VITROPERM 712 F

NEW NANOCRYSTALLINE CORES TO COVER FULL RANGE OF COMMON MODE CURRENTS

Tape wound cores made of our new alloy VITROPERM® 712 F with a permeability (μ) of 12,000 close the gap between VITROPERM 500 F (μ = 17,000 - 100,000) and VITROPERM 250 F (μ = 3,000 - 5,000).

VITROPERM 712 F offers medium bias current capability (LF and HF) and superior broadband RFI-attenuation in comparison to typical EMI ferrites.

TARGET APPLICATIONS

Wind Generators, High Power Solar Inverters, Variable Frequency Drives, Automotive, Naval.

VITROPERM 712 F offers significant advantages in volume and performance for RFI-noise suppression and is the ultimate choice for reducing bearing currents of inverter driven motors.

Due to high saturation flux density of VITROPERM suitable impedance values in optimized space can be achieved for common mode noise reduction.

In summary, common mode chokes using cores made of VITROPERM 712 F offer the following impressive features:

- saturation current 2.5…4 times higher compared to ferrites with μ ≈ 10,000 for same core size and same number of turns
- broadband insertion loss characteristic
- small choke size for volume and weight optimized solutions especially for One-Turn-CMC

MATERIAL DATA OF VITROPERM 712 F (TYPICAL VALUES)

Saturation flux density	1.23 T (room temperature)	
Coercivity (static)	< 3 A/m	
Saturation magnetostriction	~ 0.5 x 10^{-6}	
Specific electrical resistivity	1.15 μΩcm	
Curie temperature	> 600 °C	
Upper operational temperature	plastic case:	130 °C*
	core mat.:	155 °C
		180 °C (lim. time)
Typical permeability μ_3	~ 12,000 (10 kHz)	

* Plastic cases suitable for upper continuous application temperatures of 155 °C are available on request.

EXAMPLES FOR DIFFERENT VITROPERM CORES

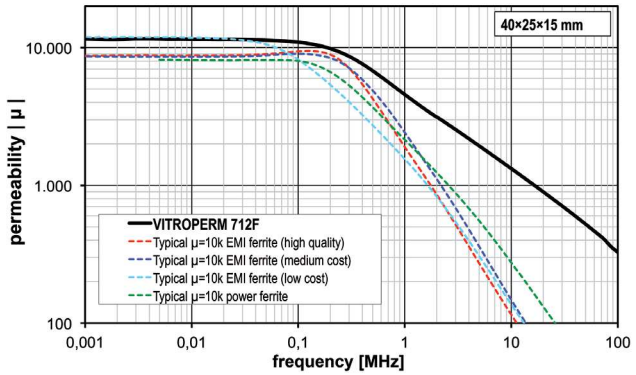
Size: 40 × 25 × 15 mm (finished: 43.1 × 22.5 × 18.5 mm)

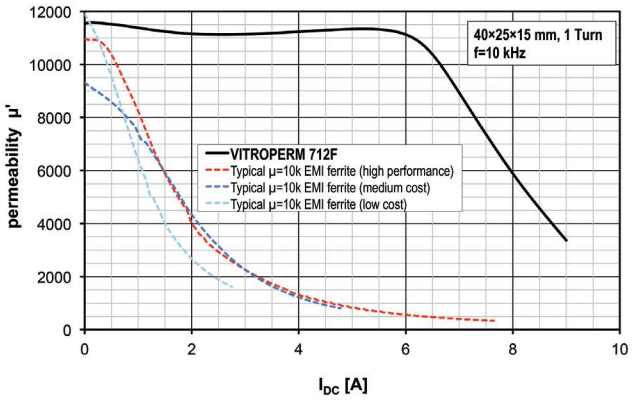
A_{Fe} = 0.86 cm², l_{Fe} = 10.2 cm, typical values

VAC alloy brand	Intrinsic permeability μ_i	A_L 100 kHz	Saturation current I_{cm} at 20 °C, ~70 % B_s, 10/100 kHz, 1 turn
VP 500F	≈ 100,000	23.1 μH	0.45 / 1.0 A
VP 500F	≈ 24,000	17.2 μH	2.9 / 4.4 A
VP 712 F	**≈ 12,000**	**11.1 μH**	**5.7 / 6.5 A**
VP 250F	≈ 4,500	4.1 μH	16.9 / 17.4 A

All listed cores are in plastic cases to achieve good mechanical protection.

TYPICAL CHARACTERISTICS: VITROPERM – FERRITE MATERIALS





VACUUMSCHMELZE GMBH & CO. KG
Grüner Weg 37
D 63450 Hanau / Germany
Phone +49 6181 38 0
Fax +49 6181 38 2645
info@vacuumschmelze.com
www.vacuumschmelze.com

VACUUMSCHMELZE CHINA MAGNETICS
Shanghai Sales Office
Room 06, 19F
Zhongrong Hengrui International Plaza
620 Zhangyang Road, Pudong District
Shanghai, PRC 200122
Phone +86 21 58 31 98 37
Fax +86 21 58 31 99 37
vac_china@vacuumschmelze.com

VAC MAGNETICS LLC
2935 Dolphin Drive
Suite 103
Elizabethtown, KY 42701
Phone +1 270 769 1333
Fax +1 270 769 3118
info-usa@vacmagnetics.com

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