STYRENE PARK OFFSITE

Document Title:

Chiller (Evaporator) Outline Drawing

Rev.	Issued Date	DESCRIPTION	PREPARED	CHECKED	APPROVED
A0	20-07-2025	AS&AFC	F.sh	M.O	A.M
R4	21-04-2025	FI	F.sh	M.O	A.M
R3	16-11-2024	IFA	F.sh	M.O	A.M
R2	16-09-2024	IFA	F.sh	M.O	A.M
R1	08-07-2024	IFA	F.sh	M.O	A.M
R0	15-05-2024	IFA	F.sh	M.O	A.M

REVISION RECORD SHEET

Page	Revisions								Page	Revisions						
Page	R0	R1	R2	R3	R4	A0				R0	R1	R2	R3	R4	R5	R6
1	X	X	X	X	X	X			41							
2	X	X	X	X	X	X			42							
3	X	X	X	X	X	X			43							
4	X	X	X	X	X	X			44							
5	X	X	X	X	X	X			45							
6	X	X	X	X	X	X			46							
7	X	X	X	X	X	X			47							
8	X	X	X	X	X	X			48							
9	X	X	X	X	X	X			49							
10	X	X	X	X	X	X			50							
11						X			51							
12						X			52							
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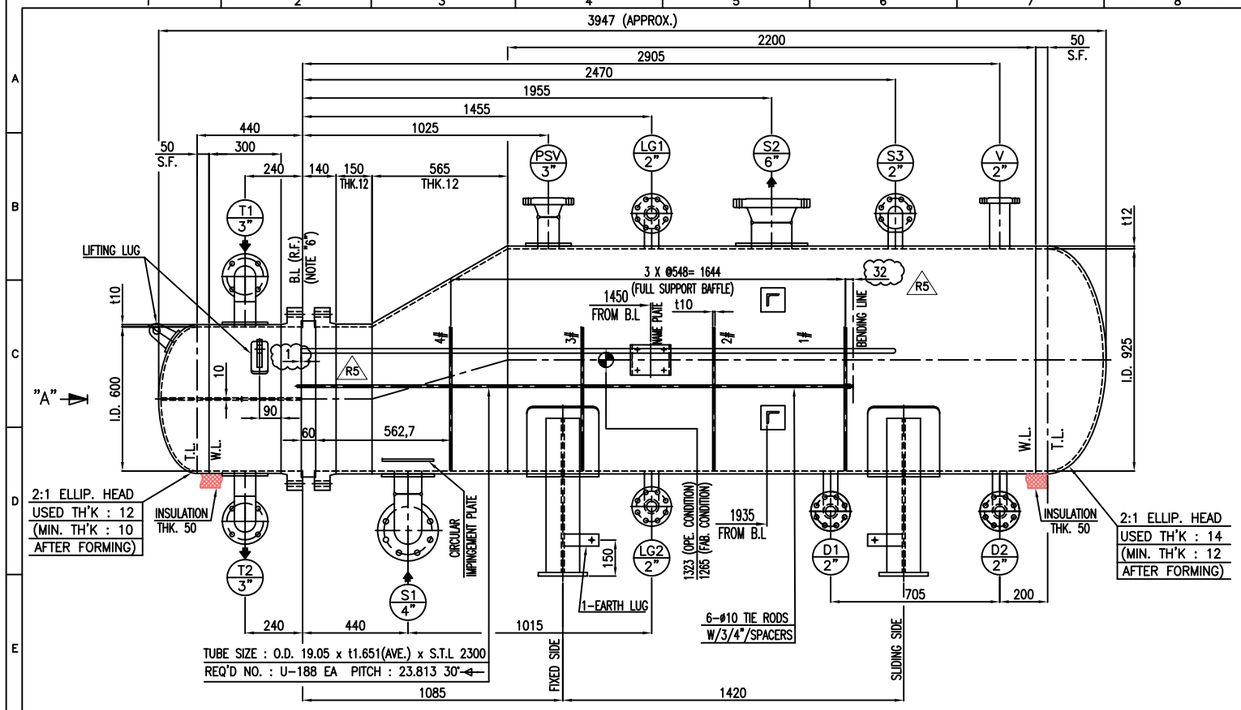
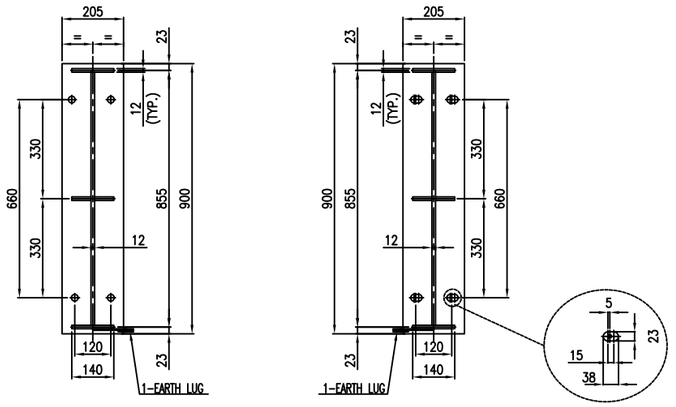
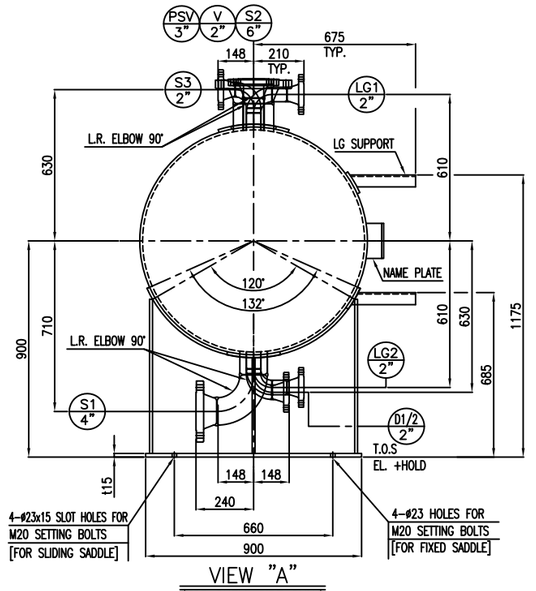
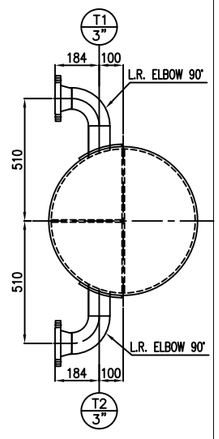






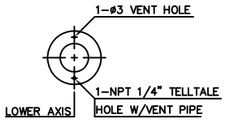
VIEW "A"
(FOR SHELL SIDE ONLY)



VIEW "A"
(FOR CHANNEL SIDE ONLY)

NOTES

1. UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.
2. UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L. OF EXCHANGER TO THE EXTREME FACE OF NOZZLE .
3. ALL WELDS CONTINUOUS EXCEPT NOTED .
4. BOLT HOLES FOR FLANGES SHALL BE STRADDLED TO EQUIPMENT MAIN AXIS .
5. ALL R.F. FLANGES SHALL HAVE SMOOTH FINISH FACING WITH RA= 3.2mm TO RA= 6.3mm
6. BASE LINE (B.L.) INDICATES THE GASKET CONTACT SURFACE OF TUBE SHEET .
7. REINFORCING PADS FOR NOZZLES SHALL BE TAPPED WITH AT LEAST ONE (1) TELL TALE HOLE NPT 1/4" WITH VENT PIPE.



8. DIMENSIONS REFER TO BAFFLES ARE MEASURED FROM C.L.OF EACH PLATE.
9. GASKET MATERIAL FOR ASME B16.20. SPIRAL WOUND (t4.5)
   -FILLER: GRAPHITE
   -INNER RING: 304 S.S.
   -HOOP: 304 S.S.
   -OUTER RING: 304 S.S.
10. GASKET MATERIAL: SPIRAL WOUND (t4.5)
   -FILLER: GRAPHITE
   -INNER RING: 304 S.S.
   -HOOP: 304 S.S.
11. SPARE PART (OPTIONAL)

	CONSTRUCTION & COMMISSIONING
GASKETS	100%
STUD BOLTS & NUTS	5% (MIN. 2SETS)

12. ALL EXPOSED SURFACE SHALL BE PAINTED AS FOLLOWS: EXPOSED SURFACE FOR EXTERNAL PARTS: EI027-HSE-VD-QC-PRO-002
    EXPOSED SURFACE OF INTERNAL: NOT PARTS REQUIRED
13. 1/1.4 FACTOR FOR LOAD COMBINATIONATION HAS BEEN APPLIED
14. TUBES SHALL BE SEAMLESS
15. GASKET CONTACT SURFACE OF TUBE SHEET & GIRTH FLANGE: RA= 1.6µm (MAX)
16. FURTHER DETAILS TO BE ADDED FOR DISLAIMER PURPOSES SUCH AS AFTER HYDROTEST TO BE CLEANED AND DRYED.

REFERENCE DRAWING	DWG NO.	REV.
-	-	-

KEY PLAN :

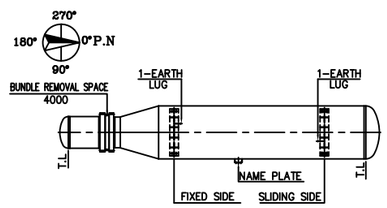


TABLE FOR FOUNDATION LOAD DATA

WIND		SEISMIC (NOTE 13)	
SHEAR (kgf)	MOMENT (kgf-m)	SHEAR (kgf)	MOMENT (kgf-m)
478	430	970	873

LEGEND

B.L. = BASE LINE
C.L. = CENTER LINE
M.D.M.T. = MIN. DESIGN METAL TEMPERATURE
N. = NORMALIZED
O.T.L. = OUTER TUBE LINE
C.O.G = CENTER OF GRAVITY
T.O.G. = TOP OF GROUTING
W.P. = WORKING POINT

MATERIALS

SHELL		GENERAL	
BARREL	SA516-70N	SLIDING BAR/ROD	SA516 70/SA36
FLANGES	SA350-LF2 CL.1N	SEALING STRIP	SA516 70
NOZZLE FROM PIPE	SA333-6	DUMMY TUBE/SEAL ROD	-
NOZZLE FROM PLATE	SA516-70N	BLINDED NOZZLE BOLT/NUT	SA320 L7/SA194-4
NOZZLE FLANGES	SA350-LF2 CL.1N	BLINDED NOZZLE GASKET	SEE NOTE "9"
COUPLINGS & PLUGS	-	TEST RING	SA-266 2
NOZZLE REINF. PAD	SA516-70N	GASKETS	
EXCHANGERS SUPPORTS	SA283-C	SHELL/COVER	-
SUPPORT WEAR PLATE	SA516-70N	SHELL/TUBESHEET	SEE NOTE "10"
STIFFENING RINGS	SA516-70N	CHANNEL/TUBESHEET	SEE NOTE "10"
EXPANSION JOINT	-	CHANNEL/COVER	-
LINING	-	FLOATING HEAD	-
SHELL COVER		FLOATING HEAD	
BARREL	-	COVER	-
COVER	-	FLANGES	-
FLANGES	-	SPLIT RING	-
CHANNEL		BOLTS & NUTS	
BARREL	SA516-70N	SHELL/COVER	-
FLANGES	SA266-2N	SHELL/CHANNEL	SA320-L7/SA194-4
COVER	SA516-70N	CHANNEL/COVER	-
FLAT COVER	-	FLOATING HEAD	-
NOZZLE FROM PIPE	SA106-B	SETTING BOLTS/NUTS	SA193 B7 / SA194 2H
NOZZLE REINF.	SA516-70N	TUBE BUNDLE	
NOZZLE FLANGES	SA105N	TUBES	SA334-6
COUPLINGS & PLUGS	-	TUBESHEETS	SA350-LF2 CL1N
NOZZLE REINF. PAD	SA516-70N	BAFFLES/SUPPORTS/IMP. PLATE	SA516-70
PARTITION PLATES	SA516-70N	TIE RODS & SPACERS	SA36/SA179

