

This design is for 50 mmscfd of gas flow & 136 gpm of liquid at -10 F.
 The nozzles on the shell side are limiting the capacity of the exchanger.
 Shell side inlet nozzle can be changed to 4".
 Changing the connections on the shell to 6" inlet 3" outlet will allow for 60 plus mmscfd.

Heat Exchanger Specification Sheet

1	Company:														
2	Location:														
3	Service of Unit:					Our Reference:									
4	Item No.:					Your Reference:									
5	Date:			Rev No.:			Job No.:								
6	Size:	12	-96	in	Type:	NEN	Horizontal	Connected in:	1	parallel	1	series			
7	Surf/unit(eff.)	189.2		ft ²	Shells/unit	1		Surf/shell(eff.)	189.2		ft ²				
8	PERFORMANCE OF ONE UNIT														
9	Fluid allocation				Shell Side				Tube Side						
10	Fluid name				17->18				19->20						
11	Fluid quantity, Total				35136.3				122032						
12	Vapor (In/Out)				lb/h		0	2520.6	106293.6		103604.9				
13	Liquid				lb/h		35136.3	32615.6	15738.4		18427.1				
14	Noncondensable				lb/h		0	0	0		0				
15															
16	Temperature (In/Out)				°F		-10	27.05	61.01		51.07				
17	Bubble / Dew point				°F		-9.99 / 553.69	-10.9 / 549.56	-170.02 / 121.48		-170.24 / 120.61				
18	Density Vapor/Liquid				lb/ft ³		/ 32.105	3.976 / 31.805	3.66 / 34.439		3.707 / 34.182				
19	Viscosity				cp		/ 0.1288	0.0123 / 0.1211	0.0129 / 0.1544		0.0127 / 0.1514				
20	Molecular wt, Vap							20.03	20.34		20.11				
21	Molecular wt, NC														
22	Specific heat				BTU/(lb-F)		/ 0.5941	0.6592 / 0.6083	0.6206 / 0.6003		0.6272 / 0.5978				
23	Thermal conductivity				BTU/(ft-h-F)		/ 0.056	0.02 / 0.054	0.02 / 0.055		0.02 / 0.055				
24	Latent heat				BTU/lb		83.4	79	96.9		93.3				
25	Pressure (abs)				psi		799.7	795.31	809.7		806.83				
26	Velocity (Mean/Max)				ft/s		3.25 / 4.85		34.35 / 34.96						
27	Pressure drop, allow./calc.				psi		10	4.39	10		2.87				
28	Fouling resistance (min)				ft ² -h-F/BTU		0.001		0.0015		0.0019 Ao based				
29	Heat exchanged		988456	BTU/h		MTD (corrected)		46.23	°F						
30	Transfer rate, Service		113.04	Dirty		113.03	Clean		168.89	BTU/(h-ft ² -F)					
31	CONSTRUCTION OF ONE SHELL								Sketch						
32					Shell Side				Tube Side						
33	Design/Vacuum/test pressure				psi		1440 / /	1440 / /							
34	Design temperature / MDMT				°F		133 /	350 /							
35	Number passes per shell						1	1							
36	Corrosion allowance				in		0.0625	0.0625							
37	Connections		In	in		1	4 / 900 ANSI	1		10 / 600 ANSI					
38	Size/Rating		Out			1	2 / 900 ANSI	1		10 / 600 ANSI					
39	Nominal		Intermediate				/ 900 ANSI			/ 600 ANSI					
40	Tube #:	126	OD:	0.75	Tks. Average	0.083	in	Length:	96	in	Pitch:	0.9375	in	Tube pattern:	30
41	Tube type: Plain		Insert:None		Fin#:		#/in	Material:Carbon Steel							
42	Shell Carbon Steel		ID	12.5	OD	14	in	Shell cover		-					
43	Channel or bonnet		Carbon Steel				Channel cover		Carbon Steel						
44	Tubesheet-stationary		Carbon Steel		-		Tubesheet-floating		-						
45	Floating head cover		-				Impingement protection		None						
46	Baffle-cross		Carbon Steel	Type	Single segmental	Cut(%d)	24.02	VertiSpacing: c/c		2.75	in				
47	Baffle-long		-		Seal Type		Inlet		4.625 in						
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		465	Bundle entrance		538	Bundle exit		1744		lb/(ft-s ²)				
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		3428.9	Filled with water		4008.6	Bundle		784.3		lb				
56	Remarks														
57															
58															

