










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	
Owner Document Number :	BU	20	VD	303	ME	DSH	0075	rev 03	Page: 1 OF 20

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

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






03	11/03/2022	Approved for Construction	KP	KP	JR	
02	09/12/2021	Approved for Construction	KP	KP	JR	
01	04/11/2021	for approval	KP	KP	JR	
00	12/08/2021	for approval	KP	KP	JR	
Rev.	Date	Description	Prepared By	Checked By	Approved	AC code.

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LIST OF REVISED PAGES

REV PAGES	00	01	02	03	REV PAGES	REV PAGES
1	X	X	X	X	46	91
2	X	X	X	X	47	92
3	X	X	X	X	48	93
4	X	X	X	X	49	94
5	X	X	X	X	50	95
6	X	X	X	X	51	96
7	X	X	X	X	52	97
8	X	X	X	X	53	98
9	X	X	X	X	54	99
10	X	X	X	X	55	100
11	X	X	X	X	56	101
12	X	X	X	X	57	102
13	X	X	X	X	58	103
14	X	X	X	X	59	104
15	X	X	X	X	60	105
16	X	X	X	X	61	106
17	X	X	X	X	62	107
18	X	X	X	X	63	108
19	X	X	X	X	64	109
20	X	X	X	X	65	110
21					66	111
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Revision index shall be filled in for pages those which have modification.

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Owner Document Number :	BU	20	VD	303	ME	DSH	75	rev 03	Page: 4 OF 20
1	GAS ANALYSIS AT OPERATING CONDITIONS							REMARKS	
2	MOLE PERCENT								
3	<input checked="" type="radio"/> SERVICE/ITEM NO. <input checked="" type="radio"/> STAGE <input type="radio"/> NORMAL OR ALT								
4									
5									
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		RELATIVE HUMIDITY: MAX 76% MIN 74% %				
38	<input type="radio"/> MIN DESIGN METAL TEMP 5 °C (2.14.8)		<input checked="" type="radio"/> UNHEATED		<input checked="" type="radio"/> AT GRADE LEVEL		<input type="radio"/> ELEVATED: _____ M		
39	<input type="radio"/> INDOOR HEATED		<input checked="" type="radio"/> OUTDOOR NO ROOF		<input type="radio"/> UNDER ROOF		<input type="radio"/> PARTIAL SIDES		
40	<input type="radio"/> OFF-SHORE		<input checked="" type="radio"/> WEATHER PROTECTION REQ.		<input type="radio"/> PLATFORM:		<input checked="" type="radio"/> ON-SHORE		
41	<input type="radio"/> WINTERIZATION REQUIRED		<input type="radio"/> CORROSIVES		<input checked="" type="radio"/> DUST		<input checked="" type="radio"/> FUMES		
42	<input type="radio"/> UNUSUAL CONDITIONS:		<input checked="" type="radio"/> CORROSIVES		<input checked="" type="radio"/> DUST		<input checked="" type="radio"/> FUMES		
43	<input type="radio"/> UNUSUAL CONDITIONS:		<input checked="" type="radio"/> CORROSIVES		<input checked="" type="radio"/> DUST		<input checked="" type="radio"/> FUMES		
44	<input type="radio"/> UNUSUAL CONDITIONS:		<input checked="" type="radio"/> CORROSIVES		<input checked="" type="radio"/> DUST		<input checked="" type="radio"/> FUMES		
45	ELECTRICAL CLASSIFICATIONS								
46	HAZARDOUS								
47	MAIN UNIT	<input checked="" type="radio"/> ZONE	2	GROUP	IIB	TEMP CLASS	T3	<input type="radio"/> NON-HAZARDOUS	
48	L.O. CONSOLE	<input checked="" type="radio"/> ZONE	2	GROUP	IIB	TEMP CLASS	T3	<input type="radio"/> NON-HAZARDOUS	
49	CW CONSOLE	<input type="radio"/> ZONE		GROUP		TEMP CLASS		<input type="radio"/> NON-HAZARDOUS	
50									
51									
52									

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MC: 	MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT AIR COMPRESSOR (20-C-7080)	 Contract No : 52-98/445														
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:10%;">Project</th> <th style="width:10%;">Area</th> <th style="width:10%;">Phase</th> <th style="width:10%;">Unit</th> <th style="width:10%;">Dis.</th> <th style="width:10%;">Doc.</th> <th style="width:10%;">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;">75</td> </tr> </table>	Project	Area	Phase	Unit	Dis.	Doc.	Seq.	BU	20	VD	303	ME	DSH	75		
Project	Area	Phase	Unit	Dis.	Doc.	Seq.										
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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.

