

AIR COOLED HEAT EXCHANGER
DATA SHEET (US CUSTOMARY UNITS)

JOB NO 20060534
 PAGE 1 OF 3
 DATE 01-22-07
 PROPOSAL NO 3614 Rev.1
 INQUIRY NO

TAG HAL 2310
 BY RAF
 REVISION 1
 CONTRACT NO
 ORDER NO

GENERAL INFORMATION																																	
MANUFACTURE <u>Tek-Fins, Inc.</u>		HEAT EXCHANGED, BTU / H <u>9,760,000 x 1.10</u>																															
MODEL NO <u>2-1736T12.5</u>		SURFACE / ITEM--FINNED TUBE, FT ² <u>170.450</u>																															
CUSTOMER _____		BARE TUBE, SQ FT <u>8.162</u>																															
PLANT LOCATION <u>Station</u>		MTD EFF, °F <u>127.19</u>																															
SERVICE <u>Compressor Aftercooler</u>		TRANSFER RATE, BTU / H - SQ FT-°F:																															
TYPE DRAFT: ☐ INDUCED ☒ FORCED		FINNED <u>3.76</u>																															
BAY SIZE (W x L), FT <u>17 x 36 (tubes)</u>		BARE TUBE <u>78.47</u>																															
NO OF BAYS / ITEM: <u>2</u>		CLEAN _____																															
BASIC DESIGN DATA																																	
PRESSURE DESIGN CODE <u>ASME VIII, Div I</u>		STRUCTURAL CODE <u>AISC</u>																															
TUBE BUNDLE CODE STAMPED ☒ Y ☐ N		FLAMMABLE SERVICE ☒ Y ☐ N																															
HEATING COIL CODE STAMPED ☐ Y ☐ N		LETHAL/TOXIC SERVICE ☐ Y ☒ N																															
API 661 ☒ Y ☐ N																																	
PERFORMANCE DATA--TUBE SIDE																																	
FLUID NAME <u>Natural Gas (0.6 SG)</u>																																	
DEW / BUBBLE POINT, ° _____ / _____																																	
☐ POUR ☐ FREEZE PT, °F _____																																	
LATENT HEAT BTU/Lb _____																																	
INLET PRESSURE <u>932.3</u> ☒ psig ☐ psia																																	
PRESS DROP, (ALLOW / CALC), PSI <u>7.0 / 2.0</u>																																	
VEL, (ALLOW / CALC), FT / S _____ / _____																																	
INSIDE FOUL RES, H - SQ FT-°F / BT <u>0.001</u>																																	
		<table style="width:100%; border-collapse: collapse;"> <tr> <th style="width:50%;"></th> <th style="width:25%; text-align: center;">IN</th> <th style="width:25%; text-align: center;">OUT</th> </tr> <tr> <td>TOTAL FLOW, LB / H</td> <td style="text-align: center;">790788</td> <td style="text-align: center;">790788</td> </tr> <tr> <td>WATER/STEAM, LB / H</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>NON-CONDENSABLE, LB / H</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>REL MOLECULAR MASS (Vap/Non-con)</td> <td style="text-align: center;">0.0251</td> <td style="text-align: center;">0.0251</td> </tr> <tr> <td>THERMAL CONDUCTIVITY (liq/vap) BT</td> <td style="text-align: center;">145</td> <td style="text-align: center;">125</td> </tr> <tr> <td>TEMPERATURE, °F</td> <td style="text-align: center;">2.784</td> <td style="text-align: center;">0.014</td> </tr> <tr> <td>DENSITY, LB / CU FT</td> <td style="text-align: center;">0.6175</td> <td style="text-align: center;">Average</td> </tr> <tr> <td>VISCOSITY, CP</td> <td></td> <td></td> </tr> <tr> <td>SPECIFIC HEAT, BTU / LB - °F</td> <td></td> <td></td> </tr> </table>			IN	OUT	TOTAL FLOW, LB / H	790788	790788	WATER/STEAM, LB / H	0	0	NON-CONDENSABLE, LB / H	0	0	REL MOLECULAR MASS (Vap/Non-con)	0.0251	0.0251	THERMAL CONDUCTIVITY (liq/vap) BT	145	125	TEMPERATURE, °F	2.784	0.014	DENSITY, LB / CU FT	0.6175	Average	VISCOSITY, CP			SPECIFIC HEAT, BTU / LB - °F		
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PERFORMANCE DATA--AIR SIDE																																	
AIR INLET TEMP (DESIGN DRY BULB), ° <u>105</u>		FACE VELOCITY, FPM <u>370 SFPM</u>																															
AIR OUTLET TEMP, °F <u>127.19</u>		MIN DESIGN AMBIENT TEMP, °F _____																															
AIR FLOW RATE / ITEM (LB / H) (SCI) <u>2,016,137 lb./hr.</u>		ALTITUDE, FT <u>0</u>																															
MASS VEL, (NET FREE AREA), LB / H - S <u>3.390</u>		STATIC PRESSURE, IN WATER <u>0.248</u>																															
AIR FLOW RATE / FAN, ACF <u>119,485</u>																																	
DESIGN, MATERIALS, AND CONSTRUCTION																																	
GENERAL		HEATING COIL																															
DESIGN PRESSURE, PSIG <u>1300</u>		NO OF TUBES <u>NA</u> O.D, IN _____																															
TEST PRESSURE, PSIG <u>Per ASME VIII</u>		TUBE MATERIAL _____																															
DESIGN TEMPERATURE, °F <u>300</u>		FIN MATERIAL AND TYP _____																															
MIN DESIGN METAL TEMP, ° <u>-20</u>		THICKNESS, IN _____																															
TUBE BUNDLE		ASME CODE, SECTION VIII, DIVISION 1 STAMP?																															
SIZE (W x L), FT <u>16.83 x 37.5</u>		☐ YES ☐ NO																															
NO / BAY <u>One</u> NO OF TUBE ROWS <u>Five</u>		HEATING FLUID _____ FLOW, LB / _____																															
BUNDLES IN PARALLEL <u>Two</u> SERIES <u>0</u>		TEMPERATURE (IN / OUT), °F _____ / _____																															
STRUCTURE MOUNTING:		INLET PRESSURE, PSIG _____																															
☐ GRADE ☐ PIPE RACK ☒ RAISED DECK		PRESS DROP (ALLOW / CALC), PSI _____ / _____																															
PIPE-RACK BEAMS DISTANCE (C-C) _____		DESIGN TEMP, °F / PRESS, PSIG _____ / _____																															
LADDERS, WALKWAYS, PLATFORMS:		INLET / OUTLET NOZZLE, NPS _____ / _____																															
☐ YES ☐ NO ☒ BY OTHERS		LOUVER																															
STRUCTURE SURF PREP / COATING _____		MATERIAL <u>Aluminum w/ Hail</u>																															
<u>Galvanized</u>		ACTION CONTROL: ☐ AUTO ☒ MANUAL																															
HEADER SURF PREP / COATING <u>Metallized</u>		ACTION TYPE: ☐ OPPOSED ☒ PARALLEL																															

