






<b>OWNER:</b>  شرکت پتروشیمی بوشهر	<b>BUSHEHR PETROCHEMICAL COMPANY MEG PLANT</b>							<b>CONTRACTOR</b>  Chagalesh-Engrehimi-Steam Joint Venture BUPC-MEG PLANT PROJECT  Netherlands	
<b>MC:</b>  شرکت مهندسی مشاوران پتروشیمی	<b>MECHANICAL DATA SHEET FOR NITROGEN GAS BOOSTER</b>							<b>Contract No : 52-98/445</b>	
<b>Owner Document Number :</b> 17811-11A	<b>Project</b> BU	<b>Area</b> 20	<b>Phase</b> VD	<b>Unit</b> 303	<b>Dis.</b> ME	<b>Doc.</b> DSH	<b>Seq.</b> 0022	<b>Rev 05</b>	<b>Page: 1 OF 22</b>


# MECHANICAL DATA SHEET FOR NITROGEN GAS BOOSTER

05	28-4-2022	Approved for Construction	KP	JR	LDM	
04	6-4-2022	Approved for Construction	KP	JR	LDM	
03	11-3-2022	Approved for Construction	KP	JR	LDM	
02	7-12-2021	Issued for approval	KP	JR	LDM	
01	25-11-2021	Issued for approval	KP	JR	LDM	
00	9-11-2021	Issued for approval	KP	JR	LDM	
<b>Rev.</b>	<b>Date</b>	<b>Description</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved</b>	<b>AC code.</b>

Class:1      Phase: P



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

**CONTRACTOR:**  **Chagalesh-Enerchimi-Steam**  
Joint Venture  
BUPC-MEG PLANT PROJECT

**MC:**   **DATA SHEET FOR**  
**NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)**



<b>Owner Document Number :</b> 17811-11A	<b>Project</b> BU	<b>Area</b> 20	<b>Phase</b> VD	<b>Unit</b> 303	<b>Dis.</b> ME	<b>Doc.</b> DSH	<b>Seq.</b> 0022	<b>Contract No</b> : 52-98/445	<b>Rev</b> 05	<b>Page:</b> 3 OF 22
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1 **APPLICABLE TO:**  PROPOSALS  PURCHASE  AS BUILT

2 **FOR/USER** BUPC **SITE/LOCATION** ASSALUYEH **SERVICE** NITROGEN BOOSTER COMPRESSOR **NO. REQ'D** ONE SET (Two stages)

3 **NOTE:**  INDICATES INFO. TO BE COMPLETED BY PURCH.  BY MANUFACTURER WITH PROPOSAL  BY MANUFACTURER AFTER ORDER  BY MANUFACTURER OR PURCHASER AS APPLICABLE

4

5 **COMPR. MFRG** \_\_\_\_\_ **TYPE MODEL NO(S)** \_\_\_\_\_ **SERIAL NO(S)** TBC

6 **COMPR. THROWS:** TOTAL NO. 1 **NO. WITH CYLS.** 1 **NOMINAL FRAME RATING** 55 **BKW @ RATED RPM OF** 690

7  MAX/MIN ALLOWABLE SPEED 450 / 690 RPM

8 **DRIVER MFRG.** WEG **DRIVER NAMEPLATE KW/OPERATING RPM** 45 kW / 690

9 **DRIVE SYSTEM:**  DIRECT COUPLED  GEARED & COUPLED  V-BELT

10 **TYPE OF DRIVER:**  IND. MOTOR  SYN. MOTOR  STEAM TURBINE  GAS TURBINE  ENGINE  OTHER \_\_\_\_\_

11 **NO NEGATIVE TOLERANCE APPLIES:**  YES - PURCHASER TO FILL IN "REQUIRED CAPACITY" LINES. **CYLINDERS:**  LUBE

12 (NNT)  NO - PURCHASER TO FILL IN "MFRG.'S RATED CAP." LINES  NON-LUBE

13  MAX ACCEPTABLE AVG PISTON SPEED 3.5 m/s




14 **OPERATING CONDITIONS (EACH MACHINE)**


15 <input checked="" type="radio"/> OPERATING CASE	<b>NITROGEN 1st stage</b>	<b>NITROGEN 1st stage</b>	<b>NITROGEN 1st stage</b>	<b>NITROGEN 2nd stage</b>	<b>NITROGEN 2nd stage</b>	<b>NITROGEN 2nd stage</b>		
16 <input type="radio"/> SIMULATION BASIS								
17 <input checked="" type="radio"/> NORM. OR ALT. CONDITION	Normal	Min pressure	Max pressure	Normal	Min pressure	Max pressure		
18 <input type="radio"/> CERTIFIED PT. (X) MARK ONE	X	X	X	X	X	X		
19 <input checked="" type="radio"/> MOLECULAR WEIGHT	28	28	28	28	28	28		
20 <input type="radio"/> Cp/Cv (K) @ 65°C OR °C	1.4	1,4	1,4	1,4	1,4	1,4		
21 <b>INLET CONDITIONS:</b> AT INLET TO: <input checked="" type="radio"/> PULSE DEVICES <input type="radio"/> COMPRESSOR CYLINDER FLANGES								
22 <b>NOTE:</b> <input type="radio"/> SIDE STREAM TO _____ STAGE(S), THESE INLET PRESS. ARE FIXED								
23 <input checked="" type="radio"/> PRESSURE @ PUL. SUPP. INLET (bara)	8	7	9	14,5	14,5	14,5		
24 <input checked="" type="checkbox"/> PRESSURE (Bara) @ CYL. FLANGE	8	7	9	14,5	14,5	14,5		
25 <input checked="" type="radio"/> TEMPERATURE (°C)	52	52	52	50	50	50		
26 <input type="radio"/> INLET Cp/Cv	1,4	1,4	1,4	1,4	1,4	1,4		
27 <input checked="" type="checkbox"/> COMPRESSIBILITY (Z <sub>s</sub> )	1	1	1	1	1	1		
28 <b>INTERSTAGE:</b> INTERSTAGE Δ P INCL: <input checked="" type="radio"/> PULSE DEVICES <input checked="" type="radio"/> PIPING <input checked="" type="radio"/> COOLERS <input checked="" type="radio"/> SEPARATORS <input type="radio"/> OTHER _____								
29 <input checked="" type="checkbox"/> Δ P BETWEEN STAGES, % / BAR	/	/	/	/	/	/	/	/
30 <b>DISCHARGE CONDITIONS:</b> AT OUTLET FROM: <input checked="" type="radio"/> PULSE DEVICE <input type="radio"/> COMP. CYL. FLANGES <input type="radio"/> OTHER _____								
31 <input checked="" type="checkbox"/> PRESSURE @ CYL. FLANGE (bara)	13,5	13,5	13,5	23,5	23,5	23,5		
32 <input checked="" type="radio"/> PRESS. (bara) @ PUL. SUPP. OUTLET	13,5	13,5	13,5	23,5	23,5	23,5		
33 <input type="checkbox"/> TEMP., ADIABATIC, °C	115	<115	<115	64	64	64		
34 <input type="checkbox"/> TEMP., PREDICTED, °C	134	<134	<134	81	81	81		
35 <input type="checkbox"/> COMPRESSIBILITY (Z <sub>2</sub> ) OR (Z <sub>AVG</sub> )	1	1	1	1	1	1		
36 <b>* REQUIRED CAPACITY, RATED FOR PROCESS, AT INLET TO COMPRESSOR, NO NEGATIVE TOLERANCE (-0%)</b>								
37 <input checked="" type="radio"/> kg/h CAPACITY SPECIFIED	707	707	707	707	707	707		
38 <input type="radio"/> WET <input checked="" type="radio"/> DRY								
39 <input checked="" type="radio"/> m³/h (760 mm HG & 0°C)	565	565	565	565	565	565		
40 <b>* MFRG.'S RATED CAPACITY (AT INLET TO COMPRESSOR) &amp; kW @ CERTIFIED TOLERANCE OF ±3% FOR CAP. &amp; ±3% FOR kW</b>								
41 <input checked="" type="checkbox"/> kg/h CAPACITY SPECIFIED	718	718	718	718	718	718		
42 <input type="radio"/> WET <input type="radio"/> DRY								
43 <input type="checkbox"/> INLET m³/h								
44 <input type="checkbox"/> Nm³/h	574	574	574	574	574	574		
45 <input type="checkbox"/> kW/STAGE	17,5	17,5	17,5	17,5	17,5	17,5		
46 <input checked="" type="checkbox"/> ABSORBED POWER ESTIMATED, kW	35	35	35	35	35	35		
47 <input type="checkbox"/> TOTAL kW INCLUDING V-BELT & GEAR LOSSES	37	37	37	37	37	37		

49 **\* CAPACITY FOR NNT**

50 MANUFACTURER'S = REQUIRED ÷ 0.97

51 THEREFORE REQUIRED = MFR'S x 0.97

<b>OWNER:</b>  شرکت پتروشیمی بوشهر	<b>BUSHEHR PETROCHEMICAL COMPANY MEG PLANT</b>	<b>CONTRACTOR:</b>  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT  
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<b>MC:</b>  شرکت سست، مینوسیران ایران	<b>DATA SHEET FOR NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)</b>	<b>Contract No : 52-98/445</b>
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<b>Owner Document Number : 17811-11A</b>	<b>BU</b>	<b>20</b>	<b>VD</b>	<b>303</b>	<b>ME</b>	<b>DSH</b>	<b>0022</b>	<b>Rev 05</b>	<b>Page: 4 OF 22</b>
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	GAS ANALYSIS AT OPERATING CONDITIONS MOLE PERCENT						REMARKS
1							
2							
3	<input type="radio"/> SERVICE/ITEM NO. <input type="radio"/> STAGE <input checked="" type="radio"/> NORMAL OR ALT						
4							
5							
6		M.W.					
7	NITROGEN	28,016	Min: 99.9	mol%			
8	WATER H <sub>2</sub> O	18.016	1 (max)	ppm			
9	CARBON MONOXIDE CO	72.146	10	ppm			
10	CARBON DIOXIDE CO <sub>2</sub>	34.076					
11	HYDROGEN H <sub>2</sub>	2,016					
12	METHANE CH <sub>4</sub>	16.042					
13	ETHANE	30.068					
14	PROPANE	44.094					
15	i-BUTANE	58,12					
16	n-BUTANE	58,12					
17	i-PENTANE	72,146					
18	OXYGEN O <sub>2</sub>	32.00	Max:10	ppm			
19	S content S		Max: 0.2	ppm (by weight)			
20							
21							
22							<b>APPLICABLE SPECIFICATIONS</b>
23							● API-618-RECIPROCATING COMPRESSORS FOR PETROLEUM, CHEMICAL AND GAS INDUSTRY SERVICES
24							● MATERIAL STANDARD SPECIFICATION FOR RECIPROCATING GAS COMPRESSOR BU-20-D-000-MA-SPC-302
25							
26							
27							
28							
29							
30							
31	TOTAL:						
32	<input type="checkbox"/> CALCULATED MOL WT.						
33	<input type="checkbox"/> Cp/Cv (K) @ 65° OR Suction temperature °C						

NOTE: IF WATER VAPOR AND/OR CHLORIDES ARE PRESENT, EVEN MINUTE TRACES, IN THE GAS BEING COMPRESSED, IT MUST BE INCLUDED ABOVE.