9	INLET AND DISCHARGE PRESSURE ARE									
10	<input type="radio"/> AT CYLINDER FLANGES <input checked="" type="radio"/> PULSATION SUPPRESSOR FLANGES									
11	<input type="checkbox"/> SERVICE OR ITEM NO.									
12	<input type="checkbox"/> STAGE	1								
13	<input type="checkbox"/> NORMAL OR ALTERNATE CONDITION	Normal								
14	<input type="checkbox"/> PERCENT CAPACITY	100								
15	<input type="checkbox"/> WEIGHT FLOW, kg/h	223								
16	<input type="checkbox"/> m³ /h (760 mm HG & 0°C)	173								
17	<input type="checkbox"/> POCKETS/VALVES OPERATION *	Valves								
18	<input type="checkbox"/> POCKET CLEARANCE ADDED %	NA								
19	<input type="checkbox"/> TYPE UNLOADERS, PLUG/FINGER	Plug								
20	<input checked="" type="checkbox"/> INLET TEMPERATURE, °C	45								
21	<input checked="" type="checkbox"/> INLET PRESSURE, (BARA)	8 (Min.:7, Max:8.5)								
22	<input checked="" type="checkbox"/> DISCHARGE PRESSURE, (BARA)	21,5								
23	<input type="checkbox"/> DISCHARGE TEMP., ADIABATIC °C	180								
24	<input type="checkbox"/> DISCHARGE TEMP., PREDICTED °C	164								
25	<input type="checkbox"/> VOLUMETRIC EFF.,%HE/%CE(AVER)	75	/	/	/	/	/	/	/	/
26	<input type="checkbox"/> CALC. GAS ROD LOAD, kN, C **	11,06								
27	<input type="checkbox"/> CALC. GAS ROD LOAD, kN, T **	0,36								
28	<input type="checkbox"/> COMB. ROD LOAD, kN C (GAS & INERTIA)	10,83								
29	<input type="checkbox"/> COMB. ROD LOAD, kN T (GAS & INERTIA)	0,2								
30	<input type="checkbox"/> ROD REV., DEGREES MIN @ X-HD PIN ***	195								
31	<input type="checkbox"/> BkW/STAGE	12								
32	<input type="checkbox"/> TOTAL kW @ COMPRESSOR SHAFT	12								
33	<input type="checkbox"/> TOTAL kW INCL. V-BELT & GEAR LOSSES	13								

* SHOW OPERATION WITH THE FOLLOWING SYMBOLS:

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

** 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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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

DIGITAL ANALOG

1, EMPIRICAL 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 SUPPRESSOR 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 RECOMMEND BEST TYPE OF COOLING AFTER FINAL ENGINEERING REVIEW OF ALLOPERATING CONDITIONS

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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)
- 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 Approved test procedure
- 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 COMPRESSOR MANUFACTURER'S USER'S LIST FOR SIMILAR SERVICE
- 40 PERFORMANCE DATA REQUIRED PER 9.3.3: Bkw VS. SUCTION PRESSURE CURVES
- 41 ROD LOAD/GAS LOAD CHARTS
- 42 VALVE FAILURE DATA CHARTED
- 43 SPEED/TORQUE CURVE DATA
- 44 Bkw VS. CAPACITY PERFORMANCE CURVES OR TABLES REQUIRED FOR UNLOADING STEPS AND/OR VARIABLE SUCTION/DISCHARGE PRESSURES

