



Central Cables Berhad

PVC

**PVC INSULATED POWER CABLES
MS, BS & IEC STANDARDS**





Central Cables Berhad

196701000235(7169-A)

since 1967



We are a Malaysian incorporated company since **June 1967** in Malaysia. We operate from two facilities with combined area of 491,000 sqft and production capacity of RM400 million. We produce power and control cables and bare conductors up to 500kV systems, complying to the International Electro-technical Commission (IEC), British Standards (BS) and Malaysian Standard (MS). We are accredited with ISO 9001:2015 Certification for Quality Management System by IQNet and SIRIM QAS.

Central To Nation's Growth

**Low Voltage Power & Control
XLPE & PVC Cables**
1, 2, 3, 4-cores, Multicores



**Aerial Bundled XLPE
& PE Cables**
1kV, 11kV, 22kV, 33kV



**Underground Medium
Voltage XLPE Cables**
11kV, 22kV, 33kV
1-core, 3-cores



Housing Wire



Overhead Bare Conductors
Up to 500kV



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CERTIFIED TO ISO 9001:2015
CERT. NO. : QMS 00561



CONTENT

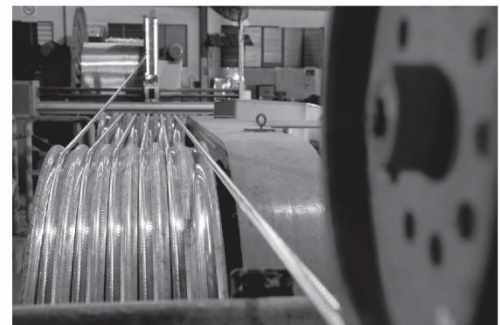
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GUIDE TO THE USE OF PVC - INSULATED CABLES

The cables are suitable for use where the combination ambient temperature and temperature rise due to load results in a conductor temperature not exceeding 70°C and case of a short-circuit (maximum allowance time is 5 seconds) the maximum conductor temperature does not exceed 160°C, up to and including 300 mm². and 140°C for sizes above 300 mm².

CABLE TYPE AND USE	COMMENTS
<p>Single core, non-sheathed general purpose.</p> <p>Installation in surface mounted or embedded conduits or similar closed systems.</p> <p>Single core, non-sheathed, for internal wiring.</p> <p>Fixed protected installation. Inside appliances and in or on lighting fittings.</p> <p>Light PVC-sheathed.</p> <p>Fixed installation in dry or damp premises.</p> <p>Single core, flat twin and flat 3-core, PVC-sheathed, with and without protective conductor.</p> <p>Fixed installation in dry or damp premises.</p>	<p>Suitable for use in channels with cover. Suitable for fixed protected installation in or lighting fittings and inside appliances, up to 1000V ac or up to 750V to earth, dc.</p> <p>Suitable for installation in surface mounted or embedded conduits, only for signalling or control circuits.</p> <p>Unsuitable for outdoor use or embedding in concrete.</p> <p>Suitable for installation in walls, on boards and in channels, or embedded in plaster.</p>

PVC ARMoured

PVC INSULATED PVC SHEATHED ARMoured CABLE

CONSTRUCTION

Conductor	:	Class 2 stranded plain annealed copper
Insulation	:	Polyvinyl Chloride (PVC) compound Type A
Colour of cores	:	Single core - red or black (or other colours are upon request) 2 cores - red and black 3 cores - red, yellow and blue 4 cores - red, yellow, blue and black
Formation	:	(i) Single core (ii) 2, 3 or 4 cores Bundled together and the interstices may be filled with the sheathing compound or non-hygroscopic fillers a binder tape may be applied over the laid-up cores.
Inner Sheath	:	Polyvinyl Chloride (PVC) compound Type ST-1 with Black colour
Armour	:	Single core - Aluminium wires 2, 3 or 4 cores - Galvanised steel wires
Outer Sheath	:	Polyvinyl Chloride (PVC) compound Type ST-1 with Black colour

PVC ARMoured

PVC INSULATED, PVC SHEATHED ARMoured CABLE (1-CORE) (IEC 60502-1, MS 2101, 0.6 / 1.0 (1.2) kV)

Nominal Cross-Sectional Area of Conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Wire Diameter of Armour	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Cable Weight
mm ²		mm	mm	mm	mm	mm	kg/km
50	c.c	1.4	1.0	1.25	1.8	19.3	849
70	c.c	1.4	1.0	1.25	1.8	20.9	1092
95	c.c	1.6	1.0	1.25	1.8	23.1	1408
120	c.c	1.6	1.0	1.60	1.8	25.4	1768
150	c.c	1.8	1.0	1.60	1.8	27.0	2073
185	c.c	2.0	1.0	1.60	1.8	29.2	2490
240	c.c	2.2	1.0	1.60	1.9	32.1	3154
300	c.c	2.4	1.0	2.00	2.0	36.0	3957
400	c.c	2.6	1.2	2.00	2.1	39.8	4999
500	c.c	2.8	1.2	2.00	2.2	43.1	6213
630	c.c	2.8	1.2	2.00	2.4	47.1	7760

Note: c.c – Circular stranded compacted

PVC ARMoured

PVC INSULATED, PVC SHEATHED ARMoured CABLE (2-CORE) (IEC 60502-1, MS 2103, 0.6 / 1.0 (1.2) kV)

Nominal Cross-Sectional Area of Conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Wire Diameter of Armour	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Cable Weight
mm ²		mm	mm	mm	mm	mm	kg/km
1.5	c.s	0.8	1.0	0.9	1.8	14.2	378
2.5	c.s	0.8	1.0	0.9	1.8	15	428
4	c.s	1.0	1.0	0.9	1.8	16.9	535
6	c.s	1.0	1.0	1.25	1.8	18.7	726
10	c.s	1.0	1.0	1.25	1.8	20.6	890
16	c.c	1.0	1.0	1.25	1.8	22.4	1094
25	s.s	1.2	1.0	1.6	1.8	23.8	1434
35	s.s	1.2	1.0	1.6	1.8	25.4	1705
50	s.s	1.4	1.0	1.6	1.9	28.4	2116
70	s.s	1.4	1.0	2.0	2.0	31.9	2886
95	s.s	1.6	1.2	2.0	2.2	36.3	3717
120	s.s	1.6	1.2	2.0	2.3	38.7	4411
150	s.s	1.8	1.2	2.5	2.4	43.4	5528
185	s.s	2.0	1.4	2.5	2.6	47.7	6657
240	s.s	2.2	1.4	2.5	2.8	52.7	8202
300	s.s	2.4	1.6	2.5	2.9	57.5	9876
400	s.s	2.6	1.6	2.5	3.2	63.2	12153

Note: c.s – Circular stranded; c.c – Circular stranded compacted; s.s – Sectoral stranded (circular conductor can be produced upon a request)

PVC ARMoured

PVC INSULATED, PVC SHEATHED ARMoured CABLE (3-CORE) (IEC 60502-1, MS 2103, 0.6 / 1.0 (1.2) kV)

Nominal Cross-Sectional Area of Conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Wire Diameter of Armour	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Cable Weight
mm ²		mm	mm	mm	mm	mm	kg/km
1.5	c.s	0.8	1.0	0.90	1.8	14.7	418
2.5	c.s	0.8	1.0	0.90	1.8	15.6	479
4	c.s	1.0	1.0	1.25	1.8	18.3	711
6	c.s	1.0	1.0	1.25	1.8	19.5	828
10	c.s	1.0	1.0	1.25	1.8	21.5	1042
16	c.c	1.0	1.0	1.25	1.8	23.5	1311
25	s.s	1.2	1.0	1.60	1.8	26.2	1842
35	s.s	1.2	1.0	1.60	1.8	28.2	2216
50	s.s	1.4	1.0	1.60	2.0	31.8	2803
70	s.s	1.4	1.2	2.00	2.1	36.4	3913
95	s.s	1.6	1.2	2.00	2.2	40.7	4984
120	s.s	1.6	1.2	2.00	2.3	43.7	5961
150	s.s	1.8	1.4	2.50	2.5	49.5	7534
185	s.s	2.0	1.4	2.50	2.7	54.1	9026
240	s.s	2.2	1.6	2.50	2.9	60.3	11330
300	s.s	2.4	1.6	2.50	3.1	65.9	13640
400	s.s	2.6	1.6	3.15	3.4	73.8	17801

Note: c.s – Circular stranded; c.c – Circular stranded compacted; s.s – Sectoral stranded (circular conductor can be produced upon a request)

PVC ARMoured

PVC INSULATED, PVC SHEATHED ARMoured CABLE (4-CORE) (IEC 60502-1, MS 2103, 0.6 / 1.0 (1.2) kV)

