



Permanent Magnets & Assemblies
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Cores & Components

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print

NANOCRYSTALLINE VITROPERM CORES WITH EPOXY RESIN COATING FOR COMMON MODE CHOKES

Common Mode Chokes with toroidal tape wound cores of VITROPERM® allow the effective attenuation of asymmetrical and conducted high frequency noise. The high permeability of the nanocrystalline core material achieves superior characteristics at low and middle frequencies, as well as in the high frequency range, when an optimized winding arrangement is chosen. In comparison to conventional ferrite, advantages over the entire frequency range are obtained. Further information is available in our application note → [EMC Products based on Nanocrystalline VITROPERM](#).

Our VITROPERM cores are available with different A_L -levels for many core sizes. Thus, saturation-resistant solutions are available for various fields of applications. If the common mode currents exceed the saturation currents (I_{cm}) of the cores or chokes, cores with higher saturation resistance must be used. High μ values (high μ) are more suitable for typical single-phase applications with low unbalanced current (e.g. switched-mode power supplies), while cores with lower A_L values are often used in 3-phase applications with high unbalanced currents (e.g. frequency converters with long motor cables).

Although the epoxy resin coating is suitable for direct winding, we recommend additional insulation between core and winding for enhanced insulation requirements. The epoxy resin is suitable for continuous operational temperatures of up to 120 °C and complies with the UL94-V0 standard (UL file number: E214934, class A (105 °C).

VITROPERM cores in plastic cases are listed in the table → [Nanocrystalline VITROPERM cores in plastic casing](#).

We recommend to examine the theoretical calculations experimentally. To examine theoretical calculations experimentally, VAC offers a special sample kit consisting of selected cores → [Core Sample Kit VITROPERM](#).

The main areas of application are:

- _ EMC filters
- _ Switched -mode power supplies (SMPS), Power supplies
- _ Solar inverters
- _ Uninterruptible power supplies (UPS)
- _ Welding equipment
- _ Wind generators
- _ Frequency converters
- _ Inductive cooking

VAC-Product	nominal core dimensions	limiting dimensions (incl. coating)			iron cross section	mean path length	weight	A_L nominal		saturation current I_{cm}^{**} , typical					
		d_a x d_i x h	D_a	D_i				H	A_{Fe}	l_{Fe}	m_{Fe}	10 kHz	100 kHz	10 kHz	100kHz
		mm x mm x mm	mm	mm				mm	cm ²	cm	g	μH	A	A	A
T60004-L2016-W620 T60004-L2016-W619	16 x 12.5 x 6	17.8	10.7	8.0	0.08	4.5	2.6	15.0 6.0	4.8 3.9	0.5 1.1	0.63 1.7				
T60004-L2022-W867 T60004-L2022-W868	22 x 17 x 6	24.0	15.2	8.0	0.12	6.1	5.4	16.4 27.4	4.3 5.3	0.6 0.4	0.86 0.86				
T60004-L2025-W622 T60004-L2025-W621	25 x 20 x 10	27.3	17.5	12.3	0.19	7.1	9.9	22.5 9.0	7.2 5.8	0.7 1.7	0.99 2.8				
T60004-L2030-W676 T60004-L2030-W911	30 x 25 x 15	32.3	22.7	17.5	0.27	8.6	17.4	26.5 56.0	8.5 13.4	0.9 0.6	1.2 0.87				
T60004-L2040-W624 T60004-L2040-W623	40 x 32 x 15	42.3	29.1	17.8	0.44	11.3	36.0	32.5 13.0	10.3 8.4	1.1 2.8	1.6 4.4				
T60004-L2045-W886 T60004-L2050-W626	45 x 32 x 15	47.3	29.8	17.8	0.71	12.1	63.3	19.7 43.0	12.8 13.8	3.0 1.4	4.7 2.0				
T60004-L2050-W625 T60004-L2050-W583	50 x 40 x 20	52.3	37.1	22.8	0.73	14.1	76.0	17.0 11.2	11.0 10.0	3.6 5.5	5.6 7.1				
T60004-L2063-W627 T60004-L2063-W721	63 x 50 x 20	65.5	46.6	22.8	0.95	17.8	124.0	18.0 13.5	11.7 12.1	4.5 6.9	6.9 8.9				
T60004-L2080-W628 T60004-L2080-W722	80 x 63 x 20	83.0	59.5	22.8	1.24	22.5	205.0	18.5 12.0	12.0 10.8	5.7 8.7	8.7 11.0				
T60004-L2100-W629 T60004-L2100-W723	100 x 80 x 20	104.0	75.0	23.0	1.46	28.3	303.0	17.3 11.2	11.2 10.0	7.1 11.0	11.0 14.0				
T60004-L2130-W567 T60004-L2130-W630 T60004-L2130-W587	130 x 100 x 25	134.5	95.0	28.5	2.85 2.74 2.74	36.1	757.0 727.0 727.0	50.0 25.4 16.4	19.4 16.5 14.8	3.4 9.1 14.0	6.2 14.0 18.0				

T60004-L2160-W631	160 x 130 x 25	165.0	125.0	28.5	2.74	45.6	917.0	20.2	13.1	11.0	18.0
T60004-L2160-W720								13.0	11.7	18.0	23.0
T60004-L2194-V105	194 x 155 x 25	200.0	149.0	28.5	3.71	54.8	1490.0	45.0	14.7	4.9	9.1
T60004-L2194-W908								15.0	13.2	21.0	27.0

A_L = inductance for N = 1 (tolerance +45 % / -25 %)

I_{CM} : the listed saturation currents are guidelines, only. They are calculated for nominal core dimensions at room temperature and for approx. 70 % saturation flux density.

Further information can be found here:

General Information

→ [Application note \(brochure\)](#)

RoHS information

Nanocrystalline Cores

→ [Cores in plastic casing](#)

→ [Core Sample Kit VITROPERM](#)

→ [Core stack assemblies](#)

Chokes

→ [Chokes](#)

CONTACT

Do you have general questions about our products?
We would be pleased to assist you!

→ [Email](#)

→ [Contact form](#)

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