GENERAL NOTES

CODES :

1.a) No 6 EQUIPMENT REQUIRED.

1.b) CONSTRUCTION OF EQUIPMENT WILL BE ACC. TO : ASME VIII DIV. 2 CL.2 2021 ED .- "U2" STAMPED+NBR PED 2014/68/EU - CE MARKING

1.c) STANDARD EMPLOYED UNLESS OTHERWISE INDICATED: ASME B.16.5- 2017 FOR FLANGES UP TO 24"; ASME B.1.1-2003 2A/2B FOR STUD BOLTS AND NUTS. ASME B.36.10-2004 FOR PIPES; ASME B.16.9-2009 FOR FITTINGS.

FORMING :

2.a) 2:1 ELL. HEAD MK.1- HOT FORMED IN ONE PIECE FROM PL.44 THK (NORMALIZED AFTER FORMING)

2.b) 2:1 ELL. HEAD MK.2- HOT FORMED IN ONE PIECE FROM PL.44 THK (NORMALIZED AFTER FORMING)

WELDING :

3.a) MIN. WELD TOE-TO-TOE DISTANCE: 50 mm FROM NOZZLES WELD; SHELL THK. FROM SHELL SEAMS TO EXTERNAL ATTACHMENTS.

3.b) ALL FILLET WELDS ARE CONTINUOUS AND HAVE A MIN. THROAT =0.5*THK. OF THINNEST PLATE JOINTED (IF NOT OTHERWISE INDICATED ON THE DRAWING).

3.c) ALL INTERNAL WELDED ATTACHMENTS SHALL BE ATTACHED BY FULL PENETRATION WELDS.

MAIN FLANGES / NOZZLES :

4.a) THE BOLTS HOLES (IF NOT OTHERWISE INDICATED) OF ALL FLANGES, AND GIRTH FLANGES, SHALL STRADDLE THE NORMAL AXES OF VESSEL.

4.b) THE GASKET CONTACT SEALING SURFACE OF RF FACING NOZZLES SHALL HAVE A ROUGHNESS OF Ra 3.2 TO 6.3 µm (125 TO 250 µinch) ACCORDING TO ASME B16.5-2013 EDITION PARA 6.4.5.3.

GASKETS :

5.a) S.W. 316 S.S. GRAPHITE FILLED WITH 316 S.S. INNER RING & EPOXY-COATED C.S. OUTER RINGS

BOLTS :

6.a) BOLT TIGHTENING AS FOLLOWS :
- FOR BOLTS DIA LOWER THAN 2" WITH TORQUE WRENCH.
- FOR BOLTS DIA EQUAL OR GREATER THAN 2" WITH HYDRAULIC BOLT TENSIONING.
- FOR BOLT TIGHTENING METHOD, BOLT FORCE AND TORQUE TO BE APPLIED SEE PROCEDURE 22176/M.

6.b) THE THREAD OF EXTERNAL BOLTS AND NUTS SHALL BE PROTECTED WITH ANTI-SEIZE PRODUCT TYPE "MOLYKOTE 1000 SOLID LUBRICANT PASTE".

6.c) ALL SIZES: BOLTS, STUDS AND NUTS SHALL BE VISUAL EXAMINED ACC. TO ASME VIII DIV.2 §.3.7.2(A).
n > 1": BOLTS, STUDS AND NUTS SHALL UNDERGO TO MT OR PT EXAMINATION ACCORDING TO ASME VIII DIV.2 §.3.7.2(B).
n > 2": BOLTS, STUDS AND NUTS SHALL UNDERGO TO UT EXAMINATION OVER THE ENTIRE SURFACE PRIOR THREADING ACCORDING TO ASME VIII DIV.2 §.3.7.2(C).
n > 4": BOLTS, STUDS AND NUTS SHALL UNDERGO TO UT EXAMINATION OVER AN ENTIRE END SURFACE PRIOR OR AFTER THREADING ACCORDING TO ASME VIII DIV.2 §.3.7.2(D).

