

		API 682 MECHANICAL SEAL DATA SHEET		Contract: A8KM	
		Doc. No.: A8KM-18-096-540064-A		Item No: 18-P-355A/B	
				Revision: 3 Date: 27-Jul-23	
		Note: This data sheet has been modified from that in the annex of API Standard 682, Third Edition. (See Note 9.3)		Unit: Renewable Jet Fuel Unit B	
P.O. No.: 4505551384					
		Inquiry No.: 4-601D-RQ		Sheet 1 of 3	
Client: World Energy Paramount		Project: World Energy Renewables Project			
Service: Stripper Reflux Pump		Facility: World Energy Renewables Plant			
No. Seals Required per Pump: One (1)		Site: Paramount, CA			
NOTES: Information Below to be Completed : <input type="radio"/> By Purchaser <input checked="" type="radio"/> By Manufacturer <input checked="" type="checkbox"/> By Manufacturer or Purchaser					
Seal Specification - (Ref. 4.1, Figures 1 to 6)					
CATEGORY	<input type="radio"/> Seal Category 1 <input checked="" type="radio"/> Seal Category 2 <input type="radio"/> Seal Category 3 <input checked="" type="checkbox"/> Seal Code (Annex D) 23A-PIN-048-11/53B				
TYPE	<input checked="" type="checkbox"/> Type A (3.1.90) <input checked="" type="checkbox"/> Type B (3.1.91) <input checked="" type="checkbox"/> Alternate Stationary (Type A&B) <input type="checkbox"/> Type C (3.1.92) <input checked="" type="checkbox"/> Alternate Rotating (Type C) <input checked="" type="checkbox"/> Single Spring (Type A)				
ARRANGEMENT	Default Configuration Alternate Design Flush Plans (See Annex G)				
1 (3.1.2)	Single	<input checked="" type="checkbox"/> 1CW-FX	<input checked="" type="checkbox"/> 1CW-FL <input checked="" type="checkbox"/> Dist. Flush <input checked="" type="checkbox"/> Alternative Bush	<input checked="" type="checkbox"/> 01 <input checked="" type="checkbox"/> 13 <input checked="" type="checkbox"/> 23 <input checked="" type="checkbox"/> 50 <input checked="" type="checkbox"/> 62 <input checked="" type="checkbox"/> 02 <input checked="" type="checkbox"/> 14 <input checked="" type="checkbox"/> 31 <input checked="" type="checkbox"/> 51 <input checked="" type="checkbox"/> 11 <input checked="" type="checkbox"/> 21 <input checked="" type="checkbox"/> 32 <input checked="" type="checkbox"/> 61	
2 (3.1.3)	Buffer	Liquid <input checked="" type="checkbox"/> 2CW-CW	<input checked="" type="checkbox"/> FX <input checked="" type="checkbox"/> Dist. Flush <input checked="" type="checkbox"/> Tangential LBO Connection	<input checked="" type="checkbox"/> 01 <input checked="" type="checkbox"/> 13 <input checked="" type="checkbox"/> 23 <input checked="" type="checkbox"/> 41 <input checked="" type="checkbox"/> 62 <input checked="" type="checkbox"/> 75 <input checked="" type="checkbox"/> 02 <input checked="" type="checkbox"/> 14 <input checked="" type="checkbox"/> 31 <input checked="" type="checkbox"/> 52 <input checked="" type="checkbox"/> 71 <input checked="" type="checkbox"/> 76 <input checked="" type="checkbox"/> 11 <input checked="" type="checkbox"/> 21 <input checked="" type="checkbox"/> 32 <input checked="" type="checkbox"/> 61 <input checked="" type="checkbox"/> 72	
3 (3.1.4)	Barrier	Liquid <input checked="" type="checkbox"/> 3CW-FB	<input checked="" type="checkbox"/> 3CW-BB <input checked="" type="checkbox"/> FX <input checked="" type="checkbox"/> 3CW-FF <input checked="" type="checkbox"/> Tang. LBO Conn.	<input checked="" type="checkbox"/> 01 <input checked="" type="checkbox"/> 13 <input checked="" type="checkbox"/> 53A <input checked="" type="checkbox"/> 54 <input checked="" type="checkbox"/> 74 <input checked="" type="checkbox"/> 02 <input checked="" type="checkbox"/> 14 <input checked="" type="checkbox"/> 53B <input checked="" type="checkbox"/> 61 <input checked="" type="checkbox"/> 11 <input checked="" type="checkbox"/> 32 <input checked="" type="checkbox"/> 53C <input checked="" type="checkbox"/> 62	
SLEEVE-SHAFT DRIVE		<input checked="" type="checkbox"/> Set-Screw Onto Shaft <input checked="" type="checkbox"/> Alternative (6.1.3.15) Specify :			
MATERIALS (REFERENCE 6.1.6 & ANNEX B) (Note 7.3)					
SECONDARY SEALS		SEAL FACES	METAL BELLOWS	SPRINGS	METAL PARTS (Note 7.8)
<input checked="" type="checkbox"/> FKM <input checked="" type="checkbox"/> FFKM		<input checked="" type="checkbox"/> CARBON vs SIC	<input checked="" type="checkbox"/> UNS N10276 (TypeB)	<input checked="" type="checkbox"/> UNS N10276	<input checked="" type="checkbox"/> UNS S31600 / S31635
