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MAGNET FOREVER (ZHEJIANG) NEW MATERIAL CO.,LTD.
厦门恒磁电子有限公司
XIAMEN MAGNET FOREVER ELECTRONIC CO.,LTD.

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专业磁性器件
magnetic assembly
manufacturer



MAGNET FOREVER

Customized Solutions & Professional Services & Highest Quality
Provide the finest magnets only
since 2009---Magnet-Forever

公司简介 COMPANY PROFILE

厦门恒磁拥有15年的磁铁及相关行业制造经验，我们提供七大模块优质服务

- 1.在稀土原材料，五金，塑料，玩具等领域，拥有稳定供应链
- 2.通过完善的检测设备和检测流程来保证产品关键参数性能的稳定，并通过TS16949认证，拥有磁性检测，粒度检测，镀层检测，红外检测，拉力检测等设备
- 3.我司拥有专业的产品外包装设计师，给客户id提供各类定制外包装
- 4.我们拥有20人的QC人员，在各个环节进行严格检测，合格率控制在99%以上。
- 5.我们免费提供视频验货服务，发货前检验确认
- 6.我们承诺发货后30天内，有任何质量问题可赔付
- 7.我们保证每个订单的交期，每延误一周交货赔偿订单金额的2%。

Xiamen Magnet Forever Company is a professional high-tech manufacturer, has a rich experience in magnet manufacturing and related industries. We provide seven parts of services:

1. We have a stable supply chain in the fields of rare earth raw materials, hardware, plastics, toys, etc.
2. We have complete testing equipment and testing procedures to ensure the stability of key parameters of the product.
3. We have passed TS16949 certification, and have magnetic detection, particle size detection, coating inspection, infrared detection, tensile testing and other equipment.
4. We have professional product packaging personnel to provide customers with all kinds of customized packaging.
5. We have a 20-people QC testing team that conduct rigorous testing at all stages and controls the pass rate to over 99%.
6. We provide free video inspection service, checking products quality before shipment.
7. We can compensate if the product has any quality problems within 30 days after delivery.
8. We can guarantee the delivery date of each order, 2% compensation of the products value for each week delay.

生产工艺流程 Process Flow



试验设备 Test Equipment

Strict test procedures to guarantee every steps through production.			

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钕铁硼 稀土永磁

NdFeB
Rare Earth Magnet



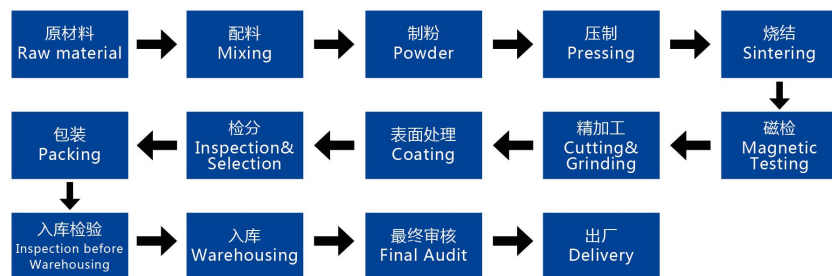
第三代稀土永磁钕铁硼 (NdFeB) 是当今性能最强的永磁体,它具有高剩磁、高矫顽力、高磁能积,因而被称为当代的“磁王”;而且由于我国丰富的稀土矿产资源和日新月异的钕铁硼生产工艺和技术的进步,使之具有较高的性能价格比;同时其有特别容易加工成各种尺寸和形状如:瓦片型、圆环型、矩型等。

永磁钕铁硼现已广泛应用于航空、航天、电子、仪器、仪表、医疗技术及其他永磁体的装置和设备中,特别是由于钕铁硼永磁的热稳定和耐腐蚀性的改善以及电力电子器件的进一步发展,使之越来越广泛地应用于各种电机产品中,使稀土永磁成为当代电机发展的重要趋势之一。

NdFeB, the third generation of rare-earth permanent magnet, is the most powerful and advanced permanent magnet today. NdFeB is named as "Magnet King" for its high remanence, high coercive force, high energy. Moreover, it has the high performance and high cost ration, because of the rich rare earth resources in China and the ever-changing production process and technological progress. It can be easily formed into various sizes and different shapes, such as segment, ring, block and etc.

Nowadays, it has been widely used in fields such as aviation, electronics, instruments, meters, machine, medical instrument Or something like that, It's especially the best choice for various motors, as its thermal stability, along with the improvement of its corrosion resistance and the further development of Power Electronic Device. At present, rare permanent magnet motor has become one of leading trends in the motor development.

