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ERRATA

Chapter 2, Annex A—Typical Data Sheets
Replace the US Customary Data Sheets and insert the SI Data Sheets

Chapter 3, Annex A—Typical Data Sheets
Replace the US Customary Data Sheets and insert the SI Data Sheets

Chapter 4, Annex A—Typical Data Sheets
Replace the US Customary Data Sheets and insert the SI Data Sheets

ANNEX 2A
TYPICAL DATA SHEETS

JOB NO. _____ ITEM NO. _____
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CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2)

U.S. CUSTOMARY UNITS (1-1.6.5)

APPLICABLE TO: ○ PROPOSAL ○ PURCHASE ○ AS BUILT

FOR _____ UNIT _____

SITE _____ SERIAL NO. _____

SERVICE _____ NO. REQUIRED _____

MANUFACTURER _____ DRIVER TYPE (1-3.1.1) _____

MODEL _____ DRIVER ITEM NO. _____

INFORMATION TO BE COMPLETED: ○ BY PURCHASER ☐ BY MANUFACTURER △ MUTUAL AGREEMENT (PRIOR TO PURCHASE)

OPERATING CONDITIONS

(ALL DATA ON PER UNIT BASIS)

	NORMAL (1-2.1.1.2)	OTHER CONDITIONS (1-2.1.1.1)				
		A	B	C	D	E
○ GAS HANDLED (ALSO SEE PAGE ____)						
△ GAS PROPERTIES (1-2.1.1.4)						
○ MMSCFD/SCFM (14.7 PSIA & 60 °F DRY)						
○ WEIGHT FLOW, #/MIN (WET) (DRY)						
INLET CONDITIONS						
○ PRESSURE (PSIA)						
○ TEMPERATURE (°F)						
○ RELATIVE HUMIDITY %						
○ MOLECULAR WEIGHT						
☐ Cp/Cv (K_1) OR (K_{AVG}) (NOTE 1)						
☐ COMPRESSIBILITY (Z_1) OR (Z_{AVG}) (NOTE 1)						
☐ INLET VOLUME, (CFM) (WET / DRY)						
DISCHARGE CONDITIONS						
○ PRESSURE (PSIA)						
☐ TEMPERATURE (°F)						
☐ Cp/Cv (K_2) OR (K_{AVG}) (NOTE 1)						
☐ COMPRESSIBILITY (Z_2) OR (Z_{AVG}) (NOTE 1)						
☐ GHP REQUIRED						
☐ TRAIN BHP REQUIRED						
☐ BHP REQUIRED AT DRIVER INCL. EXT. LOSSES (GEAR, ETC.)						
☐ SPEED (RPM)						
☐ TURNDOWN (%)						
☐ POLYTROPIC HEAD (FT-LB / LB)						
☐ POLYTROPIC EFFICIENCY (%)						
○ CERTIFIED POINT						
○ EXPECTED OPERATION AT EACH CONDITION (%)						
☐ PERFORMANCE CURVE NUMBER						

PROCESS CONTROL (1-3.4.2.1)

METHOD ○ SUCTION THROTTLING FROM ____ PSIA TO ____ PSIA ○ VARIABLE INLET GUIDE VANES (2-2.4.1) ○ SPEED VARIATION FROM ____ % TO ____ % ○ DISCHARGE BLOWOFF TO ____ ○ COOLED BYPASS FROM ____ TO ____

SIGNAL ○ SOURCE (1-3.4.2.1) _____

TYPE ○ ELECTRONIC ○ PNEUMATIC ○ OTHER _____

RANGE _____ MA _____ PSIG _____

○ ANTI-SURGE SYSTEM (1-3.4.2.2) _____

REMARKS: _____

NOTE 1: IF GAS ANALYSIS IS GIVEN, MANUFACTURER SHALL SUPPLY DATA, OTHERWISE DATA SHALL BE SUPPLIED BY USER

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U.S. CUSTOMARY UNITS (1-1.6.5)

APPLICABLE TO: ○ PROPOSAL ○ PURCHASE ○ AS BUILT

FOR _____ UNIT _____

SITE _____ SERIAL NO. _____

SERVICE _____ NO. REQUIRED _____

MANUFACTURER _____ DRIVER TYPE (1-3.1.1) _____

MODEL _____ DRIVER ITEM NO. _____

INFORMATION TO BE COMPLETED: ○ BY PURCHASER ☐ BY MANUFACTURER △ MUTUAL AGREEMENT (PRIOR TO PURCHASE)

OPERATING CONDITIONS (INTERMEDIATE CONNECTIONS)

(ALL DATA ON PER UNIT BASIS)

	NORMAL (1-2.1.1.2)		OTHER CONDITIONS (1-2.1.1.1)			
	Section 1	Section 2	Section 1	Section 2	Section 1	Section 2
○ GAS HANDLED (ALSO SEE PAGE ____)						
△ GAS PROPERTIES (1-2.1.1.4)						
○ MMSCFD/SCFM (14.7 PSIA & 60 °F DRY)						
○ WEIGHT FLOW, #/MIN (WET) (DRY)						
INLET CONDITIONS						
○ PRESSURE (PSIA)						
○ TEMPERATURE (°F)						
○ RELATIVE HUMIDITY %						
○ MOLECULAR WEIGHT						
☐ Cp/Cv (K_1) OR (K_{AVG}) (NOTE 1)						
☐ COMPRESSIBILITY (Z_1) OR (Z_{AVG}) (NOTE 1)						
☐ INLET VOLUME, (CFM) (WET / DRY)						
DISCHARGE CONDITIONS						
○ PRESSURE (PSIA)						
☐ TEMPERATURE (°F)						
☐ Cp/Cv (K_2) OR (K_{AVG}) (NOTE 1)						
☐ COMPRESSIBILITY (Z_2) OR (Z_{AVG}) (NOTE 1)						
☐ GHP REQUIRED						
☐ TRAIN BHP REQUIRED						
☐ BHP REQUIRED AT DRIVER INCL. EXT. LOSSES (GEAR, ETC.)						
☐ SPEED (RPM)						
☐ TURNDOWN (%)						
☐ POLYTROPIC HEAD (FT-LB / LB)						
☐ POLYTROPIC EFFICIENCY (%)						
○ CERTIFIED POINT						
○ EXPECTED OPERATION AT EACH CONDITION (%)						
☐ PERFORMANCE CURVE NUMBER						

PROCESS CONTROL (1-3.4.2.1)

METHOD ○ SUCTION THROTTLING FROM ____ PSIA TO ____ PSIA ○ VARIABLE INLET GUIDE VANES (2-2.4.1) ○ SPEED VARIATION FROM ____ % TO ____ % ○ DISCHARGE BLOWOFF TO ____ ○ COOLED BYPASS FROM ____ TO ____

SIGNAL ○ SOURCE (1-3.4.2.1) _____

TYPE ○ ELECTRONIC ○ PNEUMATIC ○ OTHER _____

RANGE _____ MA _____ PSIG _____

○ ANTI-SURGE SYSTEM (1-3.4.2.2) _____

REMARKS: _____

NOTE 1: IF GAS ANALYSIS IS GIVEN, MANUFACTURER SHALL SUPPLY DATA, OTHERWISE DATA SHALL BE SUPPLIED BY USER

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U.S. CUSTOMARY UNITS (1-1.6.5)

APPLICABLE TO: ○ PROPOSAL ○ PURCHASE ○ AS BUILT

FOR _____ UNIT _____
SITE _____ SERIAL NO. _____
SERVICE _____ NO. REQUIRED _____
MANUFACTURER _____ DRIVER TYPE (1-3.1.1) _____
MODEL _____ DRIVER ITEM NO. _____

INFORMATION TO BE COMPLETED: ○ BY PURCHASER ☐ BY MANUFACTURER △ MUTUAL AGREEMENT (PRIOR TO PURCHASE)

OPERATING CONDITIONS (COMPRESSOR WITH TWO SIDESTREAMS)

EQUIP. FLNG. COND. SHOWN IN DBL.-WALLED CELLS
(ALL DATA ON PER UNIT BASIS)

	CONDITIONS (1-2.1.1.2)				
	Section 1	**SS 1**	**Section 2**	**SS 2**	**Section 3**
○ GAS HANDLED (ALSO SEE PAGE ____)					
△ GAS PROPERTIES (1-2.1.1.4)					
○ MMSCFD/SCFM (14.7 PSIA & 60 °F DRY)					
○ WEIGHT FLOW, #/MIN (WET) (DRY)					
INLET CONDITIONS					
○ PRESSURE (PSIA)					
○ TEMPERATURE (°F)					
○ RELATIVE HUMIDITY %					
○ MOLECULAR WEIGHT					
☐ Cp/Cv (K_1) OR (K_{AVG}) (NOTE 1)					
☐ COMPRESSIBILITY (Z_1) OR (Z_{AVG}) (NOTE 1)					
☐ INLET VOLUME, (CFM) (WET / DRY)					
DISCHARGE CONDITIONS					
○ PRESSURE (PSIA)					
☐ TEMPERATURE (°F)					
☐ Cp/Cv (K_2) OR (K_{AVG}) (NOTE 1)					
☐ COMPRESSIBILITY (Z_2) OR (Z_{AVG}) (NOTE 1)					
☐ GHP REQUIRED					
☐ TRAIN BHP REQUIRED					
☐ BHP REQUIRED AT DRIVER INCL. EXT. LOSSES (GEAR, ETC.)					
☐ SPEED (RPM)					
☐ TURNDOWN (%)					
☐ POLYTROPIC HEAD (FT-LB / LB)					
☐ POLYTROPIC EFFICIENCY (%)					
○ CERTIFIED POINT					
○ EXPECTED OPERATION AT EACH CONDITION (%)					
☐ PERFORMANCE CURVE NUMBER					

PROCESS CONTROL (1-3.4.2.1)

METHOD ○ SUCTION THROTTLING FROM ____ PSIA TO ____ PSIA ○ VARIABLE INLET GUIDE VANES (2-2.4.1) ○ SPEED VARIATION FROM ____ % TO ____ % ○ DISCHARGE BLOWOFF TO ____ ○ COOLED BYPASS FROM ____ TO ____

SIGNAL ○ SOURCE (1-3.4.2.1) _____
TYPE ○ ELECTRONIC ○ PNEUMATIC ○ OTHER _____
RANGE _____ MA _____ PSIG _____

○ ANTI-SURGE SYSTEM (1-3.4.2.2) _____

REMARKS: _____

NOTE 1: IF GAS ANALYSIS IS GIVEN, MANUFACTURER SHALL SUPPLY DATA, OTHERWISE DATA SHALL BE SUPPLIED BY USER

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OPERATING CONDITIONS (Continued) (1-2.1.1.1) (1-3.1.2) (1-3.1.3)

GAS ANALYSIS: ○ MOL %	MW	NORMAL	OTHER CONDITIONS A	B	C	D	E	REMARKS:
AIR	28.966							
OXYGEN	32.000							
NITROGEN	28.016							
WATER VAPOR	18.016							
CARBON MONOXIDE	28.010							
CARBON DIOXIDE	44.010							
HYDROGEN SULFIDE	34.076							(1-2.2.1.6)
HYDROGEN	2.016							(1-2.2.1.9)
METHANE	16.042							
ETHYLENE	28.052							
ETHANE	30.068							
PROPYLENE	42.078							
PROPANE	44.094							
I-BUTANE	58.120							
n-BUTANE	58.120							
I-PENTANE	72.146							
n-PENTANE	72.146							
HEXANE PLUS								
CORROSIVE AGENTS								(1-2.2.1.3)
TOTAL								
AVG. MOL. WT.								

LOCATION: (1-2.1.8)
○ INDOOR ○ OUTDOOR ○ GRADE
○ HEATED ○ UNDER ROOF ○ MEZZANINE
○ UNHEATED ○ PARTIAL SIDES ○ _____
○ ELEC. AREA CLASSIFICATION (1-2.1.14) CL ____ GR ____ DIV ____

SITE DATA (1-2.1.8)
○ ELEVATION _____ FT BAROMETER _____ PSIA
○ RANGE OF AMBIENT TEMPS:

		DRY BULB	WET BULB
NORMAL	°F		
MAXIMUM	°F		
MINIMUM	°F		
_____	°F		

UNUSUAL CONDITIONS: ○ DUST ○ FUMES
_____ °F
○ OTHER (1-2.1.8) _____
_____
○ COPPER AND COPPER ALLOYS PROHIBITED (1-2.2.1.14)

COATING: (1-2.2.1.16)
○ ROTATING COMPONENTS _____
○ STATIONARY COMPONENTS _____

REMARKS: _____

NOISE SPECIFICATIONS: (1-2.1.9)
○ APPLICABLE TO MACHINE:
SEE SPECIFICATION _____
○ APPLICABLE TO NEIGHBORHOOD:
SEE SPECIFICATION _____
ACOUSTIC HOUSING: ○ YES ○ NO

APPLICABLE SPECIFICATIONS:
API 617, 7TH CHAPTER 1&2
○ VENDOR HAVING UNIT RESPONSIBILITY (1-1.5.52) (1-1.8) (1-2.1.3)
_____
○ GOVERNING SPECIFICATION (IF DIFFERENT)
_____

PAINTING:
○ MANUFACTURER'S STD.
○ OTHER _____

SHIPMENT: (1-4.4)
○ DOMESTIC ○ EXPORT ○ EXPORT BOXING REQ'D.
○ OUTDOOR STORAGE MORE THAN 6 MONTHS (1-4.4.1) ____ MO
SPARE ROTOR ASSEMBLY PACKAGE (1-4.4.3.10)
○ HORIZONTAL STORAGE ○ VERTICAL STORAGE

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CONSTRUCTION FEATURES

☐ **SPEEDS:**
MAX. CONT. _____ RPM TRIP _____ RPM
MAX. TIP SPEEDS: _____ FPS @ 100% SPEED
_____ FPS @ MAX. CONT. SPEED

☐ **LATERAL CRITICAL SPEEDS (DAMPED)**

FIRST CRITICAL	_____ RPM	_____ MODE
SECOND CRITICAL	_____ RPM	_____ MODE
THIRD CRITICAL	_____ RPM	_____ MODE
FOURTH CRITICAL	_____ RPM	_____ MODE

○ LATERAL ANALYSIS ADDITIONAL REQUIREMENTS (1-2.6.2.14)
○ TRAIN LATERAL ANALYSIS REQUIRED (1-2.6.2.6)
○ TRAIN TORSIONAL ANALYSIS REQUIRED (1-2.6.7.1)

☐ **TORSIONAL CRITICAL SPEEDS:**

FIRST CRITICAL	_____ RPM
SECOND CRITICAL	_____ RPM
THIRD CRITICAL	_____ RPM
FOURTH CRITICAL	_____ RPM

○ LIST OF TRAIN UNDESIRABLE SPEEDS (1-2.6.1.4)

☐ **VIBRATION:**
ALLOWABLE TEST LEVEL _____ MILS
(PEAK TO PEAK)

NAMEPLATE (2-2.11.2)
○ US CUSTOMARY ○ METRIC

☐ **ROTATION, VIEWED FROM DRIVEN END** ○ **CW** ○ **CCW**

○ **MATERIALS INSPECTION REQUIREMENTS (1-4.2.2.1)**
○ RADIOGRAPHY REQUIRED FOR _____
○ ULTRASONIC REQUIRED FOR _____
○ MAGNETIC PARTICLE REQUIRED FOR _____
○ LIQUID PENETRANT REQUIRED FOR _____
○ LOW TEMPERATURE (1-2.2.1.15.3) _____
MIN.DESIGN METAL TEMPERATURE (°F) _____
AT CONCURRANT PRESSURE (PSIG) _____
○ OTHER TRAIN COMPONENTS (1-2.2.1.15.2)

☐ **CASING:**
MODEL _____
CASING SPLIT _____
MATERIAL _____
THICKNESS (IN.) ____ CORR. ALLOW. (IN.) _____
MAX. ALLOWABLE PRESS _____ PSIG
TEST PRESS (PSIG): HYDRO _____
MAX. ALLOWABLE TEMPERATURE (°F) _____
MAX OPER. TEMP. _____ °F MIN. OPER. TEMP. _____ °F
MAX CASING CAPACITY (ICFM) _____
○ SYSTEM RELIEF VALVE SET PT. (2-2.3.1.1) _____ PSIG
○ Q.C. OF INACCESSIBLE WELDS (1-2.3.1.11.2)

☐ **GUIDE VANES**
MATERIAL _____
NO. VANES GUIDE VANE _____
○ IGV EXTERNAL PURGE (2-2.4.2)
○ VANE CONTROL SYSTEM (2-2.4.3) _____

☐ **DIAPHRAGMS:**
MATERIAL _____
AXIALLY SPLIT ☐ YES ☐ NO (2-2.4.8)

○ INTERMEDIATE MAIN PROCESS CONNECTIONS (2-2.4.5)
DISCH. PRESSURE (PSIG): MAX _____ MIN _____
INLET PRESSURE (PSIG): MAX _____ MIN _____
DIAPHRAGM MAX. Δ P (PSI) _____

☐ **IMPELLERS:**
NO. _____ DIAMETERS _____
NO. VANES EA. IMPELLER _____
TYPE (OPEN, ENCLOSED, ETC.) _____
TYPE FABRICATION _____
MATERIAL _____
MIN. YIELD STRENGTH (PSI) _____
HARDNESS: (Rc) (BRINNEL) MAX _____ MIN _____
SMALLEST TIP INTERNAL WIDTH (IN.) _____
MAX. MACH. NO. @ IMPELLER EYE _____
MAX. IMPELLER HEAD @ 100% SPD (FT-LB/LB) _____

☐ **SHAFT:**
☐ ONE PIECE ☐ BUILT UP
MATERIAL _____
DIA @ IMPELLERS (IN) _____ DIA @ COUPLING (IN.) _____
SHAFT END: ☐ TAPERED ☐ CYLINDRICAL
☐ SPLINED ☐ INTEGRAL FLANGE
MIN. YIELD STRENGTH (PSI) _____
SHAFT HARDNESS (BNH)(Rc) _____
MAX TORQUE CAPABILITY (FT-LB) _____

☐ **BALANCE PISTON:**
MATERIAL _____ AREA _____ (IN²)
FIXATION METHOD _____
NORMAL CLEARANCE (IN) _____
FLOW WITH NORMAL CLEARANCE (LB/MIN) _____
FLOW WITH 2x NORMAL CLEARANCE (LB/MIN) _____
○ PRESS. CONN. BAL LINE DOWNSTREAM (2-2.5.4.3)

☐ **SHAFT SLEEVES:**
AT INTERSTG. CLOSE MATL _____
CLEARANCE POINTS
AT SHAFT SEALS MATL _____
○ ACCESSIBLE (2-2.8.3)

ROTOR
○ DISASSEMBLY AND REASSEMBLY (1-2.6.8.2.1.1)
○ AT SPEED BALANCING (1-2.6.8.3)
○ SEQUENTIAL LOW SPEED BAL. PREC. AT SPEED BAL. (1-2.6.8.6)
○ RESIDUAL BALANCE CHECK (1-2.6.8.7)

☐ **LABYRINTHS:**
INTERSTAGE
TYPE _____ MATERIAL _____
BALANCE PISTON
TYPE _____ MATERIAL _____

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CONSTRUCTION FEATURES (CONTINUED)

SHAFT SEALS:

- ○ SEAL TYPE (1-2.8.1.3) _____
- ○ MAX SEALING/SETTLING OUT PRESSURE (1-2.8.1.1) (PSIG) _____
- ○ MIN.SEALING PRESSURE (PSIG) _____
- ○ SUPPLEMENTAL DEVICE REQUIRED FOR CONTACT SEALS (1-2.8.3.4) TYPE _____
- ○ BUFFER GAS SYSTEM REQUIRED (1-2.8.1.5)
- ○ TYPE BUFFER GAS (1-2.8.1.5) _____
  - ☐ PRESSURE (1-2.8.1.6) _____ (PSIG)
  - ☐ FLOWRATE _____ (LB/MIN)
  - ☐ FILTRATION _____
- ○ MANIFOLD (1-2.8.1.7)
- ○ METHOD OF CONTROL (1-2.8.1.5) _____

