

TECHNICAL GUIDE | APPLICATION-SPECIFIC REVIEW REQUIRED

NdFeB Grade Selection Guide

A concise engineering reference for balancing magnetic output, coercivity, temperature, geometry, and application margin before quotation.

Use this guide to prepare an engineering discussion. Final material, grade, coating, magnetization, tolerance, and inspection requirements must be confirmed for the actual application.

A practical selection sequence

- Start with the required field, force, torque, or sensing result at the real working air gap.
- Define continuous and peak temperature, duty cycle, and demagnetizing conditions.
- Check geometry, coating build, assembly pressure, and magnetization direction together.
- Choose the grade family only after the magnetic circuit and operating margin are understood.

Common sintered NdFeB temperature families

Family	Common reference temperature	Selection focus
N	Up to about 80 C	Highest output where temperature margin is moderate
M	Up to about 100 C	Added coercivity for warmer assemblies
H	Up to about 120 C	Motors and compact systems with higher thermal load
SH	Up to about 150 C	Higher coercivity and demagnetization margin
UH	Up to about 180 C	Demanding thermal cycles and reduced irreversible loss
EH	Up to about 200 C	High-temperature designs with application validation
AH	Up to about 230 C	Specialized high-temperature routes, grade dependent

What the grade name does not tell you

- The load line, permeance coefficient, geometry, and magnetic circuit operating point.
- The temperature coefficient and irreversible loss under the actual duty cycle.
- Coating durability, edge condition, adhesive compatibility, and assembly stress.
- Magnetization fixture capability and the measurement position used for acceptance.

RFQ inputs for grade review

Input	Useful information
Magnetic target	Field, force, torque, flux, or sensor signal at a defined position
Temperature	Continuous, peak, duration, cooling conditions, and thermal cycling
Geometry	2D drawing or 3D model, tolerance, coating allowance, and air gap
Magnetization	Axial, diametrical, radial, multipole, segment orientation, or assembly state
Volume	Prototype quantity, pilot demand, and expected annual usage

Indicative reference only. Maximum operating temperature is not a universal part rating. Final approval depends on the selected grade datasheet, geometry, load line, temperature profile, coating, assembly, and application validation.