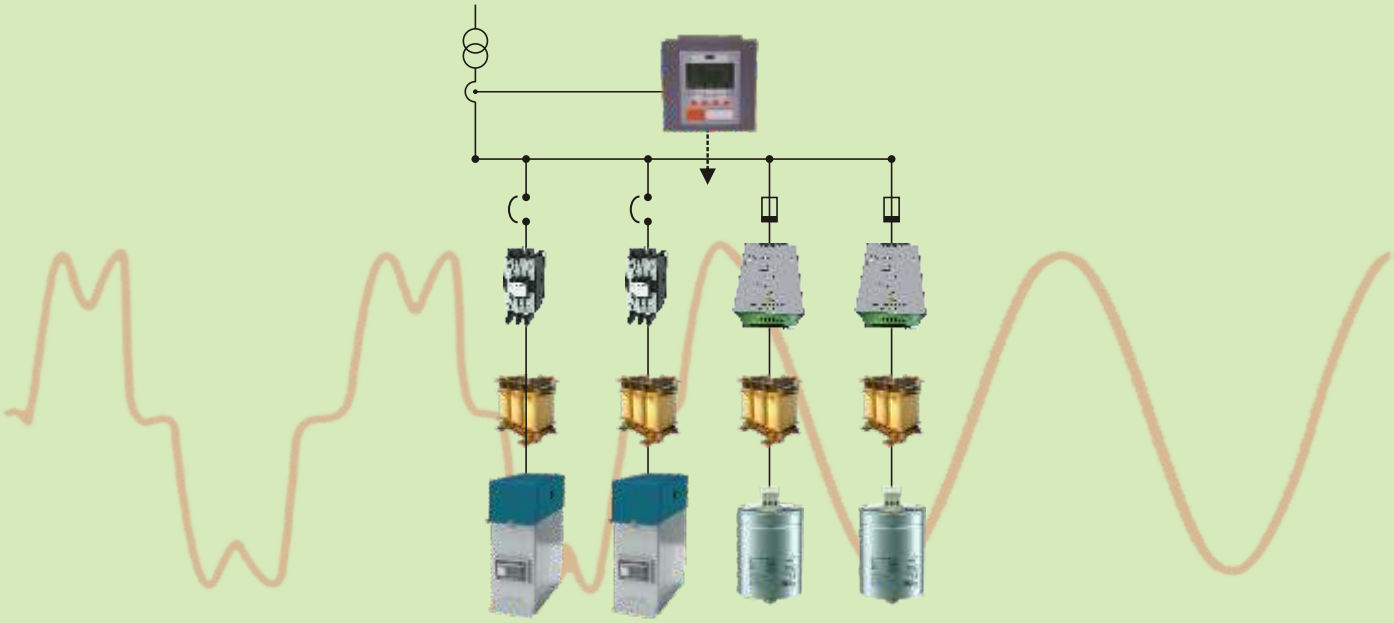
Cos-One®

# DETUNED HARMONIC REACTORS

Unique HLLL technology
(High Linearity Low Loss)
5 to 250 KVAR upto 800 Vac



*Energy Saving & Clean Power Solutions*

# Detuned Harmonic Filter Reactors (HFR) for APFC

Unique HLLL technology
(High Linearity Low Loss)
5 to 250 KVAR upto 850 Vac

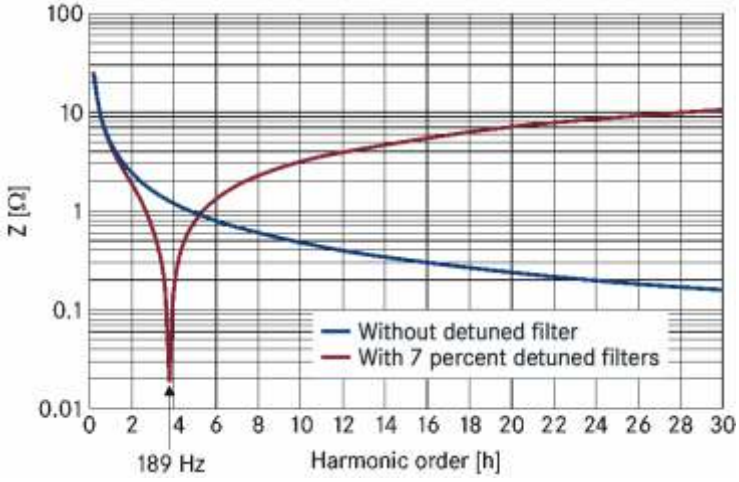
- Available detuning factors p : 7%, 14%, 5.67%
- Anti-resonance series reactors $I_1$= 1.06*Ic
- High Linearity : 200%
- Low loss design
- Overload capacity : 130% continuous
- Insulation : Class H 185°C
- Noise level : Max 60 dB
- Insulation Level : 2.5 KV
- Ambient Temperature : 50° C
- Enclosure : IP00
- Cooling : Natural
- Over-temperature protection : Microswitch (NC)
- Inrush current limiting reactors 0.2% also available
- Tuned Reactors for 5th , 7th , 11th , 13th harmonics available

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

1. Capacitors are required to improve power factor and possible harmonic interaction may occure with the installation of a plain capacitor bank.
2. Permissible distortion limits of the local utility of IEEE-519 are exceeded and filters are required to reduced them.
3. A comination of PFC capacitors with detuned harmonic filter reactors will result in limiting harmonics.

