WORLD ENERGY RENEWABLES PROJECT

MECHANICAL EQUIPMENT DATA SHEET FOR 18-P-1823A/B

CARB Diesel Blending Pump

Document Number A8KM-TF-064-540139-A

Fluor Project No: A8KM

REV	DATE	DESCRIPTION	PAGES	ORIG	CHK'D	APPV'D	CLIENT
0	9/28/2023	AS BUILT	11	AGU	CGO		
D	6/29/2022	Issued for Purchase	11	JF	JPK AD TD	BT	
C	12/15/2021	Issued for Quotation	10	CP	JF AD MB	BT	
B	11/12/2021	Issued for Review	10	CP	JF AD MB	BT	
A1	11/12/2021	Issued for Internal Review	10	CP	JF		
A	10/30/2021	Issued for Internal Review	10	CP	JF		

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API 610
CENTRIFUGAL PUMP DATA SHEET

Doc. No.: A8KM-TF-064-540139-A

Note: This data sheet has been modified from that in the annex of API Standard 610, 11th Edition.

Contract:	A8KM		
Item No:	18-P-1823A/B		
Revision:	0	Date:	6-Dec-23
Unit:	North East Tankage		
P.O. No.:	SM00001022		
Inquiry No.:	4-601G-RQ		
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REV

CLIENT: World Energy Paramount — PROJECT: World Energy Renewables Project

SERVICE : Carb Diesel Blending Pump — FACILITY: World Energy Renewables Plant — SITE : Paramount, CA

NO. REQ'D : 2 x 100% (Note 2.1) — PUMP SIZE : 1.5x3x8-1 — API TYPE : OH2 — NO. STAGES : One (1)

MANUFACTURER : Sulzer — MODEL : OHH — SERIAL NO. : 0

APPLICABLE TO : ○ PROPOSALS ● PURCHASE ○ AS-BUILT 0

GENERAL

PUMPS OPERATE IN :		NO. MOTOR DRIVEN :	Two (2)	NO. TURBINE DRIVEN :	N/A
WITH :		PUMP ITEM NO. :	18-P-1823A/B	PUMP ITEM NO. :	
GEAR ITEM NO. :		MOTOR ITEM NO. :	18-P-1823AM/BM	TURBINE ITEM NO. :	
GEAR PROVIDED BY :		MOTOR PROVIDED BY :	Pump Supplier	TURBINE PROVIDED BY :	
GEAR MOUNTED BY :		MOTOR MOUNTED BY :	Pump Supplier	TURBINE MOUNTED BY :	
GEAR DATA SHEET NO. :		MOTOR DATA SHEET NO. :	Attached	TURBINE DATA SHEET NO. :	

LIQUID CHARACTERISTICS

	UNITS	MAXIMUM	RATED	MINIMUM
LIQUID TYPE OR NAME:			Carb Diesel	
VAPOR PRESSURE :	psi (a)		0.01	
RELATIVE DENSITY :			0.79	
SPECIFIC HEAT :	BTU/lbm ºF		0.50	
VISCOSITY :	cP		2.70	

SERVICE : INTERMITTENT

*IF INTERMITTENT, NO. OF STARTS / DAY : Varies

CORROSION DUE TO: (6.12.1.9) :

EROSION DUE TO: (6.12.1.9) :

H_2S CONCENTRATION (ppmw) (6.12.1.

WET (YES / NO) :

CHLORIDE CONCENTRATION (ppmw)

PARTICULATE SIZE (DIA. IN MICRONS

PARTICULATE CONCENTRATION (ppm

MECHANICAL DESIGN TEMPERATURE (160

OPERATING CONDITIONS (6.1.2)

	UNITS	MAXIMUM	RATED	NORMAL	MINIMUM
NPSHa DATUM :		C.L. IMPELLER (Note 2.2)			
PUMPING TEMP.:	°F	160		110	
FLOW :	gpm		100		30
DISCHARGE PRESS:	psi(g)		74.8		
SUCTION PRESSURE :	psi(g)	20	-1.2		
DIFFERENTIAL PRESS.:	psi		76.0		
DIFFERENTIAL HEAD :	ft		222		
$NPSH_A$:	ft	(Note 2.2)	39.4	Excludes Req. Margin(10% of NPSHA)	
HYDRAULIC POWER :	hp		4.4		

SITE AND UTILITY DATA (6.1.2)

LOCATION: OUTDOOR — UNHEATED

MOUNTED AT: GRADE ○ TROPICALIZATION REQ'D

ELECTRICAL AREA CLASSIFICATION ○ NON HAZARDOUS

CLASS : CL. I, B/C/D — DIVISION : 2 — TEMP CODE T3C

SITE DATA:

ELEVATION (MSL) 69 ft — BAROMETER : 14.7 psia

RANGE OF AMBIENT TEMPS: MIN. / MAX. 35 / 104 °F

RELATIVE HUMIDITY: MIN. / MAX. : Average = / 54 %

UNUSUAL CONDITIONS :

UTILITY CONDITIONS:

ELECTRICITY :	DRIVERS	HEATING	CONTROL	INSTRUMENTS
VOLTAGE :	460	120	120	24 VDC
PHASE :	3	1	1	
HERTZ :	60	60	60	

COOLING WATER : SOURCE : COOLING TOWER

SUPPLY TEMP. 80 °F — MAX. ALLOW. RETURN TEMP.: 120 °F

NORM. PRESS. 45 psi(g) — DESIGN PRESS. : 120 psi(g)

MAXIMUM RETURN PRESSURE 35 psi(g)

MAXIMUM ALLOWABLE ΔP 10 psi

CHLORIDE CONCENTRATION < 840 ppm — DESIGN T: 150 °F

INSTRUMENT AIRMAX. : psi(g) — MIN. : psi(g)

MECH. DESIGN psi(g) °F

STEAM :

		DRIVERS	HEATING
TEMP : °F	MAX. :		
	MIN. :		
PRESS. : psig	MAX. :		
	MIN. :		

NOTES

2.1 2 x 100% pumps; 1 operating and 1 spare.

2.2 Pump centerline is assumed to be 3'-0" above grade and 27" (2'-3") above top of foundation. Actual centerline is 19" above top of foundation.

