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	DEHDASHT PETROCHEMICAL INDUSTRY COMPANY DEHDASHT HIGH DENSITY POLYETHYLENE PROJECT	
	DOCUMENT TITLE: Economizer Data Sheet	POI: IFA
Contract No.: DPIC/98-12	DOCUMENT NUMBER: DPIC9812-000-VD-1002-ME-DS-0076	Rev. No.: D1

DOCUMENT TITLE:

**Economizer Data Sheet
(E-PK6101-3)**

Following problems to be detected in this design. Please recheck and resolve.

- 1- Dry wall mist flow is expected for the boiling fluid. This condition may lead to high tube wall temperatures.
- 2- Film and transition boiling regime has been predicted.

PURCHASER'S COMMENT/APPROVAL STATUS					Purchaser: NARGAN
1	AP: Approved (Released for Manufacturing)				Requisition No.: DPIC98-12-001-000-ME-MR-4150-0001-D1
✗	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-0076-D1
		Date: 12.01.2022	Signature: A.AB		
					
D1	25.Dec.21	A.VOSOUGH	DR.A.NEJATI	DR.A.NEJATI	
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 DEHDASHT HIGH DENSITY POLYETHYLENE						
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Contract No.: DPIC/98-12		DOCUMENT NUMBER: DPIC9812-000-VD-1002-ME-DS-0076				Rev. No.: D1		
1	SERVICE	ECONOMIZER				ITEM	E-PK6101-3	
2	DIAM. X LENGTH	581 X 6000 mm	MOUNTIN		HORIZONTAL		TYPE	BEM
3	NO. OF UNIT	1	SURFACE PER UNIT	115.39	m ²	IN PARALLEL	1	
4	SHELLS PER UNIT	1	SURFACE PER SHELL	115.39	m ²	IN SERIES	1	
5	TEMA CLASS	R	REQUIRED OVERDESIGN		CODE			TEMA. 9TH ED.
PERFORMANCE								
7		SHELL SIDE				DE		
8	FLUID CIRCULATED	PROPYLENE				PROPYLENE		
9	FLUID QUANTITY, TOT	kg/h		19500.0	7038.39			
10				IN	OUT			
11	VAPOUR	kg/h		-	-		2041.13 / 7038.39	
12	LIQUID	kg/h		19500	19500		-	
13	NON CONDENSABLES	kg/h		-	-		-	
14	TEMPERATURE	°C		48.55	16		12.37 / 15	
15	DENSITY at T and P (Vap./Liq.)	kg/m ³		461.4	520.94		17.36 / 526.76 / 17.11	
16	VISCOSITY at T and P (Vap./Liq.)	cP		0.0598	0.894		0.0087 / 0.0933 / 0.0087	
17	MOLECULAR WEIGHT, Vap				42.08		42.08	
18	SPECIFIC HEAT (Vap./Liq.)	kJ/kg.K		3.332	2.5836		1.65 / 2.578 / 1.655	
19	THERMAL CONDUCTIVITY (Vap./Liq.)	W/m.K		0.0897	1061		0.0162 / 0.1081 / 0.0165 /	
20	LATENT HEAT	kJ/kg			360		360	
21	INLET PRESSURE (abs)	bar		20.020		8.3 / 2.98		
22	VELOCITY (Mean/Max)	m/s		/	0.21		/	
23	PRESSURE DROP (Allowable/Calculated)	bar		0.2	0.02		0.1 / 0.038 / 0.049	
24	FOULING RESISTANCE (Min)	m ² -KW		0.00017		0.00017		
25	TYPE OF CLEANING MAINTENANCE	<input checked="" type="checkbox"/> NONE <input type="checkbox"/> MECH <input type="checkbox"/> CHEM.		<input checked="" type="checkbox"/> NONE <input type="checkbox"/> MECH <input type="checkbox"/> CHEM.				
26	HEAT EXCHANGED	508.3	kW		MTD (CORRECTED)		388.11 / 14.2 / °C	
27	TRANSFER RATE:	SERVICE:	314.69	CALCULATED:	353.27	CLEAN:	409.33 / W/m²-K	
CONSTRUCTION								
29	DESIGN PRESSURE	barg		23	23		23	
30	VACUUM PRESSURE	barg					-1.01	
31	TEST PRESSURE			29.9			29.9	
32	DESIGN TEMPERATURE	°C		125			125	
33	MIN. DESIGN METAL TEMPERATURE	°C					-45	
34	NUMBER PASSES PER SHELL	-45/135		1			3	
35	CORROSION ALLOWANCE			3			3	
36	PARTICULAR SERVICE			-			-	
37	PROVIDE X-RAY			FULL		FULL		
38	PROVIDE STRESS RELIEVING			<input type="checkbox"/> CHANNEL	<input type="checkbox"/> BUNDLE	<input type="checkbox"/> SHELL		

