Deutsche Magnetwerke GmbH

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Datasheet AlNiCo 600

Anisotropic crystalline oriented cast material

Magnetic specifications

AlNiCo 44/5 according to IEC standard (DIN IEC 60404-8-1, table 9)		Minimum values		Typical values	
B_r	Remanence	12.000 G	1.200 mT	12.700 G	1.270 mT
$(BH)_{max}$	Max. Energy product	5,5 MGOe	44,0 kJ/m³	5,9 MGOe	46,9 kJ/m³
H_{cB}	Coercivity force	653 Oe	52,0 kA/m	695 Oe	54,9 kA/m
H_{cJ}	Intrinsic coercivity force	666 Oe	53,0 kA/m	700 Oe	55,3 kA/m
TK(B)	Temperature coefficient of induction			-0,02 %/K	Within a range of 25 °C - 200°C
μ_{rec}	Relative permanent permeability			2,5 – 4,0	
H_s	Field strength saturation			3000 Oe	240 kA/m

Specific for the anisotropic crystalline oriented materials is the magnetic and the crystallographic orientation. By using qualified cooling conditions during the cast process the crystalline orientation will be prepared for future using orientation and by heat treating within a qualified magnetic field its getting its preferential magnetic orientation. In case of the very particular casting conditions the production of this material is restricted to certain geometrical shapes and dimensions.

Physically and chemical specifications

Reference composition [Weight-%]	8Al; 14Ni; 25Co; 3,2Cu; bal. Fe
Density	7,3 g/cm³
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/mm²

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 solutions, 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)

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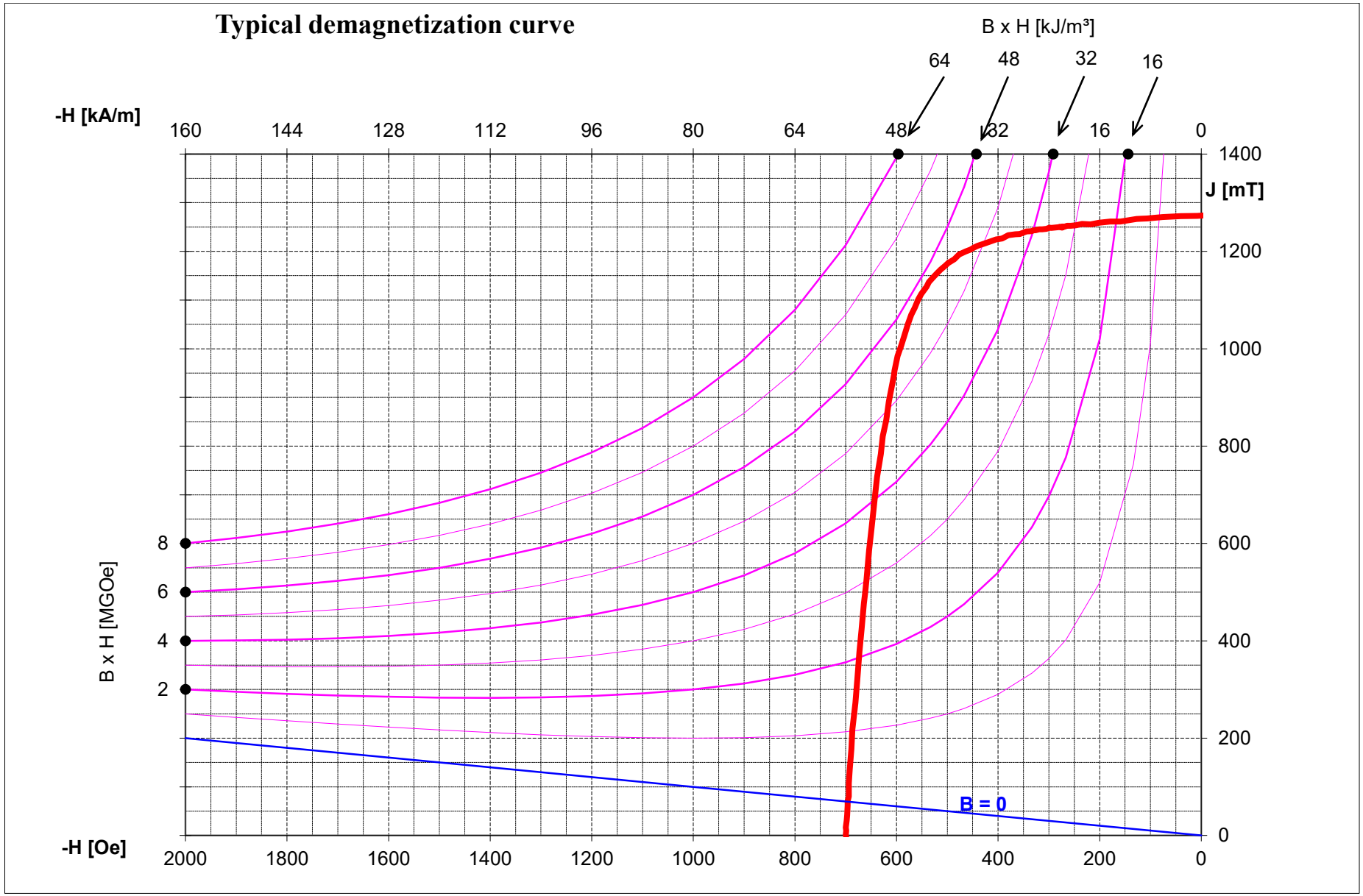

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