鑫华东
XINHUADONG

HDAIRUS

Magnetic levitation turbine vacuum pump

Energy saving/low noise/oil-free/
intelligent/maintenance-free



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SHANDONG HUADONG BLOWER CO.,LTD



COMPANY PROFILE








SHANDONG HUADONG BLOWER CO., LTD., founded in 2010, engaged in blower business since 2007. It is located in Zhangqiu District, Jinan City, Shandong Province, registered capital of 100 million yuan, covers an area of 100,000 square meters, 60,000 square meters of standard workshop, more than 100 sets of CNC machining center equipment. Now we have more than 300 employees, including 60 technical research and development personnel with doctor's degree and master's degree as the core.





Development Process

2007-2008

- Zhangqiu Consumer Satisfaction Unit

2010-2012

- Zhangqiu Tax Advanced Unit
- Zhangqiu Top Ten Tax Units
- Zhangqiu Contract and Credit Enterprises

2014

- Jinan Contract and Credit Compliance Enterprises
- Jinan Famous Trademark

2015

- ISO9001 Quality Management System Certification

2016

- The Shandong Famous Trademark
- Civilized and Integrity Private Enterprises
- Safety Production Standardization Level 3 Enterprises
- China General Machinery Industry Association Fan Branch Member Unit

2017

- The Workers' Pioneer
- Enterprise of Advanced Communist Party Members

2018-2019

- Zhangqiu Quality Award
- EU CE Certification
- National High-Tech Enterprises
- Hidden Champions Training Library
- Shandong Province "Specialized and Special New" Small and Medium-Sized Enterprises

2020

- EU CE Certification
- Environmental Management System Certification
- Zhangqiu Quality Award - Individual Award
- ISO9001 Quality Management System Certification
- Occupational Health and Safety Management System Certification
- China General Machinery Industry Association Branch Member Unit

2021-2022

- First Prize for Science and Technology Innovation in Shandong Equipment Manufacturing Industry
- "Energy Efficiency Star" Equipment Product Catalog
- Quality Management System Certification
- Jinan Advantage Industrial Product Catalog
- Green Factory

2023

- Reveal the List and Take Charge
- Excellent Energy-Saving Star
- Key Projects of Shandong Province
- Shandong-Made Qilu Boutique
- National Specialized and Special "Little Giant"

2024

- First Prize for Science and Technology Innovation in Shandong Equipment Manufacturing Industry
- 2024 Jinan Innovative Industrial Products
- The Second Jinan Industrial Green Low-Carbon Development Innovation Achievement Award





The composition of a structure

High-efficiency centrifugal impeller



●The three-dimensional flow theory design and parameter optimization are adopted to maximize the impeller efficiency and widen the working area.

●The centrifugal impeller is made of high-strength forged aluminum or titanium alloy with strong deformation resistance.

Magnetic bearing



●No wear/no lubrication required, high-speed operation possible.

●Can monitor rotor status, can monitor bearing status.

●No lubrication required, reducing housing size and weight.

●Semi-permanent life, no maintenance required.

●Adopts 5-DOF active magnetic bearing technology, using electromagnetic force to achieve rotor suspension.



High-speed permanent magnet synchronous motor



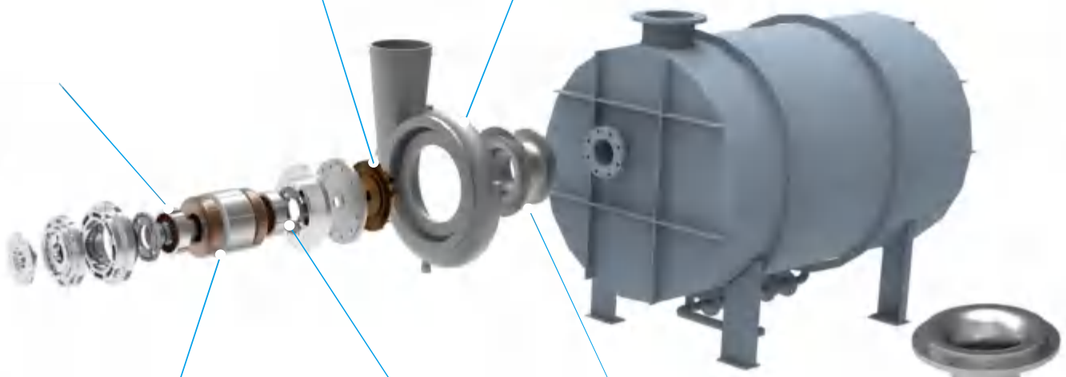
● High-speed and high-power permanent magnet synchronous motor is adopted.

● The motor is small in size, light in weight and has high power density.

● The motor has high speed, up to 60,000 rpm.

● Stepless speed control can be achieved.

