

MCR

Automatic Capacitor Bank with Detuning Reactors

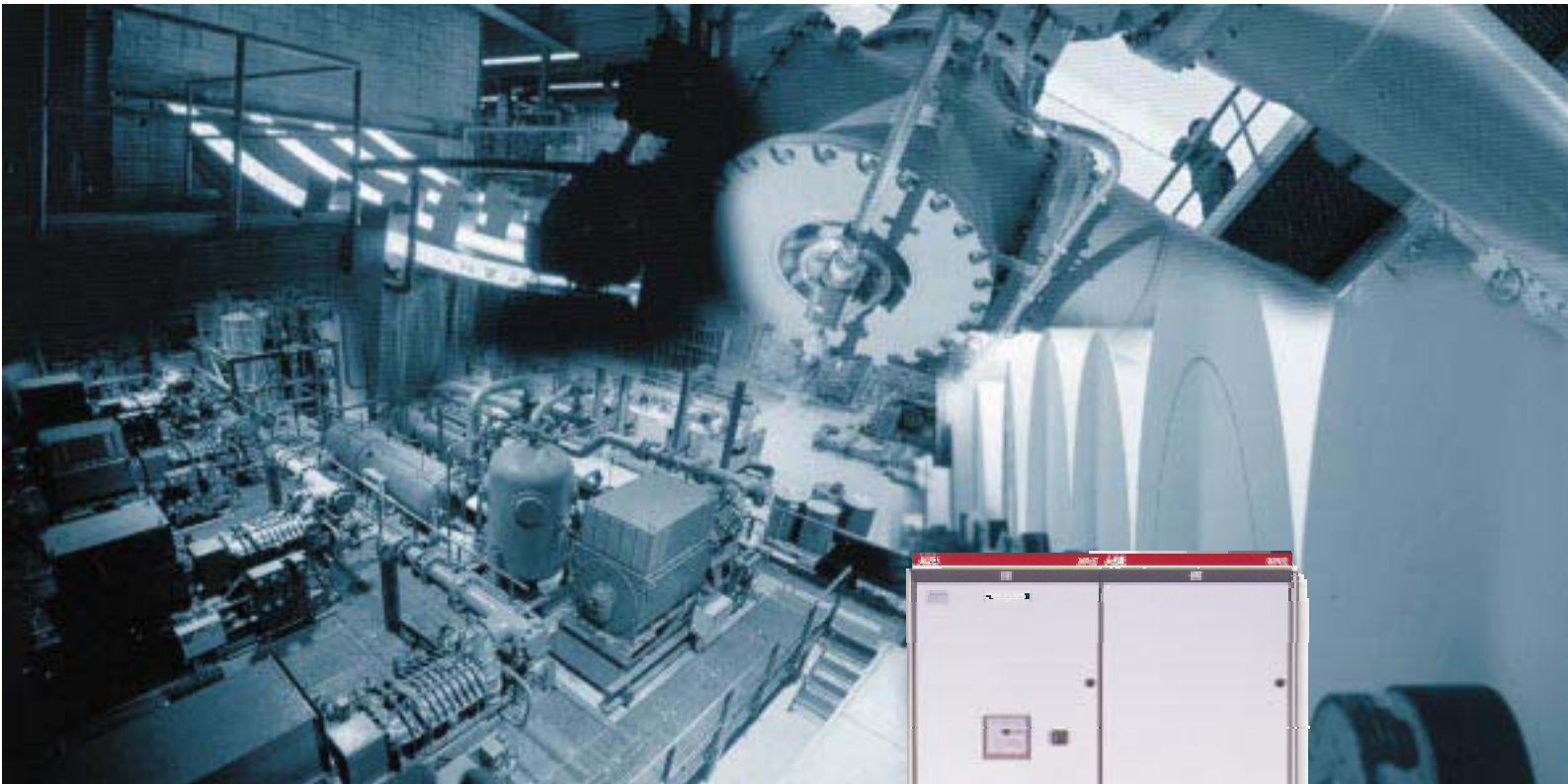


ABB Control Oy



Power factor correction despite harmonics

If the load in the power system is non-linear there is harmonic distortion present both in current and voltage. The most common harmonic frequencies are 150, 250, 350 and 550 Hz. The main sources of harmonics are AC- and DC-drives, UPS-systems and various types of fluorescent lamps.

If the share of the non-linear loads is over 15...20 % of the total load it is advisable to use detuned filters for power factor correction. In this way the amplification of harmonics in the parallel resonant circuit between the network inductance and the capacitor bank is avoided. If the harmonics are to be filtered away from the system the right equipment is the tuned harmonic filter. (See separate brochure)

Each step in the detuned capacitor bank consists of reactor and capacitor unit. The resonant frequency is below the lowest harmonic frequency present in the system. The step is capacitive at the fundamental frequency providing power factor correction. At the same time it is inductive at the harmonic frequencies that are generated by the load. Because of this the amplification of harmonic currents is avoided.



The steps are switched on and off by reactive power controller in the same way as in the automatic capacitor banks. The most common step sizes are 50 and 25 kvar.

The components are installed in ABB's MNS switchgear cubicles which can be used as a part of the switchgear or as free-standing cubicles. In the latter case, the cubicles require cabling and feeders on the main distribution board.

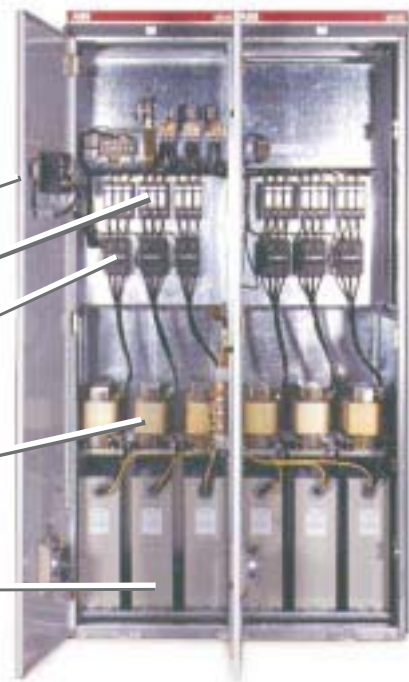
Reactive power controller

Fuses

Contactors

Reactors

Capacitor units



TECHNICAL DATA

System voltage: 400, 525, 690 V

Power / feeder: 50 ... 300 kvar

Tuning frequencies: 189 Hz (7 %-reactors),
harmonics in system; 5th, 7th, 11th ...
141 Hz (12,5 %-reactors),
when also 3rd harmonic is present

Protection class: IP 20

Dimensions: w x d x h (mm)

600 x 600 x 2240 (max 150 kvar)

800 x 600 x 2240 (max 200 kvar)

1000 x 600 x 2240 (max 250 kvar)

1200 x 600 x 2240 (max 300 kvar)

Other configurations on request.



ABB Control Oy

P.O. Box 600

FIN-65101 VAASA

Tel. +358 10 22 4000

Fax +358 10 22 41097