



# 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.

## Material Information

- Produced by powder metallurgical method with chemical composition of Nd<sub>2</sub>Fe<sub>14</sub>B
- High resistance to demagnetization
- High magnetic values (Br, bH<sub>c</sub>, iH<sub>c</sub> und (BH)<sub>max</sub>)
- 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 Ω.cm)	160
Hardness (Hv)	560-580
Density (g/cm <sup>3</sup> )	7.40
Relative Recoil Permeability (μ <sub>rec</sub> )	1.05
Saturation Field Strength, kOe (kA/m)	30-40 (2400-3200)
Temperature Coefficient of Br (%/°C)	-0.12 ~ -0.10
Temperature Coefficient of iH <sub>c</sub> (%/°C)	-0.6

## Surface Treatments

Type	Information
Metallic	Zinc, Nickel, Nickel + Nickel, Nickel + Tin, Nickel + Copper + Nickel, Gold
Organic	Epoxy, Nickel + Epoxy coating
Temporary	Surface Passivation

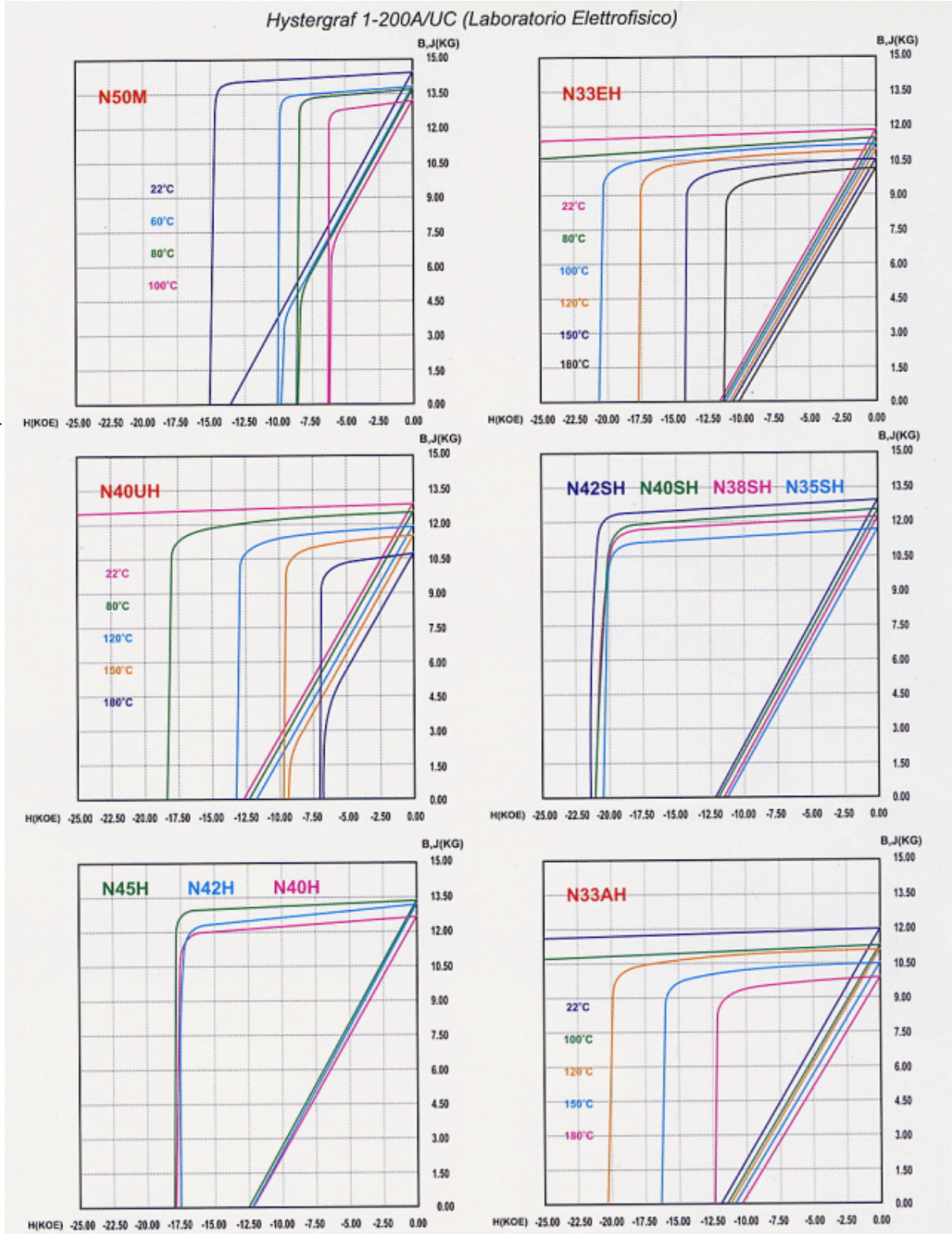


## Magnetic Properties of Sintered NdFeB Magnets

Material Grade	Max. working Temp. (°C)	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 <sup>3</sup> )		(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		1.17	1.14	11.7	11.4	876	820	11.0	10.3	955	12	263	247	33	31
N35		1.21	1.17	12.1	11.7	915	860	11.5	10.8	955	12	279	263	35	33
N38		1.26	1.22	12.6	12.2	915	860	11.5	10.8	955	12	303	287	38	36
N40		1.29	1.26	12.9	12.6	876	836	11.0	10.5	955	12	318	303	40	38
N42		1.30	1.27	13.0	12.7	876	836	11.0	10.5	955	12	334	318	42	40
N45		1.38	1.32	13.8	13.2	924	876	11.6	11.0	955	12	366	342	46	43
N48		1.42	1.38	14.2	13.8	890	835	11.19	10.5	876	11	390	366	49	46
N50		1.47	1.41	14.7	14.1	1035	829	13.0	10.5	876	11	414	382	52	48
N30M	100	1.12	1.08	11.2	10.8	836	780	10.5	9.8	1114	14	239	223	30	28
N33M		1.17	1.14	11.7	11.4	876	820	11.0	10.3	1114	14	263	247	33	31
N35M		1.21	1.17	12.1	11.7	915	860	11.5	10.8	1114	14	279	263	35	33
N38M		1.26	1.22	12.6	12.2	915	860	11.5	10.8	1114	14	303	287	38	36
N40M		1.29	1.26	12.9	12.6	915	860	11.5	10.8	1114	14	318	303	40	38
