

Brief Introduction of Maglev Blower

Performance characteristics

Product introduction

The magnetic suspension blower produced by Tianrui Heavy Industries is a high-tech green energy-saving environmental protection product. Advanced magnetic bearing, three-dimensional flow turbine, high-speed permanent magnet synchronous motor, high-speed variable frequency speed regulation, intelligent monitoring and control technology are adopted. When starting, it is suspended and rotated first, without friction, without lubrication, direct connection between turbine and rotor, and zero transmission loss. Compared with Roots blower, it can save 30%-40% energy and reduce noise to less than 80 dB. It is widely used in sewage treatment, aquaculture, steel, cement, food, brewing, textile, petrochemical, thermoelectric and other fields.



THERE'S NOTHING WRONG WITH CHOOSING US.

Industry application



Maglev blower can be used in many industries

Material gas transportation

Cement plant, chemical industry, food and other industries: used in industrial raw materials, dust, food raw materials and other pneumatic conveying.

Sewage treatment (municipal, industrial)

It is mainly used to aerate the sewage tank, so that the biological active substances in the sewage tank can fully contact with the substances in the sewage, so as to achieve the purpose of decontamination.

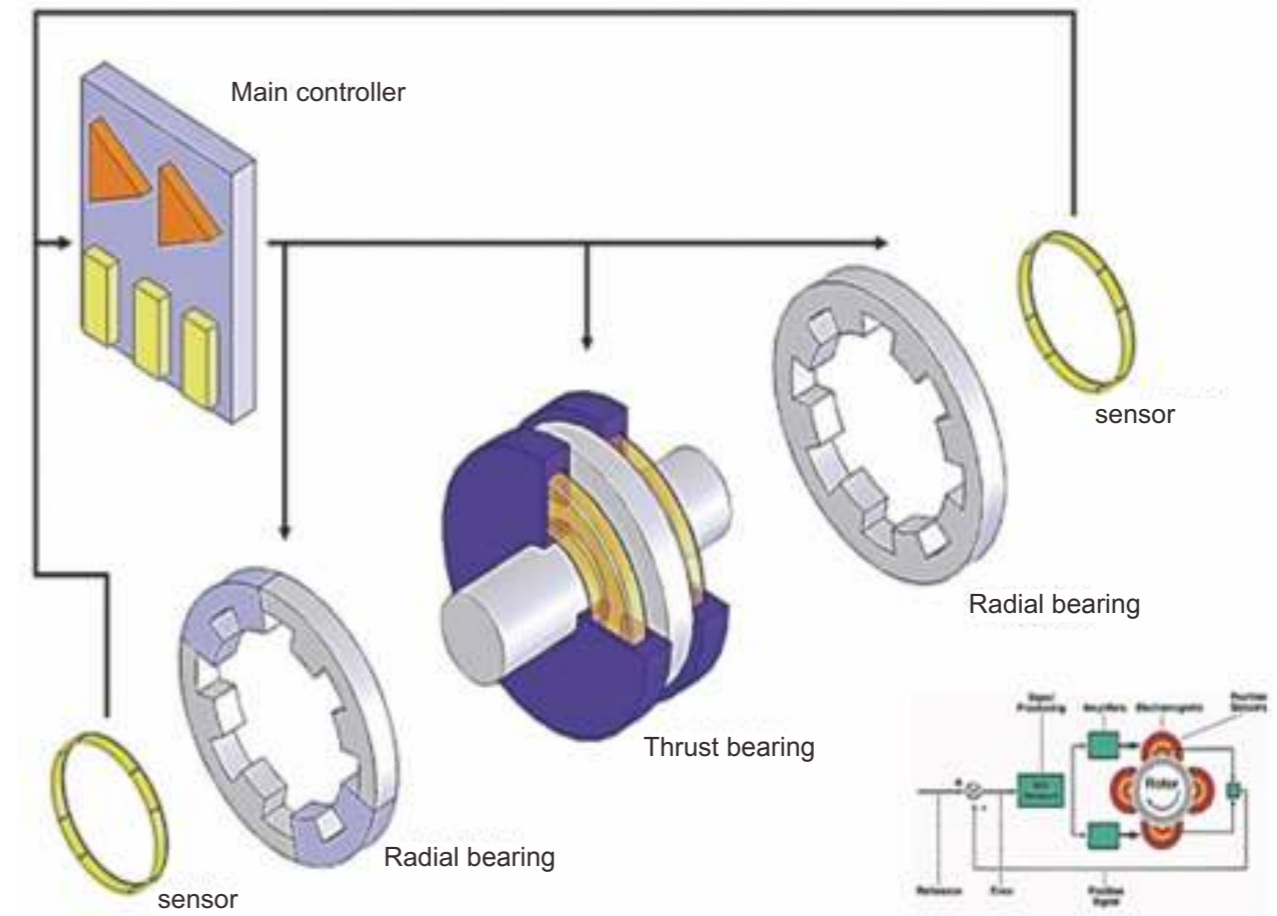
Aquaculture

Air was injected into the bottom of aquaculture pond to increase the oxygen content in the pond and increase the survival rate of aquatic products.

