MAGELE®

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MAGELE®

MAGNETIC SOLUTION EXPERT

Magnetizing
Demagnetize
Magneic Measuring Equipment

MAGELE TECHNOLOGY (SHANGHAI) CO.,LTD.

COMPANY PROFILE

Magele Technology (Shanghai) Co., Ltd. was established in 2012 with a registered capital of 20 million yuan RMB, mainly committed to providing customers with magnetization, magnetic retraction, magnetic performance testing and other related solutions.

Based on Japan's magnetoelectric technology, the company has developed stable, efficient and safe high-precision equipment and magnetic field simulation technology in conjunction with the R&D teams of teachers and students from Zhejiang University and Huazhong University of Science and Technology.

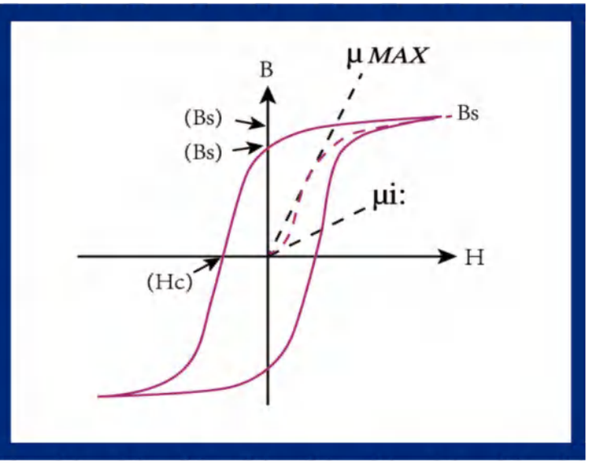
With leading technology, creative design and excellent quality, it has become the industry leader, especially in the permanent magnet motor industry in the world's leading position, and has established cooperative relations with many of the world's top 500 companies and multinational companies, and is widely used in magnetics, home appliances, automobiles, electroacoustics, medical, 3C, ships, aerospace, military industry, robots, rail transit, energy and power, special construction machinery and other industries.

MAGELE®

CONTENT

Magnetization Principle

The process of increasing the magnetism of non-magnetic or insufficiently magnetic materials is called "magnetization", and after magnetization, it becomes permanently magnetic.
When an external magnetic field is applied to the magnetic material that can overcome its intrinsic coercivity, the magnetic material will be magnetized, and when this external magnetic field disappears, the magnetic material itself will have remanence, so that the magnetization is completed.



Magnetization is divided into saturated magnetization and unsaturated magnetization, and the common magnetization is the way of saturation magnetization, and the saturated magnetization of magnetic materials will not be demagnetized during normal use.
There are two types of saturation magnetization equipment, "equipment that generates a high magnetic field" and "equipment that generates a high magnetic field instantaneously".
The representative equipment of the former is the DC power supply/coil (static magnetic field method).
The representative equipment of the latter is the "high-voltage oil-immersed capacitive magnetizing power supply (pulsed magnetic field method)".

The pulsed magnetic field method is a relatively common and widely used magnetization method, which is generally used by the "magnetizing power supply" with the "magnetizing coil" or "multi-stage magnetizing fixture".

Magnetization at both poles: A magnetizing coil is used

When a wire is wound into a cylindrical coil, an electric current passes through the coil, and a magnetic field is generated on the inside of the wire, magnetizing the magnetic material in it.
But the magnetizing coil can only produce the N pole and the S pole These two directions of the magnetic field, the direction of the magnetic field is determined by the direction of the current in the coil, and the strength of the magnetic field is determined by the magnitude of the current in the coil.
This magnetization method has strong compatibility, only the magnetic material can be put into its inner side, and enough magnetic field can be generated in the magnetization range, all of which can be saturated and magnetized.

Multi-pole magnetization: Use a multi-pole magnetizing fixture

The multi-pole magnetizing fixture is to roll wires on the iron core, and the principle is the same as that of the magnetizing coil, but by changing the shape of the iron core and the method of winding the wire, the generated magnetic field can be controlled to handle complex magnetization of multipoles and various shapes.
Magnetic assemblies or product applications generally use multi-pole magnetization, which can solve various assembly problems, optimize production process and quality, and control the magnetic field accuracy and requirements of the application product itself.