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P.O. No.:	SM00001022		
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REV

PERFORMANCE

PROPOSAL CURVE NO.:	OHH 70-1-1-04 Rev	RPM	3520			
TEST CURVE NO.:	M-13605					
IMPELLER DIA.: RATED:	7.93	MAX:	8.2	MIN:	6.5	in
RATED POWER	10.32	hp	EFFICIENCY:	42.31	%	
RATED CURVE BEP FLOW: (at rated impeller dia.)				97.13	gpm	
MIN. FLOW: THERMAL :		gpm	STABLE :	26.68	gpm	
PREFERRED OPERATING REGION: (6.1.12)	67.99	to	106.84	gpm		
ALLOWABLE OPERATING REGION:	26.68	to	119.06	gpm		
MAX. HEAD @ RATED IMPELLER:				263.14	ft	
MAX. POWER @ RATED IMPELLER: (6.8.9)				10.95	hp	
NPSHR at CL IMPELLER for RATED FLOW :				5.5	ft	
CL PUMP TO LOWER SIDE OF BASEPLATE:				1.58	ft	
NPSH MARGIN at RATED FLOW :				33.9	ft	
SPECIFIC SPEED:			gpm,rpm,ft	632		
SUCTION SPECIFIC SPEED LIMITATIC			gpm,rpm,ft	(Note 3.1)		
SUCTION SPECIFIC SPEED: (6.1.9):			gpm,rpm,ft	8447		
MAX. ALLOW. SOUND PRESS. LEVEL / EST.: (6.1.14) @ 3 ft				85 / 71.8	dBA	
MAX. ALLOW. SOUND POWER LEVEL / EST.: (6.1.14) @ 3 ft				/	dBA	
MAX. DISCHARGE PRESSURE: (6.3.2)				113	psig	
BASIS: (6.3.2.a, b or c)						

DRIVER (7.1.5)

DRIVER TYPE:	INDUCTION MOTOR		
GEAR:	NO		0
VARIABLE SPEED REQUIRED:	NO		0
SOURCE OF VARIABLE SPEED:	N/A		0
OTHER:	TEFC / IP55		0
MANUFACTURER:	BALDOR		0
NAMEPLATE POWER:	15	hp	0
NOMINAL RPM:	3600		0
RATED LOAD RPM:	3520		0
FRAME OR MODEL:	254T		0
ORIENTATION:	HORIZONTAL		
LUBE:	GREASE		
BEARING TYPE:	ANTI-FRICTION		
RADIAL: (Qty / Brg. Number)	1 / 45BC03X30X		0
THRUST: (Qty / Brg. Number)	1 / 45BC03X30X		0
STARTING METHOD:	OPEN VALVE (FULLY-LOADED)		
DRIVER DATA SHEET:	ATTACHED		
ACCESSORIES:			

CONSTRUCTION

API PUMP TYPE: OH2 [Based on API 610 Definitions]

NOZZLE CONNECTIONS: (6.4.2)

	SIZE	FACING	RATING	POSITION
SUCTION	3"	RF	300	END
DISCHARGE	1.5"	RF	300	TOP

PRESSURE CASING AUX. CONNECTIONS: (6.4.1.2)(6.4.3.1)(6.4.3.2)(6.4.3.12

	NO.	SIZE	TYPE	FACING	RATING	POSITION
BALANCE/LEAK OFF						
DRAIN	1	3/4"	SWF	RF	300	BOTTOM
VENT (IF NOT SELF VENTIN						
PRESSURE GAUGE	--					
TEMP GAUGE	--					
WARM-UP LINE*						

*VENDOR TO ADVISE WARM-UP FLOW IF REQUIRED: gpm

DRAIN VALVE SUPPLIED BY:	PURCHASER	
DRAINS MANIFOLDED	N/A	
VENT VALVE SUPPLIED BY:	N/A	
VENTS MANIFOLDED:	N/A	
THREADED CONNS FOR PIPELINE SERVICE & < 50°C:(6.	N/A	
SPECIAL FITTINGS FOR TRANSITIONING: (6.4.3.3)	NO	
CYLINDRICAL THREADS REQUIRED: (6.4.3.8)	NO	
GUSSET SUPPORT REQUIRED	YES	
MACHINED AND STUDDED CONNECTIONS: (6.4.3.12)	NO	
TYPE VS6 DRAIN CONN.: (9.3.13.5)	N/A	
DRAIN TO SKID EDGE:	NO	
BOLTING CONFORMANCE:: (6.1.29.1)	YES	
(ISO 261, ISO 262, ISO 724, ISO 965 OR ANSI/ASME B1	ASME B1.1	
SEAL FLUSH CASING CONNS. w/ SECONDARY SEALING REQD: (6.4.3.		
	NO	
AUX. PIPING TERMINATIONS:		

CASING MOUNTING:	CENTERLINE		
CASING TYPE:	SINGLE VOLUTE		
OH3 BACKPULLOUT LIFING DEVICE REQ'D: (9.1.2.6)	NO		
CASE PRESSURE RATING: (Note 3.3)			
MAWP: (6.3.5)	705 psig	@ 160	°F
HYDROTEST: (8.3.2.6)	1058 psig	@ AMB	°F 0
Hydrotest at 1.5 x MAWP of the Pump Assembly.			
HYDROTEST OH PUMP AS ASSEMBLY:	YES		
SUCTION PRESS. REGIONS DESIGNED FOR MAWP:	YES		
ROTATION: (VIEWED FROM COUPLING END)	CCW		
- IMPELLERS INDIVIDUALLY SECURED:	N/A		
- BOLT OH 3/4/5 PUMP TO PAD / FOUNDATION:	N/A		
- PROVIDE SOLEPLATE FOR OH 3/4/5 PUMPS:	N/A		
ROTOR:			
SHAFT FLEXIBILITY INDEX (SFI): (9.1.1.3)			
FIRST CRITICAL SPEED, WET: (MULTI-STAGE)	RPM		
COMPONENT BALANCE TO ISO 1940 G1.0: (6.9.4.4)	YES		
SHRINK FIT LIMITED MOVEMENT IMPELLERS: (9.2.2.3)			
COUPLING & GUARD: (7.2.2) (Note 3.4)			
MANUFACTURER:	Rexnord (Thomas)		
MODEL:	0494 XTSR 71-XXL-XL		0
RATING: (POWER/100 RPM)	0.41		0
SPACER LENGTH:	5	in	
ACTUAL SF AT MOTOR NAMEPLATE:	2.85		
RIGID:	N/A		
COUPLING WITH HYDRAULIC FIT: (7.2.10)	NO		
COUPLING BALANCED TO ISO 1940-1 G6.3: (7.2.3)	G2.5		
COUPLING WITH PROPRIETARY CLAMPING DEVICE: (7.	N/A		
COUPLING IN COMPLIANCE WITH: (7.2.4)	API 610 COMPLIANT		
COUPLING GUARD STANDARD PER: (7.2.13.a)	ANSI B15.1		
WINDOW ON COUPLING GUARD:	YES		

NOTES

3.1	Suction specific speeds greater than 11,000 for hydrocarbons and 9,000 for water (USC units) require specific approval by the Buyer.
3.2	Deleted
3.3	Nameplate for MAWP at mechanical design temperature.
3.4	Coupling guards shall be non-sparking.
3.5	Deleted.