SITE CONDITION (SEE PROJECT SITE CONDITION FOR MORE DETAIL)

ELEVATION	8,3	m	BAROMETER	1,013	(BARA)	AMBIENT TEMPS: MAX	52	°C	MIN	5	°C
			● MIN DESIGN METAL TEMP			0	°C (2.14.8)		RELATIVE HUMIDITY: MAX	100%	
			● UNHEATED			○ AT GRADE LEVEL			○ ELEVATED:		
COMPRESSOR LOCATION:			○ INDOOR	HEATED		● UNHEATED			○ AT GRADE LEVEL	○ ELEVATED: _____ M	
			● OUTDOOR	NO ROOF		○ UNDER ROOF			○ PARTIAL SIDES	○ PLATFORM: ● ON-SHORE	
			○ OFF-SHORE	○ WEATHER PROTECTION REQ.				○ TROPICALIZATION REQ.			
			○ WINTERIZATION REQUIRED								
UNUSUAL CONDITIONS:			○ CORROSIVES	● DUST		● FUMES	● OTHER				Sand storm , Thunder & Lightninging, Sea Breeze

ELECTRICAL CLASSIFICATIONS						
HAZARDOUS				NON-HAZRDOUS		
MAIN UNIT	● ZONE	2	GROUP	IIB	TEMP CLASS	T3
L.O. CONSOLE	○ ZONE		GROUP		TEMP CLASS	
CW CONSOLE	○ ZONE		GROUP		TEMP CLASS	

<b>OWNER:</b>  شرکت پترو شیمیایی بوشهر	<b>BUSHEHR PETROCHEMICAL COMPANY MEG PLANT</b>	<b>CONTRACTOR:</b>  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT   Netherlands
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<b>MC:</b>  شرکت سازه های مهندسی پارس	<b>DATA SHEET FOR NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)</b>
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<b>Owner Document Number : 17811-11A</b>	<b>BU</b>	<b>20</b>	<b>VD</b>	<b>303</b>	<b>ME</b>	<b>DSH</b>	<b>0022</b>	<b>Rev 05</b>	<b>Page: 5 OF 22</b>
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**PART LOAD OPERATING CONDITIONS**

CAPACITY CONTROL BY:  MFG'S CAP. CONTROL     PURCHASERS BY-PASS     BOTH     OTHER \_\_\_\_\_

FOR:  PART LOAD COND.     START-UP ONLY     BOTH

WITH:  AUTO LOADING DELAY INTERLOCK     AUTO IMMEDIATE UNLOADING

USING:  FIXED VOLUME POCK.     SUCTION VALVE UNLOADERS:     FINGER     PLUG     OTHER

ACTION:  DIRECT (AIR-TO-UNLOAD)     REVERSE (AIR-TO-LOAD/FAIL SAFE)

NUMBER OF STEPS:  ONE     THREE     FIVE     OTHER \_\_\_\_\_

RAIN COVER REQUIRED OVER UNLOADERS

<b>INLET AND DISCHARGE PRESSURE ARE</b>	<input type="radio"/> AT CYLINDER FLANGES	<input checked="" type="radio"/> PULSATION SUPPRESSOR FLANGES																																																																																																																																																										
<input type="radio"/> SERVICE OR ITEM NO. <input checked="" type="radio"/> STAGE <input type="radio"/> NORMAL OR ALTERNATE CONDITION <input checked="" type="radio"/> PERCENT CAPACITY <input type="radio"/> WEIGHT FLOW, kg/h <input checked="" type="radio"/> m <sup>3</sup> /h (760 mm HG & 0°C) <input type="checkbox"/> POCKETS/VALVES OPERATION * <input type="checkbox"/> POCKET CLEARANCE ADDED % <input type="checkbox"/> TYPE UNLOADERS, PLUG/FINGER <input checked="" type="radio"/> INLET TEMPERATURE, °C <input checked="" type="radio"/> INLET PRESSURE, (BARG) <input checked="" type="radio"/> DISCHARGE PRESSURE, (BARG) <input type="checkbox"/> DISCHARGE TEMP., ADIABATIC °C <input type="checkbox"/> DISCHARGE TEMP., PREDICTED °C <input type="checkbox"/> VOLUMETRIC EFF., %HE/%CE(AVER) <input type="checkbox"/> CALC. GAS ROD LOAD, KN, C ** <input type="checkbox"/> CALC. GAS ROD LOAD, KN, T ** <input type="checkbox"/> COMB. ROD LOAD, KN C (GAS & INERTIA) <input type="checkbox"/> COMB. ROD LOAD, KN T (GAS & INERTIA) <input type="checkbox"/> ROD REV., DEGREES MIN @ X-HD PIN *** <input type="checkbox"/> BkW/STAGE <input type="checkbox"/> TOTAL KW @ COMPRESSOR SHAFT <input type="checkbox"/> TOTAL KW INCL. V-BELT & GEAR LOSSES	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;"></td> <td style="width:15%; text-align: center;">1</td> <td style="width:15%; text-align: center;">2</td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> </tr> <tr> <td style="text-align: center;">NORMAL</td> <td style="text-align: center;">NORMAL</td> <td style="text-align: center;">NORMAL</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">100%</td> <td style="text-align: center;">100%</td> <td style="text-align: center;">100%</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">718</td> <td style="text-align: center;">718</td> <td style="text-align: center;">718</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">574</td> <td style="text-align: center;">574</td> <td style="text-align: center;">574</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Valves</td> <td style="text-align: center;">Valves</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">NA</td> <td style="text-align: center;">NA</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Plug</td> <td style="text-align: center;">Plug</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">5...55</td> <td style="text-align: center;">45</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">6...8</td> <td style="text-align: center;">14,5</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">14,5</td> <td style="text-align: center;">22,5</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">115</td> <td style="text-align: center;">64</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">134</td> <td style="text-align: center;">83</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">78/85</td> <td style="text-align: center;">78/85</td> <td style="text-align: center;">/</td> <td style="text-align: center;">/</td> <td style="text-align: center;">/</td> <td style="text-align: center;">/</td> <td></td> </tr> <tr> <td style="text-align: center;">16,43</td> <td style="text-align: center;">8,78</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">14,54</td> <td style="text-align: center;">5,28</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">16,57</td> <td style="text-align: center;">9,13</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">14,26</td> <td style="text-align: center;">5,45</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">195</td> <td style="text-align: center;">195</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">22,5</td> <td style="text-align: center;">12,5</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">35</td> <td style="text-align: center;">35</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">37</td> <td style="text-align: center;">37</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		1	2					NORMAL	NORMAL	NORMAL					100%	100%	100%					718	718	718					574	574	574					Valves	Valves						NA	NA						Plug	Plug						5...55	45						6...8	14,5						14,5	22,5						115	64						134	83						78/85	78/85	/	/	/	/		16,43	8,78						14,54	5,28						16,57	9,13						14,26	5,45						195	195						22,5	12,5						35	35						37	37						
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\* SHOW OPERATION WITH THE FOLLOWING SYMBOLS:

HEAD END = HE	}	PLUS	}	SUCTION VALVE(S) UNLOADED	= S	
OR				OR	FIXED POCKET OPEN	= F
CRANK END = CE				OR	VARIABLE POCKET OPEN	= V

\*\* C = COMPRESSION    T = TENSION    \*\*\* X - HD = CROSSHEAD

MINIMUM PRESSURE REQUIRED TO OPERATE CYLINDER UNLOADING DEVICES, \_\_\_\_\_ (BARG)

CYLINDER UNLOADING MEDIUM:  AIR     NITROGEN     OTHER \_\_\_\_\_

PRESSURE AVAILABLE FOR CYLINDER UNLOADING DEVICES, MAX/MIN    7,5 / 6,0 (BARG)

**SPECIAL REMARK:**

Capacity control by valve unloaders insteps of 0-50-100 % , in between these steps by recycle over the compressor.


**OWNER:**



شرکت پتروشیمی نوشهر  
BUPC

**BUSHEHR PETROCHEMICAL COMPANY  
MEG PLANT**

**CONTRACTOR:**



Chagalesh-Enerchimi-Steam  
Joint Venture  
BUPC-MEG PLANT PROJECT

**MC:**



گروه صنعتی سستی  
SSTI

**DATA SHEET FOR  
NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)**

Project	Area	Phase	Unit	Dis.	Doc.	Seq.
BU	20	VD	303	ME	DSH	0022

**Contract No : 52-98/445**

**Rev 05**      **Page: 6 OF 22**

**Owner Document Number:  
17811-11A**

● **SCOPE OF BASIC SUPPLY**

**PURCHASER TO FILL IN** (    ) **AFTER COMMODITY TO INDICATE:**  **BY COMPR. MFR.**     **BY PURCH.**     **BY OTHERS**

● **DRIVER** (    ):      **VARIABLE SPEED**      **SPEED RANGE**      **NOT APPLICABLE**      **RPM TO**      **NOT APPLICABLE RPM**

● **INDUCTION MOTOR**     **SYNCHRONOUS MOTOR**       **STEAM TURBINE**       **ENGINE**     **OTHER** \_\_\_\_\_

**API-541**       **API-546**       **API-611**       **API-612**

● **OUTBOARD BEARING**     **PROVISION FOR DRY AIR PURGE FOR OUTBOARD BEARING.**

● **SLIDE BASE FOR DRIVER** (    )      **SOLE PLATE FOR DRIVER** (    )

● **MOTOR STARTING EQUIPMENT** (    ); **DEFINE** \_\_\_\_\_ **Local power distribution board**

**GEAR** (    ):     **BASEPLATE FOR GEAR**       **API-613**     **API-677**

**COUPLING(S)** (    ):     **LOW SPD.**     **HI-SPD.**     **QUILL SHAFT**     **KEY-LESS DRV.**     **KEY'D DRV.**     **OTHER** \_\_\_\_\_

**API 671**

● **V-BELT DRIVE** (    ):     **SHEAVES & V-BELTS** (    )     **STATIC CONDUCTING V-BELTS**     **BANDED V-BELTS**

● **DRIVE GUARD(S)** (    ):    ● **MANUFACTURER'S STD.**      ● **NON-SPARKING**       **CALIF CODE**     **API-671 APPENDIX C**

**OTHER** \_\_\_\_\_

● **PULSATION SUPPRESSORS WITH INTERNALS** (    ):    ● **INITIAL INLET & FINAL DISCHARGE**      ● **SUPPORTS** (    )

● **INTERSTAGE**      ● **SUPPORTS** (    )

**PULSATION SUPPRESSORS WITHOUT INTRNL** (    ):     **INITIAL INLET & FINAL DISCHARGE**       **SUPPORTS** (    )

**INTERSTAGE**       **SUPPORTS** (    )

**SUPPRESSOR(S) TO HAVE MOISTURE REMOVAL SECTION:**     **INITIAL INLET ONLY**       **ALL INLET SUPPRESSORS**

● **ACOUSTICAL SIMUL. STUDY** (    ):    **DESIGN APPROACH**     1, **EMPRICAL PULSATION SUPPRESSION DEVICE SIZING**

**DIGITAL**     **ANALOG**      ● 2, **ACOUSTIC SIMULATION AND PIPING RESTRAINT ANALYSIS**

3, **ACOUSTIC SIMULATION AND PIPING RESTRAINT ANALYSIS PLUS MECHANICAL ANALYSIS**

**STUDY TO CONSIDER:**    **ALL SPECIFIED LOAD COND., INCL.**      ● **SINGLE ACT., PLUS**

**COMP. OPER. IN PARALLEL**       **ALTERNATE GASES**

**WITH EXISTING COMP. AND PIPING SYSTEMS**

**STUDY TO BE WITNESSED**       **COMPRESSOR VALVE DYNAMIC RESPONSE**

● **VENDOR REVIEW OF PURCHASER'S PIPING ARRANGEMENT**       **PULSATION SUPPRESSEN DEVICE LOW CYCLE FATIGUE ANALYSIS**

**PIPING SYSTEM FLEXIBILITY**

**PACKAGED:**     **NO**      ● **YES** (    )    **DEFINE BASIC SCOPE OF PACKAGING IN REMARKS SECTION**

● **SKID**    ● **SOLEPLT.**    ● **BASEPLT.**    ● **BOLTS OR STUDS FOR SOLEPLT. TO FRAME**       **RAILS**     **CHOKE BLOCKS**     **SHIMS**

