TEMA Sheet

Heat Exchanger Specification Sheet

1	Company: XYZ Engineering Corp							
2	Location: N.A.							
3	Service of Unit: N.A.		Our Reference: N.A.					
4	Item No.: N.A.		Your Reference: N.A.					
5	Date: 09-07-2024	Rev No.: 0	Job No.: 12345					
6	Size: 203 - 1828.8 mm	Type: BEM	Horizontal		Connected in: 1 parallel	1 series		
7	Surf/unit(eff.) 3.6 m²	Shells/unit 1			Surf/shell(eff.)	3.6 m²		
8	**PERFORMANCE OF ONE UNIT**							
9	Fluid allocation		Shell Side		Tube Side			
10	Fluid name		Toluene		Benzene			
11	Fluid quantity, Total kg/s		0.5556		0.5556			
12	Vapor (In/Out) kg/s		0	0	0	0		
13	Liquid kg/s		0.5556	0.5556	0.5556	0.5556		
14	Noncondensable kg/s		0	0	0	0		
15								
16	Temperature (In/Out) °C		25	45.75	70	50		
17	Bubble / Dew point °C		/	/	93.64 / 93.64	92.34 / 92.34		
18	Density Vapor/Liquid kg/m³		/ 864.79	/ 845.49	/ 825.55	/ 846.72		
19	Viscosity mPa-s		/ 0.5543	/ 0.444	/ 0.3557	/ 0.4437		
20	Molecular wt, Vap							
21	Molecular wt, NC							
22	Specific heat kJ/(kg-K)		/ 1.572	/ 1.662	/ 1.724	/ 1.631		
23	Thermal conductivity W/(m-K)		/ 0.1308	/ 0.1248	/ 0.1276	/ 0.1342		
24	Latent heat kJ/kg							
25	Pressure (abs) bar		2.5	2.48807	1.5	1.44606		
26	Velocity (Mean/Max) m/s		0.05 / 0.05		0.48 / 0.49			
27	Pressure drop, allow./calc. bar		0.2	0.01193	0.2	0.05394		
28	Fouling resistance (min) m²-K/W		0.0001		0.0001	0.00013 Ao based		
29	Heat exchanged 18.6 kW				MTD (corrected)	21.47 °C		
30	Transfer rate, Service 243.5		Dirty 247.2		Clean 262	W/(m²-K)		
31	**CONSTRUCTION OF ONE SHELL**						**Sketch**	
32			Shell Side		Tube Side			
33	Design/Vacuum/test pressure bar		3.44738 / /		3.44738 / /			
34	Design temperature / MDMT °C		110 /		110 /			
35	Number passes per shell		1		4			
36	Corrosion allowance mm		3.18		3.18			
37	Connections In mm		1 25.4 / -		1 19.05 / -			
38	Size/Rating Out		1 25.4 / -		1 19.05 / -			
39	Nominal Intermediate		/ -		/ -			
40	Tube #: 34 OD: 19.05 Tks. Average 2.11 mm		Length: 1828.8 mm		Pitch: 23.81 mm		Tube pattern:30	
41	Tube type: Plain		Insert:None		Fin#: #/m		Material:Carbon Steel	
42	Shell Carbon Steel ID 205		OD 219.08 mm		Shell cover -			
43	Channel or bonnet Carbon Steel				Channel cover -			
44	Tubesheet-stationary Carbon Steel -				Tubesheet-floating -			
45	Floating head cover -				Impingement protection None			
46	Baffle-cross Carbon Steel	Type Single segmental		Cut(%d) 43.02	Horiz.	Spacing: c/c 171.45 mm		
47	Baffle-long -	Seal Type				Inlet 276.23 mm		
48	Supports-tube U-bend	0			Type			
49	Bypass seal		Tube-tubesheet joint		Expanded only (2 grooves)(App.A 'i')			
50	Expansion joint -		Type None					
51	RhoV2-Inlet nozzle 1148		Bundle entrance 3		Bundle exit 1		kg/(m-s²)	
52	Gaskets - Shell side -		Tube side		Flat Metal Jacket Fibe			
53	Floating head -							
54	Code requirements	ASME Code Sec VIII Div 1		TEMA class	R - refinery service			
55	Weight/Shell 274.2	Filled with water 329.1		Bundle 91.8		kg		
56	Remarks	This is a dummp TEMA Sheet for practice purpose.						
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