

# Bremag® Isotropic Bonded Neodymium Iron Boron (NdFeB)

- Excellent mechanical strength and surface finish
- Compression molded magnets can be manufactured to very tight tolerances off tool
- Injection molded magnets may be overmolded onto metal and plastic components
- Greater cracking and chipping resistance than other rare earth magnets
- Superior energy to weight ratio
- May be molded into a variety of shapes and sizes
- Magnetic values up to 10 MGOe (6 MGOe for Injection Molded Bremag)
- Simple to complex multipole magnetization patterns possible
- Low tooling cost
- Co-Injected Assemblies

BREMAG (Molded Neodymium Iron Boron, or NdFeB) rare earth magnets open up a new realm of design possibilities to engineers. Their high magnetic values and reduced size make them ideal for miniaturization where weight and space are at a premium.

Our unique abilities in the production of Compression and Injection Molded Bremag increase the scope of its application. No other magnetic material combines these performance and fabrication capabilities. Plus, Bremag simplifies production engineering because of its resistance to chipping and cracking, its complex magnetization possibilities and its machinability. Because it contains only nominal amounts of Cobalt compared to Alnico and Samarium Cobalt, Bremag is far less expensive than other rare-earth materials.

Additionally, we offer hybrids of Neodymium Iron Boron and Ferrite, giving our customers an even broader range of choices.

We offer complete engineering assistance, prototyping services, fabrication and inventory management. Call our sales staff today to discuss your application.



## Typical Properties of Compression-Molded Bremag (NdFeB)

Property	Unit	10N (B)**	10N (C)	10N (D)	S
Energy Product (BH <sub>max</sub> )	kJ/m <sup>3</sup> MGOe	79.0 10.0	70.0 8.8	79.0 10.0	***
Remanence (B <sub>r</sub> )	mT G	680 6800	635 6350	685 6850	***
Coercivity (H <sub>c</sub> )	kA/m Oe	460 5800	440 5600	460 5800	***
Intrinsic Coercivity (H <sub>ci</sub> )	kA/m Oe	720 9100	1100 13900	750 9500	***
Temp. Coeff. of B <sub>r</sub> (25-70°C)	%/°C	-0.105	-0.07	-0.07	***
Temp. Coeff. of H <sub>c</sub> (20-70°C)	%/°C	-0.4	-0.4	-0.4	***
Recoil Permeability	<sup>int</sup> / <sub>max</sub> G/Oe	1.44 1.15	1.44 1.15	1.44 1.15	*** ***
Curie Temp. (T <sub>c</sub> )	°C	360 Typical			
Max Op. Temp. (T <sub>max</sub> )	°C	150 Typical			
Density	g/cm <sup>3</sup>	5.9 Typical			
Electrical Resistivity	Ωm	10 <sup>-7</sup> Typical			
Compressive Strength	MPa	110 Typical			
Tensile Strength	MPa	20 Typical			
Young's Modulus	MPa	8000 Typical			
Coefficient of Thermal Expansion	/°C	10 x 10 <sup>-6</sup> Typical			
Standard Binder*		Epoxy Resin*			

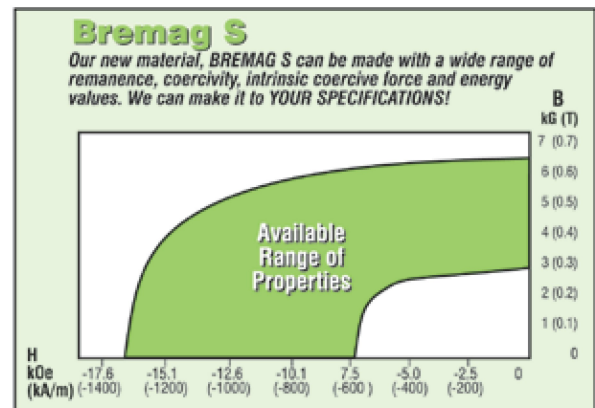
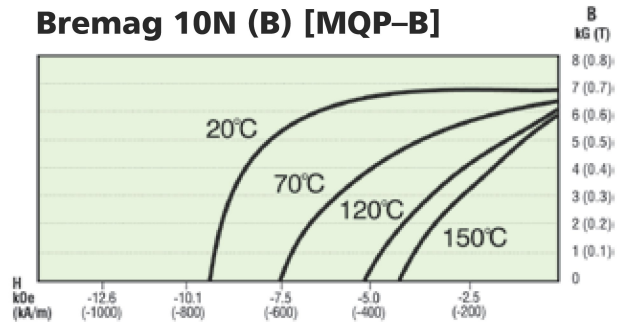
All measurements at 23°C (75°F) unless otherwise stated.

