PPI / NARGAN	DEHDASHT PETROCHEMICAL INDUSTRY COMPANY DEHDASHT HIGH DENSITY POLYETHYLENE PROJECT	PGPIC
	DOCUMENT TITLE: Condenser Data Sheet	POI: IFA
Contract No.: DPIC/98-12	DOCUMENT NUMBER: DPIC9812-000-VD-1002-ME-DS-0075	Rev. No.: D1

DOCUMENT TITLE:

Condenser Data Sheet
(E-PK6101-2)

PURCHASER'S COMMENT/APPROVAL STATUS		Purchaser: NARGAN
1	AP: Approved (Released for Manufacturing)	Requisition No.: DPIC98-12-001-000-ME-MR-4150-0001-D1
X	AN: Approved With Minor Comments (Fabrication may Proceed)	
3	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-D1
Date: 15.01.2022	Signature: A.AB	

REV	DATE ISSUE	PREPARED	CHECKED	APPROVED
D1	25.Dec.21	A.VOSOUGH	DR.A.NEJATI	DR.A.NEJATI
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**	شرکت صنایع پتروشیمی خلیج فارس PGPIC شرکت صنایع پتروشیمی دهدشت (سهامی عام)
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2	x	x			
3	x	x			
4	x	x			
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PPI / NARGAN	DEHDASHT PETROCHEMICAL DEHDASHT HIGH DENSITY PO						شرکت صنایع پتروشیمی خلیج فارس PGPIC
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This surface is under design Please send the thermal file for checking or increase the surface.

1	SERVICE	CONDENSER						ITEM	E-PK6101-2	
2	DIAM. X LENGTH	1180	X	5000	mm	MOUNTIN	HORIZONTAL	TYPE	BEM	
3	NO. OF UNIT	1				SURFACE PER UNIT	539.22 m²	IN PARALLEL	1	
4	SHELLS PER UNIT	1				SURFACE PER SHELL	539.22 m²	IN SERIES	1	
5	TEMA CLASS	R				REQUIRED OVERDESIGN		CODE	TEMA. 9TH ED.	
6	PERFORMANCE									
7						SHELL SIDE		TUBE SIDE		
8	FLUID CIRCULATED					PROPYLENE		JACKETED WATER		
9	FLUID QUANTITY, TOTAL				kg/h	27623		289043		
10						IN	OUT	IN	OUT	
11	VAPOUR				kg/h	27623	-	-	-	
12	LIQUID				kg/h	-	27623	289043	289043	
13	NON CONDENSABLES				kg/h	-	-	-	-	
14	TEMPERATURE				°C	80.3	48.33	37	45	
15	DENSITY at T and P (Vap./Liq.)				kg/m³	35.806	467.05	993.59	990.48	
16	VISCOSITY at T and P (Vap./Liq.)				cP	0.0112	0.0668	0.6914	0.596	
17	MOLECULAR WEIGHT									
18	SPECIFIC HEAT (Vap./L	Propylene fouling factor in E-6101 and E-6101-3 is considered 0.0017w/m2k Please clarify.			kJ/kg.C	2.2660 /	/ 3.2592	4.1773	4.1774	
19	THERMAL CONDUCTIVI				W/m.K	0.0267 /	/ 0.0902	/ 0.6252	/ 0.6352	
20										
21	INLET PRESSURE (abs)				bar	19.937		6.914		
22	VELOCITY (Mean/Max)				m/s	/ 0.63		/ 1.01		
23	PRESSURE DROP (Allowable/Calculated)				bar	0.1	0.017	0.1	0.267	
24	FOULING RESISTANCE (Min)				m²·K/W	0.0002		0.0002		
25	TYPE OF CLEANING MAINTENANCE					☑ NONE ☐ MECH. ☐ CHEM.		☑ NONE ☐ MECH. ☐ CHEM.		
26	HEAT EXCHANGED	2682			kW	MTD (CORRECTED)		9.8	°C	
27	TRANSFER RATE: SERVICE:	525.1	CALCULATED:			664.93	CLEAN:	955.33	W/m²·K	
28	-45/135					RUCTION				
29	DESIGN PRESSURE				barg	23		23		
30	VACUUM PRESSURE				barg	-1.03		-		
31	TEST PRESSURE				barg	29.9		29.9		
32	DESIGN TEMPERATURE				°C	125		190		
33	MIN. DESIGN METAL TEMPERATURE				°C	-		-		
34	NUMBER PASSES PER SHELL					1		4		
35	CORROSION ALLOWANCE					3		3		
36	PARTICULAR SERVICE					-		-		
37	PROVIDE X-RAY					FULL		FULL		
38	PROVIDE STRESS RELIEVING					☐ CHANNEL	☐ BUNDLE	☐ SHELL		

DEHDASHT PETROCHEMICAL INDUSTRY COMPANY

DEHDASHT HIGH DENSITY POLYETHYLENE PROJECT

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Discrepancy with DWG.