“ 烧结钕铁硼生产工艺流程图 ” Production Chart of Sintered NdFeB



钕铁硼磁体标准形状与表示方法

Nd-Fe-B Standard Shapes And Their Symbols

形状 Shape	长度 (外径) 毫米 Length (OD) mm		宽度 (内径) 毫米 Width (ID) mm		厚度毫米 Thickness mm	
	最小值 Min	最大值 Max	最小值 Min	最大值 Max	最小值 Min	最大值 Max
块状 Block	1	250	1	150	/	50
环状 (圆状) Ring and round	1	250	/	/	/	50

Customizable

名称 Name	形状 Shape	形状符号 Symbol	符号说明 Note
圆柱形磁体 Cylindrical Magnet			D:φ外径 H:厚度 D:φ Outside diameter H:Height
环形磁体 Ring Magnet			D:φ外径 d:φ内径 H:厚度 D:φ Outside diameter d:φ Inside diameter H:Height
方形磁体 Square Magnet			L:长度 L:Length W:宽度 W:Width H:高度 H:Height
带孔方形磁体 Square Magnet With Hole			L:长度 L:Length W:宽度 W:Width H:高度 H:Height d:内孔径 d:Inner aperture
瓦形、弓形磁体 Segment and Arc Magnet			R1:外半径 R2:内半径 H:弓高 A:长度 C:厚度 B:宽度 R1:Outside radius R2:Inside radius H:Bow height A:Length C:Height B:Width

烧结钕铁硼磁性能和物理特征

Magnetic Characteristics and Physical Properties of Sintered Nd-Fe-B

牌号 Material	剩磁 (Br)				矫顽力 (Hcb)		内禀矫顽力 (Hcj)		最大磁能积 (BH) max				温度 C (L / D = 0.7)
	MT		KGs		KA/m	KOe	KA/m	KOe	KJ/m³		MGOe		
	Min	Max	Min	Max					Min	Max	Min	Max	
N35	1170	1220	11.7	12.2	≥868	≥10.9	≥955	≥12.0	263	287	33	36	80
N38	1220	1260	12.2	12.6	≥899	≥11.3	≥955	≥12.0	287	310	36	39	80
N40	1260	1290	12.6	12.9	≥923	≥11.6	≥955	≥12.0	302	326	38	41	80
N42	1290	1330	12.9	13.3	≥923	≥11.6	≥955	≥12.0	318	342	40	43	80
N45	1330	1380	13.3	13.8	≥876	≥11.0	≥955	≥12.0	342	366	43	46	80
N48	1380	1420	13.8	14.2	≥876	≥11.0	≥955	≥12.0	366	390	46	49	80
N50	1390	1460	13.9	14.6	≥836	≥10.5	≥875	≥11.0	374	406	47	51	80
N52	1420	1480	14.2	14.8	≥836	≥10.5	≥875	≥11.0	390	422	49	53	80
N33M	1140	1170	11.4	11.7	≥835	≥10.5	≥1114	≥14.0	247	271	31	34	100
N35M	1170	1220	11.7	12.2	≥868	≥10.9	≥1114	≥14.0	263	287	33	36	100
N38M	1220	1260	12.2	12.6	≥899	≥11.3	≥1114	≥14.0	287	310	36	39	100
N40M	1260	1290	12.6	12.9	≥923	≥11.6	≥1114	≥14.0	302	326	38	41	100
N42M	1290	1330	12.9	13.3	≥955	≥12.0	≥1114	≥14.0	318	342	40	43	100
N45M	1330	1380	13.3	13.8	≥995	≥12.5	≥1114	≥14.0	342	366	43	46	100
N48M	1380	1420	13.8	14.2	≥995	≥12.5	≥1114	≥14.0	358	398	45	50	100
N50M	1390	1460	13.9	14.6	≥995	≥12.5	≥1035	≥13.0	374	414	47	52	100
N33H	1140	1170	11.4	11.7	≥835	≥10.5	≥1353	≥17.0	247	271	31	34	120
N35H	1170	1220	11.7	12.2	≥868	≥10.9	≥1353	≥17.0	263	287	33	36	120
N38H	1220	1260	12.2	12.6	≥899	≥11.4	≥1353	≥17.0	287	310	36	39	120
N40H	1260	1290	12.6	12.9	≥923	≥11.6	≥1353	≥17.0	302	326	38	41	120
N42H	1290	1330	12.9	13.3	≥955	≥12.0	≥1353	≥17.0	318	342	40	43	120
N44H	1330	1370	13.3	13.8	≥955	≥12.5	≥1353	≥17.0	334	358	42	45	120
N46H	1340	1400	13.4	14.0	≥955	≥12.5	≥1273	≥16.0	334	382	43	48	120
N48H	1360	1420	13.6	14.2	≥1010	≥12.7	≥1273	≥16.0	358	398	45	50	120
N30SH	1080	1140	10.8	11.4	≥812	≥10.2	≥1592	≥20.0	223	247	28	31	150
N33SH	1140	1170	11.4	11.7	≥835	≥10.5	≥1592	≥20.0	247	271	31	34	150
N35SH	1170	1220	11.7	12.2	≥868	≥10.9	≥1592	≥20.0	263	287	33	36	150
N38SH	1220	1260	12.2	12.6	≥899	≥11.3	≥1592	≥20.0	287	310	36	39	150
N40SH	1260	1290	12.6	12.9	≥923	≥11.6	≥1592	≥20.0	302	326	38	41	150

