

# Aspen Exchanger Design and Rating Shell & Tube V12

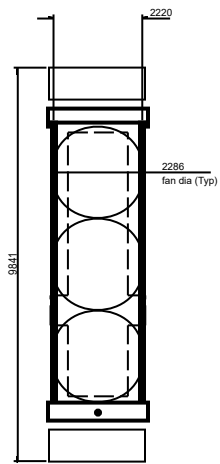
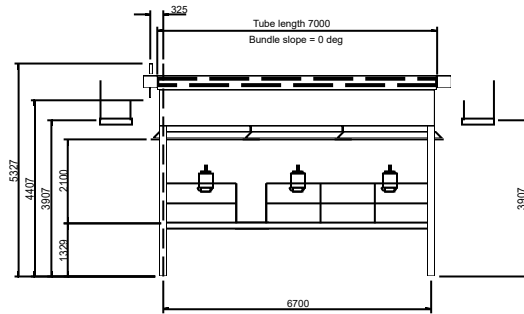
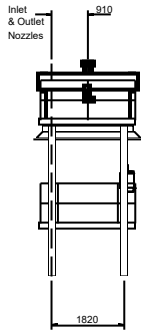
API Sheet

## Air-Cooled Heat Exchanger Specification Sheet

1	Company: DELTA GMBH											
2	Location: IRAQ											
3	Service of Unit: AIR CONDENSER (2x50)					Our Reference: MPE007						
4	Item No.:					Your Reference:						
5	Date: 03 May 2024		Rev No.: 1		Job No.:							
6	Size & Type		7.6	/	2.4	m	Type	Forced	Number of Bays	1		
7	Surf/Unit-Finned Tube		1419.9	m <sup>2</sup>	Bare area/bundle		60.4	m <sup>2</sup>	Ratio (Total/Bare)	23.49		
8	Heat exchanged		280.4	kW	MTD, Eff		7.66	°C				
9	Transfer Rate-Finned		24.6	Bare, Service	520.4	Clean	664.2 kcal/(h-m <sup>2</sup> -C)					
10	<b>PERFORMANCE DATA - TUBE SIDE</b>											
11	Fluid Circulated					Propane		In / Out				
12	Total Fluid Entering		kg/h	3317	Density, Liq		kg/m <sup>3</sup>	/ 435.43				
13			In / Out		Density, Vap		kg/m <sup>3</sup>	40.83 /				
14	Temperature		°C	73.09	/	56.54	Specific Heat, Liq		kcal/(kg-C) / 0.8552			
15	Liquid		kg/h	0	/	3317	Specific Heat, Vap		kcal/(kg-C) 0.5402 /			
16	Vapor		kg/h	3317	/	0	Therm. Cond, Liq		kcal/(h-m-C) / 0.063			
17	Noncondensable		kg/h	0	/	0	Therm. Cond, Vap		kcal/(h-m-C) 0.02 /			
18	Steam		kg/h	/			Freeze Point		°C			
19	Water		/			Bubble / Dew point		°C 56.56 / 56.77				
20	Molecular wt, Vap		44.09652 / 44.09652		Latent heat		kcal/kg					
21	Molecular wt, NC		/							Inlet pressure (abs)		bar 19.9
22	Viscosity, Liq		cp	/ 0.0659			Pres Drop, Allow/Calc		bar 0.1 / 0.0864			
23	Viscosity, Vap		cp	0.0106	/			Fouling resistance		m <sup>2</sup> -K/W 0.00017		
24	<b>PERFORMANCE DATA - AIR SIDE</b>											
25	Air Quantity, Total		333715	kg/h	Altitude		0 m					
26	Air Quantity/Fan		28.109	m <sup>3</sup> /s	Temperature In		48 °C					
27	Static Pressure		199	Pa	Temperature Out		50.97 °C					
28	Face Velocity		5.48	m/s	Mass velocity		6.03	kg/s/m <sup>2</sup>	Design Ambient		0 °C	
29	<b>DESIGN-MATERIALS-CONSTRUCTION</b>											
