



Toase-ehe Park Sanati Gohar Ofogh
Petrochemical Co.
**CONCEPTUAL, BASIC and DETAIL DESIGN
ENGINEERING OF STYRENE PARK OFFSITE**



Document Title: Chiller (Evaporator) Data Sheet

Document No.: EI027-HSE-VD –ME–DSH–007- R1

Rev. R1

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STYRENE PARK OFFSITE

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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



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REVISION RECORD SHEET

Page Page	Revisions							Page	Revisions						
	R0	R1	R2	R3	R4	R5	R6		R0	R1	R2	R3	R4	R5	R6
1	X							41							
2	X							42							
3	X							43							
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HEAT EXCHANGER SPECIFICATION SHEET

Released to the following company:

SI Units

SC
SSD

Vendor Reply:
Refer to purchaser duty specification, normal flow is 40.6 m3/h and liquid density is 909.6 kg/m3. So normal mass flow is 36930 kg/h, by considering 10% overdesign on flow and duty, styrene flowrate is calculated about 40623 kg/h.

PR CM: Discrepancy with PFD

Rev

1 Series

/ 58.956 m2

Customer PAD JAM PETROCHEMICAL
Address
Plant Location ASSALOUYEH
Service of Unit Evaporator
Size 600 - 924.32 x 2500 mm Type BKU Horizontal
Surf/Unit (Gross/Eff) 61.76 / 58.956 m2 Shell/Unit 1

PERFORMANCE OF ONE UNIT

Fluid Allocation	Side	Tube Side
Fluid Name	Styrene	Styrene
Fluid Quantity, Total	40623	40623
Vapor (In/Out)	3104.1	40623
Liquid	1757.8	40623
Steam		40623
Water		40623
Noncondensables		
Temperature (In/Out) C	1.24	1.00
Specific Gravity	0.5331	0.9100
Viscosity mN-s/m2	0.0076 V/L 0.1294	0.0076
Molecular Weight, Vapor		0.8200
Molecular Weight, Noncondensables		0.9600
Specific Heat kJ/kg-C	1.7859 V/L 2.4339	1.7838
Thermal Conductivity W/m-C	0.0161 V/L 0.1090	0.0160
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
Fouling Resistance (min) m2-K/W	0.000170	0.500
Heat Exchanged	0.1832 MegaWatts	MTD (Corrected)
Transfer Rate, Service	391.37 W/m2-K	Clean 524.10 W/m2-K Actual 431.04 W/m2-K

Vendor Reply:
Already specified.
Inlet stream condition is two phase and outlet stream is just vapor.

Kindly complete these columns by both vapor and liquid

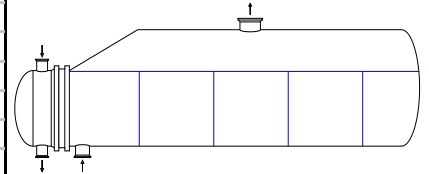
PR CM: Discrepancy with PFD

Vendor Reply:
Noted. It will be updated. 5.5 bara (4.5 barg) will be considered

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	In mm	1 @ 92.050
Size & Rating	Out mm	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 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	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.

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