











OWNER:  شرکت سست موبلی آوند ایرانیاان (سهانی نفاذ)	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT						EPC CONTRACTOR:  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT		
	MC :  شرکت سست موبلی آوند ایرانیاان امدی نفاذ	<b>PULSATION DAMPER MECHANICAL DATA SHEET FOR NITROGEN GAS BOOSTER</b>							
Owner Document Number: 17811-11C		Project	Area	Phase	Unit	Dis.	Doc.	Seq.	Contract No : 52-98/445
	BU	20	VD	303	ME	DSH	0027	Rev.: 01	Page 1 of 4

## PULSATION DAMPER MECHANICAL DATA SHEET FOR NITROGEN GAS BOOSTER

 شرکت سست موبلی آوند ایرانیاان امدی نفاذ	 Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT
<b>Document Review</b>		
Issue Purpose:	IFA	
Result Code: AP,AN,CM,RE,NC	CM	
Next Status : IFC,IFA,IFI,AFC,AB	IFA	
Responsible Department	MECHANICAL	
Commented Date	Mar/08/2022	
<b>Approval or review hereunder shall not be construed to relieve Vendor / Subcontractor of his responsibilities and liability under the contract.</b>		

01	28/02/2022	For approval	KP	CL	JR	
00	11/12/2020	For approval	KP	KP	KP	
Rev.	Date	Purpose of Issue	Prepared	Checked	Approved	AC Code
					Class: <b>1</b>	Phase: <b>P</b>



OWNER:  شرکت سست موبلی آوند ایرانیا (سازمان تخصصی)	<b>BUSHEHR PETROCHEMICAL COMPANY MEG PLANT</b>						EPC CONTRACTOR:  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT		
	<b>PULSATION DAMPER MECHANICAL DATA SHEET FOR NITROGEN GAS BOOSTER</b>						 Netherlands		
MC :  شرکت سست موبلی آوند ایرانیا (سازمان تخصصی)	Project	Area	Phase	Unit	Dis.	Doc.	Seq.	Contract No : 52-98/445	
Owner Document Number: 17811-11C	BU	20	VD	303	ME	DSH	0027	Rev.:	Page
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- 1- Based on these data compressor data sheet shall be updated.
- 2- Percentage of allowable peak-peak pulse @ cylinder flange shall be added to document.