## Benifits of using detuned reactors

1. Prolongs life of PFC capacitors by reducing harmonic overloading with respect to voltage & current.
2. Reduces amplification of system harmonics thereby restoring sinusoidal waveform.
3. Reduce over heating of busbars, cables & transformer.




## COPPER WOUND

415/ 440V, 3-Ph, Iron core, Class H, Linearity 200%

| Rating in KVAr | 7% | 14% | 5.67% |
|---|---|---|---|
| Product code | (fr=189Hz) | (fr=135Hz) | (fr=210Hz) |
| 5 | DR7C005 | DR14C005 | DR6C005 |
| 7.5 | DR7C007 | DR14C007 | DR6C007 |
| 10 | DR7C010 | DR14C010 | DR6C010 |
| 12.5 | DR7C012 | DR14C012 | DR6C012 |
| 15 | DR7C015 | DR14C015 | DR6C015 |
| 20 | DR7C020 | DR14C020 | DR6C020 |
| 25 | DR7C025 | DR14C025 | DR6C025 |
| 30 | DR7C030 | DR14C030 | DR6C030 |
| 50 | DR7C050 | DR14C050 | DR6C050 |
| 75 | DR7C075 | DR14C075 | DR6C075 |
| 100 | DR7C100 | DR14C100 | DR6C100 |
| 125 | DR7C125 | DR14C125 | DR6C125 |
| 150 | DR7C150 | DR14C150 | DR6C150 |

## ALUMINUM WOUND

415/ 440V,3-Ph, Iron core, Class H, Linearity 200%

| Rating in KVAr | 7% | 14% | 5.67% |
|---|---|---|---|
| Product code | (fr=189Hz) | (fr=135Hz) | (fr=210Hz) |
| 5 | DR7A005 | DR14A005 | DR6A005 |
| 7.5 | DR7A007 | DR14A007 | DR6A007 |
| 10 | DR7A010 | DR14A010 | DR6A010 |
| 12.5 | DR7A012 | DR14A012 | DR6A012 |
| 15 | DR7A015 | DR14A015 | DR6A015 |
| 20 | DR7A020 | DR14A020 | DR6A020 |
| 25 | DR7A025 | DR14A025 | DR6A025 |
| 30 | DR7A030 | DR14A030 | DR6A030 |
| 50 | DR7A050 | DR14A050 | DR6A050 |
| 75 | DR7A075 | DR14A075 | DR6A075 |
| 100 | DR7A100 | DR14A100 | DR6A100 |
| 125 | DR7A125 | DR14A125 | DR6A125 |
| 150 | DR7A150 | DR14A150 | DR6A150 |

## Selection of capacitor - reactors for Detuned circuits

p =7% - Resonant frequency 189 Hz

| Net output required @ 415 V, 50 Hz in **KVAr** | Detuning factor **p** in % | Rated current in **A** | Reactor Inductance **L** in **mH** | Rated voltage of capacitor in **V** | Rated value of capacitor in **KVAr** |
|---|---|---|---|---|---|
| 5 | 7 | 6.96 | 8.257 | 480 | 6.30 |
| 10 | 7 | 13.91 | 4.128 | 480 | 12.5 |
| 12.5 | 7 | 17.39 | 3.303 | 480 | 15.7 |
| 15 | 7 | 20.87 | 2.752 | 480 | 18.7 |
| 20 | 7 | 27.82 | 2.064 | 480 | 25.0 |
| 25 | 7 | 34.78 | 1.651 | 480 | 31.0 |
| 30 | 7 | 41.74 | 1.376 | 480 | 37.5 |
| 40 | 7 | 55.65 | 1.032 | 480 | 50.0 |
| 50 | 7 | 69.56 | 0.823 | 480 | 62.5 |
| 60 | 7 | 83.47 | 0.688 | 480 | 75.0 |
| 75 | 7 | 104.34 | 0.550 | 480 | 94.0 |
| 100 | 7 | 139.12 | 0.412 | 480 | 125.0 |

p =14% - Resonant frequency 135 Hz

| Net output required @ 415 V, 50 Hz in **KVAr** | Detuning factor **p** in % | Rated current in **A** | Reactor Inductance **L** in **mH** | Rated voltage of capacitor in **V** | Rated value of capacitor in **KVAr** |
|---|---|---|---|---|---|
| 5 | 14 | 6.96 | 16.51 | 525 | 7.5 |
| 10 | 14 | 13.91 | 8.256 | 525 | 15.0 |
| 12.5 | 14 | 17.39 | 6.606 | 525 | 18.8 |
| 15 | 14 | 20.87 | 5.504 | 525 | 22.5 |
| 20 | 14 | 27.82 | 4.128 | 525 | 30.0 |
| 25 | 14 | 34.78 | 3.302 | 525 | 37.5 |
| 30 | 14 | 41.74 | 2.752 | 525 | 45.0 |
| 40 | 14 | 55.65 | 2.064 | 525 | 60.0 |
| 50 | 14 | 69.56 | 1.646 | 525 | 75.0 |
| 60 | 14 | 83.47 | 1.376 | 525 | 90.0 |
| 75 | 14 | 104.34 | 1.100 | 525 | 112.5 |
| 100 | 14 | 139.12 | 0.824 | 525 | 150.0 |

# Clients

## Present in 11 Countries

ISO 9001 BUREAU VERITAS Certification


# PQS Electrolink (I) P. Ltd.

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