

## Sintered SmCo Magnet Magnetic Properties Standard (General)

Material	Grade	Br		Hcb		Hcj		(BH)max		Tc	TW (L/D=0.7)	Temperature	Temperature
		Remanence Br		Coercivity Force		Intrinsic Coercivity		Maximun Energy		Curie Temperature	Max. Operating Temperature	Coefficient of Br α(Br)	Coefficient of Hcj β(Hcj)
		T	KGs	KA/m	KOe	KA/m	KOe	KJ/m <sup>3</sup>	MGOe	℃	℃	%/℃	%/℃
Pure SmCo <sub>5</sub>	YX-16s	0.79-0.84	7.9-8.4	620-660	7.8-8.3	≥1830	≥23	119-135	15-17	750	250	-0.035	-0.28
	YX-18s	0.84-0.89	8.4-8.9	660-700	8.3-8.8	≥1830	≥23	135-151	17-19	750	250	-0.040	-0.28
	YX-20s	0.89-0.93	8.9-9.3	684-732	8.6-9.2	≥1830	≥23	151-167	19-21	750	250	-0.045	-0.28
	YX-22s	0.92-0.96	9.2-9.6	710-756	8.9-9.5	≥1830	≥23	167-183	21-23	750	250	-0.045	-0.28
	YX-24s	0.96-1.00	9.6-10.0	740-788	9.3-9.9	≥1830	≥23	183-199	23-25	750	250	-0.045	-0.28
1:5 Low temperature coefficient (SmGd)Co <sub>5</sub>	LTC (YX-10)	0.62-0.66	6.2-6.6	485-517	6.1-6.5	≥1830	≥23	75-88	9.5-11	750	300	Temp. Range 20-100℃ 100-200℃ 200-300℃	α(Br) +0.0156%/℃ +0.0087%/℃ +0.0007%/℃

<b>Calculation of Theoretical Values of Br and Hcj at High Temperature</b>	<p>The temperature coefficients of remanence Br and intrinsic coercivity Hcj are measured at 20℃ to 150℃, only for reference.</p> <p>Theoretical calculation formula (T1 = room temperature (usually 20℃), T2=high temperature):  <math>Br@T2=Br@T1-[(T2-T1)*\alpha(Br)*Br@T1]</math>  <math>Hcj@T2=Hcj@T1-[(T2-T1)*\beta(Hcj)*Hcj@T1]</math></p> <p>Taking YX-20s, Br=0.9T, Hcj=1830KA/m as an example, the theoretical value at 150℃ is calculated as follows:  <math>Br@150^{\circ}C=0.9-[(150-20)*0.045\%*0.9]=0.8473T</math>  <math>Hcj@150^{\circ}C=1830-[(150-20)*0.28\%*1830]=1163.88KA/m</math></p>
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- Remark:**
- 1) There will be a slight test error during the magnetic performance test, but the error rate is less than 1%. Because the roughcast are not fully inspected, the performance indicators of all grades will have individual deviations. Take the YX-22s grade as an example, Br=9.2-9.6KGs (of which there may be less than 5% of the performance range between 9.15-9.64KGs).
  - 2) The maximum working temperature has a lot to do with the specific working environment, load line and other factors.
  - 3) With the improvement of technology, the performance index may be changed, please refer to the latest version of NGYC property sheet.