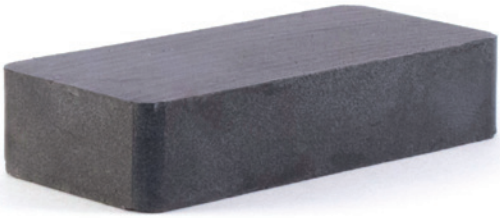
Economical and Reliable Performance

Stable and High Performance Ceramic Magnets

Electron Energy Corporation (EEC) is a preferred supplier of ceramic permanent magnets. Also known as hard ferrites, ceramic magnets provide high resistance to corrosion at economical price points. EEC offers five different grades of ceramic magnets, including Ceramic 8B, the strongest ceramic material available. The high electrical resistivity of this material helps reduce eddy current losses in electrical machines.

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.



Features of EEC Ceramic Magnets

- Cost-effective option for medium- and high-volume applications
- High resistance to demagnetization and excellent thermal stability
- Available as isotropic or anisotropic
- Various grades with $(BH)_{max}$ ranging from 1.05 to 4.0 MGOe
- Very high electrical resistivity to reduce eddy current losses in electrical machines
- Positive reversible temperature coefficient of intrinsic coercivity
- Superior corrosion resistance

Application Types

- DC Brushless Motors
- Magnetic Resonance Imaging (MRI)
- Industrial Generators
- Magnetic Separators
- Reed Switches
- Holding, Lifting, and Retrieving Assemblies
- Loudspeakers

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www.electronenergy.com

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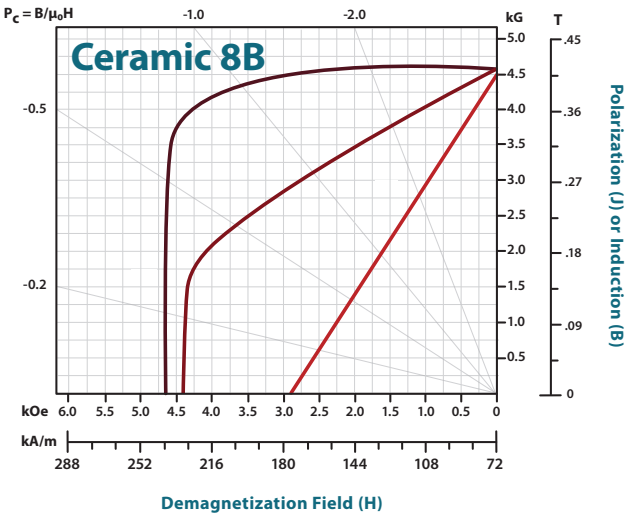

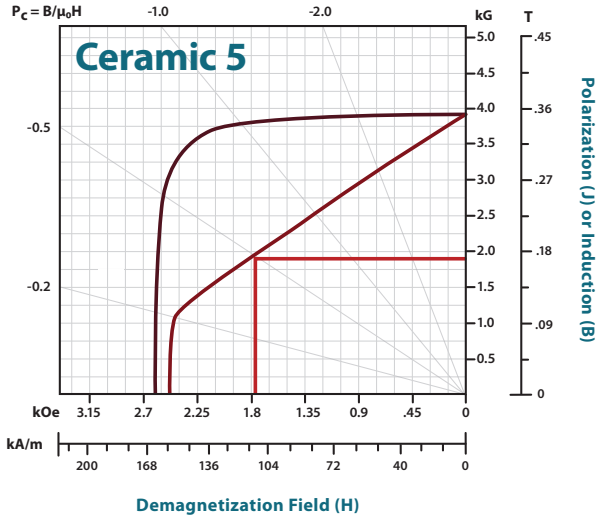

Magnetic Properties of Ceramic Magnets

Ceramic Magnet Grade	Maximum Energy Product $(BH)_{max}$		Residual Induction B_r		Coercivity H_c		Intrinsic Coercivity iH_c		Reversible Temp. Coefficient of B_r	Max. Operating Temp.
	MGOe	kJ/m³	kG	T	kOe	kA/m	kOe	kA/m	%/°C	°C
Typical Magnetic Properties of Ceramic Magnets										
Ceramic 1	1.05	8.40	2.30	0.230	1.86	148.1	3.25	258.7	-0.20	450
Ceramic 5	3.40	27.1	3.80	0.380	2.40	191.0	2.50	199.0	-0.02	450
Ceramic 7	2.75	21.9	3.40	0.340	3.25	258.7	4.00	318.4	-0.02	450
Ceramic 8	3.50	27.9	3.85	0.385	2.95	234.8	3.05	242.8	-0.02	450
Ceramic 8B	4.00	31.8	4.10	0.410	2.80	222.9	2.90	230.8	-0.02	450

Mechanical Properties of Ceramic Magnets

Typical Physical and Thermal Properties of Ceramic Magnets			
Property	**Unit**	**Typical values**	
Electrical Resistivity	Ω·m	10^4	
	Ω·cm	10^6	
Compressive Strength	kpsi	130	
	kPa	897	
Tensile Strength	kpsi	5	
	kPa	34	
Curie Temperature	°C	800	
	°F	1472	
Density	g/cm³	4.9	
Coefficient of Thermal Expansion (25 to 450°C)	%/°C	Perpendicular to Orientation Direction	10×10^6
		Parallel to Orientation Direction	14×10^6

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

Additional Information

Ceramic magnets can be either isotropic or anisotropic. Isotropic ceramic magnets can be magnetized in any direction while the anisotropic ceramic magnets can only be magnetized through the easy axis (magnetization direction). Ceramic magnets have good resistance to demagnetization, excellent thermal stability, and superior corrosion resistance. They are an excellent choice, because of low cost and abundance of raw materials for many applications including loudspeakers, DC motors, magnetic separators, sensors, reed switches, and holding devices.

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