FT300 series
Thyristor Switched Bank

Low Voltage Fast compensation system for Power Factor Correction

4 to 12 Units Assemblies

- 0 to 600 kVAR
- 208 @ 690 Volts
- Nema-1, 12 & 3R

The FT300 Thyristor switched capacitor banks with high-speed switching capability are designed to support the supply voltage of distribution systems and to correct the power factor of connected loads.

Thyristor switches are resistant to mechanical wear, operate without noise, and are capable of practically transient-free switching.

Control signals can be transmitted to the capacitor banks straight from the load, which means power factor correction with minimal delay.

The minimum time the control unit needs for switching all the steps of the capacitor bank on or off is the period of only one oscillation.

Each step of the capacitor bank consists of a capacitor and a reactor connected in series. These two forms a series resonant circuit tuned at a frequency below the lowest harmonic frequency present in the system.

The capacitor bank is selected according to the desired control method, the amount of reactive power to be compensated, and the connected loads. The loads can be symmetrical or asymmetrical, and they can be connected to the main voltage or phase voltages.

TECHNICAL DATA - **FT300 series**	
Rated Voltage / Phase	208 TO 690 Volts / 3 phases
Rated Frequency	50Hz or 60Hz
Rated Power	50 to 600 kVAR / unit
Tuned Frequency	7% or 12.6% (other tune frequency on request
Power Factor Controller	NC12 12 steps
Insulation level	2.5 kV
Power losses	0.4 w/kVAR
Continuous over-voltage	110 %
Continuous over-current	135 %
Mounting type	Floor mounting
Enclosure type	Indoor , outdoor
Temperature class	-40 `C to 55`C
o Average 24h :	+ 45`C
Color	ASA 61 (light grey)
Construction Standard	UL, CSA, IEC

A high-powered machine with rapidly changing load, such as a welding machine, causes drops in the supply voltage. The amount of such a drop depends on the output power of the machine and on the short-circuit power of distribution network. A drop in the secondary voltage is reflected in the primary voltage, causing the quality of the distribution voltage to deteriorate everywhere in the transformer circuit.

The effects of voltage drop on a distribution network are proportioned to the amount of the drop and to the frequency of its occurrence. A thyristor-switched capacitor bank suppresses these effects to a great extent, ensuring that the distribution voltage conforms to the standards in this respect.

Supporting and stabilizing the supply voltage, a thyristor-switched capacitor bank decreases the energy consumption of production equipment and thus increases their capacity.

To achieve the best possible results in the power factor correction of high-speed welding machines, control signals are sent to the capacitor bank straight from the machines. The power factor correction from the capacitor bank is pre-selected according to the demand of reactive power.

CAPACITOR BANKS CONTROLLED BY REACTIVE POWER

Thyristor-switched capacitor banks are capable of swift power factor correction of machines with highly variable load, such as lift and crane drives. Using thyristors instead of contactors gives a higher switching speed and saves the work caused by service and replacement of quickly wearing contactors.

The control system switches the capacitor bank steps on and off according to the demand of reactive power. The control is based on a kind of “first-in last-out” principle: the first step is switched on first and switched off last. The minimum time the control system needs to switch all steps of capacitor bank on or off is a short as the one network period**.**

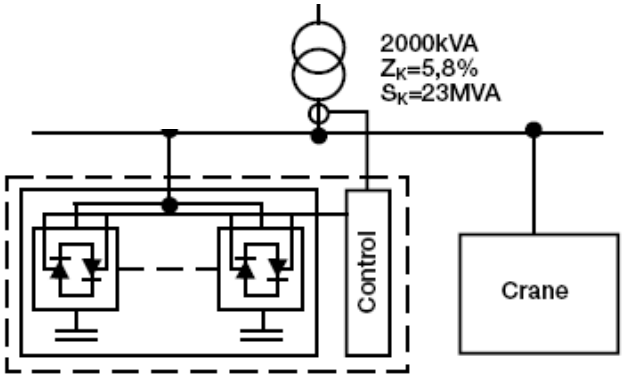

Fig. 2. Capacitor bank controlled by reactive power

TECHNICAL DATA

Network voltage:	400…690 V
Step power:	50…300 kvar
Cubicle size:	W * D * H (mm)
	1200*600*2000 / 300 kvar

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