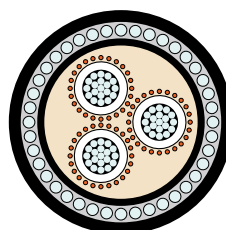


MEDIUM VOLTAGE CABLES

Aluminium 12.7/22 kV – Three core heavy duty screened armoured



Application

Electricity distribution network 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: Heavy (Armoured)
 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.
 Armouring:
 Galvanised steel wires
 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

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 12.7/22 kV – Three core heavy duty screened armoured									
Product code: 3CALX22HDA									
Nominal conductor area mm ²	35	50	70	95	120	150	185		
Nominal conductor diameter mm	7.1	8.1	9.8	11.5	12.9	14.2	16.0		
Nominal insulation thickness mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5		
Approx cable diameter mm	63.8	66.4	70.4	74.5	79.3	82.6	86.8		
Approx mass kg/100m	535	580	655	735	890	955	1040		
Max pulling tension on conductors kN	5.3	7.5	11	14	18	23	25		
Max pulling tension on stocking grip kN	5.3	7.5	11	14	18	23	25		
Max pulling tension on armour wires kN	17	18	20	23	25	25	25		
Min bending radius* during installation mm	1150	1190	1270	1340	1430	1490	1560		
Min bending radius* set in position mm	770	800	850	890	950	990	1040		
Max conductor resistance, dc @ 20°C Ohm/km	0.868	0.641	0.443	0.320	0.253	0.206	0.164		
Conductor resistance, ac @ 90°C & 50 Hz Ohm/km	1.11	0.822	0.568	0.411	0.325	0.265	0.211		
Inductance mH/km	0.437	0.419	0.386	0.367	0.354	0.343	0.329		
Inductive reactance, @ 50Hz Ohm/km	0.137	0.132	0.121	0.115	0.111	0.108	0.103		
Zero seq. impedance @ 20°C & 50 Hz Ohm/km	3.21+ j0.0911	2.46+ j0.0856	1.76+ j0.0754	1.26+ j0.0695	1.09+ j0.0657	1.05+ j0.0624	1.01+ j0.0579		
Capacitance, phase to earth µF/km	0.165	0.179	0.201	0.223	0.241	0.259	0.281		
Min insulation resistance @ 20°C MOhm.km	16,000	14,000	13,000	11,000	10,000	9,700	8,900		
Electric stress at conductor screen kV/mm	3.63	3.50	3.33	3.21	3.13	3.06	2.99		
Charging current @ rated voltage & 50 Hz A/phase/km	0.659	0.712	0.802	0.891	0.962	1.03	1.12		
Short circuit rating	Phase conductor kA, 1 sec	3.3	4.7	6.6	9.0	11.3	14.2	17.5	
	Metallic screen kA, 1 sec	3.5	4.6	6.3	8.9	10	10	10	
Continuous current rating	In ground, direct buried A	125	145	190	225	250	285	325	
	In ground, in singleway ducts A	110	130	160	190	225	250	280	
	In free air, unenclosed & spaced from wall A	125	145	190	230	265	305	350	

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.