

## **SECTION 26 05 13 - MEDIUM-VOLTAGE CABLES**

## **PART 1 - GENERAL**

# 1.1 SUMMARY

- A. Section Includes:
  - 1. Medium voltage cable.
  - 2. Cable terminations.
  - 3. Fireproofing tape.
  - 4. Underground cable markers.

#### 1.2 REFERENCES

- A. Institute of Electrical and Electronics Engineers
  - 1. IEEE 48 Standard Test Procedures and Requirements for Alternating Current Cable Terminations 2.5kV thru 765kV.
  - 2. IEEE C2 National Electrical Safety Code.
- B. National Electrical Manufacturers Association
  - 1. NEMA WC 74 5-46kV Shielded Power Cables for Use in the Transmission and Distribution of Electrical Energy.

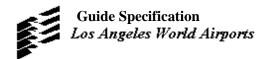
# 1.3 SUBMITTALS

- A. Product Data: Submit for cable, terminations, and accessories.
- B. Test Reports: Indicate results of cable test in tabular form and in plots of current versus voltage for incremental voltage steps, and current versus time at 30 second intervals at maximum voltage.

# PART 2 - PRODUCTS

# 2.1 MEDIUM VOLTAGE CABLE

- A. Manufacturers:
  - 1. The Okonite Company.
  - 2. General Cable.
  - 3. Southwire.
- B. Voltage: 5, 8, 15, and 35 kV.



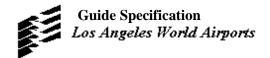
- C. Insulation Level: 133 percent of operating voltage.
- D. Cable Continuous Operating Temperature Rating: MV-105.
- E. Configuration: Single conductor.
- F. Conductor Material: Copper.
- G. Conductor Construction: Compact stranded.
- H. Conductor Shield: Metal Tape.
- I. Insulation: Ethylene Propylene Rubber (EPR).
- J. Cable Jacket: Sunlight resistant PVC or Chlorosulfonated polyethylene, CPE.

## 2.2 CABLE TERMINATIONS

- A. Manufacturers:
  - 1. 3M.
  - 2. Cooper.
  - 3. Thomas & Betts.
- B. Location: Indoor or Outdoor.
- C. Conductor Quantity: Single core.
- D. Type: Dual extrusion thick wall heat shrink.

# 2.3 FIREPROOFING TAPE

- A. Manufacturers:
  - 1. 3M.
  - 2. Plymouth Rubber Co.
- B. Product Description: Flexible, conformable fabric, coated on one side with flame retardant, flexible polymeric or chlorinated elastomer. Non-corrosive to and compatible with cable sheaths jackets. Does not support combustion.
- C. Width: Approximately 3 inches.
- D. Thickness: Not less than 0.03 inch.
- E. Weight: Not less than 2.5 pounds per square yard.



## 2.4 UNDERGROUND CABLE MARKERS

A. Trace Wire: Magnetic detectable conductor, red colored plastic covering, imprinted with "Medium Voltage Cable" in large letters.

# 2.5 CABLE IDENTIFICATION

- A. Colored Conductor Tape for Phases: Yellow colored, self-adhesive vinyl tape not less than 3 mils thick by 1 inch wide; 1 stripe for the Phase A conductor, 2 stripes for the Phase B conductor, 3 stripes for the Phase C conductor. Tape shall be located at all terminations, splices and pull boxes.
- B. Metal Tags: Brass with ¼ inch embossed legend, punched for use with self-locking nylon tie fastener. Tags shall be located at all terminations, splices and pull boxes. Legend shall include the feeder circuit breaker identifier and phase.

#### **PART 3 - EXECUTION**

#### 3.1 PREPARATION

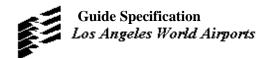
A. Use swab to clean conduits and ducts before pulling cables.

## 3.2 EXISTING WORK

- A. Remove abandoned medium-voltage cable.
- B. Maintain access to existing medium-voltage cable and other installations remaining active and requiring access. Modify installation or provide access panel.

#### 3.3 INSTALLATION

- A. Avoid abrasion and other damage to cables during installation.
- B. Use suitable manufacturer approved lubricants and pulling equipment.
- C. Sustain cable pulling tensions and bending radii below manufacturer's recommended limits.
- D. Ground cable shield at each termination and splice.
- E. Install cables in manholes along wall providing longest route.
- F. Arrange cable in manholes to avoid interference with duct entrances.



#### 3.4 FIREPROOFING

- A. Apply fireproofing tape to cables when installed in manholes, cable rooms, pull boxes, or other enclosures.
- B. Smooth out irregularities, at splices or other locations, with insulation putty before applying fireproofing tape.
- C. Apply fireproofing tape tightly around cables spirally in half-lapped wrapping or in butt jointed wrapping with second wrapping covering joints first.
- D. Extend fireproofing 1 inch into conduit or duct.
- E. Install tape with coated side toward cable.
- F. Install random wrappings of plastic tape around fireproofing tape to prevent unraveling.
- G. Install fireproofing to withstand a 200 Ampere arc for 30 seconds.

# 3.5 FIELD QUALITY CONTROL

- A. Inspect exposed cable sections for physical damage.
- B. Inspect cable for proper connections.
- C. Inspect shield grounding, cable supports, and terminations for proper installation.
- D. Inspect and test in accordance with NETA ATS.

# 3.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Protect installed cables from entrance of moisture.

END OF SECTION 26 05 13