INDUCTION MOTOR
API 541 5th Edition -- DATASHEETS
U.S. CUSTOMARY UNITS

PURCHASER'S SELECTIONS

***Bold Italics* = Indicate Default Selection**

JOB NO. A8KM | ITEM / TAG NO. 18-P-359A/B
PURCHASE ORDER NO. 4-601-PO-11
REQ. / SPEC. NO. 4-601F-RQ / A8KM-PP-00-50668-A
REVISION NO. E | DATE 13-Sep-2023 | BY LL
REV. DATE 13-Sep-23 | PAGE 11 | OF 23 | Rev E

USER	World Energy Paramount	APPLICATION	**Recycle Oil Pumps Motor Drivers**
LOCATION	Paramount, CA	SUPPLIER	**GE / SULZER**
PROJECT NAME	WORLD ENERGY RENEWABLES PROJECT	SUPPLIER REF. No.	
SITE / PLANT	Paramount, CA	NUMBER of UNITS REQUIRED	**Two (2)**
Applicable To: ○ Proposal ● Purchase ○ As Designed ● As Built		MOTOR TAG No.(s)	**18-P-359AM / BM**

***Bold Italics* = Indicate the Standard's default selections - refer to Annex C for Datasheet Guide**

BASIC DESIGN - General

Applicable Standards (1.3.2; 2.0): **North American (i.e., ANSI, NEMA)** Use SI (metric) datasheets for International Standards (IEC, etc.)

Power / RPM ratings are specified by: ○ User/Project ○ OEM ● Other **Driven Equipment Supplier**

Nameplate power rating (4.2.1.1): **1250** ● HP ○ kW Motor speed: **3600** RPM (Synchronous)

Nameplate Voltage/Ph/Hz rating (4.2.1.2): **4000** Volts **3** Phase **60** Hertz

Nameplate ambient temp. rating [4.3.1.1 b)]: ● **40°C** ○ Other: ____ °C ● Min. rated operating ambient temp.(4.2.2): **-18** °C

Stator insulation class [4.3.1.1 a)]: ● ***Class F*** ○ Other Class: ____

Stator temperature rise [4.3.1.1 b)]*: ● ***Class B*** ○ Other: ____ * (See underlined sentences in Datasheet Guide for this item)

Duty (4.1.2): ● ***Continuous*** ○ Other: ____

Max. sound pressure level @ 1 m. @ no load, full voltage/frequency on sine wave power (4.1.3; 4.1.4): ● **85 dBA** ○ Other: ____ dBA

Voltage and frequency variations (4.2.1.3): ● **Per NEMA** ○ Other: ____

Motor power source: ○ ***Sine Wave Power*** ● **ASD power** (complete below section) ○ Solid state soft starter - complete data on page 6, line 8

Adjustable Speed Drive (ASD) conditions, if applicable (4.1.4; 4.1.5; 4.2.1.2.3, 4.3.1.2):

● ASD only operation (4.2.4.5) ○ ASD+DOL start capability ○ ASD only w-bypass to utility power ○ ASD w-DOL start & bypass to utility

● Variable Torque speed range: Min speed **1500** RPM ____ ft-lb Max. speed **3600** RPM ____ ft-lb

○ Constant Torque speed range: Min speed ____ RPM Max. speed ____ RPM ____ ft-lb

○ Constant Power speed range: Max speed ____ RPM ____ ft-lb

ASD description and information affecting motor design (obtain from ASD Supplier; refer to Datasheet Guide)

ASD type / topology: **Sulzer to provide GE Rockwell Info**

ASD output harmonics, describe and/or attach data (4.3.1.2):

ASD maximum voltage spike amplitude and rise-time at drive output (4.3.1.2.1): ____ Volts @ ____ microseconds

ASD Maximum common mode voltage (CMV) at drive output (4.3.1.2.2): ____ Volts

Other ASD information / motor requirements: **Motors shall be inverter duty rated. ASD's by Supplier. Refer to the RFQ for ASD requirements.**

Motors shall be capable of starting on sine wave power with Voltage dip to 80%. Refer to Project Spec. A8KM-PP-000-70009-A, Med. Voltage AC Adjustable Speed Drive.

Area Classification (4.1.8): ○ Nonclassified ● Classified as: Class **1** Group **B, C, D** Division **II** or Zone ____

Temperature code (T-code): **T3** Autoignition temperature (AIT): ____ °C

○ Other: ____

Site ambient temperature: **105** Max **35** Min ● °F ○ °C

Minimum rated storage ambient temp.(4.1.2): ____ ○ °F ○ °C Site elevation: **69** ft.

Relative humidity: **54** % ~~Max~~ Avg. ____ % Min ○ Use this higher elevation for motor rating: ____ ft.

Motor location: ○ Indoor Building temperature controlled: ○ No ○ Yes Controlled temp.: ____ ○ °F ○ °C ○ Use for motor rating

● Outdoor Roof over motor: ● No ○ Yes ○ Offshore platform / similar marine environment [4.4.1.1 c)]

○ Seismic loading (4.4.2.2), IBC Zone: ____ Importance Factor: ____ ● Other seismic requirements: **See NOTE 11.1**

Unusual Site Conditions, Define: ____

○ Additional environment considerations, chemicals, etc. (4.1.2): ____

○ Abrasive dust protection for open enclosures [4.4.1.2.2 c)]: ____

○ Corrosive agents in environment, re: stress corrosion cracking (4.4.10.1.2): ____

Other: **11.1 See Project Specification A8KM-PP-000-40002-A for seismic and other design criteria, and A8KM-PP-000-20001-A, Plant Site Data Sheet.**

11.2 Motors shall conform to Project Specification A8KM-PP-00-50668-A and UOP Standard Specification 7-12-6.

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BASIC DESIGN - Enclosure, Mounting, Electrical system

Enclosure (4.4.1.2) ● Degree of Protection (4.4.1.2.1) IP **55** ● Method of Cooling (4.4.1.2.1) IC **611**

○ WP-II (Weather Protected Type II) (4.4.1.2.2) ○ WP-I (Weather Protected Type I) (4.4.1.2.2) ○ DPG (Dripproof Guarded) (4.4.1.2.2)

Air filters: ***Required for WP-II (5.5.3)*** ○ Provisions only for WP-I or DPG (5.5.2) ○ Provide filters for WP-I or DPG (5.5.4)

Air filter capability (5.5.4): ***90% of particles ≥ 10 micron*** ○ Other:

○ Purchaser specified filters: Manufacturer: Type: Model:

Differential pressure device (5.5.5): ***Provisions required for WP-II*** ○ Differential pressure switch (5.5.5) ○ Combination switch / gauge

○ Provisions only for WP-I or DPG (5.5.5) ○ Differential pressure gauge (5.5.5)

○ Purchaser specified device: Manufacturer: Type: Model:

Enclosure for motors rated 6kV and above: [4.4.1.1 f)]: ***TEFC, TEAAC, or TEAAC (IP44 or higher)*** or ○ Use enclosure selected in line 2

○ TEFC (4.4.1.2.3) ○ TEPV (4.4.1.2.3) ○ Other enclosure:

