CABLES AND FUSES

Dimensioning of the connection cables and protection fuses of power capacitors is made from their rated current. Rated current of the capacitors is printed in their characteristics plate and can be calculated from the following formula:

$$I_N\ (A) = \frac{Q_N(kvar)}{\sqrt{3} * U_N\ (V)} * 1000$$

Fuses

Due to the high connection overcurrents, fuses must be calibrated to a value of 1.6 to 2 times the rated current of the capacitor to protect.

Cables

Feeding cables of the capacitors must be dimensionated taking into account that their rated current can be increased even up to a 30% due to harmonics in the network.

In the Table are given the cable sections and calibre of the fuses for two usual working voltages:

Power	U_N = 230 V			U_N = 400 V		
Q_N (kvar)	I_N (A)	Fuse (A)	mm^2 Cu *)	I_N (A)	Fuse (A)	mm^2 Cu *)
2	5.0	10	1.5	2.9	10	1.5
2.5	6.3	16	1.5	3.6	10	1.5
3	7.5	16	1.5	4.3	10	1.5
4	10.0	20	2.5	5.8	10	1.5
5	12.6	25	2.5	7.2	16	2.5
7.5	18.8	35	4	10.8	20	2.5
10	25.1	50	6	14.4	25	4
12.5	31.4	63	10	18.0	35	6
15	37.7	63	10	21.7	50	6
20	50.2	100	16	28.9	50	10
25	62.8	125	25	36.1	63	10
30	75.3	125	50	43.3	80	16
35	87.9	160	50	50.5	100	16
37.5	94.1	160	50	54.1	100	25
40	100.4	160	70	57.7	100	25
50	125.5	200	95	72.2	125	35
60	150.6	250	120	86.6	160	50
75	188.3	300	150	108.3	160	70
80	200.8	315	185	115.5	200	70
90	225.9	400	185	129.9	250	95
100	251.0	400	240	144.3	250	95
125	313.8	500	2x120	180.4	315	150
150	376.5	630	2x150	216.5	400	185
180	451.8	2x400	2x185	259.8	400	240
200	502.0	2x500	3x120	288.7	500	2x95
240	602.5	3x300	3x185	346.4	630	2x150
250	627.6	3x400	3x185	360.8	630	2x150

*) Cable sections established from the Standard HD 384-5-523 (UNE 20460), for multiconductor cable (threecores) of PVC, installed in the open air and for an environment temperature of 40ºC.