





OWNER: 	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT							CONTRACTOR  Chagalesh-Engerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT	
MC: 	MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT AIR COMPRESSOR (20-C-7080)								
17811-11G	Project BU	Area 20	Phase VD	Unit 303	Dis. ME	Doc. DSH	Seq. 0075	Contract No : 52-98/445 rev 06	Page: 1 OF 20

MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT AIR COMPRESSOR (20-C-7080)

06	26-4-2023	as built	KP	KP	JR	
05	28-4-2022	Approved for Construction	KP	KP	JR	
04	6-4-2022	Approved for Construction	KP	KP	JR	
03	11-3-2022	Approved for Construction	KP	KP	JR	
02	9-12-2021	Approved for Construction	KP	KP	JR	
01	4-11-2021	for approval	KP	KP	JR	
00	12-8-2021	for approval	KP	KP	JR	

Rev.	Date	Description	Prepared By	Checked By	Approved	AC code.

OWNER: 	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT	CONTRACTOR: Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT
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17811-11G	Project	Area	Phase	Unit	Dis.	Doc.	Seq.	Contract No : 52-98/445
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1 APPLICABLE TO: PROPOSALS PURCHASE AS BUILT

2 FOR/USER BUPC SITE/LOCATION ASSALUYEH SERVICE EMERGENCY INSTRUMENT AIR COMP NO. REQ'D ONE SET 1(STAGE)

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

4 COMPR. MFRGR Airpack TYPE MODEL NO(S) SERIAL NO(S) TBD

6 COMPR.THROWS: TOTAL NO. 1 NO. WITH CYLS. 2 NOMINAL FRAME RATING 15 BkW @ RATED RPM OF 400

7 MAX/MIN ALLOWABLE SPEED 690 / 400 RPM

8 DRIVER MFRGR. WEG DRIVER NAMEPLATE KW/OPERATING RPM 15 kW / 3000

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 "MFRGR.'S RATED CAP." LINES NON-LUBE

13 MAX ACCEPTABLE AVG PISTON SPEED 3.5 m/s

OPERATING CONDITIONS (EACH MACHINE)

<input checked="" type="radio"/> OPERATING CASE	1						
<input checked="" type="radio"/> STAGE	1						
<input type="radio"/> SIMULATION BASIS							
<input checked="" type="radio"/> NORM. OR ALT. CONDITION	Norm						
<input checked="" type="radio"/> CERTIFIED PT. (X) MARK ONE							
<input checked="" type="radio"/> MOLECULAR WEIGHT	29						
<input checked="" type="radio"/> Cp/Cv (K) @ 65°C OR	1.4						

21 **INLET CONDITIONS:** AT INLET TO: PULSE DEVICES COMPRESSOR CYLINDER FLANGES

22 NOTE: SIDE STREAM TO STAGE(S), THESE INLET PRESS. ARE FIXED

<input checked="" type="radio"/> PRESSURE @ PUL. SUPP. INLET (bara)	8 (Min.:7, Max:8.5)						
<input checked="" type="checkbox"/> PRESSURE (Bara) @ CYL. FLANGE	8 (Min.:7, Max:8.5)						
<input checked="" type="radio"/> TEMPERATURE (°C)	AMB.(Min.:10 , Max.:45)						
<input type="radio"/> INLET Cp/Cv	1.4						
<input checked="" type="checkbox"/> COMPRESSIBILITY (Z _s)	1						

28 **INTERSTAGE:** INTERSTAGE Δ P INCL: PULSE DEVICES PIPING COOLERS SEPARATORS OTHER

<input checked="" type="checkbox"/> Δ P BETWEEN STAGES, % / BAR							
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30 **DISCHARGE CONDITIONS:** AT OUTLET FROM: PULSE DEVICE COMP. CYL. FLANGES OTHER

<input checked="" type="checkbox"/> PRESSURE @ CYL. FLANGE (bara)	8 (Min.:7, Max:8.5)						
<input checked="" type="radio"/> PRESS. (bara) @ PUL. SUPP. OUTLET	21						
<input type="checkbox"/> TEMP., ADIABATIC, °C	180						
<input type="checkbox"/> TEMP., PREDICTED, °C	164						
<input type="checkbox"/> COMPRESSIBILITY (Z ₂) OR (Z _{AVG})	0,04						

36 *** REQUIRED CAPACITY, RATED FOR PROCESS, AT INLET TO COMPRESSOR, NO NEGATIVE TOLERANCE (-0%)**

<input checked="" type="radio"/> kg/h CAPACITY SPECIFIED	55						
<input type="radio"/> WET <input checked="" type="radio"/> DRY							
<input type="radio"/> m³ /h (760 mm HG & 0°C)	43						





