

**MEDIUM VOLTAGE CABLES**
**Aluminium 1.9/3.3 kV – Single 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

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## MEDIUM VOLTAGE CABLES

### Physical & electrical characteristics

Aluminium 1.9/3.3 kV – Single core light duty screened unarmoured														
Product code: 1CALX3LD														
Nominal conductor area mm <sup>2</sup>	25	35	50	70	95	120	150	185	240	300	400	500	630	
Nominal conductor diameter mm	6.1	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.4	
Approx cable diameter mm	18.6	19.6	20.6	22.3	24.0	25.4	26.7	28.5	30.8	33.5	37.2	40.9	45.1	
Approx mass kg/100m	45	55	60	70	80	90	100	110	135	155	190	225	280	
Max pulling tension on conductor kN	1.3	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	1.2	1.3	1.5	1.7	2.0	2.3	2.5	2.8	3.3	3.9	4.8	5.8	7.1	
Min bending radius* during installation mm	330	350	370	400	430	460	480	510	550	600	670	740	810	
Min bending radius* set in position mm	220	240	250	270	290	300	320	340	370	400	450	490	540	
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	0.100	0.0778	0.0605	0.0469	
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	0.130	0.102	0.0805	0.0640	
Inductance, trefoil touching mH/km	0.449	0.427	0.409	0.377	0.359	0.347	0.337	0.323	0.313	0.303	0.298	0.292	0.285	
Inductive reactance, trefoil touching @ 50Hz Ohm/km	0.141	0.134	0.129	0.118	0.113	0.109	0.106	0.101	0.0983	0.0953	0.0935	0.0916	0.0896	
Zero seq. impedance @ 20°C & 50 Hz Ohm/km	2.37+ j0.0720	1.80+ j0.0665	1.57+ j0.0623	1.38+ j0.0540	1.25+ j0.0498	1.19+ j0.0471	1.14+ j0.0448	1.10+ j0.0415	1.06+ j0.0390	1.03+ j0.0367	1.01+ j0.0357	0.996+ j0.0344	0.982+ j0.0332	
Capacitance, phase to earth µF/km	0.316	0.353	0.388	0.448	0.507	0.554	0.601	0.663	0.737	0.824	0.943	0.962	0.993	
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	3,000	2,700	2,600	2,500	
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	1.03	1.02	0.929	0.850	
Charging current @ rated voltage & 50 Hz A/phase/km	0.189	0.211	0.232	0.267	0.303	0.331	0.359	0.395	0.440	0.492	0.563	0.574	0.593	
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	28.3	37.8	47.2	59.5
	Metallic screen kA, 1 sec	2.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Continuous current rating	In ground, direct buried A	115	135	160	195	230	260	295	330	385	430	495	560	635
	In ground, in singleway ducts A	115	135	155	190	225	255	285	320	365	410	465	525	595
	In free air, unenclosed & spaced from wall A	110	135	160	200	245	285	320	370	440	505	595	695	810

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.