

NdFeB : NEODYMIUM IRON BORON

Rare earth permanent magnet NdFeB is a new kind of magnetic material developed in the 1980's with excellent magnetic characteristics (high energy product and high coercive force etc.) and relatively low cost.

It is getting to replace the traditional magnets of hard ferrite, AlNiCo and SmCo in many fields such as electro-acoustic devices, electric motors, sensors/transducers, instruments and meters, auto industry, petro-chemical industry and magnetic health-care products etc.

Widely used in various electrical appliances, hard disk, generators, magnetic assemblies, etc.



Material Information

- Produced by powder metallurgical method with chemical composition of Nd₂Fe₁₄B.
- High resistance to demagnetization.
- High magnetic values (Br, bHc, iHc und (BH)max).
- Excellent cost to performance ratio.
- Reasonable temperature stability.
- Very brittle & hard.
- Poorest corrosion resistance of all commercial magnetic materials.
- Not suitable for application which exposed in high temperature conditions.

Typical Physical Properties

Curie Temperature (°C)	310-370
Maximum Operating Temperature (°C)	80-240
Resistivity (μ ohm.cm)	160
Hardness (Hv)	560-580
Density (g/cm ³)	7.40
Relative Recoil Permeability (μrec)	1.05
Saturation Field Strength, kOe (kA/m)	30-40 (2400-3200)
Temperature Coefficient of Br (%/°C)	-0.12 ~ -0.10
Temperature Coefficient of iHc (%/°C)	-0.6

Dimension Range / Nominal Tolerance of NdFeB Magnets

RING MAGNET	OUTER DIA (mm)	INNER DIA (mm)	THICKNESS (mm)
Maximum	160	140	50
Minimum	2.6	1.8	0.5
Tolerance	±0.1	±0.1	±0.1
BLOCK MAGNET	LENGTH (mm)	WIDTH (mm)	THICKNESS (mm)
Maximum	150	50	30
Minimum	2.0	1.5	0.5
Tolerance	±0.1	±0.1	±0.1
DISC MAGNET	DIAMETER (mm)	THICKNESS (mm)	
Maximum	200	35	
Minimum	1.2	0.5	
Tolerance	±0.1	±0.1	



