

ELECTRIC MOTOR DATA SHEET

SHT 1 OF 2

CLIENT Enbridge Pipelines (Athabasca) Inc.
 PROJECT Stonewall Terminal Project ITEM NO. 201-BUM-21
 FABR. SPEC _____ SERVICE Oilfield Booster Pump

MANUFACTURER _____ MODEL _____ SERIAL NO. _____
 NO. REQUIRED _____ DRIVEN EQUIPMENT Centrifugal Pump

MOTOR DESIGN DATA

| | |
|---|--|
| <p>APPLICABLE SPECIFICATIONS</p> <p>NEMA <u>CSA, NEMA-MG1, IEEE, API 541</u> OTHER <u>IEEE 27 - 2005</u></p> <p>SITE DATA</p> <p>ALT (m) <u>MAX 1000</u> AVG TEMP (°C) <u>MAX 40</u> MIN <u>-45</u> RELATIVE HUMIDITY (%) <u>MAX 100</u> MIN <u>10</u> <input type="checkbox"/> INDOORS <input checked="" type="checkbox"/> OUTDOORS <input type="checkbox"/> DUST <input type="checkbox"/> FUMES <input checked="" type="checkbox"/> OTHER <u>Cold, Dust, Hydrocarbon</u></p> <p>DRIVE SYSTEM</p> <p><input checked="" type="checkbox"/> DIRECT CONNECTED <input type="checkbox"/> GEAR <input type="checkbox"/> OTHER _____</p> <p>MOTOR</p> <p><input checked="" type="checkbox"/> SQUIRREL CAGE INDUCTION <input checked="" type="checkbox"/> NEMA DESIGN <u>9</u> <input type="checkbox"/> SYNCHRONOUS <input type="checkbox"/> POWER FACTOR REQ'D _____ <input type="checkbox"/> BRUSHLESS <input type="checkbox"/> SLIP RING <input type="checkbox"/> FIELD DISCHARGE RESISTOR BY MOTOR MFG _____ <input type="checkbox"/> WOUND ROTOR INDUCTION <input type="checkbox"/> OTHER _____</p> <p>ENCLOSURE</p> <p><input checked="" type="checkbox"/> CLASS <u>1</u> Zone <u>2</u> GROUP <u>IIA</u> <input type="checkbox"/> TEFC <input type="checkbox"/> EXPLOSION PROOF <input type="checkbox"/> WEATHER PROTECTED - I <input checked="" type="checkbox"/> WEATHER PROTECTED - II <input type="checkbox"/> FORCED VENTILATION <input type="checkbox"/> OPEN DRIP PROOF <input type="checkbox"/> TEWAC <input type="checkbox"/> OTHER _____</p> <p>BASIC DATA</p> <p><input checked="" type="checkbox"/> VOLTS <u>4800</u> PHASE <u>3</u> Hz <u>60</u> <input checked="" type="checkbox"/> NAMEPLATE HP (hp) <u>1750 (Note 1.0)</u> SERVICE FACTOR <u>1.15</u> <input checked="" type="checkbox"/> SYNCHRONOUS SPEED (rpm) <u>Match the Pump Requirement</u> <input checked="" type="checkbox"/> ROTATION <u>Match the Pump Requirement</u> <input checked="" type="checkbox"/> INSULATION CLASS <u>F</u> TYPE <u>VPI</u> <input checked="" type="checkbox"/> TEMP RISE (°C) <u>95 @ 1.15 S.F.