

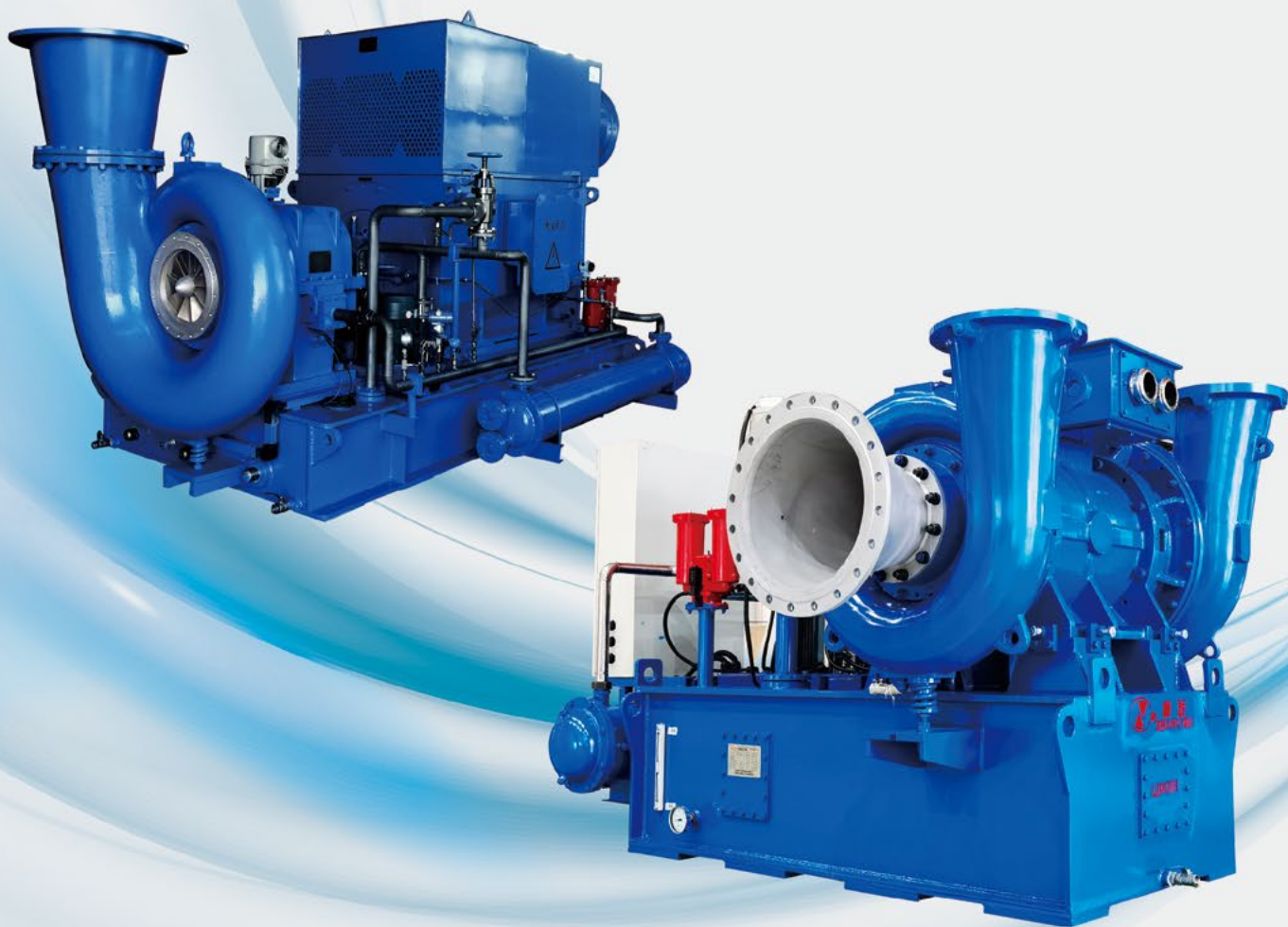


股票代码: 002598



高速离心式 鼓风机 | 真空泵 | 蒸汽压缩机

HIGH SPEED CENTRIFUGAL BLOWER | VACUUM PUMP | STEAM COMPRESSOR

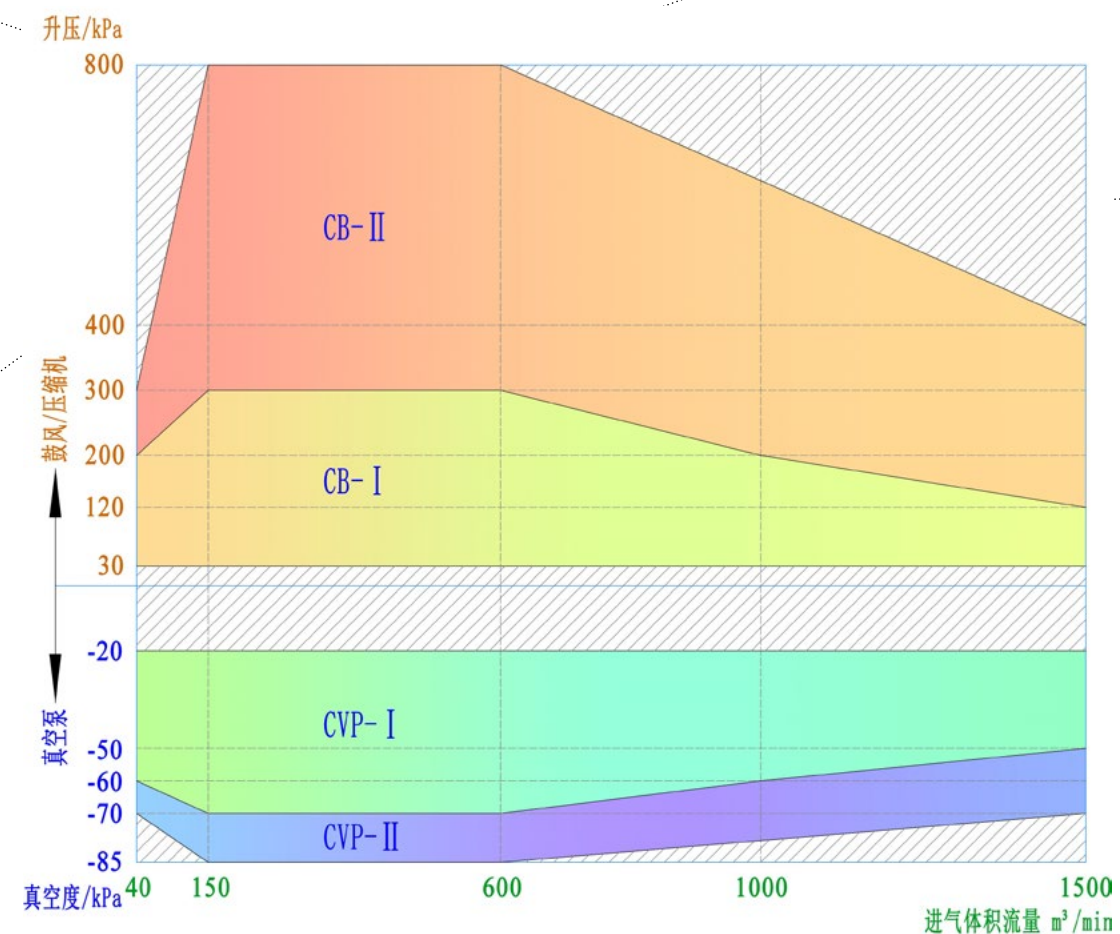


山东省章丘鼓风机股份有限公司
SHANDONG ZHANGQIU BLOWER CO., LTD

江苏章鼓力魄锐动力科技有限公司
JIANGSU ZHANGGU LIPORI TECHNOLOGY CO., LTD

产品图谱 PRODUCT MAP

ZGLIPORI 空气输送产品（鼓风机 / 压缩机 / 真空泵）图谱



CB- I : 鼓风机单级；CB- II : 鼓风 / 压缩机双级；
CVP- I : 真空泵单级；CVP- II : 真空泵双级。

- 1、本图适用条件为：鼓风 / 压缩机进气常温（-20~40℃）、常压（99~101kPaA）；真空泵进气常温、排气常压。不满足条件的（常见的如高海拔地区），按压比进行折算；
- 2、单级包括双机头并联式；
- 3、本图谱不包含双吸式大流量鼓风机产品、三级以上压缩机产品；
- 4、位于本图中非适用区或本图范围之外的，详询章鼓力魄锐。

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智能云平台—“章鼓云”

