







OWNER:  شرکت پتروشیمی بوشهر	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT							CONTRACTOR  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT		
MC:  شرکت سست و سویی توسعه ایسزاندگان	MECHANICAL DATA SHEET FOR NITROGEN GAS BOOSTER							Logo Vendor		
Owner Document Number : 17811-11A	Project BU	Area 20	Phase VD	Unit 303	Dis. ME	Doc. DSH	Seq. 0022	Contract No : 52-98/445	Rev : 01	Page: 1 OF 20

MECHANICAL DATA SHEET FOR NITROGEN GAS BOOSTER

 شرکت پتروشیمی بوشهر	 Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT
Document Review		
Issue Purpose:	IFA	
Result Code: AP,AN,CM,RE,NC	AN	
Next Status : IFC,IFA,IFI,AFC,AB	AFC	
Responsible Department	MECHANICAL	
Commented Date	Nov/14/2021	
Approval or review hereunder shall not be construed to relieve Vendor / Subcontractor of his responsibilities and liability under the contract.		

01	9-11-2021	Issued for approval	KP	JR	LDM	
00	14-09-2021	Issued for approval	KP	JR	LDM	
Rev.	Date	Description	Prepared By	Checked By	Approved	AC code.

OWNER:  شرکت پتروشیمی بوشهر	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT	CONTRACTOR:  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT
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MC:  شرکت مهندسی مشاوران و مهندسی پارس	DATA SHEET FOR NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)	Contract No : 52-98/445																
Owner Document Number : 17811-11A	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:12.5%;">Project</td> <td style="width:12.5%;">Area</td> <td style="width:12.5%;">Phase</td> <td style="width:12.5%;">Unit</td> <td style="width:12.5%;">Dis.</td> <td style="width:12.5%;">Doc.</td> <td style="width:12.5%;">Seq.</td> </tr> <tr> <td style="text-align: center;">BU</td> <td style="text-align: center;">20</td> <td style="text-align: center;">VD</td> <td style="text-align: center;">303</td> <td style="text-align: center;">ME</td> <td style="text-align: center;">DSH</td> <td style="text-align: center;">0022</td> </tr> </table>	Project	Area	Phase	Unit	Dis.	Doc.	Seq.	BU	20	VD	303	ME	DSH	0022	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%; text-align: center;">01</td> <td style="width:90%; text-align: right;">Page: 3 OF 20</td> </tr> </table>	01	Page: 3 OF 20
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BU	20	VD	303	ME	DSH	0022												
01	Page: 3 OF 20																	

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. MFR: _____ TYPE MODEL NO(S): _____ VENDOR IS TO SPECIFY(VTS): _____ SERIAL NO(S): _____ VTS: _____

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 / _____ VTS RPM

8 DRIVER MFR: 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 NON-LUBE


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

13 MAX ACCEPTABLE AVG PISTON SPEED: 3.5 m/s

OPERATING CONDITIONS (EACH MACHINE)

<p>15 <input checked="" type="radio"/> OPERATING CASE</p> <p>16 <input type="radio"/> SIMULATION BASIS</p> <p>17 <input checked="" type="radio"/> NORM. OR ALT. CONDITION</p> <p>18 <input type="radio"/> CERTIFIED PT. (X) MARK ONE</p> <p>19 <input checked="" type="radio"/> MOLECULAR WEIGHT</p> <p>20 <input type="radio"/> Cp/Cv (K) @ 65°C OR _____ °C</p> <p>21 INLET CONDITIONS: AT INLET TO: <input checked="" type="radio"/> PULSE DEVICES <input type="radio"/> COMPRESSOR CYLINDER FLANGES</p> <p>22 NOTE: <input type="radio"/> SIDE STREAM TO _____ STAGE(S), THESE INLET PRESS. ARE FIXED</p> <p>23 <input checked="" type="radio"/> PRESSURE @ PUL. SUPP. INLET (bara)</p> <p>24 <input type="radio"/> PRESSURE (Bara) @ CYL. FLANGE</p> <p>25 <input checked="" type="radio"/> TEMPERATURE (°C)</p> <p>26 <input type="radio"/> INLET Cp/Cv</p> <p>27 <input checked="" type="checkbox"/> COMPRESSIBILITY (Z_s)</p> <p>28 INTERSTAGE: 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</p> <p>29 <input type="radio"/> Δ P BETWEEN STAGES, % / BAR</p> <p>30 DISCHARGE CONDITIONS: AT OUTLET FROM: <input checked="" type="radio"/> PULSE DEVICE <input type="radio"/> COMP. CYL. FLANGES <input type="radio"/> OTHER</p> <p>31 <input type="radio"/> PRESSURE @ CYL. FLANGE (bara)</p> <p>32 <input checked="" type="radio"/> PRESS. (bara) @ PUL. SUPP. OUTLET</p> <p>33 <input type="checkbox"/> TEMP., ADIABATIC, °C</p> <p>34 <input type="checkbox"/> TEMP., PREDICTED, °C</p> <p>35 <input type="checkbox"/> COMPRESSIBILITY (Z₂) OR (Z_{AVG})</p> <p>36 * REQUIRED CAPACITY, RATED FOR PROCESS, AT INLET TO COMPRESSOR, NO NEGATIVE TOLERANCE (-0%)</p> <p>37 <input checked="" type="radio"/> kg/h CAPACITY SPECIFIED</p> <p>38 <input type="radio"/> WET <input checked="" type="radio"/> DRY</p> <p>39 <input checked="" type="radio"/> m³ /h (760 mm HG & 0°C)</p> <p>40 * MFR.'S RATED CAPACITY (AT INLET TO COMPRESSOR) & kW @ CERTIFIED TOLERANCE OF ±3% FOR CAP. & ±3% FOR kW</p> <p>41 <input type="radio"/> kg/h CAPACITY SPECIFIED</p> <p>42 <input type="radio"/> WET <input type="radio"/> DRY</p> <p>43 <input type="radio"/> INLET m³/h</p> <p>44 <input type="radio"/> Nm³/h</p> <p>45 <input type="checkbox"/> kW/STAGE</p> <p>46 <input checked="" type="checkbox"/> ABSORBED POWER ESTIMATED, kW</p> <p>47 <input type="checkbox"/> TOTAL kW INCLUDING</p> <p>48 V-BELT & GEAR LOSSES</p> <p>49 * CAPACITY FOR NNT</p> <p>50 MANUFACTURER'S = REQUIRED ÷ 0.97</p> <p>51 THEREFORE REQUIRED = MFR'S x 0.97</p>	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;"></th> <th style="width:20%;">NITROGEN</th> <th style="width:20%;">NITROGEN</th> <th style="width:20%;">NITROGEN</th> <th style="width:10%;"></th> <th style="width:10%;"></th> <th style="width:10%;"></th> <th style="width:10%;"></th> </tr> <tr> <td></td> <td>Normal</td> <td>Min pressure</td> <td>Max pressure</td> <td></td> <td></td> <td></td> <td></td> </tr> </thead> <tbody> <tr> <td></td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">28</td> <td style="text-align: center;">28</td> <td style="text-align: center;">28</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">1.4</td> <td style="text-align: center;">1.4</td> <td style="text-align: center;">1.4</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">8</td> <td style="text-align: center;">7</td> <td style="text-align: center;">9</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">8</td> <td style="text-align: center;">7</td> <td style="text-align: center;">9</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">52</td> <td style="text-align: center;">52</td> <td style="text-align: center;">52</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">1.4</td> <td style="text-align: center;">1.4</td> <td style="text-align: center;">1.4</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">23,2</td> <td style="text-align: center;">23,15</td> <td style="text-align: center;">23,1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">23,5</td> <td style="text-align: center;">23,5</td> <td style="text-align: center;">23,5</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">115</td> <td style="text-align: center;"><115</td> <td style="text-align: center;"><115</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">134</td> <td style="text-align: center;"><134</td> <td style="text-align: center;"><134</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">707</td> <td style="text-align: center;">707</td> <td style="text-align: center;">707</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">565</td> <td style="text-align: center;">565</td> <td style="text-align: center;">565</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <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></td> <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></td> <td style="text-align: center;">17,5</td> <td style="text-align: center;">17,5</td> <td style="text-align: center;">17,5</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">35</td> <td style="text-align: center;">35</td> <td style="text-align: center;">35</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">37</td> <td style="text-align: center;">37</td> <td style="text-align: center;">37</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		NITROGEN	NITROGEN	NITROGEN						Normal	Min pressure	Max pressure						X	X	X						28	28	28						1.4	1.4	1.4						8	7	9						8	7	9						52	52	52						1.4	1.4	1.4						1	1	1						23,2	23,15	23,1						23,5	23,5	23,5						115	<115	<115						134	<134	<134						1	1	1						707	707	707						565	565	565						718	718	718						574	574	574						17,5	17,5	17,5						35	35	35						37	37	37				
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MC:  شرکت سست و شیمی بوشهر	DATA SHEET FOR NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)							
	Project	Area	Phase	Unit	Dis.	Doc.	Seq.	Contract No : 52-98/445

