



DEHDASHT PETROCHEMICAL INDUSTRY COMPANY
DEHDASHT HIGH DENSITY POLYETHYLENE PROJECT



DOCUMENT TITLE: Economizer Data Sheet

POI: IFA

Rev. : D0

Contract No.: DPIC/98-12

DOCUMENT NUMBER: DPIC9812-000-VD-1002-ME-DS-0076

Sheet 1 of 5

Economizer Data Sheet

PURCHASER'S COMMENT/APPROVAL STATUS

Purchaser: NARGAN

1	AP: Approved (Released for Manufacturing)
2	AN: Approved With Minor Comments (Fabrication may Proceed)
3	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-0076-D0

Date: XX.XX.XX Signature:

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





NARGAN

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1	SERVICE	ECONOMIZER			ITEM	E-PK6101-3			
2	DIAM. X LENGTH	591	X	6000	mm	MOUNTIN	HORIZONTAL		
3	NO. OF UNIT	1			SURFACE PER UNIT	117.3	m ²	IN PARALLEL	1
4	SHELLS PER UNIT	1			SURFACE PER SHELL	117.3	m ²	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		PROPYLENE	
9	FLUID QUANTITY, TOTAL	kg/h				19500 x 1.1		7431x 1.1	
10						IN	OUT	IN	OUT
11	VAPOUR	kg/h				-	-	2370	8174
12	LIQUID	kg/h				21450	21450	5804	-
13	NON CONDENSABLES	kg/h				-	-	-	-
14	TEMPERATURE	°C				48.55	14	12.37	15
15	DENSITY at T and P (Vap./Liq.)	kg/m ³				/ 461.41	/ 524.12	17.36 / 526.76	17.02 /
16	VISCOSITY at T and P (Vap./Liq.)	cP				/ 0.0598	/ 0.0915	0.0087 / 0.0933	0.0087 /
17	MOLECULAR WEIGHT, Vap							42.08	42.08
18	SPECIFIC HEAT (Vap./Liq.)	kJ/kg.K				/ 3.332	/ 2.558	1.65 / 2.578	1.655 /
19	THERMAL CONDUCTIVITY (Vap./Liq.)	W/m.K				/ 0.0897	0 / 0.1072	0.0162 / 0.1081	0.0165 /
20	LATENT HEAT	kJ/kg						360	360
21	INLET PRESSURE (abs)	bar				19.940	19.85	8.3	8.25
22	VELOCITY (Mean/Max)	m/s				0.33	/ 0.39	2.36	/ 5.14
23	PRESSURE DROP (Allowable/Calculated)	bar				0.25	0.08738	0.2	0.04763
24	FOULING RESISTANCE (Min)	m ² ·K/W				0.00017		0.00017	0.00021
25	TYPE OF CLEANING MAINTENANCE					<input type="checkbox"/> NONE	<input checked="" type="checkbox"/> MECH	<input type="checkbox"/> CHEM.	<input type="checkbox"/> NONE
26	HEAT EXCHANGED	590.2	kW			MTD (CORRECTED)		11.81	°C
27	TRANSFER RATE:	SERVICE:	425.9	DIRTY:	512.7	CLEAN:	638.3	W/m ² ·K	
28	CONSTRUCTION								
29	DESIGN PRESSURE	barg				23		23	
30	VACUUM PRESSURE	barg				-1.01		-1.01	
31	TEST PRESSURE	barg				29.9		29.9	
32	DESIGN TEMPERATURE	°C				120		120	
33	MIN. DESIGN METAL TEMPERATURE	°C				-45		-45	
34	NUMBER PASSES PER SHELL					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	

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1 CONSTRUCTION OF ONE SHELL

2	TUBE TYPE : <input checked="" type="checkbox"/> PLAIN <input type="checkbox"/> FINNED	SHELL OD	611	mm	BAFFLE TYPE	Single segmental
3	TUBE OD: 25.4 mm	SHELL ID	591	mm	ORIENTATION	Horizontal
4	TUBE THK (avg): 2.6 mm	IMPINGEMENT PROTECTION	NO		BAFFLE NO.	47 #
5	TUBE LENGTH: 6000 mm	OUTER TUBE LIMIT	576.9	mm	BAFFLE THK.	5 mm
6	TUBE NO: 249 #	TUBESHEET THK	45	mm	BAFFLE CUT	15 %
7	PITCH: 32 mm	TUBE TO TUBESHEET JOINT			C/C SPACING	115 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	307 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	0.79 mm
11		<input type="checkbox"/> PARTIAL STRENGTH				

12 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		

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	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: 4010 kg		HYDROTEST: 5509 kg	