Intelligent cloud platform
“Zhanggu Cloud”



山东省章丘鼓风机股份有限公司简介

山东省章丘鼓风机股份有限公司是国家重点风机生产企业，具有五十余年的风机设计、生产、制造技术和经验。公司占地面积约 43 万平方米，职工 1400 余人。公司先后建立了两家中日合资企业，并在美国设立了分公司，成为国内风机行业第一家在国外建立分公司的企业。目前公司已成为集罗茨鼓风机、离心风机、工业泵、重型机械设备、气力输送成套系统、电气设备、MVR 蒸发浓缩与结晶技术和成套系统、环保水处理产品及服务等产品设计、生产、销售于一体的现代化企业。并成功在深交所挂牌上市。（山东章鼓，股票代码：002598）

公司拥有享受国务院特殊津贴、省、市政府津贴专家、工程技术研究员、“泰山学者”、“泉城学者”、济南市“5150”工程引进的日本专家博士组成的强有力的研发队伍。2017 年公司与中国水利水电科学研究院水资源所王浩院士合作建立了“山东省院士工作站”。公司先后与清华大学、西安交通大学、浙江大学、中国矿业大学、山东大学等高等院校保持着密切的合作关系。公司自主研发了多项具有国际领先和先进水平的新产品，拥有国内一流的产品研发设计中心，建有省级企业技术中心，具有雄厚的设计、科研、开发、试验、检测的能力，处于国内机械行业领先地位。

章鼓公司是大型罗茨鼓风机专业生产厂家，中国通用机械风机协会副理事长单位，罗茨鼓风机国家标准起草单位。先后荣获“中国机械 500 强企业”、全国风机、衡器等通用设备制造业“自主创新能力十强”、风机行业“用户满意企业”、“山东省机械工业利税五十强企业”、山东省认定的“企业技术开发中心”等多项荣誉称号，是国家高新技术企业。

SHANDONG ZHANGQIU BLOWER CO., LTD COMPANY PROFILE

Shandong Zhangqiu Blower Co., Ltd is one of the most important blower manufacturers in China with 50 years of experience in R&D and production of Roots type blower. The company area: 430,000 m², staff: 1400. It has become the largest manufacturer and seller of Roots type blower. It has invested to set up two Chinese-Japanese joint ventures, one sub-company in USA which is the first oversea organization in domestic blowers industry. Now the company has become a large-scale modern producing and design enterprise with products of blowers, heavy-duty equipments, pneumatic conveying systems, industrial pumps and electric equipments, etc.

There are experts who are awarded to enjoy special allowance from the State Council, the Province and the City government, a professional talent from Japan with doctor's degree in the company and excellent engineering researchers with the title of "TAISHAN ACADEMICIAN". It also keeps a good and close cooperating relationship with domestic famous universities like Tsinghua University, Xi'an Jiaotong University, Zhejiang University, Jiangsu University, Shandong University and Shandong University of Science and Technology. The company has a provincial level R & D center with strong ability of research, design, test and inspection and positioning a leading status in domestic machinery industry.

The company is ranked among the top 500 enterprises in Chinese Machinery Industry, the top 10 innovation enterprises in the domestic blower, the top 50 enterprises in taxpaying in Shandong Province. The company is also recognized to be "The Client Satisfaction Enterprises in Blower Industry". And "The High-Tech. Enterprise".

江苏章鼓力魄锐动力科技有限公司简介

江苏章鼓力魄锐动力科技有限公司是山东省章丘鼓风机股份有限公司（上市公司，股票代码：002598，以下简称“山东章鼓”）与杭州力魄锐航空科技有限公司共同投资成立的合资企业。公司位于誉为“太湖明珠”——中国民族工业和乡镇工业摇篮的无锡市。是一家集研发、生产、销售和技术服务为一体的综合型能源动力企业。主要耕耘叶轮机械动力领域，用航空动力技术，服务于民用领域。

公司技术在山东章鼓多年积累的基础上，引进北京航空航天大学专业博士团队，整体研发水平位居行业前列。

公司目前有 CB 系列齿轮箱式离心鼓风机 / 真空泵，CBP 系列齿轮箱式工艺气体离心鼓风机，CC 系列齿轮箱式离心压缩机，CVP 系列齿轮箱式离心真空泵，CBV 系列齿轮箱式蒸汽压缩机，CB-D 系列高速永磁直驱鼓风机 / 真空泵，广泛应用于石油、化工、水处理、电力、钢铁、造纸、铸造、有色金属、风洞试验等行业。

