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⚠The details can be found by referring to the appended individual delivery specifications. All specifications are subject to change without notice.

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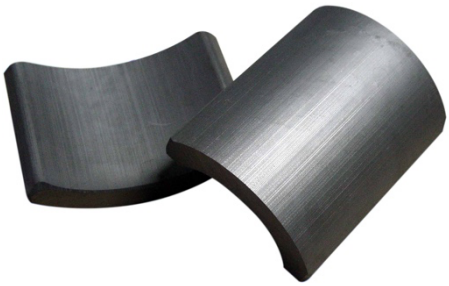
Introduction



Ferrite magnets, otherwise referred as ceramic magnets or hard ferrite, are developed in 1930. In addition to superior cost advantage and corrosion resistance, ferrite magnets are medium in magnetic properties and can be applied under relatively high temperature conditions. As nonmetallic type of permanent magnetic material, ferrite magnets are utilizing iron oxide (Fe2O3),Barium Carbonate (BaCO3) or Strontium Carbonate (SrCO3)as raw material, therefore, ferrite magnets can be classified to Strontium ferrite magnets and Barium ferrite magnets according to the composition. Strontium ferrite magnets and Barium ferrite magnets are also known as anisotropic ferrite magnets and isotropic ferrite magnets, respectively.

Sintered Ferrite Magnets

Maximum operating temperature of sintered ferrite magnets can arrive 250 degrees Celsius. Sintered ferrite magnets also have superior corrosion resistance. Sintered ferrite magnets are generally used in various areas in the past several decades and their market share are still very large even the application range of sintered Neodymium magnets is more and more extensive. The most representative

applications of sintered ferrite magnets include loudspeakers, permanent magnet (PM) motors and generators.

1. Typical magnetic properties of sintered ferrite magnets

Magnetic properties of different manufacturers vary slightly. Following data are only for reference when designing and selecting materials.

Grade		Residual magnetic flux density B_r		Coercive force H_{cB}		Intrinsic coercive force H_{cJ}		Maximum energy product $(BH)_{max}$	
		mT	kGs	kA/m	kOe	kA/m	kOe	kJ/m^3	MGOe
Chinese Standard (SJ285-77)	Y8T	200-235	2.0-2.35	125-160	1.57-2.01	210-280	2.64-3.52	6.5-9.5	0.8-1.2
	Y10T	200-235	2.0-2.35	128-160	1.61-2.01	210-280	2.64-3.52	6.4-9.6	0.8-1.2
	Y20	320-380	3.2-3.8	135-190	1.70-2.39	140-195	1.76-2.45	18.0-22.0	2.3-2.8
	Y22H	310-360	3.1-3.6	220-250	2.76-3.14	280-320	3.52-4.02	20.0-24.0	2.5-3.0
	Y23	320-370	3.2-3.7	170-190	2.14-2.39	190-230	2.39-2.89	20.0-25.5	2.5-3.2
	Y25	360-400	3.6-4.0	135-170	1.70-2.14	140-200	1.76-2.51	22.5-28.0	2.8-3.5
	Y26H	360-390	3.6-3.9	220-250	2.76-3.14	225-255	2.83-3.20	23.0-28.0	2.9-3.5
	Y26H-1	360-390	3.6-3.9	200-250	2.51-3.14	225-255	2.83-3.20	23.0-28.0	2.9-3.5
	Y26H-2	360-380	3.6-3.8	263-288	3.30-3.62	318-350	4.00-4.40	24.0-28.0	3.0-3.5
	Y27H	370-400	3.7-4.0	205-250	2.58-3.14	210-255	2.64-3.20	25.0-29.0	3.1-3.6
	Y28	370-400	3.7-4.0	175-210	2.20-2.64	180-220	2.26-2.76	26.0-30.0	3.3-3.8
	Y28H-1	380-400	3.8-4.0	240-260	3.02-3.27	250-280	3.14-3.52	27.0-30.0	3.4-3.8
	Y28H-2	360-380	3.3-3.8	271-295	3.41-3.71	382-405	4.80-5.09	26.0-30.0	3.3-3.8
	Y30	370-400	3.7-4.0	175-210	2.20-2.64	180-220	2.26-2.76	26.0-30.0	3.3-3.8

