



DEHDASHT PETROCHEMICAL INDUSTRY COMPANY  
DEHDASHT HIGH DENSITY POLYETHYLENE PROJECT



DOCUMENT TITLE: Oil Cooler Data Sheet

POI: IFA

Contract No.: DPIC/98-12

DOCUMENT NUMBER: DPIC9812-000-VD-1002-ME-DS-0078

Rev. No.: D0

THERE IS NO INSTRUMENT NOZZLE ON THIS HEAT EXCHANGER

Instrument Nozzles will be checked after finalization of P&ID

### Oil Cooler Data Sheet

**PURCHASER'S COMMENT/APPROVAL STATUS**

Purchaser: NARGAN

1	AP: Approved (Released for Manufacturing)
2	AN: Approved With Minor Comments (Fabrication may Proceed)
X	NF: Approved With Comments (Fabrication not Proceed)
4	RJ: Rejected
5	NR: Not be Returned

Requisition No.: DPIC98-12-001-000-ME-MR-4150-0001-D1

Item No. (Tag No.): PK-6101

Vendor Doc. No.: DPIC9812-000-VD-1002-ME-DS-0078-D0

Date: 20.11.2021

signature: A.AB



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



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**DEHDASHT PETROCHEMICAL INDUSTRY COMPANY**  
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DOCUMENT TITLE: **Please specify OD or ID.**

Note: 1- Please specify the thickness of shell.

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1	SERVICE	<b>OIL COOLER</b>			<b>SPECIFIED IN NEXT PAGE</b>	<b>E-PK6101-1A/B</b>		
2	DIAM. X LENGTH	<b>336</b> X <b>4000</b> mm	MOUNTIN	<b>HORIZONTAL</b>		<b>BEM</b>		
3	NO. OF UNIT	<b>1</b>	SURFACE PER UNIT	<b>30.5</b> m <sup>2</sup>	IN PARALLEL		<b>1</b>	
4	SHELLS PER UNIT	<b>1</b>	SURFACE PER SHELL	<b>30.5</b> m <sup>2</sup>	IN SERIES		<b>DONE</b>	
5	TEMA CLASS	<b>R</b>	REQUIRED OVERDESIGN	<b>20% FLOW</b>		CODE		
6	<b>PERFORMANCE</b>							
7		SHELL SIDE						
8	FLUID CIRCULATED	<b>OIL</b>			<b>COOLING WATER</b>			
9	FLUID QUANTITY, TOTAL	<b>12672 x 1.2</b> kg/h			<b>18540 x 1.2</b> kg/h			
10		IN			IN		OUT	
11	VAPOUR	-			-			
12	LIQUID	<b>15206</b> kg/h			<b>22248</b> kg/h		<b>22248</b> kg/h	
13	NON CONDENSABLES	-			-			
14	TEMPERATURE	<b>80.3</b> °C			<b>50</b> °C		<b>35</b> °C	
