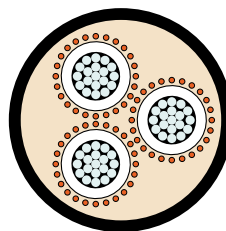


MEDIUM VOLTAGE CABLES

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



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: 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 12.7/22 kV – Three core heavy duty screened unarmoured										
Product code: 3CALX22HD										
Nominal conductor area mm ²	35	50	70	95	120	150	185	240	300	
Nominal conductor diameter mm	7.1	8.1	9.8	11.5	12.9	14.2	16.0	18.1	20.6	
Nominal insulation thickness mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Approx cable diameter mm	54.7	57.0	60.9	64.7	67.8	71.0	74.9	80.0	86.2	
Approx mass kg/100m	230	260	310	370	415	455	510	590	685	
Max pulling tension on conductors kN	5.3	7.5	11	14	18	23	25	25	25	
Max pulling tension on stocking grip kN	5.3	7.5	11	14	16	18	20	22	25	
Min bending radius* during installation mm	980	1030	1100	1170	1220	1280	1350	1440	1550	
Min bending radius* set in position mm	660	680	730	780	810	850	900	960	1030	
Max conductor resistance, dc @ 20°C Ohm/km	0.868	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	1.11	0.822	0.568	0.411	0.325	0.265	0.211	0.161	0.130	
Inductance mH/km	0.437	0.419	0.386	0.367	0.354	0.343	0.329	0.317	0.306	
Inductive reactance, @ 50Hz Ohm/km	0.137	0.132	0.121	0.115	0.111	0.108	0.103	0.0995	0.0962	
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	0.967+ j0.0542	0.942+ j0.0511	
Capacitance, phase to earth µF/km	0.165	0.179	0.201	0.223	0.241	0.259	0.281	0.309	0.344	
Min insulation resistance @ 20°C MOhm.km	16,000	14,000	13,000	11,000	10,000	9,700	8,900	8,100	7,300	
Electric stress at conductor screen kV/mm	3.63	3.50	3.33	3.21	3.13	3.06	2.99	2.92	2.85	
Charging current @ rated voltage & 50 Hz A/phase/km	0.659	0.712	0.802	0.891	0.962	1.03	1.12	1.23	1.37	
Short circuit rating	Phase conductor kA, 1 sec	3.3	4.7	6.6	9.0	11.3	14.2	17.5	22.7	28.3
	Metallic screen kA, 1 sec	3.5	4.6	6.3	8.9	10	10	10	10	10
Continuous current rating	In ground, direct buried A	125	145	190	225	250	285	325	375	420
	In ground, in singleway ducts A	110	130	160	190	225	250	280	325	365
	In free air, unenclosed & spaced from wall A	125	145	190	230	265	305	350	410	470

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.