

**TABLE 4J2A Mineral insulated cables bare and neither exposed to touch nor in contact with combustible materials (copper conductors & sheath)**

CURRENT-CARRYING CAPACITY (amperes):

Ambient temperature : 30°C  
Conductor operating temperature:105°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 <sup>2</sup> )	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
<b>Light Duty 500V</b>								
1	22	19	21	18.5	16.5	13	-	-
1.5	28	24	27	24	21	16.5	-	-
2.5	38	33	36	33	28	22	-	-
4	51	44	47	-	-	-	-	-
<b>Heavy Duty 750V</b>								
1	24	20	24	20	17.5	14	12	10.5
1.5	31	26	30	26	22	17.5	15.5	13
2.5	42	35	41	35	30	24	20	-
4	55	47	53	46	40	32	-	-
6	70	59	67	58	50	-	-	-
10	96	81	91	78	68	-	-	-
16	127	107	119	103	90	-	-	-
25	166	140	154	134	117	-	-	-
35	203	171	187	-	-	-	-	-
50	251	212	230	-	-	-	-	-
70	307	260	280	-	-	-	-	-
95	369	312	334	-	-	-	-	-
120	424	359	383	-	-	-	-	-
150	485	410	435	-	-	-	-	-
185	550	465	492	-	-	-	-	-
240	643	544	572	-	-	-	-	-

NOTES:

1. For single-core cables, the sheaths of the circuit are assumed to be connected together at both ends
2. No correction factor for grouping need be applied
3. 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 4J2A (continued) Mineral insulated cables bare and neither exposed to touch nor in contact with combustible materials (copper conductors & sheath)**

CURRENT-CARRYING CAPACITY (amperes):

Ambient temperature : 30°C  
Conductor operating temperature: 105°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. 10	3 single-core cables in trefoil or 1 three-core cable 3- phase a.c. 11	1 four-core cable, three cores loaded three phase a.c. 12	1 four-core cable, all cores loaded 13	1 seven-core cable, all cores loaded 14	1 twelve-core cable, all cores loaded 15	1 nine-teen-core cable, all cores loaded 16	3 single-core cables three-phase a.c.		
								Vertical Spaced 17	Horizontal Spaced 18	Touching 19
(mm <sup>2</sup> )	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
<b>Light Duty 500V</b>										
1	24	21	20	18	14	-	-	26	29	23
1.5	31	26	26	22	18	-	-	33	37	29
2.5	41	35	35	30	24	-	-	43	49	39
4	54	46	-	-	-	-	-	56	64	51
<b>Heavy Duty 750V</b>										
1	26	22	22	19	15	13	11	28	32	25
1.5	33	28	28	24	19	16.5	14	35	40	32
2.5	45	38	37	32	26	22	-	47	54	43
4	60	50	49	43	34	-	-	61	70	56
6	76	64	63	54	-	-	-	78	89	71
10	104	87	85	73	-	-	-	105	120	96
16	137	115	112	97	-	-	-	137	157	127
25	179	150	146	126	-	-	-	178	204	164
35	220	184	-	-	-	-	-	216	248	200
50	272	228	-	-	-	-	-	266	304	247
70	333	279	-	-	-	-	-	323	370	300
95	400	335	-	-	-	-	-	385	441	359
120	460	385	-	-	-	-	-	441	505	411
150	526	441	-	-	-	-	-	498	565	469
185	596	500	-	-	-	-	-	557	629	530
240	697	584	-	-	-	-	-	624	704	617

**TABLE 4J2B Mineral insulated cables bare and neither exposed to touch nor in contact with combustible materials (copper conductors & sheath)**

VOLTAGE DROP (per ampere per metre) for single-phase a.c. or d.c. Sheath operating temperature:105°C

Conductor cross-sectional area 1	Two single-core cables, touching 2			One two-core or multicore * cable 3		
	(mm <sup>2</sup> )	(mV/A/m)			(mV/A/m)	
1	47			47		
1.5	31			31		
2.5	19			19		
4	12			12		
6	7.8			7.8		
10	4.7			4.7		
16	3.0			3.0		
	r	x	z	r	x	z
25	1.85	0.180	1.85	1.85	0.145	1.85
35	1.35	0.175	1.35	-	-	-
50	1.00	0.170	1.00	-	-	-
70	0.69	0.165	0.71	-	-	-
95	0.51	0.160	0.54	-	-	-
120	0.41	0.160	0.44	-	-	-
150	0.33	0.155	0.36	-	-	-
185	0.27	0.150	0.31	-	-	-
240	0.21	0.150	0.26	-	-	-

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: 105°C

Conductor cross-sectional area 1	Three single-core cables									One three-core or four-core or multicore * cable 5		
	Trefoil touching 2			Flat formation								
				Touching 3			Spaced 1 cable diameter apart 4					
(mm <sup>2</sup> )	(mV/A/m)			(mV/A/m)			(mV/A/m)			(mV/A/m)		
1	40			40			40			40		
1.5	27			27			27			27		
2.5	16			16			16			16		
4	10			10			10			10		
6	6.8			6.8			6.8			6.8		
10	4.1			4.1			4.1			4.1		
16	2.6			2.6			2.6			2.6		
	r	x	z	r	x	z	r	x	z	r	x	z
25	1.60	0.160	1.65	1.60	0.23	1.65	1.60	0.31	1.65	1.60	0.125	1.60
35	1.15	0.155	1.20	1.15	0.23	1.20	1.20	0.30	1.25	-	-	-
50	0.87	0.150	0.88	0.88	0.22	0.91	0.90	0.29	0.95	-	-	-
70	0.60	0.145	0.62	0.61	0.22	0.65	0.63	0.29	0.70	-	-	-
95	0.45	0.140	0.47	0.46	0.21	0.50	0.48	0.28	0.56	-	-	-
120	0.36	0.135	0.38	0.37	0.21	0.42	0.39	0.28	0.48	-	-	-
150	0.29	0.135	0.32	0.31	0.20	0.37	0.34	0.27	0.43	-	-	-
185	0.23	0.130	0.27	0.26	0.20	0.33	0.29	0.26	0.39	-	-	-
240	0.180	0.130	0.22	0.22	0.195	0.29	0.26	0.25	0.36	-	-	-

NOTE \* Multiple three-phase circuits in a multicore cable