15	DENSITY at T and P (Vap./Liq.)	<b>DONE</b> / <b>886.58</b> kg/m <sup>3</sup>			/ <b>994.5</b> kg/m <sup>3</sup>		/ <b>990.61</b> kg/m <sup>3</sup>	
16	VISCOSITY at T and P (Vap./Liq.)	/ <b>1.6365</b> Pa.s			/ <b>2.1994</b> Pa.s		/ <b>0.719</b> Pa.s	
17	MOLECULAR WEIGHT, Vap							
18	SPECIFIC HEAT (Vap./Liq.)	/ <b>2.087</b> kJ/kg.K			/ <b>1.853</b> kJ/kg.K		/ <b>4.171</b> kJ/kg.K	
19	THERMAL CONDUCTIVITY (Vap./Liq.)	/ <b>0.6232</b> W/m.K			/ <b>0.6232</b> W/m.K			
20	LATENT HEAT	kJ/kg						
21	INLET PRESSURE (abs)	<b>DONE</b> / <b>21.900</b> bar			/ <b>21.78</b> bar		/ <b>6.5</b> bar	
22	VELOCITY (Mean/Max)	m/s			/ <b>1.28</b> m/s		/ <b>0.44</b> / <b>0.44</b> m/s	
23	PRESSURE DROP (Allowable/Calculated)	bar			/ <b>0.2</b> bar		/ <b>0.1203</b> bar	
24	FOULING RESISTANCE (Min)	<b>0.00017</b>			<b>0.00035</b>		<b>0.0004</b> <b>AO based</b>	
25	TYPE OF CLEANING MAINTENAN	<input type="checkbox"/> NONE <input checked="" type="checkbox"/> MECH. <input type="checkbox"/> CHEM.			<input type="checkbox"/> NONE <input checked="" type="checkbox"/> MECH. <input type="checkbox"/> CHEM.			
26	HEAT EXCHANGED	MTD (CORRECTED)			/ <b>21</b> MTD			
27	TRANSFER RATE: SERVICE: DIRTY:	<b>340.5</b> MTD			<b>383.3</b> MTD		<b>514</b> MTD	
28	<b>CONSTRUCTION</b>							
29	DESIGN PRESSURE	barg			<b>25</b> barg		<b>20</b> barg	
30	VACUUM PRESSURE	barg			<b>-1.01</b> barg		<b>-1.01</b> barg	
31	TEST PRESSURE	barg			<b>32.5</b> barg		<b>26</b> barg	
32	DESIGN TEMPERATURE	°C			<b>120</b> °C		<b>65</b> °C	
33	MIN. DESIGN METAL TEMPERATURE	°C			<b>design temperature of JSW is 190C.</b>		<b>-10</b> °C	
34	NUMBER PASSES PER SHELL				<b>3</b>		<b>3</b>	
35	CORROSION ALLOWANCE				<b>3</b> mm		<b>3</b> mm	
36	PARTICULAR SERVICE							
37	PROVIDE X-RAY	<b>DONE</b>			<b>FULL</b>		<b>FULL</b>	
38	PROVIDE STRESS RELIEVING				<input type="checkbox"/> CHANNEL <input type="checkbox"/> BUNDLE <input type="checkbox"/> SHELL			

