

## SmCo (RES)

Samarium-Cobalt magnets were developed in 1960 while researching a new magnetic material based on Fe, Co, Ni and Rare Earth alloys. They are produced by pressing powdered alloys to shape under orientating field, then sintered. Two different compositions are available: SmCo<sub>5</sub> and Sm<sub>2</sub>Co<sub>17</sub> with higher coercivity.

Despite a higher cost than other magnetic materials, SmCo provides an outstanding combination of high energy, thermal stability and corrosion resistance. Protective coatings are generally not required except for particular applications.

Because of its high brittleness, it has to be handled and assembled with care to avoid chips and cracks.

GRADES	REMANENCE		COERCIVITY				MAXIMUM ENERGY PRODUCT		AVERAGE TEMPERATURE COEFFICIENTS (20 ~ 100°C)		SUGGESTED MAXIMUM OPERATING TEMPERATURE
	Br		HcB		HcJ		BH <sub>max</sub>		T <sub>1</sub>		B/H > 0,7
	kG	T	kOe	kA/m	kOe	kA/m	MGOe	kJ/m <sup>3</sup>	%/°C (Br)	%/°C (HcJ)	°C
RES 1-5 H18B	8 - 9	0,8 - 0,9	7,8 - 9,0	620 - 720	≥ 15	≥ 1190	16 - 19	127 - 151	-0,04	-0,20	250 °C
RES 1-5 H22A	8,5 - 9,5	0,85 - 0,95	8,0 - 9,5	630 - 760	≥ 15	≥ 1190	18 - 22	143 - 175	-0,04	-0,20	
RES 2-17 H25B	10,2 - 11,0	1,02 - 1,10	5,0 - 8,5	390 - 680	≥ 5,3	≥ 420	22 - 27	175 - 215	-0,035	-0,20	300 °C
RES 2-17 H23CV	9,5 - 10,5	0,95 - 1,05	7,5 - 10,0	590 - 800	≥ 8	≥ 630	20 - 26	159 - 207	-0,035	-0,20	
RES 2-17 H23SH	9,5 - 10,5	0,95 - 1,05	7,5 - 10,0	590 - 800	≥ 20	≥ 1591	20 - 26	159 - 207	-0,035	-0,20	
RES 2-17 H26SV	10,3 - 10,8	1,03 - 1,08	8,0 - 10,0	640 - 800	≥ 15	≥ 1200	23 - 26	184 - 208	-0,035	-0,20	
RES 2-17 H30SH	10,4 - 11,4	1,04 - 1,14	9,2 - 10,0	730 - 800	≥ 20	≥ 1592	25 - 31	199 - 247	-0,035	-0,20	
RES 2-17 H32SV	10,8 - 10,9	1,08 - 1,16	≥ 9,2	≥ 730	≥ 15	≥ 1200	28 - 32	224 - 256	-0,035	-0,20	

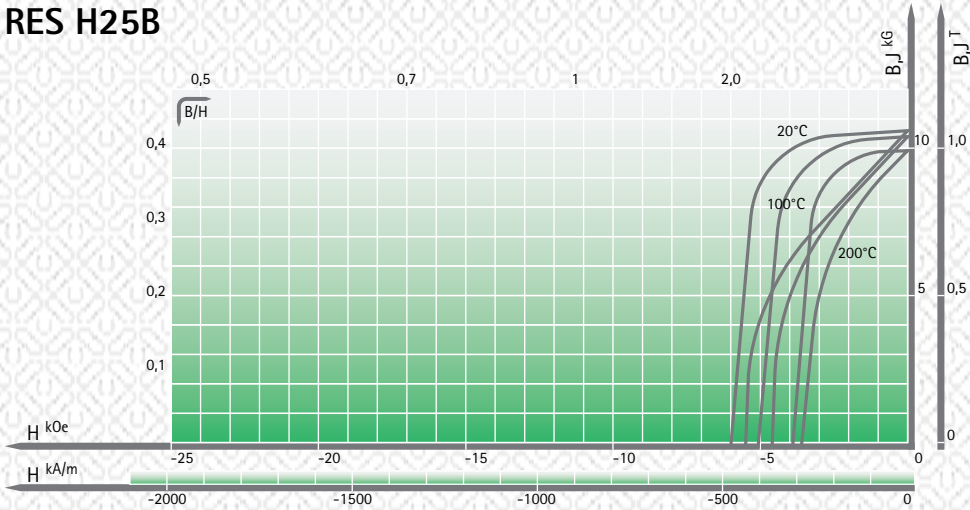
Other grades available on request.

