

sintered samarium cobalt magnets

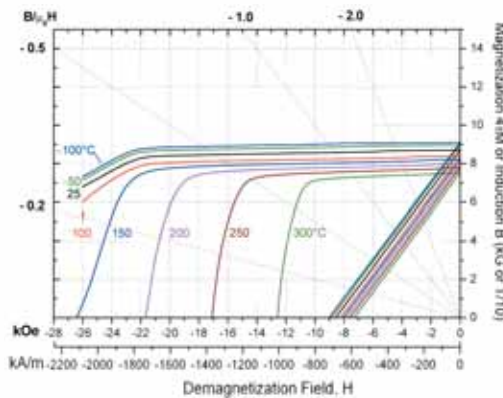
RARE EARTH MAGNETS FOR DEMANDING APPLICATIONS



Magnet Grade	Maximum Energy Product $(BH)_{max}$ (nominal)		Residual Induction B_r (nominal)		Coercive Force H_c (nominal)		Intrinsic Coercive Force H_{ci}		*Reversible Temperature Coefficient of B_r	Maximum Operating Temperature T_m
	MGOe	kJ/m ³	kG	T	kOe	kA/m	kOe	kA/m	% / °C	°C
SmCo5 EEC 1:5-18	18	143	8.6	0.86	8.4	668	>30	>2390	-0.04	300
Sm2Co17 EEC 2:17-31	31	247	11.5	1.15	10.5	835	>20	>1590	-0.035	250
EEC 2:17-27	27.5	219	10.8	1.08	10.1	803	>25	>1990	-0.035	300
EEC 2:17-24	24	191	10.1	1.01	9.3	740	>25	>1990	-0.035	300
Temp. Comp. EEC 2:17TC-18	18.5	147	9.0	0.90	8.2	652	>25	>1990	-0.02	300
EEC 2:17TC-16	16	127	8.3	0.83	7.8	620	>25	>1990	-0.001	300
EEC 2:17TC-15	14.5	115	8.0	0.80	7.2	573	>20	>1590	-0.001	300
EEC 1:5TC-15	15	119	7.8	0.78	7.7	612	>30	>2390	-0.03	300
EEC 1:5TC-13	13	103	7.3	0.73	7.2	573	>30	>2390	-0.02	300
EEC 1:5TC-9	9	72	6.1	0.61	6	477	>30	>2390	-0.001	300
Ultra-High Temp. EEC 24-T400	24.5	195	10.2	1.02	9.6	763	>25	>1990	-0.035	400
EEC 20-T500	21	167	9.3	0.93	8.9	708	>25	>1990	-0.035	500
EEC 16-T550	16	127	8.5	0.85	7.5	598	>20	>1590	-0.035	550

The chart above represents more commonly used materials. Additional customized magnet materials available upon request. Detailed second quadrant demagnetization curves and additional design data available at www.electronenergy.com

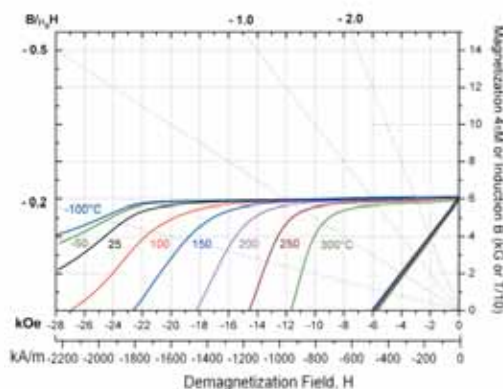
*Temperature range is from -50°C to 150°C



SmCo 1:5-18

Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
-100	9.10	>25	9.02	20.60
-50	8.96	>25	8.85	19.94
25	8.71	>25	8.58	18.81
100	8.39	>25	8.24	17.27
150	8.20	>25	8.05	16.46
200	7.98	21.67	7.80	15.51
250	7.77	17.10	7.58	14.69
300	7.53	12.59	7.29	13.71

Typical demagnetization curves of $4\pi M(H)$ and $B(H)$ at various temperatures from -100°C to 300°C for EEC SmCo 1:5-18.



