



TURBINE, PUMP AND COMPRESSOR
3203 LILAC ST., PASADENA, TX 77505

JOB NO. 1424 ITEM NO. PK-302
PURCHASE ORDER NO. _____
DATA SHEET NO. 4777010-14-02793
REVISION NO. 0 DATE February 24, 2016
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**RECIPROCATING COMPRESSOR
(API 618-4TH) DATA SHEET
U.S. CUSTOMARY UNITS**

1 APPLICABLE TO: PROPOSALS PURCHASE AS BUILT
 2 FOR/USER VENTECH XTL OKC, LLC SITE/LOCATION OKC, OKLAHOMA SERVICE SYNGAS COMPRESSOR NO. REQ'D 1
 3 NOTE: INDICATES INFO. TO BE COMPLETED BY PURCH. BY MANUFACTURER WITH PROPOSAL BY MANUFACTURER AFTER ORDER BY MANUFACTURER OR PURCHASER AS APPLICABLE
 4
 5 COMPR. MFGR ARIEL TYPE MODEL NO(S) JGT/2 SERIAL NO(S) F-49884
 6 COMPR.THROWS: TOTAL NO. 2 NO. WITH CYLS. 2 NOMINAL FRAME RATING 1300 BHP @ RATED RPM OF 1500
 7 MAX/MIN ALLOWABLE SPEED 1500 / 750 RPM
 8 DRIVER MFGR. HYUNDAI DRIVER NAMEPLATE HP/OPERATING RPM 850 / 900
 9 DRIVE SYSTEM: DIRECT COUPLED GEARED & COUPLED V-BELT
 10 TYPE OF DRIVER: IND. MOTOR SYN. MOTOR STEAM TURBINE GAS TURBINE ENGINE OTHER
 11 NO NEGATIVE TOLERANCE APPLIES: YES - PURCHASER TO FILL IN "REQUIRED CAPACITY" LINES. CYLINDERS: LUBE
 12 (NNT) NO - PURCHASER TO FILL IN "MFRG.'S RATED CAP." LINES NON-LUBE
 13 MAX ACCEPTABLE AVG PISTON SPEED _____ FT/MIN

OPERATING CONDITIONS (EACH MACHINE)

15 <input checked="" type="radio"/> SERVICE OR ITEM NO.	NORMAL	NORMAL	DESIGN	DESIGN		
16 <input type="radio"/> STAGE	1	2	1	2		
17 <input checked="" type="radio"/> NORM. OR ALT. CONDITION	NORMAL	NORMAL	ALT	ALT		
18 <input type="radio"/> CERTIFIED PT. (X) MARK ONE						
19 <input checked="" type="radio"/> MOLECULAR WEIGHT	15.95	15.95	15.95	15.95		
20 <input checked="" type="radio"/> Cp/Cv (K) @ 150°F OR _____ °F	1.376	1.376	1.376	1.376		
21 INLET CONDITIONS: AT INLET TO: <input checked="" type="radio"/> PULSE DEVICES <input type="radio"/> COMPRESSOR CYLINDER FLANGES	NOTE: <input type="radio"/> SIDE STREAM TO _____ STAGE(S), THESE INLET PRESS. ARE FIXED					
23 <input checked="" type="radio"/> PRESSURE (PSIA) @ PUL. SUPP. INLET	155		155			
24 <input checked="" type="radio"/> PRESSURE (PSIA) @ CYL. FLANGE	150.35	239.26	150.35	238.38		
25 <input checked="" type="radio"/> TEMPERATURE (°F)	150	120	150	120		
26 <input type="radio"/> REF: SIDE STREAM TEMPS (°F)						
27 <input checked="" type="radio"/> COMPRESSIBILITY (Z _s)	0.9991	0.9976	0.9994	0.9979		
28 INTERSTAGE: INTERSTAGE Δ P INCL: <input type="radio"/> PULSE DEVICES <input type="radio"/> PIPING <input type="radio"/> COOLERS <input type="radio"/> SEPARATORS <input type="radio"/> OTHER _____						
29 <input checked="" type="radio"/> Δ P BETWEEN STAGES, %/psi	3 /	3 /	3 /	3 /	/	/
30 DISCHARGE CONDITIONS: AT OUTLET FROM: <input type="radio"/> PULSE DEVICE <input type="radio"/> COMP. CYL. FLANGES <input type="radio"/> OTHER _____						
31 <input checked="" type="radio"/> PRESSURE (PSIA) @ CYL. FLANGE	243.26	408	243.38	408		
32 <input checked="" type="radio"/> PRESS. (PSIA) @ PUL. SUPP. OUTLET		400		400		
33 <input type="checkbox"/> TEMP., ADIABATIC, °F						
34 <input checked="" type="radio"/> TEMP., PREDICTED, °F	249	225	250	225		
35 <input checked="" type="radio"/> COMPRESSIBILITY (Z ₂) OR (Z _{AVG})	1.0012	1.0016	1.0015	1.002		
36 * REQUIRED CAPACITY, RATED FOR PROCESS, AT INLET TO COMPRESSOR, NO NEGATIVE TOLERANCE (-0%)						
37 <input checked="" type="radio"/> SCFM CAPACITY SPECIFIED	6,533	6,533	7,188	7,188		
38 IS <input checked="" type="radio"/> WET <input type="radio"/> DRY	WET	WET	WET	WET		
39 <input type="radio"/> MMSCFD (14.7 PSIA & 60°F)						
40 * MFRG.'S RATED CAPACITY (AT INLET TO COMPRESSOR) & BHP @ CERTIFIED TOLERANCE OF ±3% FOR CAP. & ±3% FOR BHP						
41 <input checked="" type="radio"/> SCFM CAPACITY SPECIFIED	6,828	6,826	7361	7361		
42 IS <input checked="" type="radio"/> WET <input type="radio"/> DRY						
43 <input type="checkbox"/> ICFM						
44 <input type="checkbox"/> MMSCFD/SCFM (14.7 PSIA & 60°F)						
45 <input checked="" type="radio"/> BHP/STAGE	302.4	319.6	326.4	344.5		
46 <input checked="" type="radio"/> TOTAL BHP @ COMPRESSOR SHAFT	628		677			
47 <input type="checkbox"/> TOTAL HP INCLUDING V-BELT & GEAR LOSSES						
48 * CAPACITY FOR NNT						
49 MANUFACTURER'S = REQUIRED ÷ 0.97						
50 THEREFORE REQUIRED = MFR'S x 0.97						

REMARKS:



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**RECIPROCATING COMPRESSOR
(API 618-4TH) DATA SHEET
U.S. CUSTOMARY UNITS**

GAS ANALYSIS AT OPERATING CONDITIONS MOLE % (BY VOLUME) ONLY						REMARKS	
<input type="radio"/> SERVICE/ITEM NO. <input type="radio"/> STAGE <input type="radio"/> NORMAL OR ALT							
		NORMAL	DESIG				
	M.W.						
7	WATER VAPOR	0.28	0.28				
8	HYDROGEN	52.84	52.84				
9	NITROGEN	6.2	6.2				
10	CARBON MONOX	26.43	26.43				
11	ARGON	0.27	0.27				
12	METHANE	2.02	2.02				
13	ETHYLENE						
14	ETHANE						
15	CARBON DIOXIDE						
16	PROPYLENE						
17	PROPANE						
18	I-BUTANE						
19	I-BUTENE						
20	N-BUTANE						
21	I-PENTANE						
22	I-PENTENE						
23	N-PENTANE						
24	HEXANE PLUS						
25	ALCOHOLS						
26	ORGANIC ACIDS						
27	TOTALS	100	100				
28							
29							
30							
31							
32	<input checked="" type="checkbox"/> CALCULATED MOL WT.	15.9	15.9				
33	<input checked="" type="checkbox"/> Cp/Cv (K) @ 150° OR _____ °F						
34	NOTE: IF WATER VAPOR AND/OR CHLORIDES ARE PRESENT, EVEN MINUTE TRACES, IN THE GAS BEING COMPRESS'D, IT MUST BE INCLU'D ABOVE.						
35							
36	<input type="radio"/> SITE/LOCATION CONDITIONS						
37	ELEVATION	1155 FT.	BAROMETER	14.11 PSIA	AMBIENT TEMPS: MAX	100 °F MIN	0 °F
38			<input type="radio"/> MIN DESIGN METAL TEMP	-20 °F (2.14.8)	RELATIVE HUMIDITY: MAX	100 % MIN	30 %
39	COMPRESSOR LOCATION:	<input type="radio"/> INDOOR	<input type="radio"/> HEATED	<input type="radio"/> UNHEATED	<input type="radio"/> AT GRADE LEVEL	<input type="radio"/> ELEVATED:	_____ FT.
40		<input checked="" type="radio"/> OUTDOOR	<input type="radio"/> NO ROOF	<input type="radio"/> UNDER ROOF	<input type="radio"/> PARTIAL SIDES	<input type="radio"/> PLATFORM:	<input type="radio"/> ON-SHORE
41		<input type="radio"/> OFF-SHORE	<input type="radio"/> WEATHER PROTECTION REQ.	<input type="radio"/> TROPICALIZATION REQ.			
42		<input type="radio"/> WINTERIZATION REQUIRED					
43	UNUSUAL CONDITIONS:	<input type="radio"/> CORROSIVES	<input type="radio"/> DUST	<input type="radio"/> FUMES	<input checked="" type="radio"/> OTHER	ORGANIC ACIDS	
44							
45	ELECTRICAL CLASSIFICATIONS						
46			HAZARDOUS			NON-HAZRDOUS	
47	MAIN UNIT	<input type="radio"/> CLASS 1	GROUP C&D	DIVISION	2	<input type="radio"/>	
48	L.O. CONSOLE	<input type="radio"/> CLASS 1	GROUP C&D	DIVISION	2	<input type="radio"/>	
49	CW CONSOLE	<input type="radio"/> CLASS	GROUP	DIVISION		<input type="radio"/>	
50							
51							
52							



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PART LOAD OPERATING CONDITIONS

1 CAPACITY CONTROL BY: MFG'S CAP. CONTROL PURCHASERS BY-PASS BOTH OTHER BYPASS VALVE _____

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

3 WITH: AUTO LOADING DELAY INTERLOCK (3.6.2.2) AUTO IMMEDIATE UNLOADING

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

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

6 NUMBER OF STEPS: ONE THREE FIVE OTHER _____

7 RAIN COVER REQUIRED OVER UNLOADERS

ALL UNLOADING STEPS BASIS MANUFACTURERS CAPACITY SHOWN ON PAGE 1.

