

**CENTRIFUGAL PUMP API-610**  
**DATA SHEET**  
**US Customary & SI UNITS**

JOB NO. \_\_\_\_\_ ITEM NO. \_\_\_\_\_  
 REQ / SPEC No. \_\_\_\_\_ / \_\_\_\_\_  
 PURCH ORDER No. \_\_\_\_\_ DATE **21-Jun-17**  
 INQUIRY No. \_\_\_\_\_ BY \_\_\_\_\_

1 APPLICABLE TO:  PROPOSAL  PURCHASE  AS BUILT

2 FOR: **CEYLON PETROLEUM CORPORATION** UNIT: **79**

3 SITE: **OIL REFINERY, SAPUGASKANDA** SERVICE: **FRESH WATER**

4 NO. REQ \_\_\_\_\_ PUMP SIZE \_\_\_\_\_ TYPE: \_\_\_\_\_ NO. STAGES **SINGLE**

5 MANUFACTURER \_\_\_\_\_ MODEL: \_\_\_\_\_ SERIAL No. \_\_\_\_\_

6 NOTES: INFORMATION BELOW TO BE COMPLETED  BY PURCHASER  BY MANUFACTURER  BY MANUFACTURER OR PURCHASER

7  **GENERAL**

8 PUMPS TO OPERATE IN (PARALLEL) No. MOTOR DRIVEN \_\_\_\_\_ No. TURBINE DRIVEN \_\_\_\_\_

9 (SERIES) WITH \_\_\_\_\_ PUMP ITEM No. \_\_\_\_\_ PUMP ITEM No. \_\_\_\_\_

10 GEAR ITEM No. \_\_\_\_\_ MOTOR ITEM No. \_\_\_\_\_ TURBINE ITEM No. \_\_\_\_\_

11 GEAR PROVIDED BY \_\_\_\_\_ MOTOR PROVIDED BY \_\_\_\_\_ TURBINE PROVIDED BY \_\_\_\_\_

12 GEAR MOUNTED BY \_\_\_\_\_ MOTOR MOUNTED BY \_\_\_\_\_ TURBINE MOUNTED BY \_\_\_\_\_

13 GEAR DATA SHT. No. \_\_\_\_\_ MOTOR DATA SHT. No. \_\_\_\_\_ TURBINE DATA SHT. No. \_\_\_\_\_

14 **OPERATING CONDITIONS** **SITE AND UTILITY DATA (COT'D)**

15  CAPACITY NORMAL **104.2 (m<sup>3</sup>/h)** RATED \_\_\_\_\_ (m<sup>3</sup>/h)

16 OTHER \_\_\_\_\_

17  SUCTION PRESSURE MAX/RATED **15.2 (PSIA)**

18  DISCHARGE PRESSURE **65.2 (PSIA)**

19  DIFERENTIAL PRESSURE **50 (PSI)**

20  DIFF. HEAD \_\_\_\_\_ (m) NPSHA **25 (ft)**

21  PROCESS VARIATIONS \_\_\_\_\_

22  STARTING CONDITIONS \_\_\_\_\_

23 SERVICE:  CONT.  INTERMITTENT (STARTS/DAY) \_\_\_\_\_

24  PARALLEL OPERATION REQ'D

25  **SITE AND UTILITY DATA**

26 **LOCATION:**

27  INDOOR  HEATED  UNDER ROOF

28  OUTDOOR  UNHEATED  PARTIAL SIDES

29  GRADE  MEZZANINE  \_\_\_\_\_

30  ELECTRICAL AREA CLASSIFICATION \_\_\_\_\_

31 CL \_\_\_\_\_ GR \_\_\_\_\_ DIV \_\_\_\_\_

32  WINTERIZATION REQ'D  TROPICALIZATION REQ'D.

33 **SITE DATA**

34  ALTITUDE **25.6 (m)** BAROMETER **1 (BAR)**

