

VACOCOIL COMMON MODE CHOKE

NEW LOW COST / HIGH POWER CMC WITH SUPERIOR HF-PROPERTIES

Common mode chokes (CMCs) using our new VACOCOIL® design offer improved attenuation at high frequencies ($f > 1$ MHz) in comparison to conventional solutions made of several parallel wound strands. By using VACOCOIL instead of windings, costs are significantly reduced, winding capacitance is minimized and impedance at 10 MHz is improved by one order of magnitude. Furthermore, our new VACOCOIL technology reduces mechanical stress which is commonly applied on the core during winding. This new design is most suitable for high current/high power applications with load currents above 50 A. VACOCOIL are made of shaped copper bars, possible diameters are 4.5 mm, 6 mm and even more. VACOCOIL-CMCs feature nanocrystalline VITROPERM cores providing highest permeability and lowest losses combined with excellent thermal properties.

THE ADVANTAGES OF OUR VACOCOIL-CMC DESIGNS ARE MOST USEFUL IN FILTER DESIGNS FOR:

- electrified powertrains
- battery charging (wall boxes, on-board chargers, charging piles) for electric vehicles

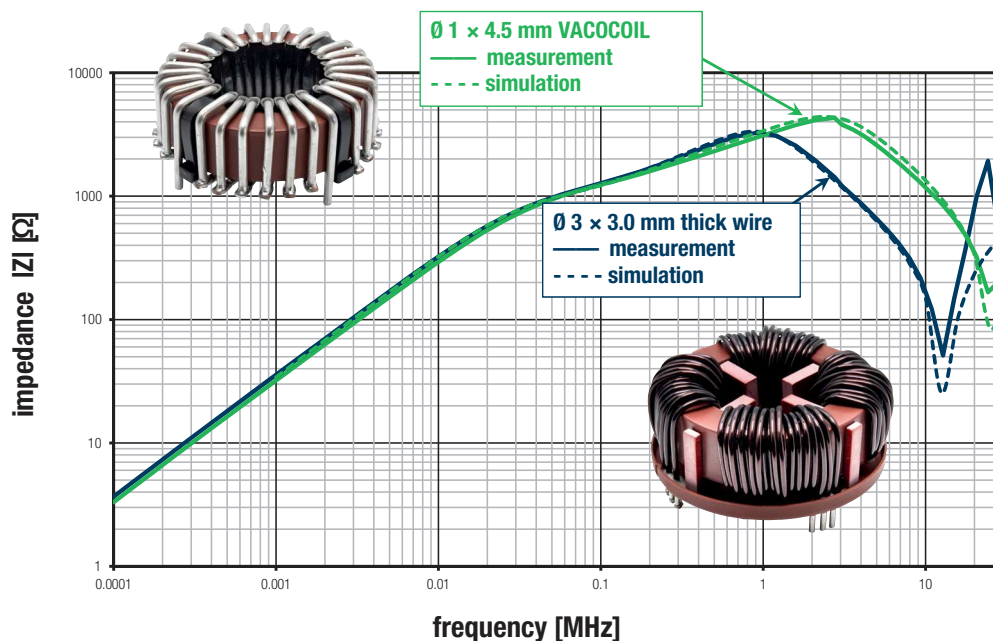
POSSIBLE DESIGNS OF HIGH CURRENT CMCs

Characteristic value	Massive wire ($\emptyset 3 \times 3$ mm)	VACOCOIL ($\emptyset 1 \times 4.5$ mm)
Max. load current I_{load} (< 130 °C)	80 A	
Size	102 x 76 x 25 mm (core) 122 x 122 x 48 mm (component)	
Winding capacitance C_w	43 pF	13.5 pF
Resonance frequency f_{res}	0.73 MHz	1.9 MHz
Insertion loss aE* @ 1 MHz	30 db	30 db
Insertion loss aE* @ 10 MHz	7 db	21 db
Impedance Z @ 10 MHz	176 Ω	1.2 kΩ

*50 Ω impedance system

- wind and high power solar inverters
- large industrial frequency inverters
- welding machines

IMPROVED IMPEDANCE AT HIGH FREQUENCIES



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