INTRODUCTION TO JIANGSU ZHANGGU LIPORI TECHNOLOGY CO. LTD COMPANY PROFILE

Jiangsu Zhanggu Lipori Technology Co. Ltd is a joint venture between Shandong Zhangqiu Blower Co., Ltd (public company, stock code: 002598, abbreviation is "Shandong Zhanggu") and Hangzhou Lipori Aviation Technology Co., Ltd. The company is located in wuxi, known as the "Pearl of Taihu Lake" - the cradle of national industry and township industry and is a comprehensive energy power enterprise, including research, production, sales and technical services. The main application is in the field of turbo blower machinery power, with aviation power technology, service in the civilian field.

The overall level of research and development is in the forefront of the industry, based on the much experience of Shandong Zhanggu, and the introduction of Beijing University of Aeronautics and Astronautics (Beihang University) professional doctor team.

The company has CB series gearbox turbo blower/vacuum pump, CBP series gearbox turbo blower for process gas, CC series gearbox turbo compressor, CVP series gearbox turbo vacuum pump, CBV series gearbox steam compressor, CB-D series high-speed permanent magnet direct drive turbo blower/vacuum pump, which is widely used in petroleum, chemical industry, water treatment, electric power, iron and steel, paper making, casting, non-ferrous metals, wind tunnel test and other industries.

CB系列鼓风机

产品简介 PRODUCT INTRODUCTION

CB 系列高速离心鼓风机是在山东省章丘鼓风机股份有限公司多年积累经验基础上，江苏章鼓力魄锐动力科技有限公司运用先进的航空叶轮机械技术研制开发的系列产品。

该系列产品气动性能和结构设计均达到国内外领先水平，可广泛应用于水处理、电力、石油、化工、有色冶炼、气治理、固废治理等领域。

CB series High speed Turbo Blower is developed by Jiangsu Zhanggu LIPORI Power Technology Co.,Ltd adopting advanced aero turbomachinery technology, based on the years' accumulated experience of Shandong Zhangqiu Blower Co.,Ltd.

This series products achieve advanced technology level both in China and abroad on pneumatic performance and structure design, are widely used in Waste Water Treatment, Power Plant, Petroleum, Chemical, Non-ferrous Metallurgy, Gas treatment, Solid Waste Treatment.



产品特点 PRODUCT FEATURES

叶轮型线先进 效率高 更节能

叶轮采用三元流动理论设计，应用流动分析技术预测鼓风机的性能，使单级高速离心鼓风机绝热效率高达 82%。

流量调节范围宽 可适用于多种工况

风机流量可通过变频、进口导叶 IGV 以及出口可调扩压器 OGV 三种调节方式，调节范围宽，并使其在非额定工况运行也有较高的效率。配备的防喘振装置可以有效避免鼓风机发生喘振。

风机结构紧凑 体积小

采用组装式整体结构，鼓风机本体组装在齿轮增速箱的壳体上，润滑油系统、电机及齿轮增速箱紧凑的布置在共用底座上，底座兼作油箱。

转子经严格动平衡后 振动小 可靠性高 整体噪音低

转子的转动惯量小，机组的启动、停车时间短，无需高位油箱和蓄能器。与同流量、压力的其他形式风机相比，能耗小，重量轻，占地面积小。

风机结构先进合理 易损件少 安装 操作 维护方便

整机的轴承振动、温升，进出口压力、温度，防喘振控制，启动联锁保护，故障报警，润滑系统油压、油温控制等均采用可编程逻辑控制器控制，使整机运行得到实时的监控。易损件少，日常维护方便。

智能化程度高

整机的轴承振动、温度，进出口压力、温度，防喘振控制，启动停机联锁保护，故障报警，润滑系统油压、油温等一系列监测与控制均采用可编程逻辑控制器控制，同时实时传输到“章鼓云”智能云平台，用户与项目工程师可以实时监控设备运行状况。

Advanced impeller profile curve and high efficiency

The ternary flow theory design of the impeller and the application of flow analysis technology forecasting performance of blower make the Adiabatic efficiency to reach up 82%.

The flow capacity can be controlled in the wide range, and the blower can be applied to variety of working conditions.