SmCo 1:5-TC9

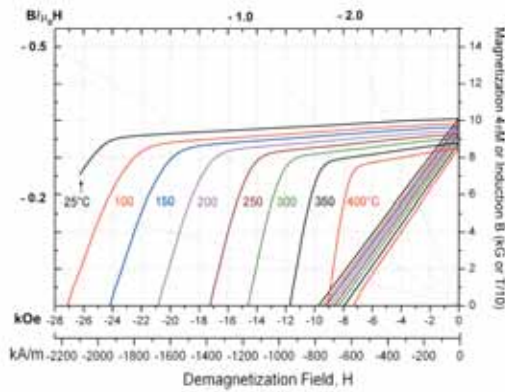
Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
-100	6.09	>25	6.06	9.21
-50	6.11	>25	6.07	9.28
25	6.11	>25	6.01	9.24
100	6.11	>25	5.99	9.25
150	6.11	22.63	5.97	9.20
200	6.07	18.25	5.92	8.93
250	6.00	14.58	5.84	8.71
300	5.89	11.66	5.68	8.35

Typical demagnetization curves of $4\pi M(H)$ and $B(H)$ at various temperatures from -100°C to 300°C for EEC temperature compensated SmCo 1:5-TC9.

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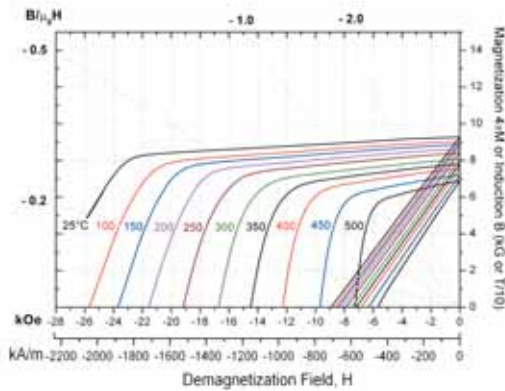
Ultra High Temperature SmCo Magnets



EEC 24 - T400

Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
25	10.17	>25	9.55	24.55
100	9.93	>25	9.25	23.24
150	9.75	24.18	9.02	22.28
200	9.53	20.84	8.75	21.12
250	9.28	17.25	8.45	19.89
300	9.06	14.60	8.19	18.84
350	8.79	11.70	7.85	17.66
400	8.51	8.80	7.18	16.48

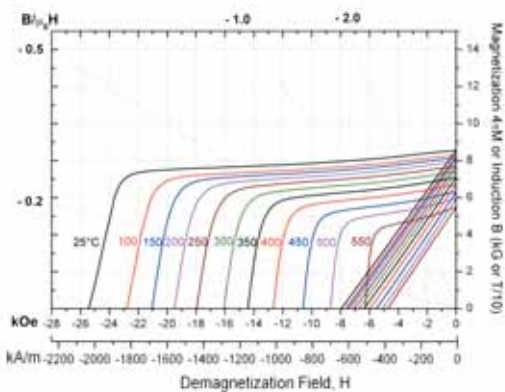
Typical demagnetization curves of $4\pi M(H)$ and $B(H)$ at various temperatures from 25°C to 400°C for EEC ultra-high temperature SmCo 2:17-T400.



EEC 20 - T500

Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
25	9.28	>25	8.92	20.84
100	9.06	25.67	8.63	19.68
150	8.88	23.72	8.42	18.80
200	8.64	21.56	8.15	17.73
250	8.40	19.17	7.89	16.68
300	8.06	16.72	7.50	15.24
350	7.81	14.55	7.23	14.31
400	7.55	12.37	6.91	13.17
450	7.20	9.81	6.40	11.84
500	6.88	7.32	5.63	10.43

Typical demagnetization curves of $4\pi M(H)$ and $B(H)$ at various temperatures from 25°C to 500°C for EEC ultra-high temperature SmCo 2:17-T500.



EEC 16 - T550

Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
25	8.55	25.44	7.96	16.91
100	8.29	22.65	7.68	15.82
150	8.06	20.49	7.51	14.89
200	7.94	19.49	7.29	14.37
250	7.68	17.96	7.04	13.42
300	7.40	16.12	6.70	12.04
350	7.07	14.51	6.36	11.02
400	6.71	12.79	5.99	9.90
450	6.31	10.75	5.62	8.99
500	5.94	8.73	5.13	7.54
550	5.45	6.34	4.69	6.35

Typical demagnetization curves of $4\pi M(H)$ and $B(H)$ at various temperatures from 25°C to 550°C for EEC ultra-high temperature SmCo 2:17-T550.



