



杭州矢量磁铁有限公司

Hangzhou Vector Magnets Co., Ltd.

a **FORESEE** Company

Founded in 2009



## About Vector Magnets

### Integrated Manufacturing

Facility and manufacturing Located in Hangzhou, assorted magnets, assemblies, modules, devices and equipment.

### Data Authenticity

Manufacturing automation and advanced test and inspection equipment to ensure reliable verification.

### Global Vision

Professional team collaboration based on efficient communication.

### Fine Traceability

Automotive customer servicing experience to allow continuous improvement and product traceability.

### Project Experience

Engineers well versed in data analyzing technics providing customer with value-added service.

### Share

Open to customers and partners to share knowledge, opinion and information.

# Products & Applications

## What We Make - Materials

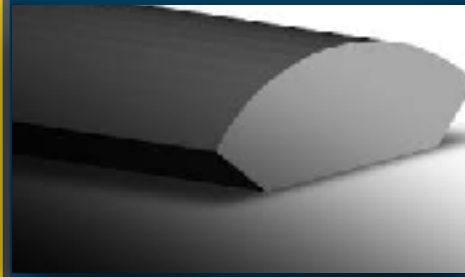
### Sintered NdFeB Magnets

High Br: 1.5T ; High Hcj: 2700 kA/m ; (BH)max: 55MGOe  
 Max working temperature: 220°C  
 Poor corrosion resistance, needs surface finishing



### Sintered SmCo Magnets

High Br: 1.12T ; Hcj: 1990 kA/m ; (BH)max: 32MGOe  
 Max working temperature: 350°C - 450°C  
 Higher resistance to corrosion



### AlNiCo Magnets (Cast & Sintered)

High Br: 1.35T; Hc: 160kA/m ; (BH)max: 12MGOe Max  
 Max working temperature: 550 °C  
 High resistance to corrosion,



### Bonded NdFeB Magnets (Compression & Injection)

High Br: 0.8T ; Hcj: 1250 kA/m ; (BH)max: 12MGOe  
 Max working temperature: 160 °C  
 Available for various shapes, multi-poles and high precision



### Hard Ferrite Magnets

High Br: 0.46T; Hcj: 360 kA/m; (BH)max: 5.0MGOe  
 Max working temperature : 250 °C  
 High dielectric property and high electric resistance



### Bonded Ferrite Magnets

High Br: 320mT ; Hc: 230 kA/m ; (BH)max: 2.5MGOe  
 Available for various shapes, multi-poles and high precision  
 Excellent corrosion and impact resistance



### FeCrCo Magnets

High Br: 1.35T ; Hc: 630 kA/m ; (BH)max: 6.5MGOe  
 Max working temperature : 500 °C  
 Good machinability, available for various shapes



### Ferrite & NdFeB Flexible Rubber Magnets

High Br: 270mT ; Hcj: 230 kA/m ; (BH)max: 1.8MGOe  
 Magnetic Sheeting, printer, magnetic whiteboard, magnetic decoration, extrusion strips, etc



## What We Make & Supplying

### Soft Magnets

SMC, Silicon Iron, Chromium Iron, Phosphorus Iron  
Permalloy, Nickel-Cobalt alloy,  
widely applied in micromotors, esp. in military & aerospace



### Plastic Injection

Hot plastic material melted in certain die into various shapes, consisting of rubber injection, plastic injection, molding injection



### MIM

Metel Injection molding  
Widely used in 3C, Medical, Automobile, Power tool, locks,  
Musical Instrument, Spectacles, Watches, etc.



### Stamping

Metal's plastic deformation under the co-impact of presser and mold, plates, stripes, tubes, pot, cap, etc



### Electromagnets

A portative electromagnet is designed to hold materials in place, i.e. lifting magnets, used in motor & generators, transformers, relays, electric bells and buzzers, actuators, etc



### Sintered Radial Ring NdFeB Magnets

Widely used in PMSM, new multipole radial orientation.  
High Stability and evenly distributed magnetic flux.



### SmFeN

Higher Curie Temp than NdFeB  
Anisotropy field as great as NdFeB  
Need 0% cobalt, anti-corrosion & anti-oxidation



### Programmable Magnetizing

Tailored Design available for various magnetization  
Enhanced with way more magnetic field density





## Applications

### Motor & Generator

Requirement: High Temp Demag, High Magnetic flux, density consistency, low weight loss; anti-corrosion, dynamic balance; Widely used in BLDC, PMDC, PMSM, Compressor, Blower, Linear Motor, Haibach Arrays, etc.



### Devices & Equipment

Mechanical panels i.e. speedometer, flow meter, etc  
Musical Instrument, pickups in guitar, microscope, Magnetic Resonance Imaging, Couplings, Magnetrons, etc.