- ○ BUFFER GAS CONTROL SYSTEM SCHEMATIC BY VENDOR
- ○ PRESSURIZING GAS FOR SUBATMOSPHERIC SEALS (1-2.8.2.4)
  - ○ EDUCTOR ○ INJECTION (1-2.8.2.3)
- ☐ SEAL MANUFACTURER _____
- ☐ LEAKAGE TO PROCESS (GAL/DAY/SEAL) _____
  BUFFER GAS REQUIRED FOR:
  - ☐ AIR RUN-IN ☐ OTHER _____
- ☐ FLOW (PER SEAL):
  NORM: _____ LBS/MIN @ _____ PSI Δ P _____
  MAX. _____ LBS/MIN @ _____ PSI Δ P _____
- ☐ **BEARING HOUSING CONSTRUCTION:**
  TYPE (SEPARATE, INTEGRAL) _____ SPLIT _____
  MATERIAL _____

AXIAL COMPRESSOR

STAGE	1	2	3	4	5	6	7	8	9
ROTOR									
☐ BLADE MATERIAL									
☐ BLADE ROOT TYPE									
☐ CORD WIDTH (IN)									
☐ OUTER DIAMETER (IN)									
☐ BLADE HEIGHT (IN)									
☐ BLADE QUANTITY									
STATOR									
☐ BLADE MATERIAL									
☐ TYPE (MOVABLE, FIXED, ADJUSTABLE)									
☐ CORD WIDTH (IN)									
☐ BLADE QUANTITY									

STAGE	10	11	12	13	14	15	16	17	18
ROTOR									
☐ BLADE MATERIAL									
☐ BLADE ROOT TYPE									
☐ CORD WIDTH (IN)									
☐ OUTER DIAMETER (IN)									
☐ BLADE HEIGHT (IN)									
☐ BLADE QUANTITY									
STATOR									
☐ BLADE MATERIAL									
☐ TYPE (MOVABLE, FIXED, ○ ADJUSTABLE) (2-3.4.2.3)									
☐ CORD WIDTH (IN)									
☐ BLADE QUANTITY									

REMARKS: _____

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CONSTRUCTION FEATURES (CONTINUED)

BEARINGS AND BEARING HOUSINGS

○ MAGNETIC BEARINGS (2-2.7.1.1.2)

RADIAL	THRUST	NON-THRUST
☐ TYPE		
☐ MANUFACTURER		
☐ LENGTH (IN.)		
☐ SHAFT DIA. (IN.)		
☐ UNIT LOAD (ACT/ALLOW)		
☐ BASE MATERIAL		
☐ BABBIT THICKNESS (IN.)		
☐ NO. PADS		
☐ LOAD: B'TWN/ON PAD		
☐ PIVOT: CTR/OFFSET, %		

PAD MATERIAL ○ (2-2.7.2.2) ○ (2-2.7.2.3)

☐ BEARING SPAN _____ INCHES

THRUST	ACTIVE	INACTIVE
☐ TYPE		
☐ MANUFACTURER		
☐ UNIT LOADING (MAX PSI)		
☐ UNIT LOAD (ULT.) (PSI)		
☐ AREA (IN^2)		
☐ NO. PADS		
☐ PIVOT: CENTER / OFFSET, %		
☐ PAD BASE MATL		

○ COPPER BACKED (2-2.7.3.7)

LUBRICATION: ○ FLOODED ○ DIRECTED (2-2.7.3.6)

THRUST COLLAR: ○ INTEGRAL ○ REPLACEABLE

MATERIAL _____

BEARING TEMPERATURE DETECTORS (2-3.4.7.3)

○ SEE ATTACHED API-670 DATASHEET
○ THERMOCOUPLES TYPE _____
○ RESISTANCE TEMP DETECTORS
○ RESISTANCE MAT'L _____ ○ _____ OHMS
☐ ALARM TEMPERATURE (°F) (2-2.7.1.3) _____
☐ SHUTDOWN TEMPERATURE (°F) (2-2.7.1.3) _____
○ PROVISION FOR LOCAL DISCONNECT (1-2.7.4.6)
○ LOCATION-JOURNAL BRG
NO. ____ EA PAD _____ EVERY OTH PAD _____ PER BRG
OTHER _____
○ LOCATION-THRUST BRG
NO. ____ EA PAD _____ EVERY OTH PAD _____ PER BRG
OTHER _____
NO. (INACT) ____ EA PAD ____ EVERY OTH PAD _____ PER BRG
OTHER _____

○ MONITOR SUPPLIED BY (2-3.4.7.4) _____
○ LOCATION _____ ENCLOSURE _____
○ MFR. _____ ☐ MODEL _____
☐ SCALE RGE _____ ALARM ☐ SET @ _____ °F
○ SHTDWN ☐ SET @ ____ °F ○ TIME DELAY ____ SEC

KEY PHASOR REQUIRED

○ COMPRESSOR ○ GEAR H.S. ○ GEAR L.S.

VIBRATION DETECTORS: ○ SEE ATTACHED API-670 DATA SHEET

○ TYPE _____ ☐ MODEL _____
○ MFR _____
○ NO. AT EA SHAFT BEARING _____ TOTAL NO. _____
○ OSCILLATOR-DETECTORS SUPPLIED BY _____
○ MFR _____ ☐ MODEL _____
MONITOR SUPPLIED BY (2-3.4.7.2)
○ LOCATION _____ ENCLOSURE _____
○ MFR. _____ ☐ MODEL _____
☐ SCALE RGE ____ ALARM ☐ SET @ _____ MILS
○ SHTDWN: ☐ SET @ ____ MILS ○ TIME DELAY ____ SEC
○ CASING VIBRATION TRANSDUCERS (2-3.4.7.5)
○ CASING VIBRATION MONITORS (2-3.4.7.6)

AXIAL POSITION DETECTOR: ○ SEE ATTACH. API-670 DATA SHEET

○ TYPE _____ ☐ MODEL _____
○ MFR _____ ○ NO. REQUIRED _____
○ OSCILLATOR-DEMODULATOR SUPPLIED BY _____
○ MFR _____ ☐ MODEL _____
MONITOR SUPPLIED BY (2-3.4.7.2) _____
○ LOCATION _____ ENCLOSURE _____
○ MFR. _____ ☐ MODEL _____
☐ SCALE RGE _____ ○ ALARM ☐ SET @ _____ MILS
○ SHTDWN: ☐ SET @ ____ MILS ○ TIME DELAY ____ SEC

CASING CONNECTIONS (1-2.3.2.2.1)

CONNECTION	☐ ANSI/ASME (B16.1; B16.5; B16.42; B16.47 series A, B; ISO 7005-1, -2; OTHER	☐ FACING ☐ BORE	○ ORIENTATION	☐ FLANGED OR STUDDED (1-2.3.2.2.1)	○ MATING FLG & GASKET BY VENDOR (1-2.3.2.2.7)	☐ GAS VELOCITY FT/SEC
INLET						
DISCHARGE						

○ BOROSCOPIC INSPECTION PORTS (2-2.3.2.4)

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CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) U.S. CUSTOMARY UNITS (1-1.6.5)

☐ **OTHER CONNECTIONS**

SERVICE:	**NO.**	**SIZE**	**TYPE**		**NO.**	**SIZE**	**TYPE**
LUBE-OIL INLET				PRESSURE			
LUBE OIL OUTLET				TEMPERATURE			
SEAL-OIL INLET				SOLVENT INJECTION			
SEAL-OIL OUTLET				PURGE FOR:			
SEAL GAS INLET				BRG. HOUSING			
SEAL GAS OUTLET				BTWN BRG & SEAL			
CASING DRAINS				BTWN SEAL & GAS			
STAGE DRAINS							

○ INDIVIDUAL STAGE DRAINS REQUIRED (1-2.3.2.1.7)

○ VALVED & BLINDED

○ VALVED & BLINDED & MANIFOLD

LUBRICATION AND SEALING SYSTEMS (1-2.10) (1-3.5.1.2)

○ SEE ATTACHED API 614 DATASHEET

○ SEPARATE ○ COMBINED (2-2.10.1)

○ INTEGRAL OIL RESERVOIR (1-3.3.2.11)

○ OIL TYPE (2-2.10.2)

ACCESSORIES

COUPLING AND GUARDS (3.2)

NOTE: SEE ROTATING ELEMENTS - SHAFT ENDS

○ SEE ATTACHED API-671 DATA SHEET ○ KEYLESS HYDRAULIC ○ KEYED ○ FLANGED ○ OTHER _____

COUPLING FURNISHED BY _____

MANUFACTURER _____ TYPE _____ MODEL _____

COUPLING GUARD FURNISHED BY: _____

TYPE: ○ FULLY ENCLOSED ○ SEMI-OPEN ○ OTHER

COUPLING DETAILS

☐ MAX O.D. _____ IN.

☐ HUB WEIGHT _____ LBS

☐ SPACER LENGTH _____ IN

☐ SPACER WEIGHT _____ LBS

○ PLUG AND RING GAUGES (1-3.2.5)

LUBRICATION REQUIREMENTS:

☐ NON-LUBE ☐ CONT. OIL LUBE ☐ OTHER _____

QUANTITY PER HUB _____ GPM

MOUNTING PLATES (1-3.3)

○ BASEPLATES FURNISHED BY (1-3.3.2.1) _____

○ COMPRESSOR ONLY ○ DRIVER ○ GEAR

○ OTHER _____

○ NONSKID DECKING (1-3.3.2.4) ○ SLOPED DECK (1-3.3.2.4.1)

△ LEVELING PADS OR TARGETS (1-3.3.2.6)

△ COLUMN MOUNTING (1-3.3.2.5)

○ SUB-SOLE PLATES REQUIRED (1-3.3.2.10)

☐ STAINLESS STEEL SHIM THICKNESS _____ INCHES

○ MACHINED MOUNTING PADS REQUIRED (1-3.3.2.9)

○ SOLEPLATES FURNISHED BY (1-3.3.3.1) _____

☐ THICKNESS _____ IN

○ SUBSOLE PLATES REQUIRED (1-3.3.3.1.3)

○ EXTENT OF PIPING (2-3.5.1.1) _____

☐ STAINLESS STEEL SHIM THICKNESS _____ IN

○ COMPRESSOR _____

○ COUNTER BORE ANCHOR BOLT HOLES (1-3.3.3.1.2)

REMARKS:

JOB NO. _____ ITEM NO. _____
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CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) U.S. CUSTOMARY UNITS (1-1.6.5)

UTILITIES

○ **UTILITY CONDITIONS:**

	DRIVERS			
STEAM:				
INLET MIN	_____ PSIG	_____ °F		
NORM	_____ PSIG	_____ °F		
MAX	_____ PSIG	_____ °F		
EXHAUST. MIN	_____ PSIG	_____ °F		
NORM	_____ PSIG	_____ °F		
MAX	_____ PSIG	_____ °F		
ELECTRICITY:				
	DRIVERS	CONTROL	SHUTDOWN	
VOLTAGE	_____	_____	_____	
HERTZ	_____	_____	_____	
PHASE	_____	_____	_____	

○ REDUCED VOLTAGE START (1-3.1.6)
△ NUMBER OF STARTS (1-2.6.7.6.4) _____

INSTRUMENT AIR:
MAX PRESS _____ PSIG MIN PRESS _____ PSIG

SHOP INSPECTION AND TESTS: (1-4.1.4)	REQ'D	WIT/OBV
HYDROSTATIC (1-4.3.2)	●	_____
IMPELLER OVERSPEED (1-4.3.3)	●	_____
MECHANICAL RUN (1-4.3.6)(2-4.3.1)	●	_____
○ CONTRACT COUPLING		
OPTIONAL TESTS		
PURCHASER VIB. EQUIPMENT (2-4.3.1.1.10)	○	
VARY LUBE & SEAL OIL PRESSURES AND TEMPERATURES (1-4.3.6.1.5)	○	_____
POLAR FORM VIB DATA (1-4.3.6.1.2)	○	
TAPE RECORD VIB DATA (1-4.3.6.1.3)	○	
SHAFT END SEAL INSP. (1-4.3.6.2.2)	○	_____
GAS LEAK TEST AT DISCH PRESS (2-4.3.2.3)	○	_____
POST TEST INTERNAL INSP. (1-4.3.8.5)		
BEFORE GAS LEAKAGE TEST	○	_____
AFTER GAS LEAKAGE TEST	○	_____
PERFORMANCE TEST (GAS) (AIR) (2-4.3.3.1.1)	○	_____
INTERMEDIATE HEAD/PRESSURE TOL. (2-4.3.3.1.6)	△ P	_____
COMPLETE UNIT TEST (2-4.3.3.2)	○	_____
TANDEM TEST (2-4.3.3.3)	○	_____
GEAR TEST (2-4.3.3.4)	○	_____
HELIUM LEAK TEST (1-4.3.8.2)	○	_____
SOUND LEVEL TEST (1-4.3.8.3)	○	_____
AUX. EQUIPMENT TEST (1-4.3.8.4) _____	○	_____
FULL LOAD / SPEED / PRESS TEST (1-4.3.8.6)	○	_____
HYDRAULIC COUPLING INSP (1-4.3.8.7)	○	_____
SPARE PARTS TEST (1-4.3.8.8) _____	○	_____
INSPECTOR'S CHECKLIST COMPLIANCE (1-4.1.6)	○	
GAS SEAL TEST VENDOR SHOP (1-4.3.5)	○	_____

MANUALS
○ DRAFT MANUAL FOR REVIEW (1-5.3.5.1.2)
○ TECHNICAL DATA MANUAL (1-5.3.5.4)

MISCELLANEOUS:
☐ RECOMMENDED STRAIGHT RUN OF PIPE DIAMETERS BEFORE SUCTION _____
○ COMPRESSOR TO BE SUITABLE FOR FIELD RUN-IN ON AIR (1-2.1.16)
○ PROVISION FOR LIQUID INJECTION (1-2.1.10) _____
○ INJECTION MANIFOLD (2-3.5.1.2)
○ VENDOR'S REVIEW & COMMENTS ON PURCHASER'S CONTROL SYSTEMS (1-3.4.1.1)
○ SHOP FITUP OF VENDOR PROCESS PIPING (1-4.4.3.11)
○ WELDING HARDNESS TESTING (1-4.2.1.5) _____
○ INSPECT CLEANLINESS (1-4.2.1.4) _____
○ DESIGN AUDIT (1-5.1.4)
○ BALANCE PISTON Δ P (1-5.3.2.1.5) (PSI) _____
○ PROVIDE TAIL END SCHEDULES (1-5.3.3.2)

VENDOR'S REPRESENTATIVE SHALL (1-2.1.13)
○ OBSERVE FLANGE PARTING
○ CHECK ALIGNMENT AT TEMPERATURE
○ BE PRESENT AT INITIAL ALIGNMENT

☐ **WEIGHTS (LB):**
COMPR. _____ GEAR _____ DRIVER _____ BASE _____
ROTORS: COMPR. _____ DRIVER _____ GEAR _____
COMPRESSOR UPPER CASE _____
MAX. FOR MAINTENANCE (IDENTIFY) _____
TOTAL SHIPPING WEIGHT _____

☐ **SPACE REQUIREMENTS (FT & IN):**
COMPLETE UNIT: L _____ W _____ H _____

REMARKS: _____

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INQUIRY NO. _____
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CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) SI UNITS (1-1.6.5)

APPLICABLE TO: ○ PROPOSAL ○ PURCHASE ○ AS BUILT

FOR _____ UNIT _____
SITE _____ SERIAL NO. _____
SERVICE _____ NO. REQUIRED _____
MANUFACTURER _____ DRIVER TYPE (1-3.1.1) _____
MODEL _____ DRIVER ITEM NO. _____

INFORMATION TO BE COMPLETED: ○ BY PURCHASER ☐ BY MANUFACTURER △ MUTUAL AGREEMENT (PRIOR TO PURCHASE)

OPERATING CONDITIONS

(ALL DATA ON PER UNIT BASIS)

	NORMAL (1-2.1.1.2)	OTHER CONDITIONS (1-2.1.1.1) A	B	C	D	E
○ GAS HANDLED (ALSO SEE PAGE ____)						
△ GAS PROPERTIES (1-2.1.1.4)						
○ MMm^3/day (m^3/h) (1.03 BAR & 0°C DRY)						
○ WEIGHT FLOW, kg/h (WET) (DRY)						
INLET CONDITIONS						
○ PRESSURE (BAR)(kPa abs)						
○ TEMPERATURE (°C)						
○ RELATIVE HUMIDITY %						
○ MOLECULAR WEIGHT						
☐ Cp/Cv (K_1) OR (K_{AVG}) (NOTE 1)						
☐ COMPRESSIBILITY (Z_1) OR (Z_{AVG}) (NOTE 1)						
☐ INLET VOLUME, (m^3/h) (WET / DRY)						
DISCHARGE CONDITIONS						
○ PRESSURE (BAR)(kPa abs)						
☐ TEMPERATURE (°C)						
☐ Cp/Cv (K_2) OR (K_{AVG}) (NOTE 1)						
☐ COMPRESSIBILITY (Z_2) OR (Z_{AVG}) (NOTE 1)						
☐ GAS kW REQUIRED						
☐ TRAIN BRAKE kW REQUIRED						
☐ BRAKE kW REQUIRED AT DRIVER INCL. EXT. LOSSES (GEAR, ETC.)						
☐ SPEED (RPM)						
☐ TURNDOWN (%)						
☐ POLYTROPIC HEAD (N-m / kg)						
☐ POLYTROPIC EFFICIENCY (%)						
○ CERTIFIED POINT						
○ EXPECTED OPERATION AT EACH CONDITION (%)						
☐ PERFORMANCE CURVE NUMBER						

PROCESS CONTROL (1-3.4.2.1)

METHOD ○ SUCTION THROTTLING FROM ____ BAR (kPa abs) TO ____ BAR (kPa abs) ○ VARIABLE INLET GUIDE VANES (2-2.4.1) ○ SPEED VARIATION FROM ____ % TO ____ % ○ DISCHARGE BLOWOFF TO ____ ○ COOLED BYPASS FROM ____ TO ____

SIGNAL ○ SOURCE (1-3.4.2.1) _____
TYPE ○ ELECTRONIC ○ PNEUMATIC ○ OTHER _____
RANGE _____ mA _____ BAR (kPa abs) _____

○ ANTI-SURGE SYSTEM (1-3.4.2.2) _____

REMARKS: _____

NOTE 1: IF GAS ANALYSIS IS GIVEN, MANUFACTURER SHALL SUPPLY DATA, OTHERWISE DATA SHALL BE SUPPLIED BY USER

JOB NO. _____ ITEM NO. _____
PURCHASE ORDER NO. _____
INQUIRY NO. _____
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SI UNITS (1-1.6.5)

APPLICABLE TO: ○ PROPOSAL ○ PURCHASE ○ AS BUILT

FOR _____ UNIT _____

SITE _____ SERIAL NO. _____

SERVICE _____ NO. REQUIRED _____

MANUFACTURER _____ DRIVER TYPE (1-3.1.1) _____

MODEL _____ DRIVER ITEM NO. _____

INFORMATION TO BE COMPLETED: ○ BY PURCHASER ☐ BY MANUFACTURER △ MUTUAL AGREEMENT (PRIOR TO PURCHASE)

OPERATING CONDITIONS (INTERMEDIATE CONNECTIONS)

(ALL DATA ON PER UNIT BASIS)

	NORMAL (1-2.1.1.2)		OTHER CONDITIONS (1-2.1.1.1)			
	Section 1	Section 2	Section 1	Section 2	Section 1	Section 2
○ GAS HANDLED (ALSO SEE PAGE ____)						
△ GAS PROPERTIES (1-2.1.1.4)						
○ MMm^3/day (m^3/h) (1.03 BAR & 0°C DRY)						
○ WEIGHT FLOW, kg/h (WET) (DRY)						
INLET CONDITIONS						
○ PRESSURE (BAR)(kPa abs)						
○ TEMPERATURE (°C)						
○ RELATIVE HUMIDITY %						
○ MOLECULAR WEIGHT						
☐ Cp/Cv (K_1) OR (K_{AVG}) (NOTE 1)						
☐ COMPRESSIBILITY (Z_1) OR (Z_{AVG}) (NOTE 1)						
☐ INLET VOLUME, (m^3/h) (WET / DRY)						
DISCHARGE CONDITIONS						
○ PRESSURE (BAR)(kPa abs)						
☐ TEMPERATURE (°C)						
☐ Cp/Cv (K_2) OR (K_{AVG}) (NOTE 1)						
☐ COMPRESSIBILITY (Z_2) OR (Z_{AVG}) (NOTE 1)						
☐ GAS kW REQUIRED						
☐ TRAIN BRAKE kW REQUIRED						
☐ BRAKE kW REQUIRED AT DRIVER INCL. EXT. LOSSES (GEAR, ETC.)						
☐ SPEED (RPM)						
☐ TURNDOWN (%)						
☐ POLYTROPIC HEAD (N-m / kg)						
☐ POLYTROPIC EFFICIENCY (%)						
○ CERTIFIED POINT						
○ EXPECTED OPERATION AT EACH CONDITION (%)						
☐ PERFORMANCE CURVE NUMBER						

