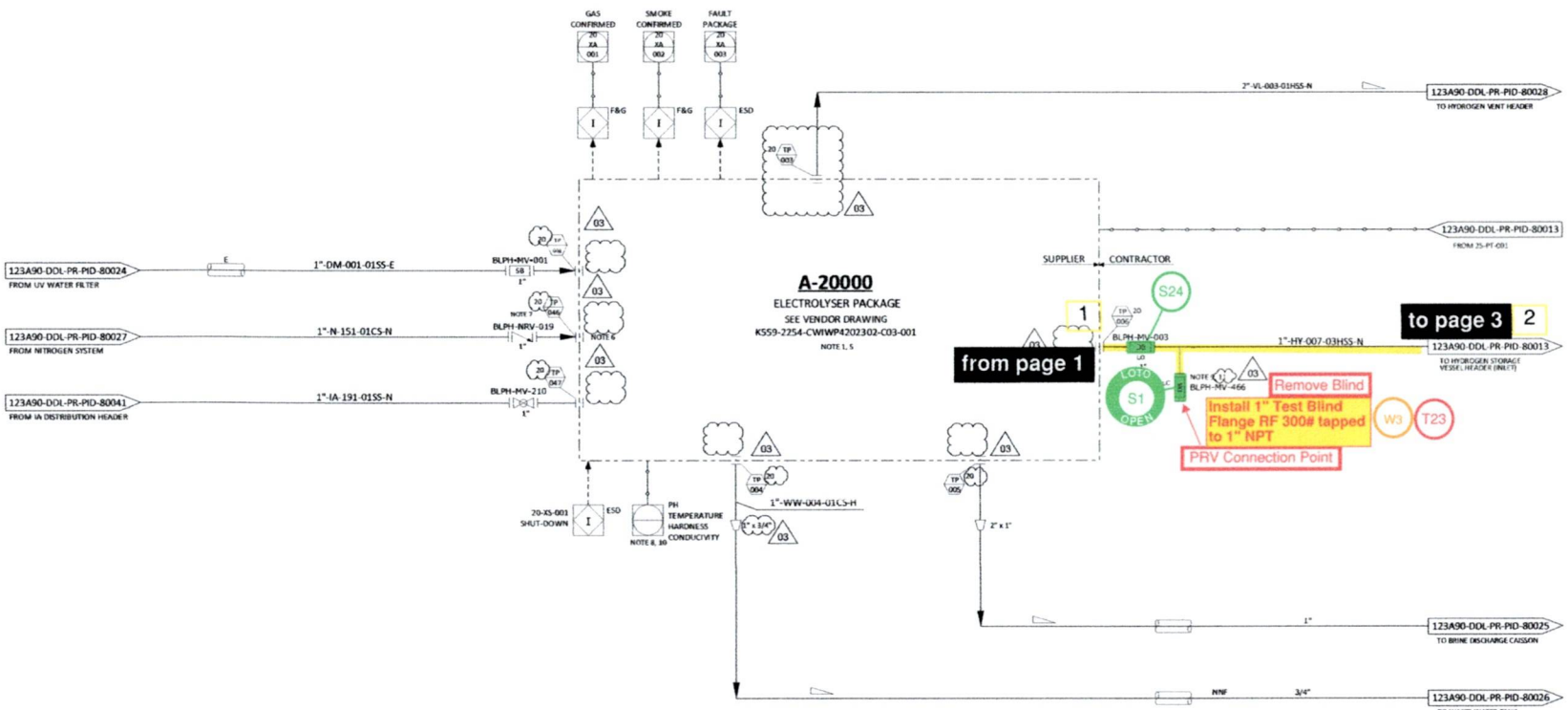
DRAWING NO. DRAWING_NO.

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

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	17/06/2024	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 :

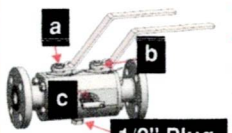
BLPH PIPING AND INSTRUMENTATION DIAGRAM
ELECTROLYSER PACKAGE

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

Test Pack Number: TP-006
Test Pack Name: H2 Inlet System
and Storage Vessel V-25001E
Test Pressure: 36 barg
Test Type: N2He 90% Design Pressure

*** Valid only for Critical Valve Testing
Example:
Txa - Open
Txb - Close
Sx - Open
1/2" Plug removed on bleed



Remove Plug
Open to Atmosphere
***

T8 W2 S23

W5 T25
Remove instrument
Connect 1/2" X 1" x-over NPT M x NPT M
Injection Point #1

Critical Valve Testing

S10 S29

S2 S3

2 from page 2

123A90-DDL-PR-PID-80011
FROM ELECTROLYSER PACKAGE

1"-HY-007-03HSS-N

Remove Instrument
Connect 1/2" NPT M X 1/4" NPT M OPPS and Instrumentation

S28 T24 W4

OPPS and Instrumentation Connection Point (Pressure Gauge & Recorder)

123A90-DDL-PR-PID-80011
TO ELECTROLYSER PACKAGE

1"-VL-014-01HSS-N
123A90-DDL-PR-PID-80028
TO HYDROGEN VENT HEADER

1"-HY-007-03HSS-N

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

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

to page 2 3
to page 3 4
to page 4 5
to page 7 6
to page 5 7
to page 6 8

Test Pack Number: TP-006
Test Pack Name: H2 Inlet System and Storage Vessel V-25001E
Test Pressure: 36 barg
Test Type: N2He 90% Design Pressure

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

A1 | DRAWING NO. 123A90-DDL-PR-PID-80013 | SHEET 001 | REV. 02

DRAWING NO. DRAWING_NO.