Magnetic Properties of Sintered NdFeB Magnets

Grade	Max. working Temp.	Remanence				Coercivity				Intr. Coercivity		Max. Energy Product			
		Br(T)		Br(kGs)		bHc(kA/m)		bHc(kOe)		iHc (kA/m)	iHc (kOe)	(BH) _{max} (KJ/m ³)		(BH) _{max} (MGOe)	
		Nom	Min	Nom	Min	Nom	Min	Nom	Min			Nom	Min	Nom	Min
N30	80	1.12	1.08	11.2	10.8	836	780	10.5	9.8	955	12	239	223	30	28
N33	80	1.17	1.14	11.7	11.4	876	820	11.0	10.3	955	12	263	247	33	31
N35	80	1.21	1.17	12.1	11.7	915	860	11.5	10.8	955	12	279	263	35	33
N38	80	1.26	1.22	12.6	12.2	915	860	11.5	10.8	955	12	303	287	38	36
N40	80	1.29	1.26	12.9	12.6	876	836	11.0	10.5	955	12	318	303	40	38
N42	80	1.30	1.27	13.0	12.7	876	836	11.0	10.5	955	12	334	318	42	40
N45	80	1.38	1.32	13.8	13.2	924	876	11.6	11.0	955	12	366	342	46	43
N48	80	1.42	1.38	14.2	13.8	890	835	11.19	10.5	876	11	390	366	49	46
N50	80	1.47	1.41	14.7	14.1	1035	829	13.0	10.5	876	11	414	382	52	48
N52	80	1.48	1.44	14.8	14.4	955	876	11.4	10.5	876	11	414	394	52	49.5
N30M	100	1.12	1.08	11.2	10.8	836	780	10.5	9.8	1114	14	239	223	30	28
N33M	100	1.17	1.14	11.7	11.4	876	820	11.0	10.3	1114	14	263	247	33	31
N35M	100	1.21	1.17	12.1	11.7	915	860	11.5	10.8	1114	14	279	263	35	33
N38M	100	1.26	1.22	12.6	12.2	915	860	11.5	10.8	1114	14	303	287	38	36
N40M	100	1.29	1.26	12.9	12.6	915	860	11.5	10.8	1114	14	318	303	40	38
N42M	100	1.32	1.28	13.2	12.8	1010	955	12.7	12.0	1114	14	342	318	43	40
N45M	100	1.38	1.32	13.8	13.2	1050	994	13.2	12.5	1114	14	366	334	46	42
N48M	100	1.43	1.37	14.3	13.7	1090	1035	13.7	13.0	1120	14	392	360	49	45
N50M	100	1.47	1.41	14.7	14.1	1138	1043	14.3	13.1	1114	14	414	382	52	48
N27H	120	1.06	1.02	10.6	10.2	796	740	10.0	9.3	1353	17	215	199	27	25
N30H	120	1.12	1.08	11.2	10.8	836	780	10.5	9.8	1353	17	239	223	30	28
N33H	120	1.17	1.14	11.7	11.4	876	820	11.0	10.3	1353	17	263	247	33	31
N35H	120	1.21	1.17	12.1	11.7	915	860	11.5	10.8	1353	17	279	263	35	33
N38H	120	1.26	1.22	12.6	12.2	955	915	12.0	11.5	1353	17	303	287	38	36
N40H	120	1.28	1.24	12.8	12.4	955	915	12.0	11.5	1353	17	334	311	42	39
N42H	120	1.32	1.28	13.2	12.8	1010	955	12.7	12.0	1353	17	342	318	43	40
N45H	120	1.36	1.32	13.6	13.2	1050	1000	13.2	12.5	1360	17	376	344	47	43
N27SH	150	1.06	1.02	10.6	10.2	796	740	10.0	9.3	1595	20	215	199	27	25
N30SH	150	1.12	1.08	11.2	10.8	836	780	10.5	9.8	1595	20	239	223	30	28
N33SH	150	1.17	1.14	11.7	11.4	876	820	11.0	10.3	1595	20	263	247	33	31
N35SH	150	1.21	1.17	12.1	11.7	915	860	11.5	10.8	1595	20	279	263	35	33
N38SH	150	1.26	1.22	12.6	12.2	924	870	11.6	10.9	1595	20	311	286	39	36
N40SH	150	1.28	1.24	12.8	12.4	989	939	12.4	11.8	1592	20	326	302	41	38
N42SH	150	1.35	1.30	13.5	13.0	1013	963	12.7	12.0	1600	20	344	312	43	39
N44SH	150	1.37	1.32	13.7	13.2	≥963		≥12.1		1600	20	358	326	45	41
N25UH	180	1.02	0.98	10.2	9.8	764	732	9.6	9.2	1990	25	199	183	25	23
N28UH	180	1.08	1.04	10.8	10.4	812	780	10.2	9.8	1990	25	223	207	28	26
N30UH	180	1.10	1.08	11.0	10.8	812	780	10.2	9.8	1990	25	247	223	31	28
N33UH	180	1.17	1.13	11.7	11.3	836	804	10.5	10.1	1990	25	270	247	34	31
N35UH	180	1.22	1.17	12.2	11.7	891	836	11.2	10.5	1990	25	279	263	35	33
N38UH	180	1.29	1.21	12.9	12.1	>915		>11.6		1990	25	318	287	40	36
N40UH	180	1.32	1.25	13.2	12.5	>836		>10.5		1990	25	334	303	42	38
N27EH	200	1.08	1.02	10.8	10.2	784	752	9.8	9.4	2388	30	223	191	28	25
N28EH	200	1.09	1.04	10.9	10.4	825	780	10.4	9.8	2388	30	231	207	29	26
N30EH	200	1.13	1.08	11.3	10.8	804	772	10.1	9.7	2388	30	247	223	31	28
N33EH	200	1.18	1.14	11.8	11.4	885	835	11.1	10.5	2400	30	272	248	34	31
N35EH	200	1.25	1.18	12.5	11.8	>875		>11.0		2388	30	295	263	37	33
N28AH	240	1.08	1.04	10.8	10.4	828	796	10.4	10.0	2785	35	223	207	28	26
N30AH	240	1.12	1.08	11.2	10.8	851	828	10.7	10.4	2785	35	239	223	30	28
N33AH	240	1.17	1.14	11.7	11.4	891	867	11.2	10.9	2785	35	263	247	33	31
N35AH	240	1.21	1.17	12.1	11.7	915	860	11.5	10.8	2785	35	271	247	34	31

