

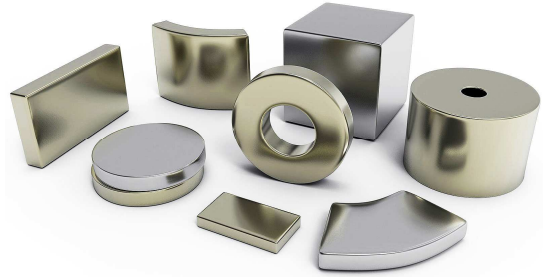
Samarium Cobalt (SmCo) magnets are of the Rare Earth class, have been available since the early 1970's.

These magnets possess very high magnetic properties, excellent thermal stability, while remaining resistant to corrosion.

The characteristics of SmCo magnets are ideal for applications requiring a resistance to wide-ranging temperatures and environments.

SmCo magnets are manufactured by sintering or compression bonding.

They are anisotropic and can only be magnetised in the direction of orientation. In general, magnetising fields of approximately 30 to 45KOe are required to saturate SmCo magnets.



Feature of Sintered SmCo

- The best temperature characteristics in the rare-earth magnet family
- Manufactured by powder metallurgical process involving the sintering of powder under vacuum.
- Both grades of SmCo5 and Sm2Co17, commonly referred to as 1:5 and 2:17 material are available.
- Good corrosion resistance and no special surface treatment required excellent for compact designs where high working temperature is a major concern. Grinding and slicing operations possible

Application: applied to various electric motors, instruments, sensors, detectors, radar, and other high-tech equipment.

- Attributes of Samarium Cobalt Material
- High resistance to demagnetization
- High energy (magnetic strength is strong for its size)
- Good temperature stability
- Expensive material (cobalt is market price sensitive)



Magnetic property parameters of Sintered SmCo5

Material	Remanence B _r		Magnetic Coercivity (Min) H _{cB}	Intrinsic Coercivity (Min) H _{cJ}	Max. Energy Product (BH) max		Curie Temp. T _c	Operating Temp. T _w	Temp. Coefficient of Remanence α (Br)	Intrinsic Coercivity Temp. Coefficient α (H _{cJ})
	Typical	Min			Typical					
	[T]	[T]			[kJ/m ²]	[kJ/m ²]				
	[KGs]	[KGs]			[KOe]	[KOe]				
RECo5 119/127	0.83	0.81	620	1274	127	119	750	250	-0.04	-0.3
	8.3	8.1	7.8	16	16	15				
RECo5 135/127	0.87	0.84	645	1274	143	135	750	250	-0.04	-0.3
	8.7	8.4	8.1	16	18	17				
RECo5 151/127	0.92	0.89	680	1274	159	151	750	250	-0.04	-0.3
	9.2	8.9	8.5	16	20	19				
RECo5 159/127	0.95	0.93	710	1274	167	159	750	250	-0.04	-0.3
	9.5	9.3	8.9	16	21	20				
RECo5 175/119	0.98	0.96	730	1194	183	175	750	250	-0.04	-0.3
	9.8	9.6	9.2	15	23	22				
RE(Sm)Co5 151/104	0.92	0.89	680	1035	159	151	750	250	-0.04	-0.3
	9.2	8.9	8.5	13	20	19				
RE(Sm)Co5 159/104	0.95	0.93	710	1035	167	159	750	250	-0.04	-0.3
	9.5	9.3	8.9	13	21	20				
RE(Sm)Co5 151/159	0.92	0.89	680	1592	159	151	750	250	-0.04	-0.3
	9.2	8.9	8.5	20	20	19				
RE(Sm)Co5 159/159	0.95	0.93	710	1592	167	159	750	250	-0.04	-0.3
	9.5	9.3	8.9	20	21	20				
RE(Sm)Co5 175/119	0.98	0.96	730	1194	183	175	750	250	-0.04	-0.3
	9.8	9.6	9.2	15	23	22				

Magnetic property parameters of Sintered Sm2co17

Material	Remanence B _r		Magnetic Coercivity (Min) H _{CB}	Intrinsic Coercivity (Min) H _{CI}	Max. Energy Product (BH) max		Curie Temp.	Operating Temp.	Temp. Coefficient of Remanence	Intrinsic Coercivity Temp. Coefficient
	Typical	Min			Typical					
	[T]	[T]			[kJ/m ³]	[kJ/m ³]				
	[KGs]	[KGs]			[MGoe]	[MGoe]				
RE2Co17 175/199	0.99	0.96	700	1990	183	175	820	350	-0.03	-0.2
	9.9	9.6	8.7	25	23	22				
RE2Co17 175/143	0.99	0.96	700	1433	183	175	820	350	-0.03	-0.2
	9.9	9.6	8.7	18	23	22				
RE2Co17 191/199	1.04	1.02	750	1990	199	191	820	350	-0.03	-0.2
	10.4	10.2	9.4	25	25	24				
RE2Co17 191/143	1.04	1.02	750	1433	199	191	820	350	-0.03	-0.2
	10.4	10.2	9.4	18	25	24				
RE2Co17 191/80	1.04	1.02	750	796-1273	199	191	820	350	-0.03	-0.2
	10.4	10.2	9.4	10-16	25	24				
RE2Co17 207/199	1.07	1.04	756	1990	215	207	820	350	-0.03	-0.2
	10.7	10.4	9.5	25	27	26				
RE2Co17 207/143	1.07	1.04	756	1433	215	207	820	350	-0.03	-0.2
	10.7	10.4	9.5	18	27	26				
RE2Co17 207/80	1.07	1.04	756	796-1273	215	207	820	350	-0.03	-0.2
	10.7	10.4	9.5	10-16	27	26				
RE2Co17 207/44	1.07	1.04	413-716	438-796	215	207	820	350	-0.03	-0.2
	10.7	10.4	5.2-9	5.5-10	27	26				
RE2Co17 222/199	1.1	1.08	788	1990	239	222	820	350	-0.03	-0.2
	11	10.8	9.9	25	30	28				
RE2Co17 222/143	1.1	1.08	788	1433	239	222	820	350	-0.03	-0.2
	11	10.8	9.9	18	30	28				
RE2Co17 222/80	1.1	1.08	788	796-1273	239	222	820	350	-0.03	-0.2
	11	10.8	9.9	5.5-10	30	28				
RE2Co17 222/44	1.1	1.08	413-716	438-796	239	222	820	350	-0.03	-0.2
	11	10.8	5.2-9	5.5-10	30	28				
RE2Co17 239/143	1.12	1.1	772	1433	255	239	820	350	-0.03	-0.2
	11.2	11	9.7	18	32	30				
RE2Co17 239/80	1.12	1.1	772	796-1273	255	239	820	350	-0.03	-0.2
	11.2	11	9.7	10-16	32	30				
RE2Co17 239/44	1.12	1.1	413-716	438-796	255	239	820	350	-0.03	-0.2

