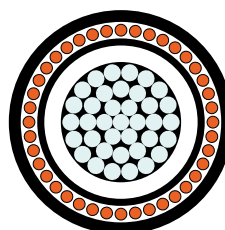


## MEDIUM VOLTAGE CABLES

### Aluminium 12.7/22 kV – Single 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 – Single core heavy duty screened unarmoured													
Product code: 1CALX22HD													
Nominal conductor area mm <sup>2</sup>	35	50	70	95	120	150	185	240	300	400	500	630	
Nominal conductor diameter mm	7.1	8.1	9.8	11.5	12.9	14.2	16.0	18.1	20.6	23.5	26.6	30.2	
Nominal insulation thickness mm	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Approx cable diameter mm	26.6	28.9	30.8	32.5	34.1	35.4	37.4	39.7	42.4	46.3	49.4	53.4	
Approx mass kg/100m	80	95	120	150	165	180	195	220	245	285	320	375	
Max pulling tension on conductor kN	1.8	2.5	3.5	4.8	6.0	7.5	9.3	12	15	20	25	25	
Max pulling tension on stocking grip kN	1.8	2.5	3.3	3.7	4.1	4.4	4.9	5.5	6.3	7.5	8.5	10	
Min bending radius* during installation mm	480	520	550	590	610	640	670	720	760	830	890	960	
Min bending radius* set in position mm	320	350	370	390	410	430	450	480	510	560	590	640	
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	0.0778	0.0605	0.0469	
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	0.101	0.0799	0.0633	
Inductance, trefoil touching mH/km	0.491	0.480	0.444	0.422	0.409	0.396	0.380	0.366	0.353	0.344	0.331	0.321	
Inductive reactance, trefoil touching @ 50Hz Ohm/km	0.154	0.151	0.140	0.133	0.128	0.124	0.119	0.115	0.111	0.108	0.104	0.101	
Zero seq. impedance @ 20°C & 50 Hz Ohm/km	1.71+ j0.0908	1.24+ j0.0871	0.871+ j0.0767	0.635+ j0.0708	0.535+ j0.0669	0.488+ j0.0636	0.446+ j0.0590	0.407+ j0.0553	0.382+ j0.0520	0.360+ j0.0495	0.343+ j0.0465	0.330+ j0.0435	
Capacitance, phase to earth µF/km	0.165	0.178	0.200	0.223	0.240	0.258	0.280	0.308	0.343	0.386	0.426	0.472	
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	6,500	5,900	5,300	
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	2.78	2.73	2.68	
Charging current @ rated voltage & 50 Hz A/phase/km	0.657	0.710	0.799	0.888	0.958	1.03	1.12	1.23	1.37	1.54	1.70	1.88	
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	37.8	47.2	59.5
	Metallic screen kA, 1 sec	3.3	4.7	6.6	8.9	10	10	10	10	10	10	10	10
Continuous current rating	In ground, direct buried A	135	160	195	230	260	290	330	380	425	485	545	615
	In ground, in singleway ducts A	135	155	190	220	245	270	305	345	380	430	480	530
	In free air, unenclosed & spaced from wall A	140	170	210	255	295	330	380	445	515	595	690	795

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.