40 *** MFRGR.'S RATED CAPACITY (AT INLET TO COMPRESSOR) & KW @ CERTIFIED TOLERANCE OF ±3% FOR CAP. & ±3% FOR KW**

<input checked="" type="checkbox"/> kg/h CAPACITY SPECIFIED	374						
<input type="radio"/> WET <input checked="" type="radio"/> DRY							
<input checked="" type="checkbox"/> INLET m³/h	173						
<input checked="" type="checkbox"/> Nm³/h	173						
<input type="checkbox"/> kW/STAGE	11						
<input checked="" type="checkbox"/> ABSORBED POWER ESTIMATED, kW	12						
<input type="checkbox"/> TOTAL kW INCLUDING V-BELT & GEAR LOSSES	13						

48 *** CAPACITY FOR NNT**

50 MANUFACTURER'S = REQUIRED ÷ 0.97

51 THEREFORE REQUIRED = MFR'S x 0.97

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1	GAS ANALYSIS AT OPERATING CONDITIONS							REMARKS	
2	MOLE PERCENT								
3	<input checked="" type="radio"/> SERVICE/ITEM NO.								
4	<input checked="" type="radio"/> STAGE								
5	<input type="radio"/> NORMAL OR ALT								
6		M.W.	NORMAL						
7	AIR	28.966	100						
8	NITROGEN	28.016							
9	WATER H ₂ O	18.016							
10	CARBON MONOXIDE CO	28.010							
11	CARBON DIOXIDE CO ₂	44.010							
12	HYDROGEN H ₂	2.016							
13	METHANE CH ₄	16.042							
14	ETHANE	30.068							
15	PROPANE	44.094							
16	i-BUTANE	58,12							
17	n-BUTANE	58,12							
18	i-PENTANE	72,146							
19	OXYGEN O ₂	32.00							
20	HYDRO.SULFIDE	34.076							
21	ETHYLENE	28,052							
22	PROPYLENE	42,078							
23	n-PENTANE	72,146						APPLICABLE SPECIFICATIONS	
24	HEXANE PLUS							<input checked="" type="radio"/> API-618-RECIPROCATING COMPRESSORS FOR PETROLEUM, CHEMICAL AND GAS INDUSTRY SERVICES	
25	AMMONIA	17,031							
26	HYDRO. CHLORIDE	36,461							
27	CHLORINE	70,914						<input checked="" type="radio"/> Doc. No. 1216-DE-00-RE-MSS-302	
28									
29									
30									
31	TOTAL:								
32	<input type="checkbox"/> CALCULATED MOL WT.		28,97						
33	<input type="checkbox"/> Cp/Cv (K) @ 65° OR	Suction temperature °C	45						
34	NOTE: IF WATER VAPOR AND/OR CHLORIDES ARE PRESENT, EVEN MINUTE								
35	TRACES, IN THE GAS BEING COMPRESSED, IT MUST BE INCLUDED ABOVE.								
36	SITE CONDITION (SEE PROJECT SITE CONDITION FOR MORE DETAIL)								
37	ELEVATION 8,5 m	BAROMETER 1,013 (BARA)	AMBIENT TEMPS: MAX 55 °C MIN 5 °C						
38	<input type="radio"/> MIN DESIGN METAL TEMP		5 °C (2.14.8)	RELATIVE HUMIDITY: MAX 76% MIN 74% %					
39	COMPRESSOR LOCATION:	<input type="radio"/> INDOOR HEATED <input checked="" type="radio"/> OUTDOOR NO ROOF <input type="radio"/> OFF-SHORE WEATHER PROTECTION REQ. <input type="radio"/> WINTERIZATION REQUIRED	<input checked="" type="radio"/> UNHEATED <input checked="" type="radio"/> UNDER ROOF <input type="radio"/> PARTIAL SIDES <input type="radio"/> TROPICALIZATION REQ.	<input type="radio"/> AT GRADE LEVEL <input type="radio"/> ELEVATED: _____ M <input type="radio"/> PLATFORM: _____ <input checked="" type="radio"/> ON-SHORE					
40	UNUSUAL CONDITIONS:	<input type="radio"/> CORROSIVES <input checked="" type="radio"/> DUST <input type="radio"/> FUMES <input checked="" type="radio"/> OTHER	Sand storm , Thunder & Lightening, Sea Breeze						
41									
42	ELECTRICAL CLASSIFICATIONS								
43	HAZARDOUS								
44	NON-HAZARDOUS								
45	MAIN UNIT	<input checked="" type="radio"/> ZONE	2	GROUP	IIB	TEMP CLASS	T3	<input type="radio"/>	
46	L.O. CONSOLE	<input checked="" type="radio"/> ZONE	2	GROUP	IIB	TEMP CLASS	T3	<input type="radio"/>	
47	CW CONSOLE	<input type="radio"/> ZONE		GROUP		TEMP CLASS		<input type="radio"/>	
48									
49									
50									
51									
52									