DESIGN DATA

CODE		ASME SEC. VIII DIV.1 (2021 ED.)		TYPE	H-BKU		
TEMA CLASS		TEMA 10TH ED. (CLASS "R")		CODE STAMP	NO		
LOCAL REGULATION		NO		WIND / SEISMIC CODE	UBC 97		
FLUID		PROPANE	STYRENE	WIND EXPOSURE / VELOCITY (km/h)	D / 125		
DESIGN (INT.EXT.)	PRESS. barg	22/F.V.	6.8	Ca/Cv/Nv	0.4/0.56/1		
	TEMP. (°C)	120/85	85	SEISMIC IMPORTANCE FACTOR/RESPONSE FACTOR	1.25 / 3		
	STEAM OUT CONDITION	-	-	INSULATION (TYPE/THK.)	COLD/50	COLD/50	
OPER. (IN/OUT)	PRESS. barg	3.813	4.5	FIRE PROOFING (mm)	-		
	TEMP. (°C)	1.24/1	15.2/5	PAINTING	SEE NOTE "12"		
CORROSION ALLOWANCE (mm)		3	3	TUBE TO TUBESHEET JOINT	HEAVY EXPANDED WITH 2 GROOVES WITH SEAL WELD		
JOINT EFFICIENCY (S/H)		1.0/1.0	1.0/1.0	NO. OF PASS	1(ONE)	4(FOUR)	
RADIOGRAPHY (S/H)		FULL/FULL	FULL/FULL	WEIGHT BUNDLE (KG)	840		
HYDRO. TEST PRESS. (SHOP/FIELD) barg		28.6/28.6	8.84/8.84	WEIGHT ERECTION (KG)	2,850		
HYDRO. TEST TYPE		UG-99(b) NOTE (35)	UG-99(b) NOTE (35)	WEIGHT EMPTY (KG)	2,850		
PNEUM. TEST PRESS. barg		-	-	WEIGHT OPER. (KG)	4,250		
M.D.M.T (°C)		-45	-29	WEIGHT FULL WATER (KG)	4,900		
M.A.W.P (HOT & CORRODED) barg		22	6.8	SURFACE AREA/SHELL (M^2)	61.76		
M.A.P (NEW & COLD) barg		22	6.8	VOLUME (M^3)	1.65	0.38	
P.W.H.T		NO	NO	FLUID DENSITY (kg/m^3)	532.9	918.4	
IMPACT TEST		NO	NO	MEAN METAL TEMP. (°C)	-	-	
S.R OF HEAD AFTER COLD FORMING		YES	YES		SHELL SIDE	TUBE SIDE	
		SHELL SIDE	TUBE SIDE				

NOZZLE LIST

NOZZLE MARK	Q'TY /1 SET	SIZE (INCH)	FLANGE RATING	FLANGE SCH.	SERVICE	H/EX. C.L PROJECTION	REINF. PAD TH'K	REINF. PAD O.D
S1	1	4"	ASME B16.5 300# WN.RF	120	SHELL SIDE INLET	SEE DWG.	12	220
S2	1	6"	ASME B16.5 300# WN.RF	80	SHELL SIDE OUTLET	671	12	300
TI	1	3"	ASME B16.5 150# WN.RF	80	CHANNEL SIDE INLET	SEE DWG.	10	190
T2	1	3"	ASME B16.5 150# WN.RF	80	CHANNEL SIDE OUTLET	SEE DWG.	10	190
D1	1	2"	ASME B16.5 300# LWN.RF	160	SHELL SIDE DRAIN	SEE DWG.	-	-
D2	1	2"	ASME B16.5 300# LWN.RF	160	OIL RECOVERY	SEE DWG.	-	-
LG1	1	2"	ASME B16.5 300# WN.RF	160	LEVEL GAUGE	SEE DWG.	-	-
LG2	1	2"	ASME B16.5 300# WN.RF	160	LEVEL GAUGE	SEE DWG.	-	-
PSV	1	3"	ASME B16.5 300# WN.RF	160	PRESSURE SAFETY VALVE	675	12	190
V	1	2"	ASME B16.5 300# LWN.RF	t16.6	VENT	675	-	-
S3	1	2"	ASME B16.5 300# WN.RF	160	SHELL SPARE/PURGE	SEE DWG.	-	-

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R5	04.20.2025	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R4	11.10.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R3	09.14.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R2	07.21.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R1	06.27.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R0	04.21.2025	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

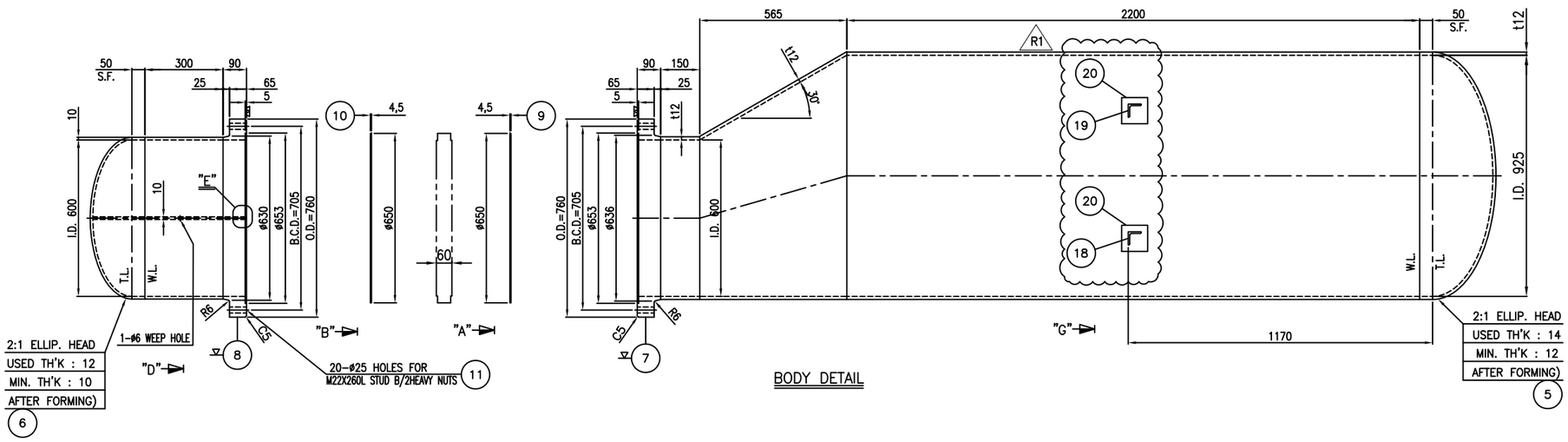
پتروشیمی توسعه پارک صنعتی گوهر افق

CONSULTING ENGINEER

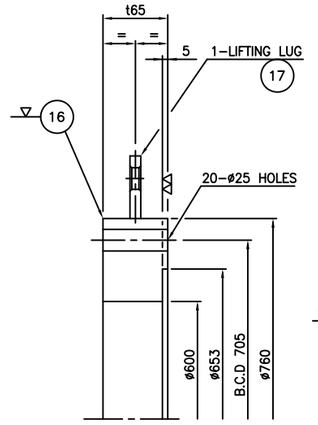
PROJECT: STYRENE PARK OFFSITE

DRAWING TITLE: GENERAL ARRANGEMENT DRAWING FOR CHILLER (EVAPORATOR)

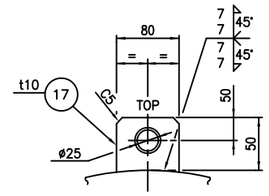
DRAWING NO.	REV.	SIZE	SCALE	SHEET
EI027-HSE-VD-ME-DWG-008	R5	A3	NTC	1 of 8



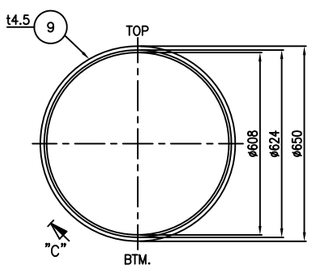
BODY DETAIL



STATIONARY TEST FLANGE



LIFTING LUG



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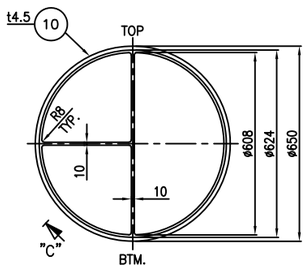
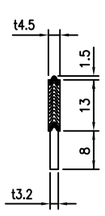
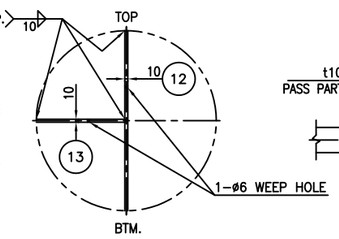


VIEW "B"



SECTION "C"



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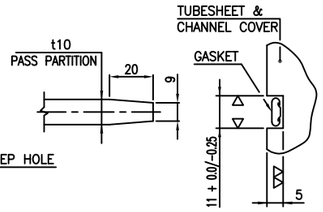
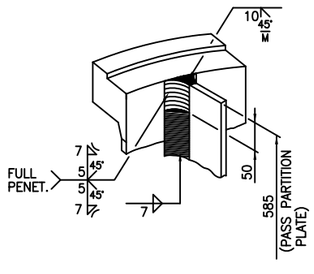
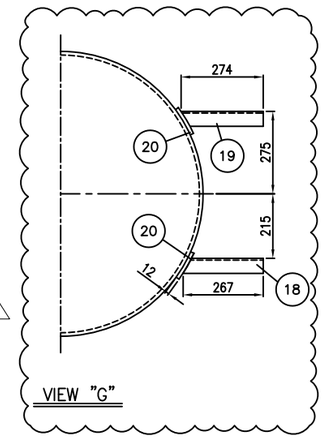


GASKET SEATING



DETAIL "E"



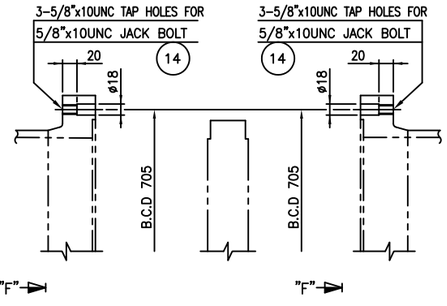
VIEW "G"

NOTES
1. UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.
2. GASKET MATERIAL: SPIRAL WOUND (t4.5)
–FILLER: GRAPHITE
–INNER RING: 304 S.S.
–HOOP: 304 S.S.

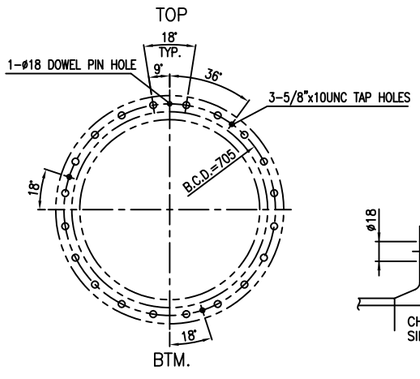
* FOR ONE SET

NO.	PART NAME	MATERIAL	REGULAR QUANTITY	SPARE QUANTITY	SPECIFICATION	REMARK
20	PAD	SA516–70N	2		t12 x 100 x 100	
19	ANGLE SUPPORT	SA36	1		L50x50x6, L=274	
18	ANGLE SUPPORT	SA36	1		L50x50x6, L=267	
17	LIFTING LUG	SA283–C	1		t10 x 80 x 50	
16	TEST FLANGE	SA266–2	1		ø65 x I.D600 x O.D760	
15	DOWEL PIN	304 S.S	1		R.B16 x L129	
14	JACK BOLT	304 S.S	6		5/8"x10UNC x L110	
13	PASS PARTITION PLATE	SA516–70N	1		t10 x 295 x 585	H.D.G
12	PASS PARTITION PLATE	SA516–70N	1		t10 x 600 x 585	
11	STUD B/2HEAVY NUTS	SA320–L7/SA194–4	20SETS	3SETS	M22 x 10UNC x L260	H.D.G
10	GASKET	SEE NOTE "2"	1	2	t4.5 (SEE DWG.)	
9	GASKET	SEE NOTE "2"	1	2	t4.5 (SEE DWG.)	
8	CHANNEL FLANGE	SA266–2N	1		ø80 x I.D600 x O.D760	
7	SHELL FLANGE	SA350–LF2 CL.1N	1		ø80 x I.D600 x O.D760	
6	CHANNEL HEAD	SA516–70N	1		USED THK.12 (2:1 ELLIP.)	
5	SHELL HEAD	SA516–70N	1		USED THK.14 (2:1 ELLIP.)	
4	CHANNEL SHELL	SA516–70N	1		t10 x 300 x 1916	
3	SHELL	SA516–70N	1		t12 x 150 x 1923	
2	CONE	SA516–70N	1		t12 (SEE DWG.)	
1	SHELL	SA516–70N	1		t12 x 2200 x 2944	

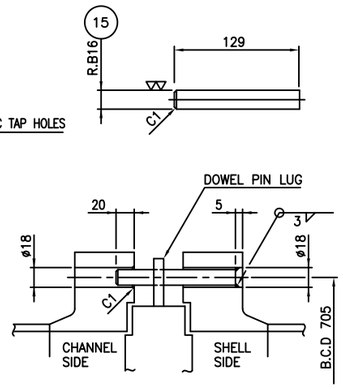
BILL OF MATERIAL



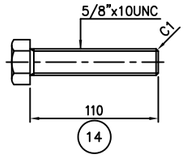
JACK BOLT HOLE DETAIL



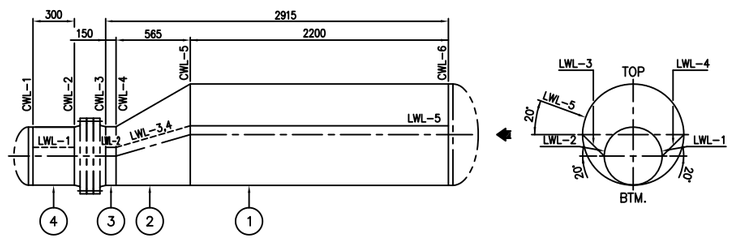
VIEW "F"



