



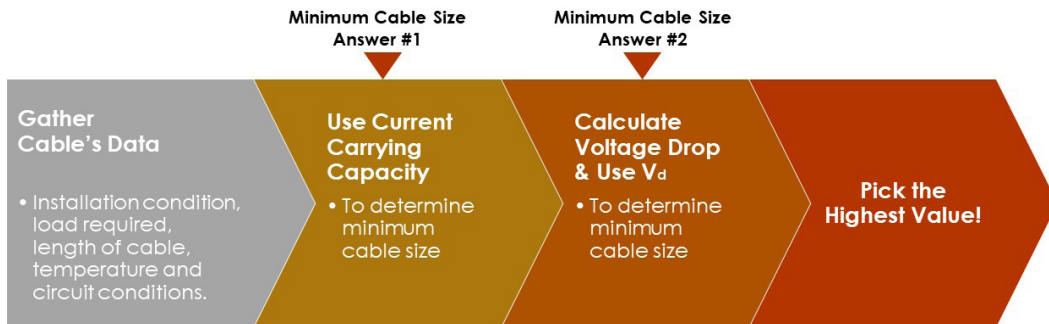
Cable Sizing Guide

Safety • Standards • Stewardship

Step by Step Guide for Low Voltage Copper Conductor Cable Sizing

The proper sizing of a cable is important to ensure that the cable can:

- Operate continuously under full load without being damaged
- Provide the load with a suitable voltage and avoid excessive voltage drops



Step by Step Guide for Low Voltage Copper Conductor Cable Sizing:

We need to first gather the required conditions including the load the cable needs to carry, cable material, installation method, length of cable required. In case of correction factor to be applied, we would also need the ambient temperature, and number of circuits to be laid.

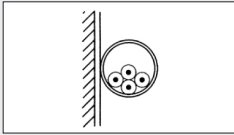
Case Study: Consider a route of 200m of cable to be laid direct in ground with an ambient ground temperature of 15 °C and has to carry a 100A load. The supply voltage is 415V three-phase a.c., and the cable structure is CU/XLPE/SWA/PVC, 4-Core.

Step1: Using Current-Carrying Capacity Method

Installation method

Obtain the appropriate reference method for determining Current-Carrying Capacity in Table 1 based on your installation method (eg. in free air, in conduit, in trunking, on cable tray). [Table 1] If the cable is to be direct buried underground as it is in our example, you can head to the Current-Carrying Capacity Tables directly.

Example of where to look for reference method in Table 1 if it is not for a direct buried underground cable.

In Conduit :			
3	Single-core non-sheathed cables in metallic or non-metallic conduit on a wall or ceiling		Method 3

Cable Construction

Cable insulation material plays an important role in cable sizing because it directly affects your cables maximum operating temperature. We have placed common insulation materials: PVC, XLPE, EPR here for your reference. Once you have obtained the installation method [Table 1], you can head to the appropriate Current-Carrying Capacity Tables to determine the right cable size for the current load you need. [PVC: Tables, 2, 4, 6, 8; XLPE: Tables 10, 12, 14, 16; EPR: Tables 18, 20]

In standard cable materials, PVC has a maximum operating temperature of 70°C, XLPE 90 °C and EPR 90 °C. Cable material helps to determine how well the cable may work in your installation environment. For instance, EPR (rubber) is much more flexible than XLPE and therefore may be a better choice if you require the cable to bend in tighter spaces.

You may also choose between single-core or multi-core cables depending on the installation requirement and this would also affect the current-carrying capacity of the cable. A single core cable would be able to dissipate heat better than a multi-core cable and hence would have a higher current-carrying capacity. However, you may still choose the multi-core cable as it could be easier to install the required conductors at a go.

Step by Step Guide for Low Voltage Copper Conductor Cable Sizing

In our example, as we know that it is a CU/XLPE/SWA/PVC, 4-Core, we will need to look up Table 16.

Table 16 : Current-Carrying Capacities (Amp)
[CU/XLPE/PVC/SWA/PVC, CU/XLPE/LSZH/SWA/LSZH, CU/MT/XLPE/LSZH/SWA/LSZH Cables]

Conductor Operating Temperature :90°C
Ambient Temperature :30°C
Ground Temperature :15°C

Depth of Laying :0.5m

Soil Thermal Resistivity :1.2 k•m/W

BS 6724
IEC60502-1

Conductor cross-sectional area	Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated horizontal cable tray or Reference Method 13 (free air))		In single-way ducts		Laid direct in ground	
	one 2-core cable single-phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single-phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single-phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single-phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.
1	2	3	4	5	6	7	8	9
mm ²	A	A	A	A	A	A	A	A
1.5	27	23	29	25	-	23	-	28
2.5	36	31	39	33	-	30	-	36
4	49	42	52	44	-	40	-	48
6	62	53	66	56	-	50	-	60
10	85	73	90	78	-	65	-	80
16	110	94	115	99	115	94	140	115
25	146	124	152	131	145	125	180	150
35	180	154	188	162	175	150	215	180
50	219	187	228	197	210	175	255	215
70	279	238	291	251	260	215	315	265
95	338	289	354	304	310	260	380	315
120	392	335	410	353	355	300	430	360
150	451	386	472	406	400	335	480	405
185	515	441	539	463	455	380	540	460
240	607	520	636	546	520	440	630	530
300	698	599	732	628	590	495	700	590
400	787	673	847	728	660	560	790	670

Based on Current-Carrying Capacity method, the corresponding cable size would be 16mm².

Step 2: Voltage Drop

We require cable length to assess Voltage Drop, which is the loss of electrical potential along your cable run.

Voltage drop is normally only of importance for cables of voltage rating not exceeding 600/1000V. In Singapore, we follow the SS638 (formerly known as CP5) wiring regulations where the voltage drop of a cable run must not exceed 4%. For instance, if a supply voltage is 415V, then the maximum permissible voltage drop cannot exceed 4% of 415V = 16.6V

Voltage drop of a circuit is mainly determined by the cable size and length of a cable line. The smaller the cable size used, or the longer the cable length that is required for your circuit, the greater the voltage loss. If you find that the voltage drop of the circuit has exceeded the 4% stated, you would need to upsize your cable.

Voltage drop can be calculated using the following formulas:

$$1. V_{max} = 4\% \times \text{supply voltage}$$

$$2. V_d = \frac{V_{max} \times 1000}{I \times L}$$

$$3. V_{ds} \leq V_d$$

$$4. V_t = \frac{V_{ds} \times I \times L}{1000}$$

Where

I = Current (A)

L = Length of cable installed (m)

V_{max} = Max. permissible volt drop in the circuit (V)

V_d = Max. volt drop in the circuit (mV/A/m)

V_{ds} = Volt drop of the selected cable (mV/A/m)

V_t = Total volt drop in the circuit (V)

Step by Step Guide for Low Voltage Copper Conductor Cable Sizing

Back to our example:

A 200m of cable to be laid direct in ground with an ambient ground temperature of 15 °C and has to carry a 100A load. The supply voltage is 415V three-phase a.c., and the cable structure is CU/XLPE/SWA/PVC, 4-Core.

1. V_{max} (Max. permissible voltage drop in the circuit) = 4% x supply voltage = 4% x 415V = 16.6V
2. V_d (Max. voltage drop in the circuit) = $\frac{V_{max} \times 1000}{l \times L} = \frac{16.6V \times 1000}{100A \times 200m} = 0.83mV/A/m$
3. Select a cable from Table 17, such that the V_{ds} is equal to, or less than V_d (the 0.83mV/A/m calculated). It will be seen that this value (V_{ds}) is 0.61mV/A/m giving a cable size of 70mm².
4. V_t (Total voltage drop in the circuit) = $\frac{V_{ds} \times l \times L}{1000} = \frac{0.61mV/A/m \times 100A \times 200m}{1000} = 12.2V$

**Table 17 : Voltage Drop (Per Amp Per Meter)
[CU/XLPE/PVC/SWA/PVC, CU/XLPE/LSZH/SWA/LSZH, CU/MT/XLPE/LSZH/SWA/LSZH Cables]**

Conductor Operating Temperature :90°C

Conductor cross-sectional area	2-core cable d.c.	2 cables, single-phase a.c.			3 or 4 cables, 3-phase a.c.			BS 6724 IEC60502-1	
		2 cables, single-phase a.c.			3 or 4 cables, 3-phase a.c.			2 cables, single-phase a.c.	3 or 4 cables, 3-phase a.c.
1	2	3			4			5	6
mm ²	mV/A/m	mV/A/m			mV/A/m			mV/A/m	mV/A/m
1.5	31.0	31.0			27.0			31.0	25.0
2.5	19.0	19.0			16.0			19.0	15.0
4	12.0	12.0			10.0			12.0	9.7
6	7.9	7.9			6.8			7.9	6.5
10	4.7	4.7			4.0			4.7	3.9
16	2.9	2.9			2.5			2.9	2.6
		r	x	z	r	x	z		
25	1.850	1.850	0.160	1.900	1.600	0.140	1.650	1.900	1.600
35	1.350	1.350	0.155	1.350	1.150	0.135	1.150	1.350	1.200
50	0.980	0.990	0.155	1.000	0.860	0.135	0.870	1.000	0.870
70	0.670	0.670	0.150	0.690	0.590	0.130	0.600	0.690	0.610
95	0.490	0.500	0.150	0.520	0.430	0.130	0.450	0.520	0.450
120	0.390	0.400	0.145	0.420	0.340	0.130	0.370	0.420	0.360
150	0.310	0.320	0.145	0.350	0.280	0.125	0.300	0.350	0.300
185	0.250	0.260	0.145	0.290	0.220	0.125	0.260	0.290	0.250
240	0.195	0.200	0.140	0.240	0.175	0.125	0.210	0.240	0.210
300	0.155	0.160	0.140	0.210	0.140	0.120	0.185	0.210	0.190
400	0.120	0.130	0.140	0.190	0.115	0.120	0.165	0.190	0.180

Based on Voltage Drop method, in our example, the corresponding cable size would be 70mm².