REV. REV

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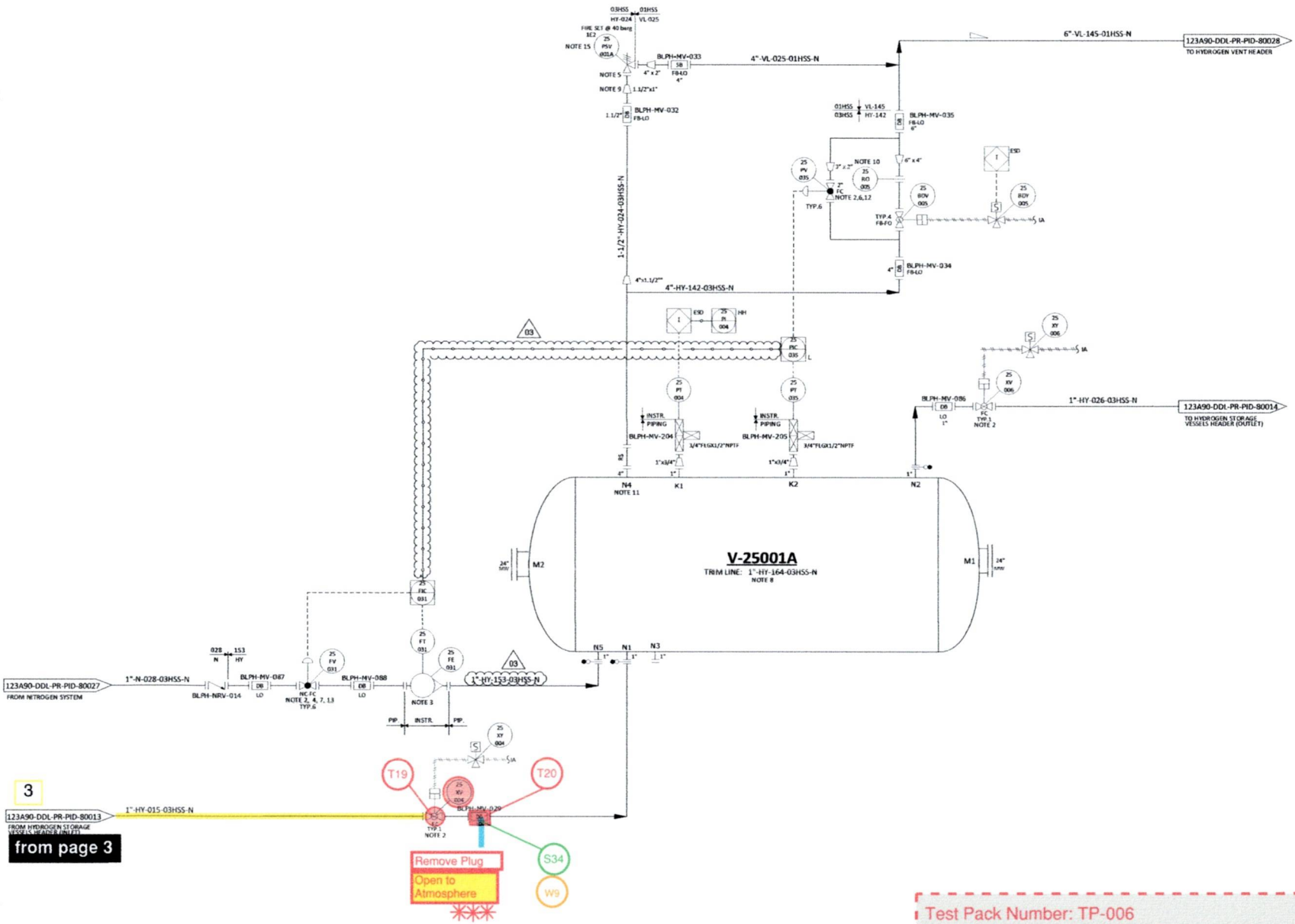
DRAWING NO.

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. 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.

Test Pack Number: TP-006
Test Pack Name: H2 Inlet System and Storage Vessel V-25001E
Test Pressure: 36 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 A