PROCESS CONTROL (1-3.4.2.1)

METHOD ○ SUCTION THROTTLING ○ VARIABLE INLET ○ SPEED VARIATION ○ DISCHARGE ○ COOLED BYPASS

FROM ____ BAR (kPa abs) GUIDE VANES FROM ____ % BLOWOFF FROM ____

TO ____ BAR (kPa abs) (2-2.4.1) TO ____ % TO ____ TO ____

SIGNAL ○ SOURCE (1-3.4.2.1) _____

TYPE ○ ELECTRONIC ○ PNEUMATIC ○ OTHER _____

RANGE ____ mA ____ BAR (kPa abs) _____

○ ANTI-SURGE SYSTEM (1-3.4.2.2) _____

REMARKS: _____

NOTE 1: IF GAS ANALYSIS IS GIVEN, MANUFACTURER SHALL SUPPLY DATA, OTHERWISE DATA SHALL BE SUPPLIED BY USER

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SI UNITS (1-1.6.5)

APPLICABLE TO: ○ PROPOSAL ○ PURCHASE ○ AS BUILT

FOR _____ UNIT _____

SITE _____ SERIAL NO. _____

SERVICE _____ NO. REQUIRED _____

MANUFACTURER _____ DRIVER TYPE (1-3.1.1) _____

MODEL _____ DRIVER ITEM NO. _____

INFORMATION TO BE COMPLETED: ○ BY PURCHASER ☐ BY MANUFACTURER △ MUTUAL AGREEMENT (PRIOR TO PURCHASE)

OPERATING CONDITIONS (COMPRESSOR WITH TWO SIDESTREAMS)

EQUIP. FLNG. COND. SHOWN IN DBL.-WALLED CELLS
(ALL DATA ON PER UNIT BASIS)

	CONDITIONS (1-2.1.1.2)				
	Section 1	**SS 1**	**Section 2**	**SS 2**	**Section 3**
○ GAS HANDLED (ALSO SEE PAGE ____)					
△ GAS PROPERTIES (1-2.1.1.4)					
○ MMm^3/day (m^3/h) (1.03 BAR & 0°C DRY)					
○ WEIGHT FLOW, kg/h (WET) (DRY)					
INLET CONDITIONS					
○ PRESSURE (BAR)(kPa abs)					
○ TEMPERATURE (°C)					
○ RELATIVE HUMIDITY %					
○ MOLECULAR WEIGHT					
☐ Cp/Cv (K_1) OR (K_{AVG}) (NOTE 1)					
☐ COMPRESSIBILITY (Z_1) OR (Z_{AVG}) (NOTE 1)					
☐ INLET VOLUME, (m^3/h) (WET / DRY)					
DISCHARGE CONDITIONS					
○ PRESSURE (BAR)(kPa abs)					
☐ TEMPERATURE (°C)					
☐ Cp/Cv (K_2) OR (K_{AVG}) (NOTE 1)					
☐ COMPRESSIBILITY (Z_2) OR (Z_{AVG}) (NOTE 1)					
☐ GAS kW REQUIRED					
☐ TRAIN BRAKE kW REQUIRED					
☐ BRAKE kW REQUIRED AT DRIVER INCL. EXT. LOSSES (GEAR, ETC.)					
☐ SPEED (RPM)					
☐ TURNDOWN (%)					
☐ POLYTROPIC HEAD (N-m / kg)					
☐ POLYTROPIC EFFICIENCY (%)					
○ CERTIFIED POINT					
○ EXPECTED OPERATION AT EACH CONDITION (%)					
☐ PERFORMANCE CURVE NUMBER					

PROCESS CONTROL (1-3.4.2.1)

METHOD ○ SUCTION THROTTLING ○ VARIABLE INLET ○ SPEED VARIATION ○ DISCHARGE ○ COOLED BYPASS

FROM ____ BAR (kPa abs) GUIDE VANES FROM ____ % BLOWOFF FROM ____

TO ____ BAR (kPa abs) (2-2.4.1) TO ____ % TO ____ TO ____

SIGNAL ○ SOURCE (1-3.4.2.1) _____

TYPE ○ ELECTRONIC ○ PNEUMATIC ○ OTHER _____

RANGE ____ mA ____ BAR (kPa abs) _____

○ ANTI-SURGE SYSTEM (1-3.4.2.2) _____

REMARKS: _____

NOTE 1: IF GAS ANALYSIS IS GIVEN, MANUFACTURER SHALL SUPPLY DATA, OTHERWISE DATA SHALL BE SUPPLIED BY USER

CENTRIFUGAL AND AXIAL COMPRESSOR
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SI UNITS (1-1.6.5)

OPERATING CONDITIONS (Continued) (1-2.1.1.1) (1-3.1.2) (1-3.1.3)

GAS ANALYSIS: ○ MOL %	MW	NORMAL	OTHER CONDITIONS A	B	C	D	E	REMARKS:
AIR	28.966							
OXYGEN	32.000							
NITROGEN	28.016							
WATER VAPOR	18.016							
CARBON MONOXIDE	28.010							
CARBON DIOXIDE	44.010							
HYDROGEN SULFIDE	34.076							(1-2.2.1.6)
HYDROGEN	2.016							(1-2.2.1.9)
METHANE	16.042							
ETHYLENE	28.052							
ETHANE	30.068							
PROPYLENE	42.078							
PROPANE	44.094							
I-BUTANE	58.120							
n-BUTANE	58.120							
I-PENTANE	72.146							
n-PENTANE	72.146							
HEXANE PLUS								
CORROSIVE AGENTS								(1-2.2.1.3)
TOTAL								
AVG. MOL. WT.								

LOCATION: (1-2.1.8)

○ INDOOR ○ OUTDOOR ○ GRADE
○ HEATED ○ UNDER ROOF ○ MEZZANINE
○ UNHEATED ○ PARTIAL SIDES ○ _____
○ ELEC. AREA CLASSIFICATION (1-2.1.14) CL ____ GR ____ DIV ____

SITE DATA (1-2.1.8)

○ ELEVATION _____ m BAROMETER _____ BAR
○ RANGE OF AMBIENT TEMPS:

		DRY BULB	WET BULB
NORMAL	°C		
MAXIMUM	°C		
MINIMUM	°C		
_____	°C		

UNUSUAL CONDITIONS: ○ DUST ○ FUMES

_____ °C

○ OTHER (1-2.1.8) _____

○ COPPER AND COPPER ALLOYS PROHIBITED (1-2.2.1.14)

COATING: (1-2.2.1.16)

○ ROTATING COMPONENTS _____
○ STATIONARY COMPONENTS _____

REMARKS: _____

NOISE SPECIFICATIONS: (1-2.1.9)

○ APPLICABLE TO MACHINE:
SEE SPECIFICATION _____
○ APPLICABLE TO NEIGHBORHOOD:
SEE SPECIFICATION _____
ACOUSTIC HOUSING: ○ YES ○ NO

APPLICABLE SPECIFICATIONS:

API 617, 7TH CHAPTER 1&2
○ VENDOR HAVING UNIT RESPONSIBILITY (1-1.5.52) (1-1.8) (1-2.1.3)
_____
○ GOVERNING SPECIFICATION (IF DIFFERENT)
_____

PAINTING:

○ MANUFACTURER'S STD.
○ OTHER _____

SHIPMENT: (1-4.4)

○ DOMESTIC ○ EXPORT ○ EXPORT BOXING REQ'D.
○ OUTDOOR STORAGE MORE THAN 6 MONTHS (1-4.4.1) _____ MO
SPARE ROTOR ASSEMBLY PACKAGE (1-4.4.3.10)
○ HORIZONTAL STORAGE ○ VERTICAL STORAGE

CENTRIFUGAL AND AXIAL COMPRESSOR
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SI UNITS (1-1.6.5)

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CONSTRUCTION FEATURES

☐ **SPEEDS:**
MAX. CONT. _____ RPM TRIP _____ RPM
MAX. TIP SPEEDS: _____ m/sec @ 100% SPEED
_____ m/sec @ MAX. CONT. SPEED

☐ **LATERAL CRITICAL SPEEDS (DAMPED)**

FIRST CRITICAL	_____	RPM	_____ MODE
SECOND CRITICAL	_____	RPM	_____ MODE
THIRD CRITICAL	_____	RPM	_____ MODE
FOURTH CRITICAL	_____	RPM	_____ MODE

○ LATERAL ANALYSIS ADDITIONAL REQUIREMENTS (1-2.6.2.14)
○ TRAIN LATERAL ANALYSIS REQUIRED (1-2.6.2.6)
○ TRAIN TORSIONAL ANALYSIS REQUIRED (1-2.6.7.1)

☐ **TORSIONAL CRITICAL SPEEDS:**

FIRST CRITICAL	_____	RPM
SECOND CRITICAL	_____	RPM
THIRD CRITICAL	_____	RPM
FOURTH CRITICAL	_____	RPM

○ LIST OF TRAIN UNDESIRABLE SPEEDS (1-2.6.1.4)

☐ **VIBRATION:**
ALLOWABLE TEST LEVEL _____ μ m
(PEAK TO PEAK)

NAMEPLATE (2-2.11.2)
○ US CUSTOMARY ○ METRIC

☐ **ROTATION, VIEWED FROM DRIVEN END** ○ **CW** ○ **CCW**

○ **MATERIALS INSPECTION REQUIREMENTS (1-4.2.2.1)**
○ RADIOGRAPHY REQUIRED FOR _____
○ ULTRASONIC REQUIRED FOR _____
○ MAGNETIC PARTICLE REQUIRED FOR _____
○ LIQUID PENETRANT REQUIRED FOR _____
○ LOW TEMPERATURE (1-2.2.1.15.3) _____
MIN.DESIGN METAL TEMPERATURE (°C) _____
AT CONCURRANT PRESSURE (BARG)(kPaG) _____
○ OTHER TRAIN COMPONENTS (1-2.2.1.15.2)

☐ **CASING:**
MODEL _____
CASING SPLIT _____
MATERIAL _____
THICKNESS (mm) ____ CORR. ALLOW. (mm) ____ ____
MAX. ALLOWABLE PRESS _____ BARG (kPaG)
TEST PRESS (BARG)(kPaG): HYDRO _____
MAX. ALLOWABLE TEMPERATURE (°C) _____
MAX OPER. TEMP. ____ °C MIN. OPER. TEMP. ____ °C
MAX CASING CAPACITY (m^3/h) _____
○ SYSTEM RELIEF VALVE SET PT. (2-2.3.1.1) _____ BARG (kPaG)
○ Q.C. OF INACCESSIBLE WELDS (1-2.3.1.11.2)

☐ **GUIDE VANES**
MATERIAL _____
NO. VANES GUIDE VANE _____
○ IGV EXTERNAL PURGE (2-2.4.2)
○ VANE CONTROL SYSTEM (2-2.4.3) _____

☐ **DIAPHRAGMS:**
MATERIAL _____
AXIALLY SPLIT ☐ YES ☐ NO (2-2.4.8)

○ INTERMEDIATE MAIN PROCESS CONNECTIONS (2-2.4.5)
DISCH. PRESSURE (BARG)(kPaG): MAX _____ MIN _____
INLET PRESSURE (BARG)(kPaG): MAX _____ MIN _____
DIAPHRAGM MAX. Δ P (BAR)(kPa): _____

☐ **IMPELLERS:**
NO. _____ DIAMETERS _____
NO. VANES EA. IMPELLER _____
TYPE (OPEN, ENCLOSED, ETC.) _____
TYPE FABRICATION _____
MATERIAL _____
MIN. YIELD STRENGTH (MPa) _____
HARDNESS: (BNH)(Rc) MAX _____ MIN _____
SMALLEST TIP INTERNAL WIDTH (mm) _____
MAX. MACH. NO. @ IMPELLER EYE _____
MAX. IMPELLER HEAD @ 100% SPD (N-m/kg) _____

☐ **SHAFT:**
☐ ONE PIECE ☐ BUILT UP
MATERIAL _____
DIA @ IMPELLERS (mm) _____ DIA @ COUPLING (mm) _____
SHAFT END: ☐ TAPERED ☐ CYLINDRICAL
☐ SPLINED ☐ INTEGRAL FLANGE
MIN. YIELD STRENGTH (MPa) _____
SHAFT HARDNESS (BNH)(Rc) _____
MAX TORQUE CAPABILITY (N-m) _____

☐ **BALANCE PISTON:**
MATERIAL _____ AREA _____ (mm^2)
FIXATION METHOD _____
NORMAL CLEARANCE (mm) _____
FLOW WITH NORMAL CLEARANCE (kg/min) _____
FLOW WITH 2x NORMAL CLEARANCE (kg/min) _____
○ PRESS. CONN. BAL LINE DOWNSTREAM (2-2.5.4.3)

☐ **SHAFT SLEEVES:**
AT INTERSTG. CLOSE MATL _____
CLEARANCE POINTS
AT SHAFT SEALS MATL _____
○ ACCESSIBLE (2-2.8.3)

ROTOR
○ DISASSEMBLY AND REASSEMBLY (1-2.6.8.2.1.1)
○ AT SPEED BALANCING (1-2.6.8.3)
○ SEQUENTIAL LOW SPEED BAL. PREC. AT SPEED BAL. (1-2.6.8.6)
○ RESIDUAL BALANCE CHECK (1-2.6.8.7)

☐ **LABYRINTHS:**
INTERSTAGE
TYPE _____ MATERIAL _____
BALANCE PISTON
TYPE _____ MATERIAL _____

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CONSTRUCTION FEATURES (CONTINUED)

SHAFT SEALS:

- ○ SEAL TYPE (1-2.8.1.3) _____
- ○ MAX SEALING/SETTLING OUT PRES. (1-2.8.1.1)(BARG)(kPaG) _____
- ○ MIN.SEALING PRESSURE (BARG)(kPaG) _____
- ○ SUPPLEMENTAL DEVICE REQUIRED FOR CONTACT SEALS (1-2.8.3.4) TYPE _____
- ○ BUFFER GAS SYSTEM REQUIRED (1-2.8.1.5)
- ○ TYPE BUFFER GAS (1-2.8.1.5) _____
  - ☐ PRESSURE (1-2.8.1.6) _____ (BARG)(kPaG)
  - ☐ FLOWRATE _____ (kg/min)
  - ☐ FILTRATION _____
- ○ MANIFOLD (1-2.8.1.7)
- ○ METHOD OF CONTROL (1-2.8.1.5) _____

- ○ BUFFER GAS CONTROL SYSTEM SCHEMATIC BY VENDOR
- ○ PRESSURIZING GAS FOR SUBATMOSPHERIC SEALS (1-2.8.2.4)
  - ○ EDUCTOR ○ INJECTION (1-2.8.2.3)
- ☐ SEAL MANUFACTURER _____
- ☐ LEAKAGE TO PROCESS (m^3/DAY/SEAL) _____
  BUFFER GAS REQUIRED FOR:
  - ☐ AIR RUN-IN ☐ OTHER _____
- ☐ FLOW (PER SEAL):
  NORM: _____ kg/min @ _____ BAR(kPa) Δ P _____
  MAX. _____ kg/min @ _____ BAR(kPa) Δ P _____
- ☐ **BEARING HOUSING CONSTRUCTION:**
  TYPE (SEPARATE, INTEGRAL) _____ SPLIT _____
  MATERIAL _____

AXIAL COMPRESSOR

STAGE	1	2	3	4	5	6	7	8	9
ROTOR									
☐ BLADE MATERIAL									
☐ BLADE ROOT TYPE									
☐ CORD WIDTH (mm)									
☐ OUTER DIAMETER (mm)									
☐ BLADE HEIGHT (mm)									
☐ BLADE QUANTITY									
STATOR									
☐ BLADE MATERIAL									
☐ TYPE (MOVABLE, FIXED, ADJUSTABLE)									
☐ CORD WIDTH (mm)									
☐ BLADE QUANTITY									

STAGE	10	11	12	13	14	15	16	17	18
ROTOR									
☐ BLADE MATERIAL									
☐ BLADE ROOT TYPE									
☐ CORD WIDTH (mm)									
☐ OUTER DIAMETER (mm)									
☐ BLADE HEIGHT (mm)									
☐ BLADE QUANTITY									
STATOR									
☐ BLADE MATERIAL									
☐ TYPE (MOVABLE, FIXED, ○ ADJUSTABLE) (2-3.4.2.3)									
☐ CORD WIDTH (mm)									
☐ BLADE QUANTITY									

REMARKS: _____

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CONSTRUCTION FEATURES (CONTINUED)

BEARINGS AND BEARING HOUSINGS

○ MAGNETIC BEARINGS (2-2.7.1.1.2)

RADIAL	THRUST	NON-THRUST
☐ TYPE		
☐ MANUFACTURER		
☐ LENGTH (mm)		
☐ SHAFT DIA. (mm)		
☐ UNIT LOAD (ACT/ALLOW)		
☐ BASE MATERIAL		
☐ BABBIT THICKNESS (mm)		
☐ NO. PADS		
☐ LOAD: B'TWN/ON PAD		
☐ PIVOT: CTR/OFFSET, %		

PAD MATERIAL ○ (2-2.7.2.2) ○ (2-2.7.2.3)

☐ BEARING SPAN _____ mm

THRUST	ACTIVE	INACTIVE
☐ TYPE		
☐ MANUFACTURER		
☐ UNIT LOADING (MAX) (BAR)		
☐ UNIT LOAD (ULT.) (BAR)		
☐ AREA (mm²)		
☐ NO. PADS		
☐ PIVOT: CENTER / OFFSET, %		
☐ PAD BASE MATL		

○ COPPER BACKED (2-2.7.3.7)

LUBRICATION: ○ FLOODED ○ DIRECTED (2-2.7.3.6)

THRUST COLLAR: ○ INTEGRAL ○ REPLACEABLE

MATERIAL _____

BEARING TEMPERATURE DETECTORS (2-3.4.7.3)

○ SEE ATTACHED API-670 DATASHEET
○ THERMOCOUPLES TYPE _____
○ RESISTANCE TEMP DETECTORS
○ RESISTANCE MAT'L _____ ○ _____ OHMS
☐ ALARM TEMPERATURE (°C) (2-2.7.1.3) _____
☐ SHUTDOWN TEMPERATURE (°C) (2-2.7.1.3) _____
○ PROVISION FOR LOCAL DISCONNECT (1-2.7.4.6)
○ LOCATION-JOURNAL BRG
NO. ____ EA PAD _____ EVERY OTH PAD _____ PER BRG
OTHER _____
○ LOCATION-THRUST BRG
NO. ____ EA PAD _____ EVERY OTH PAD _____ PER BRG
OTHER _____
NO. (INACT) ____ EA PAD ____ EVERY OTH PAD _____ PER BRG
OTHER _____

○ MONITOR SUPPLIED BY (2-3.4.7.4) _____
○ LOCATION _____ ENCLOSURE _____
○ MFR. _____ ☐ MODEL _____
☐ SCALE RGE _____ ALARM ☐ SET @ _____ °C
○ SHTDWN ☐ SET @ ____ °C ○ TIME DELAY ____ SEC

KEY PHASOR REQUIRED

○ COMPRESSOR ○ GEAR H.S. ○ GEAR L.S.

