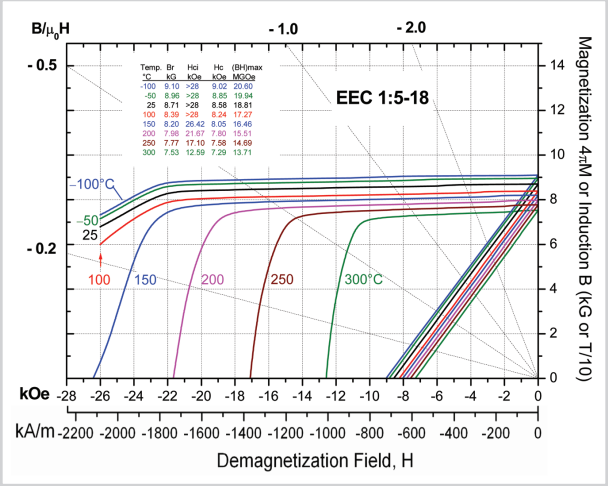
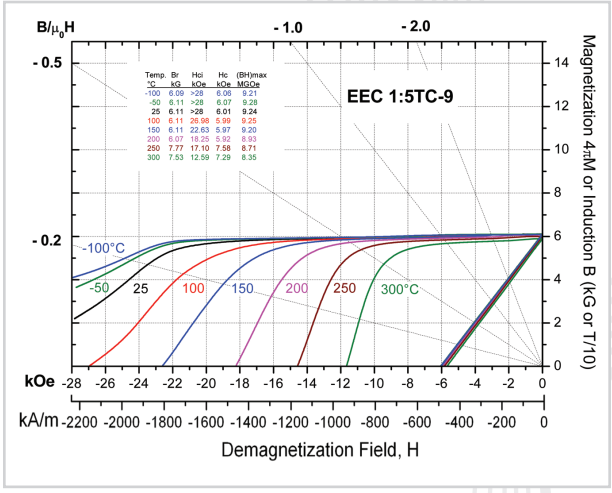
Sintered Samarium Cobalt Magnets

Magnetic Properties										
Typical Magnetic Properties										
Magnet Grade	**Maximum Energy Product $(BH)_{max}$**		**Residual Induction B_r**		**Coercive Force H_c**		**Intrinsic Coercive Force $_iH_c$**		**Reversible Temperature Coefficient of B_r (Typical)**	**Maximum Operating Temperature T_m (Typical)**
	MGOe	kJ/m3	kG	mT	kOe	kA/m	kOe	kA/m	% / °C	°C
$SmCo_5$										
EEC 1:5-18	18.0	143	8.6	860	8.4	668	>30	>2390	-0.04	300
EEC 1:5TC-15	15.0	119	7.8	780	7.7	612	>30	>2390	-0.03	300
EEC 1:5TC-13	13.0	103	7.3	730	7.2	573	>30	>2390	-0.02	300
EEC 1:5TC-9	9.0	72	6.1	610	6.0	477	>30	>2390	-0.001	300
Sm_2Co_{17}										
EEC 2:17-31	31.0	247	11.5	1150	10.5	835	>20	>1590	-0.035	250
EEC 2:17-27	27.5	219	10.8	1080	10.1	803	>25	>1990	-0.035	300
EEC 2:17-24	24.0	191	10.1	1010	9.3	740	>25	>1990	-0.035	300
EEC 2:17TC-18	18.5	147	9.0	900	8.2	652	>25	>1990	-0.02	300
EEC 2:17TC-16	16.0	127	8.3	830	7.8	620	>25	>1990	-0.001	300
EEC 2:17TC-15	14.5	115	8.0	800	7.2	573	>20	>1590	-0.001	300

Note: The reversible temperature coefficient of Br is calculated in the temperature range between -50°C to 150°C.

The chart above represents more commonly used materials. Additional customized magnet materials available upon request. Please contact us at (717) 898-2294.





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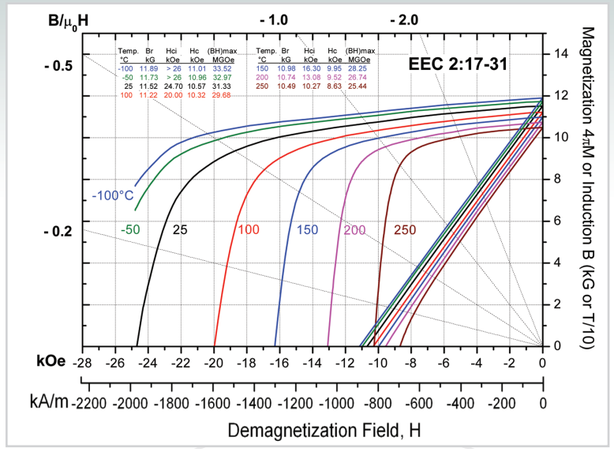

