



## ROLLED STEEL INDUCTION MOTOR NEMA STANDARD SINGLE-PHASE & THREE-PHASE

Carefully read and fully understand that Owner's Manual prior to installation, operation and maintenance of your motor.

### 1. Receiving and Inspection

- a. Check packing list and inspect the motor to make sure no damage has occurred during shipment.
- b. Turn the motor shaft by hand to be certain that it rotates freely without any mechanical rubbing or other audible noise.
- c. Check the nameplate for conformance with power supply and control equipment requirements.

### 2. Storage

**WARNING: FALLING EQUIPMENT CAN INJURE OR KILL.**

- a. Lift only using equipment of adequate lifting capacity.
- b. If so equipped, use lift ring(s) on the motor to lift ONLY the motor and mounted accessories
- c. Motor stock areas should be clean, dry, vibration free and have a relatively constant ambient temperature. For added bearing protection while the motor is in storage, turn the motor shaft every six months.
- d. When the motor is stored, the winding resistance reading must not have dropped more than 50% from the initial reading.
- e. All external motor parts subject to corrosion, such as the shaft and other machined surfaces, must be protected by applying a corrosion-resistant coating.

## 3. Installation

For maximum motor life, place the motor in a clean, dry, well-ventilated location easily accessible for inspecting, cleaning and lubricating.

### 3.1 Installation - Mechanical

**WARNING: MOVING PARTS CAN INJURE.**

Before starting the motor, be sure the shaft key is secured to the shaft. Consider the application and provide guarding to protect personnel if needed.

#### Base

- a. Mount the motor on a firm foundation or base sufficiently rigid to prevent excessive vibration. If necessary, properly shim the motor to prevent undue stress on the motor frame and for better alignment of the unit.

#### Drive

- b. The pulley, sprocket, or gear used in the drive should be located on the shaft as close to the shaft shoulder as possible.
- a. Belt Drive: Align the pulleys so that the belt(s) will run true. Properly tension the belt; excessive tension will cause premature bearing failure and shaft breakage.
- b. Chain Drive: Align the sprockets so that the chain will run true. Avoid excessive chain tension.
- c. Gear Drive and Direct Connection: Accurate alignment is essential; secure the motor and driven unit rigidly to the base. Shims may need to be added to achieve proper alignment.

### 3.2 Installation - Electrical

**WARNING: ELECTRIC SHOCK CAN KILL.**

- a. Disconnect input power before installing or servicing motor. Motor lead connections can short and cause damage or injury if not well secured and insulated.
- b. Use washers, lock washers and the largest bolt size that can pass through the motor lead terminals in making connections.
- c. Insulate the connection, equal to or better than the insulation on the supply conductors.

#### Properly ground the motor - See Grounding.

- d. Check the power supply to make certain that voltage, frequency and current carrying capacity are in accordance with the motor nameplate rating.
- e. Proper branch circuit supplied to the motor should include a disconnect switch, short circuit current fuse or breaker protection, motor starter (controller) with correctly sized thermal elements or overload relay protection.
- f. All parts should be properly sized and installed per the National Electrical Code and local codes.

#### Terminal Box

- g. Remove the appropriate knockout; for terminal boxes without a knockout, use the threaded power-conduit entry hole that is provided, or the installer is responsible for supplying a correctly sized fitting.

#### Motor Connection

- h. See the nameplate.

## Grounding

### **WARNING: ELECTRIC SHOCK CAN KILL.**

- i. Connect the motor frame to a good earth ground per the National Electrical Code and local codes.

Motors may be electrically connected to earth ground using a terminal box mounting screw or a separate grounding screw when provided. In making the ground connection, the installer should make certain that there is a good electrical connection between the grounding lead and the motor.

## 4. Operation

- a. Power supply ratings must conform to the requirements on the nameplate. Three phase squirrel cage induction motors can operate, but not necessarily in accordance with nameplate ratings, at voltages 10 percent above or below nameplate value at the design frequency.
- b. After checking that the shaft key is secure, operate the motor free of load and check the direction of rotation. If the motor rotates in the wrong direction, swap connections of any two supply leads.
- c. Couple the motor to its load and operate it for a minimum of one hour.
- d. During this period, check for any unusual noise or thermal conditions.
- e. Check the actual operating current to be sure that the nameplate current service factor is not exceeded for steady continuous loads.

## 5. Maintenance

### **WARNING: ELECTRIC SHOCK CAN KILL.**

**Internal parts of the motor may be at line potential even when it is not rotating.**

- a. Disconnect all input power to the drive and motor before performing any maintenance.
- b. Do not touch by hand the frame of a working motor as it may become hot during operation.
- c. Periodically inspect the motor for excessive dirt, friction or vibration.
- d. Dust may be blown from an inaccessible location using compressed air.
- e. Keep the ventilation openings clear to allow for free air passage.
- f. Motors have a high quality, premium design bearing system. Bearing sizes and enclosures are identified on the motor nameplates. The majority are double-shielded, deep-groove ball bearings. Double-sealed ball bearings are used on some motors in frames 56, 140T through 250T.

### **Manual Reset Thermal Protector (Some Single Phase Motors Only)**

- a. When electrical equipment generates a fault, current will increase. When the current is beyond its rated set-point or temperature is beyond its rated set –point, the switch will open.
- b. After the fault is cleared, the reset button must be pushed to reset the manual thermal protector before normal operation can resume.

**CONTACT INFORMATION:**

North American Electric, Inc.

Phone: 662-429-8049      Toll Free (800) 884-0404  
350 Vaiden Dr., Hernando, MS 38632

Fax: (662) 429-8546  
[www.naemotors.com](http://www.naemotors.com)

