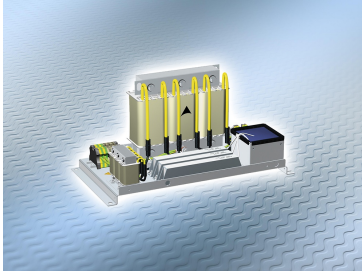


LCL filters for recuperative frequency converter systems



TDK Corporation presents a new series of EPCOS LCL filters (B84143*405) for recuperative frequency converter systems. These high-performance filters consist of a power choke, a capacitor bank with damping resistors and a robust choke. The corresponding filter circuits attenuate the clock frequencies so greatly that the IEC / TS 62578 recommendations for EMI emissions between 9 kHz and 150 kHz can be satisfied. Moreover, in combination with a recuperative frequency converter system, the LCL filters can significantly reduce the line-side harmonics to less than 5 percent. Thanks to the integration of the choke in the LCL filter, the recuperative unit can also be operated as a boost converter for higher DC link voltages.

The new LCL filters are designed for rated currents of 16 A, 66 A, 200 A, and 400 A at a rated voltage of 520 V. The two smaller versions (16 A and 66 A) are accommodated on a mounting plate for ease of use. The larger versions (200 A and 400 A) consist of two units: a separate storage choke and a

mounting plate with power choke and capacitor bank. The filters are designed for clock frequencies of 7 kHz to 16 kHz for the feedback module and 4 kHz to 16 kHz for the motor-side frequency converter module. In addition, they are designed for a maximum motor lead length of 150 m or 6 axes and a maximum motor frequency of 100 Hz. Damping resistors integrated in the module prevent the development of natural oscillations. The filters are designed as open modules with convection cooling to protection class IP 00 (corresponding to IEC 60529 2001). Protective covers are available upon request under ordering code B84143Q*R405. Protection class IP 20 is consequently reached.

Compared with single power chokes, LCL filters are characterized by a significantly improved reduction of harmonics as well as of the voltage and current distortions with respect to the power line. Moreover, the LCL filters have a lower voltage drop and are more compact and lightweight than equivalent power chokes. The filters can be adapted to customer requirements if desired.

Main applications

- Recuperative frequency converter systems

Main features and benefits

- Rated currents up to 400 A, rated voltage of 520 V
- Reduction of harmonics to below 5 percent
- Reduced voltage and current distortion, low voltage drop
- Compact and lightweight