

Low-Noise, Energy-Efficient Chokes for MRI Scanners



SMP Sintermetalle Prometheus (SMP) has developed chokes for use in Magnetic Resonance Imaging (MRI). These inductive components are exceptionally quiet in operation as well as being low-loss and energy-efficient. This has been achieved with magnetostriction-free materials that have been developed specially for use in medical equipment.

Magnetic Resonance Imaging is a medical imaging technique used in radiology to visualize internal structures of the body in detail. The chokes SMP has developed for a renowned German manufacturer of MRI scanners are installed in the “gradient amplifiers”. These amplifiers supply output voltages and currents and control the gradient coils that encode the resonance signals for subsequent image reconstruction. The filter and mains chokes are designed to ensure a clean sinusoidal waveform and low-loss feedback of the unused energy. The chokes used in this application feature magnetostriction-free powder composites that have been developed by SMP for this purpose, and permit the construction of very low-noise chokes. This way, patients are not disturbed by loud rumbling and can continue to communicate with the medical staff. In order to make their time in the constricted, unaccustomed position as short as possible, the MRI scanner must be fast and powerful. These chokes by SMP help to meet this requirement.

Beside medical technology, SMP’s inductive components are used in wind power inverters, solar inverters and railway technology as well as in drive technology and power electronics.

SMP chokes are designed for frequencies up to 200 kiloHertz and currents as high as 1000 Ampere. They are available with diameters ranging from 36 to 300 millimetres and weighing from 50 grams to 130 kilograms. Protection types from IP00 to IP66 are available depending on the intended application. All components are compliant with RoHS and REACH restrictions, the materials used are UL listed.

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SMP Sintermetalle Prometheus

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