<input checked="" type="checkbox"/> Spiral Wound Gasket		<input checked="" type="checkbox"/> SIC vs SIC	<input checked="" type="checkbox"/> UNS N07718 (TypeC)	or UNS N06455	<input checked="" type="checkbox"/> UNS N10276
<input checked="" type="checkbox"/> EPM / EPDM <input checked="" type="checkbox"/> NBR		<input checked="" type="checkbox"/> SS-SIC <input checked="" type="checkbox"/> RB-SIC	<input checked="" type="checkbox"/> UNS N08020	<input checked="" type="checkbox"/> UNS S31600	<input checked="" type="checkbox"/> UNS N08020
<input checked="" type="checkbox"/> Other :		<input checked="" type="checkbox"/> vs	<input checked="" type="checkbox"/> Other :	or UNS S31635	<input checked="" type="checkbox"/> Other : Hastelloy C Sleeve
MECHANICAL SEAL DATA					
<input checked="" type="radio"/> Seal Vendor : JOHN CRANE <input checked="" type="radio"/> Data Requirements Form (Annex J) <input checked="" type="checkbox"/> Size / Type : 2.875"-2.375" / DUAL <input checked="" type="checkbox"/> Seal Drawing No.: GA-268011-1 <input checked="" type="checkbox"/> Vendor's Seal Code : 3648 <input type="checkbox"/> Modified Faces For Pump Performance Test <input checked="" type="checkbox"/> Alternative Seal For Pump Performance Test (TEST SEALS)			<input checked="" type="checkbox"/> Dynamic Sealing Pressure Rating (3.1.27) : 290 psig <input checked="" type="checkbox"/> Static Sealing Pressure Rating (3.1.84) : 800 psig <input checked="" type="checkbox"/> Maximum Allowable Temperature (3.1.51) : 446 °F <input checked="" type="checkbox"/> Min. Design Metal Temperature (6.1.6.11.1) : 32 °F <input type="checkbox"/> Generated Heat at Normal Conditions : BTU/hr <input type="checkbox"/> Heat Soak at Normal Conditions : BTU/hr <input type="checkbox"/> Total Seal Axial Thrust on Shaft : lb		
SEAL CHAMBER DATA (REFERENCE 6.1.2.4)					
<input checked="" type="checkbox"/> API 610 <input checked="" type="checkbox"/> ASME B73.1&2 <input checked="" type="checkbox"/> Cylindrical <input checked="" type="checkbox"/> Tapered <input checked="" type="checkbox"/> ISO 3069-C <input checked="" type="checkbox"/> Other : <input type="checkbox"/> Bolt-On Chamber (6.1.2.5) <input checked="" type="checkbox"/> Seal Chamber Flush Port Req'd <input checked="" type="checkbox"/> Seal Chamber Vent Req'd <input checked="" type="checkbox"/> Floating Throat Bushing <input checked="" type="checkbox"/> Fixed Throat Bushing <input checked="" type="checkbox"/> Chamber Heating <input checked="" type="checkbox"/> Chamber Cooling					
PUMP DATA					
<input checked="" type="checkbox"/> Manufacturer : SULZER <input checked="" type="checkbox"/> Model : OHH <input checked="" type="checkbox"/> Size : 2X3X7.5A <input checked="" type="checkbox"/> Case Material : Carbon steel (PWHT) Pump Operating Pressure : <input checked="" type="radio"/> Discharge Press. (Rated) : 82.6 psig <input checked="" type="radio"/> Suction Press. (Rated) : 24.6 psig Seal Chamber Press.: <input checked="" type="checkbox"/> Norm.: 52 psig <input checked="" type="checkbox"/> Min/Max (MDSP 3.1.53): / 133.57 psig <input type="checkbox"/> MSSP (3.1.55): psig Shaft: <input checked="" type="checkbox"/> Horizontal <input checked="" type="checkbox"/> Vertical <input checked="" type="checkbox"/> Diameter : 1.89" <input checked="" type="checkbox"/> Shaft Speed : 3520 RPM <input checked="" type="checkbox"/> Shaft Rotation (Viewed From Driver) : <input checked="" type="checkbox"/> CCW <input type="checkbox"/> CW					
NOTES					
7.1	Deleted.				
7.2	Seal Manufacturer shall consider the Liquid Characteristics and Operating Conditions on sheet 2.				
7.3	Seal Manufacturer shall recommend seal face material, elastomers and spring material based on pumped fluid properties. Due to presence of water and HCl, stainless steel materials are not allowed for wetted seal components (UOP requirement).				
7.4	Refer to 8ES-2DG1 - "WEP Instrumentation & Electrical Standard Vendor List" for Instrumentation.				
7.5	Deleted.				
7.6	Baseplates shall be sized for mounting of seal flush systems on-base. Seal flush systems shall not interfere with pump maintenance. Plan 53B systems shall be pre-piped and removed for shipping.				
7.7	Deleted.				
7.8	Metal Parts: Hastelloy C Inboard Gland / 316 SS Outboard Gland.				

