SEAL IS ENGINEERED SEAL SPECIFICALLY DESIGNED FOR SERVICE. THUS, THE FOLLOWING API-682 DATASHEET IS CONSIDERED TO BE NON-APPLICABLE.

JACOBS P.O. 58-KA8160-HH011749
ITEM # 67-5295
RL3 REACTOR CIRCULATION
PUMP
SAP # 10547852

Category 1 & 2 Seals

MECHANICAL SEAL DATA SHEET FOR CENTRIFUGAL & ROTARY PUMPS U.S. CUSTOMARY UNITS

PAGE 1 OF 2

REQUIRED FOR: PURCHASE SITE: PASADENA UNIT: GPH
JOB/PROJECT NO. 58-KA8160 ITEM NO. 67-5295
REQUISITION / SPEC. NUMBER A8160-010001 /
INQUIRY NUMBER BY DED
PURCH ORDER NUMBER DATE
REVISION NO. C DATE 3/3/06

☒ ⊛ DEFAULT SELECTION
○ INDICATES DATA COMPLETED BY PURCHASER
☐ BY SEAL VENDOR
☒ BY SEAL VENDOR OR PURCHASER

DATA SUPPLIED; ● CUSTOMARY UNITS ○ SI UNITS
HARDWARE SUPPLIED ● CUSTOMARY UNITS ○ SI UNITS
STANDARDS APPLICABLE; ○ PRIMARY REFERENCE (5.2)
○ SECONDARY REFERENCE (5.2)

SEAL SPECIFICATION - (REF CLAUSE 1.2, FIGURES 1 TO 6)

CATEGORY: ○ SEAL CATEGORY 1 (1.2) ● SEAL CATEGORY 2 (1.2) ☒ SEAL CODE (ANNEX J)

TYPE (CODE-CW): ☒ TYPE A (3.78) ☒ TYPE B (3.79) ☒ ALTERNATE STATIONARY (TYPE A & B)
☒ TYPE C (3.80) ☒ ALTERNATE ROTATING (TYPE C) ☒ SINGLE SPRING (TYPE A)

ARR'G'T		DEFAULT CONFIGURATION	ALTERNATE DESIGN	FLUSH PLANS (SEE ANNEX D)
1 (3.2)		☒ 1CW-FX	☒ 1CW-FL ☒ DIST. FLUSH ☒ ALTERNATE BUSH	☒ 01 ☒ 11 ☒ 14 ☒ 23 ☒ 32 ☒ 51 ☒ 62 ☒ 02 ☒ 13 ☒ 21 ☒ 31 ☒ 41 ☒ 61
2 (3.3)	BUFFER	LIQUID ☒ 2CW-CW	☒ FX ☒ DIST. FLUSH ☒ TANGENTIAL LBO CONN'N	☒ 01 ☒ 13 ☒ 23 ☒ 41 ☒ 62 ☒ 75 ☒ 02 ☒ 14 ☒ 31 ☒ 52 ☒ 71 ☒ 76
		GAS ☒ 2CW-CS	☒ 2NC-CS ☒ FX	☒ 11 ☒ 21 ☒ 32 ☒ 61 ☒ 72
3 (3.4)	BARRIER	LIQUID ☒ 3CW-FB	☒ 3CW-BB ☒ FX ☒ 3CW-FF ☒ TANG. LBO	☒ 01 ☒ 13 ☒ 53B ☒ 61 ☒ 02 ☒ 32 ☒ 53C ☒ 62
		GAS ☒ 3NC-BB	☒ 3NC-FF ☒ 3NC-FB	☒ 11 ☒ 53A ☒ 54 ☒ 74

SLEEVE-SHAFT DRIVE: ☒ SET-SCREW ONTO SHAFT ☒ ALTERNATE (6.1.3.13) - SPECIFY

MATERIALS (REFERENCE 6.1.6 & ANNEX C)

SECONDARY SEALS	SEAL FACES	METAL BELLOWS	SPRINGS	METAL PARTS
☒ FKM ☒ FFKM	☒ CARBON VS SIC	☒ UNS N10276 (TYPE B)	☒ UNS N10276	☒ UNS S31600/ S31635
☒ SPIRAL-W GASKET	☒ SIC VS SIC	☒ UNS N07718 (TYPE C)	OR N06455	☒ UNS N10276
☒ NBR ☒ EPM/EPDM	☒ SS-SIC ☒ RB-SIC	☒ UNS N08020	☒ UNS S31600	☒ UNS N08020
☒ OTHER:	☒ VS	☒ OTHER:	OR S31635	☒ OTHER:

MECHANICAL SEAL DATA

● SEAL VENDOR JOHN CRANE
○ DATA REQUIREMENTS FORM (ANNEX G)
■ SIZE/TYPE 3.00/3.625/3.375 - 48RP/8B1
☐ SEAL DRAWING NUMBER
■ VENDOR'S SEAL CODE BDPFX/BTTFX
☐ MODIFIED FACES FOR PUMP PERFORMANCE TEST