VIBRATION DETECTORS: ○ SEE ATTACHED API-670 DATA SHEET

○ TYPE _____ ☐ MODEL _____
○ MFR _____
○ NO. AT EA SHAFT BEARING _____ TOTAL NO. _____
○ OSCILLATOR-DETECTORS SUPPLIED BY _____
○ MFR _____ ☐ MODEL _____
MONITOR SUPPLIED BY (2-3.4.7.2)
○ LOCATION _____ ENCLOSURE _____
○ MFR. _____ ☐ MODEL _____
☐ SCALE RGE ____ ALARM ☐ SET @ _____ µm
○ SHTDWN: ☐ SET @ ____ µm ○ TIME DELAY ____ SEC
○ CASING VIBRATION TRANSDUCERS (2-3.4.7.5)
○ CASING VIBRATION MONITORS (2-3.4.7.6)

AXIAL POSITION DETECTOR: ○ SEE ATTACH. API-670 DATA SHEET

○ TYPE _____ ☐ MODEL _____
○ MFR _____ ○ NO. REQUIRED _____
○ OSCILLATOR-DEMODULATOR SUPPLIED BY _____
○ MFR _____ ☐ MODEL _____
MONITOR SUPPLIED BY (2-3.4.7.2) _____
○ LOCATION _____ ENCLOSURE _____
○ MFR. _____ ☐ MODEL _____
☐ SCALE RGE _____ ○ ALARM ☐ SET @ _____ µm
○ SHTDWN: ☐ SET @ ____ µm ○ TIME DELAY ____ SEC

CASING CONNECTIONS (1-2.3.2.2.1)

CONNECTION	☐ ANSI/ASME (B16.1; B16.5; B16.42; B16.47 series A, B; ISO 7005-1, -2; OTHER	☐ FACING ☐ BORE	○ ORIENTATION	☐ FLANGED OR STUDDED (1-2.3.2.2.1)	○ MATING FLG & GASKET BY VENDOR (1-2.3.2.2.7)	☐ GAS VELOCITY m/sec
INLET						
DISCHARGE						

○ BOROSCOPIC INSPECTION PORTS (2-2.3.2.4)

JOB NO. _____ ITEM NO. _____

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☐ **OTHER CONNECTIONS**

SERVICE:	NO.	SIZE	TYPE
LUBE-OIL INLET			
LUBE OIL OUTLET			
SEAL-OIL INLET			
SEAL-OIL OUTLET			
SEAL GAS INLET			
SEAL GAS OUTLET			
CASING DRAINS			
STAGE DRAINS			

	NO.	SIZE	TYPE
PRESSURE			
TEMPERATURE			
SOLVENT INJECTION			
PURGE FOR:			
BRG. HOUSING			
BTWN BRG & SEAL			
BTWN SEAL & GAS			
_____			

○ INDIVIDUAL STAGE DRAINS REQUIRED (1-2.3.2.1.7)
○ VALVED & BLINDED
○ VALVED & BLINDED & MANIFOLD

LUBRICATION AND SEALING SYSTEMS (1-2.10) (1-3.5.1.2)

○ SEE ATTACHED API 614 DATASHEET
○ SEPARATE ○ COMBINED (2-2.10.1)
○ INTEGRAL OIL RESERVOIR (1-3.3.2.11)
○ OIL TYPE (2-2.10.2)

ACCESSORIES

COUPLING AND GUARDS (3.2)

NOTE: SEE ROTATING ELEMENTS - SHAFT ENDS
○ SEE ATTACHED API-671 DATA SHEET ○ KEYLESS HYDRAULIC ○ KEYED ○ FLANGED ○ OTHER _____
COUPLING FURNISHED BY _____
MANUFACTURER _____ TYPE _____ MODEL _____
COUPLING GUARD FURNISHED BY: _____
TYPE: ○ FULLY ENCLOSED ○ SEMI-OPEN ○ OTHER

COUPLING DETAILS

☐ MAX O.D. _____ mm
☐ HUB WEIGHT _____ kg
☐ SPACER LENGTH _____ mm
☐ SPACER WEIGHT _____ kg

○ PLUG AND RING GAUGES (1-3.2.5)
LUBRICATION REQUIREMENTS:
☐ NON-LUBE ☐ CONT. OIL LUBE ☐ OTHER _____
QUANTITY PER HUB _____ kg OR L/min

MOUNTING PLATES (1-3.3)

○ BASEPLATES FURNISHED BY (1-3.3.2.1) _____
○ COMPRESSOR ONLY ○ DRIVER ○ GEAR
○ OTHER _____
○ NONSKID DECKING (1-3.3.2.4) ○ SLOPED DECK (1-3.3.2.4.1)
△ LEVELING PADS OR TARGETS (1-3.3.2.6)
△ COLUMN MOUNTING (1-3.3.2.5)
○ SUB-SOLE PLATES REQUIRED (1-3.3.2.10)
☐ STAINLESS STEEL SHIM THICKNESS _____ mm
○ MACHINED MOUNTING PADS REQUIRED (1-3.3.2.9)

○ SOLEPLATES FURNISHED BY (1-3.3.3.1) _____
☐ THICKNESS _____ mm
○ SUBSOLE PLATES REQUIRED (1-3.3.3.1.3)
○ EXTENT OF PIPING (2-3.5.1.1) _____
☐ STAINLESS STEEL SHIM THICKNESS _____ mm
○ COMPRESSOR _____
○ COUNTER BORE ANCHOR BOLT HOLES (1-3.3.3.1.2)

REMARKS:

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CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) SI UNITS (1-1.6.5)

UTILITIES

○ **UTILITY CONDITIONS:**

STEAM:	**DRIVERS**	
INLET MIN	_____ BARG	_____ °C
NORM	_____ BARG	_____ °C
MAX	_____ BARG	_____ °C
EXHAUST. MIN	_____ BARG	_____ °C
NORM	_____ BARG	_____ °C
MAX	_____ BARG	_____ °C

ELECTRICITY:

	DRIVERS	CONTROL	SHUTDOWN
VOLTAGE			
HERTZ			
PHASE			

○ REDUCED VOLTAGE START (1-3.1.6)

△ NUMBER OF STARTS (1-2.6.7.6.4) _____

INSTRUMENT AIR:

MAX PRESS _____ BARG(kPaG) MIN PRESS _____ BARG(kPaG)

SHOP INSPECTION AND TESTS: (1-4.1.4)	REQ'D	WIT/OBV
HYDROSTATIC (1-4.3.2)	●	
IMPELLER OVERSPEED (1-4.3.3)	●	
MECHANICAL RUN (1-4.3.6)(2-4.3.1)	●	
○ CONTRACT COUPLING		
OPTIONAL TESTS		
PURCHASER VIB. EQUIPMENT (2-4.3.1.1.10)	○	
VARY LUBE & SEAL OIL PRESSURES AND TEMPERATURES (1-4.3.6.1.5)	○	
POLAR FORM VIB DATA (1-4.3.6.1.2)	○	
TAPE RECORD VIB DATA (1-4.3.6.1.3)	○	
SHAFT END SEAL INSP. (1-4.3.6.2.2)	○	
GAS LEAK TEST AT DISCH PRESS (2-4.3.2.3)	○	
POST TEST INTERNAL INSP. (1-4.3.8.5)		
BEFORE GAS LEAKAGE TEST	○	
AFTER GAS LEAKAGE TEST	○	
PERFORMANCE TEST (GAS) (AIR) (2-4.3.3.1.1)	○	
INTERMEDIATE HEAD/PRESSURE TOL. (2-4.3.3.1.6)	△ P	
COMPLETE UNIT TEST (2-4.3.3.2)	○	
TANDEM TEST (2-4.3.3.3)	○	
GEAR TEST (2-4.3.3.4)	○	
HELIUM LEAK TEST (1-4.3.8.2)	○	
SOUND LEVEL TEST (1-4.3.8.3)	○	
AUX. EQUIPMENT TEST (1-4.3.8.4) _____	○	
FULL LOAD / SPEED / PRESS TEST (1-4.3.8.6)	○	
HYDRAULIC COUPLING INSP (1-4.3.8.7)	○	
SPARE PARTS TEST (1-4.3.8.8) _____	○	
INSPECTOR'S CHECKLIST COMPLIANCE (1-4.1.6)	○	
GAS SEAL TEST VENDOR SHOP (1-4.3.5)	○	

MANUALS

○ DRAFT MANUAL FOR REVIEW (1-5.3.5.1.2)

○ TECHNICAL DATA MANUAL (1-5.3.5.4)

MISCELLANEOUS:

☐ RECOMMENDED STRAIGHT RUN OF PIPE DIAMETERS BEFORE SUCTION _____

○ COMPRESSOR TO BE SUITABLE FOR FIELD RUN-IN ON AIR (1-2.1.16)

○ PROVISION FOR LIQUID INJECTION (1-2.1.10) _____

○ INJECTION MANIFOLD (2-3.5.1.2)

○ VENDOR'S REVIEW & COMMENTS ON PURCHASER'S CONTROL SYSTEMS (1-3.4.1.1)

○ SHOP FITUP OF VENDOR PROCESS PIPING (1-4.4.3.11)

○ WELDING HARDNESS TESTING (1-4.2.1.5) _____

○ INSPECT CLEANLINESS (1-4.2.1.4) _____

○ DESIGN AUDIT (1-5.1.4)

○ BALANCE PISTON Δ P (1-5.3.2.1.5) (BAR) (kPa) _____

○ PROVIDE TAIL END SCHEDULES (1-5.3.3.2)

VENDOR'S REPRESENTATIVE SHALL (1-2.1.13)

○ OBSERVE FLANGE PARTING

○ CHECK ALIGNMENT AT TEMPERATURE

○ BE PRESENT AT INITIAL ALIGNMENT

☐ **WEIGHTS (kg):**

COMPR. _____ GEAR _____ DRIVER _____ BASE _____

ROTORS: COMPR. _____ DRIVER _____ GEAR _____

COMPRESSOR UPPER CASE _____

MAX. FOR MAINTENANCE (IDENTIFY) _____

TOTAL SHIPPING WEIGHT _____

☐ **SPACE REQUIREMENTS (mm):**

COMPLETE UNIT: L _____ W _____ H _____

REMARKS: _____

ANNEX 3A
TYPICAL DATA SHEETS

JOB NO. _____ ITEM NO. _____
PURCHASE ORDER NO. _____
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APPLICABLE TO: ○ PROPOSAL ○ PURCHASE ○ AS-BUILT

FOR _____ UNIT _____

SITE _____ SERIAL NO. _____

SERVICE _____ NO. REQUIRED _____

MANUFACTURER _____ DRIVER TYPE (1-3.1.1) _____

MODEL _____ DRIVER ITEM NO. _____

INFORMATION TO BE COMPLETED: ○ BY PURCHASER ☐ BY MANUFACTURER △ MUTUAL AGREEMENT (PRIOR TO PURCHASE)

OPERATING CONDITIONS

(ALL DATA ON PER UNIT BASIS)	NORMAL (1-2.1.1.2)	OTHER CONDITIONS (1-2.1.1.1) A	B	C	D	E
○ GAS HANDLED (ALSO SEE PAGE _____)						
△ GAS PROPERTIES (1-2.1.1.4)						
○ MMSCFD/SCFM (14.7 PSIA & 60°F DRY)						
○ WEIGHT FLOW, #/MIN (WET) (DRY)						
INLET CONDITIONS						
○ PRESSURE (PSIA)						
○ TEMPERATURE (°F)						
○ RELATIVE HUMIDITY %						
○ MOLECULAR WEIGHT						
☐ C_p/C_v (K_1) OR (K_{AVG})						
☐ COMPRESSIBILITY (Z_1) OR (Z_{AVG})						
☐ INLET VOLUME, (CFM) (WET/DRY)						
DISCHARGE CONDITIONS						
○ PRESSURE (PSIA)						
☐ TEMPERATURE (°F)						
☐ C_p/C_v (K_2) OR (K_{AVG}) (NOTE 1)						
☐ COMPRESSIBILITY (Z_2) OR (Z_{AVG}) (NOTE 1)						
☐ GHP REQUIRED						
☐ TRAIN BHP REQUIRED						
☐ BHP REQUIRED AT DRIVER INCL. EXT. LOSSES (GEAR, ETC.)						
☐ SPEED of driver (RPM)						
☐ TURNDOWN (%)						
☐ POLYTROPIC HEAD (FT-LB)						
☐ POLYTROPIC EFFICIENCY (%)						
○ CERTIFIED POINT						
☐ PERFORMANCE CURVE NUMBER						

PROCESS CONTROL (1-3.4.2.1)

METHOD ○ SUCTION THROTTLING FROM _____ PSIA TO _____ PSIA ○ VARIABLE INLET GUIDE VANES (3-2.4) ○ SPEED VARIATION FROM _____ % TO _____ % ○ DISCHARGE BLOWOFF OR RECIRCULATION _____ (3-2.4) ○ VARIABLE DIFFUSER GUIDE VANES _____

SIGNAL ○ SOURCE (1-3.4.2.1) _____

TYPE ○ ELECTRONIC ○ PNEUMATIC ○ OTHER _____

RANGE _____ mA _____ PSIG _____

○ ANTI-SURGE SYSTEM (1-3.4.2.2)

REMARKS: _____

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OPERATING CONDITIONS (Continued) (1-2.1.1.1) (1-3.1.2) (1-3.1.3)

GAS ANALYSIS: ○ MOL %	MW	NORMAL	OTHER CONDITIONS A	B	C	D	E	REMARKS:
AIR	28.966							
OXYGEN	32.000							
NITROGEN	28.016							
WATER VAPOR	18.016							
CARBON MONOXIDE	28.010							
CARBON DIOXIDE	44.010							
HYDROGEN SULFIDE	34.076							(1-2.2.1.6)
HYDROGEN	2.016							(1-2.2.1.9)
METHANE	16.042							
ETHYLENE	28.052							
ETHANE	30.068							
PROPYLENE	42.078							
PROPANE	44.094							
I-BUTANE	58.120							
n-BUTANE	58.120							
I-PENTANE	72.146							
n-PENTANE	72.146							
HEXANE PLUS								
CORROSIVE AGENTS								(1-2.2.1.3)
TOTAL								
AVG. MOL. WT.								

LOCATION: (1-2.1.8)
○ INDOOR ○ OUTDOOR ○ GRADE
○ HEATED ○ UNDER ROOF ○ MEZZANINE
○ UNHEATED ○ PARTIAL SIDES ○ _____
○ ELEC. AREA CLASSIFICATION (1-2.1.14) CL ____ GR ____ DIV ____

SITE DATA (1-2.1.8)
○ ELEVATION _____ FT BAROMETER _____ PSIA
○ RANGE OF AMBIENT TEMPS:

		DRY BULB	WET BULB
NORMAL	°F		
MAXIMUM	°F		
MINIMUM	°F		
_____	°F		

UNUSUAL CONDITIONS: ○ DUST ○ FUMES
_____ °F
○ OTHER (1-2.1.8) _____
_____
○ COPPER AND COPPER ALLOYS PROHIBITED (1-2.2.1.14)

COATING: (1-2.2.1.16)
○ ROTATING COMPONENTS _____
○ STATIONARY COMPONENTS _____

REMARKS: _____

NOISE SPECIFICATIONS: (1-2.1.9)
○ APPLICABLE TO MACHINE:
SEE SPECIFICATION _____
○ APPLICABLE TO NEIGHBORHOOD:
SEE SPECIFICATION _____
ACOUSTIC HOUSING: ○ YES ○ NO

APPLICABLE SPECIFICATIONS:
API 617, 7TH CHAPTERS 1 & 3
○ VENDOR HAVING UNIT RESPONSIBILITY (1-1.5.53) (1-1.8) (1-2.1.3)
_____
○ GOVERNING SPECIFICATION (IF DIFFERENT)

PAINTING:
○ MANUFACTURER'S STD.
○ OTHER _____

NAMEPLATE (2-2.11.2) ○ US CUSTOMARY ○ METRIC

SHIPMENT: (4.4)
○ DOMESTIC ○ EXPORT ○ EXPORT BOXING REQ'D.
○ OUTDOOR STORAGE MORE THAN 6 MONTHS (1-4.4.1) _____ MO
SPARE ROTOR ASSEMBLY PACKAGE (1-4.4.3.10)
○ HORIZONTAL STORAGE ○ VERTICAL STORAGE

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CONSTRUCTION FEATURES (1 COLUMN PER STAGE, USE ADDITIONAL SHEETS IF NEEDED)

Rotor		Rotor 1					
Stage		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
☐	**CASING:**						
	MODEL						
	CASING SPLIT						
	MATERIAL						
	THICKNESS (IN.)						
	CORROSION ALLOWANCE (IN.)						
	MAX. ALLOWABLE PRESS (PSIG)						
	TEST PRESS (PSIG):						
	MAX. ALLOWABLE TEMP. (°F)						
	MAX. OPERATING TEMP. (°F)						
	MIN. OPERATING TEMPERATURE (°F)						
	MAX CASING CAPACITY (ICFM)						
☐	**INLET CONNECTIONS** (1-2.3.2.2.1, 1-2.3.2.2.7)						
	TYPE						
	ORIENTATION						
	FLANGED OR STUDDED?						
	MATING FLG & GASKET BY VENDOR?						
	GAS VELOCITY (FT/SEC.)						
☐	**DISCHARGE CONNECTIONS** (1-2.3.2.2.1, 1-2.3.2.2.7)						
	TYPE						
	ORIENTATION						
	FLANGED OR STUDDED?						
	MATING FLG & GASKET BY VENDOR?						
	GAS VELOCITY (FT/SEC.)						
○	**INTERMEDIATE MAIN PROCESS CONNECTIONS)** (2-2.4.5)						
	DISCH. PRESSURE (PSIG):						
	INLET PRESSURE (PSIG):						
☐	**ADJUSTABLE INLET GUIDE VANES**						
	MATERIAL _____						
	NO. INLET GUIDE VANES						
☐	**IMPELLER:**						
	DIAMETER						
	NUMBER OF VANES						
	TYPE (OPEN, ENCLOSED, ETC.)						
	TYPE FABRICATION						
	MATERIAL						
	MIN. YIELD STRENGTH (PSI)						
	HARDNESS: (Rc) (BRINNEL)						
	SMALLEST TIP INTERNAL WIDTH (IN.)						
	MAX. MACH. NO. @ IMPELLER EYE						
	MAX. IMPELLER HEAD @ 100% SPD (FT)						
	MAX. IMPELLER TIP SPEED (FT/MIN.)						
☐	**DIFFUSER GUIDE VANES**						
	ADJUSTABLE?						
	MATERIAL						
	NO. GUIDE VANES						

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CONSTRUCTION FEATURES, continued (1 COLUMN PER STAGE, USE ADDITIONAL SHEETS IF NEEDED)

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
☐ **SHAFT SLEEVES:**						
MATERIAL						
AT SHAFT SEALS?						
OTHER LOCATIONS?						
SHAFT SEALS: (1-2.8.1.1, 1-2.8.1.5)						
○ SEAL TYPE (1-2.8.1.3)						
○ SETTLING OUT PRESS. (PSIG)						
○ MIN.SEALING PRESSURE (PSIG)						
○ TYPE BUFFER GAS, PRIMARY						
☐ PRESSURE (PSIG) (1-2.8.1.6)						
☐ FLOWRATE (LB/MIN)						
☐ FILTRATION						
○ TYPE BUFFER GAS, SECONDARY						
☐ PRESSURE (PSIG) (1-2.8.1.6)						
☐ FLOWRATE (LB/MIN)						
☐ FILTRATION						
☐ FLOW RATE TO PROCESS						

○ BUFFER GAS SYSTEM REQUIRED (2-2.8.1.5)
○ MANIFOLD (1-3.5.1.4)
○ METHOD OF CONTROL (1-2.8.1.5) _____
○ BUFFER GAS CONTROL SYSTEM SCHEMATIC BY VENDOR
○ PRESSURIZING GAS FOR SUBATMOSPHERIC SEALS (1-2.8.2.4) ○ EDUCTOR ○ INJECTION (1-2.8.2.3) _____
☐ SEAL MANUFACTURER _____ ○ SYSTEM RELIEF VALVE SET PT (2-2.3.1.1) _____

BEARING TEMPERATURE DETECTORS (2-3.4.7)
○ SEE ATTACHED API-670 DATASHEET
○ THERMOCOUPLES TYPE _____
○ RESISTANCE TEMP DETECTORS
○ RESISTANCE MAT'L _____ ○ _____ OHMS
☐ ALARM TEMPERATURE (°F) _____
☐ SHUTDOWN TEMPERATURE (°F) _____
○ PROVISION FOR LOCAL DISCONNECT (1-2.7.4.6)
○ LOCATION-JOURNAL BRG
NO. ____ EA PAD _____ EVERY OTH PAD ____ PER BRG
OTHER _____
○ LOCATION-THRUST BRG
NO. ____ EA PAD _____ EVERY OTH PAD ____ PER BRG
OTHER _____
NO. (INACT) ____ EA PAD ____ EVERY OTH PAD PER BRG
OTHER _____
○ LOCAL DISCONNECTION (1-2.7.4.6)
○ MONITOR SUPPLIED BY (2-3.4.7.4) _____
○ LOCATION _____ ENCLOSURE _____
○ MFR. _____ ☐ MODEL _____
☐ SCALE RGE _____ ALARM ☐ SET @ _____ °F
○ SHTDWN ☐ SET @ ____ °F ○ TIME DELAY ____ SEC.