30	Design/Vac./Test Pres		22	/	1	/	25.3	bar	Design temperature 120 °C			
31	<b>TUBE BUNDLE</b>			<b>Header</b>			<b>Tube</b>					
32	Size		m	7.6	Type		Box		Material SA-334 6			
33	Number/bay		1		Material		SA-516 70		Specifications			
34	Tube Rows		3		Passes		6		OD 25.4 Min Thk. 1.65 mm			
35	Arrangement		/			Plug Mat.		No./Bun 111 Lng 7 m		/		
36	Bundles		1	par	Gasket Mat.		Pitch 60 / 51.96		30 Degrees			
37	Bays		1	par	Corr. Allow.		3	mm	<b>FIN</b>			
38	Bundle frame		/		Inlet nozzle ( 1 )		76.17	mm	Type L-finned			
39	<b>MISCELLANEOUS</b>			/		Outlet nozzle ( 1 )		39.7	mm	Material Aluminum 1060		
40	Struct. Mount.		/			Special Nozzles		OD 57.15 Tks 0.28 mm		/		
41	Surf. Prep		/			Rating Program		No. 433 #/m Design Temp °C		/		
42	Louvers		/			TI PI		Code \SME Code Sec VIII Div 1		/		
43	Vibration Switches		/			Chem Cleaning		Stamp No Specs		/		
44	<b>MECHANICAL EQUIPMENT</b>											
45	Fan, Mfr., Model			Driver, Type			Program		Speed Reducer, Type			
46	No./Bay		3	RPM	294.13	Mfr.		Mfr.&Model				
47	Dia.		2.286m	Blade(s)		No./Bay		4		No./Bay		
48	Pitch		1.321743	Angle		RPM		Rating hp				
49	Blade(s)		Hub		Enclosure		0.6858		Ratio			
50	hp/Fan		9.803	kW	MinAmb	V/Phase/Hz		/ /		Support		
51	Control Action on Air Failure-					Louvers						
52	Degree Control of Outlet Process Temperature											
53	Recirculation					Steam Coil No						
54	Plot Area		m <sup>2</sup>		Drawing No.		Wt.Bundle		3377	Wt. Unit 3377 kg		
55	Notes:											
56												
57												
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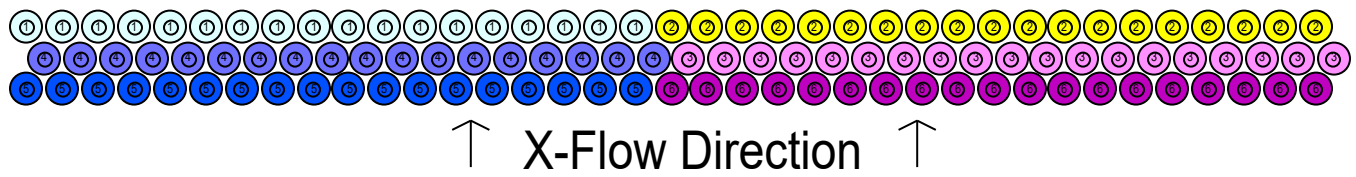
# Aspen Exchanger Design and Rating Shell & Tube V12

## Setting Plan



Notes:						Company: DELTA GMBH	
						Location: IRAQ	
Scale:						Service of Unit: AIR CONDENSER (2x50)      Our Ref:	
						Item No.:	
						Date: 03 May 2024      Rev No.: 1      Job No.:	
						<p><b>Company Name</b> City, State</p>	
Rev:	Date:	Description	Dwg.	Chk.	Appd.	ASME VIII-1 2024	Setting Plan
							Dwg No.:
							Air Condenser_2 x 50 1
							Rev:

Tube Layout



Bundle Width = 2250.0 mm

Height = 155.9 mm