牌号 Material	剩磁 (Br)				矫顽力 (Hcb)		内禀矫顽力 (Hcj)		最大磁能积 (BH) max				温度 C (L / D = 0.7)
	MT		KGs		KA/m	KOe	KA/m	KOe	KJ/m³		MGOe		
	Min	Max	Min	Max					Min	Max	Min	Max	
N42SH	1290	1320	12.9	13.3	≥955	≥12.0	≥1592	≥20.0	318	342	40	43	150
N45SH	1320	1380	13.3	13.8	≥987	≥12.4	≥1512	≥19.0	334	374	42	47	150
N30UH	1080	1140	10.8	11.4	≥812	≥10.2	≥1989	≥25.0	223	247	28	31	180
N33UH	1140	1170	11.4	11.7	≥835	≥10.5	≥1989	≥25.0	247	271	31	34	180
N35UH	1170	1220	11.7	12.2	≥868	≥10.9	≥1989	≥25.0	263	287	33	36	180
N38UH	1220	1260	12.2	12.6	≥899	≥11.3	≥1989	≥25.0	287	310	36	39	180
N40UH	1260	1320	12.6	13.2	≥955	≥12.0	≥1990	≥25.0	302	334	38	42	180
N28EH	1040	1080	10.4	10.8	≥780	≥9.8	≥2387	≥30.0	207	231	26	29	200
N30EH	1080	1140	10.8	11.4	≥812	≥10.2	≥2387	≥30.0	223	247	28	31	200
N33EH	1140	1170	11.4	11.7	≥835	≥10.5	≥2387	≥30.0	247	271	31	34	200
N35EH	1170	1230	11.7	12.3	≥883	≥11.1	≥2388	≥30.0	263	295	33	37	200
N38EH	1220	1280	12.2	12.8	≥923	≥11.6	≥2388	≥30.0	287	318	36	40	200

烧结钕铁硼的表面镀层和抗腐蚀能力

The Coating Of Sintered NdFeB Magnet And Its Corrosion Resistance

镀层材料 Coating	锌 Zn		镍 Ni		镍-铜-镍 Ni-Cu-Ni	电泳环氧 Electro-Epoxy	镀铬, 锡 Passivation
Coating	蓝锌 Blue	彩锌 Color	单层 Single layer	双层 Double layer			
抗腐蚀能力 Corrosion Resistance	好 Good	极好 Excellent	非常好 Very Good	极好 Excellent	极好 Excellent	非常好 Very Good	好 Good

材料中含有钕、铁所以接触空气易生锈，因此需要对钕铁硼的表面进行处理。

酸洗：是为了去除氧气

电镀：镍 (Ni)、锌 (Zn)、金 (Gold)、

黑色环氧 (Black Epoxy)

盐雾测试 (95%) : 48小时, 镀层的质量

The material contains neodymium and iron, so it is easy to rust when exposed to air. Therefore, it is necessary to treat the surface of neodymium, iron and boron.

Pickling: In order to remove oxygen

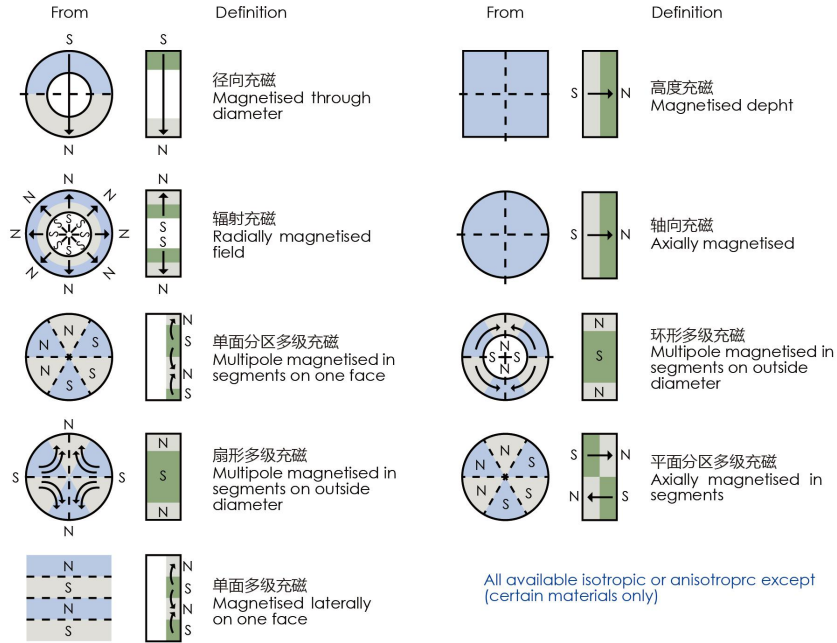
Electroplating: Ni, Zn, Gold, Black Epoxy

