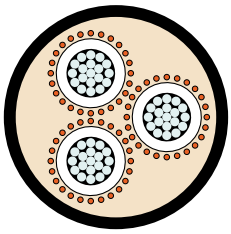
MEDIUM VOLTAGE CABLES

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



Application

Electricity distribution network cable typically used as primary supply to Commercial, Industrial and urban residential networks. Suitable for low fault level or fast fault clearing cable systems.

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 3kA 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

Prysmian Australia Pty Ltd | Ph: 1300 300 304 | Fx: 1300 300 307 | E-mail: sales.au@prysmiangroup.com | www.prysmiancable.com.au
Prysmian New Zealand Ltd | Ph: (09) 827 3109 | Toll Free: 0800 492 225 | E-mail: sales.nz@prysmiangroup.com | www.prysmiancable.co.nz

Physical & Electrical Characteristics

Aluminium 12.7/22 kV – Three core light duty screened unarmoured									
Product code: 3CALX22LD									
Nominal conductor area mm²		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	255	295	340	380	420	480	565	660
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	2.98+ j0.0856	2.63+ j0.0754	2.37+ j0.0695	2.18+ j0.0657	2.03+ j0.0624	1.89+ j0.0579	1.69+ j0.0542	1.59+ 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	3.5	3.8	4.0	4.3	4.6	4.8	5.3	5.6
Continuous current rating	In ground, direct buried A	125	145	190	235	255	285	320	370	420
	In ground, in singleway ducts A	110	130	160	190	220	245	275	320	360
	In free air, unenclosed & spaced from wall A	125	145	190	230	265	300	345	405	465

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.