35  RANGE OF AMBIENT TEMP: MIN/MAX. **20 / 40 (°C)**

36  RELATIVE HUMIDITY: MIN / MAX **90 / 98 (%)**

37 **UNUSUAL CONDITIONS:**  DUST  FUMES

38  OTHER \_\_\_\_\_

39  **UTILITY CONDITIONS:**

40 **STEAM:** DRIVERS HEATING

41 MIN.: \_\_\_\_\_ (Kg/cm<sup>2</sup>) (°C) \_\_\_\_\_ (Kg/cm<sup>2</sup>) (°C)

42 MAX.: \_\_\_\_\_ (Kg/cm<sup>2</sup>) (°C) \_\_\_\_\_ (Kg/cm<sup>2</sup>) (°C)

43 **ELECTRICITY** DRIVERS HEATING CONTROL SHUTDOWN

44 VOLTAGE: **415** \_\_\_\_\_

45 HERTZ: **50** \_\_\_\_\_

46 PHASE: **3** \_\_\_\_\_

47 **COOLING WATER:**

48 TEMP. INLET \_\_\_\_\_ (°C) MAX. RETURN \_\_\_\_\_ (°C)

49 NORM PRESS. \_\_\_\_\_ (BARG) DESIGN \_\_\_\_\_ (PSIG)

50 MIN RETORNO \_\_\_\_\_ (BARG) MAX ALLOW DP \_\_\_\_\_ (PSI)

WATER SOURCE \_\_\_\_\_

CHLORIDE CONCENTRATION (PPMW) \_\_\_\_\_

INSTRUMENT AIR: MAX / MIN PRESS \_\_\_\_\_ / \_\_\_\_\_ (Kg/cm<sup>2</sup>)

**LIQUID**

TYPE OR NAME OF LIQUID **FRESH WATER**

PUMPING TEMPERATURE:

NORMAL **90 (°F)** MAX \_\_\_\_\_ (°C) MIN \_\_\_\_\_ (°C)

VAPOR PRESSURE \_\_\_\_\_ (PSIA) \_\_\_\_\_ (°C)

RELATIVE DENSITY (SPECIFIC GRAVITY):

NORMAL **1.0** MAX \_\_\_\_\_ MIN \_\_\_\_\_

SPECIFIC HEAT, Cp \_\_\_\_\_ (Kcal/kg°C)

VISCOSITY \_\_\_\_\_ (cSt) @ \_\_\_\_\_ (°C)

MAX. VISCOSITY \_\_\_\_\_ (Cp)

CORROSIVE/EROSIVE AGENT \_\_\_\_\_

CHLORIDE CONCENTRATION (PPMW) \_\_\_\_\_

H<sub>2</sub>S CONCENTRATION (PPMW) \_\_\_\_\_

LIQUID  HAZARDOUS  FLAMMABLE

OTHER \_\_\_\_\_

**PERFORMANCE**

PROPOSAL CURVE No. \_\_\_\_\_  RPM \_\_\_\_\_

IMPELLER DIA RATED \_\_\_\_\_ MAX \_\_\_\_\_ MIN \_\_\_\_\_ (mm)

RATED POWER \_\_\_\_\_ (BHP) EFFICIENCY \_\_\_\_\_ (%)

MINIMUM CONTINUOUS FLOW:

THERMAL \_\_\_\_\_ (m<sup>3</sup>/h) STABLE \_\_\_\_\_ (m<sup>3</sup>/h)

PREFERRED OPERATING REGION \_\_\_\_\_ TO \_\_\_\_\_ (m<sup>3</sup>/h)

ALLOWABLE OPERATING REGION \_\_\_\_\_ TO \_\_\_\_\_ (m<sup>3</sup>/h)

MAX HEAD @ RATED IMPELLER \_\_\_\_\_ (m)

MAX POWER @ RATED IMPELLER \_\_\_\_\_ (kw)

NPSHR AT RATED CAPACITY \_\_\_\_\_ (m)

SUCTION SPECIFIC SPEED \_\_\_\_\_

MAX. SOUND PRESS. LEVEL REQ'D \_\_\_\_\_ (dBA)

EST MAX. SOUND PRESS. LEVEL \_\_\_\_\_ (dBA)