</u> ABOVE (°C) <u>40</u> BY <u>RTD</u></p> <p>STARTING</p> <p><input type="checkbox"/> FULL VOLTAGE <input checked="" type="checkbox"/> REDUCED VOLT (%) <u>80</u> <input type="checkbox"/> LOADED <input type="checkbox"/> UNLOADED <input type="checkbox"/> VOLTAGE DIP (%) _____ <input type="checkbox"/> SYS IMPED (R % + X %) _____ @ _____ MVA _____ VOLT <input type="checkbox"/> XFORMER IMPED (Z %) _____ @ _____ MVA _____ VOLT PRIMARY VOLTAGE _____ SECOND VOLTAGE _____ <input checked="" type="checkbox"/> FEEDER TYPE <u>TECK</u> SIZE <u>400</u> NO. PHASE <u>3</u> LENGTH (ft) _____ <input type="checkbox"/> OTHER _____</p> | <p>VIBRATION</p> <p>NEMA STANDARD <u>API 541</u></p> <p>VIBRATION MONITORING</p> <p><input type="checkbox"/> PROBE TYPE _____ <input checked="" type="checkbox"/> PROVISION FOR PROGES <u>Metrix model No. S484E (Note 4.0)</u> <input type="checkbox"/> SWITCH</p> <p>NOISE</p> <p>NEMA STANDARD <u>IEEE 45 (less than 85dBA at 1 meter in any direction)</u></p> <p>THRUST</p> <p>MAX MOTOR THRUST (lb) _____</p> <p>ACCESSORY EQUIPMENT</p> <p><input type="checkbox"/> BASE PLATE <input type="checkbox"/> SOLE PLATE <input type="checkbox"/> STATOR SHFT <input type="checkbox"/> MFG STD FANS <input checked="" type="checkbox"/> NON-SPARKING FANS</p> <p>D.C. EXCITATION</p> <p>POWER (kW) _____ VOLTAGE (V) _____ BY <input type="checkbox"/> PURCHASER <input type="checkbox"/> MANUFACTURER DESCRIPTION _____</p> <p>ENCLOSED COLLECTOR RINGS <input type="checkbox"/> REQ'D <input type="checkbox"/> NOT REQ'D <input type="checkbox"/> PURGED MEDIUM _____ PRESS (psig) _____ <input type="checkbox"/> EXPLOSION RESISTANT, NONPURGED <input type="checkbox"/> FORCED VENTILATION FLOW (cfm) _____ PRESS DROP (in H2O) _____</p> <p>BEARING TEMPERATURE DEVICES <input checked="" type="checkbox"/> REQ'D <input type="checkbox"/> NOT REQ'D LOCATION <u>Per Specification</u> DESCRIPTION <u>3 wire 100 ohm platinum</u> ALARM SET @ (°C) _____ SHUTDOWN SET @ (°C) _____</p> <p>SPACE HEATERS <input checked="" type="checkbox"/> REQ'D <input type="checkbox"/> NOT REQ'D POWER (BTU/hr) _____ VOLT / PH / Hz <u>120 / 1 / 60</u> MAX SHEATH TEMP (°C) <u>200</u></p> <p>WINDING TEMPERATURE DETECTORS</p> <p><input type="checkbox"/> THERMISTORS (no phase) TEMP COEFFICIENT <input type="checkbox"/> POSITIVE <input type="checkbox"/> NEGATIVE <input type="checkbox"/> TEMPERATURE SWITCH <input checked="" type="checkbox"/> RESISTANCE TEMP DETECTORS (no phase) <u>2</u> RESISTANCE MATL <u>Platinum</u> OHMS <u>100</u> SELECTOR SWITCH & INDICATOR BY: <input type="checkbox"/> PURCHASER <input type="checkbox"/> MANUFACTURER</p> <p>MAXIMUM STATOR WINDING TEMPERATURES ALARM (°C) _____ SHUTDOWN (°C) _____</p> <p>WINDING TEMPERATURE DETECTOR / SPACE HEATER LEADS</p> <p><input type="checkbox"/> IN SAME TERMINAL BOX <input checked="" type="checkbox"/> IN SEPARATE TERMINAL BOXES</p> <p>MOTOR ARRANGED FOR DIFFERENTIAL PROTECTION</p> <p><input type="checkbox"/> SELF BALANCE PRIMARY CURRENT METHOD <input type="checkbox"/> C.T. DESCRIPTION _____ <input type="checkbox"/> EXTENDED LEADS LENGTH (ft) _____ <input type="checkbox"/> OTHER _____</p> |
|---|--|