**SUITABLE FOR COLUMN MOUNTING (UNDER SKID AND/OR BASEPLATE)**

**LEVELING SCREWS**     **NON-SKID DECKING**     **SUB SOLEPLATES**

● **DIRECT GROUTED**    ● **CEMENTED/MORTAR GROUT**     **EPOXY GROUT; MFG/TYPE**      \_\_\_\_\_ / \_\_\_\_\_

**INTERCOOLER(S)** (    )     **SEPARATOR(S)** (    )    ● **AFTERCOOLER(S)** (    )

**INTERCOOLERS:**

● **INTERSTAGE PIPE** (    )       **PIPING MATCHMARKED**       **SHOP FITTED**       **MACHINE MTD.**

**CONDENSATE SEPARATION & COLLECTION FACILITY SYSTEM PER 3.8.12**       **OFF MOUNTED**

● **INLET STRAINER(S)** (    ):    ● **INITIAL INLET**       **SIDESTREAM INLET**       **SPOOL PIECE FOR INLET STRAINERS**

● **MANIFOLD PIPING;**     **DRAINS**     **VENTS**    ● **RELIEF VALVES**    ● **AIR/GAS SUPPLY**     **FLANGE FINISH**

● **RELIEF VALVE(S)** (    ):     **INITIAL INLET**    ● **INTERSTAGE**    ● **FINAL DISCHARGE**     **API-618 FLANGE FINISH**

**RUPTURE DISC(S)** (    )     **THRU STUDS IN PIPING FLANGES**

**CRANKCASE RAPID PRESSURE RELIEF DEVICE(S)** (    )      ● **FLANGE FINISH PER ANSI 16.5**

● **SPECIAL PIPING REQUIREMENTS**       **SPECIAL FINISH**

**INITIAL INLET,**     **INTERSTAGE SUCTION PIPING ARR'D FOR:**      **INSULATION** (    )      **HEAT TRACING** (    )

**FOR ATMOSPHERIC INLET AIR COMPR. ONLY:**     **INLET AIR FILTER**      (    )     **INLET FILTER -SILENCER** (    )

● **PREFERRED TYPE OF CYLINDER COOLING** (    ):    ● **FORCED**       **THERMOSYPHON**      \_\_\_\_\_      **STAGE CYL(S)**

**STATIC (STAND-PIPE)**      \_\_\_\_\_      **STAGE CYL(S)**

**NOTE: MANUFACTURER SHALL RECOMMENDBEST TYPE OF COOLING AFTERFINAL ENGINEERING REVIEW OF ALLOPERATING CONDITIONS**



● **CYL. COOLING WATER PIPING** (    )     **MATCH M'RKED**


● **SINGLE INLET/OUTLET MANIFOLD & VALVES**      ● **SIGHT GL'S(S)**

**INDIVIDUAL INLET/ OUTLET PER CYL.**      ● **VALVE(S)**

**CLOSED SYS. WITH WATER PUMP, COOLER, SURGE TANK, & PIPING**

**SHOP RUN**       **ARR'D FOR HEATING JACKET AS WELL AS COOLING**

<b>OWNER:</b> 	<b>BUSHEHR PETROCHEMICAL COMPANY MEG PLANT</b>	<b>CONTRACTOR:</b>  
--	--	--

<b>MC:</b> 	<b>DATA SHEET FOR NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)</b>	<b>Contract No : 52-98/445</b>							
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**SCOPE OF BASIC SUPPLY (Con't)**

SEPARATE COOLING CONSOLE (    ):  ONE FOR EA. UNIT  ONE CMMN TO ALL UNITS  DUAL PUMPS (AUX. & MAIN)  
 ARRANGED FOR HEATING JACKET WATER AS WELL AS COOLING

ROD PRESS. PACKING COOLING SYSTEM      SEPARATE CONSOLE  COMBINE WITH JKT SYSTEM  FILTERS

FRAME LUBE OIL SYSTEM (    ):  AUX. PUMP  DUAL FILTERS WITH TRANSFER VALVE  SHOP RUN  
 CONTINUOUS FLOW IN SENSING LINE TO PRESSURE SWITCHES

SEPARATE LUBE OIL CONSOLE (    ):  EXTENDED TO MOTOR OUTBOARD BEARING  SHOP RUN  
 API 614 APPLIES  NO  YES

NOTE: PIPING BETWEEN ALL CONSOLES AND COMPRESSOR UNIT BY PURCHASER

CAPACITY CONTROL (    ):  SEE DATA SHEET PAGE 5 FOR DETAILS  INSTRUMENT & CONTROL PANEL  
 SEPARATE MACHINE MOUNTED PANEL  SEPARATE FREE STANDING PANEL  
 PNEUMATIC  ELECTRIC  ELECTRONIC  HYDRAULIC  
 PROGRAMMABLE CONTROLLER

INSTRUMENT & CONTROL PANEL (    ):  ONE FOR EACH UNIT  ONE COMMON TO ALL UNITS  
 MACHINE MOUNTED  FREE STANDING (OFF UNIT)

BUFFER GAS CONTROL PANEL (    ) =  ONE FOR EACH UNIT  ONE COMMON TO ALL UNITS  
 MACHINE MOUNTED  FREE STANDING (OFF UNIT)

SEE INSTRUMENTATION DATA SHEETS FOR DETAILS OF PANEL, ADDITIONAL REMARKS, AND INSTRUMENTATION  
 NOTE: ALL TUBING, WIRING, & CONNECTIONS BETWEEN OFF-UNIT FREE STANDING PANELS AND COMPRESSOR UNIT BY PURCHASER

HEATERS (    ):  FRAME LUBE OIL  CYL. LUBRICATORS  COOLING WATER  DRIVER(S)  GEAR OIL  
 ELECTRIC  STEAM

BARRING DEVICE (    ):  MANUAL  PNEUMATIC  ELECTRIC  FLYWHEEL LOCKING DEVICE (    )

ROD PRESSURE PACKING COOLING SYSTEM (    ):  SEPARATE CONSOLE  FILTERS

SPECIAL CORROSION PROTECTION:  NO  YES  MFR'S STANDARD  OTHER \_\_\_\_\_

HYDRAULIC TENSIONING TOOLS  NO  YES

MECHANICAL RUN TEST:  NO  YES  MFG'S STANDARD  OTHER \_\_\_\_\_  
 COMPLETE SHOP RUN TEST OF ALL MACHINE MOUNTED EQUIPMENT, PIPING & APPURT.:(S)

PAINTING:  MANUFACTURER'S STANDARD  SPECIAL Project specification for color

NAMEPLATES:  U.S. CUSTOMARY UNITS  SI UNITS

SHIPMENT:  DOMESTIC  EXPORT  EXPORT BOXING REQUIRED (    )  
 STANDARD 6 MONTH STORAGE PREPARATION (    ), PER SPEC \_\_\_\_\_  
 OUTDOOR STORAGE FOR OVER 12 MONTHS (    ), PER SPEC \_\_\_\_\_

INITIAL INSTALLATION AND OPERATING TEMP ALIGNMENT CHECK AT JOBSITE BY VENDOR REPRESENTATIVE

COMPRESSOR MANUFACTURER'S USER'S LIST FOR SIMILAR SERVICE

PERFORMANCE DATA REQUIRED PER 5.3.3:  BkW VS. SUCTION PRESSURE CURVES  
 ROD LOAD/GAS LOAD CHARTS  
 VALVE FAILURE DATA CHARTED  
 SPEED/TORQUE CURVE DATA

BkW VS. CAPACITY PERFORMANCE CURVES OR TABLES REQUIRED FOR UNLOADING STEPS AND/OR VARIABLE SUCTION/DISCHARGE PRESSURES

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**CONTRACTOR:**



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Joint Venture  
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Netherlands

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**DATA SHEET FOR  
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<input type="checkbox"/> <b>CYLINDER DATA AT FULL LOAD CONDITION</b>	
1	
2	SERVICE/ITEM NO.
3	STAGE
4	INLET PRESSURE, (BARG) } @ CYLINDER
5	DISCHARGE PRESSURE, (BARG) } FLANGES
6	CYLINDERS PER STAGE
7	SINGLE OR DOUBLE ACTING (SA OR DA)
8	BORE, mm
9	STROKE, mm
10	RPM: RATED / MAX ALLOW
11	PISTON SPEED, m/s: RATED / MAX ALLOW
12	CYLINDER LINER, YES/NO
13	LINER NOMINAL THICKNESS, mm
14	PISTON DISPLACEMENT, m <sup>3</sup> /h
15	CYLINDER DESIGN CLEARANCE, % AVERAGE
16	VOLUMETRIC EFFICIENCY, % AVERAGE
17	VALVES, INLET/DISCHARGE, QTY PER CYL.
18	TYPE OF VALVES
19	VALVE LIFT, INLET/DISCHARGE, mm
20	VALVE VELOCITY, API 4TH EDITION, m/s
21	SUCTION VALVE(S)
22	DISCHARGE VALVE(S)
23	ROD DIAMETER, (mm)
24	MAX ALLOW. COMBINED ROD LOADING, kN, C *
25	MAX ALLOW. COMBINED ROD LOADING, kN, T *
26	CALCULATED GAS ROD LOAD, kN, C *
27	CALCULATED GAS ROD LOAD, kN, T *
28	COMBINED ROD LOAD (GAS + INERTIA), kN, C *
29	COMBINED ROD LOAD (GAS + INERTIA), kN, T *
30	ROD REV., DEGREES MIN @ X-HD PIN**
31	RECIP WT. (PISTON, ROD, X-HD & NUTS), kg**
32	MAX ALLOW. WORKING PRESSURE, (BARG)
33	MAX ALLOW. WORKING TEMPERATURE, °C
34	HYDROSTATIC TEST PRESSURE, (BARG)
35	HELIUM TEST PRESSURE, (BARG)
36	INLET FLANGE SIZE/RATING at CYLINDER
37	FACING at CYLINDER
38	DISCHARGE FLANGE SIZE/RATING at CYLINDER
39	FACING at CYLINDER
40	DISCHARGE RELIEF VALVE SETTING DATA AT INLET PRESSURES GIVEN ABOVE:
41	RECOMMENDED SETTING, (BARG)
42	GAS ROD LOAD, kN, C *
43	GAS ROD LOAD, kN, T *
44	COMBINED ROD LOAD, kN, C *
45	COMBINED ROD LOAD, kN, T *
46	ROD REVERSAL, °MIN @ X-HD PIN**
47	NOTE: CALCULATED AT INLET PRESSURES
48	GIVEN ABOVE & RECOMMENDED SETTING.
49	<input type="checkbox"/> SETTLE-OUT GAS PRESSURE
50	(DATA REQUIRED FOR STARTING)
51	* C = COMPRESSION * T = TENSION **X-HD = CROSSHEAD

52 **NOTES/REMARKS:**

53 2. Special flanges are applied, therefore size cannot be given



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اصناف شیرازی

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**CONSTRUCTION FEATURES (CONTINUED)**

FABRICATED CYLINDER, HEADS, & CONNECTION SKETCHES FOR DESIGN REVIEW BY PURCHASER.

