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空气悬浮离心风机 节能降耗专家

Air Suspension Centrifuge Blowers, Energy Saving Expert

潍坊富源增压器有限公司

Weifang FuYuan Turbochargers Co., Ltd

潍坊富源增压器有限公司

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全球领先的节能降耗专家

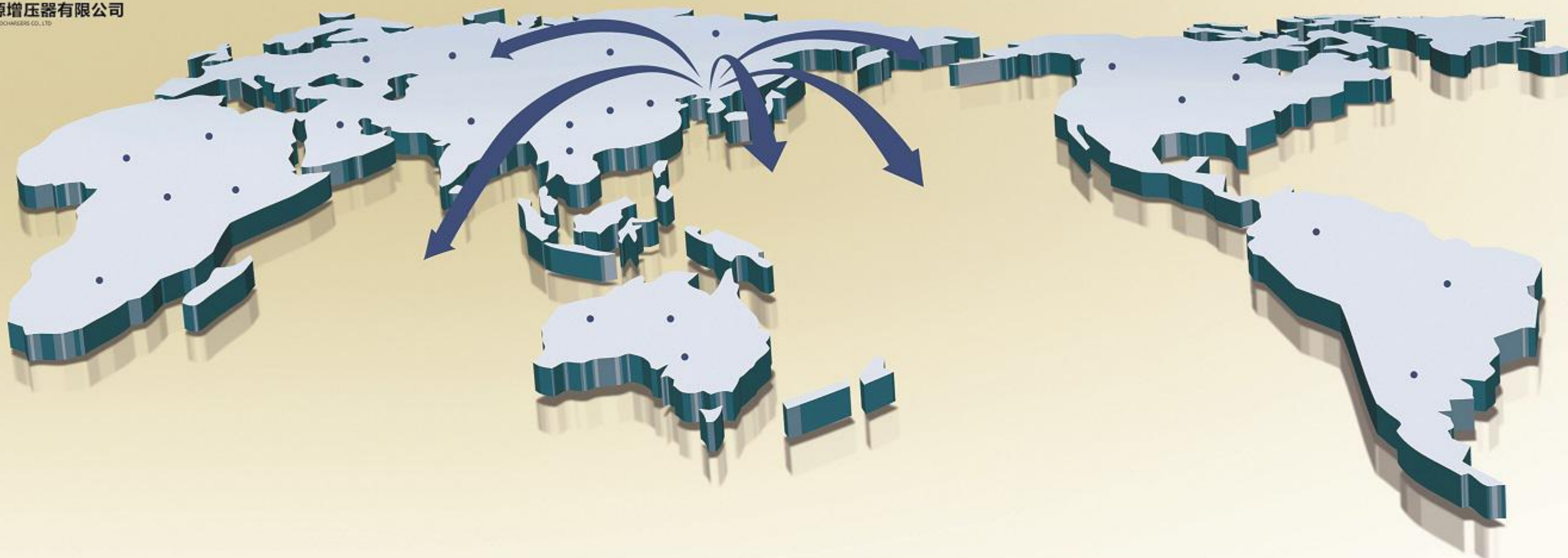
WORLD-LEADING ENERGY SAVING EXPERT

>> Weifang FuYuan Turbochargers



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COMPANY INTRODUCTION

公司简介 | 潍坊富源

>> Weifang FuYuan Turbochargers

潍坊富源增压器有限公司创建于1972年，是国家认定的高新技术企业，公司目前拥有总资产3.5亿元，是目前国内综合实力最强的涡轮增压器、空气悬浮离心风机、空气悬浮离心压缩机供应商之一。

公司目前是国内唯一能够提供多用途、全系列涡轮增压器产品的供应商，产品匹配功率范围50KW-4600KW，按用途分为乘用车、商用车、工程机械、船舶、发电、航空器用增压器，按燃料分为汽油机、柴油机、燃气机用增压器。

公司还研发了完全自主知识产权的空气悬浮离心风机和压缩机，富源空气悬浮高速离心风机功率范围从20-400HP，压力范围从30-130kPa可调，空气流量范围覆盖15-300m³/min，可以满足绝大多数进气量需求，为满足市场多样化需求，可以根据客户需求进行定制开发，该产品广泛应用于污水处理厂、化工厂、钢铁厂、气力输送、发电厂、制药、食品等行业。

