





OWNER:  شرکت سست و سویی توهمه ایران (سهامی عامه)	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT						EPC CONTRACTOR:  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT		
	AFTER COOLER MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT AIR COMPRESSOR								
MC :  شرکت سست و سویی توهمه ایران (سهامی عامه)	Project	Area	Phase	Unit	Dis.	Doc.	Seq.	Contract No : 52-98/445	
Owner Document Number: 17811-11H	BU	20	VD	303	ME	DSH	0070	Rev.:	Page
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## AFTER COOLER MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT AIR COMPRESSOR

01	21/02/2022	Approved for Construction			KP	LdM	JR	
00	07/02/2022	For approval			KP	LdM	JR	
Rev.	Date	Purpose of Issue			Prepared	Checked	Approved	AC Code
							Class: 1	Phase: P



Customer	Airpack Nederland B.V.	Job No.	17811-CC-0000
Address		Reference No.	17811-CC-0000
Plant Location		Proposal No.	202204
Service of Unit	Aftercooler (20 kW)	Date	04/02/2022
Size	133,3 x 856 mm	Type	AES Horizontal
Surf/Unit (Gross/Eff)	15,779 / 15,678 m <sup>2</sup>	Shell/Unit	1
		Connected In	1 Parallel 1 Series
		Surf/Shell (Gross/Eff)	15,779 / 15,678 m <sup>2</sup>

**PERFORMANCE OF ONE UNIT**

Fluid Allocation	Shell Side		Tube Side	
	Wet Air		Water	
Fluid Name	Wet Air		Water	
Fluid Quantity, Total	238,70 kg/hr		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	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
Molecular Weight		19,75	21,79 V/L 3,89e-3	18,02
Molecular Weight, Noncondensables				
Specific Heat	kJ/kg-C	1,1125	1,0463 V/L 4,2191	4,1778
Thermal Conductivity	W/m-C	0,0364	0,0259 V/L 0,6293	0,6223
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)	m <sup>2</sup> -K/W		0,000340	0,000340
Heat Exchanged	20809, Watts		MTD (Corrected)	5,0 C
Transfer Rate, Service	47,99 W/m <sup>2</sup> -K	Clean	95,47 W/m <sup>2</sup> -K	Actual
				66,57 W/m <sup>2</sup> -K

**CONSTRUCTION OF ONE SHELL**

			Shell Side	Tube Side	Sketch (Bundle/Nozzle Orientation)
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	In mm		1 @ Flange 2"	1 @ SAE 1 1/2"	
Size & Rating	Out mm		1 @ Flange 2"	1 @ SAE 1 1/2"	
	Intermediate		@	@	

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-s <sup>2</sup>		Bundle Entrance	0,00	Bundle Exit	0,00	kg/m-s <sup>2</sup>	
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%

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