

Magnetic Properties of Samarium Cobalt

	Residual Induction	Coercive Force	Intrinsic Coercive Force	Max Energy Product	Max Operation Temperature	Temp Coefficient of Br	Temp Coefficient of Hc
Grade	Br	HcB	HcJ	BH Max	Max Temp	α_{Br}	α_{Hc}
Sm₁Co₅	kGs	kOe	kOe	MGOe	°C / °F	% / °C	% / °C
SmCo 16	7.9~8.4	7.8~8.3	≥ 23	15~17	250 / 482	-0.035	-0.28
SmCo 18	8.4~8.9	8.3~8.8	≥ 23	17~19	250 / 482	-0.040	-0.28
SmCo 20	8.9~9.3	8.6~9.2	≥ 23	19~21	250 / 482	-0.045	-0.28
SmCo 22	9.2~9.6	8.9~9.5	≥ 23	21~23	250 / 482	-0.045	-0.28
Sm₂Co₁₇	kGs	kOe	kOe	MGOe	°C / °F	% / °C	% / °C
SmCo 24	9.5~10.2	8.7~9.6	≥ 18	22~24	300 / 572	-0.025	-0.20
SmCo 24H	9.5~10.2	8.7~9.6	≥ 25	22~24	350 / 662	-0.025	-0.20
SmCo 26	10.2~10.5	9.4~10.0	≥ 18	24~26	300 / 572	-0.030	-0.20
SmCo 26H	10.2~10.5	9.4~10.0	≥ 25	24~26	350 / 662	-0.030	-0.20
SmCo 28	10.3~10.8	9.5~10.2	≥ 18	26~28	300 / 572	-0.035	-0.20
SmCo 28H	10.3~10.8	9.5~10.2	≥ 25	26~28	350 / 662	-0.035	-0.20
SmCo 30	10.6~11.0	9.9~10.5	≥ 18	28~30	300 / 572	-0.035	-0.20
SmCo 30H	10.6~11.0	9.9~10.5	≥ 25	28~30	350 / 662	-0.035	-0.20
SmCo 32	11.0~11.3	10.2~10.7	≥ 18	29~32	300 / 572	-0.035	-0.20
SmCo 32H	11.0~11.3	10.2~10.7	≥ 25	29~32	350 / 662	-0.035	-0.20
SmCo 33	11.2~11.5	10.2~10.7	≥ 18	30~33	300 / 572	-0.040	-0.20
SmCo 33H	11.2~11.5	10.2~10.7	≥ 25	30~33	350 / 662	-0.040	-0.20
SmCo 35	11.6~12.0	10.5~11.2	≥ 18	32~35	300 / 572	-0.040	-0.25

All listed values are approximate and should be used as a reference only. Magnetic or physical characteristics should be verified before selecting a magnet material.

Physical Properties of Samarium Cobalt

Bending Strength	1500~1800 MPa
Compressive Strength	800~1000 MPa
Coefficient of Thermal Expansion	11.8x10 ⁻⁶ /°C(20~100°C ⊥C) 9.2x10 ⁻⁶ /°C(20~100°C C)
Curie Temperature	700-850 °C
Density	8.2-8.5 g/cm ³
Poisson's Ratio	0.27
Relative Permeability	1.05 - 1.1 μr
Resistivity	0.8 x 10 ⁻⁶ Ωm
Specific Heat	370 J/(kg.°C)
Temp Coefficient of H_{cj}	*-0.15~-0.30 %/ °C
Thermal Conductivity	11.6 ~12.8 W/m • °C
Vickers Hardness	400-650 Hv
Young's Modulus	120000 MPa

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