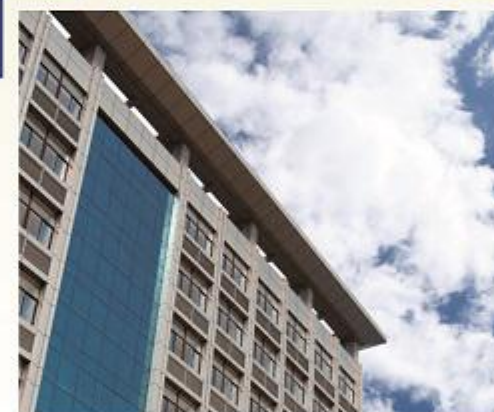
公司最新开发的SH系列涡轮增压器产品性能达到国际先进水平，公司的《内燃机全工况高压增压关键技术及工程应用》获得国家科技进步二等奖，打破了国外高压比增压器的技术垄断，产品可以直接替代进口产品，公司还荣获国防科学技术进步三等奖。

多年来，公司致力于涡轮增压器产品的技术进步，拥有现代化的省级企业技术中心和国内一流的涡轮增压器试验中心，先进的产品开发和测试能力，保证了产品的技术先进性和可靠性。公司一直专注主机配套市场，具备与主机厂同步研发的能力，可以为客户提供多种个性化的增压解决方案。

公司拥有国际先进生产设备组成的模具开发、毛坯铸造、零部件加工、产品组装的全流程生产线，核心零部件全部自制，可以为客户提供高质量、低成本的全系列增压器产品。

公司在同行业率先建立和通过了ISO9001:2008、ISO/TS16949:2009质量管理体系、ISO14001:2015环境管理体系、OHSAS18001:2007职业健康安全管理体系、ISO10012:2003测量管理体系认证。

公司始终坚持“为用户提供周到满意的服务”为经营理念，在国内外设有多个销售服务中心，可以为客户提供及时全面的服务。公司始终坚持自主创新，专注涡轮增压技术的发展，致力成为具有国际先进水平的涡轮增压器供应商。



Weifang FuYuan Turbochargers Co., Ltd. was founded in 1972. It is a national high-tech enterprises with total asset of RMB350 million. It's one of the most professional turbocharger, air suspension centrifuge blower and compressor manufacturers in China.

In China, FuYuan is the only turbocharger manufacturer who can produce multi-purpose, full range of turbocharger products with power rang from 50kw to 4600kw. According to application, the products can be divided into passenger vehicle, commercial vehicles, engineering machinery, marine and generation turbocharger. According to fuel type, they can be used on gasoline engine, diesel engine and gas engine.

Fuyuan also developed air suspension centrifugal blower and compressor with independent intellectual property. The power of FuYuan air suspension high-speed centrifugal blower ranges from 20HP to 400HP. The main model is serial product of 55HP, 75HP, 150HP, 200HP. Pressure ranges from 30KPa to 130KPa. Air flow range covers 15-300m³/min. It can meet most air inlet requirement. In order to meet various market demands, we can special develop according to customer requirements. It can be used in sewage treatment, chemical, steel, air transport, power plant, medicine, food industry and so on.

Our latest SH serial turbocharger has reached the internationally advanced technology. Our project - "IC Engine Full Condition High Pressure charging Key Technology and Engineering Application" was awarded National Science and Technology Progress Second Prize in 2013. It breaks through the monopoly in high pressure charging technology. FuYuan products can replace foreign products directly.

During past years, FuYuan is committed to turbocharger technology development. We have modern technical center and first-class laboratory in China which enable us the ability to developing turbocharger at the same time of engine development. The whole process of product design, tooling design, casting, machining and assembly ensures our product quality and technology advancement.

FuYuan is among the first to pass ISO9001: 2008, ISO / TS16949: 2009, ISO14001: 2004, OHSAS18001: 2007 and ISO10012: 2003 in the industry.

