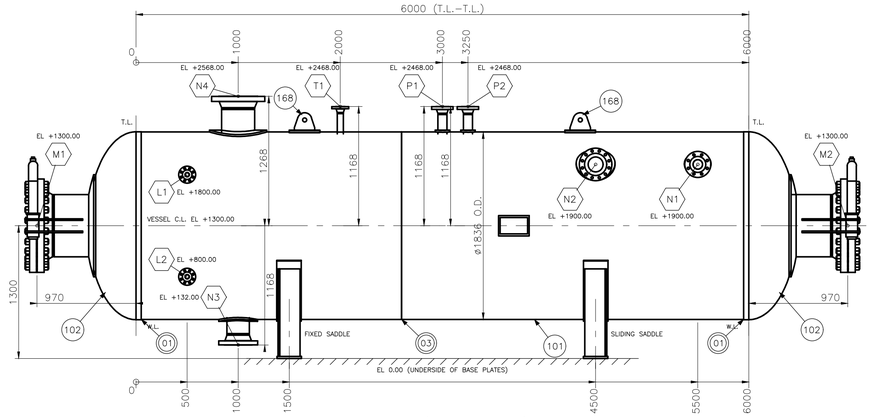
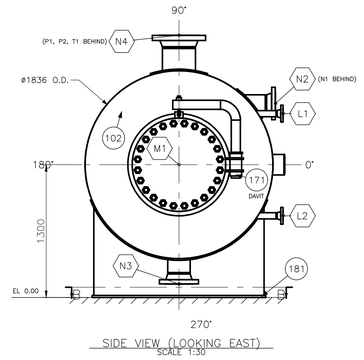
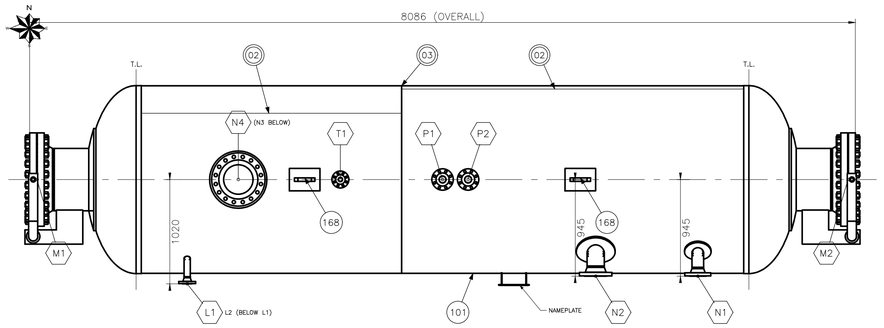


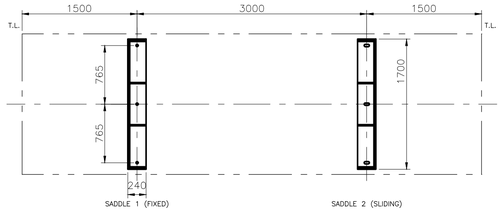
FRONT VIEW (LOOKING NORTH)
SCALE 1:30



SIDE VIEW (LOOKING EAST)
SCALE 1:30

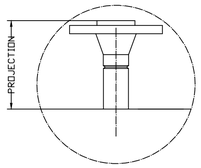


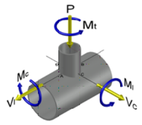
PLAN VIEW
SCALE 1:30

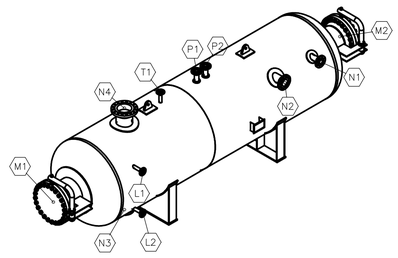


SECTION B–B (SADDLE BASE PLATES)
SCALE 1:40

PROJECTION DETAIL





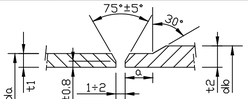


ISOMETRIC VIEW
SCALE 1:60

NOZZLE LOAD LIST

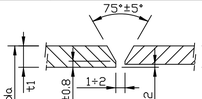
TAG	FLANGE	P (KN)	Vc (KN)	Vl (KN)	Mt (KNm)	Ml (KNm)	Mc (KNm)
L1	2" #300	0.65	0.97	0.97	0.25	0.19	0.14
L2	2" #300	0.65	0.97	0.97	0.25	0.19	0.14
M1	24" #300	–	–	–	–	–	–
M2	24" #300	–	–	–	–	–	–
N1	4" #300	1.78	2.68	2.68	1.33	1.07	0.80
N2	6" #300	3.02	4.54	4.54	3.41	2.73	2.04
N3	8" #300	4.00	6.02	6.02	6.02	4.81	3.61
N4	12" #300	7.53	11.33	11.33	16.99	13.59	10.20
P1	3" #300	1.33	1.99	1.99	0.80	0.64	0.48
P2	3" #300	1.33	1.99	1.99	0.80	0.64	0.48
T1	2" #300	0.65	0.97	0.97	0.25	0.19	0.14