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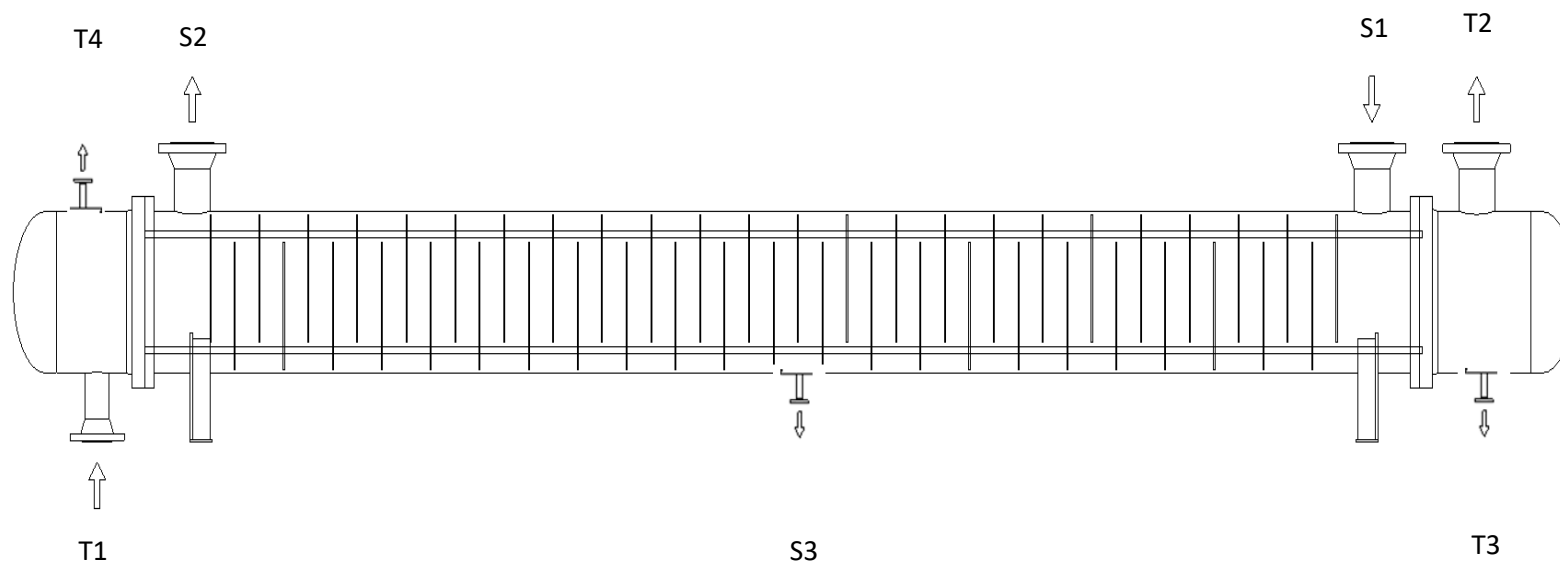
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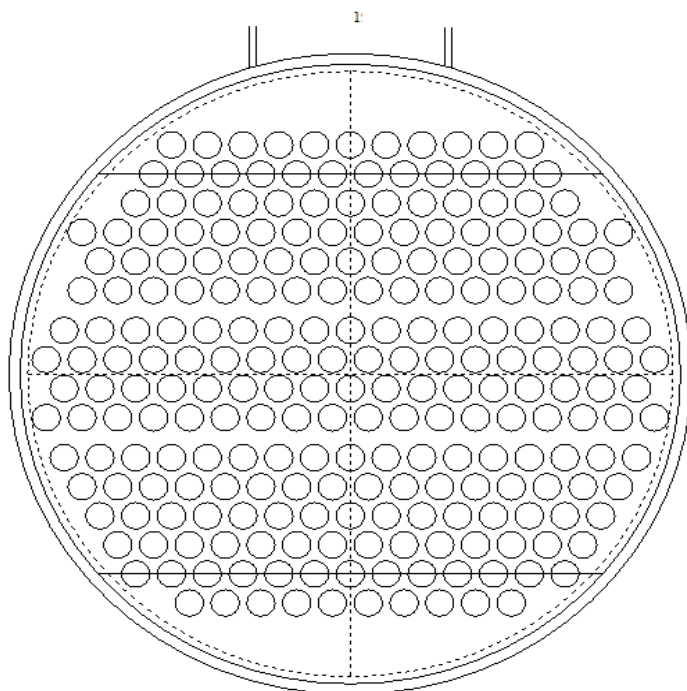
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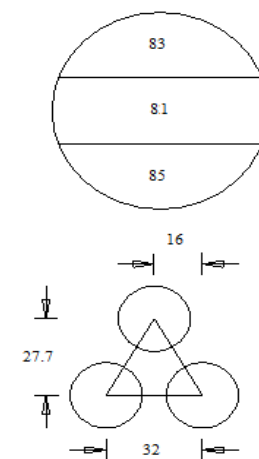
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Row	Holes
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15	12
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6	17
5	16
4	15
3	14
2	13
1	10
249.	



Shell ID 590.6 mm
O.T.L. 576.9 mm
Baffle cut to C/L 190.5 mm



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)