3 Options on blower flow capacity adjustment: VFD, IGV (Inlet Guide Vane), OGV (Outlet Guide Vane), wide adjusting range and keep high efficiency under non-rated working condition. The provided anti-surge device can prevent the surge problem effectively.

The compact blower structure and small size.

The blowers are adopted integrated structure of assembly-type, in details, the blower body is assembled on the casing of gear accelerating box, the lubricating oil system distributed, the motor and gear accelerating box are installed on the common pedestal compactly; the pedestal doubles as a oil tank.

After strict dynamic balance, the rotor has low vibration, high reliability and low overall noise.

The Moment of inertia of rotor is small, the startup and stop time has been decreased and the oil box with high oil level and accumulator has been abrogated. Compare to other style blowers with same flow capacity and pressure rise, this product enjoys low energy consumption, light weight and small size.

The structure of blower is advanced and reasonable. Easy-worn parts are few. Installation, operation and maintenance are convenient.

The parameters (such as bearing vibration of whole machine, temperature rise; inlet and outlet pressure and temperature; anti-surge control; start of the interlock protection; failure alarm; oil pressure of lubricating system, oil temperature control and so on) are controlled by programmable logic controller that can be get real-time control. Less wearing parts and the daily maintenance is convenient.

High degree of intelligence

The bearing's vibration, temperature, the inlet and outlet pressure, temperature, anti-surge control, start-stop interlock protection, fault alarm, lubricating oil pressure, oil temperature and a series of monitoring and control system are controlled by PLC, and real-time transmission to the "Zhanggu Cloud" intelligent cloud platform, users can real-time monitoring equipment running status with project engineer.

主要结构

MAIN STRUCTURE

调节机构

调节机构分进气导叶调节装置 IGV 和可调扩压器调节装置 OGV（非标配）。进气导叶调节装置由基体、导叶、传动机构、执行器等组成；可调扩压器调节装置由扩压器盘、导叶、传动机构、执行器等组成。进气调节导叶的旋转角度使气流进入叶轮前产生预旋，调节机构使风机运行范围更宽。

Guide Vane Controller

Adjusting device: IGV (Inlet Guide Vane) and OGV (Outlet Guide Vane, optional).
IGV is composed by: base, guide vane, transmission mechanism and actuator.
OGV is composed by: diffuser disc, guide vane, transmission mechanism and actuator.
The rotating angle of the IGV guide vane will prewhirl the gas flow before enter into impeller. The adjusting mechanism will wider the blower's working range.



叶轮

根据三元流理论设计的叶轮效率高，经严格的精密加工后作动静平衡校正，并通过 1.15 倍额定转速的超速试验，保证了叶轮强度。为了满足不同工况的需要，叶轮材料可选用锻造铝合金、不锈钢、钛材等多种材料。

Impeller

The impeller design is based on the ternary flow theory, enjoys high efficiency. Each impeller is dynamically balanced after precision machining, and all impeller get through the test of the rated 1.15 times speed and strength test. In order to meet the needs of different conditions, the impeller materials could be optional, such as Forged aluminum, Stainless Steel, Titanium.



高速转子

高速转子由叶轮、高速齿轮及高速轴组成。叶轮与高速轴采用拉杆连接，靠端面销或端面齿传递扭矩。为了确保风机运行平稳可靠，高速转子整体平衡精度达 G1 级。

High-speed Rotor

The high-speed rotor is consists of the impeller, the high-speed gear and the high-speed shaft. Impeller and high-speed shaft are connected by rod and the torque is transmitted by end surface pin or tooth.. The dynamic balancing test accords to the international standards and the precision could reach G1 grade to ensure the operation to be smooth and reliable.

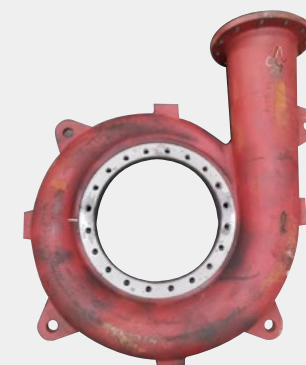


蜗壳

采用圆截面蜗壳，蜗壳壁的型线设计成对数螺旋线，符合气流的运动规律，对风机冲击小，因此风机的流动效率高，振动小，噪音低。

Volute Casing

This part adopts round section volute casing, and the profile line of the scroll wall is designed to be the logarithm spiral line, meet the airflow law of motion and it is low impact to blower, so the blower is high flow efficiency, low vibration and low noise.