Salt spray test (95%): 48 hours, coating quality



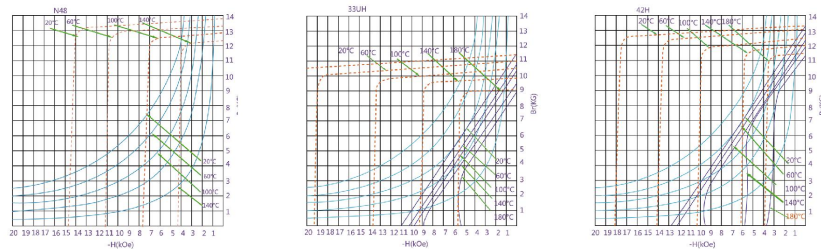
烧结钕铁硼充磁方向

Magnetizing Direction of Sintered NdFeB



烧结钕铁硼退磁曲线图

Demagnetization curves of Sintered NdFeB



烧结钕铁硼应用领域

Application area of Sintered NdFeB



电声领域: 扬声器、受话器、传声器、报警器、音响。
电机领域: VCM、CDDVD-ROM、发电机、电动机、伺服电机、维形电机、马达、振动马达等。

机械设备: 磁分离、磁选机、磁吊、磁力机械
医疗设备: 核磁共振仪、医疗器械、磁疗保健品、磁化节油器等

电子电器: 电度表、水表、计声器、干簧管、传感器等
其他行业: 组件、磁夹具、磁性锁具、门窗磁、文具磁、箱包磁、皮具磁、玩具磁、工具磁、工艺礼品包装等

Electroacoustic field: loudspeaker, receiver, microphone, alarm, sound.

Motor field: VCM, CDDVD-ROM, generator, motor, servo motor, dimension motor, motor, vibration motor, etc.

Mechanical equipment: magnetic separation, magnetic separator, magnetic suspension, magnetic machinery

Medical equipment: nuclear magnetic resonance instrument, medical equipment, magnetic health care products, magnetized fuel-saving device, etc.

Electronic and electrical appliances: watt-hour meter, water meter, microphone, reed, sensor, etc.

Other industries: components, magnetic fixtures, magnetic locks, door and window magnets, stationary magnets, luggage magnets, leather magnets, toy magnets, tool magnets, gift packaging, etc.

钕铁硼产品展示

NdFeB Products Display



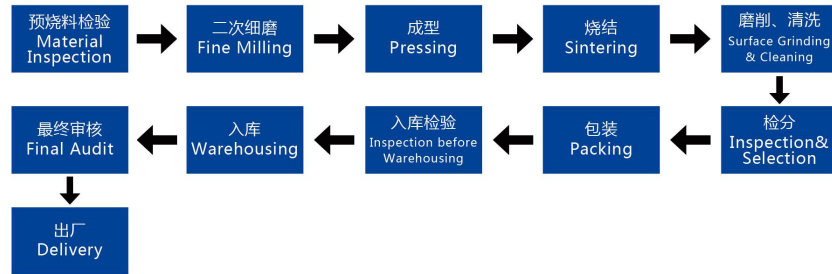
永磁铁氧体是以SrO 和 Fe₂O₃为主要原料，通过陶瓷工艺方法烧结而成，产品形状可做成圆形、圆柱形、方形和瓦形等。我司产品主要用于各类电机中，尤其是汽车中用的各种电机、摩托车用的启用电机，以及家用类的健身器材、电动玩具等电机上。

Ferrite Magnet is made from SrO and Fe₂O₃ as main raw materials by ceramic processing technology. The products appear in rings, disks, blocks, segments, etc. It's mainly used in various motors, especially the car motors, start-up motors for motorcycles, home fitness equipments and electric toys as well.

