AFTER COOLER MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT AIR COMPRESSOR

Rev.	Date	Purpose of Issue	Prepared	Checked	Approved	AC Code
02	*26/04/2023*	**As Built**	**KP**	**LdM**	**JR**	
01	21/02/2022	**Approved for Construction**	**KP**	**LdM**	**JR**	
00	07/02/2022	**For approval**	**KP**	**LdM**	**JR**	

Class: 1 **Phase: P**

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HEAT EXCHANGER SPECIFICATION SHEET

		Job No.	17811-CC-0000
Customer	Airpack Nederland B.V.	Reference No.	17811-CC-0000
Address		Proposal No.	202204
Plant Location		Date	04/02/2022
Service of Unit	Aftercooler (20 kW)	Item No.	
Size	133,3 x 856 mm Type AES Horizontal	Connected In	1 Parallel 1 Series
Surf/Unit (Gross/Eff)	15,779 / 15,678 m2 Shell/Unit 1	Surf/Shell (Gross/Eff)	15,779 / 15,678 m2

PERFORMANCE OF ONE UNIT

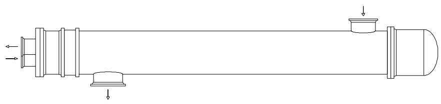
		Shell Side In	Shell Side Out	Tube Side In	Tube Side Out
Fluid Allocation		Shell Side		Tube Side	
Fluid Name		Wet Air		Water	
Fluid Quantity, Total	kg/hr	238,70		1792,1	
Vapor (In/Out)		238,70	224,28		
Liquid			14,422	1792,10	1792,10
Steam					
Water				1792,10	1792,10
Noncondensables					
Temperature (In/Out)	C	195,00	40,00	35,00	45,00
Specific Gravity			0,9918	0,9947	0,9926
Viscosity	mPa-s	0,0244	0,0188 V/L 0,6528	0,7193	0,6434
Molecular Weight		19,75	21,79 V/L 3,89e-3	18,02	18,02
Molecular Weight, Noncondensables					
Specific Heat	kJ/kg-C	1,1125	1,0463 V/L 4,2191	4,1778	4,1774
Thermal Conductivity	W/m-C	0,0364	0,0259 V/L 0,6293	0,6223	0,6299
Latent Heat	kJ/kg	2177,2	2306,5		
Inlet Pressure	bar	21,000		5,513	
Velocity	m/s	0,40		0,36	
Pressure Drop, Allow/Calc	bar		0,011		0,029
Fouling Resistance (min)	m2-K/W	0,000340		0,000340	

Heat Exchanged	20809, Watts	MTD (Corrected)	5,0 C
Transfer Rate, Service	47,99 W/m2-K	Clean 95,47 W/m2-K	Actual 66,57 W/m2-K

CONSTRUCTION OF ONE SHELL

		Shell Side	Tube Side
Design/Test Pressure	barG	25,000 /	10,000 /
Design Temperature	C	210,00	95,00
No Passes per Shell		1	2
Corrosion Allowance	mm	0,000	0,000
Connections Size & Rating — In	mm	1 @ Flange 2"	1 @ SAE 1 1/2"
Out	mm	1 @ Flange 2"	1 @ SAE 1 1/2"
Intermediate		@	@

Sketch (Bundle/Nozzle Orientation)



Tube No. 72 OD 8,000 mm Thk(Avg) 0,500 mm Length 856, mm	Pitch 11,500 mm
Tube Type Continuous Fin Material Copper/nickel 90/10	Tube pattern 30
Shell 316 Stainless steel (17 Cr, 12 Ni) ID 133,30 OD 139,70 mm	Shell Cover Carbon steel (Remove.)
Channel or Bonnet Carbon steel	Channel Cover Carbon steel
Tubesheet-Stationary Red brass (85 Cu, 15 Zn)	Tubesheet-Floating Red brass (85 Cu, 15 Zn)
Floating Head Cover Carbon steel	Impingement Plate None
Baffles-Cross 316 Stainless steel (17 Cr, Type NTIW-Seg. %Cut (Diam) 17,33	Spacing(c/c) 0,000 Inlet 400,00 mm
Baffles-Long	Seal Type None
Supports-Tube	U-Bend Type None
Bypass Seal Arrangement pairs seal strips	Tube-Tubesheet Joint Expanded (No groove)
Expansion Joint	Type None
Rho-V2-Inlet Nozzle 52,55 kg/m-s2	Bundle Entrance 0,00 Bundle Exit 0,00 kg/m-s2
Gaskets-Shell Side O-Ring (Viton)	Tube Side O-Ring (Viton)
- Floating Head O-Ring (Viton)	
Code Requirements ASME	TEMA Class TEMA-C
Weight/Shell 114,01 kg Filled with Water 130,41 kg	Bundle 28,25 kg

Remarks: Continuous Fin Density=1200 fin/meter; Root Diameter=8 mm; Thickness=0,2 mm
Air Humidity: 0.06718 kg Water / kg dry air @50 °C; 1,01325 bar (a); 80%)