Owner Document Number : 17811-11A	BU	20	VD	303	ME	DSH	0022	01	Page: 4 OF 20
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1	GAS ANALYSIS AT OPERATING CONDITIONS					REMARKS				
2	MOLE PERCENT									
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 ₂ O	18.016	1 (max)	ppm						
9	CARBON MONOXIDE CO	72.146	10	ppm						
10	CARBON DIOXIDE CO ₂	34.076								
11	HYDROGEN H ₂	2,016								
12	METHANE CH ₄	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 ₂	32.00	Max:10	ppm						
19	S content S		Max: 0.2	ppm (by weight)						
20										
21										
22						APPLICABLE SPECIFICATIONS				
23						<input checked="" type="radio"/> API-618-RECIPROCATING COMPRESSORS FOR PETROLEUM, CHEMICAL AND GAS INDUSTRY SERVICES				
24										
25						<input checked="" type="radio"/> MATERIAL STANDARD SPECIFICATION FOR RECIPROCATING GAS COMPRESSOR BU-20-D-000-MA-SPC-302				
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
		<input checked="" type="radio"/> MIN DESIGN METAL TEMP	0 °C (2.14.8)	RELATIVE HUMIDITY: MAX	100%	MIN	74% %
COMPRESSOR LOCATION:	<input type="radio"/> INDOOR	<input type="radio"/> HEATED	<input checked="" type="radio"/> UNHEATED	<input type="radio"/> AT GRADE LEVEL	<input type="radio"/> ELEVATED:		
	<input checked="" type="radio"/> OUTDOOR	<input type="radio"/> NO ROOF	<input type="radio"/> UNDER ROOF	<input type="radio"/> PARTIAL SIDES	<input type="radio"/> PLATFORM:	<input checked="" type="radio"/> ON-SHORE	
	<input type="radio"/> OFF-SHORE	<input type="radio"/> WEATHER PROTECTION REQ.		<input type="radio"/> TROPICALIZATION REQ.			
	<input type="radio"/> WINTERIZATION REQUIRED						
UNUSUAL CONDITIONS:	<input type="radio"/> CORROSIVES	<input checked="" type="radio"/> DUST	<input checked="" type="radio"/> FUMES	<input checked="" type="radio"/> OTHER	Sand storm , Thunder & Lightening, Sea Breeze		

ELECTRICAL CLASSIFICATIONS							
HAZARDOUS				NON-HAZRDOUS			
MAIN UNIT	<input checked="" type="radio"/> ZONE	2	GROUP	IIB	TEMP CLASS	T3	<input type="radio"/>
L.O. CONSOLE	<input checked="" type="radio"/> ZONE	2	GROUP	IIB	TEMP CLASS	T3	<input type="radio"/>
CW CONSOLE	<input checked="" type="radio"/> ZONE	2	GROUP	IIB	TEMP CLASS	T3	<input type="radio"/>

Since there is not separate water console and lube oil console, please keep all cells empty.

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							<input style="border: 1px solid red;" type="text" value="01"/>	Page: 5 OF 20