☐ ALTERNATE SEAL FOR PUMP PERFORMANCE TEST
☐ DYNAMIC SEALING PRESSURE RATING (3.19) ____ PSIG
☐ STATIC SEALING PRESSURE RATING (3.74) ____ PSIG
☐ MAXIMUM ALLOWABLE TEMPERATURE (3.39) ____ °F
○ MINIMUM DESIGN METAL TEMPERATURE ____ °F

SEAL CHAMBER DATA (REFERENCE 6.1.2.4)

ASME B.73.1 & 2 ☒ CYLINDRICAL ☒ TAPERED ☒ ISO 13709 ☒ ISO 3069-C ☒ OTHER, SPECIFY
○ BOLT-ON CHAMBER (6.1.2.5) ☒ SEAL CHAMBER FLUSH PORT REQ'D ☒ SEAL CHAMBER VENT REQ'D
☒ FLOATING THROAT BUSH ☒ FIXED THROAT BUSH ☒ CHAMBER HEATING/COOLING ☒ H ☒ C

PUMP DATA

PUMP DESIGN ● MANUFACTURER ● MODEL ○ FRAME/SIZE 16" ● CASE MATERIAL 304L SS
PUMP OPERATING PRESSURE ● SUCTION PRESSURE (RATED) 500 PSIG ● DISCHARGE PRESSURE 514 PSIG
SEAL CHAMBER ○ NORMAL ____ PSIG ○ MIN / MAX (MDSP, 3.41) ____ / ____ PSIG ○ MSSP (3.43) ____ PSIG
SHAFT ○ DIA. IN ○ SHAFT SPEED RPM SHAFT DIRECTION (FROM DRIVER): ○ CW ○ CCW

FLUID DATA - (FOR QUENCH, BUFFER AND BARRIER FLUID DATA, SEE PAGE 2)

PUMPED STREAM
● TYPE OR NAME PROPYLENE CONC'N 60 WT %
○ DISSOLVED CONTAMINANT ○ H_2S ____ PPM ○ WET
○ Cl_2 ____ PPM ○ OTHER ____ @ ____ PPM
● SOLID CONTAMINANT POLYPROPYLENE SLURRY
● CONCENTRATION (% BY WT, OR PPM) 40 WT
● PUMPING TEMPERATURE
MIN 90 °F NORMAL 153 °F MAX 158 °F
● SPECIFIC GRAVITY AT TEMPERATURE INDICATED
@ NORMAL TEMP 0.52 @ MAX TEMP 0.44
● VAPOR PRESSURE AT TEMPERATURE INDICATED
NORMAL TEMP 420 PSIA MAX TEMP ____ PSIA
○ ATMOSPHERIC BOILING POINT. ____ °F
● VISCOSITY @ NORMAL PUMPING TEMP. 0.054 Cp

○ HAZARDOUS ● FLAMMABLE ○ ____
○ FLUID SOLID @ AMBIENT
○ SOLIDIFIES @ °F POUR POINT ____ °F
○ PUMPED STREAM SOLIDIFIES UNDER SHEAR
● PUMPED STREAM CONTAINS AGENTS THAT POLYMERIZE
SPECIFY AGENTS @ TEMP °F
○ PUMPED STREAM CAN PLATE OUT OR DECOMPOSE:
SPECIFY CONDITIONS
○ PUMPED STREAM IS REGULATED FOR FUGITIVE OR OTHER EMISSIONS. REGULATION LEVEL ____ PPMV
○ SPECIAL PUMP CLEANING PROCEDURES
SPECIFY;
○ ALTERNATE PROCESS FLUIDS & CONCENTRATION (INCL. COMMISSIONING)

FLUSH FLUID If flush fluid is pumpage, then flush fluid data is not required.
● TYPE OR NAME PROPYLENE CONC'N 100 %
○ SEAL VENDOR REVIEW REQUIRED
● FLUID TEMPERATURE
MIN 40 °F NORMAL 80 °F MAX 95 °F
● SPECIFIC GRAVITY AT TEMPERATURE INDICATED
@ NORMAL TEMP 0.49 @ MAX TEMP 0.49

● VAPOR PRESSURE AT TEMPERATURE INDICATED
NORMAL TEMP 420 PSIA MAX TEMP ____ PSIA
○ ATMOSPHERIC BOILING POINT, ____ °F
● VISCOSITY @ NORMAL PUMPING TEMP. 0.08 Cp
■ FLOW RATE REQ'D MAX/MIN ____ / ____ GPM
■ PRESSURE REQ'D MAX/MIN ____ / ____ PSIG

58KA8160-HH011749-A15-0003

JACOBS ENGINEERING GROUP INC - CENTRAL REGION
PROJECT NO. 58-KA8160 P.O. NO. HH-011749 SERIAL NO.
SIGNATURE/DATE 1/16/07 ITEM NO.
A. NO COMMENTS
B. COMMENTS NOTED - REVISE, RESUBMIT, PROCEED WITH FABRICATION SUSPENSE DATE
C. UNACCEPTABLE - DO NOT PROCEED WITH FABRICATION
R. FOR INFORMATION ONLY
Review of this drawing by Jacobs Engineering Group does not relieve the supplier of his responsibility to supply the materials in accordance with the procurement documents.