Allstar Magnetics

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EXPLORE THE POWER AND PRECISION OF NEODYMIUM (NdFeB) MAGNETS

Neodymium Iron Boron (NdFeB) magnets are the strongest commercially available permanent magnets, delivering exceptional magnetic force in compact, lightweight designs. Engineered for high energy density, NdFeB is ideal for applications where space efficiency, performance and reliability are critical.



Allstar Magnetics' neodymium magnets are available in a wide range of grades and temperature ratings, with multiple coating options to support demanding operating environments. The superior strength, design flexibility and proven manufacturability make NdFeB a versatile solution for industrial, electromechanical and energy applications.

NEODYMIUM (NDFEB) MAGNETS – TECHNICAL OVERVIEW

Material Type:

Rare-earth permanent magnet ($Nd_2Fe_{14}B$)

Magnetic Properties (Typical)

- **Energy Product (BHmax):** Highest of all commercial permanent magnets
- **Remanence (Br):** High
- **Intrinsic Coercivity (Hci):** Grade-dependent

Grade Designation

Grade Number (e.g., N42, N52): Indicates energy product

Thermal Suffix:

None: ~80°C

H: ~120°C

SH: ~150°C

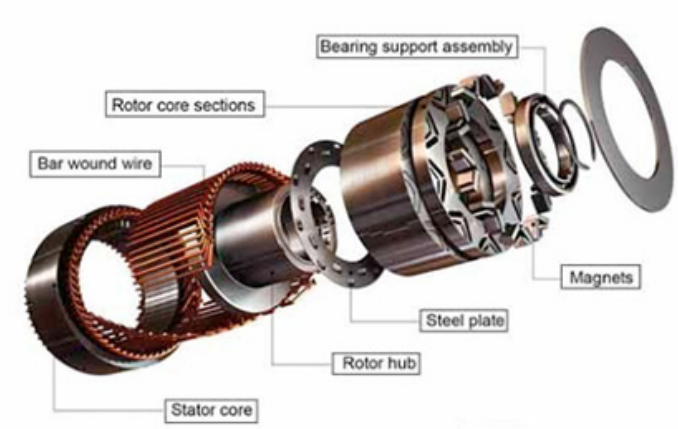
UH: ~180°C

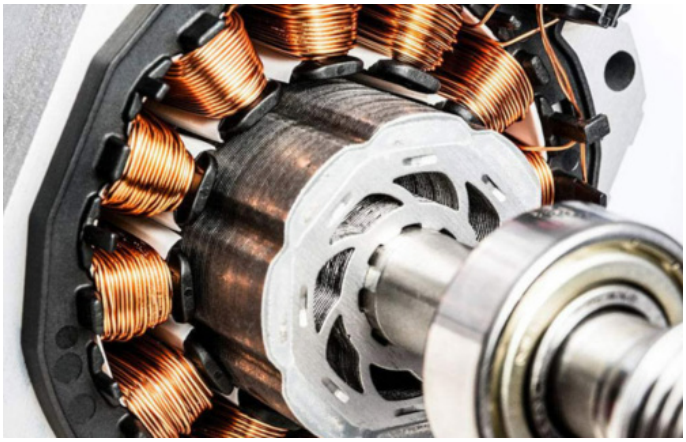
EH: ~200°C



Manufacturing Characteristics

- Powder-based sintered material
- Directional magnetic orientation
- Brittle, ceramic-like mechanical behavior
- Dimensional tolerances looser than machined metals





Environmental Considerations

- Corrosion-prone without coating
- Common coatings: Ni-Cu-Ni, epoxy, zinc, Parylene
- Coating thickness impacts final dimensions

Design Considerations

- Avoid sharp internal corners and thin walls
- Account for air gaps and tolerance stack-ups
- Protect magnets from tensile stress during assembly

Applications

- Motors and generators
- Actuators and robotics
- Sensors and encoders
- Holding and coupling systems
- Energy conversion devices

Comprehensive magnetic solutions, all in one place.

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