永磁铁氧体 Permanent Ferrite Magnet



“ 永磁铁氧体生产工艺流程图 ” Production Chart of Hard Ferrite Magnet



永磁铁氧体磁性能

Magnetic Properties of Hard Ferrite Magnet

磁材 Material	等方/异性 Iso/Anisotropic	剩磁 Remanence		矫顽力 Coercivity		内禀矫顽力 Intrinsic Coercivity		最大磁能积 Max Energy product	
		Br(mT)	Br(Gs)	bHc(KA/m)	bHc(Oe)	iHc(KA/m)	iHc(Oe)	(BH)max (KJ/m ³)	(BH)max (MGOe)
Y10T	Isotropic	≥200	≥2000	≥125	≥1600	≥210	≥2600	≥6.5	≥0.8
Y20	Anisotropic	≥360	≥3600	≥135	≥1700	≥140	≥1760	≥20.0	≥2.5
Y25	Anisotropic	≥380	≥3800	≥144	≥1800	≥150	≥1880	≥24.0	≥3.0
Y30	Anisotropic	≥390	≥3900	≥184	≥2300	≥188	≥2350	≥27.6	≥3.4
Y30BH	Anisotropic	≥390	≥3900	≥240	≥3000	≥256	≥3200	≥27.6	≥3.4
Y35	Anisotropic	≥410	≥4100	≥208	≥2600	≥212	≥2660	≥30.4	≥3.8

永磁铁氧体标准形状与表示方法

Permanent Ferrite Magnet Standard Shapes and Their Symbols

名称 Name	形状 Shape	形状符号 Symbol	符号说明 Note
圆柱形磁体 Cylindrical Magnet			D:φ外径 H:厚度 D:φ Outside diameter H:Height
环形磁体 Ring Magnet			D:φ外径 d:φ内径 H:厚度 D:φ Outside diameter d:φ Inside diameter H:Height
方形磁体 Square Magnet			L:长度 W:宽度 H:高度 L:Length W:Width H:Height
瓦形、弓形磁体 Segment and Arc Magnet			R1:外半径 R2:内半径 H:弓高 A:长度 C:厚度 B:宽度 R1:Outside radius R2:Inside radius H:Bow height A:Length C:Height B:Width

Customizable

永磁铁氧体产品展示

Permanent Ferrite Magnet Products Display



橡胶磁体

Rubber magnet

橡胶磁体是粘结铁氧体磁粉，合成橡胶等材料复合后，挤出成型、压延成型、注射成型等工艺而制成的具有柔软性、弹性及可扭曲性的磁体。可产生条状、卷状及各种复杂形状。主要应用于微特机电、电冰箱、消毒柜、橱柜、玩具、文具、广告等行业。

Rubber magnets are made of bonded ferrite magnet powder ,compound rolling or injecting, the combination can be made into soft ,plastic and flexible magnets with different shapes such as strip ,coil ,sheet ,and other shapes ,which are widely used in micromotor ,fridge ,disinfecting cupboard ,toy ,stationery ,ad ,etc.

橡胶磁体的磁特征及物理性能

Magnetic Properties & Physical Characteristics of Rubber Magnet

类别 Type	材料 Material	磁性能典型值 Typical magnetic property value						物理性能 Physical characteristics			
		Br(Gs)	Hcb(Oe)	Hci(Oe)	(BH)max (MGOe)	密度 Density (g/cm3)	硬度 Hardness (Hc(a))	抗拉强度 Tensile strength (kg/cm3)	断裂伸长率 Break extension (%)	扭曲特性 Flexibility	
同性压延 Iso rolled	Gs-7	2000	1400	2000	0.85	37±0.2	95±5	95±5	95±5	在φ20的圆棒上 绕3圈无龟裂 No cracks after winding in a bar φ20 for 3 circles	
同性挤出 Iso extruded	Gs-10	1850	1500	2100	0.75	37±0.2	95±5	95±5			
半异性压延 Semi-Aniso rolled	Gs-10	2300	1600	2100	1.15	37±0.2	95±5	95±5			
异性挤出 Aniso extruded	Gs-12BH -1	2250	1600	2300	1.10	37±0.2	95±5	95±5			
异性压延 Aniso rolled	Gs-12BH -1	2600	2200	3200	1.60	37±0.2	95±5	95±5			

橡胶磁体的尺寸范围

Size Range Of Rubber Magnet ;

Size Range(unit: mm)		Min	Max
Roll	Length	/	/
	Width	/	1200
	Thickness	0.3	1.5
Sheet	Length	/	1000
	Width	/	1200
	Thickness	0.3	10
Strip	Width	5	80
	Thickness	0.9	10
Remark	The common packing for roll material is 30m/roll or 50m/roll ; it also depends on the specific width and thickness of the product as well as the shipping terms.		