BUTT WELD / ASME VIII DIV.1 UW–9–2



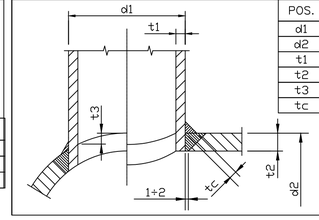
POS.	(01)	(02)	(03)				
da	1836	1836	1836				
db	1840	1836	1836				
t1	20	18	18				
t2	18	18	18				
a	–	–	–				

BUTT WELD / ANSI B16.25



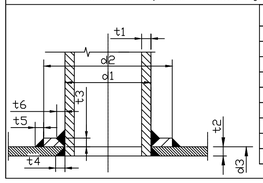
POS.	(04)	(05)	(06)	(07)	(08)	(09)	(10)
da	60.3	88.9	114.3	168.3	219.1	323.9	610
t1	8.74	11.13	11.13	10.97	12.7	17.48	17.48
t2	8.74	11.13	11.13	10.97	12.7	17.48	17.48

NOZZLE WELD / ASME VIII Div.1; Fig. UW–16.1 Skt. c



POS.	(13)				
d1	60.3				
d2	1836				
t1	8.74				
t2	18				
t3	0				
tc	3.3				

NOZZLE WELD / ASME VIII Div.1; Fig. UW–16.1 Skt. a



POS.	(12)	(13)	(14)	(15)	(16)	(17)
d1	88.9	114.3	168.3	219.1	323.9	610
d2	140	260	380	380	560	1000
d3	1836	1836	1836	1836	1836	1840
t1	11.13	11.13	10.97	12.7	17.48	17.48
t2	18	18	18	18	18	20
t3	18	18	18	18	18	20
t4	10	10	10	10	10	10
t5	10	10	10	10	10	10
t6	6	6	6	6	6	6

SKT. a (SET–IN + PAD): d1 NOZZLE O.D., d2 PAD O.D., d3 VESSEL O.D., t1 NOZZLE, t2 VESSEL, t3 PAD THK., t4 / t5 FILLET LEGS PAD–SHELL / NOZZLE–PAD, t6 INSIDE FILLET

DESIGN DATA

CODE			ASME VIII DIV.1 (2025) + DIV.2 CHECK
CODE STAMP			U
DESIGN DATA	INTERNAL PRESSURE	MPa(g)	2.00 (20 barg)
	INTERNAL TEMPERATURE	°C	250
	EXTERNAL PRESSURE	MPa(g)	0.103 (FULL VACUUM – ASSUMED)
	EXTERNAL TEMPERATURE	°C	250
	MAWP	–	2.13 (HOT & CORRODED, AT TOP)
OPERATING DATA	INT PRESSURE	MPa(g)	1.80 (ASSUMED)
	INT TEMPERATURE	°C	220 (ASSUMED)
FLUID	TYPE	–	HYDROCARBON VAPOUR / LIQUID (ASSUMED)
	DENSITY (VAPOUR/LIQUID)	kg/m3	12 / 850 (ASSUMED)
	MAXIMUM LIQUID LEVEL	mm	1300 (FROM BOTTOM, ASSUMED)
PWHT		–	NOT REQUIRED (UCS–56)
RADIOGRAPHY		–	FULL (RT1)
JOINT EFFICIENCY (SHELL / HEADS)		–	1.0 / 1.0
CORROSSION ALLOWANCE		mm	3.0
HYDRAULIC TEST PRESSURE		MPa(g)	2.76 (AT TOP, UG–99(b))
MDMT		–	–15 °C @ 2.13 MPa (ASSUMED)
INSULATION			80 mm MINERAL WOOL (ASSUMED)

EQUIPMENT SIZING

INTERNAL DIAMETER	mm	1800 (O.D. 1836)
LENGTH (T.L.–T.L.)	mm	6000
SHELL THICKNESS (NOMINAL)	mm	18 (SA–516 GR.70 N PLATE)
HEAD	TYPE	2:1 ELLIPSOIDAL (BOTH ENDS)
HEAD THICKNESS (NOMINAL)	mm	20 NOM. (MIN. 17 AFTER FORMING)