REMARKS: \_\_\_\_\_

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1 CONSTRUCTION	CONSTRUCTION (CONT)
2 <b>APPLICABLE STANDARD:</b>	<input type="checkbox"/> SHAFT DIAMETER BETWEEN BEARINGS _____ (mm)
3 <input checked="" type="radio"/> <b>API 610 10TH EDITION OR LATEST</b>	<input type="checkbox"/> SPAN BETWEEN BEARING CENTERS _____ (mm)
4 <input type="radio"/> OTHER _____ (SEE REMARKS)	<input type="checkbox"/> SPAN BETWEEN BEARING & IMPELLER _____ (mm)
5 <b>PUMP TYPE:</b>	<b>REMARKS:</b> _____
6 <input type="checkbox"/> OH2 <input type="checkbox"/> BB1 <input type="checkbox"/> VS1 <input type="checkbox"/> VS6	_____
7 <input type="checkbox"/> OH3 <input type="checkbox"/> BB2 <input type="checkbox"/> VS2 <input type="checkbox"/> VS7	_____
8 <input type="checkbox"/> OH6 <input type="checkbox"/> BB3 <input type="checkbox"/> VS3 <input type="checkbox"/> OTHER	_____
9 <input type="checkbox"/> BB4 <input checked="" type="radio"/> <b>VS4</b>	<b>COUPLINGS:</b> DRIVER-PUMP
10 <input type="checkbox"/> BB5 <input type="checkbox"/> VS5	<input type="radio"/> MAKE _____
11 <input type="checkbox"/> <b>NOZZLE CONDITIONS:</b>	<input type="checkbox"/> MODEL _____
12	<input type="checkbox"/> RATING (KW/100 RPM) _____
13	<input type="checkbox"/> LUBRICATION <b>GREASE</b>
14	<input type="checkbox"/> LIMITED END FLOAT REQUIRED _____
15	<input type="checkbox"/> SPACER LENGHT _____ (mm)
16	<input type="checkbox"/> SERVICE FACTOR _____
17	<b>DRIVER HALF COUPLING MOUNTED BY:</b>
18	<input checked="" type="radio"/> <b>PUMP MFR.</b> <input type="radio"/> DRIVER MFR. <input type="radio"/> PURCHASER
19	<input checked="" type="radio"/> <b>COUPLING PER API671</b>
20	<b>BASEPLATES:</b>
21	<input type="radio"/> API BASEPLATE NUMBER _____
22	<input type="radio"/> NON-GROUT CONSTRUCTION
23	<b>REMARKS:</b> _____
24	_____
25	_____
26	<b>MATERIAL</b>
27	<input checked="" type="radio"/> <b>CLASS</b> <b>I-1 or I-2</b>
28	<input type="radio"/> MIN DESIGN METAL TEMP _____ (°C)
29	<input type="checkbox"/> BARREL/CASE _____ IMPELLER _____
30	<input type="checkbox"/> CASE/IMPELLER WEAR RING _____
31	<input type="checkbox"/> SHAFT _____
32	<input type="checkbox"/> DIFFUSERS _____
33	<input type="checkbox"/> COUPLING SPACER/HUBS _____
34	<input type="checkbox"/> COUPLING DIAPHRAGMS (DISKS) _____
35	<b>REMARKS:</b> _____
36	_____
37	_____
38	_____
39	_____
40	<b>BEARINGS AND LUBRICATION</b>
41	<b>BEARING (TYPE / NUMBER):</b>
42	<input type="checkbox"/> RADIAL _____ / _____
43	<input type="checkbox"/> THRUST _____ / _____
44	<input type="checkbox"/> REVIEW AND APPROVE THRUST BEARING SIZE
45	<b>LUBRICATION:</b>
46	<input checked="" type="checkbox"/> GREASE <input type="checkbox"/> FLOOD <input type="checkbox"/> RING OIL
47	<input checked="" type="checkbox"/> FLINGER <input type="checkbox"/> PURGE OIL MIST <input type="checkbox"/> PURE OIL MIST
48	<input type="checkbox"/> CONSTANT LEVEL OILER PREFERENCE (SEE REMARKS)
49	<input type="checkbox"/> PRESSURE LUBE SYS <input type="radio"/> API-610 <input type="radio"/> API-614
50	<input type="checkbox"/> OIL VISC. ISO GRADE _____
51	<b>REMARKS:</b> <b>(1) The pump shall be supplied with a suitable suction strainer(s).</b>
	<b>(2) Minimum required submergence value is 2" - 3" above the underside of the strainer.</b>
	<b>(3) Vertical distance from underside of the base plate to underside of the strainer shall be 13' 3".</b>

