

SMITHCO Engineering Inc.

P.O. Box 571330 Tulsa, OK 74157
Ph. (918) 446-4406 FAX (918) 445-2857

AIR COOLED EXCHANGER SPECIFICATION SHEET

Date Mon* 9:50 am*11-MAR-2002

Proposal/Job No. 2002B-436-01

Reference 268-SEI-001

Item No. #4

Customer Turn-Key Specialists

Location New Caney, TX

Service Gas Cooler

Model 2 F46-140-2

Type FORCED

No. of Bays 2

Surface per Unit-Finned Tube 190,600

Ft² Bare Tubes 9,732 Ft²

Heat Exchanged 14,420,000

BTU/Hr MTD (Eff.) 15.41 (Crossflow) °F

Transfer Rate-Finned Tube 4.91 Bare Tube, Service 96.18

BTU/Hr. Ft² °F**PERFORMANCE DATA-TUBE SIDE**

Fluid Name	OVHD	Lethal Service	Yes ☐ No ☒	IN	OUT
Total Fluid Entering	Lb/Hr 1,643,000	Density	Lb/Ft ³ 2.50	2.56	
	IN	OUT	Specific Heat (Liq/Vap)	BTU/Lb°F 1.627	1.627
Temperature	°F 134.0	120.0	Cond. avg (Liq/Vap)	BTU/HrFt ² °F .0200	
Liquid	Lb/Hr		Pour/Freeze Point	°F	
Vapor	Lb/Hr (MW) 1,643,000 (16.8)	1,643,000 (16.8)	Bubble Point	°F	
Nocond	Lb/Hr (MW)		Latent Heat	BTU/Lb	
Steam	Lb/Hr		Pressure	Psia 949.66	
Water	Lb/Hr		Pressure Drop Allow/Calc	Psi 5.00 / 4.18	
Viscosity (Liq/Vap)	Cp .013	.013	Fouling resist, Inside	ft ² hr °F/BTU 0.00100	

PERFORMANCE DATA-AIR SIDE

Air Quantity	SCFM 740,400	Lb/Hr 3,332,000	Altitude	Ft 200
Air Quantity/Fan ACFM	196,800		Temperature In	°F 100.0
			Temperature Out	°F 118.0

DESIGN - MATERIAL - CONSTRUCTION

Design Pressure	1,100	Psig	Test Pressure	1,650	Psig	Design Temperature	200 / MDMT 30	°F
TUBE BUNDLE			HEADER, Type	PLUG BOX		TUBE Material	SA-214 WLD	
	14.0 x 46.0		Material	SA-516 GR-70				
	No. Tube Rows 5		No. Passes	1	Slope 0.1250	In/Ft	OD 1.250	In Min. Thick 0.0650
Bays	2	In Parallel	In Series	Plug A1052220			No./Bundle 323	Length 46.0
Bundles	2	In Parallel	In Series	Gasket CS2213			Pitch 2.5625	InΔ
Pass Arrangement (Top to Bottom)			Corrosion Allowance	0.0625	In		FIN Type L-TENSION	
Rows / Pass	5 / 1		Size In Nozzle (3) 12.00	SCH 80 SA-106B	In		Material ALUM	
			Size Out Nozzle (3) 12.00	SCH 80 SA-106B	In	OD 2.500	In Stock Thick 0.016	In
Steam Coil	NO		Rating & Facing	600 -RF SA-105		No./In 10	Support Chan. / Staple	
Hailscreens	YES		Vent (2) 1-6000	Drain (0)		Code-ASME VIII, Div 1	YES	Stamp ASME
Louvers	NONE (0)		TI NONE	PI NONE		Radiograph	NO	Heat Treat YES
Frame Finish	HTC 1 Coat Galvanize		Header Finish	WMSB 1 Coat Metalize		Tube Hole Grooving	YES	

MECHANICAL EQUIPMENT

FAN Mfg & Model	MOORE 60 5000	DRIVER Type	SIEMENS	SPEED REDUCER Type	COG
No./Bay	2	RPM	255	S.F.	1.15
Dia.	13.0	Ft	No. Blades	6	Insul/TR CLASS F / B
Pitch	ADJUSTABLE	Angle°	11.	No./Bay	2
Matl, Blade	ALUMINUM	Hub	CASTALUM	RPM (2)	1750
HP/Fan, Des.	32.9	DBA	87.	Enclosure	TEFC
				V & D	None
				Space Heater	NO
				Vibration Switch	MURPHY VS-2EX

