

TABLE 4H2A 85°C or 150°C rubber-insulated flexible cables. (Copper Conductors). BS6007, BS7919

CURRENT-CARRYING CAPACITY (amperes):

Ambient temperature : 30°C
Conductor operating temperature: 85°C

Conductor cross-sectional area	d.c. or single-phase a.c. (1 two-core cable, with or without protective conductor)	Three-phase a.c. (1 three-core, four core or five core cable)	Single-phase a.c. or d.c. 2 single-core cables, touching
1	2	3	4
(mm ²)	(A)	(A)	(A)
4	41	36	-
6	53	47	-
10	73	64	-
16	99	86	-
25	131	114	-
35	-	140	192
50	-	170	240
70	-	216	297
95	-	262	354
120	-	303	414
150	-	348	476
185	-	397	540
240	-	467	645
300	-	537	741
400	-	-	885
500	-	-	1017
630	-	-	1190

CORRECTION FACTOR FOR AMBIENT TEMPERATURE

85°C rubber-insulated cables:

Ambient temperature 35°C 40°C 45°C 50°C 55°C 60°C 65°C 70°C 75°C 80°C
Correction factor 0.95 0.90 0.85 0.80 0.74 0.67 0.60 0.52 0.43 0.30

150°C rubber-insulated cables:

Ambient temperature 35 to 85°C 90°C 95°C 100°C 105°C 110°C 115°C 120°C 125°C 130°C 135°C 140°C 145°C
Correction factor 1.0 0.96 0.92 0.88 0.83 0.78 0.73 0.68 0.62 0.55 0.48 0.39 0.28

NOTES:

1. The current ratings tabulated are for cables in free air but may also be used for cables resting on a surface. If the cable is to be wound on a drum on load the ratings should be reduced in accordance with NOTE 3 below and for cables which may be covered, NOTE 4 below.

2. Where the conductor is to be protected by a semi-enclosed fuse to BS3036, see item 6.2 of the preface to this appendix in 16th edition regs.

3. Flexible cables wound on reeling drums

The current ratings of cables on reeling drums are reduced by the following factors.

- | | |
|---------------------|-------------------------------------|
| a) Radial type drum | b) Ventilated cylindrical type drum |
| ventilated: 85% | 1 layer of cable: 85% |
| unventilated: 75% | 2 layers of cable: 65% |
| | 3 layers of cable: 45% |
| | 4 layers of cable: 35% |

A radial drum is one where the spiral layers of cable are accommodated between closely spaced flanges; if fitted with solid flanges the ratings given above should be reduced and the drum is described as non-ventilated and if the flanges have suitable apertures as ventilated.

A ventilated cylindrical cable drum is one where layers of cable are accommodated between widely spaced flanges and the drum and end flanges have suitable ventilating apertures.

4. Where cable may be covered over or coiled up whilst on load, or the air movement over the cable is restricted, the current ratings should be reduced.

It is not possible to specify the amount of reduction but the table of rating factors for reeling drums can be used as a guide.

5. The temperature limits given in table 54C should be taken into account when it is intended to operate these cables at maximum permissible temperatures.

6. 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).

7. For 150°C cables, where the correction factors for ambient temperature are used, the conductor operating temperature may be up to 150°C.

8. BS6007 does not include rubber-insulated cables above 16mm² nominal cross-sectional area.

TABLE 4H2B

VOLTAGE DROP (per ampere per metre)

Conductor operating temperature: 85°C

Conductor cross-sectional area	1 two-core or 2 single-core cables d.c.	Two-core cable single-phase a.c.			1 three-core, four core or five-core cable three-phase a.c.			2 single-core cables touching Single-phase a.c.*		
1	2	3			4			5		
(mm ²)	(mV/A/m)	(mV/A/m)			(mV/A/m)			(mV/A/m)		
4	13	13			11			-		
6	8.4	8.4			7.3			-		
10	5.0	5.0			4.3			-		
16	3.1	3.1			2.7			-		
		r	x	z	r	x	z	r	x	z
25	2.0	2.0	0.175	2.00	1.70	0.150	1.70	-	-	-
35	1.42	-	-	-	1.20	0.150	1.20	1.42	0.21	1.43
50	0.99	-	-	-	0.90	0.145	0.91	0.99	0.21	1.01
70	0.70	-	-	-	0.61	0.140	0.63	0.70	0.20	0.72
95	0.53	-	-	-	0.46	0.135	0.48	0.53	0.195	0.56
120	0.41	-	-	-	0.36	0.135	0.39	0.41	0.190	0.46
150	0.33	-	-	-	0.29	0.130	0.32	0.33	0.190	0.38
185	0.27	-	-	-	0.24	0.130	0.27	0.27	0.190	0.33
240	0.21	-	-	-	0.185	0.130	0.22	0.21	0.185	0.28
300	0.165	-	-	-	0.145	0.125	0.195	0.170	0.180	0.25
400	0.125	-	-	-	-	-	-	0.130	0.175	0.22
500	0.098	-	-	-	-	-	-	0.105	0.170	0.20
630	0.073	-	-	-	-	-	-	0.084	0.170	0.190

NOTES:

1. The voltage drop figures given above are based on a conductor operating temperature of 85°C and are therefore not accurate when the operating temperature is in excess of 85°C. In the case of the 150°C cables with a conductor temperature of 150°C and above resistive values should be increased by a factor of 1.2 (This factor is only applicable to the range of 150°C rubber-insulated cables included in BS6007 i.e. up to 16mm² nominal cross sectional area).

2. * A larger voltage drop will result if the cables are spaced.