



Copper Cable Company

Current Rating Tables

COPPER CONDUCTORS

TABLE 4D1A

Single-core p.v.c.-insulated cables, non-armoured, with or without sheath
(COPPER CONDUCTORS)

BS 6004
BS 6231

Ambient temperature: 30°C
Conductor operating temperature: 70°C

CURRENT-CARRYING CAPACITY (Amperes):

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. flat and touching	3 or 4 cables three-phase a.c. flat and touching or trefoil	Horizontal flat spaced	Vertical flat spaced	Trefoil
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	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
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: WHERE THE CONDUCTOR IS TO BE PROTECTED BY A SEMI-ENCLOSED FUSE TO BS3036, SEE ITEM 6.2 OF THE PREFACE TO THIS APPENDIX.

The current-carrying capacities in columns 2 to 5 are also applicable to flexible cables to BS 6004 Table 1(c) and to 85°C heat resisting p.v.c. cables to BS 6231 where the cables are used in fixed installations.

TABLE 4D1B

VOLTAGE DROP (per ampere per metre):

Conductor operating temperature: 70°C

Conductor cross-sectional area	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 (Spaced*)		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 and touching)		Reference Method 12 (Flat spaced*)	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
mm ²	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV	mV
1	44	44	44	44	38	38	38	38	38	38	38	38	38	38
1.5	29	29	29	29	25	25	25	25	25	25	25	25	25	25
2.5	18	18	18	18	15	15	15	15	15	15	15	15	15	15
4	11	11	11	11	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	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	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	2.4	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	0.20	0.29	1.80	1.75	0.29	0.29	1.50	0.175	1.50	1.50	0.32
35	1.25	1.30	0.31	0.175	0.28	1.30	1.25	0.28	0.28	1.10	0.170	1.10	1.10	0.32
50	0.93	0.95	0.30	0.190	0.28	0.97	0.95	0.28	0.28	0.80	0.165	0.82	0.80	0.32
70	0.63	0.65	0.29	0.185	0.27	0.69	0.66	0.27	0.27	0.55	0.160	0.57	0.55	0.31
95	0.46	0.49	0.28	0.180	0.27	0.54	0.50	0.27	0.27	0.42	0.155	0.43	0.41	0.31
120	0.36	0.39	0.27	0.175	0.26	0.45	0.41	0.26	0.26	0.33	0.150	0.36	0.32	0.30
150	0.29	0.31	0.27	0.175	0.26	0.39	0.36	0.26	0.26	0.26	0.150	0.30	0.26	0.30
185	0.23	0.25	0.27	0.170	0.26	0.35	0.32	0.26	0.26	0.22	0.145	0.26	0.21	0.30
240	0.180	0.195	0.26	0.165	0.25	0.31	0.29	0.25	0.25	0.17	0.145	0.22	0.160	0.29
300	0.145	0.160	0.26	0.165	0.25	0.29	0.27	0.25	0.25	0.14	0.140	0.190	0.130	0.29
400	0.105	0.130	0.26	0.160	0.25	0.27	0.25	0.25	0.25	0.12	0.140	0.175	0.105	0.29
500	0.086	0.110	0.26	0.155	0.24	0.26	0.25	0.22	0.22	0.10	0.135	0.160	0.086	0.29
630	0.068	0.094	0.25	0.155	0.24	0.25	0.24	0.22	0.22	0.08	0.135	0.150	0.072	0.28
800	0.053	—	—	0.150	0.24	0.25	—	—	—	0.060	0.130	0.145	0.060	0.28
1000	0.042	—	—	0.150	0.24	0.24	—	—	—	0.052	0.130	0.140	0.052	0.28

*NOTE: Spacings larger than those specified in Method 12 (See Table 4A) will result in larger voltage drop.

