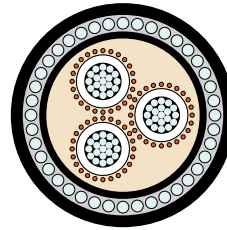


**MEDIUM VOLTAGE CABLES**
**Aluminium 1.9/3.3 kV – Three core heavy duty screened armoured**

**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 1.9/3.3 kV – Three core heavy duty screened armoured										
Product code: 3CALX3HDA										
Nominal conductor area mm <sup>2</sup>	25	35	50	70	95	120	150	185	240	
Nominal conductor diameter mm	6.1	7.1	8.1	9.8	11.5	12.9	14.2	16.0	18.1	
Nominal insulation thickness mm	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Approx cable diameter mm	43.0	45.4	49.6	53.6	57.5	60.9	64.2	68.4	73.4	
Approx mass kg/100m	270	300	385	455	520	580	640	705	810	
Max pulling tension on conductors kN	3.8	5.3	7.5	11	14	18	23	25	25	
Max pulling tension on stocking grip kN	3.8	5.3	7.5	10	12	13	14	16	19	
Max pulling tension on armour wires kN	7.4	8.3	9.8	12	13	15	17	19	22	
Min bending radius* during installation mm	770	820	890	970	1040	1100	1160	1230	1320	
Min bending radius* set in position mm	520	550	590	640	690	730	770	820	880	
Max conductor resistance, dc @ 20°C Ohm/km	1.20	0.868	0.641	0.443	0.320	0.253	0.206	0.164	0.125	
Conductor resistance, ac @ 90°C & 50 Hz Ohm/km	1.54	1.11	0.822	0.568	0.411	0.325	0.265	0.211	0.162	
Inductance mH/km	0.381	0.363	0.349	0.321	0.307	0.298	0.290	0.279	0.270	
Inductive reactance, @ 50Hz Ohm/km	0.120	0.114	0.110	0.101	0.0964	0.0935	0.0910	0.0875	0.0849	
Zero seq. impedance @ 20°C & 50 Hz Ohm/km	4.48+ j0.0722	3.39+ j0.0668	2.37+ j0.0626	1.70+ j0.0542	1.26+ j0.0499	1.09+ j0.0472	1.05+ j0.0449	1.01+ j0.0416	0.967+ j0.0391	
Capacitance, phase to earth µF/km	0.317	0.354	0.390	0.449	0.509	0.556	0.604	0.665	0.740	
Min insulation resistance @ 20°C MOhm.km	8,300	7,300	6,600	5,700	5,000	4,600	4,200	3,800	3,400	
Electric stress at conductor screen kV/mm	1.19	1.16	1.14	1.11	1.09	1.08	1.07	1.06	1.05	
Charging current @ rated voltage & 50 Hz A/phase/km	0.189	0.212	0.233	0.268	0.304	0.332	0.360	0.397	0.442	
Short circuit rating	Phase conductor kA, 1 sec	2.4	3.3	4.7	6.6	9.0	11.3	14.2	17.5	22.7
	Metallic screen kA, 1 sec	2.5	3.3	4.8	6.6	8.9	10	10	10	10
Continuous current rating	In ground, direct buried A	110	125	150	185	225	255	285	320	375
	In ground, in singleway ducts A	90	110	130	160	185	215	240	270	315
	In free air, unenclosed & spaced from wall A	105	125	145	180	220	265	300	340	400

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.