

SECTION 26 29 13 – ENCLOSED MOTOR CONTROLLERS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Manual motor controllers.
- B. Combination magnetic motor controllers.

1.2 REFERENCES

- A. NFPA 70 – National Electrical Code.
- B. NECA "Standard of Installation," published by National Electrical Contractors Association.
- C. NEMA ICS 2 – Industrial Control Devices, Controllers, and Assemblies.
- D. NEMA ICS 6 – Enclosures for Industrial Controls and Systems.
- E. NEMA KS 1 – Enclosed Switches.

1.3 SUBMITTALS

- A. Product Data: Provide catalog sheets showing voltage, controller size, ratings and size of switching and overcurrent protective devices, short circuit ratings, dimensions, and enclosure details.
- B. Test Reports: Indicate field test and inspection procedures and test results.
- C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of Product.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with NECA Standard of Installation.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five years' experience.

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PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Square D Company. – Base Bid
- B. General Electric by ABB. – Alternate Bid
- C. No Other Manufacturers will be considered.

2.2 MANUAL MOTOR CONTROLLER (Thermal Switch)

- A. Description: NEMA ICS 2, AC general purpose Class A manually operated, full voltage controller for fractional horsepower induction motors, with thermal overload unit. Where indicated on the Drawings, provide red pilot light.
- B. Provide with lock-off handle guard.
- C. Enclosure: ANSI/NEMA ICS 6, Type 1.
- D. Provide with Lock-off handle guard.

2.3 DISCONNECT SWITCH TYPE COMBINATION MAGNETIC MOTOR CONTROLLERS – NON-REVERSING

- A. Description: Combine magnetic motor controllers with fusible switch disconnect in common enclosure. Switch shall have a color coded externally operated handle. Operating handle shall give positive visual indication of ON-OFF with red and black color coding.
 - 1. Fusible Switch Assemblies:
 - a. NEMA KS 1, enclosed knife switch with externally operable handle.
 - b. Fuse clips: Designed to accommodate Class R fuses and visible blades.
 - c. Operating handle shall give positive visual indication of ON-OFF with a color-coded operating handle.
 - B. Switch shall have fuse clips to accept dual element, time delay, 600 volt, UL 198E, Class RK 5.
 - C. Interrupting Rating: 200,000 rms amperes.
 - D. Magnetic Motor Controllers: NEMA ICS 2, AC general-purpose Class A magnetic controller for induction motors rated in horsepower.
 - E. Coil operating voltage: 120 volts, 60 Hz. Verify voltage with HVAC Contractor prior to ordering equipment.
 - F. Coil: Be of encapsulated type.
 - G. Poles: Three.
 - H. Size: Minimum size 1. Provide larger size as required by motor or as otherwise indicated.

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- I. Contacts: Totally enclosed, double-break, silver- cadmium-oxide power contacts. Contact inspection and replacement shall be possible without disturbing line or load wiring.
- J. Wiring: Straight-through wiring with all terminals clearly marked.
- K. Overload: Provide thermal overload type with overload unit rated for the motor current.
- L. Phase Loss Relays: Provide additional phase loss relays so that the overloads trip in the event of the loss of a single phase on any motor 10 horsepower or larger.
- M. Enclosure: ANSI/NEMA ICS 6, Type 1, unless noted otherwise.
 - 1. Provide NEMA Type 3R at exterior locations.
 - 2. Provide NEMA Type 4X stainless steel at kitchens and other wet locations.

2.4 PRODUCT ACCESSORIES

- A. Auxiliary Contacts: NEMA ICS 2, 2 each normally open, field convertible contacts in addition to seal-in contact.
- B. Cover Mounted Pilot Devices: NEMA ICS 2, standard duty type.
- C. Pilot Device Contacts: NEMA ICS 2, Form Z.
- D. Push buttons: Unguarded type. Provide "RESET" button.
- E. Indicating Lights: Incandescent type. Provide "RUN" light.
- F. Selector Switches: Rotary type. Provide "H-O-A" switch.
- G. Control Power Transformers: 120 volt secondary. Provide fused secondary, and bond un-fused leg of secondary to enclosure. Verify voltage with HVAC Contractor prior to ordering equipment.
- H. Provide fuse clip adaptors as required to accommodate smaller fuses when required.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install enclosed controllers where indicated, in accordance with Manufacturer's instructions.
- B. Install enclosed controllers plumb.
- C. Mounting Height: 5'-0" to operating handle.
- D. Install fuses in fusible switches.
- E. Select and install overload heater elements in motor controllers to match installed motor characteristics.
- F. Provide neatly typed label inside each motor controller door identifying motor served, nameplate horsepower, full load amperes, code letter, service factor, and voltage/phase rating.

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3.2 IDENTIFICATION

- A. The requirements listed below are in addition to the requirements listed in Division 26 "Electrical Identification."
- B. Provide labeling on the exterior of each Enclosed Motor Controller Stating the following:
 - 1. What the piece of equipment is fed from the enclosed motor controller.
 - 2. Where the piece of equipment is fed from the enclosed motor controller.
 - 3. Size, type and quantity of fuses within cabinet.

3.3 FIELD QUALITY CONTROL

- A. Inspect and test each enclosed controller to NEMA ICS 2.
- B. Adjust trip settings for proper motor operation.

END OF SECTION 26 29 13