### Green Energy

Wind Turbine Generator requires great amount of high quality, anti-corrosion, high coercivity Neo magnets, making it one of the iconic application of this type of magnets.



### House & Stationery Magnets

Greatly improve work efficiency and environment friendly in hundreds of working scenes.



### Sensors

For various purposes of proximity, rotation, relay, switch, detector, isolator, etc. High Surface Flux Consistency Micro-size with key Features, Magnetic Angle Deviation control, Good Machinability mostly allows injection molding.



### Industrial Magnets

Glass Filming, Welding Magnets, Magnetic Chuck, Fishing Magnets Available in various shapes and occasions;  
Comes in different materials, Excellent corrosion and impact resistance, Multi-pole magnetization.



### Communication & Security

Radio Frequency, Acoustic Drivers, Haptic Drivers, Camera, Fire Alarmer, Fingerprint Lock and assorted applications in automotive, wireless communication, aerospace, etc.



### Pot Magnets

Assorted combination of steel and magnets applicable in various occasions, living room, kitchen, supermarket, garage, office, working lines.



We Serve

## Automobile

### Procedures

- Project Confirmation
- Technical Requirement Conversion
- Process Development
- Ramping
- Mass Production



### Features

- Long Period
- Procedural Approach
- Continuous Improvement
- Process Control
- High Stability



Powertrain



Engine



Safety



Transmission



Fuel Tank



Motors



## Consumer Electronics



VCM



Vibration Motor



Loudspeaker



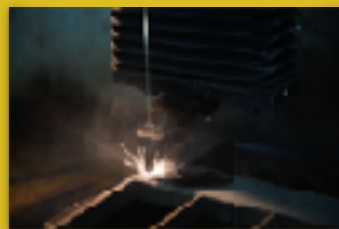
Camera Focus

### High Precision



Linear Tolerance:  
0.005mm ~ 0.01mm  
Geometric Tolerance incl,  
concentricity, parallelism etc,  
top level in magnet industry

### Dimension



0.15-0.3mm ID  
0.4~1.0mm OD  
0.25mm~0.8mm thickness  
200 x 200 x 50T mm block  
OD250 x 50T mm disk

### Modularization



A combination of magnetic  
technology and other  
subjects;  
Super easy for replacement;  
Less cost in repairing

### High Grade



N55, N52M, N50H, N50SH,  
N44UH, SmCo32, SmCo32H,  
AlNiCo9, AlNiCo8Hc, YNi18,  
FeCrCo52/5, FB9B, BN12

### Auto Inspection



Automate quality control,  
parts to be assembled by  
machine in automatic process,  
higher efficiency, accuracy and  
reliability

## Why Us



Jet Milling



Sintering



Grinding



Low Speed Wire Cutting



Injection Molding



Motor Assembly Line

### High Precision

Sets of CNC machines, EDM, Grinding & Tapping, Low speed wire cutting, Multi-Wire Saw, Engraving, Slicing & Drilling, Laser Cutting, Stamping & Die Cutting, Automatic rotary compressor.

### Quality Control

Automation in manufacturing and inspection to control magnet appearance, dimensions, flux, flux density, pull force, shear force, dynamic balancing, etc. Certified by ISO9001, ISO/TS16949, ISO14001, OHSAS18001, AS9100, ISO/IEC27001, GJB9001B.

### A wide range of magnetic solutions

Production and technical experiences in various manufacturing processes of casting, sintering, compression/injection molding, coil winding, rolling, welding, powder metallurgy, etc to assist customer with miscellaneous requirements.

### In-house finishing

Environment is strictly controlled within all production sites, Available plating are Ni, NiCuNi, Zn, Epoxy, Au, Copper, Sn, SnCu, Parylene, Teflon, Aluminum, etc.

## Laboratory



High Precision IMM



Magnet Physik BH Tester



Image Measurement Machine



Flux Density Tester



Magnetic Angle Deviation



Electronic Microscope



PCT



X-Ray Fluorescence



Pressure Cook Tester

### Application-oriented

All test devices and equipment are application-oriented, which are widely and high recognized by both magnet manufacturers and application market/users.

### Applicable to most of magnets

Multiple omnibus test devices and equipment available for almost all sorts of magnetic materials, extending to other metal parts and plastic parts.

### Reliability

Major test devices and equipment are calibrated with 3rd party authorities, institutes and labs, specializing customers.

## Service & Support

### 24 Hr Service

Quick response within 24hrs  
to customer queries



### Engineering Support

Application-oriented technical  
feasibility analysis  
Tailored assembly Design for  
specific application



### PDCA

PDCA model to tackle  
quality control and issues



### Warehousing

FIFO, Safety Stock,  
environment control,  
real time tracking





## Contact Vector Magnets

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