DOWEL PIN ASSEMBLY
(AT : TOP)



JACK BOLT



SEAM PLAN

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R1	11.10.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R0	06.27.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

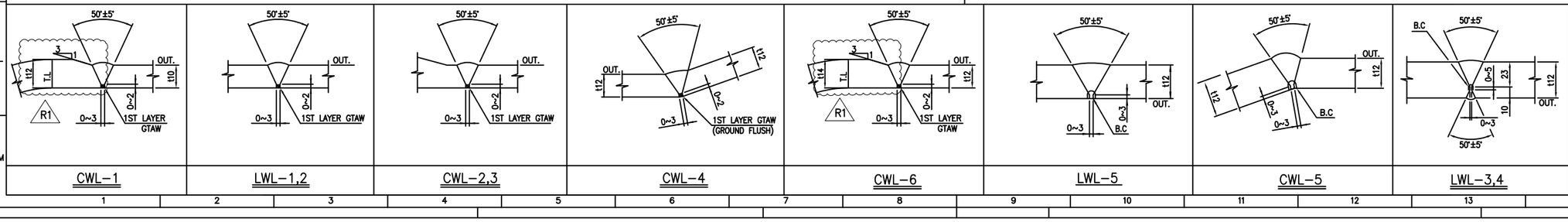
پتروشیمی توسعه پارک صنعتی گوهر افق

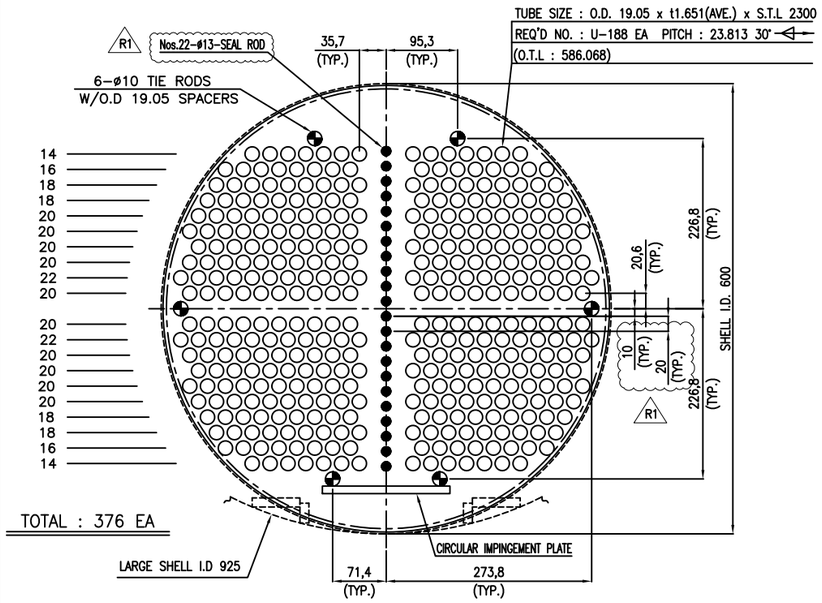
CONSULTING ENGINEER

PROJECT: STYRENE PARK OFFSITE

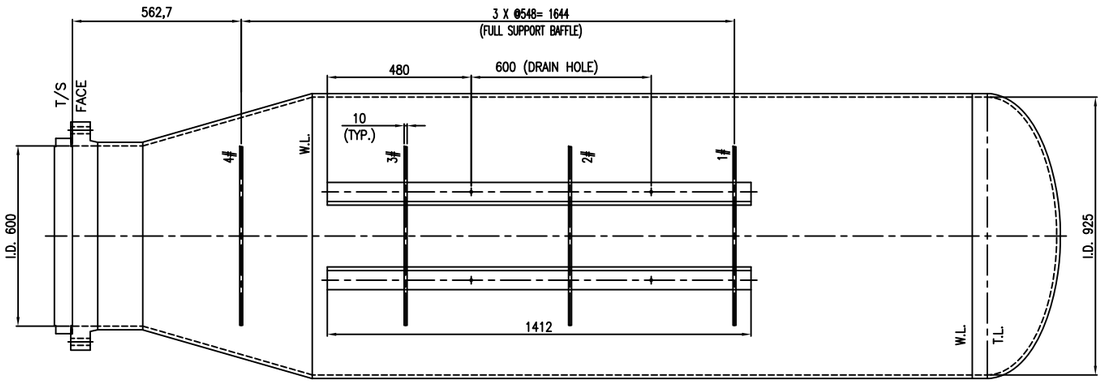
DRAWING TITLE: BODY DETAIL DRAWING FOR CHILLER (EVAPORATOR)

DRAWING NO.	REV.	SIZE	SCALE	SHEET
EI027–HSE–VD–ME–DWG–008	R2	A3	NTC	2 of 8

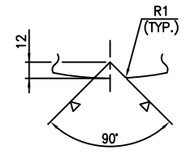




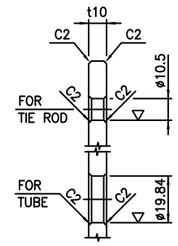
TUBE ARRANGEMENT
(VIEW "A"-"A")



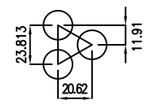
GUIDE RAIL ASSEMBLY



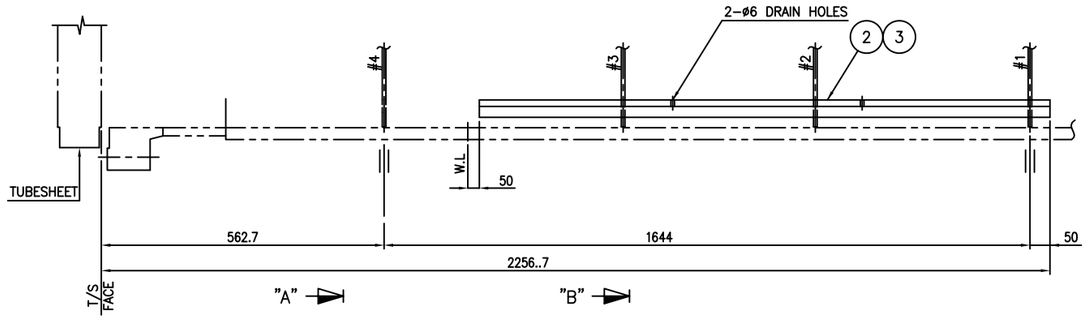
BAFFLE NOTCH
(BTM. ONLY)



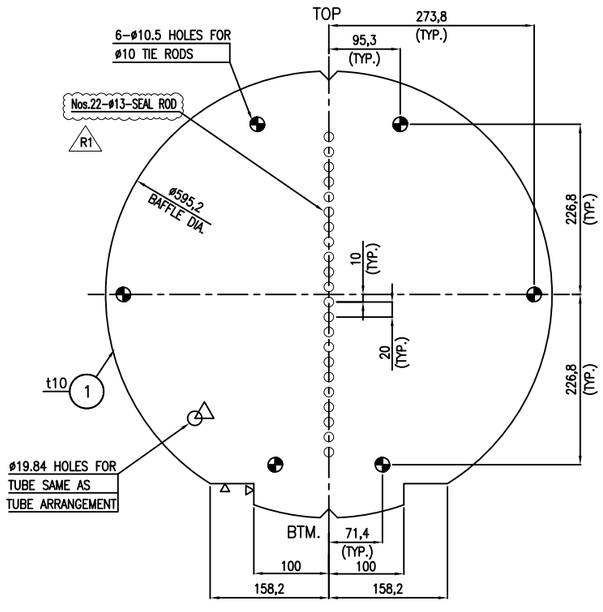
BAFFLE HOLE



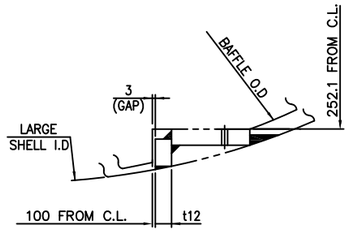
TUBE PITCH



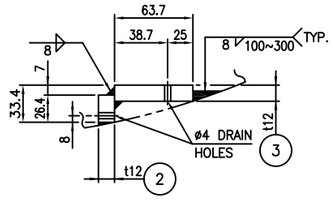
GUIDE RAIL DETAIL
(ELEVATION VIEW)



FULL SUPPORT (#1~#4)



VIEW "A"



GUIDE RAIL
(VIEW "B")

NOTES

1. UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

* FOR ONE SET

PART NO.	PART NAME	MATERIAL	REGULAR QUANTITY	SPARE QUANTITY	SPECIFICATION	REMARK
3	GUIDE RAIL	SA516-70N	2		t12 x 63.7 x 1412	
2	GUIDE RAIL	SA516-70N	2		t12 x 26.4 x 1412	
1	FULL SUPPORT	SA516-70	4		t10 x ø595.2	

BILL OF MATERIAL

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R1	07.13.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R0	06.27.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

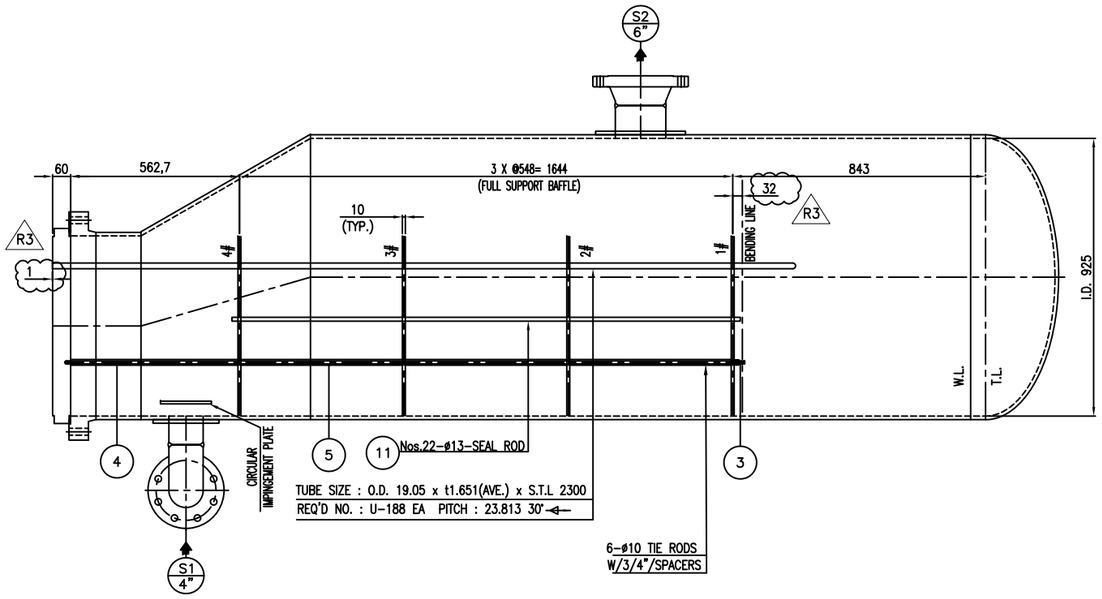
پتروشیمی توسعه پارک صنعتی گوهر افق

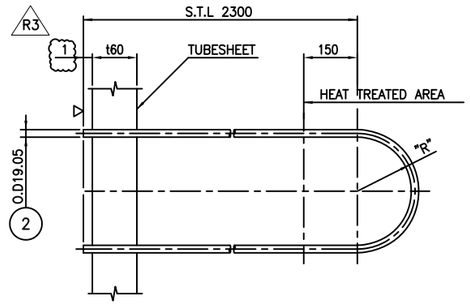
CONSULTING ENGINEER

PROJECT: STYRENE PARK OFFSITE

DRAWING TITLE: BUNDLE DETAIL DRAWING FOR CHILLER (EVAPORATOR) (1/2)

DRAWING NO.	REV.	SIZE	SCALE	SHEET
EI027-HSE-VD-ME-DWG-008	R1	A3	NTC	3 of 8

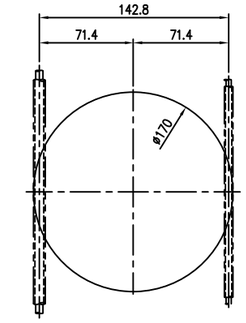




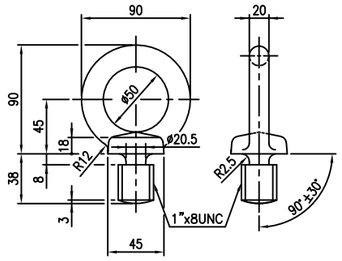
U-TUBE

NO.	"R"	"L"	Q'TY
1	35.72	4712.2	10
2	47.63	4749.6	10
3	59.53	4787.0	10
4	71.44	4824.4	10
5	83.35	4861.8	10
6	95.25	4899.3	10
7	107.16	4936.7	10
8	119.07	4974.1	10
9	130.98	5011.5	10
10	142.88	5048.9	10
11	154.79	5086.3	10
12	166.70	5123.7	10
13	178.60	5161.1	10
14	190.51	5198.5	10
15	202.42	5235.9	8
16	214.33	5273.3	10
17	226.23	5310.7	8
18	238.14	5348.1	8
19	250.05	5385.5	6
20	261.95	5422.9	6
21	273.86	5460.4	2

