AlNiCo (ALCAST, ALSINT)

AlNiCo (Aluminium, Nickel, Cobalt and Iron alloy) is obtained by casting process, it is the oldest and most stable magnetic material, with a temperature coefficient of -0,02%/°C.
It can operate in environments up to 500 °C with a very good resistance against corrosion, therefore coatings are seldom required.
Because Alnico magnets are coarse-grained, hard and brittle, conventional machining such as drilling is not possible, however, finished surfaces may be obtained by grinding.
A unique characteristic of AlNiCo is its very high residual induction vs. a very low coercivity, therefore in most applications it can be effectively used by magnetizing after assembly in the magnetic circuit, and it is specially recommended in applications where only a temporary demagnetization is required (magnetic chucks, lifters...).
For small sized models, due to the typical porosity of the casting process, sintered versions (ALSINT) are available upon request.

Curie temperature	°C	850
Recoil Permeability (μ_r)	-	2 - 6,5
Saturation field	Oe	> 5000
Electrical Resistivity	Ω m	0,6
Compressive strength	N/mm^2	~ 700
Density	g/cm^3	7,3
Flexural strength	N/mm^2	55
Rockwell Hardness	HRC	45 - 60
Tensile strength	N/mm^2	50
Young's modulus	$10^3 N/mm^2$	~ 150
Specific Heat	kcal/kg.°C	0,12
Thermal Conductivity	W/m*°C	60
Thermal Expansion coef //	10^{-6}/°C	11 - 13
Thermal Expansion coef ⊥	10^{-6}/°C	11 - 13

Characterization of physical and mechanical properties on standard sample > 10mm x 10mm x 10mm for magnetic properties and > 10 x 10 x 5 for mechanical properties. Because of permanent losses, depending on B/H value, consult us for more details.

The validity of the reported data is referred to the date of issue.
04/2010

GRADES	REMANENCE		COERCIVITY				MAXIMUM ENERGY PRODUCT		AVERAGE TEMPERATURE COEFFICIENTS (20 ~ 100°C)		SUGGESTED MAXIMUM OPERATING TEMPERATURE
	Br		HcB		HcJ		BHmax		Tk		B/H > 30
	G	T	Oe	kA/m	Oe	kA/m	MGOe	kJ/m^3	%/°C (Br)	%/°C (HcJ)	°C
ALCAST AlNi (isotropic)	6500 - 6900	0,65 - 0,69	445 - 470	35 - 37	455 - 477	36 - 38	1,20 - 1,25	9 - 10	- 0,03	-0,02	500 °C
ALCAST V	11900 - 12500	1,19 - 1,25	570 - 600	46 - 48	580 - 610	46 - 48	4,4 - 4,8	35 - 38	- 0,03	-0,02	
ALCAST V DG	12200 - 12800	1,22 - 1,28	610 - 650	48 - 51	615 - 660	48,8 - 52	5,0 - 5,3	39,7 - 42,1	- 0,03	-0,02	
ALCAST V DGS	12800 - 13500	1,28 - 1,35	680 - 720	54 - 57	685 - 730	54,5 - 58	6,1 - 6,4	48,5 - 51	- 0,03	-0,02	
ALCAST VIII	8000 - 8400	0,80 - 0,84	1400 - 1510	111- 120	1430 - 1530	113 - 122	4,6 - 5,5	36,5 - 44	- 0,03	-0,02	
ALSINT V	10500 - 11200	1,05 - 1,12	570 - 600	46 - 48	580 - 610	46 - 48	4,1 - 4,6	32,6 - 36,5	- 0,03	-0,02	
ALSINT VIII	8000 - 8400	0,80 - 0,84	1400 - 1510	111 - 120	1430 - 1530	113 - 122	4,4 - 5,3	35 - 42	- 0,03	-0,02	

Other grades available on request.

