

Part 1 General**1.1 REFERENCES**

- .1 American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
 - .1 ASHRAE 90.1-2013 (SI), Energy Standard for Buildings Except Low-Rise Residential Buildings (IESNA cosponsored; ANSI approved; Continuous Maintenance Standard).
- .2 Electrical Equipment Manufacturers' Association Council (EEMAC)
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.2 SUBMITTALS

- .1 Submittals: in accordance with Section 01 00 10 – General Instructions.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 00 10 – General Instructions. Include product characteristics, performance criteria, and limitations.
- .3 Closeout Submittals
 - .1 Provide maintenance data for motors, drives and guards for incorporation into manual specified in Section 01 00 10 – General Instructions.

1.3 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

Part 2 Products**2.1 GENERAL**

- .1 Motors: high efficiency, in accordance with local Hydro company standards and to ASHRAE 90.1.

2.2 MOTORS

- .1 Provide motors for mechanical equipment as specified.
- .2 Motors under 373 W (1/2 HP) : speed as indicated, continuous duty, built-in overload protection, resilient mount, single phase, 120 V, unless otherwise specified or indicated.
- .3 Motors 373 W (1/2 HP) and larger: EEMAC Class B, squirrel cage induction, speed as indicated, continuous duty, drip proof, ball bearing, maximum temperature rise 40 degrees C, 3 phase, 575 V, unless otherwise indicated.
- .4 Motors intended for use with a Variable Frequency Drive should be suitable for operation by a VFD; and be marked accordingly in conformance with CSA Standard

C22.2 No. 100, inverter duty, meeting requirements of NEMA MG1, Part 31 standard, complete with shaft grounding kit.

2.3 BELT DRIVES

- .1 Fit reinforced belts in sheave matched to drive. Multiple belts to be matched sets.
- .2 Use cast iron or steel sheaves secured to shafts with removable keys unless otherwise indicated.
- .3 For motors under 7.5 kW (10 HP): standard adjustable pitch drive sheaves, having plus or minus 10% range. Use mid-position of range for specified r/min.
- .4 For motors 7.5 kW (10 HP) and over: sheave with split tapered bushing and keyway having fixed pitch unless specifically required for item concerned. Provide sheave of correct size to suit balancing.
- .5 Correct size of sheave determined during commissioning.
- .6 Minimum drive rating: 1.5 times nameplate rating on motor. Keep overhung loads within manufacturer's design requirements on prime mover shafts.
- .7 Motor slide rail adjustment plates to allow for centre line adjustment.
- .8 Supply one set of spare belts for each set installed in accordance with Section 01 00 10 – General Instructions.

2.4 DRIVE GUARDS

- .1 Provide guards for unprotected drives.
- .2 Guards for belt drives;
 - .1 Expanded metal screen welded to steel frame.
 - .2 Minimum 1.2 mm thick sheet metal tops and bottoms.
 - .3 38 mm dia holes on both shaft centres for insertion of tachometer.
 - .4 Removable for servicing.
- .3 Provide means to permit lubrication and use of test instruments with guards in place.
- .4 Install belt guards to allow movement of motors for adjusting belt tension.
- .5 Guard for flexible coupling:
 - .1 "U" shaped, minimum 1.6 mm thick galvanized mild steel.
 - .2 Securely fasten in place.
 - .3 Removable for servicing.
- .6 Unprotected fan inlets or outlets:
 - .1 Wire or expanded metal screen, galvanized, 19 mm mesh.
 - .2 Net free area of guard: not less than 80% of fan openings.
 - .3 Securely fasten in place.
 - .4 Removable for servicing.

Part 3 Execution**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

3.2 MOTORS START-UP

- .1 Prior to start-up of motors, Division 26 must :
 - .1 Check rotation of the motors. If rotation is wrong, make necessary corrections and new connections on the motor. In order to respect wiring color coding, do not make modifications to the starter.
 - .2 Check free rotation of driving shaft of each pump with mechanical seal joint before starting up motor.
 - .3 Check overload protections.
 - .4 Check for isolation with "megger".
 - .5 Check voltage feeding the motor.
 - .6 Check voltage and amperage of each motor at start-up and normal operation for each phase.
 - .7 Check good operation of control center and selectors.
- .2 Motors manufacturers must provide start-up curves.

3.3 INSTALLATION

- .1 Fasten securely in place.
- .2 Make removable for servicing, easily returned into, and positively in position.

END OF SECTION