BUFFER GAS PACKING ARR. Ref: Appendix I  
 OIL WIPER PACKING PURGE Figures I-1, I-2 & I-3  
 INTERMEDIATE PARTITION PURGE  
 INERT BUFFER PURGE GAS:  N<sub>2</sub>  OTHER \_\_\_\_\_  
 VENT, DRAIN, PURGE PIPING BY MFG'R  NO  YES

**COUPLING(S)**  LOW-SPEED  HI-SPEED  
 Between Compressor & Driver or Gear Between Driver & Gear  
 BY MANUFACTURER \_\_\_\_\_  
 MODEL \_\_\_\_\_  
 TYPE \_\_\_\_\_  
 API-671 APPLIES  YES  NO

**V-BELT DRIVE** DRIVEN SHEAVE DRIVE SHEAVE  
(Compressor Shaft) (Driver Shaft)  
 RPM (EXPECTED) 690 1475  
 PITCH DIA. (Inches) \_\_\_\_\_  
 QTY & GROOVE X-SEC. 4  
 POWER TRANSMITT'D 35 37  
Incl. Belt Losses  
 DRIVER NAMEPLATE HP RATING \_\_\_\_\_  
 CENTER DISTANCE (INCHES) \_\_\_\_\_  
 QTY, TYPE, \_\_\_\_\_  
 X-SEC. & LENGTH BELTS \_\_\_\_\_  
 BELT SERVICE FACTOR (RELATIVE TO DRIVER NAMEPLATE HP RATING) \_\_\_\_\_

	REQ'D	WITN.	OBSER.
<input type="radio"/> <b>INSPECTION AND SHOP TESTS</b>			
*SHOP INSPECTION	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
ACTUAL RUNNING CLEARANCES AND RECORDS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MFG STANDARD SHOP TESTS	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
CYLINDER HYDROSTATIC TEST	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CYLINDER PNEUMATIC TEST	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CYLINDER HELIUM LEAK TEST	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CYL. JACKET WATER HYDRO TEST	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*MECHANICAL RUN TEST (4 HR)	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
BAR-OVER TO CHECK ROD RUNOUT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*LUBE OIL CONSOLE RUN/TEST (4 HR)	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
*COOLING H <sub>2</sub> O CONSOLE RUN/TEST	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
RADIOGRAPHY BUTT WELDS	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> GAS <input type="radio"/> OIL <input type="radio"/> FAB CYLS.			
MAG PARTICLE/LIQUID PENETRANT OF WELDS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SPECIFY ADDITIONAL REQUIREMENTS (4.2.1.3)			
QC OF INACCESSIBLE WELDS (2.14.5.2.4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SHOP FIT-UP OF PULSATION SUPPL. DEVICES & ALL ASSOCIATED GAS PIPING	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*CLEANLINESS OF EQUIP., PIPING, & APPURTENANCES	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
*HARDNESS OF PARTS, WELDS & HEAT AFFECTED ZONES	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*NOTIFICATION TO PURCHASER OF ANY REPAIRS TO MAJOR COMPONENTS	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
SOUND LEVEL TEST	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
DISMANTLING INSPECTION	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*SPECIFIC REQUIREMENTS TO BE DEFINED, FOR EXAMPLE, DISMANTLING, AUX EQUIPMENT OPERATIONAL & RUN TESTS.			
APPENDIX K COMPLIANCE: <input type="radio"/> VENDOR <input type="radio"/> PURCHASER			
NOTE: - INSPECTION AND TESTING SHALL BE AS PER SCOPE OF APPROVED ITP			

**CYLINDER LUBRICATION**  
 NON-LUBE \_\_\_\_\_ STAGE(S)/SERVICE  
 LUBRICATED \_\_\_\_\_ STAGE(S)/SERVICE  
 TYPE OF LUBE OIL:  SYNTHETIC \_\_\_\_\_  
 HYDROCARBON \_\_\_\_\_  
 LUBRICATOR  COMP. CRANKSHAFT, DIRECT  
 DRIVE BY:  CHAIN, FROM CRANKSHAFT  
 ELECTRIC MOTOR  
 OTHER \_\_\_\_\_  
 LUBRICATOR MFR \_\_\_\_\_  
 MODEL \_\_\_\_\_  
 TYPE LUBRICATOR:  SINGLE PLUNGER PER POINT  
 DIVIDER BLOCKS \_\_\_\_\_  
 COMPARTMT, TOTAL QTY. \_\_\_\_\_  
 PLUNGERS (PUMPS), TOTAL QTY. \_\_\_\_\_  
 SPARE PLUNGERS, QTY. \_\_\_\_\_  
 SPARE COMPARTMT W/OUT PLUNGERS \_\_\_\_\_  
 HEATERS:  ELECTRIC W/THERM.(S)  STEAM

**ESTIMATED WEIGHTS AND NOMINAL DIMENSIONS**

<input type="checkbox"/> TOTAL COMPR. WT, LESS DRIVER & GEAR	1300	kg	
<input type="checkbox"/> WT, OF COMPLETE UNIT, (LESS CONSOLES)	5200	kg	
<input type="checkbox"/> MAXIMUM ERECTION WEIGHT	5200	kg	
<input type="checkbox"/> MAXIMUM MAINTENANCE WEIGHT	420	kg	
<input type="checkbox"/> DRIVER WEIGHT/GEAR WEIGHT	420 / NA	kg	
<input type="checkbox"/> LUBE OIL/COOLING H <sub>2</sub> O CONS.	NA / NA	kg	
<input type="checkbox"/> FREE STANDING PANEL			
SPACE REQUIREMENTS-mm: (NOTE 8)	LENGTH	WIDTH	HEIGHT
<input type="checkbox"/> COMPLETE UNIT	3200	2000	3039
<input type="checkbox"/> LUBE OIL CONSOLE			
<input type="checkbox"/> COOLING H <sub>2</sub> O CONSOLE			
<input type="checkbox"/> FREE STANDING PANEL			
<input type="checkbox"/> PISTON ROD REMOVAL DIST.			
OTHER EQUIPMENT SHIPPED LOOSE (DEFINE)			
<input type="checkbox"/> PULSATION SUPP., WEIGHT		62	kg
<input type="checkbox"/> PIPING		100	kg
<input type="checkbox"/> INTERSTAGE EQUIPMENT			kg

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**CONTRACTOR:**



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**UTILITY CONSUMPTION**

**ELECTRIC MOTORS**

	NAMEPLATE HP (kW)	LOCKED ROTOR AMPS	FULL LOAD AMPS
◆ MAIN DRIVER	45	688	83
◆ MAIN LUBE OIL PUMP		SHAFT DRIVEN	
◇ AUX LUBE OIL PUMP			
◇ MAIN COOLING WATER PUMP			
◇ AUX COOLING WATER PUMP			
◇ ROD PACKING COOLING PUMP			
◇ CYLINDER LUBRICATOR			

**ELECTRIC HEATERS**

	WATTS	VOLTS	HERTZ
◆ FRAME OIL HEATER(S)	75	230	50
◇ COOLING WATER HEATER(S)			
◇ CYL. LUBRICATOR HEATER(S)			


**STEAM-NOT APPLICABLE**

	FLOW	PRESSURE	TEMPERATURE	BACK PRESSURE
◇ MAIN DRIVER	kg/h @	(BARG) (kPa)	°CTT TO	(BARG) (kPa)
◇ FRAME OIL HEATER(S)	kg/h @	(BARG) (kPa)	°CTT TO	(BARG) (kPa)
◇ CYL. LUB. HEATER(S)	kg/h @	(BARG) (kPa)	°CTT TO	(BARG) (kPa)
	kg/h @	(BARG) (kPa)	°CTT TO	(BARG) (kPa)
	kg/h @	(BARG) (kPa)	°CTT TO	(BARG) (kPa)

**COOLING WATER REQUIREMENTS-(NOTE 9)**

	FLOW m³/h	INLET TEMP °C	OUTLET TEMP °C	INLET PRESS (BARG)	OUTLET PRESS (BARG)	MAX PRESS (BARG)
□ CYLINDER JACKETS						
◆ INTERCOOLER(S)	4,3	35	45	4,5	3,5	6
◆ AFTERCOOLER	1,4					
◇ FRAME LUBE OIL COOLER						
◇ ROD PRESSURE PACKING*						
◆ CYLINDER JACKETS COOLER	8,3	35	45	4,5	3,5	6
◇ TOTAL QUANTITY, m³/h	14					

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**FRAME LUBE OIL SYSTEM**

**BASIC LUBE OIL SYSTEM FOR FRAME:**     **SPLASH (TBA)**     **PRESSURE (FORCED)**     **HEATERS REQUIRED:**

**REF: TYPE MAIN BEARINGS:**     **TAPERD ROLLER**     **PRECISION SLEEVE**     **ELEC. W/THERMOSTAT(S)**     **STEAM**

**PRESSURE SYSTEM:**     **MAIN OIL PUMP DRIVEN BY:**     **COMP. CRANKSHAFT**     **ELEC. MOTOR**     **OTHER** \_\_\_\_\_

**AUX OIL PUMP DRIVEN BY:**     **PSV FOR MAIN PUMP EXTERNAL TO CRANKCASE**     **OTHER** \_\_\_\_\_

**HAND OPERATED PRE-LUBE PUMP FOR STARTING**     **OPERATIONAL TEST & 4 HOUR MECH RUN TEST**

**API-614 LUBE SYSTEM:**     **NO**     **YES**     **CHECK VALVE ON MAIN PUMP**

**CONTINUOUS FLOW THROUGH OIL (3.7.2.7)**

**SEP. CONSOLE FOR PRESS. LUBE SYS:**     **ONE CONSOLE FOR EA. COMP.**     **ONE CONSOLE FOR** \_\_\_\_\_ **COMPRESSORS**

**CONSOLE TO BE OF DECK PLATE TYPE CONSTRUCTION SUITABLE FOR MULTI-POINT SUPPORT AND GROUTING WITH GROUT & VENT HOLES.**

**ELECTRICAL CLASSIFICATION : ZONE**    2    ,    **GROUP**    IIB    **CLASS**    \_\_\_\_\_    T3     **NON-HAZARDOUS**

**BASIC SYS. REQ'MTS (NORM. OIL FLOWS & VOLUMES)**

LUBE OIL	FLOW m³/h	PRESSURE (BARG)	VISCOSITY cst @ 40°C	VISCOSITY cst @ 100°C	SUMP VOLUME m³
<input type="checkbox"/> <b>COMPRESSOR FRAME</b>	_____	_____	_____	_____	_____
<input type="checkbox"/> <b>DRIVER</b>	_____	_____	_____	_____	_____
<input type="checkbox"/> <b>GEAR</b>	_____	_____	_____	_____	_____
<input type="checkbox"/> <b>SYSTEM PRESSURES:</b>	<input type="checkbox"/> <b>DESIGN</b> _____ (BARG)	<input type="checkbox"/> <b>HYDROTEST</b> _____ (BARG)	<input type="checkbox"/> <b>PUMP RELIEF VALVE(S) SET</b> _____ (BARG)		
	<input type="checkbox"/> <b>PRESSURE CONTROL VALVE SETTING</b> _____ (BARG)	<input type="checkbox"/> <b>VTS</b> _____ (BARG)			

**PIPING MATERIALS:**

	CARBON STEEL	STAINLESS STEEL WITH SS FLANGES	STAINLESS STEEL WITH CARBON STEEL FLANGES
<input checked="" type="checkbox"/> <b>UPSTREAM OF PUMPS &amp; FILTERS</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> <b>DOWNSTREAM OF FILTERS</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**PUMPS**

	RATED FLOW	PRESSURE (BARG)	COLD START REQ'D KW	DRIVER kW	SPEED RPM	COUPLING REQ'D	MECH. SEAL REQ'D
<b>MAIN</b>	NA	2,0	NA	SHAFT DRIVEN	NA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>AUXILIARY</b>	_____	_____	_____	_____	_____	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> <b>PUMP CASING MATERIAL</b>		<b>MAIN PUMP</b>		<b>STEEL</b>	<b>AUX PUMP</b>		
<input type="checkbox"/> <b>GUARD(S) REQ. FOR COUPLING(S):</b>	<input type="checkbox"/> <b>MAIN PUMP</b>	<input type="checkbox"/> <b>AUX PUMP</b>	<input type="checkbox"/> <b>GUARD TYPE OR CODE</b>				
<input type="checkbox"/> <b>AUXILIARY PUMP CONTROL:</b>	<input type="checkbox"/> <b>MANUAL</b>	<input type="checkbox"/> <b>AUTOMATIC</b>	<input type="checkbox"/> <b>ON-OFF-AUTO SEL. SWITCH:</b>	<input type="checkbox"/> <b>BY PURCH.</b>	<input type="checkbox"/> <b>BY MFR.</b>		
			<input type="checkbox"/> <b>WIRING TO TERMINAL BOX:</b>	<input type="checkbox"/> <b>BY PURCH.</b>	<input type="checkbox"/> <b>BY MFR.</b>		
			<input type="checkbox"/> <b>SWITCHES</b>	<input type="checkbox"/> <b>RTD'S/THERMOCOUPLES</b>			