We always insist in "providing satisfactory service to customers" as our enterprise philosophy. We set up sales and after sale service centers in many provinces and cities, which eliminate customers' concern of after service. Adhering to independent innovation, focus on turbocharger technology development, FuYuan aims to develop into an advanced turbocharger manufacturer in the world

ENTERPRISE HISTORY

企业 | 发展史

>> Weifang FuYuan Turbochargers

1972年
■ 公司成立，主要生产电机、起重机械、纺织机械等；
In 1972, FuYuan established. The main product is motor, hoisting and spinning machinery.

1993年
■ 进入国内内燃机涡轮增压器配套市场；
In 1993, become turbocharger OE supplier for domestic market.

2008年
■ 荣获国内内燃机部件排头兵企业；
In 2008, Fuyuan has the honour to get the leading OE supplier in China.

2015年
■ 荣获国防科学技术进步三等奖；
In 2015, Fuyuan wins the third prize of National Defense Science and Technology Progress;

2017年
■ 首台空气悬浮离心风机交付用户；
In 2017, the first set air suspension centrifuge blower installed in sewage treatment factory.

1989年
■ 研制、生产涡轮增压器；
In 1989, develop and manufacture turbocharger;

2004年
■ 产品进入国际主机配套市场；
In 2004, Fuyuan enter into international OE market.

2013年
■ 开始研制空气悬浮轴承及永磁高速电机；企业研制的高压比增压器系统荣获国家科技进步二等奖；
In 2013, Fuyuan start to R&D air suspension bearing and high speed PM motor. The high pressure ratio turbocharger system developed by FuYuan wins second prize of National Science and Technology Progress;

2016年
■ 首台完全自主知识产权空气悬浮离心风机研制成功；成为国内船用增压器最大供应商；
In 2016, develop first set of air suspension centrifuge blower successfully with fully independent intellectual property rights. Become the biggest marine turbocharge supplier in China.

COMPANY CERTIFICATION

企业 | 认证

>> Weifang FuYuan Turbochargers



ISO/TS16949质量体系认证



ISO9001质量体系认证



ISO14001职业健康管理认证



OHSAS18001环境管理体系认证



标准化良好行为AAA证书



俄罗斯船级社认证RMRS



法国船级社认证BV



中国船级社认证CCS

COMPANY HONOR

企业 | 荣誉

>> Weifang FuYuan Turbochargers



国家科技进步二等奖
The second National Science and Technology Progress Awards



国防科学技术进步三等奖
The third National Defense Science and Technology Awards



山东省科学技术二等奖
The second Province Science and Technology Progress Awards



国家高新技术企业
National New-High technology enterprise



著名商标企业
Famous Brands

MAIN PRODUCTS

公司 | 主要产品

>> Weifang FuYuan Turbochargers

车用涡轮增压器 Turbocharger for Vehicle



船用涡轮增压器 Turbocharger for Marine and Gensets



空气悬浮离心风机 Air Suspension Centrifuge Blowers



PRODUCT INTRODUCTION

产品 | 简介

>> Weifang FuYuan Turbochargers

空气悬浮轴承、永磁高速电机、高效变频科技、高效离心压气机

Air suspension bearing, PM BLDC motor, high efficient convert, high efficient centrifugal compressor.

空气悬浮离心风机是由空气悬浮轴承、高效压气机、永磁高速同步电机、变频控制系统、冷却系统、空气过滤系统等多项核心技术集合而成的综合供气系统，可根据实际空气需求，自动调节载荷。

air suspension centrifugal blower is an air supply system combined with several core technology like air suspension bearing, high-efficiency compressor, PM BLDC high speed motor, high-efficiency converter control system, cooling system, air filtering system, etc. It is a comprehensive air supply system which can adjust power load according to air demand automatically.



AIR SUSPENSION CENTRIFUGAL BLOWER

空气悬浮离心风机

>> Weifang FuYuan Turbochargers

空气悬浮离心风机是由空气悬浮轴承、压气机、永磁高速同步电机、变频控制系统、冷却系统、过滤系统等多项核心技术集合而成的空气供给系统，可根据实际空气需求，自动调节载荷的综合供气系统。

Air suspension centrifugal blower is an air supply system combined with several core technology like air suspension bearing, compressor, PM BLDC high speed motor, high-efficiency converter control system, cooling system, filtering system, etc. It is a comprehensive air supply system which can adjust power load according to air demand automatically.