\*Other thermoplastic binders are possible. Contact us for more information.

\*\*Bremag 10N (B) is standard material.

\*\*\*The properties of Bremag S are variable. Please call with your requirements.

### Bremag 10N (B) [MQP-B]



The properties and data presented on this page are typical. For any critical application, Magnet Applications should be consulted.

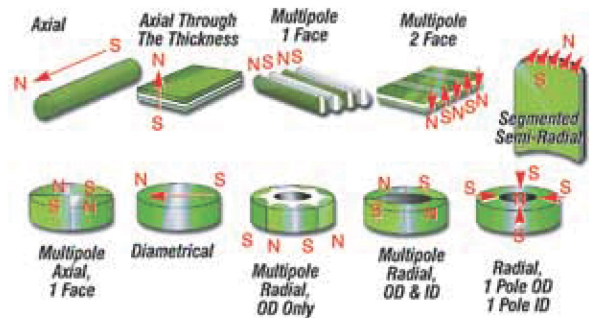
# Typical Properties of Injection-Molded Bremag (NdFeB)

Property	Unit	30/60 P1	38/60 P1	45/60 P2
Energy Product (BH <sub>max</sub> )	kJ/m <sup>3</sup> MGOe	32.0	40.0	48.0
		4.0	5.0	6.0
Remanence B <sub>r</sub>	mT G	450	500	550
		4500	5000	5500
Coercivity (H <sub>c</sub> )	kA/m Oe	320	340	370
		3900	4000	4700
Intrinsic Coercivity (H <sub>ci</sub> )	kA/m Oe	716	716	716
		9000	9000	9000
Temp. Coeff. of B <sub>r</sub> (20-70°C)	%/°C	-0.1	-0.1	-0.1
Temp. Coeff. of H <sub>c</sub> (20-70°C)	%/°C	-0.4	-0.4	-0.4
Recoil Permeability $\mu_{REV}$	mT/kAm G/Oe	1.45	1.45	1.45
		1.15	1.15	1.15
Curie Temp. (T <sub>c</sub> )	°C	360	360	360
Max. Op. Temp (T <sub>max</sub> )	°C	110	110	110
Density	g/cm <sup>3</sup>	4.5	5.0	5.5
Electrical Resistivity	Ωm	10 <sup>-4</sup>	10 <sup>-4</sup>	10 <sup>-4</sup>
Compressive Strength	MPa	150	150	140
Tensile Strength	MPa	45.0	45.0	30.0
Young's Modulus	MPa	13000	11000	11000
Flexural Strength	MPa	70	60	45
Coefficient of Thermal Expansion (20-100°C)	°C	7 x 10 <sup>-6</sup>	5 x 10 <sup>-6</sup>	5 x 10 <sup>-6</sup>
Standard Binder*		Nylon 6	Nylon 6	Nylon 12

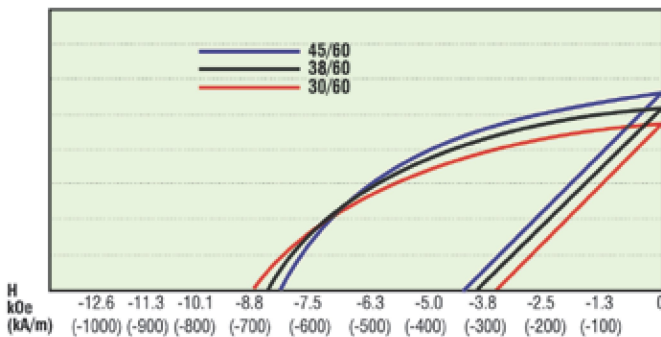
P1 = Nylon 6  
 P2 = Nylon 12  
 P3 = PPS



## Typical Magnetization Patterns



## Typical Demagnetization Curves



## Bremag 38/60 P1 Demagnetization Curve