PART LOAD OPERATING CONDITIONS

2 CAPACITY CONTROL BY: MFG'S CAP. CONTROL PURCHASERS BY-PASS BOTH OTHER _____

3 FOR: PART LOAD COND. START-UP ONLY BOTH

4 WITH: AUTO LOADING DELAY INTERLOCK AUTO IMMEDIATE UNLOADING

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

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

7 NUMBER OF STEPS: ONE THREE FIVE OTHER _____

8 RAIN COVER REQUIRED OVER UNLOADERS

<p>9 INLET AND DISCHARGE PRESSURE ARE</p> <p>10 <input type="radio"/> AT CYLINDER FLANGES <input type="radio"/> COMPRESSOR FLANGES</p> <p>11 <input type="radio"/> SERVICE OR ITEM NO.</p> <p>12 <input type="radio"/> STAGE</p> <p>13 <input type="radio"/> NORMAL OR ALTERNATE CONDITION</p> <p>14 <input checked="" type="radio"/> PERCENT CAPACITY</p> <p>15 <input type="radio"/> WEIGHT FLOW, kg/h</p> <p>16 <input type="radio"/> m³/h (760 mm HG & 0°C)</p> <p>17 <input type="checkbox"/> POCKETS/VALVES OPERATION *</p> <p>18 <input type="checkbox"/> POCKET CLEARANCE ADDED %</p> <p>19 <input type="checkbox"/> TYPE UNLOADERS, PLUG/FINGER</p> <p>20 <input type="radio"/> INLET TEMPERATURE, °C</p> <p>21 <input type="radio"/> INLET PRESSURE, (BARG)</p> <p>22 <input type="radio"/> DISCHARGE PRESSURE, (BARG)</p> <p>23 <input type="checkbox"/> DISCHARGE TEMP., ADIABATIC °C</p> <p>24 <input type="checkbox"/> DISCHARGE TEMP., PREDICTED °C</p> <p>25 <input type="checkbox"/> VOLUMETRIC EFF., %HE/%CE(AVER)</p> <p>26 <input type="checkbox"/> CALC. GAS ROD LOAD, KN, C **</p> <p>27 <input type="checkbox"/> CALC. GAS ROD LOAD, KN, T **</p> <p>28 <input type="checkbox"/> COMB. ROD LOAD, KN C (GAS & INERTIA)</p> <p>29 <input type="checkbox"/> COMB. ROD LOAD, KN T (GAS & INERTIA)</p> <p>30 <input type="checkbox"/> ROD REV., DEGREES MIN @ X-HD PIN ***</p> <p>31 <input type="checkbox"/> BkW/STAGE</p> <p>32 <input type="checkbox"/> TOTAL kW @ COMPRESSOR SHAFT</p> <p>33 <input type="checkbox"/> TOTAL kW INCL. V-BELT & GEAR LOSSES</p>	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;"></td> <td style="width:15%;"></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="border: 2px solid red;"> </td> <td style="border: 2px solid red;"> </td> <td style="border: 2px solid red;"> </td> <td style="border: 2px solid red;"> </td> <td style="border: 2px solid red;"> </td> <td style="border: 2px solid red;"> </td> </tr> <tr> <td>100%</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>718</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>574</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Valves</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>NA</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Plug</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5...55</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6...8</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>22,5</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>64 / 115</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>83 / 134</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>78/85</td> <td>/</td> <td>/</td> <td>/</td> <td>/</td> <td>/</td> </tr> <tr> <td>16,43/8,78</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>14,54/5,28</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>16,57/9,13</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>14,26/5,45</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>195/195</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>17,5</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>35</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>37</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>													100%						718						574						Valves						NA						Plug						5...55						6...8						22,5						64 / 115						83 / 134						78/85	/	/	/	/	/	16,43/8,78						14,54/5,28						16,57/9,13						14,26/5,45						195/195						17,5						35						37					
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Data for both stage shall be completed separately.

40 * SHOW OPERATION WITH THE FOLLOWING SYMBOLS:

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

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

48 MINIMUM PRESSURE REQUIRED TO OPERATE CYLINDER UNLOADING DEVICES, _____ (BARG)

49 CYLINDER UNLOADING MEDIUM: AIR NITROGEN OTHER _____

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

52 **SPECIAL REMARK:**

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


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CONTRACTOR:



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

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● 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 START (); **DEFINE** _____ **Local power distribution board**
 GEAR (); **BASE PLATE 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 BE WITNESSED **COMPRESSOR VALVE DYNAMIC RESPONSE**
 VENDOR REVIEW OF **LEVELING SCREWS, SUB SOLE PLATES, CHOKE BLOCKS and shims are required.** **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)**
 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**

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


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Joint Venture
BUPC-MEG PLANT PROJECT

MC:



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

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1 **SCOPE OF BASIC SUPPLY (Con't)**

- 2 SEPARATE COOLING CONSOLE (): ONE FOR EA. UNIT ONE CMMN TO ALL UNITS DUAL PUMPS (AUX. & MAIN)
 3 ARRANGED FOR HEATING JACKET WATER AS WELL AS COOLING
- 4 ROD PRESS. PACKING COOLING SYSTEM) SEPARATE CONSOLE COMBINE WITH JKT SYSTEM FILTERS
- 5 FRAME LUBE OIL SYSTEM (): AUX. PUMP DUAL FILTERS WITH TRANSFER VALVE SHOP RUN
 6 CONTINUOUS FLOW IN SENSING LINE TO PRESSURE SWITCHES
- 7 SEPARATE LUBE OIL CONSOLE (): EXTENDED TO MOTOR OUTBOARD BEARING SHOP RUN
 8 API 614 APPLIES NO YES
- 9 NOTE: PIPING BETWEEN ALL CONSOLES AND COMPRESSOR UNIT BY PURCHASER

- 10 CAPACITY CONTROL (): SEE DATA SHEET PAGE 5 FOR DETAILS INSTRUMENT & CONTROL PANEL
 11 SEPARATE MACHINE MOUNTED PANEL SEPARATE FREE STANDING PANEL
 12 PNEUMATIC ELECTRIC ELECTRONIC HYDRAULIC
 13 PROGRAMMABLE CONTROLLER
- 14 INSTRUMENT & CONTROL PANEL (): ONE FOR EACH UNIT ONE COMMON TO ALL UNITS
 15 MACHINE MOUNTED FREE STANDING (OFF UNIT)
- 16 BUFFER GAS CONTROL PANEL () = ONE FOR EACH UNIT ONE COMMON TO ALL UNITS
 17 MACHINE MOUNTED FREE STANDING (OFF UNIT)

UCP is free standing


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

- 22 HEATERS (): FRAME LUBE OIL CYL. LUBRICATORS COOLING WATER DRIVER(S) GEAR OIL
 23 ELECTRIC STEAM
- 24 BARRING DEVICE (): MANUAL PNEUMATIC ELECTRIC FLYWHEEL LOCKING DEVICE ()
- 25 ROD PRESSURE PACKING COOLING SYSTEM (): SEPARATE CONSOLE FILTERS
- 26 SPECIAL CORROSION PROTECTION: NO YES MFR'S STANDARD OTHER _____
- 27 HYDRAULIC TENSIONING TOOLS NO YES
- 28 MECHANICAL RUN TEST: NO YES MFG'S STANDARD OTHER _____
 29 COMPLETE SHOP RUN TEST OF ALL MACHINE MOUNTED EQUIPMENT, PIPING & APPURT.:(S)

- 33 PAINTING: MANUFACTURER'S STANDARD SPECIAL Project specification for color
- 34 NAMEPLATES: U.S. CUSTOMARY UNITS SI UNITS
- 35 SHIPMENT: DOMESTIC EXPORT EXPORT BOXING REQUIRED ()
 36 STANDARD 6 MONTH STORAGE PREPARATION (), PER SPEC _____
 37 OUTDOOR STORAGE FOR OVER 12 MONTHS (), PER SPEC _____