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<p>1 <b>BEARINGS AND LUBRICATION (CONT)</b></p> <p>2 <input type="radio"/> OIL HEATER REQ'D <input type="radio"/> ELECTRIC <input type="radio"/> STEAM</p> <p>3 <input type="radio"/> OIL PRESS TO BE GREATER THAN COOLANT PRESS</p> <p>4 REMARKS: _____</p> <p>5 _____</p> <p>6 _____</p> <p>7 <b>MECHANICAL SEAL OR PACKING</b></p> <p>8 <b>SEAL DATA:</b></p> <p>9 <input type="radio"/> SEE ATTACHED API-682 DATA SHEET</p> <p>10 <input type="radio"/> NON API-682 SEAL</p> <p>11 <input type="radio"/> SEAL CODE _____</p> <p>12 <input type="radio"/> SEAL MANUFACTURER _____</p> <p>13 <input type="radio"/> SIZE AND TYPE _____ / _____</p> <p>14 <input type="radio"/> MANUFACTURER CODE _____</p> <p>15 <b>SEAL CHAMBER DATA:</b></p> <p>16 <input type="radio"/> TEMPERATURE _____ (°C)</p> <p>17 <input type="radio"/> PRESSURE _____ (Kg/cm<sup>2</sup>)</p> <p>18 <input type="radio"/> FLOW _____ (m<sup>3</sup>/h)</p> <p>19 <input type="checkbox"/> SEAL CHAMBER SIZE _____</p> <p>20 <input type="checkbox"/> TOTAL LENGTH (in) <input type="checkbox"/> CLEAR LENGTH (mm)</p> <p>21 <b>SEAL CONSTRUCTION:</b></p> <p>22 <input type="checkbox"/> SLEEVE MATERIAL _____</p> <p>23 <input type="checkbox"/> GLAND MATERIAL _____</p> <p>24 <input type="radio"/> AUX SEAL DEVICE _____</p> <p>25 <input type="radio"/> JACKET REQUIRED _____</p> <p>26 <b>GLAND TAPS:</b></p> <p>27 <input type="checkbox"/> FLUSH (F) <input type="checkbox"/> DRAIN (D) <input type="checkbox"/> BARRIER/BUFF (B)</p> <p>28 <input type="checkbox"/> QUENCH (Q) <input type="checkbox"/> COOLING (C) <input type="checkbox"/> LUBRICATION (G)</p> <p>29 <input type="checkbox"/> HEATING (H) <input type="checkbox"/> LEAKAGE <input type="checkbox"/> PUMPED FLUID (P)</p> <p>30 <input type="checkbox"/> BALANCE FLUID (E) <input type="checkbox"/> EXTERNAL FLUID INJECTION (X)</p> <p>31 <b>SEAL FLUIDS REQUIREMENT AND AVAILABLE FLUSH LIQUID:</b></p> <p>32 NOTE: IF FLUSH LIQUID IS PUMPAGE LIQUID (AS IN FLUSH PIPING</p> <p>33 PLANS 11 TO 41), FOLLOWING FLUSH LIQUID DATA IS NOT REQ'D.</p> <p>34 <input type="radio"/> SUPPLY TEMPERATURE MAX/MIN _____ / _____ (°C)</p> <p>35 <input type="radio"/> RELATIVE DENSITY (SPECIFIC GRAVITY) _____ @ _____ (°C)</p> <p>36 <input type="radio"/> NAME OF FLUID _____</p> <p>37 <input type="radio"/> SPECIFIC HEAT, Cp _____ (KJ/Kg°C)</p> <p>38 <input type="radio"/> VAPOR PRESSURE _____ (Kpa abs) @ _____ (°C)</p> <p>39 <input type="radio"/> HAZARDOUS <input type="radio"/> FLAMMABLE <input type="radio"/> OTHER _____</p> <p>40 <input type="checkbox"/> FLOW RATE MAX/MIN _____ / _____ (m<sup>3</sup>/h)</p> <p>41 <input