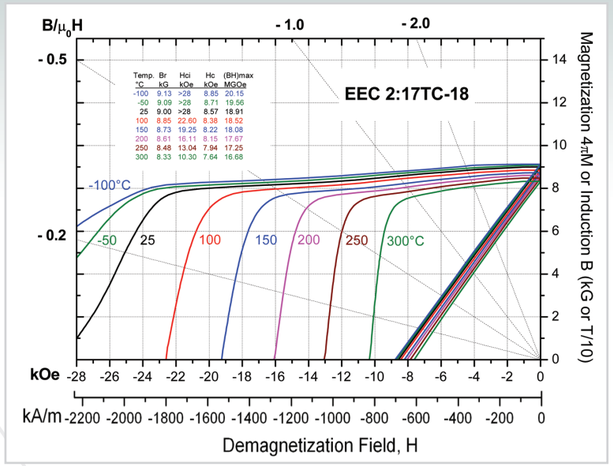

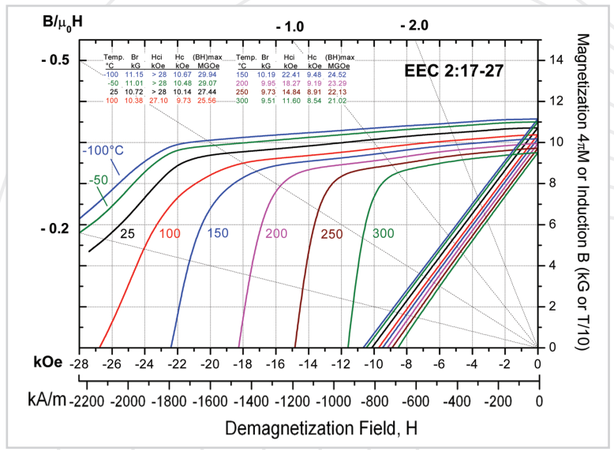

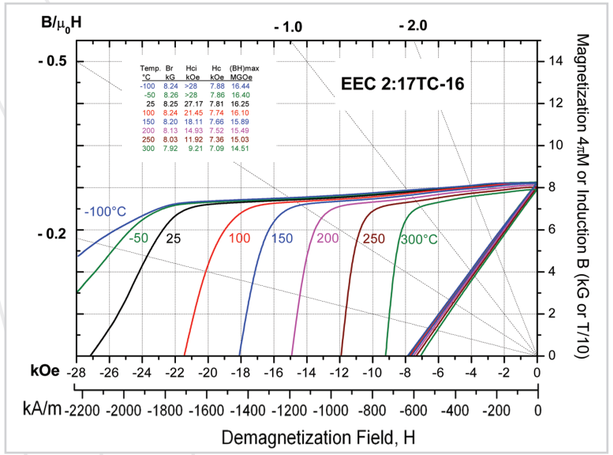

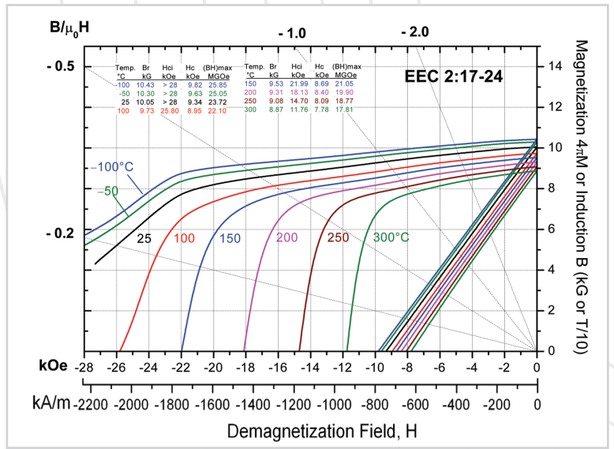

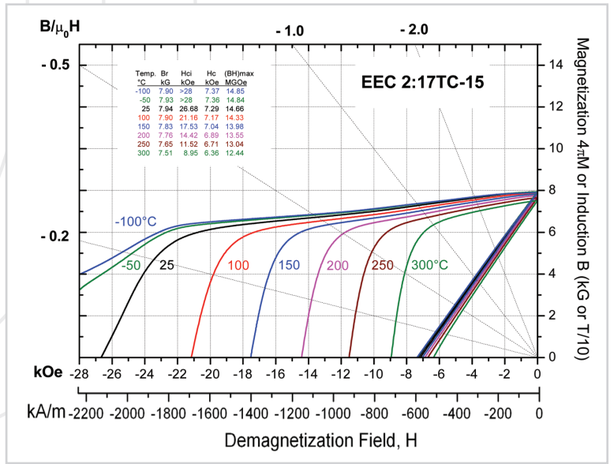

Mechanical Properties				
Magnet Type			**Sm-Co 1:5**	**Sm-Co 2:17**
Density	g/cm^3		8.5	8.4
	lbs/in^3		0.31	0.3
Compressive Strength	MPa		1000	650
	psi		$1.4x10^5$	$0.9x10^5$
Tensile Strength	MPa		40	39
	psi		$6x10^3$	$5x10^3$
Bending Strength	MPa		120	120
	psi		$1.7x10^4$	$1.7x10^4$
Young's Modulus	MPa		$110x10^3$	$150x10^3$
	psi		$1.6x10^7$	$2.2x10^7$
Stress Crack Resistance	$K_{IC}(N/mm^{3/2})$		60	45
Electrical Resistance	Ω·m		$5x10^{-7}$	$8x10^{-7}$
Vickers Hardness	Hv		550	600
Curie Temperature	°C		750	825
Specific Heat	J/(kg·K)		370	390
Coefficient of Thermal Expansion (at 20-100°C)	1/K	Perpendicular to c axis	$13x10^{-6}$	$12x10^{-6}$
		Parallel to c axis	$7x10^{-6}$	$10x10^{-6}$