		SmCo 1-5	SmCo 2-17
Curie temperature	°C	710	770
Recoil Permeability (μ <sub>r</sub> )	-	1,03	1,05
Saturation field	kOe	> 25	> 50
Electrical Resistivity	μΩcm	50	50
Compressive strength	N/mm <sup>2</sup>	~ 850	~ 800
Density	g/cm <sup>3</sup>	8,3	8,5
Flexural strength	N/mm <sup>2</sup>	100 - 150	100 - 150
Tensile strength	N/mm <sup>2</sup>	50	40
Vickers Hardness	HV	~ 600	~ 600
Young's modulus	10 <sup>3</sup> N/mm <sup>2</sup>	150	150
Specific Heat	kcal/kg.°C	0,08 - 0,09	0,08 - 0,09
Thermal Conductivity	kcal/m*hr*°C	8	8 - 9
Thermal Expansion coef //	10 <sup>-6</sup> /°C	12,6	12,6
Thermal Expansion coef ⊥	10 <sup>-6</sup> /°C	6,6	6,6

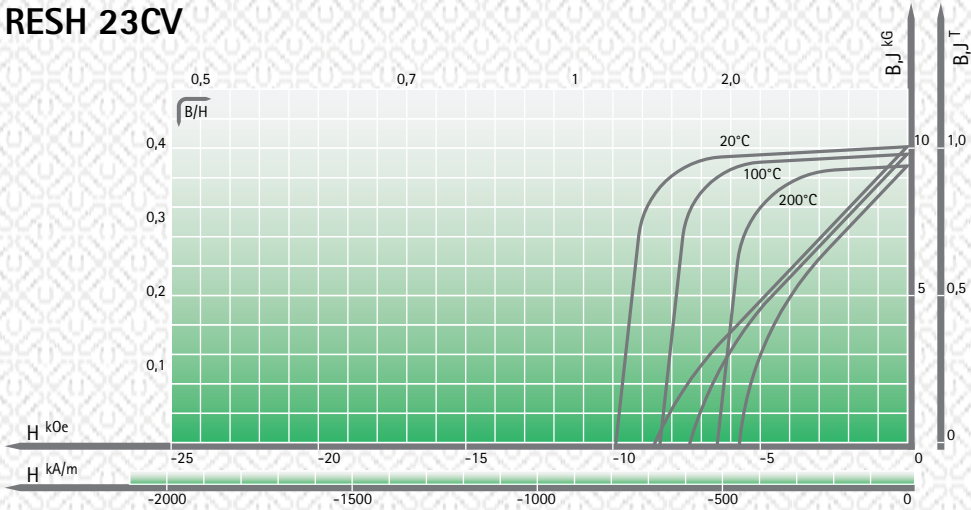
Characterization of physical and mechanical properties on standard sample > 10mm x 10mm x 10mm for magnetic properties and > 10 x 10 x 5 for mechanical properties. Because of permanent losses, depending on B/H value, consult us for more details.

The validity of the reported data is referred to the date of issue.  
04/2009

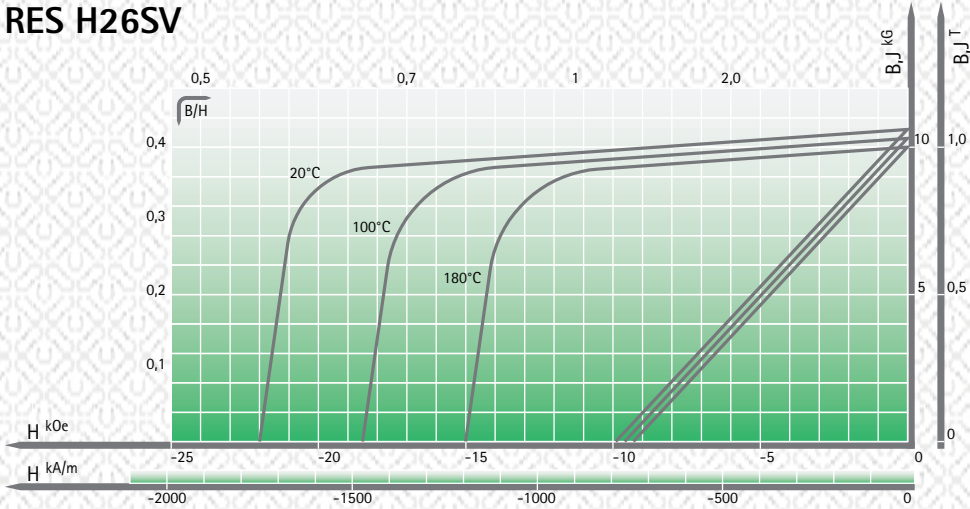
RES H25B



RESH 23CV



RES H26SV



RES H30SH