Other required industries

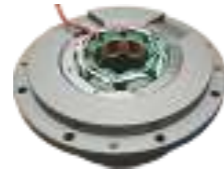
Paper mill, brewing industry, textile industry, dairy processing industry, thermoelectric industry, etc.

Working principle



Active magnetic suspension bearing system is the core system of magnetic suspension blower. The motor rotor is fixed between two radial actuators and two axial actuators. The position of the rotor is detected by position sensor, and the position signal is reflected to the actuator controller in real time. When the rotor is offset, the controller will adjust the magnetic force of the degree of freedom of the magnetic bearing according to the offset of the rotor, so that the rotor can return to the correct position.

Five Core Technologies



AMB

Controllable electromagnetic force is used to suspend the blower shaft without contact and wear. It has the characteristics of no mechanical wear, low noise and no lubrication.



Hydrodynamic impeller

The centrifugal impeller of high strength aluminium alloy processed by 5-axis precision machine tools is designed by three-dimensional flow method, which maximizes the efficiency of centrifugal impeller and has high service life.



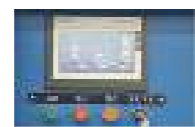
High Efficiency Inverter

Frequency regulation of high-speed permanent magnet motor is carried out by using frequency converter. All of these can be monitored by integrated HMI.



Stator of motor

Compact stator and filling permanent magnet rotor structure are adopted. It has the characteristics of high speed, high efficiency and long service life.



Control system

It uses 256-bit LCD-TFT touch screen and 800*480 DPI high resolution wide screen to provide users with a variety of communication interfaces. It has anti-surge (SURGE) protection function and maximizes product safety. Provide a variety of modes of operation.

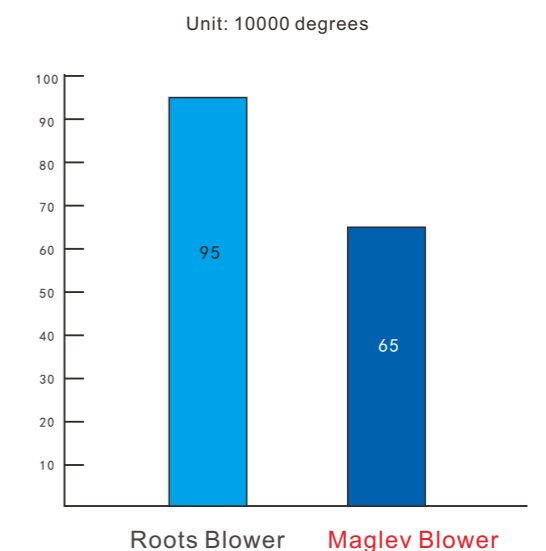
Performance comparison

Type	Roots blower	Single stage centrifugal blower	Air suspension blower	Maglev Blower
Air volume regulation	Installation of Frequency Converter	50-100%	65-100%	30-100%
friction	Yes	Yes	Yes	No
Frequent start up	Yes	Yes	No	Yes
Noise	More than 100 decibels	90-100DB	75-85DB	75-85DB
Shock	Very large	middle-sized and small	Very small	Very small
Maintain	Need lubrication	Complex lubrication systems are required	No need to lubricate	No need to lubricate
Maintenance mode	Regular maintenance	Regular maintenance by special personnel	Regular replacement of filters	Regular replacement of filters
Service life	5-8 years	10years	10 years (2 years later, frequent faults)	More than 20 years
Size	Larger volume	Larger volume	Small volume	Small volume
Installation requirements	Fixed to the groundSound insulation measures	Fixed to the groundSound insulation measures	No need to fix and sound insulation measures	No need to fix and sound insulation measures
Price	low	Similar price		

Comparison between Maglev Blower and Roots Blower

Comparison item	Maglev Blower	Roots Blower
Fan input power	75kW	110kW
Daily running time	24h	24h
Annual power consumption	648,000kW/h	950,400kW/h
A single magnetic suspension blower can save 300,000 kilowatt-hours of electricity per year.		

Note: The calculation is based on 8640 h/year and 0.8 yuan/kwh.



Five advantages Help you choose more competitive products

Environmental Protection

The magnetic suspension blower does not need lubrication, and the air conveyed is clean and pollution-free.

Magnetically suspended bearings are completely friction-free, and the noise of blower is low, which will not affect the surrounding office and living environment.

