



TECHNICAL DATASHEET

AlNiCo Magnets

Cast and sintered AlNiCo magnets for temperature-stable magnetic circuits.



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Technical Data 1

Application	Typical Spec	Why this material
Precision instruments	Alnico 2 / 5	Very low flux drift over temperature
Watt-hour meters	Alnico 5	Long-term stable reference field
Reed switch actuation	Alnico 3 / 5	Stable actuation across temperature
Radar / TWT / instruments	Alnico 8 / 9	High-temperature stability
Educational / scientific	Alnico 2	Classic rods / horseshoe forms

Technical Data 2

Route	Strength	Tolerance / shape logic	Typical use
Cast	Higher energy and complex castable forms	Larger geometry; grinding on functional surfaces	Horseshoes, meters, sensors, instruments
Sintered	Fine grain and repeatability for small parts	Smaller precision components	Miniature sensors, magnetic circuits, instruments

Technical Data 3

Grade / Route	Br	Hc	Hci	(BH)max	Max Operating Temp*
Alnico 2 (Sintered)	7.0 kG / 0.70 T	500 Oe / 40 kA/m	>=540 Oe / 43 kA/m	1.5 MGOe / 12 kJ/m3	450 deg C
Alnico 5 (Sintered)	11.0 / 1.10	600 / 48	>=600 / 48	4.25 / 34	450 deg C
Alnico 8 (Sintered)	8.8 / 0.88	1530 / 121	>=1600 / 127	5.25 / 42	450 deg C
Alnico 5 (Cast)	12.2 / 1.22	600 / 48	630 / 50	5.0 / 40	500 deg C
Alnico 5B (Cast)	12.2 / 1.22	650 / 52	660 / 53	5.5 / 44	500 deg C
Alnico 5DG (Cast)	12.5 / 1.25	690 / 55	700 / 56	6.5 / 52	500 deg C
Alnico 5-7 (Cast)	13.0 / 1.30	700 / 56	740 / 59	7.5 / 60	525 deg C
Alnico 8-HC (Cast)	7.0 / 0.70	1750 / 139	1750 / 139	4.5 / 36	525 deg C
Alnico 8 (Cast)	8.2 / 0.82	1500 / 119	1600 / 127	5.0 / 40	525 deg C
Alnico 8B (Cast)	8.8 / 0.88	1500 / 119	1650 / 131	5.5 / 44	525 deg C
Alnico 8C (Cast)	9.0 / 0.90	1380 / 110	1440 / 115	7.5 / 60	525 deg C
Alnico 9 (Cast)	10.5 / 1.05	1410 / 112	1440 / 139	9.0 / 72	525 deg C

Technical Data 4

Property	Sintered	Cast
Vickers hardness	~440	440-620
Density	6.8-7.0 g/cm3	6.9-7.3 g/cm3
Curie temperature	810-860 deg C	740-860 deg C
Specific resistance	50-70 uohm-cm	45-75 uohm-cm
Thermal expansion	11.0-12.4 x10-6/ deg C	11.0-13.0 x10-6/ deg C
Reversible temperature coefficient Br	~ -0.02 to -0.03%/ deg C	~ -0.02 to -0.03%/ deg C

Technical Data 5

Route	Typical Tolerance	Notes
As-cast	+/-0.3-0.5 mm	Economical near-net shape
Ground	+/-0.05 mm	Pole and mounting faces
Sintered	+/-0.05 mm	Small precision parts
Machining	Grinding-focused	Hard/brittle alloy; functional surfaces are normally ground

Engineering note

Values are reference specifications unless explicitly stated as guaranteed on a quotation or approved drawing. Final grade, geometry, tolerance, coating, magnetization, operating temperature and validation requirements must be confirmed for the actual application.