Specialists in Rare Earth Magnets and Magnet Systems

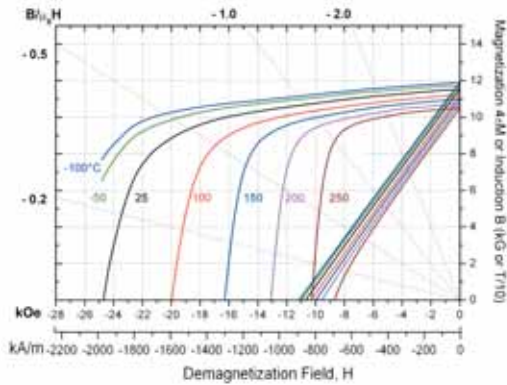
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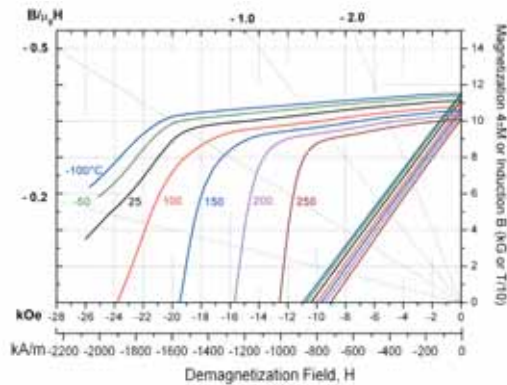
RARE EARTH MAGNETS FOR DEMANDING APPLICATIONS



SmCo 2:17 - 31

Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
-100	11.89	>25	11.01	33.52
-50	11.73	>25	10.96	32.97
25	11.52	24.70	10.57	31.33
100	11.22	20.00	10.32	29.68
150	10.98	16.30	9.95	28.25
200	10.74	13.08	9.52	26.74
250	10.49	10.27	8.63	25.44

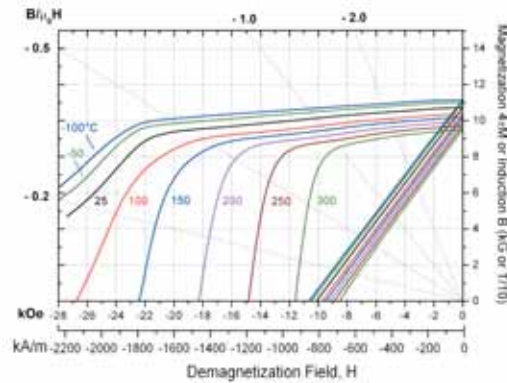
Typical demagnetization curves of $4\pi M(H)$ and $B(H)$ at various temperatures from -100°C to 250°C for EEC SmCo 2:17-31.



SmCo 2:17 - 29

Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
-100	11.52	>25	10.84	31.73
-50	11.37	>25	10.72	31.02
25	11.12	>25	10.36	29.39
100	10.80	23.85	10.03	27.62
150	10.59	19.36	9.72	26.39
200	10.35	15.68	9.36	25.02
250	10.11	12.56	8.77	23.79

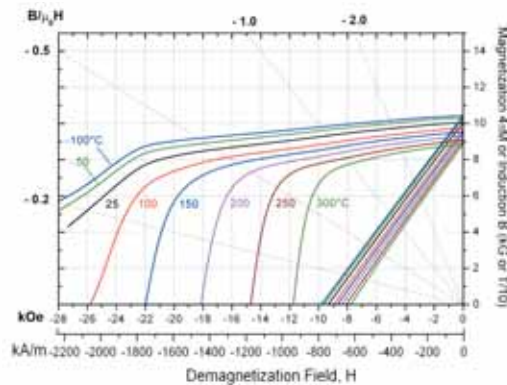
Typical demagnetization curves of $4\pi M(H)$ and $B(H)$ at various temperatures from -100°C to 250°C for EEC SmCo 2:17-29.



SmCo 2:17 - 27

Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
-100	11.15	>25	10.67	29.94
-50	11.01	>25	10.48	29.07
25	10.72	>25	10.14	27.44
100	10.38	>25	9.73	25.56
150	10.19	22.41	9.48	24.52
200	9.95	18.27	9.19	23.29
250	9.73	14.84	8.91	22.13
300	9.51	11.60	8.54	21.02

Typical demagnetization curves of $4\pi M(H)$ and $B(H)$ at various temperatures from -100°C to 300°C for EEC SmCo 2:17-27.