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

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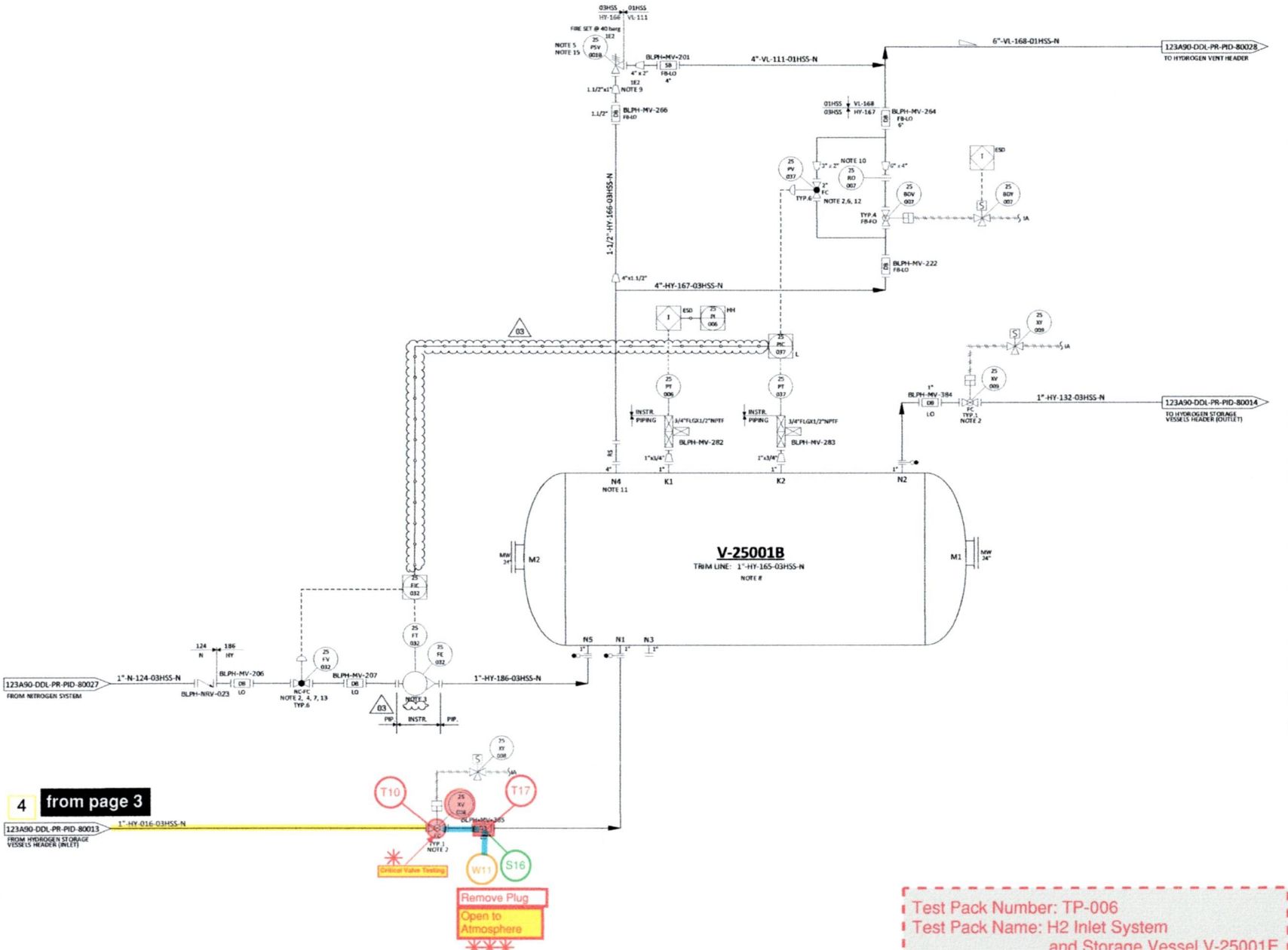
DRAWING NO. DRAWING_NO.

REV. REV.

V-25001_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-006
Test Pack Name: H2 Inlet System and Storage Vessel V-25001E
Test Pressure: 36 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)