SYSTEM STRUCTURE

系统 | 结构

>> Weifang FuYuan Turbochargers

空气悬浮离心风机由离心风机主机、冷却系统、高频变频器、智能控制系统、空气过滤系统、手机APP及PC端远程监控系统组成。

Air suspension centrifugal blower is consist of centrifugal blower main body, cooling system, high frequency converter, intelligent control system, air filter system, APP and PC remote controlling and monitoring system .



PRODUCT FEATURES

产品 | 特性

>> Weifang FuYuan Turbochargers

效率高，节能效果显著 High efficiency, significant energy saving

高效压气机与永磁高速电机通过空气轴承采取直联方式去除了变速齿轮箱和润滑系统，无机械接触、无震动，运行噪音低，不需隔音罩。采用永磁高速电机及变频调速控制系统，调节转速控制流量和压力，在风机的工作流量的范围内保持很高的效率，比传统类型风机节能30-50%。

Eliminating speed change gear box and lubricating system, high efficient compressor connects with PM BLDC high speed motor directly. No mechanical contact, no vibration, low running noise, no need of blimp. Apply PM/BLDC motor and converter control system for adjusting speed and controlling flow and pressure automatically, which enables highest efficiency within blower's flow range. In comparison with traditional lower, it can save energy about 30%-50%.

节省空间，减少辅助设施投资 Save space, reduce investment of auxiliary facilities

风机体积小，重量轻，占用空间少，基础施工简单，安装时不需起吊装置；同时，可以根据需要选用方便的布置方式，比如可以直接在曝气池上设风机房，可节省管道投资，减少管道阻力损失。

Small volume, light weight, occupy little space. Simple foundation construction, no need of lifting device during installation; At the same time, convenient arrangement pattern can be selected according to demand. For example, ventilator room can be built above aeration tank, which can save pipeline investment, reduce loss of pipeline resistance.

操作简单、自动化程度高 Simple operation, Running automatically

风机可对转速、压力、温度、流量等进行自检，有防止喘振功能等，可实现无人操作；在风机的工作区域内，根据外部控制信号自由调节风机风量、风压的输出。风机本身集成了就地控制系统，风机无需就地控制柜和软启动柜；风机房设立的主控制盘通过电脑CPU可以自动连续调整压力、流量、控制开启、问题报警等，实现单台、多台同时联动自动控制作业。同时也可由远程中央控制室控制。相关的技术人员经过简单培训，根据操作手册的程序设置，风机即可自动投入运行并实现无人操作。

Blower can inspect speed, pressure, temperature, flow, etc by itself. It has anti-surge function and realize unmanned operation. In blower running range, it can freely adjust air flow and air pressure output according to external control signal. No need of LCP (local control panel) and soft start cabinet because the blower has integrated the LCP itself. The main control panel set in blower room can adjust pressure and flow, control start, alarming automatically and continuously through computer CPU, which enables single unit, multi-units cooperate together and control operation automatically. In parallel, it can be controlled by remote central control room. After simply training related technicians, according to the program setting on operation manual, customer can put the blower into service and realize unmanned operation.

设备可靠性高 High reliability

采用两大领先科技技术，永磁高速电机(PM BLDC)、动压空气轴承技术（去除由于变速箱、油路润滑系统、复杂的控制系统故障）；关键部件选用精良的材料(叶轮采用航空锻铝合金五轴加工或精密铸造，特殊场合可使用钛合金叶轮、轴使用高强度耐磨涂层金属材料)；通过标准化生产，确保设备性能稳定优异、可靠性高。

Apply two leading technology, PM BLDC motor, dynamic pressure air suspension bearing technology (eliminate malfunction caused by gear box, lubrication system and complicated control system); Select excellent material for critical parts (compressor wheel apply high strength wrought AL milled compressor wheel or investment cast CW. For special application, titanium compressor wheel, highly wear-resistant coating for shaft can be used); Standardized production ensures equipment performance stability and excellence as well as high reliability.

