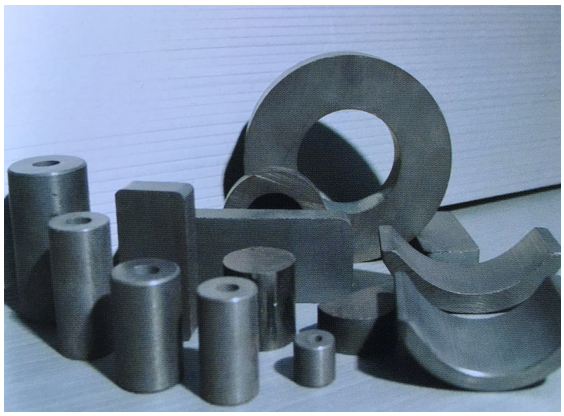
General Information



Ferrite magnets are sintered permanent magnets composed of Barium or Strontium Ferrite. This class of magnets, aside from good resistance to demagnetization, has the popular advantage of low cost.

Ferrite magnets are very hard and brittle, and require specialized machining techniques. Moreover, they should be machined in an unmagnetized state. We are equipped to machine these materials to specifications.

Anisotropic grades are oriented in the manufacturing direction, and must be magnetized in the direction of orientation. Isotropic grades are not oriented and can be magnetized in any direction, although some degree of greater magnetic strength will be found in the pressing dimension, usually the shortest dimension.

Due to their low cost, Ferrite magnets enjoy a very wide range of applications, from motors and loudspeakers to toys and crafts, and are the most widely used permanent magnets today. Pressing and sintering involves pressing very fine ferrite powder in a die, and then sintering this pressed magnet. All fully dense Ferrite magnets are produced this way. Ferrite magnets can be wet pressed or dry pressed. Wet pressing yields better magnetic properties, but poorer physical tolerances. Sintering involves subjecting the material to high temperatures to fuse the pressed powder together, thus creating a solid material. Magnets produced through this process usually need to have some finish machining to meet requirements.

Assemblies using metal or other components and magnets can be fabricated by adhering magnets with adhesives to suit a range of environments, by mechanically fastening magnets, or by a combination of these methods. Due to the relatively brittle nature of these magnet materials, press fits are not recommended.

The corrosion resistance of Ferrite is considered excellent , and no surface treatments are required. However, Ferrite magnets may have a thin film of fine magnet powder on the surface and for clean, non-contaminated applications, some form of coating may be required.

Ferrite magnets require magnetizing fields of about 10 kOe. They can be magnetized with multiple poles on one or both pole surfaces. No special handling precautions are required, except that large blocks of Ferrite magnets are powerful, and care should be taken to ensure that they do not snap towards each other.

Up to about 840°F, changes in magnetization are largely reversible, while changes between 840°F and 1800°F are re-magnetizable. For all Ferrite magnets, the degradation of magnetic properties is essentially linear with temperature. At 350F, about 75% of room temperature magnetization is retained, and at 550°F, about 50% is retained.

Magnetic Property for P// H

Dry series, Wet series

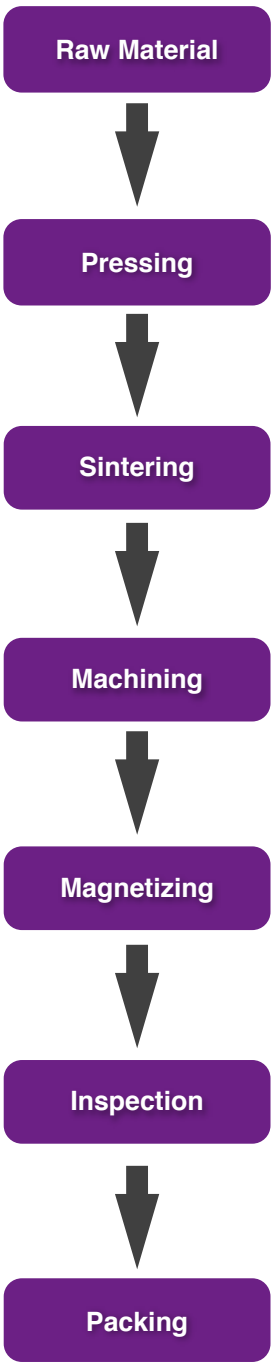
Material Code	Residual Induction	Coercive Force	Intrinsic Coercive Force	Max. Energy Product	JPN Materials
	Br(kGs)	Hcb(kOe)	Hcj(kOe)	BHmax(MGOe)	FB series
FM30S	3.95~4.05	3.05~3.25	3.15~3.35	3.50~3.90	4B
FM30M	3.80~3.90	3.25~3.45	3.50~3.70	3.30~3.70	4
FM30N	3.85~3.95	3.35~3.55	3.75~3.95	3.40~3.80	4
FM35M	3.95~4.05	3.25~3.45	3.50~3.70	3.90~4.30	5
FM35S	4.10~4.20	2.95~3.25	3.15~3.35	3.65~4.05	5B
FM36M	4.05~4.15	3.30~3.50	3.45~3.65	4.00~4.40	5B
FM36H	3.95~4.05	3.55~3.75	4.05~4.25	3.40~3.80	6
FM36N	4.10~4.20	3.50~3.70	3.85~4.05	4.00~4.40	6B
FM37U	4.05~4.10	3.55~3.85	4.30~4.70	4.00~4.40	6H
FM37E	3.85~3.95	3.55~3.85	4.70~5.10	3.65~4.05	6
FM37M	4.25~4.35	3.05~3.35	3.40~3.50	4.00~4.40	6N
FM40U	4.15~4.25	3.55~3.85	4.30~4.70	4.20~4.60	9
FM40E	4.05~4.15	3.65~3.95	4.60~5.00	4.00~4.40	9
FM43U	4.25~4.35	3.65~3.95	4.40~4.80	4.40~4.80	9
FM43E	4.15~4.25	3.65~3.95	4.60~5.00	4.00~4.40	9
FM43UB	4.35~4.45	3.75~4.05	4.40~4.80	4.60~5.00	9B
FM43A	4.25~4.35	3.85~4.15	4.70~5.10	4.20~4.60	9H
FM46H	4.55~4.65	3.30~3.50	4.15~4.35	5.00~5.40	12

Magnetic Property for P⊥ H

Dry series, Wet series

Material Code	Residual Induction	Coercive Force	Intrinsic Coercive Force	Max. Energy Product	Temp. Coefficient of Br
	Br(kGs)	Hcb(kOe)	Hcj(kOe)	BHmax(MGOe)	%/°C
FMR36	3.95~4.15	3.30~3.65	3.50~3.80	3.60~4.00	-0.18
FMR40	4.10~4.30	3.55~3.85	3.85~4.15	3.90~4.40	-0.18
FMR50	4.20~4.40	3.70~4.10	4.85~5.15	4.20~4.60	-0.18

Process Flow



Physical Property

Parameters	Unit	Values
Recoil Permeability	Gs/Oe	1.05-1.3
Curie Temperature	°C	≥450
Temp. Coefficient of Magnetic Induction	%/°C	-0.2
Temp. Coefficient of Inturensic Coerrice Induction	%/°C	-0.2-0.5
Density	G/cm3	4.6-5.0
Specific Resistance	Ω.cm	≥106
Coefficient of Thermal Expansion	°C-1	7-15X10-6
Hardness	--	480-580