In Summary,

Based on Step 1: Current-Carrying Capacity Method, the minimum conductor size is 16mm²

Based on Step 2: Voltage Drop Method, the minimum conductor size is 70mm²

Choosing the higher of the two calculations, the required cable size in our example would be 70mm²

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Other Key Considerations

The above calculated example assumes standard conditions for ambient temperature and number of circuits. Should your conditions differ, you would need to apply a correction factor to adjust the current load required. This is important to prevent overheating.

Two common, but not exhaustive, correction factors are shared below:

1. Correction Factor - Ambient Temperature

The Current-Carrying Capacities tables here assume a standard ambient temperature of 30°C in free air, or ground temperature of 15°C with a depth of 0.5m. Do note that cable routing and ventilation will directly affect the ambient temperature and so it is important to consider the installation condition along the entire length of the cable laid. If there is a deviation from the standard temperature, there would be a need to apply a correction factor.

For instance, if the ambient ground temperature in our above example is 20°C instead of 15°C, we would need to locate the correction factor in Table 23 based on the ambient ground temperature, which in this case is 0.97.

Table 23 : Correction factors for ambient ground temperature other than 15°C to be applied to the current-carrying capacities for cables in duct in ground

Ambient temperature °C	Insulation	
	PVC (70°C)	XLPE (90°C)
10	1.04	1.03
15	1.00	1.00
20	0.95	0.97
25	0.90	0.93
30	0.85	0.89
35	0.80	0.86
40	0.74	0.82
45	0.67	0.77
50	0.60	0.73
55	-	0.68
60	-	0.63
65	-	0.58

Assuming your required current load is 100A, you will now need to use $100A / 0.97 = 103A$ in the Current-Carrying Capacities table instead to find the appropriate cable size that can minimally carry this adjusted current load. [[Ambient Temperature Correction Tables 22, 23](#)]

2. Correction Factor - Number of circuits

The standard Current-Carrying Capacities tables assume that only one circuit single-phase or three-phase is laid. If there is grouping of circuits in the installation, it is crucial to apply a cable grouping correction factor so that the appropriate larger cable size is selected to prevent overheating issues.

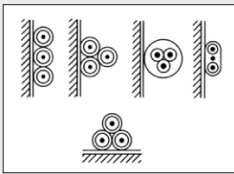
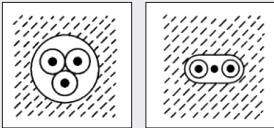
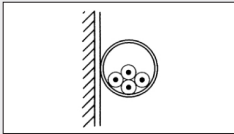
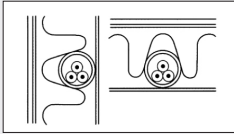
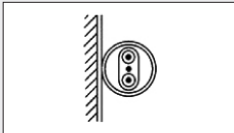
To apply the correction factor, take the required current load and divide it by the correction factor you have identified based on the number of circuits. This will give you the adjusted current load that you should use instead. [[Group Installation Correction Tables 24, 25](#)]

We hope this guide has presented you with a general step by step principle on how to determine the minimum allowable cable size to choose. To reiterate, you will need to choose the minimum allowable size that can cover all the conditions you have looked into to ensure that the cable does not get overloaded.



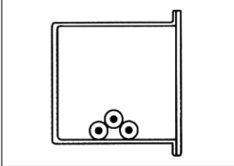
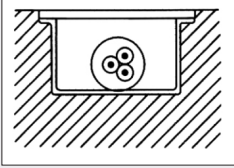
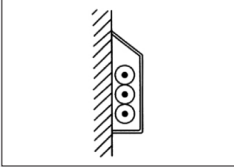
Schedule of Installation Methods of Cables

(Reference Method Included)

Table 1

Installation Method		Examples	Appropriate Reference Method for Determining Current-Carrying Capacity
1	2	3	4
Open and Clipped Direct :			
1	Sheathed cables clipped direct to or lying on a non-metallic surface		Method 1
Cables Embedded Direct in Building Materials :			
2	Sheathed cables embedded directly in masonry, brickwork, concrete, plaster or the like (other than thermally insulating materials)		Method 1
In Conduit :			
3	Single-core non-sheathed cables in metallic or non-metallic conduit on a wall or ceiling		Method 3
4	* Single-core non-sheathed cables in metallic or non-metallic conduit in a thermally insulating wall or above a thermally insulating ceiling, the conduit being in contact with a thermally conductive surface on one side		Method 4
5	Multi-core cables having non-metallic sheath, in metallic sheath, in metallic or non-metallic conduit on a wall or ceiling		Method 3

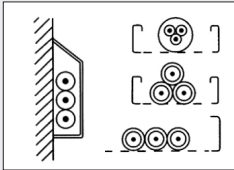
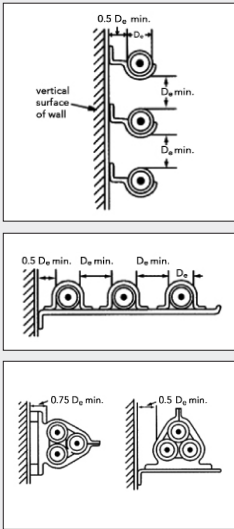
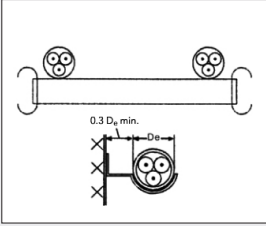
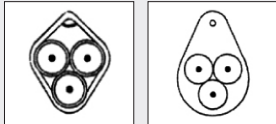
* The wall is assumed to consist of an outer weatherproof skin, thermal insulation and an inner skin of plasterboard or wood-like material, with a coefficient of heat transfer not less than 10 W/m²K. The conduit is fixed so that it is close to, but not necessarily touching, the inner skin. Heat from the cables is assumed to escape through the inner skin only.

1	Installation Method	Examples	Appropriate Reference Method for Determining Current-Carrying Capacity
6	2	3	4
	6 Sheathed cables in conduit in a thermally insulating wall etc		Method 4
	7 Cables in conduit embedded in masonry, brickwork, concrete, plaster or the like (other than thermally insulating materials)		Method 3
In Trunking :			
	8 Cables in trunking on a wall or suspended in the air		Method 3
	9 Cables in flush floor trunking		Method 3
	10 Single-core Cables in skirting trunking		Method 3

* The wall is assumed to consist of an outer weatherproof skin, thermal insulation and an inner skin of plasterboard or wood-like material, with a coefficient of heat transfer not less than 10 W/m²K. The conduit is fixed so that it is close to, but not necessarily touching, the inner skin. Heat from the cables is assumed to escape through the inner skin only.

Schedule of Installation Methods of Cables

(Reference Method Included)

1	Installation Method	Examples	Appropriate Reference Method for Determining Current-Carrying Capacity
1	2	3	4
In Tray :			
11	<p>Sheathed cables, bunched and unenclosed, on a perforated cable tray. A perforated cable tray is considered a tray with holes that occupy at least 30% of the surface area</p>		Method 11
In free air, on cleats, brackets or a ladder :			
12	<p>Sheathed single-core cables in free air (any supporting metalwork under the cables occupying less than 10% of the plan area)</p> <p>Two or three cables vertically one above the other, minimum distance between cable surfaces equal to the overall cable Diam. (D_e); distance from the wall not less than $0.5D_e$</p> <p>Two or three cables horizontally, with spacings as above</p> <p>Three cables in trefoil, distance between wall and surface of nearest cable $0.5D_e$ or nearest cables $0.75D_e$</p>		Method 12
13	<p>Sheathed multi-core cables on ladder or brackets, with separation greater than $2D_e$. Sheathed multi-core cables in free air distance between wall and cable surface not less than $0.3D_e$. Any supporting metalwork under the cables occupying less than 10% of the plan area</p>		Method 13
14	<p>Cables suspended from or incorporating a catenary wire</p>		Method 12 or 13 as appropriate

* The wall is assumed to consist of an outer weatherproof skin, thermal insulation and an inner skin of plasterboard or wood-like material, with a coefficient of heat transfer not less than $10 \text{ W/m}^2\text{K}$. The conduit is fixed so that it is close to, but not necessarily touching, the inner skin. Heat from the cables is assumed to escape through the inner skin only.