CERTIFICATE / IMPACT TEST :

7.a) ALL PRESSURE PARTS MATERIALS AND PARTS WELDED TO THEM SHALL BE FURNISHED WITH CERTIFICATE ACCORDING TO EN 10204 TYPE 3.1

7.b) MATERIALS FOR PRESSURE PARTS AND PARTS WELDED TO THEM IMPACT TESTED AS FOLLOWS:
-SA 516 GR.60 PLATES : IMPACT TEST@-46°C MUST BE PERFORMED IN AS DELIVERED CONDITION, AFTER MIN. SPWHT AND MAX. SPWHT .
-SA-350 LF2 Cl.1 FORGING : CHARPY V NOTCH IMPACT TESTING SHALL BE PERFORMED AS PER THE APPLICABLE SA MATERIAL SPECIFICATION AT LEAST AT -46°C IN AS DELIVERED CONDITION, AFTER MIN. SPWHT AND MAX. SPWHT .
-SA 193 Gr.B7 BOLTING: EXEMPTED FROM IMPACT TEST UP TO 2-1/2" DIA.

7.c) 100% UT & RT GAMMA RAYS BEFORE PWHT AND 100% UT AFTER PWHT

7.d) CODE IMPACT TEST EXEMPTIONS: ③ ③
SA-516 GR.60 : EXEMPTED UP TO 44mm @ -29 °C AS PER Fig. 3.8M AND TABLE 3.15 FOR MAT. IN CURVE D.
SA-350 LF2 CL.1 : EXEMPTED DOWN TO -48 °C AS PER 3.11.2.4 (b)
SA-193 B7 / SA-194 2H : EXEMPTED DOWN TO -48 °C FOR BOLT SIZE 2-1/2" AND LESS AS PER TABLE 3.4

TOLERANCE :

8.a) DIMENSION TOLERANCES SHALL BE IN ACCORDANCE WITH THE APPLICABLE CONSTRUCTION CODE ASME VIII DIV.2 .
MAX. OVALIZATION OF DIAMETER (ASME VIII DIV.2 § 4.3.2) 1%, MILL PLATE UNDER TOLERANCE (ASME SA 20) 0,3 mm.,
PIPE UNDER TOLERANCE 12,5 %, CONSTRUCTION TOLERANCE B&R (DIMENSIONAL).

SHIPPING / MARKING :

9.a) ALL SLAG, LOOSE, SCALE, DIRT, WELD SPATTER, OILS, PAINT AND OTHER MATERIALS SHALL BE REMOVED BEFORE THE FINAL INSPECTION.

9.b) AFTER HYDRAULIC TEST THE EQUIPMENT SHALL BE DRAINED AND DRIED.

9.c) FOR SHIPPING: ALL OPEN NOZZLES SHALL BE SEALED HERMETICALLY WITH BLIND FLANGES FROM PLATE AND RUBBER GASKET. SHALL BE SECURED WITH MINIMUM OF 4 BOLTS.
THE INTERNAL OF EQUIPMENT SHALL BE PROTECTED WITH NITROGEN (SEE DWG. 23096-01-EPRS1).

9.d) VENT HOLES SHALL BE PLUGGED WITH GREASE AFTER HYDRAULIC TEST.

9.e) THE TEST SHALL BE CARRIED OUT USING POTABLE WATER WITH LESS THAN 50 PPM OF CHLORIDES CONTENT

9.f) UNLESS OTHERWISE INDICATED, THE TEST PRESSURE SHALL BE HELD FOR AT LEAST 1(ONE) HOUR PER 25 MM OF PLATE THICKNESS BUT IN NO CASE LESS THAN 1(ONE) HOUR

MISCELLANEOUS :

10.a) FATIGUE ANALYSIS: NO

10.b) SPARE PARTS: 300% GASKETS AND 10% BOLTS (MINIMUM 5 PIECES FOR EACH TYPE UNITS) FOR EACH MANHOLE

10.c) THE PRESSURE SAFETY VALVES (P.S.V.) SHALL BE INSTALLED ON THE PIPELINE BY USER.

10.d) SPECIAL SERVICE : NO LETHAL SERVICE.

10.e) NOZZLES PROJECTION ARE FROM C.L OR T.L. OF VESSEL TO GASKET FACE OF FLANGE.