- 38 INITIAL INSTALLATION AND OPERATING TEMP ALIGNMENT CHECK AT JOBSITE BY VENDOR REPRESENTATIVE
- 39
- 40 COMPRESSOR MANUFACTURER'S USER'S LIST FOR SIMILAR SERVICE
- 41 PERFORMANCE DATA REQUIRED PER 5.3.3: BkW VS. SUCTION PRESSURE CURVES
 42 ROD LOAD/GAS LOAD CHARTS
 43 VALVE FAILURE DATA CHARTED
 44 SPEED/TORQUE CURVE DATA
- 45 BkW VS. CAPACITY PERFORMANCE CURVES OR TABLES REQUIRED FOR UNLOADING STEPS AND/OR VARIABLE
 46 SUCTION/DISCHARGE PRESSURES

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UTILITY CONDITIONS

ELECTRICAL POWER:													
	AC VOLTS	/	PHASE	/	HERTZ	DC VOLTS		AC VOLTS	/	PHASE	/	HERTZ	DC VOLTS
● MAIN DRIVER	400	/	3	/	50		INSTRUMENT	110	/	1	/	50	24
● AUXILIARY MOTORS	400	/	3	/	50		ALARM & SHTDWN		/		/	50	24
● HEATERS	Below 0.2 Kw : 230			1	50		SOLENOID VALVES				/	50	24

INSTRUMENT AIR: NORMAL PRESSURE **7 barg** MAX/MIN **7,5 / 6,0 barg**

STEAM FOR: DRIVERS				HEATERS			
INLET: PRESS	(BARG)	MAX/MIN	/	(BARG)	INLET: PRESS	(BARG)	MAX/MIN
(NORM.) TEMP	(kPa)		/	(kPa)	(NORM.) TEMP	(kPa)	
	°C		/	°C		°C	
EXH'ST: PRESS	(BARG)	MAX/MIN	/	(BARG)	EXH'ST: PRESS	(BARG)	MAX/MIN
(NORM.) TEMP	(kPa)		/	(kPa)	(NORM.) TEMP	(kPa)	
	°C		/	°C		°C	

COOLING WATER FOR: COMPRESSOR CYLINDERS				COOLERS			
TYPE WATER				TYPE WATER MACHINERY COOLING WATER(MCW)-(NOTE 4)			
SUPPLY PRESS	5,5 (BARG)	MAX/MIN	5,5 / 5,5 (BARG)	SUPP.: PRESS	5,5 (BARG)	MAX/MIN	5,5 / 5,5 (BARG)
(NORM.) TEMP	35 °C	MAX/MIN	35 / 35 °C	(NORM.) TEMP	35 °C	MAX/MIN	35 / 35 °C
RETURN PRESS	2,5 (BARG)	MAX/MIN	2,5 / 2,5 (BARG)	R'TRN: PRESS	2,5 (BARG)	MAX/MIN	2,5 / 2,5 (BARG)
(NORM.) TEMP	45 °C	MAX/MIN	45 / 45 °C	(NORM.) TEMP	45 °C	MAX/MIN	45 / 45 °C

COOLING FOR ROD PACKING:
TYPE FLUID _____ SUPPLY PRESS _____ (BARG) @ _____ °C RETURN _____ °C

FUEL GAS: NORMAL PRESSURE _____ (BARG) MAX/MIN _____ / _____ (BARG)
COMPOSITION _____

REMARKS/SPECIAL REQUIREMENTS:

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With reference to clause 6.1.7 of API618 5th edition, allowable pressure drop along heat exchanger shall not exceed 1bar. Also with reference to clause 4.3.6 of BU-20-D-000-PR-SPC-101-06 pressure unit is bara.



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CYLINDER DATA AT FULL LOAD CONDITION							
1	<input type="checkbox"/> CYLINDER DATA AT FULL LOAD CONDITION						
2	SERVICE/ITEM NO.	To be completed.					
3	STAGE	2					
4	INLET PRESSURE, (BARG)	@ CYLINDER					
5	DISCHARGE PRESSURE, (BARG)	FLANGES					
6	CYLINDERS PER STAGE	1	1				
7	SINGLE OR DOUBLE ACTING (SA OR DA)	DA	DA				
8	BORE, mm	160	100				
9	STROKE, mm	140	140				
10	RPM:	RATED / MAX ALLOW		450 / 850			
11	PISTON SPEED, m/s:	RATED / MAX ALLOW		VTS/3.5	VTS/3.5		
12	CYLINDER LINER, YES/NO	YES					
13	LINER NOMINAL THICKNESS, mm	Liner thickness shall be added.					
14	PISTON DISPLACEMENT, m ³ /h	131,9	49,5	Valve quantity shall be specified			
15	CYLINDER DESIGN CLEARANCE, % AVERAGE	78	87				
16	VOLUMETRIC EFFICIENCY, % AVERAGE	VTS	VTS	Valve velocity shall be specified			
17	VALVES, INLET/DISCHARGE, QTY PER CYL.	plate	plate				
18	TYPE OF VALVES	/	/				
19	VALVE LIFT, INLET/DISCHARGE, mm	13,55	18,56				
20	VALVE VELOCITY, API 4TH EDITION, m/s	13,55	18,56				
21	SUCTION VALVE(S)	35	35				
22	DISCHARGE VALVE(S)	31	31				
23	ROD DIAMETER, (mm)	31	31				
24	MAX ALLOW. COMBINED ROD LOADING, kN, C *	16,43	8,78				
25	MAX ALLOW. COMBINED ROD LOADING, kN, T *	14,51	5,28				
26	CALCULATED GAS ROD LOAD, kN, C *	16,57	9,13				
27	CALCULATED GAS ROD LOAD, kN, T *	14,26	5,45				
28	COMBINED ROD LOAD (GAS + INERTIA), kN, C *	195,00	195,00				
29	COMBINED ROD LOAD (GAS + INERTIA), kN, T *	23,9	23,93				
30	ROD REV., DEGREES MIN @ X-HD PIN**	34	45				
31	RECIP WT. (PISTON, ROD, X-HD & NUTS), kg**	230	230				
32	MAX ALLOW. WORKING PRESSURE, (BARG)	51	67,5	Class of flange and size shall be specified			
33	MAX ALLOW. WORKING TEMPERATURE, °C	3	3				
34	HYDROSTATIC TEST PRESSURE, (BARG)	/	/				
35	HELIUM TEST PRESSURE, (BARG)	R.F	R.F				
36	INLET FLANGE SIZE/RATING at CYLINDER	/	/				
37	FACING at CYLINDER	R.F	R.F				
38	DISCHARGE FLANGE SIZE/RATING at CYLINDER	/	/				
39	FACING at CYLINDER	R.F	R.F				
40	DISCHARGE RELIEF VALVE SETTING DATA AT INLET PRESSURES GIVEN ABOVE:						
41	RECOMMENDED SETTING, (BARG)	~16	~25				
42	GAS ROD LOAD, kN, C *	17,5	17,5				
43	GAS ROD LOAD, kN, T *	17,5	17,5				
44	COMBINED ROD LOAD, kN, C *	13,13	17,24				
45	COMBINED ROD LOAD, kN, T *	12,6	15,3				
46	ROD REVERSAL, °MIN @ X-HD PIN**	195	195				
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	Since compressor is equipped to spill back capacity control, Compressor settle out pressure shall be added						