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Inquiry No.:	4-601G-RQ		
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REV

CONSTRUCTION (CONT'D)

MATERIAL (6.12.1.1)

APPENDIX H CLASS:	S-6: CS / 12% Cr
MINIMUM DESIGN METAL TEMP: (6.12.4.1)	32 °F
REDUCED HARDNESS MATERIALS REQ'D: (6.12.1.12.1)	NO
APPLICABLE HARDNESS STANDARD: (6.12.1.12.3)	N/A
BARREL:	
CASE:	A216 GR. WCB
DIFFUSERS:	
IMPELLER:	A743 GR. CA6NM
IMPELLER / CASE WEAR RIN	11-13% CHROME / A743 GR. CA40
SHAFT:	A322 GR.4140
BOWL (IF VS TYPE):	
INSPECTION CLASS: (API/ISO TABLE 14)	LEVEL 2

BEARINGS AND LUBRICATION (6.10.1)

BEARING (TYPE / NUMBER):	
RADIAL:	BALL / 6310-C3
THRUST:	BALL / 7311 B-XL-MP-UB
REVIEW AND APPROVE THRUST BEARING SIZE: (9.2.5.2	NO
LUBRICATION TYPE: (6.11.3)(6.11.4)(9.2.6.1)	FLINGER
PRESSURE LUBE SYSTEM TO ISO 10438	(9.2.6.4) N/A
ISO 10438 DATA SHEETS ATTACHED	
PRESSURIZED LUBE OIL SYSTEM MTD. ON PUMP BASEPL	N/A
LOCATION OF PRESSURIZED LUBE OIL SYSTEM MOUNTED ON BASEPLAT	
INTERCONNECTING PIPING PROVIDED B	N/A
OIL VISC. ISO GRADE:	
CONSTANT LEVEL OILER: (6.10.2.2)	REQUIRED

INSTRUMENTATION

SEE ATTACHED API-670 DATA SHEET:	NO
ACCELEROMETER OR VELOMETER: (7.4.2.	
QUANTITY:	
MOUNTING LOCATIONS:	
DETECTORS REQUIRED:	
THRD'D PROVISIONS ONLY PER ANSI/API 670: (6.10.2.1	
QUANTITY:	
MOUNTING LOCATIONS:	
FLAT SURFACE REQ'D FOR MAGNETIC P/U's: (6.10.2.1	YES
QUANTITY:	2
MOUNTING LOCATIONS:	
VIBRATION PROXIMITY PROBES FOR HYDRODYNAMIC BEARINGS:	
PROVISION-ONLY FOR VIB. PROBES: (7.4.2.2)	NO
QUANTITY PER THRUST BEARING:	
VIBR. MONITORS & CABLES SUPPLIED BY: (7.4.2.4	
TEMP. DETECTORS FOR HYDRODYNAMIC BEARINGS: (7.4.2.3)	
PROVISION-ONLY FOR TEMPERATURE PROBES:	N/A
RADIAL BEARING TEMPERATURE PROBES:	N/A
QUANTITY PER RADIAL BEARING:	
THRUST BEARING TEMPERATURE PROBES:	N/A
QUANTITY PER THRUST BEARING ACTIVE SIDE:	
QUANTITY PER THRUST BEARING INACTIVE SIDE:	
THRD'D T/W's FOR GEARBOX TEMP GAGES: (9.1.3.6)	N/A
PRESSURE GAGE TYPE:	
TEMP. MONITORS & CABLES SUPPLIED BY: (7.4.2.	

BASEPLATE OR SOLE PLATE

API BASEPLATE NUMBER:	
BASEPLATE CONSTRUCTION: (7.3.1	FULL TOP DECKING
BASEPLATE DRAINAGE: (7.3.1)	ENTIRE BASEPLATE DRAIN PAN
MOUNTING:	GROUTED
NON-GROUT CONSTRUCTION: (7.3.13	NOT REQUIRED
VERTICAL LEVELING SCREWS:	REQUIRED
HORIZONTAL DRIVER POSITIONING SCREW	REQUIRED
SUPPLIED WITH - GROUT VENT HOLES	YES
- DRAIN CONNECTION	YES
MOUNTING PADS SIZED FOR BASEPLATES LEVELING: (7.3	YES
MOUNTING PADS OR SOLE PLATE TO BE MACHINED: (7.3.	YES
PROVIDE SPACER PLATE UNDER ALL EQUIP. FEET: (7.3.6)	
OTHER:	Furnish two (2) diagonally opposed grounding provisions per Note 6.9.

NOTES

COATINGS REQ'D: (6.12.1.10)	--
4.1) SYNTHETIC OIL REQ'D: (6.10.2.12)	NO
4.2) PROVISIONS FOR PURE OR PURGE MIST: (6.11.3)	IF STD
4.3) PRESS. / CIRC. LUBE SYSTEM: 9.2.6	
4.4) CONST. LEVEL OILER PREFERENCE: (6.10.2	(Note 4.6)

4.5) Bearing housing isolators shall be Inpro or Equal.

4.6) Bearing housing oilers shall be Trico 8-oz. constant-level sight fee

Provide a minimum 1" NPS bullseye level gauge.