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1	PART LOAD OPERATING CONDITIONS								
2	CAPACITY CONTROL BY:	<input checked="" type="radio"/> MFG'S CAP. CONTROL	<input type="radio"/> PURCHASERS BY-PASS	<input type="radio"/> BOTH	<input type="radio"/> OTHER				
3	FOR:	<input type="radio"/> PART LOAD COND.	<input type="radio"/> START-UP ONLY	<input type="radio"/> BOTH					
4	WITH:	<input checked="" type="radio"/> AUTO LOADING DELAY INTERLOCK	<input checked="" type="radio"/> AUTO IMMEDIATE UNLOADING						
5	USING:	<input type="radio"/> FIXED VOLUME POCK.	<input checked="" type="radio"/> SUCTION VALVE UNLOADERS:	<input type="radio"/> FINGER	<input checked="" type="radio"/> PLUG	<input type="radio"/> OTHER			
6			ACTION:	<input type="radio"/> DIRECT (AIR-TO-UNLOAD)	<input checked="" type="radio"/> REVERSE (AIR-TO-LOAD/FAIL SAFE)				
7			NUMBER OF STEPS:	<input checked="" type="radio"/> ONE	<input type="radio"/> THREE	<input type="radio"/> FIVE	<input type="radio"/> OTHER		
8			<input type="radio"/> RAIN COVER REQUIRED OVER UNLOADERS						

ALL UNLOADING STEPS BASIS MANUFACTURERS CAPACITY SHOWN ON PAGE 1.

INLET AND DISCHARGE PRESSURE ARE <input type="radio"/> AT CYLINDER FLANGES <input checked="" type="radio"/> PULSATION SUPPRESSOR FLANGES																																																																																																																																					
<input type="checkbox"/> SERVICE OR ITEM NO. <input type="checkbox"/> STAGE <input type="checkbox"/> NORMAL OR ALTERNATE CONDITION <input type="checkbox"/> PERCENT CAPACITY <input type="checkbox"/> WEIGHT FLOW, kg/h <input type="checkbox"/> m³ /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 type="checkbox"/> INLET TEMPERATURE, °C <input type="checkbox"/> INLET PRESSURE, (BARA) <input type="checkbox"/> DISCHARGE PRESSURE, (BARA) <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="text-align: center;">1</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">Normal</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">100</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">223</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">173</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><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></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">Plug</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">45</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">8 (Min.:7, Max:8.5)</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">21,5</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">180</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">164</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 style="text-align: center;">/</td></tr> <tr><td style="text-align: center;">75</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 style="text-align: center;">/</td></tr> <tr><td style="text-align: center;">11,06</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">0,36</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">10,83</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">0,2</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">195</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">12</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">12</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">13</td><td></td><td></td><td></td><td></td><td></td></tr> </table>	1						Normal						100						223						173						Valves						NA						Plug						45						8 (Min.:7, Max:8.5)						21,5						180						164	/	/	/	/	/	75	/	/	/	/	/	11,06						0,36						10,83						0,2						195						12						12						13					
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* SHOW OPERATION WITH THE FOLLOWING SYMBOLS:

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

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

MINIMUM PRESSURE REQUIRED TO OPERATE CYLINDER UNLOADING DEVICES, 6 (BARG)

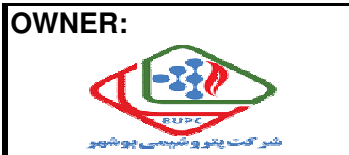
CYLINDER UNLOADING MEDIUM: AIR NITROGEN OTHER

PRESSURE AVAILABLE FOR CYLINDER UNLOADING DEVICES, MAX/MIN 8,0 / 6,0 (BARG)

52 **SPECIAL REMARK:**

53

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**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**



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INSTRUMENT AIR COMPRESSOR (20-C-7080)**

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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 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
 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
 COMPRESSOR VALVE DYNAMIC RESPONSE
 PULSATION SUPPRESSEN DEVICE LOW CYCLE FATIGUE ANALYSIS
 PIPING SYSTEM FLEXIBILITY
 STUDY TO BE WITNESSED
 VENDOR REVIEW OF PURCHASER'S PIPING ARRANGEMENT

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 (PP) () 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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- 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 Approved test procedure
 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 9.3.3: 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