Magnetizing Fixture

Each magnetizing application requires a custom magnetizing coil or magnetizing fixture that converts the energy of the magnetizing power supply into the magnetic field required for magnetization

Axial Magnetization	Radial Magnetization	Radial Outer Circumferential Magnetization	Radial Inner Circumferential Magnetization	Axial Plane Magnetization	Radiant Ring Magnetization	Oblique Magnetization
Magnetizing Coil	Radial 2-Pole Magnetizing Fixtures	Radial Outward Multi-Pole Magnetizing Fixtures	Radial Inward Multi-Pole Magnetizing Fixtures	Axial Plane Single-Sided Multi-Pole Magnetizing Fixtures	Radiant Magnetizing Fixtures	Radial Oblique Multipole Magnetizing Fixtures
Dislocation Magnetization	Traditional Embedded Magnetization	Combined Embedded Magnetization	Spoke Embedded Magnetization	Haier Beck Array Magnetization	High-Precision Magnetic Sensor Magnetization	New Energy Motor Magnetization

The above is a more common magnetization method in the industry, if you have special magnetization requirements, our company can customize the solution.

Magnetizing Power Supply

ME series magnetizing power supply is a standard magnetizing power supply, using push-button operation, can customize the magnetization voltage of 50~6,000 (V), capacitance capacity of 200~ 1,000,000 (μF), and can be functionally equipped with demagnetization function (D), multi-output function (P), multiple discharge function (V), ultra-low impedance function (L), fast charge and discharge function and other practical functions.
MG series magnetizing power supply is a multi-functional magnetizing power supply, using touch/remote control operation, on the basis of ME series, it can add parameter storage call function, status feedback function, data transmission function, MES transmission function and other customized functions.

ME 1500V、1200V

Model	1510	1520	12100	12200	12300
Input Power	Single Phase 220V 50~60Hz About 25A		Single Phase 220V 50~60Hz About 30A		
Charge Voltage	50~1,500V		50~1,200V		
Max. Output Current	15,000A				
Repeat Precision Of Charge Voltage	±1V				
The Capacity Of Condenser	1,000μF	2,000μF	10,000μF	20,000μF	30,000μF
Charge Time	About 3S	About 4S	About 4S	About 8S	About 15S
Max. Energy	1,125J	2,250J	7,200J	14,400J	21,600J
Enclosure Dimension	500W×650D×850H		500W×1,000D×1,450H		
Weight	About 140KG	About 160KG	About 250KG	About 290KG	About 320KG

ME-1520

ME-12200

MG 2500V

Model	2510	2520	2530	2540	2560	2580	25100
Input Power	Single Phase 220V 50~60Hz About 40A					Single Phase 220V 50~60Hz About 60A	
Charge Voltage	50~2,500V						
Max. Output Current	30,000A						
Repeat Precision Of Charge Voltage	±1V						
The Capacity Of Condenser	1,000μF	2,000μF	3,000μF	4,000μF	6,000μF	8,000μF	10,000μF
Charge Time	About 3S	About 5S	About 8S	About 10S	About 16S	About 16S	About 20S
Max. Energy	3,125J	6,250J	9,375J	12,500J	18,750J	25,000J	31,250J
Enclosure Dimension	500W×1,000D×1,450H				1,000W×1,000D×1,450H		
Weight	About 250KG	About 290KG	About 320KG	About 350KG	About 500KG	About 560KG	About 620KG

MG-2520

MG 3000V、3500V

Model	3010	3020	3530	3540	3560	3580	35100
Input Power	Single Phase 220V 50~60Hz About 40A					Single Phase 220V 50~60Hz About 60A	
Charge Voltage	50~3,000V		50~3,500V				
Max. Output Current	30,000A						
Repeat Precision Of Charge Voltage	±1V						
The Capacity Of Condenser	1,000μF	2,000μF	3,000μF	4,000μF	6,000μF	8,000μF	10,000μF
Charge Time	About 4S	About 7S	About 12S	About 18S	About 28S	About 15S	About 20S
Max. Energy	4,500J	9,000J	18,375J	24,500J	36,750J	49,000J	61,250J
Enclosure Dimension	500W×1,000D×1,450H		800W×1,000D×1,650H			1,000W×1,100D×2,000H	
Weight	About 260KG	About 310KG	About 480KG	About 530KG	About 610KG	About 800KG	About 900KG