According to the calculation of 100 kW magnetic suspension blower, each blower can reduce about 275 tons of carbon dioxide emissions per year.

Cutting-edge technology

Active magnetic bearing system, no wear, no need for lubrication, maintenance.

High-performance frequency converter is used to control the speed, and a variety of control modes can be selected.

Using advanced control system, the operation status can be monitored and controlled remotely, without on-site attendance of personnel.

The fully enclosed air cooling system is used to heat the motor to ensure that the fan is in a stable and efficient operation state. Modular design, convenient and fast maintenance.

Industrial Big Data Platform

Remote service based on industrial Internet of Things can provide fault warning and online debugging experience for customer equipment throughout its life cycle.

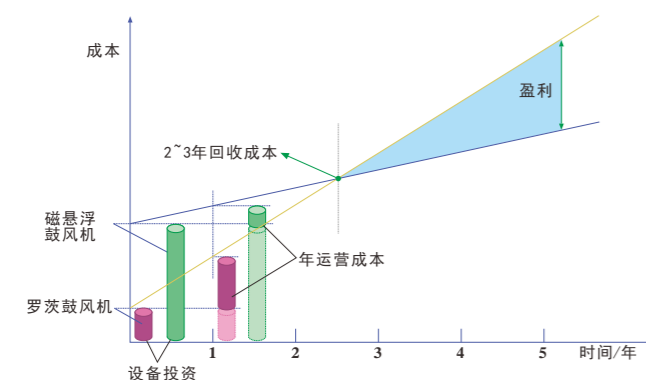
Unique industrial big data platform provides rich algorithmic models to help users improve production links from multiple perspectives.



Energy conservation

Compared with Roots blower, the efficiency of magnetic suspension blower is improved by more than 30%. Take 100 kW magnetic suspension blower as an example.

Compared with Roots blower, each magnetic suspension blower can save more than 300,000 degrees of electricity and 200,000 yuan of electricity per year.



Low operating costs

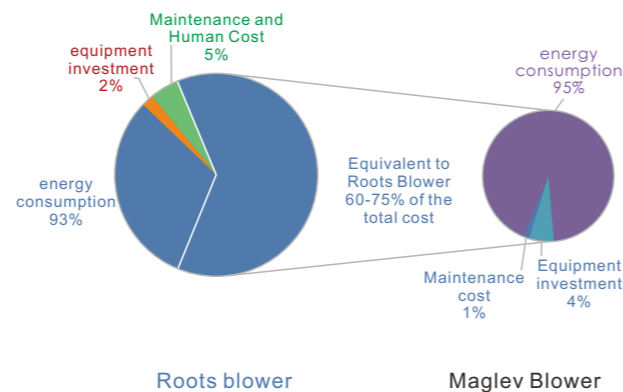
Magnetically suspended bearings are completely friction-free, reducing the probability of product damage, and the service life of blowers can reach more than 20 years.

The maintenance of magnetic suspension blower is simple, only need to change the filter regularly.

Maglev blower does not need lubrication system, which saves the cost of lubricating oil and cleaning.

The motor is driven by direct connection. It is small in size, light in weight and saves space.