N42M		1.32	1.28	13.2	12.8	1010	955	12.7	12.0	1114	14	342	318	44	40
N45M		1.38	1.32	13.8	13.2	1050	994	13.2	12.5	1114	14	366	334	46	42
N48M		1.43	1.37	14.3	13.7	1090	1035	13.7	13.0	1120	14	392	360	49	45
N50M		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		1.12	1.08	11.2	10.8	836	780	10.5	9.8	1353	17	239	223	30	28
N33H		1.17	1.14	11.7	11.4	876	820	11.0	10.3	1353	17	263	247	33	31
N35H		1.21	1.17	12.1	11.7	915	860	11.5	10.8	1353	17	279	263	35	33
N38H		1.26	1.22	12.6	12.2	955	915	12.0	11.5	1353	17	303	287	38	36
N40H		1.28	1.24	12.8	12.4	955	915	12.0	11.5	1353	17	334	311	42	39
N42H		1.32	1.28	13.2	12.8	1010	955	12.7	12.0	1353	17	342	318	43	40
N45H		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		1.12	1.08	11.2	10.8	836	780	10.5	9.8	1595	20	239	223	30	28
N33SH		1.17	1.14	11.7	11.4	876	820	11.0	10.3	1595	20	263	247	33	31
N35SH		1.21	1.17	12.1	11.7	915	860	11.5	10.8	1595	20	279	263	35	33
N38SH		1.26	1.22	12.6	12.2	924	870	11.6	10.9	1595	20	311	286	39	36
N40SH		1.28	1.24	12.8	12.4	989	939	12.4	11.8	1592	20	326	302	41	38
N42SH		1.35	1.30	13.5	13.0	1013	963	12.7	12.0	1600	20	344	312	43	39
N44SH		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		1.08	1.04	10.8	10.4	812	780	10.2	9.8	1990	25	223	207	28	26
N30UH		1.10	1.08	11.0	10.8	812	780	10.2	9.8	1990	25	247	223	31	28
N33UH		1.17	1.13	11.7	11.3	836	804	10.5	10.1	1990	25	270	247	34	31
N35UH		1.22	1.17	12.2	11.7	891	836	11.2	10.5	1990	25	279	263	35	33
N38UH		1.29	1.21	12.9	12.1	≥915		≥11.6		1990	25	318	287	40	36
N40UH		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		1.09	1.04	10.9	10.4	825	780	10.4	9.8	2388	30	231	207	29	26
N30EH		1.13	1.08	11.3	10.8	804	772	10.1	9.7	2388	30	247	223	31	28
N33EH		1.18	1.14	11.8	11.4	885	835	11.1	10.5	2388	30	272	248	34	31
N35EH		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		1.12	1.08	11.2	10.8	851	828	10.7	10.4	2785	35	239	223	30	28
N33AH		1.17	1.14	11.7	11.4	891	867	11.2	10.9	2785	35	263	247	33	31
N35AH		1.21	1.17	12.1	11.7	915	860	11.5	10.8	2785	35	271	247	34	31



