



HEAT EXCHANGER SPECIFICATION SHEET

Released to the following company:
SC
SSD

ali Units

Job No.

Customer	PAD JAM PETROCHEMICAL	Reference No.	
Address		Proposal No.	
Plant Location	ASSALOUYEH	Date	5/5/2024 Rev 3
Service of Unit	Evaporator	Item No.	RU-0001A-E-02
Size	600 - 924.32 x 2300 mm	Type	BKU Horizontal
Surf/Unit (Gross/Eff)	57.259 / 54.598 m2	Shell/Unit	1
		Connected In	1 Parallel 1 Series
		Surf/Shell (Gross/Eff)	57.259 / 54.598 m2

PERFORMANCE OF ONE UNIT

Fluid Allocation	Shell Side		Tube Side	
	Propane		Styrene	
Fluid Name				
Fluid Quantity, Total	kg/hr	2796.0	36930	
Vapor (In/Out)		1200.6		2796.0
Liquid		1595.4	36930	36930
Steam				
Water				
Noncondensables				
Temperature (In/Out)	C	0.85	0.63	15.20 5.00
Specific Gravity		0.5279	0.0103	0.9100 0.9184
Viscosity	mN-s/m2	0.0077 V/L 0.1261	0.0077	0.8200 0.9600
Molecular Weight, Vapor				
Molecular Weight, Noncondensables				
Specific Heat	kJ/kg-C	1.6880 V/L 2.5415	1.6863	1.6040 1.5780
Thermal Conductivity	W/m-C	0.0159 V/L 0.1090	0.0159	0.1500 0.1500
Latent Heat	kJ/kg	376.07	376.40	
Inlet Pressure	bar	4.860		5.500
Velocity	m/s	0.19		0.61
Pressure Drop, Allow/Calc	bar	0.160	0.034	0.200 0.096
Fouling Resistance (min)	m2-K/W	0.000170		0.000200

Heat Exchanged	0.1666 MegaWatts	MTD (Corrected)	8.4 C
Transfer Rate, Service	364.60 W/m2-K	Clean	498.24 W/m2-K
		Actual	413.39 W/m2-K

CONSTRUCTION OF ONE SHELL

	Shell Side		Tube Side		Sketch (Bundle/Nozzle Orientation)
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	In	mm	1 @ 92.050	1 @ 77.927	
	Size & Rating	Out	mm	1 @ 146.33	
	Intermediate		@	@	

Tube No.	188U	OD	19.050 mm	Thk(Avg)	1.651 mm	Length	2.300 m	Pitch	23.813 mm	
Tube Type	Plain		Material		SA-334 6	Tube pattern				30
Shell	SA-516 70N	ID	600.00	OD	622.22 mm	Shell Cover	SA-516 70N	(Integ.)		
Channel or Bonnet	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)		562.70	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	570.74	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	1966.5	kg	Filled with Water	3813.8	kg	Bundle	791.24	kg		

Remarks: Supports/baffle space = 3.

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