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shell inlet shall be located at bottom.



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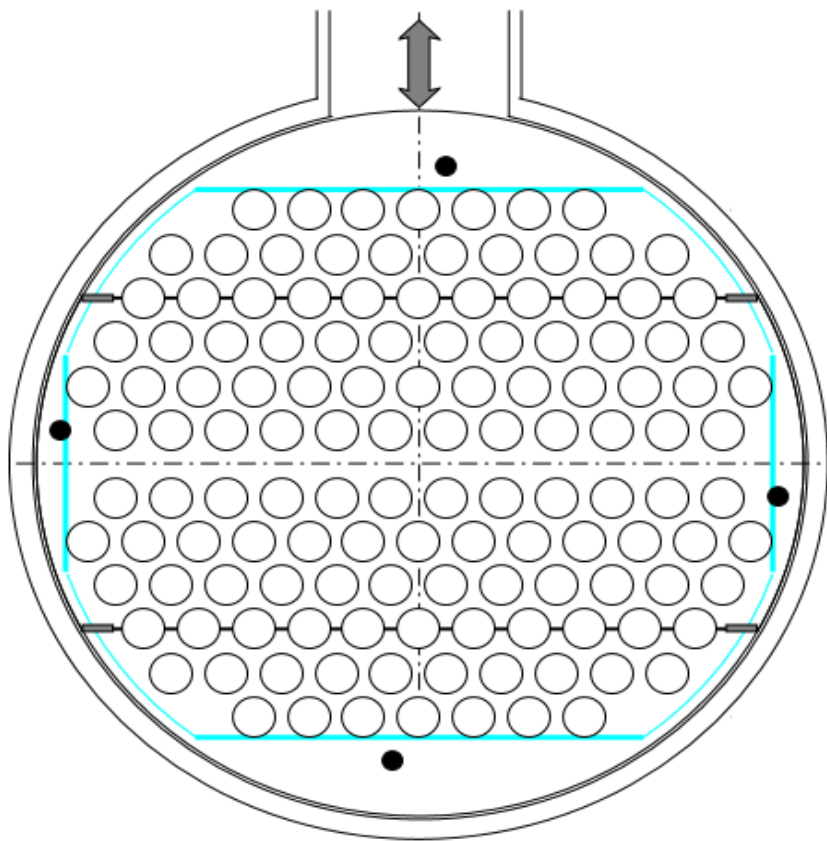
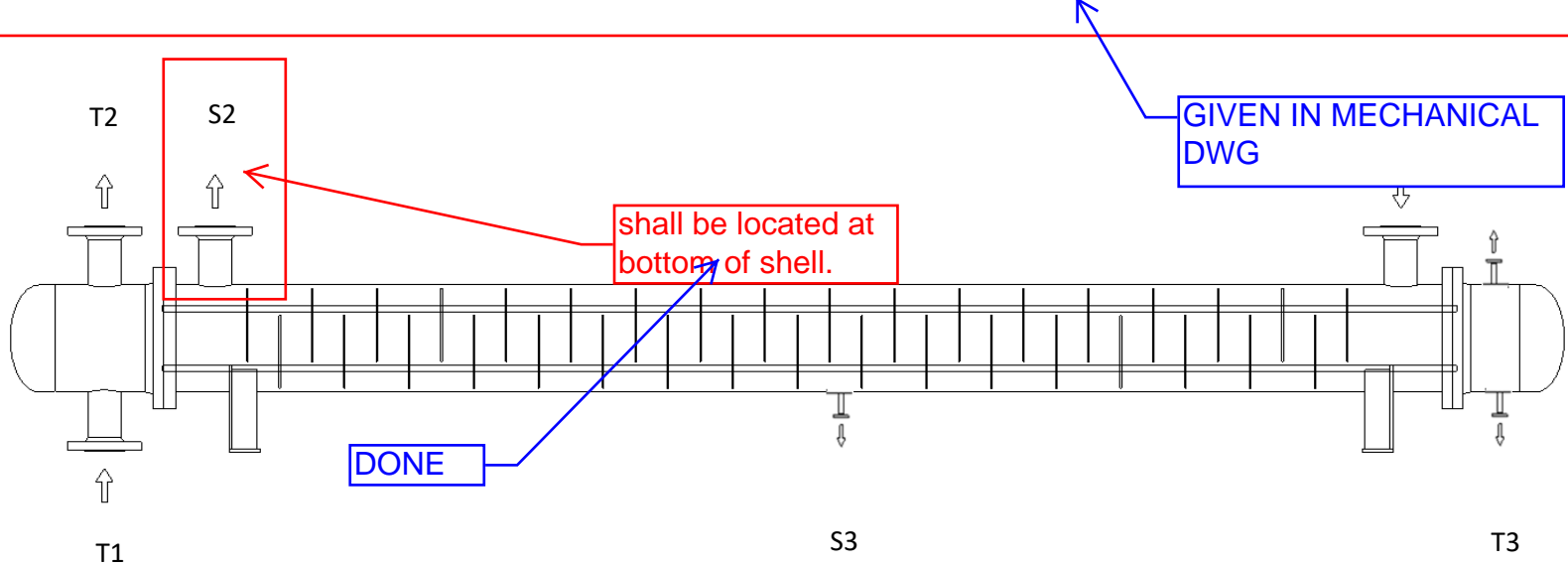
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1 CONSTRUCTION OF ONE SHELL					
2	TUBE TYPE : <input checked="" type="checkbox"/> PLAIN <input type="checkbox"/> FINNED	SHELL OD	355	TYPE	Single segmental
3	TUBE OD: 19.05 mm	SHELL ID	336	ION	Horizontal
4	TUBE THK (avg): 2.11 mm	IMPINGEMENT PROTECTION	NO	D.	35 #
5	TUBE LENGTH: 4000 mm	OUTER TUBE LIMIT	DONE 323.85 mm	BAFFLE THK.	5 mm
6	TUBE NO: 130 #	TUBESHEET THK	40 mm	BAFFLE CUT	26 %
7	PITCH: 24 mm	TUBE TO TUBESHEET JOINT		C/C SPACING	100 mm
8	<input checked="" type="checkbox"/> 30° <input type="checkbox"/> 60°	<input checked="" type="checkbox"/> WELD <input checked="" type="checkbox"/> EXPAND <input type="checkbox"/> GROOVES		INLET SPACING	262 mm
9	<input type="checkbox"/> 90° <input type="checkbox"/> 45°	TUBE TO TUBESHEET WELD TYPE		CLEARANCE TO SHELL	3.18 mm
10		<input type="checkbox"/> SEAL <input checked="" type="checkbox"/> FULL STRENGTH		CLEARANCE TO TUBE	0.79 mm
11		<input type="checkbox"/> PARTIAL STRENGTH			
12 MATERIALS					
13	TUBES SA-179 SEAMLESS	SELL SIDE :		BODY FLANGE :	
