

		API 661 Air-Cooled Heat Exchanger - Specification Sheet	
Job No. _____ Page _____ Page 1 Date 11/20/2024 Proposal No. _____ Inquiry No. _____ Item No. 2101 (summer) By _____ V03 Contract No. _____ Order No. _____			
Manufacturer _____ Model no. _____ Customer PEDCO/NISOC Plant location BINAK Oilfield Service 1st stage Gas Compression Cooler Type draft INDUCED Bay size (WxL) (m) 1.966 x 3.8 No. of bays/Items 1		Heat exchanged (MegaWatts) 0.3818 Surface/Item-Finned tube (m2) 668.71 Bare tube (m2) 31.536 MTD, Eff. (Deg. C) 29.1 Transfer rate-Finned (W/m2-K) 20.125 Bare tube, service (W/m2-K) 426.74 Bare tube, clean (W/m2-K) 478.5	
Basic design data			
Pressure design code _____ Tube bundle code stamped _____ Heating coil code stamped _____		Structural code _____ Flammable service _____ Lethal/toxic service _____	
Performance Data - Tube Side			
Fluid name Hydrocarbon Total fluid entering (kg/hr) 8664 x1.1 Dew/bubble point (Deg. C) _____ Latent heat (kJ/kg) _____ Inlet pressure (barG) 17.9 Pressure drop (All/Calc) (bar) 0.7 / 0.473 Velocity (Allow/Calc) (m/s) 17.09 Inside fouling resistance (m2-K/W) 0.0002 Temperature (Deg. C) In 129 Out 60		Total flow rate (Liq/Vap) (kg/hr) In 9530.4 Out 9530.4 Water/Steam (kg/hr) _____ Noncondensables (kg/hr) 0 Molecular Wt. (Vap/Non-cond) _____ Density (Liq/Vap) (kg/m3) In 14.197 Out 17.141 Specific heat (Liq/Vap) (kJ/kg-C) In 2.2057 Out 1.9724 Thermal cond. (Liq/Vap) (W/m-K) In 0.0438 Out 0.0336 Viscosity (Liq/Vap) (mN-s/m2) In 0.0137 Out 0.0117	
Performance Data - Air Side			
Air inlet temperature (Deg. C) 50.26 Air flow rate/item (m3/s) 24.446 Mass velocity (kg/s-m2) _____ Air outlet temperature (Deg. C) 65.15 Air flow rate/fan (m3/s) 12.223		Face velocity (m/s) 2.9 Minimum design ambient temp. (Deg. C) 5 Altitude (m) 12.5 Static pressure (Pa) 138.77	
Design, Material, and Construction			
Design pressure (barG) 22 Test pressure (barG) 28.6 Design temperature (Deg. C) 155 Min. design metal temp. (Deg. C) _____ Tube bundle Size (WxL) (m) 1.922X 3.8 No./Bay 1 Number of tube rows 4 Bundles in parallel 1 Bundles in series _____ Structure mounting _____ Pipe rack beams _____ Ladders, walkways, platforms _____ Structure surface prep. _____ Header surface prep. _____ Louver YES Material _____ Action control Manual Action type _____		Heating Coil NO No. of tubes _____ Tube outside diameter (mm) _____ Tube material _____ Fin material and type _____ Fin thickness (mm) _____ ASME Code, Sec. VIII, Div. 1 _____ Heating fluid _____ Heating fluid flow rate (kg/hr) _____ Temperature (In/Out) (Deg. C) _____ / _____ Inlet pressure (barG) _____ Pressure drop (All/Calc) (kPa) _____ / _____ Design temperature (Deg. C) _____ Design pressure (barG) _____ Inlet/Outlet nozzle _____ / _____ Header Type _____ Plug Material SA-240 TP316L Corrosion Allowance (mm) _____ No. of passes 4	

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Design, Material, and Construction (continued)**Header (continued)**

Slope	1% ON LAST PASS
Plug material	SA 182 F316L
Gasket material	Solid metal

Nozzle

	No.	Size, (In)	Rating/Facing
Inlet	1	6	300 RF
Outlet	1	6	300 RF
Vent	1	2	300 RF
Drain	1	2	300 RF
Chemical Cleaning	_____	_____	_____
Min. Wall Thk.	_____	_____	_____

Tube

Material	SA-213 TP316L Tube (S) S31603
Tube outside diameter	(mm) 25.4
wall thickness	(mm) 1.651

No./Bundle	104
Length	(m) 3.8
Pitch	(mm) 63.5
Layout	Triangular

Fin

Type	Extruded
Material	Aluminum Alloy 1060 - O
Thickness	(mm) 0.48
Selection temp.	(C) _____
Outside diameter	(mm) 57.15
Fin density	(fin/meter) 400
ASME Code, Sec. VIII, Div. 1	_____
Customer Specifications	_____

Mechanical Equipment**Fan**

Manufacturer	_____
No./Bay	2
RPM	(Revs/min.) 626.4
Diameter	(mm) 1372
No. of blades	4
Angle	(degrees) _____
Pitch adjustment	50% Auto
Blade material	AL
Hub material	ALU/Steel
@design temp	2.6
@min. ambient temp	3.5
Tip speed	_____

Driver

Type	_____
Manufacturer	_____
No./Bay	2
Driver	(kW) 5.5

RPM	1500
Service factor	1
Enclosure	EExd,IIB T3 (IP55)
Voltage	400
Phase	3
Cycle	50
Fan noise level	(dB) ≤85

Speed Reducer

Type	V-BELT
Manufacturer	_____
No./Bay	2
Service factor	1.8
Speed ratio	_____
Support	_____
Vib. Switch	YES,EExd,IIB T3 (IP65)
Enclosure	_____

Controls - Air Side

Air recirculation	NO
Degree control of outlet process temp.	_____
(Max. Cooling), +/-	_____ / _____
Action on control signal failure	_____
Fan pitch	_____
Louvers	_____
Actuator air supply	_____
Fan	_____

Louvers	_____
Positioner	_____
Signal air pressure (barG)	_____
From	_____ To _____
From	_____ To _____
Supply air pressure (barG)	_____
From	_____ To _____
From	_____ To _____

Shipping

Plot area (WxL)	(m) 1.966 x 3.8
Bundle weight	(kg) 2252.7
Bay	(kg) _____

Total	(kg) 9140.4
Shipping	(kg) _____

Note: 1) Reported duty and flow rates include a user-specified multiplier of 1.10

2-Max allowable nozzle load = 3xAPI

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 Weight is reported