



**TABLE 4F2A- 90 °C and 180 °C thermosetting insulated flexible cables with sheath, non-armoured (COPPER CONDUCTORS)**

Ambient temperature: 30 °C

Conductor operating temperature: 90 °C

CURRENT-CARRYING CAPACITY (amperes):

Conductor cross-sectional area	Single-phase AC or DC	Three-phase AC	Single-phase AC or DC
	1 two-core cable, with or without protective conductor	1 three-core, four-core or five-core cable	2 single-core cables, touching
1	2	3	4
(mm <sup>2</sup> )	(A)	(A)	(A)
4	42	37	-
6	55	49	-
10	76	66	-
16	103	89	-
25	136	119	-
35		146	200
50		177	250
70		225	310
95		273	369
120		316	432
150		363	497
185		414	564
240		487	673
300		560	773
400		-	924
500		-	1062
630		-	1242

**RATING FACTOR FOR AMBIENT TEMPERATURE**

90 °C thermosetting insulated cables:

Ambient temperature	35°C	40°C	45°C	50°C	55°C	60°C	65°C	10°C	75°C	80°C	85°C
Rating factor	0.95	0.91	0.86	0.82	0.76	0.70	0.64	0.57	0.50	0.40	0.28

180 °C thermosetting insulated cables:

Ambient temperature	35-90°C	95°C	100°C	105°C	110°C	115°C	120°C	125°C	130°C	135°C	140°C	145°C
Rating factor	1.0	0.96	0.91	0.86	0.81	0.76	0.70	0.64	0.57	0.50	0.40	0.28

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#### 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 2 below and for cables which may be covered, NOTE 3 below
2. Flexible cables wound on reeling drums  
The current ratings of cables used on reeling drums are to be reduced by the following factors:  
Radial type drum ventilated: 85 %, unventilated: 75%  
Ventilated cylindrical type drum

1 layer of cable:	85 %
2 layers of cable:	65 %
3 layers of cable:	45 %
4 layers of cable:	35 %

A radial type drum is one where 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. If the flanges have suitable apertures the drum is described 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.
3. Where cable may be covered over or coiled up whilst on load, or the air movement over the cable restricted, the current rating 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.
4. For 180 °C cables, the rating factors for ambient temperature allow a conductor operating temperature up to 150 °C. Consult the cable manufacturer for further information.
5. Where it is intended to connect the cables in this table to equipment or accessories designed to operate at a temperature lower than the maximum operating temperature of the cable, the cables should be rated at the maximum operating temperature of the equipment or accessory (see Regulation 512.1.5).
6. Where it is intended to group a cable in this table with other cables, the cable should be rated at the lowest of the maximum operating temperatures of any of the cables in the group (see Regulation 512.1.5).

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**TABLE 4F2B**

Conductor operating temperature: 90 °C

VOLTAGE DROP (per ampere per metre):

Conductor cross-sectional area	1 two-core or 2 single-core cables, DC	Two-core cable, single-phase AC			1 three-core, four-core or five-core cable, three-phase AC			2 single-core cables touching		
		Single-phase AC*								
1	2	3			4			5		
(mm <sup>2</sup> )	(mV/A/m)	(mV/A/m)			(mV/A/m)			(mV/A/m)		
4	13.2	13.2			11.1			-		
6	8.5	8.5			7.4			-		
10	5.1	5.1			4.4			-		
16	3.2	3.2			2.7			-		
		R	X	Z	R	X	Z	R	X	Z
25	2.03	2.03	0.175	2.04	1.73	0.15	1.73			
35	1.42	-	-		1.22	0.15	1.23	1.44	0.21	1.46
50	1.00	-	-		0.91	0.145	0.93	1.00	0.21	1.02
70	0.71	-	-		0.62	0.14	0.64	0.71	0.20	0.73
95	0.54	-	-		0.47	0.135	0.49	0.54	0.195	0.57
120	0.42	-	-		0.37	0.135	0.39	0.42	0.190	0.46
150	0.34	-	-		0.29	0.130	0.32	0.34	0.190	0.39
185	0.27	-	-		0.24	0.130	0.27	0.27	0.190	0.33
240	0.21	-	-		0.188	0.130	0.23	0.21	0.185	0.28
300	0.167	-	-		0.147	0.125	0.195	0.173	0.180	0.25
400	0.127	-	-		-	-	-	0.132	0.175	0.22
500	0.100	-	-		-	-	-	0.107	0.170	0.20
630	0.074	-	-		-	-	-	0.085	0.170	0.190

**NOTES:**

- The voltage drop figures given above are based on a conductor operating temperature of 90 °C and are therefore not accurate when the operating temperature is in excess of 90 °C. In the case of the 180 °C cables with a conductor temperature of 150 °C the above resistive values should be increased by a factor of 1.2.
- \*A larger voltage drop will result if the cables are spaced.

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