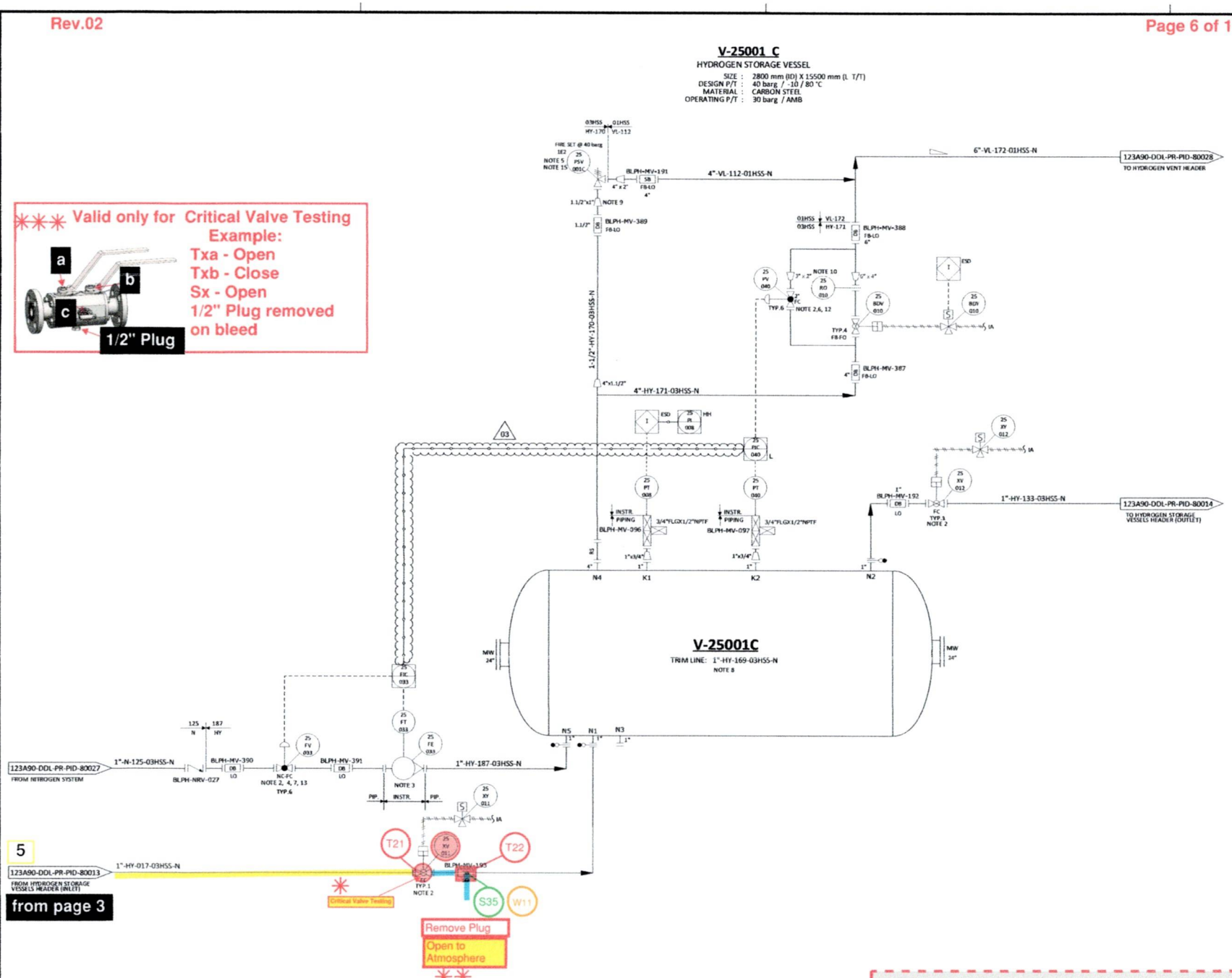
CROSSWIND

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

File Name - FILE_NAME



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

DRAWING NO.

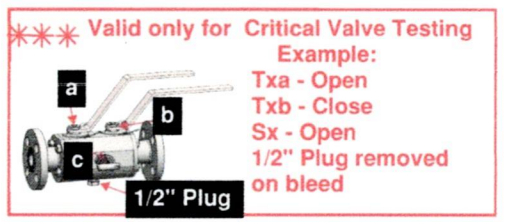
REV.

File Name FILE_NAME

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



*** Valid only for Critical Valve Testing
Example:
Txa - Open
Txb - Close
Sx - Open
1/2" Plug removed on bleed

8

from page 3

Test Pack Number: TP-006
Test Pack Name: H2 Inlet System and Storage Vessel V-25001E
Test Pressure: 36 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. 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/HO.LANOSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80018	SHEET 001	REV. 03

DRAWING NO.
REV.
File Name : FILE_NAME

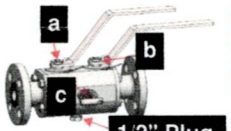
V-25001 E

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

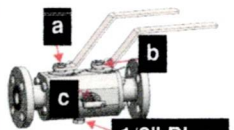
**** Valid only for Critical Valve Testing**

Example:
SXXa - open
SXXb - close
SXXc - open
1/2" Plug removed on bleed



***** Valid only for Critical Valve Testing**

Example:
Txa - Open
Txb - Close
Sx - Open
1/2" Plug removed on bleed



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-038) 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-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-006
Test Pack Name: H2 Inlet System and Storage Vessel V-25001E
Test Pressure: 36 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

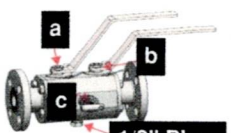
DRAWING_NO. | REV. | FILE_NAME

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

*** Valid only for Critical Valve Testing
Example:
Txa - Open
Txb - Close
Sx - Open
1/2" Plug removed on bleed



6

from page 3

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-006
Test Pack Name: H2 Inlet System and Storage Vessel V-25001E
Test Pressure: 36 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)