CORE TECHNOLOGY

核心 | 技术

>> Weifang FuYuan Turbochargers



空气悬浮轴承技术 Air suspension bearing technology

空气悬浮轴承技术无摩擦损失，超长寿命，风机综合效率高达96.5%以上，比传统风机节能30-50%；

Air suspension bearing technology with no abrasion loss. Long life time. Blower efficiency is above 96.5%. In comparison with traditional blower, it can save energy about 30-50%.

High efficiency centrifugal compressor 高效离心压气机

源于富源丰富的涡轮增压设计理念，采用国际先进的CFD设计软件CONCEPT NREC设计高效离心压气机；Apply global advanced CFD design software CONCEPT NREC for designing high efficient centrifugal compressor, which sources from FuYuan's rich design concept of turbocharger.



永磁高速电机 PM high-speed motor

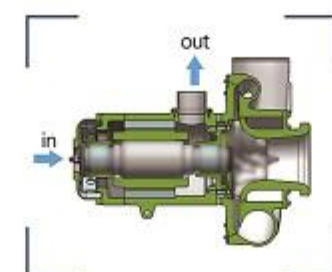
采用永磁直流电机，启动响应快，电机效率>97.5%；

Apply PM BLDC motor, fast response, high-efficiency is >97.5%.

High-efficiency Converter Control Technology 变频控制技术

采用国际先进的变频控制技术，可根据载荷自动调整转速和功率；

Apply global advanced high-efficiency converter control technology, which can adjust speed and power according to load automatically.



空气/水循环冷却技术 Air/ water cooling technology

采用高效的循环空气冷却技术，降低电机温度，对大功率系统，采用循环水冷技术，保证系统稳定。

Apply high-efficient air cooling technology, decrease motor temperature. For high power system, apply water cooling technology, ensure system stability.

ADVANCED CONTROL SYSTEM

先进的 | 控制系统

>> Weifang FuYuan Turbochargers



采用先进的模块化控制系统，功能如下： Apply advanced modular control system, which has below function:

- 为用户提供多元化的接口服务，便于系统运行数据采集和远程监控；
Provide diversified interface service to users, convenient in data collecting during system running and remote monitoring;
- 运行异常自动停机保护功能，使设备始终处于安全运行状态；
Automatic protection function enables equipment runs in safety status all the time;
- 过滤器更换提醒功能，使设备始终处于高效洁净状态；
Filter replacement remind function, enables equipment in high efficient and clean status always;
- 为用户提供多种运行模式：恒流量模式、恒转速模式、恒压力模式、恒功率模式等各种用户友好的运行选项；
Provide different running modes for users: Different user-friendliness running options such as fixed flow mode, fixed speed mode, fixed pressure mode, fixed power mode etc.
- 自动记录运行数据，便于查询历史运行状态；
Running data records automatically, convenient to query historic running status.
- 采用物联网大数据平台，实现远程监控、故障排查；
Remote monitoring and fault diagnosis by internet of Things and big data platform.

SYSTEM INSTALLATION AND MAINTENANCE

系统安装 | 及维护

>> Weifang FuYuan Turbochargers

► 系统安装 System installation

整个系统振动、噪音极小，无需特殊的基础设施
Vibration and noise level of the system is very low. No need of special foundation construction.



► 系统维护 System maintenance

空气悬浮离心风机属于无油系统，无需复杂的维护保养工作，只需定期更换空气过滤器即可，系统提供自动卷帘过滤器可供选择。

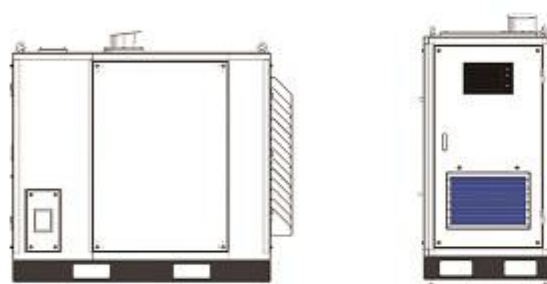
Air suspension centrifugal blower is oil-free system, so no complicated maintenance work is needed. Just replace air filter at regular time. Automatically scroll filter is available for customer option.