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FLUOR



API 682 MECHANICAL SEAL DATA SHEET

Doc. No.: A8KM-18-096-540064-A

Note: This data sheet has been modified from that in the annex of API Standard 682, Third Edition. (See Note 9.3)

Contract:	A8KM		
Item No:	18-P-355A/B		
Revision:	3	Date:	27-Jul-23
Unit:	Renewable Jet Fuel Unit B		
P.O. No.:	4505551384		
Inquiry No.:	4-601D-RQ		
Sheet	2	of	3

REV

FLUID DATA

PUMPED STREAM (PLANS 01, 02, 11, 12, 13, 14, 21, 23, 31, 41)

- Type or Name : **Stripper Reflux** Conc'n : **100** %
- Dissolved Contaminant ● H₂S : **166** ppmw ● Wet
- Cl₂ : ppm ● Other : **Note 8.5** @ wt%
- Solid Contaminant :
- Conc'n (Mass Fract. or PPM) :
- Fluid Temp.: Min °F Norm **110** °F Max **160** °F
- Spec. Gravity : @ Norm. Temp.: **0.665** @ Min. Temp.:
- Vapor Pressure : @ Norm Temp.: **35.2** psi(a)
- @ Max Temp.: psi(a)
- Atmospheric Boiling Point : °F
- Viscosity : Normal : **0.44** cP Max.: cP

- Hazardous ● Flammable ○
- Fluid Solid at 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 : wt%
- Special Pump Cleaning Procedures :
- Alt. Process Fluids (incl. Commissioning) Specify :

FLUSH FLUID (PLAN 32)

- Type or Name : Conc'n : %
- Seal Vendor Review Required
- Fluid Temp : Min °F Norm °F Max °F
- Spec. Gravity : @ Norm. Temp.: @ Max. Temp.:

- Vapor Press: @ Norm. Temp: psi(a) @ Max. Temp: psi(a)
- Viscosity @ Normal Temperature : cP
- Atmospheric Boiling Point: °F
- Flow Rate Req'd Max. / Min.: / gpm
- Pressure Req'd Max. / Min.: / psig

QUENCH MEDIUM (PLAN 62)

- ☑ Type or Name :

- ☑ Supply Temperature Max. / Min. : / °F
- Flow Rate Req'd (@STP for gas) Max. / Min. : / gpm

BUFFER / BARRIER MEDIUM (PLAN 52, 53, 54, 72, 74)