● The motor rotor and impeller are directly connected to reduce intermediate energy consumption, low operating failure rate and high transmission efficiency.





Volute

●High strength, corrosion resistance

●The inner wall profile is designed as a logarithmic spiral line, which has little impact on the fan, small vibration, low noise and high efficiency.

●The function of the volute is to collect the gas coming out of the impeller and guide it to the outlet of the volute to transport the gas to the pipeline. Some volutes convert part of the dynamic pressure of the gas into static pressure.

Current Collector



●The hyperbolic collector accelerates the airflow

●The airflow evenly fills the inlet section of the impeller, reducing the resistance at the fan inlet.



Position Sensor

●The eddy current position sensor independently developed and produced by the company can achieve high-frequency and high-precision accurate detection.

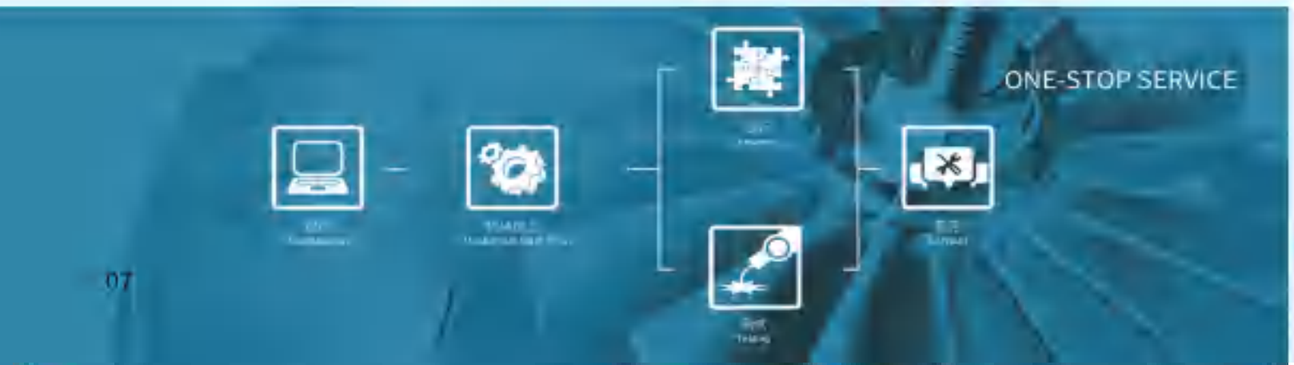
●It has excellent performance of anti-interference, high temperature resistance, impact resistance, and can adapt to various harsh environments.

Product advantages

Shandong Huadong magnetic levitation turbine vacuum pump is a non-contact, frictionless, high-efficiency and energy-saving intelligent environmental protection equipment. The products are widely used in paper making, petroleum, metallurgy, chemical industry, electric power, food, semiconductor, medicine and other fields. The average power saving efficiency is more than 40%.

The magnetic levitation turbine vacuum pump is composed of core components such as five axis magnetic levitation bearings, high-speed permanent magnet synchronous motors, high-efficiency centrifugal impellers, high-precision rotors and high-efficiency dedicated control systems.





Specifications and models

MODEL	product specification		
	flow rate （m3/min)	Vacuum degree （kpa)	MOTOR POWER （kw)
HMVB30	36~53	10~70	30
HMVB45	49~74	10~70	45
HMVB55	62~92	10~70	55
HMVB75	84~129	10~70	75
HMVB110	125~190	10~70	110
HMVB150	167~256	10~70	150
HMVB200	222~337	10~70	200
HMVB315	350~535	10~70	315
HMVB400	446~681	10~70	400
HMVB500	525~800	10~70	500
HMVB600	675~1030	10~70	600
HMVB710	770~1175	10~70	710
HMVB800	865~1316	10~70	800
HMVB1000	1045~1590	10~70	1000

Note: This selection table is for reference only. If you need accurate selection, please send the corresponding parameters to our professional and technical personnel for calculation.

Working theory

The magnetic levitation bearings are used to levitate the rotor, and the impeller is driven by a high-power and efficient permanent magnet synchronous motor to rotate at high speed. The magnetic levitation control system consists of the sensor, the controller and the magnetic levitation bearings. The sensor detects the rotor operating status in real time, and the controller outputs the control current to the magnetic bearing to make the rotor levitate stably for a long time.

The high-speed permanent magnet synchronous motor has fast response and high power density. The frequency converter controls the frequency and size of the output current and drives the rotor to drive the impeller to rotate at high speed to achieve precise adjustment of the motor speed.

