

ULTRAVAC 816

COMPOSITION (in wt%)

81 Ni – 6 Mo – bal. Fe
IEC 60404-8-6 E11
DIN 17405 (1979) RNi2 / RNi5

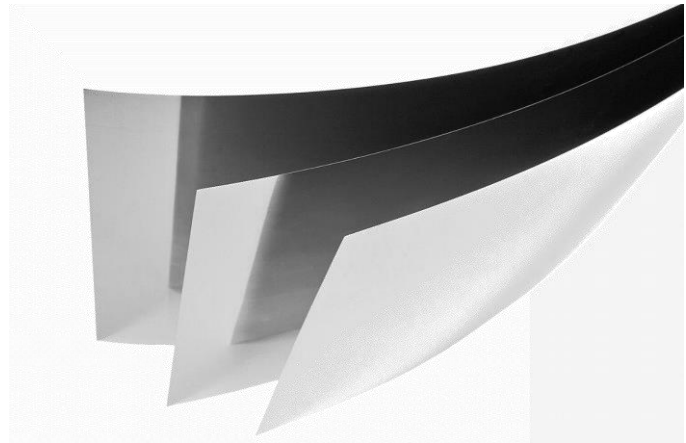
PRODUCT DESCRIPTION

The copper-free alloy ULTRAVAC® 816 has been optimized to exhibit a round hysteresis loop that is correlated with high initial permeability.

These high permeability values at low magnetic fields are obtained even without an additional tempering of the workpiece in trade-off with a slightly lower saturation induction, distinguishing ULTRAVAC 816 from the other soft magnetic 80 % NiFe alloys produced by VACUUMSCHMELZE.

MAIN PROPERTIES

- Saturation Induction $J_S = 0.65$ T
- Low Coercivity $H_C = 0.6$ A/m
- Round Hysteresis Loop



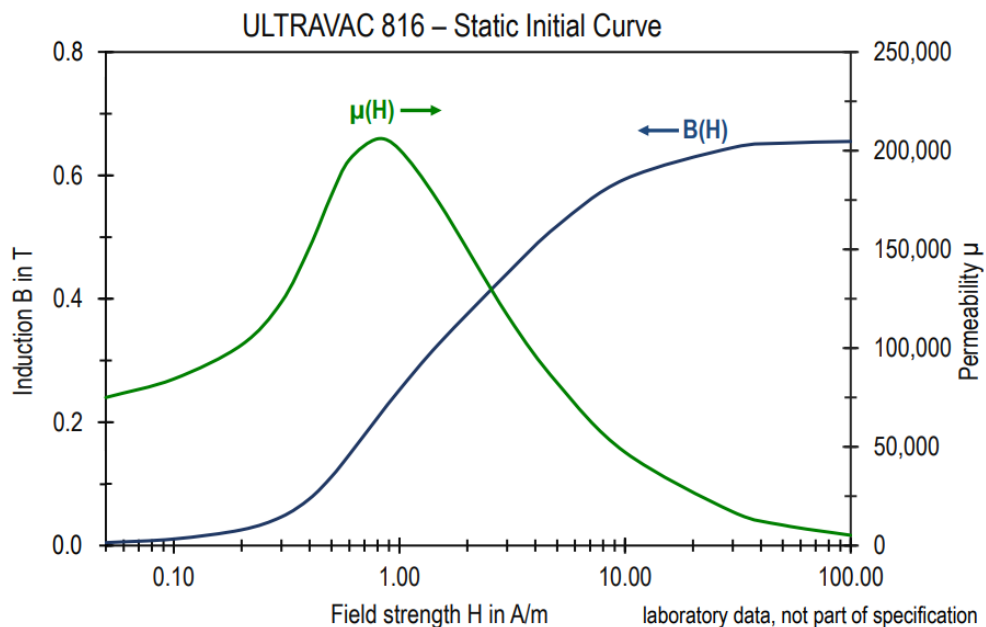
TYPICAL APPLICATIONS

Magnetic shielding, high sensitivity current sensors, relay parts for residual current devices, transformer cores

FORMS OF SUPPLY

- Strip material, thickness 0.025 – 2 mm, width ≤ 305 mm
- Stamped parts, laminations, and laminated assemblies

Other dimensions and tolerances upon request.



STRIP MATERIAL 0.35 mm – TYPICAL VALUES

PHYSICAL PROPERTIES	Unit	
Mass density ρ	g/cm ³	8.7
Thermal conductivity (25 °C) λ	W/(m·K)	18 – 20
Thermal expansion coefficient (20 – 100 °C) α	10 ⁻⁶ /K	13.5
Electrical resistivity ρ_e	$\mu\Omega\text{m}$	0.6

STATIC MAGNETIC PROPERTIES		
Coercivity H_C	A/m	0.6
Saturation polarization J_S	T	0.74
Saturation magnetization B_S at $H = 40$ kA/m	T	0.79
Maximum Permeability μ_{max}		210,000
Initial Permeability $\mu_{0,1\text{A/m}}$		90,000
Magnetostriction constant λ_S	ppm	~ - 1
Curie temperature T_C	°C	360

MECHANICAL PROPERTIES (after recommended heat treatment)		
Young's modulus E	GPa	190
Yield strength $R_{p0.2}$	MPa	150
Hardness	HV	105

MECHANICAL PROPERTIES (delivery state)		cold rolled	soft annealed
Yield strength $R_{p0.2}$	MPa	1,250	290
Tensile strength R_m	MPa	1,290	660
Elongation A	%	1	30
Hardness	HV	350	150

RECOMMENDED PARAMETERS FOR HEAT TREATMENT		
Atmosphere		hydrogen
Temperature	°C	1,150
Annealing time	h	5
Cooling rate	K/h	50 – 300