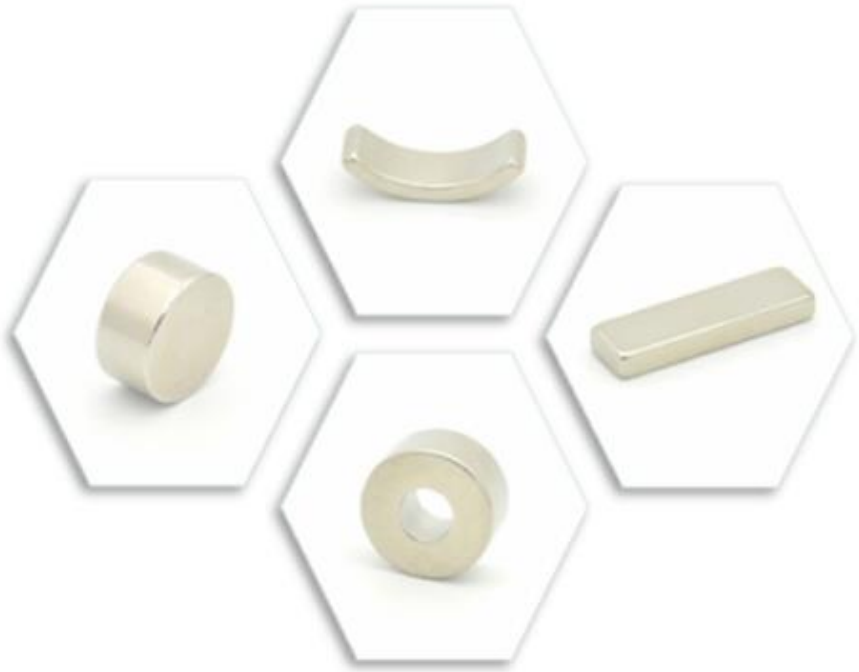
Sintered NdFeB Magnets' Specifications



ADVANCED MAGNETS

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Table Ⅰ Sintered NdFeB Magnets' Grades and Their Magnetic Properties

Grade	B_r		H_{cb}		H_{cj}		$(BH)_{max}$		T_w
	kGs	T	kOe	kA/m	kOe	kA/m	MGOe	kJ/m^3	°C
N52	14.2-14.8	1.42-1.48	≥10.5	≥836	≥11	≥876	50-53	398-422	≤80
N50	13.9-14.4	1.39-1.44	≥10.8	≥859	≥12	≥955	48-51	382-406	
N48	13.6-14.1	1.36-1.41	≥11.6	≥923			46-49	366-390	
N45	13.2-13.7	1.32-1.37	≥11.6	≥923			43-46	342-366	
N42	12.8-13.3	1.28-1.33	≥11.4	≥907			40-43	318-342	
N40	12.4-12.9	1.24-1.29	≥11.4	≥907			38-41	302-326	
N38	12.1-12.6	1.21-1.26	≥11.2	≥891			36-39	286-310	
N35	11.7-12.2	1.17-1.22	≥10.8	≥859			33-36	263-286	
N33	11.3-11.8	1.13-1.18	≥10.5	≥836			31-34	247-271	
N30	10.8-11.3	1.08-1.13	≥10.0	≥796			28-31	223-247	
N50M	13.9-14.4	1.39-1.44	≥13.0	≥1035	≥13	≥1035	48-51	382-406	≤100
N48M	13.6-14.1	1.36-1.41	≥12.8	≥1019	≥14	≥1114	46-49	366-390	
N45M	13.2-13.7	1.32-1.37	≥12.5	≥995			43-46	342-366	
N42M	12.8-13.3	1.28-1.33	≥12.0	≥955			40-43	318-342	
N40M	12.4-12.9	1.24-1.29	≥11.6	≥923			38-41	302-326	
N38M	12.1-12.6	1.21-1.26	≥11.3	≥899			36-39	286-310	
N35M	11.7-12.2	1.17-1.22	≥10.9	≥867			33-36	263-286	
N33M	11.3-11.8	1.13-1.18	≥10.5	≥836			31-34	247-271	
N30M	10.8-11.3	1.08-1.13	≥10.0	≥796			28-31	223-247	
N50H	13.9-14.4	1.39-1.44	≥13.0	≥1035	≥16	≥1273	48-51	382-406	≤120
N48H	13.6-14.1	1.36-1.41	≥12.8	≥1019	≥17	≥1353	46-49	366-390	
N45H	13.2-13.7	1.32-1.37	≥12.5	≥995			43-46	342-366	
N42H	12.8-13.3	1.28-1.33	≥12.0	≥955			40-43	318-342	
N40H	12.4-12.9	1.24-1.29	≥11.6	≥923			38-41	302-326	
N38H	12.1-12.6	1.21-1.26	≥11.3	≥899			36-39	286-310	
N35H	11.7-12.2	1.17-1.22	≥10.9	≥867			33-36	263-286	
N33H	11.3-11.8	1.13-1.18	≥10.5	≥836			31-34	247-271	
N30H	10.8-11.3	1.08-1.13	≥10.0	≥796			28-31	223-247	
N48SH	13.6-14.1	1.36-1.41	≥12.8	≥1019	≥20	≥1592	46-49	366-390	≤150
N45SH	13.2-13.7	1.32-1.37	≥12.5	≥995			43-46	342-366	
N42SH	12.8-13.3	1.28-1.33	≥12.0	≥955			40-43	318-342	
N40SH	12.4-12.9	1.24-1.29	≥11.6	≥923			38-41	302-326	
N38SH	12.1-12.6	1.21-1.26	≥11.3	≥899			36-39	286-310	
N35SH	11.7-12.2	1.17-1.22	≥10.9	≥867			33-36	263-286	
N33SH	11.3-11.8	1.13-1.18	≥10.5	≥836			31-34	247-271	
N30SH	10.8-11.3	1.08-1.13	≥10.0	≥796			28-31	223-247	

