

## SECTION 26 13 16.11

### MEDIUM VOLTAGE METAL-ENCLOSED LOAD INTERRUPTER SWITCHGEAR (AIR INTERRUPTER SWITCHES)

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Medium voltage metal-enclosed switchgear with air load interrupter switches.

##### 1.2 REFERENCES

- A. ANSI/IEEE C37.20.3 - Standard for Metal-Enclosed Interrupter Switchgear.
- B. ANSI/IEEE C37.20.4 - Standard for Indoor AC Medium Voltage Switches used in Metal-Enclosed Switchgear.
- C. NEMA

##### 1.3 SUBMITTALS

- A. The metal-enclosed switchgear assembly shall be in accordance with the contract documents, applicable codes whichever is the most stringent.
- B. The manufacturer shall furnish a detailed Bill of Material and complete set of drawings.
- C. The manufacturer shall furnish comprehensive instruction manuals.

##### 1.4 QUALITY ASSURANCE

- A. Manufacturer: The manufacturer of the switchgear must be the same as the manufacturer of the load interrupter switch.

##### 1.4 DELIVERY, STORAGE, AND HANDLING

The following paragraphs apply only to the installing contractor.

- A. Accept equipment on site and inspect for shipping damage.
- B. Protect equipment from weather and moisture by covering with heavy plastic or canvas and by maintaining heat within enclosure in accordance with manufacturer's instructions.

## PART 2 PRODUCT

### 2.1 MANUFACTURERS

- A. Switchgear: The metal-enclosed load interrupter switchgear shall be Square D type HVL or approved equal.
- B. Fuses (as required by drawings)
  - 1. Boric acid fuses:
    - a. Fuses shall be Boric acid, expulsion type, fuse holders with replaceable refills or fuse units, complete with muffler exhaust control.
    - b. Fuses shall be affixed in position in a non-disconnect [disconnect for fuse mounting with provisions for removal and replacement from the front of the gear.
    - c. Fuse Rating: "E" rated, size as shown on drawings.
    - d. Voltage Class: 15.0 kV.
    - e. Interrupting Rating: As stated above to achieve the integrated interrupting rating; 25,000 amps, rms symmetrical.

### 2.2 LOAD INTERRUPTER SWITCHGEAR ASSEMBLY

- A. The metal-enclosed switchgear with load interrupter switches shall consist of a multiple section line-up, and be of indoor type construction. The sections shall contain the load interrupter switches and the necessary accessory components. The equipment shall be factory-assembled with necessary shipping splits and operationally checked. The assembly shall be a self-supporting, floor mounted bay and shall be securely bolted to the transformer to form an integrated structure.
- B. The integrated switchgear assembly shall withstand the effects of closing, carrying and interrupting currents up to the assigned maximum short circuit rating.
- C. A viewing window shall be installed in the switch enclosure and located so as to enable visible inspection of the switch blades and blown fuse indicators from outside the enclosure.
- D. System Voltage: 12.47 kV, 3-phase, 3-wire solidly grounded.
- E. Operating Frequency: 60 Hz.
- F. Maximum Short Circuit Current: 25 kA rms symmetrical.
- G. Maximum Design Voltage: 15.0 kV.
- H. Basic Impulse Level (BIL): 95 kV.

- I. Power Frequency Withstand: 36 kV.
- J. Short-Time Current (two second): 25 kA.
- K. Main Bus Ampacity: 600 amps, continuous.
- L. Integrated Short Circuit Rating: 25 kA, rms symmetrical.

## 2.3 COMPONENTS

### A. Load Interrupter Switch

#### 1. Over-Center Mechanism

- a. The load interrupter switch shall be rated at 600 amperes continuous and interrupting; fixed mounted on glass reinforced polyester standoff insulators; manually operated; quick-make, quick-break with the speed of operation independent of the operator.

- B. Switches shall utilize main current carrying paths and arcing interruption path type poles.
- C. The switch operating handle shall be permanently attached to the outside front of the switchgear and ready for immediate use. The handle must operate in the conventional fashion with the switch closed with the handle in the up position and the switch open with the handle in the down position. Provisions shall be available for padlocking the switch in either the open or closed position.
- D. Voltage and Short Circuit Ratings: Match ratings specified for assembly.
- E. Momentary Rating: 40 kA, rms asymmetrical.
- F. Fault Closing: 40 kA, rms asymmetrical.

## 2.4 ACCESSORIES

### A. Incoming Cable Termination: Cable Lug.

- C. Provide mechanical lugs for terminating cables onto the switchgear terminal pads.
- D. Mechanical Interlocks: The high-voltage compartment door shall be interlocked to prevent opening with the load interrupter in the closed position.
- E. Key Interlocks: Each switch shall have a kirk-key interlock. Kirk-Key Interlock system to match existing configuration of existing switchgear.

## 2.5 FABRICATION

- A. Construction: Indoor. Each equipment bay shall be a separately constructed cubicle assembled

to form a rigid free standing unit. Minimum sheet metal thickness shall be 11 gauge steel on all exterior surfaces. Adjacent bays shall be securely bolted together to form an integrated rigid structure. To assist installation and maintenance of bus and cables, the rear covers shall be removable. Each individual unit shall be braced to prevent distortion.

- B. A viewing window shall be installed in a fixed panel of the enclosure to enable visual inspection of the disconnect blades from outside the enclosure.
- C. The high voltage fuses (when required) and non-disconnect type fuse mountings, shall be accessible only through a separate door mechanically interlocked with the load interrupter switch, so the load interrupter switch is opened before the door is opened and that the switch cannot be closed when the door is open.
- D. Main Bus shall be silver-plated copper, non-insulated rated 600 amps, and is to be supported from the top of the enclosure on NEMA class A-20 glass reinforced polyester standoff insulators.
- E. For multiple bay lineups, include continuous ground bus through the switchgear assembly, securely connected to the steel frame of each cubicle.

## 2.6 FACTORY FINISHING

- A. All steel parts, shall be cleaned and a iron phosphate (indoor equipment) pre-treatment applied prior to paint application.
- B. Paint color shall be ANSI-61 (light gray); TGIC polyester powder, applied electrostatically through air. Following paint application, parts shall be baked to produce a hard durable finish. The average thickness of the paint film shall be 2.0 mils. Paint film shall be uniform in color and free from blisters, sags, flaking and peeling.

END OF SECTION 26 13 16.11