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	Y30BH	380-390	3.8-3.9	223-235	2.80-2.95	231-245	2.90-3.08	27.0-30.0	3.4-3.8
	Y30H-1	380-400	3.8-4.0	230-275	2.89-3.46	235-290	2.95-3.64	27.0-32.0	3.4-4.0
	Y30H-2	395-415	3.95-4.15	275-300	3.46-3.77	310-335	3.90-4.21	27.0-32.5	3.4-4.1
	Y32	400-420	4.0-4.2	160-190	2.01-2.39	165-195	2.07-2.45	30.0-33.5	3.8-4.2
	Y32H-1	400-420	4.0-4.2	190-230	2.39-2.89	230-250	2.89-3.14	31.5-35.0	4.0-4.4
	Y32H-2	400-440	4.0-4.4	224-240	2.81-3.02	230-250	2.89-3.14	31.0-34.0	3.9-4.3
	Y33	410-430	4.1-4.3	220-250	2.76-3.14	225-255	2.83-3.20	31.5-35.0	4.0-4.4
	Y33H	410-430	4.1-4.3	250-270	3.14-3.39	250-275	3.14-3.46	31.5-35.0	4.0-4.4
	Y34	420-440	4.2-4.4	200-230	2.51-2.89	205-235	2.58-2.95	32.5-36.0	4.1-4.5
	Y35	430-450	4.3-4.5	215-239	2.70-3.00	217-241	2.73-3.03	33.1-38.2	4.2-4.8
	Y36	430-450	4.3-4.5	247-271	3.10-3.41	250-274	3.14-3.44	35.1-38.3	4.4-4.8
	Y38	440-460	4.4-4.6	285-305	3.58-3.83	294-310	3.69-3.90	36.6-40.6	4.6-5.1
	Y40	440-460	4.4-4.6	330-354	4.15-4.45	340-360	4.27-4.52	37.5-41.8	4.7-5.3
American Standard	C1	230	2.3	148	1.86	258	3.5	8.36	1.05
	C5	380	3.8	191	2.4	199	2.5	27	3.4
	C7	340	3.4	258	3.23	318	4	21.9	2.75
	C8/C8A	385	3.85	235	2.95	242	3.05	27.8	3.5
	C8B	420	4.2	232	2.913	236	2.96	32.8	4.12
	C9	380	3.8	280	3.516	320	4.01	26.4	3.32
	C10	400	4	280	3.52	284	3.57	30.4	3.82
	C11	430	4.3	200	2.512	204	2.56	34.4	4.32
	C12	400	4	290	3.65	318	4	32	4
European Standard (IEC404-8-1)	HF8/22	200/220	2.00/2.20	125/140	1.57/1.76	220/230	2.76/2.89	6.5/6.8	0.8/1.1
	HF20/19	320/333	3.20/3.33	170/190	2.14/2.39	190/200	2.39/2.51	20.0/21.0	2.5/2.7
	HF20/28	310/325	3.10/3.25	220/230	2.76/2.89	280/290	3.52/3.64	20.0/21.0	2.5/2.7
	HF22/30	350/365	3.50/3.65	255/265	3.20/3.33	290/300	3.64/3.77	22.0/23.5	2.8/3.0
	HF24/16	350/365	3.50/3.65	155/175	1.95/2.20	160/180	2.01/2.26	24.0/25.5	3.0/3.2

	HF24/23	350/365	3.50/3.65	220/230	2.76/2.89	230/240	2.89/3.01	24.0/25.5	3.0/3.2
	HF24/35	360/370	3.60/3.70	260/270	3.27/3.39	350/360	4.40/4.52	24.0/25.5	3.0/3.2
	HF26/16	370/380	3.70/3.80	155/175	1.95/2.20	160/180	2.01/2.26	26.0/27.0	3.2/3.4
	HF26/18	370/380	3.70/3.80	175/185	2.20/2.33	180/190	2.26/2.39	26.0/27.0	3.3/3.4
	HF26/24	370/380	3.70/3.80	230/240	2.89/3.01	240/250	3.01/3.14	26.0/27.0	3.3/3.4
	HF26/26	370/380	3.70/3.80	230/240	2.89/3.01	260/270	3.27/3.39	26.0/27.0	3.3/3.4
	HF26/30	385/395	3.85/3.95	260/270	3.27/3.39	300/310	3.77/3.89	26.0/27.0	3.3/3.4
	HF28/26	385/395	3.85/3.95	250/265	3.14/3.33	260/275	3.27/3.45	28.0/30.0	3.5/3.8
	HF28/28	385/395	3.85/3.95	260/270	3.27/3.39	280/290	3.50/3.60	28.0/30.0	3.5/3.8
	HF30/26	395/405	3.95/4.05	250/260	3.14/3.33	260/270	3.27/3.39	30.0/31.5	3.8/3.9
	HF32/17	410/420	4.10/4.20	160/170	2.01/2.14	165/175	2.07/2.20	32.0/33.0	4.0/4.1
	HF32/22	410/420	4.10/4.20	215/225	2.70/2.83	220/230	2.76/2.89	32.0/33.0	4.0/4.1
	HF32/25	410/420	4.10/4.20	240/250	3.01/3.14	250/260	3.14/3.27	32.0/33.0	4.0/4.1

The above-mentioned data of magnetic properties and physical properties are given at room temperature (20℃).

The max working temperature of magnet is changeable due to length-diameter ratio, coating thickness and other environment factors.

Additional grades are available. Please contact us for information.

2. Other characteristic physical properties

Following data are only for reference when designing and selecting materials, not as product acceptance standards.