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1	<input type="checkbox"/> CYLINDER DATA AT FULL LOAD CONDITION									
2	SERVICE/ITEM NO.			Air						
3	STAGE			1						
4	INLET PRESSURE, (BARA)	}	@ CYLINDER	8,0						
5	DISCHARGE PRESSURE, (BARA)		FLANGES	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:	RATED / MAX ALLOW		400/690						
11	PISTON SPEED, m/s:	RATED / MAX ALLOW		<3,5						
12	CYLINDER LINER, YES/NO			yes						
13	LINER NOMINAL THICKNESS, mm			12,5						
14	PISTON DISPLACEMENT, m³/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		* T = TENSION		**X-HD = CROSSHEAD					

52 **NOTES/REMARKS:**

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**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**



**MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT AIR
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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 (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				
16	PISTON ROD COATING	plasma nitrided to = 1000 HV1				
17	COATING HARDNESS, Rc					
18	VALVE SEATS / SEAT PLATE	SS/SS				
19	VALVE SEAT MIN HARDNESS, Rc					
20	VALVE GUARDS (STOPS)	79RL (Polymer)				
21	VALVE DISCS	79RL (Polymer)				
22	VALVE SPRINGS	79RLX (Polymer)				
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					

Hardness material shall be specified as well.

These materials are not available in API 618 5th edition. Material shall be selected as per API 618 5th edition.

USE (X) IN APPROPRIATE COLUMN WHERE APPLICABLE

<p><input checked="" type="checkbox"/> COMPRESSOR CYLINDER ROD PACKING</p> <p><input checked="" type="checkbox"/> FULL FLOATING PACKING</p> <p>VENTED TO: <input type="radio"/> FLARE @ _____ ATM <input checked="" type="radio"/> <input type="radio"/> SUCTION PRESSURE @ _____ (BARG)</p> <p><input type="radio"/> FORCED LUBRICATED <input checked="" type="radio"/> NON-LUBE <input type="radio"/> TFE</p> <p><input type="checkbox"/> WATER COOLED, _____ STAGE(S), _____ m³/h REQ'D</p> <p><input type="checkbox"/> OIL COOLED, _____ STAGE(S), _____ m³/h REQ'D</p> <p><input type="checkbox"/> WATER FILTER PROV.FUTURE WATER/OIL COOLING</p> <p><input type="checkbox"/> VENT/BUFFER GAS SEAL PACKING ARR. (Ref: Appndx I FIG I-1)</p> <p><input type="radio"/> CONSTANT OR <input type="radio"/> VARIABLE DISPOSAL SYSTEM</p> <p><input type="radio"/> BUFFER GAS PRESSURE, _____ (BARG)</p> <p><input type="radio"/> SPLASH GUARDS FOR WIPER PACKING</p>	<p>DISTANCE PIECE(S): <input type="radio"/> TYPE A <input checked="" type="radio"/> TYPE B <input type="radio"/> TYPE C <input type="radio"/> TYPE D</p> <p align="right">Ref: Appendix G, Fig. G-3</p> <p>COVERS: <input checked="" type="radio"/> SOLID METAL <input type="radio"/> SCREEN <input type="radio"/> LOUVERED</p> <p>CYLINDER COMPARTMENT: <input checked="" type="radio"/> VENTED TO amb _____ (BARG)</p> <p>(Outboard Distance Piece) <input type="radio"/> PURGED AT _____ (BARG)</p> <p><input type="radio"/> PRESSURIZED TO _____ (BARG)</p> <p><input type="radio"/> WITH RELIEF VALVE</p> <p>FRAME COMPARTMENT: <input type="radio"/> VENTED TO _____ (BARG)</p> <p>(Inboard Distance Piece) <input type="radio"/> PURGED AT _____ (BARG)</p> <p><input type="radio"/> PRESSURIZED TO _____ (BARG)</p> <p><input type="radio"/> WITH RELIEF VALVE</p> <p><input type="checkbox"/> DISTANCE PIECE MAWP 0 (BARG)</p>
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OWNER:

شركة پتروشیمی بوشهر
BUPC

**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**

CONTRACTOR:

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

MC:

شرکت مهندسی مکانیک
MEC

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

Project	Area	Phase	Unit	Dis.	Doc.	Seq.	Contract No : 52-98/445
BU	20	VD	303	ME	DSH	75	rev 03

Contract No : 52-98/445

Owner Document Number :

BU 20 VD 303 ME DSH 75

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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
 (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
 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:



شرکت پتروشیمی بوئسهر

**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**

CONTRACTOR:



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BU	20	VD	303	ME	DSH	75

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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					

49
50
51

OWNER: 	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT	CONTRACTOR:  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT 																																																	
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Owner Document Number :																																																			
1	<input type="checkbox"/> FRAME LUBE OIL SYSTEM																																																		
2	<input checked="" type="checkbox"/> BASIC LUBE OIL SYSTEM FOR FRAME:																																																		
3	<input type="checkbox"/> REF: TYPE MAIN BEARINGS: <input type="checkbox"/> SPLASH (TBA) <input type="checkbox"/> PRESSURE (FORCED) <input checked="" type="checkbox"/> HEATERS REQUIRED:																																																		
4	<input type="checkbox"/> MAIN OIL PUMP DRIVEN BY: <input type="checkbox"/> COMP. CRANKSHAFT <input checked="" type="checkbox"/> ELEC. W/THERMOSTAT(S) <input type="checkbox"/> STEAM																																																		
5	<input type="checkbox"/> AUX OIL PUMP DRIVEN BY: <input type="checkbox"/> ELEC. MOTOR <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"/> SEPARATE 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																																																		
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17	<input type="checkbox"/> SYSTEM PRESSURES: <input type="checkbox"/> DESIGN _____ (BARG) <input type="checkbox"/> HYDROTEST _____ (BARG)																																																		
18	<input type="checkbox"/> PRESSURE CONTROL VALVE SETTING _____ VTS (BARG) <input type="checkbox"/> PUMP RELIEF VALVE(S) SET _____ (BAR)																																																		
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AUXILIARY	_____	_____	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>																																												
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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:																																																		
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41	<input type="checkbox"/> FILTER(S)																																																		
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43	<input type="checkbox"/> DESIGN PRESSURE, _____ (BARG) <input type="checkbox"/> Δ P CLEAN, _____ (BARG) <input type="checkbox"/> Δ P COLLAPSE, _____ (BARG)																																																		
44	<input type="checkbox"/> MICRON RATING, _____ <input type="checkbox"/> CARTRIDGE MATERIAL, _____ <input type="checkbox"/> CARTRIDGE P/N _____																																																		
45	<input type="checkbox"/> BONNET MATERIAL, _____ <input type="checkbox"/> CASING MATERIAL, _____ <input checked="" type="checkbox"/> FURN.SPARE CARTR.,QTY _____																																																		
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51	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%;"></td> <td style="width:25%; text-align: center;">MANUFACTURER</td> <td style="width:25%; text-align: center;">MODEL</td> <td style="width:25%;"></td> <td style="width:25%; text-align: center;">MANUFACTURER</td> <td style="width:25%; text-align: center;">MODEL</td> </tr> <tr> <td><input checked="" type="checkbox"/> MAIN PUMP</td> <td style="text-align: center;">Airpack</td> <td style="text-align: center;">-</td> <td><input type="checkbox"/> OIL COOLER(S)</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td><input type="checkbox"/> AUXILIARY PUMP</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td><input type="checkbox"/> TRANSFER VALVE(S)</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td><input checked="" type="checkbox"/> MECHANICAL SEALS</td> <td style="text-align: center;">Airpack</td> <td