OWNER:  بوشهر پتروشیمی آبروشهر	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT	CONTRACTOR:  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT 						
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1	<input checked="" type="checkbox"/> CYLINDER DATA AT FULL LOAD CONDITION							
2	SERVICE/ITEM NO.	Air						
3	STAGE	1						
4	INLET PRESSURE, (BARA)	8,0	}	@ CYLINDER FLANGES				
5	DISCHARGE PRESSURE, (BARA)	21,0						
6	CYLINDERS PER STAGE	2						
7	SINGLE OR DOUBLE ACTING (SA OR DA)	SA						
8	BORE, mm	90						
9	STROKE, mm	140						
10	RPM:	400/690						
11	PISTON SPEED, m/s:	<3,5						
12	CYLINDER LINER, YES/NO	yes						
13	LINER NOMINAL THICKNESS, mm	12,5						
14	PISTON DISPLACEMENT, m ³ /h	36,9						
15	CYLINDER DESIGN CLEARANCE, % AVERAGE							
16	VOLUMETRIC EFFICIENCY, % AVERAGE	73						
17	VALVES, INLET/DISCHARGE, QTY PER CYL.	1/1		/	/	/	/	
18	TYPE OF VALVES	plate						
19	VALVE LIFT, INLET/DISCHARGE, mm	0,8 / 0,8		/	/	/	/	
20	VALVE VELOCITY, API 4TH EDITION, m/s	19,9						
21	SUCTION VALVE(S)	16,65						
22	DISCHARGE VALVE(S)	16,65						
23	ROD DIAMETER, (mm)	30						
24	MAX ALLOW. COMBINED ROD LOADING, kN, C *	17,5						
25	MAX ALLOW. COMBINED ROD LOADING, kN, T *	17,5						
26	CALCULATED GAS ROD LOAD, kN, C *	11,06						
27	CALCULATED GAS ROD LOAD, kN, T *	0,36						
28	COMBINED ROD LOAD (GAS + INERTIA), kN, C *	10,83						
29	COMBINED ROD LOAD (GAS + INERTIA), kN, T *	0,20						
30	ROD REV., DEGREES MIN @ X-HD PIN**	195,00						
31	RECIP WT. (PISTON, ROD, X-HD & NUTS), kg**	10,74						
32	MAX ALLOW. WORKING PRESSURE, (BARG)	24						
33	MAX ALLOW. WORKING TEMPERATURE, °C	230						
34	HYDROSTATIC TEST PRESSURE, (BARG)	36						
35	HELIUM TEST PRESSURE, (BARG)	3						
36	INLET FLANGE SIZE/RATING at CYLINDER	150#		/	/	/	/	
37	FACING at CYLINDER	RF						
38	DISCHARGE FLANGE SIZE/RATING at CYLINDER	300#		/	/	/	/	
39	FACING at CYLINDER	RF						
40	DISCHARGE RELIEF VALVE SETTING DATA AT INLET PRESSURES GIVEN ABOVE:							
41	RECOMMENDED SETTING, (BARG)	~25						
42	GAS ROD LOAD, kN, C *	17,5						
43	GAS ROD LOAD, kN, T *	17,5						
44	COMBINED ROD LOAD, kN, C *	13,13						
45	COMBINED ROD LOAD, kN, T *	12,6						
46	ROD REVERSAL, °MIN @ X-HD PIN**	195						
47	NOTE: CALCULATED AT INLET PRESSURES							
48	GIVEN ABOVE & RECOMMENDED SETTING.							
49	<input type="checkbox"/> SETTLE-OUT GAS PRESSURE	8,5 - 9,5						
50	(DATA REQUIRED FOR STARTING)							
51	* C = COMPRESSION				**X-HD = CROSSHEAD			
52	NOTES/REMARKS:							
53								



**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**



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<input type="checkbox"/> CONSTRUCTION FEATURES						
1						
2	SERVICE ITEM NO.					
3	STAGE					
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				
9	CYLINDER LINER(S)	EN-GJL-250 (SLG)				
10	PISTON(S)	AlCu4PbMgMn T3				
11	PISTON RINGS	PTFE compound				
12	WEAR BANDS	<input type="radio"/> REQUIRED				
13	PISTON ROD(S): MATERIAL/YIELD, N/mm ²	1.2316 (X36CrMo17QT) >447				
14	THREAD ROOT STRESS @ MACRL * @ X-HD END					
15	PISTON ROD HARDNESS, BASE MATERIAL, Rc	49 HRC				
16	PISTON ROD COATING	<input type="radio"/> REQUIRED				
17	COATING HARDNESS, Rc	plasma nitrided to = 1000 HV1				
18	VALVE SEATS / SEAT PLATE	SS/SS				
19	VALVE SEAT MIN HARDNESS, Rc					
20	VALVE GUARDS (STOPS)	SS316				
21	VALVE DISCS	SS316				
22	VALVE SPRINGS	SS316				
23	ROD PRESSURE PACKING RINGS	NBR, 70-ShA				
24	ROD PRESSURE PACKING CASE	Niro (1.4305)				
25	ROD PRESSURE PACKING SPRINGS	-				
26	SEAL / BUFFER PACKING, DISTANCE PIECE	SK703 E (polymer)				
27	SEAL / BUFFER PACKING, INTERMEDIATE	SK703 E (polymer)				
28	WIPER PACKING RINGS	SK703 E (polymer)				
29	MAIN JOURNAL BEARINGS, CRANKSHAFT	-				
30	CONNECTING ROD BEARING, CRANKPIN	-				
31	CONNECTING ROD BUSHING, X-HD END	G-Cu Sn 12				
32	CROSSHEAD (X-HD) PIN BUSHING	-				
33	CROSSHEAD PIN	17Cr3 (1.7016)				
34	CROSSHEAD	EN-GJS-400-15				
35	CROSSHEAD SHOES	EN-GJS-400-15				
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

