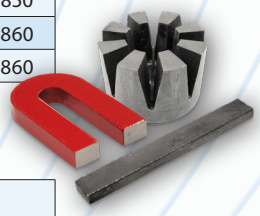
Permanent Magnet Comparison Charts

Typical Magnetic and Physical Properties of Alnico Magnet Material

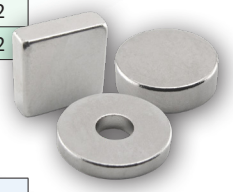
Alnico Material	Density		Max. Energy Product BH (max)	Typical Residual Induction Br (max)	Coercive Force Hc (min)	Intrinsic Coercive Force (Hci)	Maximum Operating Temperature		Curie Temperature	
	lbs/in³	g/cm³	MGO	Gauss	Oersteds	Oersteds	F	C	F	C
Alnico 5 (cast)	0.264	7.3	5.5	12500	≥650	≥640	1022	550	1562	850
Alnico 8 (cast)	0.262	7.3	5.3	8200	≥1450	≥1860	1022	550	1562	850
Alnico 5 (sintered)	0.250	6.9	4.2	12000	≥600	≥630	842	450	1580	860
Alnico 8 (sintered)	0.252	7.0	4.0	8200	≥1500	≥1690	842	450	1580	860



Typical Magnetic and Physical Properties of Neodymium Magnet Material

Neodymium Material	Density		Max. Energy Product BH (max)	Typical Residual Induction Br (max)	Coercive Force Hc (min)	Intrinsic Coercive Force (Hci)	Maximum Operating Temperature		Curie Temperature	
	lbs/in³	g/cm³	MGO	Gauss	Oersteds	Oersteds	F	C	F	C
Neodymium 30H	0.267	7.4	28-31	10.8-11.3	≥10000	≥17000	248	120	626	330
Neodymium 35	0.267	7.4	33-36	11.7-12.2	≥10900	≥12000	176	80	593	312
Neodymium 40	0.267	7.4	38-41	12.5-12.8	≥11400	≥12000	176	80	593	312
Neodymium 42	0.267	7.4	40-43	12.8-13.2	≥11500	≥12000	176	80	593	312
Neodymium 45	0.267	7.4	43-46	13.2-13.8	≥11600	≥12000	176	80	593	312
Neodymium 48	0.267	7.4	46-49	13.8-14.2	≥11600	≥12000	176	80	593	312
Neodymium 52	0.267	7.4	50-53	14.3-14.8	≥10000	≥11000	176	80	593	312

Since many combinations of elements and orientations are possible, additional grades are available.



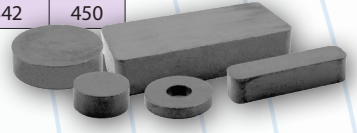
Typical Magnetic and Physical Properties of Samarium Cobalt Magnet Material

Samarium Cobalt Material	Density		Max. Energy Product BH (max)	Typical Residual Induction Br (max)	Coercive Force Hc (min)	Intrinsic Coercive Force (Hci)	Maximum Operating Temperature		Curie Temperature	
	lbs/in³	g/cm³	MGO	Gauss	Oersteds	Oersteds	F	C	F	C
SmCo 18	0.296	8.2	16-18	8700	≥8100	≥16000	482	250	1382	750
SmCo 20	0.296	8.2	19-21	9200	≥8500	≥16000	482	250	1382	750
SmCo 22	0.299	8.3	20-22	9500	≥8900	≥16000	482	250	1382	750
SmCo 24	0.304	8.4	22-24	9900	≥9100	≥18000	662	350	1508	820
SmCo 26	0.304	8.4	24-26	10400	≥9400	≥18000	662	350	1508	820
SmCo 28	0.303	8.4	26-28	10700	≥9500	≥18000	662	350	1508	820
SmCo 30	0.303	8.4	28-30	11000	≥9900	≥18000	662	350	1508	820

Typical Magnetic and Physical Properties of Ceramic Magnet Material

Ceramic Material	Density		Max. Energy Product BH (max)	Typical Residual Induction Br (max)	Coercive Force Hc (min)	Intrinsic Coercive Force (Hci)	Maximum Operating Temperature		Curie Temperature	
	lbs/in³	g/cm³	MGO	Gauss	Oersteds	Oersteds	F	C	F	C
Ceramic 1	0.167	4.9	1.05	2300	≥1860	≥3250	400	204	842	450
Ceramic 5	0.180	4.9	3.4	3800	≥2500	≥2800	400	204	842	450
Ceramic 8	0.180	4.9	3.5	3900	≥3200	≥3400	400	204	842	450

Note: Unshielded open circuit ceramic magnets should not be subjected to more than 400°F or they will require remagnetization.



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