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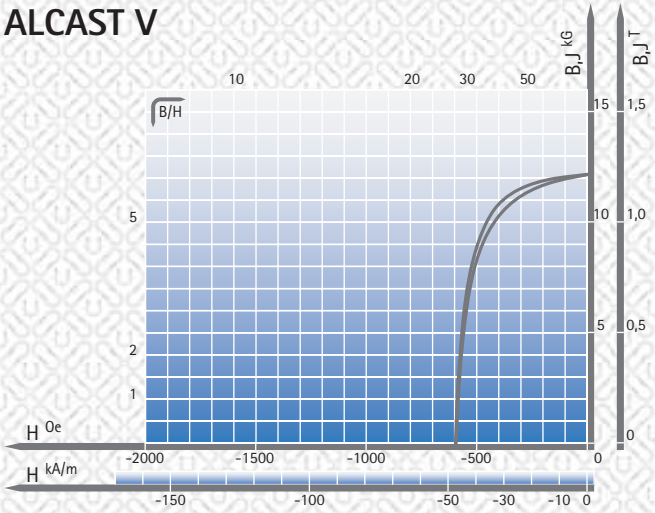
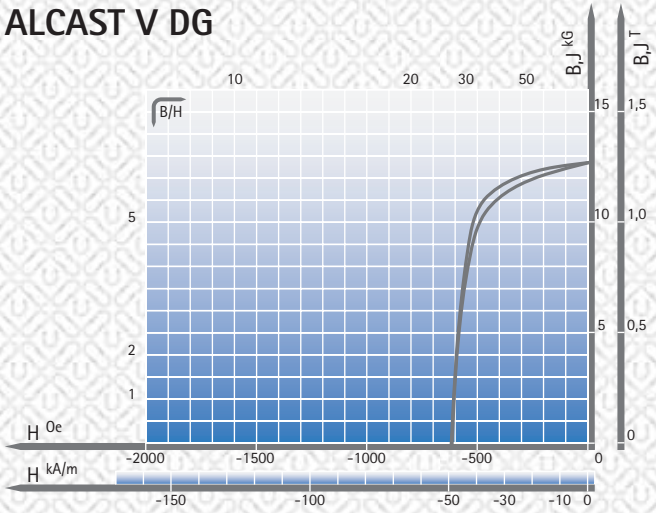
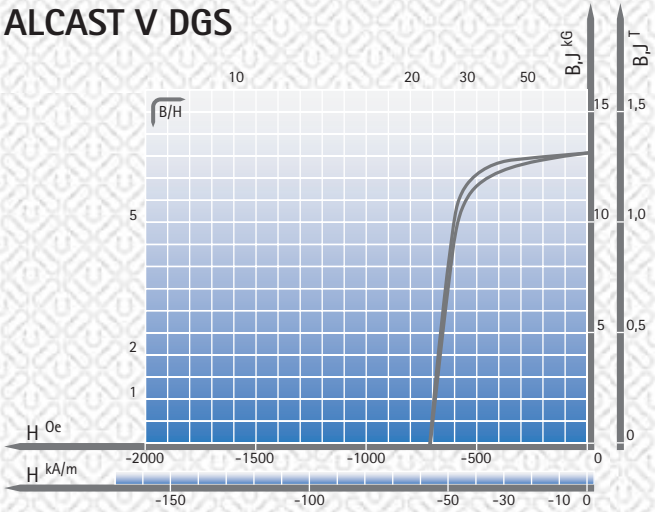
ALCAST V



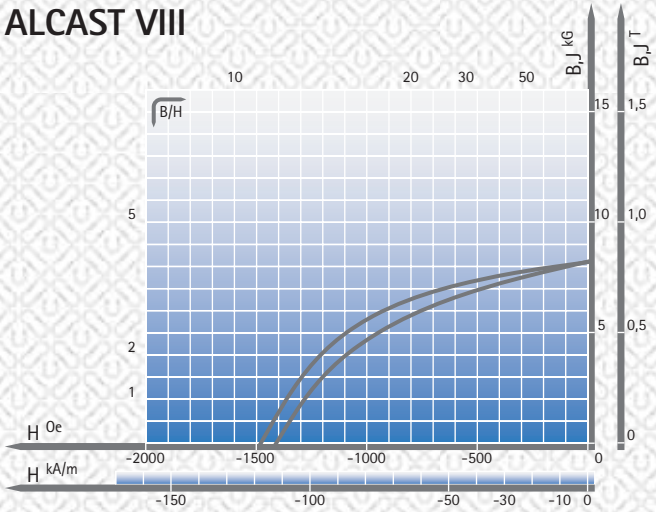
ALCAST V DG



ALCAST V DGS



ALCAST VIII



Measured samples data.

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