KEY PHASOR REQUIRED
○ COMPRESSOR ○ GEAR H.S. ○ GEAR L.S.

VIBRATION DETECTORS: ○ SEE ATTACHED API-670 DATA SHEET
○ TYPE _____ ☐ MODEL _____
○ MFR _____
○ NO. AT EA SHAFT BEARING _____ TOTAL NO. _____
○ OSCILLATOR-DETECTORS SUPPLIED BY _____
○ MFR _____ ☐ MODEL _____
MONITOR SUPPLIED BY (2-3.4.7.2)
○ LOCATION _____ ENCLOSURE _____
○ MFR. _____ ☐ MODEL _____
☐ SCALE RGE _____ ALARM ☐ SET @ _____ MILS
○ SHTDWN: ☐ SET @ ____ MILS ○ TIME DELAY ____ SEC.
○ CASING VIBRATION TRANSDUCERS (2-3.4.7.5)
○ CASING VIBRATION MONITORS (2-3.4.7.6)

AXIAL POSITION DETECTOR: ○ SEE ATTACHED API-670 DATA SHEET
○ TYPE _____ ☐ MODEL _____
○ MFR _____ ○ NO. REQUIRED _____
○ OSCILLATOR-DEMODULATOR SUPPLIED BY _____
○ MFR _____ ☐ MODEL _____
MONITOR SUPPLIED BY (2-3.4.7.2) _____
○ LOCATION _____ ENCLOSURE _____
○ MFR. _____ ○ ALARM ☐ MODEL _____
☐ SCALE RGE _____ ☐ SET @ _____ MILS
○ SHTDWN: ☐ SET @ ____ MILS ○ TIME DELAY ____ SEC.

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CONSTRUCTION FEATURES, ROTORS (1 COLUMN PER ROTOR, USE ADDITIONAL SHEETS IF NEEDED)

☐ **DRIVER SPEEDS:** PITCH LINE VELOCITY (FT/SEC) _____
MAX. CONT. _____ NORMAL DIAMETRAL PITCH _____
TRIP SPEED _____ HELIX ANGLE _____ PRESSURE ANGLE _____

☐ **ROTOR NUMBER**	BULL GEAR	ROTOR 1	ROTOR 2	ROTOR 3	ROTOR 4
SPEED (RPM)					
SERVICE POWER (HP)					
SERVICE FACTOR					
NUMBER OF TEETH					
FACE WIDTH (IN.)					
AGMA GEOMETRY FACTOR "J"					
AGMA GEOMETRY FACTOR "I"					
MINIMUM HARDNESS (Rc)					
ROTOR WEIGHT (INC WHEELS) (LB.)					
BACKLASH (IN.)					

GEARBOX FULL LOAD POWER LOSS _____

☐ **LATERAL CRITICAL SPEEDS (DAMPED)**					
FIRST CRITICAL					
SECOND CRITICAL					
THIRD CRITICAL					
FOURTH CRITICAL					

○ LATERAL ANALYSIS ADDITIONAL REQUIREMENTS (1-2.6.2.14)
○ TRAIN LATERAL ANALYSIS REQUIRED (1-2.6.2.6)
○ TRAIN TORSIONAL ANALYSIS REQUIRED (1-2.6.7.1)

☐ **TORSIONAL CRITICAL SPEEDS:**	
FIRST CRITICAL	
SECOND CRITICAL	
THIRD CRITICAL	
FOURTH CRITICAL	

○ LIST OF TRAIN UNDESIRABLE SPEEDS (1-2.6.1.4)
○ STABILITY ANALYSIS (1-2.6.5)

☐ **VIBRATION:**					
ALLOWABLE TEST LEVEL (PK-PK)					

☐ **BALANCE PISTON:**				
MATERIAL				
FIXATION METHOD				
NORMAL CLEARANCE (IN.)				
AREA				
FLOW, NORMAL CLEARANCE (LB./MIN.)				
FLOW, 2x NORMAL CLEAR (LB./MIN.)				
○ PRESS. CONN. BAL LINE (2-2.5.4.3)				

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1	**CONSTRUCTION FEATURES, ROTOR BEARINGS (1 COLUMN PER ROTOR, USE ADDITIONAL SHEETS IF NEEDED)**					
2	**RADIAL BEARINGS, DRIVE END**	BULL GEAR	ROTOR 1	ROTOR 2	ROTOR 3	ROTOR 4
3	☐ TYPE					
4	☐ MANUFACTURER					
5	☐ LENGTH (IN.)					
6	☐ SHAFT DIA. (IN.)					
7	☐ UNIT LOAD (ACT/ALLOW)					
8	☐ BASE MATERIAL					
9	☐ BABBIT THICKNESS (IN.)					
10	☐ NO. PADS					
11	☐ LOAD: BETWEEN/ON PAD					
12	☐ PIVOT: CENTER/OFFSET, %					
13	☐ RADIAL BEARING SPAN (IN.)					
14	**RADIAL BRG, OPPOSITE DRIVE END**					
15	☐ TYPE					
16	☐ MANUFACTURER					
17	☐ LENGTH (IN.)					
18	☐ SHAFT DIA. (IN.)					
19	☐ UNIT LOAD (ACT/ALLOW)					
20	☐ BASE MATERIAL					
21	☐ BABBIT THICKNESS (IN.)					
22	☐ NO. PADS					
23	☐ LOAD: BETWEEN/ON PAD					
24	☐ PIVOT: CENTER/OFFSET, %					
25	**THRUST BEARINGS , ACTIVE**					
26	☐ TYPE					
27	☐ MANUFACTURER					
28	☐ UNIT LOADING (MAX PSI)					
29	☐ UNIT LOAD (ULT.) (PSI)					
30	☐ AREA (IN^2)					
31	☐ NO. PADS					
32	☐ PIVOT: CENTER/OFFSET, %					
33	☐ PAD BASE MATL					
34	☐ COPPER BACKED (2-2.7.3.7)					
35	☐ COLLAR MATERIAL					
36	☐ INTEGRAL OR REPLACEABLE COLLAR					
37	☐ SIZING CRITERIA (2-2.7.3.5)					
38	☐ FLOODED OR DIRECTED LUBRICATION					
39	**THRUST BEARINGS , INACTIVE**					
40	☐ TYPE					
41	☐ MANUFACTURER					
42	☐ UNIT LOADING (MAX PSI)					
43	☐ UNIT LOAD (ULT.) (PSI)					
44	☐ AREA (IN.)					
45	☐ NO. PADS					
46	☐ PIVOT: CENTER/OFFSET, %					
47	☐ PAD BASE MATL					
48	☐ COPPER BACKED (2-2.7.3.7)					
49	☐ COLLAR MATERIAL					
50	☐ INTEGRAL OR REPLACEABLE COLLAR					
51	☐ SIZING CRITERIA (2-2.7.3.5)					
52	☐ FLOODED OR DIRECTED LUBRICATION					

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☐ **OTHER CONNECTIONS**

SERVICE:	**NO.**	**SIZE**	**TYPE**
LUBE-OIL INLET			
LUBE OIL OUTLET			
SEAL-OIL INLET			
SEAL-OIL OUTLET			
SEAL GAS INLET			
SEAL GAS OUTLET			
CASING DRAINS			
STAGE DRAINS			

	NO.	**SIZE**	**TYPE**
PRESSURE			
TEMPERATURE			
SOLVENT INJECTION			
PURGE FOR:			
BRG. HOUSING			
BTWN BRG & SEAL			
BTWN SEAL & GAS			

○ INDIVIDUAL STAGE DRAINS REQUIRED (1-2.3.2.1.7)
○ VALVED & BLINDED
○ VALVED & BLINDED & MANIFOLD

LUBRICATION AND SEALING SYSTEMS (1-2.10) (1-3.5.1.2)

○ SEE ATTACHED API 614 DATASHEET
○ SEPARATE ○ COMBINED (2-2.10.1)
○ INTEGRAL OIL RESERVOIR (1-3.3.2.11)
○ OIL TYPE (2-2.10.2)

ACCESSORIES

COUPLING AND GUARDS (3.2)

NOTE: SEE ROTATING ELEMENTS—SHAFT ENDS

○ SEE ATTACHED API-671 DATA SHEET ○ KEYLESS HYDRAULIC ○ KEYED ○ FLANGED ○ OTHER _____

COUPLING FURNISHED BY _____

MANUFACTURER _____ TYPE _____ MODEL _____

COUPLING GUARD FURNISHED BY: _____

TYPE: ○ FULLY ENCLOSED ○ SEMI-OPEN ○ OTHER

COUPLING DETAILS

☐ MAX O.D. _____ IN.
☐ HUB WEIGHT _____ LB.
☐ SPACER LENGTH _____ IN.
☐ SPACER WEIGHT _____ LB.

○ PLUG AND RING GAUGES (1-3.2.5)
LUBRICATION REQUIREMENTS:
○ NON-LUBE ○ CONT. OIL LUBE ○ OTHER _____
QUANTITY PER HUB _____ GPM

MOUNTING PLATES (1-3.3)

○ BASEPLATES FURNISHED BY (1-3.3.2.1) _____
○ COMPRESSOR ONLY ○ DRIVER ○ GEAR
○ OTHER _____
○ NONSKID DECKING (1-3.3.2.4) ○ SLOPED DECK (1-3.3.2.4.1)
△ LEVELING PADS OR TARGETS (1-3.3.2.6)
△ COLUMN MOUNTING (1-3.3.2.5)
○ SUB-SOLE PLATES REQUIRED (1-3.3.2.10)
☐ STAINLESS STEEL SHIM THICKNESS _____ IN.
○ MACHINED MOUNTING PADS REQUIRED (1-3.3.2.9)

○ SOLEPLATES FURNISHED BY (1-3.3.3.1) _____
☐ THICKNESS _____ IN.
○ SUBSOLE PLATES REQUIRED (1-3.3.3.1.5)

☐ STAINLESS STEEL SHIM THICKNESS _____ IN.
○ COMPRESSOR _____

○ COUNTER BORE ANCHOR BOLT HOLES (1-3.3.3.1.2)

MATERIALS INSPECTION REQUIREMENTS (1-4.2.2.1)

○ RADIOGRAPHY REQUIRED FOR _____
○ ULTRASONIC REQUIRED FOR _____
○ MAGNETIC PARTICLE REQUIRED FOR _____
○ LIQUID PENETRANT REQUIRED FOR _____

○ LOW TEMPERATURE (1-2.2.1.15.2) _____
MIN.DESIGN METAL TEMPERATURE (°F) _____
AT CONCURRANT PRESSURE (PSIG) _____
○ OTHER TRAIN COMPONENTS (1-2.2.1.15.2)
○ Q.C. OF INACCESSIBLE WELDS (1-2.3.1.11.2)

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UTILITIES

○ **UTILITY CONDITIONS:**

	DRIVERS		
STEAM:			
INLET MIN	_____ PSIG	_____ °F	
NORM	_____ PSIG	_____ °F	
MAX	_____ PSIG	_____ °F	
EXHAUST. MIN	_____ PSIG	_____ °F	
NORM	_____ PSIG	_____ °F	
MAX	_____ PSIG	_____ °F	

ELECTRICITY:

	DRIVERS	CONTROL	SHUTDOWN
VOLTAGE			
HERTZ			
PHASE			

○ REDUCED VOLTAGE START (1-3.1.6)
△ NUMBER OF STARTS (1-2.6.7.6.4) _____
INSTRUMENT AIR:
MAX PRESS _____ PSIG MIN PRESS _____ PSIG
☐ **ROTATION, VIEWED OPP. DRIVE END** ○ **CW** ○ **CCW**

SHOP INSPECTION AND TESTS: (1-4.1.4)
○ (SEE INSPECTOR'S CHECKLIST)

	REQ'D	WIT/OBV
HYDROSTATIC (1-4.3.2)	●	
IMPELLER OVERSPEED (1-4.3.3)	●	
MECHANICAL RUN (1-4.3.6)	●	
○ CONTRACT COUPLING ○ IDLING ADAPTOR(S)		
○ CONTRACT PROBES ○ SHOP PROBES		
○ PURCHASER VIB. EQUIPMENT (2-4.3.1.1.10)		
VARY LUBE & SEAL OIL PRESSURES AND TEMPERATURES (1-4.3.6.1.5)	○	
POLAR FORM VIB DATA (1-4.3.6.1.2)	○	
TAPE RECORD VIB DATA (1-4.3.6.1.3)	○	
SHAFT END SEAL INSP (1-4.3.6.2.2)	○	
GAS LEAK TEST AT DISCH PRESS (2-4.3.2.3)	○	
○ POST TEST INTERNAL INSP (1-4.3.8.5)		
○ BEFORE GAS LEAKAGE TEST		
○ AFTER GAS LEAKAGE TEST		
PERFORMANCE TEST (GAS) (AIR) (2-4.3.3.1.1)	○	
COMPLETE UNIT TEST (2-4.3.3.2)	○	
TANDEM TEST (2-4.3.3.3)	○	
GEAR TEST (2-4.3.3.4)	○	
HELIUM LEAK TEST (1-4.3.8.2)	○	
SOUND LEVEL TEST (1-4.3.8.3)	○	
AUX. EQUIPMENT TEST (1-4.3.8.4) _____	○	
FULL LOAD/SPEED/PRESS TEST (1-4.3.8.6)	○	
HYDRAULIC COUPLING INSP (1-4.3.8.7)	○	
SPARE PARTS TEST (1-4.3.8.8) _____	○	
INSPECTOR'S CHECKLIST COMPLIANCE (1-4.1.6)	○	
GAS SEAL TEST VENDOR SHOP (1-4.3.5)	○	

MANUALS
○ DRAFT MANUAL FOR REVIEW (1-5.3.5.1.2)
○ TECHNICAL DATA MANUAL (1.5.3.5)

MISCELLANEOUS:
☐ RECOMMENDED STRAIGHT RUN OF PIPE DIAMETERS BEFORE SUCTION _____
○ COMPRESSOR TO BE SUITABLE FOR FIELD RUN-IN ON AIR (1-2.1.16)
○ PROVISION FOR LIQUID INJECTION (1-2.1.10) _____
○ INJECTION MANIFOLD (2-3.5.1.2)
○ VENDOR'S REVIEW & COMMENTS ON PURCHASER'S CONTROL SYSTEMS (1-3.4.1.1)
○ SHOP FITUP OF VENDOR PROCESS PIPING (1-4.4.3.11)
○ WELDING HARDNESS TESTING (1-4.2.1.5) _____
○ DESIGN AUDIT (1-5.1.4)
○ BALANCE PISTON DP (1-5.3.2.15)
○ PROVIDE TAIL END SCHEDULES (1-5.3.3.2)
○ BOROSCOPIC INSPECTION PORTS (2-2.3.2.4)

VENDOR'S REPRESENTATIVE SHALL (1-2.1.13)
○ OBSERVE FLANGE PARTING
○ CHECK ALIGNEMENT AT TEMPERATURE
○ BE PRESENT AT INITIAL ALIGNMENT

☐ **WEIGHTS (LB.):**
COMPR. _____ GEAR _____ DRIVER _____ BASE _____
ROTORS: COMPR. _____ DRIVER _____ GEAR _____
COMPRESSOR UPPER CASE _____
MAX. FOR MAINTENANCE (IDENTIFY) _____
TOTAL SHIPPING WEIGHT _____

☐ **SPACE REQUIREMENTS (FT & IN.):**
COMPLETE UNIT: L _____ W _____ H _____

REMARKS: _____

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APPLICABLE TO: ○ PROPOSAL ○ PURCHASE ○ AS-BUILT

FOR _____ UNIT _____

SITE _____ SERIAL NO. _____

SERVICE _____ NO. REQUIRED _____

MANUFACTURER _____ DRIVER TYPE (1-3.1.1) _____

MODEL _____ DRIVER ITEM NO. _____

INFORMATION TO BE COMPLETED: ○ BY PURCHASER ☐ BY MANUFACTURER △ MUTUAL AGREEMENT (PRIOR TO PURCHASE)

OPERATING CONDITIONS

(ALL DATA ON PER UNIT BASIS)	NORMAL (1-2.1.1.2)	OTHER CONDITIONS (1-2.1.1.1) A	B	C	D	E
○ GAS HANDLED (ALSO SEE PAGE ____)						
△ GAS PROPERTIES (1-2.1.1.4)						
○ MMm^3/day (m^3/h) (1.03 BAR abs & 0°C)						
○ WEIGHT FLOW, kg/MIN (WET) (DRY)						
INLET CONDITIONS						
○ PRESSURE (BAR abs)						
○ TEMPERATURE (°C)						
○ RELATIVE HUMIDITY %						
○ MOLECULAR WEIGHT						
☐ C_p/C_v (K_1) OR (K_{AVG})						
☐ COMPRESSIBILITY (Z_1) OR (Z_{AVG})						
☐ INLET VOLUME, (m^3/min) (WET/DRY)						
DISCHARGE CONDITIONS						
○ PRESSURE (BAR abs)						
☐ TEMPERATURE (°C)						
☐ C_p/C_v (K_2) OR (K_{AVG}) (NOTE 1)						
☐ COMPRESSIBILITY (Z_2) OR (Z_{AVG}) (NOTE 1)						
☐ GAS kW REQUIRED						
☐ TRAIN BRAKE kW REQUIRED						
☐ BRAKE kW REQUIRED AT DRIVER INCL. EXT. LOSSES (GEAR, ETC.)						
☐ SPEED of driver (RPM)						
☐ TURNDOWN (%)						
☐ POLYTROPIC HEAD (N-m/kg)						
☐ POLYTROPIC EFFICIENCY (%)						
○ CERTIFIED POINT						
☐ PERFORMANCE CURVE NUMBER						

PROCESS CONTROL (1-3.4.2.1)

METHOD ○ SUCTION THROTTLING FROM ____ BAR abs TO ____ BAR abs ○ VARIABLE INLET GUIDE VANES (3-2.4) ○ SPEED VARIATION FROM ____ % TO ____ % ○ DISCHARGE BLOWOFF OR RECIRCULATION ____ (3-2.4) ○ VARIABLE DIFFUSER GUIDE VANES ____

SIGNAL ○ SOURCE (1-3.4.2.1) _____

TYPE ○ ELECTRONIC ○ PNEUMATIC ○ OTHER _____

RANGE _____ MA _____ BARG _____

○ ANTI-SURGE SYSTEM (1-3.4.2.2)

REMARKS: _____

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OPERATING CONDITIONS (Continued) (1-2.1.1.1) (1-3.1.2) (1-3.1.3)

GAS ANALYSIS: ○ MOL % ○	MW	NORMAL	OTHER CONDITIONS A	B	C	D	E	REMARKS:
AIR	28.966							
OXYGEN	32.000							
NITROGEN	28.016							
WATER VAPOR	18.016							
CARBON MONOXIDE	28.010							
CARBON DIOXIDE	44.010							
HYDROGEN SULFIDE	34.076							(1-2.2.1.6)
HYDROGEN	2.016							(1-2.2.1.9)
METHANE	16.042							
ETHYLENE	28.052							
ETHANE	30.068							
PROPYLENE	42.078							
PROPANE	44.094							
I-BUTANE	58.120							
n-BUTANE	58.120							
I-PENTANE	72.146							
n-PENTANE	72.146							
HEXANE PLUS								
CORROSIVE AGENTS								(1-2.2.1.3)
TOTAL								
AVG. MOL. WT.								