**COOLERS:**

**SHELL & TUBE**     **SINGLE**     **DUAL W/TRANSFER VALVE**     **MFG'S STD.**     **TEMA C**     **TEMA R**

**REMOVABLE BUNDLE**     **WATER COOLED**     **AIR COOLED W/AUTO TEMP CONTROL**

**W/BYPASS & TEMP CONTROL VALVE:**     **MANUAL**     **AUTO**     **SEE SEPARATE HEAT EXCHANGER DATA SHTEET**

**FILTER(S)**

**SINGLE**     **DUAL W/TRANSFER VALVE**     **ASME CODE DESIGN**     **ASME CODE STAMPED**

**DESIGN PRESSURE,** \_\_\_\_\_ (BARG)     **Δ P CLEAN,** \_\_\_\_\_ (BARG)     **Δ P COLLAPSE,** \_\_\_\_\_ (BARG)


**MICRON RATING,** \_\_\_\_\_     **CARTRIDGE MATERIAL,** \_\_\_\_\_     **CARTRIDGE P/N** \_\_\_\_\_

**BONNET MATERIAL,** \_\_\_\_\_     **CASING MATERIAL,** \_\_\_\_\_     **FURN.SPARE CARTR.,QTY** \_\_\_\_\_

**SYS. COMPONENT SUPP.**

	MANUFACTURER	MODEL		MANUFACTURER	MODEL
<input type="checkbox"/> <b>MAIN PUMP</b>	AS PER AVL	_____	<input type="checkbox"/> <b>OIL COOLER(S)</b>	AS PER AVL	_____
<input type="checkbox"/> <b>AUXILIARY PUMP</b>	AS PER AVL	_____	<input type="checkbox"/> <b>TRANSFER VALVE(S)</b>	AS PER AVL	_____
<input type="checkbox"/> <b>MECHANICAL SEALS</b>	AS PER AVL	_____	<input type="checkbox"/> <b>PUMP COUPLING(S)</b>	AS PER AVL	_____
<input type="checkbox"/> <b>ELECTRIC MOTORS</b>	AS PER AVL	_____	<input type="checkbox"/> <b>SUCTION STRAINER(S)</b>	AS PER AVL	_____
<input type="checkbox"/> <b>STEAM TURBINES</b>	NOT APPLICABLE	NOT APPLICABLE	<input type="checkbox"/> <b>CHECK VALVE(S)</b>	AS PER AVL	_____
<input type="checkbox"/> <b>OIL FILTER(S)</b>	AS PER AVL	_____			


**OWNER:**




شرکت پتروشیمی بوشهر  
BUPC

**BUSHEHR PETROCHEMICAL COMPANY  
MEG PLANT**

**CONTRACTOR:**



Chagalesh-Engerchimi-Steam  
Joint Venture  
BUPC-MEG PLANT PROJECT



Airpack  
Netherlands

**MC:**




شرکت سستای سازه های پتروشیمی  
SSTI

**DATA SHEET FOR  
NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)**

Project	Area	Phase	Unit	Dis.	Doc.	Seq.
BU	20	VD	303	ME	DSH	0022

Contract No : 52-98/445

Owner Document Number:  
17811-11A

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**COOLING WATER SYSTEM**

**BASIC COOLING SYS. FOR:**       COMPRESSOR CYL.(S)       INTERCOOLER(S)       AFTERCOOLER       OIL COOLER(S)  
 HEATERS REQ'D FOR PRE-HEATING:       ELEC.,W/ THERMOSTAT(S)       STEAM

**PRESSURE FORCED CIRCULATING SYS:**       OPEN, PIPING BY:       PURCH       MFR       CLOSED, PIPING BY MFR.  
MAIN WATER PUMP DRIVEN BY:       ELEC. MOTOR       STEAM TURBINE       OTHER  
AUX WATER PUMP DRIVEN BY:       ELEC. MOTOR       STEAM TURBINE       OTHER

**SEP. CONSOLE FOR COOLING WATER SYS.:**       ONE CONSOLE FOR EA. COMP.       ONE CONSOLE FOR \_\_\_\_\_ COMP'RS  
 CONSOLE TO BE OF DECK PLATE TYPE CONSTRUCTION SUITABLE FOR MULTI-POINT SUPPORT AND GROUTING WITH GROUT & VENT HOLES.

ELECTRICAL CLASSIFICATION      ZONE 2    IIB    T3       NON-HAZARDOUS

**BASIC SYS. REQ'MTS (NORM. COOLING WATER FLOW DATA)**       COOL'G WATER TO BE \_\_\_\_\_ % ETHYL'NE GLYC'L      SITE

	FORCED COOL'G	THERMO SYPHON	STAND PIPE	FLOW m³/h	PRESSURE (BARG)	INLET TEMP °C	OUTLET TEMP °C	FLOW IND'TR
CYLINDER(S), 1 STAGE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4,3	4,5	35	45	<input type="checkbox"/>
CYLINDER(S), 2 STAGE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		4,5	35	45	<input type="checkbox"/>
CYLINDER(S), _____ STAGE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>
CYLINDER(S), _____ STAGE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>
CYLINDER(S), _____ STAGE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>
CYLINDER(S), _____ STAGE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>
PISTON ROD PACK'G TOTAL	<input type="checkbox"/>							<input type="checkbox"/>
INTERCOOLER(S) TOTAL	<input type="checkbox"/>							<input type="checkbox"/>
AFTERCOOLER	<input type="checkbox"/>							<input type="checkbox"/>
OIL COOLER(S)	<input type="checkbox"/>							<input type="checkbox"/>
JACKET COOLER	<input type="checkbox"/>							<input type="checkbox"/>
TOTAL FLOW								

**SYS. PRESSURES:**       DESIGN, \_\_\_\_\_ (BARG) (kPa)       HYDROTEST, \_\_\_\_\_ (BARG) (kPa)       RELIEF VALVE(S), SETTING \_\_\_\_\_ PSIG

**WATER RESERVOIR:**       SIZE, \_\_\_\_\_ mm DIA X \_\_\_\_\_ mm HT.       CAPACITY \_\_\_\_\_ m      @ Normal Operating Level

**PUMPS: (Centrifugal Only)**       RESERVOIR MATER'l c.s       INTERNAL COATING, TYPE \_\_\_\_\_

LEVEL GAUGE       LEVEL SWITCH       DRAIN VALVE       INSPECTION & CLEAN-OUT OPENINGS

RAT'D FL'W \_\_\_\_\_ m³/h       PRESS. (BARG) \_\_\_\_\_       REQ'D kW \_\_\_\_\_       DRIVER kW \_\_\_\_\_       SPEED RPM \_\_\_\_\_       COUPLING REQ'D \_\_\_\_\_       MECH.SEAL REQ'D \_\_\_\_\_

PUMP CASING MATERIAL (Ref 6.14.2.1.5):      MAIN PUMP \_\_\_\_\_      AUX PUMP \_\_\_\_\_

GUARD(S) REQ'D FOR COUP'G(S)       MAIN PUMP       AUX PUMP       GUARD TYPE OR CODE \_\_\_\_\_

AUX.PUMP CONTROL:       MANUAL       AUTO       ON-OFF-AUTO SEL. SWITCH:       BY PURCH.       BY MANUFACTURER  
 WIRING TO TERMINAL BOX:       BY PURCH.       BY MANUFACTURER

**COOLING WATER HEAT EXCH.:**       SHELL & TUBE       SINGLE       DUAL W/TRANSFER VALVE       TEMA C       TEMA R(API-660)


AIR COOLED EXCHANGER W/AUTO TEMP CONTROL (API-661 Data Sheets Attached)

W/BYPASS & TEM. CONTROL VALVE       MANUAL       AUTO       LOUVERS FOR AIR EXCH.

SEE SEPARATE COOLER DATA SHEET FOR DETAILS; SPECIFY % GLYCOL ON BOTH SIDES OF SHELL & TUBE

SYS. COMPONENT SUPP.	MANUFACTURER	MODEL	MANUFACTURER	MODEL
<input type="checkbox"/> MAIN PUMP			<input type="checkbox"/> TEMP CONTROL VALVE(S)	
<input type="checkbox"/> AUXILIARY PUMP			<input type="checkbox"/> TRANSFER VALVE(S)	
<input type="checkbox"/> MECHANICAL SEALS			<input type="checkbox"/> PUMP COUPLING(S)	
<input type="checkbox"/> ELECTRIC MOTORS				
<input type="checkbox"/> STEAM TURBINES				

<b>OWNER:</b> 	<b>BUSHEHR PETROCHEMICAL COMPANY MEG PLANT</b>	<b>CONTRACTOR:</b> 
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<b>MC:</b> 	<b>DATA SHEET FOR NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)</b>	<b>Contract No : 52-98/445</b>														
<b>Owner Document Number: 17811-11A</b>	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <th>Project</th> <th>Area</th> <th>Phase</th> <th>Unit</th> <th>Dis.</th> <th>Doc.</th> <th>Seq.</th> </tr> <tr> <td>BU</td> <td>20</td> <td>VD</td> <td>303</td> <td>ME</td> <td>DSH</td> <td>0022</td> </tr> </table>	Project	Area	Phase	Unit	Dis.	Doc.	Seq.	BU	20	VD	303	ME	DSH	0022	<b>Rev 05    Page: 15 OF 22</b>
Project	Area	Phase	Unit	Dis.	Doc.	Seq.										
BU	20	VD	303	ME	DSH	0022										

<b>PULSATION SUPPRESSION DEVICES FOR RECIPROCATING COMPRESSORS</b> THESE SHEETS TO BE FILLED OUT FOR EACH SERVICE AND/OR STAGE OF COMPRESSION	
<b>APPLICABLE TO:</b> <input type="radio"/> PROPOSALS <input checked="" type="radio"/> PURCHASE <input type="radio"/> AS BUILT	
<b>FOR/USER:</b> BUSHEHR PETROCHEMICAL COMPANY (BUPC)	
<b>SITE/LOCATION:</b> ASSALUYE	<b>AMBIENT TEMPERATURE MIN/MAX:</b> 5 / 52 °C
<b>COMPRESSOR SERVICE:</b> NITROGEN COMPRESSOR	<b>NUMBER OF COMPRESSORS:</b> 1 SET
<b>COMPRESSOR MFG.:</b> Airpack	<b>MODEL/TYPE:</b>
<b>SUPPRESSOR MFG.:</b> TBC	
<b>NOTE:</b> <input type="radio"/> Ind.Data Comp.'d Purch. <input type="checkbox"/> By Compr/Supp.Mfg.w/Proposal <input type="checkbox"/> By Mfg(s) after order <input checked="" type="checkbox"/> By Mfg(s)/Purchaser as Applicable	

<b>GENERAL INFORMATION APPLICABLE TO ALL SUPPRESSORS</b>	
<b>TOTAL NUMBER OF SERVICES AND/OR STAGES:</b> 2	
<b>TOTAL NUMBER OF COMPRESSOR CYL.:</b> 2	<b>TOTAL NUMBER OF CRANKTHROWS:</b> 1 <b>STROKE:</b> mm <b>RPM:</b> 690
<input checked="" type="radio"/> ASME CODE DESIGN <input type="radio"/> GOVERNMENTAL CODES OF _____ <b>CODE REGULATIONS APPLY</b>	
<input type="radio"/> OTHER APPLICABLE PRESSURE VESSEL SPEC. OR CODE _____	
<input type="radio"/> LUBE SERVICE <input checked="" type="radio"/> NON-LUBE SERV. <input type="radio"/> NO OIL ALLOWED INTERNALLY <b>DRY TYPE INTER.CORR.COATING:</b> <input type="radio"/> YES <input checked="" type="radio"/> NO	
<input checked="" type="radio"/> RADIOGRAPHY (X-RAY OF WELDS): <input type="radio"/> NONE <input checked="" type="radio"/> SPOT <input type="radio"/> 100% <input type="radio"/> IMPACT TEST <input type="radio"/> SPECIAL WELDING REQUIREMENTS	
<input checked="" type="radio"/> SHOP INSPECTION <input checked="" type="radio"/> WITNESS HYDROTEST <input checked="" type="radio"/> OUTDOOR STORAGE OVER 12 MONTHS <input type="radio"/> SPECIAL PAINT SPEC: BU-20-D-000-PI-SPC-409	
<input type="radio"/> WITNESSED <input type="radio"/> OBSERVED	