**AIR COOLED HEAT EXCHANGER
SPECIFICATION SHEET**

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DESIGN, MATERIALS, AND CONSTRUCTION (CONTINUED)

HEADER (CONTINUED)

TYPE Box W/Plugs
MATERIAL SA 516-70
CORROSION ALLOWANCE, INCH 0.063
NO. OF PHASES 1
SLOPE, IN / FT 1/8 -single pass, 0-double pass
PLUG MATERIAL Steel
GASKET MATERIAL Stainless Filled

NOZZLE

SIZES	Per Bundle	NO	SIZE, NPS	RATING AND FACING
INLET	<u>2</u>	<u>10</u>	<u>600 RF</u>	
OUTLET	<u>2</u>	<u>10</u>	<u>600 RF</u>	
VENT	<u>1</u>	<u>1</u>	<u>600 RF</u>	
DRAIN	<u>1</u>	<u>1</u>	<u>600 RF</u>	
TEMP IND				
PRESS IND				
OTHER				
CHEMICAL CLEANING				
MIN WALL THK, IN				

TUBE

MATERIAL SA 179 (SMLS)
OD, IN 1 MIN WALL THK, IN 0.08 **Note 7**
NO / BUNDL 433 LENGTH, FT 36
PITCH, IN 2.3125
LAYOUT Triangular

FIN

TYPE L-Tension High Performance
MATERIAL 5005 marine Grade Aluminium
STOCK THK, IN 0.016
SELECTION TEMP, °
OD, IN 2.25 NO / IN 10
ASME CODE, SECTION VIII, DIVISION 1 STAMP?

