REN | GEN

Sintered NdFeB

GRADES	Br		HcB		HcJ		BH max		Max. Working Temp.**
	G	T	kOe	kA/m	kOe	kA/m	MGOe	kJ/m³	°C
REN35SH	11.800 - 12.400	1,18 - 1,24	≥ 11,1	≥ 883	≥ 20	≥ 1.592	33 - 38	263 - 302	140

MATERIAL TYPE
Metallic Alloy

SURFACE PROTECTION
NiCuNi / Zinc / Epoxy / Passivation / Rilsan / Aluminum / Parylene

ORIENTATION
Axial / Diametral / Radial

MAGNETIZATION
Single or multiple poles on the functional surface

TEMPERATURE BEHAVIOR

Br TEMPERATURE COEFFICIENT*	% / °C	-0,10 / -0,12
HcJ TEMPERATURE COEFFICIENT*	% / °C	-0,40 / -0,78

*The temperature coefficients are nominal reference values only. They can vary for different temperatures and don't need to be linear.
**The maximum operating temperature is depending on the magnet shape, size and on the specific application.

PHYSICAL AND MECHANICAL TYPICAL PROPERTIES

CURIE TEMPERATURE	°C	>310
RECOIL PERMEABILITY	(μr)	1,05
SATURATION FIELD	kOe	30-60
ELECTRICAL RESISTIVITY	Ωm	$150x10^{-8}$
COMPRESSIVE STRENGTH	N/mm^2	~ 1.050
DENSITY	g/cm^3	~ 7,5
FLEXURAL STRENGTH	N/mm^2	250
TENSILE STRENGTH	N/mm^2	75
VICKERS HARDNESS	HV	~ 600
YOUNG'S MODULUS	N/mm^2	$160x10^3$
SPECIFIC HEAT	kcal/kg/°C	0,12
THERMAL CONDUCTIVITY	kcal/m/hr/°C	~ 7,7
THERMAL EXPANSION COEF ⊥ c	10^{-6}/ °C	-1,5
THERMAL EXPANSION COEF // c	10^{-6}/ °C	5

