FERRITE (CER S, ISOCER)

The birth of this family of magnets was announced in 1952 (isotropic) and 1954 (anisotropic). Also known as Ceramic Magnets, they are mainly Strontium based ($SrFe_2O_3$), manufactured with Strontium Carbonate additive to increase performances from the obsolete Barium based ($BaFe_2O_3$).
The process consists in milling the raw materials compound hexaferrite into single crystals approximating a single domain in size. For highest grades particles are even smaller than 1µ. Then the powder is wet or dry pressed in a die under the influence of a magnetic field (for anisotropic grades).
After that, the pressed compacts are sintered in ovens at high temperatures then finished. Their good coercive force results from high crystal anisotropy of Strontium iron oxyde.
Nowadays, Ferrite is the cheapest magnetic material available. It is very hard and brittle and must be ground to obtain tight mechanical tolerances. Ferrite is not conductive and has high resistance against corrosion, acids, salts, lubricants and gases.

GRADES	REMANENCE		COERCIVITY				MAXIMUM ENERGY PRODUCT		AVERAGE TEMPERATURE COEFFICIENTS (20 ~ 100°C)		SUGGESTED MAXIMUM OPERATING TEMPERATURE
	Br		HcB		HcJ		BHmax		Tk		B/H > 0,7 Open Circuit
	G	mT	Oe	kA/m	Oe	kA/m	MGOe	kJ/m^3	%/°C Br	%/°C HcJ	°C
ISOCER 10	2000 - 2100	200 - 210	1600 - 2000	128 - 160	1650- 2100	132 - 165	0,8 - 1,2	6,4 - 9,6	- 0,2	+ 0,3	250 °C
CER SJ	3500 - 3800	350 - 380	2700 - 3000	216 - 240	2775 - 3075	222 - 247	2,9 - 3,3	23,1 - 23,6	- 0,2	+ 0,3	
CER S30B35	3800 - 4200	380 - 420	2000 - 2700	160 - 216	2060 - 2780	165 - 222	3,3 - 3,7	26,3- 29,5	- 0,2	+ 0,3	
CER S30BH	3800 - 4000	380 - 400	2800 - 3000	224 - 240	2880 - 3090	231 - 247	3,4 - 3,8	27,1 - 30,3	- 0,2	+ 0,3	
CER S30H1	3800 - 4000	380 - 400	2890 - 3455	230 - 275	2955 - 3650	235 - 290	3,4 - 4,1	27,0 - 32,5	- 0,2	+ 0,3	
CER S39/34	3900 - 4100	390 - 410	3200 - 3400	255 - 271	3400 - 3600	271 - 287	3,6 - 4,0	28,6 - 31,8	- 0,2	+ 0,3	
CER S39/39	3900 - 4100	390 - 410	3300 - 3500	263 - 279	3900 - 4100	311 - 326	3,9 - 4,1	31,0 - 32,0	- 0,2	+ 0,3	
CER STG1B	4000 - 4100	400 - 410	1900 - 2200	151 - 175	2000 - 2300	159 - 183	3,6 - 4,1	28,6 - 32,6	- 0,2	+ 0,3	
CER S35	4000 - 4400	400- 440	2200 - 2800	176 - 224	2260 - 2880	181 - 131	3,8 - 4,2	30,3 - 33,4	- 0,2	+ 0,3	
CER S40/40	4000 - 4200	400 - 420	3390 - 3690	270 - 294	3860 - 4140	307 - 330	3,8 - 4,2	30,3 - 30,4	- 0,2	+ 0,3	
CER STG7BF	4000 - 4200	400 - 420	3500 - 3800	279 - 302	4400 - 4800	350 - 382	3,6 - 4,0	28,6 - 31,8	- 0,2	+ 0,3	
CER STG2BB	4100 - 4300	410 - 430	2700 - 3000	214 - 239	2775 - 3075	222 - 247	4,0 - 4,4	31,8 - 35,0	- 0,2	+ 0,3	
CER STG7BE	4100 - 4300	410 - 430	3500 - 3900	279 - 310	3900 - 4200	310 - 334	3,8 - 4,2	29,8 - 33,4	- 0,2	+ 0,3	
CER STG7BB	4200 - 4400	420- 440	3200 - 3700	255 - 294	3400 - 3800	271 - 302	4,0 - 4,4	31,8 - 35,0	- 0,2	+ 0,3	

Other grades available on request.