Current Rating and Voltage Drop

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Single-Core Cables with PVC Insulation, Unarmoured, with or without Sheath 450/750V or 0.6/1kV

Table 2 : Current-Carrying Capacities (Amp) [CU/PVC or CU/PVC/PVC Cables]

BS EN 50525-2-31 (BS 6004)
IEC 60502 (BS 6346)
SS 358

Conductor Operating Temperature :70°C
Ambient Temperature :30°C

Conductor cross-sectional area	Reference Method 4 (enclosed in conduit in thermally insulating wall etc.)		Reference Method 3 (enclosed in conduit on a wall or in trunking etc.)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray horizontal or vertical)		Reference Method 12 (free air)		
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three phase a.c.	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c.flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. or flat and touching	3 or 4 cable three -phase a.c. flat and touching or trefoil	Horizontal flat spaced	Vertical flat spaced	Trefoil
									single-phase a.c. or d.c. three-phase a.c.	single-phase a.c. or d.c. or three phase a.c.	single-phase a.c.
1	2	3	4	5	6	7	8	9	10	11	12
mm ²	A	A	A	A	A	A	A	A	A	A	A
BS 6004											
1	11	10.5	13.5	12	15.5	14	-	-	-	-	-
1.5	14.5	13.5	17.5	15.5	20	18	-	-	-	-	-
2.5	19.5	18	24	21	27	25	-	-	-	-	-
4	26	24	32	28	37	33	-	-	-	-	-
6	34	31	41	36	47	43	-	-	-	-	-
10	46	42	57	50	65	59	-	-	-	-	-
16	61	56	76	68	87	79	-	-	-	-	-
25	80	73	101	89	114	104	126	112	146	130	110
35	99	89	125	110	141	129	156	141	181	162	137
BS 6346											
50	119	108	151	134	182	167	191	172	219	197	167
70	151	136	192	171	234	214	246	223	281	254	216
95	182	164	232	207	284	261	300	273	341	311	264
120	210	188	269	239	330	303	349	318	396	362	308
150	240	216	300	262	381	349	404	369	456	419	356
185	273	245	341	296	436	400	463	424	521	480	409
240	320	286	400	346	515	472	549	504	615	569	485
300	367	328	458	394	594	545	635	584	709	659	561
400	-	-	546	467	694	634	732	679	852	795	656
500	-	-	626	533	792	723	835	778	982	920	749
630	-	-	720	611	904	826	953	892	1138	1070	855
800	-	-	-	-	1030	943	1086	1020	1265	1188	971
1000	-	-	-	-	1154	1058	1216	1149	1420	1337	1079

Note : For rating factors of ambient temperature other than 30°C please refer to Table 22

Table 3 : Voltage Drop (Per Amp, Per Meter) [CU/PVC or CU/PVC/PVC Cables]

BS EN 50525-2-31 (BS 6004)
IEC 60502-1 (BS 6346)
SS 358

Conductor Operating Temperature :70°C

Conductor cross-sectional area	2 cables d.c.	2 cables single-phase a.c.						3 or 4 cables three-phase a.c.														
		Reference Methods 3 & 4 (enclosed in conduit etc, in or on a wall)		Reference Methods 1 & 11 (clipped direct or on trays, touching)			Reference Method 12 (space)	Reference Methods 3 & 4 (enclosed in conduit etc, in or on a wall)			Reference Methods 1, 11 & 12 (in trefoil)			Reference Methods 1 & 11 (flat touching)	Reference Method 12 (flat spaced)							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
mm ²	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m		
1	44	44	44	44	44	44	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	
1.5	29	29	29	29	29	29	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
2.5	18	18	18	18	18	18	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
4	11	11	11	11	11	11	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	
6	7.3	7.3	7.3	7.3	7.3	7.3	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	
10	4.4	4.4	4.4	4.4	4.4	4.4	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	
16	2.8	2.8	2.8	2.8	2.8	2.8	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	
25	1.75	1.80	0.33	1.80	1.75	0.20	1.75	1.75	0.29	1.80	1.50	0.29	1.55	1.50	0.175	1.50	1.50	0.25	1.55	1.50	0.32	1.55
35	1.25	1.30	0.31	1.30	1.25	0.195	1.25	1.25	0.28	1.30	1.10	0.27	1.10	1.10	0.170	1.10	1.10	0.24	1.10	1.10	0.32	1.15
50	0.93	0.95	0.30	1.00	0.93	0.190	0.95	0.93	0.28	0.97	0.81	0.26	0.85	0.80	0.165	0.82	0.80	0.24	0.84	0.80	0.32	0.86
70	0.63	0.65	0.29	0.72	0.63	0.185	0.66	0.63	0.27	0.69	0.56	0.25	0.61	0.55	0.160	0.57	0.55	0.24	0.60	0.55	0.31	0.63
95	0.46	0.49	0.28	0.56	0.47	0.180	0.50	0.47	0.27	0.54	0.42	0.24	0.48	0.41	0.155	0.43	0.41	0.23	0.47	0.40	0.31	0.51
120	0.36	0.39	0.27	0.47	0.37	0.175	0.41	0.37	0.26	0.45	0.33	0.23	0.41	0.32	0.150	0.36	0.32	0.23	0.40	0.32	0.30	0.44
150	0.29	0.31	0.27	0.41	0.30	0.175	0.34	0.29	0.26	0.39	0.27	0.23	0.36	0.26	0.150	0.30	0.26	0.23	0.34	0.26	0.30	0.40
185	0.23	0.25	0.27	0.37	0.24	0.170	0.29	0.24	0.26	0.35	0.22	0.23	0.32	0.21	0.145	0.26	0.21	0.22	0.31	0.21	0.30	0.36
240	0.180	0.195	0.26	0.33	0.185	0.165	0.25	0.185	0.25	0.31	0.17	0.23	0.29	0.160	0.145	0.22	0.160	0.22	0.27	0.160	0.29	0.34
300	0.145	0.160	0.26	0.31	0.150	0.165	0.22	0.150	0.25	0.29	0.14	0.23	0.27	0.130	0.140	0.190	0.130	0.22	0.25	0.130	0.29	0.32
400	0.105	0.130	0.26	0.29	0.120	0.160	0.20	0.115	0.25	0.27	0.12	0.22	0.25	0.105	0.140	0.175	0.105	0.21	0.24	0.100	0.29	0.31
500	0.086	0.110	0.26	0.28	0.098	0.155	0.185	0.093	0.24	0.26	0.10	0.22	0.25	0.086	0.135	0.160	0.086	0.21	0.23	0.081	0.29	0.30
630	0.068	0.094	0.25	0.27	0.081	0.155	0.175	0.076	0.24	0.25	0.08	0.22	0.24	0.072	0.135	0.150	0.072	0.21	0.22	0.066	0.28	0.29
800	0.053	-	-	-	0.068	0.150	0.165	0.061	0.24	0.25	-	-	-	0.060	0.130	0.145	0.060	0.21	0.22	0.053	0.28	0.29
1000	0.042	-	-	-	0.059	0.150	0.160	0.050	0.24	0.24	-	-	-	0.052	0.130	0.140	0.052	0.20	0.21	0.044	0.28	0.28

Note : r = conductor resistance at operating temperature, x = reactance, z = impedance

Current Rating and Voltage Drop

PVC Insulated Cables
Single-Core, Armoured



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Single-Core Cables with PVC Insulation, Armoured, PVC Outsheath 0.6/1kV
Table 4 : Current-Carrying Capacities (Amp) [CU/PVC/PVC/AWA/PVC Cables]

Conductor Operating Temperature :70°C
Ambient Temperature :30°C
Ground Temperature :15°C

IEC 60502-1 (BS 6346)

Depth of Laying :0.5m

Soil Thermal Resistivity :1.2 k•m/W

Conductor cross-sectional area	Reference Method 1 (clipped direct)		Reference Method 11 (on perforated cable tray)		Reference Method 12 (free air)					Direct in ground		In single way ducts	
	2 cables single-phase a.c. or d.c.	3 or 4 cables 3-phase a.c.	2 cables single-phase a.c. flat & touching	3 or 4 cables 3-phase a.c. flat & touching	3 or 4 cables 3-phase a.c.			2 cables d.c. spaced		2 cables flat touching	3 cables trefoil touching	2 cables duct touching	3 cables trefoil touching
					Horizontal flat spaced	Vertical flat spaced	3 cables trefoils	Horizontal	Vertical				
1	2	3	4	5	6	7	8	9	10	11	12	13	14
mm ²	A	A	A	A	A	A	A	A	A	A	A	A	A
50	193	179	205	189	230	212	181	229	216	238	203	216	199
70	245	225	259	238	286	263	231	294	279	292	248	262	241
95	296	269	313	285	338	313	280	357	340	349	297	308	282
120	342	309	360	327	385	357	324	415	396	396	337	341	311
*150	393	352	413	373	436	405	373	479	458	443	376	375	342
185	447	399	469	422	490	456	425	548	525	497	423	414	375
240	525	465	550	492	566	528	501	648	622	571	485	463	419
300	594	515	624	547	616	578	567	748	719	640	542	509	459
400	687	575	723	618	674	632	657	885	851	708	600	545	489
500	763	622	805	673	721	676	731	1035	997	780	660	585	523
630	843	669	891	728	771	723	809	1218	1174	856	721	632	563
800	919	710	976	777	824	772	886	1441	1390	895	756	662	587
1000	975	737	1041	808	872	816	946	1685	1627	939	797	703	621

