

		API 661 Air-Cooled Heat Exchanger - Specification Sheet				
		Job No.			Item No.	2102 (Summer)
		Page			By	
		Date	1/26/2025		Revision	v05
		Proposal No.			Contract No.	
		Inquiry No.			Order No.	
Manufacturer _____ Model no. _____ Customer <u>PEDCO/NISOC</u> Plant location <u>BINAK oilfield</u> Service <u>2st Stage Gas Compression Cool</u> Type draft <u>INDUCED</u> Bay size (WxL) (m) <u>2.172 x 3.9</u> No. of bays/items <u>1</u>		Heat exchanged (MegaWatts) <u>0.582</u> Surface/Item-Finned tube (m2) <u>1027</u> Bare tube (m2) <u>48.548</u> MTD, Eff. (Deg. C) <u>31.2</u> Transfer rate-Finned (W/m2-K) <u>18.267</u> Bare tube, service (W/m2-K) <u>386.44</u> Bare tube, clean (W/m2-K) <u>428.51</u>				
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 <u>HYDROCARBON</u>						
Total fluid entering (kg/hr)	<u>8664 X 1.1</u>	Total flow rate (Liq/Vap) (kg/hr)	In <u>9530.4</u>	Out <u>41.263</u>	<u>9489.2</u>	
Dew/bubble point (Deg. C)	<u>/</u>	Water/Steam (kg/hr)	<u>/</u>	<u>/</u>	<u>/</u>	
(Deg. C)	<u>/</u>	Noncondensables (kg/hr)	<u>/</u>	<u>/</u>	<u>/</u>	
Latent heat (kJ/kg)	<u>/</u>	Molecular Wt. (Vap/Non-cond)	<u>/</u>	<u>/</u>	<u>/</u>	
Inlet pressure (barG)	<u>54.8</u>	Density (Liq/Vap) (kg/m3)	<u>42.156</u>	<u>981.96</u>	<u>60.185</u>	
Pressure drop (All/Calc) (bar)	<u>0.7 / 0.097</u>	Specific heat (Liq/Vap) (kJ/kg-C)	<u>2.4264</u>	<u>4.3096</u>	<u>2.4072</u>	
Velocity (Allow/Calc) (m/s)	<u>/ 3.56</u>	Thermal cond. (Liq/Vap) (W/m-K)	<u>0.0474</u>	<u>0.6515</u>	<u>0.0371</u>	
Inside fouling resistance (m2-K/W)	<u>0.0002</u>	Viscosity (Liq/Vap) (mN-s/m2)	<u>0.0164</u>	<u>0.4943</u>	<u>0.0142</u>	
	In Out					
Temperature (Deg. C)	<u>148 60</u>					
Performance Data - Air Side						
Air inlet temperature (Deg. C)	<u>50.26</u>	Face velocity (m/s)	<u>3.27</u>			
Air flow rate/item (m3/s)	<u>31.43</u>	Minimum design ambient temp. (Deg. C)	<u>5</u>			
Mass velocity (kg/s-m2)	<u>/</u>	Altitude (m)	<u>12.5</u>			
Air outlet temperature (Deg. C)	<u>68.06</u>	Static pressure (Pa)	<u>168.85</u>			
Air flow rate/fan (m3/s)	<u>15.714</u>					
Design, Material, and Construction						
Design pressure (barG)	<u>62</u>	Heating Coil NO				
Test pressure (barG)	<u>80.6</u>	No. of tubes	<u>/</u>			
Design temperature (Deg. C)	<u>175</u>	Tube outside diameter (mm)	<u>/</u>			
Min. design metal temp. (Deg. C)	<u>5</u>	Tube material	<u>/</u>			
Tube bundle		Fin material and type	<u>/</u>			
Size (WxL) (m)	<u>2.12 X 3.9</u>	Fin thickness (mm)	<u>/</u>			
No./Bay	<u>1</u>	ASME Code, Sec. VIII, Div. 1	<u>/</u>			
Number of tube rows	<u>6</u>	Heating fluid	<u>/</u>			
Bundles in parallel	<u>1</u>	Heating fluid flow rate (kg/hr)	<u>/</u>			
Bundles in series	<u>/</u>	Temperature (In/Out) (Deg. C)	<u>/</u>			
Structure mounting	<u>/</u>	Inlet pressure (barG)	<u>/</u>			
Pipe rack beams	<u>/</u>	Pressure drop (All/Calc) (kPa)	<u>/</u>			
Ladders, walkways, platforms	<u>/</u>	Design temperature (Deg. C)	<u>/</u>			
Structure surface prep.	<u>/</u>	Design pressure (barG)	<u>/</u>			
Header surface prep.	<u>/</u>	Inlet/Outlet nozzle	<u>/</u>			
Louver		Header				
Material	<u>YES</u>	Type	<u>PLUG</u>			
Action control	<u>Manual</u>	Material	<u>SA-240 TP316L</u>			
Action type	<u>/</u>	Corrosion Allowance (mm)	<u>0</u>			
		No. of passes	<u>4</u>			

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

Job No.		Item No.	2102 (Summer)
Page		By	
Date	1/26/2025	Revision	V05
Proposal No.		Contract No.	
Inquiry No.		Order No.	

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				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 requirments in sour service (BK-GNRL-PEDCO-000-PI-SP-0008)

4- HTRI Weights are reported