CIBAS GROUP

REN | GEN

Sintered NdFeB

GRADES	Br		HcB		HcJ		BH max		Max. Working Temp.**
	G	T	kOe	kA/m	kOe	kA/m	MGOe	kJ/m³	°C
REN35	11.800 - 12.400	1,18 - 1,24	≥ 10,8	≥ 860	≥ 12	≥ 955	33 - 38	263 - 302	80
REN38	12.300 - 12.900	1,23 - 1,29	≥ 10,8	≥ 860	≥ 12	≥ 955	36 - 41	286 - 326	80
REN40	12.600 - 13.200	1,26 - 1,32	≥ 10,8	≥ 860	≥ 12	≥ 955	38 - 43	302 - 342	80
REN42	13.000 - 13.600	1,30 - 1,36	≥ 10,8	≥ 860	≥ 12	≥ 955	40 - 45	318 - 358	80
REN45	13.200 - 13.800	1,32 - 1,38	≥ 10,5	≥ 836	≥ 12	≥ 955	42 - 47	334 - 374	80
REN48	13.700 - 14.300	1,37 - 1,43	≥ 10,5	≥ 836	≥ 12	≥ 955	45 - 50	358 - 398	80
REN50	13.900 - 14.400	1,39 - 1,44	≥ 10,5	≥ 836	≥ 12	≥ 955	47 - 51	374 - 406	80
REN52	14.200 - 14.600	1,42 - 1,46	≥ 10,5	≥ 836	≥ 12	≥ 955	49 - 54	390 - 430	80
REN35M	11.800 - 12.400	1,18 - 1,24	≥ 11,0	≥ 876	≥ 14	≥ 1.114	33 - 38	263 - 302	100
REN38M	12.300 - 12.900	1,23 - 1,29	≥ 11,5	≥ 916	≥ 14	≥ 1.114	36 - 41	287 - 326	100
REN40M	12.600 - 13.200	1,26 - 1,32	≥ 11,8	≥ 939	≥ 14	≥ 1.114	38 - 43	302 - 342	100
REN42M	13.000 - 13.600	1,30 - 1,36	≥ 12,0	≥ 955	≥ 14	≥ 1.114	40 - 45	318 - 358	100
REN45M	13.200 - 13.800	1,32 - 1,38	≥ 12,2	≥ 971	≥ 14	≥ 1.114	42 - 47	334 - 374	100
REN48M	13.700 - 14.300	1,37 - 1,43	≥ 12,5	≥ 995	≥ 14	≥ 1.114	45 - 50	358 - 398	100
REN50M	13.900 - 14.400	1,39 - 1,44	≥ 12,7	≥ 1.011	≥ 14	≥ 1.114	47 - 52	374 - 414	100
REN52M	14.200 - 14.600	1,42 - 1,46	≥ 12,8	≥ 1.019	≥ 14	≥ 1.114	49 - 54	390 - 430	100
REN35H	11.800 - 12.400	1,18 - 1,24	≥ 11	≥ 876	≥ 17	≥ 1.353	33 - 38	263 - 302	120
REN38H	12.300 - 12.900	1,23 - 1,29	≥ 11,5	≥ 916	≥ 17	≥ 1.353	36 - 41	287 - 326	120
REN40H	12.600 - 13.200	1,26 - 1,32	≥ 11,8	≥ 939	≥ 17	≥ 1.353	38 - 43	302 - 342	120
REN44H	13.000 - 13.600	1,30 - 1,36	≥ 12,1	≥ 963	≥ 17	≥ 1.353	41 - 46	326 - 366	120
REN46H	13.300 - 13.900	1,33 - 1,39	≥ 12,5	≥ 995	≥ 17	≥ 1.353	43 - 48	342 - 382	120
REN48H	13.600 - 14.100	1,36 - 1,41	≥ 12,7	≥ 1.011	≥ 16	≥ 1.273	45 - 50	358 - 398	120
REN50H	13.900 - 14.300	1,39 - 1,43	≥ 13,0	≥ 1.035	≥ 16	≥ 1.273	47 - 52	374 - 414	120
REN33SH	11.400 - 12.000	1,14 - 1,20	≥ 10,7	≥ 851	≥ 20	≥ 1.592	31 - 36	247 - 287	140
REN35SH	11.800 - 12.400	1,18 - 1,24	≥ 11,1	≥ 883	≥ 20	≥ 1.592	33 - 38	263 - 302	140
REN38SH	12.300 - 12.900	1,23 - 1,29	≥ 11,6	≥ 923	≥ 20	≥ 1.592	36 - 41	287 - 326	140
REN40SH	12.600 - 13.200	1,26 - 1,32	≥ 11,8	≥ 939	≥ 20	≥ 1.592	38 - 43	302 - 342	140
REN42SH	12.800 - 13.400	1,28 - 1,34	≥ 12,0	≥ 955	≥ 20	≥ 1.592	39 - 44	310 - 350	140
REN45SH	13.200 - 13.700	1,32 - 1,37	≥ 12,4	≥ 987	≥ 20	≥ 1.592	42 - 47	334 - 374	140

