

Sintered NdFeB magnetic properties

Reference values at 20°C. Br: remanence; Hcj: intrinsic coercivity; Hcb: coercivity; (BH)max: maximum energy product.

Grade	Br (kGs)	Br (T)	Hcj (kOe)	Hcj (kA/m)	Hcb (kOe)	Hcb (kA/m)	(BH)max (MGOe)	(BH)max (kJ/m³)	Density (g/cm³)	Tc (°C)	Tw (°C)	μrec
N35	11.7-12.2	1.17-1.22	12.0	955	10.9	867	33-36	263-287	7.45	310	80	1.05
N38	12.2-12.5	1.22-1.25	12.0	955	11.3	899	36-39	287-310	7.50	320	80	1.05
N40	12.5-12.8	1.25-1.28	12.0	955	11.6	923	38-41	302-326	7.50	320	80	1.05
N42	12.8-13.2	1.28-1.32	12.0	955	11.6	923	40-43	318-342	7.50	320	80	1.05
N45	13.2-13.6	1.32-1.36	12.0	955	11.0	875	43-46	342-366	7.50	320	80	1.05
N48	13.6-14.0	1.36-1.40	12.0	955	11.2	891	46-49	366-390	7.50	320	80	1.05
N50	14.0-14.3	1.40-1.43	12.0	955	10.5	836	47-51	374-406	7.55	320	80	1.05
N52	14.3-14.6	1.43-1.46	12.0	955	10.5	836	51-53	390-422	7.55	320	80	1.05
N35M	11.7-12.2	1.17-1.22	14.0	1114	10.9	867	33-36	263-287	7.50	320	100	1.05
N38M	12.2-12.5	1.22-1.25	14.0	1114	11.3	899	36-39	287-310	7.50	320	100	1.05
N40M	12.5-12.8	1.25-1.28	14.0	1114	11.6	923	38-41	302-326	7.50	320	100	1.05
N42M	12.8-13.2	1.28-1.32	14.0	1114	12.0	955	40-43	318-342	7.50	320	100	1.05
N45M	13.2-13.6	1.32-1.36	14.0	1114	12.5	995	43-46	342-366	7.50	320	100	1.05
N48M	13.6-14.0	1.36-1.40	14.0	1114	12.8	1019	46-49	358-390	7.55	320	100	1.05
N50M	14.0-14.3	1.40-1.43	14.0	1114	13.0	1035	47-51	374-406	7.55	320	100	1.05
N52M	14.3-14.6	1.43-1.46	14.0	1114	12.5	995	51-53	390-422	7.55	320	100	1.05
N35H	11.7-12.2	1.17-1.22	17.0	1353	10.9	867	33-36	263-287	7.50	320	120	1.05
N38H	12.2-12.5	1.22-1.25	17.0	1353	11.3	899	36-39	287-310	7.50	320	120	1.05
N40H	12.5-12.8	1.25-1.28	17.0	1353	11.6	923	38-41	302-326	7.55	320	120	1.05

1. Values are reference test results at 20°C. 2. Tw is based on a D10 × 7 mm sample (L/D ≥ 0.7) held at the stated temperature for 2 hours with irreversible magnetic flux loss ≤5%. 3. A "-T" grade suffix indicates Hcj more than 1 kOe above the standard value; a "-C" suffix indicates a low weight-loss requirement. 4. Maximum operating temperature depends on magnet geometry, coating, magnetic circuit, and application conditions; validate the final selection before use.

Sintered NdFeB magnetic properties (continued)

Reference values at 20°C. Br: remanence; Hcj: intrinsic coercivity; Hcb: coercivity; (BH)max: maximum energy product.