MG-3560

MG 4000V、4500V、5000V

Model	4030	4040	4550	4560	4580	45100	50100
Input Power	Single Phase 220V 50~60Hz About 60A					Single Phase 220V 50~60Hz About 100A	
Charge Voltage	50~4,000V		50~4,500V				50~5,000V
Max. Output Current	30,000A						
Repeat Precision Of Charge Voltage	±1V						
The Capacity Of Condenser	3,000μF	4,000μF	5,000μF	6,000μF	8,000μF	10,000μF	10,000μF
Charge Time	About 10S	About 14S	About 18S	About 20S	About 25S	About 30S	About 40S
Max. Energy	24,000J	32,000J	50,625J	60,750J	81,000J	101,250J	125,000J
Enclosure Dimension	1,000W×1,100D×2,000H				1,600W×1,100D×2,000H		
Weight	About 600KG	About 660KG	About 850KG	About 950KG	About 1300KG	About 1500KG	About 2000KG

MG-4560

Magnetic Measuring Equipment

Magnetic measuring equipment is mainly divided into magnetic flux test and surface magnetic field distribution test, through different magnetic measurement principles to detect magnetic properties, magnetic flux test is generally used in the total strength test of magnetic properties, and surface magnetic field distribution test is generally used in magnetic performance distribution uniformity test.

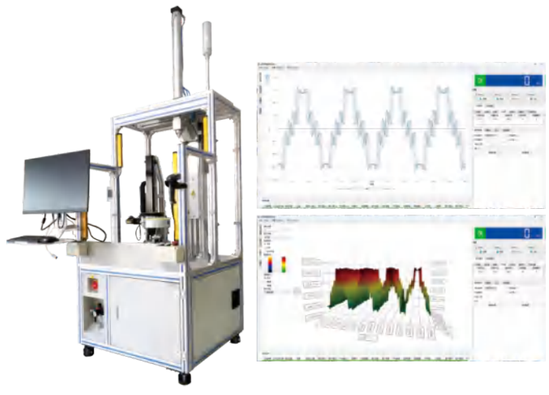
Magnetic Flux Test

The magnetic flux test generally consists of a test coil and a flux meter, which tests the change in the magnetic field strength of a surface.
According to Faraday's law of electromagnetic induction, the change of magnetic flux when the measured object passes through the test coil will produce an induced electromotive force (i.e., inductively induced voltage), and the magnetic flux meter calculates the magnetic flux according to the principle of time integration of the induced voltage, and the unit of magnetic flux is generally mWb.
The magnetic flux test equipment can fully check the magnetic properties of the measured object online and monitor it by setting the upper and lower limits, which is a fast and effective magnetic measurement equipment.

Surface Magnetic Field Distribution Test

The surface magnetic field distribution test is generally composed of a Gaussmeter (Hall probe), a data acquisition and analysis device, and the uniformity of the magnetic field distribution is tested.
The Gaussmeter made according to the principle of Hall effect can test the magnetic induction intensity within the range of the Hall chip, cooperate with the rotating mechanism to test the circumference of the measured object, and compose the surface magnetic field distribution curve of the magnetic induction intensity measured by the circumferential test through the analysis device, and the unit is generally Gs/mT.
Surface magnetic field distribution test equipment is a kind of high-precision and comprehensive magnetic measurement equipment, which is widely used in laboratory occasions such as product research and development, production process sampling, defective product analysis, etc., or for full inspection of production lines with high requirements for magnetic performance and quality.

