

SECTION 16411

FUSIBLE AND NON-FUSIBLE SWITCH ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes fusible and non-fusible switch assemblies

B. Related Sections:

1. Section 16442 – Panelboards

1.2 REFERENCES

A. NEMC (National Electrical Contractors Association) – Standard of Installation

B. NEMA FU 1 – (National Electrical Manufacturers Association) – Low Voltage Cartridge Fuses.

C. NEMA KS 1 – Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

D. NETA ATS (International Electrical Testing Association) – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.3 SUBMITTALS:

A. Product Data: Submit switch ratings and enclosure dimensions

B. Section 01700 – Closeout and Turnover Procedures

1.4 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of enclosed switches and ratings of installed fuses.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

## PART 2 - PRODUCTS

### 2.1 FUSIBLE SWITCH ASSEMBLIES

- A. Product Description: NEMA KS 1, Type HD or GD dead front construction with quick-make, quick-break operating handle and mechanism – externally operable dual interlocked handle to prevent opening front cover with switch in ON position, or closing switch when door is open. Visible load interrupter knife switch blades in the off position with door open. Handle lockable in OFF position.
- B. Fuse clips: As designed.
- C. Enclosure: NEMA KS 1, as required to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray.
  - 1. Interior Dry Locations: Type 1
  - 2. Exterior Locations: Type 3R or 4
  - 3. Industrial Locations: Type as designed
  - 4. Switchboard Assemblies: Type 1
- D. Service Entrance: Switches identified for use as service equipment are to be labeled for this application. Provide solid neutral assembly and equipment ground bar.
- E. Applications
  - 1. Fusible switch assemblies may be installed individually as fusible safety switches, in switchboards as branch or main devices or on busway systems as distribution devices.

### 2.2 NON-FUSIBLE SWITCH ASSEMBLIES

- A. Product Description: NEMA KS 1, Type HD or GD dead front construction with quick-make, quick-break operating handle and mechanism – externally operable dual interlocked handle to prevent opening front cover with switch in ON position, or closing switch when door is open. Visible load interrupter knife switch blades in the off position with door open. Handle lockable in OFF position.
- B. Enclosure: NEMA KS 1, as required to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray.
  - 1. Interior Dry Locations: Type 1

2. Exterior Locations: Type 3R or 4
3. Industrial Locations: Type as designed
4. Switchboard Assemblies: Type 1

C. Applications

1. Non-fusible switch assemblies may be installed individually as equipment disconnecting means.

2.3 BOLTED PRESSURE CONTACT SWITCHES

A. Switch Ratings

1. Switch Rating: Horsepower rated for AC and/or DC as indicated
2. Short Circuit Current Rating: UL listed for 10,000 rms symmetrical amperes when used with or protected by Class H or K fuses (30-600 ampere). 200,000 rms symmetrical amperes when used with or protected by Class R or Class J fuses (30-600 ampere switches employing appropriate fuse rejection schemes). 200,000 rms symmetrical amperes when used with or protected by Class L fuses (800-1200 ampere).

2.4 ACCESSORIES

A. Install accessories as designated for the project:

1. Shunt trip: 120 vac U.O.N.
2. Auxiliary contact switch 1A/1A U.O.N.
3. Blown fuse indication
4. Blown fuse protection
5. Ground fault protection

PART 3 – EXECUTION

3.1 INSULATION

A. Install in accordance with NECA “Standard of Installation.”

- B. Install enclosed switches plumb. Provide supports in accordance with Section 16050.
- C. Height: 5 feet to operating handle
- D. Locate and install engraved plastic nameplates under the provisions of Section 16050.
- E. Apply adhesive tag on inside door of each fused switch indicating NEMA fuse class and size installed.
- F. Where a fusible or non-fusible disconnect switch is installed for a motor or piece of equipment served by an adjustable speed drive. The disconnect shall be furnished with an auxiliary contact switch connected to the drive to inhibit drive operation when the switch is open.

### 3.2 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4. IR scan at load
- B. Perform inspections and tests listed in NETA ATS, Section 7.5 IR scan at load

### 3.3 EXISTING WORK

- A. Disconnect and remove enclosed switches
- B. Ensure access to existing enclosed circuit breakers and other installations which remain active and which require access. Modify installation provide access panel as appropriate.
- C. Clean and repair existing enclosed circuit breakers, which remain or are to be reinstalled.

END OF SECTION