

## TABLE 4E1A Single core 90°C thermosetting insulated cables, unarmoured, with or without sheath(Copper conductors)

CURRENT-CARRYING CAPACITY (amperes):

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

Conductor cross-sectional area	Reference Method A (enclosed in conduit in thermally insulating wall etc.)		Reference Method B (enclosed in conduit on a wall or in trunking etc.)		Reference Method C (clipped direct)		Reference Method F (on a perforated cable tray horizontal or vertical or in free air) Touching			Reference Method G (in 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. flat	3 cables three phase a.c. flat	3 cables three phase a.c. trefoil	Spaced by one cable diameter	
										Horizontal	Vertical
1	2	3	4	5	6	7	8	9	10	11	12
(mm <sup>2</sup> )	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
1	14	13	17	15	19	17.5	-	-	-	-	-
1.5	19	17	23	19	25	23	-	-	-	-	-
2.5	26	23	31	26	34	31	-	-	-	-	-
4	35	31	42	35	46	41	-	-	-	-	-
6	45	40	54	45	59	54	-	-	-	-	-
10	61	54	75	63	81	74	-	-	-	-	-
16	81	73	100	85	109	99	-	-	-	-	-
25	106	95	133	111	143	130	161	141	135	182	161
35	131	117	164	138	176	161	200	176	169	226	201
50	158	141	198	168	228	209	242	216	207	275	246
70	200	179	253	214	293	268	310	279	268	353	318
95	241	216	306	259	355	326	377	342	328	430	389
120	278	249	354	299	413	379	437	400	383	500	454
150	318	285	393	328	476	436	504	464	444	577	527
185	362	324	449	370	545	500	575	533	510	661	605
240	424	380	500	433	644	590	679	634	607	781	719
300	486	435	573	493	743	681	783	736	703	902	833
400	-	-	683	584	868	793	940	868	823	1085	1008
500	-	-	783	666	990	904	1083	998	946	1253	1169
630	-	-	900	764	1130	1033	1254	1151	1088	1454	1362
800	-	-	-	-	1288	1179	1358	1275	1214	1581	1485
1000	-	-	-	-	1443	1323	1520	1436	1349	1775	1671

- NOTES:**
- Where a conductor operates at a temperature exceeding 70°C it must be ascertained that the equipment connected to the conductor is suitable for the conductor operating temperature (see Regulation 512.1.2)
  - Where cables in this table are connected to equipment or accessories designed to operate at a temperature not exceeding 70°C, the current ratings given in the equivalent table for 70°C thermoplastic insulated cables (Table 4D1A) must be used (see Reg 523.1)

VOLTAGE DROP (per ampere per metre)

## TABLE 4E1B

Conductor operating temperature: 90°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 A & B (enclosed in conduit or trunking)		Reference Methods C, F & G (clipped direct, on tray or in free air)				Reference Methods A & B (enclosed in conduit or trunking)			Reference Methods C, F & G (clipped direct, on tray or in free air)											
		cables touching		cables spaced*		cables touching		cables spaced*		cables touching, trefoil			cables touching, flat			cables spaced* flat						
1	2	3		4				5		6			7			8			9			
(mm <sup>2</sup> )	(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				46		40			40			40			40			
1.5	31	31		31				31		27			27			27			27			
2.5	19	19		19				19		16			16			16			16			
4	12	12		12				12		10			10			10			10			
6	7.9	7.9		7.9				7.9		6.8			6.8			6.8			6.8			
10	4.7	4.7		4.7				4.7		4.0			4.0			4.0			4.0			
16	2.9	2.9		2.9				2.9		2.5			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	1.85	1.85	0.31	1.90	1.85	0.190	1.85	1.85	0.28	1.85	1.60	0.27	1.65	1.60	0.165	1.60	1.60	0.190	1.60	1.60	0.27	1.65
35	1.35	1.35	0.29	1.35	1.35	0.180	1.35	1.35	0.27	1.35	1.15	0.25	1.15	1.15	0.155	1.15	1.15	0.180	1.15	1.15	0.26	1.20
50	0.99	1.00	0.29	1.05	0.99	0.180	1.00	0.99	0.27	1.00	0.87	0.25	0.90	0.86	0.155	0.87	0.86	0.180	0.87	0.86	0.26	0.89
70	0.68	0.70	0.28	0.75	0.68	0.175	0.71	0.68	0.26	0.73	0.60	0.24	0.65	0.59	0.150	0.61	0.59	0.175	0.62	0.59	0.25	0.65
95	0.49	0.51	0.27	0.58	0.49	0.170	0.52	0.49	0.26	0.56	0.44	0.23	0.50	0.43	0.145	0.45	0.43	0.170	0.46	0.43	0.25	0.49
120	0.39	0.41	0.26	0.48	0.39	0.165	0.43	0.39	0.25	0.47	0.35	0.23	0.42	0.34	0.140	0.37	0.34	0.165	0.38	0.34	0.24	0.42
150	0.32	0.33	0.26	0.43	0.32	0.165	0.36	0.32	0.25	0.41	0.29	0.23	0.37	0.28	0.140	0.31	0.28	0.165	0.32	0.28	0.24	0.37
185	0.25	0.27	0.26	0.37	0.26	0.165	0.30	0.25	0.25	0.36	0.23	0.23	0.32	0.22	0.140	0.26	0.22	0.165	0.28	0.22	0.24	0.33
240	0.190	0.21	0.26	0.33	0.20	0.160	0.25	0.195	0.25	0.31	0.185	0.22	0.29	0.170	0.140	0.22	0.170	0.165	0.24	0.170	0.24	0.29
300	0.155	0.175	0.25	0.31	0.160	0.160	0.22	0.155	0.25	0.29	0.150	0.22	0.27	0.140	0.140	0.195	0.135	0.160	0.21	0.135	0.24	0.27
400	0.120	0.140	0.25	0.29	0.130	0.155	0.20	0.125	0.24	0.27	0.125	0.22	0.25	0.110	0.135	0.175	0.110	0.160	0.195	0.110	0.24	0.26
500	0.093	0.120	0.25	0.28	0.105	0.155	0.185	0.098	0.24	0.26	0.100	0.22	0.24	0.090	0.135	0.160	0.088	0.160	0.180	0.085	0.24	0.25
630	0.072	0.100	0.25	0.27	0.086	0.155	0.175	0.078	0.24	0.25	0.088	0.21	0.23	0.074	0.135	0.150	0.074	0.160	0.170	0.068	0.23	0.24
800	0.056	0.072	0.25	0.27	0.072	0.150	0.170	0.064	0.24	0.25	0.088	0.21	0.23	0.062	0.130	0.145	0.059	0.155	0.165	0.055	0.23	0.24
1000	0.045	0.063	0.25	0.27	0.063	0.150	0.165	0.054	0.24	0.24	0.088	0.21	0.23	0.055	0.130	0.140	0.050	0.155	0.165	0.047	0.23	0.24

\* spacings larger than one cable diameter will result in a larger voltage drop

All tables are reproduced by kind permission of The Institution of Engineering & Technology from IEE Regs, 17th Edition However, it should be noted that in order to apply these tables correctly, reference is required to appendix 4 of the 17th edition of the wiring regulations which may be obtained from: Institution of Engineering & Technology, Michael Faraday House, Six Hills Way, Stevenage, Hertfordshire, ENGLAND, SG1 2AY.