4.7) Oil drains shall be furnished with an ESCO single-piece sight glass

SEAL SUPPORT SYSTEM MOUNTING

BARRIER/BUFFER RESERV. MTD ON PUMP BASEPL.:(7.5	N/A
IDENTIFY LOCATION ON BASEPLAT	
INTERCONNECTING PIPING BY:	N/A
RESERVOIR(S) SHIPPED SEPARATELY:	N/A

MECHANICAL SEAL (6.8)

SEE ATTACHED API 682 DATA SHEET:	SEE PAGE 7
ADDITIONAL CENTRAL FLUSH PORT: (6.8.9)	
HEATING OR COOLING JACKET REQ'D:	
MAX. CHAMBER PRESS.: (6.8.1 STATIC:	DYN.: psig
SEAL CATEGORY: (6.8.1)	Category 2

HEATING AND COOLING

COOLING REQUIRED: (6.1.17	NO
COOLING WATER PIPING PLAN:	
CLG WATER PIPING CONSTR.:	
FITTINGS TYPE:	
COOLING WATER PIPING MATERIAL	
CLG WTR REQMNTS: (BOTH ENDS IF DOUBLE ENDED)	
BEARING HOUSING(S):	gpm
SEAL SUPPORT: (HX, BUFFER, BARRIER, ETC.)	gpm
TOTAL COOLING WATER:	gpm
HEATING MEDIUM:	N/A
OTHER:	
HEATING MEDIUM PIPING CONSTRUCTION:	

PIPING & APPURTENANCES

MANIFOLD PIPING SYS. FOR PURCHASHER CONN.: (7.5.1.6)	
VENTS:	N/A
DRAINS:	N/A
COOLING WATER:	N/A
TAG ALL ORIFICES: (7.5.2.4)	N/A
SOCKET WELD CONN. ON SEAL GLAND: (7.5.2.8)	NO

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REV

SURFACE PREPARATION AND PAINT

MANUFACTURER'S STANDARD:	NO
OTHER (SEE BELOW)	YES
SPECIFICATION NUMBEI	A8KM-PP-000-500520-A
PUMP:	
PUMP SURFACE PREPARATIO	
PRIMER:	
FINISH COAT:	
BASEPLATE OR SOLE PLATE:	
SURFACE PREPARATION:	
PRIMER:	
FINISH COAT:	
DETAILS OF LIFTING DEVICES:	Calcs & NDE Req'd for Lifts > 20,000 LBS
SHIPMENT: (8.4.1)	DOMESTIC
EXPORT BOXING REQUIRED	
OUTDOOR STORAGE UP TO 6 MONTHS:	YES
SPARE ROTOR ASSEMBLY PACKAGED FOR:	
ROTOR STORAGE ORIENTATION: (9.2.8.2)	N/A
SHIP'G & STORAGE CONTAINER FOR VERT. STORAGE: (9.2	N/A
N2 PURGE: (9.2.8.4)	N/A
SPARE PARTS:	
START-UP:	YES
NORMAL MAINTENANCE:	NO

WEIGHTS lb

ITEM No.	PUMP	DRIVER	ACCESSORY	BASE	TOTAL
18-P-1823A	337	299	30	817	1483
18-P-1823B	337	299	30	817	1483	

OTHER PURCHASER REQUIREMENTS

COORDINATION MEETING REQUIRED: (10.1.3)	YES
MAXIMUM DISCHARGE PRESSURE TO INCLUDE:	
MAX RELATIVE DENSITY:	YES
OPERATION TO TURBINE TRIP SPEED OR ASD OVERSPEED:	N/A
MAX DIA. IMPELLERS AND / OR NO. OF STAGES:	NO
CONNECTION DESIGN APPROVAL: (9.2.1.4) (BB Pumps)	N/A
TORSIONAL ANALYSIS / REPORT: (6.9.2.10) (REQ'D IF GEAR OR VFD)	N/A
PROGRESS REPORTS:	YES
OUTLINE OF PROCEDURE FOR OPTIONAL TESTS: (10.2.5)	YES
ADDITIONAL DATA REQUIRING 20 YEARS RETENTION: (8.2.1.1)	NO
LATERAL ANALYSIS REQUIRED: (9.1.3.4)(9.2.4.1.3)	N/A
MODAL ANALYSIS REQUIRED FOR VS PUMPS: (9.3.9.2)	N/A
DYNAMIC BALANCE ROTOR ASSEMBLY TO ISO G1.0: (9.2.4.2.3	N/A
INSTALLATION LIST IN PROPOSAL: (10.2.3.I)	NO
VFD STEADY STATE DAMPED RESPONSE ANALYSIS: (6.9.2.3)	N/A
TRANSIENT TORSIONAL RESPONSE: (6.9.2.4)	N/A
BEARING SELECTION & LIFE CALCS PER (6.10.1.1) & (6.10.1.6):	YES
IGNITION HAZARD ASSESSMENT TO EN 13463-1 FOR EXPLOSIVE ATM: (7.2.	N/A
CASING RETIREMENT THICKNESS DWG: (10.3.2.3)	NO
FLANGES REQ'D IN PLACE OF SOCKET WELD UNIONS: (7.5.2.8	YES
INCLUDE PLOTTED VIBRATION SPECTRA FOR PERF. TEST: (6.	YES
CONNECTION BOLTING: (7.5.1.7)	PAINTED
CADMIUM PLATED BOLTS PROHIBITED:	YES
VENDOR TO KEEP REPAIR AND HT RECORDS: (8.2.1.1.c)	YES
VENDOR TO SUBMIT TEST PROCEDURES: (8.3.1.1)	YES
VENDOR SUBMIT INSPECTION CHECK LIST:(8.1.5)	YES
TEST REQUIREMENTS PER 8.3.3.5a THROUGH 8.3.3.5d:	YES
DISASSEMBLE AND INSPECT AFTER TEST: (8.3.3.8)	NO