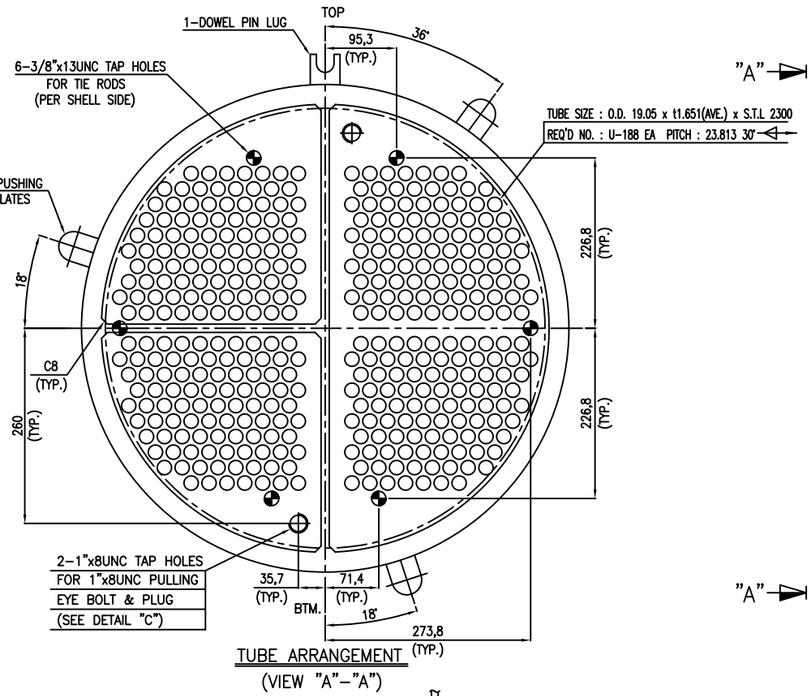
U-TUBE DIMENSION



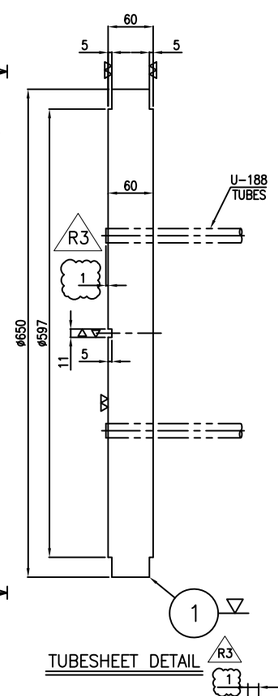
IMPINGEMENT PLATE



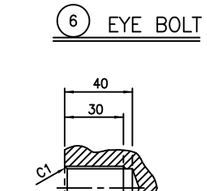
6 EYE BOLT



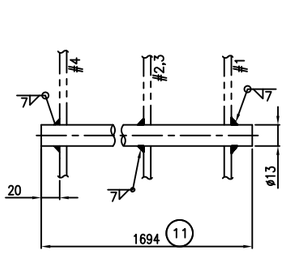
TUBE ARRANGEMENT
(VIEW "A"-"A")



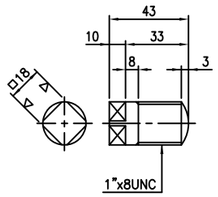
TUBESHEET DETAIL



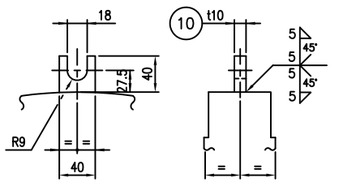
DETAIL "C"



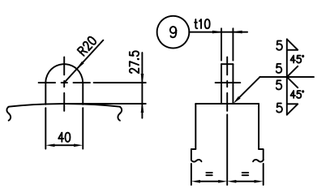
SEALING ROD



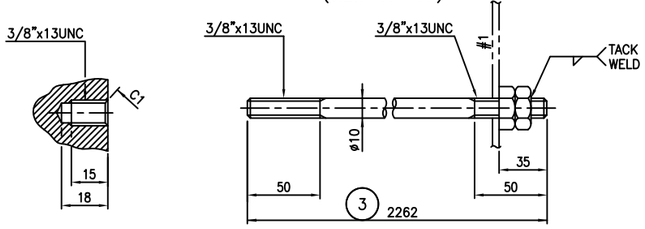
7 PLUG



DOWEL PIN LUG

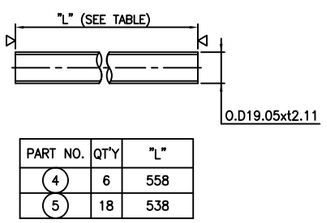


PUSHING PLATE



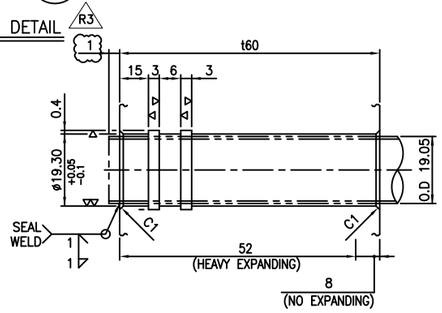
DETAIL "B"

TIE ROD & 2 NUTS



PART NO.	QT'Y	"L"
4	6	558
5	18	538

SPACER



TUBE TO TUBESHEET JOINT

NOTES

1. UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

* FOR ONE SET

PART NO.	PART NAME	MATERIAL	QUANTITY REGULAR	QUANTITY SPARE	SPECIFICATION	REMARK
11	SEAL ROD	SA-36	22		R.B. ø13, L=1694	
10	DOWEL PIN LUG	SA516-70N	1		t10 x 40 x 40	
9	PUSHING PLATE	SA283-C	3		t10 x 34 x 47.5	
8	IMPINGEMENT PLATE	SA516-70N	1		t10 x ø170	
7	PLUG	304 S.S	2		1"x8UNC	
6	EYE BOLT	SA36	2		1"x8UNC	
5	SPACER	SA334-6	18		O.D19.05 x t1.651 x L538	
4	SPACER	SA334-6	6		O.D19.05 x t1.651 x L558	
3	TIE ROD & 2NUTS	SA36/SA194-2H	6SETS		3/8"x13UNC (R.B10) x L2262	
2	TUBE	SA334-6	U-188		O.D19.05 x t1.651(AVE.) x S.T.L2300	
1	TUBESHEET	SA350-LF2 CL.1N	1		t60x ø650	

BILL OF MATERIAL

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R3	04.20.2025	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R2	09.14.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R1	07.13.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R0	06.27.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

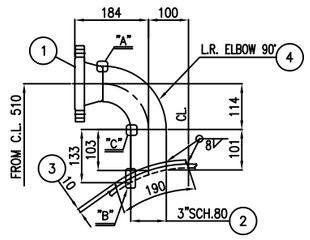
پتروشیمی توسعه پارک صنعتی گوهر افق

CONSULTING ENGINEER

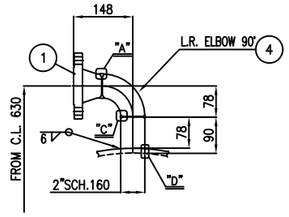
PROJECT: STYRENE PARK OFFSITE

DRAWING TITLE: BUNDLE DETAIL DRAWING FOR CHILLER (EVAPORATOR) (2/2)

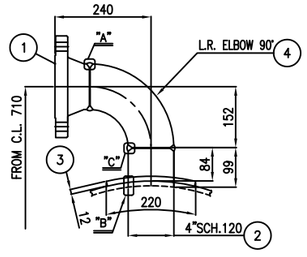
DRAWING NO.	REV.	SIZE	SCALE	SHEET
EI027-HSE-VD-ME-DWG-008	R3	A3	NTC	4 of 8



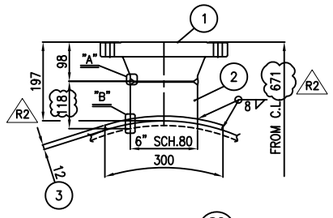
DETAIL OF T1 3" T2 3"



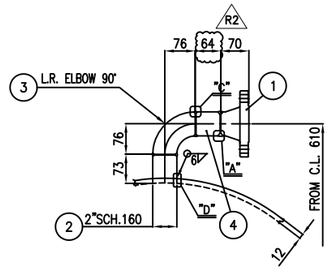
DETAIL OF D1 2" D2 2" S3 2"



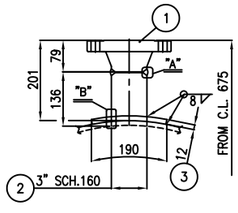
DETAIL OF S1 4"



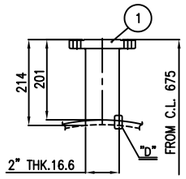
DETAIL OF S2 6"



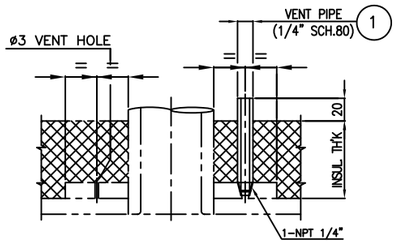
DETAIL OF LG1 2" LG2 2"



DETAIL OF PSV 3"



DETAIL OF V 2"



HOLES ON REINF. PAD

(SEE NOTE "2,3")

T1 3" T2 3" PSV 3" S1 4" S2 6"

NOTES

1. UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.
2. FOR THE TEST VENT HOLES ø3 WILL BE OUTURED BY WELDING.
3. AFTER TEST 1/4" HOLE SHALL BE FILLED WITH THREADED TUBE EXTENDING BEYOND INSULATION.

BILL OF MATERIAL FOR ONE SET

	NO.	PART NAME	MATERIAL	REGULAR QUANTITY	SPARE QUANTITY	SPECIFICATION/REMARK	
	2	HALF COUPLING	SA105	5		1/4" ASME 3000#	
	1	VENT PIPE	SA106-B	5		1/4" SCH.80, L70	
LG1 LG2	5	DELETED R2					
	4	NOZZLE NECK	SA333-6	2		2" SCH.160 x L64 R2	
	3	ELBOW	SA420-WPL6	2		2" SCH. 160 , LR 90°	
	2	NOZZLE NECK	SA333-6	2		2" SCH.160 x L73	
	1	FLANGE (SCH.160)	SA350-LF2 CL.1N	2		2" ASME 300# WN.RF	
D1 D2 S3	3	ELBOW	SA420-WPL6	3		2" SCH. 160 , LR 90°	
	2	NOZZLE NECK	SA333-6	3		2" SCH.160 x L90	
	1	FLANGE (SCH.160)	SA350-LF2 CL.1N	3		2" ASME 300# WN.RF	
V	1	FLANGE (THK.16.6)	SA350-LF2 CL.1N	1		2" ASME 300# LWN.RF	
S1	3	REINF. PAD	SA516-70N	1		t12 x ø220	
	2	NOZZLE NECK	SA333-6	1		4" SCH.120 x L131	
	1	FLANGE (SCH.120)	SA350-LF2 CL.1N	1		4" ASME 300# WN.RF	
PSV	3	REINF. PAD	SA516-70N	1		t12 x ø190	
	2	NOZZLE NECK	SA333-6	1		3" SCH.160 x L136	
	1	FLANGE (SCH.160)	SA350-LF2 CL.1N	1		3" ASME 300# WN.RF	
S2	3	REINF. PAD	SA516-70N	1		t12 x ø300	
	2	NOZZLE NECK	SA333-6	1		6" SCH.80 x L118 R2	R2
	1	FLANGE (SCH.80)	SA350-LF2 CL.1N	1		6" ASME 300# WN.RF	
T1 T2	4	ELBOW	SA234 WPB	2		3" SCH.80 , LR 90°	
	3	REINF. PAD	SA516-70N	2		t10 x ø190	
	2	NOZZLE NECK	SA106-B	2		3" SCH.80 x L133	
	1	FLANGE (SCH.80)	SA105N	2		3" ASME 150# WN.RF	
S1	4	ELBOW	SA420-WPL6	1		4" SCH. 120 , LR 90°	
	3	REINF. PAD	SA516-70N	1		t12 x ø225	
	2	NOZZLE NECK	SA333-6	1		4" SCH.120 x L99	
	1	FLANGE (SCH.120)	SA350-LF2 CL.1N	1		4" ASME 300# WN.RF	

BILL OF MATERIAL

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R2	11.10.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R1	09.14.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R0	06.27.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