MC-130 Standard



MC-330 For New Energy Vehicles

Equipment Case

Simple Magnetization Fixture

Standard Magnetization Equipment

Standard Magnetization& Measurement Equipment

Large Rotor Magnetization & Measurement Equipment

Magnetization & Measurement Equipment For 2-Station

Magnetization & Measurement Equipment For 3-Station

Magnetization & Measurement Equipment For 4-Station

Large Rotors With Magnetic Levitation And Air Levitation

EV/HEV Drive Motors And Generators For New Energy Vehicles

Magnetization & Measurement Equipment For Servo Control

Magnetization, Magnetic Flux Measurement And Surface Magnetic Integration Equipment

Spoke Embedded Rotor

Automatic Magnetization & Measurement And Loading&Unloading Integrated Equipment

Magnetic Material Application

The History For Development Of Magnetics

In the 30s of the 20th century, the successful development of aluminum-nickel-cobalt (AlNiCo) made large-scale application possible.

In the 50s of the 20th century, barium (strontium) ferrite (BaFe12019) was successfully developed, which not only reduced the cost, but also broadened the application range to the high-frequency field.

In the 60s of the 20th century, the successful development of samarium cobalt (SmCo5) opened up a new era.

In the 70s of the 20th century, the second generation of precipitation-hardening samarium cobalt (Sm2Co17) was successfully developed.

In the 80s of the 20th century, NdFeB (Nd2Fe14B) was successfully developed and quickly widely used.

In the 90s of the 20th century, samarium iron nitrogen (SmFeN) and neodymium iron nitrogen (NdFeN) were successfully developed and have been mass-produced.

Magnetic Applications

After the production and molding of various magnetic materials, various magnetization, demagnetization, magnetization and magnetic measurement requirements will be encountered. Moreover, with the changes in the market, single-function magnetic processing and magnetic detection equipment can no longer meet the demand, and intelligent magnetization solutions have come into being.

Mass Production Of Small Products

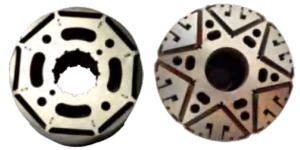
Automatic feeding (vibrating plate, magazine, conveyor belt), discharge, magnetization, measurement, receiving (barrel, magazine)
Rapid coding is optional
Gasket function is optional
Multi-station function is optional
Magnetic sorting function is optional
Data traceability is optional

Home Appliance Application

It is widely used in the field of household appliances, and with the continuous update and iteration of the downstream machine, the requirements for the performance, efficiency and reliability of the motor in various subdivisions are also constantly improving, and the proportion of DC motors is increasing year by year.

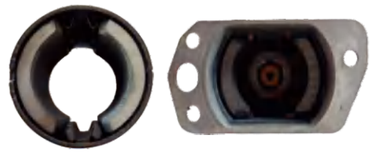
SPM Rotor

Widely used
Fan Rotor



" — " Type " V " Type

Widely used
Compressor Rotor



Widely used
Micromotor

Spoke Rotor

Widely used
Fan Rotor BLDC Rotor

IPM Rotor

Widely used
Compressor Rotor

Widely used
Micromotor

Widely used
Fan Rotor DDM Rotor

Widely used
Coreless Motor

Widely used
Electronic Expansion Valve

Vehicle Application

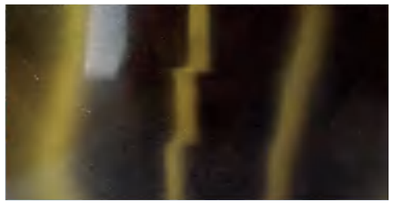
Whether it's a gasoline powered car or new energy vehicles,the use of electric motors in automobiles is rapidly increasing driven by key factors such as reducing vehicle weight, improving safety, reliability and comfort.

