

Magnetic Specifications

AINiCo 41/5 according to IEC Standard
(DIN IEC 60404-8-1, section 7)

		Minimum Values		Typical Values	
B _r	Remanence	12.200 G	1.220 mT	12.500 G	1.250 mT
(BH) _{max}	Max. Energy product	5,2 MGOe	41,4 kJ/m ³	5,6 MGOe	44,6 kJ/m ³
H _{cB}	Coercivity force	628 Oe	50,0 kA/m	675 Oe	53,7 kA/m
H _{cJ}	Intrinsic coercivity force	640 Oe	51,0 kA/m	680 Oe	54,1 kA/m
TK(B)	Temperature coefficient of induction			-0,02 %/K	Within a range of 25 °C – 200°C
μ _{rec}	Relative permanent permeability			3,0 – 4,5	
H _s	Field strength of saturation			3000 Oe	240 kA/m

Specific for anisotropic materials is the fixed magnetic direction. Magnets must be magnetized through this direction to reach the magnetic values in accordance to the use of them. Especially for block- and ring shaped magnets it is necessary to declare the specific magnetic direction at ordering. Cylinder shaped dimensions have the magnetic direction through the axis by default.

Physically and chemical specifications

Reference composition [Weight-%]	8Al; 14Ni; 24Co; 3,5Cu; bal. Fe
Density	7,3 g/cm ³
Curie-Temperature	860 °C
max. working temperature	450 °C
Linear coefficient of expansion	11,3 x 10 ⁻⁶ /°C
Specific electrical resistance	0,5 μΩm
Vickers hardness HV 10	ca. 500 - 600
Compressive strength	1200 - 2200 N/mm ²

The resistance to chemicals is similar to high alloy steels but inconsistent in inorganic acids, salt water or in strong alkaline solutions. The material will not be affected in organic solvents, alcohols, oils or gasoline.

It is not toxic and its environmental behavior is neutral. Persons who are sensitive to nickel can have side effects, same as for other nickelous materials. Please beware direct contact to foodstuffs and do not use it in toys. For these kinds of use it is advisable to cover the magnets with plastic or a food safe finish.

These magnets are very hard and brittle, outbreaking grains are possible and the material can be machined with abrasive proceedings (e.g. surface and cylindrical grinding)

