

## APPENDIX 1: Correction Factors for Sizing of Cable Conductors

### (1) Correction factors for ambient temperature

**Table 1: Correction factors for ambient temperature**

Note: This table applies where the associated overcurrent protective device is intended to provide short circuit protection only. Except where the device is a semi-enclosed fuse to BS3036 the table also applies where the device is intended to provide overload protection.

Type of insulation	Operating temperature	Ambient Temperature °C														
		25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
Rubber (flexible cables only)	60°C	1.04	1.0	0.91	0.82	0.71	0.58	0.41								
General purpose PVC	70°C	1.03	1.0	0.94	0.87	0.79	0.71	0.61	0.5	0.35						
Paper	80°C	1.02	1.0	0.95	0.89	0.84	0.77	0.71	0.63	0.55	0.45	0.32				
Rubber	85°C	1.02	1.0	0.95	0.9	0.85	0.8	0.74	0.67	0.6	0.52	0.43	0.3			
Heat resisting PVC*85°C/90°C	85°C	1.03	1.0	0.97	0.94	0.91	0.87	0.84	0.79	0.71	0.61	0.5	0.35	0.35		
	90°C								0.8	0.76	0.71	0.61	0.5			
Thermosetting (XLPE)	90°C	1.02	1.0	0.96	0.91	0.87	0.82	0.76	0.71	0.65	0.58	0.5	0.41	0.29		
Mineral:	70°C sheath	1.03	1.0	0.93	0.85	0.77	0.67	0.57	0.45	0.31						
	105°C Sheath	1.02	1.0	0.96	0.92	0.88	0.84	0.8	0.75	0.7	0.65	0.6	0.54	0.47	0.4	0.32

**Table 2: Correction factors for ambient temperature where the overload protective device is a semi-enclosed fuse to BS3036**

Type of insulation	Operating temperature	Ambient Temperature °C														
		25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
Rubber (flexible cables only)	60°C	1.04	1	0.96	0.91	0.87	0.79	0.56								
General purpose PVC	70°C	1.03	1	0.97	0.94	0.91	0.87	0.84	0.69	0.48						
Paper	80°C	1.02	1	0.97	0.95	0.92	0.90	0.87	0.84	0.76	0.62	0.43				
Rubber	85°C	1.02	1	0.97	0.95	0.93	0.91	0.88	0.86	0.83	0.71	0.58	0.41			
Heat resisting PVC*85°C/90°C	85°C	1.03	1	0.97	0.94	0.91	0.87	0.84	0.80	0.76	0.72	0.68	0.49	0.49		
	90°C											0.63				
Thermosetting (XLPE)	90°C	1.02	1	0.98	0.95	0.93	0.91	0.89	0.87	0.85	0.79	0.69	0.56	0.39		
Mineral: Bare and exposed to touch or PVC covered	70°C sheath	1.03	1	0.96	0.93	0.89	0.86	0.79	0.62	0.42						
Bare and not exposed to touch	105°C sheath	1.02	1	0.98	0.96	0.93	0.91	0.89	0.86	0.84	0.82	0.79	0.77	0.64	0.55	0.43

Note :Correction factors for flexible cords and for 85°C or 150°C rubber insulated flexible cables are given in the relevant table of current carrying capacity in BS 7671.

\*These factors are applicable only to ratings in columns 2 to 5 Table 1 of Appendix 2.

## (2) Correction factors for groups of cables

**Table (3): Correction factors for groups of more than one circuit of single-core cables, or more than one multicore cable**

Reference Method of Installation (See Appendix7)		Correction Factor													
		Number of Circuits or Multicore Cables													
		2	3	4	5	6	7	8	9	10	12	14	16	18	20
Enclosed (Method 3 or 4) or bunched and clipped direct to a non-metallic surface (Method 1)		0.80	0.70	0.65	0.60	0.57	0.54	0.52	0.50	0.48	0.45	0.43	0.41	0.39	0.38
Single layer clipped to a non-metallic surface.(Method 1)	Touching	0.85	0.79	0.75	0.73	0.72	0.72	0.71	0.70						
	Spaced*	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Single layer multicore on a perforated metal cable tray, vertical or horizontal(Method 11)	Touching	0.86	0.81	0.77	0.75	0.74	0.73	0.73	0.72	0.71	0.7				
	Spaced*#	0.91	0.89	0.88	0.87	0.87									
Single layer single-core on a perforated metal cable tray, touching(Method 11)	Horizontal	0.90	0.85												
	Vertical	0.85													
Single layer multicore touching on ladder supports (Method 13)		0.86	0.82	0.8	0.79	0.78	0.78	0.78	0.77						

### Notes to Tables (3)

1. The factors in the table are applicable to groups of cables of one size only. The value of current derived from application of the appropriate factors is the maximum continuous current to be carried by any of the cables in the group
2. If, due to known operating conditions, a cable is expected to carry not more than 30% of its grouped rating, it may be ignored for the purpose of obtaining the rating factor for the rest of the group.
3. When cables having different conductor operating temperatures are grouped together, the current rating should be based upon the lowest operating temperature of any cable in the group.

