

3.2 Thermal sizing of the equipment (breaking devices and cables)

The permissible fluctuations in fundamental voltage and harmonic components may lead to a 30% to 45% current increase in capacitors.

Fluctuations due to tolerances on capacitor capacitance may result in an additional increase of 15% (according to standard IEC). With respect to Rectiphase capacitors, this additional increase is reduced to 5%.

The cumulated effect of the two phenomena means that equipment must be sized for the following currents:

- $1.3 \times 1.15 = 1.5$ times nominal current of capacitor banks in general,
- $1.3 \times 1.05 = 1.36$ times nominal current in the case of standart type or by coil protected Rectiphase capacitor banks (SAH type),
- $1.45 \times 1.05 = 1.5$ times nominal current in the case of reinforced Rectiphase capacitor banks (H type),

3.3 Choice and calibration of protection devices for Rectiphase capacitor banks

Low voltage capacitors can be protected by fuse or circuit-breaker.

- Protection by circuit-breaker:

As mentioned above, rating must be greater than $1.36 \times I_{ncapa}$; the thermal threshold can be set at $1.36 \times I_{ncapa}$.

The protection device must be sensitive to the rms value of the current (including the harmonics).

The instantaneous tripping threshold must be set at $10 \times I_{ncapa}$.