



- NOTES
- UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.
 - UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L. OF EXCHANGER TO THE EXTREME FACE OF NOZZLE.
 - ALL WELDS CONTINUOUS EXCEPT NOTED.
 - BOLT HOLES FOR FLANGES SHALL BE STRADDLED TO EQUIPMENT MAIN AXIS.
 - ALL R.F. FLANGES SHALL HAVE SMOOTH FINISH FACING WITH RA= 3.2mm TO RA= 6.3mm
 - BASE LINE (B.L.) INDICATES THE GASKET CONTACT SURFACE OF TUBE SHEET.
 - 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 (14.5)
 - FILLER: GRAPHITE
 - INNER RING: 304 S.S.
 - HOOP: 304 S.S.
10. GASKET MATERIAL: SPIRAL WOUND (14.5)
 - 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: E027-HSE-VD-QC-PRO-002 EXPOSED SURFACE OF INTERNAL: NOT PARTS REQUIRED
13. 1/1.4 FACTOR FOR LOAD COMBINATION 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 DISCLAIMER PURPOSES SUCH AS AFTER HYDROTEST TO BE CLEANED AND DRIED.

① CHANGE NOZZLE TAG "D" TO "D2".
 ② ADD DRAIN NOZZLE "D1" - 2" AT 1855 MM FROM B.L.
 ③ ORIENTATION & PROJECTION OF NOZZLE D1 AS INDICATED ABOVE.
 ④ WIDTH OF SADDLE TO BE INCREASED TO 205MM FROM 170MM. DISTANCE BETWEEN BOLT HOLES TO BE INCREASED TO 120MM FROM 90MM.

TABLE FOR FOUNDATION LOAD DATA

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

MATERIALS

SHELL		GENERAL	
BARREL	SA516-70N	SLIDING BAR/ROD	SA516 70/SA38
FLANGES	-	SEALING STRIP	SA516 70
NOZZLE FROM PIPE	SA333-6	DUMMY TUBE/SEAL ROD	-
NOZZLE FROM PLATE	SA516-70N	BLUNDED NOZZLE BOLT/NUT	SA320 L7/SA194-4
NOZZLE FLANGES	SA350-LF2 CL1N	BLUNDED 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	SA286-2N	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/MP. 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 (m/s)	D / 125
DESIGN (INT.EXT.)	PRESS. (barg)	22/F.V.	6.8
	TEMP. (°C)	120/85	85
	SEISMIC IMPULSE FACTOR/RESPONSE FACTOR	1.25 / 3	
	STEAM OUT CONDITION	-	INSULATION (TYPE/THK.)
	PRESS. (barg)	3.813	4.5
	TEMP. (°C)	1.24/1	15.2/5
	CORROSION ALLOWANCE (mm)	3	3
	JOINT EFFICIENCY (S/H)	1.0/1.0	1.0/1.0
	RADIOGRAPHY (S/H)	FULL/FULL	FULL/FULL
	HYDRO. TEST PRESS. (SHOP/FIELD)	28.6/28.6	8.84/8.84
	HYDRO. TEST TYPE	IS-2001	IS-2001
	PNEUM. TEST PRESS. (barg)	-	-
	M.D.M.T. (°C)	-45	-29
	MAP (HOT & CORRODED) (barg)	22	6.8
	MAP (NEW & COLD) (barg)	22	6.8
	P.W.H.T.	NO	NO
	IMPACT TEST	NO	NO
	SR OF HEND AFTER COLD FORMING	YES	YES

NOZZLE LIST

NOZZLE MARK	QTY	SIZE (INCH)	FLANGE RATING	SCH.	SERVICE	H/EX. C.I. PROJECTION	REINF. THK	O.D.
S1	1	4"	ASME B16.5 3004 WLRP	120	SHELL SIDE INLET	SEE DWG.	12	220
S2	1	6"	ASME B16.5 3004 WLRP	80	SHELL SIDE OUTLET	675	12	300
T1	1	3"	ASME B16.5 1504 WLRP	80	CHANNEL SIDE INLET	SEE DWG.	10	190
T2	1	3"	ASME B16.5 1504 WLRP	80	CHANNEL SIDE OUTLET	SEE DWG.	10	190
D	1	2"	ASME B16.5 3004 WLRP	160	SHELL SIDE DRAIN	SEE DWG.	-	-
LG1	1	2"	ASME B16.5 3004 WLRP	160	LEVEL GAUGE	SEE DWG.	-	-
LG2	1	2"	ASME B16.5 3004 WLRP	160	LEVEL GAUGE	SEE DWG.	-	-
PSV	1	3"	ASME B16.5 3004 WLRP	160	PRESSURE SAFETY VALVE	675	12	190
V	1	2"	ASME B16.5 3004 WLRP	118.6	VENT	675	-	-
S3	1	2"	ASME B16.5 3004 WLRP	160	SHELL SPARE/PURGE	SEE DWG.	-	-

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

REFERENCE DRAWING

REFERENCE DRAWING	DWG NO.	REV.
-	-	-

KEY PLAN :

CONSULTING ENGINEER

PROJECT:

DRAWING TITLE:
GENERAL ARRANGEMENT DRAWING FOR CHILLER (EVAPORATOR)

DRAWING NO.	REV.	SIZE	SCALE	SHEET
E027-HSE-VD-ME-DWG-008	00	A3	NTC	1 of 1

19.07.24