Grade	Br (kGs)	Br (T)	Hcj (kOe)	Hcj (kA/m)	Hcb (kOe)	Hcb (kA/m)	(BH)max (MGOe)	(BH)max (kJ/m³)	Density (g/cm³)	Tc (°C)	Tw (°C)	μrec
N42H	12.8-13.2	1.28-1.32	17.0	1353	12.0	955	40-43	318-342	7.55	320	120	1.05
N45H	13.2-13.6	1.32-1.36	17.0	1353	12.2	971	43-46	342-366	7.55	320	120	1.05
N48H	13.6-14.0	1.36-1.40	17.0	1353	12.9	1027	46-49	358-390	7.60	320	120	1.05
N50H	14.0-14.3	1.40-1.43	16.0	1273	13.0	1035	47-51	374-406	7.60	320	120	1.05
N35SH	11.7-12.2	1.17-1.22	20.0	1592	11.0	875	33-36	263-287	7.55	320	150	1.05
N38SH	12.2-12.5	1.22-1.25	20.0	1592	11.4	907	36-39	287-310	7.55	320	150	1.05
N40SH	12.5-12.8	1.25-1.28	20.0	1592	11.8	939	38-41	302-326	7.55	320	150	1.05
N42SH	12.8-13.2	1.28-1.32	20.0	1592	12.2	971	40-43	318-342	7.55	320	150	1.05
N45SH	13.2-13.6	1.32-1.36	20.0	1592	12.3	979	43-46	342-366	7.60	320	150	1.05
N48SH	13.6-14.0	1.36-1.40	19.0	1512	12.5	995	46-49	366-390	7.60	320	150	1.05
N35UH	11.7-12.2	1.17-1.22	25.0	1989	10.8	859	33-36	263-287	7.55	320	180	1.05
N38UH	12.2-12.5	1.22-1.25	25.0	1989	11.0	875	36-39	287-310	7.60	320	180	1.05
N40UH	12.5-12.8	1.25-1.28	25.0	1989	11.5	915	38-41	302-326	7.60	320	180	1.05
N42UH	12.8-13.2	1.28-1.32	25.0	1989	12.2	971	40-43	310-342	7.60	320	180	1.05
N45UH	13.2-13.6	1.32-1.36	24.0	1909	12.3	979	43-46	342-366	7.60	320	180	1.05
N35EH	11.7-12.2	1.17-1.22	30.0	2387	10.5	836	33-36	263-287	7.60	320	200	1.05
N38EH	12.2-12.5	1.22-1.25	30.0	2387	11.5	915	36-39	279-310	7.60	320	200	1.05
N33AH	11.3-11.7	1.13-1.17	34.0	2706	10.3	820	31-34	239-271	7.60	320	240	1.05
N35AH	11.7-12.2	1.17-1.22	34.0	2706	10.5	836	33-36	255-287	7.60	320	240	1.05

1. Values are reference test results at 20°C. 2. Tw is based on a D10 × 7 mm sample (L/D ≥ 0.7) held at the stated temperature for 2 hours with irreversible magnetic flux loss ≤5%. 3. A “-T” grade suffix indicates Hcj more than 1 kOe above the standard value; a “-C” suffix indicates a low weight-loss requirement. 4. Maximum operating temperature depends on magnet geometry, coating, magnetic circuit, and application conditions; validate the final selection before use.

NdFeB magnet machining tolerances

Dimensional tolerances for OD, ID, L, W, and T are bilateral ($\pm$) unless otherwise specified. Geometric tolerance values are tolerance-zone values and shall not be interpreted as $\pm$ values.

Dimensional tolerances: OD, ID, L, W, T ($\pm$ mm). Geometric tolerances: flatness through concentricity (mm, no $\pm$).

Size Range	Outside Diameter (OD)	Inside Diameter (ID)	Length (L)	Width (W)	Thickness (T)	Flatness	Parallelism	Perpendicularity	Roundness	Concentricity
Size $\leq$ 5 mm	0.03	0.05	0.04	0.04	0.04	0.02	0.03	0.03	0.02	0.04
5 < Size $\leq$ 30 mm	0.05	0.06	0.06	0.06	0.06	0.02	0.04	0.05	0.02	0.05
30 < Size $\leq$ 70 mm	0.08	0.10	0.08	0.08	0.08	0.04	0.06	0.10	0.03	0.10
70 < Size $\leq$ 120 mm	0.08	0.15	0.10	0.10	0.10	0.04	0.08	0.15	0.05	0.15
120 < Size $\leq$ 200 mm	0.15	0.18	0.15	0.15	0.15	0.06	0.12	0.06	0.06	0.30

Values represent typical machining capability. Final tolerances must be confirmed against magnet grade, magnetization direction, geometry, coating allowance, edge protection, and inspection method. Geometric tolerances should be specified with the applicable GD&T symbols and datums on the approved drawing.