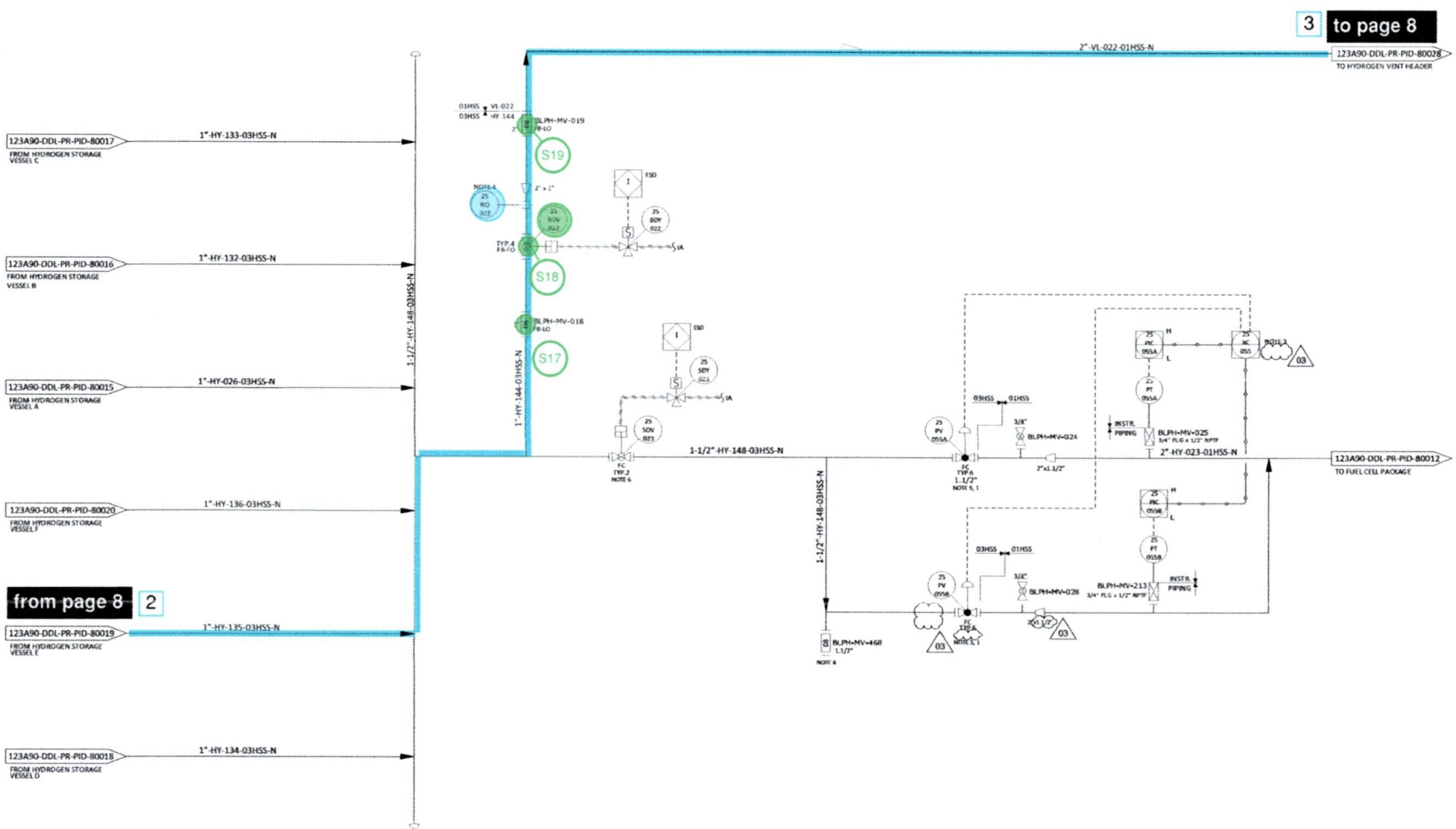
CROSSWIND

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

DRAWING NO. DRAWING_NO.
REV. REV.
File Name : FILE_NAME



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

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)

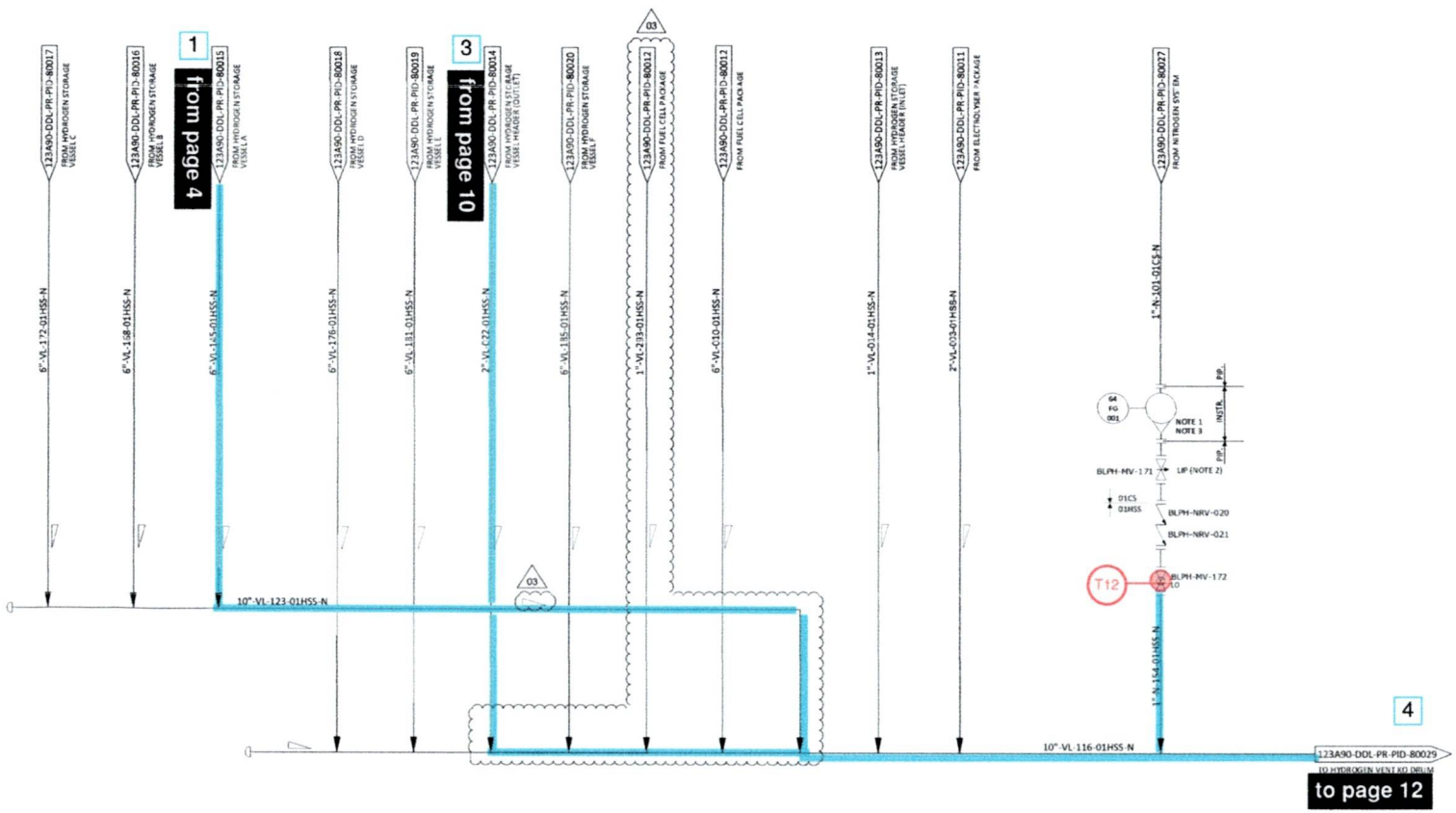
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DRAWN | CHECKED | APPROVED | DATE

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

Test Pack Number: TP-006
Test Pack Name: H2 Inlet System and Storage Vessel V-25001E
Test Pressure: 36 barg
Test Type: N2He 90% Design Pressure

DRAWING NO. DRAWING_NO.
REV. REV.
File Name : FILE_NAME



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.