10 INLET AND DISCHARGE PRESSURE ARE		<input type="radio"/> AT CYLINDER FLANGES		<input checked="" type="radio"/> PULSATION SUPPRESSOR FLANGES	
11 <input checked="" type="checkbox"/> SERVICE OR ITEM NO.		NORMAL	NORMAL	DESIGN	DESIGN
12 <input type="checkbox"/> STAGE		1	2	1	2
13 <input checked="" type="checkbox"/> NORMAL OR ALTERNATE CONDITION		NORMAL	NORMAL	ALT	ALT
14 <input checked="" type="checkbox"/> PERCENT CAPACITY		100%	100%	MAX	MAX
15 <input checked="" type="checkbox"/> SCFM		6,828	6,826	7,361	7,361
16 <input type="checkbox"/> MMSCFD/SCFM (14.7 PSIA & 60 °F)					
17 <input type="checkbox"/> POCKETS/VALVES OPERATION *					
18 <input checked="" type="checkbox"/> POCKET CLEARANCE ADDED %		100%	100%	63%	63%
19 <input type="checkbox"/> TYPE UNLOADERS, PLUG/FINGER					
20 <input checked="" type="checkbox"/> INLET TEMPERATURE, °F		150	120	150	120
21 <input checked="" type="checkbox"/> INLET PRESSURE, PSIA		155	238	155	238
22 <input checked="" type="checkbox"/> DISCHARGE PRESSURE, PSIA		243	400	243	400
23 <input type="checkbox"/> DISCHARGE TEMP., ADIABATIC °F					
24 <input checked="" type="checkbox"/> DISCHARGE TEMP., PREDICTED °F		249	225	250	225
25 <input checked="" type="checkbox"/> VOLUMETRIC EFF., %HE/%CE		56 / 87	56 / 85	68 / 87	67 / 85
26 <input checked="" type="checkbox"/> CALC. GAS ROD LOAD, LBS, C **		24360	27200	24000	27160
27 <input checked="" type="checkbox"/> CALC. GAS ROD LOAD, LBS, T **		23162	25197	23199	25197
28 <input checked="" type="checkbox"/> COMB. ROD LOAD, LBS C (GAS & INERTIA)		21804	24274	26233	28035
29 <input checked="" type="checkbox"/> COMB. ROD LOAD, LBS T (GAS & INERTIA)		25466	27071	27880	28190
30 <input checked="" type="checkbox"/> ROD REV., DEGREES MIN @ X-HD PIN ***		152	180	152	176
31 <input checked="" type="checkbox"/> BHP/STAGE		302.4	319.6	326.4	344.5
32 <input checked="" type="checkbox"/> TOTAL BHP @ COMPRESSOR SHAFT		628		677	
33 <input type="checkbox"/> TOTAL HP INCL. V-BELT & GEAR LOSSES					

* SHOW OPERATION WITH THE FOLLOWING SYMBOLS:

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

EXAMPLE: HE-F/CE-S = HEAD END FIXED POCKET OPEN / CRANK END SUCTION VALVE(S) UNLOADED.

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

MINIMUM PRESSURE REQUIRED TO OPERATE CYLINDER UNLOADING DEVICES, _____ PSIG

CYLINDER UNLOADING MEDIUM: AIR NITROGEN OTHER

PRESSURE AVAILABLE FOR CYLINDER UNLOADING DEVICES, MAX/MIN / PSIG

REMARKS, SPECIAL REQUIREMENTS, AND/OR SKETCH



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**RECIPROCATING COMPRESSOR
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1 SCOPE OF BASIC SUPPLY

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

3 DRIVER (): VARIABLE SPEED SPEED RANGE _____ RPM TO _____ RPM

4 INDUCTION MOTOR SYNCHRONOUS MOTOR STEAM TURBINE ENGINE OTHER _____

5 API-541 API-546 API-611 API-612

6 OUTBOARD BEARING PROVISION FOR DRY AIR PURGE FOR OUTBOARD BEARING.

7 SLIDE BASE FOR DRIVER () SOLE PLATE FOR DRIVER ()

8 MOTOR STARTING EQUIPMENT (); DEFINE _____

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

10 COUPLING(S) (): LOW SPD. HI-SPD. QUILL SHAFT KEY-LESS DRV. KEY'D DRV. OTHER _____

11 API 671

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

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

14 OTHER _____

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

16 INTERSTAGE SUPPORTS ()

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

18 INTERSTAGE SUPPORTS ()

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

20 ACOUSTICAL SIMUL. STUDY (): DESIGN 1, W/SIMPLIFIED ANALYSIS OF PIPING SYSTEM

21 DIGITAL ANALOG APPROACH 2, SEE 3.9.2.1 AND APPENDIX M

22 (Check Only One) 3, SEE 3.9.2.1 AND APPENDIX M

23 NOTE: SEE APPENDIX N FOR STUDY TO ALL SPECIFIED LOAD COND., INCL. SINGLE ACT., PLUS

24 INFORMATION REQUIRED FOR STUDY CONSIDER: COMP. OPER. IN PARALLEL ALTERNATE GASES

25 WITH EXISTING COMP. AND PIPING SYSTEMS

26 STUDY TO BE WITNESSED COMPRESSOR VALVE DYNAMIC RESPONSE

27 VENDOR REVIEW OF PURCHASER'S PIPING ARRANGEMENT PULSATION SUPPRESS'N DEVICE LOW CYCLE FATIGUE ANALYSIS

28 PIPING SYSTEM FLEXIBILITY

29 PACKAGED: NO YES () DEFINE BASIC SCOPE OF PACKAGING IN REMARKS SECTION, PAGE 5

30 SKID SOLEPLT. BASEPLT. BOLTS OR STUDS FOR SOLEPLT. TO FRAME RAILS CHOCK BLOCKS SHIMS

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

32 LEVELING SCREWS NON-SKID DECKING SUB SOLEPLATES

33 DIRECT GROUTED CEMENTED/MORTAR GROUT EPOXY GROUT; MFG/TYPE _____ / _____

34 INTERCLR(S) () SEPARATOR(S) () AFTERCLR(S) () **INTERCOOLERS:**

35 INTERSTAGE PIP. (): PIPING MATCHMARKED SHOP FITTED MACHINE MTD.

36 CONDENSATE SEPARATION & COLLECTION FACILITY SYSTEM PER 3.8.12 OFF MOUNTED

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

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

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

40 RUPTURE DISC(S) () THRU STUDS IN PIPING FLANGES REF 3.9.3.15 > 125 < 250

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

42 SPECIAL PIPING REQUIREMENTS PER 3.7.1.12.24. (DEFINE IN REMARKS SECTION NEXT PAGE) SPECIAL FINISH _____

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

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

45 PREFERRED TYPE OF CYLINDER COOLING (): FORCED THERMOSYPHON _____ STAGE CYL(S)

46 NOTE: MANUFACTURER SHALL RECOMMEND STATIC (STAND-PIPE) _____ STAGE CYL(S)

47 BEST TYPE OF COOLING AFTER CYL. COOLING WATER PIPING () MATCH M'RKED

48 FINAL ENGINEERING REVIEW OF ALL SINGLE INLET/OUTLET MANIFOLD & VALVES SIGHT GL'SS(ES)

49 OPERATING CONDITIONS INDIVIDUAL INLET/ OUTLET PER CYL. VALVE(S)

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

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



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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 FRAME LUBE OIL SYSTEM (): AUX. PUMP DUAL FILTERS WITH TRANSFER VALVE SHOP RUN

