

NANOCRYSTALLINE CORES FOR MEDIUM-FREQUENCY AND SOLID-STATE TRANSFORMERS



Rising demands for energy efficiency, compact design, high switching frequencies (modern IGBTs and SiC/GaN technology), and grid compatibility in intelligent energy management systems call for advanced transformer solutions. With VITROPERM® as a core material, VAC delivers outstanding magnetic performance and offers the following key advantages for use in solid-state and medium-frequency transformers:

- Extremely low remagnetization losses for improved efficiency in AC/DC operation
- High permeability combined with low coercive field strength and minimal stray field emissions → low environmental noise
- High saturation flux density ($B_s \sim 1.2$ T) enables compact transformer designs over the entire permeability range (fig. 1)
- Broad operating temperature range (-40 °C to +200 °C) with virtually no temperature dependence (fig. 2)
- Excellent insulation resistance for high voltage applications
- Low acoustic noise <65 dB
- Suitable for high switching frequencies - 1 kHz to 200 kHz
- Large core geometries possible - up to 0.5 m

VAC specializes in customized solutions and provides a wide range of nanocrystalline alloys tailored to your needs.



In railway applications, intelligent grid systems, and transportation, minimizing losses, along with reducing weight and size, is crucial - especially in higher power classes.

Contact us to find your perfectly matched magnetic core solution with VITROPERM, made in Europe.

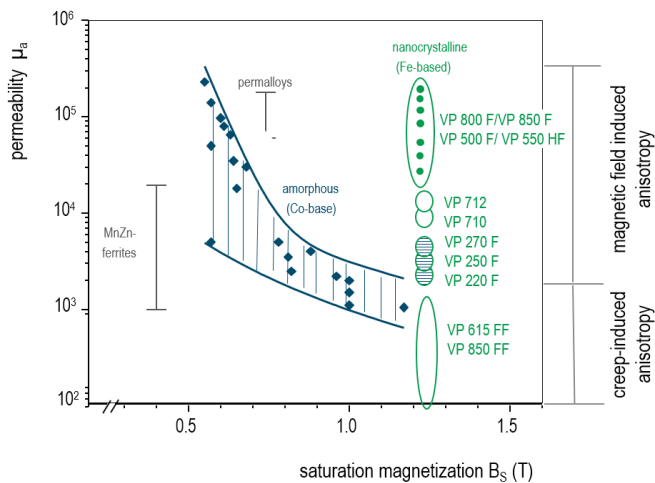


Fig. 1: Unique capabilities of Vitroperm alloys

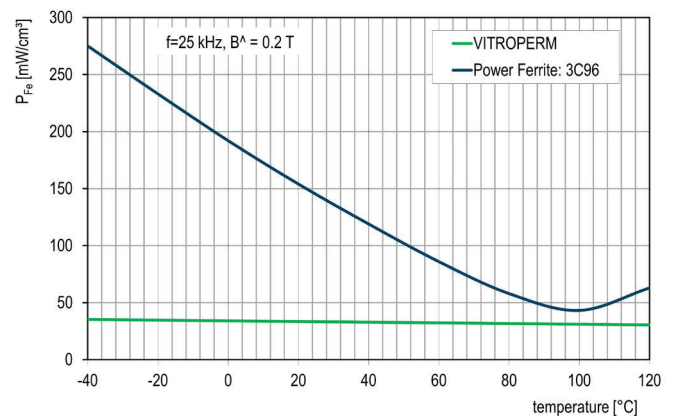


Fig. 2: The losses of nanocrystalline alloys enable a wide temperature range (from -40 °C to 200 °C) with practically no temperature dependence.

VACUUMSCHMELZE GMBH & CO. KG

Grüner Weg 37
D 63450 Hanau / Germany
Phone +49 6181 380
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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**ADVANCED MAGNETIC SOLUTIONS**