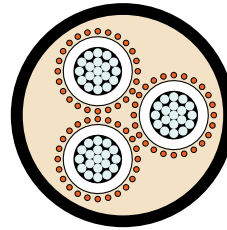


MEDIUM VOLTAGE CABLES

Aluminium 19/33 kV – Three core heavy duty screened unarmoured



Application

Electricity distribution or sub-transmission networks cable typically used as primary supply to Commercial, Industrial and urban residential networks. Suitable for high fault level systems rated up to 10kA/1sec. Higher fault current rated constructions are available on request.

Approvals

Approved by all major power Utilities and industrial customers in Australia.

Behaviour in flame and fire:

PVC or LSOH outer sheath exceeds the requirements of IEC 60332-1.

Temperature range

Minimum installation temperature: 0 °C
 Maximum operating temperature: +90 °C
 Minimum operating temperature: -25 °C

Minimum bending radius

Installed cables: 12D (PVC only)
 15D (HDPE)
 During installation: 18D (PVC only)
 25D (HDPE)

Resistance to

Chemical exposure: Accidental
 Mechanical impact: Light (PVC only)
 Heavy (HDPE)
 Water exposure: XLPE – Spray
 EPR – Immersion/Temporary coverage
 Solar radiation and weather exposure: Suitable for direct exposure.

Cable design

Conductor:
 Circular compacted aluminium
 Conductor screen:
 Extruded semi-conductive compound, bonded to the insulation and applied in the same operations as the insulation.
 Insulation:
 Cross Linked Polyethylene (XLPE) – standard
 Ethylene Propylene Rubber (EPR) – alternative
 Insulation screen:
 Extruded, semi-conductive compound
 Metallic screen:
 Plain annealed copper wire: nominal 10kA for 1 second.
 See table next page.
 Sheath:
 Black 5V-90 polyvinyl chloride (PVC) – standard
 Orange 5V-90 PVC inner plus black high density polyethylene (HDPE) outer – alternative
 Low smoke zero halogen (LSOH) – alternative

Installation conditions

In free air
 In duct
 In trench
 In ground with protection

All sizes and values without tolerances are reference values. Specifications are for product as supplied by Prysmian Group; any modification or alteration afterwards of product may give different result. The information contained within this document must not be copied, reprinted or reproduced in any form, either wholly or in part, without the written consent of Prysmian Group. The information is believed to be correct at the time of issue. Prysmian Group reserves the right to amend this specification without prior notice. This specification is not contractually valid unless specifically authorised by Prysmian Group.



MEDIUM VOLTAGE CABLES

Physical & Electrical Characteristics

| Aluminium 19/33 kV – Three core heavy duty screened unarmoured | | | | | | | | | |
|--|--|------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|------|
| Product code: 3CALX33HD | | | | | | | | | |
| Nominal conductor area mm ² | 50 | 70 | 95 | 120 | 150 | 185 | 240 | 300 | |
| Nominal conductor diameter mm | 8.1 | 9.8 | 11.5 | 12.9 | 14.2 | 16.0 | 18.1 | 20.6 | |
| Nominal insulation thickness mm | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | |
| Approx cable diameter mm | 68.6 | 72.4 | 76.3 | 79.4 | 82.5 | 86.5 | 91.5 | 97.6 | |
| Approx mass kg/100m | 355 | 410 | 470 | 520 | 565 | 630 | 715 | 820 | |
| Max pulling tension on conductors kN | 7.5 | 11 | 14 | 18 | 23 | 25 | 25 | 25 | |
| Max pulling tension on stocking grip kN | 7.5 | 11 | 14 | 18 | 23 | 25 | 25 | 25 | |
| Min bending radius* during installation mm | 1230 | 1300 | 1370 | 1430 | 1490 | 1560 | 1650 | 1760 | |
| Min bending radius* set in position mm | 820 | 870 | 920 | 950 | 990 | 1040 | 1100 | 1170 | |
| Max conductor resistance, dc @ 20°C Ohm/km | 0.641 | 0.443 | 0.320 | 0.253 | 0.206 | 0.164 | 0.125 | 0.100 | |
| Conductor resistance, ac @ 90°C & 50 Hz Ohm/km | 0.822 | 0.568 | 0.411 | 0.325 | 0.265 | 0.211 | 0.161 | 0.130 | |
| Inductance mH/km | 0.457 | 0.422 | 0.401 | 0.387 | 0.375 | 0.359 | 0.345 | 0.332 | |
| Inductive reactance, @ 50Hz Ohm/km | 0.144 | 0.133 | 0.126 | 0.121 | 0.118 | 0.113 | 0.108 | 0.104 | |
| Zero seq. impedance @ 20°C & 50 Hz Ohm/km | 2.46+ j0.0981 | 1.76+ j0.0871 | 1.28+ j0.0805 | 1.09+ j0.0762 | 1.05+ j0.0724 | 1.01+ j0.0674 | 0.967+ j0.0632 | 0.942+ j0.0593 | |
| Capacitance, phase to earth µF/km | 0.139 | 0.155 | 0.171 | 0.183 | 0.196 | 0.211 | 0.231 | 0.255 | |
| Min insulation resistance @ 20°C MOhm.km | 18,000 | 16,000 | 15,000 | 14,000 | 13,000 | 12,000 | 11,000 | 9,900 | |
| Electric stress at conductor screen kV/mm | 4.08 | 3.85 | 3.67 | 3.56 | 3.46 | 3.36 | 3.26 | 3.16 | |
| Charging current @ rated voltage & 50 Hz A/phase/km | 0.831 | 0.927 | 1.02 | 1.09 | 1.17 | 1.26 | 1.38 | 1.52 | |
| Short circuit rating | Phase conductor kA, 1 sec | 4.7 | 6.6 | 9.0 | 11.3 | 14.2 | 17.5 | 22.7 | 28.3 |
| | Metallic screen kA, 1 sec | 4.6 | 6.3 | 8.6 | 10 | 10 | 10 | 10 | 10 |
| Continuous current rating | In ground, direct buried A | 145 | 190 | 225 | 255 | 285 | 320 | 380 | 428 |
| | In ground, in singleway ducts A | 130 | 160 | 195 | 225 | 250 | 280 | 314 | 354 |
| | In free air, unenclosed & spaced from wall A | 150 | 185 | 235 | 270 | 305 | 350 | 430 | 491 |

The cables described are designed to be used for the supply of electrical energy in fixed applications up to the rated voltages at a nominal power frequency between 49Hz and 61Hz. All values are for XLPE cables only. *Increased radius required for HDPE and nylon incorporating designs.