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

Test Pack Number: TP-006
Test Pack Name: H2 Inlet System
and Storage Vessel V-25001E
Test Pressure: 36 barg
Test Type: N2He 90% Design Pressure

DRAWING NO. DRAWING_NO.
REV. REV.
File Name - FILE_NAME

DRAWING NO.

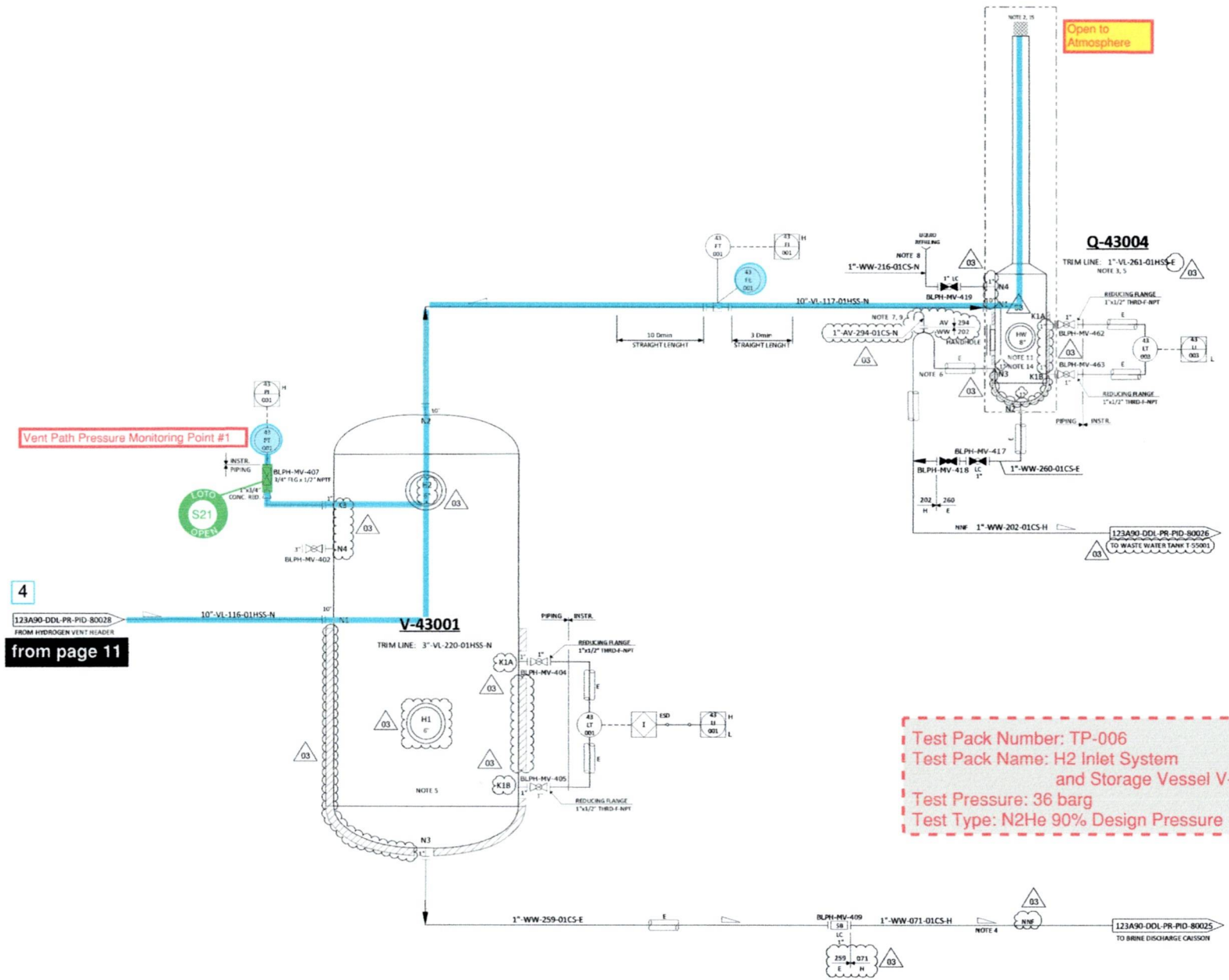
REV.