STRUCTURE

Mounting	GRADE	Inlet Header	in. None
Windload - PSF	30.0	Outlet/Return	in. None
Finish	HTC 1 Coat Galvanize	Drive Access	in. None

WALKWAYS**NOTES**

Assembled Drive, Structure & Bundles (Within Shipping Restrictions)

Plot Area 28.0 x 46.0 ft Weight Bundle 39,760 Lbs Total Shipping 128,100 Lbs

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3	Device	Gas Cooler			
4	Model	2 F46-140-2	Type	FORCED	No. of Bays 2
5	Surface per Unit-Finned Tube	190,600		Ft ²	Bare Tubes 9,732 Ft ²
6	Heat Exchanged	14,420,000		BTU/Hr	MTD (Eff.) 15.41 (Crossflow) °F
7	Transfer Rate-Finned Tube	4.91	Bare Tube, Service	96.18	BTU/Hr. Ft ² °F

PERFORMANCE DATA-TUBE SIDE

8					
9	Fluid Name	OVHD		Lethal Service	Yes ☐ No ☒
10	Total Fluid Entering	Lb/Hr	1,643,000	Density	Lb/Ft ³
11		IN	OUT	Specific Heat (Liq/Vap)	BTU/Lb°F
12	Temperature	°F	134.0	120.0	Cond. avg (Liq/Vap) BTU/Hr°F
13	Liquid	Lb/Hr			Pour/Freeze Point °F
14	Vapor	Lb/Hr (MW)	1,643,000 (16.8)	1,643,000 (16.8)	Bubble Point °F
15	Nocond	Lb/Hr (MW)			Latent Heat BTU/Lb
16	Steam	Lb/Hr			Pressure Psia
17	Water	Lb/Hr			Pressure Drop Allow/Calc Psi
18	Viscosity (Liq/Vap)	Cp	.013	.013	Fouling resist, Inside ft ² hr °F/BTU

PERFORMANCE DATA-AIR SIDE

19					
20	Air Quantity	SCFM	740,400	Lb/Hr	3,332,000
21	Air Quantity/Fan	ACFM	196,800	Altitude	Ft 200
22				Temperature In	°F 100.0
23				Temperature Out	°F 118.0

DESIGN - MATERIAL - CONSTRUCTION

24					
25	Design Pressure	1,100	Psig	Test Pressure	1,650 Psig
26	TUBE BUNDLE		HEADER, Type PLUG BOX		TUBE Material SA-214 WLD
27	Tube	14.0 x 46.0	Material SA-516 GR-70		
28	2	No. Tube Rows	5	No. Passes	1
29	Bays	2	In Parallel	In Series	Plug A1052220
30	Bundles	2	In Parallel	In Series	Gasket CS2213
31	Pass Arrangement (Top to Bottom)		Corrosion Allowance 0.0625		In
32	Rows / Pass	5 / 1	Size In Nozzle (3) 12.00 SCH 80 SA-106B		In
33			Size Out Nozzle (3) 12.00 SCH 80 SA-106B		In
34	Steam Coil	NO	Rating & Facing 600 -RF SA-105		No/In 10
35	Hailscreens	YES	Vent (2) 1-6000 Drain (0)		Code-ASME VIII, Div 1 YES
36	Louvers	NONE (0)	TI NONE PI NONE		Radiograph NO
37	Frame Finish	HTC 1 Coat Galvanize	Header Finish WMSB 1 Coat Metalize		Tube Hole Grooving YES

MECHANICAL EQUIPMENT

38					
39	FAN Mfg & Model	MOORE 60 5000	DRIVER Type SIEMENS		SPEED REDUCER Type COG
40	No./Bay	2	RPM	255	S.F. 1.15
41	Dia.	13.0	Ft.	No. Blades	6
42	Pitch	ADJUSTABLE	Angle°	11.	No./Bay 2
43	Matl, Blade	ALUMINUM	Hub	CASTALUM	HP Rating 80.0
44	HP/Fan, Des.	32.9	DBA	87.	Ratio 6.86

STRUCTURE**WALKWAYS**

45	Mounting	GRADE	Inlet Header	in. None
46	Windload - PSF	30.0	Seismic	None
47	Finish	HTC 1 Coat Galvanize	Outlet/Return	in. None
			Drive Access	in. None

NOTES

48	Assembled Drive, Structure & Bundles (Within Shipping Restrictions)			
49				
50				
51				
52				
53				
54				
55	Plot Area	28.0 x 46.0	ft	Weight Bundle 39,760
			Lbs	Total Shipping 128,100
				Lbs