

MEDIUM VOLTAGE CABLES
Copper 6.35/11 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:
 Plain circular compacted copper

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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Physical & Electrical Characteristics

Copper 6.35/11 kV – Single core light duty screened unarmoured														
Product code: 1CCUX11LD														
Nominal conductor area mm ²	25	35	50	70	95	120	150	185	240	300	400	500	630	
Nominal conductor diameter mm	6.1	7.0	8.2	9.8	11.5	12.9	14.3	16.1	18.2	20.6	23.5	26.6	30.3	
Nominal insulation thickness mm	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	
Approx cable diameter mm	21.4	22.4	23.5	25.1	26.8	28.2	29.8	31.6	34.0	36.7	40.4	43.7	47.6	
Approx mass kg/100m	75	85	100	120	150	175	200	240	295	360	445	555	690	
Max pulling tension on conductor kN	1.8	2.5	3.5	4.9	6.7	8.4	11	13	17	21	25	25	25	
Max pulling tension on stocking grip kN	1.6	1.7	1.9	2.2	2.5	2.8	3.1	3.5	4.0	4.7	5.7	6.7	7.9	
Min bending radius* during installation mm	390	400	420	450	480	510	540	570	610	660	730	790	860	
Min bending radius* set in position mm	260	270	280	300	320	340	360	380	410	440	480	520	570	
Max conductor resistance, dc @ 20°C Ohm/km	0.727	0.524	0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601	0.0470	0.0366	0.0283	
Conductor resistance, ac @ 90°C & 50 Hz Ohm/km	0.927	0.668	0.494	0.342	0.247	0.196	0.159	0.128	0.0981	0.0791	0.0632	0.0509	0.0415	
Inductance, trefoil touching mH/km	0.477	0.456	0.435	0.402	0.382	0.365	0.355	0.343	0.332	0.322	0.314	0.304	0.296	
Inductive reactance, trefoil touching @ 50Hz Ohm/km	0.150	0.143	0.137	0.126	0.120	0.115	0.112	0.108	0.104	0.101	0.0985	0.0955	0.0930	
Zero seq. impedance @ 20°C & 50 Hz Ohm/km	1.66+ j0.0833	1.46+ j0.0778	1.32+ j0.0724	1.20+ j0.0633	1.13+ j0.0583	1.09+ j0.0541	1.06+ j0.0513	1.03+ j0.0483	1.01+ j0.0453	0.995+ j0.0430	0.982+ j0.0409	0.973+ j0.0385	0.965+ j0.0366	
Capacitance, phase to earth µF/km	0.211	0.230	0.254	0.289	0.324	0.353	0.382	0.418	0.463	0.516	0.586	0.650	0.725	
Min insulation resistance @ 20°C MOhm.km	12,000	11,000	10,000	8,900	7,900	7,200	6,600	6,000	5,400	4,900	4,300	3,900	3,400	
Electric stress at conductor screen kV/mm	2.64	2.56	2.49	2.40	2.33	2.29	2.25	2.22	2.18	2.14	2.11	2.08	2.06	
Charging current @ rated voltage & 50 Hz A/phase/km	0.420	0.460	0.507	0.576	0.646	0.704	0.762	0.834	0.924	1.03	1.17	1.30	1.45	
Short circuit rating	Phase conductor kA, 1 sec	3.6	5.0	7.2	10.0	13.6	17.2	21.5	26.5	34.3	42.9	57.2	71.5	90.1
	Metallic screen kA, 1 sec	3.0	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	145	175	205	250	300	335	375	425	490	550	620	700	780
	In ground, in singleway ducts A	145	170	200	245	285	325	360	400	460	515	575	645	720
	In free air, unenclosed & spaced from wall A	145	175	210	265	320	370	420	480	570	650	755	870	995

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.