OWNER:

MC :

BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT

AFTER COOLER MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT AIR COMPRESSOR

EPC CONTRACTOR:

	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

	BUSHEHR PETROCHEMICAL COMPANY **MEG PLANT**
Document Review	
Issue Purpose:	FA
Result Code: AP,AN,CM,RE,NC	AP
Next Status : IFC,IFA,IFI,AFC,AB	AFC
Responsible Department	MECHANICAL
Commented Date	Feb/16/2022
Approval or review hereunder shall not be construed to relieve Vendor / Subcontractor of his responsibilities and liability under the contract.	

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

OWNER:	**BUSHEHR PETROCHEMICAL COMPANY** **MEG PLANT**							EPC CONTRACTOR:	
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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

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	

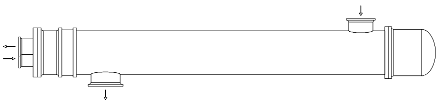
Heat Exchanged 20809, Watts MTD (Corrected) 5,0 C

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	In	mm	1 @ Flange 2"	1 @ SAE 1 1/2"
Size &	Out	mm	1 @ Flange 2"	1 @ SAE 1 1/2"
Rating	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%)

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