LOCATION: (1-2.1.8)
○ INDOOR ○ OUTDOOR ○ GRADE
○ HEATED ○ UNDER ROOF ○ MEZZANINE
○ UNHEATED ○ PARTIAL SIDES ○ _____
○ ELEC. AREA CLASSIFICATION (1-2.1.14) CL ____ GR ____ DIV ____

SITE DATA (1-2.1.8)
○ ELEVATION _____ m BAROMETER _____ BAR abs
○ RANGE OF AMBIENT TEMPS:

		DRY BULB	WET BULB
NORMAL	°C		
MAXIMUM	°C		
MINIMUM	°C		
_____	°C		
_____	°C		

UNUSUAL CONDITIONS: ○ DUST ○ FUMES
○ OTHER (1-2.1.8) _____
○ COPPER AND COPPER ALLOYS PROHIBITED (1-2.2.1.14)

COATING: (1-2.2.1.16)
○ ROTATING COMPONENTS _____
○ STATIONARY COMPONENTS _____

REMARKS: _____

NOISE SPECIFICATIONS: (1-2.1.9)
○ APPLICABLE TO MACHINE:
SEE SPECIFICATION _____
○ APPLICABLE TO NEIGHBORHOOD:
SEE SPECIFICATION _____
ACOUSTIC HOUSING: ○ YES ○ NO

APPLICABLE SPECIFICATIONS:
API 617, 7TH CHAPTERS 1 & 3
○ VENDOR HAVING UNIT RESPONSIBILITY (1-1.5.53) (1-1.8) (1-2.1.3)
_____
○ GOVERNING SPECIFICATION (IF DIFFERENT)

PAINTING:
○ MANUFACTURER'S STD.
○ OTHER _____

NAMEPLATE (2-2.11.2) ○ US CUSTOMARY ○ METRIC

SHIPMENT: (4.4)
○ DOMESTIC ○ EXPORT ○ EXPORT BOXING REQ'D.
○ OUTDOOR STORAGE MORE THAN 6 MONTHS (1-4.4.1) _____ MO
SPARE ROTOR ASSEMBLY PACKAGE (1-4.4.3.10)
○ HORIZONTAL STORAGE ○ VERTICAL STORAGE

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CONSTRUCTION FEATURES (1 COLUMN PER STAGE, USE ADDITIONAL SHEETS IF NEEDED)

Rotor		Rotor 1					
Stage		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
☐	**CASING:**						
	MODEL						
	CASING SPLIT						
	MATERIAL						
	THICKNESS (mm)						
	CORROSION ALLOWANCE (mm)						
	MAX. ALLOWABLE PRESS (BARG)						
	TEST PRESS (BARG):						
	MAX. ALLOWABLE TEMP. (°C)						
	MAX. OPERATING TEMP. (°C)						
	MIN. OPERATING TEMPERATURE (°C)						
	MAX CASING CAPACITY (m^3/min)						
☐	**INLET CONNECTIONS** (1-2.3.2.2.1, 1-2.3.2.2.7)						
	TYPE						
	ORIENTATION						
	FLANGED OR STUDDED?						
	MATING FLG & GASKET BY VENDOR?						
	GAS VELOCITY (m/SEC.)						
☐	**DISCHARGE CONNECTIONS** (1-2.3.2.2.1, 1-2.3.2.2.7)						
	TYPE						
	ORIENTATION						
	FLANGED OR STUDDED?						
	MATING FLG & GASKET BY VENDOR?						
	GAS VELOCITY (m/SEC.)						
○	**INTERMEDIATE MAIN PROCESS CONNECTIONS)** (2-2.4.5)						
	DISCH. PRESSURE (BARG):						
	INLET PRESSURE (BARG):						
☐	**ADJUSTABLE INLET GUIDE VANES**						
	MATERIAL _____						
	NO. INLET GUIDE VANES						
☐	**IMPELLER:**						
	DIAMETER						
	NUMBER OF VANES						
	TYPE (OPEN, ENCLOSED, ETC.)						
	TYPE FABRICATION						
	MATERIAL						
	MIN. YIELD STRENGTH (PSI)						
	HARDNESS: (Rc) (BRINNEL)						
	SMALLEST TIP INTERNAL WIDTH (mm)						
	MAX. MACH. NO. @ IMPELLER EYE						
	MAX. IMPELLER HEAD @ 100% SPD (m)						
	MAX. IMPELLER TIP SPEED (m/sec)						
☐	**DIFFUSER GUIDE VANES**						
	ADJUSTABLE?						
	MATERIAL						
	NO. GUIDE VANES						

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CONSTRUCTION FEATURES, continued (1 COLUMN PER STAGE, USE ADDITIONAL SHEETS IF NEEDED)

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
☐ **SHAFT SLEEVES:**						
MATERIAL						
AT SHAFT SEALS?						
OTHER LOCATIONS?						
SHAFT SEALS: (1-2.8.1.1, 1-2.8.1.5)						
○ SEAL TYPE (1-2.8.1.3)						
○ SETTLING OUT PRESS. (BARG)						
○ MIN.SEALING PRESSURE (BARG)						
○ TYPE BUFFER GAS, PRIMARY						
☐ PRESSURE (BARG) (1-2.8.1.6)						
☐ FLOWRATE (kg/MIN)						
☐ FILTRATION						
○ TYPE BUFFER GAS, SECONDARY						
☐ PRESSURE (BARG) (1-2.8.1.6)						
☐ FLOWRATE (kg/MIN)						
☐ FILTRATION						
☐ FLOW RATE TO PROCESS						

○ BUFFER GAS SYSTEM REQUIRED (2-2.8.1.5)
○ MANIFOLD (1-3.5.1.4)
○ METHOD OF CONTROL (1-2.8.1.5) _____
○ BUFFER GAS CONTROL SYSTEM SCHEMATIC BY VENDOR
○ PRESSURIZING GAS FOR SUBATMOSPHERIC SEALS (1-2.8.2.4) ○ EDUCTOR ○ INJECTION (1-2.8.2.3) _____
☐ SEAL MANUFACTURER _____ ○ SYSTEM RELIEF VALVE SET PT (2-2.3.1.1) _____

BEARING TEMPERATURE DETECTORS (2-3.4.7)
○ SEE ATTACHED API-670 DATASHEET
○ THERMOCOUPLES TYPE _____
○ RESISTANCE TEMP DETECTORS
○ RESISTANCE MAT'L _____ ○ _____ OHMS
☐ ALARM TEMPERATURE (°C) _____
☐ SHUTDOWN TEMPERATURE (°C) _____
○ PROVISION FOR LOCAL DISCONNECT (1-2.7.4.6)
○ LOCATION-JOURNAL BRG
NO. ____ EA PAD _____ EVERY OTH PAD ____ PER BRG
OTHER _____
○ LOCATION-THRUST BRG
NO. ____ EA PAD _____ EVERY OTH PAD ____ PER BRG
OTHER _____
NO. (INACT) ____ EA PAD ____ EVERY OTH PAD PER BRG
OTHER _____
○ LOCAL DISCONNECTION (1-2.7.4.6)
○ MONITOR SUPPLIED BY (2-3.4.7.4) _____
○ LOCATION _____ ENCLOSURE _____
○ MFR. _____ ☐ MODEL _____
☐ SCALE RGE _____ ALARM ☐ SET @ _____ °C
○ SHTDWN ☐ SET @ ____ °C ○ TIME DELAY ____ SEC.

KEY PHASOR REQUIRED
○ COMPRESSOR ○ GEAR H.S. ○ GEAR L.S.

VIBRATION DETECTORS: ○ SEE ATTACHED API-670 DATA SHEET
○ TYPE _____ ☐ MODEL _____
○ MFR _____
○ NO. AT EA SHAFT BEARING _____ TOTAL NO. _____
○ OSCILLATOR-DETECTORS SUPPLIED BY _____
○ MFR _____ MODEL _____
MONITOR SUPPLIED BY (2-3.4.7.2)
○ LOCATION _____ ENCLOSURE _____
○ MFR. _____ MODEL _____
☐ SCALE RGE _____ ALARM ☐ SET @ _____ µm
○ SHTDWN: ☐ SET @ ____ µm ○ TIME DELAY _____ SEC.
○ CASING VIBRATION TRANSDUCERS (2-3.4.7.5)
○ CASING VIBRATION MONITORS (2-3.4.7.6)

AXIAL POSITION DETECTOR: ○ SEE ATTACHED API-670 DATA SHEET
○ TYPE _____ MODEL _____
○ MFR _____ NO. REQUIRED _____
○ OSCILLATOR-DEMODULATOR SUPPLIED BY _____
○ MFR _____ MODEL _____
MONITOR SUPPLIED BY (2-3.4.7.2) _____
○ LOCATION _____ ENCLOSURE _____
○ MFR. _____ ALARM ☐ MODEL _____
☐ SCALE RGE _____ ☐ SET @ _____ µm
○ SHTDWN: ☐ SET @ ____ µm ○ TIME DELAY _____ SEC.

INTEGRALLY GEARED COMPRESSOR
DATA SHEET (API 617—7TH Chapter 3)
SI UNITS

JOB NO. _____ ITEM NO. _____
REVISION NO. _____ DATE _____
 BY _____

CONSTRUCTION FEATURES, ROTORS (1 COLUMN PER ROTOR, USE ADDITIONAL SHEETS IF NEEDED)

☐ **DRIVER SPEEDS:** PITCH LINE VELOCITY (m/SEC) _____
MAX. CONT. _____ NORMAL DIAMETRAL PITCH _____
TRIP SPEED _____ HELIX ANGLE _____ PRESSURE ANGLE _____

☐ **ROTOR NUMBER**	BULL GEAR	ROTOR 1	ROTOR 2	ROTOR 3	ROTOR 4
SPEED (RPM)					
SERVICE POWER (kW)					
SERVICE FACTOR					
NUMBER OF TEETH					
FACE WIDTH (mm)					
AGMA GEOMETRY FACTOR "J"					
AGMA GEOMETRY FACTOR "I"					
MINIMUM HARDNESS (Rc)					
ROTOR WEIGHT (INC WHEELS) (kg)					
BACKLASH (mm)					

GEARBOX FULL LOAD POWER LOSS _____

☐ **LATERAL CRITICAL SPEEDS (DAMPED)**					
FIRST CRITICAL					
SECOND CRITICAL					
THIRD CRITICAL					
FOURTH CRITICAL					

○ LATERAL ANALYSIS ADDITIONAL REQUIREMENTS (1-2.6.2.14)
○ TRAIN LATERAL ANALYSIS REQUIRED (1-2.6.2.6)
○ TRAIN TORSIONAL ANALYSIS REQUIRED (1-2.6.7.1)

☐ **TORSIONAL CRITICAL SPEEDS:**	
FIRST CRITICAL	
SECOND CRITICAL	
THIRD CRITICAL	
FOURTH CRITICAL	

○ LIST OF TRAIN UNDESIRABLE SPEEDS (1-2.6.1.4)
○ STABILITY ANALYSIS (1-2.6.5)

☐ **VIBRATION:**					
ALLOWABLE TEST LEVEL (PK-PK)					

☐ **BALANCE PISTON:**				
MATERIAL				
FIXATION METHOD				
NORMAL CLEARANCE (mm)				
AREA				
FLOW, NORMAL CLEARANCE (kg/MIN.)				
FLOW, 2x NORMAL CLEAR (kg/MIN.)				
○ PRESS. CONN. BAL LINE (2-2.5.4.3)				

			JOB NO.		ITEM NO.		
	INTEGRALLY GEARED COMPRESSOR DATA SHEET (API 617—7TH Chapter 3) SI UNITS		REVISION NO.		DATE		
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1	**CONSTRUCTION FEATURES, ROTOR BEARINGS (1 COLUMN PER ROTOR, USE ADDITIONAL SHEETS IF NEEDED)**						
2	**RADIAL BEARINGS, DRIVE END**	BULL GEAR	ROTOR 1	ROTOR 2	ROTOR 3	ROTOR 4	
3	☐ TYPE						
4	☐ MANUFACTURER						
5	☐ LENGTH (mm)						
6	☐ SHAFT DIA. (mm)						
7	☐ UNIT LOAD (ACT/ALLOW)						
8	☐ BASE MATERIAL						
9	☐ BABBIT THICKNESS (mm)						
10	☐ NO. PADS						
11	☐ LOAD: BETWEEN/ON PAD						
12	☐ PIVOT: CENTER/OFFSET, %						
13	☐ RADIAL BEARING SPAN (mm)						
14	**RADIAL BRG, OPPOSITE DRIVE END**						
15	☐ TYPE						
16	☐ MANUFACTURER						
17	☐ LENGTH (mm)						
18	☐ SHAFT DIA. (mm)						
19	☐ UNIT LOAD (ACT/ALLOW)						
20	☐ BASE MATERIAL						
21	☐ BABBIT THICKNESS (mm)						
22	☐ NO. PADS						
23	☐ LOAD: BETWEEN/ON PAD						
24	☐ PIVOT: CENTER/OFFSET, %						
25	**THRUST BEARINGS , ACTIVE**						
26	☐ TYPE						
27	☐ MANUFACTURER						
28	☐ UNIT LOADING (MAX BAR)						
29	☐ UNIT LOAD (ULT.) (BAR)						
30	☐ AREA (mm)						
31	☐ NO. PADS						
32	☐ PIVOT: CENTER/OFFSET, %						
33	☐ PAD BASE MATL						
34	☐ COPPER BACKED (2-2.7.3.7)						
35	☐ COLLAR MATERIAL						
36	☐ INTEGRAL OR REPLACEABLE COLLAR						
37	☐ SIZING CRITERIA (2-2.7.3.5)						
38	☐ FLOODED OR DIRECTED LUBRICATION						
39	**THRUST BEARINGS , INACTIVE**						
40	☐ TYPE						
41	☐ MANUFACTURER						
42	☐ UNIT LOADING (MAX BAR)						
43	☐ UNIT LOAD (ULT.) (BAR)						
44	☐ AREA (mm^2)						
45	☐ NO. PADS						
46	☐ PIVOT: CENTER/OFFSET, %						
47	☐ PAD BASE MATL						
48	☐ COPPER BACKED (2-2.7.3.7)						
49	☐ COLLAR MATERIAL						
50	☐ INTEGRAL OR REPLACEABLE COLLAR						
51	☐ SIZING CRITERIA (2-2.7.3.5)						
52	☐ FLOODED OR DIRECTED LUBRICATION						

CENTRIFUGAL AND AXIAL COMPRESSOR
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SI UNITS

JOB NO. _____ ITEM NO. _____
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☐ **OTHER CONNECTIONS**

SERVICE:	**NO.**	**SIZE**	**TYPE**		**NO.**	**SIZE**	**TYPE**
LUBE-OIL INLET				PRESSURE			
LUBE OIL OUTLET				TEMPERATURE			
SEAL-OIL INLET				SOLVENT INJECTION			
SEAL-OIL OUTLET				PURGE FOR:			
SEAL GAS INLET				BRG. HOUSING			
SEAL GAS OUTLET				BTWN BRG & SEAL			
CASING DRAINS				BTWN SEAL & GAS			
STAGE DRAINS							

○ INDIVIDUAL STAGE DRAINS REQUIRED (1-2.3.2.1.7)
○ VALVED & BLINDED
○ VALVED & BLINDED & MANIFOLD

LUBRICATION AND SEALING SYSTEMS (1-2.10) (1-3.5.1.2)

○ SEE ATTACHED API 614 DATASHEET
○ SEPARATE ○ COMBINED (2-2.10.1)
○ INTEGRAL OIL RESERVOIR (1-3.3.2.11)
○ OIL TYPE (2-2.10.2)

ACCESSORIES

COUPLING AND GUARDS (3.2)

NOTE: SEE ROTATING ELEMENTS—SHAFT ENDS

○ SEE ATTACHED API-671 DATA SHEET ○ KEYLESS HYDRAULIC ○ KEYED ○ FLANGED ○ OTHER _____

COUPLING FURNISHED BY _____

MANUFACTURER _____ TYPE _____ MODEL _____

COUPLING GUARD FURNISHED BY: _____

TYPE: ○ FULLY ENCLOSED ○ SEMI-OPEN ○ OTHER

COUPLING DETAILS

☐ MAX O.D. _____ mm
☐ HUB WEIGHT _____ kg
☐ SPACER LENGTH _____ mm
☐ SPACER WEIGHT _____ kg

○ PLUG AND RING GAUGES (1-3.2.5)
LUBRICATION REQUIREMENTS:
○ NON-LUBE ○ CONT. OIL LUBE ○ OTHER _____
QUANTITY PER HUB _____ L/MIN

MOUNTING PLATES (1-3.3)

○ BASEPLATES FURNISHED BY (1-3.3.2.1) _____
○ COMPRESSOR ONLY ○ DRIVER ○ GEAR
○ OTHER _____
○ NONSKID DECKING (1-3.3.2.4) ○ SLOPED DECK (1-3.3.2.4.1)
△ LEVELING PADS OR TARGETS (1-3.3.2.6)
△ COLUMN MOUNTING (1-3.3.2.5)
○ SUB-SOLE PLATES REQUIRED (1-3.3.2.10)
☐ STAINLESS STEEL SHIM THICKNESS _____ mm .
○ MACHINED MOUNTING PADS REQUIRED (1-3.3.2.9)

○ SOLEPLATES FURNISHED BY (1-3.3.3.1) _____
☐ THICKNESS _____ mm
○ SUBSOLE PLATES REQUIRED (1-3.3.3.1.5)

☐ STAINLESS STEEL SHIM THICKNESS _____ mm
○ COMPRESSOR _____

○ COUNTER BORE ANCHOR BOLT HOLES (1-3.3.3.1.2)

MATERIALS INSPECTION REQUIREMENTS (1-4.2.2.1)

○ RADIOGRAPHY REQUIRED FOR _____
○ ULTRASONIC REQUIRED FOR _____
○ MAGNETIC PARTICLE REQUIRED FOR _____
○ LIQUID PENETRANT REQUIRED FOR _____

○ LOW TEMPERATURE (1-2.2.1.15.2) _____
MIN.DESIGN METAL TEMPERATURE (°C) _____
AT CONCURRANT PRESSURE (BARG) _____
○ OTHER TRAIN COMPONENTS (1-2.2.1.15.2)
○ Q.C. OF INACCESSIBLE WELDS (1-2.3.1.11.2)

CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617—7TH Chapter 3) SI UNITS

JOB NO. _____ ITEM NO. _____
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UTILITIES

○ **UTILITY CONDITIONS:**

	DRIVERS			
STEAM:				
INLET MIN	_____ BARG	_____ °C		
NORM	_____ BARG	_____ °C		
MAX	_____ BARG	_____ °C		
EXHAUST. MIN	_____ BARG	_____ °C		
NORM	_____ BARG	_____ °C		
MAX	_____ BARG	_____ °C		

ELECTRICITY:

	DRIVERS	CONTROL	SHUTDOWN
VOLTAGE			
HERTZ			
PHASE			

○ REDUCED VOLTAGE START (1-3.1.6)
△ NUMBER OF STARTS (1-2.6.7.6.4) _____
INSTRUMENT AIR:
MAX PRESS _____ BARG MIN PRESS _____ BARG
☐ **ROTATION, VIEWED OPP. DRIVE END** ○ **CW** ○ **CCW**

SHOP INSPECTION AND TESTS: (1-4.1.4)

	REQ'D	WIT/OBV
○ (SEE INSPECTOR'S CHECKLIST)		
HYDROSTATIC (1-4.3.2)	●	
IMPELLER OVERSPEED (1-4.3.3)	●	
MECHANICAL RUN (1-4.3.6)	●	
○ CONTRACT COUPLING ○ IDLING ADAPTOR(S)		
○ CONTRACT PROBES ○ SHOP PROBES		
○ PURCHASER VIB. EQUIPMENT (2-4.3.1.1.10)		
VARY LUBE & SEAL OIL PRESSURES AND TEMPERATURES (1-4.3.6.1.5)	○	
POLAR FORM VIB DATA (1-4.3.6.1.2)	○	
TAPE RECORD VIB DATA (1-4.3.6.1.3)	○	
SHAFT END SEAL INSP (1-4.3.6.2.2)	○	
GAS LEAK TEST AT DISCH PRESS (2-4.3.2.3)	○	
○ POST TEST INTERNAL INSP (1-4.3.8.5)		
○ BEFORE GAS LEAKAGE TEST		
○ AFTER GAS LEAKAGE TEST		
PERFORMANCE TEST (GAS) (AIR) (2-4.3.3.1.1)	○	
COMPLETE UNIT TEST (2-4.3.3.2)	○	
TANDEM TEST (2-4.3.3.3)	○	
GEAR TEST (2-4.3.3.4)	○	
HELIUM LEAK TEST (1-4.3.8.2)	○	
SOUND LEVEL TEST (1-4.3.8.3)	○	
AUX. EQUIPMENT TEST (1-4.3.8.4) _____	○	
FULL LOAD/SPEED/PRESS TEST (1-4.3.8.6)	○	
HYDRAULIC COUPLING INSP (1-4.3.8.7)	○	
SPARE PARTS TEST (1-4.3.8.8) _____	○	
INSPECTOR'S CHECKLIST COMPLIANCE (1-4.1.6)	○	
GAS SEAL TEST VENDOR SHOP (1-4.3.5)	○	