● TEAAC (4.4.1.2.3) Heat exchanger tube materials [4.4.10.8 a)]: ● Aluminum ○ Alum. Alloy ○ Copper ○ Copper Alloy ○ Other **E**

○ Stainless Steel 300 Series ○ Stainless Steel 316 Series (req'd for offshore) [4.4.10.8 a)]

○ TEWAC (4.4.1.2.4) Heat exchanger tube materials [4.4.10.8 b)]: ***90-10 Cu-Ni*** ○ Other

Cooling water conditions ***per 4.4.1.2.4 a):*** ○ Water & glycol solution ○ Other cooling water conditions or chemistry (attach documentation)

Cooler location-orientation [4.4.1.2.4 c)]: ○ Supplier decision ○ Above stator ○ Other

Cooler inlet-outlet location (facing NDE): ○ Supplier decision ○ Right side ○ Left side ○ Other

Tube construction [4.4.1.2.4 d); 4.4.10.8 c)]: ***Single tube*** ○ Double tube ○ Redundant coolers [4.4.1.2.4 b)]

Leak detection [4.4.1.2.4 c)]: ***Required*** For double tube coolers: ***inner tube leak detection required*** ○ Outer tube detection also

Flow sensor with local indicator [4.4.1.2.4 g)]: ***Required*** ○ Not required Relay contacts: ○ Norm.Open (NO) ○ Norm.closed (NC)

○ Purchaser specified device: Manufacturer: Type: Model:

Cooler air inlet & outlet temperature sensor [4.4.1.2.4 h)]: ● ***Required*** ○ Not required ○ Same as winding ○ Other

○ Purchaser specified device: Manufacturer: **Rosemount** Type: **Dual Element RTD** Model: **214C** **E**

System of units for hardware (1.3.1): ● U.S. / North American Customary ○ SI (Metric)

Hardware-fasteners material [4.4.1.1 c)]: ***Stainless Steel 300 series through M12 (1/2 in.)*** ○ SS 316 series through 1/2 in. for offshore

○ Provision for pre-start purging [4.4.1.1 e)]: Purchaser specified purge details:

Field piping connection sizes (4.4.3.1): ***Supplier std.*** ○ Other:

Duct gaskets/bolts provided by (4.4.3.8): ***Supplier std.*** ○ Other:

Auxiliary motor driven fans (4.4.10.6.3): ○ Yes ○ No Ph / Volts.: Phase Volts

Paint system: ● Supplier's paint sys. ○ Purchaser specified paint system Paint system spec. no.: Mfr std in compliance with ISO 12944-5, C4 or higher. GE supplying C5-H grade.

Paint color: ● Supplier's paint color ○ Purchaser specified paint color Define paint color and code:

Mounting: ● Horizontal foot mounted ○ Horizontal flange mounted with feet ○ Vertical foot mounted

○ Vertical flange mounted ○ Shaft down ○ Shaft up ○ Solid shaft ○ Hollow shaft ○ Non-reverse ratchet (NRR)

○ Vertical Motor to carry thrust (if selected, complete applicable area of Bearing &/or Driven Equipment / OEM section, pg. 6, lines 39 and 40)

Flange type / bolt circle: ○ Supplier decision ○ Other:

○ Other mounting requirements:

● Baseplate: furnished by (4.4.2.6): **Pump Supplier** ○ Soleplate: furnished by (4.4.2.6):

○ Non-massive Foundation applies (4.4.6.1.3, 4.4.6.2.1.2), Description:

○ Data for non-massive system dynamic analysis required from machine vendor per 4.4.6.1.3 a), b), c), d)

Electrical System: Primary power source **4160** Volts **3** Phase **60** Hertz Maximum ground fault Amps

Method of system grounding (5.6.2.3) ● Resistance ○ Reactance ○ Ungrounded ○ Solid

3-Phase fault Current at machine terminals (5.1.2) MVA Let-through energy (5.1.2.1): I^2t (Ampere-squared seconds)

Min S.C. at motor bus [4.2.3.2 c)] MVA at V_{base} X/R ratio: Min.motor term. start voltage % rated

Other information: **SC Rating of 50 kA for 2 seconds**

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BASIC DESIGN - Bearings, Seals

Bearings: Horizontal machines

Bearing type: **Hydrodynamic (4.4.7.1.1)** ● Sleeve (4.4.7.1.1) ○ Tilting pad (4.4.7.1.1)

● Bearing constant-level oilers required (4.4.7.2.2) Type: **Trico oiler, minimum 8 oz size, with positive level positioner not set screw.**

○ Antifriction (4.4.7.1.3)

● Other: **Include ESCO single piece sight glass on bearing housing drains.**

Bearings: Vertical machines

Thrust bearing load [4.4.7.1.11 a)] Downthrust Momentary _____ lbs Upthrust Momentary _____ lbs

Continuous _____ lbs Continuous _____ lbs

○ Other:

Seals: ○ Special seals for gas purge [4.4.7.3 a)] ○ Non-conducting seals [4.4.7.3 b)]

Other:

BASIC DESIGN - Bearing Lubrication

Hydrodynamic Bearings: **Ring type self lubrication (4.4.8.1)**

Type/viscosity of oil (4.4.8.5; 4.4.8.8; 5.1.4.2) ● Supplier decision ○ Other, define:

○ Pressurized lube required (4.4.8.4) ○ Common with driven equipment (4.4.8.5)

System supplied by (4.4.8.4): ○ Driven equipment supplier ○ End user ○ Motor supplier ○ Other

Lube System to comply with API 614 (4.4.8.6): ○ Part 3 General Purpose ○ Part 2: Special Purpose ○ ISO 10438-1

Main oil pump driven by: ○ Supplier decision ○ Separate, independent motor ○ Main motor shaft

Other lube system information:

○ Meet cleanliness requirements of API 614 for 5 GPM & above capacity (6.2.3.2)

○ Purge oil mist (4.4.7.4.1) (describe or attach requirements): ○

Antifriction Bearings: Grease type: ○ Supplier decision ○ Other

○ Pure oil mist (4.4.7.4.1; 4.4.7.4.5) ○ Oil mist ready or ○ Oil mist provisions only (bearing grease removal may be required - see guide)

Vertical Motor Bearings: Thrust bearing: ○ Supplier decision ○ Grease lubrication ○ Oil Sump lubrication

Guide bearing: ○ Supplier decision ○ Other:

Other: **Constant Level Oilers, Trico or Equal. Oil drains shall be furnished with an ESCO single-piece sight glass.**

SPECIAL CONDITIONS

○ Shaft and spider one piece forging for 4 or more poles [4.4.5.1.4; 4.4.5.1.2 b)]

○ Special lower vibration limits, define (6.3.3.12):

○ Efficiency evaluation factor (8.1.2), EF = _____ cost / kW C = _____ cost / KWH applied at _____ % of full load

○ Test method for expected and guaranteed efficiency data (8.1.3.f):

● Local codes, define (4.1.8): **CSA Certificate required.**

○ External loads imposed on motor enclosure when connected at installation site, define (4.4.4):

○ Special overspeed requirement (4.1.5, 4.4.5.2.7):

Other:

Notes/Other Requirements: **13.1 Main and auxiliary terminal boxes shall be NEMA 4X, 316 SS construction.**

13.2 Deleted. Vendor to supply details on Motor Terminal Box support.

13.3 Refer to 8ES-2DG1 - WEP Instrumentation & Electrical Standard Vendor List, for Instrumentation.

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ACCESSORIES

Heaters: ● Frame space heaters (5.4.1; 5.4.2; 5.4.3): Sheath material: ○ Supplier decision ○ Other:
● Single voltage design Operating voltage **120** Phase **1**
or
○ Dual voltage design Operating voltages / Phase
○ Bearing heaters (4.4.8.3): Operating voltage Phase
● Main terminal box space heaters required: See also main terminal box section, page 15
For classified areas provide temp. code and/or max. surface temp. (5.4.2): Temp. code (from pg.1): **T3** (T3 used for labeled heaters if not specified)
Max. surface temp.: °C (less than or equal to 80% of AIT on pg.1 for unlabeled heaters, ***160° C*** if AIT not specified)

Winding Temperature Detectors (5.2): ***RTD - Platinum, 3 Wire, 100 Ohms at 0°C (5.2.1.1)*** ○ Other RTD Material:
Required number per phase (5.2.1.2): ● **Three** ○ Other Wires: **22AWG** Resistance: **100 Ohms** E
○ Ground one (1) common lead each element in terminal box (5.2.1.2)
○ Thermocouples: Type: No. per phase: ***Three (3)*** ○ Other

Bearing Temperature Detectors (5.3): ***RTD - Platinum, 3 Wire, 100 Ohms at 0°C; ~~One (1)~~ Per Bearing for Hydrodynamic & Thrust Bearings (5.3.1)***
Bearing RTD's shall be spring-loaded, tip sensitive, 3-wire, Pt, 100 Ohms at 32 degrees F (0 degrees C). (UOP Specification)
● Other qty. per bearing **2*** ● Dual-element Type ○ Install per API 670 (5.3.1) ○ Ground one (1) common lead ○ Provisions only E
○ Other RTD material: Wires: Resistance: ○ Other info:
○ Thermocouples: Type:
● Oil temp. indicators (dial thermometers) (4.4.7.1.16) Type: ○ Alarm contacts Number of contacts: ○ NO ○ NC
Location of terminations for bearing temp. det. (5.1.14): ○ Supplier decision ○ Terminal head ○ T-box ● T-box with winding temp. det.
Antifriction bearings: ○ Use selections above when antifriction bearings are specified
* 1 duplex RTD per bearing, total 2 duplex RTDs per motor

Vibration Detectors (5.8)

Non-contact Shaft Probes (5.8.1):	**Motors operating at 1200 rpm and higher**		**Motors operating at less than 1200 rpm**	
Shaft probes (X-Y) (5.8.1):	○ ***Provisions***	● Installed	○ ***Provisions***	○ Installed
Phase reference probe (5.8.1):	○ ***Provisions***	● Installed	○ ***Provisions***	○ Installed
Number per bearing (X-Y) (5.8.2):	● ***Two (2)***	○ Four (4) (2-X & 2-Y)	○ ***Two (2)***	○ Four (4)
Provide two (2) axial-position probes for hydrodynamic thrust bearings at the thrust end (5.8.2):			○ ***Provisions***	○ Installed

Probe lead protection (5.8.1.1): ***Conduit*** ○ Other:
Manufacturer of probes, oscillator-demodulator: ○ Supplier decision ● Purchaser defined, type: **Bently-Nevada 3300 XL**
Probes provided by: ● Supplier ○ Other: Installed By: ● Supplier ○ Other:
Oscillator-Demodulator By: ● Supplier ○ Other: Installed By: ● Supplier ○ Other:
Location of terminations (5.1.14): ○ Supplier decision ○ In osc.-demodulators box ○ In sensor housing ● Other: **Auxiliary Box**

Manufacturer:
Sensor: ○ Installed ○ Provisions only ○ Per API 670 (5.8.3) ○ Supplier decision ○ Purchaser defined:
Vibration switch: ○ Installed ○ Provisions only ○ Per API 670 (5.8.3) ○ Supplier decision ○ Purchaser defined:
Device provided by: ○ Supplier ○ Other: Installed by: ○ Supplier ○ Other:
Define mounting / hole size if purchaser defines device: If switch, type: ○ Manual reset ○ Electric reset
D.E. bearing Qty.: Position(s): ○ Horizontal ○ Vertical ○ Axial ○ Other:
N.D.E. bearing Qty.: Position(s): ○ Horizontal ○ Vertical ○ Axial ○ Other:
Location of terminations (5.1.14): ○ Supplier decision ○ Terminal box ○ Terminal head ○ In sensor housing

Other Monitors and Devices
○ Monitor to alarm for shaft grounding brush replacement (4.4.7.1.9) Describe:
○ Other monitors or devices:

Alarm and Control Switches (5.6.1): ***SPDT 10 Amp 120VAC & 125VDC*** ○ Other:
Auxiliary Equipment T-Boxes (5.1.4.1): Location of aux. boxes (facing non-drive end): ○ Left side ● Right side ○ Other:
● Stainless Steel aux. boxes/encl. (5.1.4.1) Cond./cable entry (5.1.4.1, 5.1.13): ● Bottom ○ Left or ○ Right side facing non-drive end
Accessory Equipment Wiring Outside Enclosure (5.1.11): ***Rigid Conduit*** ○ Other:

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ACCESSORIES - Main Terminal Box (See NOTE 13.1 and 13.2)

Main Terminal Box (5.1.1): Box size: ~~***Minimum size is Type II per NEMA MG 1 Part 20***~~ ***with Copper Bus Bar & Standoff Insulators Required***

Other Size: ○ Supplier decision for required accessories ○ For shielded cable term. [5.1.6 e)] ● Other: **One Size Larger than NEMA MG-1 Type II**

Box location facing non-drive end: ● Left side ○ Right side ○ Other: _____ ○ Thermal insulation [5.1.6 a)]

Cable enter from (5.1.4.1): ● Bottom ○ Top ○ Drive end side ○ Non drive end side ○ Quick disconnect studs or receptacles [5.1.6 f)]

Incoming conductor size: **TBD** Type **TBD** Insulation **TBD** Qty. per phase **TBD** ○ Provision for purging [5.1.6 c)]

All phase leads In terminal box (4.3.6): ● ***Required 750kW (1000HP) and larger*** ○ Provide in < 750kW (1000HP) ● Removable links [5.1.6 d)]

Copper bus joint plating [5.1.6 i)]: ○ Supplier decision ● Silver ○ Tin ○ None ● Copper ground bus [5.1.6 k)]

● Insulated terminations and interior jumpers [5.1.6 m)] ○ 6kV & up use insulated bus bar between stator windings and main terminals (4.3.9)

● Main T/box space heaters [5.1.6 b)]: ● Single voltage design Operating voltage **120** Phase **1**

or

Refer to page 14 for heater T-code, etc. ○ Dual voltage design Operating voltages _____ / _____ Phase _____

For the devices following below, the purchaser may make a Provide-Install selection; the default is ***Provide and Install by Supplier***:

	Provided By	and	Installed By
○ Differential protection current transformers [5.1.6 h); 5.1.8; 5.6.3]			
Type: ○ Self-balancing ○ Full differential ○ Window-Type ○			
Accuracy class _____ Ratio _____ Quantity: _____			
○ Surge capacitors [5.1.6 g); 5.6.2.1, 5.6.2.3]: ○ Microfarads _____ ○			
○ Surge arresters [5.1.6 g); 5.6.2.2, 5.6.2.3]: ○ kV Rated _____ ○			
○ Current transformers [5.1.6 h)] for phase current meter ○			
Accuracy class _____ Ratio _____ Quantity: _____			
○ Voltage transformers [5.1.6 j)] for voltage meter ○ Fuses required ○			
Accuracy class _____ Ratio _____ Quantity: _____			
○ Partial discharge (PD) detectors [5.1.6 l), 5.6.4.1] ○			

Describe required system: _____

PD t-box location (5.6.4.3): ***vertical outside surface of main t-box*** ○ Other: _____

MISCELLANEOUS, SUPPLIER'S DATA

○ Qty. special tools and lifting devices (4.1.11, 4.1.12, 4.4.2.14): _____ ○ Proof of non-sparking, corrosion resistant fan (4.4.10.6.1)

● Separate nameplate with purchaser's information - list below (4.4.11.4) ○ Electronic vibration test data - define digital format below (6.3.3.17)

Purchaser's Tag No. _____ _____

Shipment (6.4.1) ○ Domestic ○ Export boxing ○ Special shipping bearings [6.4.1 k)] ○ Outdoor storage more than six (6) months (6.4.2)

Proposals (8.1) ○ Typical drawings & literature with proposal (8.1.8) ○ Purchaser defined efficiency method [8.1.3 f)]: _____

○ Separate price for each test on datasheet page 7 (8.1.14) ○ Packaged price for all tests on datasheet page 7 (8.1.14)

○ Provide requirements for special weather & winterizing protection (8.1.15) ○ Provide safe stall time calculation method and limits (4.2.4.3)

Provide quote for supervision of installation and erection (8.1.17) ○ Provide quote for start-up commissioning service (8.1.17)

○ Materials to be identified with ANSI, ASTM, or ASME numbers (8.1.18): _____

Contract Data (8.3) ○ Special identification for transmittals (8.3.2) Define below or specify where this information is to be found

Drawings (8.5) System of units for drawings / data (1.3.1): ● U.S. / N. Am. customary only ○ SI (Metric) only ○ U.S. (SI) ○ SI (U.S.)

○ Supplier to provide curve data in tabular format (8.5.1) Define preferred digital format : _____

○ Quantities of documents & drawings, and documentation schedule (or define source for this information) (8.5.1): _____

○ After purchaser review of drawings, quantity of certified drawings to be provided (8.5.2): _____

Instruction Manuals (8.7) ○ Quantity of instruction manuals to provide (8.7.1) (typically supplied in digital format): _____

○ Detailed instructions and photo's, etc. for disassembly and inspection of bearings and seals [8.7.4 c)]

○ Photos showing machine assembly steps required; including each step of bearing assembly (8.7.5)

● Copies of applicable certifictions, including NRTL, material certications (including PMI), and other certifications for the machine(s) (8.7.6)

Define any/all certifications required, including materials: **Motors shall be certified by an NRTL recognized by OSHA for hazardous area classification that includes variable speed drive application. GE confirms that certificate shall be by CSA.**

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INDUCTION MOTOR
API 541 5th Edition -- DATASHEETS
U.S. CUSTOMARY UNITS
PURCHASER'S SELECTIONS
Bold Italics = Indicate Default Selection

JOB NO. A8KM ITEM / TAG NO. 18-P-359A/B
PURCHASE ORDER NO. 4-601-PO-11
REQ. / SPEC. NO. 4-601F-RQ / A8KM-PP-00-50668-A
REVISION NO. E DATE 13-Sep-2023 BY LL
REV. DATE 13-Sep-23 PAGE **16** OF **23** Rev

LOAD REQUIREMENTS AND STARTING CONDITIONS

Load torque and inertia requirements (4.2.2): ***Per NEMA MG 1 Part 20*** or ○ Per specified load curve & data (lines 25 and 26 below) [4.2.2.1 a)]

Design load curve condition: ○ Unloaded (e.g. closed valve or damper) ○ Loaded (e.g. open valve or damper) ● Partially loaded **(VFD Ramp)**

Load re-acceleration required [4.2.2.1 b)]: ***NO*** ○ Yes Re-acceleration load data or curve no.: _____

If yes above, complete the following (4.2.3.5): Max time of voltage interruption _____ Seconds

Voltage at motor terminals during re-acceleration _____ Volts

Motor Starting (4.2.3): ***Starting with 80% of rated voltage at motor terminals (4.2.3.1)*** or ○ Other percent of rated voltage _____ %

○ Other starting method [4.2.3.2 a)]: ○ Autotransformer ○ Captive transformer ○ Reactor ○ Solid state soft starter ● ASD

Other method % volts: _____ % If Soft Starter, define percent Locked Rotor current limit during acceleration: _____ %

○ Maximum Locked Rotor current other than in 4.2.4.4 a) (450 to 650%): _____ ○ % of Full Load amps or ○ Maximum amps

○ Determine starting capability per [4.2.3.2 b)]: Min. _____ Volts at motor terminals under _____ Amps Locked Rotor current

or [4.2.3.2 c)]: Min. _____ S.C. MVA and _____ X/R ratio with _____ base voltage and _____ % Rated volts at motor terminals

● Provide curves & data [8.1.3 a), b)]: ***At rated voltage & min. start conditions*** ○ Other: _____ % Volts ○ Other: _____

● No. of consecutive starts other than Table 4 (4.2.4.1): With motor temperature at ambient: ***3*** ○ Other: _____

With motor temperature greater than ambient but less than rated operating temp.: ***2*** ○ Other: _____

○ No.of full voltage starts if more than 5000 required (4.2.4.1; 4.4.5.1.1): _____

Other: _____

DRIVEN EQUIPMENT INFORMATION - OEM DATA

Driven equipment: Tag no.(s): **18-P-359 A/B** Description **Recycle Oil Pumps** Location _____

Driven equipment mfgr.: _____ Type / Model no. _____ RPM _____

Driven equip. rotation ***viewed from non drive end of motor*** : ○ Clockwise ○ Counterclockwise ○ Bi-directional

Required motor rotation ***viewed from non drive end of motor*** : ○ Clockwise ○ Counterclockwise ○ Bi-directional

Overspeed trip point (if applicable) (4.1.5) _____ RPM

Type of load: Centrifugal: ● Pump ○ Compressor ○ Fan ○ Other _____

Positive displacement: ○ Pump ○ Reciprocating compressor Compressor factor "C": _____

Maximum current pulsation per API 618 (4.2.3.6): ● ***40%*** ○ Other: _____ %

Provide crank-effort chart or torque-effort curve no. [8.1.3 g)]: _____

Load characteristics per (4.2.2.1): ***NEMA MG 1 Part 20*** ○ Other - provide load speed-torque curve no. [4.2.2.1 a)]: _____