INSPECTION & TEST

SHOP INSPECTION: (8.1.1)		YES
PERFORMANCE CURVE & DATA APPROVAL PRIOR TO SHIPME		YES
TEST WITH SUBSTITUTE SEAL: (8.3.3.2.b)		NO
MATERIAL CERT. REQUIRED: (6.12.1.8	CASING:	YES
	IMPELLER:	YES
	SHAFT:	YES
OTHER:	See Note 6.3	YES
CASTING REPAIR PROCED. APPROVAL REQ'D: (6.12.2.5)(6.12.3		Note 6.7
INSPECTION REQ'D FOR CONN. WELDS: (6.12.3.4.d,e)		
	MAG PARTICLE:	YES
	RADIOGRAPHY:	NO
	LIQUID PENETRANT:	NO
	ULTRASONIC:	NO
INSPECTION REQUIRED FOR CASTINGS: (TABLE 14)		
	MAG PARTICLE:	YES
	RADIOGRAPHY:	NO
	LIQUID PENETRANT:	NO
	ULTRASONIC:	NO
HARDNESS TEST REQUIRED: (8.2.2.7)	(NACE SERVICES)	NO
ADDITIONAL SUBSURFACE EXAMINATION: (6.12.1.5)(8.2.1.3)		NO
FOR:		
METHOD:		
PMI TESTING REQUIRED: (8.2.2.8)		YES
COMPONENTS TO BE TESTE	See Note 6.4	
RESIDUAL UNBALANCE TEST: (J.4.1.2)		
NOTIFICATION OF SUCCESSFUL SHOP PRELIM. TEST:(8.1.1.c)(8.		NO
BASEPLATE TEST: (7.3.21)		NO
HYDROSTATIC TEST OF CASING/HEA		NON-WIT
HYDROSTATIC TEST OF BOWLS & COLUMN: (9.3.13.2)		N/A
PERFORMANCE TEST:		NON-WIT
TEST IN COMPLANCE WITH: (8.3.3.2)		8.3.3.2
TEST DATA POINTS TO: (8.3.3.3)		8.3.3.3
TEST TOLERANCES TO: (8.3.3.4)		TABLE 16
NPSH TEST PTS./RETEST: (8.3.4.3.1)(8.3.4.3		
NPSH TEST-1ST STAGE ONLY: (8.3.4.3.2)		N/A
NPSH TESTING TO HI 1.6 : (8.3.4.3.3)		
PERFORMANCE TEST LIMITED TO 110% SITE NPSHA: (8.3.3.(		NO
RETEST ON SEAL LEAKAGE: (8.3.3.2.d)		NO
RETEST REQUIRED AFTER FINAL HEAD ADJ.: (8.3.3.7.b)(Mult		N/A
COMPLETE UNIT TEST: (8.3.4.4.1)		N/A
SOUND LEVEL TEST: (8.3.4.5)	FOR INFORMATION ONLY	NON-WIT
CLEANLINESS PRIOR TO FINAL ASSEMBLY: (8.2.2.6)		NON-WIT
LOCATION OF CLEANLINESS INSPECTION:	@ SUPPLIERS	
NOZZLE LOAD TEST:		NO
CHECK FOR CO-PLANAR MOUNTING PAD SURFACES:		NON-WIT
MECH. RUN TEST AT RATED CAPACITY UNTIL OIL TEMP STABLE: (8.3.4.2		NON-WIT
4 HR. MECH RUN TEST AT RATED CAPACITY AFTER OIL TEMP STABLE:		NO
1 HR. MECH RUN TEST AT RATED CAPACITY: (8.3.4.2.2)		NON-WIT
BEARING HSG. RESONANCE TEST: (8.3.4.7)		N/A
STRUCTURAL RESONANCE TEST: (9.3.9.2)		N/A
REMOVE / INSPECT HYDRODYN. BRGS. AFTER TEST: (9.2.7.		N/A
AUXILIARY EQUIPMENT TEST: (8.3.4.6)		N/A
EQUIP. TO BE INCLUDED IN AUX. TESTS		
LOCATION OF AUX. EQUIPMENT TEST		
IMPACT TEST: (6.12.4.3)	PER EN 13445	N/A
	PER ASME SECTION VIII	N/A
REMOVE CASING AFTER TEST:		N/A

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API 610
CENTRIFUGAL PUMP DATA SHEET

Doc. No.: A8KM-TF-064-540139-A

Note: This data sheet has been modified from that in the annex of API Standard 610, 11th Edition.

Contract:	A8KM		
Item No:	18-P-1823A/B		
Revision:	0	Date:	6-Dec-23
Unit:	North East Tankage		
P.O. No.:	SM00001022		
Inquiry No.:	4-601G-RQ		
Sheet	6	of	11

REV

PRESSURE VESSEL DESIGN CODE REFERENCES

THESE REFERENCES MUST BE LISTED BY THE MANUFACTURER:

CASTING FACTORS USED IN DESIGN: (TABLE 3)

SOURCE OF MATERIAL PROPERTIES:

WELDING AND REPAIRS

THESE REFERENCES MUST BE LISTED BY THE PURCHASER (DEFAULT TO TABLE 11 IF NO PURCHASER PREFERENCE IS STATED)

ALTERNATIVE WELDING CODES AND STANDARDS:

WELDING REQUIREMENT: (APPLICABLE CODE OR STANDARD) **DEFAULT PER TABLE 11**

WELDER/OPERATOR QUALIFICATION:

WELDING PROCEDURE QUALIFICATION:

NON-PRESSURE RETAINING STRUCTURAL WELDING SUCH AS BASEPLATES OR SUPPORTS:

MAGNETIC PARTICLE OR LIQUID PENETRANT EXAMINATION OF PLATE EDGES:

POSTWELD HEAT TREATMENT:

POSTWELD HEAT TREATMENT OF CASING FABRICATION WELDS:

MATERIAL INSPECTION

THESE REFERENCES MUST BE LISTED BY THE PURCHASER DEFAULT TO TABLE 14: **YES**

ALTERNATIVE MATERIAL INSPECTIONS AND ACCEPTANCE CRITERIA:

TYPE OF INSPECTION	METHOD	FOR FABRICATIONS	FOR CASTINGS
RADIOGRAPHY			
ULTRASONIC INSPECTION			
MAGNETIC PARTICLE INSPECTION			
LIQUID PENETRANT INSPECTION			
VISUAL INSPECTION (ALL SURFACES			

NOTES

6.1 Deleted.

6.2 Deleted.

6.3 CMTR's are required for pressure casings & covers, impellers, wear rings & shaft. Include all QA documents in Quality Data Books.

6.4 PMI is required for alloy pressure containing parts, including seal glands, pipe, and valves, per Project Specification A8KM-PP-000-500512-A, Positive Material Identification.