EQUIPMENT WEIGHT

EMPTY	kg	8725 (+ 619 INSULATION)
OPERATION	kg	20477
FULL OF WATER	kg	26466

BILL OF MATERIALS & FABRICATION SPECIFICATIONS

POS N°	QTY.	DESCRIPTION	LENGTH (mm)	MATERIAL	NOTES
101	2	PLATE O.D. 1836mm THK.18mm	–	SA–516 GR.70 N	SEE DETAIL
102	2	2:1 ELLIP. HEAD O.D. 1840mm THK.20mm	–	SA–516 GR.70 N	SEE DETAIL
103	1	SEAMLESS PIPE 2" SCH.160	223	SA–106 GR.B	ASME B.36.10M
104	1	W.N. FLANGE 2" SCH.160 #300 R.F.	–	SA–105	ASME B.16.5
105	8	STUD BOLT 5/8"	–	SA–193 B7	ASME B18.31.2
106	16	NUT 5/8"	–	SA–194 2H	ASME B18.2.2
107	1	SPIRAL WOUND GASKET 2" #300	–	SS316L/GRAPHITE, CS RINGS	ASME B.16.20
108	1	SEAMLESS PIPE 2" SCH.160	223	SA–106 GR.B	ASME B.36.10M
109	1	W.N. FLANGE 2" SCH.160 #300 R.F.	–	SA–105	ASME B.16.5
110	8	STUD BOLT 5/8"	–	SA–193 B7	ASME B18.31.2
111	16	NUT 5/8"	–	SA–194 2H	ASME B18.2.2
112	1	SPIRAL WOUND GASKET 2" #300	–	SS316L/GRAPHITE, CS RINGS	ASME B.16.20
113	1	SEAMLESS PIPE 24" SCH.40	379	SA–106 GR.B	ASME B.36.10M
114	1	W.N. FLANGE 24" SCH.40 #300 R.F.	–	SA–105	ASME B.16.5
115	1	PLATE THK.20mm	–	SA–516 GR.70 N	SEE DETAIL
116	1	BLIND FLANGE 24" #300 R.F.	–	SA–105	ASME B.16.5
117	24	STUD BOLT 1 1/2"	–	SA–193 B7	ASME B18.31.2
118	48	NUT 1 1/2"	–	SA–194 2H	ASME B18.2.2
119	1	SPIRAL WOUND GASKET 24" #300	–	SS316L/GRAPHITE, CS RINGS	ASME B.16.20
120	1	SEAMLESS PIPE 24" SCH.40	379	SA–106 GR.B	ASME B.36.10M
121	1	W.N. FLANGE 24" SCH.40 #300 R.F.	–	SA–105	ASME B.16.5
122	1	PLATE THK.20mm	–	SA–516 GR.70 N	SEE DETAIL
123	1	BLIND FLANGE 24" #300 R.F.	–	SA–105	ASME B.16.5
124	24	STUD BOLT 1 1/2"	–	SA–193 B7	ASME B18.31.2
125	48	NUT 1 1/2"	–	SA–194 2H	ASME B18.2.2
126	1	SPIRAL WOUND GASKET 24" #300	–	SS316L/GRAPHITE, CS RINGS	ASME B.16.20
127	1	SEAMLESS PIPE 4" SCH.120	244	SA–106 GR.B	ASME B.36.10M
128	1	W.N. FLANGE 4" SCH.120 #300 R.F.	–	SA–105	ASME B.16.5
129	1	PLATE O.D. 1872mm THK.18mm	–	SA–516 GR.70 N	SEE DETAIL
130	8	STUD BOLT 3/4"	–	SA–193 B7	ASME B18.31.2
131	16	NUT 3/4"	–	SA–194 2H	ASME B18.2.2
132	1	SPIRAL WOUND GASKET 4" #300	–	SS316L/GRAPHITE, CS RINGS	ASME B.16.20
133	1	SEAMLESS PIPE 6" SCH.80	262	SA–106 GR.B	ASME B.36.10M
134	1	W.N. FLANGE 6" SCH.80 #300 R.F.	–	SA–105	ASME B.16.5
135	1	PLATE O.D. 1872mm THK.18mm	–	SA–516 GR.70 N	SEE DETAIL
136	12	STUD BOLT 3/4"	–	SA–193 B7	ASME B18.31.2
137	24	NUT 3/4"	–	SA–194 2H	ASME B18.2.2
138	1	SPIRAL WOUND GASKET 6" #300	–	SS316L/GRAPHITE, CS RINGS	ASME B.16.20
139	1	SEAMLESS PIPE 8" SCH.80	164	SA–106 GR.B	ASME B.36.10M
140	1	W.N. FLANGE 8" SCH.80 #300 R.F.	–	SA–105	ASME B.16.5
141	1	PLATE O.D. 1872mm THK.18mm	–	SA–516 GR.70 N	SEE DETAIL
142	12	STUD BOLT 7/8"	–	SA–193 B7	ASME B18.31.2
143	24	NUT 7/8"	–	SA–194 2H	ASME B18.2.2
144	1	SPIRAL WOUND GASKET 8" #300	–	SS316L/GRAPHITE, CS RINGS	ASME B.16.20
145	1	SEAMLESS PIPE 12" SCH.80	253	SA–106 GR.B	ASME B.36.10M
146	1	W.N. FLANGE 12" SCH.80 #300 R.F.	–	SA–105	ASME B.16.5
147	1	PLATE O.D. 1872mm THK.18mm	–	SA–516 GR.70 N	SEE DETAIL
148	16	STUD BOLT 1 1/8"	–	SA–193 B7	ASME B18.31.2
149	32	NUT 1 1/8"	–	SA–194 2H	ASME B18.2.2
150	1	SPIRAL WOUND GASKET 12" #300	–	SS316L/GRAPHITE, CS RINGS	ASME B.16.20
151	1	SEAMLESS PIPE 3" SCH.160	190	SA–106 GR.B	ASME B.36.10M
152	1	W.N. FLANGE 3" SCH.160 #300 R.F.	–	SA–105	ASME B.16.5
153	1	PLATE O.D. 1872mm THK.18mm	–	SA–516 GR.70 N	SEE DETAIL
154	8	STUD BOLT 3/4"	–	SA–193 B7	ASME B18.31.2
155	16	NUT 3/4"	–	SA–194 2H	ASME B18.2.2
156	1	SPIRAL WOUND GASKET 3" #300	–	SS316L/GRAPHITE, CS RINGS	ASME B.16.20
157	1	SEAMLESS PIPE 3" SCH.160	190	SA–106 GR.B	ASME B.36.10M
158	1	W.N. FLANGE 3" SCH.160 #300 R.F.	–	SA–105	ASME B.16.5
159	1	PLATE O.D. 1872mm THK.18mm	–	SA–516 GR.70 N	SEE DETAIL
160	8	STUD BOLT 3/4"	–	SA–193 B7	ASME B18.31.2
161	16	NUT 3/4"	–	SA–194 2H	ASME B18.2.2
162	1	SPIRAL WOUND GASKET 3" #300	–	SS316L/GRAPHITE, CS RINGS	ASME B.16.20
163	1	SEAMLESS PIPE 2" SCH.160	199	SA–106 GR.B	ASME B.36.10M
164	1	W.N. FLANGE 2" SCH.160 #300 R.F.	–	SA–105	ASME B.16.5
165	8	STUD BOLT 5/8"	–	SA–193 B7	ASME B18.31.2
166	16	NUT 5/8"	–	SA–194 2H	ASME B18.2.2
167	1	SPIRAL WOUND GASKET 2" #300	–	SS316L/GRAPHITE, CS RINGS	ASME B.16.20
168	2	PLATE THK.35mm	–	SA–516 GR.70 N	SEE DETAIL
169	2	PLATE O.D. 1872mm THK.18mm	–	SA–516 GR.70 N	SEE DETAIL
170	1	SEAMLESS PIPE 3" SCH.160	1315	SA–106 GR.B	ASME B.36.10M
171	2	SEAMLESS PIPE 4" SCH.80	220	SA–106 GR.B	ASME B.36.10M
172	2	PLATE THK.16mm	–	SA–516 GR.70 N	SEE DETAIL
173	2	PLATE THK.12mm	–	SA–516 GR.70 N	SEE DETAIL
174	2	EYE BOLT M30 + NUT	–	CS GR.8.8	DIN 444
175	2	PLATE THK.16mm	–	SA–516 GR.70 N	SEE DETAIL
176	1	PLATE THK.6mm	–	SA–516 GR.70 N	SEE DETAIL
177	1	PLATE THK.2mm	–	SS 316	SEE DETAIL
178	2	PLATE O.D. 1868mm THK.16mm	–	SA–516 GR.70 N	SEE DETAIL
179	2	PLATE THK.16mm	–	S235J2 (EN 10025–2)	SEE DETAIL
180	8	PLATE THK.16mm	–	S235J2 (EN 10025–2)	SEE DETAIL
181	2	PLATE THK.20mm	–	S235J2 (EN 10025–2)	SEE DETAIL

