VACOFLUX 9 CR

COMPOSITION (in wt%)
9 Co – bal. Fe – 10 Cr – 2 Mo – 1 Al

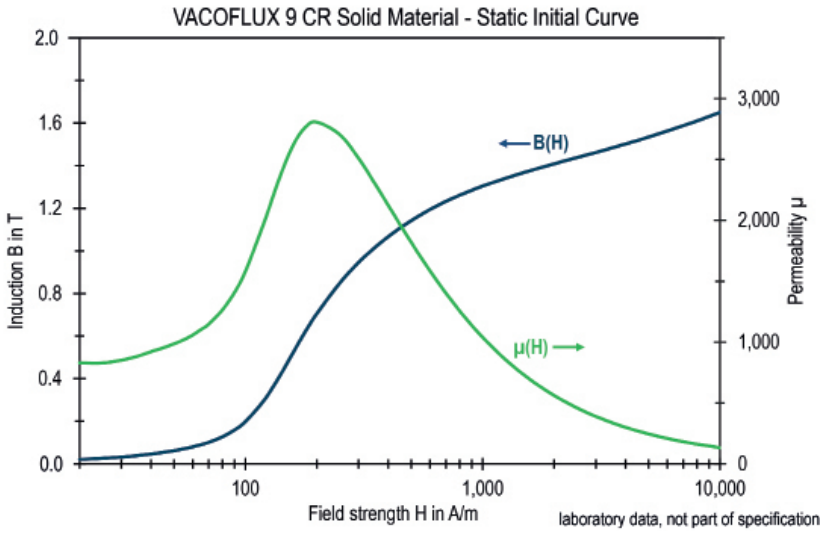
PRODUCT DESCRIPTION
VACOFLUX® 9 CR is a cost-optimized CoFeCr alloy with a high magnetic saturation and a significantly improved corrosion resistance compared to other CoFe alloys.
Due to the high electrical resistivity and high magnetic saturation VACOFLUX 9 CR offers improved switching times and higher actuator forces than conventional chromium steels.
With these unique properties VACOFLUX 9 CR is applied in components and actuators with special requirements for corrosion resistance, such as injectors for petrol or biofuels for the automotive industry or solenoid valves for corrosive media working at short switching times and high pressures.

TYPICAL APPLICATIONS
Actuator and solenoid valve applications in corrosive media

MAIN PROPERTIES
- Saturation polarization of J_s = 1.80 T
- High electrical resistivity of ρ_e = 0.79 µΩm
- Excellent corrosion resistance in comparison to other CoFe alloys.
- Cost-optimized CoFe alloy with low cobalt content of 9 wt%

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	7.75
Thermal conductivity (25 °C) λ	W/(m · K)	20
Thermal expansion coefficient (20 – 100 °C) α	10^{-6}/K	10.9
Electrical resistivity ρ_e	µΩm	0.79
STATIC MAGNETIC PROPERTIES		
Coercivity H_C	A/m	130
Saturation polarization J_S	T	1.80
Saturation magnetization B_S at H = 40 kA/m	T	1.85
Maximum permeability μ_{max}		3,000
Magnetostriction constant λ_S	ppm	+30
Curie temperature T_C	°C	800
MECHANICAL PROPERTIES (final annealed)		
Young's modulus E	GPa	180
Yield strength $R_{p\,0.2}$	MPa	330
Tensile strength R_m	MPa	490
Elongation A	%	35
Hardness	HV	170
MECHANICAL PROPERTIES (hot rolled)		
Yield strength $R_{p\,0.2}$	MPa	410
Tensile strength R_m	MPa	600
Elongation A	%	300
Hardness	HV	240
RECOMMENDED PARAMETERS FOR THE FINAL HEAT TREATMENT		
Atmosphere		hydrogen
Temperature	°C	800
Annealing time	h	10
Cooling rate	K/h	100 – 200

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