

16124S01 - MEDIUM VOLTAGE CABLE

1. SCOPE

This specification covers 1(one) conductor copper 15kV medium-voltage shielded power cable insulated with Ethylene Propylene Rubber (EPR), shielded and jacketed. The cable shall meet the construction requirements of ICEA S-93-639 and S-97-682 and meet the performance requirements of AEIC CS8 as well as UL 1072 and be listed for Type MV-105, i.e., for NEC® applications. The cable shall be suitable for installation aerially, underground, through direct burial, in underground duct or conduit, in duct or conduit above ground, in raceway or in cable tray. The cable shall be capable of continuous operation in wet or dry environments at a conductor temperature of 105°C in normal operation, 140°C in emergency overload operation and 250°C in short circuit operation.

2. QUALITY ASSURANCE

- 2.1. The manufacturer shall have a minimum of ten years experience manufacturing Medium-Voltage Power Cable and shall submit a user reference list on request.
- 2.2. The manufacturer shall ensure the cable core is virtually corona-free by applying the strand shield, insulation and insulation shield concurrently through a True Triple Extrusion Single-Pass process which does not expose the EPR insulation to the atmosphere.
- 2.3. The manufacturer of the insulating and shielding material used shall minimize material contamination by filtering plant intake air and by processing and storing all materials in sealed containers not susceptible to rust and corrosion. Further, the manufacturing process shall be entirely computer controlled and employ state-of-the-art mixing and addition technology to maximize material uniformity.
- 2.4. Each length of cable shall be tested in accordance with ICEA and a notarized certified test report from the manufacturer shall be provided for each shipping reel. One Certified test Report listing all shipping reels cut from the same Master Manufacturing Reel length is acceptable.
- 2.5. Manufacturer shall certify that cable has been manufactured within last 12 months.
- 2.6. All cable ends shall be sealed with heat-shrinkable end caps at all times to prevent the entrance of moisture into insulation during shipment, storage and installation.

3. ACCEPTABLE MANUFACTURERS

Medium voltage cable shall be manufactured by General Cable (Specification 6300), Okonite, Pirelli.

4. CONDUCTOR

The conductor shall be annealed compact stranded bare copper in compliance with ASTM B3 and B496.

5. STRAND SHIELD

Shall be a black extruded semi-conducting thermoset compound applied directly over the conductor. It shall be free-stripping from the conductor and be uniformly and firmly bonded to the EPR insulation.

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6. INSULATION

Insulation thickness shall be for 133 percent insulation level, ethylene propylene rubber (EPR). For 15 KV cable 220 mils minimum insulation thickness is required.

Insulation shall be a high quality flexible thermoset Ethylene Propylene Rubber (EPR) compound that is heat, moisture, ozone and corona resistant. The compound shall be contrasting in color with the strand and insulation shields (screens) and meet the requirements of ICEA S-93-639, ICEA S-97-682 and AEIC CS8.

7. INSULATION SHIELD

Shall be a black extruded semi-conducting thermoset compound applied directly over the insulation. It shall consist of a material compatible with the insulation and the metallic shield.

8. METALLIC SHIELD AND JACKET

Metallic shield and jacket shall consist of six corrugated copper drain wires embedded longitudinally in composite layers of semi-conducting thermoset copolymer and semi-conducting thermoplastic black flame-retardant thermoplastic Chlorinated Polyethylene (CPE).

The cable surface shall be printed with manufacturer's identification, type of insulation, size of conductor, rated voltage, year of manufacture, insulation thickness and UL listing.

9. TESTING OF COMPLETED CABLES

Testing shall be done in accordance with the latest editions of ICEA S-93-639, ICEA S-97-682 and UL 1072. In addition, each reel of cable shall pass the Partial Discharge Extinction Level (Corona) Test per AEIC CS8.

10. ENVIRONMENTAL REQUIREMENTS

Jacket shall comply with EPA 40CFR, Part 261 for a leachable lead content of less than 5mg/L using the Toxicity Characteristic Leaching Procedure (TCLP).

11. Quality Assurance

The Manufacturer shall provide, upon request, adequate documentation of the ISO 9001:2000 Quality Assurance (QA) programs that will provide assurance that cables shall be manufactured in accordance with this specification and other applicable industry standards and specifications as indicated or implied in such standards and specifications.

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12. RECEIVING REELS, HANDLING AND STORAGE

All reels shall be shipped in an up-right position on the flanges. The cable ends shall be sealed to prevent the entrance of moisture into the cable.

Upon delivery, the receiving party shall be responsible for inspecting each reel for visible and potential hidden damage. Any visible damage should be noted on the bill of lading, photographed and the distributor and manufacturer notified immediately. The damage should be documented on the bill of lading and signed by the driver. Any cable received being "suspect" of concealed damage should be noted on the bill of lading. Reels received in a "flopped" position are accepted at the risk of the owner with No liability to be assumed by the manufacturer. Reels received in this position should be considered as suspect for visible or concealed damage and noted on the bill of lading.

Reels should not be dropped from a truck or ramp. Lifting should be by means of a bar inserted through the arbor hole with chain and spreader bar, if necessary, to prevent damage to the flange. Under no circumstances should the cable be lifted by the drum using any kind of lift equipment on the cable.

Reels should be stored in an upright position, never "flopped" on the flange side, and in a dry area, out of mud and covered from weather if possible. Reels should be stored out of high-traffic areas, away from equipment and other objects and such that the flange of one reel cannot roll into the drum of an adjacent reel.

Upon cutting of any cable from a reel, it is the installer's responsibility to seal the cable end thoroughly to prevent the absorption of moisture into the strand. Cut ends shall be secured to the reel and not be allowed to drag on the ground. Any damage shall be reported immediately to and documented by the project supervisor.