NOZZLE LIST

POS	DESCRIPTION	NOM. DIA	FLANGE RATING	FLANGE TYPE	FLANGE FACE	SCHEDULE/ THICKNESS	REMARK	PROJECTION (mm)
L1	LEVEL INSTRUMENT 1	2"	300	WN	RF	SCH.160 (8.74)	–	250
L2	LEVEL INSTRUMENT 2	2"	300	WN	RF	SCH.160 (8.74)	–	250
M1	MANHOLE 1	24"	300	WN	RF	SCH.40 (17.48)	–	500
M2	MANHOLE 2	24"	300	WN	RF	SCH.40 (17.48)	–	500
N1	INLET 1	4"	300	WN	RF	SCH.120 (11.13)	–	250
N2	INLET 2	6"	300	WN	RF	SCH.80 (10.97)	–	250
N3	LIQUID OUTLET	8"	300	WN	RF	SCH.80 (12.70)	–	250
N4	GAS OUTLET	12"	300	WN	RF	SCH.80 (17.48)	–	350
P1	PRESSURE INSTRUMENT	3"	300	WN	RF	SCH.160 (11.13)	–	250
P2	PRESSURE SAFETY INSTRUMENT	3"	300	WN	RF	SCH.160 (11.13)	–	250
T1	TEMPERATURE INSTRUMENT	2"	300	WN	RF	SCH.160 (8.74)	–	250

LIST OF STRUCTURAL BOLTS

ITEM	DESCRIPTION	DIN SPECIFICATIONS			Q.T.Y.
	Ø BOLTS x LENGTH	BOLTS	NUTS	WASHERS	
(1)	ANCHOR BOLT M24 x 450 (BASE PLATES)	DIN 529 – 4.6 HDG	ISO 4032 – 5 HDG	ISO 7089 – 200HV HDG	6

REFERENCE DOCUMENT

REFERENCE DOCUMENT	DOC. NO.
HTAL MECHANICAL CALCULATION DOSSIER (ASME VIII–1/–2, ASCE 7–10, UBC–97)	HTAL–06–CSH–00001
HTAL GENERAL ARRANGEMENT DRAWING (SHEETS 1/2 AND 2/2)	HTAL–06–DWG–00001
HTAL 3D MODEL (STEP AP214)	HTAL_REV00.step
SADDLES FOR HORIZONTAL VESSELS AND HEAT EXCHANGERS (STANDARD)	CLIENT STD.
ALLOWABLE PIPING LOADS ON NOZZLES (BASIC SPEC.)	CLIENT SPEC.
STRUCTURAL DESIGN CRITERIA (SITE DATA)	PROJECT SPEC.

