

Automatic Low Voltage Harmonic Filter Bank

Tuned Frequencies' 5th, 7, 11, 13 Th

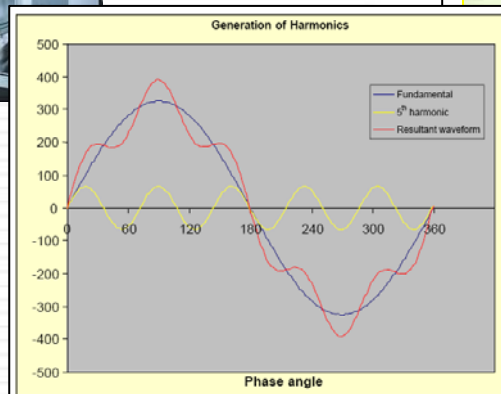
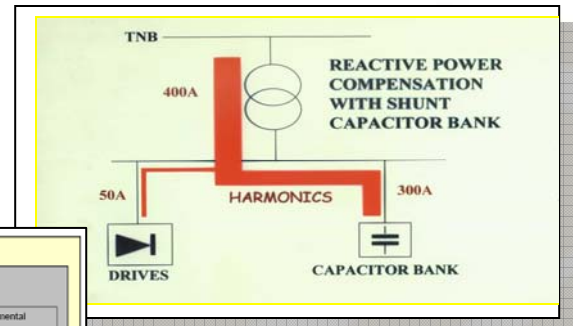


Power transmission and distribution systems are designed for operation with sinusoidal voltage and current waveforms at a constant frequency. However, when non-linear loads-such as thyristor drives, converters and arc furnaces are connected to the system, excessive harmonic currents are generated, and this causes both current and voltage distortion.

The **FT200** harmonic filtering is the best way to eliminate this distortion from the power system, while at the same time producing reactive power.

TECHNICAL DATA - FT200 series

● Rated Voltage / Phase	208 TO 600 Volts / 3 phases
● Rated Frequency	50Hz or 60Hz
● Rated Power	20 to 1200 kVAR / unit
● Tuned Frequency	5 th , 7 th , 11 th and 13 th
● Power Factor Controller	N12 or NC12 12 steps
● Insulation level	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
○ Average 24h :	+ 45 °C
● Color	ASA 61 (light grey)
● Construction Standard	UL, CSA



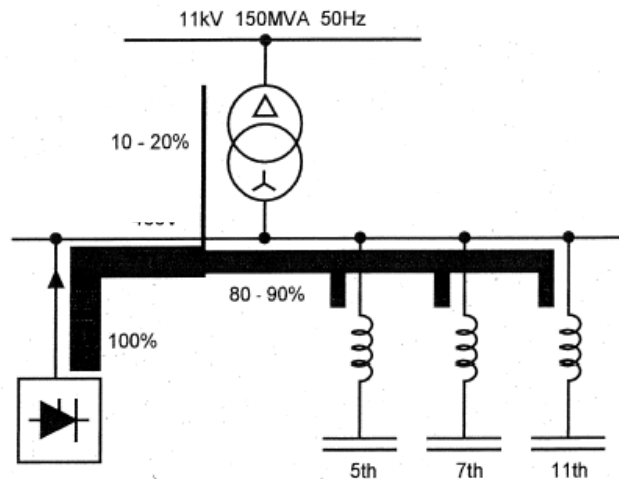
➤ Technical Data FT200 series

Standard Features and Options :	4 Units Ass.	6 Units Ass.	12 Units Ass.
Enclosure floor mounted c/w lifting ring (Type 1, 2, 3R, 4X)	1, 2, 3R, 12, 4X	1, 2, 3R, 12, 4X	1, 2, 3R, 12, 4X
Three points lockable door handle	▪	▪	▪
ASA 61 Grey (other color on request)	▪	▪	▪
Top Cable entry (Bottom entry on request)	▪	▪	▪
Capacitors space / KVAR max / Unit (Custom Staging Ratios)	4 / 100 kVAR	6 / 100 kVAR	12 / 100 kVAR
Incoming silver Flashed Copper Bus 30 kV BIL c/w lugs	▪	▪	▪
Power and Control wires	T90 / T105	T90 / T105	T90 / T105
DSHI Capacitor (Heavy Duty type on request)	▪	▪	▪
Current limiting fuses HRC type ____ Amp. 200 ka	▪	▪	▪
Magnetic Contactor c/w special switching devices	▪	▪	▪
Detuned reactor c/w thermal detection device	▪	▪	▪
Power Factor Controller (On / Off switches)	6 steps	6 & 12 steps	12 steps
Control & Potential Transformer c/w CT Shorting device GFI breaker* [* upon request]	▪	▪	▪
Thermostatic Control c/w cooling fan	▪	▪	▪
Optional (s)			
Current Transformer (Split core type)	O	O	O
Main Breaker or Fuses Disconnect	O	O	O
Blown fuses indicating light c/w push bottom test	O	O	O
Main current metering c/w Ammeter and phase selector	O	O	O
Electric Door interlock	O	O	O
Kirk Key system interlock with the remote main breaker	O	O	O
Special Metering Arrangement	O	O	O
Ground switch interlocked with doors and main supply	O	O	O
Power Quality Meter			

▪ Standard O = Optional

➤ Technical Application

Tuned 5th Harmonic and 7th Harmonic Passive Filter is specially designed for higher level of Harmonic suppression. This is ideally suitable for industries where higher levels of Current Harmonics are recorded (like >20% THD). This Filter ensures Effective Harmonic Filtration for Industries having 40% and above of Current Harmonics generating Loads. This Harmonic Filter also improves the Power Factor effectively. A Complete Harmonic Analysis of the total system can identify clearly the level of Harmonics for proper selection of Harmonic Suppression Devices. This Filter is available as Automatic Switched Variable Filter or Fixed Filter.



