VACOFLUX 27

COMPOSITION (in wt%)
27 Co – bal. Fe + Nb
IEC 60404-8-6 F31
ASTM A801-09 Alloy Type 2

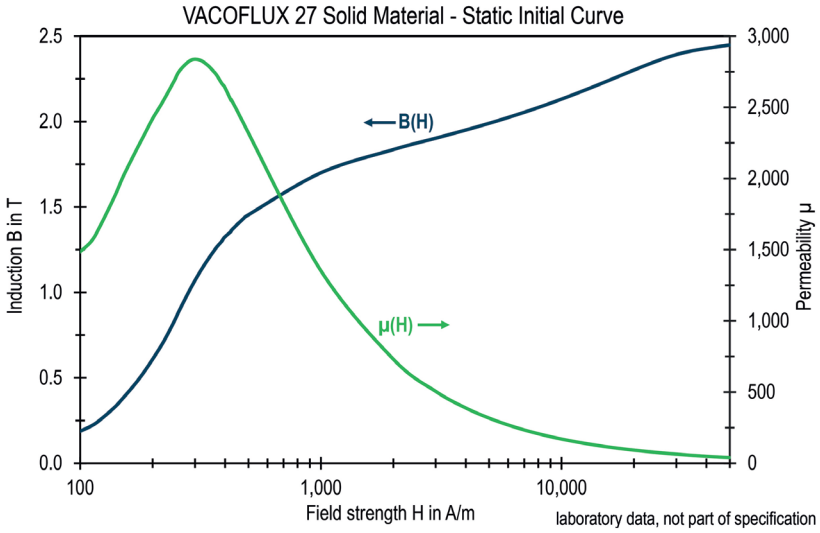
PRODUCT DESCRIPTION
VACOFLUX® 27 is a CoFe alloy with the world wide highest magnetic saturation.
VACOFLUX 27 is mainly supplied as solid material and offers a good cold formability in comparison to the 50 % CoFe alloys. Due to its low electrical resistivity VACOFLUX 27 is mainly used for guiding elements of static or slowly varying magnetic fluxes.

MAIN PROPERTIES
- Highest saturation polarization J_S = 2.38 T
- Good formability
- Electrical resistivity of ρ_e = 0.15 µΩm

TYPICAL APPLICATIONS
Back irons, pole pieces and other flux guiding elements, high power electromagnetic actuators and hydraulic or pneumatic systems

FORMS OF SUPPLY
- Solid rods, diameters 12.5 – 182 mm
- Wire material, diameters ≤ 13.5 mm

Other diameters, square profile material and tolerances upon request



SOLID MATERIAL - TYPICAL VALUES

PHYSICAL PROPERTIES	Unit	
Mass density ρ	g/cm^3	7.99
Thermal conductivity (25 °C) λ	W/(m·K)	67
Thermal expansion coefficient (20 – 100 °C) α	10^{-6}/K	10.8
Electrical resistivity ρ_e	µΩm	0.15
STATIC MAGNETIC PROPERTIES		
Coercivity H_C	A/m	150
Saturation polarization J_S	T	2.38
Saturation magnetization B_S at H = 40 kA/m	T	2.43
Maximum permeability μ_{max}		3,000
Magnetostriction constant λ_S	ppm	+40
Curie temperature T_C	°C	950
MECHANICAL PROPERTIES (final annealed)		
Young's modulus E	GPa	200
Yield strength $R_{p\,0.2}$	MPa	240
Tensile strength R_m	MPa	550
Elongation A	%	30
Hardness	HV	170
MECHANICAL PROPERTIES (hot rolled)		
Yield strength $R_{p\,0.2}$	MPa	300
Tensile strength R_m	MPa	580
Elongation A	%	28
Hardness	HV	180
RECOMMENDED PARAMETERS FOR THE FINAL HEAT TREATMENT		
Atmosphere		hydrogen
Temperature	°C	920
Annealing time	h	10
Cooling rate	K/h	100 – 200

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