SmCo 2:17 - 24

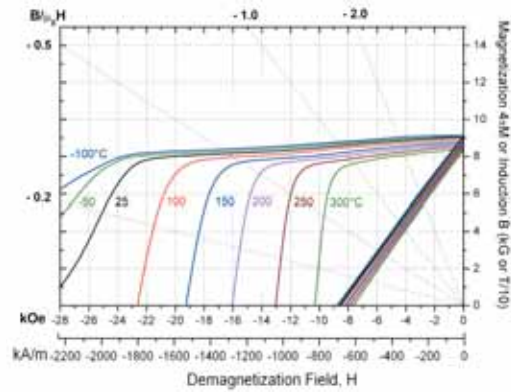
Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
-100	10.43	>25	9.82	25.85
-50	10.30	>25	9.63	25.05
25	10.05	>25	9.34	23.72
100	9.73	25.80	8.95	22.10
150	9.53	21.99	8.69	21.05
200	9.31	18.13	8.40	19.90
250	9.08	14.70	8.09	18.77
300	8.87	11.76	7.78	17.81

Typical demagnetization curves of $4\pi M(H)$ and $B(H)$ at various temperatures from -100°C to 300°C for EEC SmCo 2:17-24.

Temperature Compensated SmCo 2:17 - TC18

Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
-100	9.13	>25	8.85	20.15
-50	9.09	>25	8.71	19.56
25	9.00	>25	8.57	18.91
100	8.85	22.60	8.38	18.52
150	8.73	19.25	8.22	18.08
200	8.61	16.11	8.15	17.67
250	8.48	13.04	7.94	17.25
300	8.33	10.30	7.64	16.68

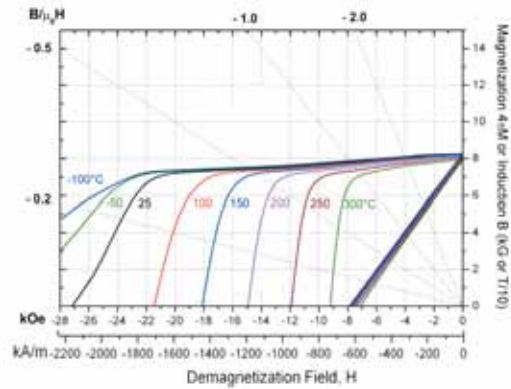
Typical demagnetization curves of 4 M(H) and B(H) at various temperatures from -100°C to 300°C for EEC temperature compensated SmCo 2:17-TC18.



SmCo 2:17 - TC16

Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
-100	8.24	>25	7.88	16.44
-50	8.26	>25	7.86	16.40
25	8.25	>25	7.81	16.30
100	8.24	21.45	7.74	16.10
150	8.20	18.11	7.66	15.89
200	8.13	14.93	7.52	15.49
250	8.03	11.92	7.36	15.03
300	7.92	9.21	7.09	14.51

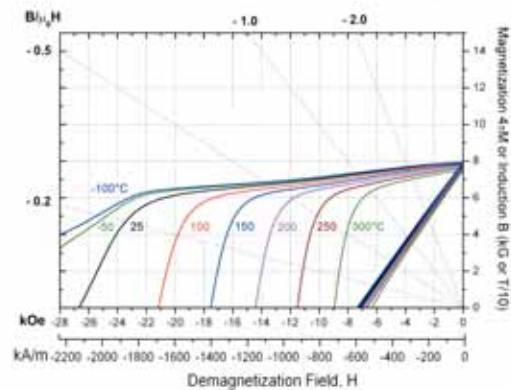
Typical demagnetization curves of 4 μ M(H) and B(H) at various temperatures from -100°C to 300°C for EEC temperature compensated SmCo 2:17-TC16.



SmCo 2:17 - TC15

Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
-100	7.90	>25	7.37	14.85
-50	7.93	>25	7.36	14.84
25	7.94	>25	7.29	14.66
100	7.90	21.16	7.17	14.33
150	7.83	17.53	7.04	13.98
200	7.76	14.42	6.89	13.55
250	7.65	11.52	6.71	13.04
300	7.51	8.95	6.36	12.44

Typical demagnetization curves of 4 μ M(H) and B(H) at various temperatures from -100°C to 300°C for EEC temperature compensated SmCo 2:17-TC15.



SmCo 2:17 - TC13

Temp	B_r	H_{ci}	H_c	$(BH)_{max}$
°C	kG	kOe	kOe	MGOe
-100	7.29	>25	6.90	12.85
-50	7.35	>25	6.86	12.98
25	7.40	24.5	6.77	13.07
100	7.49	19.5	6.77	13.15
150	7.51	16.4	6.72	13.18
200	7.50	13.4	6.63	13.11
250	7.48	10.6	6.49	12.89
300	7.34	8.0	6.01	12.64

Typical demagnetization curves of 4 μ M(H) and B(H) at various temperatures from -100°C to 300°C for EEC temperature compensated SmCo 2:17-TC13.