Note : For rating factors of ambient temperature other than 30°C please refer Table 22
For rating factors for group temperature other than 15°C please refer to Table 23
For group rating factors please refer to Table 24

Table 5 : Voltage Drop (Per Amp Per Meter) [CU/PVC/PVC/AWA/PVC Cables]

Conductor Operating Temperature :70°C

IEC 60502-1 (BS6346)

Conductor cross-sectional area	2 cables d.c.	2 cables single-phase a.c.						3 or 4 cables three-phase a.c.									Direct in ground		In single way ducts							
		Reference Methods 1 & 11 (Touching)			Reference Method 12 (space*)			Reference Methods 1, 11 & 12 (in trefoil touching)			Reference Methods 1 & 11 (flat touching)			Reference Method 12 (flat spaced*)			2 cables flat touching	3 cables trefoil touching	2 cables flat touching	3 cables trefoil touching						
		3			4			5			6			7			8	9	10	11						
1	2	r			x			z			r			x			z			r	x	z	r	x	z	
mm ²	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m			mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m
50	0.93	0.93	0.22	0.95	0.92	0.30	0.97	0.80	0.190	0.82	0.79	0.26	0.84	0.79	0.34	0.86	0.97	0.82	1.00	0.88						
70	0.63	0.64	0.21	0.68	0.66	0.29	0.72	0.56	0.180	0.58	0.57	0.25	0.62	0.59	0.32	0.68	0.67	0.58	0.76	0.66						
95	0.46	0.48	0.20	0.52	0.51	0.28	0.58	0.42	0.175	0.45	0.44	0.25	0.50	0.47	0.31	0.57	0.50	0.44	0.61	0.53						
120	0.36	0.39	0.195	0.43	0.42	0.28	0.50	0.33	0.17	0.37	0.36	0.24	0.43	0.40	0.30	0.50	0.42	0.36	0.54	0.47						
150	0.29	0.31	0.19	0.37	0.34	0.27	0.44	0.27	0.165	0.32	0.30	0.24	0.38	0.34	0.30	0.45	0.36	0.31	0.48	0.42						
185	0.23	0.26	0.19	0.32	0.29	0.27	0.39	0.22	0.160	0.27	0.25	0.23	0.34	0.29	0.29	0.41	0.31	0.27	0.44	0.38						
240	0.180	0.20	0.180	0.27	0.23	0.26	0.35	0.175	0.160	0.23	0.20	0.23	0.30	0.24	0.28	0.37	0.26	0.23	0.40	0.34						
300	0.145	0.160	0.180	0.24	0.190	0.26	0.32	0.140	0.155	0.21	0.165	0.22	0.28	0.20	0.28	0.34	0.23	0.20	0.37	0.32						
400	0.105	0.140	0.175	0.22	0.180	0.24	0.30	0.120	0.150	0.195	0.160	0.21	0.26	0.21	0.25	0.32	0.22	0.19	0.34	0.30						
500	0.086	0.120	0.170	0.21	0.165	0.23	0.29	0.105	0.145	0.180	0.145	0.20	0.25	0.190	0.24	0.30	0.20	0.18	0.32	0.28						
630	0.068	0.105	0.165	0.195	0.150	0.22	0.27	0.091	0.145	0.170	0.135	0.195	0.23	0.175	0.22	0.28	0.19	0.16	0.30	0.26						
800	0.053	0.095	0.160	0.185	0.145	0.21	0.25	0.082	0.140	0.160	0.125	0.180	0.22	0.170	0.195	0.26	-	-	-	-						
1000	0.042	0.091	0.155	0.180	0.140	0.190	0.24	0.079	0.135	0.155	0.125	0.165	0.21	0.165	0.170	0.24	-	-	-	-						

Note : r = conductor resistance at operating temperature
x = reactance
z = impedance

Current Rating and Voltage Drop

PVC Insulated Cables
Multi-Core, Unarmoured



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Multi-Core Cables with PVC Insulation, Unarmoured, PVC Outsheath 0.6/1kV

Table 6 : Current-Carrying Capacities (Amp) [CU/PVC/PVC Cables]

Conductor Operating Temperature :70°C

Ambient Temperatur :30°C

BS EN 50525-2-31 (BS 6004)

IEC 60502-1 (BS 6346)

Conductor cross-sectional area	Reference Method 4 (enclosed in an insulated wall etc)		Reference Method 3 (enclosed in conduit on a wall or ceiling, or in trunking)		Reference Method 1 (clipped direct)		Reference Method 11 (on perforated cable tray), or Reference Method 13 (free air)	
	one 2-core cable* single-phase a.c. or d.c.	one 3-core cable* or one 4-core cable 3-phase a.c.	one 2-core cable* single-phase a.c. or d.c.	one 3-core cable* or one 4-core cable 3-phase a.c.	one 2-core cable* single-phase a.c. or d.c.	one 3-core cable* or one 4-core cable 3-phase a.c.	one 2-core cable* single-phase a.c. or d.c.	one 3-core cable* or one 4-core cable 3-phase a.c.
1	2	3	4	5	6	7	8	9
mm ²	A	A	A	A	A	A	A	A
1	11	10	13	11.5	15	13.5	17	14.5
1.5	14	13	16.5	15	19.5	17.5	22	18.5
2.5	18.5	17.5	23	20	27	24	30	25
4	25	23	30	27	36	32	40	34
6	32	29	38	34	46	41	51	43
10	43	39	52	46	63	57	70	60
16	57	52	69	62	85	76	94	80
25	75	68	90	80	112	96	119	101
35	92	83	111	99	138	119	148	126
50	110	99	133	118	168	144	180	153
70	139	125	168	149	213	184	232	196
95	167	150	201	179	258	223	282	238
120	192	172	232	206	299	259	328	276
150	219	196	258	225	344	299	379	319
185	248	223	294	255	392	341	434	364
240	291	261	344	297	461	403	514	430
300	334	298	394	339	530	464	593	497
400	-	-	470	402	634	557	715	597

* With or without protective conductor

Note : For rating factors of ambient temperature other than 30°C please refer to Table 22

Table 7 : Voltage Drop (Per Amp Per Meter) [CU/PVC/PVC Cables]

Conductor Operating Temperature :70°C

Conductor cross-sectional	2-core cable a.c.	2-core cable single-phase a.c.			3-core or 4-core cable 3-phase a.c.		
	2	3			4		
mm ²	mV/A/m	mV/A/m			mV/A/m		
1	44	44			38		
1.5	29	29			25		
2.5	18	18			15		
4	11	11			9.5		
6	7.3	7.3			6.4		
10	4.4	4.4			3.8		
16	2.8	2.8			2.4		
		r	x	z	r	x	z
25	1.75	1.75	0.170	1.75	1.50	0.145	1.50
35	1.25	1.25	0.165	1.25	1.10	0.145	1.10
50	0.93	0.93	0.165	0.94	0.80	0.140	0.81
70	0.63	0.63	0.160	0.65	0.55	0.140	0.57
95	0.46	0.47	0.155	0.50	0.41	0.135	0.43
120	0.36	0.38	0.155	0.41	0.33	0.135	0.35
150	0.29	0.30	0.155	0.34	0.26	0.130	0.29
185	0.23	0.25	0.150	0.29	0.21	0.130	0.25
240	0.180	0.190	0.150	0.24	0.165	0.130	0.21
300	0.145	0.155	0.145	0.21	0.135	0.130	0.185
400	0.105	0.115	0.145	0.185	0.100	0.125	0.160

Note : r = conductor resistance at operating temperature, x = reactance, z = impedance

Current Rating and Voltage Drop

PVC Insulated Cables
Multi-Core, Armoured



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Multi-Core Cables with PVC Insulation, Armoured, PVC Outsheathed 0.6/1kV
Table 8 : Current-Carrying Capacities (Amp) [CU/PVC/PVC/SWA/PVC Cables]

Conductor Operating Temperature :70°C

IEC 60502-1 (BS6346)

Ambient Temperature :30°C

Ground Temperature :15°C

Depth of Laying :0.5m

Soil Thermal Resistivity :1.2 k•m/W

Conductor cross-sectional area	Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated horizontal cable tray or Reference Method 13 [free air])		Direct in ground		In single way ducts	
	one 2-core cable single-phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single-phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	2-core	3-core or 4-core	2-core	3-core or 4-core
1	2	3	4	5	6	7	8	9
mm ²	A	A	A	A	A	A	A	A
1.5	21	18	22	19	32	27	26	22
2.5	28	25	31	26	41	35	34	29
4	38	33	41	35	55	47	45	38
6	49	42	53	45	69	59	57	48
10	67	58	72	62	92	78	76	64
16	89	77	97	83	119	101	98	83
25	118	102	128	110	158	132	129	107
35	145	125	157	135	190	159	154	126
50	175	151	190	163	225	188	183	153
70	222	192	241	207	277	233	225	190
95	269	231	291	251	332	279	271	228
120	310	267	336	290	377	317	309	260
150	356	306	386	332	422	355	346	292
185	405	348	439	378	478	401	393	331
240	476	409	516	445	551	462	455	382
300	547	469	592	510	616	517	510	428
400	621	540	683	590	693	580	574	490

