TAYLOR FORGE Engineered Systems
Traditionally Dependable

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HEAT EXCHANGER SPECIFICATION SHEET

Customer	KP Engineering	P.O. No.	J144-B-007
Address	Tyler, TX	Job No.	1203-04
Plant Location	Holly Frontier- Tulsa, OK	Date	2/24/16
Service of Unit	Debutanizer Steam Reboiler	Item No.	374-E-C221

Size 40-240 Type AEU Horizontal Connected In 1 Parallel 1 Series

Surf/Unit (Eff), Sq Ft 3189 Shell/Unit 1 Surf/Shell (Eff) 3189 Sq Ft

PERFORMANCE OF ONE UNIT

Fluid Allocation		Shell Side		Tube Side	
Fluid Name		Steam		Debutanizer Bottoms	
Fluid Quantity, Total	lb/hr	32,535		615,692	
Vapor (In/Out)					206,934
Liquid				615,692	408,758
Steam		32,535			
Water			32,535		
Noncondensable					
Temperature (In/Out)	F	552.70	420.79	334.40	354.6
Density			52.71	32.27	31.67
Viscosity	cP	0.0196	0.1239	0.1000	0.011 V/L 0.095
Molecular Weight, Vapor		18.02			83.87
Molecular Weight, Noncondensable					
Specific Heat	Btu/lb-F	0.511	1.200	0.733	0.598 V/L 0.758
Thermal Conductivity	Btu/hr-ft-F	0.026	0.377	0.038	0.017 V/L 0.036
Latent Heat	Btu/lb				
Inlet Pressure	psia	314.70		206.70	
Velocity	ft/sec			11.21	
Pressure Drop, Allow/Calc	psi	10.000	0.765	15.000	5.551
Fouling Resistance (min)	ft2-hr-F/Btu	0.00050		0.0040	

Heat Exchanged Btu/hr 28,750,000 MTD (Corrected) 72.7 F

Transfer Rate, Service 124.0 Btu/ft2-hr-F

CONSTRUCTION OF ONE SHELL

			Shell Side	Tube Side
Design Pressure		PSI	675 / F.V.	525 / F.V.
Test Pressure			CODE	CODE
Design Temperature / MDMT		F	725 / 300 / -20	425 / 300 / -20
No Passes per Shell			1	2
Corrosion Allowance		inch	0.1250	0.1250
Connections	In	inch	1 @ 12 600 # RFWN	1 @ 10 300 # RFWN
	Out	inch	1 @ 6 600 # RFWN	1 @ 14 300 # RFWN

Tube No 313U OD 1.0000 Thk(Min) 0.109 inch Length 20.0 feet Pitch 1.250 inch Layout 45

Tube Type BARE Material SA-214

Shell	SA-516-70 ID 40.00 inch	Shell Cover	SA-516-70
Channel or Bonnet	SA-516-70	Channel Cover	SA-516-70
Tubesheet-Stationary	SA-350-LF2	Tubesheet-Floating	
Floating Head Cover		Impingement Plate	Circular plate

Baffles-Cross SA-36 Type Sing Seg - Vert %Cut (Diam) 30.10 Spacing(c/c) 9

Baffles-Long

Supports-Tube SA-36 U-Bend SA-36 Type Full

Bypass Seal Arrangement Tube-Tubesheet Joint Rolled & Double Grooved

Gaskets - Shell GMGC Tube GMGC

-Floating Head

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

Remarks: Unit is thermally, vibrationaly and mechanically guaranteed by Taylor Forge Engineered Systems. Two grounding lugs.
Counter current flow. National Board registration included. 1" minimum bolting. Two sets of spare gaskets included.
Lath Stud type fireproofing supports. PMI bolting. Full X-ray.

Revised: Gasket material per customer by K Duke