5 CONTINUOUS FLOW IN SENSING LINE TO PRESSURE SWITCHES

6 SEPARATE LUBE OIL CONSOLE (): EXTENDED TO MOTOR OUTBOARD BEARING SHOP RUN

7 API 614 APPLIES (REFER TO NOTE OF 2.12.2) NO YES

8 NOTE: PIPING BETWEEN ALL CONSOLES AND COMPRESSOR UNIT BY PURCHASER

9 CAPACITY CONTROL (): SEE DATA SHEET PAGE 3 FOR DETAILS IN INSTRUMENT & CONTROL PANEL

10 SEPARATE MACHINE MOUNTED PANEL SEPARATE FREE STANDING PANEL

11 PNEUMATIC ELECTRIC ELECTRONIC HYDRAULIC

12 PROGRAMMABLE CONTROLLER

13

14

15 INSTRUMENT & CONTROL PANEL (): ONE FOR EACH UNIT ONE COMMON TO ALL UNITS

16 MACHINE MOUNTED FREE STANDING (OFF UNIT)

17 SEE INSTRUMENTATION DATA SHEETS FOR DETAILS OF PANEL, ADDITIONAL REMARKS, AND INSTRUMENTATION.

18 NOTE: ALL TUBING, WIRING, & CONNECTIONS BETWEEN OFF-UNIT FREE STANDING PANELS AND COMPRESSOR UNIT BY

19 PURCHASER.

20

21

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

23 ELECTRIC STEAM

24

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

26 ROD PRESSURE PACKING COOLING SYSTEM (SEE REMARKS) (): SEPARATE CONSOLE FILTERS

27 SPECIAL CORROSION PROTECTION: NO YES MFR'S STANDARD OTHER _____

28 HYDRAULIC TENSIONING TOOLS NO YES

29 MECHANICAL RUN TEST: NO YES MFG'S STANDARD OTHER MANUAL BAR OVER TEST

30 COMPLETE SHOP RUN TEST OF ALL MACHINE MOUNTED EQUIPMENT, PIPING & APPURT.(S)

31

32 PAINTING: MANUFACTURER'S STANDARD SPECIAL _____

33 NAMEPLATES: U.S. CUSTOMARY UNITS SI UNITS

34 SHIPMENT: DOMESTIC EXPORT EXPORT BOXING REQUIRED ()

35 STANDARD 6 MONTH STORAGE PREPARATION (), PER SPEC _____

36 OUTDOOR STORAGE FOR OVER 6 MONTHS (), PER SPEC _____

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

38

39 COMPRESSOR MANUFACTURER'S USER'S LIST FOR SIMILAR SERVICE

40 PERFORMANCE DATA REQUIRED PER 5.3.3: BHP VS. SUCTION PRESSURE CURVES

41 ROD LOAD/GAS LOAD CHARTS

42 VALVE FAILURE DATA CHARTED

43 SPEED/TORQUE CURVE DATA

44 BHP VS. CAPACITY PERFORMANCE CURVES OR TABLES REQUIRED FOR UNLOADING STEPS AND/OR VARIABLE

45 SUCTION/DISCHARGE PRESSURES

46

47 **REMARKS:**

48

49

50

51

52



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1	UTILITY CONDITIONS													
2	ELECTRICAL POWER:		AC VOLTS	/	PHASE	/	HERTZ	DC VOLTS	AC VOLTS	/	PHASE	/	HERTZ	DC VOLTS
3	<input checked="" type="radio"/>	MAIN DRIVER	<u>4160</u>	/	<u>3</u>	/	<u>60</u>	_____	INSTRUMENT	_____	/	_____	/	_____
4	<input checked="" type="radio"/>	AUXILIARY MOTORS	<u>480</u>	/	<u>3</u>	/	<u>60</u>	_____	ALARM & SHTDWN	_____	/	_____	/	_____
5	<input checked="" type="radio"/>	HEATERS	<u>120</u>	/	<u>1</u>	/	<u>60</u>	_____	_____	_____	/	_____	/	_____
6														
7														
8														
9	INSTRUMENT AIR:		NORMAL PRESSURE <u>105</u> PSIG				MAX/MIN <u>110</u> / <u>75</u> PSIG							
10	STEAM FOR: <u>DRIVERS</u>						HEATERS							
11	INLET: PRESS	_____ PSIG	MAX/MIN	_____ / _____	PSIG	INLET: PRESS	_____ PSIG	MAX/MIN	_____ / _____	PSIG				
12	(NORM.) TEMP	_____ °F	MAX/MIN	_____ / _____	°F	(NORM.) TEMP	_____ °F	MAX/MIN	_____ / _____	°F				
13	EXH'ST: PRESS	_____ PSIG	MAX/MIN	_____ / _____	PSIG	EXH'ST: PRESS	_____ PSIG	MAX/MIN	_____ / _____	PSIG				
14	(NORM.) TEMP	_____ °F	MAX/MIN	_____ / _____	°F	(NORM.) TEMP	_____ °F	MAX/MIN	_____ / _____	°F				
15														
16														
17	COOLING WATER FOR: <u>COMPRESSOR CYLINDERS</u>						COOLERS							
18	TYPE WATER _____						TYPE WATER _____ Cooling Water _____							
19	SUPP.: PRESS	_____ PSIG	MAX/MIN	_____ / _____	PSIG	SUPP.: PRESS	<u>50</u> PSIG	MAX/MIN	_____ / _____	PSIG				
20	(NORM.) TEMP	_____ °F	MAX/MIN	_____ / _____	°F	(NORM.) TEMP	<u>85</u> °F	MAX/MIN	_____ / _____	°F				
21	R'T'RN: PRESS	_____ PSIG	MAX/MIN	_____ / _____	PSIG	R'T'RN: PRESS	<u>40</u> PSIG	MAX/MIN	_____ / _____	PSIG				
22	(NORM.) TEMP	_____ °F	MAX/MIN	_____ / _____	°F	(NORM.) TEMP	_____ °F	MAX/MIN	<u>110</u> / _____	°F				
23														
24	COOLING FOR ROD PACKING:													
25	TYPE FLUID _____		SUPPLY PRESS _____ PSIG @ _____ °F		RETURN _____ PSIG @ _____ °F									
26	FUEL GAS: NORMAL PRESSURE _____ PSIG		MAX/MIN _____ / _____ PSIG		LHV _____ BTU/FT ³									
27	COMPOSITION _____													
28														
29	REMARKS/SPECIAL REQUIREMENTS: _____													
30	_____													
31	_____													
32	_____													
33	_____													
34	_____													
35	_____													
36	_____													
37	_____													
38	_____													
39	_____													
40	_____													
41	_____													
42	_____													
43	_____													
44	_____													
45	_____													
46	_____													
47	_____													
48	_____													
49	_____													
50	_____													
51	_____													
52	_____													



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1 <input checked="" type="checkbox"/> CYLINDER DATA AT FULL LOAD CONDITION		NORMAL		DESIGN		DESIGN			
2	SERVICE/ITEM NO.								
3	STAGE	1	2	1	2				
4	INLET PRESSURE, PSIA	155	238.26	155	238.26				
5	DISCHARGE PRESSURE, PSIA	243.26	400	243.26	400				
6	CYLINDERS PER STAGE	1	1	1	1				
7	SINGLE OR DOUBLE ACTING (SA OR DA)	DA	DA	DA	DA				
8	BORE, INCHES	17.375	13.625	17.375	13.625				
9	STROKE, INCHES	4.5	4.5	4.5	4.5				
10	RPM: RATED / MAX ALLOW	900 / 1500							
11	PISTON SPEED, FT/MIN: RATED / MAX ALLOW	668.3 / 1125							
12	CYLINDER LINER, YES/NO	NO	NO	NO	NO				
13	LINER NOMINAL THICKNESS, INCHES								
14	PISTON DISPLACEMENT, CFM	1093	669.3	1093	669.3				
15	CYLINDER DESIGN CLEARANCE, % AVERAGE	22.7	24.5	22.7	24.5				
16	VOLUMETRIC EFFICIENCY, % AVERAGE	71.5	70.5	77.5	75.5				
17	VALVES, INLET/DISCHARGE, QTY PER CYL.	6 / 6	4 / 4	6 / 6	4 / 4	/	/		
18	TYPE OF VALVES	PLATE	PLATE	PLATE	PLATE				
19	VALVE LIFT, INLET/DISCHARGE, INCHES	0.079	0.079	0.079	0.079	/	/		
20	VALVE VELOCITY, API 4TH EDITION, FT/MIN								
21	SUCTION VALVE(S)								
22	DISCHARGE VALVE(S)								
23	ROD DIAMETER, INCHES	2.00	2.00	2.00	2.00				
24	MAX ALLOW. COMBINED ROD LOADING, LBS, C *	40000	40000	40000	40000				
25	MAX ALLOW. COMBINED ROD LOADING, LBS, T *	37000	37000	37000	37000				
26	CALCULATED GAS ROD LOAD, LBS, C *	24360	27200	24000	27160				
27	CALCULATED GAS ROD LOAD, LBS, T *	23162	25197	23199	25197				
28	COMBINED ROD LOAD (GAS + INERTIA), LBS, C *	21804	24274	26233	28035				
29	COMBINED ROD LOAD (GAS + INERTIA), LBS, T *	25466	27071	27880	28190				
30	ROD REV., DEGREES MIN @ X-HD PIN**	152	180	152	176				
31	RECIP WT. (PISTON, ROD, X-HD & NUTS), LBS**	488.68	489.2	488.68	489.2				
32	MAX ALLOW. WORKING PRESSURE, PSIG	445	635	445	635				
33	MAX ALLOW. WORKING TEMPERATURE, °F	350	350	350	350				
34	HYDROSTATIC TEST PRESSURE, PSIG	667.5	952.5	667.5	952.5				
35	HELIUM TEST PRESSURE, PSIG								
36	INLET FLANGE SIZE/RATING	SPECIAL	10 / 300	SPECIAL	10 / 300	/	/		
37	FACING		FF		FF				
38	DISCHARGE FLANGE SIZE/RATING	SPECIAL	10 / 300	SPECIAL	10 / 300	/	/		
39	FACING		FF		FF				
40	DISCHARGE RELIEF VALVE SETTING DATA AT INLET PRESSURES GIVEN ABOVE:								
41	RECOMMENDED SETTING, PSIA	265	440	265	440				
42	GAS ROD LOAD, LBS, C *	32,280	32160	32280	32280				
43	GAS ROD LOAD, LBS, T *	31,006	30044	31006	30155				
44	COMBINED ROD LOAD, LBS, C *	28,710	29797	32631	31530				
45	COMBINED ROD LOAD, LBS, T *	24,206	26666	29364	31,094				
46	ROD REVERSAL, *MIN @ X-HD PIN**	171	175	177	178				
47	NOTE: CALCULATED AT INLET PRESSURES								
48	GIVEN ABOVE & RECOMMENDED SETTING.								
49	<input type="checkbox"/> SETTLE-OUT GAS PRESSURE								
50	(DATA REQUIRED FOR STARTING)								
51	* C = COMPRESSION * T = TENSION								
52	NOTES/REMARKS:								