GENERAL NOTES

1) ALL DIMENSIONS IN mm. EL 0.00 = UNDERSIDE OF BASE PLATES. NOZZLE LOCATIONS DIMENSIONED FROM THE LEFT (WEST) T.L.
2) DESIGN CODE: ASME VIII DIV.1 ED.2025 ('U' STAMP); CHECKED TO ASME VIII DIV.2 (PART 4 + PART 5). MATERIALS ASME II–A / II–D.
3) FLANGES ASME B16.5 CL300 W.N. R.F. (BORE TO MATCH PIPE SCHEDULE); GASKETS ASME B16.20; STUDS B18.31.2; NUTS B18.2.2.
4) ORIENTATION: 0° = SOUTH, 90° = TOP, 180° = NORTH, 270° = BOTTOM (SEEN FROM THE LEFT HEAD, SIDE VIEW).
5) FLANGE BOLT HOLES STRADDLE THE MAIN CENTRE LINES. NOZZLE PROJECTION = OUTSIDE SURFACE (AT NOZZLE C.L.) TO RAISED FACE.
6) PWHT NOT REQUIRED (UCS–56). HYDROSTATIC TEST 27.6 barg AT TOP (UG–99(b), BASED ON MAWP 21.3 barg).
7) SUPPORTS: 2 SADDLES CLIENT STD. (ROW 1800 – 1899), SADDLE 1 FIXED, SADDLE 2 SLIDING (SLOTTED HOLES, GREASED). FOUNDATION LOADS: SHEET 2.
8) LIFTING: 2 LUGS ON TOP OF THE SHELL, SPREADER BEAM; LUGS DESIGNED FOR 2 x FABRICATED (LIFTING) WEIGHT.
9) MANHOLES M1 / M2: BLIND FLANGES ON DAVITS. SHELL PLATES SA–516 GR.70 NORMALIZED (UCS–66 CURVE D).
10) HOT INSULATION 80 mm (NOT SHOWN). SURFACE PREPARATION AND PAINTING ACCORDING TO PROJECT SPECIFICATION.

HOLD POINTS

H1) MATERIAL CERTIFICATES EN 10204 3.1 (PRESSURE PARTS)
H2) WPS/PQR/WPQ APPROVAL BEFORE WELDING
H3) RT FILM REVIEW (100 % RT OF CATEGORY A / B WELDS)
H4) PNEUMATIC LEAK TEST OF THE REINFORCING PADS (TELL–TALE HOLES)
H5) HYDROSTATIC TEST WITNESS (27.6 barg AT TOP, 30 min)
H6) FINAL DIMENSIONAL & VISUAL INSPECTION, NAMEPLATE

LEGEND

T.L.: TANGENT LINE W.L.: WELDING LINE EL: ELEVATION
(1xx) CIRCLE: ITEM No. (BILL OF MATERIALS, SHEET 1)
HEXAGON: NOZZLE TAG (NOZZLE LIST, SHEET 1)
DOUBLE CIRCLE: WELD No. (WELD DETAILS, SHEET 1)

COMPANY DOCUMENT APPROVAL STATUS

A	Approved with no comments. Works can proceed.
B	Approved with comments as noted. Contractor can proceed with work implementing the comment indicated by Company.
C	NOT APPROVED. Revise and/or resubmit. Contractor cannot proceed with works.

SUBMITTAL DESCRIPTION: X Issued for approval / Issued for information

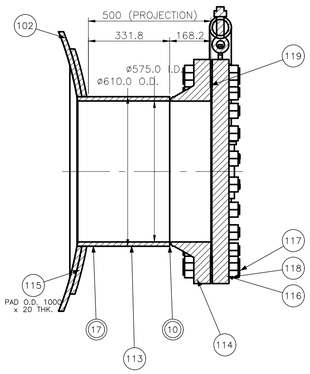
REV.	DATE	DESIGN AUTHOR	ROLE DESCRIPTION
00	12/11/2026	Iñigo Ozcariz Garcia	Chief Design Engineer

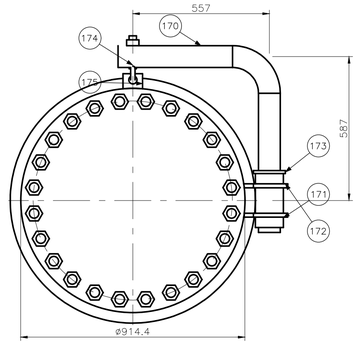
Date	12/11/2026
DWN.	CLAUDE (AI)
REV.	PENDING
APPR.	PENDING