Nominal Cross-Sectional Area of Conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Wire Diameter of Armour	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Cable Weight
mm ²		mm	mm	mm	mm	mm	kg/km
1.5	c.s	0.8	1.0	0.9	1.8	15.5	467
2.5	c.s	0.8	1.0	0.9	1.8	16.5	547
4	c.s	1.0	1.0	1.25	1.8	19.5	811
6	c.s	1.0	1.0	1.25	1.8	20.8	962
10	c.s	1.0	1.0	1.25	1.8	23.4	1233
16	c.c	1.0	1.0	1.6	1.8	25.9	1708
25	s.s	1.2	1.0	1.6	1.8	28.6	2235
35	s.s	1.2	1.0	1.6	1.9	31.2	2765
50	s.s	1.4	1.2	2.0	2.1	36.4	3809
70	s.s	1.4	1.2	2.0	2.2	40.2	4862
95	s.s	1.6	1.2	2.5	2.4	46.9	6697
120	s.s	1.6	1.4	2.5	2.5	50.8	8095
150	s.s	1.8	1.4	2.5	2.7	55.2	9541
185	s.s	2	1.6	2.5	2.9	60.8	11513
240	s.s	2.2	1.6	2.5	3.1	67.4	14375
300	s.s	2.4	1.6	2.5	3.3	73.7	17431
400	s.s	2.6	1.8	3.15	3.6	83.0	22772

Note: c.s – Circular stranded; c.c – Circular stranded compacted; s.s – Sectoral stranded (circular conductor can be produced upon a request)

PVC ARMoured

PVC INSULATED PVC SHEATHED ARMoured AUXILIARY CABLE

CONSTRUCTION

Conductor	:	Class 2 stranded plain annealed copper
Insulation	:	Polyvinyl Chloride (PVC) compound Type A
Colour of cores	:	White with black numbering
Formation	:	Bundled together and the interstices may be filled with filler or the sheathing compound. Binder tape may be applied over the laid-up cores.
Inner Sheath	:	Polyvinyl Chloride (PVC) compound Type ST-1 with Black colour
Armour	:	Galvanised steel wire
Outer Sheath	:	Polyvinyl Chloride (PVC) compound Type ST-1 with Black colour

PVC INSULATED, PVC SHEATHED ARMoured AUXILIARY CABLE (1.5mm²) (IEC 60502-1, MS 2103, 600/1000 (1200) V)

Number of core	Nominal cross-sectional area of conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Wire Diameter of Armour	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Cable Weight
	mm ²		mm	mm	mm	mm	mm	kg/km
7	1.5	c.s	0.8	1.0	0.9	1.8	17.3	589
12	1.5	c.s	0.8	1.0	1.25	1.8	22.0	970
19	1.5	c.s	0.8	1.0	1.6	1.8	25.3	1395
27	1.5	c.s	0.8	1.0	1.6	1.8	28.9	1763
37	1.5	c.s	0.8	1.0	1.6	1.9	31.8	2146
48	1.5	c.s	0.8	1.0	2.0	2.0	36.4	2851

Note: c.s – Circular stranded

PVC ARMoured

PVC INSULATED, PVC SHEATHED ARMoured AUXILIARY CABLE (2.5mm²) (IEC 60502-1, MS 2103, 0.6 / 1.0 (1.2) kV)

Number of core	Nominal cross-sectional area of conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Wire Diameter of Armour	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Cable Weight
	mm ²		mm	mm	mm	mm	mm	kg/km
7	2.5	c.s	0.8	1.0	1.25	1.8	19.3	818
12	2.5	c.s	0.8	1.0	1.25	1.8	23.7	1166
19	2.5	c.s	0.8	1.0	1.60	1.8	27.4	1698
27	2.5	c.s	0.8	1.0	1.60	1.9	31.7	2174
37	2.5	c.s	0.8	1.0	1.60	2.0	34.9	2689
48	2.5	c.s	0.8	1.2	2.00	2.1	40.4	3635

Note: c.s – Circular stranded

PVC INSULATED, PVC SHEATHED ARMoured AUXILIARY CABLE (4mm²) (IEC 60502-1, MS 2103, 0.6 / 1.0 (1.2) kV)

Number of core	Nominal cross-sectional area of conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal Thickness of Inner Sheath	Nominal Wire Diameter of Armour	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Cable Weight
	mm ²		mm	mm	mm	mm	mm	kg/km
7	4	c.s	1.0	1.0	1.25	1.8	22.4	1088
12	4	c.s	1.0	1.0	1.6	1.8	28.3	1754
19	4	c.s	1.0	1.0	1.6	1.9	32.3	2337
27	4	c.s	1.0	1.2	2.0	2.1	39.1	3392
37	4	c.s	1.0	1.2	2.0	2.2	43.1	4171
48	4	c.s	1.0	1.2	2.5	2.4	50.2	5597

Note: c.s – Circular stranded

PVC ARMoured

PVC INSULATED PVC SHEATHED ARMoured WITH REDUCED NEUTRAL CABLE

CONSTRUCTION

Conductor	:	Class 2 stranded plain annealed copper
Insulation	:	Polyvinyl Chloride (PVC) compound Type A
Colour of cores	:	Red, yellow, blue and black (neutral)
Formation	:	Bundled together and the interstices may be filled with the sheathing compounds. A non-hygroscopic filler with a binder tape may be applied over the laid-up cores.
Inner Sheath	:	Polyvinyl Chloride (PVC) compound Type ST-1 with Black colour
Armour	:	Galvanised steel wires
Outer Sheath	:	Polyvinyl Chloride (PVC) compound Type ST-1 with Black colour

PVC INSULATED, PVC SHEATHED ARMoured WITH REDUCED NEUTRAL CABLE (4-CORE) (IEC 60502-1, MS 2103, 0.6 / 1.0 (1.2) kV)

Phase Conductor			Neutral Conductor			Nominal Thickness of Inner Sheath	Nominal Wire Diameter of Armour	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Cable Weight
Nominal cross-sectional area of conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal cross-sectional area of conductor	Conductor Shape	Nominal Thickness of Insulation					
mm ²		mm	mm ²		mm	mm	mm	mm	mm	kg/km
25	c.c	1.2	16	c.c	1.0	1.0	1.6	1.8	29.0	2194
35	c.c	1.2	16	c.c	1.0	1.0	1.6	1.9	31.1	2604
50	c.c	1.4	25	c.c	1.2	1.0	2.0	2.0	35.9	3566
70	c.c	1.4	35	c.c	1.2	1.2	2.0	2.1	40.2	4590
95	c.c	1.6	50	c.c	1.4	1.2	2.0	2.3	45.5	5860
120	c.c	1.6	70	c.c	1.4	1.4	2.5	2.4	51.5	7697
150	c.c	1.8	70	c.c	1.4	1.4	2.5	2.6	54.8	8790
185	c.c	2.0	95	c.c	1.6	1.4	2.5	2.7	60.2	10624
240	c.c	2.2	120	c.c	1.6	1.6	2.5	2.9	67.0	13200
300	c.c	2.4	150	c.c	1.8	1.6	2.5	3.1	73.7	15941
400	c.c	2.6	185	c.c	2.0	1.8	3.15	3.4	83.1	20819

Note: c.c – Circular stranded compacted

PVC ARMoured

TECHNICAL DATA CURRENT RATING

Current ratings are based on the following conditions:

1. Ambient air temperature		30°C
2. Ground temperature		15°C
3. Soil thermal resistivity		1.2°C m/W
4. Depth of laying:	(a) For 600/1000V cables	0.5m
	(b) For 1900/3300V cables	0.8m
5. Maximum conductor operating temperature		70°C

Rating factors of other temperature:

Cable in air

Temperature	25°C	30°C	35°C	40°C	45°C
Factor	1.06	1.00	0.94	0.87	0.79

Cables in ground

Temperature	15°C	20°C	25°C	30°C	35°C
Factor	1.00	0.95	0.90	0.89	0.80

0.6 / 1.0 (1.2) kV COPPER CONDUCTOR PVC ARMoured CABLES (SINGLE-CORE)

Nominal cross-sectional area of conductor	Laid on cable tray				Laid in free air				Laid direct in ground (15°C trefoil)
	2 cables, single-phase ac flat & touching		3 or 4 cables, 3-phase ac flat & touching		2 cables, dc Horizontal space		cables, 3 phase space ac trefoil		
	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop	Current rating
mm ²	A	mV/A/m	A	mV/A/m	A	mV/A/m	A	mV/A/m	A
50	205	0.95	189	0.84	229	0.93	181	0.82	228
70	259	0.68	238	0.62	294	0.63	231	0.58	279
95	313	0.52	285	0.50	357	0.46	280	0.45	334
120	360	0.43	327	0.43	415	0.36	324	0.37	381
150	413	0.37	373	0.38	479	0.29	373	0.32	427
185	469	0.32	422	0.34	548	0.23	425	0.27	482
240	550	0.27	492	0.30	648	0.18	501	0.23	558
300	624	0.24	547	0.28	748	0.145	567	0.21	629
400	723	0.22	618	0.26	885	0.105	657	0.195	716
500	805	0.21	673	0.25	1035	0.085	731	0.18	810
630	891	0.195	728	0.24	1218	0.068	809	0.17	912