**X-HD = CROSSHEAD



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1	<input checked="" type="checkbox"/> CONSTRUCTION FEATURES					
2	SERVICE ITEM NO.	_____	_____	_____	_____	_____
3	STAGE	_____	_____	_____	_____	_____
4	CYLINDER SIZE (BORE DIA), INCHES	_____	_____	_____	_____	_____
5	ROD RUN-OUT: NORMAL COLD VERTICAL (per appendix C)	0.001	0.001	0.001	0.001	_____
6						
7	MATERIALS OF CONSTRUCTION					
8	CYLINDER(S)	DUCTILE	DUCTILE	DUCTILE	DUCTILE	_____
9	CYLINDER LINER(S)	DUCTILE	DUCTILE	DUCTILE	DUCTILE	_____
10	PISTON(S)	GRAY IRON	GRAY IRON	GRAY IRON	GRAY IRON	_____
11	PISTON RINGS	CFT	CFT	CFT	CFT	_____
12	WEAR BANDS <input type="checkbox"/> REQUIRED	CFT	CFT	CFT	CFT	_____
13	PISTON ROD(S): MATERIAL/YIELD, PSI	4140 / 80k	4140 / 80	4140 / 80k	4140 / 80k	/ /
14	THREAD ROOT STRESS @ MACRL * @ X-HD END	_____	_____	_____	_____	_____
15	PISTON ROD HARDNESS, BASE MATERIAL, Rc	_____	_____	_____	_____	_____
16	PISTON ROD COATING <input type="checkbox"/> REQUIRED	_____	_____	_____	_____	_____
17	COATING HARDNESS, Rc	_____	_____	_____	_____	_____
18	VALVE SEATS / SEAT PLATE	AISI 416	AISI 416	AISI 416	AISI 416	_____
19	VALVE SEAT MIN HARDNESS, Rc	_____	_____	_____	_____	_____
20	VALVE GUARDS (STOPS)	AISI 416	AISI 416	AISI 416	AISI 416	_____
21	VALVE DISCS	NYX	PCX	NYX	PCX	_____
22	VALVE SPRINGS	17-7PH	17-7PH	17-7PH	17-7PH	_____
23	ROD PRESSURE PACKING RINGS	CFT	CFT	CFT	CFT	_____
24	ROD PRESSURE PACKING CASE	GRAY IRON	GRAY IRON	GRAY IRON	GRAY IRON	_____
25	ROD PRESSURE PACKING SPRINGS	SS	SS	SS	SS	_____
26	SEAL / BUFFER PACKING, DISTANCE PIECE	CFT	CFT	CFT	CFT	_____
27	SEAL / BUFFER PACKING, INTERMEDIATE	CFT	CFT	CFT	CFT	_____
28	WIPER PACKING RINGS	BRONZE	BRONZE	BRONZE	BRONZE	_____
29	MAIN JOURNAL BEARINGS, CRANKSHAFT	TRI-METAL	TRI-METAL	TRI-METAL	TRI-METAL	_____
30	CONNECTING ROD BEARING, CRANKPIN	TRI-METAL	TRI-METAL	TRI-METAL	TRI-METAL	_____
31	CONNECTING ROD BUSHING, X-HD END	_____	_____	_____	_____	_____
32	CROSSHEAD (X-HD) PIN BUSHING	BRONZE	BRONZE	BRONZE	BRONZE	_____
33	CROSSHEAD PIN	ALLOY	ALLOY	ALLOY	ALLOY	_____
34	CROSSHEAD	DUCTILE	DUCTILE	DUCTILE	DUCTILE	_____
35	CROSSHEAD SHOES	_____	_____	_____	_____	_____
36	CYLINDER INDICATOR VALVES ()	_____	_____	_____	_____	_____
37	INDICATOR CONNECTIONS ABOVE 5000 PSI	_____	_____	_____	_____	_____
38	FLUOROCARBON SPRAYED CYLINDER ()	_____	_____	_____	_____	_____
39	INSTRUMENTATION IN () COLD SIDE	_____	_____	_____	_____	_____
40	CONTACT W/PROCESS GAS () HOT SIDE	_____	_____	_____	_____	_____
41	* MAXIMUM ALLOWABLE COMBINED ROD LOAD	USE () IN APPROPRIATE COLUMN WHERE APPLICABLE				
42	<input checked="" type="checkbox"/> COMPRESSOR CYLINDER ROD PACKING	DISTANCE PIECE(S): <input type="checkbox"/> TYPE A <input type="checkbox"/> TYPE B <input checked="" type="checkbox"/> TYPE C <input type="checkbox"/> TYPE D				
43	<input checked="" type="checkbox"/> FULL FLOATING PACKING	Ref: Appendix G, Fig. G-3				
44	<input checked="" type="checkbox"/> VENTED TO: <input checked="" type="checkbox"/> FLARE @ _____ PSIG <input type="checkbox"/> ATMOS.	COVERS: <input checked="" type="checkbox"/> SOLID METAL <input type="checkbox"/> SCREEN <input type="checkbox"/> LOUVERED				
45	<input type="checkbox"/> SUCTION PRESSURE @ _____ PSIG	CYLINDER COMPARTMENT: <input checked="" type="checkbox"/> VENTED TO _____ PSIG				
46	<input checked="" type="checkbox"/> FORCED LUBRICATED <input type="checkbox"/> NON-LUBE <input type="checkbox"/> TFE	(Outboard Distance Piece) <input type="checkbox"/> PURGED AT _____ PSIG				
47	<input checked="" type="checkbox"/> WATER COOLED, STAGE(S), GPM REQ'D	<input type="checkbox"/> PRESSURIZED TO _____ PSIG				
48	<input checked="" type="checkbox"/> OIL COOLED, STAGE(S), GPM REQ'D	<input type="checkbox"/> WITH RELIEF VALVE				
49	<input type="checkbox"/> WATER FILTER PROV.FUTURE WATER/OIL COOLING	FRAME COMPARTMENT: <input checked="" type="checkbox"/> VENTED TO _____ PSIG				
50	<input checked="" type="checkbox"/> VENT/BUFFER GAS SEAL PACKING ARR. (Ref: Appndx I FIG I-1)	(Inboard Distance Piece) <input type="checkbox"/> PURGED AT _____ PSIG				
51	<input checked="" type="checkbox"/> CONSTANT OR <input type="checkbox"/> VARIABLE DISPOSAL SYSTEM	<input type="checkbox"/> PRESSURIZED TO _____ PSIG				
52	<input checked="" type="checkbox"/> BUFFER GAS PRESSURE, 17 PSIG	<input type="checkbox"/> WITH RELIEF VALVE				
53	<input type="checkbox"/> SPLASH GUARDS FOR WIPER PACKING	<input checked="" type="checkbox"/> DISTANCE PIECE MAWP 25 PSIG				



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1	<input type="checkbox"/> CONSTRUCTION FEATURES (CONTINUED)	
2	<input type="radio"/> FABRICATED CYLINDER, HEADS, & CONNECTION SKETCHES FOR DESIGN REVIEW BY PURCHASER. (2.14.5.2.8)	<input checked="" type="radio"/> BUFFER GAS PACKING ARR. Ref: Appendix I
3		<input checked="" type="radio"/> OIL WIPER PACKING PURGE Figures I-1, I-2 & I-3
4		<input checked="" type="radio"/> INTERMEDIATE PARTITION PURGE
5		INERT BUFFER PURGE GAS: <input checked="" type="radio"/> N ₂ <input type="radio"/> OTHER _____
6		<input checked="" type="radio"/> VENT, DRAIN, PURGE PIPING BY MFG'R <input type="radio"/> NO <input checked="" type="radio"/> YES
7	<input checked="" type="radio"/> COUPLING(S) <input type="radio"/> LOW-SPEED <input checked="" type="radio"/> HI-SPEED	<input type="checkbox"/> V-BELT DRIVE DRIVEN SHEAVE DRIVE SHEAVE
8	Between Compressor & Driver or Gear Between Driver & Gear	(Compressor Shaft) (Driver Shaft)
9	<input checked="" type="checkbox"/> BY MANUFACTURER REXNORD _____	RPM (EXPECTED) _____
10	<input checked="" type="checkbox"/> MODEL CMR _____	PITCH DIA. (Inches) _____
11	<input checked="" type="checkbox"/> TYPE 550 _____	<input type="checkbox"/> QTY & GROOVE X-SEC. _____
12		POWER TRANSMITT'D _____
13		Incl. Belt Losses
14	API-671 APPLIES <input type="radio"/> YES <input type="radio"/> NO	<input type="checkbox"/> DRIVER NAMEPLATE HP RATING _____
15	<input type="radio"/> INSPECTION AND SHOP TESTS (REF. 4.1.3)	<input type="checkbox"/> CENTER DISTANCE (INCHES) _____
16	REQ'D WITN. OBSER.	<input type="checkbox"/> QTY, TYPE, _____
17	*SHOP INSPECTION <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	X-SEC., & LENGTH BELTS _____
18	ACTUAL RUNNING CLEARANCES <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> BELT SERVICE FACTOR (RELATIVE TO DRIVER NAMEPLATE HP RATING) _____
19	AND RECORDS <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	
20	MFG STANDARD SHOP TESTS <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	<input checked="" type="checkbox"/> CYLINDER LUBRICATION
21	CYLINDER HYDROSTATIC TEST <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> NON-LUBE _____ STAGE(S)/SERVICE
22	CYLINDER PNEUMATIC TEST <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input checked="" type="radio"/> LUBRICATED 1 _____ STAGE(S)/SERVICE
23	CYLINDER HELIUM LEAK TEST <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	TYPE OF LUBE OIL: <input checked="" type="radio"/> SYNTHETIC _____
24	CYL. JACKET WATER HYDRO TEST <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> HYDROCARBON _____
25	*MECHANICAL RUN TEST (4 HR) <input type="radio"/> <input type="radio"/> <input type="radio"/>	LUBRICATOR <input type="checkbox"/> COMP. CRANKSHAFT, DIRECT
26	BAR-OVER TO CHECK ROD RUNOUT <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	DRIVE BY: <input checked="" type="checkbox"/> CHAIN, FROM CRANKSHAFT
27	*LUBE OIL CONSOLE RUN/TEST (4 HR) <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> ELECTRIC MOTOR
28	*COOLING H ₂ O CONSOLE RUN/TEST <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> OTHER _____
29	RADIOGRAPHY BUTT WELDS <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> LUBRICATOR MFR _____
30	<input checked="" type="radio"/> GAS <input checked="" type="radio"/> OIL <input type="radio"/> FAB CYLS.	<input type="checkbox"/> MODEL _____
31	MAG PARTICLE/LIQUID <input type="radio"/> <input type="radio"/> <input type="radio"/>	TYPE LUBRICATOR: <input type="radio"/> SINGLE PLUNGER PER POINT
32	PENETRANT OF WELDS <input type="radio"/> <input type="radio"/> <input type="radio"/>	(2.13) <input checked="" type="radio"/> DIVIDER BLOCKS _____
33	SPECIFY ADDITIONAL _____	<input checked="" type="checkbox"/> COMPARTMT, TOTAL QTY. _____
34	REQUIREMENTS (4.2.1.3) _____	<input checked="" type="checkbox"/> PLUNGERS (PUMPS), TOTAL QTY. _____
35	<input type="radio"/> <input type="radio"/> <input type="radio"/>	<input checked="" type="checkbox"/> SPARE PLUNGERS, QTY. _____
36	QC OF INACCESSIBLE WELDS <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input checked="" type="checkbox"/> SPARE COMPARTMT W/OUT PLUNGERS _____
37	(2.14.5.2.4) _____	<input type="radio"/> HEATERS: <input type="radio"/> ELECTRIC W/THERM.(S) <input type="radio"/> STEAM
38	SHOP FIT-UP OF PULSATION SUPPL. DEVICES & ALL ASSOCIATED GAS PIPING <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	<input checked="" type="checkbox"/> ESTIMATED WEIGHTS AND NOMINAL DIMENSIONS
39	*CLEANLINESS OF EQUIP., PIPING, & APPURTENANCES <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> TOTAL COMPR. WT, LESS DRIVER & GEAR _____ LBS
40	*HARDNESS OF PARTS, WELDS & HEAT AFFECTED ZONES <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input checked="" type="checkbox"/> WT, OF COMPLETE UNIT, (LESS CONSOLES) 62,412 LBS
41	*NOTIFICATION TO PURCHASER OF ANY REPAIRS TO MAJOR COMPONENTS <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> MAXIMUM ERECTION WEIGHT _____ LBS
42	_____ <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> MAXIMUM MAINTENANCE WEIGHT _____ LBS
43	_____ <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> DRIVER WEIGHT/GEAR WEIGHT _____ / _____ LBS
44	_____ <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> LUBE OIL/COOLING H ₂ O CONS. _____ / _____ LBS
45	_____ <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> FREE STANDING PANEL _____
46	_____ <input type="radio"/> <input type="radio"/> <input type="radio"/>	SPACE REQUIREMENTS-FEET: LENGTH WIDTH HEIGHT
47	_____ <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> COMPLETE UNIT _____
48	_____ <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> LUBE OIL CONSOLE _____
49	_____ <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="checkbox"/> COOLING H ₂ O CONSOLE _____
50	*SPECIFIC REQUIREMENTS TO BE DEFINED, FOR EXAMPLE, DISMANTLING, AUX EQUIPMENT OPERATIONAL & RUN TESTS.	<input type="checkbox"/> FREE STANDING PANEL _____
51	APPENDIX K COMPLIANCE: <input checked="" type="radio"/> VENDOR	<input checked="" type="checkbox"/> PISTON ROD REMOVAL DIST. 140.5"
52	<input type="radio"/> PURCHASER	OTHER EQUIPMENT SHIPPED LOOSE (DEFINE)
53		<input type="checkbox"/> PULSATION SUPP., WEIGHT _____ LBS
54		<input type="checkbox"/> PIPING _____ LBS
55		<input type="checkbox"/> INTERSTAGE EQUIPMENT _____ LBS