橡胶磁体的公差

Tolerance Of Rubber Magnet

Tolerance (unit: mm)	Calendered Sheet	Extruded Strip	Die Cut Part
Length	-3	+1.5/-0(m)	+/-0.3
Width	-3	+/-0.3	+/-0.3
Thickness	>=1.0	+/-0.08	+/-0.08
	<1.0	+/-0.05	+/-0.05

橡胶磁产品展示

Rubber Magnet Products Display



钐钴系列

SmCo magnet



钐钴(SmCo)作为第二代稀土永磁体,不但有着较高的磁能积(14-28MGOe)和可靠的矫顽力,而且在稀土永磁系列中表现出良好的温度特性。与钕铁硼相比,钐钴更适合工作在高温环境中。

As the second generation of Rare Earth permanent magnet, SmCo not only has high energy ranging from 14MGOe to 28MGOe and reliable coercive force, but also exhibits the best temperature characteristics in Rare Earth material family. Compared with NdFeB, SmCo is much more suitable for working higher temperature.

烧结SmCo材料磁性一览表

Sintered SmCo Properties

材料牌号 Grade	剩磁 (Br)		矫顽力 (HcJ)		矫顽力 (HcB)		最大磁能积 (BH)max		密度 (D) g/cm ³	温度系数 (%Change Per°C)	居里温度 (Tc) °C	工作温度 (Tw) °C	
	mT	Gs	KA/m	Oe	KA/m	Oe	KJ/m ³	MGOe					
SmCo5	HY120	780	7800	1195	15000	560	7000	110-130	14-16	8.1	-0.04	750	250
	HY130	800	8000	1195	15000	575	7200	130-160	16-20	8.2	-0.04	750	250
	HY140	820	8200	1195	15000	600	7500	145-175	18-22	8.2	-0.04	750	250
Sm2Co17	HY185L	960	9600	400	5000	380	4800	165-200	21-25	8.2	-0.03	800	250
	HY205L	1020	10200	440	5500	410	5200	200-220	25-28	8.2	-0.03	800	250
	HY175L	950	9500	1195	15000	640	8000	160-190	20-24	8.2	-0.03	800	250
	HY200H	1000	10000	1195	15000	680	8500	190-224	24-28	8.2	-0.03	800	250

粘结压制成型NdFeB磁性能和物理特性

Magnetic Characteristics and Physical Properties of Bonded Compression Moulding Nd-Fe-B

性能 Performance	牌号 Grade	BNP-6	BNP-8	BNP-10	BNP-12	BNP-8H
剩磁感应强度 Br T		0.52-0.60	0.60-0.65	0.65-0.70	0.70-0.76	0.55-0.62
矫顽力 bHc KA/m(KOe)		304-360 (3.8-4.5)	360-440 (4.5-5.5)	360-464 (4.5-5.8)	324-480 (5.3-6.0)	400-480 (5.0-6.0)
内禀矫顽力 iHc KA/m(KOe)		640-800 (8.0-10)	640-960 (8.0-12)	640-960 (8.0-12)	640-880 (8.0-11)	960-1280 (12-16)
最大磁能积 (BH)max KJ/m3(MGOe)		40-56 (5-7)	56-72 (7-9)	72-80 (9-10)	80-96 (10-12)	48-72 (6-9)
密度 (D) g/cm3		5.2-5.8	5.6-6.0	5.8-6.1	6.0-6.2	5.6-6.0
可逆磁导率 μr		1.15	1.15	1.22	1.22	1.15
可逆温度系数 α Br %/C		-0.13	-0.13	-0.07~-0.105	-0.13	-0.07~-0.13
最高工作温度 Tw °C		140	140	120	130	120

粘结注射成型NdFeB磁性能和物理特性

Magnetic Characteristics and Physical Properties of Bonded Injection Moulding Nd-Fe-B

性能 Performance	牌号 Grade	BN1-2	BN1-4	BN1-6	BN1-8	BN1-6H
剩磁感应强度 Br T		0.20-0.40	0.40-0.49	0.49-0.57	0.57-6.3	0.48-0.56
矫顽力 bHc KA/m(KOe)		120-240 (1.5-3.0)	247-310 (3.1-3.9)	312-382 (3.9-4.8)	382-430 (4.8-5.4)	334-398 (4.2-5.0)
内禀矫顽力 iHc KA/m(KOe)		560-720 (7.0-9.0)	573-732 (7.2-9.2)	637-796 (8.0-10.0)	676-835 (8.5-10.5)	1035-1353 (13.0-17.0)
最大磁能积 (BH)max KJ/m3(MGOe)		6.4-24 (0.80-3.0)	28-36 (3.5-4.5)	42-56 (5.2-7.0)	59-67 (7.4-8.4)	40-52 (5.0-6.5)
密度 (D) g/cm3		3.5-4.0	4.0-5.0	5.0-5.5	5.0-5.5	5.0-5.5
可逆磁导率 μr		1.25	1.20	1.20	1.20	1.13
可逆温度系数 α Br %/C		-0.15	-0.10	-0.10	-0.10	-0.15