Curie temperature	°C	450
Recoil Permeability (μ_r)	-	1,05 - 1,1
Saturation field	kOe	14
Electrical Resistivity	Ω m	$> 10^4$
Compressive strength	N/mm^2	~ 700
Density	g/cm^3	~ 5
Flexural strength	N/mm^2	55
Tensile strength	N/mm^2	50
Vickers Hardness	HV	~ 500
Young's modulus	$10^3 N/mm^2$	~ 150
Specific Heat	J/g°C	0,8
Thermal Conductivity	W/m*°C	~ 5
Thermal Expansion coef //	10^{-6}/°C	14
Thermal Expansion coef ⊥	10^{-6}/°C	9

Characterization of physical and mechanical properties on standard sample > 10mm x 10mm x 10mm for magnetic properties and > 10 x 10 x 5 for mechanical properties. Because of permanent losses after temperature exposure, depending on B/H value, consult us for more details.

The validity of the reported data is referred to the date of issue.
04/2009

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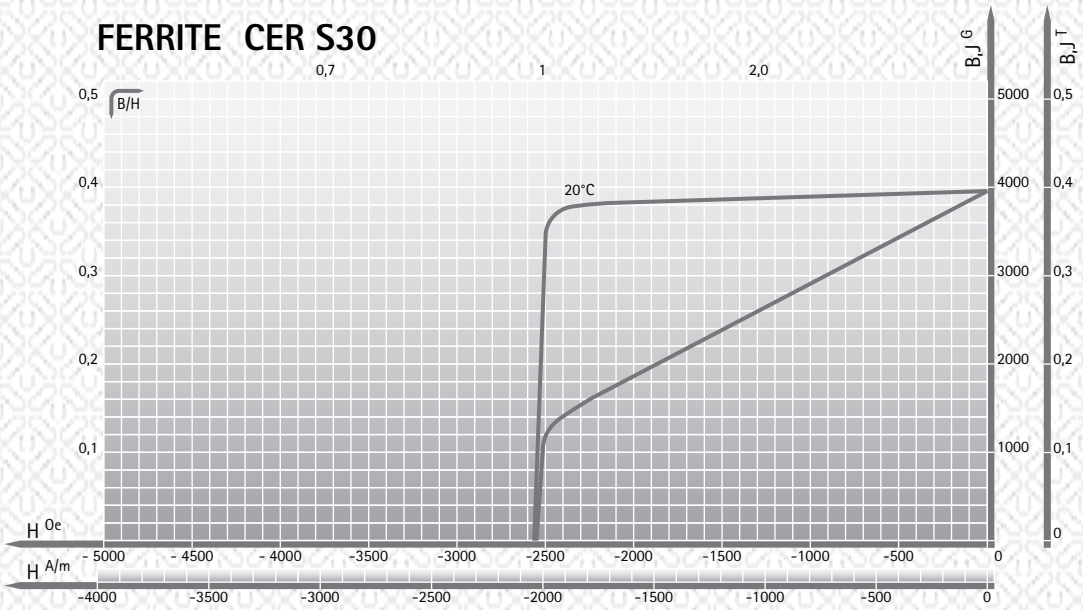
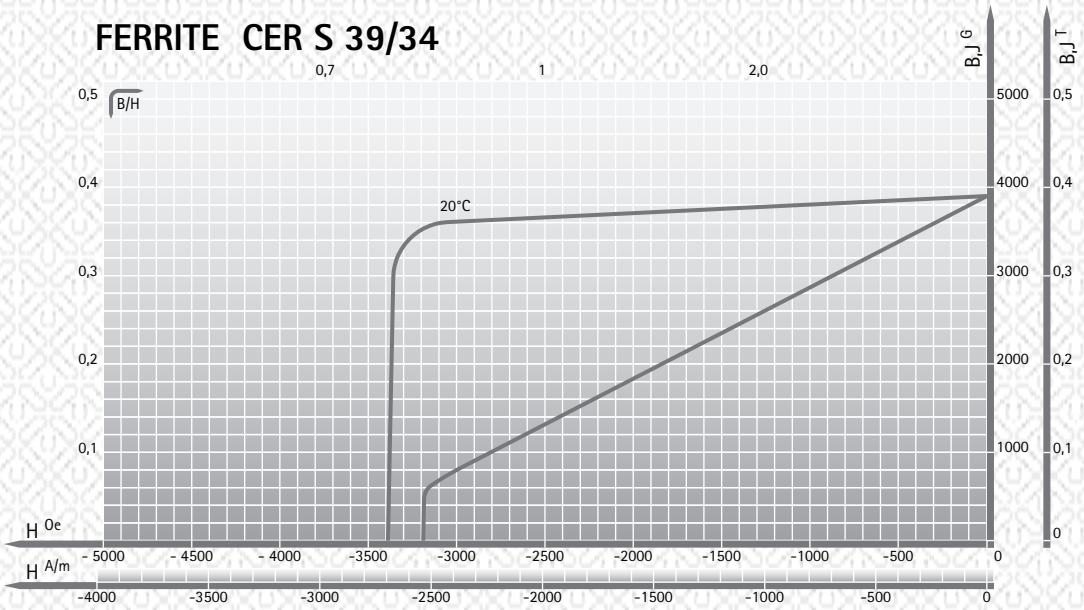
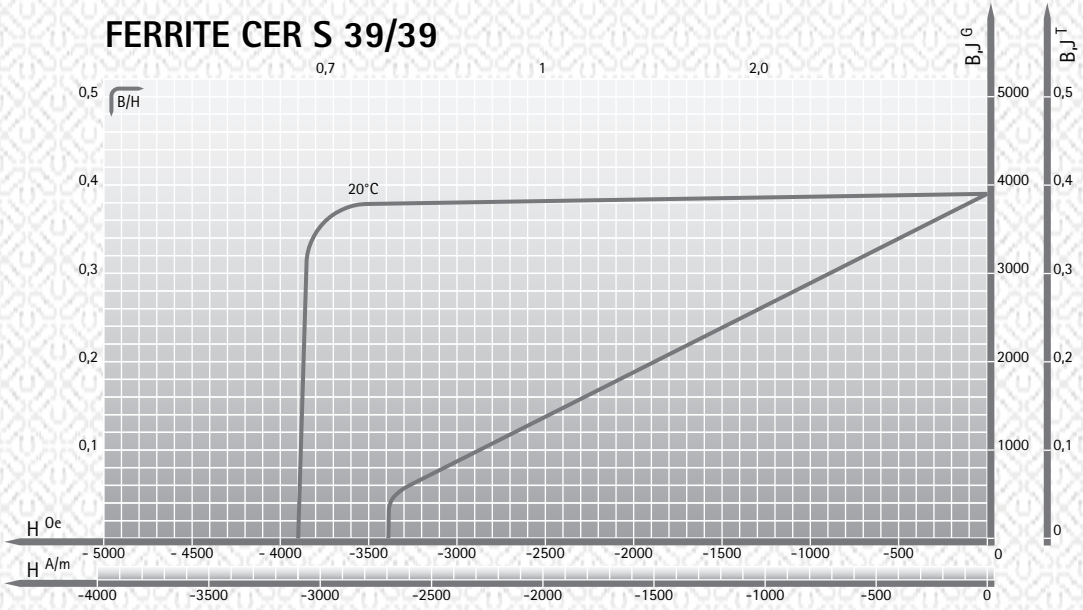
FERRITE CER S30