Note : For rating factors of ambient temperature other than 30°C please refer to Table 22
For rating factors of group temperature other than 15°C please refer to Table 23
For group rating factors please refer to Table 24

Table 9 : Voltage Drop (Per Amp Per Meter) [CU/PVC/PVC/SWA/PVC Cables]

Conductor Operating Temperature :70°C

IEC 60502-1 (BS6346)

Conductor cross-sectional area	2-core cable a.c.	2-core cable single-phase a.c.		3-core or 4-core cable 3-phase a.c.			Direct in ground		In single way ducts		
		r	x	r	x	z	2-core	3-core or 4-core	2-core	3-core or 4-core	
1	2	3		4			5	6	7	8	
mm ²	mV/A/m	mV/A/m		mV/A/m			mV/A/m	mV/A/m	mV/A/m	mV/A/m	
1.5	29	29		25			29	25	29	25	
2.5	18	18		15			18	15	18	15	
4	11	11		9.5			11	9.5	11	9.5	
6	7.3	7.3		6.4			7.4	6.4	7.4	6.4	
10	4.4	4.4		3.8			4.4	3.8	4.4	3.8	
16	2.8	2.8		2.4			2.8	2.4	2.8	2.4	
25	1.75	1.75	0.17	1.75	1.5	0.145	1.5	1.7	1.5	1.7	1.5
35	1.25	1.25	0.165	1.25	1.1	0.145	1.1	1.3	1.1	1.3	1.1
50	0.93	0.93	0.165	0.94	0.8	0.14	0.81	0.94	0.82	0.94	0.82
70	0.63	0.63	0.16	0.65	0.55	0.14	0.57	0.66	0.57	0.66	0.57
95	0.46	0.47	0.155	0.5	0.41	0.135	0.43	0.49	0.42	0.49	0.42
120	0.36	0.38	0.155	0.41	0.33	0.135	0.35	0.4	0.35	0.40	0.35
150	0.29	0.30	0.155	0.34	0.26	0.13	0.29	0.34	0.29	0.34	0.29
185	0.23	0.25	0.15	0.29	0.21	0.13	0.25	0.29	0.25	0.29	0.25
240	0.18	0.19	0.15	0.24	0.165	0.13	0.21	0.24	0.21	0.24	0.21
300	0.145	0.155	0.145	0.21	0.135	0.13	0.185	0.21	0.18	0.21	0.18
400	0.105	0.115	0.145	0.185	0.1	0.125	0.16	0.19	0.17	0.19	0.17

Note : r = conductor resistance at operating temperature, x = reactance, z = impedance

Current Rating and Voltage Drop

XLPE (or LSZH) Insulated Cables
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Single-Core Cables with XLPE (or LSZH) Insulation, with or without PVC (or LSZH) Outersheath 450/750V or 0.6/1kV

Table 10 : Current-Carrying Capacities (Amp)
[CU/LSZH, CU/XLPE/PVC, CU/XLPE/LSZH, CU/MT/LSZH or CU/MT/XLPE/LSZH Cables]

Conductor Operating Temperature :90°C
Ambient Temperature :30°C

BS EN 50525-3-41 (BS 7211)
IEC60502-1

Conductor cross-sectional area	Reference Method 4 (enclosed in conduit in thermally insulating wall etc)		Reference Method 3 (enclosed in conduit on a wall or in trunking etc)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray, horizontal or vertical)		Reference Method 12 (free air)		
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, 3-phase a.c.	2 cables, single-phase a.c. or d.c.	3 or 4 cables, 3-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, 3-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. or flat and touching	3 or 4 cables, 3-phase a.c. flat and touching or trefoil	Horizontal flat spaced 2 cables, single-phase a.c. or d.c. or 3 cables three phase	Vertical flat spaced 2 cables, single-phase a.c. or d.c. or 3 cables three phase	Trefoil 3 cables, trefoil 3-phase a.c.
1	2	3	4	5	6	7	8	9	10	11	12
mm ²	A	A	A	A	A	A	A	A	A	A	A
1.5	18	17	22	19	25	23	-	-	-	-	-
2.5	24	23	30	26	34	31	-	-	-	-	-
4	33	30	40	35	46	41	-	-	-	-	-
6	43	39	51	45	59	54	-	-	-	-	-
10	58	53	71	63	81	74	-	-	-	-	-
16	76	70	95	85	109	99	-	-	-	-	-
25	100	91	126	111	143	130	158	140	183	163	138
35	125	111	156	138	176	161	195	176	226	203	171
50	149	135	189	168	228	209	239	215	274	246	209
70	189	170	240	214	293	268	308	279	351	318	270
95	228	205	290	259	355	326	375	341	426	389	330
120	263	235	336	299	413	379	436	398	495	453	385
150	300	270	375	328	476	436	505	461	570	524	445
185	341	306	426	370	545	500	579	530	651	600	511
240	400	358	500	433	644	590	686	630	769	711	606
300	459	410	573	493	743	681	794	730	886	824	701
400	-	-	684	584	868	793	915	849	1065	994	820
500	-	-	783	666	990	904	1044	973	1228	1150	936
630	-	-	900	764	1130	1033	1191	1115	1423	1338	1069
800	-	-	-	-	1288	1179	1358	1275	1580	1485	1214
1000	-	-	-	-	1443	1323	1520	1436	1775	1671	1349

Note : For rating factors of ambient temperature other than 30°C please refer to Table 27
For rating factors of ground temperature other than 15°C please refer to Table 30

Table 11 : Voltage Drop (Per Amp Per Meter)
[CU/LSZH, CU/XLPE/PVC, CU/XLPE/LSZH, CU/MT/LSZH or CU/MT/XLPE/LSZH Cables]

Conductor Operating Temperature :90°C

BS EN 50525-3-41 (BS 7211)

Size of Conductor	2 cables d.c.	2 cables, single-phase a.c.				3 or 4 cables, 3-phase a.c.											
		Reference Methods 3 and 4 (enclosed in conduit etc, in or on a wall)		Reference Methods 1 and 11 (clipped direct or on trays touching)		Reference Methods 3 and 4 (enclosed in conduit etc, in or on a wall)		Reference Methods 1, 11 and 12 (in trefoil)		Reference Methods 1 and 11 (flat and touching)							
1	2	3		4		5		6		7							
mm ²	mV/A/m	mV/A/m		mV/A/m		mV/A/m		mV/A/m		mV/A/m							
1.5	31	31	27	27	27	27	27	27	27	27	27						
2.5	19	19	16	16	16	16	16	16	16	16	16						
4	12	12	10	10	10	10	10	10	10	10	10						
6	7.8	7.9	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8						
10	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7						
16	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9						
25	1.85	r	x	z	r	x	z	r	x	z	r	x	z				
35	1.35	1.85	0.31	1.90	1.85	0.190	1.85	1.60	0.27	1.65	1.600	0.165	1.600	1.600	0.190	1.600	
50	0.99	1.35	0.29	1.35	1.35	0.180	1.35	1.15	0.25	1.15	1.150	0.155	1.150	1.150	0.180	1.150	
70	0.68	1.00	0.29	1.05	0.99	0.180	1.00	0.87	0.25	0.90	0.860	0.155	0.870	0.860	0.180	0.870	
95	0.49	0.68	0.70	0.28	0.75	0.68	0.175	0.71	0.60	0.24	0.65	0.590	0.150	0.610	0.590	0.175	0.620
120	0.39	0.49	0.51	0.27	0.58	0.49	0.170	0.52	0.44	0.23	0.50	0.430	0.145	0.450	0.430	0.170	0.460
150	0.32	0.39	0.41	0.26	0.48	0.39	0.165	0.43	0.35	0.23	0.42	0.340	0.140	0.370	0.340	0.165	0.380
185	0.25	0.32	0.33	0.26	0.43	0.32	0.165	0.36	0.29	0.23	0.37	0.280	0.140	0.310	0.280	0.165	0.320
240	0.19	0.25	0.27	0.26	0.37	0.26	0.165	0.30	0.23	0.23	0.32	0.220	0.140	0.260	0.220	0.165	0.280
300	0.155	0.19	0.21	0.26	0.33	0.20	0.160	0.25	0.185	0.22	0.29	0.170	0.140	0.220	0.170	0.165	0.240
400	0.12	0.155	0.175	0.25	0.31	0.16	0.160	0.22	0.150	0.22	0.27	0.140	0.140	0.195	0.135	0.160	0.210
500	0.093	0.12	0.140	0.25	0.29	0.13	0.155	0.20	0.125	0.22	0.25	0.110	0.135	0.175	0.110	0.160	0.195
630	0.072	0.093	0.120	0.25	0.28	0.105	0.155	0.185	0.10	0.22	0.24	0.090	0.135	0.160	0.088	0.160	0.180
800	0.056	0.072	0.100	0.25	0.27	0.086	0.155	0.175	0.088	0.21	0.23	0.074	0.135	0.150	0.071	0.160	0.170
1000	0.045	0.056	-	-	-	0.072	0.150	0.170	-	-	-	0.062	0.130	0.145	0.059	0.155	0.165
		0.045	-	-	-	0.063	0.150	0.165	-	-	-	0.055	0.130	0.140	0.050	0.155	0.165