VENDOR		Pulsation damper mechanical datasheet		P.O. No.	52-98/445
 				Document No.	17811-11C
				Sheet No.	3
				Rev.No	01
CONTRACTOR / END USER		BUSHEHR PETROCHEMICAL COMPANY MEG PLANT		Service	nitrogen compressor package
1		<b>1st stage inlet pulsation damper (20-DC-1002-1)</b>			
2	OPERATING PRESSURE	Bar(a)	9 bar(a)		<p>Test pressure shall be specified here clearly as a number.</p> <p>Also MAWP is not specified in this data sheet</p>
3	DESIGN PRESSURE	Bar(a)	13.5 bar(a)		
4	HYDROTEST PRESSURE		1.3 X MAWP as per ASME VIII		
5	OPERATING TEMPERATURE	°C	5-55		
6	DESIGN TEMPERATURE	°C	0-80		
7	DESIGN CODE		ASME VIII Div. 1 Ed. 2021		
8	MATERIAL CERTIFICATE		3.1		
9	MATERIAL OF CONSTRUCTION		Shell /pipes : SA106 gr B, Heads : SA234 WPB, flanges : SA105		
10	NOZZLE SIZE INLET/OUTLET		2" 150# for inlet and outlet, 1/2 NPT-F for drain		
11	DIMENSIONS	DIAX IT	12" X 1100 mm		
12	WEIGHT EMPTY	kg	120		
13	WEIGHT FILLED WITH WATER	kg	210		
14	CAPACITY	Liters	90		
15	TESTING AS PER CODE		ASME VIII Div. 1 Ed. 2021		
16	CORROSION ALLOWANCE	mm	3		
17	PWHT	Yes/No	No		<p>RAL color shall be deleted. Painting shall be as per APPROVED painting procedure.</p>
18	THICKNESS	mm	9.52		
19	RAL COLOR		7035		
20	Design approach		API 618 Design approach 2		
21	Maximum Allowable Compressor Cylinder Flange Pressure Pulsation as per clause 7.9.4.2.5.2.1 of API618.	Bar	0.291		
22	Maximum Allowable Pressure Drop as per clause 7.9.4.2.5.3.1 of API 618.	Bar	0.18		
23	Maximum Allowable Pulsation Limits at and Beyond Line-side Nozzles of Pulsation Suppression Devices as per clause 7.9.4.2.5.2.1 of API 618.	bar	0.536		<p>Please check the pressure with compressor data sheet. Discharge pressure of stage 1 is 14.5 barg.</p>
25		<b>1st stage outlet pulsation damper (20-DC-1002-2)</b>			
26	OPERATING PRESSURE	Bar(a)	14.5 bar(a)		<p>Test pressure shall be specified here clearly as a number.</p> <p>Also MAWP is not specified in this data sheet</p>
27	DESIGN PRESSURE	Bar(a)	25 bar(a)		
28	HYDROTEST PRESSURE		1.3 X MAWP as per ASME VIII		
29	OPERATING TEMPERATURE	°C	5-55		
30	DESIGN TEMPERATURE	°C	0-170		
31	DESIGN CODE		ASME VIII Div. 1 Ed. 2021		
32	MATERIAL CERTIFICATE		3.1		
33	MATERIAL OF CONSTRUCTION		Shell /pipes : SA106 gr B, Heads : SA234 WPB, flanges : SA105		
34	NOZZLE SIZE INLET/OUTLET		2" 300# for inlet and outlet, 1/2 NPT-F for drain		
35	DIMENSIONS	DIAX IT	12" X 1100 mm		
36	WEIGHT EMPTY	kg	110		<p>Please check the capacity again. With reference to compressor data sheet, suction pressure is 7,8,9 bara and discharge of stage 1 is 15.5 bara. Therefore, capacity of pulsation dampener considering suction pressure 9 bara and discharge pressure 15.5 bara is almost 100 liter.</p> <p><math>V_d = 1.6 \times (V_s / r^{1/k})</math></p>
37	WEIGHT FILLED WITH WATER	kg	190		
38	CAPACITY	Liters	80		
39	TESTING AS PER CODE		ASME VIII Div. 1 Ed. 2021		
40	CORROSION ALLOWANCE	mm	3		
41	PWHT	Yes/No	No		
42	THICKNESS	mm	9.52		
43	RAL COLOR		Aluminium		
44	Design approach		API 618 Design approach 2		
45	Maximum Allowable Compressor Cylinder Flange Pressure Pulsation as per clause 7.9.4.2.5.2.1 of API618.	Bar	1.481		<p>RAL color shall be deleted. Painting shall be as per APPROVED painting procedure.</p>
46	Maximum Allowable Pressure Drop as per clause 7.9.4.2.5.3.1 of API 618.	Bar	0.15		
47	Maximum Allowable Pulsation Limits at and Beyond Line-side Nozzles of Pulsation Suppression Devices as per clause 7.9.4.2.5.2.1 of API 618.	Bar	1.433		<p>Please check it again.</p>
48					
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50	NOTES:				
