

ELECTRONIC POWER CAPACITORS

RTR Energía, is a worldwide leading manufacturer and offer in wide range of polypropylene special metallized film capacitors (PPM), specialized in manufacturing of self-healing capacitors with metallized dielectric, where we can find, among others, Power Factor Correction, DC-link electronic and Heavy-duty AC filtering capacitors. The capacitors are developed with latest technology machinery, R&D, know-how technology and manufactured with best quality raw materials by following strictest quality and safety controls.

The electronic power capacitors (EPC) are intended to use in power electronics equipment, UPS, AC filtering, wind-power energy, frequency converters... etc. Complying standard UNE-EN 61071 (IEC 61071: 2007).

TERMS AND DEFINITIONS ACCORDING TO IEC 61071

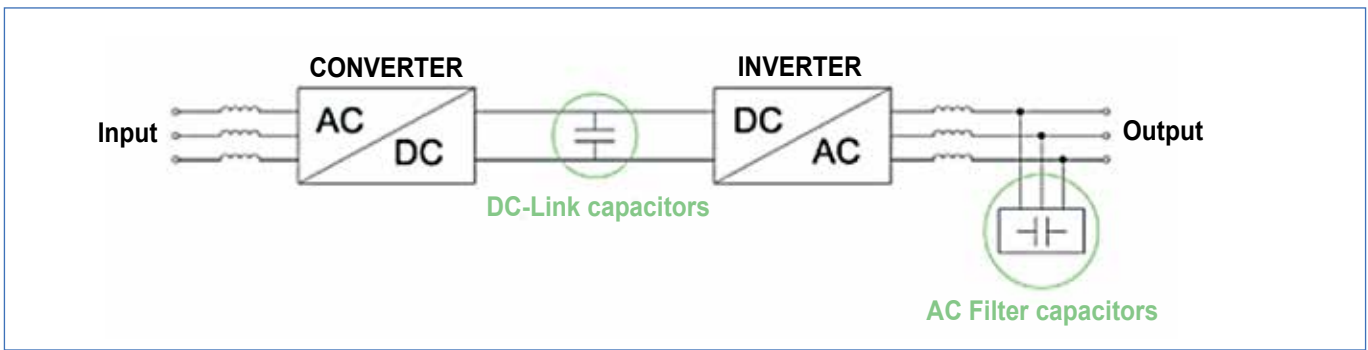
- Rated AC Voltage ($U_{N AC}$): The maximum operating peak recurrent voltage of either polarity of a reversing type wave form, for which the capacitor has been designed.
- Resonance frequency (f_r): The lowest frequency at which the impedance of the capacitor is become minimum.
- Rated DC Voltage ($U_{N DC}$): The maximum operating peak voltage of either polarity but a non-reversing type wave form, for which the capacitor has been designed
- Operating temperature: Temperature of hottest point on the case of operating capacitor in thermal equilibrium.
- Ripple voltage (U_r): The peak-to-peak alternating component of the unidirectional voltage.
- Lowest operating temperature (θ_{min}): Lowest permissible case temperature, in thermal equilibrium, at which the capacitor may be used.
- Non-recurrent surge voltage (U_s): A peak voltage inducted by switching or any other faults or disturbance of the system, which is allowed for a maximum of 500 times and for a duration shorter than 100 msec.
- Maximum operating temperature (θ_{max}): Highest permissible case temperature, in thermal equilibrium, at which the capacitor may be used.
- Maximum peak current (\hat{i}_s): The maximum current amplitude which occurs instantaneously during continuous operation
- Capacitance losses: Active power dissipated by a capacitor.
- Maximum current (I_{max}): The maximum rms value of permissible current in continuous operation
- Tangent of the loss angle of the capacitor ($tg\delta$): Ratio between the equivalent series resistance and the capacitive reactance of capacitor in sinusoidal frequency expressed as tangent loss.
- Peak surge current (\hat{i}_s): The admissible peak current inducted by switching or any other faults or disturbance of the system, which is allowed for a maximum of 500 times and for durations shorter than 100 msec.
- Series resistance (R_s): It is the effective resistance in Ohms of the conductive of a capacitor under specified working conditions.

APPLICATIONS

The RTR electronics power capacitors (EPC) cover a wide range of applications since the construction and main parameters allow us for full fill large portfolio of EPC for DC-link capacitors and Heavy-duty AC filter capacitors.

RTR offers the range of capacitors of both types according to application and customer's requirements.

Capacitor	DC-Link	AC Filtering
Application	These ones are designed to use them in Dc power supplies, to protect the net from punctual peaks and spontaneous increased of voltage, as well as to reduce the ripple of the alternative component of the voltage of the direct current.	These capacitors are mounted in series with inductances to result an AC filter and be able to correct the reactive current and harmonics of loads.



DC-LINK CAPACITORS

DC-Link capacitors are electronic power capacitors which work in DC.

These capacitors are suitable, as long as the intention is to provide a path of low impedance at switching of current of high frequency and provide energy storage. The input phase can be as simple as a rectifier outside of AC voltage input or a power factor correction circuit (PFC) that generates a constant current of high voltage. The DC-link capacitor acts as the phase output filter in the PFC stage that absorbs the switching currents and whose main purpose is to minimize the ripple current due to the alternating component in the direct current.

The output phase should be a converter or a switched-mode inverter that "interrupts" the excessive frequency current from the DC-Link capacitor. The capacitor also must have the right size to comply with the ripple voltage specifications in the DC-Link and energy storage between power grid cycles or when the input power is lost. Therefore, it should have a low equivalent series resistance (ESR) and a minimum series inductance (Ls) and ripple current.

RTR Energía, has extensive experience in manufacturing and calculating metallized polypropylene film capacitors and offers a wide range of high quality DC-Link capacitors thanks to the strict manufacturing conditions and the high quality of its materials, which guarantee low inductance, low internal resistance and high reliability.

The coils housed inside an aluminum cylinder are sealed with V0 self-extinguishing polyurethane resin, manufactured under UL94 by RTR Energía.



AC FILTERING CAPACITORS

The AC filtering Electronic power capacitors are used at the output of DC / AC inverters where extreme operating conditions are required with very high AC voltages, such as wind generators, UPS applications, harmonic filtering with unusual levels of harmonic distortions or those cases in which the current is not sinusoidal and with pulses.

The capacitors EPC FT (three-phase AC filter capacitor) and EPC FS (single-phase AC filter capacitor) from RTR Energía offer a very low resistance and inductance, to cover the different needs of the customers.

RTR Energía's manufacturing experience allows to offer a wide range of filter capacitors at different voltages and capacitances made with the best quality materials, and these capacitors also have overpressure disconnection system and V0 self-extinguishing polyurethane resin, manufactured under UL94 by RTR with certification number: 20141031-E470994.



RTR's technical department offers personalized customer service and tailor made solutions for each customer and project, therefore, we recommend for consult us for define the best solution and price.



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