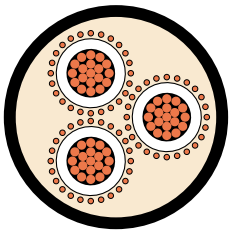
MEDIUM VOLTAGE CABLES

Copper 19/33 kV – Three core heavy duty screened unarmoured



Application

Electricity distribution or sub-transmission networks 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:	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 10kA 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.

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Physical & Electrical Characteristics

Copper 19/33 kV – Three core heavy duty screened unarmoured									
Product code: 3CCUX33HD									
Nominal conductor area mm²		50	70	95	120	150	185	240	300
Nominal conductor diameter mm		8.2	9.8	11.5	12.9	14.3	16.1	18.2	20.6
Nominal insulation thickness mm		8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Approx cable diameter mm		68.7	72.4	76.3	79.5	82.7	86.7	91.8	97.6
Approx mass kg/100m		455	560	655	745	840	970	1160	1380
Max pulling tension on conductors kN		11	15	20	25	25	25	25	25
Max pulling tension on stocking grip kN		11	15	20	22	24	25	25	25
Min bending radius* during installation mm		1240	1300	1370	1430	1490	1560	1650	1760
Min bending radius* set in position mm		820	870	920	950	990	1040	1100	1170
Max conductor resistance, dc @ 20°C Ohm/km		0.387	0.268	0.193	0.153	0.124	0.0991	0.0754	0.0601
Conductor resistance, ac @ 90°C & 50 Hz Ohm/km		0.494	0.342	0.247	0.196	0.159	0.128	0.0978	0.0788
Inductance mH/km		0.457	0.422	0.401	0.384	0.371	0.358	0.344	0.332
Inductive reactance, @ 50Hz Ohm/km		0.143	0.133	0.126	0.121	0.117	0.112	0.108	0.104
Zero seq. impedance @ 20°C & 50 Hz Ohm/km		1.56+ j0.0978	1.11+ j0.0871	1.03+ j0.0805	0.995+ j0.0752	0.966+ j0.0714	0.941+ j0.0672	0.917+ j0.0629	0.902+ j0.0593
Capacitance, phase to earth µF/km		0.140	0.155	0.171	0.184	0.197	0.212	0.232	0.255
Min insulation resistance @ 20°C MOhm.km		18,000	16,000	15,000	14,000	13,000	12,000	11,000	9,900
Electric stress at conductor screen kV/mm		4.07	3.85	3.67	3.55	3.46	3.36	3.26	3.16
Charging current @ rated voltage & 50 Hz A/phase/km		0.834	0.927	1.02	1.10	1.17	1.27	1.39	1.52
Short circuit rating	Phase conductor kA, 1 sec	7.2	10.0	13.6	17.2	21.5	26.5	34.3	42.9
	Metallic screen kA, 1 sec	7.1	10	10	10	10	10	10	10
Continuous current rating	In ground, direct buried A	195	240	285	330	370	410	486	547
	In ground, in singleway ducts A	170	210	250	280	320	360	402	452
	In free air, unenclosed & spaced from wall A	195	250	305	350	395	450	550	627

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.

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