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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ABC Cable SPECIFICATION* 1. DESIGN
		1. General

The first part of the designation refers to the number and size (nominal cross sectional area) of the phase conductor and the last part to size of the messenger.The compressed, stranded conductors of aluminium, with a cross-section area up to 50mm² shall have at least 6 strands and a conductor with a cross sectional area above 95mm² shall have at least 15 strands.The insulated messenger wire cable consists of three black, weather resistant, cross-linked polyethylene insulated AAAC conductors twisted around an insulated aluminium alloy.The cable shall have a symmetrical right hand lay with a length of lay of about 40 times the diameter Do over the cores, laid up. In addition the pitch of laying shall be such as to allow easy separation of conductors when making connection but also maintain the bundle cohesion in line angles. The cable shall be rated for 600/1000V.The cores shall be of the same length and lie close to each other. The properties of individual cables and the bundle (such as lay pitch, Electrical and Mechanical properties) shall conform to relevant Clauses in NFC 33-209.* + 1. ABC configurations - sizes

|  |  |  |
| --- | --- | --- |
| **Type** | **Phase conductor (mm2)** | **Messenger (mm2)** |
| **4** | 3x50 | 35 |

* + 1. CONSTRUCTION of Conductors

All conductors shall be constructed to IEC 61089. The properties of the Aluminium wires before stranding shall be as below.

|  |  |
| --- | --- |
| Tensile strength not less than | 90 N/mm2 |
| Resistivity at 20°C not exceeding | 0.02845 ohm/mm²/m |

The messenger, which is also the neutral conductor, takes all of the mechanical stresses. * + 1. Messenger (Neutral Conductor):

The messenger shall be an All-Aluminium-Alloy conductor composed of wires drawn from rod, which is manufactured in a continuous casting and rolling procedure. The properties for the individual wires before stranding shall be

|  |  |
| --- | --- |
| Tensile strength not less than  | 278 N/mm² |
| Resistivity at 20°C not exceeding  | 0.0328 ohm/mm²/m |
| Density at 20°C | 2.7 kg/m³ |

No joints are allowed in the messenger except those made on the base rod or wire before final drawing. The messenger shall be round, stranded and compacted to have smooth round surface. The messenger takes all the mechanical stress and also serves as a neutral conductor. In addition to the above the following specification shall apply:* + 1. Insulation

The Insulating Material shall be of black weather resistant cross linked thermosetting polyethylene (XLPE) conforming to NFC 32-020 and shall be suitable for climatic conditions of the country. The mechanical strength and other mechanical properties such as tensile strength, minimum elongation at break and physical/chemical properties shall conform to the relevant Clauses in NFC 32-020. The minimum tensile strength shall not be less than 14.5 Mpa and the minimum elongation at break shall be 200%. Adherence of the insulating sheath to the strain bearing neutral conductor shall be adequate enough to prevent the slipping of the insulating sheath. The required adherence shall be achieved by the use of paper material or other technique. The insulating sheath shall be fully pressure extruded on the bare conductors of the phases / street lamp / neutral messenger.**Aerial Bundle Cable/Twisted bundle conductors 0.6/1 kV/** ABC 3\*50mm²+1\*35mm² |
| **Item No.** | **Description** | **Unit** | **Guaranteed value** |
| **Required** | **Offered** |
| 1 | Name of manufacturer |   |   |   |
| 2 | Country of manufacture |   |   |   |
| 3 | Type |   | ABC  |   |
| 4 | Standard |   | IEC60502  |   |
| 5 | Insulation |   | black extruded XLPE |   |
| **I** | **Cross section** | **mm²** | **35** |   |
| 1 | Rated voltage (phase/line) | V | 0.6/1 |  |
| 2 | Maximum rated voltage | V | 0.44 |  |
| 3 | One Minute voltage test | KV | 4 |  |
| 4 | Impulse withstand Voltage 1.2/50Micro second | KV | 20 |  |
| 5 | Current rating at 30°C | A |  |   |
| 6 | Rated DC resistance at 20°C | Ω/km | 0.868 |   |
| 7 | Core diameter | mm | 7 |   |
| 8 | Inductive reactance | Ω/km |  |   |
| 9 | Average insulatation thickness | mm | 1.4 |   |
| 10 | Nominal diameter over insulation | mm | 9.8 |   |
| 11 | Minimum breaking load | KN | 10.64 |   |
| 12 | Length of cable per drum  | km |  |   |
| 13 | Gross weight of Cable Per drum | Kg |  |   |
| 14 | Net weight of cable per drum | Kg |  |   |
| **II** | **Cross section** | **mm²** | **50** |   |
| 1 | Rated voltage (phase/line) | V | 0.6/1 |  |
| 2 | Maximum rated voltage | V | 0.44 |  |
| 3 | One Minute voltage test | KV | 4 |  |
| 4 | Impulse withstand Voltage 1.2/50Micro second | KV | 20 |  |
| 5 | Current rating at 30°C | A |   |   |
| 6 | Rated DC resistance at 20°C | Ω/km | 0.641 |   |
| 7 | Core diameter | mm | 8.3 |   |
| 8 | Inductive reactance | Ω/km |   |   |
| 9 | Average insulatation thickness | mm | 1.4 |   |
| 10 | Nominal diameter over insulation | mm | 11.1 |   |
| 11 | Minimum breaking load | KN | 15.2 |   |
| 12 | Length of cable per drum  | km |  |   |
| 13 | Gross weight of Cable Per drum | Kg |  |   |
| 14 | Net weight of cable per drum | Kg |  |   |