10.f) ALL DIM. ARE IN MILLIMETER AND UNIT OF MEASUREMENT SHALL BE S.I UNLESS OTHERWISE INDICATED

10.g) ALL INT. AND EXT. PARTS, APPURTENANCES AND ACCESSORIES, DIRECTLY WELDED TO THE SHELL SHALL BE MADE OF THE SAME MATERIAL CHARACTERISTICS OF THE EQUIPMENT

10.h) ALL NOZZLES SHALL HAVE INSIDE CORNER ROUNDED TO 3 MM RADIUS MIN.UNLESS OTHERWISE SPECIFIED.

10.i) NO WELD MAY EXECUTED DIRECTLY TO THE PRESSURE PARTS, SUBJECTED TO POST WELD HEAT TREATMENT. AFTER THAT THE HEAT TREATMENT HAS BEEN CARRIED OUT. THE SAME SHALL BE CLEARLY MARKED ON SHELL AS FOLLOW: "POST WELD HEAT TREATED. DO NOT BURN, WELD OR HAMMER".

10.l) HIC TEST FOR PLATES ACCORDING TO ISO 15156

10.m) WIND ACC. TO PRESCRIPTIONS OF DOC. N° CWHKN-INN-BPH-DTS-00005-BLHP PLATFORM SITE AND ENG. DATA

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	20-06-2024

MATERIAL LIST FOR No.6 EQUIPMENTS

MK	Q.TY	DESCRIPTION	DIMENSIONS	MATERIAL
57				
56				
55				
54				
53				
52				
51				
50				
49	6+18+18	GASKET (3N)	Ø1"-300#-RF-4,5 Thk.	SEE NOTE 5.a
48	24+12+12	STUD BOLTS+2 NUTS (3N)	Ø5/8"-UNC-B1.1-85 Lg.	SA 193 Gr.B7+ SA 194 Gr.2H
47	6	FLANGE (3N)	Ø1"-300#-BLIND-RF	SA 350 LF2 Cl.1
46	6	PLATE (SEE DETAIL)	2604x334x3 THK.	SA 240 304
45	6	PLATE (SEE DETAIL)	14 Thk.	SA 516 Gr.60
44	24	PLATE (SADDLE)	123x272x14 Thk.	SA 516 Gr.60
43	24	PLATE (SADDLE)	123x647x14 Thk.	SA 516 Gr.60
42	12	PLATE (SADDLE)	260x1079x14 Thk.	SA 516 Gr.60
41	6	FLANGE (4N)	254 O.D.-101.6 I.D.-416.6 Thk.	SA 350 LF2 Cl.1
40	6	ASME NAME PLATE	SEE DWG. 23096-01-ENP1	316L S.S.
39	6	NAME PLATE	SEE DWG. 23096-01-ENP1	316L S.S.
38	24	RIVET	Ø3.5-15 Lg.	304 S.S.
37	6	BASE PLATE	350x2620x25 Thk.	SA 516 Gr.60
36	6	BASE PLATE	350x2620x25 Thk.	SA 516 Gr.60
35	6	PLATE (SEE DETAIL)	14 Thk.	SA 516 Gr.60
34	24	PLATE (SADDLE)	123x275x14 Thk.	SA 516 Gr.60
33	24	PLATE (SADDLE)	123x650x14 Thk.	SA 516 Gr.60
32	12	PLATE (SADDLE)	260x1082x14 Thk.	SA 516 Gr.60
31	12	WEAR PLATE (SADDLE)	300x3580 Dev.-20 Thk.	SA 516 Gr.60
30	12	EARTHING LUG	50x85x4 Thk. (SEE DETAIL)	316L S.S.
29	6	NAME PLATE SUPPORT	320x300x5 Thk.	SA 240 316L
28	24	PLATE	30 Thk. (SEE DETAIL)	SA 516 Gr.70
27	48	WASHER (LIFTING LUG)	180x180-20 Thk.-100 Dia.	SA 516 Gr.70
26	24	REINFORCING PLATE	495x445x25 Thk.	SA 516 Gr.60
25	24	LIFTING LUG	385x345x30 Thk.	SA 516 Gr.70
24	24	ROD (RUNG)	Ø20-725 Lg.	S275J2 EN10025-2
23	12	ROD (HANDLE)	Ø20-582 Lg.	S275J2 EN10025-2
22	6	FLANGE (3N)	Ø1"-300#-LWN-RF-244 Lg.	SA 350 LF2 Cl.1
21	6	FLANGE (2N)	Ø1"-300#-LWN-RF-414 Lg.	SA 350 LF2 Cl.1
20	6	FLANGE (K2)	Ø1"-300#-LWN-RF-414 Lg.	SA 350 LF2 Cl.1
19	6	FLANGE (K1)	Ø1"-300#-LWN-RF-414 Lg.	SA 350 LF2 Cl.1
18	-	DELETED	-	-
17	6	FLANGE (5N)	Ø1"-300#-LWN-RF-244 Lg.	SA 350 LF2 Cl.1
16	6	FLANGE (1N)	Ø1"-300#-LWN-RF-244 Lg.	SA 350 LF2 Cl.1
15	6+18+18	GASKET (M2)	Ø24"-300#-RF-4,5 Thk.	SEE NOTE 5.a
14	144+15+15	STUD BOLTS+2 NUTS (M2)	Ø1 1/2"-8UN-B1.1-260 Lg.	SA 193 Gr.B7+ SA 194 Gr.2H
13	6	FLANGE (M2)	Ø24"-300#-BLIND-RF	SA 350 LF2 Cl.1
12	6	FORGING (M2)	914.4 O.D.-609.6 I.D.-382.8 Thk.	SA 350 LF2 Cl.1
11	6+18+18	GASKET (M1)	Ø24"-300#-RF-4,5 Thk.	SEE NOTE 5.a
10	144+15+15	STUD BOLTS+2 NUTS (M1)	Ø1 1/2"-8UN-B1.1-260 Lg.	SA 193 Gr.B7+ SA 194 Gr.2H
9	6	FLANGE (M1)	Ø24"-300#-BLIND-RF	SA 350 LF2 Cl.1
8	6	FORGING (M1)	914.4 O.D.-609.6 I.D.-382.8 Thk.	SA 350 LF2 Cl.1
7	6	SHELL ELEMENT (4)	2800 I.D.-44 Thk.-2750 Lg.	SA 516 Gr.60
6	6	SHELL ELEMENT (4)	2800 I.D.-44 Thk.-3300 Lg.	SA 516 Gr.60
5	6	SHELL ELEMENT (3)	2800 I.D.-44 Thk.-3300 Lg.	SA 516 Gr.60
4	6	SHELL ELEMENT (2)	2800 I.D.-44 Thk.-3300 Lg.	SA 516 Gr.60
3	6	SHELL ELEMENT (1)	2800 I.D.-44 Thk.-2750 Lg.	SA 516 Gr.60
2	6	HEAD (COLL.=44 THK. M.A.F.	2800 I.D.-40 Min. thk.	SA 516 Gr.60
1	6	HEAD (COLL.=44 THK M.A.F.	2800 I.D.-40 Min. thk.	SA 516 Gr.60
MC.	Q.TÀ	DESCRIZIONE	DIMENSIONI	MATERIALE