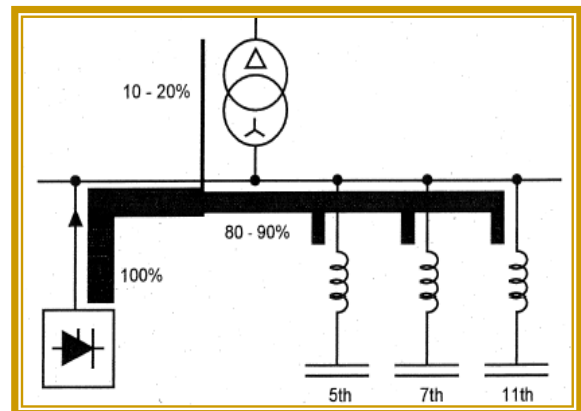
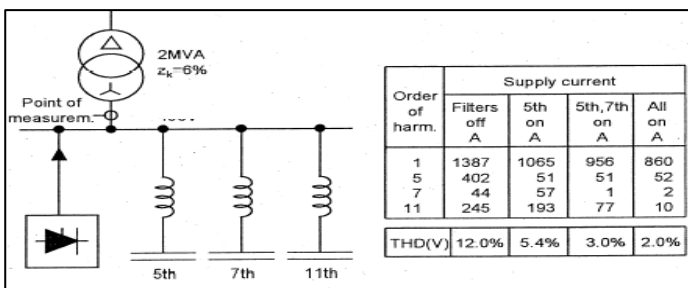
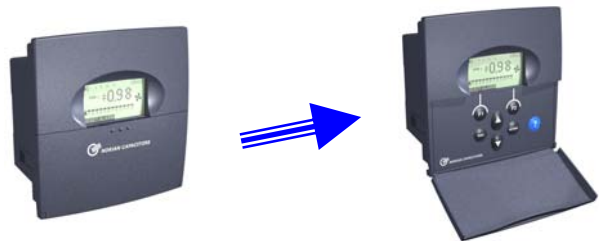
FT200 5th Harmonic Filter Unit

Harmonic filters consist of capacitors connected in series with a reactor. The capacitors produce reactive power at the filter's fundamental frequency, and the circuit is designed to achieve the required power factor correction. The inductance of the reactor is chosen so that the filter forms a very low impedance series resonant circuit at the harmonic frequency. This ensures that a high proportion of the harmonics enter the filter.

A typical harmonic filter consists of three series resonant circuits tuned to the most common harmonics (5th, 7th and 11th harmonics). The filters are housed in the steel cubicles. Each consists of a contactor, thermal over-current relay, reactor and capacitors. The unit is generally connected to the fused feeders on the main distribution board.

Harmonic filters can be operated in the same way as automatic capacitor banks: they are controlled by means of power factor controller according to reactive power requirements.

Harmonic filters are custom designed for each application using standard components. This ensures that the best possible power factor correction and filtering characteristics are achieved with reasonable investment.



Reactive Power	FT200 series					Options			Tuned Freq.	DWG	Fig
	Basic Part. #	System Voltage	Reactive kvar	No step	Step / Kvar	Type 1, 12, 3R	Protection Device	3 F Ind. Light			
Kvar	+ -->	Suffix	Suffix	Suffix	Suffix	Suffix	Suffix	Suffix	# TH	SK - #	#
150	FT200	480	150	5	30	1	B	BFI	11	6093A	1
175	FT200	480	175	7	25	1	B	BFI	7	6093A	1
200	FT200	480	200	4	50	1	B	BFI	5	6093A	1
210	FT200	480	210	7	30	1	B	BFI	11	6093A	1
240	FT200	480	240	4	60	1	B	BFI	7	6093A	1
250	FT200	480	250	5	50	1	B	BFI	5	6093A	1
360	FT200	480	360	6	60	1	B	BFI	11	6126A	2
600	FT200	480	600	6	100	1	B	BFI	7	6126A	2
800	FT200	480	800	8	100	1	B	BFI	5	6008A	1+2
1000	FT200	480	1000	10	100	1	B	BFI	11	6168A	2+2
1200	FT200	480	1200	12	100	1	B	BFI	7	6168A	2+2
***	FT200								5		***
Model	1	2	3	4	5	6	7	8			
No ...	FT200	480	1200	12	100	1	B	BFI			

*** Contact Factory for special configuration and are available on request .

1	FT200 Series for Standard Automatic Tuned Filter
2	System Voltage applied 240, 480, 600 Volts
3	Total Reactive Power = __ Kvar
4	Number of step increment switching
5	Increment of __ Kvar / step
6	Type Enclosure = 1, 12, 3R, 4X
7	Option : B : Breaker D : Disconnect Switch FD : Fuses Disconnect Switch
8	Option : Blown Fuses indicating lights = BFI

P.Q. Manager

NC12 Model