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CIBAS SINTERED MAGNETS

REN | GEN

Sintered NdFeB

GRADES	Br		HcB		HcJ		BH max		Max. Working Temp.**
	G	T	kOe	kA/m	kOe	kA/m	MGOe	kJ/m³	°C
REN48SH	13.600 - 14.100	1,36 - 1,41	≥ 12,7	≥ 1.011	≥ 19	≥ 1.512	45 - 50	358 - 398	140
REN3ESH-B	11.400 - 12.000	1,14 - 1,20	≥ 10,7	≥ 851	≥ 22	≥ 1.751	31 - 36	247 - 287	150
REN35SH-B	11.800 - 12.400	1,18 - 1,24	≥ 11,1	≥ 883	≥ 22	≥ 1.751	33 - 38	263 - 302	150
REN38SH-B	12.300 - 12.900	1,23 - 1,29	≥ 11,6	≥ 923	≥ 22	≥ 1.751	36 - 41	287 - 326	150
REN40SH-B	12.600 - 13.200	1,26 - 1,32	≥ 11,8	≥ 939	≥ 22	≥ 1.751	48 - 43	302 - 342	150
REN42SH-B	12.800 - 13.400	1,28 - 1,34	≥ 12,0	≥ 955	≥ 22	≥ 1.751	39 - 44	310 - 350	150
REN45SH-B	13.200 - 13.700	1,32 - 1,37	≥ 12,4	≥ 987	≥ 22	≥ 1.751	42 - 47	334 - 374	150
REN48SH-B	13.600 - 14.000	1,36 - 1,40	≥ 12,7	≥ 1.011	≥ 22	≥ 1.751	45 - 50	358 - 398	150
REN30UH	10.900 - 11.500	1,09 - 1,15	≥ 10,2	≥ 812	≥ 25	≥ 1.990	28 - 33	223 - 263	160
REN33UH	11.400 - 12.000	1,14 - 1,20	≥ 10,8	≥ 859	≥ 25	≥ 1.990	31 - 36	247 - 287	160
REN35UH	11.800 - 12.400	1,18 - 1,24	≥ 11,2	≥ 891	≥ 25	≥ 1.990	33 - 38	263 - 302	160
REN38UH	12.200 - 12.800	1,22 - 1,28	≥ 11,6	≥ 923	≥ 25	≥ 1.990	36 - 41	287 - 326	160
REN40UH	12.600 - 13.200	1,26 - 1,32	≥ 12,0	≥ 955	≥ 25	≥ 1.990	38 - 43	302 - 342	160
REN42UH	12.800 - 13.400	1,28 - 1,34	≥ 12,2	≥ 971	≥ 25	≥ 1.990	39 - 44	310 - 350	160
REN45UH	13.200 - 13.700	1,32 - 1,37	≥ 12,4	≥ 987	≥ 25	≥ 1.990	42 - 47	334 - 374	160
REN30UH-B	10.900 - 11.500	1,09 - 1,15	≥ 10,2	≥ 812	≥ 27	≥ 2.149	28 - 33	223 - 263	170
REN33UH-B	11.400 - 12.000	1,14 - 1,20	≥ 10,8	≥ 859	≥ 27	≥ 2.149	31 - 36	247 - 287	170
REN35UH-B	11.800 - 12.400	1,18 - 1,24	≥ 11,2	≥ 891	≥ 27	≥ 2.149	33 - 38	263 - 302	170
REN38UH-B	12.200 - 12.800	1,22 - 1,28	≥ 11,6	≥ 923	≥ 27	≥ 2.149	36 - 41	287 - 326	170
REN40UH-B	12.600 - 13.200	1,26 - 1,32	≥ 12,0	≥ 955	≥ 27	≥ 2.149	38 - 43	302 - 342	170
REN42UH-B	12.800 - 13.300	1,28 - 1,33	≥ 12,2	≥ 971	≥ 27	≥ 2.149	39 - 44	310 - 350	170
REN45UH-B	13.200 - 13.600	1,32 - 1,36	≥ 12,4	≥ 987	≥ 27	≥ 2.149	42 - 47	334 - 374	170
REN30EH	10.900 - 11.500	1,09 - 1,15	≥ 10,3	≥ 820	≥ 30	≥ 2.388	28 - 33	223 - 263	180
REN33EH	11.400 - 12.000	1,14 - 1,20	≥ 10,8	≥ 859	≥ 30	≥ 2.388	31 - 36	247 - 287	180
REN35EH	11.700 - 12.300	1,17 - 1,23	≥ 11,1	≥ 883	≥ 30	≥ 2.388	33 - 38	263 - 302	180
REN38EH	12.200 - 12.800	1,22 - 1,28	≥ 11,6	≥ 923	≥ 30	≥ 2.388	36 - 41	287 - 326	180
REN40EH	12.600 - 13.100	1,26 - 1,31	≥ 12,0	≥ 955	≥ 30	≥ 2.388	38 - 43	302 - 342	180
REN30EH-B	10.900 - 11.500	1,09 - 1,15	≥ 10,3	≥ 820	≥ 32	≥ 2.547	28 - 33	223 - 263	190
REN33EH-B	11.400 - 12.000	1,14 - 1,20	≥ 10,8	≥ 859	≥ 32	≥ 2.547	31 - 36	247 - 287	190
REN35EH-B	11.700 - 12.300	1,17 - 1,23	≥ 11,1	≥ 883	≥ 32	≥ 2.547	33 - 38	263 - 302	190
REN38EH-B	12.200 - 12.800	1,22 - 1,28	≥ 11,6	≥ 923	≥ 32	≥ 2.547	36 - 41	287 - 326	190
REN40EH-B	12.600 - 13.100	1,26 - 1,31	≥ 12,0	≥ 955	≥ 32	≥ 2.547	38 - 43	302 - 342	190
REN28EHS	10.500 - 11.100	1,05 - 1,11	≥ 10,0	≥ 780	≥ 35	≥ 2.786	26 - 31	207 - 247	200
REN30EHS	10.900 - 11.500	1,09 - 1,15	≥ 10,3	≥ 820	≥ 35	≥ 2.786	28 - 33	223 - 263	200
REN33EHS	11.300 - 11.900	1,13 - 1,19	≥ 10,7	≥ 852	≥ 35	≥ 2.786	31 - 36	247 - 287	200