PVC ARMoured

0.6 / 1.0 (1.2) kV COPPER CONDUCTOR PVC ARMoured CABLES (MULTI-CORE)

Nominal cross-sectional area of conductor	Laid on cable tray				Laid in free air				Laid direct in ground (15°C trefoil)
	2 Core		3 & 4 Core		2 Core		3 & 4 Core		
	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop	Current rating
mm ²	A	mV/A/m	A	mV/A/m	A	mV/A/m	A	mV/A/m	A
1.5	21	29	18	25	22	29	19	25	22
2.5	28	18	25	15	31	18	26	15	29
4	38	11	33	9.5	41	11	35	9.5	38
6	49	7.3	42	6.4	53	7.3	45	6.4	48
10	67	4.4	58	3.8	72	4.4	62	3.8	64
16	89	2.8	77	2.4	97	2.8	83	2.4	83
25	118	1.75	102	1.5	128	1.75	110	1.5	110
35	145	1.25	125	1.1	157	1.25	135	1.1	131
50	175	0.94	151	0.81	190	0.94	163	0.81	157
70	222	0.65	192	0.57	241	0.65	207	0.57	191
95	269	0.50	231	0.43	291	0.5	251	0.43	229
120	310	0.41	267	0.35	336	0.41	290	0.35	263
150	355	0.34	306	0.29	386	0.34	332	0.29	293
185	405	0.29	348	0.25	439	0.29	378	0.25	331
240	476	0.24	409	0.21	516	0.24	445	0.21	387
300	547	0.21	469	0.185	592	0.21	510	0.185	433
400	621	0.185	540	0.16	683	0.185	590	0.16	485

PVC ARMoured

0.6 / 1.0 (1.2) kV ALUMINIUM CONDUCTOR PVC ARMoured CABLES (MULTI-CORE)

Nominal cross-sectional area of conductor	Clipped Direct to a surface of on a Cable Tray, and Unenclosed				Defined Conditions					
	One Twin cable single-phase ac or dc		One 3 or 4-core Cable Three-Phase		One Twin cable single-phase ac or dc		One 3 or 4-core Cable Three-Phase			
	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop		
mm ²	A	mV/A/m	A	mV/A/m	A	mV/A/m	A	mV/A/m		
1.5	14	28	13	24	-	-	-	-		
2.5	20	17	17	15	-	-	-	-		
4	26	11	22	9.1	-	-	-	-		
6	32	7	28	6	38	7	32	6.0		
10	45	4.1	38	3.6	52	4.1	44	3.6		
16	58	2.6	50	2.2	68	2.6	58	2.2		
25	76	1.7	66	1.5	91	1.7	77	1.5		
35	93	1.2	80	1	112	1.2	94	1.0		
		a.c.	d.c.			a.c.	d.c.			
50	150	0.92	0.92	125	0.81	180	0.92	0.92	155	0.81
70	180	0.65	0.64	155	0.57	220	0.65	0.64	190	0.57
95	225	0.48	0.46	190	0.42	270	0.48	0.46	230	0.42
120	260	0.40	0.36	220	0.34	310	0.4	0.36	270	0.34
150	290	0.32	0.25	250	0.29	355	0.32	0.25	310	0.29
185	340	0.29	0.23	290	0.24	410	0.29	0.23	350	0.24
240	400	0.25	0.18	350	0.20	485	0.25	0.18	420	0.20
300	460	0.23	0.14	400	0.18	550	0.23	0.14	475	0.18
400	520	0.22	0.11	460	0.17	620	0.22	0.11	550	0.17

* The Voltage drop between consumer's terminals and any other point in the installation must not exceed 4% of the nominal voltage.

PVC UNARMoured

PVC INSULATED, NON-SHEATHED CABLE

CONSTRUCTION

Conductor	:	Class 2 stranded plain annealed copper
Insulation	:	Polyvinyl Chloride (PVC) compound Type C or Type TI 1
Colour of cores	:	Red, Yellow, Blue, Black, Green, Green/Yellow, or other colours

PVC INSULATED, NON-SHEATHED CABLE 450/750V

(MS 2112-3 MS IV 01, IEC 60227-3 IEC 01, BS EN 50525-2-31 H07V2-R)

Nominal Cross-Sectional area of conductor	Conductor Shape	Nominal Thickness of Insulation	Approx. overall diameter	Approx. Cable Weight
mm ²		mm	mm	kg/km
1.5	c.s	0.7	2.9	22
2.5	c.s	0.8	3.6	34
4	c.s	0.8	4.1	50
6	c.s	0.8	4.6	71
10	c.s	1.0	5.9	118
16	c.c	1.0	6.7	182
25	c.c	1.2	8.4	286
35	c.c	1.2	9.4	372
50	c.c	1.4	10.9	507
70	c.c	1.4	12.8	715
95	c.c	1.6	14.7	977
120	c.c	1.6	16.4	1235
150	c.c	1.8	17.9	1499
185	c.c	2.0	20.2	1897
240	c.c	2.2	22.9	2449
300	c.c	2.4	25.8	3151
400	c.c	2.6	29.0	3951
500	c.c	2.8	32.1	5042
630	c.c	2.8	35.7	6459

Note: c.s – Circular stranded; c.c – Circular stranded compacted

PVC UNARMoured

PVC INSULATED, PVC SHEATHED UNARMoured CABLE

CONSTRUCTION

Conductor	:	Plain annealed copper
Insulation	:	Polyvinyl Chloride (PVC) compound Type C or Type T1 1
Colour of cores	:	Single core - red or black (Other colours are upon request) 2 cores - red and black 3 cores - red, yellow and blue 4 cores - red, yellow, blue and black
Formation	:	(i) Single core (ii) 2, 3 or 4 cores Bundled together and the interstices may be filled with the sheathing compound. A non-hygroscopic fillers or a binder tape may be applied over the laid-up cores.
Outer Sheath	:	Polyvinyl Chloride (PVC) compound Type ST-4 or Type TM1 with Black colour

PVC INSULATED, PVC SHEATHED UNARMoured CABLE (1-CORE) (MS 2112-4 MS VV 10, BS 6004, 300/500V)

Nominal Cross-Sectional area of conductor	Conductor Shape	Nominal Thickness of insulation	Nominal Thickness of sheath	Approx. Overall diameter	Approx. Cable weight
mm ²		mm	mm	mm	kg/km
1.5	c.s	0.7	0.8	4.7	37
2.5	c.s	0.8	0.9	5.3	51
4	c.s	0.8	0.9	6.3	76
6	c.s	0.8	0.9	6.8	99
10	c.s	1.0	1.0	8.2	150
16	c.c	1.0	1.0	9.4	220
25	c.c	1.2	1.1	11.3	340
35	c.c	1.2	1.1	12.6	440

Note: c.s – Circular stranded; c.c – Circular stranded compacted

PVC UNARMoured

PVC INSULATED, PVC SHEATHED UNARMoured CABLE (2-CORE) (MS 2112-4 MS VV 10, BS 6004, 300/500V)

Nominal Cross-Sectional area of conductor	Conductor Shape	Nominal Thickness of insulation	Nominal Thickness of sheath	Approx. Overall diameter	Approx. Cable weight
mm ²		mm	mm	mm	kg/km
1.5	s.c	0.7	1.2	8.5	100
1.5	c.s	0.7	1.2	8.9	110
2.5	s.c	0.8	1.2	9.7	140
2.5	c.s	0.8	1.2	10.1	150
4	c.s	0.8	1.2	11.2	200
6	c.s	0.8	1.4	12.3	260
10	c.s	1.0	1.4	15.3	415

Note: s.c – Solid conductor; c.s – Circular stranded

PVC INSULATED, PVC SHEATHED UNARMoured CABLE (3-CORE) (MS 2112-4 MS VV 10, BS 6004, 300/500V)

Nominal Cross-Sectional area of conductor	Conductor Shape	Nominal Thickness of insulation	Nominal Thickness of sheath	Approx. Overall diameter	Approx. Cable weight
mm ²		mm	mm	mm	kg/km
1.5	s.c	0.7	1.2	8.9	120
1.5	c.s	0.7	1.2	9.4	130
2.5	s.c	0.8	1.2	10.2	170
2.5	c.s	0.8	1.2	10.7	180
4	c.s	0.8	1.2	11.9	240
6	c.s	0.8	1.4	13.5	320
10	c.s	1	1.4	16.3	523