Discrepancy with thermal data sheet.

CONSTRUCTION OF ONE

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.	9 #
TUBE LENGTH:	5000	mm	OUTER TUBE LIMIT	1161.3	mm	BAFFLE THK.	10 mm
TUBE NO:	1802	#	TUBESHEET THK	75	mm	BAFFLE CUT	35 %
PITCH:	24	mm	TUBE TO TUBESHEET JOINT			C/C SPACING	550 mm
☐ 30°	☑ 60°		☑ WELD ☑ EXPAND ☑ GROOVES			INLET SPACING	853 mm
☐ 90°	☐ 45°		TUBE TO TUBESHEET WELD TYPE			CLEARANCE TO SHELL	6.35 mm
			☐ SEAL ☑ FULL STRENGTH			CLEARANCE TO TUBE	0.39 mm
			☐ PARTIAL STRENGTH				

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-350 LF2
SHELL COVER	SA-516 GR70	TUBE SIDE :		BOLTS		SA-320 L7
TUBE SHEET	SA-350 LF2		NOZZLES: SA-333 GR6	NUTS		SA 194 Gr. 4
CROSS BAFFLES	SA-516 GR70N		FLANGES: SA-350 LF2	GASKET		JACKETED METAL
SADDEL/LEG	SA-283GR.C					

INSULATION AND PAINTING

	SHELL SIDE	CHANNEL SIDE
INSULATION (TYPE / THK)	-	-
PAINTING		
PRIMER	ZINCETHYL SILICATE (1X70µm)	
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	53.80	-	-	-
MEAN TUBE METAL TEMPERATURE °C	44.62	-	-	-
MINIMUM TUBE METAL TEMPERATURE °C	42.50	-	-	-
MAXIMUM TUBE METAL TEMPERATURE °C	46.74	-	-	-