44 ● VENTED TO: FLARE @ _____ ● ATM

45 SUCTION PRESSURE @ _____ (BARG)

46 FORCED LUBRICATED ● NON-LUBE TFE

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

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

49 WATER FILTER PROV.FUTURE WATER/OIL COOLING

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

51 CONSTANT OR VARIABLE DISPOSAL SYSTEM

52 BUFFER GAS PRESSURE, _____ (BARG)

53 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: ● VENTED TO amb _____ (BARG)

(Outboard Distance Piece) ○ PURGED AT _____ (BARG)

○ PRESSURIZED TO _____ (BARG)

○ WITH RELIEF VALVE

FRAME COMPARTMENT: ○ VENTED TO _____ (BARG)

(Inboard Distance Piece) ○ PURGED AT _____ (BARG)

○ PRESSURIZED TO _____ (BARG)

○ WITH RELIEF VALVE

DISTANCE PIECE MAWP 0 _____ (BARG)



**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**



**MECHANICAL DATA SHEET FOR EMERGENCY
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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: 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 DRIVE SHEAVE
 (Compressor Shaft) (Driver Shaft)
 RPM (EXPECTED) 400 _____ 1475 _____
 PITCH DIA. (Inches) _____
 QTY & GROOVE X-SEC. 4 _____
 POWER TRANSMITT'D 13 _____ 15 _____
 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	<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 ₂ O CONSOLE RUN/TEST	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
RADIOGRAPHY BUTT WELDS	<input 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)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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 checked="" 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
 TOTAL COMPR. WT, LESS DRIVER & GEAR _____ kg
 WT, OF COMPLETE UNIT, (LESS CONSOLES) 3200 kg
 MAXIMUM ERECTION WEIGHT _____ kg
 MAXIMUM MAINTENANCE WEIGHT 211 kg
 DRIVER WEIGHT/GEAR WEIGHT / 211 kg
 LUBE OIL/COOLING H₂O CONS. / _____ kg
 FREE STANDING PANEL _____
 SPACE REQUIREMENTS-mm: LENGTH WIDTH HEIGHT
 COMPLETE UNIT _____
 LUBE OIL CONSOLE _____
 COOLING H₂O CONSOLE _____
 FREE STANDING PANEL _____
 PISTON ROD REMOVAL DIST. _____
 OTHER EQUIPMENT SHIPPED LOOSE (DEFINE)
 PULSATION SUPP., WEIGHT 70 kg
 PIPING 50 kg
 INTERSTAGE EQUIPMENT _____ kg

OWNER:

**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**

CONTRACTOR:

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

MC:

**MECHANICAL DATA SHEET FOR EMERGENCY
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UTILITY CONSUMPTION

ELECTRIC MOTORS

	NAMEPLATE HP (kW)	LOCKED ROTOR AMPS	FULL LOAD AMPS
◆ MAIN DRIVER	15	239	28,5
◇ MAIN LUBE OIL PUMP			
◇ 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)			
◇ MAIN DRIVER SPACE 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)	1,7	35	45	4,5	3,5	6
◇ AFTERCOOLER						
◇ FRAME LUBE OIL COOLER						
◇ ROD PRESSURE PACKING*						
◆ CYLINDER COOLANT CONSOLE	0,90	35	45	4,5	3,5	6
◆ TOTAL QUANTITY, m³/h	2,6					

