



Powerful Magnets with High Thermal Stability



A Mainstay in High Temperature Applications

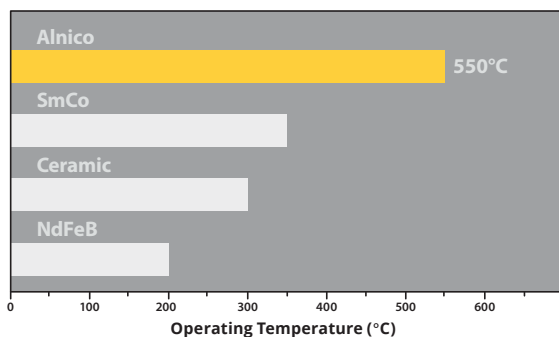
Electron Energy Corporation's (EEC's) alnico magnets are chosen for a variety of applications because of their ability to provide high flux density and thermal stability. EEC offers various grades of this material, including Alnico 5, Alnico 8 and Alnico 9, which have the highest maximum energy product of all alnico products on the market.

EEC's alnico magnets can be sintered or cast, depending on the specific performance requirements, and can be formed into custom shapes, including arcs, discs, rings, and blocks.

More Than Just Your Supplier

As a producer of permanent magnet materials, EEC has a deep understanding of the science behind the materials. This insight separates EEC from competitors and allows its engineering team to provide best-in-class service to customers. EEC's applications engineering team works closely with customers to develop magnetic solutions and optimize design performance. In addition to applications engineering, EEC also provides magnetic circuit design and research and development services.

Alnico Offers the Highest Operating Temperatures



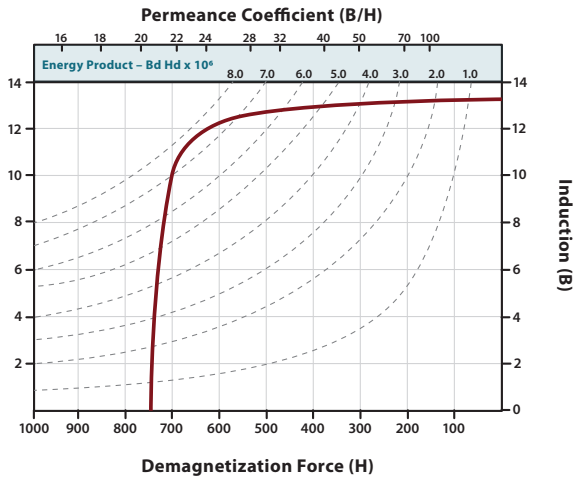
Features of EEC Alnico Magnets

- Excellent stability over a wide range of temperatures
- Can be specified as complex and custom shapes
- Grades available for temperature requirements up to 540°C
- Very high residual induction (B_r) of up to 13.5 kG
- Magnetic properties can be tuned or adjusted after assembly

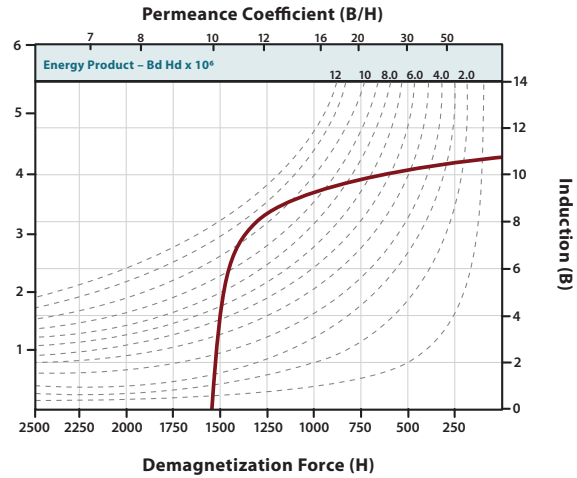
Application Types

- Magnetic Pump Couplings
- Magnetic Resonance Imaging and Nuclear Magnetic Resonance
- Traveling Wave Tubes (TWTs) and Electron Tubes
- Loudspeakers
- Generators
- Automotive, Aerospace, and Military sensors