Note : r = conductor resistance at operating temperature, x = reactance, z = impedance

Current Rating and Voltage Drop

XLPE (or LSZH) Insulated Cables
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Single Core Cables with XLPE or LSZH Insulation, Armoured, PVC or LSZH Outersheath 0.6/1kV

Table 12 : Current-Carrying Capacities (Amp)
[CU/XLPE/PVC/AWA/PVC, CU/XLPE/LSZH/AWA/LSZH, CU/MT/XLPE/LSZH/AWA/LSZH Cables]

Conductor Operating Temperature :90°C
Ambient Temperature :30°C
Ground Temperature :15°C

Depth of Laying :0.5m

BS 6724
IEC60502-1
Soil Thermal Resistivity :1.2 k•m/W

Conductor cross-sectional area	Reference Method 1 (clipped direct)		Reference Method 11 (on perforated cable tray)		Reference Method 12 (free air)	In single-way ducts		Laid direct in ground	
	2 cables single-phase a.c. or d.c. flat and touching	3 or 4 cables 3-phase a.c. flat and touching	2 cables single-phase a.c. flat and touching	3 or 4 cables 3-phase a.c. flat and touching	3 cables 3-phase a.c. trefoil touching	2 cables single-phase a.c. or d.c. ducts touching	3 cables 3-phase a.c. trefoil touching	2 cables single-phase a.c. or d.c. touching	3 cables 3-phase a.c. trefoil touching
1	2	3	4	5	6	7	8	9	10
mm ²	A	A	A	A	A	A	A	A	A
50	237	220	253	232	222	255	235	275	235
70	303	277	322	293	285	310	280	340	290
95	367	333	389	352	346	365	330	405	345
120	425	383	449	405	402	410	370	460	389
150	488	437	516	462	463	445	405	510	435
185	557	496	587	524	529	485	440	580	490
240	656	579	689	612	625	550	500	670	560
300	755	662	792	700	720	610	550	750	630
400	853	717	899	767	815	640	580	830	700
500	962	791	1016	851	918	690	620	910	770
630	1082	861	1146	935	1027	750	670	1000	840
800	1170	904	1246	987	1119	828	735	1117	931
1000	1261	961	1345	1055	1214	919	811	1254	1038

Note : For rating factors of ambient temperature other than 30°C please refer to Table 27
For rating factors of ground temperature other than 15°C please refer to Table 30

Table 13 : Voltage Drop (Per Amp Per Meter)
[CU/XLPE/PVC/AWA/PVC, CU/XLPE/LSZH/AWA/LSZH, CU/MT/XLPE/LSZH/AWA/LSZH Cables]

Conductor Operating Temperature :90°C

BS 6724

Conductor cross-sectional area	2 cables d.c.	2 cables single-phase a.c.			3 or 4 cables three-phase a.c.						2 cables single-phase a.c.		3 or 4 cables, 3-phase a.c. touching	
		Reference Method 1 & 11 (touching)			Reference Method 1, 11 & 12 (in trefoil touching)			Reference Method 1 & 11 (flat touching)			In ducts	In ground	In ducts	In ground
1	2	3			4			5			6	7	8	9
mm ²	mV/A/m	mV/A/m			mV/A/m			mV/A/m			mV/A/m	mV/A/m	mV/A/m	mV/A/m
		r	x	z	r	x	z	r	x	z				
50	0.98	0.99	0.21	1	0.86	0.18	0.87	0.84	0.25	0.88	1.10	0.99	0.93	0.86
70	0.67	0.68	0.20	0.71	0.59	0.17	0.62	0.6	0.25	0.65	0.80	0.70	0.70	0.61
95	0.49	0.51	0.195	0.55	0.44	0.17	0.47	0.46	0.24	0.52	0.65	0.53	0.56	0.46
120	0.39	0.41	0.190	0.45	0.35	0.165	0.39	0.38	0.24	0.44	0.55	0.43	0.48	0.37
150	0.31	0.33	0.185	0.38	0.29	0.160	0.33	0.31	0.23	0.39	0.50	0.37	0.43	0.32
185	0.25	0.27	0.185	0.33	0.23	0.160	0.28	0.26	0.23	0.34	0.45	0.31	0.39	0.27
240	0.195	0.21	0.180	0.28	0.18	0.155	0.24	0.21	0.22	0.30	0.40	0.26	0.35	0.23
300	0.155	0.17	0.175	0.25	0.145	0.150	0.21	0.17	0.22	0.28	0.37	0.24	0.32	0.21
400	0.115	0.145	0.170	0.22	0.125	0.150	0.195	0.160	0.21	0.27	0.35	0.21	0.30	0.19
500	0.093	0.125	0.170	0.21	0.105	0.145	0.180	0.145	0.20	0.25	0.33	0.20	0.28	0.18
630	0.073	0.105	0.165	0.195	0.092	0.145	0.170	0.135	0.195	0.24	0.30	0.19	0.26	0.17
800	0.056	0.090	0.160	0.190	0.086	0.140	0.165	0.130	0.180	0.23	0.28	0.18	0.24	0.16
1000	0.045	0.092	0.155	0.180	0.080	0.135	0.155	0.125	0.170	0.21	0.26	0.17	0.22	0.15

Note : r = conductor resistance at operating temperature
x = reactance
z = impedance

Current Rating and Voltage Drop

XLPE (or LSZH) Insulated Cables
Multi-Core, Unarmoured



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Multi-Core Cables with XLPE (or LSZH) Insulation, PVC (or LSZH) Outersheath 300/500V or 0.6/1kV

Table 14 : Current-Carrying Capacities (Amp) [CU/XLPE/PVC, CU/XLPE/LSZH or CU/MT/XLPE/LSZH Cables]

Conductor Operating Temperature :90°C

Ambient Temperature :30°C

IEC60502-1

Conductor cross-sectional area	Reference Method 4 (enclosed in an conduit insulated wall etc)	Reference Method 3 (enclosed in conduit on a wall or ceiling, or in trunking)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray), or Reference Method 13 (free air)	
	one 3-core cable or one 4-core cable 3-phase a.c.	one 2-core cable single-phase a.c. or d.c.	one 3-core cable or one 4-core cable 3-phase a.c.	one 2-core cable single-phase a.c. or d.c.	one 3-core cable or one 4-core cable 3-phase a.c.	one 2-core cable single-phase a.c. or d.c.	one 3-core cable or one 4-core cable 3-phase a.c.
1	2	3	4	5	6	7	8
mm ²	A	A	A	A	A	A	A
1.5	16.5	22	19.5	24	22	26	23
2.5	22	30	26	33	30	36	32
4	30	40	35	45	40	49	42
6	38	51	44	58	52	63	54
10	51	69	60	80	71	86	75
16	68	91	80	107	96	115	100
25	89	119	105	138	119	149	127
35	109	146	128	171	147	185	158
50	130	175	154	209	179	225	192
70	164	221	194	269	229	289	246
95	197	265	233	328	278	352	298
120	227	305	268	382	322	410	346
150	259	334	300	441	371	473	399
185	295	384	340	506	424	542	456
240	346	459	398	599	500	641	538
300	396	532	455	693	576	741	621
400	-	625	536	803	667	865	741

Note : For rating factors of ambient temperature other than 30°C please refer to Table 27
For rating factors of ground temperature other than 15°C please refer to Table 30

Table 15 : Voltage Drop (Per Amp Per Meter) [CU/XLPE/PVC, CU/XLPE/LSZH or CU/MT/XLPE/LSZH Cables]

Conductor Operating Temperature :90°C

IEC60502-1

Conductor cross-sectional area	2-core cable d.c.	2-core cable single-phase a.c.			3-core or 4-core cable 3-phase a.c.		
	2	3			4		
1	2	3			4		
mm ²	mV/A/m	mV/A/m			mV/A/m		
1.5	31	31			27		
2.5	19	19			16		
4	12	12			10		
6	7.9	7.9			6.8		
10	4.7	4.7			4.0		
16	2.9	2.9			2.5		
		r	x	z	r	x	z
25	1.85	1.85	0.160	1.90	1.60	0.140	1.65
35	1.35	1.35	0.155	1.35	1.15	0.135	1.15
50	0.98	0.99	0.155	1.00	0.86	0.135	0.87
70	0.67	0.67	0.150	0.69	0.59	0.130	0.60
95	0.49	0.50	0.150	0.52	0.43	0.130	0.45
120	0.39	0.40	0.145	0.42	0.34	0.130	0.37
150	0.31	0.32	0.145	0.35	0.28	0.125	0.30
185	0.25	0.26	0.145	0.29	0.22	0.125	0.26
240	0.195	0.20	0.140	0.24	0.175	0.125	0.21
300	0.155	0.16	0.140	0.21	0.140	0.120	0.185
400	0.120	0.13	0.140	0.19	0.115	0.120	0.165

Note : r = conductor resistance at operating temperature
x = reactance
z = impedance