Item	Unit	Value
Recoil Permeability μ_{rac}	-	1.05-1.10
Curie Temperture T_c	℃	450
Density	g/cm^3	4.9-5.1

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Specific Heat	J/kg·K	837
Coefficient of Thermal Expansion	10^{-6}/°C	C⊥: 10 C∥15
Flexural Strength	MPa	70
Compressive Strength	MPa	700
Tensile Strength	MPa	35
Young's Modulus	Gpa	200
Vickers Hardness(HV)	-	530

Bonded Ferrite Magnets

Injection ferrite magnets are a type of bonded magnets manufactured by mixing ferrite magnetic powder with the thermoplastic binder which then enables the magnet to be injection molded just like any other plastic would be. The maximum operating temperature of PA12 based, PA6 based, and PPS based magnet can achieve 120, 150, and 180 degrees Celsius, respectively. Injection ferrite magnets also have excellent mechanical strength, dimensional accuracy, shape applicability, and integrated ability with other functional parts, which totally same as injection molded Neodymium magnets. Its magnetic performance and cost is significantly lower than injection molded Neodymium magnet and widely served for sensors and low performance motors. Anisotropic injection ferrite magnet need to apply a permanent magnetic field or an electromagnetic field to align molten compound during the injection molding process.

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Typical magnetic properties of bonded ferrite magnets

Magnetic properties of different manufacturers vary slightly. Following data are only for reference when designing and selecting materials.

Grade	Residual magnetic flux density B_r		Coercive force H_{cB}		Intrinsic coercive force H_{cJ}		Maximum energy product $(BH)_{max}$		Work Temperature T_w	Average Temperature Coefficients of Br	Density ρ
	mT	kGs	kA/m	kOe	kA/m	kOe	kJ/m³	MGOe	℃	%/℃	g/cm
BZ-F1.5	220-240	2.2-2.4	160-167	2.00-2.10	231-240	2.90-3.00	11.6-12.4	1.45-1.55	PA12: 120 PA6: 150	-0.19	3.25
BZ-F1.9	270-290	2.7-2.9	180-186	2.25-2.33	216-228	2.70-2.85	14.8-15.6	1.85-1.95		-0.19	3.63
BZ-F2.0	280-290	2.8-2.9	184-200	2.30-2.50	216-246	2.70-3.10	15.6-16.4	1.95-2.05		-0.19	3.70
BZ-F2.1	280-290	2.8-2.9	190-204	2.38-2.55	216-249	2.80-3.12	16.4-17.2	2.05-2.15		-0.19	3.75
BZ-F1.7 (PPS)	250-260	2.5-2.6	167-175	2.10-2.20	208-216	2.60-2.70	13.6-14.0	1.70-1.75	PPS: 180	-0.19	3.65

The above-mentioned data of magnetic properties and physical properties are given at room temperature (20℃).

The max working temperature of magnet is changeable due to length-diameter ratio, coating thickness and other environment factors.

Additional grades are available. Please contact us for information.

Precautions regarding safety and use

1. When a magnet is magnetized, strong attractive force or repulsive force arises between the magnet and other magnetic materials (magnet, yoke, rotor, stator, jig fixture, tool, etc.). A user's hand or finger may be sandwiched between the magnet and other magnetic materials during the handling or the assembling. Also, you may be injured by loss of balance of the body due to the attractive or repulsive force. Use appropriate jigs and take special care in handling the magnetized magnet. A magnetized magnet should be covered with a non-magnetic material such as wood or thick plastics and labeled as magnetized.
2. Sharp edge of a magnet may injure your finger. Protect fingers when needed.
3. When a magnet is magnetized in the winding coil, the magnet may fly out from the inside of the winding coil unexpectedly. It can be the cause of injury. Use a proper jig fixture and keep a magnet inside of the winding coil for safety.
4. When magnetized magnets are stacked, it is difficult to peel off, and chipping or a crack may occur. It is recommended to use spacers between the magnets. The stacked magnetized magnets are similar to one big magnet.
5. When a magnetized magnet is placed near the direct or alternating magnetic field, the demagnetization may occur.
6. A mechanical impact may be a cause of a fracture, a crack and a chipping of a magnet. Take special care during the handling of a magnetized magnet. Such a crack or a chipping may deteriorate the magnetic characteristic, the mechanical strength or the corrosion resistance. A broken piece of magnet may hurt your eyes or body.
7. Store magnets in the place without a mechanical impact. Keep the packaging materials of magnets to be dry. Keep the temperature above the dew point to prevent rust during the storage. Avoid water (rain, water used in the factory, etc.) to be splashed on the packaging material.

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About MagnetSearcher

MagnetSearcher provides advanced magnets manufacturing services to engineers, designers, or procurement specialists worldwide.

At MagnetSearcher, you are no longer subject to the limits of your existing local suppliers. We integrate seamlessly with over 2,000 vetted manufacturing facilities across China. This means our customers can dynamically scale their product development needs or product output by sending manufacturing orders to MagnetSearcher.

2000+ Manufacturers

Put our highly vetted supplier network to work for you

500+ Magnet Experts

Get experienced magnet expert help when you need it

50000+ Magnets Quoted

Translates to better prices and lead times for you

20000+ Customers

Trusted by engineers and purchasing leaders worldwide

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