BREMBANA&ROLLE — VILLA & BONALDI

CLIENT : Rosetti Marino S.p.A.

PROJECT: CROSSWIND HOLLANDE KUST NOORD WIND PARK

PURCHASE ORDER No.: 1723001756 123A90A

LOCATION : NETHERLANDS, 18,5KM OFF THE COAST , NEAR THE TOWN OF EGMOND AAN ZEE.

B&R CAD FILE No: 23096-01-EGA1.dwg

MFR'S S.N. 23096-01-SNA/F

B&R DRAWING No. 23096-01-EBM1

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	14/06/2024	AF	MT	DR	ISSUE FOR INFORMATION (IFI)
2	18/03/2024	AF	MT	DR	ISSUE FOR INFORMATION (IFI)
1	07/02/2024	AF	MT	DR	ISSUE FOR INFORMATION (IFI)
0	30/11/2023	AF	MT	DR	ISSUE FOR INFORMATION (IFI)

CROSSWIND — ROSETTI MARINO

DETAILED DRAWING – BILL OF MATERIAL
H2 STORAGE VESSEL ITEM : V-25001A/F

CONTRACT NO. CW-I-WP4-2023-05 / H2 STORAGE | SCALE 1:1

DRAWN A.FRANCO | CHECKED M.TONIOLO | APPROVED D.PASSERINI | DATE 14/06/24

A1 | DRAWING NO. 1723001756-MAC-DD-00024 | SHEET 1 | REV. 3

File Name : 1723001756-MAC-DD-00024