



API 661 Air-Cooled Heat Exchanger - Specification Sheet

Job No.	_____	Item No.	2102 (Summer)
Page	_____	By	_____
Date	11/20/2024	Revision	v04
Proposal No.	_____	Contract No.	_____
Inquiry No.	_____	Order No.	_____

Manufacturer	_____	Heat exchanged (MegaWatts)	0.582
Model no.	_____	Surface/Item-Finned tube (m2)	1027
Customer	PEDCO/NISOC	Bare tube (m2)	48.548
Plant location	BINAK oilfeild	MTD, Eff. (Deg. C)	31.2
Service	2st Stage Gas Compression Cool	Transfer rate-Finned (W/m2-K)	17.389
Type draft	INDUCED	Bare tube, service (W/m2-K)	386.44
Bay size (WxL) (m)	2.172 x 3.9	Bare tube, clean (W/m2-K)	428.51
No. of bays/Items	1		

Basic design data

Pressure design code	_____	Structural code	_____
Tube bundle code stamped	_____	Flammable service	_____
Heating coil code stamped	_____	Lethal/toxic service	_____

Performance Data - Tube Side

Fluid name	HYDROCARBON				
Total fluid entering (kg/hr)	8664 X 1.1	Total flow rate (Liq/Vap) (kg/hr)	In 9530.4	Out 41.263 / 9489.2	
Dew/bubble point (Deg. C)	/	Water/Steam (kg/hr)	/	/	
Latent heat (kJ/kg)		Noncondensables (kg/hr)			
Inlet pressure (barG)	54.8	Molecular Wt. (Vap/Non-cond)	/	/	
Pressure drop (All/Calc) (bar)	0.7 / 0.097	Density (Liq/Vap) (kg/m3)	/ 42.156	981.96 / 60.185	
Velocity (Allow/Calc) (m/s)	/ 3.56	Specific heat (Liq/Vap) (kJ/kg-C)	/ 2.4264	4.3096 / 2.4072	
Inside fouling resistance (m2-K/W)	0.0002	Thermal cond. (Liq/Vap) (W/m-K)	/ 0.0474	0.6515 / 0.0371	
Temperature (Deg. C)	In 148 / Out 60	Viscosity (Liq/Vap) (mN-s/m2)	/ 0.0164	0.4943 / 0.0142	

Performance Data - Air Side

Air inlet temperature (Deg. C)	50.26	Face velocity (m/s)	3.27
Air flow rate/item (m3/s)	31.43	Minimum design ambient temp. (Deg. C)	5
Mass velocity (kg/s-m2)		Altitude (m)	12.5
Air outlet temperature (Deg. C)	68.06	Static pressure (Pa)	168.85
Air flow rate/fan (m3/s)	15.714		

Design, Material, and Construction

Design pressure (barG)	62	Heating Coil	NO
Test pressure (barG)	80.6	No. of tubes	_____
Design temperature (Deg. C)	175	Tube outside diameter (mm)	_____
Min. design metal temp. (Deg. C)	5	Tube material	_____
Tube bundle		Fin material and type	_____
Size (WxL) (m)	2.12 X 3.9	Fin thickness (mm)	_____
No./Bay	1	ASME Code, Sec. VIII, Div. 1	_____
Number of tube rows	6	Heating fluid	_____
Bundles in parallel	1	Heating fluid flow rate (kg/hr)	_____
Bundles in series	_____	Temperature (In/Out) (Deg. C)	_____ / _____
Structure mounting	_____	Inlet pressure (barG)	_____
Pipe rack beams	_____	Pressure drop (All/Calc) (kPa)	_____ / _____
Ladders, walkways, platforms	_____	Design temperature (Deg. C)	_____
Structure surface prep.	_____	Design pressure (barG)	_____
Header surface prep.	_____	Inlet/Outlet nozzle	_____ / _____
Louver		Header	
Material	YES	Type	PLUG
Action control	Manual	Material	SA-240 TP316L
Action type	_____	Corrosion Allowance (mm)	0
		No. of passes	4



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Design, Material, and Construction (continued)

Header (continued)				No./Bundle	156
Slope	1% ON LAST PASS			Length (m)	3.9
Plug material	SA-182 F316 L			Pitch (mm)	70.5
Gasket material	Solid METAL			Layout	Triangular
Nozzle	No.	Size, (in)	Rating/Facing	Fin	
Inlet	1	4	600 RF	Type	Extruded
Outlet	1	4	600 RF	Material	Aluminum Alloy 1060 - O
Vent	1	2	600 RF	Thickness (mm)	0.48
Drain	1	2	600 RF	Selection temp. (C)	_____
Chemical Cleaning	_____	_____	_____	Outside diameter (mm)	57.15
Min. Wall Thk.	_____	_____	_____	Fin density (fin/meter)	400
Tube	SA-213 TP316L Tube (S) S31603			ASME Code, Sec. VIII, Div. 1	_____
Material	SA-213 TP316L Tube (S) S31603			Customer Specifications	_____
Tube outside diameter (mm)	25.4			_____	_____
wall thickness (mm)	1.651			_____	_____

Mechanical Equipment

Fan		RPM	1500
Manufacturer	_____	Service factor	1
No./Bay	2	Enclosure	Eexd, IIB T3 (IP 55)
RPM (Revs/min.)	645.4	Voltage	400
Diameter (mm)	1450	Phase	3
No. of blades	4	Cycle	50
Angle (degrees)	_____	Fan noise level (dB)	<85
Pitch adjustment	50% Auto	Speed Reducer	
Blade material	Al	Type	V-Belt
Hub material	steel/Alu	Manufacturer	_____
@design temp	4.8	No./Bay	2
@min. ambient temp	6.6	Service factor	1.8
Tip speed	_____	Speed ratio	2.28
Driver		Support	_____
Type	_____	Vib. switch	YES, Eexd, IIB T3 (IP 65)
Manufacturer	_____	Enclosure	_____
No./Bay	2		
Driver (kW)	7.5		

Controls - Air Side

Air recirculation	NO	Louvers	_____
Degree control of outlet process temp. (Max. Cooling), +/-	2.12 X 3.900	Positioner	_____
Action on control signal failure	_____	Signal air pressure (barG)	_____
Fan pitch	_____	From	To
Louvers	_____	From	To
Actuator air supply	_____	Supply air pressure (barG)	_____
Fan	_____	From	To
		From	To

Shipping

Plot area (WxL) (m)	2.172 x 3.900	Total (kg)	10514
Bundle weight (Note 4) (kg)	3217.6	Shipping (kg)	_____
Bay (kg)	_____		

Note: 1-Reported duty and flow rates include a user-specified multiplier of 1.10
 2-Maximum allowable nozzle load = 3 x API.
 3-Material will be meet requirements of NACE MR0175/ISO1516 and specification for material requirements in sour service (BK-GNRL-PEDCO-000-PI-SP-0008)
 4- HTRI Weights are reported