PPI / NARGAN	DEHDASHT PETROCHEMICAL INDUSTRY COMPANY DEHDASHT HIGH DENSITY POLYETHYLENE PROJECT	PGPIC	
	DOCUMENT TITLE: Condenser Data Sheet	POI: IFA	Rev.: D0
Contract No.: DPIC/98-12	DOCUMENT NUMBER: DPIC9812-000-VD-1002-ME-DS-0075	Sheet 1 of 5	

Instrument Nozzles will be checked after finalization of P&ID

Condenser Data Sheet

PURCHASER'S COMMENT/APPROVAL STATUS		Purchaser: NARGAN
1	AP: Approved (Released for Manufacturing)	Requisition No.: DPIC98-12-001-000-ME-MR-4150-0001-D1
2	AN: Approved With Minor Comments (Fabrication may Proceed)	
X	NF: Approved With Comments (Fabrication not Proceed)	Item No. (Tag No.): PK-6101
4	RJ: Rejected	
5	NR: Not be Returned	Vendor Doc. No.: DPIC9812-000-VD-1002-ME-DS-0075-D0
Date: 20.11.2021	Signature: A.AB	

REV	DATE ISSUE	PREPARED	CHECKED	APPROVED
D0	30.Oct.21	A.VOSOUGH	DR.A.NEJATI	DR.A.NEJATI

KASRAVAND Engineering & Construction

PPI / NARGAN	**DEHDASHT PETROCHEMICAL INDUSTRY COMPANY** **DEHDASHT HIGH DENSITY POLYETHYLENE PROJECT**	PGPIC
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1	x				
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DEHDASHT PETROCHEMICAL INDUSTRY COMPANY

DEHDASHT HIGH DENSITY POLYETHYLENE PROJECT

Note:
1- Please specify the thickness of shell.

IT TITLE: Condenser Data Sheet | **POI: IFA** | **Rev. : D0**

IT NUMBER: DPIC9812-000-VD-1002-ME-DS-0075 | **Sheet 3 of 5**

1	SERVICE	CONDENSER					ITEM	E-PK1601-2
2	DIAM. X LENGTH	1180 X 6000 mm		MOUNTIN	HORIZONTAL		TYPE	BEM
3	NO. OF UNIT	1		SURFACE PER UNIT	656.2	m²	IN PARALLEL	1
4	SHELLS PER UNIT	1		SURFACE PER SHELL	656.2	m²	IN SERIES	1
5	TEMA CLASS	R		REQUIRED OVERDESIGN	10% FLOW		CODE	TEMA 9TH ED
6	**PERFORMANCE**							
7			SHELL SIDE			TUBE SIDE		
8	FLUID CIRCULATED		PROPYLENE			COOLING WATER		
9	FLUID QUANTITY, TOTAL	kg/h	27626 x 1.1			230911 x 1.1		
10			IN	OUT		IN	OUT	
11	VAPOUR	kg/h	30385	-		-	-	
12	LIQUID	kg/h	-	30385		254002	254002	
13	NON CONDENSABLES	kg/h	-	-		-	-	
14	TEMPERATURE	°C	80.3	48.33		35	45	
15	DENSITY at T and P (Vap./Liq.)	kg/m³	35.84 /	/ 462.02		/ 994.45	/ 990.56	
16	VISCOSITY at T and P (Vap./Liq.)	cP	0.011 /	/ 0.06		/ 0.719	/ 0.5964	
17	MOLECULAR WEIGHT							
18	SPECIFIC HEAT (Vap./Liq.)	kJ/kg		/ 3.321		/ 4.171		
19	THERMAL CONDUCTIVITY (Vap./Liq.)	W/m.K		/ 0.0898		/ 0.6231	/ 0.6371	
20	LATENT HEAT	kj/kg	282.4	282.7				
21	INLET PRESSURE (abs)	bar	19.937	19.90		5.5	5.31	
22	VELOCITY (Mean/Max)	m/s	0.66 /	1.46		0.88 /	0.88	
23	PRESSURE DROP (Allowable/Calculated)	bar	0.1	0.03482		0.5	0.1906	
24	FOULING RESISTANCE (I	m²·K/W		0.0002		0.0004	0.00051	Ao based
25	TYPE OF CLEANING MAI		☐ NONE	☑ MECH.	☐ CHEM.	☐ NONE	☑ MECH	☐ CHEM
26	HEAT EXCHANGED	kW	MTD (CORRECTED)					
27	TRANSFER RATE: S		572.1	CLEAN:	966			
28	**CONSTRUCTION**							
29	DESIGN PRESSURE	barg	23			23		
30	VACUUM PRESSURE	barg	-1.01			-1.01		
31	TEST PRESSURE	barg	43.46			29.9		
32	DESIGN TEMPERATURE	°C	120			80		
33	MIN. DESIGN METAL TEMPERATURE	°C	-45			-45		
34	NUMBER PASSES PER SHELL		1			4		
35	CORROSION ALLOWANCE		3					
36	PARTICULAR SERVICE		-					
37	PROVIDE X-RAY		FULL			FULL		
38	PROVIDE STRESS RELIEVING		☐ CHANNEL	☐ BUNDLE	☐ SHELL			

Refer to utility and site condition, Jacketed water temperature is 37-47C.

