

MEDIUM VOLTAGE CABLES
Copper 3.8/6.6 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

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

Copper 3.8/6.6 kV – Single core light duty screened unarmoured														
Product code: 1CCUX6LD														
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	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.8	3.0	3.2	3.2	
Approx cable diameter mm	19.6	20.6	21.7	23.3	25.0	26.4	27.8	29.8	32.2	35.1	39.2	43.1	47.0	
Approx mass kg/100m	70	80	90	115	140	165	190	230	285	350	440	550	685	
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	1.3	1.5	1.6	1.9	2.2	2.4	2.7	3.1	3.6	4.3	5.4	6.5	7.7	
Min bending radius* during installation mm	350	370	390	420	450	480	500	540	580	630	700	770	850	
Min bending radius* set in position mm	240	250	260	280	300	320	330	360	390	420	470	520	560	
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	0.0982	0.0793	0.0633	0.0510	0.0416	
Inductance, trefoil touching mH/km	0.459	0.439	0.418	0.386	0.367	0.352	0.341	0.331	0.320	0.313	0.307	0.301	0.293	
Inductive reactance, trefoil touching @ 50Hz Ohm/km	0.144	0.138	0.131	0.121	0.115	0.110	0.107	0.104	0.101	0.0984	0.0965	0.0946	0.0922	
Zero seq. impedance @ 20°C & 50 Hz Ohm/km	1.66+ j0.0761	1.46+ j0.0710	1.32+ j0.0660	1.20+ j0.0575	1.13+ j0.0530	1.09+ j0.0491	1.06+ j0.0466	1.03+ j0.0439	1.01+ j0.0417	0.995+ j0.0401	0.982+ j0.0391	0.973+ j0.0375	0.965+ j0.0356	
Capacitance, phase to earth µF/km	0.266	0.292	0.324	0.371	0.418	0.458	0.497	0.546	0.586	0.607	0.651	0.682	0.762	
Min insulation resistance @ 20°C MOhm.km	9,700	8,800	8,000	6,900	6,100	5,500	5,100	4,600	4,300	4,100	3,800	3,700	3,300	
Electric stress at conductor screen kV/mm	2.00	1.95	1.90	1.84	1.80	1.78	1.75	1.73	1.65	1.52	1.41	1.32	1.30	
Charging current @ rated voltage & 50 Hz A/phase/km	0.317	0.349	0.387	0.443	0.499	0.546	0.593	0.651	0.699	0.725	0.777	0.814	0.910	
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	
Continuous current rating	In ground, direct buried A	145	175	205	250	295	335	375	425	490	550	620	700	780
	In ground, in singleway ducts A	145	170	200	245	285	325	360	400	460	510	575	645	720
	In free air, unenclosed & spaced from wall A	145	175	210	260	320	365	415	480	565	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.