☒ YES ☐ NO

CUSTOMER SPECIFICATIONS:

MECHANICAL EQUIPMENT

FAN

MFR AND MODE Moore 10000HD #42
NO / BAY 2 RPM 183
DIA, FT 12.5 NO OF BLADES 6
ANGLE 21.9
PITCH ADJUSTMEN ☒ MANUAL ☐ AUTO
BLADE MATERIAL Aluminium
HUB MATERIAL Aluminium
KW / FAN:
@ DES TEM 6.09 KW / 8.17 HP
@ MIN AMB
TIP SPEED, FPM: 7,186
MAX ALLOW
CALC

DRIVER

TYPE ELECTRIC MTR TEFC Class B Temp rise/F Insultn
MFR AND MODE Standard

NO / BAY Two DRIVER HP 10
RPM 870 SERVICE FACTOR 10%
ENCLOSURE TEFC
VOLT 480 PHASE 3 CYCLE 60
FAN NOISE LEVEL (ALLOW / CALC):
dB(A) 85 / 73.7 @ FT 3 Below

SPEED REDUCER

TYPE Poly V-Banded
MFR AND MODEL 3 VX
NO / BAY Two
SERVICE FACTOR 1.47 SPEED RATIO 4.75
SUPPORT: ☒ STRUCTURE ☐ PEDESTAL
VIB SWITCH: ☒ YES ☐ NO **Note 3**
ENCLOSURE Expanded Metal Guard

CONTROLS-AIR SIDE

AIR RECIRC ☐ NONE ☐ INTERNAL ☐ EXTERNAL
OVER ☐ SIDE ☐ END
DEGREE CONTROL OF OUTLET PROCESS TEMP:
(MAX COOLING), + / - °F /
ACTION ON CONTROL SIGNAL FAILURE
FAN PITCH: ☐ MIN ☐ MAX ☐ LOCKUP
LOUVERS: ☐ OPEN ☐ CLOSE ☐ LOCKUP
ACTUATOR AIR SUPPLY
FAN: ☐ NONE ☐ POSITIONE ☐ BIAS RELAY

LOUVERS: ☐ INLET ☐ OUTLET ☐ BYPASS
POSITIONER: ☐ YES ☐ NO
SIGNAL AIR PRESSURE, PSIG:
FROM TO
FROM TO
SUPPLY AIR PRESSURE, PSIG:
MAX MIN
MAX MIN

SHIPPING

PLOT AREA (W x L), FT 35 x 38
BUNDLE WT, LB 38,800
BAY Two

TOTAL
SHIPPING, LB 54,500

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1	NOISE DATA	PURCHASER SPECIFICATION	PURCHASER SPECIFICATION	VENDOR GUARANTEE	VENDOR GUARANTEE
2	Octave bands centre	SPL at designated location	PWL per fan	SPL at designated location	PWL per fan
3	63				
4	125				
5	250				
6	500				
7	1000				
8	2000				
9	4000				
10	8000				
11	dB(A)				
12	Overall unit PWL				
13	dB(A)	See Proposal Letter			
14	Unless otherwise specified: SPL is the sound pressure level measured in dB, reference 2×10^{-5} N/m ² . PWL is the sound power level measured in dB, reference 1×10^{-12} W. For forced draft fans, the SPL is measured at the centerline of the fan 1m below the inlet of the fan. For induced draft fans the SPL is measured 1m below the bundles. Noise of equipment shall include noise from speed reducer and motor. The upper tolerance noise level is +0 dB(A). If total noise is present, then the specified noise level shall be interpreted as 5 dB(A) more.				
15	Description of designated location:				
16	Specification of special requirements (with/without acoustic measures, special low-noise fans):				
17					
18					
19					
20					

* VENDOR TO PROVIDE