

TABLE 4G1A Mineral insulated cables thermoplastic covered or bare and exposed to touch (copper conductors & sheath)

 30°C Ambient Air Temperature,
 70°C Conductor Operating Temperature,

Current Carrying Capacity (amperes)

Conductor cross-sectional area mm ²	Reference Method C (Clipped Direct)			Reference Method E, F & G (in free air or on a perforated cable tray etc, horizontal or vertical)					
	single phase a.c or d.c 2 single cord cables touching or 1 2 core cable	three phase a.c.		single phase a.c or d.c 2 single cord cables touching or 1 2 core cable	three phase a.c.				
		3 single core cables in trefoil, or 1 three core or four core cable	3 single core cables flat and touching, horizontal or vertical		3 single core cables in trefoil, or 1 three core or four core cable	3 single core cables flat and touching, horizontal or vertical	3 single core cables flat & spaced by one cable diameter	vertical	horizontal
LIGHT DUTY									
500V									
1	18.5	15	17	19.5	16.5	18	20	23	
1.5	23	19	21	25	21	23	26	29	
2.5	31	26	29	33	28	31	34	39	
4	40	35	38	44	37	41	45	51	
HEAVY DUTY									
750V									
1	19.5	16	18	21	17.5	20	22	25	
1.5	25	21	23	26	22	26	28	32	
2.5	34	28	31	36	30	34	37	43	
4	45	37	41	47	40	45	49	56	
6	57	48	52	60	51	57	62	71	
10	77	65	70	82	69	77	84	95	
16	102	86	92	109	92	102	110	125	
25	133	112	120	142	120	132	142	162	
35	163	137	147	174	147	161	173	197	
50	202	169	181	215	182	198	213	242	
70	247	207	221	264	223	241	259	294	
95	296	249	264	317	267	289	309	351	
120	340	286	303	364	308	331	353	402	
150	388	327	346	416	352	377	400	454	
185	440	371	392	472	399	426	446	507	
240	514	434	457	552	466	496	497	565	

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

All tables for guidance purposes only. R&M accepts no responsibility for the information contained herein

TABLE 4G2A Mineral insulated cables bare and neither exposed to touch nor in contact with combustible materials (copper conductors & sheath)

 30°C Ambient Air Temperature,
 105°C Conductor Operating Temperature,

Current Carrying Capacity (amperes)

Conductor cross-sectional area mm ²	Reference Method C (Clipped Direct)			Reference Method E, F & G					
	single phase a.c or d.c 2 single core cables	three phase a.c.		single phase a.c or d.c 2 single core cables	three phase a.c.				
		3 single core cables in trefoil, or 1 three	3 single core cables flat and touching, horizontal		3 single core cables in trefoil, or 1 three core or four core	3 single core cables flat and touching	3 single core cables flat & spaced by one cable diameter	vertical	horizontal
LIGHT DUTY									
500V									
1	22	19	21	24	21	23	26	29	
1.5	28	24	27	31	26	29	33	37	
2.5	38	33	36	41	35	39	43	49	
4	51	44	47	54	46	51	56	64	
HEAVY DUTY									
750V									
1	24	20	24	26	22	25	28	32	
1.5	31	26	30	33	28	32	35	40	
2.5	42	35	41	45	38	43	47	54	
4	55	47	53	60	50	56	61	70	
6	70	59	67	76	64	71	78	89	
10	96	81	91	104	87	96	105	120	
16	127	107	119	137	115	127	137	157	
25	166	140	154	179	150	164	178	204	
35	203	171	187	220	184	200	216	248	
50	251	212	230	272	228	247	266	304	
70	307	260	280	333	279	300	323	370	
95	369	312	334	400	335	359	385	441	
120	424	359	383	460	385	411	441	505	
150	485	410	435	526	441	469	498	565	
185	550	465	492	596	500	530	557	629	
240	643	544	572	697	584	617	624	704	

NOTES

 For single core cables, the sheaths of the circuit are assumed to be connected together at both ends
 No rating factor for grouping need be applied
 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.

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VOLTAGE DROP

TABLE 4G1B Mineral insulated cables thermoplastic covered or bare and exposed to touch (copper conductors & sheath)

70°C Sheath Operating Temperature

Voltage Drop (per ampere per meter) single phase a.c. or d.c.

Conductor crosssectional area mm ²	Two-core cable, touching			1 two-core cable		
	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	0.3	0.170	0.34	-	-	-
185	0.25	0.165	0.29	-	-	-
240	0.190	0.160	0.25	-	-	-

Conductor crosssectional area mm ²	1 three core or four core cable			3 single core cables in trefoil formation			3 single core cables flat and touching			3 single core cables flat and spaced by one cable dia.		
	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	0.125	1.45	1.45	0.170	1.45	1.45	0.25	1.45	1.45	0.32	1.50
35	-	-	-	1.05	0.165	1.05	1.05	0.24	1.10	1.05	0.32	1.10
50	-	-	-	0.78	0.160	0.80	0.79	0.24	0.83	0.82	0.32	0.87
70	-	-	-	0.54	0.155	0.56	0.55	0.23	0.60	0.57	0.30	0.65
95	-	-	-	0.4	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
Spacings larger than one cable dia will result in a larger volt drop

VOLTAGE DROP

TABLE 4G2B Mineral insulated cables bare and neither exposed to touch nor in contact with combustible materials (copper conductors & sheath)
Voltage Drop (per ampere per meter) single phase a.c. or d.c.

Conductor crosssectional area mm ²	Two-core cable, touching			1 two-core cable		
	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			3		
	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	-	-	-

Conductor crosssectional area mm ²	1 three core or four core cable			3 single core cables in trefoil formation			3 single core cables flat and touching			3 single core cables flat and spaced by one cable dia.		
	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	0.125	1.60	1.60	0.160	1.650	1.600	0.230	1.650	1.600	0.310	1.650
35	-	-	-	1.15	0.155	1.250	1.150	0.230	1.200	1.200	0.300	1.250
50	-	-	-	0.87	0.150	0.880	0.880	0.220	0.910	0.900	0.290	0.950
70	-	-	-	0.6	0.145	0.620	0.610	0.210	0.650	0.630	0.290	0.700
95	-	-	-	0.45	0.140	0.470	0.460	0.210	0.500	0.480	0.280	0.560
120	-	-	-	0.36	0.135	0.380	0.370	0.210	0.420	0.390	0.280	0.480
150	-	-	-	0.29	0.135	0.320	0.310	0.200	0.370	0.340	0.270	0.430
185	-	-	-	0.23	0.130	0.270	0.260	0.200	0.330	0.290	0.260	0.390
240	-	-	-	0.18	0.113	0.220	0.220	0.195	0.290	0.260	0.250	0.360

NOTE
Spacings larger than one cable dia will result in a larger volt drop