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



Test Pack Number: TP-006
Test Pack Name: H2 Inlet System and Storage Vessel V-25001E
Test Pressure: 36 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% (03) 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
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

Appendix D

Restricted Access Zone

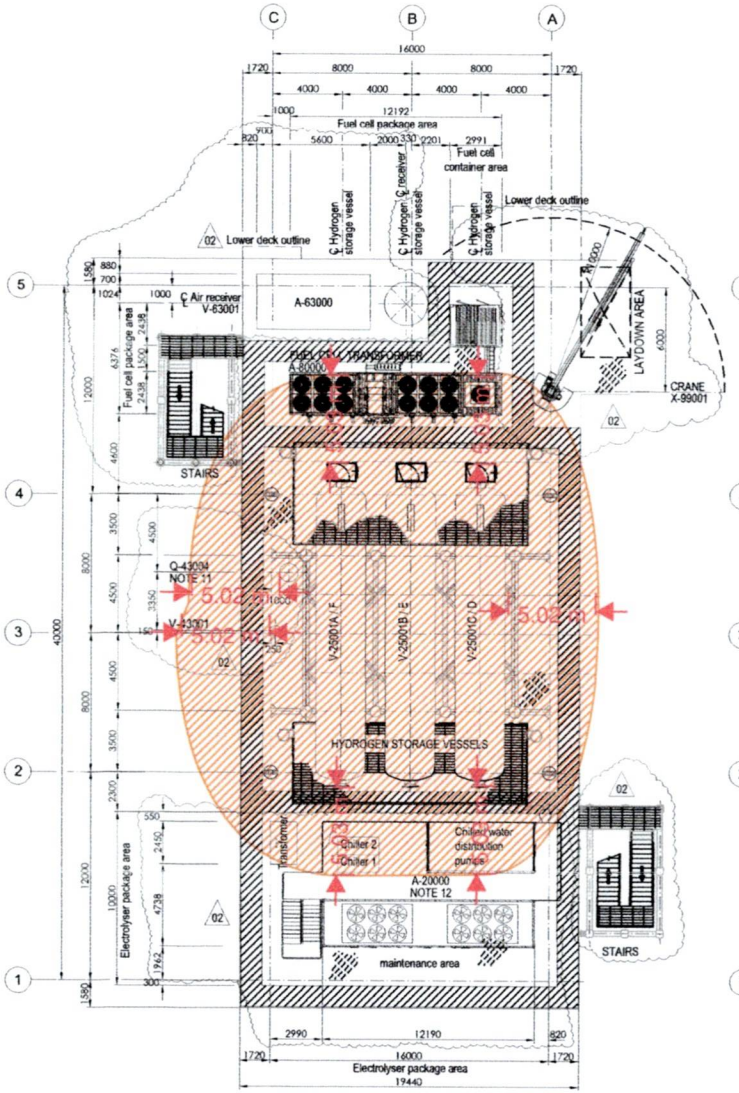
Marked Plot Plan / Deck Plan

Customer Name:	Rosetti Marino
Project Name:	Leak Testing Services for Base Load Power Hub Project
Test Pack Number:	TP 006
Test Pack Name:	H2 Inlet System and Storage Vessel V-25001E

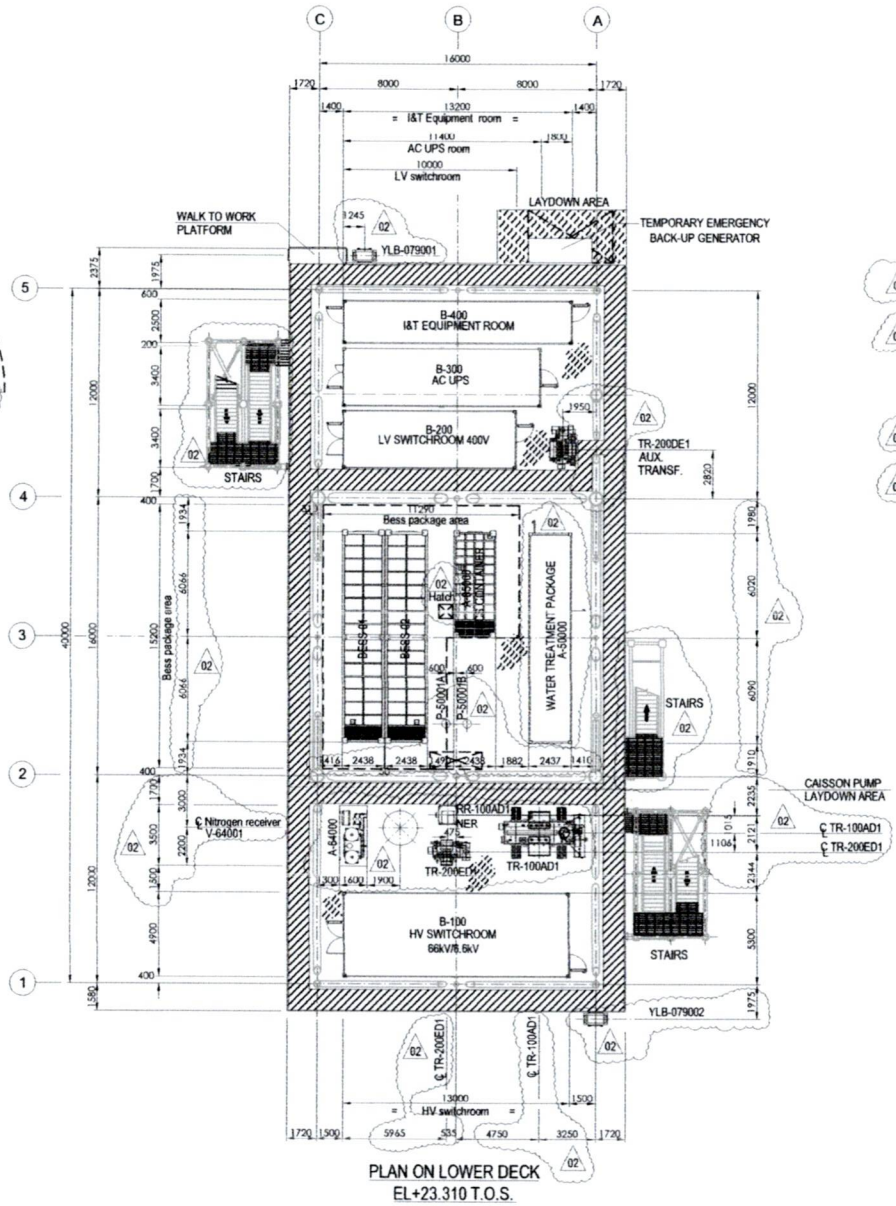
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Baker Hughes Confidential