14	SHELL SA-106 GRB	NOZZLES: SA-106 GRB		SHELL: SA-266-2	
15	CHANNEL SA-106 GRB	FLANGES: SA-105		CHANNEL: SA-266-2	
16	SHELL COVER SA-516 GR70	TUBE SIDE :		BOLTS SA 193 Gr. B7	
17	TUBE SHEET SA-266-2	NOZZLES: SA-106 GRB		NUTS SA 194 Gr. 2H	
18	CROSS BAFFLES SA-516 GR70	FLANGES: SA-105		GASKET JACKETED METAL	
19	SADDEL/LEG please specify SA-283GR.C				
20 INSULATION AND PAINTING					
21		SHELL SIDE		CHANNEL SIDE	
22	INSULATION (TYPE / THK)	-		-	
23	PAINTING				
24	PRIMER	???		???	
25	MID COATING	???		???	
26	TOP COATING	???		???	
27 MECHANICAL DESIGN DATA					
28	EXPANSION JOINT: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> BY MFR.	MATERIAL:			
29		SHELL 1	SHELL 2	TUBE SHEET	LIFE CYCLES NO
30	MEAN SHELL METAL TEMPERATURE °C	61.66	-	-	-
31	MEAN TUBE METAL TEMPERATURE °C	48.25	-	-	-
32	MINIMUM TUBE METAL TEMPERATURE °C	40.06	-	-	-
33	MAXIMUM TUBE METAL TEMPERATURE °C	54.74	-	-	-
34	WEIGHT	EMPTY: 980 kg		HYDROTEST: 1326 kg	

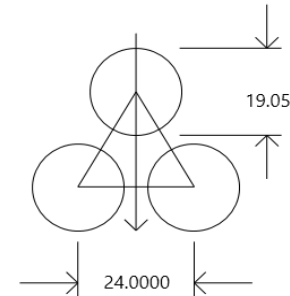
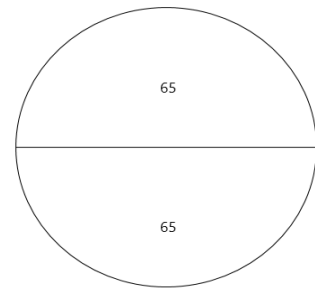
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Notes:

- 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.



Shell ID 336.6 mm  
 O.T.L. 323.9 mm  
 Baffle cut to C/L 78.2 mm



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