DIGITAL SimTec SIMULACIÓN · INGENIERÍA · IA

Project: HTAL – HORIZONTAL PRESSURE VESSEL 20 barg / 250 °C – ASME VIII DIV.1 / DIV.2	PURCHASE ORDER: –	Document No.: HTAL–06–DWG–00001	Rev.: 00
Title: GENERAL ARRANGEMENT DRAWING SHEET 1/2 – VIEWS, DESIGN DATA, NOZZLES, BOM, WELD DETAILS		Scale: AS SHOWN ISO – E	Format: A1 Sheet: 1/2

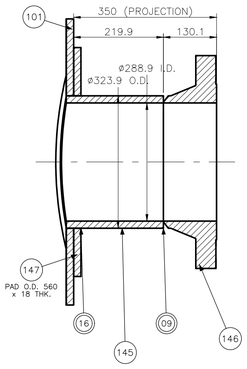
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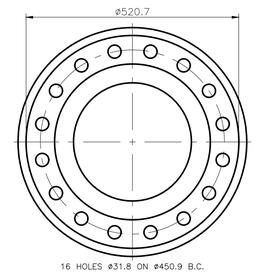


24 HOLES ø41.4 ON ø812.8 B.C.
DAVIT: ARM 3" SCH.160, SLEEVE 4" SCH.80

MANHOLE M1 / M2 – 24" #300 W.N. R.F. + BLIND + DAVIT (M2 OPPOSITE HAND)
SCALE 1:12.5

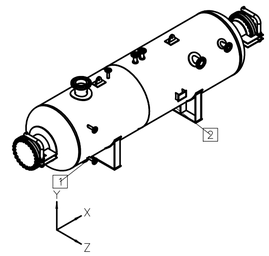


NOZZLE N4 – 12" #300 W.N. R.F. + SCH.80 PIPE
SCALE 1:7.5

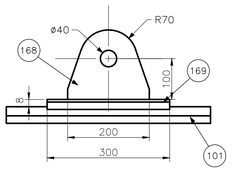


16 HOLES ø31.8 ON ø450.9 B.C.

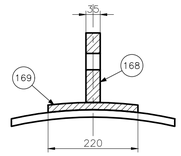
HTAL SADDLE LOADS TABLE (FOUNDATION LOADS, UNFACTORED)								
SADDLE	L/C	Fx kN	Fy kN	Fz kN	Mx kNm	My kNm	Mz kNm
1 FIXED	1 E (+X)	52.0	30.2	0.5	−0.9	0.1	0.0
	2 E (+Z)	1.3	0.9	25.6	39.5	6.5	0.0
	3 E (−X)	−52.0	−30.2	−0.5	0.9	−0.1	0.0
	4 E (−Z)	−1.3	−0.9	−25.6	−39.5	−6.5	0.0
	5 DE	0.0	−46.2	0.0	0.3	0.0	0.0
	6 DO	0.0	−100.8	0.0	0.4	0.0	0.0
	7 DT	0.0	−130.5	0.0	0.3	0.0	0.0
	8 L	0.0	−1.0	0.0	0.0	0.0	0.0
	9 S	0.0	−12.9	0.0	2.6	0.1	0.0
	10 T	−39.5	0.0	0.0	0.7	−0.2	−0.1
	11 W (+X)	13.1	3.1	0.2	0.0	0.0	0.0
	12 W (+Z)	0.0	0.0	12.7	15.7	2.9	0.0
	13 W (−X)	−13.1	−3.1	−0.2	0.0	0.0	0.0
	14 W (−Z)	0.0	0.0	−12.7	−15.7	−2.9	0.0
2 SLIDING	1 E (+X)	0.0	−26.4	−0.6	0.8	0.1	0.0
	2 E (+Z)	0.0	−0.8	26.4	39.1	−5.4	0.0
	3 E (−X)	0.0	26.4	0.6	−0.8	−0.1	0.0
	4 E (−Z)	0.0	0.8	−26.4	−39.1	5.4	0.0
	5 DE	0.0	−44.2	0.0	0.4	0.0	0.0
	6 DO	0.0	−98.8	0.0	0.3	0.0	0.0
	7 DT	0.0	−127.8	0.0	0.4	0.0	0.0
	8 L	0.0	−1.0	0.0	0.0	0.0	0.0
	9 S	0.0	−11.0	0.0	2.7	−0.1	0.0
	10 T	39.5	0.0	0.0	−0.7	0.1	0.0
	11 W (+X)	−0.1	−3.1	−0.2	0.0	0.0	0.0
	12 W (+Z)	0.0	0.0	10.6	15.1	−2.1	0.0
	13 W (−X)	0.1	3.1	0.2	0.0	0.0	0.0
	14 W (−Z)	0.0	0.0	−10.6	−15.1	2.1	0.0



SADDLES – SADDLE NUMBERS AND AXES (X = EAST, Y = UP, Z = SOUTH)
SCALE 1:80



LIFTING LUG (2 OFF) – FRONT VIEW & SECTION ON HOLE C.L.
SCALE 1:7.5



REFERENCE DOCUMENT	DOC. NO.
HTAL MECHANICAL CALCULATION DOSSIER (ASME VIII−1/−2, ASCE 7−10, UBC−97)	HTAL−06−CSH−00001
HTAL GENERAL ARRANGEMENT DRAWING (SHEETS 1/2 AND 2/2)	HTAL−06−DWG−00001
HTAL 3D MODEL (STEP AP214)	HTAL_REV00.step
SADDLES FOR HORIZONTAL VESSELS AND HEAT EXCHANGERS (STANDARD)	CLIENT STD.
ALLOWABLE PIPING LOADS ON NOZZLES (BASIC SPEC.)	CLIENT SPEC.
STRUCTURAL DESIGN CRITERIA (SITE DATA)	PROJECT SPEC.