Cast Alnico 5-7



Cast Alnico 9



Magnetic Properties of Alnico Magnets

Alnico Grade	Maximum Energy Product $(BH)_{max}$		Residual Induction B_r		Intrinsic Coercivity iH_c		Reversible Temp. Coefficient of B_r (%/°C)		Max. Operating Temp. °C
	MGOe	kJ/m ³	kG	T	kOe	kA/m	Near B_r	Near $(BH)_{max}$	
Cast Alnico Magnets									
Alnico 2	1.7	13.5	7.50	0.75	0.55	43.8	-0.030	-0.020	450
Alnico 5	5.5	43.8	12.8	1.28	0.64	50.9	-0.020	-0.015	525
Alnico 5DG	6.5	51.7	13.3	1.33	0.67	53.3	-0.020	-0.015	525
Alnico 5-7	7.5	59.7	13.5	1.35	0.74	58.9	-0.020	-0.015	525
Alnico 6	3.9	31.0	10.5	1.05	0.8	63.7	-0.020	-0.015	525
Alnico 8	5.3	42.2	8.20	0.82	1.86	148.1	-0.025	-0.010	540
Alnico 8HC	5.0	39.8	7.20	0.72	2.10	167.2	-0.025	-0.010	540
Alnico 9	9.0	71.6	10.6	1.06	1.50	119.4	-0.025	-0.010	540
Sintered Alnico Magnets									
Alnico 2	1.5	11.9	7.1	0.71	0.55	43.8	-0.019	-0.019	525
Alnico 5	3.9	31.0	10.9	1.09	0.6	47.8	-0.019	-0.019	525
Alnico 6	2.9	23.1	9.4	0.94	0.76	60.5	-0.020	-0.020	525
Alnico 8	4.0	31.8	7.4	0.74	1.7	135.3	-0.020	-0.020	540
Alnico 8HC	4.5	35.8	6.7	0.67	2.0	159.2	-0.010	-0.010	540

Mechanical Properties of Alnico Magnets

Alnico Grade	Density		Tensile Strength		Hardness Rockwell C	Curie Temperature		CTE* 10 ⁻⁶ /°C	Electrical Resistivity at 20°C	
	g/cm ³	lbs/in ²	kPa	kpsi		°C	°F		Ω·m	μΩ·cm
Cast Alnico Magnets										
Alnico 2	7.1	0.26	21	3.0	45	810	1490	12.4	6.5x10 ⁻⁷	65
Alnico 5	7.3	0.26	37	5.4	50	860	1580	11.4	4.7x10 ⁻⁷	47
Alnico 5DG	7.3	0.26	36	5.2	50	860	1580	11.4	4.7x10 ⁻⁷	47
Alnico 5-7	7.3	0.26	34	5.0	50	860	1580	11.4	4.7x10 ⁻⁷	47
Alnico 6	7.3	0.26	159	23	50	860	1580	11.4	5.0x10 ⁻⁷	50
Alnico 8	7.3	0.26	69	10	55	860	1580	11.0	5.3x10 ⁻⁷	53
Alnico 8HC	7.3	0.26	69	10	55	860	1580	11.0	5.4x10 ⁻⁷	54
Alnico 9	7.3	0.26	48	7.0	55	860	1580	11.0	5.3x10 ⁻⁷	53
Sintered Alnico Magnets										
Alnico 2	6.8	0.25	448	65	45	840	1544	12.4	6.8x10 ⁻⁷	68
Alnico 5	6.9	0.25	345	50	45	860	1580	11.3	5.0x10 ⁻⁷	50
Alnico 6	6.9	0.25	379	55	45	860	1580	11.4	5.4x10 ⁻⁷	54
Alnico 8	7.0	0.25	345	50	45	860	1580	11.0	5.4x10 ⁻⁷	54
Alnico 8HC	7.0	0.25	345	50	45	860	1580	11.0	5.4x10 ⁻⁷	54

Typical values for reference only — not to be used as specifications

* Coefficient of thermal of expansion