OWNER:



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<input type="checkbox"/> CONSTRUCTION FEATURES							
1							
2	SERVICE ITEM NO. NITROGEN BOOSTER COMPRESSOR						
3	STAGE 1 2						
4	CYLINDER SIZE (BORE DIA), mm						
5	ROD RUN-OUT: NORMAL COLD VERTICAL						
6	(per appendix C)						

MATERIALS OF CONSTRUCTION							
8	CYLINDER(S)	DUCTILE CAST IRON	DUCTILE CAST IRON	<div style="border: 1px solid red; padding: 5px;"> 1- ASTM material equivalent shall be added. 2- Since aluminum piston is selected, rider ring shall be consider for piston protection. 3- Piston rod material shall be specified. 4- Piston rod hardness material shall be specified. </div>			
9	CYLINDER LINER(S)	EN-GJL-250	EN-GJL-250				
10	PISTON(S)	AlSi10Mg	SS (1.4305)				
11	PISTON RINGS	HS21027/H6	HS21027/H6				
12	WEAR BANDS <input checked="" type="checkbox"/> REQUIRED	VTS	VTS				
13	PISTON ROD(S): MATERIAL/YIELD, N/mm ²						
14	THREAD ROOT STRESS @ MACRL * @ X-HD END						
15	PISTON ROD HARDNESS, BASE MATERIAL, Rc						
16	PISTON ROD COATING <input checked="" type="checkbox"/> REQUIRED	TUNGSTEN CARBIDE	TUNGSTEN CARBIDE				
17	COATING HARDNESS, Rc						
18	VALVE SEATS / SEAT PLATE	SS/SS	SS/SS	<div style="border: 1px solid red; padding: 5px;"> Valve disc material shall be added. </div>			
19	VALVE SEAT MIN HARDNESS, Rc						
20	VALVE GUARDS (STOPS)	SS	SS				
21	VALVE DISCS						
22	VALVE SPRINGS	SS	SS				
23	ROD PRESSURE PACKING RINGS	FKM, 75-ShA	FKM, 75-ShA				
24	ROD PRESSURE PACKING CASE	SS	SS				
25	ROD PRESSURE PACKING SPRINGS	-	-				
26	SEAL / BUFFER PACKING, DISTANCE PIECE	HS21027/H6	HS21027/H6				
27	SEAL / BUFFER PACKING, INTERMEDIATE	HS21027/H6	HS21027/H6	<div style="border: 1px solid red; padding: 5px;"> Bearing material shall be added. </div>			
28	WIPER PACKING RINGS	bronze	bronze				
29	MAIN JOURNAL BEARINGS, CRANKSHAFT	-	-				
30	CONNECTING ROD BEARING, CRANKPIN	-	-				
31	CONNECTING ROD BUSHING, X-HD END	SnSb12Cu6Cd	SnSb12Cu6Cd				
32	CROSSHEAD (X-HD) PIN BUSHING	-	-				
33	CROSSHEAD PIN	16MnCr5 (1.7131)	16MnCr5 (1.7131)				
34	CROSSHEAD	EN-GJL-250	EN-GJL-250				
35	CROSSHEAD SHOES	EN-GJL-250	EN-GJL-250				
36	CYLINDER INDICATOR VALVES (X)						
37	INDICATOR CONNECTIONS ABOVE 5000 PSI						
38	FLUOROCARBON SPRAYED CYLINDER (X)						
39	INSTRUMENTATION IN (X) COLD SIDE						
40	CONTACT W/PROCESS GAS (X) HOT SIDE						
41	* MAXIMUM ALLOWABLE COMBINED ROD LOAD			USE (X) IN APPROPRIATE COLUMN WHERE APPLICABLE			

COMPRESSOR CYLINDER ROD PACKING

FULL FLOATING PACKING

VENTED TO: FLARE @ _____ ATM

SUCTION PRESSURE @ _____ (BARG)

FORCED LUBRICATED NON-LUBE TFE

WATER COOLED, _____ STAGE(S), _____ m³/h REQ'D

OIL COOLED, _____ STAGE(S), _____ m³/h REQ'D

WATER FILTER _____ PROV.FUTURE WATER/OIL COOLING

VENT/BUFFER GAS SEAL PACKING ARR. (Ref: Appndx I FIG I-1)

CONSTANT OR VARIABLE DISPOSAL SYSTEM

BUFFER GAS PRESSURE, _____ (BARG)

SPLASH GUARDS FOR WIPER PACKING

DISTANCE PIECE(S): TYPE A TYPE B TYPE C TYPE D
Ref: Appendix G, Fig. G-3

COVERS: SOLID METAL SCREEN LOUVERED

CYLINDER COMPARTMENT: (Outboard Distance Piece)

VENTED TO ATM _____ (BARG)

PURGED AT _____ (BARG)

PRESSURIZED TO _____ (BARG)

WITH RELIEF VALVE

FRAME COMPARTMENT: (Inboard Distance Piece)

VENTED TO _____ (BARG)

PURGED AT _____ (BARG)

PRESSURIZED TO _____ (BARG)

WITH RELIEF VALVE

DISTANCE PIECE MAWP _____ (BARG)


OWNER:



شرکت پتروشیمی بوشهر
BUPC

**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**

CONTRACTOR:



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

MC:



شرکت سبست، مهندسی و پیمانکاری
SBTI

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

Project	Area	Phase	Unit	Dis.	Doc.	Seq.	Contract No : 52-98/445
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CONSTRUCTION FEATURES (CONTINUED)

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

BUFFER GAS PACKING ARR. Ref: Appendix I
Figures I-1, I-2 & I-3

OIL WIPER PACKING PURGE

INTERMEDIATE PARTITION PURGE

INERT BUFFER PURGE GAS: N₂ 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 (Compressor Shaft)	DRIVE SHEAVE (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) _____

