

## **1. PART 1 – GENERAL**

### **1.1 Related sections**

- .1 Section 260500E - Common Work Results - Electrical.

### **1.2 Shop Drawings and Product Data**

- .1 Submit shop drawings in accordance with Section 260500E - Common Work Results - Electrical
- .2 Indicate:
  - .1 Mounting method and dimensions.
  - .2 Starter size and type.
  - .3 Layout of identified internal and front panel components.
  - .4 Enclosure types.
  - .5 Wiring diagram for each type of starter.
  - .6 Interconnection diagrams.

### **1.3 Closeout Submittals**

- .1 Provide operation and maintenance data for motor starters for incorporation into manual specified in closeout submittals section of the architect.
- .2 Include operation and maintenance data for each type and style of starter.

### **1.4 Extra Materials**

- .1 Provide maintenance materials in accordance with closeout submittals section of the architect.
- .2 Provide listed spare parts for each different size and type of starter:
  - .1 3 contacts, stationary.
  - .2 3 contacts, movable.
  - .3 1 contacts, auxiliary.
  - .4 1 control transformer.
  - .5 1 operating coil.
  - .6 2 fuses.
  - .7 10% indicating lamp bulbs used.

## **2. PART 2 - PRODUCTS**

### **2.1 Manual Motor Starters**

- .1 Manual motor starters of NEMA size, type, rating, and enclosure type as indicated, with components as follows:
  - .1 Switching mechanism, quick make and break.
  - .2 Overload heater, manual reset, trip indicating handle.
- .2 Accessories:
  - .1 Toggle switch: heavy duty labelled as indicated.
  - .2 Indicating light: heavy duty type and colour as indicated.
  - .3 Locking tab to permit padlocking in "ON" or "OFF" position.

## 2.2 Full Voltage Magnetic Starters

- .1 Magnetic and combination magnetic starters of NEMA size, type, rating and enclosure type as indicated with components as follows:
  - .1 Contactor solenoid operated, rapid action type.
  - .2 Motor overload protective device in each phase, manually reset from outside enclosure.
  - .3 Wiring and schematic diagram inside starter enclosure in visible location.
  - .4 Identify each wire and terminal for external connections, within starter, with permanent number marking identical to diagram.
  - .5 Unless otherwise noted, each magnetic starter shall be provided with control transformer complete with secondary fuse. Nominal power of control transformer shall be according to circuit load it controls plus a 20% spare capacity:
    - .1 Primary : ☒ 600V    ☐ 208V    ☐ 120V
    - .2 Secondary : ☐ 120V    ☒ 24V
  - .6 Unless otherwise noted, all enclosure shall be EEMAC type 1.
- .2 Combination type starters to include [fused disconnect switch] [motor circuit interrupter] [circuit breaker] with operating lever on outside of enclosure to control [disconnect] [motor circuit interrupter] [circuit breaker], and provision for:
  - .1 Locking in "OFF" position with up to 3 padlocks.
  - .2 Independent locking of enclosure door.
  - .3 Provision for preventing switching to "ON" position while enclosure door open.
- .3 Accessories:
  - .1 ☐ Pushbuttons ☒ Selector switches: labeled as indicated.
  - .2 ☒ Red indicating lights ☒ Green indicating lights ☐ Amber indicating lights.
  - .3 1-N/O and 1-N/C spare auxiliary contacts unless otherwise indicated.

## 2.3 Equipment Identification

- .1 Provide equipment identification in accordance with Section 260500E - Common Work Results - Electrical.

## 2.4 Accredited manufacturers

- .1 Cutler-Hammer.

# 3. PART 3 - EXECUTION

## 3.1 Installation

- .1 Install starters, connect power and control as indicated.
- .2 Ensure correct fuses and overload devices elements installed.
- .3 Connect (when required) conductors of sensors to relay.

### 3.2 Field Quality Control

- .1 Perform tests in accordance with Section 260500E - Common Work Results - Electrical and manufacturer's instructions.
- .2 Operate switches, contactors to verify correct functioning.
- .3 Perform starting and stopping sequences of contactors and relays.
- .4 Check that sequence controls, interlocking with other separate related starters, equipment, control devices, operate as indicated.
- .5 Provide a written report indicating overload relays selection and the settings done.