COPPER CONDUCTORS

Single-core cables having thermosetting insulation (non-magnetic armour)
(COPPER CONDUCTORS)

BS 5467
BS 6724

Ambient temperature: 30°C
Conductor operating temperature: 90°C

CURRENT-CARRYING CAPACITY (Amperes):

Conductor cross-sectional area	Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray)		Reference Method 12 (free air)							
	2 cables, single-phase a.c. or d.c. flat & touching		2 cables, single-phase a.c. or d.c. flat & touching		3 or 4 cables three-phase a.c. flat & touching		2 cables single phase a.c.		2 cables d.c.		3 or 4 cables, three-phase a.c.	
	2	3	4	5	6	7	8	9	10	11	12	
mm ²	A	A	A	A	A	A	A	A	A	A	A	A
50	237	220	253	232	282	266	284	270	288	266	222	222
70	303	277	322	293	357	337	356	349	358	331	285	285
95	367	333	389	352	436	412	446	426	425	393	346	346
120	425	383	449	405	504	477	519	497	485	449	402	402
150	488	437	516	462	566	539	600	575	549	510	463	463
185	557	496	587	524	643	614	688	660	618	574	529	529
240	656	579	689	612	749	714	815	782	715	666	625	625
300	755	662	792	700	842	805	943	906	810	755	720	720
400	853	717	899	767	929	889	1137	1094	848	797	815	815
500	962	791	1016	851	1032	989	1314	1266	923	871	918	918
630	1082	861	1146	935	1139	1092	1528	1474	992	940	1027	1027
800	1170	904	1246	987	1204	1155	1809	1744	1042	978	1119	1119
1000	1261	961	1345	1055	1289	1238	2100	2026	1110	1041	1214	1214

NOTE:

1. Where the conductor is to be protected by a semi-enclosed fuse to BS3036, see item 6.2 of the preface to this appendix.
2. Where a conductor operates at a temperature exceeding 70°C it shall be ascertained that the equipment connected to the conductor is suitable for the conductor operating temperature (See Regulation 512-02).

TABLE 4E3B

VOLTAGE DROP (per ampere per metre):

Conductor cross-sectional area

Conductor cross-sectional area	2 cables — single phase a.c.			3 or 4 cables — three phase a.c.			Conductor operating temperature: 90°C								
	Reference Methods 1 & 11 (Touching)			Reference Method 12 (Spaced*)			Reference Methods 1 & 11 (Flat touching)			Reference Method 12 (Flat spaced*)					
mm ²	mV			mV			mV			mV					
1	2	3	4	5	6	7	r	x	z	r	x	z	r	x	z
50	0.98	0.21	1.00	0.29	0.87	0.88	0.86	0.180	0.87	0.84	0.25	0.88	0.84	0.33	0.90
70	0.67	0.200	0.71	0.29	0.62	0.65	0.59	0.170	0.62	0.60	0.25	0.65	0.62	0.32	0.70
95	0.49	0.195	0.55	0.28	0.47	0.52	0.44	0.170	0.47	0.46	0.24	0.52	0.49	0.31	0.58
120	0.39	0.190	0.45	0.27	0.39	0.44	0.35	0.165	0.39	0.38	0.24	0.44	0.41	0.30	0.51
150	0.31	0.185	0.38	0.27	0.33	0.39	0.29	0.160	0.33	0.31	0.23	0.39	0.34	0.29	0.45
185	0.25	0.185	0.33	0.26	0.28	0.34	0.23	0.160	0.28	0.26	0.23	0.34	0.29	0.29	0.41
240	0.195	0.180	0.28	0.26	0.24	0.30	0.180	0.155	0.24	0.21	0.22	0.30	0.24	0.28	0.37
300	0.155	0.175	0.25	0.25	0.21	0.28	0.145	0.150	0.21	0.170	0.22	0.28	0.20	0.27	0.34
400	0.115	0.170	0.22	0.24	0.195	0.27	0.125	0.150	0.195	0.160	0.21	0.27	0.20	0.27	0.33
500	0.093	0.170	0.21	0.24	0.180	0.25	0.105	0.145	0.180	0.145	0.20	0.25	0.190	0.24	0.31
630	0.073	0.165	0.195	0.23	0.170	0.24	0.092	0.145	0.170	0.135	0.195	0.24	0.175	0.23	0.29
800	0.056	0.160	0.190	0.23	0.165	0.23	0.086	0.140	0.165	0.130	0.180	0.23	0.175	0.195	0.26
1000	0.045	0.155	0.180	0.21	0.155	0.21	0.080	0.135	0.155	0.125	0.170	0.21	0.165	0.180	0.24

*NOTE: Spacings larger than those specified in Method 12 (See Table 4A) will result in larger voltage drop.