type="checkbox"/> PRESSURE REQ'D MAX/MIN _____ / _____ (Kg/cm<sup>2</sup>)</p> <p>42 <input type="checkbox"/> TEMPERATURE REQ'D MAX/MIN _____ / _____ (°C)</p> <p>43 <b>BARRIER/BUFFER FLUID</b></p> <p>44 <input type="radio"/> SUPPLY TEMPERATURE MAX/MIN _____ / _____ (°C)</p> <p>45 <input type="radio"/> RELATIVE DENSITY (SPECIFIC GRAVITY) _____ @ _____ (°C)</p> <p>46 <input type="radio"/> NAME OF FLUID _____</p> <p>47 <b>ADDITIONAL REMARKS:</b> _____</p> <p>48 _____</p> <p>49 _____</p> <p>50 _____</p> <p>51 _____</p>	<p><b>MECHANICAL SEAL OR PACKING (CONT)</b></p> <p><input type="radio"/> VAPOR PRESSURE _____ (Kg/cm<sup>2</sup>) _____ (°C)</p> <p><input type="radio"/> HAZARDOUS <input type="radio"/> FLAMMABLE <input type="radio"/> OTHER _____</p> <p><input type="checkbox"/> FLOW RATE MAX/MIN _____ / _____ (m<sup>3</sup>/h)</p> <p><input type="checkbox"/> PRESSURE REQ'D MAX/MIN _____ / _____ (Kg/cm<sup>2</sup>)</p> <p><input type="checkbox"/> TEMPERATURE REQ'D MAX/MIN _____ / _____ (°C)</p> <p><b>QUENCH FLUID:</b></p> <p><input type="radio"/> NAME FLUID _____</p> <p><input type="checkbox"/> FLOW RATE _____ (m<sup>3</sup>/h)</p> <p><b>SEAL FLUSH PIPING:</b></p> <p><input type="radio"/> SEAL FLUSH PIPING PLAN _____</p> <p><input type="checkbox"/> TUBING <input type="checkbox"/> CARBON STEEL</p> <p><input type="checkbox"/> PIPE <input type="checkbox"/> STAINLESS STEEL</p> <p><input type="radio"/> AUXILIARY FLUSH PLAN _____</p> <p><input type="checkbox"/> TUBING <input type="checkbox"/> CARBON STEEL</p> <p><input type="checkbox"/> PIPE <input type="checkbox"/> STAINLESS STEEL</p> <p><input type="radio"/> PIPING ASSEMBLY:</p> <p><input checked="" type="checkbox"/> THREADED <input checked="" type="checkbox"/> UNIONS <input checked="" type="checkbox"/> SOCKET WELDED</p> <p><input type="checkbox"/> FLANGED <input type="checkbox"/> TUBE TYPE FITTINGS</p> <p><input type="checkbox"/> PRESSURE SWITCH (PLAN 52/53) TYPE _____</p> <p><input type="checkbox"/> PRESSURE GAUGE (PLAN 52/53)</p> <p><input type="checkbox"/> LEVEL SWITCH (PLAN 52/53) TYPE _____</p> <p><input type="checkbox"/> LEVEL GAUGE (PLAN 52/53)</p> <p><input type="checkbox"/> TEMP INDICATOR (PLAN 21, 22, 23, 32, 41)</p> <p><input type="checkbox"/> HEAT EXCHANGER (PLAN 52/53)</p> <p>REMARKS: _____</p> <p>_____</p> <p>_____</p> <p><b>PACKING DATA:</b></p> <p>MANUFACTURER _____</p> <p>TYPE _____</p> <p>SIZE _____ No. OF RINGS _____</p> <p><input type="checkbox"/> PACKING INJECTION REQUIRED</p> <p><input type="checkbox"/> FLOW _____ (m<sup>3</sup>/h) @ _____ (°C)</p> <p><input type="checkbox"/> LANTERN RING _____</p> <p><b>STEAM AND COOLING WATER