Total driven equipment load inertia reflected to motor [4.2.2.1 c)]: Wk^2: _____ $lb\text{-}ft^2$ or GD^2: _____ $kg\text{-}m^2$ at: _____ RPM

○ Speed increasing or reducing gearbox [4.2.2.1 c)]: Ratio: _____ Note: affect on inertia to be included in total inertia above

Driver connection to load: ● Direct Coupled ○ Gearbox ○ V or cog belt Belt Ratio: _____

Motor shaft extension (4.4.5.1.9): ● Cylindrical fit ○ Taper fit ○ Integral flange

Coupling: Specified by: ○ Purchaser ● Driven equipment supplier ○ Motor supplier ○ Per API 671

Coupling manufacturer: _____ Type: _____ Model: _____

Supplied by: ○ Purchaser ● Driven equipment supplier ○ Motor supplier ○ Other: _____

Motor half coupling mounted by (4.4.9.4): (requires vibration test in 6.3.1.5)

○ Purchaser ○ Driven equipment supplier ● Motor supplier ○ Other: _____

Coupling inertia [4.2.2.1 c)]: Wk^2: _____ $lb\text{-}ft^2$ or GD^2: _____ $kg\text{-}m^2$ (To be included in total inertia above)

Mass moment of half coupling assy. [4.4.6.2.1.1 f)]: _____ $lb\text{-}ft^2$ or _____ $kg\text{-}m^2$ (For damped unbal. response analysis)

Center of gravity of half coupling assy., drawing reference or dimensions (6.3.5.3): _____

Other information: _____

Vertical pumps: Thrust bearing load [4.4.7.1.11 a)] Downthrust Momentary _____ lbs Upthrust Momentary _____ lbs

Continuous _____ lbs Continuous _____ lbs

Other information: _____

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ANALYSIS, SHOP INSPECTION, AND TESTS

○ **(m)** Indicates line item is not required ◁ **(v)** Indicates line item applies to only one machine in a multiple machine application/order

● **(l)** Indicates Purchaser required line item ◀ **(t)** Indicates line item applies to all machines in a multiple machine application/order

Make selections in only one column for each item

	Required (6.1.3.3; 6.3.1)		Witnessed (6.1.3; 6.1.3.1; 6.3.1.1)		Observed (6.1.3; 6.1.3.2; 6.3.1.1)	
Coordination meeting (8.2)	●					
Design review (8.4)	○					
Lateral critical speed analysis [4.4.6.2.1; 8.6.2 b)]	●					
Torsional analysis data (4.4.6.2.2) Analysis by: **Pump Supplier (Train)**	●					
Submit test procedures and acceptance criteria 6 weeks before tests (6.3.1.4)	○					
Demonstrate accuracy of test equipment (6.3.1.15)	○	◁	○	◁	○	◁
Stator core test (6.3.4.1)	○	◁	○	◁	○	◁
Surge comparison test - required for all machines (6.3.4.2)	●	◀	○		○	
Special surge test of coils (6.3.4.2.1)	○	◁	○	◁	○	◁
Power factor tip-up test (6.3.4.3)	○	◁	○	◁	○	◁
Stator inspection prior to VPI (6.3.4.5)	○	◁	○	◁	○	◁
Sealed winding conformance test (6.3.4.4)	○	◁	○	◁	○	◁
Partial discharge test for machines 6kV and greater (6.3.4.6)	○	◁	○	◁	○	◁
Rotor residual unbalance verification test (4.4.6.3.4)	●	◀	○	◁	○	◁
Unbalance response test with half coupling mass (6.3.5.3) (Purchaser must also select one of below)	○	◁	●	◀	○	◁
● Purchaser to supply the contract motor coupling hub plus a mass moment simulator for half coupling spacer for test (6.3.5.3)						
○ Other arrangement (Define here & refer to Datasheet Guide for this test):						
Vibration test with half coupling (6.3.1.5) (req'd if Supplier mounts cplg. 4.4.9.4)	●	◀	○	◁	○	◁
Inspection of equipment, piping for cleanliness before final assembly (6.2.3.3)	○	◁	○	◁	○	◁
Routine test - always required for all machines (6.3.2)	●	◀	○		○	
Bearing dimensional & alignment checks before tests [6.3.2.1 k)]	○	◁	○	◁	○	◁
Bearing dimensional & alignment checks after tests [6.3.2.1 l)]	○	◁	○	◁	○	◁
Purchaser supplied vibration monitoring / recording (6.3.3.7)	○	◁	○	◁	○	◁
Complete test (6.3.5.1.1)	○	◁	●	◀	○	◁
Includes: Efficiency, LR current, PF & torque, FL Current, FL Slip, BD Torque, Heat Run, Speed v. Torque, Noise test at NL						
DC high-potential test (6.3.5.1.2)	○	◁	○	◁	○	◁
Rated rotor temperature vibration test (6.3.5.2.1) **(If not using Complete test)**	○	◁	○	◁	○	◁
Bearing housing natural frequency test (6.3.5.4.1)	●	◀	○	◁	○	◁
Heat exchanger performance verification test (TEWAC enclosures) (6.3.5.5)	○	◁	○	◁	○	◁
Overspeed test (6.3.5.6; 4.1.5)	○	◁	○	◁	○	◁
Final rotating assembly clearance data storage [6.2.1.1 e)]	●	◀				
Material inspection (6.2.2) Radiographic test (6.2.2.2), define parts:	○	◁	○	◁	○	◁
Material inspection (6.2.2) Ultrasonic inspection of shaft forging (4.4.5.1.8; 6.2.2.3.1)	○	◁	○	◁	○	◁
Material inspection (6.2.2) Ultrasonic test (6.2.2.3.2), define parts:	○	◁	○	◁	○	◁
Material inspection (6.2.2) Magnetic particle test (6.2.2.4), define parts:	○	◁	○	◁	○	◁
Material inspection (6.2.2) Liquid penetrant test (6.2.2.5), define parts:	○	◁	○	◁	○	◁
Material inspection (6.2.2) Hydrostatic test (6.2.2.6), define parts:	○	◁	○	◁	○	◁
Certified data prior to shipment [8.6.2 a)]	○	◁				
All required test and inspection equipment (6.1.4) ***provided by supplier*** ○ Other:						

Notes: **Refer to the PO for ASD testing requirements, including the FAT test.**

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INDUCTION MOTOR
API 541 5th Edition -- DATASHEETS
U.S. CUSTOMARY UNITS

MOTOR PROPOSAL DATA

Bold Italics = Indicate Default Selection

JOB NO. A8KM ITEM / TAG NO. 18-P-359A/B
PURCHASE ORDER NO. 4-601-PO-11
REQ. / SPEC. NO. 4-601F-RQ / A8KM-PP-00-50668-A
REVISION NO. E DATE 13-Sep-2023 BY LL
REV. DATE 13-Sep-23 PAGE 18 OF 23 Rev

MOTOR SUPPLIER / MANUFACTURER PROPOSAL DATA

Manufacturer: GE | Type / Model No.: PKAF | Frame size / Designation: 8212S | E

Qty.: 2 | 1250 HP | 3576 RPM | 2 Poles | 4000 Volts | 3 Phase | 60 Hz | E

Full Load speed: 3576 RPM | Insulation class: F | Temperature rise: | Class: B | Service factor: 1.0 | E

