

rev.			DATA SHEET		Date :	2025.Jan.26
1			AIR COOLED HEAT EXCHANGER		Rev :	5
2			ABAN AIR COOLER CO		CASE:	00012-AC-3991
3	Customer / Purch.		(PEDCO) / (NISOC)		Item no.:	AE-2102 (A/B/C)
4	Plant location		Binak oilfield		Summer Case	
5	Service		2st Stage Gas Compression Cooler		No. Units:	3
6	Plot size(W,L) [m]		2.172 x 3.90 (note2)		No.of bay:	1
7	Surface / unit-Finned		1027 [m2]	Bare Tube	48.548	[m2]
8	Heat exchanged		582 (note 1) [KW]	MTD	31.3	[C]
9	Transf. rate-finned		18.267 [W/m2 ,k]	Bare Tube (C/D)	428.51/ 386.44	[W/m2k]
10			PRODUCT SIDE			
11	Fluid Name		Hydrocarbon		IN	OUT
12			IN	OUT	Density (Liq)	981.96 [kg/m3]
13	Total Fluid [kg/h]		8664 x 1.1 (note 1)		Density (vap)	42.156 60.185 [kg/m3]
14	Temperature [C]		148	60	Spec.Heat (Liq)	4.3096 kJ/(kg.°C)
15	Vapor [kg/h]		9530.4	9489.2	Spec.Heat (vap)	2.4255 2.4072 kJ/(kg.°C)
16	Liquid [kg/h]			41.263	Conduct. (Liq)	0.6515 [W/Mk]
17	N condensed [kg/h]				Conduct. (vap)	0.0473 0.0371 [W/Mk]
18	Steam [kg/h]				Viscosity (Liq)	0.4943 [cp]
19	Water [kg/h]				Viscosity (Vap)	0.0164 0.0142 [cp]
20	Inlet pressure [barg]		54.8		Velocity	4.2 2.93 [m/s]
21	Fouling resist.[m2.k/w]		0.0002		Allo/Calc. Press.Drop	0.700 / 0.097 [bar]
22			AIR SIDE			
23	AirQuantity, Total (Per Unit)		31.42 [m3/s]	Face Velocity:	3.27	[m/s]
24	AirQuant./Fan		15.71 [m3/s]	Altit. / Min. Des.Amb.:	12.5 / 5	[m]/[C]
25	Static pressure		168.85 [Pa]	Temp.In / Out :	50.26 / 68.06	[C]
26			DESIGN			
27	Design pressure		62 [Barg]	Code Requirements	ASME VIII DIV.1 ; API 661	
28	Design temperature		175 [C]		TUBE	
29	Test pressure		80.60 [Barg]	Material	SA-213 TP316L	
30	BAY width [m]		2.172	Outside Diameter	25.4	[mm]
31	Bundle Size		2.116 x 3.900		Wall Thickness	1.651 [mm]
32	N .Bay		1	N ./Bundle	156	
33	N .Bundles / Bay		1	Length	3.9	[m]
34	N .Tube Rows		6	Pitch	70.5	[mm]
35	N .Passes		4		FIN	
36	Tube slope		1% on last pass		Type	EXTRUDED
37	HEADER			Material	ALUMINIUM alloy 1060 - O	
38	Type		Plug		Outside Diameter	57.15 [mm]
39	Material		SA-240 TP316L		Stock Thick.	0.48 [mm]
40	Header Design / SPLIT		Shoulder/No		FPM	400
41	Plug Mat		SA 182 F316L		MISCELLANEOUS	
42	Gasket Mat		Solid Metal		Structural Mounting	Ground
43	Corrosion Allow.		0 [mm]	Bundle Frame	H.D.G	
44	Qty / Size nozzle IN		1 X4" (80S)		Louvers	Yes, (Manual)
45	Qty / Size nozzle OUT		1 X 4" (80S)		Vibration switches	Yes, EExd, IIB T3 (IP 65)
46	Rating & Facing (in/out)		600 RF		Steam Coil	No
47	TI/PI		Yes (2") / Yes (2")		Recirculation System	No
48	Vent / Drain		Yes (2") / Yes (2") LWN #600		Tube / Tubesheet Connection.	Expanded + Strength weld
49			MECH. EQUIPMENT			
50	FAN		ELECTRIC MOTOR			
51	N ./Bay		2	N ./Bay	2	
52	N .autovvariable/bay		50%	KW / Driver	7.5	
53	rev / min		645.4	rev / min	1500	
54	Diameter		1450 mm	Enclosure	EExd, IIB T3 (IP 55)	
55	N .Blades		4	Volt, Phase, Cycle	400-3-50	
56	Material, Blade		AL		SPEED REDUCER	
57	Material, Hub		Steel/Alu		Type	V-Belt
58	KW / Fan, Absorb.		4.8		N .Bay	2
59	Type of fan ring		Conical 30 deg		Service Factor	1.8
60	SPL@ 1m beside. fan		≤85 [dB(A)]	Ratio	2.32	
61	NOTES:					
62	1- 10% over design on duty and flow has been considered.					
63	2- Plot size is without considering side walkways.					
64	3- Air side fouling factor has been considered equal to 0.00035 m2.K/w.					
65	4- Thechnical Bid is in compliance with NACE MR 0175/ISO 15156 and Technical Specification for Material Requirements in Sour service Doc. No. BK-GNRAL-PEDCO-000-PI-SP-0008					
66	5- Maximum allowable nozzle load = 3 x API.					
67	6-MDMT is considered 5 C					
68	7-Physical properties changed based on last revision of PFD Doc.No:BK-GCS-HY-120-PR-PF-0001-V04-AP					
69	8-Primarily fan data sheet is attached and final fan data sheet will be submitted after subvondor finalization.					
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