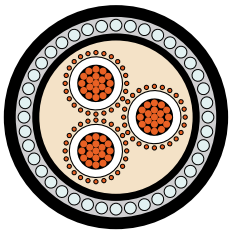
MEDIUM VOLTAGE CABLES

Copper 12.7/22 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:
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.

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

Physical & Electrical Characteristics

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Product code: 3CCUX22HDA									
Nominal conductor area mm²		35	50	70	95	120	150	185	
Nominal conductor diameter mm		7.0	8.2	9.8	11.5	12.9	14.3	16.1	
Nominal insulation thickness mm		5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Approx cable diameter mm		63.6	66.5	70.6	74.5	79.4	82.8	87.0	
Approx mass kg/100m		615	680	805	915	1110	1230	1380	
Max pulling tension on conductors kN		7.4	11	15	20	25	25	25	
Max pulling tension on stocking grip kN		7.4	11	15	19	22	24	25	
Max pulling tension on amour wires kN		17	18	20	23	25	25	25	
Min bending radius* during installation mm		1150	1200	1270	1340	1430	1490	1570	
Min bending radius* set in position mm		760	800	850	890	950	990	1040	
Max conductor resistance, dc @ 20°C Ohm/km		0.524	0.387	0.268	0.193	0.153	0.124	0.0991	
Conductor resistance, ac @ 90°C & 50 Hz Ohm/km		0.668	0.494	0.342	0.247	0.196	0.159	0.128	
Inductance mH/km		0.438	0.418	0.386	0.367	0.351	0.340	0.328	
Inductive reactance, @ 50Hz Ohm/km		0.138	0.131	0.121	0.115	0.110	0.107	0.103	
Zero seq. impedance @ 20°C & 50 Hz Ohm/km		2.16+ j0.0916	1.56+ j0.0854	1.11+ j0.0754	1.03+ j0.0695	0.995+ j0.0647	0.966+ j0.0613	0.941+ j0.0577	
Capacitance, phase to earth µF/km		0.164	0.179	0.201	0.223	0.242	0.260	0.283	
Min insulation resistance @ 20°C MOhm.km		16,000	14,000	13,000	11,000	10,000	9,700	8,900	
Electric stress at conductor screen kV/mm		3.64	3.49	3.33	3.21	3.12	3.06	2.99	
Charging current @ rated voltage & 50 Hz A/phase/km		0.655	0.715	0.802	0.891	0.964	1.04	1.13	
Short circuit rating	Phase conductor kA, 1 sec	5.0	7.2	10.0	13.6	17.2	21.5	26.5	
	Metallic screen kA, 1 sec	5.1	7.1	10	10	10	10	10	
Continuous current rating	In ground, direct buried A	170	200	240	290	330	365	410	
	In ground, in singleway ducts A	145	170	210	245	285	320	360	
	In free air, unenclosed & spaced from wall A	170	200	250	305	350	390	445	

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.