

## Cable Properties

Special features which we can offer for MV cables:

- Watertight construction (both radial and longitudinal).
- Lead sheath available for options.
- Resistant to heavy vibration.
- Available in long delivery lengths to reduce number of joints.
- Corrosion-free screen area.
- Copper or aluminum conductor up to 2000mm<sup>2</sup>.
- Metallic sheath and radial moisture barrier made of copper wire or tape.
- Different options for outer PE jackets (LDPE, MDPE & HDPE).
- Different options for LSF, LSZH & FRPVC, being anti-termite or UV resistant as per BS 7835, IEC 60332 etc.
- Strippable insulation screen.
- Metallic screen made of multiple layers of copper tapes or a combination of copper wires and tapes to increase the earth fault current carrying capacity.
- Increased armour conductivity by insertion of hard drawn copper wires in armour.

## Cable Construction

Caledonian medium voltage cables are manufactured using the monosil process. Caledonian provides the highly specialized plant, state-of-the-art research facilities and meticulous quality control procedures that are required for the manufacturing of PVC insulated cables for use up to 6KV and XLPE/EPR insulated cables for use at voltages up to 42 KV. The materials are all kept in cleanliness-controlled conditions throughout the production process in order to ensure the absolute homogeneity of the finished insulation materials.

### **Conductors**

Either aluminium or copper conductors are used. Conductors up to 800mm<sup>2</sup> will be circular, compacted & stranded and shall comply with IEC 60228 class 2. 1000mm<sup>2</sup> conductor will be circular stranded type on which a layer of semi-conducting tape will be applied.

### **Conductor Screen**

This will be an extruded layer of semi-conducting crosslinkable compound applied under simultaneous triple extrusion process over the conductor along with the insulation and the insulation screen. The triple extrusion is a single high precision operation that eliminates the possibility of any contamination between the layers which could create irregularities in the electrical field. By careful material selection and special attention to process parameters, Caledonian produces the insulation screen layers with the required degree of stripping force as stipulated by the applicable national or international standard.



## *Caledonian Medium Voltage Cables*

### **Insulation**

This will be an extruded layer of XLPE or EPR applied over conductor screen under triple extrusion process along with conductor screen and insulation screen. PVC may be used for 1.8/3KV and 3.6/6KV cables.

### **Insulation Screen**

This will be a layer of semi-conducting crosslinkable compound which will be applied by triple extrusion process over the insulation.

### **Metallic Screen**

It will consist of a layer of copper tape applied helically with overlap over insulation screen. Other combinations of metallic screens as per customer's requirement can also be provided on request.

### **Laying-Up**

In case of three core cables, the three cores are laid up with non-hygroscopic fillers like polypropylene(PP) fillers at interstices and a binder tape is applied with an overlap. These binder tapes can be of PVC or foamed Polyethylene.

### **Inner Sheath (Bedding) for Armoured Cables**

Extruded layer of PVC or PE is applied over the laid up cores for armoured cables. PVC is normally of grade ST2 and PE of grade ST7 as per IEC 60502 Part 2.

### **Armouring**

In case of armoured cables, the armour is applied helically over inner sheath. For single core cables, it is of aluminium wires and for multicore cables, the armour can be of one among the following options:

- a) Galvanized steel wire.
- b) Galvanized steel tape.
- c) Galvanized steel strip.

### **Over Sheath**

An extruded layer is applied over the armour in case of armoured cables and over laid up cores in case of unarmoured cables. Outer sheath material can be either PVC, PE, HDPE or MDPE. Caledonian medium voltage cables are normally supplied with red PVC over sheaths complying with BS 6622 or IEC 60502. Other colors may be provided to suit a range of installation considerations such as the effect of UV radiations and differing soil compositions. Anti-termite formulations can also be supplied in addition to graphite-coated over sheaths where on-site testing of the sheath is required.

### **Fire Performance on Cable Sheaths**

Cables can also be supplied with special flame retardant PVC over sheaths to comply with the IEC 60332 standard. We can also supply cables with Low Smoke Halogen Free (LSZH) sheaths according to BS 7211 and BS 6724 standards or other equivalent