Note: s.c – Solid conductor; c.s – Circular stranded

PVC UNARMoured

PVC INSULATED, PVC SHEATHED UNARMoured CABLE (4-CORE) (MS 2112-4 MS VV 10, BS 6004, 300/500V)

Nominal Cross-Sectional area of conductor	Conductor Shape	Nominal Thickness of insulation	Nominal Thickness of sheath	Approx. Overall diameter	Approx. Cable weight
mm ²		mm	mm	mm	kg/km
1.5	s.c	0.7	1.2	9.7	150
1.5	c.s	0.7	1.2	10.2	160
2.5	s.c	0.8	1.2	11.2	210
2.5	c.s	0.8	1.2	11.7	220
4	c.s	0.8	1.4	13.4	310
6	c.s	0.8	1.4	14.7	410
10	c.s	1.0	1.4	17.9	660

Note: s.c – Solid conductor; c.s – Circular stranded

PVC UNARMoured

PVC INSULATED PVC SHEATHED CABLES

CONSTRUCTION

Conductor	:	Plain annealed copper
Insulation	:	Polyvinyl Chloride (PVC) compound Type TI 1
Outer Sheath	:	Polyvinyl Chloride (PVC) compound Type TM1 with Black colour
Colour of cores	:	White with numbering

PVC INSULATED, PVC SHEATHED UNARMoured CABLE (MULTI-CORE) AUXILIARY (BS 6004, 300/500V)

Number of core	Nominal cross-sectional area of conductor	Conductor Shape	Nominal Thickness of insulation	Nominal Thickness of sheath	Approx. Overall diameter	Approx. Cable weight
	mm ²		mm	mm	mm	kg/km
7	1.5	s.c	0.7	1.2	11.6	220
7	1.5	c.s	0.7	1.2	12.2	240
10	1.5	s.c	0.7	1.3	15.1	320
10	1.5	c.s	0.7	1.3	15.8	350
12	1.5	s.c	0.7	1.3	15.2	360
12	1.5	c.s	0.7	1.3	16.1	380
19	1.5	s.c	0.7	1.3	18.0	540
19	1.5	c.s	0.7	1.4	19.0	560
27	1.5	s.c	0.7	1.4	21.6	740
27	1.5	c.s	0.7	1.5	22.9	760
37	1.5	s.c	0.7	1.5	24.0	980
37	1.5	c.s	0.7	1.6	25.8	1010
7	2.5	s.c	0.8	1.3	13.2	320
7	2.5	c.s	0.8	1.3	13.7	330
10	2.5	s.c	0.8	1.4	17.0	430
10	2.5	c.s	0.8	1.4	17.8	450
12	2.5	s.c	0.8	1.4	17.0	490
12	2.5	c.s	0.8	1.4	18.0	520
19	2.5	s.c	0.8	1.5	20.6	770
19	2.5	c.s	0.8	1.5	21.5	810
27	2.5	s.c	0.8	1.6	25.5	1080
27	2.5	c.s	0.8	1.6	26.0	1130
37	2.5	s.c	0.8	1.7	27.5	1430
37	2.5	c.s	0.8	1.7	28.8	1490
7	4	c.s	0.8	1.4	16.0	520
10	4	c.s	0.8	1.5	20.2	670
12	4	c.s	0.8	1.5	20.8	780

Note: s.c – Solid conductor; c.s – Circular stranded

PVC UNARMoured

PVC INSULATED PVC SHEATHED UNARMoured CABLE

CONSTRUCTION

Conductor	:	Class 2 stranded plain annealed copper
Insulation	:	Polyvinyl Chloride (PVC) compound Type A
Colour of cores	:	Single core - red or black 2 cores - red and black 3 cores - red, yellow and blue 4 cores - red, yellow, blue and black
Formation	:	(i) Single core (ii) 2, 3 or 4 cores Bundled together and the interstices may be filled with the sheathing compound. A non-hygroscopic filler or binder tape may be applied over the laid-up cores.
Outer Sheath	:	Polyvinyl Chloride (PVC) compound Type ST-1 with Black colour

PVC INSULATED, PVC SHEATHED UNARMoured CABLE (1-CORE) (IEC 60502-1, MS 2100 0.6 / 1.0 (1.2) kV)

Nominal Cross-Sectional Area of Conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Cable Weight
mm ²		mm	mm	mm	kg/km
50	c.c	1.4	1.4	13.8	591
70	c.c	1.4	1.4	15.4	807
95	c.c	1.6	1.5	17.8	1101
120	c.c	1.6	1.5	19.4	1372
150	c.c	1.8	1.6	21.2	1658
185	c.c	2.0	1.7	23.6	2056
240	c.c	2.2	1.8	26.5	2665
300	c.c	2.4	1.9	29.6	3322
400	c.c	2.6	2.0	33.0	4258
500	c.c	2.8	2.1	36.3	5401
630	c.c	2.8	2.2	40.1	6849

Note: c.c – Circular Stranded Compacted

PVC UNARMoured

PVC INSULATED, PVC SHEATHED UNARMoured CABLE (2-CORE) (IEC 60502-1, MS 2102 0.6 / 1.0 (1.2) kV)

Nominal Cross-Sectional Area of Conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. net weight
mm ²		mm	mm	mm	kg/km
10	c.s	1.0	1.8	15.7	393
16	c.c	1.0	1.8	17.5	544
25	s.s	1.2	1.8	18.2	726
35	s.s	1.2	1.8	19.8	937
50	s.s	1.4	1.8	22.6	1232
70	s.s	1.4	1.9	25.3	1686
95	s.s	1.6	2.0	29	2280
120	s.s	1.6	2.1	31.5	2846
150	s.s	1.8	2.2	34.7	3442
185	s.s	2.0	2.4	38.7	4281
240	s.s	2.2	2.5	43.4	5545
300	s.s	2.4	2.7	48.1	6894
400	s.s	2.6	2.9	53.6	8827

Note : c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon a request)

PVC INSULATED, PVC SHEATHED UNARMoured CABLE (3-CORE) (IEC 60502-1, MS 2102 0.6 / 1.0 (1.2) kV)

Nominal Cross-Sectional Area of Conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Cable Weight
mm ²		mm	mm	mm	kg/km
10	c.s	1.0	1.8	16.6	519
16	c.c	1.0	1.8	18.6	724
25	s.s	1.2	1.8	20.6	1035
35	s.s	1.2	1.8	22.6	1346
50	s.s	1.4	1.8	25.8	1781
70	s.s	1.4	1.9	29.1	2451
95	s.s	1.6	2.1	33.7	3342
120	s.s	1.6	2.2	36.7	4188
150	s.s	1.8	2.3	40.4	5060
185	s.s	2.0	2.5	45.1	6296
240	s.s	2.2	2.7	50.9	8194
300	s.s	2.4	2.8	56.2	10163
400	s.s	2.6	3.1	62.9	13058

Note : c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon a request)

PVC UNARMoured

PVC INSULATED, PVC SHEATHED UNARMoured CABLE (4-CORE) (IEC 60502-1, MS 2102 0.6 / 1.0 (1.2) kV)

Nominal Cross-Sectional Area of Conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Cable Weight
mm ²		mm	mm	mm	kg/km
10	c.s	1.0	1.8	18.4	658
16	c.c	1.0	1.8	20.3	919
25	s.s	1.2	1.8	23.0	1345
35	s.s	1.2	1.8	25.4	1761
50	s.s	1.4	1.9	29.1	2347
70	s.s	1.4	2.0	33.0	3234
95	s.s	1.6	2.2	38.3	4415
120	s.s	1.6	2.3	41.8	5526
150	s.s	1.8	2.5	46.2	6716
185	s.s	2.0	2.6	51.1	8305
240	s.s	2.2	2.9	57.9	10826
300	s.s	2.4	3.1	64.3	13520
400	s.s	2.6	3.4	71.8	17357

Note : c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded (circular conductor can be produced upon a request)

PVC UNARMoured

PVC INSULATED, PVC SHEATHED UNARMoured WITH REDUCED NEUTRAL CABLE

CONSTRUCTION

Conductor	:	Class 2 stranded plain annealed copper
Insulation	:	Polyvinyl Chloride (PVC) compound Type A
Colour of cores	:	Red, yellow, blue and black (neutral)
Formation	:	Bundled together and the interstices may be filled with the sheathing compound. A non-hygroscopic filter or binder tape may be applied over the laid-up cores.
Outer Sheath	:	Polyvinyl Chloride (PVC) compound Type ST-1 with Black colour