OWNER: 	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT	CONTRACTOR: 							
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1	<input type="checkbox"/> FRAME LUBE OIL SYSTEM								
2	<input checked="" type="checkbox"/> BASIC LUBE OIL SYSTEM FOR FRAME:		<input type="checkbox"/> SPLASH (TBA)	<input type="checkbox"/> PRESSURE (FORCED)		<input checked="" type="checkbox"/> HEATERS REQUIRED:			
3	<input type="checkbox"/> REF: TYPE MAIN BEARINGS:		<input type="checkbox"/> TAPERD ROLLER	<input type="checkbox"/> PRECISION SLEEVE		<input checked="" type="checkbox"/> ELEC. W/THERMOSTAT(S) <input type="checkbox"/> STEAM			
4	<input checked="" type="checkbox"/> PRESSURE SYSTEM:		<input checked="" type="checkbox"/> MAIN OIL PUMP DRIVEN BY:		<input checked="" type="checkbox"/> COMP. CRANKSHAFT		<input type="checkbox"/> ELEC. MOTOR <input type="checkbox"/> OTHER _____		
5			<input type="checkbox"/> AUX OIL PUMP DRIVEN BY:		<input type="checkbox"/> PSV FOR MAIN PUMP EXTERNAL TO CRANKCASE		<input type="checkbox"/> OTHER _____		
6			<input type="checkbox"/> HAND OPERATED PRE-LUBE PUMP FOR STARTING		<input checked="" type="checkbox"/> OPERATIONAL TEST & 4 HOUR MECH RUN TEST				
7			<input type="checkbox"/> API-614 LUBE SYSTEM: <input type="checkbox"/> NO <input type="checkbox"/> YES		<input type="checkbox"/> CHECK VALVE ON MAIN PUMP				
8			<input type="checkbox"/> CONTINUOUS FLOW THROUGH OIL (7.7.2.5)						
9	<input type="checkbox"/> SEP. CONSOLE FOR PRESS. LUBE SYS:		<input type="checkbox"/> ONE CONSOLE FOR EA. COMP.		<input type="checkbox"/> ONE CONSOLE FOR _____ COMPRESSORS				
10			<input type="checkbox"/> CONSOLE TO BE OF DECK PLATE TYPE CONSTRUCTION SUITABLE FOR MULTI-POINT SUPPORT AND GROUTING WITH GROUT & VENT HOLES.						
11	<input type="checkbox"/> ELECTRICAL CLASSIFICATION : ZONE		2	GROUP	IIB	CLASS	T3	<input type="checkbox"/> NON-HAZARDOUS	
14	<input checked="" type="checkbox"/> BASIC SYS. REQ'MTS (NORM. OIL FLOWS & VOLUMES)								
15	<input checked="" type="checkbox"/> LUBE OIL	FLOW	PRESSURE	VISCOSITY	SUMP VOLUME				
16		m³/h	(BARG)	cst @ 40°C	cst @ 100°C	m³			
17	<input type="checkbox"/> COMPRESSOR FRAME	_____	_____	_____	_____	_____			
18	<input type="checkbox"/> DRIVER	_____	_____	_____	_____	_____			
19	<input type="checkbox"/> GEAR	_____	_____	_____	_____	_____			
20	<input type="checkbox"/> SYSTEM PRESSURES:	<input type="checkbox"/> DESIGN _____ (BARG)	<input type="checkbox"/> HYDROTEST _____ (BARG)						
21		<input type="checkbox"/> PRESSURE CONTROL VALVE SETTING _____ VTS (BARG)	<input type="checkbox"/> PUMP RELIEF VALVE(S) SET _____ (BARG)						
22	<input checked="" type="checkbox"/> PIPING MATERIALS:		CARBON STEEL	STAINLESS STEEL WITH SS FLANGES	STAINLESS STEEL WITH CARBON STEEL FLANGES				
23			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
24	<input checked="" type="checkbox"/> UPSTREAM OF PUMPS & FILTERS		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
25	<input checked="" type="checkbox"/> DOWNSTREAM OF FILTERS		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
26	<input type="checkbox"/> _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
27	<input type="checkbox"/> _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
28	<input type="checkbox"/> PUMPS	RATED FLOW	PRESSURE (BARG)	COLD START REQ'D kW	DRIVER kW	SPEED RPM	COUPLING REQ'D	MECH. SEAL REQ'D	
29		_____	_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	
30	MAIN	NA	2,0	NA	SHAFT DRIVEN	NA	<input type="checkbox"/>	<input type="checkbox"/>	
31	AUXILIARY	_____	_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	
32	<input checked="" type="checkbox"/> PUMP CASING MATERIAL	MAIN PUMP		STEEL	AUX PUMP				
33	<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				
34	<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.		
35					<input type="checkbox"/> WIRING TO TERMINAL BOX:		<input type="checkbox"/> BY PURCH. <input type="checkbox"/> BY MFR.		
36					<input type="checkbox"/> SWITCHES		<input type="checkbox"/> RTD'S/THERMOCOUPLES		
37	<input type="checkbox"/> 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	
38		<input type="checkbox"/> REMOVABLE BUNDLE		<input type="checkbox"/> WATER COOLED	<input type="checkbox"/> AIR COOLED W/AUTO TEMP CONTROL				
39		<input type="checkbox"/> W/BYPASS & TEMP CONTROL VALVE:		<input type="checkbox"/> MANUAL	<input type="checkbox"/> AUTO	<input type="checkbox"/> SEE SEPARATE HEAT EXCHANGER DATA SHEET			
40									
41	<input type="checkbox"/> FILTER(S)	<input type="checkbox"/> SINGLE		<input type="checkbox"/> DUAL W/TRANSFER VALVE	<input type="checkbox"/> ASME CODE DESIGN		<input type="checkbox"/> ASME CODE STAMPED		
42		<input type="checkbox"/> DESIGN PRESSURE, _____ (BARG)		<input type="checkbox"/> Δ P CLEAN, _____ (BARG)	<input type="checkbox"/> Δ P COLLAPSE, _____ (BARG)				
43		<input type="checkbox"/> MICRON RATING, _____		<input type="checkbox"/> CARTRIDGE MATERIAL, _____	<input type="checkbox"/> CARTRIDGE P/N _____				
44		<input type="checkbox"/> BONNET MATERIAL, _____		<input type="checkbox"/> CASING MATERIAL, _____	<input checked="" type="checkbox"/> FURN.SPARE CARTR.,QTY _____				
45	<input type="checkbox"/> SYS. COMPONENT SUPP.	MANUFACTURER	MODEL	MANUFACTURER		MODEL			
46	<input checked="" type="checkbox"/> MAIN PUMP	Airpack	-	<input type="checkbox"/> OIL COOLER(S)					
47	<input type="checkbox"/> AUXILIARY PUMP	_____	_____	<input type="checkbox"/> TRANSFER VALVE(S)					
48	<input checked="" type="checkbox"/> MECHANICAL SEALS	Airpack	_____	<input type="checkbox"/> PUMP COUPLING(S)					
49	<input checked="" type="checkbox"/> ELECTRIC MOTORS	WEG	_____	<input checked="" type="checkbox"/> SUCTION STRAINER(S)		TBC	_____		
50	<input type="checkbox"/> STEAM TURBINES	_____	_____	<input checked="" type="checkbox"/> CHECK VALVE(S)		TBC	_____		
51	<input checked="" type="checkbox"/> OIL FILTER(S)	Airpack	_____	<input type="checkbox"/> _____					