## (3) Correction factors for cables enclosed in thermal insulating material

For a cable installed in a thermally insulated wall or above a thermally insulated ceiling, the cable being in contact with a thermally conductive surface on one side, current carrying capacities are tabulated in Appendix 2, Method 4 of Appendix 3 being the appropriate Reference method.

For a single cable likely to be totally surrounded by thermally insulating material over a length of more than 0.5m, the current carrying capacity shall be taken, in the absence of more precise information, as 0.5 times the current carrying capacity for that cable clipped direct to a surface and open (Reference Method 1 of Appendix 3).

Where a cable is to be totally surrounded by thermal insulation for less than 0.5 m the current carrying capacity of the cable shall be reduced appropriately depending on the size of cable, length in Table 4 are appropriate to conductor size up to 10 mmsq in thermal insulation having a thermal conductivity greater than 0.0625 W/K.m.

**Table 4: Cable surrounded by thermal insulation**

length in insulation mm	derating factor
50	0.89
100	0.81
200	0.68
400	0.55



#### (4) Correction factors for the type of protective devices protecting the cable

**Table 5: Correction Factors of Type of Protective Devices**

Type of Protective Device	Correction Factor
Semi-enclosed fuse to BS 3036	0.725
Others	1.0

#### 5. Correction factors for cables installed in enclosed trenches

**Table 6: Correction factors for cable installed in enclosed trenches (Installation Methods 18, 19 and 20 for Appendix 3)**

The correction factors tabulated below relate to the disposition of cables illustrated in items 18 to 20 of Appendix 3 and are applicable to the current carrying capacities for installation methods 12 or 13 of Appendix 3 as given in the tables of Appendix 2:

#### Correction Factors

Conductor cross-sectional area	Installation Method 18				Installation Method 19			Installation Method 20		
	2 single-core cables, or 1 three- or four-core cable	3 single-core cables, or 2 two-core cables	4 single-core cables, or 2 three- or four-core cables	6 single-core cables, or 4 two-core cables, or 3 three- or four-core cables	6 single-core cables, 4 two-core cables, or 3 three- or four-core cables	8 single-core cables, or 4 three- or four-core cables	12 single-core cables, 8 two-core cables, or 6 three- or four-core cables	12 single-core cables, 8 two-core cables, or 6 three- or four-core cables	18 single-core cables, 12 two-core cables, or 9 three- or four-core cables	24 single-core cables, two-core cables, or 12 three- or four-core cables
mm <sup>2</sup>										
4	0.93	0.9	0.87	0.82	0.86	0.83	0.76	0.81	0.74	0.69
6	0.92	0.89	0.86	0.81	0.86	0.82	0.75	0.8	0.73	0.68
10	0.91	0.88	0.85	0.8	0.85	0.8	0.74	0.78	0.72	0.66
16	0.91	0.87	0.84	0.78	0.83	0.78	0.71	0.76	0.7	0.64
25	0.9	0.86	0.82	0.76	0.81	0.76	0.69	0.74	0.67	0.62
35	0.89	0.85	0.81	0.75	0.8	0.74	0.68	0.72	0.66	0.6
50	0.88	0.84	0.79	0.74	0.78	0.73	0.66	0.71	0.64	0.59
70	0.87	0.82	0.78	0.72	0.77	0.72	0.64	0.7	0.62	0.57
95	0.86	0.81	0.76	0.7	0.75	0.7	0.63	0.68	0.6	0.55
120	0.85	0.8	0.75	0.69	0.73	0.68	0.61	0.66	0.58	0.53
150	0.84	0.78	0.74	0.67	0.72	0.67	0.59	0.64	0.57	0.51
185	0.83	0.77	0.73	0.65	0.7	0.65	0.58	0.63	0.55	0.49
240	0.82	0.76	0.71	0.63	0.69	0.63	0.56	0.61	0.53	0.48
300	0.81	0.74	0.69	0.62	0.68	0.62	0.54	0.59	0.52	0.46
400	0.8	0.73	0.67	0.59	0.66	0.6	0.52	0.57	0.5	0.44
500	0.78	0.72	0.66	0.58	0.64	0.58	0.51	0.56	0.48	0.43
630	0.77	0.71	0.65	0.56	0.63	0.57	0.49	0.54	0.47	0.41

\* When cables having different conductor operating temperatures are grouped together the current rating should be based on the lowest operating temperature of any cable in the group.