INSPECTION AND SHOP TESTS

	REQ'D	WITN.	OBSER.
*SHOP INSPECTION	●	○	○
ACTUAL RUNNING CLEARANCES AND RECORDS	○	○	○
MFG STANDARD SHOP TESTS	●	○	○
CYLINDER HYDROSTATIC TEST	○	○	○
CYLINDER PNEUMATIC TEST	○	○	○
CYLINDER HELIUM LEAK TEST	○	○	○
CYL. JACKET WATER HYDRO TEST	○	○	○
*MECHANICAL RUN TEST (4 HR)	●	○	●
BAR-OVER TO CHECK ROD RUNOUT	○	○	○
*LUBE OIL CONSOLE RUN/TEST (4 HR)	●	○	●
*COOLING H ₂ O CONSOLE RUN/TEST	●	○	●
RADIOGRAPHY BUTT WELDS	●	○	○
<input type="radio"/> GAS <input type="radio"/> OIL <input type="radio"/> FAB CYLS.			
MAG PARTICLE/LIQUID PENETRANT OF WELDS	○	○	○
SPECIFY ADDITIONAL REQUIREMENTS (4.2.1.3)			
QC OF INACCESSIBLE WELDS (2.14.5.2.4)	○	○	○
SHOP FIT-UP OF PULSATION SUPPL. DEVICES & ALL ASSOCIATED GAS PIPING	○	○	○
*CLEANLINESS OF EQUIP., PIPING, & APPURTENANCES	●	○	○
*HARDNESS OF PARTS, WELDS & HEAT AFFECTED ZONES	○	○	○
*NOTIFICATION TO PURCHASER OF ANY REPAIRS TO MAJOR COMPONENTS	●		
SOUND LEVEL TEST	●	○	○
DISMANTLING INSPECTION	○	○	○
*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

(2.13) 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 ₂ 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 ₂ 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

OWNER:



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**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**

CONTRACTOR:



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

MC:




شرکت مستشاری سستی
دانش تهران

**DATA SHEET FOR
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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					

49
50
51


OWNER:



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Joint Venture
BUPC-MEG PLANT PROJECT

MC:



شرکت مستشاری آستین
استادان (سستی)

**DATA SHEET FOR
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FRAME LUBE OIL SYSTEM

BASIC LUBE OIL SYSTEM FOR FRAME:

REF: TYPE MAIN BEARINGS: SPLASH (TBA) PRESSURE (FORCED) HEATERS REQUIRED:

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: ELEC. MOTOR 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"/> COMPRESSOR FRAME	_____	_____	_____	_____	_____
<input type="checkbox"/> DRIVER	_____	_____	_____	_____	_____
<input type="checkbox"/> GEAR	_____	_____	_____	_____	_____
<input type="checkbox"/> SYSTEM PRESSURES:	<input type="checkbox"/> DESIGN _____ (BARG)	<input type="checkbox"/> HYDROTEST _____ (BARG)			
	<input type="checkbox"/> PRESSURE CONTROL VALVE SETTING _____ VTS (BARG)	<input type="checkbox"/> PUMP RELIEF VALVE(S) SET _____ (BARG)			

PIPING MATERIALS:

	CARBON STEEL	STAINLESS STEEL WITH SS FLANGES	STAINLESS STEEL WITH CARBON STEEL FLANGES
<input checked="" type="checkbox"/> UPSTREAM OF PUMPS & FILTERS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> DOWNSTREAM OF FILTERS	<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
MAIN	NA	2,0	NA	SHAFT DRIVEN	NA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
AUXILIARY	_____	_____	_____	_____	_____	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> PUMP CASING MATERIAL	MAIN PUMP		STEEL		AUX PUMP		
<input type="checkbox"/> GUARD(S) REQ. FOR COUPLING(S):	<input type="checkbox"/> MAIN PUMP	<input type="checkbox"/> AUX PUMP	<input type="checkbox"/> GUARD TYPE OR CODE _____				
<input type="checkbox"/> AUXILIARY PUMP CONTROL:	<input type="checkbox"/> MANUAL	<input type="checkbox"/> AUTOMATIC	<input type="checkbox"/> ON-OFF-AUTO SEL. SWITCH:		<input type="checkbox"/> BY PURCH. <input type="checkbox"/> BY MFR.		
			<input type="checkbox"/> WIRING TO TERMINAL BOX:		<input type="checkbox"/> BY PURCH. <input type="checkbox"/> BY MFR.		
			<input type="checkbox"/> SWITCHES		<input type="checkbox"/> RTD'S/THERMOCOUPLES		

COOLERS:

<input type="checkbox"/> SHELL & TUBE	<input type="checkbox"/> SINGLE	<input type="checkbox"/> DUAL W/TRANSFER VALVE	<input type="checkbox"/> MFG'S STD.	<input type="checkbox"/> TEMA C	<input type="checkbox"/> TEMA R
<input type="checkbox"/> REMOVABLE BUNDLE	<input type="checkbox"/> WATER COOLED	<input type="checkbox"/> AIR COOLED W/AUTO TEMP CONTROL			
<input type="checkbox"/> W/BYPASS & TEMP CONTROL VALVE:	<input type="checkbox"/> MANUAL	<input type="checkbox"/> AUTO	<input type="checkbox"/> SEE SEPARATE HEAT EXCHANGER DATA SHTEET		

FILTER(S)

<input checked="" type="checkbox"/> SINGLE	<input type="checkbox"/> DUAL W/TRANSFER VALVE	<input type="checkbox"/> ASME CODE DESIGN	<input type="checkbox"/> ASME CODE STAMPED
<input type="checkbox"/> DESIGN PRESSURE, _____ (BARG)	<input type="checkbox"/> Δ P CLEAN, _____ (BARG)	<input type="checkbox"/> Δ P COLLAPSE, _____ (BARG)	
<input type="checkbox"/> MICRON RATING, _____	<input type="checkbox"/> CARTRIDGE MATERIAL, _____	<input type="checkbox"/> CARTRIDGE P/N _____	
<input type="checkbox"/> BONNET MATERIAL, _____	<input type="checkbox"/> CASING MATERIAL, _____	<input type="checkbox"/> FURN.SPARE CARTR.,QTY _____	

SYS. COMPONENT SUPP.

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

OWNER:



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BUPC

**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**

CONTRACTOR:



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

MC:



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

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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="radio"/>	<input type="radio"/>	<input type="radio"/>	4,3	4,5	35	45	<input type="radio"/>
CYLINDER(S), 2 STAGE	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		4,5	35	45	<input type="radio"/>
CYLINDER(S), _____ STAGE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					<input type="radio"/>
CYLINDER(S), _____ STAGE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					<input type="radio"/>
CYLINDER(S), _____ STAGE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					<input type="radio"/>
CYLINDER(S), _____ STAGE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					<input type="radio"/>
PISTON ROD PACK'G TOTAL	<input type="radio"/>							<input type="radio"/>
INTERCOOLER(S) TOTAL	<input type="radio"/>							<input type="radio"/>
AFTERCOOLER	<input type="radio"/>							<input type="radio"/>
OIL COOLER(S)	<input type="radio"/>							<input type="radio"/>
JACKET COOLER	<input type="radio"/>							<input type="radio"/>
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				