style="text-align: center;">-</td> <td><input type="checkbox"/> PUMP COUPLING(S)</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td><input checked="" type="checkbox"/> ELECTRIC MOTORS</td> <td style="text-align: center;">WEG</td> <td style="text-align: center;">-</td> <td><input checked="" type="checkbox"/> SUCTION STRAINER(S)</td> <td style="text-align: center;">TBC</td> <td style="text-align: center;">-</td> </tr> <tr> <td><input type="checkbox"/> STEAM TURBINES</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td><input checked="" type="checkbox"/> CHECK VALVE(S)</td> <td style="text-align: center;">TBC</td> <td style="text-align: center;">-</td> </tr> <tr> <td><input checked="" type="checkbox"/> OIL FILTER(S)</td> <td style="text-align: center;">Airpack</td> <td style="text-align: center;">-</td> <td><input type="checkbox"/> _____</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> </table>										MANUFACTURER	MODEL		MANUFACTURER	MODEL	<input checked="" type="checkbox"/> MAIN PUMP	Airpack	-	<input type="checkbox"/> OIL COOLER(S)	-	-	<input type="checkbox"/> AUXILIARY PUMP	-	-	<input type="checkbox"/> TRANSFER VALVE(S)	-	-	<input checked="" type="checkbox"/> MECHANICAL SEALS	Airpack	-	<input type="checkbox"/> PUMP COUPLING(S)	-	-	<input checked="" type="checkbox"/> ELECTRIC MOTORS	WEG	-	<input checked="" type="checkbox"/> SUCTION STRAINER(S)	TBC	-	<input type="checkbox"/> STEAM TURBINES	-	-	<input checked="" type="checkbox"/> CHECK VALVE(S)	TBC	-	<input checked="" type="checkbox"/> OIL FILTER(S)	Airpack	-	<input type="checkbox"/> _____	-	-
	MANUFACTURER	MODEL		MANUFACTURER	MODEL																																														
<input checked="" type="checkbox"/> MAIN PUMP	Airpack	-	<input type="checkbox"/> OIL COOLER(S)	-	-																																														
<input type="checkbox"/> AUXILIARY PUMP	-	-	<input type="checkbox"/> TRANSFER VALVE(S)	-	-																																														
<input checked="" type="checkbox"/> MECHANICAL SEALS	Airpack	-	<input type="checkbox"/> PUMP COUPLING(S)	-	-																																														
<input checked="" type="checkbox"/> ELECTRIC MOTORS	WEG	-	<input checked="" type="checkbox"/> SUCTION STRAINER(S)	TBC	-																																														
<input type="checkbox"/> STEAM TURBINES	-	-	<input checked="" type="checkbox"/> CHECK VALVE(S)	TBC	-																																														
<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
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MC: 	MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT AIR COMPRESSOR (20-C-7080)	
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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 checked="" type="radio"/> PROPOSALS <input type="radio"/> PURCHASE <input type="radio"/> AS BUILT	
4	FOR/USER	BUSHEHR PETROCHEMICAL COMPANY (BUPC)	
5	SITE/LOCATION	ASSALUYE	AMBIENT TEMPERATURE MIN/MAX
6	COMPRESSOR SERVICE	EMERGENCY INSTRUMENT AIR COMP	NUMBER OF COMPRESSORS
7	COMPRESSOR MFG.		MODEL/TYPE
8	SUPPRESSOR MFG.		
9	NOTE:	<input type="radio"/> Ind.Data Comp.'d Purch. <input type="checkbox"/> By Compr/Supp.Mfg.w/Proposal <input checked="" type="checkbox"/> By Mfg(s) after order <input 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
13	<input checked="" type="radio"/> ASME CODE DESIGN <input type="radio"/> GOVERNMENTAL CODES OF		1
14	<input type="radio"/> OTHER APPLICABLE PRESSURE VESSEL SPEC. OR CODE		STROKE
15	<input type="radio"/> LUBE SERVICE <input checked="" type="radio"/> NON-LUBE SERV. <input type="radio"/> NO OIL ALLOWED INTERNALLY		mm RPM
16	<input 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		DRY TYPE INTER.CORR.COATING
17	<input checked="" type="radio"/> SHOP INSPECTION <input type="radio"/> WITNESS HYDROTEST <input checked="" type="radio"/> OUTDOOR STORAGE OVER 12 MONTHS		<input type="radio"/> YES <input type="radio"/> NO
18	<input type="radio"/> WITNESSED <input type="radio"/> OBSERVED		SPECIAL WELDING REQUIREMENTS
19			SPECIAL PAINT SPEC: BU-20-D-000-PI-SPC-409