PIPING</b></p> <p><input type="radio"/> COOLING WATER PIPING PLAN _____</p> <p><input type="radio"/> COOLING WATER REQUIREMENTS</p> <p><input type="radio"/> SEAL JACKET/BRG HSG _____ (m<sup>3</sup>/h) @ _____ (Kg/cm<sup>2</sup>)</p> <p><input type="radio"/> SEAL HEAT EXCHANGER _____ (m<sup>3</sup>/h) @ _____ (Kg/cm<sup>2</sup>)</p> <p><input type="radio"/> QUENCH _____ (m<sup>3</sup>/h) @ _____ (Kg/cm<sup>2</sup>)</p> <p>TOTAL COOLING WATER _____ (m<sup>3</sup>/h)</p> <p><input type="radio"/> STEAM PIPING <input type="radio"/> TUBING <input type="radio"/> PIPE</p> <p>REMARKS: _____</p> <p>_____</p> <p>_____</p>
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<p>1 <b>INSTRUMENTATION</b></p> <p>2 <b>VIBRATION:</b></p> <p>3 <input type="radio"/> NON CONTACTING (API-670)    <input type="radio"/> TRANSDUCER</p> <p>4 <input type="radio"/> PROVISION FOR MOUNTING ONLY</p> <p>5 <input type="radio"/> FLAT SURFACE REQ'D</p> <p>6 <input type="radio"/> SEE ATTACHED API-670 DATA SHEET</p> <p>7 <input type="radio"/> MONITORS AND CABLES</p> <p>8 <b>REMARKS:</b> _____</p> <p>9 _____</p> <p>10 _____</p> <p>11 <b>TEMPERATURE AND PRESSURE:</b></p> <p>12 <input type="radio"/> RADIAL BRG METAL TEMP    <input type="radio"/> THRUST BRG METAL TEMP</p> <p>13 <input type="radio"/> PROVISION FOR INSTRUMENTS ONLY</p> <p>14 <input type="radio"/> SEE ATTACHED API-670 DATA SHEET</p> <p>15 <input type="radio"/> TEMP GAUGES (WITH THERMOWELLS)</p> <p>16    OTHER _____</p> <p>17 <input type="radio"/> PRESSURE GAUGE TYPE _____</p> <p>18    LOCATION _____</p> <p>19 <b>REMARKS:</b> _____</p> <p>20 _____</p> <p>21 _____</p>	<p><b>MOTOR DRIVE (CONT)</b></p> <p><b>REMARKS:</b> _____</p> <p>_____</p> <p>_____</p> <hr/> <p style="text-align: center;"><b>SURFACE PREPARATION AND PART</b></p> <p><input checked="" type="radio"/> <b>MANUFACTURER'S STANDARD</b></p> <p><input type="radio"/> OTHER (SEE BELOW)</p> <p><b>PUMP:</b></p> <p><input type="radio"/> PUMP SURFACE PREPARATION _____</p> <p><input type="radio"/> PRIMER _____</p> <p><input type="radio"/> FINISH COAT _____</p> <p><b>BASEPLATE:</b></p> <p><input type="radio"/> BASEPLATE SURFACE PREPARATION _____</p> <p><input type="radio"/> PRIMER _____</p> <p><input type="radio"/> FINISH COAT _____</p> <p><b>SHIPMENT:</b></p> <p><input type="radio"/> DOMESTIC    <input type="radio"/> EXPORT    <input checked="" type="radio"/> <b>EXPORT BOXING REQUIRED</b></p> <p><input type="radio"/> OUTDOOR STORAGE MORE THAN 6 MONTHS</p> <p><b>SPARE ROTOR ASSEMBLY PACKAGED FOR:</b></p> <p><input type="radio"/> HORIZONTAL STORAGE    <input type="radio"/> VERTICAL STORAGE</p> <p><input type="radio"/> TYPE OF SHIPPING