GENERAL NOTES

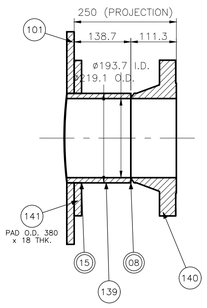
1) ALL DIMENSIONS IN mm. EL 0.00 = UNDERSIDE OF BASE PLATES. NOZZLE LOCATIONS DIMENSIONED FROM THE LEFT (WEST) T.L.
2) DESIGN CODE: ASME VIII DIV.1 ED.2025 ("U" STAMP); CHECKED TO ASME VIII DIV.2 (PART 4 + PART 5). MATERIALS ASME II−A / II−D.
3) FLANGES ASME B16.5 CL300 W.N. R.F. (BORE TO MATCH PIPE SCHEDULE); GASKETS ASME B16.20; STUDS B18.31.2; NUTS B18.2.2.
4) ORIENTATION: 0° = SOUTH, 90° = TOP, 180° = NORTH, 270° = BOTTOM (SEEN FROM THE LEFT HEAD, SIDE VIEW).
5) FLANGE BOLT HOLES STRADDLE THE MAIN CENTRE LINES. NOZZLE PROJECTION = OUTSIDE SURFACE (AT NOZZLE C.L.) TO RAISED FACE.
6) PWHT NOT REQUIRED (UCS−56). HYDROSTATIC TEST 27.6 barg AT TOP (UG−99(b), BASED ON MAWP 21.3 barg).
7) SUPPORTS: 2 SADDLES CLIENT STD. (ROW 1800 – 1899), SADDLE 1 FIXED, SADDLE 2 SLIDING (SLOTTED HOLES, GREASED). FOUNDATION LOADS: SHEET 2.
8) LIFTING: 2 LUGS ON TOP OF THE SHELL, SPREADER BEAM; LUGS DESIGNED FOR 2 x FABRICATED (LIFTING) WEIGHT.
9) MANHOLES M1 / M2: BLIND FLANGES ON DAVITS. SHELL PLATES SA−516 GR.70 NORMALIZED (UCS−66 CURVE D).
10) HOT INSULATION 80 mm (NOT SHOWN). SURFACE PREPARATION AND PAINTING ACCORDING TO PROJECT SPECIFICATION.

HOLD POINTS

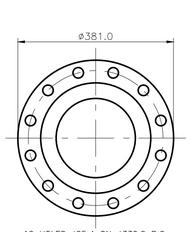
H1) MATERIAL CERTIFICATES EN 10204 3.1 (PRESSURE PARTS)
H2) WPS/PQR/WPQ APPROVAL BEFORE WELDING
H3) RT FILM REVIEW (100 % RT OF CATEGORY A / B WELDS)
H4) PNEUMATIC LEAK TEST OF THE REINFORCING PADS (TELL−TALE HOLES)
H5) HYDROSTATIC TEST WITNESS (27.6 barg AT TOP, 30 min)
H6) FINAL DIMENSIONAL & VISUAL INSPECTION, NAMEPLATE

LEGEND

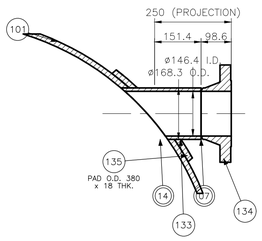
T.L.: TANGENT LINE W.L.: WELDING LINE EL: ELEVATION
(1xx) CIRCLE: ITEM No. (BILL OF MATERIALS, SHEET 1)
HEXAGON: NOZZLE TAG (NOZZLE LIST, SHEET 1)
DOUBLE CIRCLE: WELD No. (WELD DETAILS, SHEET 1)



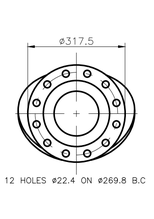
NOZZLE N3 – 8" #300 W.N. R.F. + SCH.80 PIPE
SCALE 1:7.5



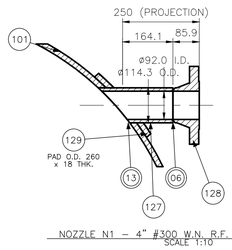
12 HOLES ø25.4 ON ø330.2 B.C.