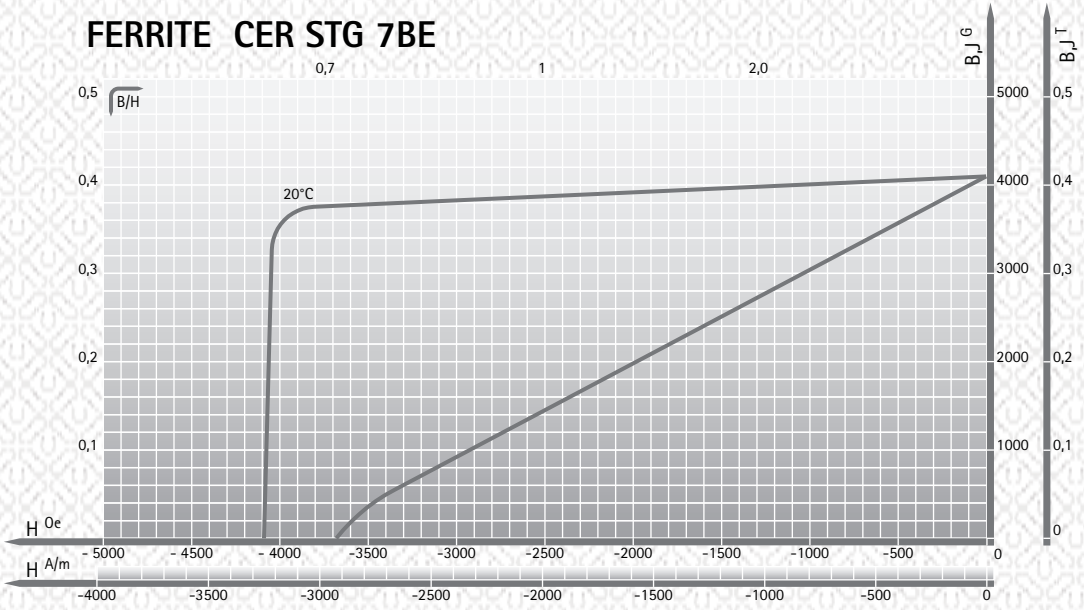
FERRITE CER S 39/34



FERRITE CER S 39/39



FERRITE CER STG 7BE



Measured samples data.

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