MANUALS
○ DRAFT MANUAL FOR REVIEW (1-5.3.5.1.2)
○ TECHNICAL DATA MANUAL (1.5.3.5)

MISCELLANEOUS:
☐ RECOMMENDED STRAIGHT RUN OF PIPE DIAMETERS BEFORE SUCTION _____
○ COMPRESSOR TO BE SUITABLE FOR FIELD RUN-IN ON AIR (1-2.1.16)
○ PROVISION FOR LIQUID INJECTION (1-2.1.10) _____
○ INJECTION MANIFOLD (2-3.5.1.2)
○ VENDOR'S REVIEW & COMMENTS ON PURCHASER'S CONTROL SYSTEMS (1-3.4.1.1)
○ SHOP FITUP OF VENDOR PROCESS PIPING (1-4.4.3.11)
○ WELDING HARDNESS TESTING (1-4.2.1.5) _____
○ DESIGN AUDIT (1-5.1.4)
○ BALANCE PISTON DP (1-5.3.2.15)
○ PROVIDE TAIL END SCHEDULES (1-5.3.3.2)
○ BOROSCOPIC INSPECTION PORTS (2-2.3.2.4)

VENDOR'S REPRESENTATIVE SHALL (1-2.1.13)
○ OBSERVE FLANGE PARTING
○ CHECK ALIGNEMENT AT TEMPERATURE
○ BE PRESENT AT INITIAL ALIGNMENT

☐ **WEIGHTS (LB.):**
COMPR. _____ GEAR _____ DRIVER _____ BASE _____
ROTORS: COMPR. _____ DRIVER _____ GEAR _____
COMPRESSOR UPPER CASE _____
MAX. FOR MAINTENANCE (IDENTIFY) _____
TOTAL SHIPPING WEIGHT _____

☐ **SPACE REQUIREMENTS (m):**
COMPLETE UNIT: L _____ W _____ H _____

REMARKS: _____

ANNEX 4A
TYPICAL DATA SHEETS

JOB NO. _____ ITEM NO. _____

PURCHASE ORDER NO. _____

SPECIFICATION NO. _____

REVISION NO. _____ DATE _____

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TURBOEXPANDER/COMPRESSOR DATA SHEET U.S. CUSTOMARY UNITS

APPLICABLE TO: ○ PROPOSAL ○ PURCHASE ○ AS-BUILT

SERVICE _____ NO. REQUIRED _____

MANUFACTURER _____ MODEL _____

NOTE: INFORMATION TO BE COMPLETED:

○ BY PURCHASER ☐ BY MANUFACTURER ▽ EITHER, BUT BY VENDOR IF NOT BY PURCHASER

OPERATING CONDITIONS

(ALL DATA ON PER UNIT BASIS)

	NORMAL CASE		CASE A		CASE B	
	EXP	COMP	EXP	COMP	EXP	COMP
INLET CONDITIONS:						
○ MMSCFD/SCFM (14.7 PSIA & 60 °F DRY)						
○ WEIGHT FLOW, LB./HR (EXP: WET / DRY; COMP: WET / DRY)						
○ PRESSURE (PSIA)						
○ TEMPERATURE (°F)						
○ MOLECULAR WEIGHT						
○						
○						
DISCHARGE CONDITIONS:						
☐ PRESSURE (PSIA)						
☐ TEMPERATURE (°F)						
☐ WEIGHT PERCENT LIQUID (%)						
☐ GAS HORSEPOWER						
☐ SPEED (RPM)						
☐ ADIABATIC/POLYTROPIC EFFICIENCY (Exp/Comp, %)						
○						
○						
○ GUARANTEE CASE (check one case)						

VARIABLE INLET GUIDE VANE PROCESS CONTROL SIGNAL SOURCE:

TYPE: ○ ELECTRONIC RANGE: _____ MA

○ PNEUMATIC _____ PSIG

CASING CONNECTIONS:

CONNECTION	☐ SIZE NPS/RATING	☐ FACING	☐ POSITION	☐ FLANGED OR STUDDED	○ MATING FLG & GASKET BY VENDOR	☐ GAS VELOCITY FT/SEC.
EXPANDER INLET						
EXPANDER DISCHARGE						
COMPRESSOR INLET						
COMPRESSOR DISCHARGE						

REMARKS: _____

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JOB NO. _____ ITEM NO. _____
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OPERATING CONDITIONS (Continued)

GAS ANALYSIS: ○ MOL % ○ WT %		**NORMAL**		**CASE A**		**CASE B**		**SEAL GAS**	**REMARKS:**
	MW	**EXP**	**COMP**	**EXP**	**COMP**	**EXP**	**COMP**		
HELIUM	4.000								
HYDROGEN	2.016								
NITROGEN	28.016								
WATER VAPOR	18.016								
CARBON DIOXIDE	44.010								
HYDROGEN SULFIDE	34.076								
METHANE	16.042								
ETHYLENE	28.052								
ETHANE	30.068								
PROPYLENE	42.078								
PROPANE	44.094								
I-BUTANE	58.120								
n-BUTANE	58.120								
I-PENTANE	72.146								
n-PENTANE	72.146								
HEXANE PLUS									
TOTAL									
AVG. MOL. WT.									

SITE DATA

○ ELEVATION _____ FT BAROMETER _____ PSIA

○ RANGE OF AMBIENT TEMPS:

NORMAL _____ °F

MAXIMUM _____ °F

MINIMUM _____ °F

LOCATION:

○ INDOOR ○ OUTDOOR ○ GRADE

○ HEATED ○ UNDER ROOF ○ MEZZANINE

○ UNHEATED ○ PARTIAL SIDES ○ _____

○ AREA CLASSIFICATION NEC _____ IEC _____

CLASS _____ GROUP _____ DIV. _____

ZONE _____ GROUP _____ TEMP CLASS _____

UNUSUAL CONDITIONS: ○ DUST ○ FUMES

○ WINTERIZATION REQ'D. ○ TROPICALIZATION REQ'D.

○ OTHER _____

REMARKS: _____

APPLICABLE SPECIFICATIONS:

○ VENDOR STANDARD

○ API 617, 7TH EDITION

○ OTHER: _____

NOISE SPECIFICATIONS:

○ VENDOR STANDARD

○ PURCHASER SPECIFICATION

○ SEE SPECIFICATION _____

ACOUSTIC COVERING: ○ YES ○ NO

PAINTING:

○ VENDOR STANDARD

○ OTHER _____

SHIPPING PREPARATION:

○ DOMESTIC PACKING

○ EXPORT PACKING (MIL-P 116J METHOD II)

○ SPECIAL: _____

DELIVERY:

○ FCA FACTORY ○ FOB SITE (DOMESTIC ONLY)

○ OTHER: _____

SPARE ROTATING ASSEMBLY:

○ WOODEN SHIPPING CONTAINER

○ METAL SHIPPING CONTAINER W/ PURGE PROVISION

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CONSTRUCTION FEATURES

☐ **SPEEDS:**
MAX. CONT. _____ RPM TRIP _____ RPM
TIP SPEEDS: EXPANDER _____ FT/SEC @ MCS
COMPRESSOR _____ FT/SEC @ MCS

☐ **LATERAL CRITICAL SPEEDS (DAMPED)**
FIRST CRITICAL _____ RPM BENDING MODE
○ UNDAMPED CRITICAL SPEED MAP
○ COMPLETE ROTORDYNAMIC ANALYSIS

☐ **CASINGS:**
MODEL _____

	EXP	BRG HSG	COMP
☐ CASING SPLIT			
☐ MATERIAL			
☐ ASTM A-351 CF8			
☐ ASTM A-352 LC3			
☐ ASTM A-352 LCC			
☐ ASTM A-216 WCB			
☐ _____			
○ DESIGN PRES, PSIG			
○ MAX DESIGN TEMP, ° F			
○ MIN. DESIGN TEMP, °F			
○ VISUAL INSPECTION			
○ CHARPY TESTING			
○ MAGNETIC PARTICLE			
○ LIQUID PENETRANT			
○ CRITICAL AREA X-RAY			
○ _____			
○ _____			

☐ HYDROTEST PRESS ☐ 1.5 X DESIGN ☐ _____

○ CASING LEAK TEST ☐ 1.0 X DESIGN ☐ _____
○ 100% NITROGEN
○ NITROGEN / HELIUM MIX (90 / 10)
○ 100% HELIUM
NOTE: LEAK TEST PERFORMED FOLLOWING
HYDROTEST USING SOAP BUBBLE METHOD

☐ **IMPELLERS:**

	EXP	COMP
☐ DIAMETER (IN.)		
☐ TYPE (OPEN, ENCLOSED)		
☐ TYPE FABRICATION		

☐ EXPANDER WHEEL MATERIAL
☐ YIELD STRENGTH (kSI) MAX _____ MIN _____ (TYP)
☐ HARDNESS: _____ BNH / R_C (TYP)
☐ COMPRESSOR WHEEL MATERIAL _____
☐ YIELD STRENGTH (kSI) MAX _____ MIN _____ (TYP)
☐ HARDNESS: _____ BNH / R_C (TYP)

☐ **SHAFT:**
☐ MATERIAL _____
SHAFT END: ☐ TAPERED ☐ CYLINDRICAL
☐ YIELD STRENGTH (PSI) _____
☐ SHAFT HARDNESS (BNH)(Rc) _____

☐ **SHAFT SEALS:**
☐ SINGLE PORT BUFFERED LABYRINTH
☐ DOUBLE PORT BUFFERED LABYRINTH
☐ TRIPLE PORT BUFFERED LABYRINTH
BLEED PRESSURE: _____ PSIG
☐ DRY GAS SEAL: _____
○ TYPE BUFFER GAS _____
○ BUFFER GAS SUPPLY PRESSURE _____ PSIG
☐ OTHER _____

SEAL GAS REQUIREMENTS :
☐ TYPE: _____
☐ MIN. SUPPLY PRESS. _____ PSIG
☐ MAX SUPPLY PRESS. _____ °F
☐ MIN SUPPLY TEMP. _____ °F
☐ MAX SUPPLY TEMP. _____ °F
☐ NORMAL FLOW _____ SCFM @ _____ PSI Δ P
☐ MAX FLOW _____ SCFM @ _____ PSI Δ P
○ NOTE: PURCHASER TO SUPPLY SEAL GAS COMPOSITION ON SHEET 2.

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CONSTRUCTION FEATURES (CONTINUED)

BEARINGS:

RADIAL:

☐ TYPE:
- ☐ SLEEVE BEARING
- ☐ TILTING PAD BEARING
- ☐ ACTIVE MAGNETIC BEARING
- ☐ OTHER _____

☐ MATERIAL:
- ☐ ALUMINUM (BABBITTED)
- ☐ BRASS / BRONZE(BABBITTED)
- ☐ CARBON STEEL (BABBITTED)
- ☐ OTHER _____

☐ SHAFT DIA. (IN.) _____
☐ MANUFACTURER _____

BEARING TEMPERATURE DEVICES:

○ **TYPE**
- ○ THERMOCOUPLES TYPE: _____
- ○ RESISTANCE TEMP DETECTORS
  - ○ RESISTANCE MAT'L _____ ○ _____ OHMS

○ **LOCATION / QTY**
- ☐ SINGLE DUAL ELEMENT (MAIN & SPARE) ____ PER BRG

○ **TEMPERATURE PROTECTION LOGIC DEVICE:**
- ○ TEMPERATURE MONITOR ○ DCS
- ○ PLC ○ OTHER _____
- ○ LOGIC DEVICE SUPPLIED BY: ○ VENDOR ○ PURCH
- ○ LOCATION OF TEMPERATURE PROTECTION LOGIC DEVICE:
- ○ LOCAL CONTROL PANEL ○ REMOTE CONTROL PANEL
- ○ MAIN CONTROL ROOM ○ OTHER _____

○ **BEARING TEMPERATURE DISPLAY TYPE:**
- ○ TEMPERATURE MONITOR ☐ MODEL _____
- ○ ALPHANUMERIC DISPLAY
- ○ MMI / VDU
- ○ PURCHASER
- ○ OTHER _____

○ DISPLAY DEVICE PROVIDED BY: ○ VENDOR ○ PURCH
- ○ LOCATION OF TEMPERATURE DISPLAY DEVICE:
- ○ LOCAL CONTROL PANEL ○ REMOTE CONTROL PANEL
- ○ MAIN CONTROL ROOM ○ OTHER _____

SPEED PROBES:

○ **TYPE:** ○ ELECTROMAGNETIC ○ EDDY CURRENT

○ **QUANTITY** _____

○ **MACHINE PROTECTION LOGIC DEVICE:**
- ○ SWITCH ○ SPEED MONITOR ○ _____

○ **LOCATION OF SPEED DISPLAY:**
- ○ LOCAL PANEL ○ REMOTE DISPLAY

THRUST:

☐ TYPE:
- ☐ TAPERED LAND THRUST BEARING
- ☐ TILTING PAD THRUST BEARING
- ☐ ACTIVE MAGNETIC THRUST BEARING
- ☐ OTHER

☐ MANUFACTURER _____

LUBRICATION: ☐ FLOODED ☐ DIRECTED ☐ N/A

THRUST COLLAR / DISK: ☐ INTEGRAL ☐ SEPARATE

VIBRATION DETECTORS:

TYPE: ☐ EDDY CURRENT ☐ INDUCTIVE ☐ _____

○ MFR _____

☐ MODEL _____

○ **LOCATION AND QUANTITY:**
- ○ NO. PER JOURNAL BEARING _____ TOTAL NO. _____
- ○ IF REQ'D, OSCILLATOR-DEMODULATORS SUPPLIED BY:
  - ○ VENDOR ○ MODEL _____
  - ○ PURCHASER ○ MODEL _____

○ **MACHINE VIBRATION PROTECTION LOGIC DEVICE:**
- ○ VIBRATION MONITOR ○ DCS
- ○ PLC ○ OTHER _____
- ○ LOGIC DEVICE PROVIDED BY: ○ VENDOR ○ PURCH
- ○ LOCATION OF VIBRATION PROTECTION LOGIC DEVICE:
- ○ LOCAL CONTROL PANEL ○ REMOTE CONTROL PANEL
- ○ MAIN CONTROL ROOM ○ _____

○ **VIBRATION AMPLITUDE DISPLAY**
- ○ VIBRATION MONITOR ☐ MODEL _____
- ○ ALPHANUMERIC DISPLAY
- ○ MMI / VDU
- ○ OTHER _____
- ○ DISPLAY DEVICE PROVIDED BY: ○ VENDOR ○ PURCH
- ○ LOCATION OF DISPLAY DEVICE:
- ○ LOCAL CONTROL PANEL ○ REMOTE CONTROL PANEL
- ○ MAIN CONTROL ROOM ○ _____

○ KEY PHASOR ○ YES ○ NO

MAGNETIC BEARING CONTROL CABINET, IF REQUIRED

○ UPS SUPPLIED BY: ○ VENDOR ○ PURCHASER

○ **LOCATION OF CONTROL CABINET:**
- ○ LOCAL PANEL ○ REMOTE PANEL
- ○ MAIN CONTROL ROOM ○ _____

○ CABLE LENGTH FROM MACHINE SKID TO CONTROL CABINET: _____ FT

○ **POWER AND SIGNAL CABLES:**
- ○ SUPPLIED BY PURCHASER ○ SUPPLIED BY VENDOR

○ **COMUNICATION PROTOCOL**
- ○ MODBUS ○ OTHER: _____

☐ POWER CONSUMPTION: kW

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☐ **OTHER CONNECTIONS**

SERVICE:	NO.	SIZE	TYPE
LUBE-OIL INLET			
LUBE OIL OUTLET			
SEAL GAS INLET			
SEAL GAS OUTLET			
CASING DRAINS, EXP / COMP			
INTERMEDIATE BLEED			
THRUST PRESSURES			
WHEEL PRESSURES, EX / COM			
BEARING HOUSING PRES			

○ **ALLOWABLE PIPING FORCES AND MOMENTS:**
- ○ 1.85 X NEMA SM23
- ○ 3 X NEMA SM23
- ○ OTHER:

CASING DRAINS:
- ○ PLUGGED ○ FLANGED AND VALVED
- ○ FLANGED ○ FLANGED, VALVED, AND MANIFOLDED

ACCESSORIES

○ **EXPANDER INLET TRIP VALVE:**
- ○ TYPE:
  - ○ BUTTERFLY VALVE ⬭ SIZE: _____ ⬭ RATING: _____ ○ ALLOWABLE PRESSURE DROP: _____ PSID
  - ○ OTHER: _____
- ○ DESIGN PRESSURE: _____ PSIG ○ DESIGN TEMPERATURE (MIN / MAX) _____ / _____ °F
- ○ MATERIAL:
  - ○ STAINLESS STEEL ○ LOW TEMP CARBON STEEL ○ CARBON STEEL ○ OTHER: _____
- ○ TRIP VALVE SUPPLIED BY: ○ VENDOR ○ PURCHASER

○ **INLET SCREENS AND PIPE SPOOLS:**

INLET SCREENS:	EXP	COMP
TYPE: (CONE, BASKET, OTHER)		
SIZE (DIA. IN INCHES)		
MESH SIZE		
PRESSURE DROP (PSID)		
MATERIAL:		
STAINLESS STEEL	○	○
OTHER _____	○	○

INLET SCREENS SUPPLIED BY: ○ VENDOR ○ PURCHASER

INLET SPOOLS FOR INLET SCREENS:	EXP	COMP
SIZE		
RATING		
FACING		
DESIGN PRESSURE: PSIG		
DESIGN TEMPERATURE (MIN/MAX) °F		
DESIGN TEMPERATURE (MIN/MAX) °F		
MATERIAL:		
STAINLESS STEEL	○	○
LOW TEMP CARBON STEEL	○	○
CARBON STEEL	○	○
OTHER:		
SPOOL CONSTRUCTION:		
SLIP-ON / SOCKETWELD	○	○
SOCKETWELD	○	○
WELDNECK / BUTTWELD	○	○

PIPE SPECIFICATION: _____

○ **COMPRESSOR ANTI-SURGE SYSTEM**
- CONTROLLER: ○ PID CONTROLLER ○ OTHER: _____
- ○ RECYCLE VALVE TYPE: _____ MTL: _____ NOISE LIMIT: ○ VENDOR STD ○ SPECIAL: _____
  - ○ DESIGN PRESSURE: _____ PSIG ○ DESIGN TEMPERATURE (MIN/MAX) _____ / _____ °F
- ○ INLET FLOW DEVICE TYPE: _____ ○ BY: _____
- ○ COMP. INLET FLOW TRANSMITTER ○ COMP. DIFF. PRESSURE TRANSMITTER

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SHOP INSPECTION AND TESTS:

	REQ'D	OBSRV	WTNS
CLEANLINESS	○	⬭	○
HYDROSTATIC	○	⬭	○
LOW SPEED BALANCE (ISO 1940 G2.5)	○	⬭	○
IMPELLER OVERSPEED (115% OF MCS)	○	⬭	○
IMPELLER RESONANCE TEST	○	⬭	○
MECHANICAL RUN	○	⬭	○
○ MAIN ○ SPARE			
○ CONTRACT PROBES ○ SHOP PROBES			
VARY LUBE & SEAL OIL PRESSURES AND TEMPERATURES	○	⬭	○
POLAR FORM VIB DATA	○	⬭	○
TAPE RECORD VIB DATA	○	⬭	○
TAPE DATA TO PURCHASER	○	⬭	○
PERFORMANCE TEST (AIR)	○	⬭	○
COMPLETE UNIT TEST	○	⬭	○
HE/N2 CASING LEAK TEST	○	⬭	○
SOUND LEVEL TEST	○	⬭	○
FULL POWER TEST	○	⬭	○
_____	○	⬭	○
_____	○	⬭	○