- Type or Name : **DURACLEAR 5F**
- Purchaser Selection □ Seal Vendor Selection
- Seal Vendor Review □ Purchaser Review
- Flow Rate Req'd (@STP for Gas) Max. / Min.: **2** / gpm
- ☑ Supply Pressure Max. / Min.: / psig
- ☑ Min.: °F Normal : °F Max.: °F

- ☑ Specific Gravity:0.79
- @ Normal Temperature : **20 C°** @ Max. Temp. :
- ☑ Vapor Pressure at :
- Normal Temp.: psia Max. Temp.: psia
- ☑ Atmospheric Boiling Point : °F
- ☑ Viscosity at Normal Pump Temperature : cP
- ☑ Specific Heat Capacity at Const. Press.: BTU/lb°F
- ☑ Cooling / Heating Required : **Yes**

SITE AND UTILITIES

- Control Voltage : V : **120** Ph : **1** Hz : **60**
- Area Class: Cl.: **I** Gr.: **B/C/D** Div.: **2**
- Design Ambient (Min. / Max.): **35** / **105** °F
- ATEX (Ex Directive 94/9/EC) : Gr.: Cat.: T-CLASS: **T3C**

- Cooling Water Supply Temp. Norm.: **80** °F ● Cl⁻ : **< 840** ppmw
- Cooling Water Supply Press. Norm./Design: **45** / **120** psi(g)
- Cooling Water Allowable Pressure Drop : **10.0** psi
- Cooling Water AllowableTemp. Rise : **40.0** °F

ACCESSORIES (Clauses 8 and 9)

GENERAL

- Joint User / Vendor Layout of Equipment (8.1.3)
- Pipe Taper Threads (8.2.13) ○ ISO 7 ○ ASME B1.20.1
- Special Requirements For Hazardous Service
- Define :
- Special Cleaning and Decontamination Requirements
- Utility Manifold Connections Required (8.2.24)
- Type and Spec. of Heat Tracing (8.3.9.1.1) :
- Thermal Relief Valves Required (9.8.3)

PLAN 11, 12, 13, 14, 21, 23, 31, 32 and 41 SYSTEMS

- Connecting Line Supplier : **PUMP SUPPLIER**
- Tubing ● Piping (8.3.5.2) **(Note 8.2) Duplex SS**
- Restriction Orifice in Flush Line (8.3.5.4)
- Cyclone Separator Supplier :
- Plan 32 Equipment Supplier :
- Plan 32 Flow Indicator ○ Plan 32 Temp. Indicator
- Plan 23 Temp. Indicator

COOLING SYSTEMS (PLAN 21,22,23,41,52,53B,53C) (Note 8.4)

- Heat Exchanger Supplier : **SEAL SUPPLIER**
- Water Cooled ☑ Air Cooled ○ ISO 15649
- Equipment Reference / Code :
- Cooling Water Line Supplier: **PUMP SUPPLIER**
- Tubing ○ Galvanized Piping (8.2.21) ○ Gal CS Piping
- Sight Flow Indicators (8.2.22) ○ Open ● Closed
- Cooling Water Flow Requirement & Equipment Pressure Drop:
- Primary Equipment : gpm ΔP : psi
- Secondary Equipment : **1** gpm ΔP : psi

PLAN 72 and 74 SYSTEMS

- Equipment Supplier :
- High Flow Alarm Switch (8.3.10.5)

PLAN 75 and 76 SYSTEMS

- Equipment Supplier :
- High Level Alarm Transmitter For Plan 75 (8.3.9.3.3)
- Test Connection (8.3.9.3.4)

NOTES

- 8.1 Pump Supplier has unit responsibility for the furnishing of all instruments & equipment associated with seal flush Plans.
- 8.2 Primary seal flush piping shall be 300# ANSI BW RF, schedule 160 minimum. **Piping material to be Duplex SS (UOP Requirement).**
- 8.3 Orifice size shall be stamped on each orifice, with direction of flow indicated. Orifice assembly shall be tagged with Buyer's orifice tag number.
- 8.4 When cooling is required, cooling water piping shall be Piping Material Class TAAG2.
- Cooling water piping shall be terminated at edge of baseplate.
- Deleted.
- 8.5 Other dissolved contaminants are CO₂ @ 400 ppmw, HCL @ 1 ppmw, and NH₃ @ 10 ppmw.

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