SECTION 26 05 13 - MEDIUM-VOLTAGE CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes cables, splices, terminations, and accessories for medium-voltage electrical distribution systems.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of cable indicated. Include splices and terminations for cables and cable accessories.

B. Samples: 16-inch lengths of each type of cable indicated.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Material Certificates: For each cable and accessory type, signed by manufacturers.

C. Source quality-control test reports.

D. Field quality-control test reports.

1.4 QUALITY ASSURANCE

A. Installer: Engage a cable splicer, trained and certified by splice material manufacturer, to install, splice, and terminate medium-voltage cable.

B. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

C. Source Limitations: Obtain cables and accessories through one source from a single manufacturer.

D. 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.

E. Comply with IEEE C2 and NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cables:
1) General Cable Corporation.
2) Okonite Company (The).
3) Southwire Company.

b. Cable Splicing and Terminating Products and Accessories:
1) Thomas & Betts/Elastimold.
2) 3M Company; Electrical Products Division.

2.2 CABLES

A. Cables shall be equal to Southwire Spec 81137.

B. Cable Type: MV90, with copper conductor and concentric lay, class B stranding.

C. Comply with UL-1072, AEIC CS8, ICEA S-94-649.

D. Strand Filling: Conductor interstices are filled with impermeable compound.

E. Conductor Insulation: Crosslinked polyethylene.

F. Conductor Insulation: Ethylene-propylene rubber.
1. Voltage Rating: 15 kV.
2. Insulation Thickness: 220 Mils EPR / EAM, 133 percent insulation level.

G. Concentric Neutral: Solid copper wires, helically applied over semiconducting insulation shield.

H. Overall Jacket: Corrugated copper drain wires embedded in extruded, chlorinated, low density polyethylene jacket (LLDPE) with Powerglide technology.

I. Rated for 1000 lbs. / FT maximum sidewall pressure.

2.3 SPLICE KITS

A. Splice Kits: Comply with IEEE 404; type as recommended by cable or splicing kit manufacturer for the application.
1. Combination tape and cold-shrink-rubber sleeve kit with rejacketing by cast-epoxy-resin encasement or other waterproof, abrasion-resistant material.
2. Heat-shrink splicing kit, polymeric construction with outer heat-shrink jacket.
3. Premolded, cold-shrink-rubber, in-line splicing kit.
4. Premolded EPDM splicing body kit with cable joint sealed by interference fit of mating parts and cable.

2.4 SOLID TERMINATIONS

A. Shielded-Cable Terminations: Comply with the following classes of IEEE 48. Insulation class is equivalent to that of cable. Include shield ground strap for shielded cable terminations.
1. Class 1 Terminations: Modular type, furnished as a kit, with stress-relief tube; multiple, molded-silicone rubber, insulator modules; shield ground strap; and compression-type connector.

2. Class 1 Terminations: Heat-shrink type with heat-shrink inner stress control and outer nontracking tubes; multiple, molded, nontracking skirt modules; and compression-type connector.
3. Class 1 Terminations: Modular type, furnished as a kit, with stress-relief shield terminator; multiple-wet-process, porcelain, insulator modules; shield ground strap; and compression-type connector.

2.5 SEPARABLE INSULATED CONNECTORS

A. Description: Modular system, complying with IEEE 386, with disconnecting, single-pole, cable terminators and with matching, stationary, plug-in, dead-front terminals designed for cable voltage and for sealing against moisture.

B. Load-Break Cable Terminators: Elbow-type units with 200-A load make/break and continuous-current rating.

C. Dead-Break Cable Terminators: Elbow-type unit with 600-A continuous-current rating; designed for de-energized disconnecting and connecting; coordinated with insulation diameter, conductor size, and material of cable being terminated. Include test point on terminator body that is capacitance coupled.

D. Test-Point Fault Indicators: Applicable current-trip ratings and arranged for installation in test points of load-break separable connectors, and complete with self-resetting indicators capable of being installed with shotgun hot stick and tested with test tool.

E. Tool Set: Shotgun hot stick with energized terminal indicator, fault-indicator test tool, and carrying case.

2.6 FAULT INDICATORS

A. Indicators: [Automatically] [Manually] reset fault indicator[with inrush restraint feature], arranged to clamp to cable sheath and provide a display after a fault has occurred in cable. Instrument shall not be affected by heat, moisture, and corrosive conditions and shall be recommended by manufacturer for installation conditions.

B. Resetting Tool: Designed for use with fault indicators, with moisture-resistant storage and carrying case.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install cables according to IEEE 576.

B. Pull Conductors: Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Install exposed cables parallel and perpendicular to surfaces of exposed structural members and follow surface contours where possible.

D. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

E. In manholes, handholes, pull boxes, junction boxes, and cable vaults, train cables around walls by the longest route from entry to exit.

F. Install cable splices at pull points and elsewhere as indicated; use standard kits.

G. Install separable insulated-connector components as follows:

1. Protective Cap: At each terminal junction, with one on each terminal to which no feeder is indicated to be connected.
2. Portable Feed-Through Accessory: Three.
3. Standoff Insulator: Three.

H. Install fault indicators on each phase where indicated and at each sectionalizing switch.

I. Ground shields and metal bodies of shielded cable at terminations, splices, and separable insulated connectors.

J. Identify cables according to Section 260553 "Identification for Electrical Systems."

K. Install "buried-cable" warning tape 12 inches above cables.

3.2 FIELD QUALITY CONTROL

A. Testing: Engage a qualified testing and inspecting agency to perform the following field tests and inspections and prepare test reports:

1. Perform each visual and mechanical inspection and electrical test stated in NETA ATS. Certify compliance with test parameters.
2. After installing medium-voltage cables and before electrical circuitry has been energized, test for compliance with requirements.
3. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION 26 05 13