PREPARATION _____</p> <p><b>REMARKS:</b> _____</p> <p>_____</p> <p>_____</p> <hr/> <p style="text-align: center;"><input type="checkbox"/> <b>WEIGHTS</b></p> <p><b>MOTOR DRIVEN:</b></p> <p>WEIGHT OF PUMP (Kg) _____</p> <p>WEIGHT OF BASEPLATE (Kg) _____</p> <p>WEIGHT OF MOTOR (Kg) _____</p> <p>WEIGHT OF GEAR (Kg) _____</p> <p>TOTAL WEIGHT (Kg) _____</p> <p><b>TURBINE DRIVEN:</b></p> <p>WEIGHT OF BASEPLATE (Kg) _____</p> <p>WEIGHT OF TURBINE (Kg) _____</p> <p>WEIGHT OF GEAR (Kg) _____</p> <p>TOTAL WEIGHT (Kg) _____</p> <p><b>REMARKS:</b> _____</p> <p>_____</p> <p>_____</p> <hr/> <p style="text-align: center;"><b>OTHER PURCHASE REQUIREMENTS</b></p> <p><input type="radio"/> COORDINATION MEETING REQUIRED</p> <p><input type="radio"/> REVIEW FOUNDATION DRAWINGS</p> <p><input type="radio"/> REVIEW PIPING DRAWINGS</p> <p><input type="radio"/> OBSERVE PIPING CHECKS</p> <p><input type="radio"/> OBSERVE INITIAL ALIGNMENT CHECK</p> <p><input type="radio"/> CHECK ALIGNMENT AT OPERATING TEMPERATURE</p> <p><input type="radio"/> CONNECTION DESIGN APPROVAL</p>
<p>22 <b>SPARE PARTS</b></p> <p>23 <input checked="" type="radio"/> START-UP    <input checked="" type="radio"/> NORMAL MAINTENANCE</p> <p>24 <input checked="" type="radio"/> SPECIFY <b>RECOMMENDED SPARES FOR 02 YEARS OPERATION</b></p> <p>25 <b>TO BE NOTED SEPERATELY</b></p> <p>26 _____</p> <p>27 <b>MOTOR DRIVE</b></p> <p>28 <input type="radio"/> MANUFACTURER <b>ABB / WEG / SIEMENS / CMG</b></p> <p>29 <input type="checkbox"/> _____ KW    <input type="checkbox"/> _____ (RPM)</p> <p>30 <input type="checkbox"/> HORIZONTAL    <input checked="" type="checkbox"/> <b>VERTICAL</b></p> <p>31 <input type="checkbox"/> FRAME _____</p> <p>32 <input type="radio"/> SERVICE FACTOR <b>1.1</b></p> <p>33 <input type="radio"/> VOLTS/PHASE/HERTZ <b>415 / 3 / 50</b></p> <p>34 <input type="radio"/> TYPE <b>INDUCTION</b></p> <p>35 <input type="radio"/> ENCLOSURE <b>TEFC</b></p> <p>36 <input type="radio"/> MINIMUM STARTING VOLTAGE _____</p> <p>37 <input type="radio"/> TEMPERATURE RISE _____</p> <p>38 <input type="radio"/> FULL LOAD AMPS _____</p> <p>39 <input type="radio"/> LOCKED ROTOR AMPS _____</p> <p>40 <input type="radio"/> INSULATION <b>F</b></p> <p>41 <input type="radio"/> STARTING METHOD <b>DOL</b></p> <p>42 <input type="radio"/> LUBE <b>GREASE</b></p> <p>43 <input type="checkbox"/> VERTICAL THRUST CAPACITY _____</p> <p>44    UP _____ (N) DOWN _____ (N)</p> <p>45 BEARINGS (TYPE / NUMBER):</p> <p>46 <input type="checkbox"/> RADIAL _____ / _____</p> <p>47 <input type="checkbox"/> THRUST _____ / _____</p> <p>48 <b>REMARKS:</b> _____</p> <p>49 _____</p> <p>50 _____</p> <p>51 _____</p>	