Note: c axis denotes Easy Magnetization Direction (EMD) also called Magnetic Alignment Direction.

Typical Values - not to be used as specifications.

Please contact us at (717) 898-2294 if you need specification values.

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Typical Magnetic Properties										
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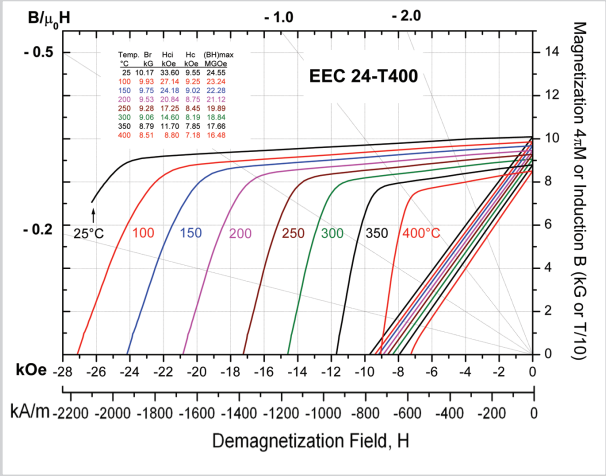
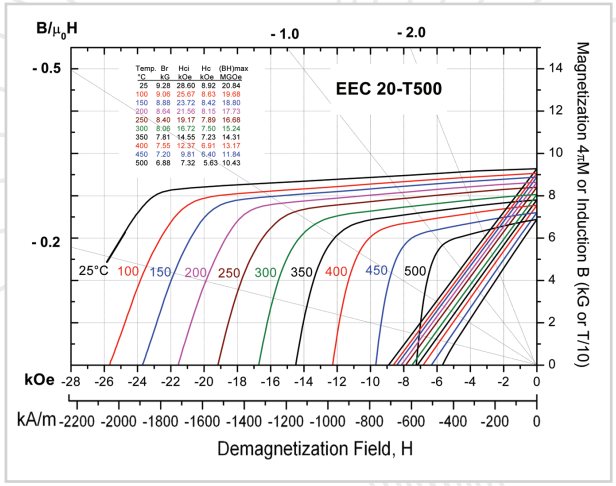
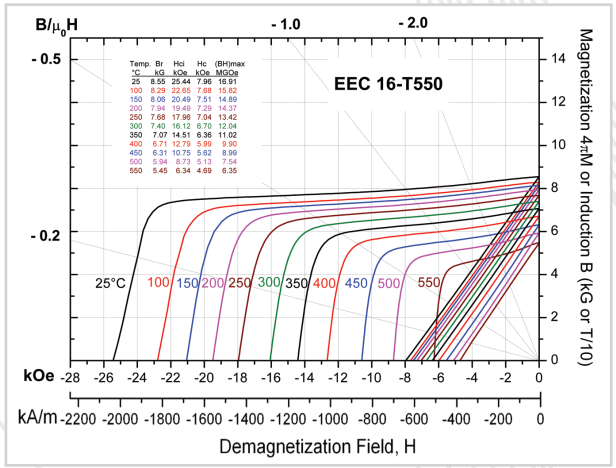
	MGOe	kJ/m3	kG	mT	kOe	kA/m	kOe	kA/m	% / °C	°C
Ultra-High Temperature										
EEC 24-T400	24.5	195	10.2	1020	9.6	763	>25	>1990	*	400 †
EEC 20-T500	21.0	167	9.3	930	8.9	708	>25	>1990	*	500 †
EEC 16-T550	16.0	127	8.5	850	7.5	598	>20	>1590	*	550 †







To learn more, visit us at www.electronenergy.com or call to speak to a specialist at 717.898.2294

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