○ **UTILITY CONDITIONS:**

INSTRUMENT AIR FOR GUIDE VANE ACTUATOR:

MAX PRESS _____ PSIG MIN PRESS _____ PSIG

MISCELLANEOUS:

☐ RECOMMENDED STRAIGHT RUN OF PIPE DIAMETERS

AT EXPANDER DISCHARGE: _____

AT COMPRESSOR INLET: _____

○ VENDOR TO REVIEW & COMMENT ON PURCHASER'S PIPING & FOUNDATION

○ VENDOR TO REVIEW & COMMENT ON PURCHASER'S CONTROL SYSTEMS

○ _____

○ _____

○ _____

☐ **WEIGHTS (LB):**

EXP / COMP UNIT _____ LBS

MAINTENANCE (SPARE ROTATING ASSY) _____ LBS

TOTAL MACHINERY SKID WEIGHT: _____ LBS

TOTAL SUPPORT SYSTEM SKID WT. (IF SEPARATE): _____ LBS

☐ **SPACE REQUIREMENTS (FT & IN.):**

MACHINERY SKID: L _____ W _____ H _____

SUPPORT SYSTEM SKID: L _____ W _____ H _____

REMARKS: _____

JOB NO. _____ ITEM NO. _____

PURCHASE ORDER NO. _____

SPECIFICATION NO. _____

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APPLICABLE TO: ○ PROPOSAL ○ PURCHASE ○ AS-BUILT

SERVICE _____ NO. REQUIRED _____

MANUFACTURER _____ MODEL _____

NOTE: INFORMATION TO BE COMPLETED:

○ BY PURCHASER ☐ BY MANUFACTURER ▽ EITHER, BUT BY VENDOR IF NOT BY PURCHASER

OPERATING CONDITIONS

(ALL DATA ON PER UNIT BASIS)

	NORMAL CASE		CASE A		CASE B	
	EXP	COMP	EXP	COMP	EXP	COMP
INLET CONDITIONS:						
○ MMm3/day (m3/h): (1.03 BAR & 0°C DRY)						
○ WEIGHT FLOW, kg/HR (EXP: WET / DRY; COMP: WET / DRY)						
○ PRESSURE (BAR abs)						
○ TEMPERATURE (°C)						
○ MOLECULAR WEIGHT						
○						
○						
DISCHARGE CONDITIONS:						
☐ PRESSURE (BAR abs)						
☐ TEMPERATURE (°C)						
☐ WEIGHT PERCENT LIQUID (%)						
☐ GAS kW						
☐ SPEED (RPM)						
☐ ADIABATIC/POLYTROPIC EFFICIENCY (Exp/Comp, %)						
○						
○						
○ GUARANTEE CASE (check one case)						

VARIABLE INLET GUIDE VANE PROCESS CONTROL SIGNAL SOURCE:

TYPE: ○ ELECTRONIC RANGE: _____ MA

○ PNEUMATIC _____ BARG

CASING CONNECTIONS:

CONNECTION	☐ SIZE NPS/RATING	☐ FACING	☐ POSITION	☐ FLANGED OR STUDDED	○ MATING FLG & GASKET BY VENDOR	☐ GAS VELOCITY m/SEC.
EXPANDER INLET						
EXPANDER DISCHARGE						
COMPRESSOR INLET						
COMPRESSOR DISCHARGE						

REMARKS: _____

JOB NO. _____ ITEM NO. _____

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OPERATING CONDITIONS (Continued)

GAS ANALYSIS: ○ MOL % ○ WT %		NORMAL		CASE A		CASE B		SEAL GAS	REMARKS:
	MW	EXP	COMP	EXP	COMP	EXP	COMP		
HELIUM	4.000								
HYDROGEN	2.016								
NITROGEN	28.016								
WATER VAPOR	18.016								
CARBON DIOXIDE	44.010								
HYDROGEN SULFIDE	34.076								
METHANE	16.042								
ETHYLENE	28.052								
ETHANE	30.068								
PROPYLENE	42.078								
PROPANE	44.094								
I-BUTANE	58.120								
n-BUTANE	58.120								
I-PENTANE	72.146								
n-PENTANE	72.146								
HEXANE PLUS									
TOTAL									
AVG. MOL. WT.									

SITE DATA

○ ELEVATION _____ m BAROMETER _____ BARA

○ RANGE OF AMBIENT TEMPS:

NORMAL _____ °C

MAXIMUM _____ °C

MINIMUM _____ °C

LOCATION:

○ INDOOR ○ OUTDOOR ○ GRADE

○ HEATED ○ UNDER ROOF ○ MEZZANINE

○ UNHEATED ○ PARTIAL SIDES ○ _____

○ AREA CLASSIFICATION NEC _____ IEC _____

CLASS _____ GROUP _____ DIV. _____

ZONE _____ GROUP _____ TEMP CLASS _____

UNUSUAL CONDITIONS: ○ DUST ○ FUMES

○ WINTERIZATION REQ'D. ○ TROPICALIZATION REQ'D.

○ OTHER _____

REMARKS: _____

APPLICABLE SPECIFICATIONS:

○ VENDOR STANDARD

○ API 617, 7TH EDITION

○ OTHER: _____

NOISE SPECIFICATIONS:

○ VENDOR STANDARD

○ PURCHASER SPECIFICATION

○ SEE SPECIFICATION _____

ACOUSTIC COVERING: ○ YES ○ NO

PAINTING:

○ VENDOR STANDARD

○ OTHER _____

SHIPPING PREPARATION:

○ DOMESTIC PACKING

○ EXPORT PACKING (MIL-P 116J METHOD II)

○ SPECIAL: _____

DELIVERY:

○ FCA FACTORY ○ FOB SITE (DOMESTIC ONLY)

○ OTHER: _____

SPARE ROTATING ASSEMBLY:

○ WOODEN SHIPPING CONTAINER

○ METAL SHIPPING CONTAINER W/ PURGE PROVISION

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CONSTRUCTION FEATURES

☐ **SPEEDS:**
MAX. CONT. _____ RPM TRIP _____ RPM
TIP SPEEDS: EXPANDER _____ m/SEC @ MCS
COMPRESSOR _____ m/SEC @ MCS

☐ **LATERAL CRITICAL SPEEDS (DAMPED)**
FIRST CRITICAL _____ RPM BENDING MODE
○ UNDAMPED CRITICAL SPEED MAP
○ COMPLETE ROTORDYNAMIC ANALYSIS

☐ **CASINGS:**
MODEL _____

	EXP	BRG HSG	COMP
☐ CASING SPLIT			
☐ MATERIAL			
☐ ASTM A-351 CF8			
☐ ASTM A-352 LC3			
☐ ASTM A-352 LCC			
☐ ASTM A-216 WCB			
☐ _____			
○ DESIGN PRES, PSIG			
○ MAX DESIGN TEMP, °C			
○ MIN. DESIGN TEMP, °C			
○ VISUAL INSPECTION			
○ CHARPY TESTING			
○ MAGNETIC PARTICLE			
○ LIQUID PENETRANT			
○ CRITICAL AREA X-RAY			
○ _____			
○ _____			

☐ HYDROTEST PRESS ☐ 1.5 X DESIGN ☐ _____

○ CASING LEAK TEST ☐ 1.0 X DESIGN ☐ _____
○ 100% NITROGEN
○ NITROGEN / HELIUM MIX (90 / 10)
○ 100% HELIUM
NOTE: LEAK TEST PERFORMED FOLLOWING
HYDROTEST USING SOAP BUBBLE METHOD

☐ **IMPELLERS:**

	EXP	COMP
☐ DIAMETER (mm)		
☐ TYPE (OPEN, ENCLOSED)		
☐ TYPE FABRICATION		

☐ EXPANDER WHEEL MATERIAL
☐ YIELD STRENGTH (MPa) MAX _____ MIN _____ (TYP)
☐ HARDNESS: _____ BNH / R_C (TYP)
☐ COMPRESSOR WHEEL MATERIAL _____
☐ YIELD STRENGTH (MPa) MAX _____ MIN _____ (TYP)
☐ HARDNESS: _____ BNH / R_C (TYP)

☐ **SHAFT:**
☐ MATERIAL _____
SHAFT END: ☐ TAPERED ☐ CYLINDRICAL
☐ YIELD STRENGTH (MPa) _____
☐ SHAFT HARDNESS (BNH)(Rc) _____

☐ **SHAFT SEALS:**
☐ SINGLE PORT BUFFERED LABYRINTH
☐ DOUBLE PORT BUFFERED LABYRINTH
☐ TRIPLE PORT BUFFERED LABYRINTH
BLEED PRESSURE: _____ BARG
☐ DRY GAS SEAL: _____
○ TYPE BUFFER GAS _____
○ BUFFER GAS SUPPLY PRESSURE _____ BARG
☐ OTHER _____

SEAL GAS REQUIREMENTS :
☐ TYPE: _____
☐ MIN. SUPPLY PRESS. _____ BARG
☐ MAX SUPPLY PRESS. _____ °C
☐ MIN SUPPLY TEMP. _____ °C
☐ MAX SUPPLY TEMP. _____ °C
☐ NORMAL FLOW _____ nm^3/min @ _____ BAR ΔP
☐ MAX FLOW _____ nm^3/min @ _____ BAR ΔP
○ NOTE: PURCHASER TO SUPPLY SEAL GAS COMPOSITION ON SHEET 2.

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CONSTRUCTION FEATURES (CONTINUED)

BEARINGS:

RADIAL:

☐ TYPE:
- ☐ SLEEVE BEARING
- ☐ TILTING PAD BEARING
- ☐ ACTIVE MAGNETIC BEARING
- ☐ OTHER _____

☐ MATERIAL:
- ☐ ALUMINUM (BABBITTED)
- ☐ BRASS / BRONZE(BABBITTED)
- ☐ CARBON STEEL (BABBITTED)
- ☐ OTHER _____

☐ SHAFT DIA. (mm) _____
☐ MANUFACTURER _____

BEARING TEMPERATURE DEVICES:

○ **TYPE**
- ○ THERMOCOUPLES TYPE: _____
- ○ RESISTANCE TEMP DETECTORS
  - ○ RESISTANCE MAT'L _____ ○ _____ OHMS

○ **LOCATION / QTY**
- ☐ SINGLE DUAL ELEMENT (MAIN & SPARE) ____ PER BRG

○ **TEMPERATURE PROTECTION LOGIC DEVICE:**
- ○ TEMPERATURE MONITOR ○ DCS
- ○ PLC ○ OTHER _____
- ○ LOGIC DEVICE SUPPLIED BY: ○ VENDOR ○ PURCH
- ○ LOCATION OF TEMPERATURE PROTECTION LOGIC DEVICE:
- ○ LOCAL CONTROL PANEL ○ REMOTE CONTROL PANEL
- ○ MAIN CONTROL ROOM ○ OTHER _____

○ **BEARING TEMPERATURE DISPLAY TYPE:**
- ○ TEMPERATURE MONITOR ☐ MODEL _____
- ○ ALPHANUMERIC DISPLAY
- ○ MMI / VDU
- ○ PURCHASER
- ○ OTHER _____

○ DISPLAY DEVICE PROVIDED BY: ○ VENDOR ○ PURCH
- ○ LOCATION OF TEMPERATURE DISPLAY DEVICE:
- ○ LOCAL CONTROL PANEL ○ REMOTE CONTROL PANEL
- ○ MAIN CONTROL ROOM ○ OTHER _____

SPEED PROBES:

○ **TYPE:** ○ ELECTROMAGNETIC ○ EDDY CURRENT

○ **QUANTITY** _____

○ **MACHINE PROTECTION LOGIC DEVICE:**
- ○ SWITCH ○ SPEED MONITOR ○ _____

○ **LOCATION OF SPEED DISPLAY:**
- ○ LOCAL PANEL ○ REMOTE DISPLAY

THRUST:

☐ TYPE:
- ☐ TAPERED LAND THRUST BEARING
- ☐ TILTING PAD THRUST BEARING
- ☐ ACTIVE MAGNETIC THRUST BEARING
- ☐ OTHER

☐ MANUFACTURER _____

LUBRICATION: ☐ FLOODED ☐ DIRECTED ☐ N/A

THRUST COLLAR / DISK: ☐ INTEGRAL ☐ SEPARATE

VIBRATION DETECTORS:

TYPE: ☐ EDDY CURRENT ☐ INDUCTIVE ☐ _____

○ MFR _____

☐ MODEL _____

○ **LOCATION AND QUANTITY:**
- ○ NO. PER JOURNAL BEARING _____ TOTAL NO. _____
- ○ IF REQ'D, OSCILLATOR-DEMODULATORS SUPPLIED BY:
  - ○ VENDOR ○ MODEL _____
  - ○ PURCHASER ○ MODEL _____

○ **MACHINE VIBRATION PROTECTION LOGIC DEVICE:**
- ○ VIBRATION MONITOR ○ DCS
- ○ PLC ○ OTHER _____
- ○ LOGIC DEVICE PROVIDED BY: ○ VENDOR ○ PURCH
- ○ LOCATION OF VIBRATION PROTECTION LOGIC DEVICE:
- ○ LOCAL CONTROL PANEL ○ REMOTE CONTROL PANEL
- ○ MAIN CONTROL ROOM ○ _____

○ **VIBRATION AMPLITUDE DISPLAY**
- ○ VIBRATION MONITOR ☐ MODEL _____
- ○ ALPHANUMERIC DISPLAY
- ○ MMI / VDU
- ○ OTHER _____
- ○ DISPLAY DEVICE PROVIDED BY: ○ VENDOR ○ PURCH
- ○ LOCATION OF DISPLAY DEVICE:
- ○ LOCAL CONTROL PANEL ○ REMOTE CONTROL PANEL
- ○ MAIN CONTROL ROOM ○ _____

○ KEY PHASOR ○ YES ○ NO

MAGNETIC BEARING CONTROL CABINET, IF REQUIRED

○ UPS SUPPLIED BY: ○ VENDOR ○ PURCHASER

○ **LOCATION OF CONTROL CABINET:**
- ○ LOCAL PANEL ○ REMOTE PANEL
- ○ MAIN CONTROL ROOM ○ _____

○ CABLE LENGTH FROM MACHINE SKID TO CONTROL CABINET: _____ m

○ **POWER AND SIGNAL CABLES:**
- ○ SUPPLIED BY PURCHASER ○ SUPPLIED BY VENDOR

○ **COMUNICATION PROTOCOL**
- ○ MODBUS ○ OTHER: _____

☐ POWER CONSUMPTION: kW

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☐ **OTHER CONNECTIONS**

SERVICE:	NO.	SIZE	TYPE
LUBE-OIL INLET			
LUBE OIL OUTLET			
SEAL GAS INLET			
SEAL GAS OUTLET			
CASING DRAINS, EXP / COMP			
INTERMEDIATE BLEED			
THRUST PRESSURES			
WHEEL PRESSURES, EX / COM			
BEARING HOUSING PRES			

○ **ALLOWABLE PIPING FORCES AND MOMENTS:**
- ○ 1.85 X NEMA SM23
- ○ 3 X NEMA SM23
- ○ OTHER:

CASING DRAINS:
- ○ PLUGGED ○ FLANGED AND VALVED
- ○ FLANGED ○ FLANGED, VALVED, AND MANIFOLDED

ACCESSORIES

○ **EXPANDER INLET TRIP VALVE:**
- ○ TYPE:
  - ○ BUTTERFLY VALVE ⬭ SIZE: _____ ⬭ RATING: _____ ○ ALLOWABLE PRESSURE DROP: _____ BAR
  - ○ OTHER: _____
- ○ DESIGN PRESSURE: _____ BARG ○ DESIGN TEMPERATURE (MIN / MAX) _____ / _____ °C
- ○ MATERIAL:
  - ○ STAINLESS STEEL ○ LOW TEMP CARBON STEEL ○ CARBON STEEL ○ OTHER: _____
- ○ TRIP VALVE SUPPLIED BY: ○ VENDOR ○ PURCHASER

○ **INLET SCREENS AND PIPE SPOOLS:**

INLET SCREENS:	EXP	COMP
TYPE: (CONE, BASKET, OTHER)		
SIZE (DIA. IN mm)		
MESH SIZE		
PRESSURE DROP (BAR)		
MATERIAL:		
STAINLESS STEEL	○	○
OTHER _____	○	○

INLET SCREENS SUPPLIED BY: ○ VENDOR ○ PURCHASER

INLET SPOOLS FOR INLET SCREENS:	EXP	COMP
SIZE		
RATING		
FACING		
DESIGN PRESSURE: BARG		
DESIGN TEMPERATURE (MIN/MAX) °C		
DESIGN TEMPERATURE (MIN/MAX) °C		
MATERIAL:		
STAINLESS STEEL	○	○
LOW TEMP CARBON STEEL	○	○
CARBON STEEL	○	○
OTHER:		
SPOOL CONSTRUCTION:		
SLIP-ON / SOCKETWELD	○	○
SOCKETWELD	○	○
WELDNECK / BUTTWELD	○	○

PIPE SPECIFICATION: _____

○ **COMPRESSOR ANTI-SURGE SYSTEM**
- CONTROLLER: ○ PID CONTROLLER ○ OTHER: _____
- ○ RECYCLE VALVE TYPE: _____ MTL: _____ NOISE LIMIT: ○ VENDOR STD ○ SPECIAL: _____
  - ○ DESIGN PRESSURE: _____ BARG ○ DESIGN TEMPERATURE (MIN/MAX) _____ / _____ °C
- ○ INLET FLOW DEVICE TYPE: _____ ○ BY: _____
- ○ COMP. INLET FLOW TRANSMITTER ○ COMP. DIFF. PRESSURE TRANSMITTER

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SHOP INSPECTION AND TESTS:

	REQ'D	OBSRV	WTNS
CLEANLINESS	○	⬭	○
HYDROSTATIC	○	⬭	○
LOW SPEED BALANCE (ISO 1940 G2.5)	○	⬭	○
IMPELLER OVERSPEED (115% OF MCS)	○	⬭	○
IMPELLER RESONANCE TEST	○	⬭	○
MECHANICAL RUN	○	⬭	○
○ MAIN ○ SPARE			
○ CONTRACT PROBES ○ SHOP PROBES			
VARY LUBE & SEAL OIL PRESSURES AND TEMPERATURES	○	⬭	○
POLAR FORM VIB DATA	○	⬭	○
TAPE RECORD VIB DATA	○	⬭	○
TAPE DATA TO PURCHASER	○	⬭	○
PERFORMANCE TEST (AIR)	○	⬭	○
COMPLETE UNIT TEST	○	⬭	○
HE/N2 CASING LEAK TEST	○	⬭	○
SOUND LEVEL TEST	○	⬭	○
FULL POWER TEST	○	⬭	○
_____	○	⬭	○
_____	○	⬭	○

○ **UTILITY CONDITIONS:**

INSTRUMENT AIR FOR GUIDE VANE ACTUATOR:

MAX PRESS _____ BARG MIN PRESS _____ BARG

MISCELLANEOUS:

☐ RECOMMENDED STRAIGHT RUN OF PIPE DIAMETERS

AT EXPANDER DISCHARGE: _____

AT COMPRESSOR INLET: _____

○ VENDOR TO REVIEW & COMMENT ON PURCHASER'S PIPING & FOUNDATION

○ VENDOR TO REVIEW & COMMENT ON PURCHASER'S CONTROL SYSTEMS

○ _____

○ _____

○ _____

☐ **WEIGHTS (kg):**

EXP / COMP UNIT _____ kg

MAINTENANCE (SPARE ROTATING ASSY) _____ kg

TOTAL MACHINERY SKID WEIGHT: _____ kg

TOTAL SUPPORT SYSTEM SKID WT. (IF SEPARATE): _____ kg

☐ **SPACE REQUIREMENTS (m):**

MACHINERY SKID: L _____ W _____ H _____

SUPPORT SYSTEM SKID: L _____ W _____ H _____

REMARKS: _____