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VENDOR				Pulsation damper mechanical datasheet		P.O. No.	52-98/445
						Document No.	17811-11C
						Sheet No.	4
						Rev.No	01
CONTRACTOR / END USER		  		BUSHEHR PETROCHEMICAL			
				Please check the pressure with compressor data sheet. Discharge pressure of stage 1 is 14.5 barg.		Service	
						nitrogen compressor package	
<b>2nd stage inlet pulsation damper (20-DC-1002-3)</b>							
2	OPERATING PRESSURE	Bar(a)	4,5 bar(a)				
		Bar(a)	25 bar(a)				
			1.3 X MAWP as per ASME VIII				
		°C	50				
		°C	0-80				
			ASME VIII Div. 1 Ed. 2021				
			3.1				
9	MATERIAL CERTIFICATE						
9	MATERIAL OF CONSTRUCTION			Shell /pipes : SA106 gr B, Heads : SA234 WPB, flanges : SA105			
10	NOZZLE SIZE INLET/OUTLET			2" 300# for inlet and outlet, 1/2 NPT-F for drain			
11	DIMENSIONS	DIxT	10" X 60 mm				
12	WEIGHT EMPTY	kg	75				
13	WEIGHT FILLED WITH WATER	kg	115				
14	CAPACITY	Liters	34				
15	TESTING AS PER CODE			ASME VIII Div. 1 Ed. 2021			
16	CORROSION ALLOWANCE	mm	3				
17	PWHT	Yes/No	No	RAL color shall be deleted. Painting shall be as per APPROVED painting procedure.			
18	THICKNESS	mm	9,27				
19	<del>RAL COLOR</del>		<del>7035</del>				
20	Design aproach			API 618 Design approach 2			
21	Maximum Allowable Compressor Cylinder Flange Pressure Pulsation as per clause 7.9.4.2.5.2.1 of API618.	Bar	0,373				
22	Maximum Allowable Pressure	Bar	0,0636				
23	Maximum Allowable Pulsation Limits at and Beyond Line-side Nozzles of Pulsation Suppression Devices as per	bar	0,739	With reference to latest comments on P&ID, PSV set pressure shall be at least 10% above operating pressure. Therefore, disgn pressure shall be revised.			
<b>2nd stage outlet pulsation damper (20-DC-1002-4)</b>							
26	OPERATING PRESSURE	Bar(a)	23,5 bar(a)				
		Bar(a)	25 bar(a)				
			1.3 X MAWP as per ASME VIII				
		°C	64				
		°C	0-80				
			ASME VIII Div. 1 Ed. 2021				
31	DESIGN CODE						
32	MATERIAL CERTIFICATE						
33	MATERIAL OF CONSTRUCTION			Shell /pipes : SA106 gr B, Heads : SA234 WPB, flanges : SA105			
34	NOZZLE SIZE INLET/OUTLET			2" 300# for inlet and outlet, 1/2 NPT-F for drain			
35	DIMENSIONS	DIxT	10" X 800 mm				
36	WEIGHT EMPTY	kg	85				
37	WEIGHT FILLED WITH WATER	kg	130				
38	CAPACITY	Liters	45				
39	TESTING AS PER CODE			ASME VIII Div. 1 Ed. 2021			
40	CORROSION ALLOWANCE	mm	3				
41	PWHT	Yes/No	No	RAL color shall be deleted. Painting shall be as per APPROVED painting procedure.			
42	THICKNESS	mm	9,27				
43	<del>RAL COLOR</del>		<del>Aluminium</del>				
44	Design aproach			API 618 Design approach 2			
45	Maximum Allowable Compressor Cylinder Flange Pressure Pulsation as per	Bar	0,775				
46	Maximum Allowable Pressure	Bar	0,0603				
47	Limits at and beyond Line-side Nozzles of Pulsation	bar	0,9				
48	NOTES:						
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With reference to clause 4.5 of BU-20-D-000-PR-SPC-101 (ESS FOR AMBIENT, SITE CONDITION & UTILITY DATA), design temperature shall be at least 85C.

Test pressure shall be specified here clearly as a number. Also MAWP is not specified in this data sheet

Please correct.

RAL color shall be deleted. Painting shall be as per APPROVED painting procedure.

Please check it again.

With reference to latest comments on P&ID, PSV set pressure shall be at least 10% above operating pressure. Therefore, disgn pressure shall be revised.

As per mechanical data sheet of compressor, design temperature is 210 C.

Test pressure shall be specified here clearly as a number. Also MAWP is not specified in this data sheet

RAL color shall be deleted. Painting shall be as per APPROVED painting procedure.

Please check it again.