<b>CYLINDER, GAS, OPERATING, AND SUPPRESSOR DESIGN DATA</b>	
	<b>SERVICE:</b> NITROGEN COMPRESSOR <b>STAGE NO.:</b> 1
<input type="checkbox"/> <b>COMPRESSOR MANUFACTURER'S RATED CAPACITY</b>	<b>LBS/HR:</b> <b>SCFM:</b> <b>MMSCFD:</b>
<input type="checkbox"/> <b>LINE SIDE OPERATING PRESSURE</b>	<b>INLET, 7 to9 (BARA)</b> <b>DISCHARGE, 15,5 (BARA)</b>
<input type="checkbox"/> <b>OPERATING TEMP. WITHIN SUPPRESSORS</b>	<b>INLET, 5 to 55 °C</b> <b>DISCHARGE, 134 °C</b>
<input type="checkbox"/> <b>ALLOWABLE PRESSURE DROP THROUGH SUPPRESSORS</b>	<b>Δ P 0,16 (BAR) / 2,23 %</b> <b>Δ P 0,425 (BAR) / 2,3 %</b>
	<b>INLET SUPPRESSOR</b> <b>DISCHARGE SUPPRESSOR</b>
<input checked="" type="radio"/> <b>SUPPRESSOR TAG NUMBER</b>	
<input checked="" type="radio"/> <b>COMBINATION INLET SUPP SEPARATOR/INTERNALS</b>	<input type="radio"/> YES <input checked="" type="radio"/> NO    / <input type="radio"/> YES <input checked="" type="radio"/> NO <input type="radio"/> YES <input checked="" type="radio"/> NO
<input checked="" type="radio"/> <b>NO. (QTY) OF INLET &amp; DISCH. SUPP. PER STAGE</b>	1SET/EACH STAGE    1SET EACH STAGE
<input type="radio"/> <b>ALLOWABLE PEAK-PEAK PULSE @ LINE SIDE NOZZLE</b>	<b>(BAR) / %</b> <b>(BAR) / %</b>
<input type="radio"/> <b>ALLOWABLE PEAK-PEAK PULSE @ CYL FLANGE NOZZLE</b>	<b>(BAR) 0,29 / 4,3 %</b> <b>(BAR) 1,4 / 7 %</b>
<input checked="" type="radio"/> <b>DESIGN FOR FULL VACUUM CAPABILITY</b>	<input type="radio"/> YES <input checked="" type="radio"/> NO <input type="radio"/> YES <input checked="" type="radio"/> NO
<input type="radio"/> <b>MIN. REQ'D WORKING PRESSURE &amp; TEMPERATURE</b>	<b>(BARA) 7 @ 85 °C</b> <b>(BARA) 23,5 @ 210 °C</b>
<input checked="" type="radio"/> <b>INITIAL SIZING VOLUME</b>	<b>0,3 m³</b> <b>0,3 m³</b>
<input type="checkbox"/> <b>AS BUILT VOLUME (m³)</b>	<b>0,96 m³</b> <b>0,96 m³</b>

(Empty space for additional notes or calculations)	
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**OWNER:**



شرکت پترو شیمی بوشهر  
BUPC

**BUSHEHR PETROCHEMICAL COMPANY  
MEG PLANT**

**CONTRACTOR:**



Chagalesh-Enerchimi-Steam  
Joint Venture  
BUPC-MEG PLANT PROJECT  
Airpack  
Netherlands

**MC:**



شرکت مهندسی و پیمانکاری  
پارس پارس

**DATA SHEET FOR  
NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)**

Project	Area	Phase	Unit	Dis.	Doc.	Seq.
BU	20	VD	303	ME	DSH	0022

Contract No : 52-98/445

**Owner Document Number:  
17811-11A**

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**PULSATION SUPPRESSION DEVICES FOR RECIPROCATING COMPRESSORS (CONT'D)** SERVICE NITROGEN COMPRESSOR  
 THESE SHEETS TO BE FILLED OUT FOR EACH SERVICE AND/OR STAGE OF COMPRESSION STAGE NO. 1

- CONSTRUCTION REQUIREMENTS & DATA**
- SUPPRESSOR TAG NUMBER
  - BASIC MATERIAL REQUIRED, CS, SS, ETC.
  - ACTUAL MATERIAL DESIGNINATION SHELL/HEAD
  - SPECIAL HARDNESS LIMITATIONS, Rc  YES  NO
  - CORROSION ALLOWANCE., mm  REQUIRED
  - WALL THICKNESS, mm SHELL/HEAD
  - NOM. SHELL DIA X OVERALL LGTH. (mm/m³)
  - PIPE OR ROLLED PLATE CONSTRUCTION
  - ACT. MAX ALLOW. WORKING PRESS. AND TEMPERATURE
  - MINIMUM DESIGN METAL TEMP (2.14.8)
  - INLET SUPPRESS. TO BE SAME MAWP AS DISCH'RGE SUPPRESS.
  - MAX EXPECTED PRESSURE DROP(Δ P, %) LINE PRESS
  - WEIGHT (EACH)
  - INSUL CLIP
  - EXPECTED P-P PULSE @ LINE SIDE/CYL FLG, % LINE PRESS BASED ON FINAL SUPPRESSOR DESIGN
  - SUPPORTS, TYPE/QUANTITY

INLET SUPPRESSOR		DISCHARGE SUPPRESSOR	
Carbon Steel		Carbon Steel	
SA106 gr B /	SA234	SA106 gr B /	SA234
SHELL & HEADS		SHELL & HEADS	
WELDS		WELDS	
3	mm	3	mm
9,52	mm/	9,52	mm
12" X 1100	mm/	96	mm³
12" x 1000	mm.	96	mm³
<input checked="" type="checkbox"/> PIPE	<input type="checkbox"/> ROLLED PLATE	<input checked="" type="checkbox"/> PIPE	<input type="checkbox"/> ROLLED PLATE
(BAR)	18,3 @ 85 °C	(BAR)	33,46 @ 210 °C
	°C		°C
<input type="radio"/> YES	<input checked="" type="radio"/> NO		
Δ P	0,018 (BAR) / 0,26 %	Δ P	0,15 (BAR) / 0,76 %
	120 kg		116 kg
	NA		NA
	%/ %		%/ %
	YES, saddle 2		YES, saddle 2

**CONNECTION REQUIREMENTS & DATA**

- LINE SIDE FLANGE. SIZE/RATING/FACING/TYPE
- COMP CYL FLANGE(S), QTY/SIZE/RATING/FACING/TYPE
- FLANGE FINISH,  PER 3.9.3.15  SPECIAL (SPECIFY) >3.2 <6.4  PER ANSI 16.5
- INSPECTION OPENINGS REQUIRED  YES  NO  BLINDED
- SPEC. QTY. SIZE, /FLG TYPE & RATING NA
- \* QTY. SIZE, /FLG TYPE & RATING
- VENT CONNECTIONS REQUIRED  YES  NO
- SPEC. QTY. SIZE, /FLG TYPE & RATING NA
- \* QTY. SIZE, /FLG TYPE & RATING
- DRAIN CONNECTIONS REQUIRED  YES  NO
- SPEC. QTY. SIZE, /FLG TYPE & RATING 1/2"NPT
- \* QTY. SIZE, /FLG TYPE & RATING
- PRESSURE CONNECTIONS REQUIRED  YES  NO
- SPEC. QTY. SIZE, /FLG TYPE & RATING NA
- \* QTY. SIZE, /FLG TYPE & RATING BA
- TEMPERATURE CONNECTIONS REQUIRED  YES  NO
- SPEC. QTY. SIZE, /FLG TYPE & RATING NA
- CYL NOZZLE  MAIN BODY
- \* QTY. SIZE, /FLG TYPE & RATING

2" 150# RF WNF	2" 300# RF WNF
2" 150# RF WNF	2" 300# RF WNF
<input type="radio"/> YES <input checked="" type="radio"/> NO <input type="radio"/> BLINDED	<input type="radio"/> YES <input checked="" type="radio"/> NO <input type="radio"/> BLINDED
NA	NA
<input type="radio"/> YES <input checked="" type="radio"/> NO	<input type="radio"/> YES <input checked="" type="radio"/> NO
NA	NA
<input checked="" type="radio"/> YES <input type="radio"/> NO	<input checked="" type="radio"/> YES <input type="radio"/> NO
1/2"NPT	1/2"NPT
<input type="radio"/> YES <input checked="" type="radio"/> NO	<input type="radio"/> YES <input checked="" type="radio"/> NO
NA	BA
<input type="radio"/> YES <input checked="" type="radio"/> NO	<input type="radio"/> YES <input checked="" type="radio"/> NO
NA	NA

**OTHER DATA AND NOTES**

- COMPRESSOR MFG'S SUPP. OUTLINE OR DRAWING NO.
- SUPP. MFG'S OUTLINE OR DRAWING NO.

49  
50  
51




**OWNER:**



شرکت پترو شیمی بوشهر  
BUPC

**BUSHEHR PETROCHEMICAL COMPANY  
MEG PLANT**

**CONTRACTOR:**



Chagalesh-Enerchimi-Steam  
Joint Venture  
BUPC-MEG PLANT PROJECT  
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Netherlands

**MC:**



شرکت مهندسی و پیمانکاری  
پارس پارس  
MC

**DATA SHEET FOR  
NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)**

Project	Area	Phase	Unit	Dis.	Doc.	Seq.
BU	20	VD	303	ME	DSH	0022

**Contract No : 52-98/445**

**Owner Document Number:  
17811-11A**

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**1 PULSATION SUPPRESSION DEVICES FOR RECIPROCATING COMPRESSORS (CONT'D)** SERVICE NITROGEN COMPRESSOR  
**2 THESE SHEETS TO BE FILLED OUT FOR EACH SERVICE AND/OR STAGE OF COMPRESSION** STAGE NO. **2**

- 3 CONSTRUCTION REQUIREMENTS & DATA**
- 4 ○ SUPPRESSOR TAG NUMBER
  - 5 ● BASIC MATERIAL REQUIRED, CS, SS, ETC.
  - 6 ◇ ACTUAL MATERIAL DESIGNINATION SHELL/HEAD
  - 7 ○ SPECIAL HARDNESS LIMITATIONS, Rc ○ YES ● NO
  - 8 ● CORROSION ALLOWANCE., mm ● REQUIRED
  - 9 ◇ WALL THICKNESS, mm SHELL/HEAD
  - 10 □ NOM. SHELL DIA X OVERALL LGTH. (mm/m³)
  - 11 □ PIPE OR ROLLED PLATE CONSTRUCTION
  - 12 ◇ ACT. MAX ALLOW. WORKING PRESS. AND TEMPERATURE
  - 13 ○ MINIMUM DESIGN METAL TEMP (2.14.8)
  - 14 ● INLET SUPPRESS. TO BE SAME MAWP AS DISCH'RG SUPPRESS.
  - 15 ◇ MAX EXPECTED PRESSURE DROP(Δ P, %) LINE PRESS
  - 16 ◇ WEIGHT (EACH)
  - 17 ● INSUL CLIP
  - 18 ◇ EXPECTED P-P PULSE @ LINE SIDE/CYL FLG, % LINE PRESS  
BASED ON FINAL SUPPRESSOR DESIGN
  - 19 ○ SUPPORTS, TYPE/QUANTITY

INLET SUPPRESSOR		DISCHARGE SUPPRESSOR	
Carbon Steel		Carbon Steel	
SA106 gr B /	SA234	SA106 gr B /	SA234
SHELL & HEADS	WELDS	SHELL & HEADS	WELDS
3	mm	3	mm
9,27 mm/	9,27 mm	9,27 mm	9,27 mm
10" X 665 mm/	38 mm³	10" x 863 mm.	48 mm³
PIPE	ROLLED PLATE	PIPE	ROLLED PLATE
(BAR) 38,12 @	85 °C	(BAR) 38,12 @	85 °C
	°C		°C
○ YES	● NO		
Δ P 0,0636 (BAR) /	0,32 %	Δ P 0,0603 (BAR) /	0,25 %
71	kg	80	kg
NA		NA	
%/	%	%/	%
YES, saddle 2		YES, saddle 2	