PVC INSULATED, PVC SHEATHED UNARMoured WITH REDUCED NEUTRAL CABLE (4-CORE) (IEC 60502-1, MS 2102 0.6 / 1.0 (1.2) kV)

Phase Conductor			Neutral Conductor			Nominal Thickness of Outer Sheath	Approx. Overall Diameter	Approx. Cable Weight
Nominal Cross-Sectional Area of Conductor	Conductor Shape	Nominal Thickness of Insulation	Nominal Thickness of Outer Sheath	Conductor Shape	Nominal Thickness of Insulation			
mm ²		mm	mm ²	No/mm	mm	mm	mm	kg/km
25	c.c	1.2	16	c.c	1.0	1.8	23.4	1285
35	c.c	1.2	16	c.c	1.0	1.8	25.3	1617
50	c.c	1.4	25	c.c	1.2	1.9	29.3	2180
70	c.c	1.4	35	c.c	1.2	2.0	33.2	2981
95	c.c	1.6	50	c.c	1.4	2.1	38.2	4002
120	c.c	1.6	70	c.c	1.4	2.2	42.5	5082
150	c.c	1.8	70	c.c	1.4	2.4	45.8	6014
185	c.c	2.0	95	c.c	1.6	2.5	51.2	7502
240	c.c	2.2	120	c.c	1.6	2.7	57.6	9660
300	c.c	2.4	150	c.c	1.8	2.9	64.3	11993
400	c.c	2.6	185	c.c	2.0	3.2	72.0	15342

Note : c.c – Circular stranded compacted

TECHNICAL DATA & CURRENT RATING

Current ratings are based on the following conditions:

1. Ambient air temperature 30°C
2. Ground temperature 15°C
3. Soil thermal resistivity 1.2°C m/w
4. Depth of laying: (a) For 600/1000V cables 0.5m
(b) For 1900/3300V cables 0.8m
5. Maximum conductor operating temperature 70°C

Rating factors of other temperature:

Cable in air :

Temperature	25°C	30°C	35°C	40°C	45°C
Factor	1.06	1.00	0.94	0.87	0.79

Cables in ground :

Temperature	15°C	20°C	25°C	30°C	35°C
Factor	1.00	0.95	0.90	0.85	0.80

0.6 / 1.0 (1.2) kV COPPER CONDUCTOR PVC UNARMoured CABLES (SINGLE-CORE)

Nominal cross-sectional area of conductor	Clipped Direct				Laid in free air			3 cables, 3-phase, ac trefoil
	2 cables, single-phase ac or dc		3 or 4-cables 3-phase, ac		2 cables, single-phase, 3 cables, 3-phase ac, Horizontal flat spaced			
	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop
mm ²	A	mV/A/m	A	mV/A/m	A	mV/A/m	A	mV/A/m
50	182	0.95	167	0.82	219	0.97	167	0.82
70	234	0.66	214	0.57	281	0.69	216	0.57
95	284	0.5	261	0.43	341	0.54	264	0.43
120	330	0.41	303	0.36	396	0.45	308	0.36
150	381	0.34	349	0.3	456	0.39	356	0.3
185	436	0.29	400	0.26	521	0.35	409	0.26
240	515	0.25	472	0.22	615	0.31	485	0.22
300	594	0.22	545	0.19	709	0.29	561	0.19
400	694	0.2	634	0.175	852	0.27	656	0.18
500	792	0.185	723	0.16	982	0.26	749	0.16
630	904	0.175	826	0.15	1138	0.25	855	0.15
800	1030	0.165	943	0.145	1265	0.25	971	0.15
1000	1154	0.16	1058	0.14	1420	0.24	1079	0.14

TECHNICAL DATA & CURRENT RATING

Current ratings are based on the following conditions:

1. Ambient air temperature 30°C
2. Ground temperature 15°C
3. Soil thermal resistivity 1.2°C m/w
4. Depth of laying: (a) For 600/1000V cables 0.5m
(b) For 1900/3300V cables 0.8m
5. Maximum conductor operating temperature 70°C

Rating factors of other temperature:

Cable in air :

Temperature	25°C	30°C	35°C	40°C	45°C
Factor	1.06	1.00	0.94	0.87	0.79

Cables in ground :

Temperature	15°C	20°C	25°C	30°C	35°C
Factor	1.00	0.95	0.90	0.85	0.80

0.6 / 1.0 (1.2) kV COPPER CONDUCTOR PVC UNARMoured CABLES (MULTI-CORE)

Nominal cross-sectional area of conductor	Clipped Direct				Laid in free air			3 & 4 core 3-phase, ac
	2 cables, single-phase, ac or dc		3 or 4-cables 3-phase, ac		2 core, single-phase, ac or dc			
	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	
mm ²	A	mV/A/m	A	mV/A/m	A	mV/A/m	A	mV/A/m
1.5	20	29	18	25	22	29	19	25
2.5	27	18	24	15	30	18	25	15
4	36	11	32	9.5	40	11	34	9.5
6	46	7.3	41	6.4	51	7.3	43	6.4
10	63	4.4	57	3.8	70	4.4	60	3.8
16	85	2.8	76	2.4	94	2.8	80	2.4
25	112	1.75	96	1.5	119	1.75	101	1.5
35	138	1.25	119	1.1	148	1.25	126	1.1
		ac				ac		
50	168	0.94	144	0.81	180	0.94	153	0.81
70	213	0.65	184	0.57	232	0.65	196	0.57
95	258	0.50	223	0.43	282	0.50	238	0.43
120	299	0.41	259	0.35	328	0.41	276	0.35
150	344	0.34	299	0.29	379	0.34	319	0.29
185	392	0.29	341	0.25	434	0.29	364	0.25
240	461	0.24	403	0.21	514	0.24	430	0.21
300	530	0.21	464	0.185	593	0.21	497	0.185
400	634	0.185	557	0.16	715	0.185	597	0.16

TECHNICAL DATA & CURRENT RATING

Current ratings are based on the following conditions:

- | | | |
|----|---|-----------|
| 1. | Ambient air temperature | 30°C |
| 2. | Ground temperature | 15°C |
| 3. | Soil thermal resistivity | 1.2°C m/w |
| 4. | Depth of laying: (a) For 600/1000V cables | 0.5m |
| | (b) For 1900/3300V cables | 0.8m |
| 5. | Maximum conductor operating temperature | 70°C |

Rating factors of other temperature:

Cable in air :

Temperature	25°C	30°C	35°C	40°C	45°C
Factor	1.06	1.00	0.94	0.87	0.79

Cables in ground :

Temperature	15°C	20°C	25°C	30°C	35°C
Factor	1.00	0.95	0.90	0.85	0.80

0.6 / 1.0 (1.2) kV ALUMINIUM CONDUCTOR PVC UNARMoured CABLES (SINGLE-CORE)

Nominal cross-sectional area of conductor	Bunched and Enclosed in Conduit or Turking				Clipped Direct to a Surface or on Cable Tray, Bunched and Unenclosed			
	2 cables, ac single-phase or dc		3 or 4-cables 3-phase, ac		2 cables, single-phase, ac or dc		3 & 4 cables 3-phase, ac	
	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop
mm ²	A	mV/A/m	A	mV/A/m	A	mV/A/m	A	mV/A/m
		ac dc				ac dc		
16	60	4.5 4.5	52	3.9	72	4.5 4.5	65	3.9
25	78	2.9 2.8	67	2.5	94	2.8 2.8	85	2.5
35	96	2.1 2.0	83	1.8	115	2.1 2.0	105	1.8
50	120	1.6 1.5	100	1.4	140	1.5 1.5	125	1.3
70	150	1.2 1.0	125	1.0	175	1.1 1.0	155	0.93
95	175	0.93 0.8	150	0.8	210	0.77 0.75	185	0.69
120	205	0.80 0.6	175	0.7	240	0.62 0.6	215	0.56
150	235	0.73 0.5	200	0.64	275	0.51 0.49	245	0.48
185	-	- -	-	-	320	0.42 0.39	285	0.4
240	-	- -	-	-	380	0.34 0.29	340	0.34
300	-	- -	-	-	440	0.29 0.23	390	0.3
400	-	- -	-	-	530	0.25 0.18	475	0.27
500	-	- -	-	-	620	0.22 0.15	550	0.25
630	-	- -	-	-	720	0.2 0.11	640	0.24

* The Voltage drop between consumer's terminals and any other point in the installation must not exceed 2.5% of the nominal voltage.