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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MC:  شرکت سست سهند SST	DATA SHEET FOR NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)	Contract No : 52-98/445																
Owner Document Number: 17811-11A	<table border="1" style="width:100%; border-collapse: collapse;"> <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 style="text-align: center;">BU</td> <td style="text-align: center;">20</td> <td style="text-align: center;">VD</td> <td style="text-align: center;">303</td> <td style="text-align: center;">ME</td> <td style="text-align: center;">DSH</td> <td style="text-align: center;">0022</td> </tr> </table>	Project	Area	Phase	Unit	Dis.	Doc.	Seq.	BU	20	VD	303	ME	DSH	0022	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width:10%;">01</td> <td style="text-align: right;">Page: 15 OF 20</td> </tr> </table>	01	Page: 15 OF 20
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PULSATION SUPPRESSION DEVICES FOR RECIPROCATING COMPRESSORS THESE SHEETS TO BE FILLED OUT FOR EACH SERVICE AND/OR STAGE OF COMPRESSION	
3 APPLICABLE TO: <input type="radio"/> PROPOSALS <input checked="" type="radio"/> PURCHASE <input type="radio"/> AS BUILT	
4 FOR/USER BUSHEHR PETROCHEMICAL COMPANY (BUPC)	
5 SITE/LOCATION ASSALUYE	AMBIENT TEMPERATURE MIN/MAX 5 / 52 °C
6 COMPRESSOR SERVICE NITROGEN COMPRESSOR	NUMBER OF COMPRESSORS 1 SET
7 COMPRESSOR MFG. Airpack	MODEL/TYPE
8 SUPPRESSOR MFG. TBC	
9 NOTE: <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	

GENERAL INFORMATION APPLICABLE TO ALL SUPPRESSORS	
11 TOTAL NUMBER OF SERVICES AND/OR STAGES	
12 TOTAL NUMBER OF COMPRESSOR CYL. 2	TOTAL NUMBER OF CRANKTHROWS 1 STROKE mm RPM 690
13 <input checked="" type="radio"/> ASME CODE DESIGN <input type="radio"/> GOVERNMENTAL CODES OF _____ CODE REGULATIONS APPLY	
14 <input type="radio"/> OTHER APPLICABLE PRESSURE VESSEL SPEC. OR CODE	
15 <input type="radio"/> LUBE SERVICE <input checked="" type="radio"/> NON-LUBE SERV. <input type="radio"/> NO OIL ALLOWED INTERNALLY DRY TYPE INTER.CORR.COATING <input type="radio"/> YES <input checked="" type="radio"/> NO	
16 <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	
17 <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	
18 <input type="radio"/> WITNESSED <input type="radio"/> OBSERVED	

CYLINDER, GAS, OPERATING, AND SUPPRESSOR DESIGN DATA	
21 SERVICE NITROGEN COMPRESSOR STAGE NO. 2	
22 <input type="checkbox"/> COMPRESSOR MANUFACTURER'S RATED CAPACITY LBS/HR SCFM MMSCFD	
23 <input type="checkbox"/> LINE SIDE OPERATING PRESSURE	<div style="border: 1px solid red; padding: 5px; color: blue;"> All remaining data to be completed </div>
24 <input type="checkbox"/> OPERATING TEMP. WITHIN SUPPRESSORS	
25 <input type="checkbox"/> ALLOWABLE PRESSURE DROP THROUGH SUPPRESSORS	
26 INLET SUPPRESSOR DISCHARGE SUPPRESSOR	
27 <input checked="" type="radio"/> SUPPRESSOR TAG NUMBER	
28 <input checked="" type="radio"/> COMBINATION INLET SUPP SEPARATOR/INTERNALS	
29 <input checked="" type="radio"/> NO. (QTY) OF INLET & DISCH. SUPP. PER STAGE 1SET EACH STAGE	
30 <input type="checkbox"/> ALLOWABLE PEAK-PEAK PULSE @ LINE SIDE NOZZLE	
31 <input type="checkbox"/> ALLOWABLE PEAK-PEAK PULSE @ CYL FLANGE NOZZLE	
32 <input checked="" type="radio"/> DESIGN FOR FULL VACUUM CAPABILITY NO <input type="radio"/> YES <input checked="" type="radio"/> NO	
33 <input type="checkbox"/> MIN. REQ'D WORKING PRESSURE & TEMPERATURE	
34 (BAR) 13,5 @ 80 °C (BAR) 23,5 @ 210 °C	
35 <input checked="" type="radio"/> INITIAL SIZING VOLUME	
36 _____ 0,3 _____ m ³ _____ 0,3 _____ m ³	
37 <input type="checkbox"/> AS BUILT VOLUME (m ³) _____ m ³ _____ m ³	

With reference to clause 4.4.1 of BU-20-D-000-PR-SPC-101-06, design temperature shall not be less than 85 C.

OWNER:



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BUPC

**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**

CONTRACTOR:



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

MC:



شرکت مهندسی و پیمانکاری
مکانیک و ابزار دقیق
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

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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. **2**

- CONSTRUCTION REQUIREMENTS & DATA**
- SUPPRESSOR TAG NUMBER
 - BASIC MATERIAL REQUIRED, CS, SS, ETC
 - ACTUAL MATERIAL DESIGNATION
 - SPECIAL HARDNESS LIMITATIONS, Rc
 - 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'RG 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

All remaining data of pulsation dampener, such as pressure drop and etc. shall be completed

INLET SUPPRESSOR		DISCHARGE SUPPRESSOR	
Carbon Steel		Carbon Steel	
/		/	
HELL & HEADS	WELDS	SHELL & HEADS	WELDS
3	mm	3	mm
mm/	mm	mm.	mm
mm/	mm³	mm.	mm³
<input type="checkbox"/> PIPE	<input type="checkbox"/> ROLLED PLATE	<input type="checkbox"/> PIPE	<input type="checkbox"/> ROLLED PLATE
(BAR)	@ °C	(BAR)	@ °C
	°C		°C
<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO		
Δ P (BAR) /	%	Δ P (BAR) /	%
	kg		kg
VTS		VTS	
%/	%	%/	%