OWNER:



**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**

CONTRACTOR:



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



MC:



**MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT
AIR COMPRESSOR (20-C-7080)**

Contract No : 52-98/445

17811-11G

Project	Area	Phase	Unit	Dis.	Doc.	Seq.
BU	20	VD	303	ME	DSH	75

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1 PULSATION SUPPRESSION DEVICES FOR RECIPROCATING COMPRESSORS (CONT'D) SERVICE _____

2 THESE SHEETS TO BE FILLED OUT FOR EACH SERVICE AND/OR STAGE OF COMPRESSION STAGE NO. _____

- 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/m²)
 - 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
 - 20 □ 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
8,18 mm/	8,18 mm	8,18 mm	8,18 mm
8" X 850 mm/	30 mm ²	8" x 850 mm.	30 mm ²
PIPE □	ROLLED PLATE	PIPE □	ROLLED PLATE
(BAR) 18,3	@ 85 °C	(BAR) 38,6	@ 210 °C
°C		°C	
○ YES	● NO		
Δ P 0,0926 (BAR) /	1,3 %	Δ P 0,154 (BAR) /	4,5 %
59	kg	63	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)
- 25 >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
- 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
- 42
- 43
- 44
- 45

2" 150# RF WNF	2" 300# RF WNF
2" 150# 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
- 52



**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**



**MECHANICAL DATA SHEET FOR EMERGENCY
INSTRUMENT AIR COMPRESSOR (20-C-7080)**



17811-11G

Project	Area	Phase	Unit	Dis.	Doc.	Seq.
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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'T'ED FREE STANDING (OFF UNIT) / LOCAL REMOTE INDOORS
- PNEUMATIC ELEC. ELECTRONIC HYDRAULIC PROGRAMMABLE CONTR'L'R
- NEMA 7, CLASS _____, GROUP IIB _____, 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 65 FOR LOCAL PANEL , IP 42 FOR CONTROL INDOOR PANEL.

BUFFER GAS CONTROL PANE ONE FOR EA. UNIT ONE COMMON TO ALL UNITS

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"/> <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"/> <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"/> <input type="checkbox"/> <input type="checkbox"/>)	_____	_____	@ EA. STAGE	(<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"/>)
LUBE OIL AUX. PUMP DISCHARG.	(<input type="checkbox"/> <input type="checkbox"/> <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"/> <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 PRESS. AT FRAME HEADER ((<input type="checkbox"/> <input type="checkbox"/> <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"/> <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 FILTER Δ P	(<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"/>)
COOLING H ₂ 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"/>)	_____	_____	_____	(<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"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)