铝镍钴磁铁

Alnico Magnet

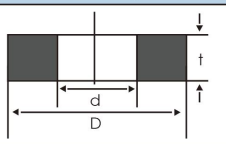
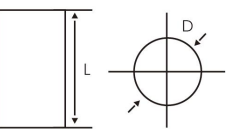
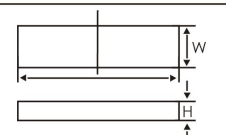
铝镍钴永磁是有铝、镍、钴、铁和其他微量金属元素构成的一种合金。其金属成份的构成不同，磁性能也不同，从而用途也不同。根据生产工艺不同分为烧结铝镍钴和铸造铝镍钴。铸造工艺可以加工生产成不同的尺寸和形状；与铸造工艺相比，烧结产品局限于小的尺寸，其生产出来的毛坯尺寸公差比铸造产品毛坯还要好，磁性能要略低于铸造产品，但可加工性更好。在永磁材料中，铸造铝镍钴永磁有着最低可逆温度系数，工作温度可高达600摄氏度以上。铝镍钴永磁产品广泛应用于各种仪器仪表和其他应用领域。

Alnico is a kind of alloy, which is comprised of aluminum, nickel, cobalt and iron with varying additions of other elements. By varying the composition, it's possible to tailor the magnetic properties to meet the needs of a wide variety of end use applications. There are two different manufacturing processes for Alnico: Cast Alnico and Sintered Alnico. Cast Alnico can be made into various sizes and shapes, whereas Sintered Alnico is usually restricted to smaller sizes.

However, both processes lead themselves to complex geometries and configurations. Standard Sintered Alnico has tighter dimensional tolerances due to its processing. It also has slightly lower magnetic properties, but better mechanical strength than Cast Alnico products which possess the lowest reversible temperature coefficient magnetism in permanent magnet material but have excellent working temperature up to 600 C. Alnico products are widely used in all kinds of meters and other applications.

铝镍钴产品应用

Alnico Magnet Applications for Each Type

图纸 Drawing	说明 Description	应用 Applications
	D×d×t	Motors 马 达 Meters 仪 表 Odometers 里 程 表 Others 其 他
	D×L	Speakers 喇 叭 Sensors 传 感 器 Others 其 他
	L×W×H	Telephone 电 话 Mobile 移 动 电 话 Others 其 他

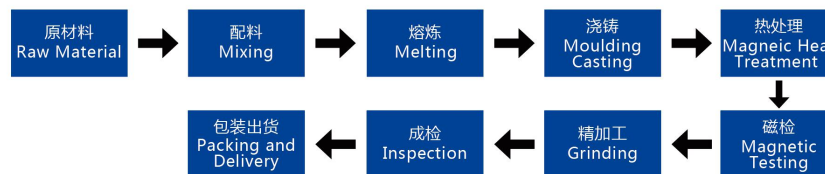
“ 烧结铝镍钴生产流程图 ”

Process Flow Diagram for Sintered Alnico



“ 铸造铝镍钴生产流程图 ”

Process Flow Diagram for Cast Alnico



烧结Alnico磁性一览表

Sintered Alnico Properties

材料牌号 Grade	剩磁 (Br)		矫顽力 (HcJ)		矫顽力 (HcB)		最大磁能积 (BH)max		密度 (D)	温度系数 (%Change Per°C)	居里温度 (Tc)	备注 Remark
	mT	Gs	Min	Max	Min	Max	KJ/m³	MGOe	g/cm³	%/K	°C	
FLN8	520	5200	43	540	40	500	8-10	1.0-1.25	6.8	-0.022	760	各项同性 Isotropic
FLNG12	700	7000	43	540	40	500	12-14	1.5-1.75	7.0	-0.014	810	
FLNGT14	570	5700	78	980	76	950	14-16	1.75-2.0	7.1	-0.020	850	
FLNGT18	560	5600	90	1130	88	1100	18-22	2.25-2.75	7.2	-0.20	850	
FLNG28	1050	10500	47	590	46	580	28-33	3.5-4.15	7.2	-0.016	850	各项异性 Anisotropic
FLNG34	1100	11000	51	640	50	630	34-38	4.3-4.8	7.2	-0.20	890	
FLNGT28	1000	10000	57	710	56	700	28-30	3.5-3.8	7.2	-0.20	850	
FLNGT31	780	7800	106	1130	104	1300	33-36	3.9-4.5	7.2	-0.20	850	
FLNG33J	650	6500	150	1880	136	1700	31-36	4.15-4.5	7.2	-0.20	850	
FLNGT38	800	8000	126	1580	123	1550	38-42	4.75-5.3	7.2	-0.20	850	
FLNGT42	880	8800	122	1530	120	1500	42-48	5.3-6.0	7.25	-0.20	850	