PRODUCT SERIES

产品 | 系列

>> Weifang FuYuan Turbochargers



规格性能表 (Performance Table)					
压力 Dis. Pressure (Kpa)	F50	F75	F100	F150	F200
	流量 Nominal Air flow (m ³ /min)				
30	47	76	107	130	174
40	43	68	86	122	164
50	38	55	74	113	148
60	33	49	66	104	132
70	26	44	58	92	116
80	23	40	54	82	108
90	20.2	37	50	69	92
BOV Pipe (mm/inch)	100A	125A	125A	125A	125A
Dis. Pipe (mm/inch)	150A	200A	200A	250A	300A
重量 Weight (kg/lbs)	335	485	570	810	1000
规格 SIZE (mm/inch)	W	800	850	850	1000
	L	1100	1300	1300	1900
	H	1050	1350	1600	1700

标准配置

Standard configuration

空气悬浮离心风机主机、变频器、控制器、不锈钢波纹弹性接头，手动蝶阀；
centrifugal blower main body, converter, controller, corrugated elastic stainless steel connector, manual butterfly valve;

可选配置

Optional configuration

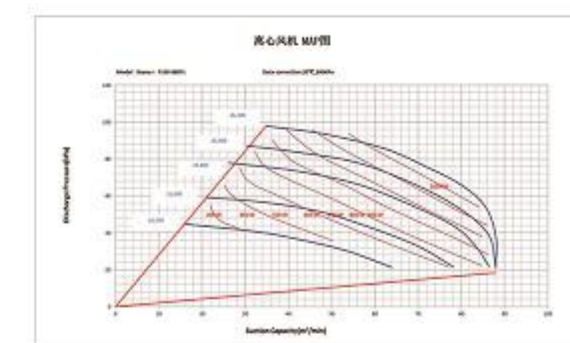
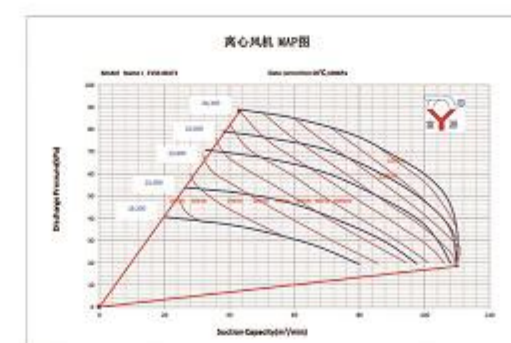
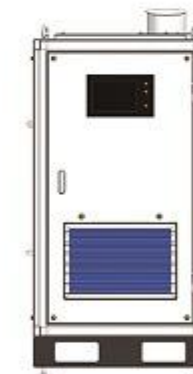
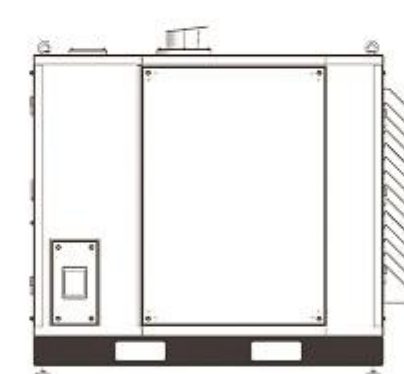
单向止回阀、电动蝶阀、远程监控及控制系统、自动卷帘式过滤器、连接管路、消音器等；
one-way check valve, remote monitor and control system, automatic scroll air filter, connecting pipeline, silencer etc;

PERFORMANCE MAP OF AIR SUSPENSION CENTRIFUGAL BLOWER

空气悬浮离心风机 | 性能曲线

>> Weifang FuYuan Turbochargers

可以根据用户需求优化压气机性能及定制化开发，以满足不同应用领域的需求。
We can optimize and design the compressor specially according to different requirement from customers.



