SECTION 16366
MEDIUM VOLTAGE CABLE

PART 1  GENERAL

1.01  SUMMARY

A. Section Includes:
   1. Medium voltage cable and accessories.

B. Related Sections
   1. Section 16110 - Raceways

1.02  REFERENCES

A. Where appropriate, refer to Current ANSI and NEMA Standards for material ratings.

B. Institute of Electrical and Electronic Engineers (IEEE)

C. Association of Edison Illuminating Company (AEIC)

D. Insulated Cable Engineers Association Inc. (ICEA)

1.03  SUBMITTALS

A. Require submittals under the provisions of Section 16010 - Basic Electrical Requirements and Section 01300 - Submittals.

PART 2  PRODUCTS

2.01  MANUFACTURERS

A. Medium Voltage Cable:
   1. Okonite
   2. Prysmian Power Cable and Systems

B. Load Break Elbows and Terminators:
   1. Cooper Power
   2. Elastimold
   3. Test Point Fault Indicator, Cooper Power STAR type or equivalent.
      a. Cooper Powers Systems STAR
1. S-STAR FCI Line
2. T-Test Point Reset
3. L-Trip Rating 400 amps
4. 0-Trip Rating 400 amps
5. A-Options standard indicator with auxiliary contracts

C. Cable Splices:

1. Canusa
2. Raychem

2.02 MATERIALS

A. Medium Voltage Cable:

1. Cable Construction:
   
   a. Insulation rating 15 kV, shielded, UL listed.

2. Conductor:
   
   a. Copper, compact, Class B stranded.

   b. Extruded semi-conducting strand screen meeting ICEA S-94-649, AEIC CS8-00 and UL 1072 (type MV-105).

   c. Insulation meeting ICEA S-94-649, AEIC CS8-00, and UL 1072 (type MV-105). Insulation shall be ethylene propylene rubber (EPF) 133%, 220 mil. The ethylene content of the elastomer used in the insulation compound shall not exceed 72% by weight. Insulation compound must be manufactured in house.

   d. Insulating screen: Extruded semi-conducting insulation screen directly over insulation. Meet ICEA-S-94-649 AEIC CS8-00 and UL 1072 (type MV-105).

   e. Shield to be bare copper round wire, 1/3 neutral.

   f. Jacket to be low density polyethylene with three red stripes, meeting ICEA S-94-649, UL 1072 and UL listed type MV-105. Jacket shall be cable tray rated when used in trays.

   g. Size: 250 mcm or 2/0 as specified by manager of utilities distribution.

B. Cable Terminations:

1. Canusa or Raychem Live Front Terminations:
   
   a. Kit form, heat shrink type, suitable for use with cable specified, including stress tube, ground kit, non-tracking skirts, and appropriate lug.
2. Load Break Elbow:

a. Molded rubber load-break separable elbow-type connector. Thermoset arc quenching material. Provide test for voltage indication and fault indicator point in elbow. Elbow to be compatible with cable, fault current rating and current rating.

3. Dead Break Elbow

a. Molded rubber separable elbow-type connectors conforming to IEEE standard 386. Provide test point on T body for fault current indicator. Include 200A 15 KV Tap where indicated.

b. Provide 600 to 200 amp tap for each 600 amp elbow installed on transformers. Provide 200 amp dead end caps for bushings not shown to require lightning arresters.

PART 3 EXECUTION

3.01 INSTALLATION

A. Require installation in accordance with manufacturer’s instructions.

B. Require shield ground at each termination.

C. Require that cables be pulled using suitable lubricants and cable pulling equipment. Do not exceed cable pulling tensions and bending radius recommended by manufacturer.

D. Require installation of phase and circuit number identification tags at each junction or pull point. Require contractor to tag phases A, B or C with Brady label or approved equal.

E. Cables shall be installed inside conduit per UCB standards 16110. Exposed cable inside electric rooms shall be removed. Cable running through a building shall be installed per UCB standards 16110 3.01 C2, and shall be approved by the manager of Utilities Distribution.

3.02 FIELD QUALITY CONTROL

A. Inspect exposed cable sections for damage after cable is pulled.

B. Perform DC high potential tests of each new conductor, with other conductors grounded. Apply test voltage in 5000V increments to maximum test voltage. Record leakage current at each increment, allowing for charging current decay. Hold maximum test voltage for ten minutes. Do not exceed manufacturer’s recommended maximum test voltage. Do not high pot existing cables, perform only on new cables.

C. Require tests to be performed in the presence of a representative of the Division of Utility Generation and Distribution.
D. Perform shield continuity tests and investigate resistance valves in excess of 10 ohms per 1000 feet.

E. Perform phasing checks.

F. Require Contractor doing splices to be certified by UCB high voltage shop per UCB standard 16010.3.01.D.3.

END OF SECTION