



- NOTE
- 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= 3.2µm TO RA= 6.3µm
  - 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.
- 1-Ø3 VENT HOLE  
1-NPT 1/4" TELLTALE HOLE W/VENT PIPE
- DIMENSIONS REFER TO BAFFLES ARE MEASURED FROM C.L. OF EACH PLATE.
  - GASKET MATERIAL FOR ASME B16.20: SPIRAL WOUND (14.5)  
-FILLER: GRAPHITE  
-INNER RING: 304 S.S.  
-HOOP: 304 S.S.
  - OUTER RING: 304 S.S.
  - GASKET MATERIAL: SPIRAL WOUND (14.5)  
-FILLER: GRAPHITE  
-INNER RING: 304 S.S.  
-HOOP: 304 S.S.
11. SPARE PART
- |                   | CONSTRUCTION & COMMISSIONING |
|-------------------|------------------------------|
| GASKETS           | 100%                         |
| STUD BOLTS & NUTS | 5% (MIN. 2SETS)              |
- ALL EXPOSED SURFACE SHALL BE PAINTED AS FOLLOWS: EXPOSED SURFACE FOR EXTERNAL PARTS: VD-GPIC-MA-3029-3029-0063  
EXPOSED SURFACE OF INTERNAL: NOT PARTS REQUIRED
  - 1/1.4 FACTOR FOR LOAD COMBINATION HAS BEEN APPLIED
  - TUBES SHALL BE SEAMLESS
  - GASKET CONTACT SURFACE OF TUBE SHEET & GIRTH FLANGE: RA= 1.6µm (MAX)

TABLE FOR FOUNDATION LOAD DATA (CONDENSER)

SEISMIC (NOTE 13)		WIND	
SHEAR (kgf)	MOMENT (kgf-m)	SHEAR (kgf)	MOMENT (kgf-m)
4151	6330	975	1487

LEGEND

- B.L. = BASE LINE
- C.L. = CENTER LINE
- C.O.G. = CENTER OF GRAVITY
- EL = ELEVATION
- M.A.W.P. = MAXIMUM ALLOWABLE WORKING PRESSURE
- M.D.M.T. = MINIMUM DESIGN METAL TEMP.
- P.W.H.T. = POST WELD HEAT TREATMENT
- R.F. = RAISED FACE
- S.R. = STRESS RELIEVE
- S.F. = STRAIGHT FLANGE
- T.L. = TANGENT LINE
- T.O.S. = TOP OF STRUCTURE
- W.L. = WELD LINE
- W.N. = WELDING NECK
- L.W.N. = LONG WELDING NECK

KEY PLANE

MATERIALS

SHELL		GENERAL	
BARREL	SA-516 70N	SLIDING BAR/ROD	SA-516 70/SA-36
FLANGES	-	SEALING STRIP	-
NOZZLE FROM PIPE	SA333-6	DUMMY TUBE/SEAL ROD	-
NOZZLE FROM PLATE	-	BLINDED NOZZLE BOLT/NUT	SA320 L7/SA194-4
NOZZLE FLANGES/FORGED NOZZLE	SA350-LF2 CL.1N	BLINDED NOZZLE GASKET (NOTE 9)	-
COUPLINGS & PLUGS	-	TEST RING	-
NOZZLE REINF. PAD	SA-516 70N	GASKETS	
EXCHANGERS SUPPORTS	SA-516 70N	SHELL/COVER	-
SUPPORT WEAR PLATE	SA-516 70N	SHELL/TUBESHEET	-
STIFFENING RINGS	-	CHANNEL/TUBESHEET (NOTE 10)	-
EXPANSION JOINT	-	CHANNEL/COVER	-
LINING	-	FLOATING HEAD	-
SHELL COVER		FLOATING HEAD	
BARREL	-	COVER	-
COVER	-	FLANGES	-
FLANGES	-	SPLIT RING	-
CHANNEL		BOLTS & NUTS	
BARREL	SA-516 70N	SHELL/COVER	-
FLANGES	SA350-LF2 CL.1N	SHELL/CHANNEL	SA320-L7/SA194-4
COVER	SA-516 70N	CHANNEL/COVER	-
FLAT COVER	-	FLOATING HEAD	-
NOZZLE FROM PIPE	SA333-6	SETTING BOLTS/NUTS	SA193 B7 / SA194 2H
NOZZLE FROM PLATE	SA-516 70N	TUBE BUNDLE	
NOZZLE FLANGES/FORGED NOZZLE	SA350-LF2 CL.1N	TUBES	SA334-6
COUPLINGS & PLUGS	-	TUBESHEETS	SA350-LF2 CL1N
NOZZLE REINF. PAD	SA-516 70N	BAFFLES/SUPPORTS/MP. PLATE	SA 516-70N
PARTITION PLATES	SA-516 70N	TIE RODS & SPACERS	SA 36/SA 179