CONNECTION REQUIREMENTS & DATA

<input checked="" type="checkbox"/> LINE SIDE FLANGE. SIZE/RATING/FACING/TYPE	VTS/VTS/RF/WN	VTS/VTS/RF/WN
<input type="checkbox"/> COMP CYL FLANGE(S), QTY/SIZE/RATING/FACING/TYPE	VTS	VTS
<input checked="" type="checkbox"/> FLANGE FINISH, <input type="checkbox"/> PER 3.9.3.15 <input type="checkbox"/> SPECIAL (SPECIFY) >3.2 <6.4 <input checked="" type="checkbox"/> PER ANSI 16.5		
<input checked="" type="checkbox"/> INSPECTION OPENINGS REQUIRED	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> BLINDED	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> BLINDED
<input type="checkbox"/> SPEC. QTY. SIZE, /FLG TYPE & RATING	VTS	VTS
<input type="checkbox"/> * QTY. SIZE, /FLG TYPE & RATING		
<input checked="" type="checkbox"/> VENT CONNECTIONS REQUIRED	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<input type="checkbox"/> SPEC. QTY. SIZE, /FLG TYPE & RATING	VTS	VTS
<input type="checkbox"/> * QTY. SIZE, /FLG TYPE & RATING		
<input checked="" type="checkbox"/> DRAIN CONNECTIONS REQUIRED	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<input type="checkbox"/> SPEC. QTY. SIZE, /FLG TYPE & RATING	VTS	VTS
<input type="checkbox"/> * QTY. SIZE, /FLG TYPE & RATING		
<input checked="" type="checkbox"/> PRESSURE CONNECTIONS REQUIRED	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<input type="checkbox"/> SPEC. QTY. SIZE, /FLG TYPE & RATING	VTS	VTS
<input type="checkbox"/> * QTY. SIZE, /FLG TYPE & RATING		
<input checked="" type="checkbox"/> TEMPERATURE CONNECTIONS REQUIRED	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<input type="checkbox"/> SPEC. QTY. SIZE, /FLG TYPE & RATING	VTS	VTS
<input type="checkbox"/> CYL NOZZLE <input type="checkbox"/> MAIN BODY		
<input type="checkbox"/> * QTY. SIZE, /FLG TYPE & RATING		

Drain connection is required.

OTHER DATA AND NOTES

<input type="checkbox"/> COMPRESSOR MFG'S SUPP. OUTLINE OR DRAWING NO.	
<input type="checkbox"/> SUPP. MFG'S OUTLINE OR DRAWING NO.	

OWNER:



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**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**

CONTRACTOR:



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

MC:



شرکت مستشاری آسپران
اصفهان

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

Contract No : 52-98/445

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

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

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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			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"/>	PROCESS GAS: INLET PRESS.	<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"/>	@ EA. STAGE	<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"/>		<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"/>	DISCH. PRESS.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COOLING H ₂ O INLET HEADER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	@ EA. 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"/>	<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: _____

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
مستوفی

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

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

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INSTRUMENTATION (CONT'D)

MISCELLANEOUS INSTRUMENTATION

3	SIGHT FLOW IND. (COOLING H ₂ O ONLY)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	FOR:	<input type="checkbox"/> INTERCLR(S)	<input type="checkbox"/> AFTERCLR	<input type="checkbox"/> OIL CLR	<input type="checkbox"/> H ₂ O CLR
4	PNEUMATIC PRESSURE TRANSMITTERS	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	FOR:	<input type="checkbox"/> CYL JACKET WATER	<input type="checkbox"/> ROD PRESS. PKG CASES		
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"/>)					
7	ALARM HORN & ACKN'LMT TEST BUTTON	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)					
8	CONDUIT & WIRING W/JUNCT. BOXES	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)					
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"/>)				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"/>)					
15		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)					
16		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)					

SEPARATE LUBE OIL CONSOLE INSTRUMENTATION: PURCH. TO LIST REQ'MTS IN ADDITION TO ANY ABOVE REQ'MTS

17		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	
18		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	
19		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	
20		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	
21		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	
22		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	
23		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	

SEPARATE COOLING WATER CONSOLE INSTRUMENT: PURCH. TO LIST REQ'MTS IN ADDITION TO ANY ABOVE REQ'MTS

24		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	
25		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	
26		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	
27		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	
28		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	
29		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	
30		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	

RELIEF VALVES

	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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OWNER: 	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT	CONTRACTOR: 						
MC: 	DATA SHEET FOR NITROGEN GAS BOOSTER COMPRESSOR (20-C-1002)						Contract No : 52-98/445	
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GENERAL NOTES

(1) COMPRESSOR STARTS BY MEANS OF A LOW-PRESSURE SWITCH ON DELIVERY PIPE AND STOPS WHEN HIGH PRESSURE IS REACHED . THE REQUIRED LOW/HIGH-PRESSURE SWITCHES TO MAINTAIN THE REQUIRED DELIVERY PRESSURE SHALL BE SUPPLIED BY VENDOR . THE OPERATION IS INTERMITTENT.

(2) DELETED, VENDOR SHALL PROVIDE AFTER-COOLER .AFTERCOOLER OUTLET GAS TEMPERATURE TO BE 40 DEG C.

(3) DELETED

(4) DELETED

(5) FOR UTILITIES SUPPLY CONDITION AND CLIMATE CONDITION REFER TO "AMBIENT ,SITE CONDITION & UTILITY DATA" , (1216-DE-00-PR-ESS-101)

(6) MINIMUM METAL TEMPRATURE = 0 DEG C

(7) DELETED

(8) DEW POINT AT INLET -170 DEG C, DEW POINT AT ATM. -194.6 DEG C

9) TYPE OF COMPRESSOR : VERTICAL

(10) VENDOR ALSO SHALL PROVIDE BELOW ITEMS:

SPARE PARTS
TEMPORARY STRAINER

(11)GENERAL NOTES :

A. PROVIDE CONTACTS OPEN FOR CUMULATIVE ALARM AND CUMULATIVE SHUTDOWN .

B. PROVIDE SAFETY VALVE ON COMPRESSOR DISCHARGE ,WITH LOCKED OPEN ISOLATING VALVE .

C. PROVIDE SEPARATE INSTRUMENT FOR ALARM AND SHUTDOWN.

D. THE VENDOR TOGETHER WITH THE INSTRUMENT DOCUMENTATION MUST SUPPLY. A COMPLETE LIST OF ALL THE ALARMS AND INTERLOCKS WITH ALL SET VALUES.

E. PROVIDE A VISUAL FLOWMETER ON COOLING WATER RETURN LINE.

F. NOISE PRESSURE LEVEL AT 1 M. SHALL BE LESS THAN 80 DB(A)

(12)VENDOR SHOULD FOLLOW DOC NO.: 1216-DE-00-IN-ESS-603 FOR SPECIFICATION OF APPLICABLE INSTRUMENT.

(13)PLC PACKAGE SYSTEM (UCP) WILL BE INSTALLED IN CONTROL/AUXILIARY ROOM.
LOCAL PANEL INCLUDING START/STOP PUSH BUTTONS ,LAMPS AND INDICATORS, TRIP RESET PUSH BUTTON ,AMMETER AND ETC (AS PER PROJECT REQUIREMENTS) WILL BE INSTALLED IN FIELD.
INSTRUMENT WILL BE INSTALLED ON MACHINE OR FREE STANDING.

(14) DELETED

(15) THE CAPACITY TO BE SUPPLIED CONSIDERING NO NEGATIVE TOLERANCE. THE REQUIRED CAPACITY (NNT) IS 707 KG/H.

THE COMPRESSOR IS IN CONTINUE SERVICE.

the temperature of cooling water is 35. the approach must be double checked.

please double check. the dew point must be in the vicinity of -70

All Notes shall be revised as per attached file.