TECHNICAL DATA & CURRENT RATING

Current ratings are based on the following conditions:

- | | | |
|----|---|-----------|
| 1. | Ambient air temperature | 30°C |
| 2. | Ground temperature | 15°C |
| 3. | Soil thermal resistivity | 1.2°C m/w |
| 4. | Depth of laying: (a) For 600/1000V cables | 0.5m |
| | (b) For 1900/3300V cables | 0.8m |
| 5. | Maximum conductor operating temperature | 70°C |

Rating factors of other temperature:

Cable in air :

Temperature	25°C	30°C	35°C	40°C	45°C
Factor	1.06	1.00	0.94	0.87	0.79

Cables in ground :

Temperature	15°C	20°C	25°C	30°C	35°C
Factor	1.00	0.95	0.90	0.85	0.80

0.6 / 1.0 (1.2) kV ALUMINIUM CONDUCTOR PVC UNARMoured CABLES (MULTI-CORE)

Nominal cross-sectional area of conductor	Bunched and Enclosed in Conduit or Turking				Clipped Direct to a Surface or on Cable Tray, Bunched and Unenclosed				
	One twin cables, single-phase ac or dc		3 or 4-cables 3-phase, ac		One twin cables, single-phase ac or dc		3 or 4-core cables 3-phase, ac		
	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop	Current rating	Voltage drop	
mm ²	A	mV/A/m	A	mV/A/m	A	mV/A/m	A	mV/A/m	
		ac dc				ac dc			
16	49	4.6 4.6	43	4.0	58	4.6 4.6	52	4.0	
25	64	2.9 2.9	57	2.6	76	2.9 2.9	67	2.5	
35	79	2.2 2.1	70	1.9	92	2.1 2.1	82	1.8	
50	99	1.7 1.5	87	1.4	115	1.6 1.5	100	1.3	
70	-	- -	-	-	140	1.1 1.1	120	0.93	
95	-	- -	-	-	165	0.79 0.77	150	0.63	
120	-	- -	-	-	195	0.63 0.61	170	0.54	
150	-	- -	-	-	220	0.52 0.5	195	0.45	
185	-	- -	-	-	250	0.43 0.4	220	0.37	
240	-	- -	-	-	300	0.34 0.31	260	0.3	
300	-	- -	-	-	340	0.29 0.25	300	0.25	

TECHNICAL DATA & CURRENT RATING

CURRENT RATING FACTOR

Current rating is based on the following condition:

- 1) Ambient air temperature 30°C
- 2) Max. conductor operating temperature 70°C

Rating Factors

For Ambient Temperature	25°	30°	35°	40°	45°	50°	55°	60°	65°
Factor (General purpose PVC Insulation)	1.03	1.00	0.97	0.94	0.91	0.87	0.84	0.69	0.48

For Groups

Reference method of installation		Correction factor (c)													
		Number of circuits or multicore cables													
		2	3	4	5	6	7	8	9	10	12	14	16	18	20
Enclosed bunched and clipped direct to a non- metallic surface		0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.48	0.45	0.43	0.41	0.39	0.38
Single layer clipped to a non-metallic surface	Touching	0.85	0.79	0.75	0.73	0.72	0.72	0.71	0.70	-	-	-	-	-	-
	Spaced*	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Single layer multicore on a perforated metal cable tray, vertical or horizontal	Touching	0.86	0.81	0.77	0.75	0.74	0.73	0.73	0.72	0.71	0.70	-	-	-	-
	Spaced*	0.91	0.89	0.88	0.87	0.87	-	-	-	-	-	-	-	-	-
Single layer single core on a perforated metal cable tray, touching	Horizontal	0.90	0.85	-	-	-	-	-	-	-	-	-	-	-	-
	Vertical	0.85	-	-	-	-	-	-	-	-	-	-	-	-	-
Single layer multicore touching on ladder supports		0.86	0.82	0.80	0.79	0.78	0.78	0.78	0.77						

* 'Space' means a clearance between adjacent surfaces of at least one cable diameter (D) where the horizontal clearances between adjacent cables exceeds 2D, no correction factor need to be applied.

Notes:

1. The factors in the table are applicable to groups of cables all of one size. The value of current derived from application of the appropriate factors is the maximum continuous current to be carried by any of the cables in the group.
2. If, due to known operating conditions, a cable is expected to carry not more than 30% of its grouped rating, it may be ignored for the purpose of obtaining the rating factor for the rest of the group.

TECHNICAL DATA & CURRENT RATING

PVC NON-ARMoured MULTI-CORE (1.0mm² to 400mm²) - Copper

The ratings tabulated apply where the cable is provided with close excess-current protection.

Conductor		Laid on cable tray				Clipped direct to a non-metallic surface			
Nominal cross-sectional area	Conductor Shape	2 core		3 or 4 core		2 core		3 or 4 core	
		single-phase, ac or dc		3-phase, ac		single-phase, ac or dc		3-phase, ac	
		Current rating	Volt drop per ampere per metre	Current rating	Volt drop per ampere per metre	Current rating	Volt drop per ampere per metre	Current rating	Volt drop per ampere per metre
1	2	3	4	5	6	7	8	9	10
mm ²		A	mV/A/m	A	mV/A/m	A	mV/A/m	A	mV/A/m
1	s.c	17	44	15	38	15	44	14	38
1.5	c.s	22	29	19	25	19.5	29	18	25
2.5	c.s	30	18	25	15	27	18	24	15
4	c.s	40	11	34	9.5	36	11	32	9.5
6	c.s	51	7.3	43	6.4	46	7.3	41	6.4
10	c.s	70	4.4	60	3.8	63	4.4	57	3.8
16	c.c	76	2.8	68	2.4	87	2.8	79	2.4
25	c.c or s.s	119	1.75	101	1.5	112	1.75	1.5	1.5
35	c.c or s.s	148	1.25	126	1.1	138	1.25	119	1.1
			ac dc				ac dc		
50	c.c or s.s	180	0.94 0.93	153	0.81	168	0.94 0.93	144	0.81
70	c.c or s.s	232	0.65 0.63	196	0.57	213	0.65 0.63	223	0.57
95	c.c or s.s	282	0.5 0.46	238	0.43	258	0.5 0.46	223	0.43
120	c.c or s.s	328	0.41 0.36	276	0.35	299	0.41 0.36	259	0.35
150	c.c or s.s	379	0.34 0.29	319	0.29	344	0.34 0.29	299	0.29
185	c.c or s.s	434	0.29 0.23	364	0.25	392	0.29 0.23	341	0.25
240	c.c or s.s	514	0.24 0.18	430	0.21	461	0.24 0.18	403	0.21
300	c.c or s.s	593	0.21 0.145	497	0.185	530	0.21 0.145	464	0.185
400	c.c or s.s	715	0.185 0.105	597	0.16	634	0.185 0.105	557	0.16

Note : s.c – solid conductor; c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded

TECHNICAL DATA & CURRENT RATING

PVC NON-ARMoured SINGLE-CORE (1.0mm² to 630mm²) - Copper

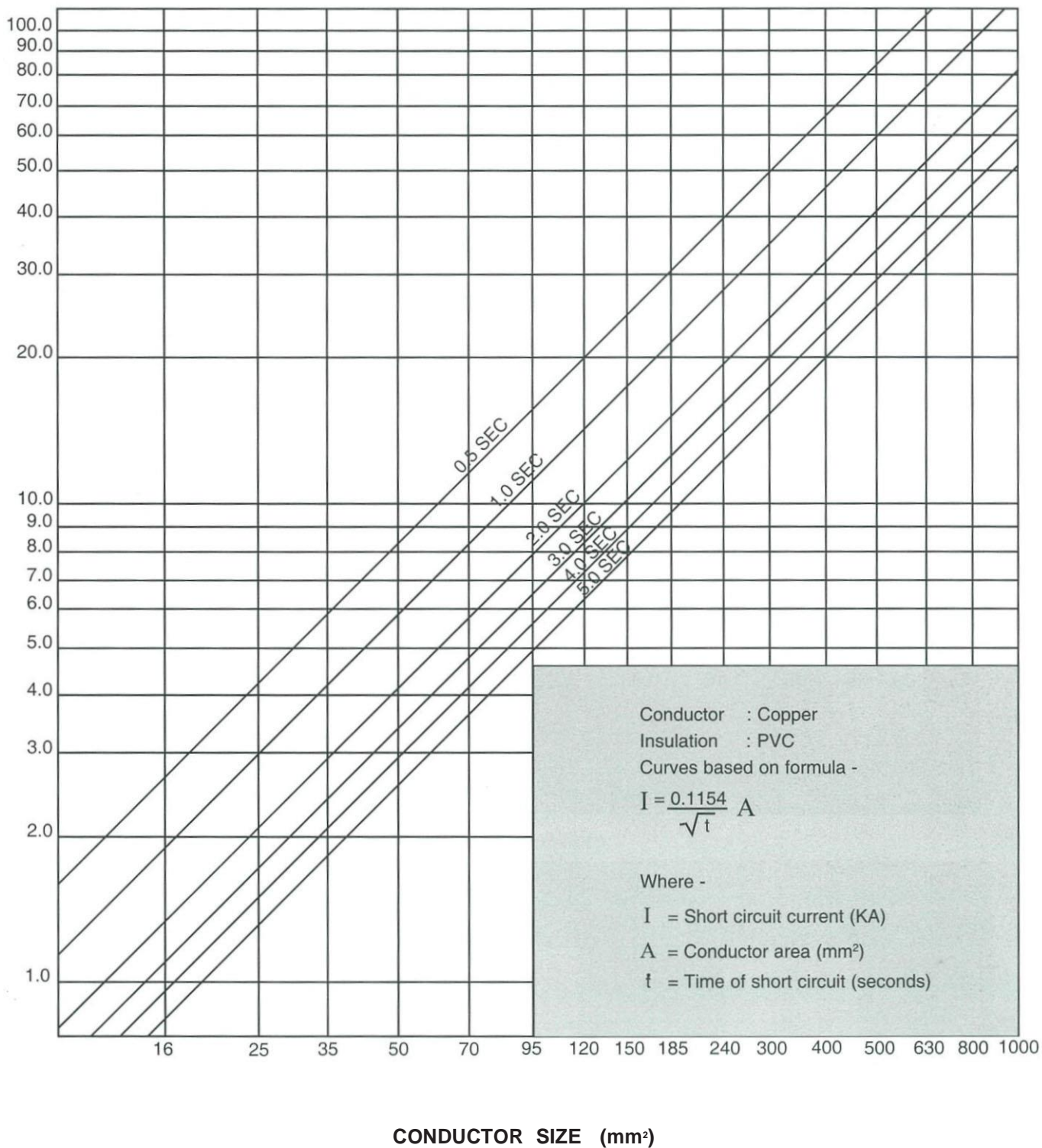
The ratings tabulated apply where the cable is provided with close excess-current protection.

Conductor		Enclosed in Conduit or Trunking Cables				Clipped direct to a non-metallic surface			
Nominal cross-sectional area	No. and dia. (mm) of wires	2 cables single-phase		3 or 4 cables three-phase		2 cables single-phase		3 or 4 cables three-phase	
		Current rating	Volt drop per ampere per metre	Current rating	Volt drop per ampere per metre	Current rating	Volt drop per ampere per metre	Current rating	Volt drop per ampere per metre
1	2	3	4	5	6	7	8	9	10
mm ²		A	mV/A/m	A	mV/A/m	A	mV/A/m	A	mV/A/m
1	s.c	14	44	12	38	16	44	14	38
1.5	c.s	18	29	15.5	16	20	29	18	25
2.5	c.s	24	18	21	15	27	18	25	15
4	c.s	32	11	28	9.5	37	11	33	9.5
6	c.s	41	7.3	36	6.4	47	7.3	43	6.4
10	c.s	57	4.4	50	3.8	65	4.4	59	3.8
16	c.c	76	2.8	68	2.4	87	2.8	79	2.4
			ac dc						
25	c.c	101	1.8 1.75	89	1.55	114	1.75	104	1.5
35	c.c	125	1.3 1.25	110	1.10	141	1.25	129	1.1
	c.c						ac dc		
50	c.c	151	1.10 0.93	134	0.85	182	0.95 0.93	167	0.82
70	c.c	192	0.72 0.63	171	0.61	234	0.66 0.63	214	0.57
95	c.c	232	0.56 0.46	207	0.48	284	0.5 0.46	261	0.43
120	c.c	269	0.47 0.36	239	0.41	330	0.41 0.36	303	0.36
150	c.c	300	0.41 0.29	262	0.36	381	0.34 0.29	349	0.3
185	c.c	341	0.37 0.23	296	0.32	436	0.29 0.23	400	0.26
240	c.c	400	0.33 0.18	346	0.29	515	0.25 0.18	472	0.22
300	c.c	458	0.31 0.145	394	0.27	594	0.22 0.15	545	0.19
400	c.c	546	0.29 0.105	467	0.25	694	0.2 0.11	634	0.175
500	c.c	626	0.28 0.086	533	0.25	792	0.185 0.09	723	0.16
630	c.c	720	0.27 0.068	611	0.24	904	0.175 0.07	826	0.15

Note : s.c – solid conductor; c.s – circular stranded; c.c – circular stranded compacted; s.s – sectoral stranded

TECHNICAL DATA & CURRENT RATING

ALLOWABLE SHORT CIRCUIT CURRENT FOR PVC INSULATED CABLES



TECHNICAL DATA & CURRENT RATING

TECHNICAL DATA MINIMUM INSULATION RESISTANCE VALUES OF 0.6 / 1.0 (1.2) kV CABLES

CONDUCTOR SIZE	INSULATION RESISTANCE AT 1km@20° C
mm ²	MΩ
1.5	10
2.5	9
4	8
6	7
10	7
16	6
25	5
35	5
50	5
70	5
95	5
120	5
150	5
185	5
240	5
300	5
400	5
500	5
630	5
800	5
1000	5

TECHNICAL DATA & CURRENT RATING

Maximum Resistance Of Conductor For Single Core And Multicore Cables

Nominal cross-sectional area		Maximum DC Resistance of conductor at 20°C		Nominal cross-sectional area		Maximum DC Resistance of conductor at 20°C	
		Copper Conductor	Aluminium Conductor			Copper Conductor	Aluminium Conductor
mm ²	No. of wire	ohm/km	ohm/km	mm ²	No. of wire	ohm/km	ohm/km
1.5	1	12.1	-	120	37	0.153	0.253
	7						
2.5	1	7.41	-	150	37	0.124	0.206
	7						
4	7	4.61	7.41	185	37	0.0991	0.164
6	7	3.08	4.61	240	37	0.0754	0.125
10	7	1.83	3.08		61		
16	7	1.15	1.91	300	61	0.0601	0.1
25	7	0.727	1.2	400	61	0.047	0.0778
35	19	0.524	0.868	500	61	0.0366	0.0605
50	19	0.387	0.641	630	127	0.0283	0.0469
70	19	0.268	0.443	800	127	0.0221	0.0367
95	19	0.193	0.32	1000	127	0.0176	0.0291

Properties of Conductors

Properties	Unit	Aluminium	Annealed copper
Density	g/cm ³	2.703	8.89
Volume Resistivity	ohm.mm ³ /km	28.264	17.241
Coefficient of Resistance	Per°C	0.00403	0.00393
Melting Point	°C	660	1073
Coefficient of Expansion	Per°C x 10 ⁶	25.5	16.8
Ultimate Tensile Strength	N/mm ²	205	275

Typical Properties of Various Insulation materials

Insulation	Specific Gravity	Relative Permittivity	Thermal Resistivity (°C m/W)	Volume Resistivity (20°C (ohm-cm))	Max. Cond. Temp. (°C)	Max.Short Circuit Temp. (°C)
PVC	1.44	5.0 - 8.0	5.0 - 6.0	10 ¹⁴	70	160
PE	0.92	2.3	2.3	10 ¹⁶	70	130
XLPE	0.92	2.5	2.5	10 ¹⁶	90	250
EPR	1.2	3.5 - 5.0	3.5 - 5.0	10 ¹⁵	90	250
Impregnated paper	1.1	6	6	10 ¹⁵	65 - 80	160 - 250

TECHNICAL DATA & CURRENT RATING

FORMULA FOR ELECTRICAL CALCULATION

To calculate	Given	DC	AC single phase	AC 3 phase
Current (A)	kW	$A = \frac{1000 \times \text{kW}}{V}$	$A = \frac{1000 \times \text{kW}}{V \times \text{pf}}$	$A = \frac{1000 \times \text{kW}}{1.73 \times V \times \text{pf}}$
Current (A)	kVA	-	$A = \frac{1000 \times \text{kVA}}{V}$	$A = \frac{1000 \times \text{kVA}}{1.73 \times V}$
Current (A)	hp	$A = \frac{746 \times \text{hp}}{V \times \text{eff}}$	$A = \frac{746 \times \text{hp}}{V \times \text{eff} \times \text{pf}}$	$A = \frac{746 \times \text{hp}}{1.73 \times V \times \text{eff} \times \text{pf}}$
Power (kW)	VA	$\text{kW} = \frac{A \times V}{1000}$	$\text{kW} = \frac{A \times V \times \text{pf}}{1000}$	$\text{kW} = \frac{1.73 \times A \times V \times \text{pf}}{1000}$
Apparent Power (kVA)	VA	-	$\text{kVA} = \frac{A \times V}{1000}$	$\text{kVA} = \frac{1.73 \times A \times V}{1000}$