WEIGHT — EMPTY: 14695 kg — HYDROTEST: 20783 kg

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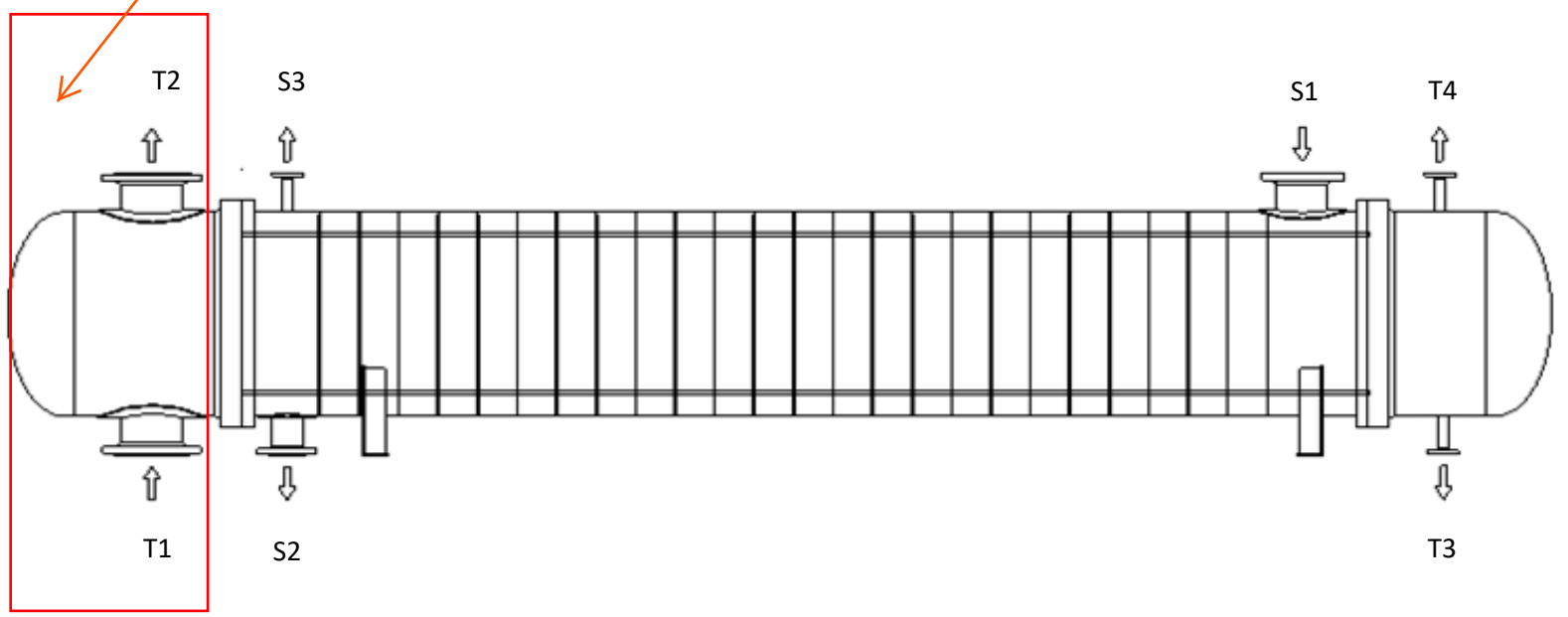
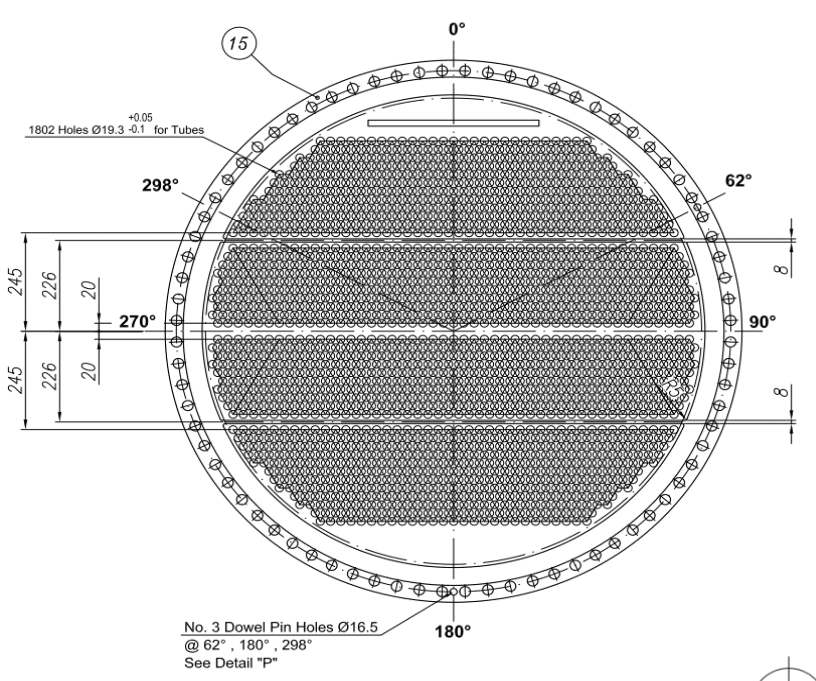
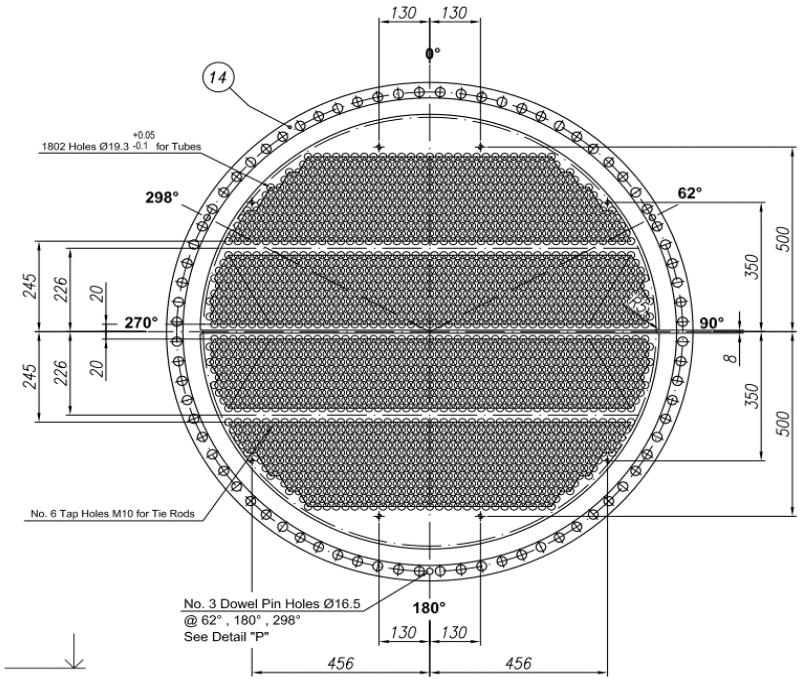
Discrepancy with thermal data sheet.

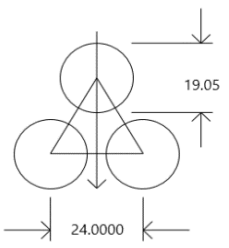




View "N" (1:10)
Rear Tube Sheet



View "M" (1:10)
Front Tube Sheet



Tag.	No.	Description	Size	Rating	Facing	PROJECTION (mm)
S3	1	EQUILIZE LINE	2"	300#	RF	200
S2	1	PROPYLENE OUTLET	8"	300#	RF	200
S1	1	PROPYLENE INLET	12"	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