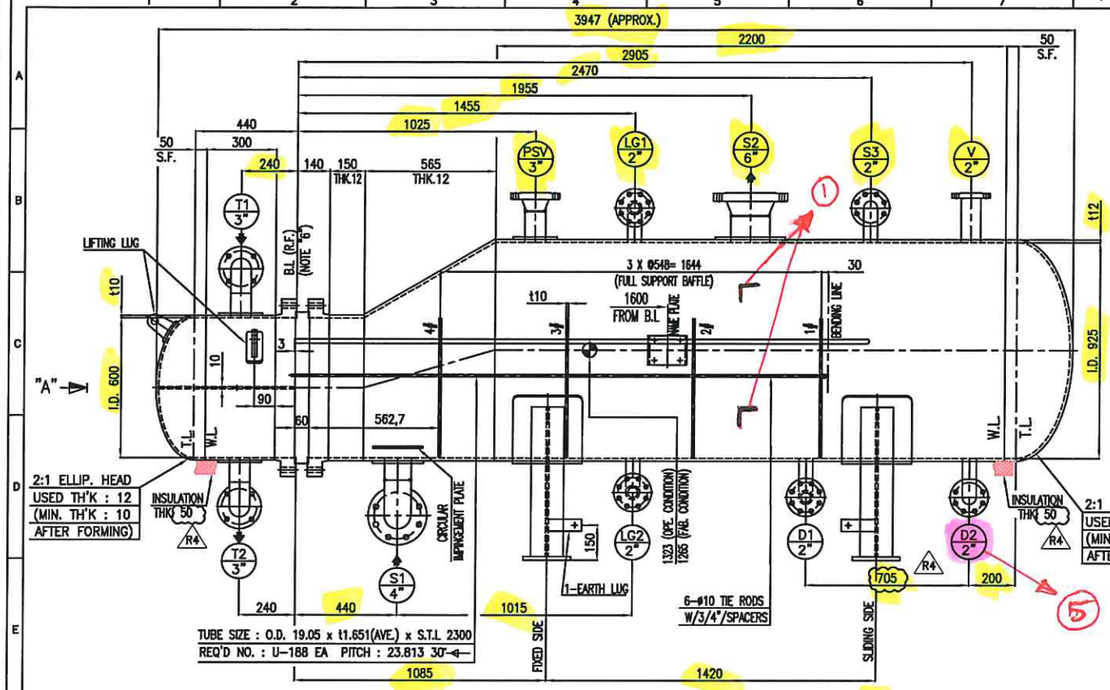


① ANGLE SUPPORTS 2" x 2" x 1/4" AT 1935 mm FROM B.L. (2 Nos.) WELDED TO CHILLER.

② HORIZONTAL PROJECTION OF SUPPORTS FROM CENTER OF CHILLER VESSEL - 675 mm.

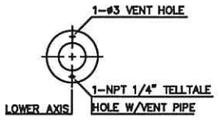
③ ELEVATION OF LOWER SUPPORT AT 685 mm FROM SADDLE BOTTOM.

④ ELEVATION OF UPPER SUPPORT AT 1175 mm FROM SADDLE BOTTOM.

⑤ NOZZLE D2 TO BE ROTATED 180°.

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 :

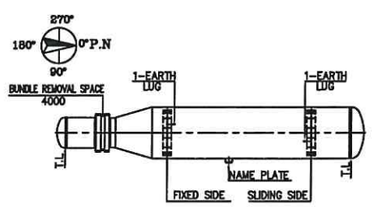


TABLE FOR FOUNDATION LOAD DATA

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
DESIGN (INT.EXT.) TEMP. (°C)	120/85	85	SEISMIC IMPORTANCE FACTOR/RESPONSE FACTOR: 1.25 / 3 R4
DESIGN (INT.EXT.) STEAM OUT CONDITION	–	–	INSULATION (TYPE/THK.): COLD/50 COLD/50
OPER. (IN/OUT) PRESS. barg	3.813	4.5	FIRE PROOFING (mm): –
OPER. (IN/OUT) TEMP. (°C)	1.24/1	15.2/5	PAINTING: SEE NOTE "12"
CORROSION ALLOWANCE (mm)	3	3	TUBE TO TUBESHEET JOINT: HEAT EXPANDED AND 2 GROOVES AND 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	HG–200(1) NOTE (13)	HG–200(1) NOTE (13)	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 (M²): 61.76
M.A.P (NEW & COLD) barg	22	6.8	VOLUME (M³): 1.65 0.38
P.W.H.T	NO	NO	FLUID DENSITY (kg/m³): 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
T1	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.	–	–

22.10.24

REV.	ISSUE DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
R4	10.18.2024	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	04.21.2024	ISSUED FOR APPROVAL (IFA)	D.SH.	M.O.	A.M.

CLIENT

CONSULTING ENGINEER

PROJECT:

DRAWING TITLE:

GENERAL ARRANGEMENT DRAWING FOR CHILLER (EVAPORATOR)

DRAWING NO.	REV.	SIZE	SCALE	SHEET
EI027–HSE–VD–ME–DWG–008	R4	A3	NTC	1 of 8