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1	UTILITY CONSUMPTION						
2							
3	ELECTRIC MOTORS						
4							
5		NAMEPLATE	LOCKED ROTOR	FULL LOAD	MAIN DRIVER NON-STEADY		
6	For Induction	HP	AMPS	STEADY STATE	STATE AMPS AT COMPRES-		
7	Motors See Note			AMPS	SOR RATED HORSEPOWER		
8	of 3.1.2.5 and				(Induction Motors Only)		
9	<input checked="" type="checkbox"/> MAIN DRIVER Motor Data Sheet	850	550%	116.4	_____ AMPS		
10	<input type="checkbox"/> MAIN LUBE OIL PUMP	_____	_____	_____	@ COMPRESSOR RATED		
11	<input checked="" type="checkbox"/> AUX LUBE OIL PUMP	3	30.1	3.63	HP OF _____		
12	<input type="checkbox"/> MAIN COOLING WATER PUMP	_____	_____	_____	@ CURRENT PULSATIONS		
13	<input type="checkbox"/> AUX COOLING WATER PUMP	_____	_____	_____	OF _____ %		
14	<input type="checkbox"/> ROD PACKING COOLING PUMP	_____	_____	_____			
15	<input type="checkbox"/> CYLINDER LUBRICATOR	_____	_____	_____			
16	_____	_____	_____	_____			
17	_____	_____	_____	_____			
18	_____	_____	_____	_____			
19	_____	_____	_____	_____			
20	ELECTRIC HEATERS						
21		WATTS	VOLTS	HERTZ			
22	<input checked="" type="checkbox"/> FRAME OIL HEATER(S)	2000	120	60			
23	<input type="checkbox"/> COOLING WATER HEATER(S)	_____	_____	_____			
24	<input type="checkbox"/> CYL. LUBRICATOR HEATER(S)	_____	_____	_____			
25	_____	_____	_____	_____			
26	_____	_____	_____	_____			
27	_____	_____	_____	_____			
28	_____	_____	_____	_____			
29	STEAM						
30		FLOW	PRESSURE	TEMPERATURE	BACK PRESSURE		
31	<input type="checkbox"/> MAIN DRIVER	_____ LBS/HR @ _____	_____ PSIG	_____ °F	_____ TO _____	_____ PSIG	
32	<input type="checkbox"/> FRAME OIL HEATER(S)	_____ LBS/HR @ _____	_____ PSIG	_____ °F	_____ TO _____	_____ PSIG	
33	<input type="checkbox"/> CYL. LUB. HEATER(S)	_____ LBS/HR @ _____	_____ PSIG	_____ °F	_____ TO _____	_____ PSIG	
34	_____	_____ LBS/HR @ _____	_____ PSIG	_____ °F	_____ TO _____	_____ PSIG	
35	_____	_____ LBS/HR @ _____	_____ PSIG	_____ °F	_____ TO _____	_____ PSIG	
36	_____	_____ LBS/HR @ _____	_____ PSIG	_____ °F	_____ TO _____	_____ PSIG	
37	COOLING WATER REQUIREMENTS						
38		FLOW	INLET TEMP	OUTLET TEMP	INLET PRESS	OUTLET PRESS	MAX PRESS
39		GPM	°F	°F	PSIG	PSIG	PSIG
40	<input type="checkbox"/> CYLINDER JACKETS	_____	_____	_____	_____	_____	_____
41	<input checked="" type="checkbox"/> INTERCOOLER(S)	85	85	110	50	49	_____
42	<input checked="" type="checkbox"/> AFTERCOOLER	56	85	110	50	49	_____
43	<input checked="" type="checkbox"/> FRAME LUBE OIL COOLER	7	85	95	50	47.5	_____
44	<input type="checkbox"/> ROD PRESSURE PACKING*	_____	_____	_____	_____	_____	_____
45	_____	_____	_____	_____	_____	_____	_____
46	_____	_____	_____	_____	_____	_____	_____
47	_____	_____	_____	_____	_____	_____	_____
48	<input checked="" type="checkbox"/> TOTAL QUANTITY, GPM	148	_____	_____	_____	_____	_____
49	REMARKS/SPECIAL REQUIREMENTS:						
50	_____						
51	_____						



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FRAME LUBE OIL SYSTEM

BASIC LUBE OIL SYSTEM FOR FRAME: SPLASH PRESSURE (FORCED) HEATERS REQUIRED:
 REF: TYPE MAIN BEARINGS: TAP'RD ROLL'R PRECISION SL'VE ELEC. W/THERMOSTAT(S) STEAM
 PRESSURE SYSTEM: MAIN OIL PUMP DRIVEN BY: COMP. CRANKSHAFT ELEC. MOTOR OTHER _____
 AUX OIL PUMP DRIVEN BY: ELEC. MOTOR OTHER _____
 HAND OPERATED PRE-LUBE PUMP FOR STARTING OPERATIONAL TEST & 4 HOUR MECH RUN TEST
 API-614 LUBE SYSTEM: NO YES (See Note of 2.12.2) CHECK VALVE ON MAIN PUMP (FIG G-5)
 CONTINUOUS FLOW THROUGH OIL (3.7.2.7)
 SEP. CONSOLE FOR PRESS. LUBE SYS: ONE CONSOLE FOR EA. COMP. ONE CONSOLE FOR _____ COMPRESSORS
 Note: Instrumentation to be listed on Instrumentation Data Sheets. CONSOLE TO BE OF DECK PLATE TYPE CONSTRUCTION SUITABLE FOR MULTI-POINT SUPPORT AND GROUTING WITH GROUT & VENT HOLES.
 ELECTRICAL CLASSIFICATION: CLASS _____, GROUP _____, DIV _____ NON-HAZARDOUS

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

LUBE OIL	FLOW GPM	PRESSURE PSIG	VISCOSITY SSU @ 100°F	VISCOSITY SSU @ 210°F	SUMP VOLUME GALLONS
<input checked="" type="checkbox"/> COMPRESSOR FRAME	17	60			15
<input type="checkbox"/> DRIVER					
<input type="checkbox"/> GEAR					

SYSTEM PRESSURES: DESIGN _____ PSIG HYDROTEST _____ PSIG
 PRESSURE CONTROL VALVE SETTING 60 PSIG PUMP REL'F VALVE(S) SET _____ PSIG

PIPING MATERIALS:

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

PUMPS (Gear or Screw Type Only) RAT'D FL'W PRESSURE COLD START DRIVER SPEED COUPLING MECH. SEAL

	GPM	PSIG	REQ'D BHP	HP	RPM	REQ'D	REQ'D
MAIN	17	75				<input type="checkbox"/>	<input type="checkbox"/>
AUXILIARY	20.4	75		3	3600	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

PUMP CASING MATERIAL (Ref. 2.12.3.1): MAIN PUMP _____ AUX PUMP _____ CAST STEEL
 GUARD(S) REQ. FOR COUPLING(S): MAIN PUMP AUX PUMP GUARD TYPE OR CODE Non sparking
 AUXILIARY PUMP CONTROL: MANUAL AUTOMATIC ON-OFF-AUTO SEL. SWITCH: BY PURCH. BY MFR.
 WIRING TO TERMINAL BOX: BY PURCH. BY MFR.
 SWITCHES RTD'S/THERMOCOUPLES

COOLERS: SHELL & TUBE SINGLE DUAL W/TRANSFER VALVE MFG'S STD. TEMA C TEMA R (API-660 Data Shts Attached)
 REMOVABLE BUNDLE WATER COOLED AIR COOLED W/AUTO TEMP CONTROL (API-661 Data Shts - Attached)
 W/BYPASS & TEMP CONTROL VALVE: MANUAL AUTO SEE SEPARATE HEAT EXCHANGER DATA SHT FOR DETAILS SPECIFY % GLYCOL ON COOLING WATER SIDE

FILTER(S) SINGLE DUAL W/TRANSFER VALVE ASME CODE DESIGN ASME CODE STAMPED
 DESIGN PRESSURE, 300 PSIG Δ P CHANGE 10 PSI Δ P COLLAPSE, _____ PSI
 MICRON RATING, 5-10 CARTRIDGE MATERIAL, _____ CARTRIDGE P/N _____
 BONNET MATERIAL, _____ CASING MATERIAL, CI FURN.SPARE CARTR.,QTY _____

SYS. COMPONENT SUPP.

	MANUFACTURER	MODEL	MANUFACTURER	MODEL
<input type="checkbox"/> MAIN PUMP	ARIEL		<input checked="" type="checkbox"/> OIL COOLER(S)	ITT STANDARD 03024SX2000
<input checked="" type="checkbox"/> AUXILIARY PUMP	IMO	D3E-118	<input type="checkbox"/> TRANSFER VALVE(S)	
<input type="checkbox"/> MECHANICAL SEALS			<input type="checkbox"/> PUMP COUPLING(S)	
<input checked="" type="checkbox"/> ELECTRIC MOTORS	WEG	182/4T	<input type="checkbox"/> SUCTION STRAINER(S)	
<input type="checkbox"/> STEAM TURBINES			<input type="checkbox"/> CHECK VALVE(S)	
<input type="checkbox"/> OIL FILTER(S)	ARIEL			



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**RECIPROCATING COMPRESSOR
(API 618-4TH) DATA SHEET
U.S. CUSTOMARY UNITS**

COOLING WATER SYSTEM

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

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

SEP. CONSOLE FOR COOLING WATER SYS: ONE CONSOLE FOR EA. COMP. ONE CONSOLE FOR _____ COMP'RS
 NOTE: Instrumentation to be Listed on _____
 Instrumentation Data Sheets _____
 CONSOLE TO BE OF DECK PLATE TYPE CONSTRUCTION SUITABLE FOR MULTI-POINT SUPPORT AND GROUTING WITH GROUT & VENT HOLES.