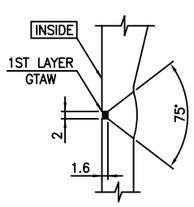
پتروشیمی توسعه پارک صنعتی گوهر افق

CONSULTING ENGINEER

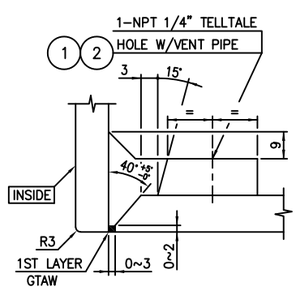
PROJECT: STYRENE PARK OFFSITE

DRAWING TITLE: NOZZLE DETAIL DRAWING FOR CHILLER (EVAPORATOR)

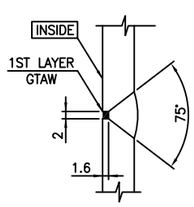
DRAWING NO.	REV.	SIZE	SCALE	SHEET
EI027-HSE-VD-ME-DWG-008	R2	A3	NTC	6 of 8



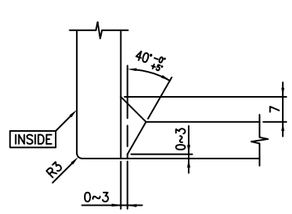
DETAIL "A"



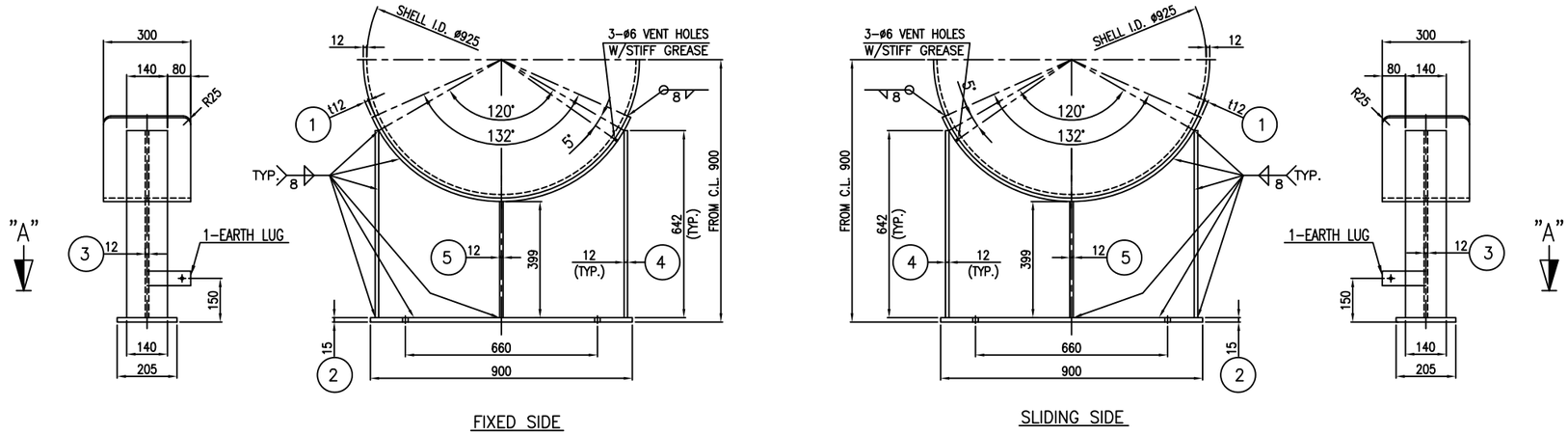
DETAIL "B"

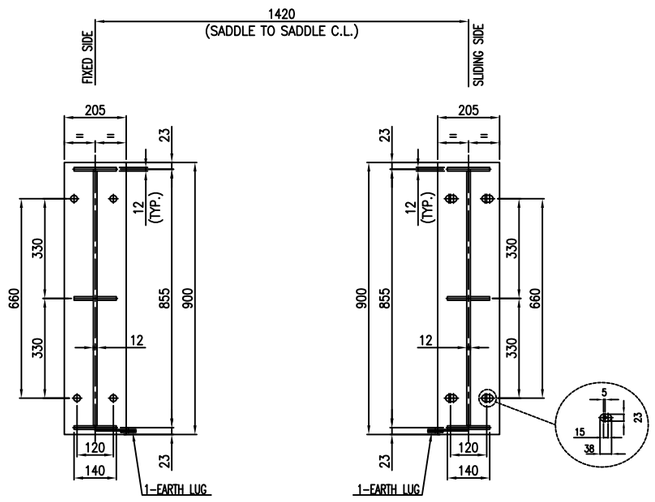


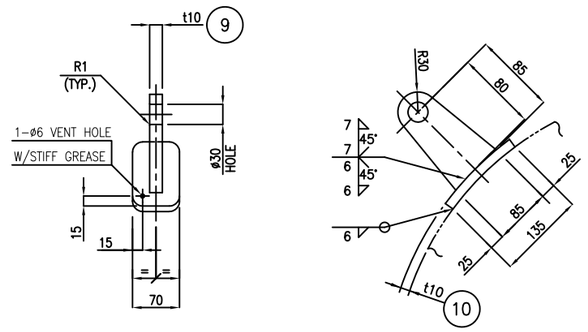
DETAIL "C"



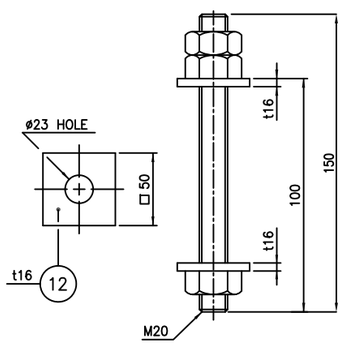
DETAIL "D"



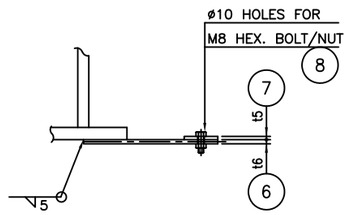


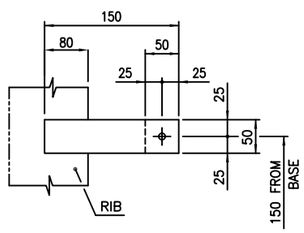


LIFTING LUG DETAIL
(FOR CHANNEL SIDE)



11 SETTING B/2NS/2W





EARTH LUG

NOTES

1. UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.
2. SINCE CABLE LUG IS TINNED COPPER, TINNED CARBON STEEL EARTH LUG.

FOR ONE SET

PART NO.	PART NAME	MATERIAL	REGULAR QUANTITY	SPARE QUANTITY	SPECIFICATION	REMARK
12	WASHER	SA283-C	32		t16 x □50 (HOT DIP GALV)	
11	SETTING BOLT/2NUTS	SA193-B7/SA194-2H	8SETS		M20 x L150 (HOT DIP GALV)	
10	REINF. PAD	SA516-70N	3		t12 x 70 x 135	
9	LIFTING LUG	SA283-C	3		t20 x 85 x 122	
8	HEX. BOLT/NUT	S.S. 304	2SETS		M8 x L25	
7	COPPER PLATE	SEE NOTE "2"	2		t5 x 50 x 50	
6	EARTH LUG /R2	S.S 304	2		t6 x 50 x 150	
5	SUPPORT RIB	SA283-C	4		t12 x 64 x 399	
4	SUPPORT RIB	SA283-C	4		t12 x 140 x 642	
3	WEB PLATE	SA283-C	2		t12 x 642 x 843	
2	BASE PLATE	SA283-C	2		t15 x 205 x 900	
1	WEAR PLATE	SA516-70N	2		t12 x 300 x 1107	

BILL OF MATERIAL

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R2	09.14.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R1	07.21.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R0	06.27.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

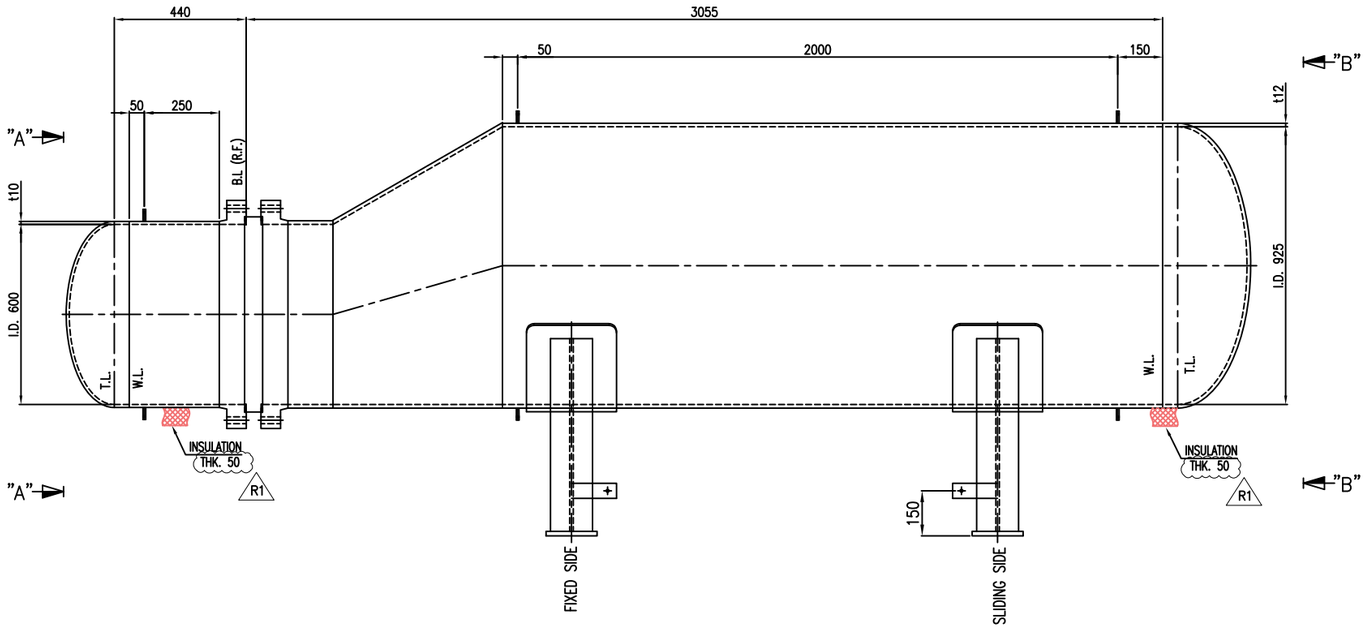
پتروشیمی توسعه پارک صنعتی گوهر افق

CONSULTING ENGINEER

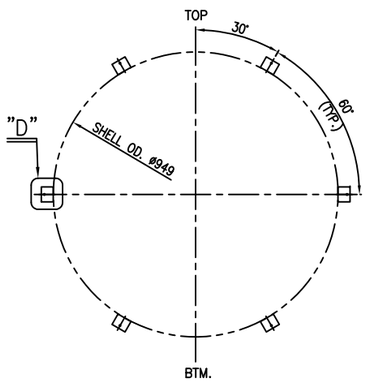
PROJECT: STYRENE PARK OFFSITE

DRAWING TITLE: SADDLE DETAIL DRAWING FOR CHILLER (EVAPORATOR)

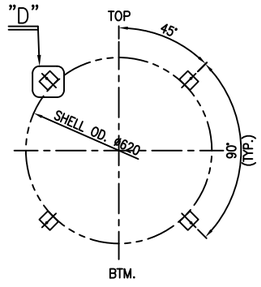
DRAWING NO.	REV.	SIZE	SCALE	SHEET
EI027-HSE-VD-ME-DWG-008	R2	A3	NTC	5 of 8



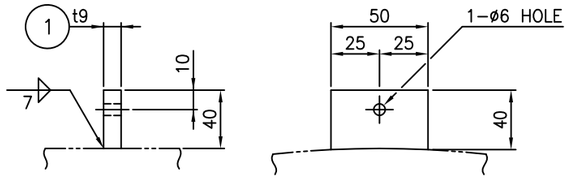
ELEVATION VIEW



VIEW "B"–"B"



VIEW "A"–"A"



DETAIL "D"

NOTES

1. UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

* FOR ONE SET

PART NO.	PART NAME	MATERIAL	QUANTITY REGULAR	QUANTITY SPARE	SPECIFICATION	REMARK
1	INSUL. SUP'T CLIP	SA516-70N	16		t9 x 40 x 50	

BILL OF MATERIAL

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R1	10.18.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R0	06.27.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