Current Rating and Voltage Drop

XLPE (or LSZH) Insulated Cables
Multi-Core, Armoured



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Multi-Core Cables with XLPE (or LSZH) Insulation, Armoured, PVC or LSZH Outersheath 0.6/1kV

Table 16 : Current-Carrying Capacities (Amp)
[CU/XLPE/PVC/SWA/PVC, CU/XLPE/LSZH/SWA/LSZH, CU/MT/XLPE/LSZH/SWA/LSZH Cables]

Conductor Operating Temperature :90°C
Ambient Temperature :30°C
Ground Temperature :15°C

Depth of Laying :0.5m

BS 6724
IEC60502-1
Soil Thermal Resistivity :1.2 k•m/W

Conductor cross-sectional area	Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated horizontal cable tray or Reference Method 13 [free air])		In single-way ducts		Laid direct in ground	
	one 2-core cable single-phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single-phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single-phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single-phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.
1	2	3	4	5	6	7	8	9
mm ²	A	A	A	A	A	A	A	A
1.5	27	23	29	25	-	23	-	28
2.5	36	31	39	33	-	30	-	36
4	49	42	52	44	-	40	-	48
6	62	53	66	56	-	50	-	60
10	85	73	90	78	-	65	-	80
16	110	94	115	99	115	94	140	115
25	146	124	152	131	145	125	180	150
35	180	154	188	162	175	150	215	180
50	219	187	228	197	210	175	255	215
70	279	238	291	251	260	215	315	265
95	338	289	354	304	310	260	380	315
120	392	335	410	353	355	300	430	360
150	451	386	472	406	400	335	480	405
185	515	441	539	463	455	380	540	460
240	607	520	636	546	520	440	630	530
300	698	599	732	628	590	495	700	590
400	787	673	847	728	660	560	790	670

Note : For rating factors of ambient temperature other than 30°C please refer to Table 27
For rating factors of ground temperature other than 15°C please refer to Table 30

Table 17 : Voltage Drop (Per Amp Per Meter)
[CU/XLPE/PVC/SWA/PVC, CU/XLPE/LSZH/SWA/LSZH, CU/MT/XLPE/LSZH/SWA/LSZH Cables]

Conductor Operating Temperature :90°C

BS 6724
IEC60502-1

Conductor cross-sectional area	2-core cable d.c.	2 cables, single-phase a.c.			3 or 4 cables, 3-phase a.c.			2 cables, single-phase a.c.	3 or 4 cables, 3-phase a.c.
								In ducts or in ground	In ducts or in ground
1	2	3			4			5	6
mm ²	mV/A/m	mV/A/m			mV/A/m			mV/A/m	mV/A/m
1.5	31.0	31.0			27.0			31.0	25.0
2.5	19.0	19.0			16.0			19.0	15.0
4	12.0	12.0			10.0			12.0	9.7
6	7.9	7.9			6.8			7.9	6.5
10	4.7	4.7			4.0			4.7	3.9
16	2.9	2.9			2.5			2.9	2.6
		r	x	z	r	x	z		
25	1.850	1.850	0.160	1.900	1.600	0.140	1.650	1.900	1.600
35	1.350	1.350	0.155	1.350	1.150	0.135	1.150	1.350	1.200
50	0.980	0.990	0.155	1.000	0.860	0.135	0.870	1.000	0.870
70	0.670	0.670	0.150	0.690	0.590	0.130	0.600	0.690	0.610
95	0.490	0.500	0.150	0.520	0.430	0.130	0.450	0.520	0.450
120	0.390	0.400	0.145	0.420	0.340	0.130	0.370	0.420	0.360
150	0.310	0.320	0.145	0.350	0.280	0.125	0.300	0.350	0.300
185	0.250	0.260	0.145	0.290	0.220	0.125	0.260	0.290	0.250
240	0.195	0.200	0.140	0.240	0.175	0.125	0.210	0.240	0.210
300	0.155	0.160	0.140	0.210	0.140	0.120	0.185	0.210	0.190
400	0.120	0.130	0.140	0.190	0.115	0.120	0.165	0.190	0.180

Note : r = conductor resistance at operating temperature
x = reactance
z = impedance

Current Rating and Voltage Drop

Rubber Insulated Cables

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Single-Core Flexible Cables with Rubber Insulation & Chlorinated Polyethylene Outersheath.

Table 18 : Current-Carrying Capacities (Amp)
[CU/EPR/CPE Cables]

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C

BS 50525-2-21

Conductor cross-sectional area	Reference Method 3 (enclosed in conduit etc. in or on a wall)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray) Horizontal or Vertical		Reference Method 12 (free air)	
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. or 3 or 4 cables, three-phase a.c. flat spaced horizontal or vertical	3 cables trefoil, three-phase a.c.
1	2	3	4	5	6	7	8	9
mm ²	A	A	A	A	A	A	A	A
1	17	15	19	17.5	-	-	-	-
1.5	22	19.5	25	23	-	-	-	-
2.5	30	27	34	31	-	-	-	-
4	40	36	45	42	-	-	-	-
6	52	46	59	54	-	-	-	-
10	72	63	81	75	-	-	-	-
16	96	85	108	100	-	-	-	-
25	127	112	143	133	153	140	154	134
35	157	138	177	164	186	174	192	167
50	190	167	215	199	229	211	235	204
70	242	213	274	254	293	269	303	262
95	293	258	332	308	356	327	370	320
120	339	298	384	357	412	379	431	33
150	372	334	442	411	475	437	499	432
185	428	379	519	469	542	499	573	495
240	510	443	607	553	639	589	679	587
300	593	506	695	636	735	679	786	680
400	719	602	827	755	860	798	929	799
500	835	689	946	865	989	918	1081	919
630	975	791	1088	996	1143	1062	1263	1060

Note : For rating factors of ambient temperature other than 30°C please refer to Table 28

Table 19 : Voltage Drop (Per Amp Per Meter)
[CU/EPR/CPE Cables]

Conductor Operating Temperature :

90°CBS 50525-2-21

Conductor cross-sectional area	Cables d.c.	2 cables, single-phase a.c.						3 or 4 cables, three-phase a.c.														
		Reference Method 3 (enclosed in conduit etc. in or on a wall)		Reference Methods 1 & 11 (clipped direct or on trays, touching)		Reference Method 12 (spaced*)	Reference Method 3 (enclosed in conduit etc. in or on a wall)	Reference Method 1, 11 & 12 (in trefoil touching)	Reference Methods 1 & 11 (flat and touching)	Reference Method 12 (flat spaced*)												
1	2	3	4	5	6	7	8	9														
mm ²	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m														
1	46	46	46	-	40	40	40	-														
1.5	31	31	31	-	26	26	26	-														
2.5	18	18	18	-	16	16	16	-														
4	12	12	12	-	10	10	10	-														
6	7.7	7.7	7.7	-	6.7	6.7	6.7	-														
10	4.6	4.6	4.6	-	4.0	4.0	4.0	-														
16	2.9	2.9	2.9	-	2.5	2.5	2.5	-														
	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	
25	1.80	1.80	0.72	1.90	1.85	0.20	1.85	1.85	0.29	1.85	1.60	0.28	1.65	1.60	0.175	1.60	1.60	0.25	1.60	1.60	0.32	1.65
35	1.30	1.30	0.31	1.40	1.30	0.195	1.35	1.30	0.28	1.35	1.15	0.27	1.20	1.15	0.170	1.15	1.15	0.24	1.15	1.15	0.32	1.20
50	0.95	0.95	0.30	1.05	0.97	0.190	0.99	0.97	0.28	1.00	0.87	0.26	0.91	0.84	0.165	0.86	0.84	0.24	0.88	0.84	0.32	0.90
70	0.65	0.65	0.29	0.74	0.66	0.185	0.69	0.66	0.27	0.72	0.60	0.25	0.65	0.57	0.160	0.60	0.57	0.24	0.62	0.57	0.31	0.65
95	0.48	0.48	0.28	0.58	0.49	0.180	0.52	0.49	0.27	0.56	0.44	0.25	0.51	0.43	0.155	0.45	0.43	0.23	0.48	0.42	0.31	0.52
120	0.38	0.38	0.27	0.49	0.39	0.175	0.43	0.39	0.26	0.47	0.35	0.24	0.43	0.34	0.155	0.3	0.34	0.23	0.41	0.34	0.30	0.45
150	0.30	0.30	0.27	0.42	0.31	0.175	0.36	0.31	0.26	0.40	0.29	0.24	0.37	0.27	0.150	0.31	0.27	0.23	0.35	0.27	0.30	0.40
185	0.25	0.25	0.27	0.38	0.25	0.170	0.30	0.25	0.26	0.36	0.23	0.23	0.33	0.22	0.150	0.26	0.22	0.22	0.31	0.22	0.30	0.37
240	0.190	0.190	0.26	0.33	0.195	0.165	0.26	0.195	0.25	0.32	0.180	0.23	0.29	0.10	0.145	0.22	0.170	0.22	0.28	0.170	0.30	0.34
300	0.150	0.150	0.26	0.31	0.155	0.165	0.23	0.155	0.25	0.29	0.150	0.23	0.27	0.135	0.140	0.195	0.135	0.22	0.26	0.135	0.29	0.32
400	0.115	0.115	0.26	0.30	0.125	0.160	0.20	0.120	0.25	0.28	0.130	0.22	0.26	0.110	0.140	0.175	0.110	0.21	0.24	0.105	0.29	0.31
500	0.091	0.091	0.26	0.28	0.100	0.155	0.185	0.097	0.24	0.26	0.105	0.22	0.24	0.089	0.135	0.165	0.089	0.21	0.23	0.085	0.29	0.30
630	0.072	0.072	0.25	0.27	0.082	0.155	0.175	0.077	0.24	0.25	0.085	0.22	0.24	0.073	0.135	0.155	0.073	0.21	0.22	0.067	0.28	0.29