6.5 ~~Witnessed performance testing is required when specified and when a witnessed NPSH test is required.~~ Mechanical run testing is required for each pump. Mechanical run test shall be one (1) hour at Rated point for single-stage pumps, with vibration recordings at 10 minute intervals~~, and four (4) hours for multi-stage pumps with plotted vibration spectra at 30 minute intervals. All Witnessed testing requires ten (10) business days advance notice.~~

6.6 Deleted.

6.7 Minor defects of a surface nature in the pressure casting (amounting to less than 20% of the wall thickness and less than 10 in^2 [65 cm^2] in total may be repaired without Buyer's approval. See Project Pump Specification A8KM-PP-000-50626-A.

6.8 Deleted.

6.9 Baseplate grounding tabs or lugs shall be 1/4" thick steel with at least one (1) 9/16" dia. hole provided. If two (2) are provided, they shall be 9/16" dia. spaced 1-3/4" on center. Where Stainless Steel grounding pads are provided, they shall be threaded with one (1) 1/2"-13 hole, or either two (2), or four (4), 1/2"-13 holes, all spaced 1-3/4" on center.

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API 682 MECHANICAL SEAL DATA SHEET

Doc. No.: A8KM-TF-064-540139-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-1823A/B		
Revision:	0	Date:	6-Dec-23
Unit:	North East Tankage		
P.O. No.:	0		
Inquiry No.:	4-601G-RQ		
Sheet	7	of	11

REV

Client: World Energy Paramount **Project:** World Energy Renewables Project

Service: Carb Diesel Blending Pump **Facility** World Energy Renewables Plant

No. Seals Required per Pump: One (1) **Site:** Paramount, CA

NOTES: Information Below to be Completed ○ By Purchaser ☐ By Manufacturer ☒ By Manufacturer or Purchaser

Seal Specification - (Ref. 4.1, Figures 1 to 6)

CATEGORY ○ Seal Category 1 ● Seal Category 2 ○ Seal Category 3 ☒ Seal Code (Annex D) 21A-FFN-048-11/61 0

TYPE (CODE CW) ■ Type A (3.1.90) ☒ Type B (3.1.91) ☒ Alternate Stationary (Type A&B)
☒ Type C (3.1.92) ☒ Alternate Rotating (Type C) ☒ Single Spring (Type A)

ARRANGEMENT		Default Configuration	Alternate Design	Flush Plans (See Annex G)
1 (3.1.2)	Single	■ 1CW-FX	☒ 1CW-FL ☒ Dist. Flush ☒ Alternative Bush	☒ 01 ☒ 13 ☒ 23 ☒ 50 ☒ 62 02 ☒ 14 ☒ 31 ☒ 51 ■ 11 ☒ 21 ☒ 32 ☒ 61
2 (3.1.3)	Buffer	Liquid ☒ 2CW-CW	☒ FX ☒ Dist. Flush ☒ Tangential LBO Connection	☒ 01 ☒ 13 ☒ 23 ☒ 41 ☒ 62 ☒ 75 ☒ 02 ☒ 14 ☒ 31 ☒ 52 ☒ 71 ☒ 76
		Gas ☒ 2CW-CS	☒ 2NC-CS ☒ FX ☒ Dist. Flush	☒ 11 ☒ 21 ☒ 32 ☒ 61 ☒ 72
3 (3.1.4)	Barrier	Liquid ☒ 3CW-FB	☒ 3CW-BB ☒ FX ☒ 3CW-FF ☒ Tang. LBO Conn.	☒ 01 ☒ 13 ☒ 53A ☒ 54 ☒ 74 ☒ 02 ☒ 14 ☒ 53B ☒ 61
		Gas ☒ 3NC-BB	☒ 3NC-FF ☒ 3NC-FB	☒ 11 ☒ 32 ☒ 53C ☒ 62

SLEEVE-SHAFT DRIVE ■ Set-Screw Onto Shaft ☒ 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
☒ FKM ☒ FFKM	☒ CARBON vs SIC	☒ UNS N10276 (TypeB	☒ UNS N10276	■ UNS S31600 / S31635
☒ Spiral Wound Gasket	☒ SIC vs SIC	☒ UNS N07718 (TypeC	or UNS N06455	☒ UNS N10276
☒ EPM / EPDM ☒ NBR	☒ SS-SIC ☒ RB-SIC	☒ UNS N08020	☒ UNS S31600	☒ UNS N08020
☒ Other :	☒ vs	☒ Other :	or UNS S31635	☒ Other :

MECHANICAL SEAL DATA

○ Seal Vendor : John Crane
○ Data Requirements Form (Annex J)
■ Size / Type : 1.89" / 1648
☐ Seal Drawing No.: GA-276950-1
■ Vendor's Seal Code : X P147 1 X D81 H 316/HC
☐ Modified Faces For Pump Performance Test
☐ Alternative Seal For Pump Performance Test

■ Dynamic Sealing Pressure Rating (3.1.27) 515 psig
■ Static Sealing Pressure Rating (3.1.84) : 800 psig
■ Maximum Allowable Temperature (3.1.51) 400 °F 0
● Min. Design Metal Temperature (6.1.6.11.1 32 °F
☐ Generated Heat at Normal Conditions : 1108.2 BTU/hr 0
☐ Heat Soak at Normal Conditions : -25.6 BTU/hr
☐ Total Seal Axial Thrust on Shaft : 162.5 lb

SEAL CHAMBER DATA (REFERENCE 6.1.2.4)

■ API 610 ☒ ASME B73.1&2 ☒ Cylindrical ☒ Tapered ☒ ISO 3069-C ☒ Other :
○ Bolt-On Chamber (6.1.2.5) ☒ Seal Chamber Flush Port Req'd ☒ Seal Chamber Vent Req'd
☒ Floating Throat Bushing ☒ Fixed Throat Bushing ☒ Chamber Heating ☒ Chamber Cooling

PUMP DATA

■ Manufacturer : Sulzer ■ Model : OHH ■ Size : 1.5x3x8-1 ■ Case Material : Carbon steel 0
Pump Operating Pressure : ● Discharge Press. (Rated) : 74.8 psig ● Suction Press. (Rated) : -1.2 psig
Seal Chamber Press ■ Norm.: psig ☐ Min/Max (MDSP 3.1.53 / psig ☐ MSSP (3.1.55) psig
Shaft: ■ Horizontal ☒ Vertical ■ Diameter : ■ Shaft Speed : 3520 RPM 0
■ Shaft Rotation (Viewed From Driver) : ■ CCW ☐ CW 0

NOTES

7.1	Pump Supplier shall consult seal Manufacturer for finalization of seal flushing Plans.
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.
7.4	Deleted. 0
7.5	Deleted. 0