REMARKS: _____



**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**



**MECHANICAL DATA SHEET FOR EMERGENCY
INSTRUMENT AIR COMPRESSOR (20-C-7080)**

Project	Area	Phase	Unit	Dis.	Doc.	Seq.	Contract No : 52-98/445
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INSTRUMENTATION (CONT'D)										
TEMPERATURE MEASUREMENT REQUIREMENTS				LOCALLY MOUNTED	PANEL MOUNTED	GAUGE W/ CAPIL'RY	THERMO CPL SYS	RTD SYS	I/S	IS
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"/>	<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"/>	<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"/>	<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"/>	<input type="checkbox"/>
8	COOLING WATER HEADER: <input checked="" type="radio"/> INLET <input checked="" type="radio"/> 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"/>	<input type="checkbox"/>
9	CYL. COOLING WATER: <input type="radio"/> INLET <input checked="" type="radio"/> OUTLET <input checked="" type="radio"/> 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"/>	<input type="checkbox"/>
10	PROCESS GAS: <input checked="" type="radio"/> INLET <input checked="" 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 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"/>	<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"/>	<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"/>	<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"/>	<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"/>	<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"/>	<input type="checkbox"/>
17	PRESS. PKG 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"/>	<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"/>	<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"/>	<input type="checkbox"/>

ALARM & SHUTDOWN SWITCH REQ'MTS NOTE: ALARM & SHUTDOWN SWITCHES SHALL BE INDIVIDUALLY SEPARATE

FUNCTION	ALARM	SHUT DOWN	ANNUNCIATION POINTS				TOTAL NO. OF POINTS	
			ALARM		SHUTDOWN			
			IN PNL BY MFR	IN CTL ROOM PANEL OTH'RS	IN PNL BY MFR	IN CTL ROOM PANEL OTH'RS		
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"/>	1
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 checked="" type="checkbox"/>	<input checked="" 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. <input type="radio"/> FINAL <input checked="" type="radio"/> 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	LOW PRESSURE COOLING WATER INLET	(<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"/>	

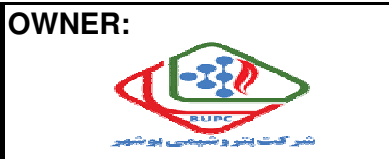
TOTAL NUMBER OF ANNUNCIATION POINTS

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: 7.6.6.2 FOR MINIMUM RECOMMENDED PROTECTION REQUIREMENTS



**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**



**MECHANICAL DATA SHEET FOR EMERGENCY
INSTRUMENT AIR COMPRESSOR (20-C-7080)**

Contract No : 52-98/445

17811-11G

Project	Area	Phase	Unit	Dis.	Doc.	Seq.
BU	20	VD	303	ME	DSH	75

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INSTRUMENTATION (CONT'D)

MISCELLANEOUS INSTRUMENTATION INTERCLR(S) AFTERCLR OIL CLR H₂O CLR

3	SIGHT FLOW IND. (COOLING H ₂ 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 & ACK'N/LMT TEST BUTTON	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	FOR:	_____	
8	CONDUIT & WIRING W/JUNCT. BOXES (CON-	(<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:	Coolers	
11	GAUGE GLASS(ES)	(<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	FOR:	Recirculating 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	LEVEL GAUGE ON SUCTION SUPPRESSOR	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	FOR:	_____	
16	OIL LEVEL SWITCH ON CRAKCASE	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	FOR:	_____	

SEPARATE LUBE OIL CONSOLE INSTRUMENTATION: 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:	_____

SEPARATE COOLING WATER CONSOLE INSTRUMENT: 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:	_____



RELIEF VALVES

	LOCATION	BY	MANUFACTURER	TYPE	SIZE	SETTING
33	EACH STAGE DISCHARGE	(<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	TBC	_____	1" / 1 1/2"	26 barg
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"/>)	_____	_____	_____	_____

NOTES:
#1 SEE MOTOR DATA SHEET FOR ADDITIONAL MOTOR INSTRUMENTATION REQUIREMENTS

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OWNER: 	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT	CONTRACTOR:  
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MC:  	MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT AIR COMPRESSOR (20-C-7080)							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 TRANSMITTER (PT-71107) TO MAINTAIN THE REQUIRED DELIVERY PRESSURE. THE OPERATION IS INTERMITTENT.
- (2) VENDOR SHALL PROVIDE AFTER-COOLER .AFTERCOOLER OUTLET GAS TEMPERATURE TO BE 40 DEG C, AS CONFIRMED BY COOLER CALCULATION.
- (3) DELETED
- (4) DELETED
- (5) FOR UTILITIES SUPPLY CONDITION AND CLIMATE CONDITION REFER TO "AMBIENT ,SITE CONDITION & UTILITY DATA" , (BU-20-B-000-PR-SPC-111)
- (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.: BU-20-D-000-IN-SPC-676 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 1.1*50=55 KG/H.
- (16) COMPRESSOR TYPE IS RECIPROCATING