COMPRESSOR, GAS, OPERATING, AND SUPPRESSOR DESIGN DATA

	21	SERVICE	EMERGENCY INSTRUMENT AIR COMP	STAGE NO.	1
22	<input type="checkbox"/> COMPRESSOR MANUFACTURER'S RATED CAPACITY	LBS/HR	SCFM	MMSCFD	
23	<input type="checkbox"/> LINE SIDE OPERATING PRESSURE	INLET, _____ (BARA)	DISCHARGE, _____ (BARA)		
24	<input type="checkbox"/> OPERATING TEMP. WITHIN SUPPRESSORS	INLET, _____ °C	DISCHARGE, _____ °C		
25	<input type="checkbox"/> ALLOWABLE PRESSURE DROP THROUGH SUPPRESSORS	Δ P _____ (BAR) / _____ %	Δ P _____ (BAR) / _____ %		

	26	INLET SUPPRESSOR	DISCHARGE SUPPRESSOR		
27	<input checked="" type="radio"/> SUPPRESSOR TAG NUMBER	20-DC-7080-1	20-DC-7080-2		
28	<input checked="" type="radio"/> COMBINATION INLET SUPP SEPAR				
29	<input type="checkbox"/> NO. (QTY) OF INLET & DISCH. SUP	1	1		
30	<input type="checkbox"/> ALLOWABLE PEAK-PEAK PULSE @ LINE SIDE NOZZLE	(BAR) _____ / _____ %	(BAR) _____ / _____ %		
31	<input type="checkbox"/> ALLOWABLE PEAK-PEAK PULSE @ CYL FLANGE NOZZLE	(BAR) 0,549 / 44,73 %	(BAR) 1,522 / 67,04 %		
32	<input checked="" type="radio"/> DESIGN FOR FULL VACUUM CAPABILITY	<input type="radio"/> YES <input checked="" type="radio"/> NO	<input type="radio"/> YES <input checked="" type="radio"/> NO		
33	<input checked="" type="radio"/> MIN. REQ'D WORKING PRESSURE & TEMPERATURE	(BARA) 13,5 @ 85 °C	(BARA) 25 @ 210 °C		
34	NOTE: AFTER DESIGN, THE ACTUAL MAWP & TEMP ARE TO BE DETERMINED BASED ON THE WEAKEST COMPONENT AND STAMPED ON THE VESSEL, THE ACTUAL MAWP IS TO BE SHOWN ON PG. 14 LINE 12 AND ON THE U1A FORMS				
35	<input checked="" type="radio"/> INITIAL SIZING VOL. PER FORMULA OF 7.9.3.2				
36	NOTE: This is a Reference				
37					
38	<input checked="" type="checkbox"/> AS BUILT VOLUME (m³)	0,3 m³	0,3 m³		
39					
40					
41					

#2 : PULSATION DAMPING FOR INLET AND OUTLET OF EACH CYLINDER, BY VOLUME BOTTLES.	<p style="color: red; border: 1px solid red; padding: 5px;"> Considering PSV set pressure in clause 7.6.5 of API 618 5th edition, design pressure shall be at least 25.8 bara. </p>
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Data shall be completed.

With reference clause 7.9.4.2.5.2.1 of API 618 5th edition, $P_{cf} = 3xR\%$ which shall be less than 7%. Therefore, 44.73% and 67.04% are not correct and shall be revised.

Please check the pressure again considering that allowable PEAK-PEAK shall be less than 7%.



**BUSHEHR PETROCHEMICAL COMPANY
MEG PLANT**



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

Owner Document Number :

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

Contract No : 52-98/445
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INSTRUMENTATION