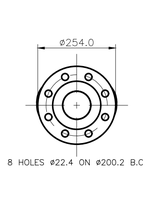
NOZZLE N2 – 6" #300 W.N. R.F. + SCH.80 PIPE
SCALE 1:10



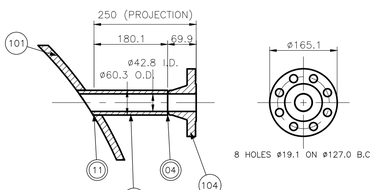
12 HOLES ø22.4 ON ø269.8 B.C



NOZZLE N1 – 4" #300 W.N. R.F. + SCH.120 PIPE
SCALE 1:10

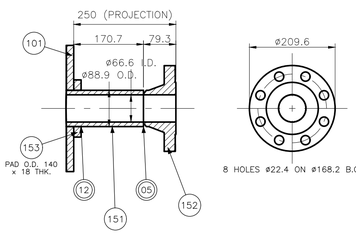


8 HOLES ø22.4 ON ø200.2 B.C



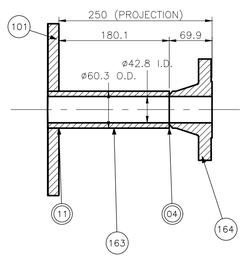
8 HOLES ø19.1 ON ø127.0 B.C

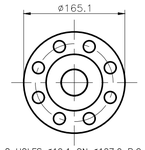
NOZZLE L1 / L2 – 2" #300 W.N. R.F. + SCH.160 PIPE (L2 MIRRORED)
SCALE 1:7.5



8 HOLES ø22.4 ON ø168.2 B.C

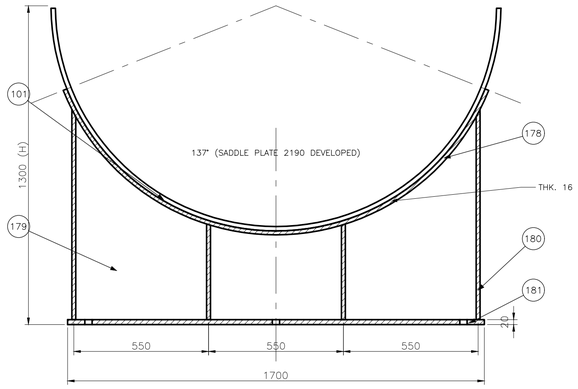
NOZZLE P1 / P2 – 3" #300 W.N. R.F. + SCH.160 PIPE
SCALE 1:7.5

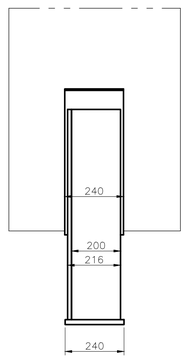




8 HOLES ø19.1 ON ø127.0 B.C.

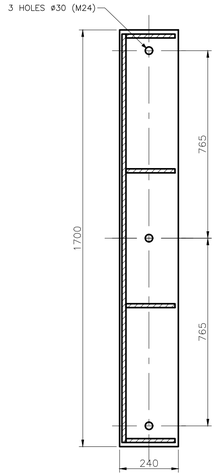
NOZZLE T1 – 2" #300 W.N. R.F. + SCH.160 PIPE
SCALE 1:5



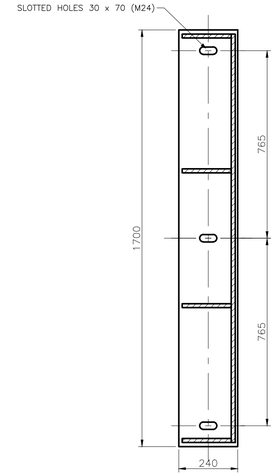


SADDLE (2 OFF, CLIENT STD.) – SECTION ON SADDLE C.L. & SIDE VIEW
SCALE 1:12.5

WEB TOWARDS THE NEAREST HEAD



BASE PLATE SADDLE 1 (FIXED)
SCALE 1:12.5



COLD POSITION: BOLTS AT THE SLOT END TOWARDS SADDLE 1 (GROWTH +8 mm)

BASE PLATE SADDLE 2 (SLIDING)
SCALE 1:12.5

		COMPANY DOCUMENT APPROVAL STATUS
	A	Approved with no comments. Works can proceed.
	B	Approved with comments as noted. Contractor can proceed with work implementing the comment indicated by Company.
	C	NOT APPROVED. Revise and/or resubmit. Contractor cannot proceed with works.
SUBMITTAL DESCRIPTION	X	Issued for approval
		Issued for information

REV.	DATE	DESIGN AUTHOR	ROLE DESCRIPTION
00	12/11/2026	Iñigo Ozcariz Garcia	Chief Design Engineer

Date	12/11/2026
DWN.	CLAUDE (AI)
REV.	PENDING
APPR.	PENDING

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Project	PURCHASE ORDER:	Document No.	Rev.
HTAL – HORIZONTAL PRESSURE VESSEL 20 barg / 250 °C – ASME VIII DIV.1 / DIV.2	–	HTAL−06−DWG−00001	00

Title	Scale	Format
GENERAL ARRANGEMENT DRAWING SHEET 2/2 – NOZZLE, LUG AND SADDLE DETAILS, FOUNDATION LOADS	AS SHOWN ISO – E	A1 Sheet: 2/2

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