Grade	B_r		H_{cb}		H_{cj}		$(BH)_{max}$		T_w
	kGs	T	kOe	kA/m	kOe	kA/m	MGOe	kJ/m^3	°C
N42UH	12.8-13.3	1.28-1.33	≥12.2	≥971	≥25	≥1990	40-43	318-342	≤180
N40UH	12.4-12.9	1.24-1.29	≥11.8	≥939			38-41	302-326	
N38UH	12.1-12.6	1.21-1.26	≥11.5	≥915			36-39	286-310	
N35UH	11.7-12.2	1.17-1.22	≥11.1	≥883			33-36	263-286	
N33UH	11.3-11.8	1.13-1.18	≥10.7	≥851			31-34	247-271	
N30UH	10.8-11.3	1.08-1.13	≥10.2	≥812			28-31	223-247	
N40EH	12.4-12.9	1.24-1.29	≥11.8	≥939	≥30	≥2388	38-41	302-326	≤200
N38EH	12.1-12.6	1.21-1.26	≥11.5	≥915			36-39	286-310	
N35EH	11.7-12.2	1.17-1.22	≥11.1	≥883			33-36	263-286	
N33EH	11.3-11.8	1.13-1.18	≥10.7	≥851			31-34	247-271	
N30EH	10.8-11.3	1.08-1.13	≥10.2	≥812			28-31	223-247	
N35AH	11.7-12.2	1.17-1.22	≥11.1	≥883	≥35	≥2786	33-36	263-286	≤230
N33AH	11.3-11.8	1.13-1.18	≥10.7	≥851			31-34	247-271	
N30AH	10.8-11.3	1.08-1.13	≥10.2	≥812			28-31	223-247	
N28AH	10.4-10.9	1.04-1.09	≥9.8	≥780			26-29	207-231	