REMARKS: INFORMATION TO BE COMPLETED BY: ☐ ENBRIDGE ☒ VENDOR

1.0 - Motor HP rating to be verified by Bidders.

2.0 - Motors shall be form wound. Any aluminum rotors shall be fabricated not cast.

3.0 - RTD's shall be 3 wire 100 ohm platinum with a temperature coefficient of 0.00385.

4.0 - Provide two 3/8" x 24NF threaded 1/2" deep tap & 1 1/2" dia. counter-bore machined surface, 90° apart near the top thrust bearing for mounting for Cummins Metrix S484E.

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|-------------------------------------|---|-----|-----------|-----------|------|------|
| Enbridge Pipelines (Athabasca) Inc. | JOB NO. <u>08-E-1324</u> DATA SHEET NO. <u>DS-201-BUM-21</u> | REV | DATE | BY | CHKD | APPR |
| | | 0 | Sep-20-05 | E. Droppo | | |
| | | 1 | Oct. 3-06 | E. Droppo | | |
| | | 2 | Dec-13-06 | E. Droppo | | |

ELECTRIC MOTOR DATA SHEET

SHT 2 OF 2

CLIENT Enbridge Pipelines (Athabasca) Inc.

PROJECT Stonewall Terminal Project

FABR. SPEC

ITEM NO. 201-BUM-21

SERVICE DDMT Booster Pump

ACCESSORY EQUIPMENT (continued)

- ☐ SURGE CAPACITORS
☐ LIGHTNING ARRESTORS
☐ CURRENT TRANSFORMER FOR AMMETER

DESCRIPTION

MAIN TERMINAL BOX SIZED FOR:

☒ MAIN MOTOR FEEDER SIZE 500 MCM NO. 1 PH. 1

WIRING METHOD 3/C TECK Cable

☐ CTS FOR DIFF. PROTECT MTD BY☐ SURGE CAPACITORS MTD BY☐ LIGHTNING ARRESTORS MTD BY☐ CT FOR AMMETER MOUNTED BY☒ SPACE FOR STRESS CONES☐ AIR FILTER

MFG TYPE

1) MANUFACTURER'S DATA

MANUFACTURER

FRAME NO. FULL LOAD RPM (ind)

EFFICIENCY (full load) (3/4 L) (1/2 L)

POWER FACTOR (ind)(FL) (3/4 L) (1/2 L)

CURRENT (rated volt)(FL) LOCKED ROTOR

LOCKED ROTOR POWER FACTOR

LOCKED ROTOR STALL TIME (cold at 80% & 100% rated voltage)

LOCKED ROTOR STALL TIME (hot at 80% & 100% rated voltage)

TORQUE (lb ft)(full load)

LOCKED ROTOR STARTING (syn)

PULL-UP (ind) PULL-IN (syn)

BREAK DOWN (ind) PULL-OUT (syn)

OPEN CIRCUIT TIME CONSTANT (Sec)

SYMMETRICAL CONTRIBUTION TO 3 PH TERMINAL FAULT AT:

(1/2 cycles) (5 cycles)

REACTANCES Xd Xd Xd

A.C. STATOR RESISTANCE (ohms) (°C)

RATED KVA

KVA INRUSH @ FULL VOLTAGE and LOCKED ROTOR (syn)(%)

KVA @ FULL VOLTAGE & 95 % SPEED (%)

MAX LINE CURRENT IN STATOR ON 1st SUP CYCLE @ PULL-OUT (syn)

ACCELERATION TIME (motor & load @ rated voltage)(s)

ACCELERATION TIME (motor & load @ 80 % rated volt)(s)

ROTOR / FIELD WR2 @ MOTOR SHAFT (lb-ft)

ROTATION FACING COUPLING END

MAX NO. OF STARTS PER HOUR

FIELD DISCHARGE RESISTOR (ohms)

RATED EXCITATION FIELD VOLTAGE(Vdc)

RESISTANCE OF EXCITATION FIELD @ 77 F (ohms)

EXCITATION FIELD @ FULL LOAD & RATED P.F.(amps)

EXCITATION FIELD (MAX)(A) (MIN)(A)

RECOMM MAX POWER FACTOR CORRECTION CAPACITOR (KVAR)

1) MANUFACTURER'S DATA (continued)

EXCITATION FIELD ☐ RHEOSTAT ☐ FIXED RESISTOR REQD.

SUPPLIED BY

BEARINGS TYPE LUBRICATION

LUBE OIL REQD (usgm) @ (psig)

TOTAL SHAFT END FLOAT (in)

LIMIT END FLOAT TO (in)

MOTOR ROTOR ☐ SOLID ☐ SPLITMOTOR HUB ☐ SOLID ☐ SPLIT

FOR TEWAC, TEPV & TEIGP MOTORS

COOLING WATER REQD (usgm)

C.W. TEMP RISE (F) PRESS DROP (psig)

AIR/GAS REQD (scfm) PRESS MAINT (in H2O)

CURVES REQD BASED ON MOTOR SAT. @ RATED VOLTAGE

☒ SPEED vs TORQUE (also @ 80 % RATED VOLT)☒ SPEED vs POWER FACTOR ☒ ACCELERATION☒ SPEED vs CURRENT ☒ DAMAGE (cold & hot)

EQUIPMENT WEIGHTS

NET WT (lb) SHIPPING WT (lb)

ROTOR WY (lb) MAX ERECT WT (lb)

MAX MAINT. WT (IDENTIFY) (lb)

EQUIPMENT DIMENSIONS

LENGTH (ft) WIDTH (ft) HEIGHT (ft)

SHOP INSPECTION AND TESTS

SHOP INSPECTION WITNESSED NON-WITNESSED

ROUTINE TEST ☐ ☒MFG STD SHOP TEST ☐ ☒IMMERSION TEST ☐ ☐COMPLETE TEST ☐ ☐Per Specification ☒ ☐☐ ☐

REMARKS: INFORMATION TO BE COMPLETED BY: O ENBRIDGE I) VENDOR

1.0 - Vendor to provide air pressure differential switch for the area classification.

Enbridge Pipelines (Athabasca) Inc.

JOB NO.

06-E-3324

DATA SHEET NO.

DS-201-BUM-21

| REV | DATE | BY | CHKD | APPR |
|-----|-----------|----------|------|------|
| 0 | Sep-20-06 | KLee | | |
| 1 | Oct-3-06 | E Droppo | | |
| 2 | Dec-13-06 | E Droppo | | |