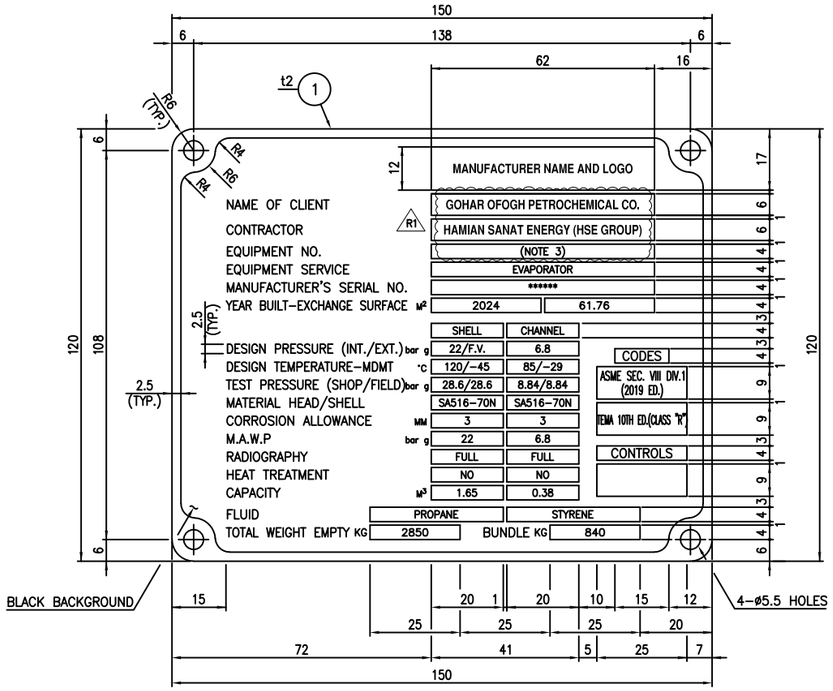
پتروشیمی توسعه پارک صنعتی گوهر افق

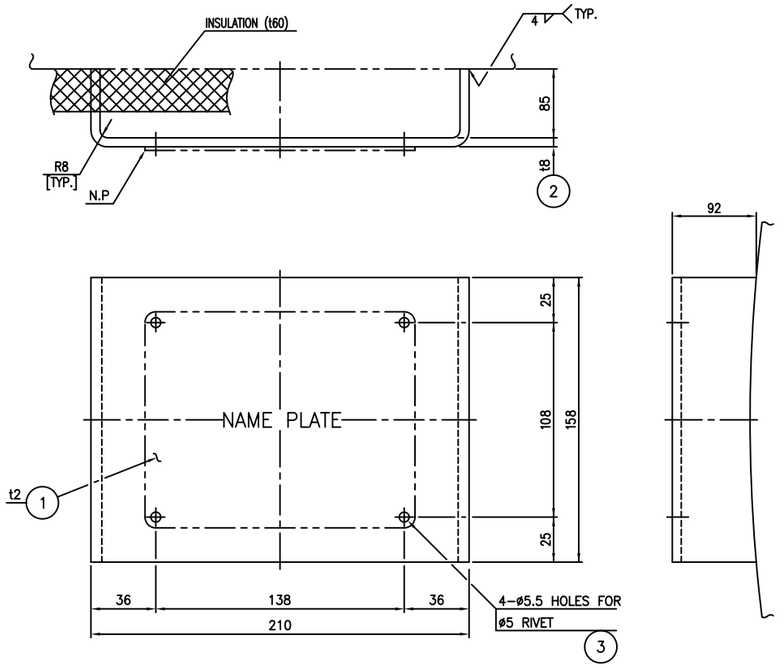
CONSULTING ENGINEER

PROJECT: STYRENE PARK OFFSITE

DRAWING TITLE: INSULATION CLIP DRAWING FOR CHILLER (EVAPORATOR)

DRAWING NO.	REV.	SIZE	SCALE	SHEET
EI027-HSE-VD-ME-DWG-008	R1	A3	NTC	7 of 8





NAME PLATE BRACKET

NOTES

1. ALL LETTERS, BLOCKS, AS WELL AS EDGES, SHALL HAVE RAISED POLISHED FACE–RELIEF 0.5MM APPROX.
2. LETTERS TO BE GOTHIC TYPE
3. EACH NAME PLATE ID MARKED WITH ITS SPECIFIC ITEM NO.(RU0001A–E–02 AND RU0001B–E–02)

R1

PART NO.	PART NAME	MATERIAL	QUANTITY REGULAR	QUANTITY SPARE	SPECIFICATION	REMARK
3	RIVET	COPPER	4		ø5	
2	NAME PLATE BRACKET	SA516–70N	1		t8 x 158 x396	
1	NAME PLATE	304 S.S	1		t2 x 120 x 150	

BILL OF MATERIAL

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R1	09.14.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R0	06.27.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

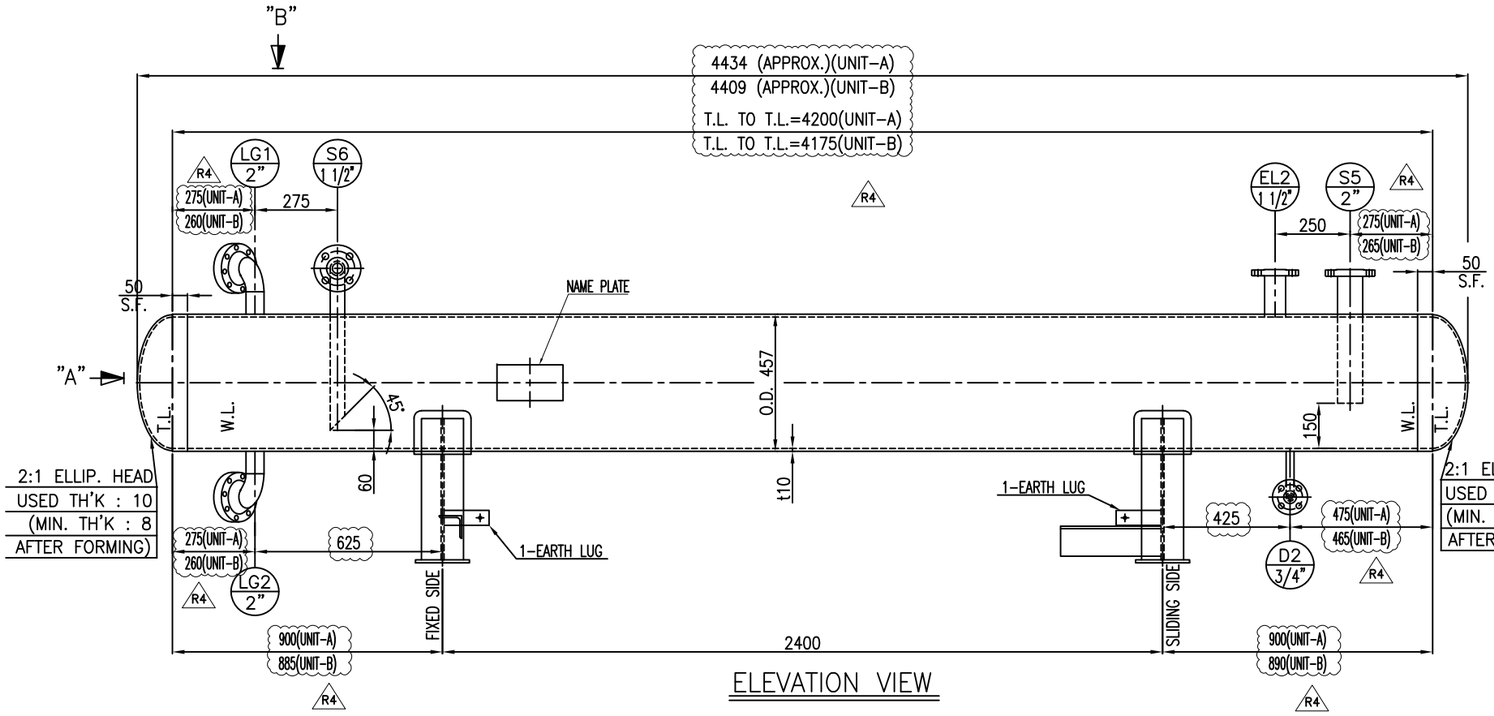
پتروشیمی توسعه پارک صنعتی گوهر افق

CONSULTING ENGINEER

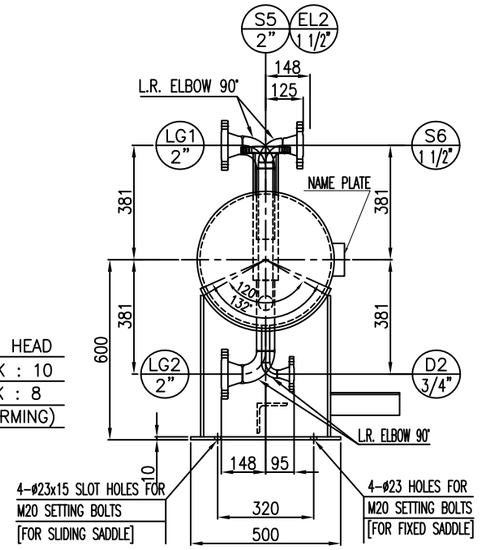
PROJECT: STYRENE PARK OFFSITE

DRAWING TITLE: NAME PLATE DRAWING FOR CHILLER (EVAPORATOR)

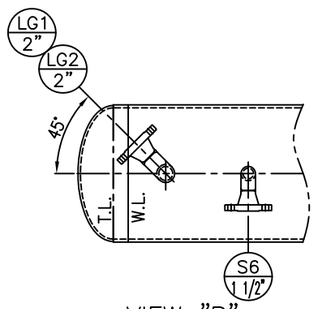
DRAWING NO.	REV.	SIZE	SCALE	SHEET
EI027–HSE–VD–ME–DWG–008	R1	A3	NTC	8 of 8



ELEVATION VIEW



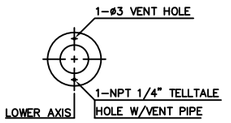
VIEW "A"



VIEW "B"
TOP VIEW

NOTES

1. UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.
2. UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE .
3. ALL WELDS CONTINUOUS EXCEPT NOTED .
4. BOLT HOLES FOR FLANGES SHALL BE STRADDLED TO EQUIPMENT MAIN AXIS .
5. ALL R.F. FLANGES SHALL HAVE SMOOTH FINISH FACING WITH RA= 3.2mm TO RA= 6.3mm
6. REINFORCING PADS FOR NOZZLES SHALL BE TAPPED WITH AT LEAST ONE (1) TELL TALE HOLE NPT 1/4" WITH VENT PIPE.



7. GASKET MATERIAL FOR ASME B16.20. SPIRAL WOUND (t4.5)
   -FILLER: GRAPHITE
   -INNER RING: 304 S.S.
   -HOOP: 304 S.S.
   -OUTER RING: 304 S.S.
8. SPARE PART (OPTIONAL)

	CONSTRUCTION & COMMISSIONING
GASKETS	100%
STUD BOLTS & NUTS	5% (MIN. 2SETS)

9. ALL EXPOSED SURFACE SHALL BE PAINTED AS FOLLOWS: EXPOSED SURFACE FOR EXTERNAL PARTS: EI027-HSE-VD-QC-PRO-002
   EXPOSED SURFACE OF INTERNAL: NOT PARTS REQUIRED

REFERENCE DRAWING	DWG NO.	REV.
-	-	-

KEY PLAN :

MATERIAL TABLE

DESCRIPTION	DESIGNATION	DESCRIPTION	DESIGNATION
SHELL/HEAD	SA-516 70N	REINFORCING PAD	SA-516 70N
NOZZLE NECK PIPE	SA-333 6	INTERNAL PIPE WELDED/REMOVABLE	SA-333 6
NOZZLE FLANGE/FORGING	SA-350 LF2 CL.1N	INSUL./FIREPROOFING SUPPORT	-
WELDING FITTING	SA-420WPL6	DIRECTLY EXTERNAL WELDED ATTACHMENTS	SA-516 70N
SADDLE	SA-283 C	INTERNAL WELDED/REMOVABLE	SA-516 70N/-
NAME PLATE	S.S. 304	-	-
BOLTS/NUTS MATERIAL		GASKET MATERIAL	
SETTING BOLTS	SA193 B7 / SA194 2H	GASKET	(NOTE 7)
EXTERNAL(BOLTS/NUTS)	SA-320-L7/SA-194-4	-	-
INTERNAL(BOLTS/NUTS)	SA-320-L7/SA-194-4	-	-

WEIGHTS (kg)

FABRICATED	R4 630	SHOP HYDROTEST	R4 1250
OPERATING	900	FIELD HYDROTEST	1250
SHUTDOWN (EMPTY)	630	-	-

LOADING DATA

WIND		SEISMIC	
SHEAR (N)	MOMENT (N.m)	SHEAR (N)	MOMENT (N.m)
200	115	185	R4 111

DESIGN DATA

DESIGN CODE : ASME SEC. VIII DIV.1 (2021 ED.)