There is discrepancy on TEMA type between PFD and DSH. PFD shall be updated.

There is discrepancy on Fluid allocation between PFD and DSH. PFD shall be updated.

based on thermal datasheet "7042.97"

As per Doc. No. DPC-PR-CRT-0001 equipment design criteria (MR attachment) 10% safety overdesign shall be considered on design case for heat exchanger sizing. Please consider 10% over design on flow same as previous revision.

Based on PFD flow rate shall be 8123kg/h.

Please recheck the data. Upstream filter design pressure is 25barg.

to be specified there is discrepancy with mechanical calc

based on thermal datasheet "-45" is specified as design temperature, please clarify



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Cont

based on process comment on thermal datasheet "2.77" as minimum

2.77 based on thermal calculation data sheet.

12-000-VD-1002-ME-DS-0076

Rev.

18 based on thermal calculation data sheet.

CONSTRUCTION OF ONE SHELL

1								
2	TUBE TYPE :	<input checked="" type="checkbox"/> PLAIN <input type="checkbox"/> FINNED	SHELL OD	601	610	mm	BAFFLE T	segmental
3	TUBE OD:	25.4	SHELL THK	581	mm	ORIENTATION	Horizontal	
4	TUBE THK (avg):	2.6	IMPINGEMENT PROTECTION	NO		BAFFLE NO.	20	#
5	TUBE LENGTH:	6000	OUTER TUBE LIMIT	566.949	mm	BAFFLE THK.	6	mm
6	TUBE NO:	241	TUBESHEET THK	62	mm	BAFFLE CUT	28.5	%
7	PITCH:	32	TUBESHEET WELD TYPE			C/C SPACING	300	mm
8	<input checked="" type="checkbox"/> 30° <input type="checkbox"/> 60°		<input checked="" type="checkbox"/> WELD <input checked="" type="checkbox"/> EXPAND <input checked="" type="checkbox"/> GROOVES			INLET SPACING	412	mm
9	<input type="checkbox"/> 90° <input type="checkbox"/> 45°		TUBE TO TUBESHEET WELD TYPE			CLEARANCE TO SHELL	4.76	mm
10			<input type="checkbox"/> SEAL <input checked="" type="checkbox"/> FULL STRENGTH			CLEARANCE TO TUBE		
11			<input type="checkbox"/> PARTIAL STRENGTH					

MATERIALS

13	TUBES	SA-334 GR 6 SEAMLESS	SELL SIDE :		BODY FLANGE :	
14	SHELL	SA-516 GR70N	NOZZLES:	SA-333 GR6	SHELL:	SA-350 LF2
15	CHANNEL	SA-516 GR70N	FLANGES:	SA-350 LF2	CHANNEL:	SA-350 LF2
16	SHELL COVER	SA-516 GR70N	TUBE SIDE :		BOLTS	SA320 L7
17	TUBE SHEET	SA-350 LF2	NOZZLES:	SA-333 GR6	NUTS	SA 194 Gr. 4
18	CROSS BAFFLES	SA-516 GR70N	FLANGES:	SA-350 LF2	GASKET	JACKETED METAL
19	SADDEL/LEG	SA-283GR.C				