Enclosure: TEAAC | Full Load torque (FLT): 1834 ft-lb | Rotor inertia [8.1.3 c)]: 395 lb-ft² ● Wk² ○ GR² ○ GD² | E

Locked rotor torque (LRT): % FLT | Pull-Up torque (PUT): % FLT | Breakdown torque (BDT): 175 % FLT

Calculated Expected Data [8.1.3 f)] at the following Loads: ○ ~~For recip. comp., calc. eff. is based on pulsating current conditions from pg.6~~

Load Point	50%	75%	100%	Other: 25 %
Efficiency	94.5 %	95.1 %	95.2 %	%
Power Factor	88 %	90 %	91 %	%
Current	80.9 Amps	117.5 Amps	155 Amps	Amps

Area Classification (4.1.8): ○ Nonclassified ● Classified: Class I Group BCD Div. 2 | E
or Zone | E
Autoignition temp °C or Temp.code T3 | E

○ Guaranteed efficiencies [8.1.3 f)] at % Load = % Test method [8.1.3 f)]:

Max. sound pressure level (4.1.3): ***85 dBA @ 1 m. No-Load, Full Voltge/Frequency, Sine Wave Power*** ○ Other: dBA

Motor power source: ***Sine Wave Power*** ● ASD Power only ○ ASD only w-bypass to utility power ○ ASD + DOL start capability ○ ASD w-DOL start and bypass to utility power

● Variable torque speed range: Min. speed 1500 RPM ft-lb Max. speed 3600 RPM ft-lb
○ Constant torque speed range: Min. speed RPM Max. speed RPM ft-lb
○ Constant power speed range: Max. speed RPM ft-lb

○ Avoiding lateral natural frequencies by at least 15% not practical over specified speed range (4.4.6.1.2)

Method of efficiency determination to be used [8.1.3 f)]:

Base frequency(ies) and harmonics assumed present in the supply waveform(s) [8.1.3 f)]:

Separately Powered Auxiliary Fan(s) (4.4.10.6.3): Driver Information (where applicable)

Quantity Location Encl. HP RPM Volts Phase Hertz
Quantity Location Encl. HP RPM Volts Phase Hertz

TEAAC Heat Exchanger Tube Material [4.4.10.8 a)]: Aluminum

TEWAC Heat Exchanger Requirements (4.4.1.2.4): Tube materials [4.4.10.8 b)]: ***90-10 Cu-Ni*** ○ Other tube material:

○ Cooling water conditions ***per 4.4.1.2.4 a)*** ○ Other cooling water conditions:

Bearings (4.4.7.1): ***Hydrodynamic (4.4.7.1.1)*** ● Sleeve (4.4.7.1.1) ○ Tilting pad (4.4.7.1.1) ○ Antifriction (horizontal) (4.4.7.1.3)
○ Antifriction thrust bearing (vertical) (4.4.7.1.5) ○ Hydrodynamic thrust bearing (vertical) (4.4.7.1.10)

Thrust bearing load capability [4.4.7.1.11 a)]: Downthrust Momentary lbs Upthrust Momentary lbs
Continuous lbs Continuous lbs

Lubrication (4.4.8): ***Ring Type Self Lubrication (4.4.8.1)*** Machine bearings require pressure lube system ○ Yes ● No

○ Pressurized lube system (4.4.8.4) ○ Common with driven equipment (4.4.8.5) System supplied by (4.4.8.4): ○ Others ○ Motor supplier

Type/viscosity of oil (4.4.8.5; 4.4.8.8; 5.1.4.2): Oil rings included ○ Yes ○ No

Oil requirements per bearing (8.1.4): Flow: GPM Pressure: PSI Volume: QTS

Heat loss to be removed per bearing: kW

Oil mist provisions (4.4.7.4) (see Guide): ○ Purge oil mist, hydrodynamic brg's ○ Pure oil mist, antifriction brg's ○ Oil mist ready, antifriction brg's.

○ Grease, Type: ○ Oil mist provisions only, a/f brg's.

Magnetic stator slot wedges used (4.3.10): ○ Yes ○ No

When enclosure pre-start purging is specified, vendor defined maximum allowable pressure [4.4.1.1 e)]:

Low ambient temperature precautions (4.4.10.4):

Special winterizing requirements (8.1.15):

Machine net weight (8.1.5): lbs

Special tools included in proposal (4.1.11, 8.1.13):

Machine proposed is in strict compliance with API 541 5th edition? (8.1.9) ○ Yes ○ No ○ List of applicable exceptions attached

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INDUCTION MOTOR
API 541 5th Edition -- DATASHEETS
U.S. CUSTOMARY UNITS
Page 1/4 **Motor Supplier Order Data**
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PURCHASE ORDER NO. 4-601-PO-11
REQ. / SPEC. NO. 4-601F-RQ / A8KM-PP-00-50668-A
REVISION NO. E | DATE 13-Sep-2023 | BY LL
REV. DATE 13-Sep-23 | PAGE 19 | OF 23 | Rev

○ ***AS-DESIGNED*** ● ***AS-BUILT*** E

1	USER	World Energy Paramount	APPLICATION	Recycle Oil Pumps Motor Drivers
2	LOCATION	Paramount, CA	SUPPLIER	GE / SULZER
3	PROJECT NAME	WORLD ENERGY RENEWABLES PROJECT	SUPPLIER REF. No.	2823140 E
4	SITE / PLANT	Paramount, CA	NUMBER of UNITS REQUIRED	Two (2)
5			MOTOR TAG No.(s)	18-P-359AM / BM

MOTOR RATING - ELECTRICAL AND PERFORMANCE DATA

6 Quantity 2 | Type / Model no. PKAF | Frame size / Designation 8212S | Motor power: ○ Utility-Grid ● ASD E

7 Nameplate power / RPM rating (4.2.1.1): 1250 ● HP ○ kW | 3576 RPM Full Load | 3600 RPM synchronous | 2 Poles E

8 Nameplate Voltage/Ph/Hz rating (4.2.1.2): 4000 Volts (4.2.1.2) | 3 Phase | 60 Hertz E

9 Insulation class [4.3.1.1 a)]: ***Class F*** | Temperature rise [4.3.1.1 b)]: ***Class B*** | Enclosure (4.4.1.2): TEAAC / IP55 E

10 Full-Load torque (FLT) 1834 ft-lb | Percent FLT at: Locked-Rotor (LRT) | Pull-Up (PUT) | Breakdown (BDT) 175 E

11 **Expected Data [8.1.3 f)] at the following Loads (100% Voltage):**

12 Load Point:	Locked-Rotor	50%	75%	100%	Other:	Data is:
13 Efficiency:	%	94.5 %	95.1 %	95.2 %	%	● Calculated E
14 Power Factor:	%	88 %	90 %	91 %	%	○ Previously tested unit E
15 Current:	Amps	80.9 Amps	117.5 Amps	155 Amps	Amps	○ Tested this order E