- pf - Power factor of equipment or system under consideration
 eff - Efficiency of motor or machinery
 V - Line voltage

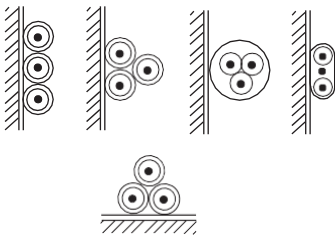
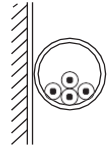
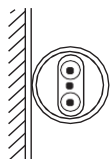
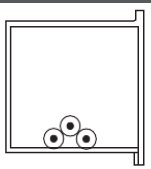
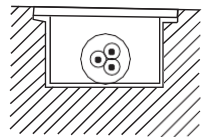
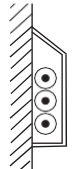
TECHNICAL DATA

CABLE INSTALLATION BENDING RADIUS

Cable Type		.Installation bending radius OD × Factor
Unarmoured cable (6.6 ~ 33 kV)		Factor
Single core		20
Single core with LSHF		20
Three core		15
Three core with LSHF		15
Armoured cable (6.6 ~ 33 kV)		
Single core		15
Single core with LSHF		15
Three core		12
Three core with LSHF		15
Unarmoured cable (more than 33 kV)		
Single core		20
Three core		18
Armoured cable (more than 33 kV)		
Single core		20
Three core		18
0.6/1kV Cable		
PVC insulated	OD ≤ 25 mm	6
XLPE insulated	OD > 25 mm	6
PVC/PVC	OD ≤ 25 mm	6
XLPE/PVC	OD > 25 mm, shape	8
FR-XLPE – Flame Retardant		15
LSHF Insulated		15
FR-XLPE/PVC – Flame Retardant		15
FR-XLPE/LSHF – Flame Retardant		15
LSHF/LSHF		15
PVC/PVC/SWA/PVC	OD ≤ 25 mm	6
XLPE/PVC/SWA/PVC	OD > 25 mm, shape	8
PVC/PVC/SWB/PVC	OD ≤ 25 mm	6
XLPE/PVC/SWB/PVC	OD > 25 mm, shape	8
XLPE/LSHF/SWA/LSHF		15
XLPE/LSHF/SWB/LSHF		15
300/500V Cable		
PVC/PVC, PVC or XLPE/PVC/SWA or SWB/PVC		10
FR-XLPE/PVC or LSHF, LSHF/LSHF		15
XLPE/LSHF/SWA or SWB/LSHF		15

TECHNICAL DATA

TABLE 9A
SCHEDULE METHODS FOR INSTALLATION OF CABLES (CP5: 1988)

Installation Method		Examples	Appropriate Reference Method for determining current-carrying capacities
Number	Description		
1	2	3	4
Open and clipped direct:			
1	Sheathed cables clipped direct to or lying on a non-metallic surface		Method 1
In conduit :			
3	Single-core non-sheathed cables in metallic or non-metallic conduit on a wall or ceiling		Method 3
5	Multicore cables having non-metallic sheath, in metallic or non-metallic conduit on a wall or ceiling		Method 3
In trunking :			
8	Cables in trunking on a wall or suspended in air		Method 3
9	Cables in flush floor trunking		Method 3
10	Single-core cables in skirting trunking		Method 3

TECHNICAL DATA

TABLE 9A
SCHEDULE METHODS FOR INSTALLATION OF CABLES (CP5: 1988)

Installation Method		Examples	Appropriate Reference Method for determining current-carrying capacities
Number	Description		
1	2	3	4
Open and clipped direct:			
11	Sheathed cables on a perforated cable tray, bunched and unenclosed. A perforated cable tray is considered as a tray in which the holes occupy at least 30 % of the surface area.		Method 11
In free air			
12	<p>Sheathed single-core cables in free air (any supporting metal work under the cables occupying less than 10% of the plan area):</p> <ul style="list-style-type: none"> - Two or three cables vertically one above the other, distance between cables equal to the overall cable diameter (D_e); distance from the wall not less than $0.5 D_e$ - Two or three cables horizontally, with spacing as above - Three cables in trefoll, distance between wall and surface of nearest cable $0.5 D_e$ or nearest cables $0.75 D_e$ 		Method 12
13	<p>Sheathed multicore cables in free air distance between wall and cable surface not less than $0.3 D_e$ (any supporting metalwork occupying less than 10% of the plan area)</p>		Method 13

TECHNICAL DATA

APPENDIX TECHNICAL DATA COMMON CONVERSION FACTOR

Installation Method				Reciprocal
Mass				
1 cwt	=	50.802	kg	0.0197
1 oz	=	28.349	gm	0.0352
1 lb	=	0.4536	kg	2.2046
1 lb	=	0.00454	tonne (metric)	220.26
1 ton (long)	=	1.016	tonne (metric)	0.09842
Length				
1 in	=	25.4	mm	0.03937
1 ft	=	0.3048	m	3.2808
1 yd	=	0.9144	m	1.0936
1 mile	=	1.6093	km	0.6214
Area				
1 in ²	=	645.16	mm ²	0.00155
1 ft ²	=	0.0929	mm ²	10.7642
1 yd ²	=	0.8361	mm ²	1.196
Volume				
1 in ³	=	16.387	cm ³ (ml or cc)	0.061
1 ft ³	=	0.0283	m ³	35.3335
1 ft ³	=	6.229	gal (Imp)	0.1605
1 ft ³	=	28.328	l	0.0353
1 yd ³	=	0.7645	m ³	1.3079
1 gal (US)	=	0.8327	gal (Imp)	1.2009
Force				
1 lbf	=	0.4535	kgf	2.2046
1 kgf	=	9.8065	N	0.1019
1 ton (long) f	=	9.964	kN	0.10036
Pressure and Stress				
1 atm	=	0.1013	Mpa	9.869
1 atm	=	1.0133	bar	0.9869
1 lb/in ² (psi)	=	6.894	kN/mm ² (kPa)	0.145
1 bar	=	1.0197	kgf/cm ²	0.09806
Energy (Work and Heat)				
1 HP.h	=	2544.5	Btu	0.000393
1 Btu	=	0.000293	kW.h	3413
1 Btu	=	1.0551	kJ	0.9478
1 Btu	=	107.59	kgf.m	0.00929
1 cat	=	4.187	J	0.239

1 mil = 0.001 in = 0.0254 mm

1 CM(Circular mil) = 0.7854 x 10 in² = 0.5067 x 10 mm²

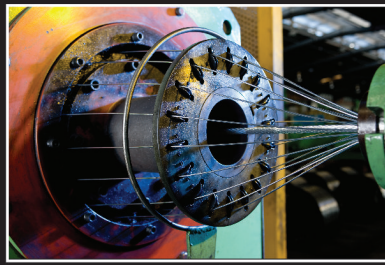
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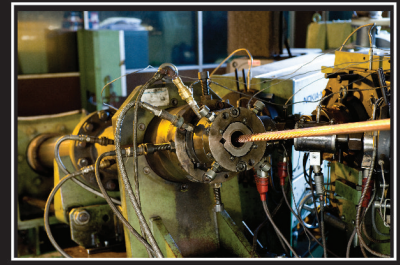
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Drawing



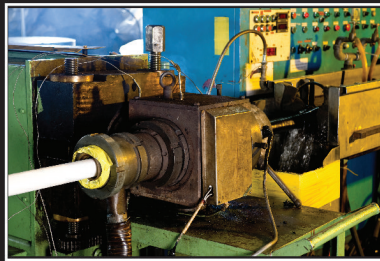
Stranding



Triple Extrusion (MV Cable)



Testing



Outer Sheathing Process



Armouring



Overhead Bare Conductors
Up to 500kV

Product Standards:
BS, ASTM, TNB Specs



Aerial Bundled XLPE & PE
Cables 1kV, 11kV, 22kV, 33kV

Product Standards:
IEC 60502-1, IEC 60502-2,
TNB Specs



Low Voltage Power &
Control XLPE & PVC Cables
1, 2, 3, 4-cores, Multicores

Product Standards:
IEC 60502-1, BS 6346



Underground Medium
Voltage XLPE Cables
11kV, 22kV, 33kV
1-core, 3-cores

Product Standards:
IEC 60502-2, TNB Specs



Housing Wires

Product Standards:
MS 2112-3, MS 2112-4



Power Plant



Transmission



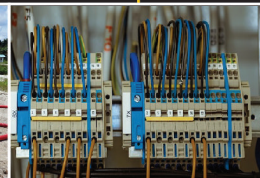
Substation



Distribution (ABC)



Distribution (UG)



Housing Wire

End To End Power Connection




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