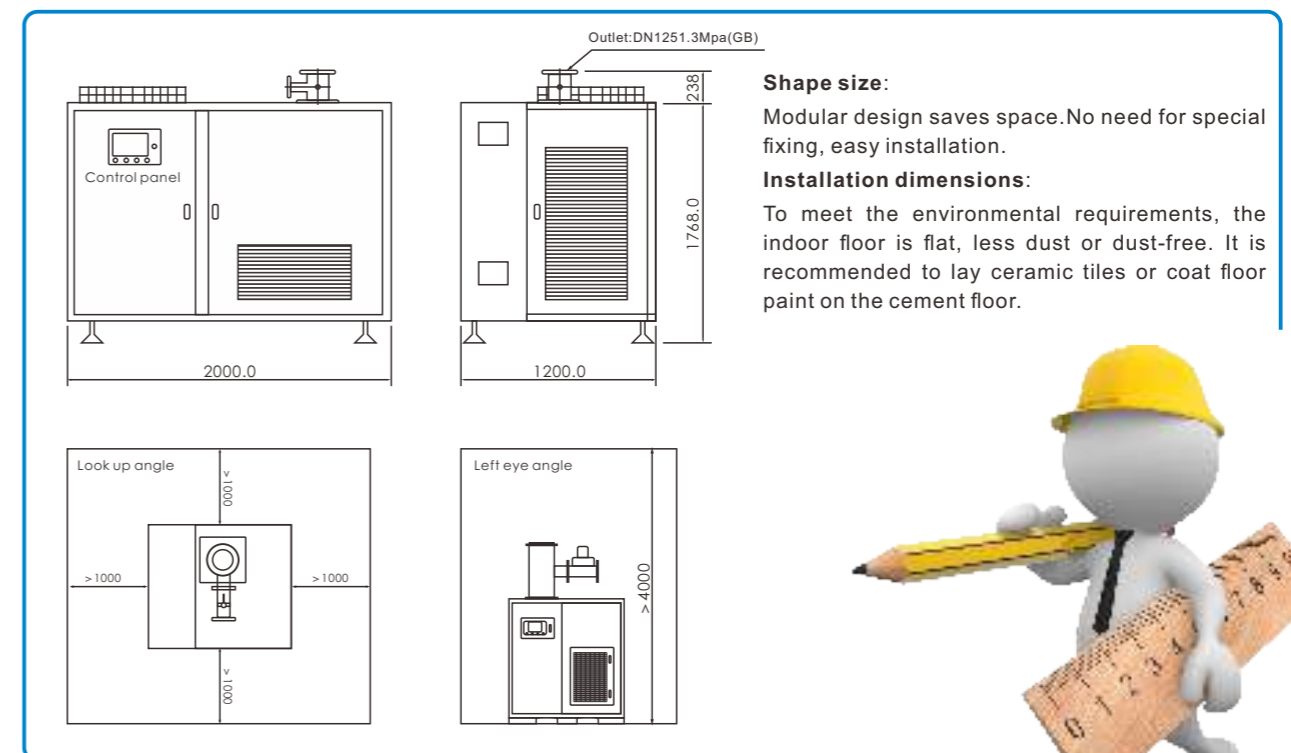
Domestic production can ensure the timely supply of spare parts.



Specification type

Model	Product specification			
	Flow/(m ³ /min)	Pressure/(KPa)	Motor power/(kW)	Cooling mode
TR055 SERIES	20~75	20~80	55	Air
TR075 SERIES	25~100	20~80	75	Air
TR110 SERIES	40~150	20~80	110	Air
TR150 SERIES	50~205	20~80	150	Air
TR220 SERIES	75~310	20~80	220	Air
TR300 SERIES	100~410	20~80	300	Air
Remarks	1. Model meaning: brand-horsepower-maximum pressure. Example: TR05506, TR brand, 55kW, maximum pressure 60KPa. 2. Pressure in the range of 90-140 KPa belongs to the unconventional model, and the supply cycle is prolonged.			

Outline size



Product selection

Product line	TR10006	TR10008	TR12004	TR15008	TR20007	TR25007	TR25010	TR40008
Pressure(KPa)	Flow m ³ /min							
30	60~70	67~75	65~105	83~90	135~165	138~170		285~295
40	55~67	55~75	20~96	73~95	115~150	115~165		280~295
50	35~66	34~75	20~85	40~95	70~138	70~135		260~290
60	38~61	35~75		45~95	70~110	75~105	56~136	225~280
70	42~45	38~66		47~90	70~80		62~128	110~255
80		40~55		48~75			68~120	120~190
90							73~114	
100							78~106	

Note: The data in the table above are reference data. Consult professionals for specific selection.

Energy saving case

Name	Fan Reform Project of a Paper Mill	
	Before	After
Model	Roots Blower	Maglev Blower
power	132kW	100kW
Number	1	1
noise	130dB	Around 70dB
Maintenance cost	10%	1%
Remarks	1. Power saving 37.7%, vibration amplitude 0.08-1.2mm/s, lower than other manufacturers in the same industry products. 2. Simple maintenance, easy installation, no need to fix.	

Save more than 30% of electricity

100 kW fan, power saving: 350,000 degrees per year; carbon dioxide emission reduction: 270 tons per year (1 kilowatt-hour = 0.766 kilograms of carbon dioxide).



Engineering case



A Cement Plant in Weifang



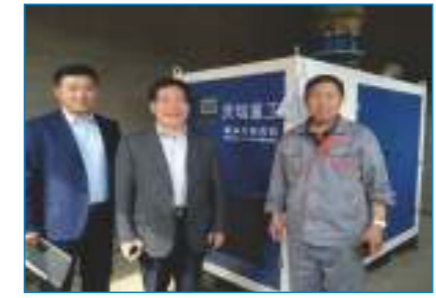
A Sewage Treatment Plant in Shouguang



A Paper Mill in Linyi



A Cement Plant in Shanxi Province



A Chemical Plant in Penglai



A Sewage Treatment Plant in Chongqing



A Thermal Power Plant in Gaomi



Shouguang Chemical Plant



A Power Plant in Weifang



A Sewage Treatment Plant in Chongqing



A Chemical Plant in Weifang



A Pharmaceutical Factory in Jining, Shandong Province