

TABLE 4J1A Mineral insulated cables bare and exposed to touch (see note 2) or having an overall thermoplastic (pvc) covering (copper conductors & sheath)

CURRENT-CARRYING CAPACITY (amperes):

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

Conductor cross-sectional area	Reference Method 1 (clipped direct)							
	2 single-core cables or 1 two-core cable, single phase a.c or d.c.	3 single-core cables in trefoil, or 1 three-core cable, three phase a.c.	3 single-core cables in flat formation three phase a.c.	1 four-core cable, three cores loaded three phase a.c.	1 four-core cable, all cores loaded	1 seven-core cable, all cores loaded	1 twelve-core cable, all cores loaded	1 nineteen-core cable, all cores loaded
1	2	3	4	5	6	7	8	9
(mm ²)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
Light Duty 500V								
1	18.5	15	17	15	13	10	-	-
1.5	23	19	21	19.5	16.5	13	-	-
2.5	31	26	29	26	22	17.5	-	-
4	40	35	38	-	-	-	-	-
Heavy Duty 750V								
1	19.5	16	18	16.5	14.5	11.5	9.5	8.5
1.5	25	21	23	21	18	14.5	12	10
2.5	34	28	31	28	25	19.5	16	-
4	45	37	41	37	32	26	-	-
6	57	48	52	47	41	-	-	-
10	77	65	70	64	55	-	-	-
16	102	86	92	85	72	-	-	-
25	133	112	120	110	94	-	-	-
35	163	137	147	-	-	-	-	-
50	202	169	181	-	-	-	-	-
70	247	207	221	-	-	-	-	-
95	296	249	264	-	-	-	-	-
120	340	286	303	-	-	-	-	-
150	388	327	346	-	-	-	-	-
185	440	371	392	-	-	-	-	-
240	514	434	457	-	-	-	-	-

NOTES:

1. For single-core cables, the sheaths of the circuit are assumed to be connected together at both ends
2. For bare cables exposed to touch, the tabulated values should be multiplied by 0.9
3. Deleted by BS7671:1992, amendment No 2

TABLE 4J1A (continued) Mineral insulated cables bare and exposed to touch (see note 2) or having an overall thermoplastic (pvc) covering (copper conductors & sheath)

CURRENT-CARRYING CAPACITY (amperes):

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

Conductor cross-sectional area	Reference Method 11 (on a perforated cable tray, horizontal or vertical)											
	2 single-core cables, touching, single phase a.c or d.c.	1 2-core cable single-phase a.c. or d.c.	1 three-core cable three phase a.c.	1 four-core cable, three cores loaded three phase a.c.	1 four-core cable, all cores loaded	1 seven-core cable, all cores loaded	1 twelve-core cable, all cores loaded	1 nine-teen-core cable, all cores loaded	3 single-core cables three-phase a.c.			
	Vertical Spaced	Horizontal Spaced	Flat Touching	Trefoil								
1	10	11	12	13	14	15	16	17	18	19	20	21
(mm ²)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
Light Duty 500V												
1	18.5	19.5	16.5	16	14	11	-	-	19	22	17	16.5
1.5	24	25	21	21	18	14	-	-	25	28	22	21
2.5	31	33	28	28	24	19	-	-	32	37	29	28
4	42	44	37	-	-	-	-	-	43	48	39	37
Heavy Duty 750V												
1	20	21	17.5	18	16	12	10	9	21	24	19	17.5
1.5	25	26	22	23	20	15.5	13	11	27	30	25	22
2.5	34	36	30	30	27	21	17	-	35	41	32	30
4	45	47	40	40	35	28	-	-	47	53	43	40
6	57	60	51	51	44	-	-	-	59	67	54	51
10	78	82	69	68	59	-	-	-	80	90	73	69
16	104	109	92	89	78	-	-	-	105	119	97	92
25	135	142	120	116	101	-	-	-	135	154	125	120
35	165	174	147	-	-	-	-	-	164	187	153	147
50	204	215	182	-	-	-	-	-	202	230	188	182
70	251	264	223	-	-	-	-	-	246	279	229	223
95	301	317	267	-	-	-	-	-	294	333	275	267
120	346	364	308	-	-	-	-	-	335	382	314	308
150	395	416	352	-	-	-	-	-	380	431	358	352
185	448	472	399	-	-	-	-	-	424	482	405	399
240	524	552	466	-	-	-	-	-	472	537	471	466

NOTES:

1. For single-core cables, the sheaths of the circuit are assumed to be connected together at both ends
2. For bare cables exposed to touch, the tabulated values should be multiplied by 0.9
3. Deleted by BS7671:1992, amendment No 2

TABLE 4J1A (continued) Mineral insulated cables bare and exposed to touch (see note 2) or having an overall thermoplastic (pvc) covering (copper conductors & sheath)

CURRENT-CARRYING CAPACITY (amperes):