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REN | GEN

GRADES	Br		HcB		HcJ		BH max		Max. Working Temp.**
	G	T	kOe	kA/m	kOe	kA/m	MGOe	kJ/m³	°C
REN35EHS	11.600 - 12.200	1,16 - 1,22	≥ 11,0	≥ 876	≥ 35	≥ 2.786	33 - 38	263 - 302	200
REN38EHS	12.200 - 12.800	1,22 - 1,28	≥ 11,6	≥ 923	≥ 34	≥ 2.706	36 - 41	287 - 326	200
REN28EHS-B	10.500 - 11.100	1,05 - 1,11	≥ 10,0	≥ 780	≥ 37	≥ 2.945	26 - 31	207 - 247	220
REN30EHS-B	10.900 - 11.500	1,09 - 1,15	≥ 10,3	≥ 820	≥ 37	≥ 2.945	28 - 33	223 - 263	220
REN33EHS-B	11.300 - 11.900	1,13 - 1,19	≥ 10,7	≥ 852	≥ 37	≥ 2.945	31 - 36	247 - 287	220
REN35EHS-B	11.600 - 12.100	1,16 - 1,21	≥ 11,0	≥ 876	≥ 37	≥ 2.945	33 - 38	263 - 302	220
REN38EHS-B	12.000 - 12.400	1,20 - 1,24	≥ 11,2	≥ 892	≥ 37	≥ 2.945	36 - 41	287 - 326	220

Sintered NdFeB | Grain Boundary Diffusion Process (GBDP)

GBD process limits: minimum magnet thickness 1,5mm / maximum magnet thickness 6,0mm

For magnets with thickness between 4mm and 6mm: the nominal HcJ value will be 1,5KOe lower than its typical value.

GRADES	Br		HcB		HcJ		BH max		Max. Working Temp.**
	G	T	kOe	kA/m	kOe	kA/m	MGOe	kJ/m³	°C
GEN50SH	13.800 - 14.300	1,38 - 1,43	≥ 13,0	≥ 1.035	≥ 20	≥ 1.592	46 - 50	366 - 398	120
GEN52SH	14.200 - 14.600	1,42 - 1,46	≥ 13,2	≥ 1.050	≥ 20	≥ 1.592	48 - 52	382 - 414	120
GEN50SH-B	13.800 - 14.300	1,38 - 1,43	≥ 13,0	≥ 1.035	≥ 22	≥ 1.751	46 - 50	366 - 398	135
GEN52SH-B	14.100 - 14.500	1,41 - 1,45	≥ 13,2	≥ 1.050	≥ 22	≥ 1.751	48 - 51	382 - 406	135
GEN48UH	13.500 - 14.000	1,35 - 1,40	≥ 12,7	≥ 1.011	≥ 25	≥ 1.990	44 - 48	350 - 382	150
GEN50UH	13.800 - 14.300	1,38 - 1,43	≥ 13,0	≥ 1.035	≥ 25	≥ 1.990	46 - 50	366 - 398	150
GEN45UH-B	13.200 - 13.700	1,32 - 1,37	≥ 12,4	≥ 987	≥ 27	≥ 2.149	42 - 46	334 - 366	165
GEN48UH-B	13.500 - 14.000	1,35 - 1,40	≥ 12,7	≥ 1.011	≥ 27	≥ 2.149	44 - 48	350 - 382	165
GEN44EH	12.900 - 13.400	1,29 - 1,34	≥ 12,2	≥ 971	≥ 30	≥ 2.388	41 - 45	326 - 358	180
GEN46EH	13.400 - 13.800	1,34 - 1,38	≥ 12,5	≥ 995	≥ 30	≥ 2.388	43 - 47	342 - 374	180
GEN42EH-B	12.700 - 13.200	1,27 - 1,32	≥ 12,0	≥ 955	≥ 32	≥ 2.547	39 - 43	310 - 342	190
GEN45EH-B	13.200 - 13.600	1,32 - 1,36	≥ 12,4	≥ 987	≥ 32	≥ 2.547	42 - 46	334 - 358	190
GEN40EHS	12.500 - 13.000	1,25 - 1,30	≥ 12,0	≥ 955	≥ 35	≥ 2.786	38 - 42	302 - 334	200
GEN44EHS	13.000 - 13.400	1,30 - 1,34	≥ 12,2	≥ 971	≥ 35	≥ 2.786	41 - 45	326 - 358	200
GEN38EHS-B	12.100 - 12.600	1,21 - 1,26	≥ 11,8	≥ 939	≥ 37	≥ 2.945	36 - 40	286 - 318	220
GEN40EHS-B	12.500 - 13.000	1,25 - 1,30	≥ 12,0	≥ 955	≥ 37	≥ 2.945	38 - 42	302 - 334	220

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