铸造Alnico磁性一览表

Cast Alnico Properties

材料牌号 Grade	剩磁 (Br)		矫顽力 (HcJ)		最大磁能积 (BH)max		密度 (D) g/cm³	美国标准 Equivalent MMPA Class	温度系数 (%Change Per°C)		居里温度 (Tc) C	工作温度 (Tw) C
	mT	Gs	KA/m	Oe	KJ/m³	MGOe			Near Br	Near Hcj		
*LN9	680	6800	30	380	9.0	1.13	6.9	Alnico3	-0.03	-0.02	810	450
*LN10	600	6000	40	500	10.0	1.20	6.9		-0.03	-0.02	810	450
*LNG12	720	7200	45	500	12.4	1.55	7.0	Alnico5	-0.03	-0.02	810	450
*LNG13	700	7000	48	600	12.8	1.60	7.0		-0.03	-0.02	810	450
LNG37	1200	12000	48	600	37.0	4.65	7.3	Alnico5DG	-0.02	+0.02	860	525
LNG40	1250	125000	48	600	40.0	5.00	7.3					
LNG44	1250	125000	52	650	44.0	5.50	7.3					
LNG52	1300	13000	56	700	52.0	6.50	7.3	Alnico8	-0.02	+0.03	860	525
LNG60	1350	13500	59	740	60.0	7.5	7.3	Alnico5-7				
LNGT28	1000	10000	58	720	28.0	3.50	7.3	Alnico6	-0.02	+0.03	860	525
LNGT36J	700	7000	140	1750	36.0	4.50	7.3	Alnico8HC	-0.025	+0.02	860	550
*LNGT18	580	5800	100	1250	18.0	2.2	7.3	Alnico8	-0.025	+0.02	860	550
LNGT32	800	8000	100	1250	32.0	4.0	7.3	Alnico8	-0.025	+0.02	860	550
LNGT40	800	8000	110	1380	40.0	5.0	7.3					
LNGT60	900	9000	110	1380	60.0	7.5	7.3	Alnico9	-0.025	+0.02	860	550
LNGT72	1050	10500	112	1400	72.0	9.00	7.3					

*=各项同性 其他=各项异性

*=Isotropic Other=Anisotropic

铝镍钴产品展示

Alnico Magnet Products Display



操作说明

Handling Magnets



磁组件使用注意：

磁组件的吸引力和排斥力存在着安全隐患，磁组件甚至可以在很远的距离吸引和排斥，所以操作时有受伤的风险，需注意。

烧结磁铁是硬但脆的，当它们碰撞时会分裂成锋利的碎片，在任何时候都应避免任何类型的碰撞。磁铁强大的吸引力容易弄伤皮肤，新手操作时建议配备合适的防护工具。

Processing of magnets:

The magnet's attracting and repelling forces represent a potential safety hazard. Magnets can attract and repel even at great distances - thus representing a risk of injury.

Sintered magnets are hard, brittle and, when they collide, break apart into sharp-edged pieces. Any type of collision should be avoided at all times. The powerful attractive forces of the magnet can crush one's skin, so work only when wearing suitable protective clothing!



磁组件的应用环境注意：

磁铁及组件的相互作用容易产生火花，尽量避免安装在有潜在爆炸性风险的环境中。

强大的磁场对电气及电子设备有较大的影响，特别是心脏起搏器，请注意。

Magnet applications:

Magnets may not be installed in potentially explosive environments because it could cause sparking.

Strong magnetic fields may affect electrical or electronic devices. This is also true of pacemakers.

We are not aware of any adverse affects to the human body as a result of exposure to magnetic fields.



磁组件的运输：

磁铁及磁组件在道路和海运输中可正常运输；但对于航空运输，外包装须参照IATA（国际航空运输协会）第953号危险货物的包装规定。

当进行包裹运输时，不恰当的包装容易引起问题，例如在运输过程中对其他包裹（电子设备，芯片卡等）产生影响，而且容易造成包裹表面吸附一些金属物品，请尽量避免。

Shipping of magnets:

Magnets are not classified as hazardous goods when shipped by road or sea. For air shipments, please refer to the packaging regulations for hazardous goods No. 953 of the IATA (International Air Transport Association).

When shipping via parcel services, magnets can lead to problems if not packaged properly. For example, this could affect goods (electronic devices, chip cards) in other parcels or the sorting equipment of the parcel service. The parcel could also become attached to metallic objects during transport.