STYRENE PARK OFFSITE

Document Title:

Chiller (Evaporator) Outline Drawing

R0	15-05-2024	IFA	F.sh	M.O	A.M
Rev.	**Issued Date**	**DESCRIPTION**	**PREPARED**	**CHECKED**	**APPROVED**

REVISION RECORD SHEET

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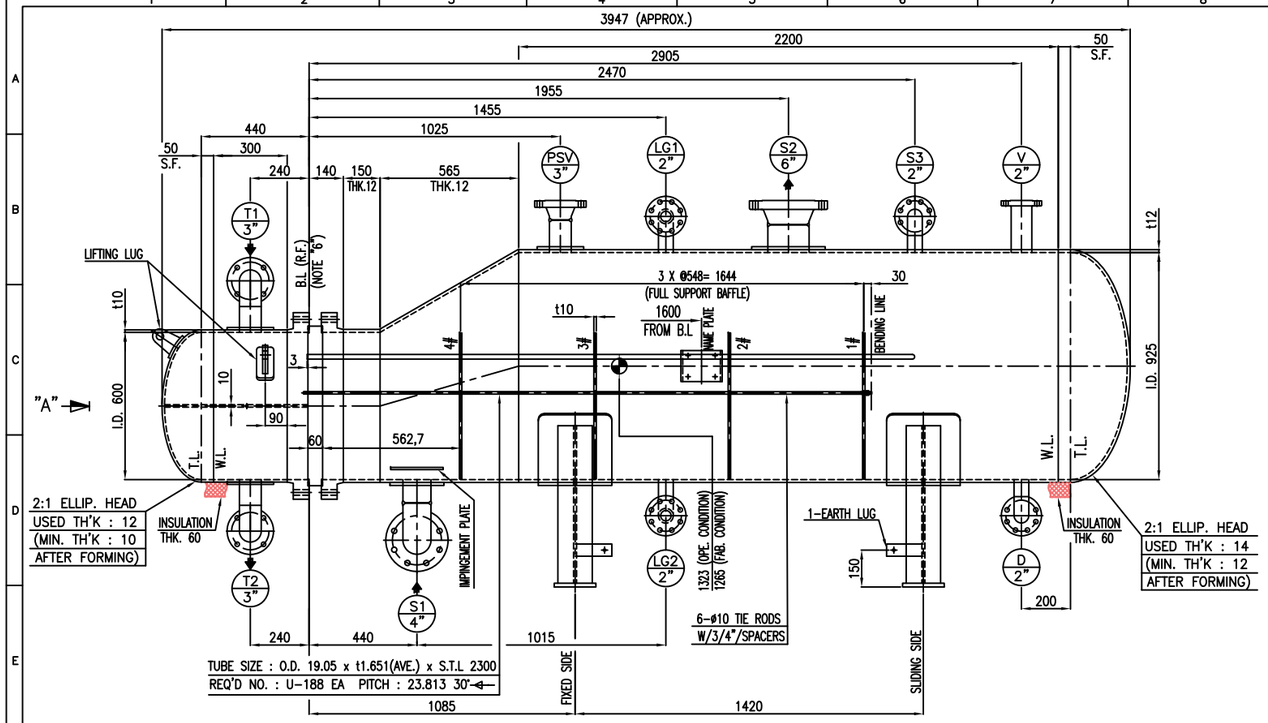
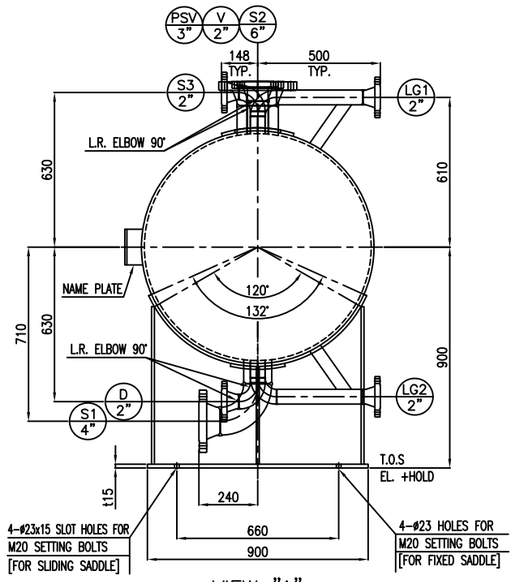
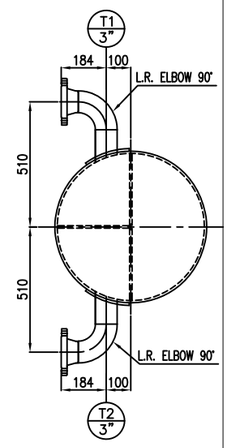
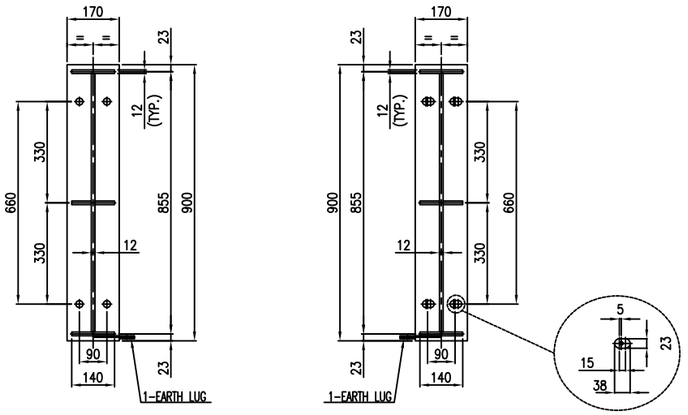




VIEW "A"
(FOR SHELL SIDE ONLY)

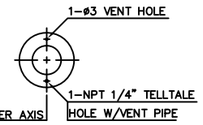


VIEW "A"
(FOR CHANNEL SIDE ONLY)



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 :

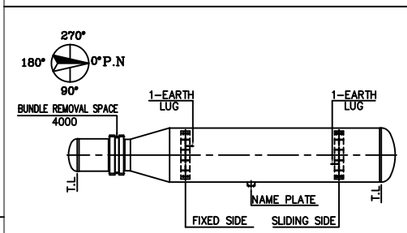


TABLE FOR FOUNDATION LOAD DATA

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	–	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/60	COLD/60
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	675	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
D	1	2"	ASME B16.5 300# L.WN.RF	160	SHELL SIDE DRAIN	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# L.WN.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
00	05.20.2024	ISSUED FOR APPROVAL (IFA)	SH.Azagh	S.Behnia far	R.Memar

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	00	A3	NTC	1 of 1