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 PURCH ORDER No. \_\_\_\_\_ DATE **21-Jun-17**  
 INQUIRY No. \_\_\_\_\_ BY \_\_\_\_\_

<p>1 <b>OTHER PURCHASER REQUIRMENTS (CONT)</b></p> <p>2 <input type="checkbox"/> RIGGING DEVICE REQ'D FOR TYPE OH3 PUMP</p> <p>3 <input type="checkbox"/> HYDRODYNAMIC THRUST BRG SIZE REVIEW REQ'D</p> <p>4 <input checked="" type="checkbox"/> LATERL ANALYSIS REQUIRED</p> <p>5 <input checked="" type="checkbox"/> ROTOT DYNAMIC BALANCE</p> <p>6 <input checked="" type="checkbox"/> MOUNT SEAL RESERVOIR OFF BASEPLATE</p> <p>7 <input checked="" type="checkbox"/> INSTALLATION LIST IN PROPOSAL</p> <p>8 <input type="checkbox"/> SPARE ROTOR VERTICAL STORAGE</p> <p>9 <input type="checkbox"/> TORSIONAL ANALYSIS / REPORT</p> <p>10 <input type="checkbox"/> PROGRESS REPORTS REQUIRED</p> <p>11 <b>REMARKS:</b> _____</p> <p>12 _____</p> <p>13 _____</p>	<p><b>QA INPECTION AND TEST (CONT)</b></p> <p><input type="checkbox"/> ADDITIONAL INSPECTION REQUIRED FOR:</p> <p style="padding-left: 20px;"><input type="checkbox"/> MAGNETIC PARTICLE      <input type="checkbox"/> LIQUID PENETRANT</p> <p style="padding-left: 20px;"><input type="checkbox"/> RADIOGRAPHIC            <input type="checkbox"/> ULTRASONIC</p> <p><input type="checkbox"/> ALTERNATE ACCEPTANCE CRITERIA (SEE REMARKS)</p> <p><input type="checkbox"/> HARDNESS TEST REQUIRED FOR:</p> <p>_____</p> <p><input type="checkbox"/> WETTING AGENT HYDROSTEST</p> <p><input type="checkbox"/> VENDOR SUBMIT TEST PROCEDURES</p> <p><input type="checkbox"/> RECORD FINAL ASSEMBLY RUNNING CLEARANCES</p> <p><input type="checkbox"/> INSPECTION CHECK-LIST (APPENDIX N) _____</p> <p><b>REMARKS:</b> _____</p> <p>_____</p>																																																																																																																
<p>14 <b>QA INSPECTION AND TEST</b></p> <p>15 <input type="checkbox"/> REVIEW VENDORS QA PROGRAM</p> <p>16 <input checked="" type="checkbox"/> <b>PERFORMANCE CURVE APPROVAL</b></p> <p>17 <input type="checkbox"/> SHOP INSPECTION</p> <p>18 <input checked="" type="checkbox"/> TEST WITH SUBTITUTE SEAL</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">TEST</th> <th style="width:15%;">NON-WIT</th> <th style="width:15%;">WIT</th> <th style="width:15%;">OBSERVED</th> </tr> </thead> <tbody> <tr> <td>20 HYDROSTATIC</td> <td style="text-align:center"><input checked="" type="checkbox"/></td> <td style="text-align:center"><input type="checkbox"/></td> <td style="text-align:center"><input type="checkbox"/></td> </tr> <tr> <td>21 PERFORMANCE</td> <td style="text-align:center"><input checked="" type="checkbox"/></td> <td style="text-align:center"><input type="checkbox"/></td> <td style="text-align:center"><input type="checkbox"/></td> </tr> <tr> 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