CW velocity is low shall be increased up to 1m/s.

up to 1 bar is accepted.

6.914 bara based on utility and site condition.

Propylene fouling factor is considered 0.00017 in hexan chiller calculations. Please clarify which one is correct.

Mechanical cleaning is not possible due to specified TEMA type.

will be finalized after receiving compressor data sheet

0.0002 based on utility and site condition.

Please clarify case on Full vacuum.

-4

design temperature of JSW is 190C.

Please check which one shall be done

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CONSTRUCTION OF ONE SHELL

TUBE TYPE :	☑ PLAIN ☐ FINNED		SHELL OD	1210	mm	BAFFLE TYPE	SINGLE SEG.
TUBE OD:	19.05	mm	SHELL ID	1180	mm	ORIENTATION	VERTICAL
TUBE THK (avg):	2.11	mm	IMPINGEMENT PROTECTION	YES		BAFFLE NO.	25 #
TUBE LENGTH:	6000	mm	OUTER TUBE LIMIT	1167	mm	BAFFLE THK.	8 mm
TUBE NO:	1876	#	TUBESHEET THK	65	mm	BAFFLE CUT	35 %
PITCH:	24	mm	TUBE TO TUBESHEET JOINT			C/C SPACING	210 mm
☐ 30°	☑ 60°		☑ WELD ☑ EXPAND ☑ GROOVES			INLET SPACING	400 mm
☐ 90°	☐ 45°		TUBE TO TUBESHEET WELD TYPE			CLEARANCE TO SHELL	6.35 mm
			☐ SEAL ☑ FULL STRENGTH ☐ PARTIAL STRENGTH			CLEARANCE TO TUBE	0.79 mm

It value has a deference with elevation sketch for tube arrangment

MATERIALS

TUBES	SA-334 GR 6 SEAMLESS	SELL SIDE :			BODY FLANGE :	
SHELL	SA-516 GR70N		NOZZLES:	SA-333 GR6	SHELL:	SA-350 LF2
CHANNEL	SA-516 GR70		FLANGES:	SA-350 LF2	CHANNEL:	SA-266
SHELL COVER	SA-516 GR70	TUBE SIDE :			BOLTS	SA193 B7
TUBE SHEET	SA-350 LF2		NOZZLES:	SA-106 GR.B	NUTS	SA 194 2H
CROSS BAFFLES	SA-516 GR70N		FLANGES:	SA-105	GASKET	JACKETED METAL
SADDEL/LEG	SA-283GR.C					

please specify

INSULATION AND PAINTING

	SHELL SIDE	CHANNEL SIDE
INSULATION (TYPE / THK)	-	-
PAINTING		
PRIMER	???	???
MID COATING	???	???
TOP COATING	???	???

MECHANICAL DESIGN DATA

EXPANSION JOINT: ☐ YES ☑ NO ☐ BY MFR. MATERIAL:

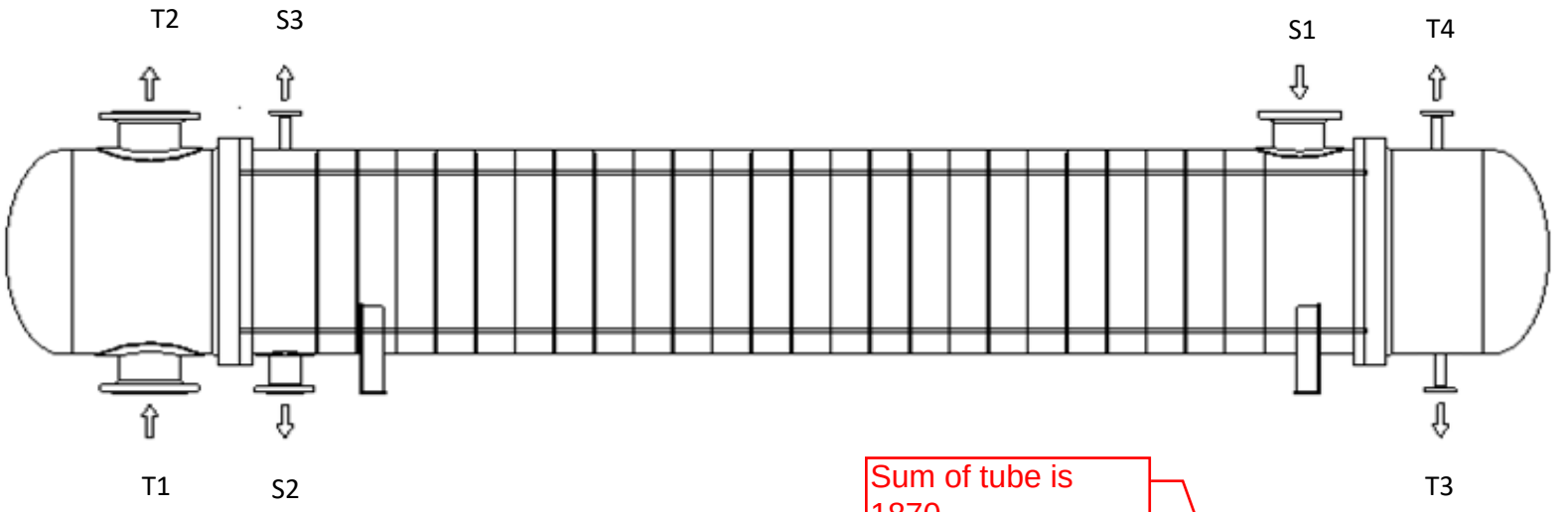
		SHELL 1	SHELL 2	TUBE SHEET	LIFE CYCLES NO
MEAN SHELL METAL TEMPERATURE	°C	50.21	-	-	-
MEAN TUBE METAL TEMPERATURE	°C	44.9	-	-	-
MINIMUM TUBE METAL TEMPERATURE	°C	41.33	-	-	-
MAXIMUM TUBE METAL TEMPERATURE	°C	52.41	-	-	-

WEIGHT EMPTY: 16540 kg HYDROTEST: 23326 kg

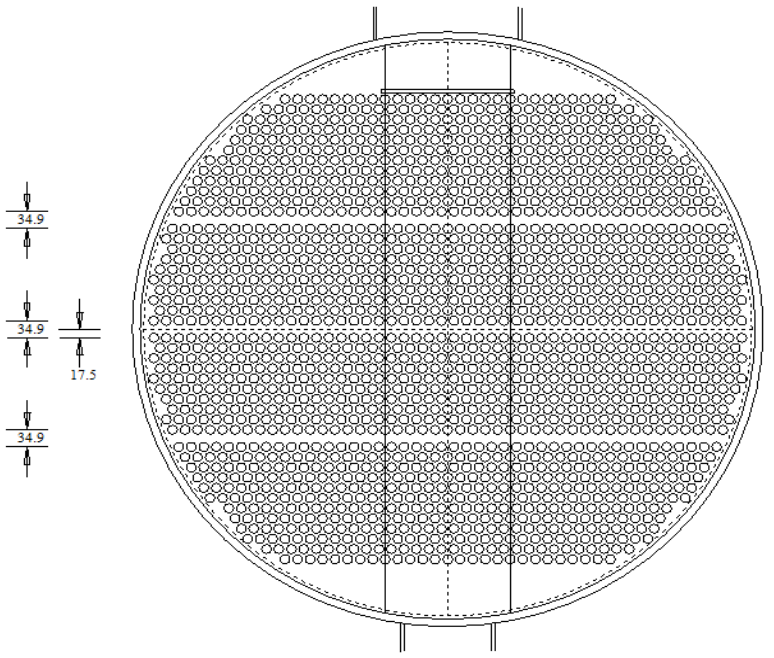
DEHDASHT PETROCHEMICAL INDUSTRY COMPANY

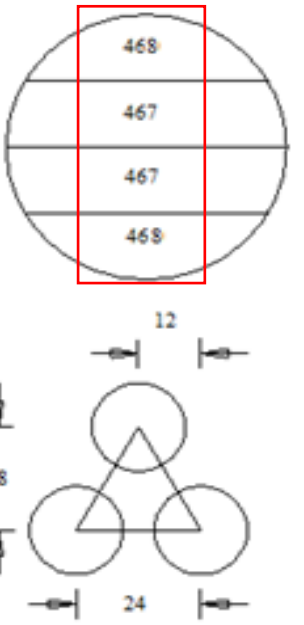
: D0

Notes:
1- Please redesign and modify sketch accordance with attachment #1,2,4.
2- Please specify type of flange.
3- Please specify supporting specification.
4- Please send its DWG. file.
5- Please send the transparency sketch.



Sum of tube is 1870





Tag.	No.	Description	Size	Rating	Facing	PROJECTION (mm)
S3	1	VENT	2"	300#	RF	200
S2	1	PROPYLENE OUTLET	6"	300#	RF	200
S1	1	PROPYLENE INLET	10"	300#	RF	200
T4	1	VENT	3/4"	300#	RF	200
T3	1	DRAIN	1"	300#	RF	200
T2	1	COOLING WATER OUT	12"	300#	RF	200
T1	1	COOLING WATER IN	12"	300#	RF	200