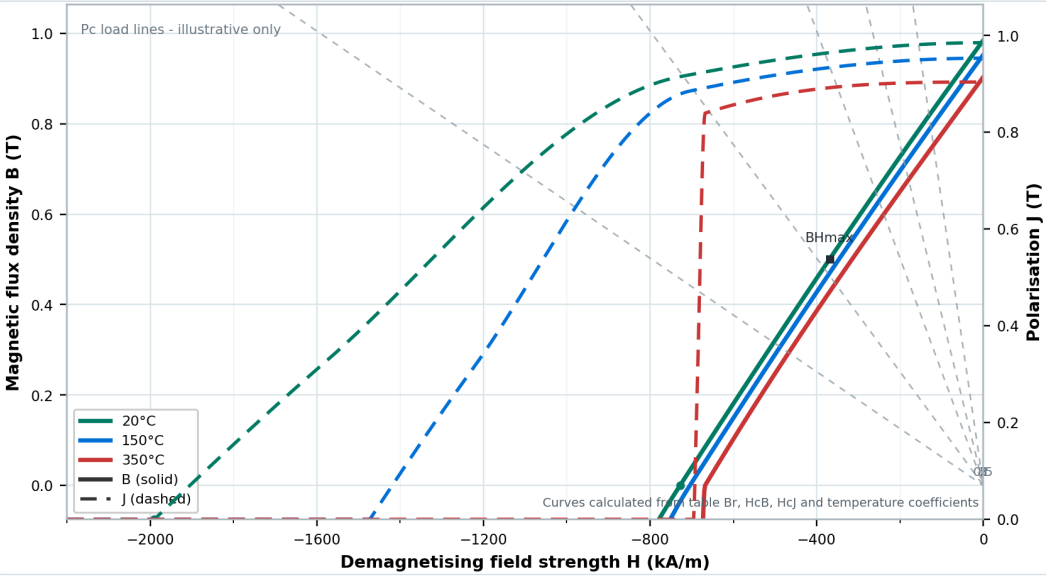
Technical Datasheet: Samarium Cobalt Sm2Co17-24H

Material family: Sm2Co17 · GBT 4180-2012: XGS 191/200

Solid lines represent estimated magnetic flux density B. Dashed lines represent estimated polarisation J. Curves are generated from tabulated grade data for preliminary material comparison.

B_R [T]	H_{CB} [KA/M]	H_{CJ} [KA/M]	$(BH)_{MAX}$ [KJ/M³]	T_{MAX} [°C]
0.95-1.02	**692-764**	**≥1990**	**175-191**	**≤350**

Estimated Demagnetisation Curve — Sm2Co17-24H



Grade Information

Grade family	**Sm2Co17-H**
Grade	**Sm2Co17-24H**
GBT 4180-2012	**XGS 191/200**
Max. working temperature	**≤350 °C**
Density	**8.4 g/cm³**

Magnetic Properties

Property	SI value		Alt. value	
Remanence B_r	**0.95-1.02**	T	9.5-10.2	kGs
Normal coercivity H_{cB}	**692-764**	kA/m	8.7-9.6	kOe
Intrinsic coercivity H_{cJ}	**≥1990**	kA/m	≥25	kOe
Max. energy product $(BH)_{max}$	**175-191**	kJ/m³	22-24	MGOe
Temp. coefficient of B_r α(B_r)	**-0.025**	%/°C		
Temp. coefficient of H_{cJ} β(H_{cJ})	**-0.2**	%/°C		

Typical reference values for the SmCo material family. These values are not grade-specific measured values.

Reference Physical & Mechanical Properties @20°C — Sm2Co17 family

Vickers hardness	typ	**400 - 700**	HV	**Specific heat capacity**	typ	**320 - 390**	J/(kg·K)
Modulus of elasticity / Young's modulus	typ	**100 - 200**	GPa	**Thermal conductivity**	typ	**10 - 13**	W/(m·K)
Flexural / bending strength	typ	**90 - 180**	MPa	**Recoil permeability μr**	typ	**1.1**	-
Compressive strength	typ	**650 - 1200**	MPa	**Coeff. of linear thermal expansion, ∥ DOM***	typ	**5 - 12**	×10⁻⁶/K
Tensile strength / ultimate strength	typ	**30 - 50**	MPa	**Coeff. of linear thermal expansion, ⊥ DOM***	typ	**10 - 13**	×10⁻⁶/K
Electrical resistivity	typ	**0.5 - 0.9**	μΩm				

Selection note — Sm2Co17-H: High-coercivity Sm2Co17 variant for higher resistance to demagnetisation.