

**API 661 Air-Cooled Heat Exchanger - Specification Sheet**

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Item No. 2101 (winter)
By _____
Revision V05
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Manufacturer	_____	Heat exchanged (MegaWatts)	0.276
Model no.	_____	Surface/Item-Finned tube (m2)	668.71
Customer	PEDCO/NISOC	Bare tube (m2)	31.536
Plant location	Binak oilfield	MTD, Eff. (Deg. C)	26.3
Service	1st stage Gas Compression Cooler	Transfer rate-Finned (W/m2-K)	19.37
Type draft	INDUCED	Bare tube, service (W/m2-K)	410.75
Bay size (WxL) (m)	1.966 x 3.8	Bare tube, clean (W/m2-K)	458.48
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	In	Out
Total fluid entering (kg/hr)	7585 x 1.1	Total flow rate (Liq/Vap) (kg/hr)	/ 8343.5 / 8343.5
Dew/bubble point (Deg. C)	/	Water/Steam (kg/hr)	/ /
(Deg. C)		Noncondensables (kg/hr)	/ /
Latent heat (kJ/kg)		Molecular Wt. (Vap/Non-cond)	/ /
Inlet pressure (barG)	17.9	Density (Liq/Vap) (kg/m3)	/ 12.847 / 14.916
Pressure drop (All/Calc) (bar)	0.7 / 0.416	Specific heat (Liq/Vap) (kJ/kg-C)	/ 2.2197 / 2.0293
Velocity (Allow/Calc) (m/s)	/ 16.06	Thermal cond. (Liq/Vap) (W/m-K)	/ 0.0441 / 0.0356
Inside fouling resistance (m2-K/W)	0.0002	Viscosity (Liq/Vap) (mN-s/m2)	/ 0.0137 / 0.0121
	In Out		
Temperature (Deg. C)	116 60		

Performance Data - Air Side

Air inlet temperature (Deg. C)	50.26	Face velocity (m/s)	2.9
Air flow rate/item (m3/s)	24.148	Minimum design ambient temp. (Deg. C)	5
Mass velocity (kg/s-m2)		Altitude (m)	12.5
Air outlet temperature (Deg. C)	61.02	Static pressure (Pa)	137.4
Air flow rate/fan (m3/s)	12.074		

Design, Material, and Construction

Design pressure (barG)	22	Heating Coil	NO
Test pressure (barG)	28.6	No. of tubes	_____
Design temperature (Deg. C)	155	Tube outside diameter (mm)	_____
Min. design metal temp. (Deg. C)	_____	Tube material	_____
Tube bundle		Fin material and type	_____
Size (WxL) (m)	1.922X 3.80	Fin thickness (mm)	_____
No./Bay	1	ASME Code, Sec. VIII, Div. 1	_____
Number of tube rows	4	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	YES	Header	
Material	_____	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	104
Slope	1% ON LAST PASS			Length (m)	3.8
Plug material	SA 182 F316L			Pitch (mm)	63.5
Gasket material	Solid Metal			Layout	Triangular
Nozzle	No.	Size, (In)	Rating/Facing	Fin	
Inlet	1	6	300 RF	Type	EXTRUDED
Outlet	1	6	300RF	Material	Aluminum Alloy 1060 - O
Vent	1	2	300RF	Thickness (mm)	0.48
Drain	1	2	300RF	Selection temp. (C)	
Chemical Cleaning				Outside diameter (mm)	57.15
Min. Wall Thk.				Fin density (fin/meter)	400
Tube				ASME Code, Sec. VIII, Div. 1	
Material	SA-213 TP316L Tube (S) S31603			Customer Specifications	
Tube outside diameter (mm)					
wall thickness (mm)					

Mechanical Equipment

Fan		RPM	1500
Manufacturer		Service factor	1
No./Bay	2	Enclosure	EExd, IIB T3 (IP 55)
RPM (Revs/min.)	626.4	Voltage	400
Diameter (mm)	1372	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	Alu/Steel	Manufacturer	
@design temp	2.6	No./Bay	2
@min. ambient temp	3.5	Service factor	1.8
Tip speed		Speed ratio	
Driver		Support	
Type		Vib. switch	YES EExd, IIB T3 (IP 65)
Manufacturer		Enclosure	
No./Bay	2		
Driver (kW)	5.5		

Controls - Air Side

Air recirculation	NO	Louvers	
Degree control of outlet process temp. (Max. Cooling), +/-	/	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)	1.966 x 3.8	Total (Note 4) (kg)	9140.4
Bundle weight (Note 4) (kg)	2252.7	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 requirments in sour service (BK-GNRAL-PEDCO-000-PI-SP-0008)

4-HTRI Weight is reported