"—" Type

"V+—" Type

"V" Type

"V+V" Type

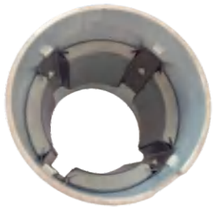


Unidirectional Misalignment
Of Iron Core

"V" Type Misalignment
Of Iron Core

Widely used
EV/HEV Main Drive Motoe、Generator Rotor

2 Poles



4 Poles

Widely used
Micromotor

6 Poles

Widely used
Micromotor

Pm

Widely used
PM Stepper Motor Rotor、
Electronic Expansion Vavle

Widely used
Fan Rotor

Widely used
Pump Rotor

Widely used
Pump Rotor

"—" Type

"V" Type

Widely used
Compressor Rotor

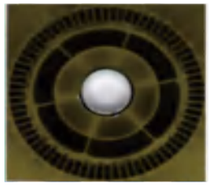
Widely used
EPS Rotor

Widely used
48V Hybrid Generator Rotor

Spoke Rotor

Widely used
Fan Rotor

Widely used
ABS Motor Sensor



Widely used
EPS Motor Sensor

Widely used
LIDAR Sensor

Widely used
Control Sensor

Widely used
Motorcvcle Motor

Widely used
Bicycle Electric Flower Drum

Industrial Application

Whether it's a gasoline powered car or new energy vehicles,the use of electric motors in automobiles is rapidly increasing driven by key factors such as reducing vehicle weight, improving safety, reliability and comfort.

Widely used
Stepper Motor

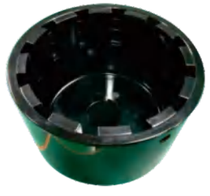
Widely used
Servo Motor Robot Motor

Widely used
Micromotor
Elertric Tool Motor

Widely used
Elertric Tool Motor

Widely used
Pump Motor

Widely used
Compressor Motor



Widely used
Fan Motor

Widely used
Elevator Traction Machine Motor

Widely used
Pump Motor

Widely used
Wind Power Generator Motor

Widely used
Rail Transit Traction Motor

Widely used
Electric Forklift Motor

Suspension Application

Levitation is used in two common high-efficiency and energy-saving fans: air suspension fans and magnetic levitation fans.
Air Suspension Fan: The air suspension fan uses the principle of aerodynamics to draw in and accelerate the gas through a high-speed rotating impeller, generating pressure and flow. When the impeller rotates in air, it uses the viscosity of the air and Bernoulli's law to generate an upward lift force on the gas, thereby levitating and driving the rotor to rotate.
Magnetic levitation fan: The magnetic levitation fan uses the principle of magnetic force to suspend the rotor in the air. The magnetic field between the rotor and stator couples to each other to generate torque and rotational force, and the rotational speed and direction of the rotor can be controlled by adjusting the strength and direction of the magnetic field.
They are widely used in industrial fields, such as municipal sewage, textile printing and dyeing, petrochemical, leather and paper, pharmaceutical food, steel cement, fuel cells, aerospace, military ships, precision machinery, etc.

Common Magnetization Methods

Simple Horizontal Type

Simple Horizontal Type

Simple Vertical Type

Electric Horizontal Type

Electroacoustic Application

In electric electroacoustic devices, including electric speakers, microphones, and stereo headphones, to achieve the mutual conversion between electrical and acoustic energy, a system that can provide a constant magnetic field is necessary. This system is the magnetic circuit system in electric electroacoustic devices, and the main component in the magnetic circuit system is usually a permanent magnet.

Widely used
Stage Audio

Widely used
Car Audio

Widely used
Headset Microphone

Widely used
Ipad Speaker
Ipad Microphone

Widely used
Laptop Speaker
Laptop Microphone

Widely used
Mobile Phone Speaker
Mobile Phone Microphone

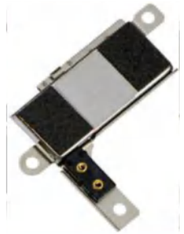
Widely used
Watch Speaker
Watch Microphone

Widely used
MagSafe

Widely used
Internet Audio

Electronics and Other Applications

In electronic products such as mobile phones, tablets, and laptops, a large number of vibration motors are required, and various magnetic devices are used in the production process.
In addition, all kinds of magnetic equipment will also be used in medical, instrumentation, shipbuilding, aerospace, military industry, robotics, rail transit, energy and power, special construction machinery and other aspects.



Widely used
Ipad Laptop Mobile Phone Watch

Widely used
Pacemaker Motor Ventilator Motor

Widely used
Exploration Instrument Sensor

Widely used
Nuclear Magnetic Resonance

Widely used
Ship Motor War Industry Motor

Widely used
War Industry Motor Aerospace Sersor

Note: Other applications such as refrigerator door seals, door stickers, toys, stationery, and cosmetics need to be customized according to requirements.

Cooperative Customers

Cooperative Customers