



HARMONIC FILTER REACTOR

Why use a harmonic filter reactor in a power factor correction capacitor bank ?

- ◆ Capacitors are required to improve power factor, and possible system interaction may occur with the installation of a plain capacitor bank, which can lead to resonance.
- ◆ Permissible distortion limits of the local utility or applicable standards are exceeded, and filters are required to reduce them.
- ◆ A combination of 1 & 2 above, whereby capacitor are required to improve power factor and with the addition of the capacitors, permissible distortion limits are exceeded.

Benefits of using De-tuned reactor.

- ◆ Pro-long the life of power factor capacitor by reducing overheating, or fuse failure.
 - ◆ Prevent nuisance input fuse blowing or circuit breaker tripping.
 - ◆ Reduce over heating of transformer.
 - ◆ Reduce the harmonic current in the electrical supply system.
- Addressing the harmonic problems created by non-linear load such as AFD's, AC-DC converter, DC drives, welding m/c etc.



Important : The use of specific filtering factor requires careful system analysis. As a general rule, filtering factor of 7% is used where imported harmonics from the power source is the main concern.

Blocking (De-Tuned) Reactor System :

The Reactor + Capacitor combination is designed to have a Resonance Frequency below the first denomination Harmonics (usually 5th Harmonic in a 3 Phase 3 Wire Loading System). Hence by De-Tuning a circuit we force the Resonant Frequencies below the lowest order Harmonics present in the system. This in effect corrects PF at fundamental frequency, and at higher order Harmonic Frequency, it operates as a de-tuned system.

- ◆ De-Tuning Factor : (5.67%, 7% to 14%)
- ◆ Ratings : 5 to 120 KVAR
- ◆ Insulation : Class F (Class H available on Demand)
- ◆ Material : Aluminum or Copper Wound.
- ◆ Voltage : 415 /440 V (other voltages available on request)

Power Quality Analysis :

We provide Power Quality Analysis services also, as it is required for proper filter design. Power Quality Analysis would involve collection of data regarding Voltage, Current, PF, KW, KVA, Harmonics, (THD Levels & Individual Harmonics) by data logging to understand system power quality details.

7% Copper & Aluminium Detuned Reactors

No.	KVAr Rating	Copper Detuned Reactor Dimension (LxDxH) in mm	Aluminium Detuned Reactor Dimension (LxDxH) in mm
1.	5KVAr	190 x 150 x 180	240 x 170 x 185
2.	10KVAr	210 x 170 x 180	240 x 170 x 220
3.	12.5KVAr	210 x 170 x 180	240 x 170 x 220
4.	15KVAr	210 x 170 x 180	240 x 170 x 220
5.	20KVAr	260 x 170 x 210	260 x 150 x 210
6.	25KVAr	260 x 170 x 210	260 x 170 x 210
7.	50KVAr	310 x 200 x 250	310 x 190 x 240
8.	75KVAr	310 x 200 x 270	310 x 200 x 310
9.	100KVAr	310 x 250 x 280	310 x 210 x 310

De-tuned Reactor Technical Specification:

TECHNICAL DATA	
Make	Trinity
System Voltage	450/550/690 VAC
Line Frequency	50/60 HZ
Limination Type	CRGO Grade
Copper Wire	Super Enamelled Copper / Aluminium Wire
Insulation Class	Class F / Class H
Filter Factor	5.67% / 7% / 14%
Resonance Frequency	5.67% (210Hz) / 7% (189Hz) / 14% (134Hz)
H.V.Test	2.5k B/W winding to winding & winding
Insulation Resistance	>100 mega Ohm
Thermal Cut-off	Thermal Switch of 135 °C provide
Ambient Temperature	40 °C
Construction	Dry type, Ai cooled, Vacuum Impregnated to ensure silent & moisture-immune operation
Varnish Make	ISONEL 3IJ (Dr. Beck make)
Paint	Anti-corrosive 704 paint
Provision for Earthing	Provided
Noise Level	<65 dB at rated load at 1 meter distance
Linearity	150% / 180% / 200% (as per requirements)
Baking Temperature	150 °C for 3 hours
Cooling	Air natural cooling
Over Load Capacity	150% for 1 min
Standards	AS per IFC 6I558-2-20 / CE Standards
Termination	Connect well terminals / Tinned copper burbars / Lugs mounted on fiber angle

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* Specifications are subject to change without notice due to continuous improvement.