

SECTION 23 0515
ENCLOSED MOTOR CONTROLLERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Combination magnetic motor controllers and disconnects

1.02 RELATED SECTIONS

- A. Section 23 0553 - Mechanical Identification: Engraved nameplates
- B. Section 26 2717 - Equipment Wiring: Electrical characteristics and wiring connections.

1.03 REFERENCES

- A. NECA (INST) - Standard of Installation; National Electrical Contractors Association; 1993.
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- C. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches; 1993.
- D. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contactors, and Overload Relays Rated Not More Than 2000 Volts AC or 750 Volts DC; National Electrical Manufacturers Association; 2000 (R2005).
- E. NEMA ICS 6 - Industrial Control and Systems: Enclosures; National Electrical Manufacturers Association; 1993 (R2006).
- F. NFPA 70 - National Electrical Code 2020 Edition.

1.04 SUBMITTALS

- A. Refer to Section 23 0510- General HVAC Requirements, for submittal procedures.
- B. 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.
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- D. Maintenance Data: Replacement parts list for controllers.

1.05 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Allen Bradley, Cutler Hammer, Furnas, General Electric, Square-D.

2.02 AUTOMATIC CONTROLLERS

- A. Magnetic Motor Controllers: NEMA ICS 2, AC general-purpose Class A magnetic controller for induction motors rated in horsepower.
- B. Starters shall be NEMA type starters. IEC type starters are not allowed.
- C. Coil Operating Voltage: 120 volts, 60 Hertz.
- D. Overload Relays: NEMA ICS 2; bimetal.
- E. Enclosures:
 - 1. Enclosures: NEMA ICS 6, Type 1 indoors.
 - 2. Enclosures: NEMA ICS 6, Type 3R outdoors.

2.03 ACCESSORIES

- A. Refer to HVAC Sequence of Operation for auxiliary contacts and where pushbuttons and remote pushbutton stations are required.
- B. Auxiliary Contacts: NEMA ICS 2, 2 field convertible contacts in addition to seal-in contact.
- C. Pushbuttons: Recessed type.
- D. Indicating Lights: Transformer, LED type.
- E. Selector Switches:
 - 1. Rotary type Hand-Off-Automatic. Provide unless noted otherwise.
- F. Control Power Transformers: 120 volt secondary, 145 VA minimum, in each motor starter. Provide fused primary, secondary, and bond unfused leg of secondary to enclosure.

2.04 DISCONNECTS

- A. Combination Controllers: Combine motor controllers with disconnects in common enclosure. Obtain IEC Class 2 coordinated component protection.
- B. Thermal Magnetic Circuit Breakers: NEMA AB 1, with integral thermal and instantaneous magnetic trip in each pole.

PART 3 EXECUTION

3.01 INSTALLATION

- A. All three phase motors furnished under this Division not fed from a starter in a motor control center or Variable Frequency Controller shall be provided with combination starter and circuit breaker unless otherwise noted.
- B. Install enclosed controllers where indicated, in accordance with NECA Standard of Installation.
- C. Install enclosed controllers plumb.
- D. Height: 5 ft to operating handle.
- E. Install with minimum of four anchors.
- F. In wet and damp locations use steel channel supports to stand cabinets and panelboards 1 inch off wall.
- G. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.
- H. Select and install overload heater elements in motor controllers to match installed motor characteristics.
- I. Provide engraved plastic nameplates; refer to Section 23 0553 for product requirements and location.
- J. Neatly type label inside each motor controller door identifying motor served, nameplate horsepower, full load amperes, code letter, service factor, voltage/phase rating, panel and circuit number. Place label in clear plastic holder.

END OF SECTION