PROCESS FLUID	-	WIND / SEISMIC CODE	UBC 97
SERVICE	RECEIVER HEADER	WIND EXPOSURE / VELOCITY	D / 125 (km/h)
STEAM OUT CONDITION	-	Ca/Cv/Nv	0.4/0.56/1
DENSITY	437 Kg/m^3	SEISMIC IMPORTANCE FACTOR/RESPONSE FACTOR	1.25 / 3
DESIGN PRESSURE(INT./EXT.)	22/F.V. BARG	INSULATION DENSITY	- Kg/m^3
OPERATING PRESSURE	18.7 BARG	VOLUME	0.62 m^3
DESIGN TEMPERATURE	120 °C	INSULATION /TYPE	- mm
OPERATING TEMPERATURE	56.2 °C	LADDER & PLATFORM	-
HYDROTEST PRESS.	28.6 BARG	VALVE DAVIT/TOP DAVIT	-
JOINT EFFICIENCY (SHELL/HEAD)	0.85/1	INTERNAL LINING/DENSITY	-
RADIOGRAPHY (SHELL/HEAD)	SPOT/FULL	FIREPROOFING	-
P.W.H.T.	NO	PAINTING/CLEANING	YES(NOTE 9)
M.D.M.T. @ D.P.	-45 °C	EARTING/PIPE SUPPORT CLIP	-
M.A.W.P.	31.309 BARG	FIREPROOFING SUPPORT	-
CORR. ALLOWANCE(SHELL/HEAD)	3 mm	INSULATION SUPPORT	-
S.R. OF HEADS AFTER FORMING	YES	-	-

NOZZLE LIST

NOZZLE MARK	Q'TY /1 SET	SIZE (INCH)	FLANGE RATING	FLANGE THK./SCH.	SERVICE	PROJECTION	REINF. PAD TH'K	REINF. PAD O.D
S5	1	2"	ASME B16.5 300# LWN.RF	16.6/-	INLET	377	-	-
S6	1	1 1/2"	ASME B16.5 300# WN.RF	-/160	OUTLET	SEE DWG.	-	-
EL2	1	1 1/2"	ASME B16.5 300# LWN.RF	15.95/-	EQUALIZATION LINE	377	-	-
D2	1	3/4"	ASME B16.5 300# WN.RF	-/XXS	DRAIN	SEE DWG.	-	-
LG1/2	2	2"	ASME B16.5 300# WN.RF	-/160	LEVEL GAUGE	SEE DWG.	-	-

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R4	19.04.2025	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R3	04.12.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R2	10.11.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R1	20.09.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R0	07.09.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

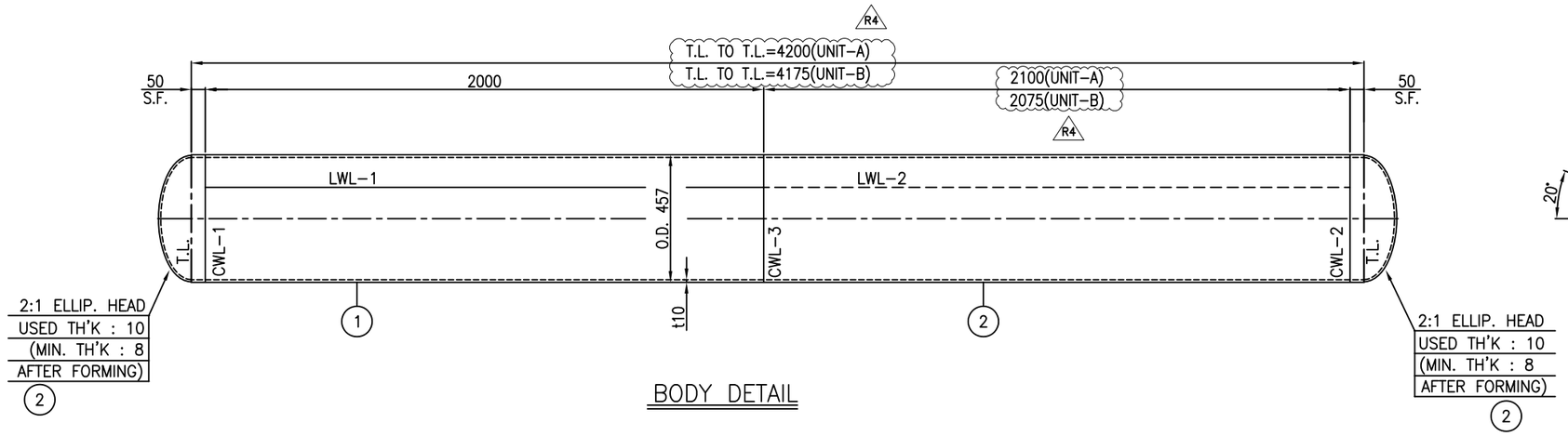
پتروشیمی توسعه پارک صنعتی گوهر افق

CONSULTING ENGINEER

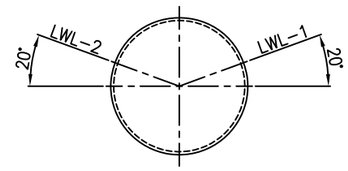
PROJECT: STYRENE PARK OFFSITE

DRAWING TITLE: GENERAL ARRANGEMENT DRAWING FOR RECEIVER HEADER(RU0001A/B-D-02)

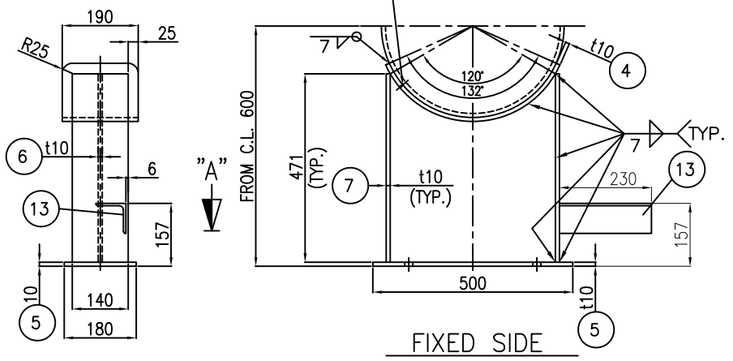
DRAWING NO.	REV.	SIZE	SCALE	SHEET
EI027-HSE-VD-ME-DWG-009	R4	A3	NTC	1 of 4



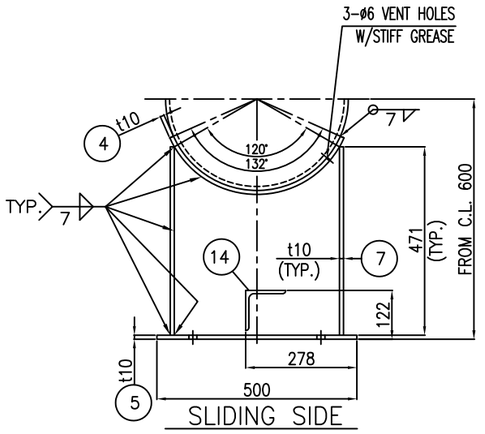
BODY DETAIL



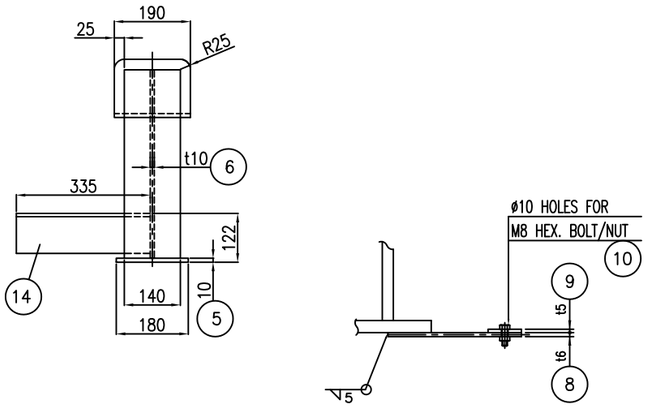
VIEW "A"

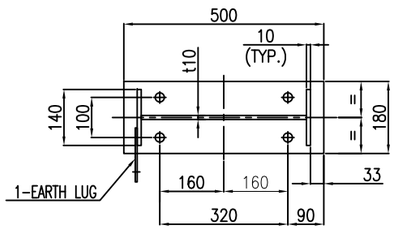


FIXED SIDE

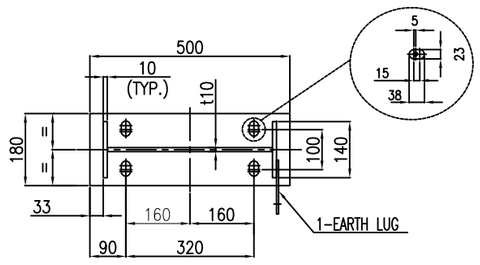


SLIDING SIDE

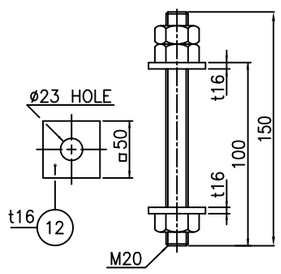




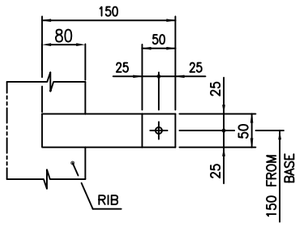
SECTION "A-A"
FIXED SIDE



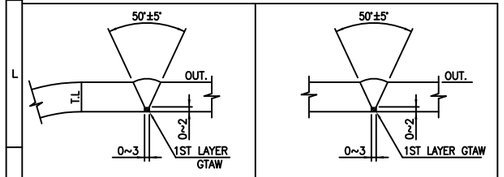
SECTION "A-A"
SLIDING SIDE



11 SETTING B/2NS/2W



EARTH LUG



CWL-1,2

CWL-1,2,3 & LWL-1,2

NOTES

1. UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

* FOR ONE SET

PART NO.	PART NAME	MATERIAL	REGULAR QUANTITY	SPARE QUANTITY	SPECIFICATION	REMARK
14	PIPE SUPPORT	SA36	1		L 100x100x8, L=335	
13	PIPE SUPPORT	SA36	1		L 75x75x6, L=230	
12	WASHER	SA283-C	32		t16 x □150 (HOT DIP GALV)	
11	SETTING BOLT/2NUTS	SA193-B7/SA194-2H	8SETS		M20 x L150 (HOT DIP GALV)	
10	HEX. BOLT/NUT	S.S. 304	2SETS		M8 x L25	
9	COPPER PLATE	SEE NOTE "2"	2		t5 x 50 x 50	
8	EARTH LUG	S.S 304	2		t6 x 50 x 150	
7	SUPPORT RIB	SA283-C	4		t10 x 140 x 471	
6	WEB PLATE	SA283-C	2		t10 x 471 x 414	
5	BASE PLATE	SA283-C	2		t10 x 180 x 500	
4	WEAR PLATE	SA516-70N	2		t10 x 190 x 538	
3	HEAD	SA516-70N	2		USED THK.10 (2:1 ELLIP.)	
2	SHELL	SA516-70N	1		t10 x 2100 x 1404 t10 x 2075 x 1404	R4
1	SHELL	SA516-70N	1		t10 x 2000 x 1404	

BILL OF MATERIAL

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R4	19.04.2025	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R3	04.12.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R2	10.11.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R1	20.09.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R0	07.09.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

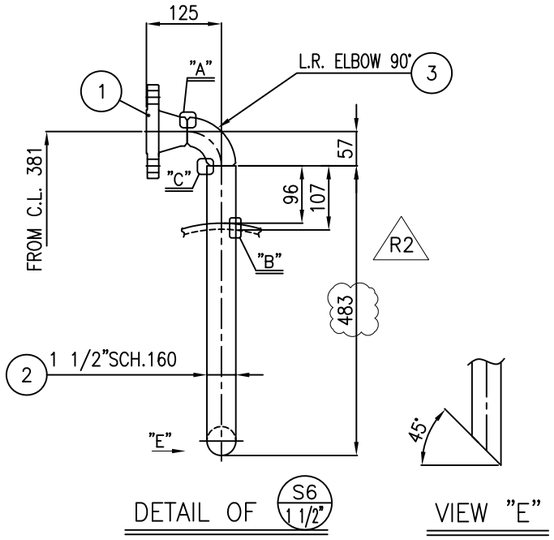
پتروشیمی توسعه پارک صنعتی گوهر افق

CONSULTING ENGINEER

PROJECT: STYRENE PARK OFFSITE

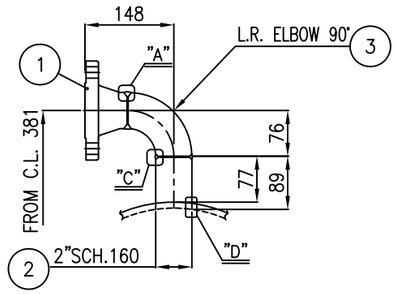
DRAWING TITLE: BODY DETAIL DRAWING FOR RECEIVER HEADER(RU0001A/B-D-02)

DRAWING NO.	REV.	SIZE	SCALE	SHEET
E1027-HSE-VD-ME-DWG-009	R4	A3	NTC	2 of 4

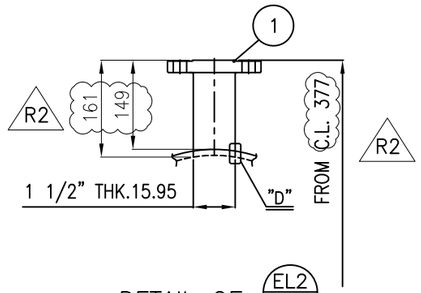


DETAIL OF S6 / 1 1/2"

