

Harmonic Filter

Quality of power is becoming ever more important for both suppliers and end users, as the number of devices that may feed harmonics into power systems is increased, resulting in higher line losses, interferences and resonances.

Harmonic Filters - made up by capacitors, inductors and resistors - help eliminating harmonics which inevitably tends to occur. The LC circuit filters all spurious frequencies and only let the fundamental frequency through, while the Harmonic Filter Resistors (also referred to as Damping Resistors) dissipate harmonic currents into heat.

Typical applications for Harmonic Filters Resistors are HVDC networks and electrical induction furnaces.

Our team of experienced engineers designs the best solution for the different characteristics required and for the most diverse environmental conditions. Microelettrica can custom design Harmonic Filter Resistors from a few kW rating up to tens of MW, as well as B.I.L. up to 600 kV. Our Harmonic Filter Resistors employ non-magnetic low temperature-coefficient elements, to minimise Ohmic value drift thus preventing excessive power increase. They also have low parasitic inductance values, which is a key feature for the effective design of damping elements.

The essential parameters needed to design a Harmonic Filter Resistor are:

- Nominal Voltage
- Current or Power
- Ohmic Value (with tolerance in %)

Other relevant parameters are:

- B.I.L.
- Required Insulation Level: HV terminal to hearth, LV terminal to earth, between terminals
- Clearance and Creepage
- Enclosure finish: our standard is mild galvanised, but different stainless steel grades (such as AISI304 or AISI316) are available.
- Painting in the desired RAL colour is also an option
- Environment: we design resistors for the harshest industrial or natural settings
- Maximum Inductance
- Bushing Layout: top or side mounted
- Mounting: three-phase stacked, side by side, others

Applications

Industry



