

## Sintered Sm<sub>2</sub>Co<sub>17</sub> 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	Max. Operating	Coefficient	Coefficient
		T	KGs	KA/m	KOe	KA/m	KOe	KJ/m <sup>3</sup>	MGOe	Temperature	Temperature	of Br α(Br)	of Hcj β(Hcj)
		°C							°C	°C	%/°C	%/°C	
Sm <sub>2</sub> (CoFeCuZr) <sub>17</sub>	YXG-24H	0.95-1.02	9.5-10.2	692-764	8.7-9.6	≥1990	≥25	175-191	22-24	800	350	-0.035	-0.20
	YXG-26H	1.02-1.05	10.2-10.5	748-796	9.4-10.0	≥1990	≥25	191-207	24-26	800	350	-0.035	-0.20
	YXG-28H	1.03-1.08	10.3-10.8	756-812	9.5-10.2	≥1990	≥25	207-223	26-28	800	350	-0.035	-0.20
	YXG-30H	1.08-1.10	10.8-11.0	788-835	9.9-10.5	≥1990	≥25	223-239	28-30	800	350	-0.035	-0.20
	YXG-32H	1.10-1.13	11.0-11.3	812-860	10.2-10.8	≥1990	≥25	231-255	29-32	800	350	-0.035	-0.20
	YXG-33H	1.12-1.16	11.2-11.6	845-890	10.6-11.2	≥1990	≥25	239-263	30-33	800	350	-0.035	-0.20
	YXG-35H	1.16-1.20	11.6-12.0	860-908	10.8-11.4	≥1830	≥23	255-278	32-35	800	300	-0.035	-0.25
	YXG-22	0.93-0.97	9.3-9.7	676-740	8.5-9.3	≥1433	≥18	160-183	20-23	800	300	-0.035	-0.20
	YXG-24	0.95-1.02	9.5-10.2	692-764	8.7-9.6	≥1433	≥18	175-191	22-24	800	300	-0.035	-0.20
	YXG-26	1.02-1.05	10.2-10.5	748-796	9.4-10.0	≥1433	≥18	191-207	24-26	800	300	-0.035	-0.20
	YXG-28	1.03-1.08	10.3-10.8	756-812	9.5-10.2	≥1433	≥18	207-223	26-28	800	300	-0.035	-0.20
	YXG-30	1.08-1.10	10.8-11.0	788-835	9.9-10.5	≥1433	≥18	223-239	28-30	800	300	-0.035	-0.20
	YXG-32	1.10-1.13	11.0-11.3	812-860	10.2-10.8	≥1433	≥18	231-255	29-32	800	300	-0.035	-0.20
	YXG-33	1.12-1.16	11.2-11.6	845-890	10.6-11.2	≥1433	≥18	239-263	30-33	800	300	-0.035	-0.20
	YXG-35	1.16-1.2	11.6-12.0	860-908	10.8-11.4	≥1433	≥18	255-278	32-35	800	250	-0.035	-0.25
	YXG-26M	1.02-1.05	10.2-10.5	676-780	8.5-9.8	955-1433	12-18	199-215	25-27	800	300	-0.035	-0.20
	YXG-28M	1.03-1.08	10.3-10.8	676-796	8.5-10.0	955-1433	12-18	207-223	26-28	800	300	-0.035	-0.20
	YXG-30M	1.08-1.10	10.8-11.0	676-835	8.5-10.5	955-1433	12-18	223-239	28-30	800	300	-0.035	-0.20
	YXG-32M	1.10-1.13	11.0-11.3	676-852	8.5-10.7	955-1433	12-18	231-255	29-32	800	300	-0.035	-0.20
	YXG-24L	0.95-1.02	9.5-10.2	541-716	6.8-9.0	636-955	8-12	183-199	23-25	800	250	-0.035	-0.20
YXG-26L	1.02-1.05	10.2-10.5	541-748	6.8-9.4	636-955	8-12	199-215	25-27	800	250	-0.035	-0.20	
YXG-28L	1.03-1.08	10.3-10.8	541-764	6.8-9.6	636-955	8-12	207-223	26-28	800	250	-0.035	-0.20	
YXG-30L	1.08-1.15	10.8-11.5	541-796	6.8-10.0	636-955	8-12	223-239	28-30	800	250	-0.035	-0.20	
YXG-32L	1.10-1.15	11.0-11.5	541-812	6.8-10.2	636-955	8-12	231-255	29-32	800	250	-0.035	-0.20	
2:17 Low temperature coefficient (SmEr) <sub>2</sub> (CoTm) <sub>17</sub>	LTC(YXG-18)	0.84-0.89	8.4-8.9	629-668	7.9-8.4	≥1433	≥18	135-151	17-19	840	300	-0.001	-0.25
	LTC(YXG-20)	0.89-0.94	8.9-9.4	660-708	8.3-8.9	≥1433	≥18	151-167	19-21	840	300	-0.007	-0.25
	LTC(YXG-22)	0.94-0.98	9.4-9.8	692-740	8.7-9.3	≥1433	≥18	167-183	21-23	840	300	-0.010	-0.25
	LTC(YXG-24)	0.98-1.02	9.8-10.2	724-772	9.1-9.7	≥1433	≥18	183-199	23-25	840	300	-0.012	-0.25

**Calculation of Theoretical Values of Br and Hcj at High Temperature**

The temperature coefficients of remanence Br and intrinsic coercivity Hcj are measured at 20°C to 150°C, only for reference.

Theoretical calculation formula (T1 = room temperature (usually 20°C), T2=high temperature):  
 $Br@T2=Br@T1-[(T2-T1)*\alpha(Br)*Br@T1]$   
 $Hcj@T2=Hcj@T1-[(T2-T1)*\beta(Hcj)*Hcj@T1]$

Taking YXG-28H, Br=1.03T, Hcj=1990KA/m as an example, the theoretical value at 150°C is calculated as follows:  
 $Br@150^{\circ}C=1.03-[(150-20)*0.035\%*1.03]=0.9831T$   
 $Hcj@150^{\circ}C=1990-[(150-20)*0.2\%*1990]=1472KA/m$

**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 YXG-30 grade as an example, Br=10.8-11.0KGs (of which there may be less than 5% of the performance range between 10.75-11.04KGs).
- 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.