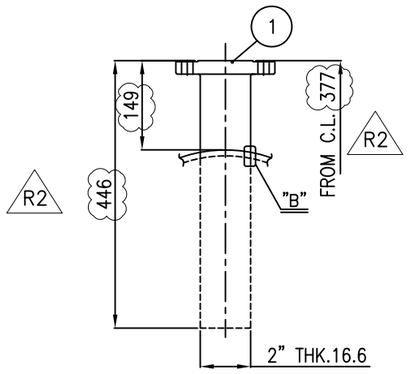
VIEW "E"



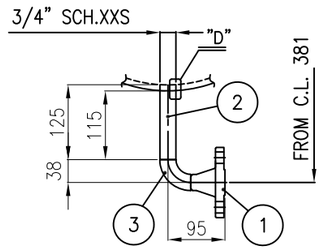
DETAIL OF LG1 2" / LG2 2"



DETAIL OF EL2 / 1 1/2"



DETAIL OF S5 / 2"



DETAIL OF D / 3/4"

NOTES

1. UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.

BILL OF MATERIAL FOR ONE SET

LG2	3	ELBOW	SA420-WPL6	2		2" SCH. 160 , LR 90°	
	2	NOZZLE NECK	SA333-6	2		2" SCH.160 x L89	
	1	FLANGE (SCH.160)	SA350-LF2 CL.1N	2		2" ASME 300# WN.RF	
S6	3	ELBOW	SA420-WPL6	1		1 1/2" SCH. 160 , LR 90°	
	2	NOZZLE NECK	SA333-6	1		1 1/2" SCH.160 x L483	R2
	1	FLANGE (SCH.160)	SA350-LF2 CL.1N	1		1 1/2" ASME 300# WN.RF	
EL2	1	FLANGE (THK.15.95)	SA350-LF2 CL.1N	1		1 1/2" ASME 300# LWN.RF	
S5	1	FLANGE (THK.16.6)	SA350-LF2 CL.1N	1		2" ASME 300# LWN.RF	
D	3	ELBOW	SA420-WPL6	1		3/4" SCH.XXS , LR 90°	
	2	NOZZLE NECK	SA333-6	1		3/4" SCH.XXS x L125	
	1	FLANGE (SCH.XXS)	SA350-LF2 CL.1N	1		3/4" ASME 300# WN.RF	

NOZZLE NO.	PART NO.	PART NAME	MATERIAL	REGULAR QUANTITY	SPARE QUANTITY	SPECIFICATION/REMARK

BILL OF MATERIAL

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R2	10.11.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R1	20.09.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R0	07.09.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

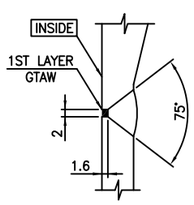
پتروشیمی توسعه پارک صنعتی گوهر افق

CONSULTING ENGINEER

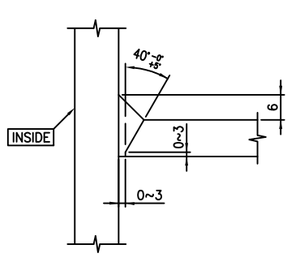
PROJECT: STYRENE PARK OFFSITE

DRAWING TITLE: NOZZLE DETAIL DRAWING FOR RECEIVER HEADER(RU0001A/B-D-02)

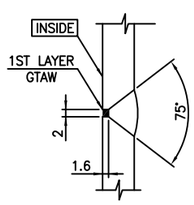
DRAWING NO.	REV.	SIZE	SCALE	SHEET
EI027-HSE-VD-ME-DWG-009	R2	A3	NTC	3 of 4



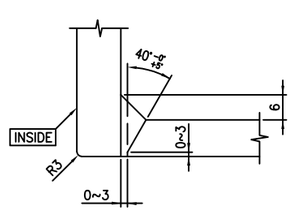
DETAIL "A"



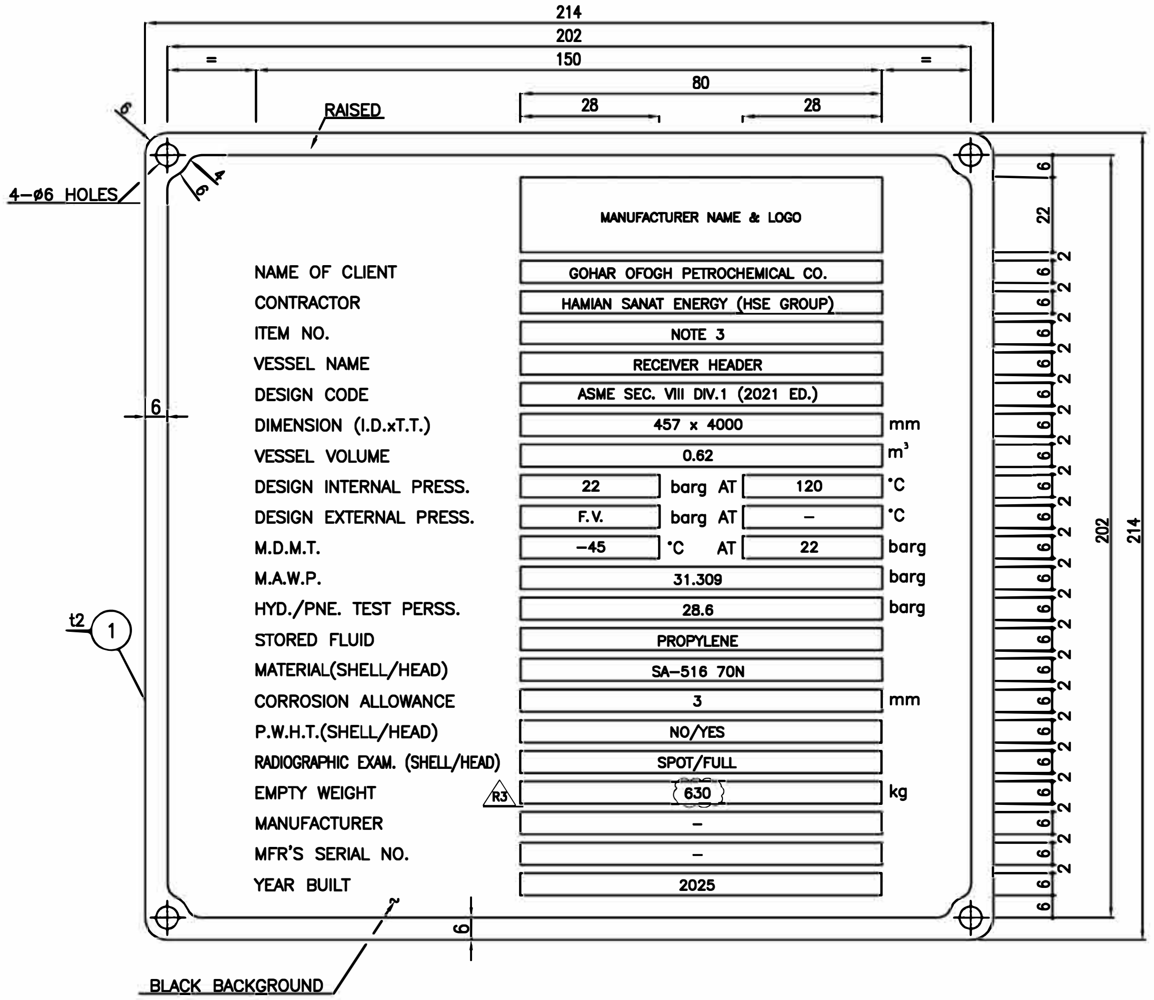
DETAIL "B"



DETAIL "C"

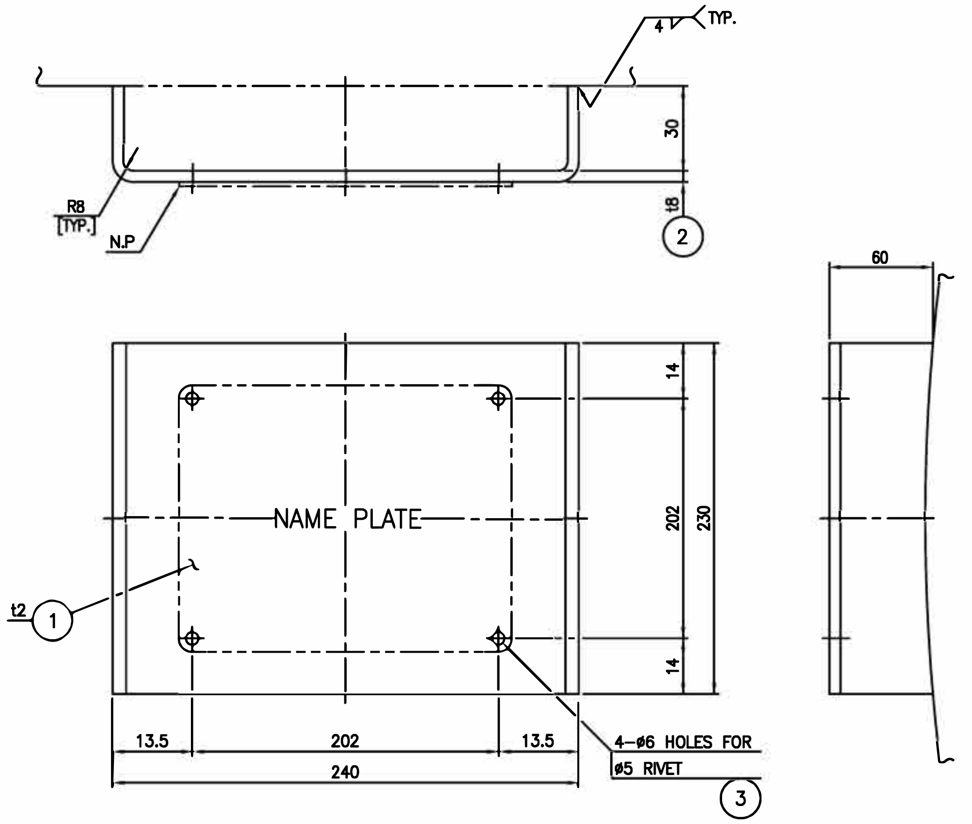


DETAIL "D"



	MANUFACTURER NAME & LOGO	
NAME OF CLIENT	GOHAR OFOGH PETROCHEMICAL CO.	
CONTRACTOR	HAMIAN SANAT ENERGY (HSE GROUP)	
ITEM NO.	NOTE 3	
VESSEL NAME	RECEIVER HEADER	
DESIGN CODE	ASME SEC. VIII DIV.1 (2021 ED.)	
DIMENSION (I.D.xT.T.)	457 x 4000	mm
VESSEL VOLUME	0.62	m^3
DESIGN INTERNAL PRESS.	22 barg AT 120	°C
DESIGN EXTERNAL PRESS.	F.V. barg AT –	°C
M.D.M.T.	–45 °C AT 22	barg
M.A.W.P.	31.309	barg
HYD./PNE. TEST PERSS.	28.6	barg
STORED FLUID	PROPYLENE	
MATERIAL(SHELL/HEAD)	SA–516 70N	
CORROSION ALLOWANCE	3	mm
P.W.H.T.(SHELL/HEAD)	NO/YES	
RADIOGRAPHIC EXAM. (SHELL/HEAD)	SPOT/FULL	
EMPTY WEIGHT R3	630	kg
MANUFACTURER	–	
MFR'S SERIAL NO.	–	
YEAR BUILT	2025	

NAME PLATE



NAME PLATE BRACKET

NOTES

1. ALL LETTERS, BLOCKS, AS WELL AS EDGES, SHALL HAVE RAISED POLISHED FACE–RELIEF 0.5MM APPROX.
2. LETTERS TO BE GOTHIC TYPE
3. EACH NAME PLATE ID MARKED WITH ITS SPECIFIC ITEM NO.(RU0001A–D–02 AND RU0001B–D–02)

PART NO.	PART NAME	MATERIAL	QUANTITY REGULAR	QUANTITY SPARE	SPECIFICATION	REMARK
3	RIVET	S.S. 304	4		ø5	
2	NAME PLATE BRACKET	SA516–70N	1		t8 x 214 x 330	
1	NAME PLATE	304 S.S	1		t2 x 214 x 214	

B I L L   O F   M A T E R I A L

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R3	19.04.2025	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R2	04.12.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R1	10.11.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.
R0	20.09.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

پتروشیمی توسعه پارک
صنعتی گوهر افق

CONSULTING ENGINEER

PROJECT: STYRENE PARK OFFSITE

DRAWING TITLE:

NAME PLATE DRAWING FOR
RECEIVER HEADER(RU0001A/B–D–02)

DRAWING NO.	REV.	SIZE	SCALE	SHEET
–	R3	A3	NTC	4 of 4