ELECTRICAL CLASSIFICATION : CLASS _____, GROUP _____, DIV _____ NON-HAZARDOUS

BASIC SYS. REQ'MTS (NORM. COOLING WATER FLOW DATA) COOL'G WATER TO BE _____ % ETHYL'NE GLYCL SITE

	FORCED COOL'G	THERMO SYPHON	STAND PIPE	FLOW GPM	PRESSURE PSIG	INLET TEMP °F	OUTLET TEMP °F	FLOW IND'TR
14	CYLINDER(S), _____ STAGE	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	<input type="checkbox"/>
15	CYLINDER(S), _____ STAGE	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	<input type="checkbox"/>
16	CYLINDER(S), _____ STAGE	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	<input type="checkbox"/>
17	CYLINDER(S), _____ STAGE	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	<input type="checkbox"/>
18	CYLINDER(S), _____ STAGE	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	<input type="checkbox"/>
19	CYLINDER(S), _____ STAGE	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	<input type="checkbox"/>
20	PISTON ROD PACK'G TOTAL	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	<input type="checkbox"/>
21	INTERCOOLER(S) TOTAL	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	<input type="checkbox"/>
22	AFTERCOOLER	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	<input type="checkbox"/>
23	OIL COOLER(S)	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	<input type="checkbox"/>
24	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____	<input type="checkbox"/>
25	TOTAL FLOW	_____	_____	_____	_____	_____	_____	_____

SYS. PRESSURES: DESIGN, _____ PSIG HYDROTEST, _____ PSIG RELIEF VALVE(S), SETTING _____ PSIG

WATER RESERVOIR: SIZE, _____ FT IN DIA X _____ FT IN HT. CAPACITY _____ GALLONS @ Normal Operating Level

RESERVOIR MATERIAL _____ INTERNAL COATING, TYPE _____

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

PUMPS: (Centrifugal Only) RAT'D FL'W _____ GPM PRESS. _____ PSIG REQ'D _____ BHP DRIVER _____ HP SPEED _____ RPM COUPLING _____ MECH.SEAL _____

MAIN _____ _____ _____

AUXILIARY _____ _____ _____

PUMP CASING MATERIAL (Ref 2.12.3.1): MAIN PUMP _____ AUX PUMP _____

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

AUX.PUMP CONTROL: MANUAL AUTO ON-OFF-AUTO SEL. SWITCH: BY PURCH. BY MANUFACTURER

WIRING TO TERMINAL BOX: BY PURCH. BY MANUFACTURER

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

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

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

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

	MANUFACTURER	MODEL	MANUFACTURER	MODEL
46	<input type="checkbox"/> MAIN PUMP	_____	<input type="checkbox"/> TEMP CONTROL VALVE(S)	_____
47	<input type="checkbox"/> AUXILIARY PUMP	_____	<input type="checkbox"/> TRANSFER VALVE(S)	_____
48	<input type="checkbox"/> MECHANICAL SEALS	_____	<input type="checkbox"/> PUMP COUPLING(S)	_____
49	<input type="checkbox"/> ELECTRIC MOTORS	_____	_____	_____
50	<input type="checkbox"/> STEAM TURBINES	_____	_____	_____
51	<input type="checkbox"/> _____	_____	_____	_____
52	<input type="checkbox"/> _____	_____	_____	_____



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**RECIPROCATING COMPRESSOR
(API 618-4TH) DATA SHEET
U.S. CUSTOMARY UNITS**

PULSATION SUPPRESSION DEVICES FOR RECIPROCATING COMPRESSORS

THESE SHEETS TO BE FILLED OUT FOR EACH SERVICE AND/OR STAGE OF COMPRESSION

3 APPLICABLE TO: PROPOSALS PURCHASE AS BUILT
4 FOR/USER GTL JOINT VENTURE, LLC
5 SITE/LOCATION OKLAHOMA CITY, OK AMBIENT TEMPERATURE MIN/MAX 0 / 100 °F
6 COMPRESSOR SERVICE SYNGAS COMPRESSOR NUMBER OF COMPRESSORS 1
7 COMPRESSOR MFG. ARIEL MODEL/TYPE JGT/2
8 SUPPRESSOR MFG. R&N MANUFACTURING
9 NOTE: Ind.Data Comp.'d Purch. By Compr/Supp.Mfg.w/Proposal By Mfg(s) after order By Mfg(s)/Purchaser as Applicable

GENERAL INFORMATION APPLICABLE TO ALL SUPPRESSORS

11 TOTAL NUMBER OF SERVICES AND/OR STAGES 1 SERVICE
12 TOTAL NUMBER OF COMPRESSOR CYL. 2 TOTAL NUMBER OF CRANKTHROWS 2 STROKE 4.5 IN. RPM 900
13 ASME CODE STAMP GOVERNMENTAL CODES OF _____ CODE REGULATIONS APPLY
14 OTHER APPLICABLE PRESSURE VESSEL SPEC. OR CODE _____
15 LUBE SERVICE NON-LUBE SERV. NO OIL ALLOWED INTERNALLY DRY TYPE INTER.CORR.COATING YES NO
16 RADIOGRAPHY (X-RAY OF WELDS): NONE SPOT 100% IMPACT TEST SPECIAL WELDING REQUIREMENTS
17 SHOP INSPECTION WITNESS HYDROTEST OUTDOOR STORAGE OVER 6 MONTHS SPECIAL PAINT SPEC _____
18 WITNESSED OBSERVED

CYLINDER, GAS, OPERATING, AND SUPPRESSOR DESIGN DATA

21		SERVICE <u>SYNGAS / DESIGN</u> STAGE NO. <u>1ST</u>
22	<input checked="" type="checkbox"/> COMPRESSOR MANUFACTURER'S RATED CAPACITY	LBS/HR _____ SCFM <u>7367</u> MMSCFD _____
23	<input type="checkbox"/> LINE SIDE OPERATING PRESSURE	INLET, <u>155</u> PSIA DISCHARGE, <u>243</u> PSIA
24	<input type="checkbox"/> OPERATING TEMP. WITHIN SUPPRESSORS	INLET, _____ °F DISCHARGE, <u>250</u> °F
25	<input type="checkbox"/> ALLOWABLE PRESSURE DROP THROUGH SUPPRESSORS	Δ P <u>10</u> PSI / _____ % Δ P <u>10</u> PSI / _____ %
26		INLET SUPPRESSOR DISCHARGE SUPPRESSOR
27	<input checked="" type="checkbox"/> SUPPRESSOR TAG NUMBER	PK-302-V1A PK-302-V2A
28	<input checked="" type="checkbox"/> COMBINATION INLET SUPP SEPARATOR/INTERNALS	<input checked="" type="radio"/> YES <input type="radio"/> NO / <input type="radio"/> YES <input checked="" type="radio"/> NO / <input type="radio"/> YES <input checked="" type="radio"/> NO
29	<input checked="" type="checkbox"/> NO. (QTY) OF INLET & DISCH. SUPP. PER STAGE	<u>1</u> <u>1</u>
30	<input type="checkbox"/> ALLOWABLE PEAK-PEAK PULSE @ LINE SIDE NOZZLE	PSI / _____ % PSI / _____ %
31	<input type="checkbox"/> ALLOWABLE PEAK-PEAK PULSE @ CYL FLANGE NOZZLE	PSI / _____ % PSI / _____ %
32	<input type="checkbox"/> 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 type="checkbox"/> MIN. REQ'D WORKING PRESSURE & TEMPERATURE	
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.	PSIG, <u>276</u> @ <u>350</u> °F PSIG, <u>403</u> @ <u>350</u> °F
38	<input type="checkbox"/> INITIAL SIZING VOL. PER FORMULA OF 3.9.2.2.2	
39	NOTE: This is a Reference	
41	<input checked="" type="checkbox"/> AS BUILT VOLUME (FT³)	<u>18.6</u> FT³ <u>11.8</u> FT³



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

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, IN. REQUIRED
- 9 WALL THICKNESS, IN. SHELL/HEAD
- 10 NOM. SHELL DIA X OVERALL LGTH. (INCH/VOL.FT³)
- 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, PSI / %) LINE PRESS
- 16 WEIGHT (LBS EACH)
- 17 INSUL NUTS & ALLOW. FOR INSULATION REQUIRED ()
- 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	
PK-302-V1A		PK-302-V2A	
CS		CS	
SA-106-C / SA-516-70N		SA-106-C / SA-516-70N	
SHELL & HEADS	WELDS	SHELL & HEADS	WELDS
0.125	IN.	0.125	IN.
SCH. 20	IN./ 3/8" IN.	SCH. XS SMLS	IN./ 1/2" IN.
24 x 64	IN./ FT³	24 x 37	IN./ FT³
<input checked="" type="checkbox"/> PIPE	<input type="checkbox"/> ROLLED PLATE	<input checked="" type="checkbox"/> PIPE	<input type="checkbox"/> ROLLED PLATE
PSI @ °F		PSI @ °F	
-20 °F		-20 °F	
<input type="radio"/> YES <input checked="" type="radio"/> NO		<input type="radio"/> YES <input checked="" type="radio"/> NO	
Δ P	PSI/ %	Δ P	PSI/ %
1072	LBS	878	LBS
%/ %		%/ %	
		WEDGE TYPE	

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)
>125 <250 PER ANSI 16.5
- 25
- 26 INSPECTION OPENINGS REQUIRED YES NO BLINDED YES NO BLINDED
- 27 SPEC. QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING
- 28 * QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING
- 29 VENT CONNECTIONS REQUIRED YES NO YES NO
- 30 SPEC. QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING
- 31 * QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING
- 32 DRAIN CONNECTIONS REQUIRED YES NO YES NO
- 33 SPEC. QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING
- 34 * QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING
- 35 PRESSURE CONNECTIONS REQUIRED YES NO YES NO
- 36 SPEC. QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING
- 37 * QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING
- 38 TEMPERATURE CONNECTIONS REQUIRED YES NO YES NO
- 39 SPEC. QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING
- 40 CYL NOZZLE MAIN BODY
- 41 * QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING

(1) 4" - 300# RFWN	(1) 4" - 300# RFWN
<input checked="" type="radio"/> YES <input type="radio"/> NO	<input type="radio"/> YES <input checked="" type="radio"/> NO
(1) 1 1/2" - 300# RFWN	
<input checked="" type="radio"/> YES <input type="radio"/> NO	<input checked="" type="radio"/> YES <input type="radio"/> NO
(1) 1 1/2" - 300# RFWN	(1) 1" - 300# RFWN
<input checked="" type="radio"/> YES <input type="radio"/> NO	<input checked="" type="radio"/> YES <input type="radio"/> NO
(1) 1 1/2" - 300# RFWN	(1) 1 1/2" - 300# RFWN
<input checked="" type="radio"/> YES <input type="radio"/> NO	<input checked="" type="radio"/> YES <input type="radio"/> NO
(1) 1 1/2" - 300# RFWN	(2) 1 1/2" - 300# RFWN

OTHER DATA AND NOTES

- 47 COMPRESSOR MFG'S SUPP. OUTLINE OR DRAWING NO.
- 48 SUPP. MFG'S OUTLINE OR DRAWING NO.
- 49 NOTES * = AS BUILT



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**RECIPROCATING COMPRESSOR
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1	PULSATION SUPPRESSION DEVICES FOR RECIPROCATING COMPRESSORS	
2	THESE SHEETS TO BE FILLED OUT FOR EACH SERVICE AND/OR STAGE OF COMPRESSION	
3	APPLICABLE TO: <input type="radio"/> PROPOSALS <input type="radio"/> PURCHASE <input checked="" type="radio"/> AS BUILT	
4	FOR/USER <u>GTL JOINT VENTURE, LLC</u>	
5	SITE/LOCATION <u>OKLAHOMA CITY, OK</u>	AMBIENT TEMPERATURE MIN/MAX <u>0</u> / <u>100</u> °F
6	COMPRESSOR SERVICE <u>SYNGAS COMPRESSOR</u>	NUMBER OF COMPRESSORS <u>1</u>
7	COMPRESSOR MFG. <u>ARIEL</u>	MODEL/TYPE <u>JGT/2</u>
8	SUPPRESSOR MFG. <u>R&N MANUFACTURING</u>	
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	
10	GENERAL INFORMATION APPLICABLE TO ALL SUPPRESSORS	
11	TOTAL NUMBER OF SERVICES AND/OR STAGES <u>1</u>	SERVICE <u>1</u>
12	TOTAL NUMBER OF COMPRESSOR CYL. <u>2</u>	TOTAL NUMBER OF CRANKTHROWS <u>2</u> STROKE <u>4.5</u> IN. RPM <u>900</u>
13	<input checked="" type="radio"/> ASME CODE STAMP <input type="radio"/> GOVERNMENTAL CODES OF _____ CODE REGULATIONS APPLY	
14	<input type="radio"/> OTHER APPLICABLE PRESSURE VESSEL SPEC. OR CODE _____	
15	<input checked="" type="radio"/> LUBE SERVICE <input type="radio"/> NON-LUBE SERV. <input type="radio"/> NO OIL ALLOWED INTERNALLY DRY TYPE INTER.CORR.COATING <input type="radio"/> YES <input checked="" type="radio"/> NO	
16	RADIOGRAPHY (X-RAY OF WELDS): <input type="radio"/> NONE <input type="radio"/> SPOT <input checked="" type="radio"/> 100% <input type="radio"/> IMPACT TEST <input type="radio"/> SPECIAL WELDING REQUIREMENTS	
17	<input checked="" type="radio"/> SHOP INSPECTION <input checked="" type="radio"/> WITNESS HYDROTEST <input type="radio"/> OUTDOOR STORAGE OVER 6 MONTHS <input type="radio"/> SPECIAL PAINT SPEC _____	
18	<input type="radio"/> WITNESSED <input type="radio"/> OBSERVED	
19		
20	CYLINDER, GAS, OPERATING, AND SUPPRESSOR DESIGN DATA	
21	SERVICE <u>SYNGAS / DESIGN</u>	STAGE NO. <u>2ND</u>
22	<input checked="" type="checkbox"/> COMPRESSOR MANUFACTURER'S RATED CAPACITY	LBS/HR _____ SCFM <u>7367</u> MMSCFD _____
23	<input type="checkbox"/> LINE SIDE OPERATING PRESSURE	INLET, <u>238.4</u> PSIA DISCHARGE, <u>400</u> PSIA
24	<input type="checkbox"/> OPERATING TEMP. WITHIN SUPPRESSORS	INLET, <u>120</u> °F DISCHARGE, <u>225</u> °F
25	<input type="checkbox"/> ALLOWABLE PRESSURE DROP THROUGH SUPPRESSORS	Δ P <u>10</u> PSI / _____ % Δ P <u>10</u> PSI / _____ %
26		INLET SUPPRESSOR DISCHARGE SUPPRESSOR
27	<input checked="" type="checkbox"/> SUPPRESSOR TAG NUMBER	PK-302-V1B PK-302-V2B
28	<input checked="" type="checkbox"/> COMBINATION INLET SUPP SEPARATOR/INTERNALS	<input checked="" type="radio"/> YES <input type="radio"/> NO / <input type="radio"/> YES <input checked="" type="radio"/> NO / <input type="radio"/> YES <input checked="" type="radio"/> NO
29	<input checked="" type="checkbox"/> NO. (QTY) OF INLET & DISCH. SUPP. PER STAGE	<u>1</u> <u>1</u>
30	<input type="checkbox"/> ALLOWABLE PEAK-PEAK PULSE @ LINE SIDE NOZZLE	PSI / _____ % PSI / _____ %
31	<input type="checkbox"/> ALLOWABLE PEAK-PEAK PULSE @ CYL FLANGE NOZZLE	PSI / _____ % PSI / _____ %
32	<input type="checkbox"/> 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 type="checkbox"/> MIN. REQ'D WORKING PRESSURE & TEMPERATURE	
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.	PSIG, <u>439</u> @ <u>350</u> °F PSIG, <u>518</u> @ <u>350</u> °F
35		
36		
37		
38	<input type="checkbox"/> INITIAL SIZING VOL. PER FORMULA OF 3.9.2.2.2	
39	NOTE: This is a Reference	_____ FT ³ _____ FT ³
40		
41	<input checked="" type="checkbox"/> AS BUILT VOLUME (FT ³)	<u>13.2</u> FT ³ <u>10.3</u> FT ³
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		



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

3 CONSTRUCTION REQUIREMENTS & DATA		INLET SUPPRESSOR	DISCHARGE SUPPRESSOR
4	<input checked="" type="radio"/> SUPPRESSOR TAG NUMBER	PK-302-V1B	PK-302-V2B
5	<input checked="" type="radio"/> BASIC MATERIAL REQUIRED, CS, SS, ETC.	CS	CS
6	<input checked="" type="radio"/> ACTUAL MATERIAL DESIGNINATION SHELL/HEAD	SA-106-B / SA-516-70N	SA-106-B / SA-516-70
7	<input type="radio"/> SPECIAL HARDNESS LIMITATIONS, Rc <input type="radio"/> YES <input type="radio"/> NO	SHELL & HEADS WELDS	SHELL & HEADS WELDS
8	<input checked="" type="radio"/> CORROSION ALLOWANCE, IN. <input type="radio"/> REQUIRED	0.125 IN.	0.125 IN.
9	<input checked="" type="radio"/> WALL THICKNESS, IN. SHELL/HEAD	1/2 IN./ 1/2 IN.	1/2 IN./ 1/2" IN.
10	<input checked="" type="radio"/> NOM. SHELL DIA X OVERALL LGTH. (INCH/VOL.FT ³)	22 x 55 IN./ FT ³	22 x 40 IN./ FT ³
11	<input checked="" type="radio"/> PIPE OR ROLLED PLATE CONSTRUCTION	<input type="checkbox"/> PIPE <input checked="" type="checkbox"/> ROLLED PLATE	<input checked="" type="checkbox"/> PIPE <input type="checkbox"/> ROLLED PLATE
12	<input type="checkbox"/> ACT. MAX ALLOW. WORKING PRESS. AND TEMPERATURE	PSI @ °F	PSI @ °F
13	<input checked="" type="radio"/> MINIMUM DESIGN METAL TEMP (2.14.8)	-20 °F	-20 °F
14	<input checked="" type="radio"/> INLET SUPPRESS. TO BE SAME MAWP AS DISCH'RG SUPPRESS.	<input type="radio"/> YES <input checked="" type="radio"/> NO	
15	<input type="checkbox"/> MAX EXPECTED PRESSURE DROP(Δ P, PSI / %) LINE PRESS	Δ P PSI/ %	Δ P PSI/ %
16	<input checked="" type="radio"/> WEIGHT (LBS EACH)	1333 LBS	853 LBS
17	<input type="checkbox"/> INSUL NUTS & ALLOW. FOR INSULATION REQUIRED ()		
18	<input type="checkbox"/> EXPECTED P-P PULSE @ LINE SIDE/CYL FLG, % LINE PRESS BASED ON FINAL SUPPRESSOR DESIGN	%/ %	%/ %
19			
20	<input checked="" type="radio"/> SUPPORTS, TYPE/QUANTITY		WEDGE TYPE

