

16120 - CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Wires and cables rated 600 V and less.
 - 2. Connectors and terminations rated 600 V and less.
- B. Restrictions:
 - 1. All wire/cable runs of any type must be continuous. Splices are expressly prohibited.

1.3 DEFINITIONS

- A. NBR: Acrylonitrile-butadiene rubber.
- B. FVR: Full-Voltage Starter.
- C. RVSS: Reduced-Voltage Soft Starter.
- D. TSP: Twisted Shielded Pair
- E. VFD: Variable Frequency Drive.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Alcan Products Corporation; Alcan Cable Division.
 - 2. American Insulated Wire Corp.; a Leviton Company.
 - 3. General Cable Corporation.
 - 4. Senator Wire & Cable Company.
 - 5. Southwire Company.
 - 6. The Okonite Company.
- B. All conductors shall be stranded. No solid conductors shall be allowed.
- C. Copper Conductors: Comply with NEMA WC 70.
- D. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-2/THWN-2.
- E. Multi-conductor Cable: Comply with NEMA WC 70 for Types SOOW.
- F. Instrumentation Cable: Comply with NEMA WC 70 for TSP.

2.2 CONNECTORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Hubbell Power Systems, Inc.
 - 3. O-Z/Gedney; EGS Electrical Group LLC.
 - 4. 3M; Electrical Products Division.
 - 5. Tyco Electronics Corp.
- B. Description: Factory-fabricated connectors of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper.
- B. Branch Circuits: Copper.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type THHN-2/THWN-2, single conductors in raceway.
- B. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground (not into wet well): Type THHN-2/THWN-2, single conductors in raceway.
- C. Branch Circuits, into Wet Well: Type SOOW, multi-conductor hard service cord.
 - 1. Shall be supported by means of a stainless steel, wire mesh, strain relief device located in an accessible location from the wet well access door.
 - 2. Be routed with wet well to not cause damage to cord during operation or removal of serving mechanical equipment or control device for maintenance purposes.
 - 3. Be connected to serving mechanical equipment or control device in such manner as to be rated for a Class I, Division I rated assembly.
- D. Class 1 & 2 Control Circuits: Type THHN-2/THWN-2, in raceway or Type SOOW as applicable.
- E. Analog Instrumentation Circuits: Type TSP, in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- B. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- C. Identify and color-code conductors and cables according to Division 16 Section "Electrical Identification."

3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

END OF SECTION 16120

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