DESIGN DATA

CODE	ASME SEC. VIII DIV.1 (2021 ED.)		TYPE	BEM/HORIZONTAL	
TEMA CLASS	TEMA 10TH ED. (CLASS "R")		CODE STAMP	NO	
LOCAL REGULATION	NO		WIND / SEISMIC CODE	ASCE 7-2016	
FLUID	PROPYLENE	HEXANE	DESIGN CATEGORY/SITE CLASS	D/C	
DESIGN (INT./EXT.)	PRESS. barg	25/F.V.	WIND EXPOSURE / VELOCITY (km/h)	C / 202	
TEMP. (°C)	125	125	Fa/Fv/Ss/S1/Sds/Sd1	1.09/1.25/1.11/0.4/0.81/0.33	
STEAM OUT CONDITION	-	-	SEISMIC IMPORTANCE FACTOR/RESPONSE FACTOR	1.25 / 3	
OPER. (IN/OUT)	PRESS. barg	1.617	INSULATION (TYP/THK. mm)	COLD/50	COLD/50
TEMP. (°C)	-24.43/-24.05	-16/-20.5	INSULATION DENSITY Kg/m³	230	230
CORROSION ALLOWANCE (mm)	3	3	FIRE PROOFING THK./DENSITY	- Kg/m³	
JOINT EFFICIENCY (S/H)	1.0/1.0	1.0/1.0	PAINTING	NOTE 12	
RADIOGRAPHY (S/H)	FULL/FULL	FULL/FULL	TUBE TO TUBESHEET JOINT	HEAVY ENRICHED WITH 2 OR MORE MM SEAL WELD	
HYDRO. TEST PRESS. (SHOP/FIELD) barg	32.5/32.5	32.5/32.5	NO. OF PASS	1(ONE)	2(TOW)
HYDRO. TEST TYPE	UG-99b (boothole 35)	UG-99b (boothole 35)	BUNDLE (KG)	6500	
PNEUM. TEST PRESS. barg	-	-	ERECTION (KG)	15400	
M.D.M.T (NOTE-26) (°C)	-45	-45	FABR. (KG)	11200	
M.A.W.P (HOT & CORRODED) barg	25	25	OPER. (KG)	20300	
M.A.P (NEW & COLD) barg	25	25	SHOP TEST (KG)	18400	
P.W.H.T.	NO	NO	FIELD TEST (KG)	18150	
IMPACT TEST	NO	NO	SURFACE AREA/SHELL (M²)	-	
S.R OF HEAD AFTER COLD FORMING	NO	NO	VOLUME (M³)	4.8	0.9
SHELL SIDE	TUBE SIDE	FLUID DENSITY (kg/m³)	579.45	698.16	
		MEAN METAL TEMP. (°C)	50	44	

NOZZLES TABLE

ITEM	SERVICE	QTY.	SIZE	CONNECTION		NECK	REINF. PAD	PROJ. (NOTE 2)	REMARKS	
				TYPE	RATING					SCH.
N1A-D	PROPYLENE INLET	4	6"	W.N.	300#	R.F.	80	-	270 14	SEE DWG.
B1A-D	PROPYLENE INTERMEDIATE	4	6"	W.N.	300#	R.F.	80	-	270 14	762
N1E-H	PROPYLENE INTERMEDIATE	4	6"	W.N.	300#	R.F.	80	-	270 12	658
N2	PROPYLENE OUTLET	1	12"	W.N.	300#	R.F.	80	-	480 12	SEE DWG.
N3	PROCESS INLET	1	14"	W.N.	300#	R.F.	-	-	14 560 14	SEE DWG.
N4	PROCESS OUTLET	1	14"	W.N.	300#	R.F.	-	-	14 560 14	SEE DWG.
N5	PROPYLENE VENT	1	2"	W.N.	300#	R.F.	160	-	-	660
N6	PROPYLENE DRAIN	1	2"	W.N.	300#	R.F.	160	-	-	SEE DWG.
N10	LEVEL TRANSMITTER	1	2"	W.N.	300#	R.F.	160	-	-	SEE DWG.
N11	LEVEL TRANSMITTER	1	2"	W.N.	300#	R.F.	160	-	-	SEE DWG.
N13	OIL RECOVERY BOOT	1	6"	-	-	-	-	-	-	SEE DWG.
N14	RELIEF VALVE	1	3"	W.N.	300#	R.F.	160	-	190 12	660
N15	SPARE PURGE	1	1 1/2"	W.N.	300#	R.F.	160	-	-	SEE DWG.
S-11	OIL RECOVERY BOOT	1	3/4"	W.N.	300#	R.F.	XXS	-	-	SEE DWG.

REFERENCE DOCUMENTS

DOC. NO.

DATE: 26.AUG.25

Signature: [Signature]

Scale: 1:1

PO No.: GPIC-PT-MA-PO-000-3029

DRAWING TITLE: EVAPORATOR (CHILLER) DRAWING

DRAWING NO. VD-GPIC-MA-3029-3029-0089

REV. SHEET NO. SIZE: 00 1 OF 1 A3