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M1600R2

This Standard supersedes BECo E2.9-8.1

600 VOLT EP RUBBER INSULATED CABLE, 1/C

1.0 Scope

These specifications cover single conductor flame retardant cable, insulated with an orange EP rubber insulation and jacketed with a thermoset heavy duty, black, chlorosulfonated polyethylene (TS-CSPE) , thermoset heavy duty, black, chlorinated polyethylene (TS-CPE) or other equivalent material subject to Company approval. The cable shall be suitable for use in air, direct burial in earth or in underground conduit on 60-hertz AC or DC circuits at a voltage between the conductors not exceeding 600 volts.

2.0 General

- 2.1 The cable shall meet all requirements of ICEA Standards Publication S-95-658/NEMA WC 70 or latest edition.
- 2.2 The cable shall be suitable for wet and dry locations with a maximum conductor temperature of 90⁰ Centigrade for normal operation, 130⁰ Centigrade for emergency operation and 250⁰ Centigrade for short – circuit conditions.
- 2.3 The damage threshold temperature shall be not less than 260⁰ Centigrade as detailed in IEEE Transaction Paper 71 TP33-PWR “Overload Classification of Secondary Network Cables, Modified Test Procedure.

3.0 Conductors

The conductor shall be either class B compressed stranded copper per ASTM B8 or compact round copper per ASTM B496. Bare (neutral) conductors, if present, shall be tinned copper per ASTM B33. Insulated conductors need not be tinned unless otherwise specified. Conductors 500 kcmil and larger shall be compressed stranded.

4.0 Insulation

The insulation shall be EP Rubber meeting the requirements of Paragraph 3.7 as Type I and Type II material of the referenced ICEA/NEMA Standard.

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5.0 Jacket

Jacket shall be a thermoset heavy duty, black, chlorosulfonated polyethylene (TS-CSPE), or thermoset heavy duty, black, chlorinated polyethylene (TS-CPE) or other equivalent material subject to Company approval, meeting the requirements of Paragraph 4.4 of the referenced ICEA/NEMA Standard.

6.0 Flame Test

The #4 AWG conductor size shall be capable of meeting the UL VW-1 Flame Test. Sizes 1/0 and larger shall be capable of passing the IEEE 383 Flame Test (70,000 BTU/HR) and IEEE 1202, 1991.

7.0 Electrical Tests

7.1 Cables that are to be shipped in single conductor, three single conductor or four single conductor put ups may be tank tested or spark tested in accordance with Paragraph 6.10 and Table 3-4 of the ICEA standard S-95-658, with the appropriate spark test voltage being applied during each intermediate, if applicable, and final extrusion operation(s). The insulation resistance test is not required when the spark test is performed.

7.2 Multi-cable assemblies shall be tank tested at 7 kV ac for 5 minutes and be tested for insulation resistance in accordance with the referenced ICEA/NEMA Standard.

8.0 Cable and Phase Identification

8.1 The outer surface of the completed cable shall be durably labeled with the Manufacturer's name.

8.2 The year of manufacturer and footage marks may be provided but are not required for all cable being shipped in single, three and four conductor reel put ups.

8.3 Sequential footage marks, at a maximum interval of 1 foot shall be applied to the outer surface of 1 insulated/jacketed cable of each 7-conductor reel put up.

8.4 The outer surface of each of 6 insulated/jacketed cables of a 7 conductor reel put up shall be labeled 111, 222, 333, 444, 555, and 666 respectively for phase identification.

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8.0 Cable and Phase Identification – cont'd

8.5 Red, yellow and blue tracers shall be applied to the outer surface of the jacket to identify the phases of three or four single conductor parallel lay cables whenever tracers are specified by the purchase order. For four single conductor cable put – ups, the conductor not having a color tracer will be the neutral.

9.0 Maximum Cable Diameter

To allow for installation in existing conduit, the maximum overall single conductor cable diameter shall not exceed the following:

Conductor Size	Insulation Thickness (mils)	Jacket Thickness(mils)	Maximum Diameter (in.)
#4AWG	45	30	0.425
1/0 AWG	55	45	0.675
4/0 AWG	55	45	0.780
350 kcmil	65	65	1.000
500 kcmil	65	65	1.150
750 kcmil	80	65	1.380
1000 kcmil	80	65	1.440

10.0 Certificate of Compliance/Certified Test Reports

The manufacturer shall furnish a certified certificate of compliance stating that each shipping reel(s) has been tested in accordance with this specification and that the results of the tests comply with this specifications and all applicable industry Standards, Specifications and Publications. The Manufacturer shall maintain a paper and/or electronic file of Certified Test Reports a minimum of 7 years after the date of shipment. These Certified test reports shall be available to the Company upon request.

11.0 Packaging

11.1 All seven (7) conductor cable put ups shall be twisted together (6) insulated phase conductors around a bare 500 kcmil tinned copper neutral shall be packaged on steel reels unless otherwise specified. The reels shall have a maximum flange diameter of 84 inches and a maximum width of 57 inches. The maximum width shall include the arbor hub, bolts, and protruding ends. The trailing ends shall protrude through an opening in the drum rather an opening in the reel flange. The maximum weight of cable on the reel shall not exceed 16,000 lbs.

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11.0 Packaging – cont'd

- 11.2 The trailing end of all seven (7) cable put ups shall be tied to reel drum or flange using double rope with two half-hitches spaced two feet apart. Duct tape shall be wrapped over the jacket in the area where the rope is to be applied to prevent slippage. The assembled half hitches shall be covered with an additional wrapping of duct tape. Use 1/4" Colombian rope, 3-strand Iceline Karat rope part number K108 or equivalent.
- 11.3 All reels for all cables shall have a weatherproof tag or marking showing the manufacturer's name, order number, stock code, reel number, length of cable in feet, size and number of conductors.
- 11.4 The weatherproof tag or marking for seven (7) conductor reel put ups shall include the starting and ending sequential footage marks.

12.0 Exceptions

If the manufacturer wishes to take exceptions to provisions of this specification or offer alternatives, his proposal shall clearly describe his exceptions and/or recommended alternates.

13.0 Delivery

Shipping lengths and delivery location shall be specified on the Company's Purchase Order.

Approved by: _____ Amin Jessa _____
Director, Distribution Engineering