NdFeB magnet coating selection

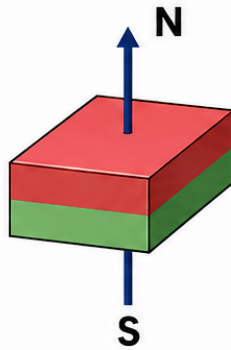
NdFeB is corrosion-sensitive. Select the coating according to environment, wear, bonding method, dimensional allowance, and customer specification.

Plating / Coating	Indoor Use	Abrasion Resistance	Humidity Resistance	Water	Salty Air	Salt Water	Adhesive Bonding	Typical Thickness	Relative Cost
Nickel (Ni-Cu-Ni)	Excellent	Acceptable	Acceptable	Bad	Bad	Bad	Bad	10-20 microns	Low
Zinc (Zn)	Excellent	Excellent	Excellent	Acceptable	Acceptable	Bad	Acceptable	8-10 microns	Low
Gold (Ni-Cu-Au)	Excellent	Acceptable	Acceptable	Bad	Bad	Bad	Bad	10-20 microns	High
Black Epoxy (Ni-Cu-BE)	Superior	Bad	Superior	Superior	Excellent	Excellent	Acceptable	15-25 microns	Medium
Raw Epoxy (BE)	Superior	Acceptable	Superior	Superior	Excellent	Excellent	Superior	10-20 microns	Medium
Plastic (ABS)	Superior	Superior	Superior	Superior	Superior	Superior	Excellent	>800 microns	High
Teflon® (PTFE)	Superior	Superior	Superior	Superior	Superior	Superior	Bad	250-500 microns	High
Everlube-6155®	Superior	Superior	Superior	Superior	Superior	Superior	Acceptable	8-25 microns	High
Xylan®	Superior	Superior	Superior	Superior	Superior	Superior	Acceptable	15-30 microns	High

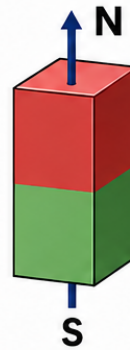
Ratings are qualitative and application-dependent. Confirm required salt-spray hours, operating temperature, coating adhesion, electrical requirements, dimensional allowance, and final coating thickness before production. Relative cost varies by size, quantity, and specification.