16 Guaranteed efficiency [8.1.3 f)] % Efficiency at % Load | Efficiency determination test method [8.1.3 f)]: IEEE 112 F1 E

17 For reciprocating loads [8.1.3 f)] % Efficiency at % Load with % Current pulsation | Max. current variation [8.1.3 g)]: A

18 For motors operating on ASD power [8.1.3 f)]: Base frequency(ies) and harmonics assumed in the supply waveform(s) [8.1.3 f)]:

19 Curve No.'s [8.1.3 a), b)]: Speed-Torque SC2823140 | Speed-Current SC2823140 | Speed-Power Factor SC2823140 E

20 When specified: Calculated rotor-response curve no. [8.6.2 b)]: | Acceleration curve No. TL2823140 E

21 Acceleration time [8.1.3 d)]: At rated voltage: sec. | At minimum starting voltage/MVA: sec. | At % Voltage Sec

22 Thermal capacity / limit curve no. (4.2.4.2) TL2823140 | Rotor inertia - Wk^2 [8.1.3 c)] 208 $lb\text{-}ft^2$ E

23 Locked-Rotor withstand time, cold [4.2.4.2 a); 8.1.3 e)] at 100% Voltage Sec | at 80% voltage Sec | at % voltage Sec

24 Locked-Rotor withstand time, hot [4.2.4.2 b); 8.1.3 e)] at 100% Voltage Sec | at 80% voltage Sec | at % voltage Sec

25 **Starting Capability (4.2.4.1):** Consecutive successful starts with : | Locked-Rotor current at 100 % Voltage Amps

26 Motor initially at ambient temperature ***3*** | Locked-Rotor current at 80 % Voltage Amps

27 Motor temp. above ambient but not exceeding rated operating temperature ***2*** | Locked-Rotor current at % Voltage Amps

28 Wait time after all consecutive starts exhausted [4.2.4.2 d), e)]: With motor running Minutes | With motor stopped Minutes

29 **Max. Sound Pressure Level (4.1.3)** ***85*** dBA @ 1 m., no-load ○ Other:

30 **Induction Motor Equivalent Circuit Data:** Phase-to-Phase resistance 0.2058 Ohms, @ 77 °F E

31 1070.5 kVA base at rated voltage and 77°F | Subtransient reactance X"d 2.57379025 | Total winding capacitance to ground 0.0031 uF E

32 Locked-Rotor at rated voltage:	Stator R	0.1363	Rotor R	0.2054	Magn R	- E
33	Stator X	2.1930	Rotor X	0.35825562	Magn X	74.653 E
34 Rated load at rated voltage:	Stator R	0.1363	Rotor R	0.0847	Magn R	- E
35	Stator X	2.3096	Rotor X	1.1954	Magn X	74.653 E

36 Residual Voltage Open-Circuit Time Constant: Motor Only 2.3766 sec. | With Surge Capacitors - sec. E

MOUNTING, WEIGHTS

37 **Mounting:** ● Horizontal foot mounted ○ Horizontal flange mounted with feet ○ Vertical foot mounted E

38 ○ Vertical flange mounted ○ Shaft down ○ Shaft up ● Solid shaft ○ Hollow shaft ○ Non-reverse ratchet

39 Flange type: | Flange bolt circle diameter:

40 ○ Soleplate furnished with motor ○ Baseplate furnished with motor ○ Adapter plate furnished with motor

41 **Weights:** Motor net: 13100 lbs. | Stator 5450 lbs. | Rotor 1550 lbs. | Shipping 13100 lbs. E

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○ ***AS-DESIGNED*** ● ***AS-BUILT*** E

BEARINGS, HOUSINGS AND SEALS

Bearings: Type: ● ***Hydrodynamic (4.4.7.1.1)*** ○ Antifriction (4.4.7.1.3) AFBMA number(s):
● Split sleeve (4.4.7.1.1) Drive end: EMZLB 9S-100 E
○ Tilting pad (4.4.7.1.1) Non-drive end: EMZLB 9S-100 E
Hydrodynamic bearings: Oil rings included (4.4.8.1) ● Yes ○ No E
Bearing, drive end: Capable of self-lube ● Yes ○ No Manufacturer Renk Model / part no. EMZLB 9S-100 E
Bore diameter: Min 3.937 in. Max 3.938 in. Bore length 2.559 in. Type Sleeve E
Design clearance with Shaft: Min 0.0048 in. Max 0.0072 in. Bearing loading: 79.77 PSI E
Bearing, non-drive end: Capable of self-lube ● Yes ○ No Manufacturer Renk Model / part no. EMZLB 9S-100 E
Bore diameter: Min 3.937 in. Max 3.938 in. Bore length 2.559 in. Type Sleeve E
Design clearance with shaft: Min 0.0048 in. Max 0.0072 in. Bearing loading: 79.77 PSI E

○ Special seals for gas purge [4.4.7.3 a)] ○ Non-conducting seals [4.4.7.3 b)] ○ Other seal type

Thrust bearing: ○ Antifriction (4.4.7.1.5) ○ Hydrodynamic (4.4.7.1.10) Bearing loading: PSI
Thrust bearing load capability (4.4.7.1.11) Downthrust Momentary lbs Upthrust Momentary lbs
Continuous lbs Continuous lbs
Position: ○ Non-drive end ○ Drive end Manufacturer Model / part no.

LUBRICATION SYSTEM

● ***Hydrodynamic Bearing Ring Type Self Lubrication (4.4.8.1)*** ● Constant-level oilers (4.4.7.2.2) E
○ Pressurized lube (4.4.8.1, 4.4.8.4) Oil rings provided: ● Yes ○ No Bearings designed to operate w/o lube system: ○ Yes ○ No E
○ Common with driven eqpt. (4.4.8.4) System supplied by (4.4.8.4): ○ Driven eqpt. supplier ○ End user ○ Motor supplier ○ Other
○ Motor only lube system Required / recommended type/viscosity of oil (4.4.8.5; 4.4.8.8): ISO VG 32 (150 SSU AT 100 °F) E
Total bearing oil requirements (8.1.4): GPM PSI Heat loss to be removed per bearing kW
○ Motor prepared for supplemental purge oil mist (4.4.7.4.1) Other lube system information:
○ Antifriction bearings: ○ Grease Type:
○ Pure oil mist (4.4.7.4.5) ○ Oil mist ready or ○ Oil mist provisions only
Grease removal required before operation with oil mist? ○ Yes ○ No
○ Vertical motor bearings: Thrust bearing: Guide bearing: Mfgr. recommended lubricant:
○ Oil sump lubrication ○ Oil sump lubrication Type/viscosity of oil:
○ Grease lubrication ○ Grease lubrication Grease type:

VIBRATION DETECTORS

● **Non-contact Shaft Probes (5.8.1):** Number per bearing: ***TWO (2) (5.8.1)*** ○ Four (4) (5.8.2)
Shaft Probes: ○ Provisions ● Installed Manufacturer: Bently Nevada Model: 330105 02 12 05 02 05 E
Phase reference probe (5.8.1): ○ Provisions ● Installed Manufacturer: Bently Nevada Model: 330105 02 12 05 02 05 E
Oscillator-Demodulators: ○ Provisions ● Installed Manufacturer: Bently Nevada Model: 330180-51-05 E