Multicore armoured cables having thermosetting insulation
(COPPER CONDUCTORS)

BS 5467
BS 6724

Ambient temperature: 30°C
Conductor operating temperature: 90°C

CURRENT-CARRYING CAPACITY (Amperes):

Conductor cross-sectional area	Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated horizontal or vertical cable tray) or Reference Method 13 (free air)
	1 two-core cable, single phase a.c. or d.c.	1 three- or four-core cable, three-phase a.c.	
1	2	3	4
mm ²	A	A	A
1.5	27	23	29
2.5	36	31	39
4	49	42	52
6	62	53	66
10	85	73	90
16	110	94	115
25	146	124	152
35	180	154	188
50	219	187	228
70	279	238	291
95	338	289	354
120	392	335	410
150	451	386	472
185	515	441	539
240	607	520	636
300	698	599	732
400	787	673	847
			5

NOTE:

1. Where the conductor is to be protected by a semi-enclosed fuse to BS 3036, see item 6.2 of the preface to this appendix.
2. Where a conductor operates at a temperature exceeding 70°C it shall be ascertained that the equipment connected to the conductor is suitable for the conductor operating temperature (See Regulation 512-02).

TABLE 4E4B

VOLTAGE DROP (per ampere per metre): Conductor operating temperature: 90°C

Conductor cross-sectional area 1	Two-core cable d.c. 2	Two-core cable single-phase a.c. 3	Three-or four-core cable three-phase a.c. 4							
	mV	mV	mV	r	x	z	r	x	z	
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							
25	1.85	0.160	0.140	1.60	0.140	1.65	1.60	0.130	0.37	1.65
35	1.35	0.155	0.135	1.15	0.135	1.15	1.15	0.125	0.30	1.15
50	0.98	0.155	0.135	0.86	0.135	0.87	0.86	0.125	0.26	0.87
70	0.67	0.150	0.130	0.59	0.130	0.60	0.59	0.125	0.21	0.60
95	0.49	0.150	0.130	0.43	0.130	0.45	0.43	0.120	0.185	0.45
120	0.39	0.145	0.130	0.34	0.130	0.37	0.34	0.125	0.170	0.37
150	0.31	0.145	0.125	0.28	0.125	0.30	0.28	0.125	0.170	0.30
185	0.25	0.145	0.125	0.22	0.125	0.26	0.22	0.125	0.170	0.26
240	0.195	0.140	0.125	0.175	0.125	0.21	0.175	0.125	0.170	0.21
300	0.155	0.140	0.120	0.140	0.120	0.185	0.140	0.120	0.170	0.185
400	0.120	0.145	0.115	0.115	0.125	0.170	0.115	0.125	0.170	0.170

Copper Cable Company Ltd (CCC) are authorised to mark our cables in the following way for the Hong Kong Market in addition to the standard manufacturers markings should customers require us to do so, these additional markings are approved by BASEC.

CCC TELE-FONIKA ELECTRIC CABLE 600/1000V BS 5467 BASEC TF KABLE 3 'cross-section' 2004 'meter mark'

CCC TELE-FONIKA ELECTRIC CABLE 600/1000V BS 6724 BASEC TF KABLE 5 'cross-section' 2004 'meter mark'

The Tables within this leaflet are reproduced by kind permission of
The Institute of Electrical Engineers, PO Box 96,
Stevenage, Herts, UK.



Copper Cable Company

COPPER CABLE COMPANY LTD

LEICESTER BRANCH

Interlink Park, Bardon Hill,
Nr. Coalville, Leicestershire, LE67 1LA.
TELEPHONE: +44 1530 278800,
FAX: +44 1530 278840,
www.copper-cable.co.uk

DUBAI BRANCH

Jebel Ali Free Zone - Lob 15,
Fifth Floor, Office No.515,
P.O.Box 18419,
Jebel Ali,
Dubai,
U.A.E.
TELEPHONE: +(04) 887 3117/18, 3177,
FAX: +(04) 887 3188,
E-mail: uae@copper-cable.co.uk
www.copper-cable.co.uk