Note : r = conductor resistance at operating temperature; x = reactance; z = impedance
*Spacings larger than those specified in Method 12 will result in larger voltage drop

Current Rating and Voltage Drop

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Table 20 : Current-Carrying Capacities (Amp)
[CU/EPR/CPE Cables]

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C

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Conductor cross-sectional area	Reference Method 3 (enclosed)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray) or Reference Method 13 (free air)	
	1 two-core cable, single-phase a.c. or d.c.	1 three-core or four-core cable, three-phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three-core or four-core cable, three-phase a.c.	1 two-core cable, single-phase a.c. or d.c.	1 three-core or four-core cable, three-phase a.c.
1	2	3	4	5	6	7
mm ²	A	A	A	A	A	A
1	16.5	14.5	18	16	19.5	17.5
1.5	21	18.5	23	20	25	22
2.5	29	25	32	28	34	30
4	38	33	43	37	46	40
6	48	43	55	48	59	52
10	66	58	76	66	81	71
16	87	77	103	88	109	94
25	114	100	136	117	144	123
35	139	122	168	144	177	151
50	167	147	201	174	213	186
70	211	158	256	222	272	237
95	254	222	310	269	329	287
120	292	256	359	312	381	333
150	320	287	413	359	438	383
185	368	326	470	409	499	437
240	439	381	553	482	587	515
300	509	436	636	555	675	593

Note : For rating factors of ambient temperature other than 30°C please refer to Table 29

Table 21 : Voltage Drop (Per Amp Per Meter)
[CU/EPR/CPE Cables]

Conductor Operating Temperature : 90°C

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Conductor cross-sectional area	two-core cable, d.c.	two-core cable, single-phase a.c.		three-core, four-core or five-core cables, three-phase a.c.			
	2	3		4			
mm ²	mV/A/m	mV/A/m		mV/A/m			
1	46	46		40			
1.5	31	31		26			
2.5	19	19		16			
4	12	12		10			
6	7.7	7.7		6.7			
10	4.6	4.6		4.0			
16	2.9	2.9		2.5			
		r	x	z	r	x	z
25	1.80	1.85	0.175	1.85	1.60	0.150	1.60
35	1.30	1.30	0.170	1.35	1.15	0.150	1.15
50	0.95	0.97	0.170	0.99	0.84	0.145	0.86
70	0.65	0.66	0.165	0.68	0.58	0.140	0.59
95	0.48	0.49	0.160	0.52	0.43	0.140	0.45
120	0.38	0.39	0.160	0.42	0.34	0.135	0.36
150	0.30	0.31	0.155	0.35	0.27	0.135	0.20
185	0.25	0.25	0.155	0.20	0.22	0.130	0.26
240	0.190	0.195	0.150	0.25	0.170	0.130	0.22
300	0.150	0.155	0.150	0.22	0.135	0.130	0.185

Note : r = conductor resistance at operating temperature
x = reactance
z = impedance

Table 22 : Correction factors for ambient air temperature other than 30°C to be applied to the current-carrying capacities for cables in the air

Ambient temperature °C	Insulation				
	PVC (70°C)	XLPE (90°C)	HT-PVC (90°C)	Rubber (85°C)	Rubber (60°C)
10	1.22	1.15	-	-	-
15	1.17	1.12	-	-	-
20	1.12	1.08	-	-	-
25	1.06	1.04	1.03	1.02	-
30	1.00	1.00	1.00	1.00	1.00
35	0.94	0.96	0.97	0.95	0.91
40	0.87	0.91	0.94	0.90	0.82
45	0.79	0.87	0.91	0.85	0.71
50	0.71	0.82	0.87	0.80	0.58
55	0.61	0.76	0.84	0.74	0.41
60	0.50	0.71	0.80	0.67	-
65	0.35	0.65	0.76	0.60	-
70	-	0.58	0.71	0.52	-
75	-	0.50	0.61	0.43	-
80	-	0.41	0.50	0.30	-
85	-	0.29	0.35	-	-

Table 23 : Correction factors for ambient ground temperature other than 15°C to be applied to the current-carrying capacities for cables in duct in ground

Ambient temperature °C	Insulation	
	PVC (70°C)	XLPE (90°C)
10	1.04	1.03
15	1.00	1.00
20	0.95	0.97
25	0.90	0.93
30	0.85	0.89
35	0.80	0.86
40	0.74	0.82
45	0.67	0.77
50	0.60	0.73
55	-	0.68
60	-	0.63
65	-	0.58

Table 24 : Correction Factors for Group Installation

Correction for groups of more than one circuit of single-core cables, or more than one multi-core cable

Reference Methods of Installation	Correction Factor (Cg)													
	Number of Circuits or Multi-Core Cables													
	2	3	4	5	6	7	8	9	10	12	14	16	18	20
Enclosed (Method 3 or 4) or bunched and clipped to a non-metallic surface (Method 1)	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 (Method 1)	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
Single layer multi-core on a perforated metal cable tray, vertical or horizontal (Method 11)	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 (Method 11)	Horizontal	0.90	0.85	-	-	-	-	-	-	-	-	-	-	-
	Vertical	0.85	-	-	-	-	-	-	-	-	-	-	-	-
Single layer multi-core 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 Diam.(D_c). Where the horizontal clearance between adjacent cables exceeds 2D_c, no correction factor need be applied.

Note : 1 The factors in the table are applicable to a group of cables all of the same sizes. The value of the 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.
For example, a group of N loaded cables would normally require a group reduction factor of Cg applied to the tabulated Lt. However, if M cables in the group carry loads which are not greater than 0.3Cg Lt amperes, the other cables can be sized by using the group rating factor corresponding to (N-M) cables.

Table 25 : Correction Factors for Cables Installed in Enclosed Trenches

Conductor cross-sectional area	Correction factor									
	Installation Method 18				Installation Method 19			Installation Method 20		
	2 single-core cables or 1 three-core or 4-core cables	3 single-core cables, or two 2-core cables	4 single-core cables, or 2 three-core or 4-core cables	6 single-core cables, 4 two-core cables, or 3 three-core or 4-core cables	6 single-core cables, 4 two-core cables, or 3 three-core or 4-core cables	8 single-core cables, or 4 three-core or 4-core cables	12 single-core cables, 8 two-core cables, or 6 three-core or 4-core cables	12 single-core cables, 8 2-core cables, or 6 three-core or 4-core cables	18 single-core cables, 12 2-core cables, or 9 three-core or 4-core cables	24 single-core cables, 16 2-core cables, or 12 three-core or 4-core cables
1	2	3	4	5	6	7	8	9	10	11
mm ²										
4	0.93	0.90	0.87	0.82	0.86	0.83	0.76	0.81	0.74	0.69
6	0.92	0.89	0.86	0.81	0.86	0.82	0.75	0.80	0.73	0.68
10	0.91	0.88	0.85	0.80	0.85	0.80	0.74	0.78	0.72	0.66
16	0.91	0.87	0.84	0.78	0.83	0.78	0.71	0.76	0.70	0.64
25	0.90	0.86	0.82	0.76	0.81	0.76	0.69	0.74	0.67	0.62
35	0.89	0.85	0.81	0.75	0.80	0.74	0.68	0.72	0.66	0.60
50	0.88	0.84	0.79	0.74	0.78	0.73	0.66	0.71	0.64	0.59
70	0.87	0.82	0.78	0.72	0.77	0.72	0.64	0.70	0.62	0.57
95	0.86	0.81	0.76	0.70	0.75	0.70	0.63	0.68	0.60	0.55
120	0.85	0.80	0.75	0.69	0.73	0.68	0.61	0.66	0.58	0.53
150	0.84	0.78	0.74	0.67	0.72	0.67	0.59	0.64	0.57	0.51
185	0.83	0.77	0.73	0.65	0.70	0.65	0.58	0.63	0.55	0.49
240	0.82	0.76	0.71	0.63	0.69	0.63	0.56	0.61	0.53	0.48
300	0.81	0.74	0.69	0.62	0.68	0.62	0.54	0.59	0.52	0.46
400	0.80	0.73	0.67	0.59	0.66	0.60	0.52	0.57	0.50	0.44
500	0.78	0.72	0.66	0.58	0.64	0.58	0.51	0.56	0.48	0.43
630	0.77	0.71	0.65	0.56	0.63	0.57	0.49	0.54	0.47	0.41

Note: For rating factor of ambient temperature other than 30°C please refer to Table 22



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