

# Derating Factors for Armoured Cables Cables in Buildings

## Cable Details

### Ambient temperature correction factor

Ambient temperature °C	25	30	35	40	45	50	55	60	65	70	75	80	85
Correction factor	1.02	1.0	0.96	0.91	0.87	0.82	0.73	0.71	0.65	0.58	0.50	0.41	0.29

### Correction Factor for Group of more than one circuit of single core cables

Number of circuits	2	3	4	5	6	7	8	9
Single layer clipped direct (touching)	0.85	0.79	0.75	0.73	0.72	0.72	0.71	0.70
Single layer on perforated cable tray (touching) Horizontal	0.90	0.85	-	-	-	-	-	-
Single layer on perforated cable tray (touching) Vertical	0.85	-	-	-	-	-	-	-

**Note:** The factors in this table are applicable to groups of cables all of one size. 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 purposes of obtaining the rating factor for the rest of the group. When the cables having differing conductor operating temperatures are grouped together, the current rating shall be based upon the lowest operating temperatures in the group.

### Correction Factor for Groups of more than one multicore cable

Number of multicore cables	2	3	4	5	6	7	8	9	10	12	14	16	18	20
Single layer clipped direct (touching)	0.85	0.79	0.75	0.73	0.72	0.71	0.7	-	-	-	-	-	-	-
Single layer clipped direct (spaced*)	0.94	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Single layer on perforated cable tray Horizontal or Vertical (touching)	0.86	0.81	0.77	0.75	0.74	0.73	0.73	0.72	0.71	0.7	-	-	-	-
Single layer on perforated cable tray Horizontal or Vertical (spaced*)	0.91	0.89	0.88	0.87	0.87	-	-	-	-	-	-	-	-	-

**Note:** The factors in this table are applicable to groups of cables all of one size. 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 purposes of obtaining the rating factor for the rest of the group. When the cables having differing conductor operating temperatures are grouped together, the current rating shall be based upon the lowest operating temperatures in the group.

\* Spaced by a clearance between adjacent surfaces of at least one cable diameter. Where the horizontal clearances between adjacent cables exceeds 2 cable diameters no correction factor needs to be applied.

# Derating Factors for Armoured Cables Cables Outside/Indoors

## Cable Details

### Variation of temperatures

Ambient temperature °C	15	20	25	30	35	40	45	50	55
In Air Rating	-	-	1.0	0.96	0.92	0.88	0.83	0.78	0.73
In Ground and Duct rating	1.0	0.97	0.93	0.89	0.86	0.85	-	-	-

### Average variation in soil thermal resistivity for cable laid direct in:

Depth of laying	Up to 50mm <sup>2</sup>	70mm <sup>2</sup> to 300mm <sup>2</sup>	Above 300mm <sup>2</sup>
Metre 0.5	1.00	1.00	1.00
Metre 0.6	0.99	0.98	0.97
Metre 0.8	0.97	0.96	0.94
Metre 1.0	0.95	0.94	0.92
Metre 1.25	0.94	0.92	0.90
Metre 1.5	0.93	0.91	0.89
Metre 1.75	0.92	0.89	0.87
Metre 2.0	0.91	0.88	0.86
Metre 2.5	0.90	0.87	0.85
Metre 3 or more	0.89	0.86	0.83

### Average variation in soil thermal resistivity for cable laid direct in:

CSA	Soil thermal resistivity							
	0.8	1.0	1.2	1.5	2.0	2.5	3.0	
the ground	up to 150	1.16	1.07	1.00	0.91	0.81	0.73	0.63
	185 to 300	1.17	1.07	1.00	0.91	0.80	0.73	0.62
	380 to 1200	1.17	1.07	1.00	0.91	0.80	0.72	0.61
in duct	up to 150	1.07	1.03	1.00	0.94	0.87	0.81	0.75
	185 to 300	1.08	1.04	1.00	0.93	0.86	0.79	0.74
	380 to 1200	1.09	10.4	1.00	0.92	0.84	0.77	0.72

**Note:** If more precise factors are required reference should be made to ERA 69-30 part III

### Average variation in soil thermal resistivity for multi core cable laid direct in:

CSA	Soil thermal resistivity							
	0.8	1.0	1.2	1.5	2.0	2.5	3.0	
the ground	up to 16	1.1	1.05	1.0	0.93	0.85	0.78	0.73
	25 to 150	1.14	1.06	1.0	0.92	0.83	0.76	0.70
	185 to 400	1.15	1.07	1.0	0.92	0.81	0.74	0.69
in duct	up to 16	1.04	1.02	1.0	0.97	0.93	0.90	0.86
	25 to 150	1.05	1.02	1.0	0.96	0.91	0.86	0.82
	185 to 400	1.07	1.03	1.0	0.95	0.89	0.83	0.79

**Note:** If more precise factors are required reference should be made to ERA 69-30 part III