Common magnetization directions

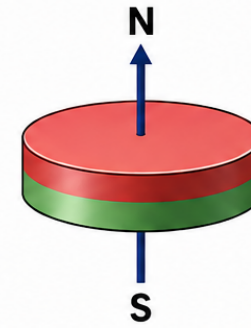
COMMON MAGNETIZATION DIRECTIONS



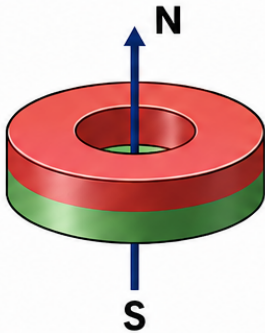
Block - Through Thickness



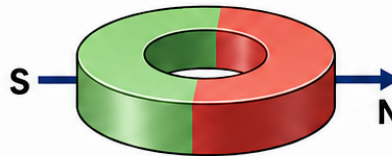
Block - Through Length



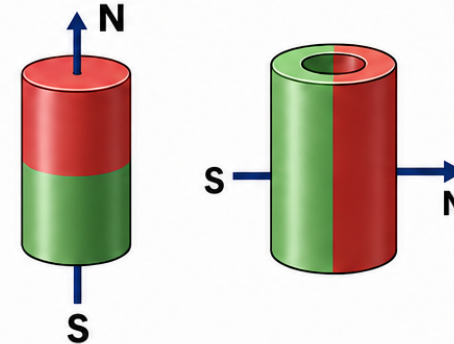
Disc - Axial



Ring - Axial



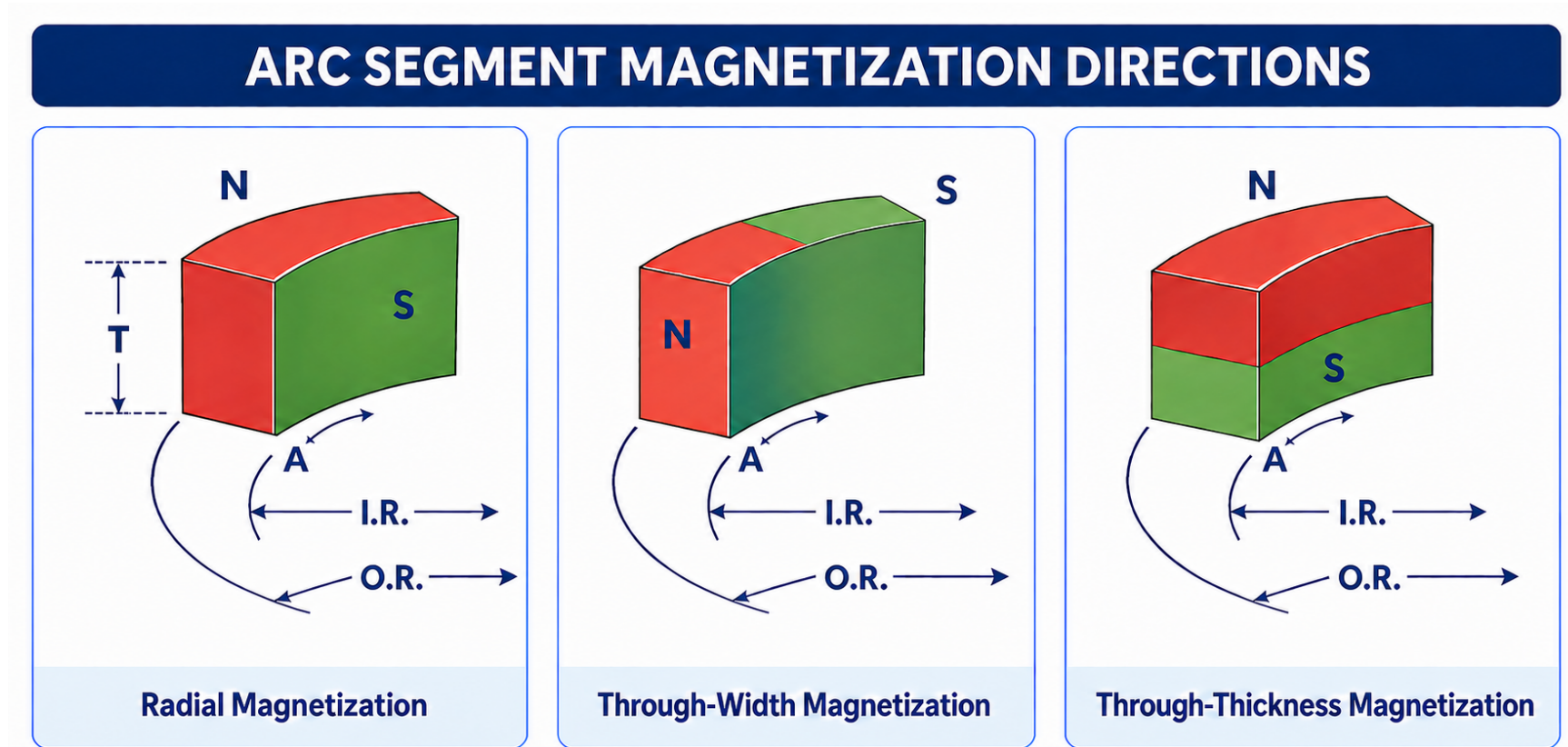
Ring - Diametric



Cylinder - Axial / Diametric

Select and confirm the magnetization direction on the approved drawing and purchase order. N/S pole labels illustrate polarity only and are not a substitute for an inspection specification.

Arc segment magnetization directions



Magnet Shape	Magnetization Direction	Pole Orientation	Typical Application / Note
Arc Segment	Radial	N/S across inner and outer radii	Common in motors and rotating assemblies
Arc Segment	Through Width	N/S across the arc width	Confirm pole layout on drawing
Arc Segment	Through Thickness	N/S across the thickness	Confirm orientation on drawing

Confirm the magnetization direction and pole orientation on the approved drawing before production.