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API 682 MECHANICAL SEAL DATA SHEET

Doc. No.: A8KM-TF-064-540139-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-1823A/B		
Revision:	0	Date:	6-Dec-23
Unit:	North East Tankage		
P.O. No.:	0		
Inquiry No.:	4-601G-RQ		
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FLUID DATA

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

- ● Type or Name **Carb Diesel** Conc'n : **100** %
- ○ Dissolved Contaminant ○ H_2S : ppmw ○ Wet
  ○ Cl_2 : ppm ○ Other : @ wt%
- ○ Solid Contaminant :
  ○ Conc'n (Mass Fract. or PPM)
- ● Fluid Temp.: Min °F Norm **110** °F Max **160** °F
- ● Spec. Gravity :@ Norm. Temp.: **0.79** @ Min. Temp.:
- ● Vapor Pressure : @ Norm Temp.: **0.01** psi(a)
  @ Max Temp.: psi(a)
- ○ Atmospheric Boiling Point : °F
- ● Viscosity : Normal **2.70** cP Max.: cP

○ Hazardous ○ Flammable ● **Combustible**

○ 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 Poin °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 :
- ○ Purchaser Selection ☐ Seal Vendor Selection
- ○ Seal Vendor Review ☐ Purchaser Review
- ☐ Flow Rate Req'd (@STP for Gas) Max. / Mir / gpm
- ☒ Supply Pressure Max. / Min.: / psig
- ☒
  Min.: °F Normal : °F Max.: °F

☒ Specific Gravity:
@ Normal Temperature : @ 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/lbºF
☐ Cooling / Heating Required :

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** / **104** °F
- ○ ATEX (Ex Directive 94/9/EC) : Gr.: Cat.: T-CLASS: **T3C**

● Cooling Water Supply Temp. Norr **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 Allowable Temp. 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)**
- ● Restriction Orifice Nipple 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)

○ Heat Exchanger Supplier
☒ Water Cooled ☒ Air Cooled ○ ISO 15649
☒ Equipment Reference / Code :
○ Cooling Water Line 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 : 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 RF flanged, schedule 160 minimum.**
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.**

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API 682 MECHANICAL SEAL DATA SHEET

Doc. No.: A8KM-TF-064-540139-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-1823A/B		
Revision:	0	Date:	6-Dec-23
Unit:	North East Tankage		
P.O. No.:			
Inquiry No.:	4-601G-RQ		
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ACCESSORIES (Clauses 8 and 9) CONTINUED

PLAN 52 AND 53 SYSTEMS

- ☒ Standard (Fig. G.35) ☒ Alternative (Fig. G.36)
- ☐ Dimensional Variations To Standard Figure G.35 :
- ☐ Dimensional Variations To Standard Figure G.36 :
- ☒ Alternative Fabrication Standard :
- ○ Primary Equipment Supplier :
- ☐ Supplier Reference / Code :
- ○ Connecting Line Supplier :
  - ○ Tubing ○ SCH. 80 Piping (8.2.9)
- ○ Equipment Support Supplier :
- ○ Filling System Supplier :
- ○ ASME Code Stamp Required

- ○ EN 13445 or Other Code Applicable
- ☒ Reservoir Capacity (8.3.6.2.5a) : gal
- ☒ NLL to Gland Plate Height (8.3.6.2.2 ft
- ☐ Reservoir MAWP (3.1.52) psig @ °F
- ☒ Set Pressure Range, Max. / Min. / psig
- ☒ System Hold-Up Period (Plans 53B & 53C) : days
- ○ Temperature Indicator (Plan 53B & 53C)
- ○ Pressure Alarm Setting (8.3.6.2.3) to Activate on :
  - ☒ Rising Pressure (Arr 2) Set at : psig
  - ☒ Falling Pressure (Arr 3) Set at : psig
- ☒ Low Level Alarm Setting Required
- ☒ High Level Alarm Setting Required (8.3.6.2.4)
- ○ Test Based H / Q Curve For Internal Circulating Device
- ○ External Circulating Pump (8.3.7)

INSTRUMENTATION

- ○ User Specification Reference For Instrumentation / Controls :

Pressure Gauges (9.4)
- ○ Oil Filled Pressure Gauges (9.4.3)

Pressure Transmitters (9.5.2) ○ Switches in Lieu of Transmitters

Level Transmitters (9.5.3) ○ Switches in Lieu of Transmitters

○ Hydrostatic (Std. Option, 9.5.3) ○ Capacitance ○ Ultrasonic

Level Indicators (9.6)

○ Weld Pad (Std. Option, 9.6.1) ○ External, Removable (9.6.2)

Flow Instruments (9.7) : ○ Transmitters (9.5.4)

INSPECTION AND TESTING

- ○ Purchaser Participation in Inspection & Test
  Specify :
- ○ Inspector's Check List (10.1.7 & Annex H)
- ○ Purchaser Approval Req'd For Welded Connection Design (6.1.6.10.5)
- ○ Hardness Test (10.2.3k) Required For :

- ○ 100% Inspection of All Welds (6.1.6.10.5) Using :
  - ○ Magnetic Particle ○ Liquid Penetrant
  - ○ Radiographic ○ Ultrasonic
- ○ Optional Qualification Testing Required (10.3.2)
- ☒ Mod. Faces For Pump Test (10.3.6.1), Seal Page 1, Line 32
- ☒ Alternate Seal Pump Test (10.3.6.2), Seal Page 1, Line 33

NOTES

9.1 Deleted.

9.2 Seal Data Sheets are in the API-682, 3rd Edition format. Paragraph references are to API-682, 4th Edition. Pump seals shall be in full compliance with API-682, 4th Edition.

