

## MOTOR STARTERS TO 600 V

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### 1. GENERAL

#### 1.1 Related Sections

- .1 Section 26 05 00 - Common Work Results for Electrical.

#### 1.2 References

- .1 International Electrotechnical Commission (IEC)
  - .1 IEC 947-4-1, Part 4: Contactors and motor-starters.

#### 1.3 Shop Drawings and Product Data

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .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.

#### 1.4 Closeout Submittals

- .1 Provide operation and maintenance data for each type and style of motor starters for incorporation into manual.

#### 1.5 Extra Materials

- .1 Provide listed spare parts for each different size and type of starter:
  - .1 1 contact, stationary.
  - .2 1 contact, movable.
  - .3 1 contact, auxiliary.
  - .4 1 control transformer.
  - .5 1 operating coil.
  - .6 2 fuses.

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- .7 10% indicating lamp bulbs used.

### 2. PRODUCTS

#### 2.1 Materials

- .1 Starters: to IEC 947-4 with AC4 utilization category.

#### 2.2 Manual Motor Starters

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

#### 2.3 Full Voltage Non-Reversing Magnetic Starters

- .1 NEMA combination magnetic starters of 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.
- .2 Combination type starters to include motor circuit interrupter with operating lever on outside of enclosure to control motor circuit interrupter, 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: standard labelled as indicated.

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- .2 Indicating lights: LED type and color as indicated.
- .3 1-N/O and 1-N/C spare auxiliary contacts unless otherwise indicated.

**2.4 Control Transformer**

- .1 Single phase, dry type, control transformer with primary voltage as indicated and 120 V secondary, complete with secondary fuse, installed in with starter as indicated.
- .2 Size control transformer for control circuit load plus 20% spare capacity.

**2.5 Finishes**

- .1 Apply finishes to enclosure in accordance with Section 26 05 00 - Common Work Results - Electrical.

**2.6 Equipment Identification**

- .1 Provide equipment identification in accordance with Section 26 05 00 - Common Work Results - Electrical.
- .2 Manual starter designation label, white plate, black letters, size 1, engraved as indicated.
- .3 Magnetic starter designation label, white plate, black letters, engraved as indicated.

**3. EXECUTION**

**3.1 Installation**

- .1 Install starters, connect power and control as indicated.
- .2 Ensure correct fuses and overload devices elements installed.

**3.2 Field Quality Control**

- .1 Perform tests in accordance with Section 26 05 00 - 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.

**END OF SECTION**