**21 CONNECTION REQUIREMENTS & DATA**

- 22 ● LINE SIDE FLANGE. SIZE/RATING/FACING/TYPE
- 23 ○ COMP CYL FLANGE(S), QTY/SIZE/RATING/FACING/TYPE
- 24 ● FLANGE FINISH, ○ PER 3.9.3.15 ○ SPECIAL (SPECIFY)  
>3.2 <6.4 ● PER ANSI 16.5
- 26 ● INSPECTION OPENINGS REQUIRED ○ YES ● NO ○ BLINDED
- 27 ○ SPEC. QTY. SIZE, /FLG TYPE & RATING NA
- 28 ◇ \* QTY. SIZE, /FLG TYPE & RATING
- 29 ● VENT CONNECTIONS REQUIRED ○ YES ● NO
- 30 ○ SPEC. QTY. SIZE, /FLG TYPE & RATING NA
- 31 ◇ \* QTY. SIZE, /FLG TYPE & RATING
- 32 ● DRAIN CONNECTIONS REQUIRED ● YES ○ NO
- 33 ○ SPEC. QTY. SIZE, /FLG TYPE & RATING 1/2"NPT
- 34 ◇ \* QTY. SIZE, /FLG TYPE & RATING
- 35 ● PRESSURE CONNECTIONS REQUIRED ○ YES ● NO
- 36 ○ SPEC. QTY. SIZE, /FLG TYPE & RATING NA BA
- 37 ◇ \* QTY. SIZE, /FLG TYPE & RATING
- 38 ● TEMPERATURE CONNECTIONS REQUIRED ○ YES ● NO
- 39 ○ SPEC. QTY. SIZE, /FLG TYPE & RATING NA
- 40 ○ CYL NOZZLE ○ MAIN BODY
- 41 ◇ \* QTY. SIZE, /FLG TYPE & RATING

2" 300# RF WNF	2" 300# RF WNF
2" 300# RF WNF	2" 300# RF WNF
○ YES ● NO ○ BLINDED	○ YES ● NO ○ BLINDED
NA	NA
○ YES ● NO	○ YES ● NO
NA	NA
● YES ○ NO	● YES ○ NO
1/2"NPT	1/2"NPT
○ YES ● NO	○ YES ● NO
NA	BA
○ YES ● NO	○ YES ● NO
NA	NA

**46 OTHER DATA AND NOTES**

- 47 ◇ COMPRESSOR MFG'S SUPP. OUTLINE OR DRAWING NO.
- 48 ◇ SUPP. MFG'S OUTLINE OR DRAWING NO.

49  
50  
51

**OWNER:**



شرکت پتروشیمی بوشهر

**BUSHEHR PETROCHEMICAL COMPANY  
MEG PLANT**

**CONTRACTOR:**



Chagalesh-Enerchim-Steem  
Joint Venture  
BUPC-MEG PLANT PROJECT

**MC:**



شرکت مستشاری آسپران  
اساسی گازی

**DATA SHEET FOR  
NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)**



Netherlands

**Owner Document Number:  
17811-11A**

Project	Area	Phase	Unit	Dis.	Doc.	Seq.
BU	20	VD	303	ME	DSH	0022

**Contract No : 52-98/445**  
**Rev 05**  
**Page: 19 OF 22**

INSTRUMENTATION

**PURCHASER TO FILL IN** (    ) **AFTER COMMODITY TO INDICATE:**  **BY COMP. MFR.**  **BY PURCH.**  **BY OTHERS**

- INSTRUMENT & CONTROL PANEL** (    ):
- ONE FOR EA. UNIT  ONE COMMON TO ALL UNITS
  - MACHINE M'TED  FREE STANDING (OFF UNIT) /  LOCAL  REMOTE  INDOORS
  - PNEUMATIC  ELEC.  ELECTRONIC  HYDRAULIC  PROGRAMMABLE CONTR'L R
  - NEMA 7, CLASS \_\_\_\_\_, GROUP \_\_\_\_\_, DIVISION \_\_\_\_\_  INTRINSICALLY SAFE (Exi)
  - I/S BARRIERS (    )
  - NEMA 4, WATERTIGHT & DUSTTIGHT  PURGED TO NFPA 496 TYPE  X  Y  Z
  - OTHER NEMA IP42 \_\_\_\_\_ LOW PURGE PRESS.  ALARM  SHUTDOWN
  - VIB. ISOLATORS  STRIP HEATERS  PURGE CONN.  EXTRA CUTOUTS
  - ANNUNCIATOR W/FIRST-OUT INDICATION LOCATED ON CONTROL PANEL
  - PURCHASER'S CONN. BROUGHT OUT TO TERMINAL BOX BY VENDOR
  - IP PROTECTION : IP 42 FOR INDOOR CONTROL PANEL

INSTRUMENTATION SUITABLE FOR:  INDOORS  OUTDOORS  IP PROTECTION: IP-65  OTHER \_\_\_\_\_

PREFERRED INSTRUMENT SUPPLIERS, (TO BE COMPLETED BY PURCHASER), OTHERWISE MFR'S STANDARD APPLIES



20	PRESSURE GAUGES	MFR	as per instrument data sheets	SIZE & TYPE	as per instrument data sheets	MTL
21	TEMPERATURE GAUGES	MFR	as per instrument data sheets	SIZE & TYPE	as per instrument data sheets	MTL
22	LIQUID LEVEL GAUGES	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
23	DIFF. PRESSURE GAUGES	MFR	as per instrument data sheets	SIZE & TYPE	as per instrument data sheets	MTL
24	PRESS. TRANSMITTERS	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
25	LIQUID LEV. TRANSMITTER	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
26	PRESSURE SWITCHES	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
27	TEMPERATURE SWITCHES	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
28	LIQUID LEVEL SWITCHES	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
29	DIFF. PRESSURE SWITCHES	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
30	CONTROL VALVES	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
31	PRESSURE SAFETY VALVES	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
32	SIGHT FLOW INDICATORS	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
33	VIBRATION MONITORS & EQUIP.	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
34	THERMOCOUPLES	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
35	RTD'S	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
36	SOLENOID VALVES	MFR	as per instrument data sheets	TYPE	as per instrument data sheets	MTL
37	ANNUNCIATOR	MFR	_____	MODEL & (QTY SPARE POINTS)	_____	( )
38	PROGRAMMABLE CONTROLLER	MFR	_____	TYPE	_____	MTL
39		MFR	_____	TYPE	_____	MTL
40		MFR	_____	TYPE	_____	MTL

PRESSURE GAUGE REQUIREMENTS  LIQUID FILLED PRESSURE GAUGES:  YES  NO

FUNCTION	LOCALLY MOUNTED		PANEL MOUNTED		PROCESS GAS: INLET PRESS.	LOCALLY MOUNTED		PANEL MOUNTED	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LUBE OIL MAIN PUMP DISCHAR.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	@ EA. STAGE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LUBE OIL AUX. PUMP DISCHARG.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LUBE OIL PRESS. AT FRAME HEADER (	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISCH. PRESS. @ EA. STAGE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LUBE OIL FILTER Δ P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COOLING H <sub>2</sub> O INLET HEADER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**REMARKS:** \_\_\_\_\_

<b>OWNER:</b>  شرکت پتروشیمی بوشهر	<b>BUSHEHR PETROCHEMICAL COMPANY MEG PLANT</b>	<b>CONTRACTOR:</b>  Chagalesh-Enerchim- Steam Joint Venture BUPC-MEG PLANT PROJECT 
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<b>MC:</b>   شرکت پتروشیمی بوشهر (مکانیک)	<b>DATA SHEET FOR NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)</b>	<b>Contract No : 52-98/445</b>
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<b>Owner Document Number:</b> 17811-11A	BU	20	VD	303	ME	DSH	0022	Rev 05	Page: 20 OF 22
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INSTRUMENTATION (CONT'D)										
2	TEMPERATURE MEASUREMENT REQUIREMENTS				LOCALLY MOUNTED	PANEL MOUNTED	GAUGE W/ CAPIL'RY	THERMO CPL SYS	RTD SYS	I/S SYS
3	FUNCTION									
4	LUBE OIL	<input type="radio"/> INLET TO	<input type="radio"/> OUT OF	FRAME	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	LUBE OIL	<input type="radio"/> INLET TO	<input type="radio"/> OUT OF	COOLER	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	MAIN JRNL BEARINGS (THERMOCOUPLES OR RTD'S ONLY)				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	MOTOR BEARING(S) (THERMOCOUPLES OR RTD'S ONLY)				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	COOLING WATER HEADER: ● INLET ● OUTLET				( <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	CYL. COOLING WATER: ● INLET ● OUTLET ○ EA. CYL				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	PROCESS GAS:	<input type="radio"/> INLET	<input type="radio"/> DISCH.	<input type="radio"/> EACH CYL	( <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11	PROCESS GAS:	<input type="radio"/> INLET	<input type="radio"/> GAS	<input type="radio"/> WATER	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	INTERCOOLER(S)	<input type="radio"/> INLET	<input type="radio"/> GAS	<input type="radio"/> WATER	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13		<input type="radio"/> INLET	<input type="radio"/> GAS	<input type="radio"/> WATER	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	AFTERCOOLER:	<input type="radio"/> INLET	<input type="radio"/> GAS	<input type="radio"/> WATER	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15		<input type="radio"/> INLET	<input type="radio"/> GAS	<input type="radio"/> WATER	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	COOLING WATER	<input type="radio"/> INLET	<input type="radio"/> OUTLET/COOLED PKG CASE(S)		( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	PRESS. PGK CASE, CYL PIST ROD (THRM/CPLS OR RTD'S ONLY)				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	COMPRESSOR VALVES <input type="radio"/> SUCT. <input type="radio"/> DISCH. TC'S OR RTD'S ONLY				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19					( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ALARM & SHUTDOWN SWITCH REQ'MTS											
NOTE: ALARM & SHUTDOWN SWITCHES SHALL BE INDIVIDUALLY SEPARATE											
ANNUNCIATION POINTS											
					ALARM		SHUTDOWN		TOTAL NO. OF POINTS		
					IN PNL BY MFR	IN CTL ROOM PANEL OTH'RS	IN PNL BY MFR	IN CTL ROOM PANEL OTH'RS			
FUNCTION					ALARM		SHUT DOWN				
27	LOW LUBE OIL PRESS. @ BEARING HEADER				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
28	HIGH LUBE OIL Δ P ACROSS FILTER				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
29	LOW LUBE OIL LEVEL, FRAME				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
30	AUX LUBE OIL PUMP, FAIL TO START				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
31	CYL LUBE SYSTEM PROTECTION				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
32	COMPR. VIBRATION, SHUTDOWN ONLY					( <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
33	VIBRATION, W/ CONTINUOUS MONITORING				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
34	ROD DROP DETECTOR, CONTACT TYPE(1/CYL)				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
35	ROD DROP PROXIMITY PROBE (1/CYL)				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
36	OIL TEMP OUT OF FRAME				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
37	HIGH GAS DISCH. TEMP EACH CYLINDER				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
38	HIGH JACKET WATER TEMP., EA. CYL				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
39	LOW SUCTION PRESS., FIRST STG INLET				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
40	HI DISCH. PRESS. ○ FINAL ● EA STG				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
41	HI CYL. GAS Δ P, EACH STAGE				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
42	HI LIQ. LEV., SEPARATOR				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
43	LOW PURGE GAS PRESS, DISTANCE PIECE(S)				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
44	HI X-HD PIN TEMP				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
45	PRESS PKG CASE (PISTON ROD TEMP)				( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
46					( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
TOTAL NUMBER OF ANNUNCIATION POINTS											

SWITCH CONTACT OPERATION

NOTE: EACH SWITCH SHALL BE MINIMUM SPDT ARRANGEMENT

ALARM CONTACTS SHALL:

- OPEN ( DE-ENER.) TO SOUND ALARM & BE ENERGIZED WHEN COMPR. IS IN OPERATION(NORMALLY CLOSE)
- CLOSE (ENERGIZE) TO SOUND ALARM & BE DE-ENERGIZED WHEN COMPR. IS IN OPERATION(NORMALLY OPEN)

SHUTDOWN CONTACTS SHALL:

- OPEN ( DE-ENERGIZED) TO SHUTDOWN & BE ENERGIZE WHEN COMPR. IS IN OPERATION(NORMALLY CLOSE)
- CLOSE (ENERGIZE) TO SHUTDOWN & BE DE-ENERGIZE WHEN COMPR. IS IN OPERATION(NORMALLY OPEN)

REF: 3.6.5.1 FOR MINIMUM RECOMMENDED PROTECTION REQUIREMENTS


**OWNER:**



شرکت پتروشیمی بوشهر  
BUPC

**BUSHEHR PETROCHEMICAL COMPANY  
MEG PLANT**

**CONTRACTOR:**



Chagalesh-Enerchimi-Steam  
Joint Venture  
BUPC-MEG PLANT PROJECT

**MC:**



شرکت مهندسی و پیمانکاری  
مکانیک

**DATA SHEET FOR  
NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)**



Netherlands

**Owner Document Number:  
17811-11A**

Project	Area	Phase	Unit	Dis.	Doc.	Seq.
BU	20	VD	303	ME	DSH	0022

**Contract No : 52-98/445**  
**Rev 05 Page: 21 OF 22**

**INSTRUMENTATION (CONT'D)**




<input type="checkbox"/> <b>MISCELLANEOUS INSTRUMENTATION</b>		<input type="checkbox"/> INTERCLR(S)	<input type="checkbox"/> AFTERCLR	<input type="checkbox"/> OIL CLR	<input type="checkbox"/> H <sub>2</sub> O CLR
3	SIGHT FLOW IND. (COOLING H <sub>2</sub> O ONLY)	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	<input type="checkbox"/> CYL JACKET WATER	<input type="checkbox"/> ROD PRESS. PKG CASES
4	PNEUMATIC PRESSURE TRANSMITTERS	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
5	PRESSURE TRANSMITTERS (ELEC. OUTP.)	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
6	PNEUMATIC LEVEL TRANSMITTERS	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
7	ALARM HORN & ACKN'LMT TEST BUTTON	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
8	CONDUIT & WIRING W/JUNCT. BOXES	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
9	TEST VALVES	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
10	DRAIN VALVES	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
11	GAUGE GLASS(ES)	( <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	oil	_____
12	TACHOMETER	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____ SPEED RANGE _____ TO _____ RPM	_____
13	CRANKSHAFT KEY PHASER	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
14	AND TRANSDUCER	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
15	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
16	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	

<input type="checkbox"/> <b>SEPARATE LUBE OIL CONSOLE INSTRUMENTATION:</b>		PURCH. TO LIST REQ'MTS IN ADDITION TO ANY ABOVE REQ'MTS			
18	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
19	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
20	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
21	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
22	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
23	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	

<input type="checkbox"/> <b>SEPARATE COOLING WATER CONSOLE INSTRUMENT:</b>		PURCH. TO LIST REQ'MTS IN ADDITION TO ANY ABOVE REQ'MTS			
25	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
26	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
27	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
28	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
29	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	
30	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	FOR:	_____	

<input checked="" type="checkbox"/> <b>RELIEF VALVES</b>					
	LOCATION	BY	MANUFACTURER	TYPE	◇ SIZE ◇ SETTING
33	EACH STAGE DISCHARGE	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	_____	_____	_____
34	COOLING WATER OUTLET	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	_____	_____	_____
35	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	_____	_____	_____
36	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	_____	_____	_____
37	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	_____	_____	_____
38	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	_____	_____	_____
39	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	_____	_____	_____
40	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	_____	_____	_____
41	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	_____	_____	_____
42	_____	( <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> )	_____	_____	_____

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<b>OWNER:</b> 	<b>BUSHEHR PETROCHEMICAL COMPANY MEG PLANT</b>	<b>CONTRACTOR:</b> 							
<b>MC:</b> 	<b>DATA SHEET FOR NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)</b>							<b>Contract No : 52-98/445</b>	
<b>Owner Document Number: 17811-11A</b>	<b>BU</b>	<b>20</b>	<b>VD</b>	<b>303</b>	<b>ME</b>	<b>DSH</b>	<b>0022</b>	<b>Rev 05</b>	<b>Page: 22 OF 22</b>

**GENERAL NOTES**

NOTE 1: THE COMPRESSOR IS IN CONTINUE SERVICE.

NOTE 2: DISCHARGE TEMPERATURE SHALL NOT EXCEED 150° C FROM EACH CYLINDER

NOTE 3: LUBE OIL SYSTEM SHALL BE INCORPORATED WITH COMPRESSOR SKID. LUBE OIL SYSTEM SHALL BE DESIGNED AS PER REQUIREMENTS OF CHAPTER 3 OF API STD 614. PIPE, FITTING AND OIL RESERVOIR USED IN LUBE OIL SYSTEM SHALL BE OF SS 316L.LUBE OIL PUMPS SHALL BE MANUFACTURER STANDARD AND EQUIPPED WITH MECHANICAL SEAL.

NOTE 4: PLAN D FOR COOLING WATER WILL APPLY. COOLING WATER ANALYSIS IS SHOWN IN BU-20-D-000-PR-SPC-101. IF COMPRESSOR IS ABLE TO OPERATE WITH SITE WATER, VENDOR CAN APPLY PLAN C INSTEAD.

NOTE 5: V-BELT DRIVE IS SUPPLIED.

NOTE 6: VENDOR SHALL SUPPLY TEMPORARY FILTERS FOR THE COMMISSIONING AND START-UP PHASE OF COMPRESSOR.

NOTE 7: AFTER COOLER IS REQUIRED. DISCHARGE TEMPERATURE AT THE BATTERY LIMIT OF PACKAGE SHALL NOT EXCEED FROM 52 C (AFTER AFTER COOLER).

NOTE 8: COMPRESSOR SHALL BE OF NON-LUBRICATED TYPE.

NOTE 9: 1 STEP VALVE UNLOADER AND RECYCLE VALVE ARE USED

NOTE 10: VENDOR SHALL DESIGN AND SUPPLY PULSATION DAMPENERS BEFORE AND AFTER OF EACH COMPRESSOR STAGE IN COMPLIANCE WITH APPROACH 2 OF API 618(5TH EDITION). MECHANICAL DESIGN SHALL BE AS PER ASME SEC VIII, DIVISON 1. HYDROTEST PRESSURE FOR ALL PRESSURE VESSELS INSIDE THE PACKAGE SHALL BE 1.3MAWP(MAXIMUM ALLOWABLE WORKING PRESSURE)

NOTE 11: SELECTION OF COMPRESSOR MATERIALS SHALL BE IN ACCORDANCE WITH API 618.

NOTE 12: VENDOR SHALL CONSIDER FOLLOWING ITEMS RELATED TO INSTRUMENTATION AND CONTROL:

1. INSTRUMENTATION INSIDE THE PACKAGE SHALL BE OF IP 65, EEXIA, IIB, T3.
2. VENDOR SHALL SUPPLY ALL INSTRUMENTS AND LOCAL PANEL(FULLY INSTALLED, PIPED AND WIRED ON SKID).
3. VENDOR SHALL SUPPLY ACCESSORIES INCLUDING IMPULSE LINES, FITTINGS, LABELS, CABLES, JUNCTION BOXES, LOCAL ROUTINGS, CABLE GLANDS, ETC.
4. CABLE GLANDS SHALL BE DOUBLE SEAL COMPRESSION TYPE.
5. COMPRESSORS ARE VERTICAL.
6. TERMINALS SHALL BE CERTIFIED EEX 'E' (FOR EEXI AND NON EEXI SIGNALS) IN ACCORDANCE WITH IEC/CENELEC STANDARDS IEC 60079.
7. TWENTY PERCENT(20%) SPARE IN WIRING(PAIR/CORE) SHALL BE CONSIDERED BY VENDOR.
8. DIGITAL, ANALOG, ESD, IS, RTD, SPEED AND VIBRATION SIGNALS SHALL HAVE JUNCTION BOXES DEDICATED.
9. JUNCTION BOXES SHALL BE EEXE IIB T3, IP65 WHICH ARE MADE OF STAINLESS STEEL.
10. ALL FITTING SHALL BE OF 316L SS, FRONT/BACK FERRULE TYPE.
11. VENDOR SHALL FORESEE THE PROVISION FOR:
  - INTRINSICALLY SAFE EQUIPMENT GROUNDING
  - INSTRUMENT CABLE SHIELD GROUNDING
  - SAFETY EARTH INCLUDING GROUNDING OF CABINET FRAMES, POWER SUPPLIES, AND SYSTEM COMMON GUARDING.
12. ALL GAUGES DIAL SIZE SHALL BE 150MM AS MINIMUM.
13. VENDOR SHALL SUBMIT LATEST RELEASED AND USABLE LOGIC AND MONITORING SOFTWARE SOURCE.

NOTE 13: VENDOR SHALL CONSIDER FOLLOWING POINTS FOR ELECTRICAL ITEMS:

1. ALL ELECTRIC MOTORS INSIDE THE COMPRESSOR PACKAGE SHALL BE OF EEXD, IIB, T3 AND MINIMUM IP55.
2. GLAND TO BE USED FOR TERMINAL BOXES AND JUNCTION BOXES SHALL BE OF ARMORED TYPE SUITABLE TO SUPPORT THE CABLE WITH LEAD COVER.
3. FOR MV CONSUMERS, THE STARTING CURRENT SHALL NOT EXCEED 6 TIMES OF NOMINAL CURRENT.
4. FOR LV CONSUMERS, THE STARTING CURRENT SHALL NOT EXCEED 6.5 TIMES OF NOMINAL CURRENT.

NOTE 14: DELETED

NOTE 15: DELETED

NOTE 16: VENDOR SHALL SUPPLY UCP(PLC-BASED WITH THE MODEL OF SIEMENS S7-400 FH, IP 42) TO BE INSTALLED IN CONTROL ROOM

NOTE 17: As a minimum, Vendor shall supply following list as special tools. Vendor shall finalize this list before order placement:

1. SPREAD BEAM(for compressor installation)
2. 1 set industrial work station(computer) with 21"(21 inch) LED
3. 1Set of HART hand held communicator for package transmitters
4. Deleted
5. BARRING DEVICE
6. Lap top for PLC programing

NOTE 18: VENDOR SHALL CONSIDER AND SUPPLY FOLLOWING POINTS AND ITEMS:

- ANCHOR BOLTS AND NUTS TO INSTALL COMPRESSOR PACKAGE ON FOUNDATION.
- BOLTS AND NUTS TO INSTALL THE EQUIPMENT OR ITEMS ON SKID ARE IN VENDOR'S SCOPE OF SUPPLY.
- FOR FLANGE CONNECTIONS, ONLY STUD BOLTS SHALL APPLY.

NOTE 19: VENDOR SHALL FORESEE AND SUPPLY GAUGE BOARD FOR COMPRESSOR PACKAGE.

NOTE 20: PURCHASER WILL GIVE ONLY ONE LV FEEDER (400V/50HZ/AC). DISTRIBUTION TO ANOTHER CONSUMER IS IN VENDOR RESPONSIBILITY.

NOTE 21: INSULATION FOR PERSONNEL PROTECTION(FOR LINE WITH THE TEMPERATURE HIGHER THAN 60C) IS IN VENDOR'S SCOPE OF WORK AND SUPPLY.

NOTE 22: KILLED CARBON STEEL SHALL BE USED FOR PROCESS LINES AND THE SHELL MATERIAL OF PRESSURE VESSELS AND HEAT EXCHANGERS INSIDE THE PACKAGE.

NOTE 23: DELETED

NOTE 24: MAXIMUM AVAILABLE SPACE FOR COMPRESSOR IS 3800X2800 MM.