21 CONNECTION REQUIREMENTS & DATA			
22	<input type="checkbox"/> LINE SIDE FLANGE. SIZE/RATING/FACING/TYPE		
23	<input type="checkbox"/> COMP CYL FLANGE(S), QTY/SIZE/RATING/FACING/TYPE		
24	<input type="checkbox"/> FLANGE FINISH, <input type="radio"/> PER 3.9.3.15 <input type="radio"/> SPECIAL (SPECIFY)		
25	<input type="radio"/> >125 <250 <input type="radio"/> PER ANSI 16.5		
26	<input checked="" type="radio"/> INSPECTION OPENINGS REQUIRED	<input checked="" type="radio"/> YES <input type="radio"/> NO <input checked="" type="radio"/> BLINDED	<input checked="" type="radio"/> YES <input type="radio"/> NO <input checked="" type="radio"/> BLINDED
27	<input type="radio"/> SPEC. QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING		
28	<input checked="" type="radio"/> * QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING	(1) 4" - 300# RFWN	(1) 4" - 300# RFWN
29	<input checked="" type="radio"/> VENT CONNECTIONS REQUIRED	<input checked="" type="radio"/> YES <input type="radio"/> NO	<input type="radio"/> YES <input checked="" type="radio"/> NO
30	<input type="radio"/> SPEC. QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING		
31	<input checked="" type="radio"/> * QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING	(1) 1 1/2" - 300# RFWN	
32	<input checked="" type="radio"/> DRAIN CONNECTIONS REQUIRED	<input checked="" type="radio"/> YES <input type="radio"/> NO	<input checked="" type="radio"/> YES <input type="radio"/> NO
33	<input type="radio"/> SPEC. QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING		
34	<input checked="" type="radio"/> * QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING	(1) 1 1/2" - 300# RFWN	(1) 1 1/2" - 300# RFWN
35	<input checked="" type="radio"/> PRESSURE CONNECTIONS REQUIRED	<input checked="" type="radio"/> YES <input type="radio"/> NO	<input checked="" type="radio"/> YES <input type="radio"/> NO
36	<input type="radio"/> SPEC. QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING		
37	<input checked="" type="radio"/> * QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING	(1) 1 1/2" - 300# RFWN	(1) 1 1/2" - 300# RFWN
38	<input checked="" type="radio"/> TEMPERATURE CONNECTIONS REQUIRED	<input checked="" type="radio"/> YES <input type="radio"/> NO	<input checked="" type="radio"/> YES <input type="radio"/> NO
39	<input type="radio"/> SPEC. QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING		
40	<input type="radio"/> CYL NOZZLE <input type="radio"/> MAIN BODY		
41	<input checked="" type="radio"/> * QTY. SIZE, 6000 LB NPT CPLG./FLG TYPE & RATING	(1) 1 1/2" - 300# RFWN	(2) 1 1/2" - 300# RFWN
42			
43			
44			
45			

46 **OTHER DATA AND NOTES**

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

48 SUPP. MFG'S OUTLINE OR DRAWING NO.

49 NOTES * = AS BUILT

50

51

52



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**RECIPROCATING COMPRESSOR
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INSTRUMENTATION

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

- 3 INSTRUMENT & CONTROL ONE FOR EA. UNIT ONE COMMON TO ALL UNITS
 4 PANEL (): MACHINE M'T'ED FREE STANDING (OFF UNIT) LOCAL REMOTE OUTDOORS
 5 PNEUMATIC ELEC. ELECTRONIC HYDRAULIC PROGRAMMABLE CONT'L'R
 6 NEMA 7, CLASS _____, GROUP _____, DIVISION _____ INTRINSICALLY SAFE
 7 I/S BARRIERS ()
 8 NEMA 4, WATERTIGHT & DUSTTIGHT PURGED TO NFPA 496 TYPE X Y Z
 9 OTHER NEMA _____ 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 ADDITIONAL PANEL REMARKS:

14 ALLEN BRADLEY COMPACT LOGIX

17 INSTRUMENTATION SUITABLE FOR: INDOORS OUTDOORS OTHER _____

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

19	PRESSURE GAUGES	MFR	WIKA	SIZE & TYPE	4.5"	MTL
20	TEMPERATURE GAUGES	MFR	WIKA	SIZE & TYPE	5" EVERY ANGLE	MTL
21	LIQUID LEVEL GAUGES	MFR		TYPE		MTL
22	DIFF. PRESSURE GAUGES	MFR	ORANGE RESEARCH	SIZE & TYPE	120APG1C4.5	MTL
23	PRESS. TRANSMITTERS	MFR	YOKOGAWA	TYPE	EJX530A	MTL
24	LIQUID LEV. TRANSMITTER	MFR		TYPE		MTL
25	PRESSURE SWITCHES	MFR		TYPE		MTL
26	TEMPERATURE SWITCHES	MFR		TYPE		MTL
27	LIQUID LEVEL SWITCHES	MFR	SOR AND KENCO	TYPE	VARIOUS	MTL
28	DIFF. PRESSURE SWITCHES	MFR		TYPE		MTL
29	CONTROL VALVES	MFR	FISHER	TYPE	VARIOUS	MTL
30	PRESSURE SAFETY VALVES	MFR		TYPE		MTL
31	SIGHT FLOW INDICATORS	MFR		TYPE		MTL
32	VIBRATION MONITORS & EQUIP.	MFR		TYPE		MTL
33	THERMOCOUPLES	MFR		TYPE		MTL
34	RTD'S	MFR	SANDELIUS	TYPE	100 OHM PLATINUM	MTL
35	SOLENOID VALVES	MFR		TYPE		MTL
36	ANNUNCIATOR	MFR		MODEL & (QTY SPARE POINTS)		()
37	PROGRAMMABLE CONTROLLER	MFR	ALLEN BRADLEY	TYPE	COMPACT LOGIX	MTL
38		MFR		TYPE		MTL
39		MFR		TYPE		MTL

41 PRESSURE GAUGE REQUIREMENTS LIQUID FILLED PRESSURE GAUGES: YES NO

43 FUNCTION	42 LOCALLY MOUNTED		42 PANEL MOUNTED		PROCESS GAS: INLET PRESS. @ EA. STAGE	42 LOCALLY MOUNTED		42 PANEL MOUNTED	
	(<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 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"/>)
44 LUBE OIL MAIN PUMP DISCHAR.	(<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"/>)	DISCH. PRESS. @ 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"/>)
45 LUBE OIL AUX. PUMP DISCHARG.	(<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"/>)
46 LUBE OIL PRESS. AT FRAME 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"/>)
47 LUBE OIL FILTER ΔP	(<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"/>)
48 COOLING H ₂ O INLET HEADER	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <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 _____	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input 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"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <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 REMARKS:
52 _____



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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
FUNCTION						
LUBE OIL <input checked="" type="radio"/> INLET TO <input type="radio"/> OUT OF FRAME	(<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 checked="" type="checkbox"/>	<input type="checkbox"/>
LUBE OIL <input checked="" type="radio"/> INLET TO <input type="radio"/> OUT OF COOLER	(<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 checked="" type="checkbox"/>	<input type="checkbox"/>
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 checked="" type="checkbox"/>	<input type="checkbox"/>
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 checked="" type="checkbox"/>	<input type="checkbox"/>
COOLING WATER HEADER: <input type="radio"/> INLET <input type="radio"/> OUTLET	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CYL. COOLING WATER: <input type="radio"/> INLET <input type="radio"/> OUTLET <input 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"/>
PROCESS GAS: <input checked="" type="radio"/> INLET <input checked="" type="radio"/> DISCH. <input checked="" type="radio"/> EACH DISCH CYL	(<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 checked="" type="checkbox"/>	<input type="checkbox"/>
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="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"/>
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="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"/>
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"/>
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"/>
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"/> <input type="checkbox"/>)	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ALARM & SHUTDOWN SWITCH REQ'MTS

NOTE: ALARM & SHUTDOWN SWITCHES SHALL BE INDIVIDUALLY SEPARATE ANNUNCIATION POINTS

FUNCTION	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	
	ROSS FILTER				
LOW LUBE OIL PRESS. @ BEARING HEADER	(<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"/>	
HIGH LUBE OIL Δ P AØ 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"/>	
LOW LUBE OIL LEVEL, FRAME	(<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"/>	
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"/>	
CYL LUBE SYSTEM PROTECTION	(<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"/>	
COMPR. VIBRATION, SHUTDOWN ONLY		(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	<input type="checkbox"/>	<input type="checkbox"/>	
VIBRATION, W/ CONTINUOUS MONITORING	(<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"/>	
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"/>	
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"/>	
OIL TEMP OUT OF FRAME	(<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"/>	
HIGH GAS DISCH. TEMP EACH CYLINDER	(<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"/>	
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"/>	
LOW SUCTION PRESS., FIRST STG INLET	(<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"/>	
HI DISCH. PRESS. <input checked="" type="radio"/> FINAL <input type="radio"/> EA STG	(<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"/>	
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"/>	
HI LIQ. LEV., EA. MOISTURE SEPARATOR	(<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"/>	
LOW PURGE GAS PRESS, PACKING CASE(S)	(<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"/>	
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"/>	
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"/>	

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

SHUTDOWN CONTACTS SHALL:

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

REF: 3.6.5.1 FOR MINIMUM RECOMMENDED PROTECTION REQUIREMENTS



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INSTRUMENTATION (CONT'D)

MISCELLANEOUS INSTRUMENTATION

INTERCLR(S) AFTERCLR OIL CLR H₂O CLR

SIGHT FLOW IND. (COOLING H₂O ONLY) () FOR: CYL JACKET WATER ROD PRESS. PKG CASES

PNEUMATIC PRESSURE TRANSMITTERS () FOR: _____

PRESSURE TRANSMITTERS (ELEC. OUTP.) () FOR: _____

PNEUMATIC LEVEL TRANSMITTERS () _____

ALARM HORN & ACK'N/LMT TEST BUTTON () _____

CONDUIT & WIRING W/JUNCT. BOXES (CON-SOLES) () _____

TEST VALVES () FOR: _____

DRAIN VALVES () FOR: _____

GAUGE GLASS(ES) () FOR: _____

TACHOMETER () _____ SPEED RANGE _____ TO _____ RPM

CRANKSHAFT KEY PHASER AND TRANSDUCER () FOR: _____

LEVEL SWITCHES FOR KO POTS () _____

_____ () _____

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

_____ () _____

_____ () _____

_____ () _____

_____ () _____

_____ () _____

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

_____ () _____

_____ () _____

_____ () _____

_____ () _____

_____ () _____

RELIEF VALVES

LOCATION	BY	MANUFACTURER	TYPE	◇ SIZE	◇ SETTING
FRAME RAPID RELIEF DEVICE	(<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	BICERA	_____	_____	_____
PROCESS GAS CONNECTIONS	(<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>)	CUSTOMER SUPPLIED	_____	_____	_____
_____	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	_____	_____	_____	_____
_____	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	_____	_____	_____	_____
_____	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	_____	_____	_____	_____
_____	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	_____	_____	_____	_____
_____	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	_____	_____	_____	_____
_____	(<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>)	_____	_____	_____	_____

NOTES: SEE MOTOR DATA SHEET FOR ADDITIONAL MOTOR INSTRUMENTATION REQUIREMENTS
FOR TURBINE DRIVERS USE APPLICABLE API DATA SHEETS
FOR GEAR REDUCERS USE APPLICABLE API DATA SHEETS
ELECTRICAL & INSTRUMENTATION CONNECTIONS SHALL BE MADE DIRECTLY BY THE PURCHASER TO INDIVIDUAL INSTRUMENTS ON THE COMPRESSOR

ADDITIONAL INSTRUMENTATION REMARKS/SPECIAL REQUIREMENTS: _____

