

**Part 1 General**

**1.1 REFERENCES**

- .1 Canadian Standards Association (CSA International)
  - .1 CSA C22.2 No. 100-04, Motors and Generators.
- .2 Electrical and Electronic Manufacturers' Association of Canada (EEMAC)
  - .1 EEMAC M1-7, Standard for Motors and Generators.
  - .2 EEMAC M2-1, Standard for Lead Marking and Connections for Single-Phase and Polyphase Induction Motors.

**1.2 SUBMITTALS**

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data: submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 47 15 - Sustainable Requirements: Construction and include: product characteristics, performance criteria, physical size, horsepower, watt rating, limitations and finish.
- .3 Shop drawings:
  - .1 Indicate:
    - .1 Overall dimensions of motor.
    - .2 Shaft centreline to base dimension.
    - .3 Shaft extension diameter and keyway, coupling dimensions and details.
    - .4 Fixing support dimensions.
    - .5 Dimensioned position of ventilation openings. Details of ventilation duct attachments.
    - .6 Terminal box location and size of terminals.
    - .7 Arrangement and dimensions of accessories.
    - .8 Diagram of connections.
    - .9 Starting current and relative data necessary for use in design of motor starting equipment.
    - .10 Speed/torque characteristic.
    - .11 Weight.
    - .12 Installation data.
- .4 Closeout Submittals:
  - .1 Provide maintenance data for motors for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
  - .2 Data necessary for maintenance of motors.
  - .3 Manufacturer's recommended list of spare parts.

**1.3 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .3 Handle motors with suitable lifting equipment.
- .4 Store motors in heated, dry, weather-protected enclosure.

**1.4 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Collect, package and store expired motors for either recycling or rebuilding and return to recycler or rebuilder.

**1.5 EXTRA MATERIALS**

- .1 Provide maintenance materials and spare parts in accordance with Section 01 78 00 - Closeout Submittals.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Motors:
  - .1 Non-hazardous locations: to CSA C22.2 No. 100 and EEMAC M1-7.
  - .2 Motors 370 W, ½ hp or less to be 120 V, single phase, 60 Hz, and all motors 560 W, ¾ hp and greater to be 208 V, 3 phase, 60 Hz.
- .2 Lead markings: to EEMAC M2-1.

**2.2 CORROSION PREVENTION AND FINISH PAINTING**

- .1 Provide equipment resistant to corrosion from severe moisture conditions.

**2.3 RATING**

- .1 As indicated on drawings.

**2.4 MOTOR TYPE**

- .1 Squirrel cage induction, Synchronous.

**2.5 ENCLOSURE**

- .1 Open drip proof fully guarded.

- .2 Open guarded.
- .3 Totally enclosed non-ventilated.
- .4 Totally enclosed fan cooled.
- .5 Totally enclosed pipe ventilated for use in non-hazardous location.

## **2.6 APPLICATION**

- .1 Motor suitable for driving fan, blower.

## **2.7 INSULATION**

- .1 Ambient temperature: 40 degrees C.

## **2.8 BEARINGS**

- .1 Antifriction type bearings, fitted with readily accessible facilities for lubrication while motor running or stationary.

## **2.9 MOTOR MOUNTING AND TERMINAL HOUSING**

- .1 Horizontal floor mounting, assembly F-1 horizontal wall mounting, assembly W-1, horizontal ceiling mounting, assembly C-1.
- .2 Vertical flange mounting with thrust bearing.
- .3 Slide rails for motor mounting.

## **2.10 SHAFT**

- .1 Standard shaft extension.

## **2.11 THERMAL PROTECTION**

- .1 Factory installed thermistors or copper RTD, one in each phase, wired to identified terminals in motor terminal box.

## **2.12 STARTING METHOD**

- .1 Terminate winding connection necessary for appropriate starting method and identify in motor terminal box.

## **2.13 ACCESSORIES**

- .1 Shaft extension: on drive end and opposite to drive end as necessary for accessories.
- .2 Include anchor devices and setting templates.

**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 datasheets.

**3.2 INSTALLATION**

- .1 Dry out motor if dampness present in accordance with manufacturer's instructions.
- .2 Install motor on driven machinery, rigid plumb and square, using only lifting facilities provided.
- .3 Make wiring connections.
  - .1 Use liquid tight pvc jacketed flexible conduit between rigid conduit and motor.
- .4 Make flexible conduit long enough to permit movement of motor over entire length of slide rails.
- .5 Check for correct direction of rotation, with motor uncoupled from driven equipment.
- .6 Align and couple motor to driven machinery to manufacturer's instructions, using only correct parts such as couplings, belts, sheaves, as provided by manufacturer.

**3.3 FIELD QUALITY CONTROL**

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.

**3.4 CLEANING**

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**