TP-006 (Restricted Zone) @ 36 barg



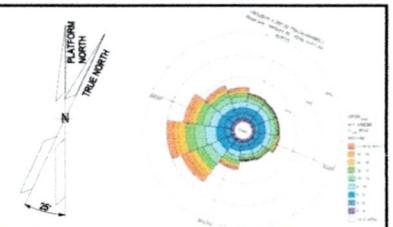
PLAN ON UPPER DECK
EL+30.310 T.O.S.



PLAN ON LOWER DECK
EL+23.310 T.O.S.

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 02	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		



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

Test Pack Number: TP-006
Test Pack Name: H2 Inlet System and Storage Vessel V-25001E
Test Pressure: 36 barg
Test Type: N2He 90% Design Pressure

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	24/05/24	VMA	CBO	D.C	ACCEPTED FOR CONSTRUCTION (AFC)
01	07/02/24	VMA	CBO	D.C	ISSUE FOR REVIEW (IFR)
00	31/10/23	VMA	CBO	D.C	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PLOT PLAN
LOWER & UPPER DECK

CONTRACT NO./TITLE: CW-I-MP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE: 1:150

DRAWN: M. MACRI | CHECKED: C. BORTOLIN | APPROVED: D. LO STERZO | DATE: 24/05/24

A1 | DRAWING NO.: 123A90-DDL-PP-DL-70070 | SHEET: 001 | REV.: 02

DRAWING NO. 123A90-DDL-PP-DL-70070 REV. 02

File name: 123A90-DDL-PP-DL-70070 rev02

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

ROSETTI MARINO	NON CONFORMITY REPORT	NCR n° 2025-Q-123A90-0003 rev. 0

DESCRIPTION

Project: 123A90	**Client:** CROSSWIND C.V.	**Originator:** ROSETTI MARINO	**Subcontractor name:** N/A

Process: CONSTRUCTION	**Procedure:** Base Load Power Hub (BLPH) - Plot Plan - Lower and Upper deck_123A90-DDL-PP-DL-70070 rev.02 Base Load Power Hub (BLPH) Plot Plan - Elevation looking north and East_123A90-DDL-PP-DL-70072 rev.02.
Activity: ASSEMBLING	
Short Title: DISCREPANCY IN H2 STORAGE TANKS LOCATION	

Description:

During the storage tank installation, a discrepancy was identified between the actual tank placement and the originally planned project layout. While the tanks are technically identical and interchangeable, their assigned identification (Tag) does not match the layout indicated in the P&ID and other project documentation. This misalignment affects the traceability of the tanks in relation to engineering documentation and operational tracking.

Noted by:	Degli Esposti Raffaele	**Role:**	PQM	**Date:**	17/01/2025
Accepted by:	Degli Esposti Raffaele	**Role:**	PQM	**Date:**	17/01/2025

MANAGEMENT

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

Root-Cause Analysis

Classification: WRONG ASSEMBLY OPERATION

Notes:

Root Cause Analysis

The issue arose due to logistical constraints and the necessity to receive the tanks within the required timeframe, considering their large dimensions and extended transportation duration. As a result, the tanks were delivered and installed in an order different from the planned layout, leading to a misalignment of identification tags with the P&ID references. However, this does not affect the functionality or integrity of the tanks.

Corrective Action

To rectify this issue and ensure full traceability, the following action will be implemented:

Reaction Plan

Activities	Person in charge	Scheduled Closing Date	Actual Closing Date	Notes
Each tank will have its correct Tag number painted on the manways and side panels in accordance with the P&ID references. This identification will be clear, permanent, and aligned with project documentation to avoid any confusion. In addition a plate with the correct Tag will be placed close to the PED and ASME plates. The additional plate will not be fixed to the shell but to the existing plates supports.	Borghi Wolmer	14/03/2025		
A statement issued by Rosetti will be included in the final dossier, confirming full traceability and ensuring that the identification of each tank is correctly referenced in all project documentation.	Degli Esposti Raffaele	14/03/2025		

Defined by:	Degli Esposti Raffaele	**Role:**	PQM	**Date:**	07/02/2025
Approved by:	Degli Esposti Raffaele	**Role:**	PQM	**Date:**	07/02/2025

ROSETTI MARINO	NON CONFORMITY REPORT	NCR n° 2025-Q-123A90-0003 rev. 0

Client's / AI Approval:		**Role:**		**Date:**	
COMPLETION					
Checked by:	Degli Esposti Raffaele	**Role:**	PQM	**Date:**	
Effective Closing Date:					
Client's / AI Approval:		**Role:**		**Date:**	
Notes:					
Distribution:					

Section 9 SUPPORTING DOCUMENTS

NOT APPLICABLE