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

Conductor cross-sectional area 1	Reference Methods 12 & 13 (free air)									
	2 single-core cables or 1 two-core cable single phase a.c or d.c. 22	3 single-core cables in trefoil or 1 three-core cable 3-phase a.c. or d.c. 23	1 four-core cable, three cores loaded three phase a.c. 24	1 four-core cable, all cores loaded 25	1 seven-core cable, all cores loaded 26	1 twelve-core cable, all cores loaded 27	1 nineteen-core cable, all cores loaded 28	3 single-core cables three-phase a.c.		
								Vertical Spaced 18	Horizontal Spaced 19	Flat Touching 20
(mm ²)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
Light Duty 500V										
1	19.5	16.5	16	14	11	-	-	20	23	17
1.5	25	21	21	18	14	-	-	26	29	22
2.5	33	28	28	24	19	-	-	34	39	29
4	44	37	-	-	-	-	-	45	51	39
Heavy Duty 750V										
1	21	17.5	18	16	12	10	9	22	25	20
1.5	26	22	23	20	15.5	13	11	28	32	26
2.5	36	30	30	27	21	17	-	37	43	34
4	47	40	40	35	28	-	-	49	56	45
6	60	51	51	44	-	-	-	62	71	57
10	82	69	68	59	-	-	-	84	95	77
16	109	92	89	78	-	-	-	110	125	102
25	142	120	116	101	-	-	-	142	162	132
35	174	147	-	-	-	-	-	173	197	161
50	215	182	-	-	-	-	-	213	242	198
70	264	223	-	-	-	-	-	259	294	241
95	317	267	-	-	-	-	-	309	351	289
120	364	308	-	-	-	-	-	353	402	331
150	416	352	-	-	-	-	-	400	454	377
185	472	399	-	-	-	-	-	446	507	426
240	552	466	-	-	-	-	-	497	565	496

NOTES:

- For single-core cables, the sheaths of the circuit are assumed to be connected together at both ends
- For bare cables exposed to touch, the tabulated values should be multiplied by 0.9
- Deleted by BS7671:1992, amendment No 2

TABLE 4J1B Mineral insulated cables bare and exposed to touch or having an overall thermoplastic (pvc) covering (copper conductors & sheath)

VOLTAGE DROP (per ampere per metre) for single-phase a.c. or d.c. Sheath operating temperature:70°C

Conductor cross-sectional area	Two single-core cables, touching			One two-core or multicore * cable		
1	2			3		
(mm ²)	(mV/A/m)			(mV/A/m)		
1	42			42		
1.5	28			28		
2.5	17			17		
4	10			10		
6	7			7		
10	4.2			4.2		
16	2.6			2.6		
	r	x	z	r	x	z
25	1.65	0.200	1.65	1.65	0.145	1.66
35	1.20	0.195	1.20	-	-	-
50	0.89	0.185	0.91	-	-	-
70	0.62	0.180	0.64	-	-	-
95	0.46	0.175	0.49	-	-	-
120	0.37	0.170	0.41	-	-	-
150	0.30	0.170	0.34	-	-	-
185	0.25	0.165	0.29	-	-	-
240	0.190	0.160	0.25	-	-	-

NOTE * multiple single-phase a.c. or d.c. circuits in a multicore cable

VOLTAGE DROP (per ampere per metre) for three-phase operation

Sheath operating temperature:70°C

Conductor cross-sectional area	Two single-core cables									One three-core or four-core or multicore * cable			
	Trefoil touching	Flat formation						Spaced 1 cable diameter apart					
		Touching			Spaced 1 cable diameter apart								
1	2			3			4			5			
(mm ²)	(mV/A/m)			(mV/A/m)			(mV/A/m)			(mV/A/m)			
1	36			36			36			36			
1.5	24			24			24			24			
2.5	14			14			14			14			
4	9.1			9.1			9.1			9.1			
6	6			6			6			6			
10	3.6			3.6			3.6			3.6			
16	2.3			2.3			2.3			2.3			
	r	x	z	r	x	z	r	x	z	r	x	z	
25	1.45	0.170	1.45	1.45	0.25	1.45	1.45	0.32	1.50	1.45	0.125	1.45	
35	1.05	0.165	1.05	1.05	0.24	1.10	1.05	0.31	1.10	-	-	-	
50	0.78	0.160	0.80	0.79	0.24	0.83	0.82	0.31	0.87	-	-	-	
70	0.54	0.155	0.56	0.55	0.23	0.60	0.58	0.30	0.65	-	-	-	
95	0.40	0.150	0.43	0.41	0.22	0.47	0.44	0.29	0.53	-	-	-	
120	0.32	0.150	0.36	0.33	0.22	0.40	0.36	0.28	0.46	-	-	-	
150	0.26	0.145	0.30	0.29	0.21	0.36	0.32	0.27	0.42	-	-	-	
185	0.21	0.140	0.26	0.25	0.21	0.32	0.28	0.26	0.39	-	-	-	
240	0.165	0.140	0.22	0.21	0.20	0.29	0.26	0.25	0.36	-	-	-	

NOTE * Multiple three-phase circuits in a multicore cable