APPLICATION

应用 | 领域

>> Weifang FuYuan Turbochargers

► 污水处理、电厂进风、化工厂、水泥行业、印染、造纸等行业。

Sewage treatment, power plant air supply, chemical plants, cement industry, printing and dyeing, paper industry.



► 该系统还可应用于食品、制药、半导体等无油需求的特殊行业。

The system can be applied in some special industries which need oil-free air supply system like food, pharmacy, semiconductor, etc.

COMPANY R&D ABILITY

企业 | 研发能力

>> Weifang FuYuan Turbochargers



► 先进的CFD设计能力 advanced CFD design ability

公司拥有先进的CFD流体力学计算软件CONCEPTS NREC，可以快速开发出高效的压气机。

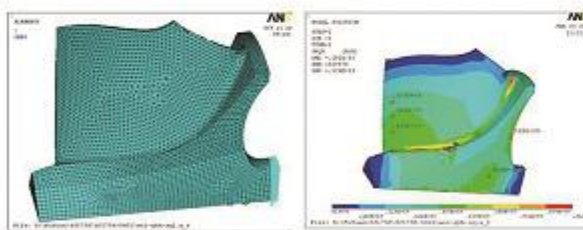
Advanced CFD calculation software CONCEPTS NREC enables us to develop high- efficient compressor in shortest time.



► 强度模态分析 strength mode analysis

采用ANSYS有限元分析软件进行叶轮及结构设计的强度计算并优化设计。

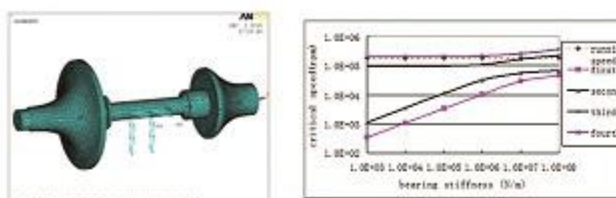
Apply ANSYS FEA software for strength calculation and optimization of compressor wheel and structure design



► 流固耦合分析 Fluid-solid coupling analysis

采用流固耦合分析模拟叶轮运动状态及强度

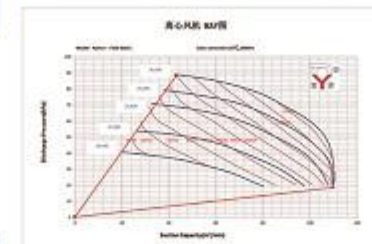
Apply fluid-solid coupling to analyze and simulate the running status and stiffness of compressor wheel.



► 转子动力学分析 Rotor dynamic analysis

分析叶轮及电机转子动力学特性

essor and motor' s rotor dynamic features analysis.



► 先进的压气机性能实验台架

advanced compressor performance test rig

公司拥有先进的压气机性能实验台，可以用于风压气机性能实验

Our advanced compressor performance test rig is used to do the compressor performance test of blower.



► 先进的铸造仿真能力

Advanced casting simulation ability

采用仿真软件模拟铸造过程，优化模具设计

Apply simulation software to simulate casting process, optimize mould design



► 结构设计 Structure design

采用先进的3D建模软件UG进行产品结构设计

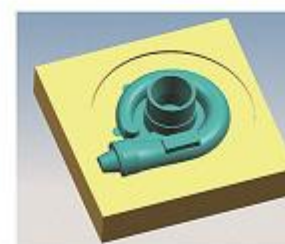
Apply advanced 3D software UG to design the structure and mould.



► 模具开发 mould development

公司拥有模具开发部及模具车间，所有模具均自主设计开发

We have mould development department and tooling workshop, all mould are designed and developed independently.



PRODUCTION ABILITY

企业 | 生产能力

>> Weifang FuYuan Turbochargers



企业拥有强大的生产制造能力，包括先进的五轴加工设备、高精度平衡设备、高精度数控车铣中心以及超速试验台等三百多台进口设备，公司还拥有一百多台各类高精尖检测设备。

Fuyuan has very strong production capability with three hundred sets of different CNC machine, including five-axis CNC, balance machine, CNC and over-speed test rig etc. Also we have about one hundred sets of inspection equipment.

