STYRENE PARK OFFSITE

Document Title:

Chiller (Evaporator) Data Sheet

Rev.	Issued Date	DESCRIPTION	PREPARED	CHECKED	APPROVED
R1	08-04-2024	IFA	F.sh	M.O	A.M
R0	21-02-2024	IFA	F.sh	M.O	A.M

REVISION RECORD SHEET

Page	Revisions								Page	Revisions						
Page	R0	R1	R2	R3	R4	R5	R6			R0	R1	R2	R3	R4	R5	R6
1	X								41							
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HTRI

HEAT EXCHANGER SPECIFICATION SHEET

Released to the following company: SI Units
SC
SSD

Job No.			
Customer	PAD JAM PETROCHEMICAL	Reference No.	
Address		Proposal No.	
Plant Location	ASSALOUYEH	Date	4/8/2024 Rev 1
Service of Unit	Evaporator	Item No.	
Size	600 - 924.32 x 2500 mm Type BKU Horizontal	Connected In	1 Parallel 1 Series
Surf/Unit (Gross/Eff)	61.76 / 58.956 m2 Shell/Unit 1	Surf/Shell (Gross/Eff)	61.76 / 58.956 m2

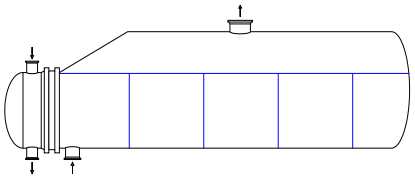
PERFORMANCE OF ONE UNIT

Fluid Allocation		Shell Side		Tube Side	
Fluid Name		Propane		Styrene	
Fluid Quantity, Total	kg/hr	3104.1		40623	
Vapor (In/Out)		1346.2	3104.1		
Liquid		1757.8		40623	40623
Steam					
Water					
Noncondensables					
Temperature (In/Out)	C	1.24	1.00	15.20	5.00
Specific Gravity		0.5331		0.9100	0.9184
Viscosity	mN-s/m2	0.0076 V/L 0.1294	0.0076	0.8200	0.9600
Molecular Weight, Vapor					
Molecular Weight, Noncondensables					
Specific Heat	kJ/kg-C	1.7859 V/L 2.4339	1.7838	1.6040	1.5780
Thermal Conductivity	W/m-C	0.0161 V/L 0.1090	0.0160	0.1500	0.1500
Latent Heat	kJ/kg	375.43	375.75		
Inlet Pressure	bar	4.813		3.000	
Velocity	m/s	0.18		0.67	
Pressure Drop, Allow/Calc	bar	0.050	0.036	0.500	0.118
Fouling Resistance (min)	m2-K/W	0.000170		0.000200	

Heat Exchanged 0.1832 MegaWatts MTD (Corrected) 7.9 C
Transfer Rate, Service 391.37 W/m2-K Clean 524.10 W/m2-K Actual 431.04 W/m2-K

CONSTRUCTION OF ONE SHELL

Sketch (Bundle/Nozzle Orientation)



			Shell Side	Tube Side
Design/Test Pressure		barG	22.000 /	6.800 /
Design Temperature		C	120.00	85.00
No Passes per Shell			1	4
Corrosion Allowance		mm	3	3
Connections Size & Rating	In	mm	1 @ 92.050	1 @ 77.927
	Out	mm	1 @ 146.33	1 @ 77.927
	Intermediate		@	@

Tube No. 188U OD 19.050 mm Thk(Avg) 1.651 mm Length 2.500 m Pitch 23.813 mm
Tube Type Plain Material SA-334 6 Tube pattern30
Shell SA-516 70N ID 600.00 OD 622.22 mm Shell Cover SA-516 70N (Integ.)
Channel or Bonnet SA-516 70N Channel Cover SA-516 70N
Tubesheet-Stationary SA-350 LF2 CL.1 Tubesheet-Floating
Floating Head Cover Impingement Plate Circular plate
Baffles-Cross Carbon steel Type Support %Cut (Diam) Spacing(c/c) 612.70 Inlet mm
Baffles-Long Seal Type None
Supports-Tube U-Bend Type Full support
Bypass Seal Arrangement pairs seal strips Tube-Tubesheet Joint Expanded (2 grooves)
Expansion Joint Type None
Rho-V2-Inlet Nozzle 714.96 kg/m-s2 Bundle Entrance Bundle Exit kg/m-s2
Gaskets-Shell Side Mach. Mtl. (Kammprofile\Flex. Face) Tube Side Mach. Mtl. (Kammprofile\Flex. Face)
- Floating Head Mach. Mtl. (Kammprofile\Flex. Face)
Code Requirements TEMA Class R
Weight/Shell 2077.4 kg Filled with Water 4053.1 kg Bundle 836.05 kg

Remarks: Supports/baffle space = 3.

Full Vacuum on Shell Side and Tube Side will be considered.

Note: Reported duty and flow rates include a user-specified multiplier of 1.10.