

## SECTION 16476

### DISCONNECT SWITCHES

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. The general provisions of the contract including General and Special Conditions and General Requirements shall apply to all work under this Section.

##### 1.2 DESCRIPTION OF WORK

- A. Provide circuit and equipment disconnect switches as indicated on the drawings and as required by code.

##### 1.3 RELATED WORK IN OTHER SECTIONS

- A. Related work in other sections:
  - 1. Electrical General Provisions                      Section 16010
  - 2. Electrical Identification                              Section 16195
  - 3. Fuses 600v and Less                                  Section 16475

##### 1.4 STANDARDS

- A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:
  - 1. U.L. Standards #98 (File #4776) and #508.
  - 2. Federal Specifications W-S-865C.
  - 3. NEMA Standard KS1-1975.
  - 4. U.L. 20 and Federal Specification Test Standards for Toggle Switches.

##### 1.5 SUBMITTALS

- A. Submit manufacturer's data for all disconnect switches.
- B. Identify motor or equipment served by each switch; indicate nameplate inscription.

#### PART 2 - PRODUCTS

##### 2.1 SAFETY SWITCHES

- A. Heavy-duty, horsepower rated, single-throw knife switch with quick-make, quick-break mechanism, capable of full load operations. Meet NEMA and U.S. Government specifications for Class A switches.
- B. Provide with contact arc-quenching devices, such as magnetic blowouts or snuffing plates. Provide self-aligning switchblades with silver alloy contact areas and designed so that arcing upon making and breaking does not occur on the final contact surfaces. Provide with high-pressure, spring-loaded contact. Mount switch parts on high-grade insulating base.
- C. Enclosure - NEMA I with hinged door, and defeatable interlock when switch is in "ON" position and can be positively padlocked in "ON" and "OFF" positions. Utilize NEMA 3R (rain-tight) enclosure for exterior installations.

- D. Size, fusing and number of poles as shown or as required. Where fused, the devices must be provided with UL listed rejection feature to reject all but Class R fuses. Provide horsepower rated switch to match motor load if no size is shown. Use 3 pole plus solid neutral switches on four wire circuits and 3 pole switches on all other circuits, unless otherwise noted.
- E. Lugs must be UL listed for aluminum and/or copper conductors and be front removable. Circumferential fittings must be used on all aluminum conductors.
- F. Provide six (6) pole switches for connection to motors with the following starter types:
  - 1. Non-reversing - two-step - part winding - star connected.
  - 2. Non-reversing - full voltage - two speed separate winding.
  - 3. Non-reversing - full voltage - two speed single winding.
  - 4. Where otherwise required.
  - 5. Provide auxiliary contacts for switches where required or where indicated on the drawings.
    - a) Provide auxiliary contacts for all disconnect switches fed from a variable frequency drive or adjustable frequency drive. The auxiliary switch shall be arranged to operate before the main switch contacts and shall be connected to the VFD controls to shut down the VFD before the switch opens.

## 2.2 TOGGLE TYPE MANUAL CONTROL SWITCHES

- A. Provide switches that operate at their full rating with fluorescent, tungsten and resistance loads, and at 80% of their rated capacity with motor loads.
- B. Switches to be heavy duty and have:
  - 1. Arc-resisting bodies
  - 2. Quick make-and-break mechanisms
  - 3. Silver alloy contact buttons
  - 4. Side or back wiring with up to No. 10 AWG solid conductors

## PART 3 - EXECUTION

### 3.1 APPLICATIONS

- A. Each motor over 1/2 HP shall be provided with a horsepower-rated safety-type disconnect switch.
- B. Each piece of equipment utilizing multi-phase power shall be supplied with a safety-type disconnect switch.
- C. Each piece of equipment utilizing single-phase power but protected at over 30 amperes shall be supplied with a safety-type disconnect switch.
- D. Equipment other than that mentioned above may utilize a toggle type manual control switch properly sized and rated for the equipment it disconnects.
- E. Factory installed disconnect switches may be used to satisfy the above requirements with the Architect/Engineer's prior approval.

### 3.2 MOUNTING

- A. Mount switch enclosure rigidly and with proper alignment on building structure or steel supports with centerline of operating handle not more than 6 feet above finished floor unless otherwise required. Use steel supports fabricated from standard rolled structural steel shapes or framing channel to provide one-inch separation between enclosure and building wall for vertical flow of air.

3.3 IDENTIFICATION

- A. Provide identification of all disconnect switches in accordance with Section 16195 of these specifications.

-- End of Section --