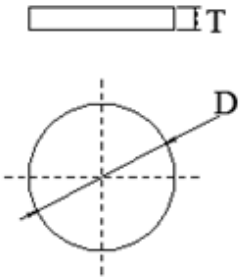
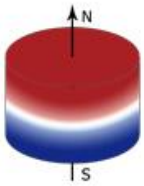
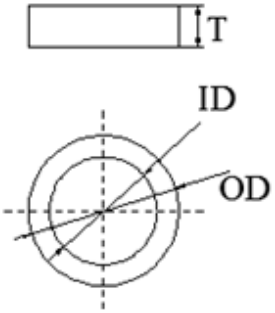
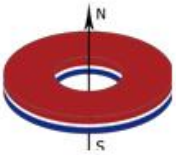
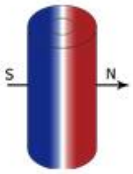
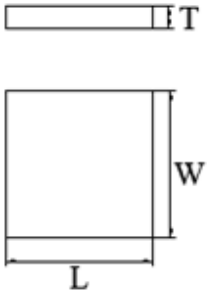
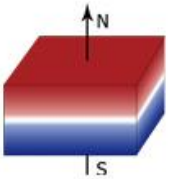
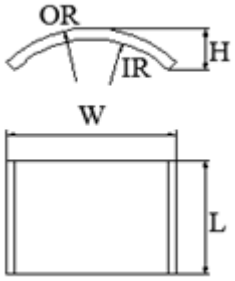
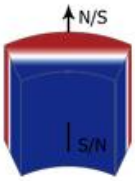
Note:

* The data in the above table were samples' results tested at the temperature of 20 °C.

* The temperature coefficients of B_r and H_{cj} are $\alpha(B_r)$: -0.09~-0.12 %/°C and $\beta(H_{cj})$: -0.40~-0.60 %/°C, respectively.

* The above data are only for reference, magnets can be tailored according to customers' personalized requirements.

Table Ⅱ Sintered NdFeB Magnets' Shapes, Magnetization Direction and Size Range

Shape	Graphic Description	Magnetization Direction		Size Range
Disc/Cylinder			Axially Magnetized	D: 1-100 mm T: 0.5-100 mm
			Diametrically Magnetized	D: 1-100 mm T: 0.5-100 mm
Ring			Axially Magnetized	OD: 4-100 mm ID: 1-90 mm T: 1-60 mm
			Diametrically Magnetized	OD: 4-100 mm ID: 1-90 mm T: 1-60 mm
			Radially Magnetized	OD: 24-200 mm ID: 18-180 mm T: 5-60 mm
Block/ Rectangular			Thickness Magnetized	L: 1-160 mm W: 1-100 mm T: 1-100 mm
Arc/Segment			Diametrically Magnetized	OD-ID≥1 mm L: 1-160 mm W: 3-100 mm H: 1-80 mm

Note:

* Other shapes of sintered NdFeB magnets can also be tailored according to customers' specific requirements.

Table Ⅲ Sintered NdFeB Magnets' Coating Types

Coating	Thickness (μm)	SST (hr)	PCT (hr)	T_w (°C)
Zn (Zinc)	5-15	>24	-	≤160
C-Zn (Colored Zinc)	5-15	>48	-	≤160
Electroless Nickel	10-30	>96	>72	≤230
NiCuNi (Nickel Copper Nickel)	10-20	>48	>48	≤230
NiCu + Black Nickel	10-20	>48	>72	≤230
NiCuNi + Tin	10-25	>48	>48	≤160
NiCuNi + Gold	10-25	>48	>48	≤230
NiCuNi + Silver	10-25	>48	>48	≤160
Epoxy	10-30	>72	>48	≤160
Teflon	10-20	>48	-	≤230
Everlube	10-20	>96	>72	≤230
Parylene	0.2-5	>96	-	≤230

Note:

* Salt spray test (SST) was conducted at 35 °C with 5% NaCl solution.

* Pressure cooker test (PCT) was conducted at 120 °C, 2 atm and 100% RH.

Table Ⅳ Some Physical Properties of Sintered NdFeB Magnets

Parameter	Unit	Value
Density (ρ)	g/cm^3	7.4-7.7
Curie Temperature (T_c)	°C	310-370
Recoil Permeability (μ_{rec})	-	1.05
Vickers Hardness (HV)	MPa	500-600
Bending Strength (σ_{bb})	MPa	200-400
Compressive Strenght (σ_{bc})	MPa	1000-1100
Tensile Strength (σ_b)	MPa	80-90
Resistivity (ρ)	μΩ·m	1.4-1.6
Thermal Conductivity (λ)	W/(m·K)	8-10
Young's Modulus (E)	GPa	150-200
Thermal Expansivity // Magnetization ($\alpha_{//}$)	10^{-6}/°C	3-4
Thermal Expansivity ⊥ Magnetization ($\alpha_{\perp}$)	10^{-6}/°C	1-3

Note:

* The above data are only for reference, specific magnets maybe have different values.