When the magnetic levitation vacuum pump is working, the mixture of gas, liquid and impurities in the target system is sucked into the gas-liquid separator, and the separated liquid water is discharged by the filtrate pump, and the gas is filtered and compressed and accelerated into the vacuum pump by the high-speed rotating ternary flow impeller, thereby forming a negative pressure vacuum. After passing through the volute, it is converted into high-temperature wet saturated gas and is discharged. The special control system adjusts the suction volume by adjusting the motor speed, and then adjusts the vacuum degree of the target system to meet the user's various working conditions needs.

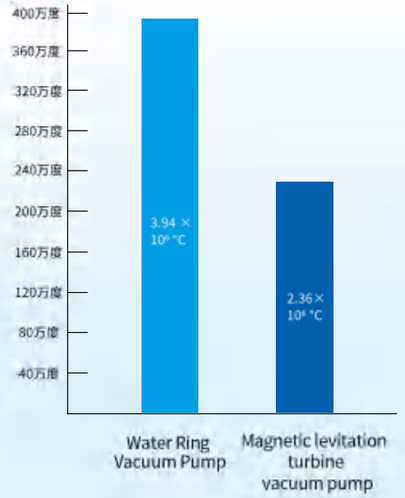


Performance comparison

Compare Projects	Water Ring Vacuum Pump	Roots vacuum pump	Domestic turbine vacuum pump	Magnetic levitation turbine vacuum pump
Bearings	Domestic ball bearings	Domestic ball bearings	Tilting pad bearings	Self-developed magnetic bearings
Is there friction when starting?	friction	friction	friction	Frictionless
Impeller type	Welding impeller	8-shaped impeller	Open/closed impeller	Three-dimensional impeller
Impeller efficiency	Low	Low	Higher	high
Motor Type	Low speed asynchronous motor	Low speed asynchronous motor	Asynchronous AC motor	Permanent magnet synchronous motor
Overall efficiency	45%	52%	62%	Exceed79%
Monitoring method	none	none	none	24-hour monitoring operation
lubricating oil	Add regularly	Add regularly	Add regularly	No lubrication required
Maintenance costs	high	high	Low	Maintenance-free
After-sales rights protection	High cost and high failure rate	High cost and high failure rate	High cost and high frequency	Maintenance-free, low cost

Comparison between magnetic levitation turbine vacuum pump and water ring vacuum pump

Under the same working conditions		
Comparison Items	Magnetic levitation turbine vacuum pump	Water Ring Vacuum Pump
Equipment consumption	270kw	450kw
Daily operating hours	24h	24h
Annual power consumption	2,365,200kw·h	3,942,000kw·h
A single magnetically suspended turbine vacuum pump can save 1.57 million kWh of electricity per year		



Quality Assurance



PROMOTING INDUSTRIAL CIVILIZATION

CREATING A BETTER LIFE TOGETHER

Huadong Blower has advanced testing equipment, and implements the manufacturing concept of "design and development - testing and verification - operation optimization - market introduction - continuous innovation", realize the all-round inspection and testing of key design results to magnetic suspension bearings, high-power high-speed permanent magnet synchronous motors, and high-efficiency centrifugal impellers, which guarantees the stability and reliability of the developed magnetic levitation blower.

Huadong Blower always insists on always being better than customers' expectations, creating a timely, professional, pleasant and thoughtful service concept. Everything is based on the mission of exceeding customer needs and is responsible for the results!








Qualifications and honors

Our company has accumulated more than 100 honorary titles, and has more than 100 intellectual property rights related to leading products, including more than 30 invention patents. They have passed ISO9001 International Quality Management System Certification, ISO24001 Environmental Management System Certification, ISO45001 Occupational Health and Safety Management System Certification, Two Integration Management System Certification, Intellectual Property Management System Certification, EUCE Certification and EAC Certification.



Key partners

A common choice from 10,000 customers ,serving customers endlessly

SINOPEC
中国石油
中国海油 CNOOC
SINOMA 中国中材
中粮 COFCO
中国建材
中核集团 CNNC
中国节能 CECEP
中化 sinochem
中国三峡 China Three Gorges Corporation
中国水务 CHINA WATER
CUCC 中联水泥
MCC 中国中冶
光大环保 EVERBRIGHT ENVIRONMENT
CONCH 海螺水泥
CNSG 中盐集团
BAOWU 宝武水务
中泰化学 ZHONGTAI CHEMICAL

Enterprise culture

Enterprise culture:
Honest, Surefooted, Superior, First-class

Business philosophy:
The pursuit of excellence is endless and
we keep pace with the times to create the future.

Entrepreneurial motivation:
Do business with love and be a person with a grateful heart

Team philosophy:
Leading the charge, tacit trust, and shared risks

Huadong Blower is heart-to-heart with its employe



Application area

Widely used in paper, petroleum, metallurgy, chemical industry, electric power, food, semiconductor, medicine and other fields.



paper making



petroleum



metallurgy



chemical



electric power



food



semiconductor



medicine