FLUOR / world energy	**LOW VOLTAGE MOTOR (IEEE 841) DATA SHEET U.S. CUSTOMARY UNITS**	**Contract:**	**A8KM**
	APPLICABLE MOTOR SPECIFICATION A8KM-PP-000-50670-A	**Item No:**	**18-P-1823AM/BM**
		Revision:	**0** **Date:** **6-Dec-23**
		Unit:	**North East Tankage**
		RFQ / P.O. No.:	**4-601G-RQ**
	Doc. No.: A8KM-TF-064-540139-A	**Sheet**	10 **of** 11

Rev

APPLICABLE TO ○ PROPOSAL ● PURCHASE ○ AS BUILT — 0

CLIENT: **World Energy Paramount** SERVICE **Carb Diesel Blending Pump**

PLANT: **World Energy Renewables Plant** MOTOR TAG NO. / NO. REQ'D **18-P-1823AM/BM** / **Two (2)**

SITE: **Paramount, CA** DRIVEN EQUIPMENT TYPE / TAG NO. **Centrifugal Pump** / **18-P-1823A/B**

DESIGN DATA AND ACCESSORY EQUIPMENT

NAMEPLATE **15** HP **1.15** S.F. **3520** RPM POWER (VOLTAGE/PHASE/HERTZ) **460** / **3** / **60** — 0

ROTATION (WHEN FACING MOTOR OPPOSITE DRIVE END): ○ CW ○ CCW **Fans shall be bi-directional**

INSULATION CLASS: ○ B ● F ○ H ○ VPI TEMP. RISE **CLASS B** / ____ °C over **40** **°C AMBIENT**

AREA CLASSIFICATION: ● CLASS **I** , GROUP **B/C/D** DIV. **2** ● T-RATING **T3C** / ____ °F

○ UNCLASSIFIED ○ ____

LOCATION: ○ INDOOR ● OUTDOOR ○ SHELTERED UNUSUAL CONDITIONS: ○ DUST ○ OTHER ____

AMBIENT TEMPERATURE: MAX **105** °F / MIN. **35** °F ALTITUDE **69** ft

ENCLOSURE: ● TOTALLY-ENCLOSED FAN-COOLED ○ TOTALLY-ENCLOSED NONVENTILATED ○ EXPLOSION PROOF

MOUNTING METHOD: ● FOOT ○ FLANGE, TYPE: ____

MOUNTING ARRANGEMENT: ● HORIZONTAL ○ VERTICAL SHAFT DOWN ○ VERTICAL SHAFT UP

BEARING TYPE: ● BALL ○ ROLLER BEARING LUBRICATION: ● GREASE ○ OIL ○ PURE OIL MIST

CONNECTION TO LOAD: ● DIRECT CONNECTED ○ V-BELT ○ THROUGH GEAR ○ CLOSE COUPLED

EQUIPMENT OPERATION: ○ CONTINUOUS ○ SPARED CONTINUOUS ● INTERMITTENT-CYCLES / DAY **Varies**

SOUND PRESSURE LEVEL REQUIREMENTS: **85** dBA @ **3** FEET

STARTING: ● FULL VOLTAGE ● REDUCED VOLTAGE, **80** % OF VOLTAGE **Starting Voltage Dip Allowance**

○ UNLOADED ● LOADED ○ CAPACITORS FOR POWER FACTOR CORRECTION

○ SPACE HEATERS ____ V ____ PHASE ____ °F MAX. TEMP — 0

● OVERSIZE TERMINAL BOX ● DRAIN PLUGS

● SS NAMEPLATE ○ AUXILIARY NAMEPLATE

TEST ● ROUTINE ○ COMPLETE ● VIBRATION ● REPORT ● FOOT FLATNESS

REMARKS: **10.1) This data sheet applies to motors 1/2 hp through 500 hp with anti-friction bearings.**

10.2) Deleted. — 0

10.3) IP55 degree of protection is required.

10.4) Average relative humidity is 54%.

INFORMATION BELOW TO BE COMPLETED BY VENDOR

MOTOR MFR. **ABB** MODEL **09-0000-4243** SERIAL NO. **Z2301031447 / Z2301031452** — 0

NAMEPLATE HP **15** FULL LOAD RPM **3520** FRAME **254T** WEIGHT **299** LB — 0

MOTOR OUTLINE DRAWING NO. **CD0006**

ROTOR CAGE MATERIAL OF CONSTRUCTION ____ MOTOR WINDING MATERIAL ____

BEARING MANUFACTURER **SKF** SIZE 45BC03X30X

VERTICAL MOTOR THRUST BEARING: TYPE ____ CAPACITY: UP ____ LBS DOWN ____ LBS LOCATION ____

LOAD	FULL	3/4	1/2	OTHER
AMPERES	**17.3**	**13.1**	**9.71**	
EFFICIENCY, %	**91.2**	**91.8**	**91.1**	
POWER FACTOR	**89**	**88**	**80**	
SPEED, RPM	**3522**	**3544**	**3563**	

LOCKED ROTOR AMPS*	**32.7**	AMPS
FULL LOAD TORQUE*	**22.4**	FT-LB
LOCKED ROTOR TORQUE*	**32.7**	FT-LB
PULL UP TORQUE*	**26**	FT-LB
BREAKDOWN TORQUE*	**87.8**	FT-LB
ACCEL. TIME W/ LOAD (0 TO FULL SPEED)*		SEC.
STALL TIMES AT ZERO RPM* - HOT / COLD	/	SEC. — 0
NUMBER OF CONSECUTIVE STARTS*		

SOUND LEVEL: GUARANTEED **68** dBA / EXPECTED **68** dBA

FAN MATERIAL ____ (NON-SPARKING)

* INDICATED AT RATED VOLTAGE

INFORMATION BELOW TO BE PROVIDED BY VENDOR AFTER PURCHASE (REFER TO RFQ/PO DOCUMENTS)

● SAFE TIME - CURRENT CURVE

● SPEED - TORQUE CURVE

● SAFE LOCKED ROTOR TIME HOT ____ COLD ____

MAX. SURFACE TEMP. DURING NORMAL STARING OR OPERATION OF:

○ ROTOR ____ °F ○ STATOR ____ °F ○ ENCLOSURE ____ °F

NOTES:

10.5 **Motor nameplate shall indicate service factor, area classification and T-rating. T-rating relates to both external and internal components.**

10.6 **Provide accessory loads on submittal documents, e.g. Volts, HP, kVA, etc.**

10.7 **All motors, regardless of installed location, must be Class I, Division 2, Groups B,C,D, Temperature Code T3C, for project uniformity.**

10.8 **Motor shall have oversized terminal boxes.**

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PUMP DATA SHEET ANNEX

Contract:	A8KM		
Item No:	18-P-1823A/B		
Revision:	0	Date:	6-Dec-23
Unit:	North East Tankage		
P.O. No.:	SM00001022		
Inquiry No.:	4-601G-RQ		
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TEST PUMP CURVE