

VACOFLUX 50

COMPOSITION (in wt%)

49 Co – 49 Fe – 2 V

IEC 60404-8-6 F11

PRODUCT DESCRIPTION

The CoFe alloy VACOFLUX®50 offers high permeabilities and magnetic saturation paired with an intermediate electrical resistivity of $\rho_e = 0.42 \mu\Omega\text{m}$. It is mainly supplied as solid material.

VACOFLUX 50 is used to work out complex shaped solid parts with the purpose of guiding particularly high and often also varying magnetic flux densities.

MAIN PROPERTIES

- Saturation polarization of $J_s = 2.30 \text{ T}$
- Coercivity $H_c \sim 100 \text{ A/m}$
- Max. permeability $\mu_{\text{max}} \sim 7,000$
- Electrical resistivity of $\rho_e = 0.42 \mu\Omega\text{m}$



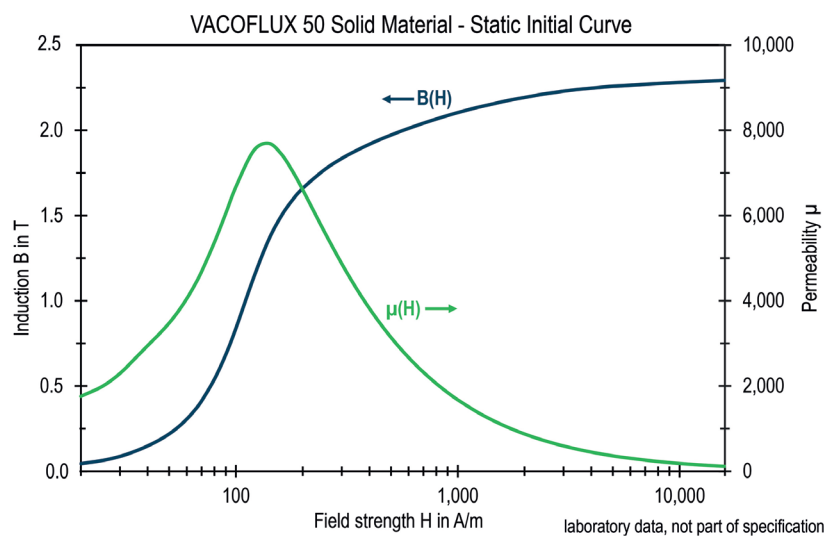
TYPICAL APPLICATIONS

Actuators with the highest forces/torques, yoke parts, pole shoes for very high flux densities, magnetic lenses, relay parts

FORMS OF SUPPLY

- Solid rods, diameters 12.5 – 182 mm

Other diameters, square profile material and tolerances upon request



ADVANCED MAGNETIC SOLUTIONS

VAC[®]
VACUUMSCHMELZE

SOLID MATERIAL - TYPICAL VALUES

PHYSICAL PROPERTIES	Unit	
Mass density ρ	g/cm ³	8.12
Thermal conductivity (25 °C) λ	W/(m · K)	30
Thermal expansion coefficient (20 – 100 °C) α	10 ⁻⁶ /K	9.4
Electrical resistivity ρ_e	$\mu\Omega\text{m}$	0.42
STATIC MAGNETIC PROPERTIES		
Coercivity H_c	A/m	100
Saturation polarization J_s	T	2.30
Saturation magnetization B_s at $H = 40 \text{ kA/m}$	T	2.35
Maximum permeability μ_{max}		7,000
Magnetostriction constant λ_s	ppm	+70
Curie temperature T_c	°C	950
MECHANICAL PROPERTIES (final annealed)		
Young's modulus E	GPa	215
Yield strength $R_{p0.2}$	MPa	250
Tensile strength R_m	MPa	350
Elongation A	%	< 3
Hardness	HV	205
MECHANICAL PROPERTIES (hot rolled)		
Elongation A	%	< 1
Hardness	HV	230
RECOMMENDED PARAMETERS FOR THE FINAL HEAT TREATMENT		
Atmosphere		hydrogen
Temperature	°C	820
Annealing time	h	10
Cooling rate	K/h	100 – 200