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

2 INSTRUMENT & CONTROL ONE FOR EA. UNIT ONE COMMON TO ALL UNITS

3 PANEL ():

4 MACHINE M'T'ED FREE STANDING (OFF UNIT) / LOCAL REMOTE INDOORS

5 PNEUMATIC ELEC. ELECTRONIC HYDRAULIC PROGRAMMABLE CONTR'L'R

6 NEMA 7, CLASS _____, GROUP IIB _____, DIVISION _____ INTRINSICALLY SAFE (Exi)

7 I/S BARRIERS ()

8 NEMA 4, WATERTIGHT & DUSTTIGHT PURGED TO NFPA 496 TYPE X Y Z

9 OTHER NEMA IP42 _____ LOW PURGE PRESS. ALARM SHUTDOWN

10 VIB. ISOLATORS STRIP HEATERS PURGE CONN. EXTRA CUTOUTS

11 ANNUNCIATOR W/FIRST-OUT INDICATION LOCATED ON CONTROL PANEL

12 PURCHASER'S CONN. BROUGHT OUT TO TERMINAL BOX BY VENDOR

13 IP PROTECTION : IP 65 FOR LOCAL PANEL , IP 42 FOR CONTROL INDOOR PANEL.

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

18 INSTRUMENTATION SUITABLE FOR: INDOORS OUTDOORS IP PROTECTION: IP-65 OTHER _____

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

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

PRESSURE GAUGE REQUIREMENTS LIQUID FILLED PRESSURE GAUGES: YES NO

44 FUNCTION	43 LOCALLY MOUNTED		43 PANEL MOUNTED		PROCESS GAS: INLET PRESS.	43 LOCALLY MOUNTED		43 PANEL MOUNTED	
	(<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"/>)
45 LUBE OIL MAIN PUMP DISCHAR.	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)	@ EA. STAGE	(<input checked="" type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)
46 LUBE OIL AUX. PUMP DISCHARG.	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)		(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)
47 LUBE OIL PRESS. AT FRAME HEADER ((<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)	DISCH. PRESS. @ EA. STAGE	(<input checked="" type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)
48 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"/>)
49 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"/>)
50 _____	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)		(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)
51 _____	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)		(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)	(<input type="checkbox"/>)

52 REMARKS: _____

53

OWNER: 	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT	CONTRACTOR:  Chagalesh-Enerchimi-Steam Joint Venture BUPC MEG PLANT PROJECT
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MC: 	MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT AIR COMPRESSOR (20-C-7080)	
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	Project	Area	Phase	Unit	Dis.	Doc.	Seq.	Contract No : 52-98/445	
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INSTRUMENTATION (CONT'D)											
1						LOCALLY MOUNTED	PANEL MOUNTED	GAUGE W/ CAPIL'RY	THERMO CPL SYS	RTD SYS	I/S SYS
2	<u>TEMPERATURE MEASUREMENT REQUIREMENTS</u>										
3	<u>FUNCTION</u>										
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"/>	<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"/>	<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"/>	<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"/>	<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"/>	<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"/>	<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 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"/>	<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"/>	<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"/>	<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"/>	<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"/>	<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"/>	<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"/>	<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"/>	<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"/>	<input type="checkbox"/>

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

20	<u>FUNCTION</u>	ALARM		SHUT DOWN		ANNUNCIATION POINTS				
		(<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"/>)	ALARM		SHUTDOWN		TOTAL NO. OF POINTS
						IN PNL BY MFR	IN CTL ROOM PANEL OTH'RS	IN PNL BY MFR	IN CTL ROOM PANEL OTH'RS	
21	ALARM DEVICES <input checked="" type="radio"/> TRANSMITTER									
22	SHUTDOWN DEVICES <input checked="" type="radio"/> TRANSMITTER									
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 type="checkbox"/>)	(<input 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"/> <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"/> <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"/> <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"/> <input type="checkbox"/> <input type="checkbox"/>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
32	COMPR. VIBRATION, SHUTDOWN ONLY	(<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 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"/> <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"/> <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"/> <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"/> <input type="checkbox"/> <input type="checkbox"/>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
37	HIGH GAS DISCH. TEMP EACH CYLINDER	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <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"/> <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 type="checkbox"/>)	(<input 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 type="checkbox"/>)	(<input 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"/> <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"/> <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"/> <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"/> <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"/> <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"/> <input type="checkbox"/> <input type="checkbox"/>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
47	TOTAL NUMBER OF ANNUNCIATION POINTS									

48 SWITCH CONTACT OPERATION NOTE: EACH SWITCH SHALL BE MINIMUM SPDT ARRANGEMENT




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

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

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

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

53 REF: 7.6.6.2 FOR MINIMUM RECOMMENDED PROTECTION REQUIREMENTS

OWNER: 	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT						CONTRACTOR: 		
MC: 	MECHANICAL DATA SHEET FOR EMERGENCY INSTRUMENT AIR COMPRESSOR (20-C-7080)						Contract No : 52-98/445		
Owner Document Number :	BU	20	VD	303	ME	DSH	75	rev 03	Page: 20 OF 20

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 42 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