SECTION 26 28 13

FUSES

PART 1 - GENERAL

1.1 REFERENCED DOCUMENTS

A. Comply with Division 1 - General Requirements and related documents.

B. Comply with all other Division 26 sections as applicable.

C. Refer to other Divisions for Coordination of work with other portions of the work.

1.2 DESCRIPTION

A. Work Included: Provide low voltage fuses for overcurrent protection in fusible devices.

B. Related Work specified in other sections:

1. 26 00 00 – Electrical
2. 26 28 16 - Enclosed Switches and Circuit Breakers

1.3 QUALITY ASSURANCE

A. The equipment provided shall meet the requirements of the National Electrical Code and local codes and ordinances.

B. The equipment provided shall be Underwriter’s Laboratories Inc. listed and so labeled.

1.4 REFERENCE STANDARDS

A. NEMA FU1 Low Voltage Cartridge Fuses

B. UL 248 Low Voltage Fuses

1.5 SUBMITTALS

A. Product Data: Provide manufacturer's product data, including minimum melting and total clearing time charts for each type of fuse.

1.6 JOB CONDITIONS

A. Deliver fuses to the project in the manufacturers new unopened shipping containers.

B. Store fuses in a clean, dust free, cool environment until required for installation to energize equipment.

1.7 MANUFACTURER

A. The equipment shall be the product of a manufacturer with a minimum of ten years' experience with the manufacture of similar equipment.

B. Acceptable Manufacturers

1. Bussman
2. Littlefuse
3. Ferraz - Shawmut

1.8 WARRANTY

A. Fuses shall be warranted to be in proper working order for a period of one year following the date of final acceptance.

PART 2 - PRODUCTS

2.1 FUSES - ABOVE 600A

A. Fuses shall be time-delay and shall hold 500% of rated current for a minimum of 4 seconds, clear 20 times rated current in .01 seconds or less, with an interrupting rating of 300,000 amperes RMS symmetrical, and be listed by a nationally recognized testing laboratory.

B. Peak let-through currents and I^2t let-through energies shall not exceed the values established by UL for Class L fuses.

2.2 FUSES - 600A AND BELOW

A. All fuses shall have a separate overload and short-circuit elements. Fuses shall incorporate a spring activated thermal overload element that has a 284 degrees Fahrenheit melting point alloy.

B. The fuses shall have time-delay capabilities in accordance with UL standards for Class RK1, J, or CC fuses and an interrupting rating of 300,000 amperes RMS symmetrical, listed by a nationally recognized testing laboratory.

C. Peak let-through currents and I^2t let-through energies shall not exceed the values established by UL for Class RK1 or J fuses.

2.3 MOTOR CIRCUITS

A. The fuses shall be applied for all motors protected by properly sized overload relays:

1. Class RK1 fuses shall be installed in ratings of 130%, or 150% for Class J fuses, of motor full-load current (or next size larger if this does not correspond to a fuse

size), except where high ambient temperatures prevail, or where the motor drives a heavy revolving part which cannot be brought up to full speed quickly, such as large fans. Under such conditions the fuses may be sized at 175% of the motor full-load current, or the next standard size larger if 175% does not correspond to a standard fuse size.

2. Class L fuses shall be installed in ratings of 175% of motor full-load current (or next size larger if this does not correspond to a fuse size), except where high ambient temperatures prevail, or where the motor drives a heavy revolving part which cannot be brought up to full speed quickly, such as large fans. Under such conditions the fuses may be sized up to 300% (or next size smaller).
3. Class CC fuses shall be installed in ratings of 200% of motor full-load current (or next size larger if this does not correspond to a fuse size), except where high ambient temperatures prevail, or where the motor drives a heavy revolving part which cannot be brought up to full speed quickly, such as large fans. Under such conditions the fuses may be sized up to 400% (or next size smaller).
4. Fuses shall be tested and have documentation verifying compliance of Type 2 protection requirements for motor starters per UL508E or IEC 60947-4 for motor controllers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Fuses shall not be installed until equipment is ready to be energized. This measure prevents fuse damage during shipment of the equipment for the manufacturer to the job site, or from water that may contact the fuse before the equipment is installed.

B. Final tests and inspections shall be made prior to energizing the equipment. This shall include a thorough cleansing, tightening, and review of all electrical connections and inspection of all grounding conductors.

3.2 SPARES

A. In addition to fuses consumed during testing, furnish 10%, but not less than three of each, of each size and type fuse used for the project, and store in a spare fuse cabinet.

B. If required, provide cabinet equal to Bussman SFC in location acceptable to the Owner. Field verify location with Owner prior to installation.

END OF SECTION