○ **Bearing Housing Seismic Sensors (5.8.3):** ○ Per API 670 (5.8.3)
Sensor: ○ Provisions ○ Installed Type: Manufacturer: Model:
Vibration Switch: ○ Provisions ○ Installed Type: Manufacturer: Model:
D.E. bearing Qty.: Position(s): ○ Horizontal ○ Vertical ○ Axial ○ Other:
N.D.E. bearing Qty.: Position(s): ○ Horizontal ○ Vertical ○ Axial ○ Other:

Recommended Vibration Settings: Alarm Shutdown Inches per sec. ○ Other
Alarm 4 Shutdown 5 Mils. ○ Other E
Frequency of shaft resonance closest to operating speed: 59 Hertz E

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○ ***AS-DESIGNED*** ○ ***AS-BUILT***

ACCESSORIES & SETTINGS

Heaters: Single voltage design: Dual voltage design (if specified):

	Operating voltage	kW	Phase	Operating voltages	kW	Phase	Sheath material	
● Frame heaters (5.4.1; 5.4.2; 5.4.3):	120	0.22	1	/			Stainless Steel	E
● Main t/box heaters:	120	0.11	1	/			Stainless Steel	E
○ Bearing heaters (4.4.8.3):				/				

Temperature Detectors:

Winding Temperature Detectors (5.2): ● ***RTD-Platinum, 3 Wire, 100 Ohms at 0°C (5.2.1.1)*** No.per phase (5.2.1.2): **Three (3)** ○ Other

○ Other RTD material: Wires: Resistance: No.per phase (5.2.1.2): ***Three (3)*** ○ Other

○ One common lead each element grounded in box. (5.2.1.2)

○ Thermocouples: Type: No.per phase (5.2.1.2): ***Three (3)*** ○ Other

○ Other

Recommended Settings: Alarm: 135 °C Shutdown: 140 °C E

Bearing Temperature Detectors (5.3): ***RTD - Platinum, 3 Wire, 100 Ohms at 0°C; One (1) Per Bearing for Hydrodynamic & Thrust Bearings (5.3.1)***

○ Other qty. per bearing ● Dual element used ○ Installed per API 670 (5.3.1) ○ One (1) common lead grounded ○ Provisions only E

○ Other RTD material: Wires: Resistance: ○ Other info:

○ Thermocouples: Type:

○ Dial type thermometers (4.4.7.1.16): Type ○ Alarm contacts Number of contacts ○ NO ○ NC

Antifriction bearings: ○ Above selections applied to antifriction bearings

Recommended Settings: Alarm: 90 °C Shutdown: 100 °C E

Enclosure Accessories

WP-II, WP-I, DPG/ODP (4.4.1.2.2) Air filters: ○ Provided (5.5.4): ***Required for WP-II (5.5.3)*** ○ Air filters not provided (5.5.4)

Filter capability (5.5.4): ***90% of particles > 10 micron*** ○ Other ○ Air filter provisions only (5.5.2)

Filter manufacturer: Type: Model:

Differential pressure device (5.5.5): ***Provisions Required for WP-II*** ○ Provisions only supplied ○ Device not provided

○ Differential pressure switch provided (5.5.5): ○ Differential pressure gauge provided (5.5.5) ○ Combination switch / gauge provided

Device manufacturer: Type: Model:

Recommended Settings for Differential Pressure Switch: Alarm: Shut-Down:

TEAAC Enclosure (4.4.1.2.3) Heat exchanger tube materials [4.4.10.8 a)]: Aluminum E

Heat exchanger tube materials [4.4.10.8 b)]: ***90-10 Cu-Ni*** ○ Other

Tube construction [4.4.1.2.4 d); 4.4.10.8 b), c)]: ***Single tube*** ○ Double tube

Leak detection [4.4.1.2.4 c)]: ***Required*** Double tube leak detection: ***Inner tubes only*** ○ Outer also

Cooler location/orientation [4.4.1.2.4 c)]: ○ Redundant coolers [4.4.1.2.4 b)]

Water flow (GPM): Max Min Water pressure (PSI): Max Min

○ Flow sensor local indicator provided [4.4.1.2.4 g)] ○ Provisions only Manufacturer: Type: Model:

○ Relay contacts provided: ○ Normally open ○ Normally closed

High flow alarm set point GPM Low flow shutdown set point GPM

○ Cooler air inlet & outlet temperature sensor [4.4.1.2.4 h)]: ***Required*** Manufacturer: Type: Model:

Sensor type:

○ Cooling water conditions per 4.4.1.2.4 a] ○ Water/Glycol solution ○ Other cooling water conditions (purchaser specified)

When enclosure pre-start purging is specified, supplier defined max. allowable pressure [4.4.1.1 e)]:

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INDUCTION MOTOR
API 541 5th Edition -- DATASHEETS
U.S. CUSTOMARY UNITS
Page 4/4 **Motor Supplier Order Data**
Bold Italics = Indicate Default Selection

JOB NO.	A8KM	ITEM / TAG NO.	18-P-359A/B		
PURCHASE ORDER NO.	4-601-PO-11				
REQ. / SPEC. NO.	4-601F-RQ / A8KM-PP-00-50668-A				
REVISION NO.	E	DATE	13-Sep-2023	BY	LL
REV. DATE	13-Sep-23	PAGE	22	OF	23

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STATOR WINDING AND ROTOR REPAIR DATA

1	**Stator Coil Information [8.6.2 d), reference Annex G]:**	Coil dimensional drawing no.:	Not available - GE protected data								E
2	Total copper weight:	671	lbs.	Copper strand size:	0.212" x 0.083"	Insulation:	Class F				E
3	Number of strands per coil turn:	2		Number of turns per coil:	12						E
4	Turn insulation description:	Mica Type									E
5	Ground-Wall insulation description:	Mica Type + VPI									E
6	Thickness turn insulation:	-	mils	Thickness strand insulation:	5	mils	Thickness groundwall insulation:	120	mils		E
7	Coil configuration:	1	Rows by	2	Columns						E
8	Finished coil dimension in slot, W x H x L (also give tolerances):	0.560" x 2.610" x 44.409"									E
9	Total number of stator slots:	48	Winding throw:	14		Winding connection:	Wye				E
10	Slot filler description - thickness:	Top	30	mils	Side	-	mils	Middle	30	mils	Slot dimensions:	2.620" x 0.575"	E
11	Slot wedge material:	Epoxy resin impregnated fiberglass				Magnetic slot wedges:	● No	○ Yes			E
12	Stator bore diameter:	26.750"		Stress grading description if applicable:	NA						E
13	Special end-turn racing:	Reinforced									E
14	Other:										

15	**Rotor Information:**	Total Conductor Weight:	377	lbs.	Number of Bars:	40	Strand or bar size:	26" (Length)	E
16	Conductor material:	Cu	Ring material:	Cu			Retaining ring alloy, if applicable:	Yes	E
17	Shaft material:	AISI 4140	Ring dimensions premachining:	14.25" (outer diameter) x 2.5" (depth) x 3.0" (thickness)					E

18 **Notes:**

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