

HEAT EXCHANGER SPECIFICATION SHEET

Customer	KP Engineering	P.O. No.	J1422-B-007
Address	Tyler, TX	Job No.	1203-05
Plant Location	Holly Frontier- Tulsa, OK	Date	2/5/16
Service of Unit	Tank-12 vs Chilled Water Exchanger	Item No	022-E-500
Size	34-240	Type	AEU Horizontal
Surf/Unit (Eff), Sq Ft	2943	Shell/Unit	1
		Surf/Shell (Eff)	2943 Sq Ft
		Connected In	1 Parallel 1 Series

PERFORMANCE OF ONE UNIT

Fluid Allocation		Shell Side		Tube Side	
Fluid Name		TK-12 Circulation		Chilled Water / EG	
Fluid Quantity, Total	lb/hr	220,295		176,599	
Vapor (In/Out)					
Liquid		220,295	220,295	176,599	176,599
Steam					
Water					
Noncondensable					
Temperature (In/Out)	F	75.50	60.90	50.30	60.90
Density		41.59	42.04	64.85	64.74
Viscosity	cP	0.3370	0.3370	2.3680	2.3680
Molecular Weight, Vapor					
Molecular Weight, Noncondensable					
Specific Heat	Btu/lb-F	0.5020	0.5020	0.8730	0.8730
Thermal Conductivity	Btu/hr-ft-F	0.0670	0.0670	0.2130	0.2130
Latent Heat	Btu/lb				
Inlet Pressure	psia	94.696		59.696	
Velocity	ft/sec			2.03	
Pressure Drop, Allow/Calc	psi	30.000	4.099	20.000	2.338
Fouling Resistance (min)	ft ² -hr-F/Btu	0.00200		0.00200	
Heat Exchanged	Btu/hr	1,630,200	MTD (Corrected)	9.6 F	
Transfer Rate, Service		57.7 Btu/ft ² -hr-F			

CONSTRUCTION OF ONE SHELL

		Shell Side		Tube Side	
Design Pressure	PSI	200 / F.V.		225 / F.V.	
Test Pressure		CODE		CODE	
Design Temperature / MDMT	F	150 / 300 / -20		150 / 300 / -20	
No Passes per Shell		1		4	
Corrosion Allowance	inch	0.1250		0.1250	
Connections	In	1 @ 6	150 # RFWN	1 @ 6	150 # RFWN
	Out	1 @ 6	150 # RFWN	1 @ 6	150 # RFWN
Tube No	362U OD	0.7500 Thk(Avg)	0.065 inch	Length 20.000 feet	Pitch 1.0000 inch Layout 45
Tube Type	BARE			Material	SA-249-304 L
Shell	SA-516-70	OD 34.00 inch		Shell Cover	SA-516-70
Channel or Bonnet	SA-516-70			Channel Cover	SA-516-70
Tubesheet-Stationary	SA-516-70			Tubesheet-Floating	
Floating Head Cover				Impingement Plate	Circular plate
Baffles-Cross	304 SS Type Sing Seg - Horiz	%Cut (Diam)	16.70	Spacing(c/c)	7.125
Baffles-Long					
Supports-Tube		U-Bend		Type	
Bypass Seal Arrangement		Tube-Tubesheet Joint		Rolled & Double Grooved	
Gaskets - Shell	D.J. N.A.	Tube		D.J. N.A.	
-Floating Head					

Code Requirements ASME Section VIII, Div. I TEMA Class R, API 660

Remarks: Unit is thermally, vibrationally and mechanically guaranteed by Taylor Forge Engineered Systems. PMI alloy materials. Counter current flow. National Board registration included. 1" minimum bolting. Spot X-ray. Two sets of spare gaskets included. Paint channel ID with one coat of Ceram-Kote 2000. Magnesium anodes in channel. Two (2) grounding lugs.