INSULATION AND PAINTING

21		SHELL SIDE	CHANNEL SIDE
22	INSULATION (TYPE / THK)	-	-
23	PAINTING		
24	PRIMER	ZINCETHYL SILICATE (1X70µm)	
25	MID COATING		
26	TOP COATING		

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	24.32	-	-	-
31	MEAN TUBE METAL TEMPERATURE	C	18.44	-	-	-
32	MINIMUM TUBE METAL TEMPERATURE	C	13.05	-	-	-
33	MAXIMUM TUBE METAL TEMPERATURE	°C	43.21	-	-	-
34	WEIGHT		EMPTY: 4058	kg	HYDROTEST: 5602	kg

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channel

vendor is full responsible for these temperature and worst case to be considered in calculation of tubesheet

discrepancy with drawing

discrepancy with drawing



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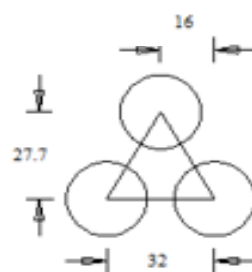
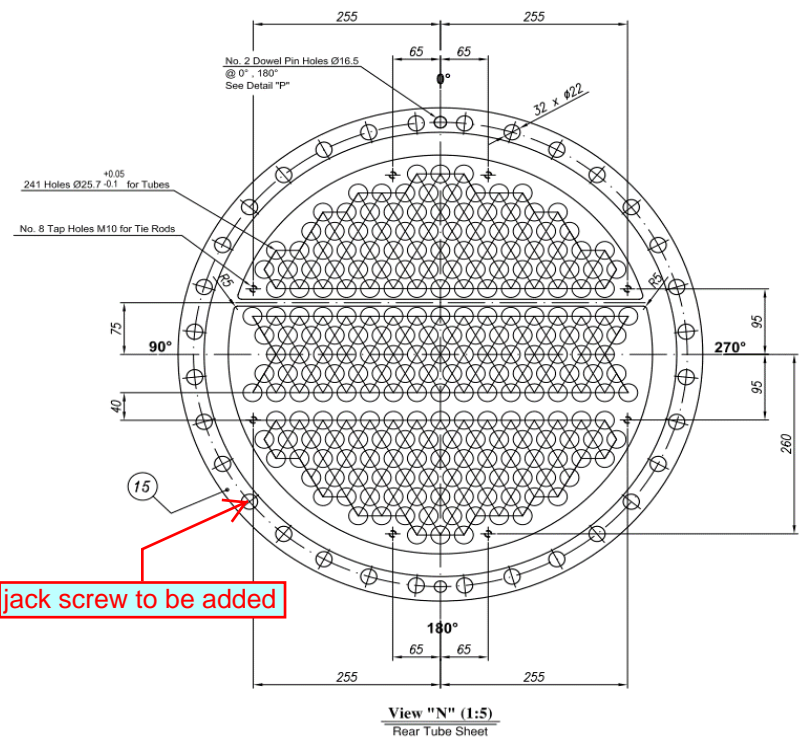
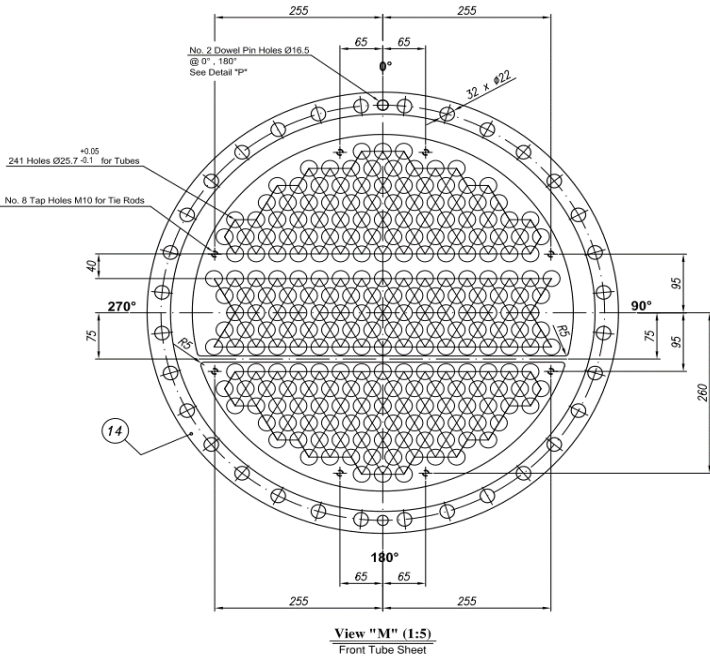
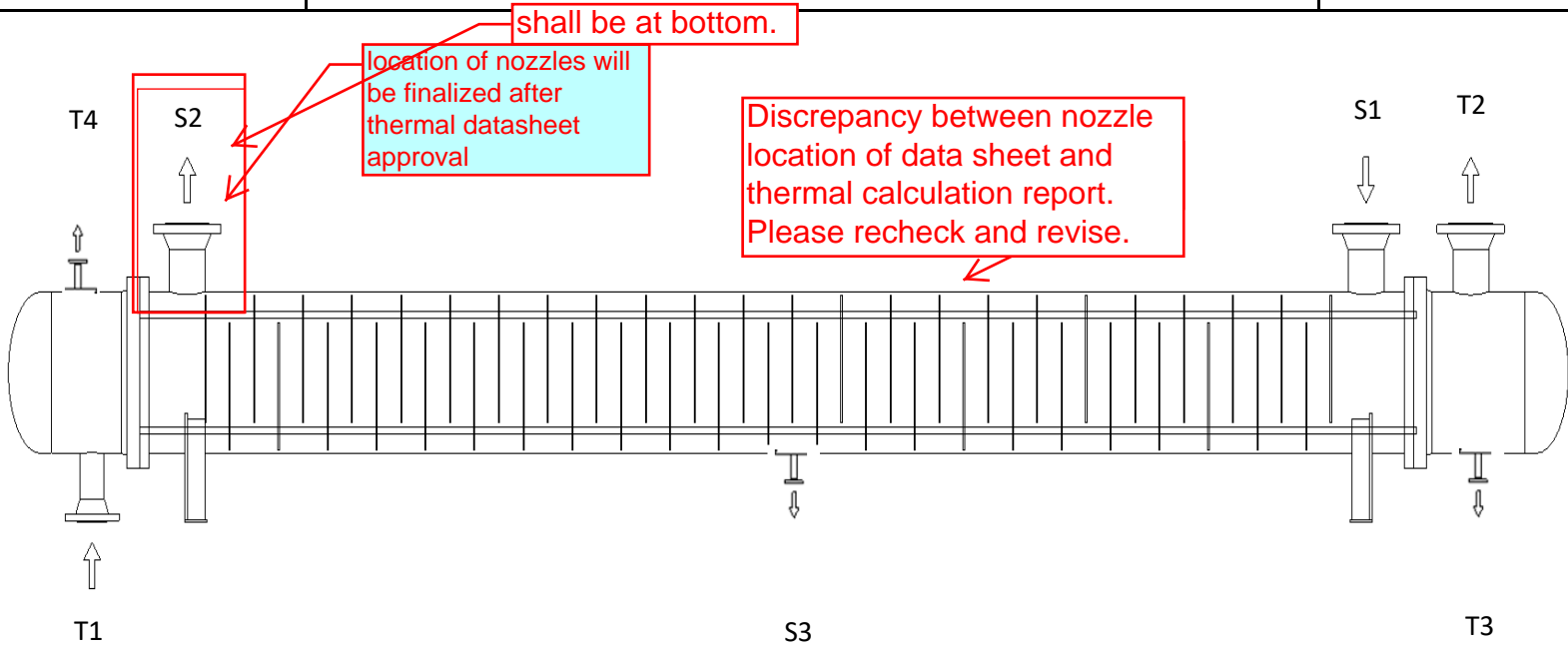
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to be revised

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