## Typical Demagnetization Curves of NdFeB Magnets





## Dimension Range / Nominal Tolerance

Ring Magnet	Outer Diameter (mm)	Inner Diameter (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

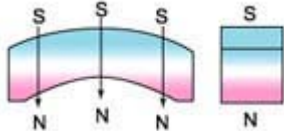
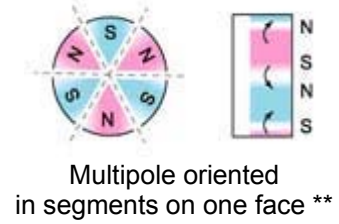
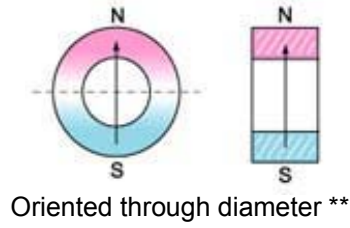
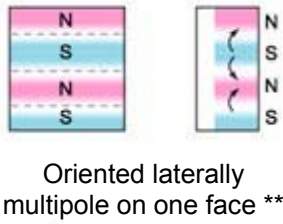
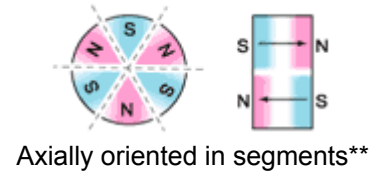
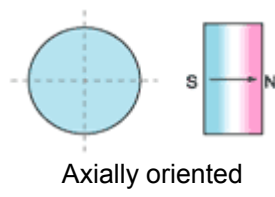
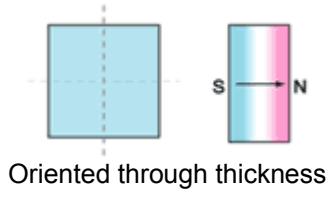
Segment & other irregular shapes can be manufactured according to customer's sample or blue print

Lifton Magnets supplies various kinds of sintered NdFeB magnets in specific sizes and shapes according to the customers' requirements. It allows also its customers to customize characteristics of their magnets. The shapes can be discs, rings, blocks, slabs, cylinders, ball, tiles and other specific shapes.





## Magnetization Directions of NdFeB Magnets



\*\* Spezial magnetization coil is needed