齿轮

增速齿轮对为渐开线齿形，大小齿轮表面均经过研磨，渗氮硬化处理，保证风机高速运转稳定，振动和噪声小，寿命可达 20 年。

Gear

The acceleration gear pair adopts the involute tooth profile. The surface of gearwheel and pinion gets through the grinding and nitride-harden treatment to maintain the high speed stable operation, low vibration and low noise. The lifetime can be 20 years.



轴承

高速轴支承采用可倾瓦滑动轴承，由多块可绕支点偏转的活动瓦块组成，其抗振性能优良，并可根据载荷和转速的变化自动调节。

Bearing

The high-speed shaft support, composed by many flexible pads, adopts tilting pad journal bearing. The pads could deflex around the fulcrum, its anti-vibration performance and automatically adjusting ability according to the variation of load and speed are both excellent.



轴封

根据输送介质属性选用不同的密封形式，一般有梳齿密封、碳环密封加充惰性气体等。可根据情况设计一体式或剖分式。

Seal

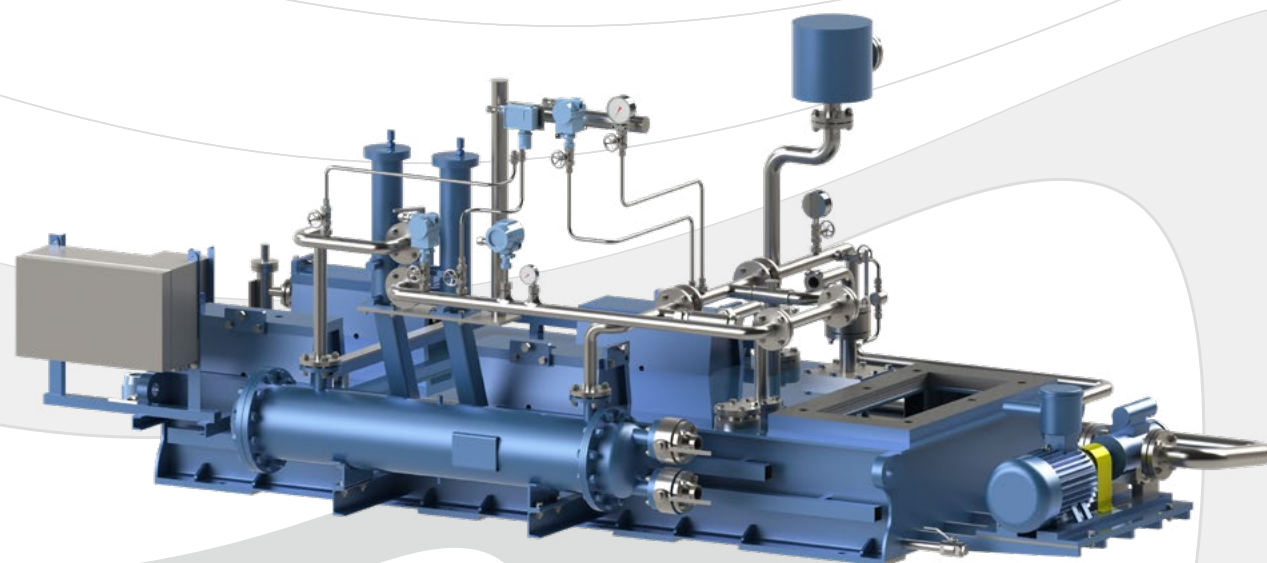
Diverse seals are available for different transported gas: Labyrinth seal, Carbon Ring Seal + Inert Gas Purging and etc. Integrated design or split design for different conditions.



润滑系统 LUBRICATION SYSTEM

润滑系统分油箱及润滑油路两部分。机组底座兼作油箱，内设浸入式电加热器和温控开关，以保证润滑油的温度。润滑油路由主油泵、辅助油泵、双桶过滤器、换热器等组成，主油泵由低速齿轮驱动，机组运行正常时可提供一定压力的润滑油润滑齿轮和轴承；电动泵在机组启动前为系统提供预润滑，在紧急情况和停机过程中保持油压，起备用油泵作用。油过滤器过滤精度高，并配置过滤器压差过高报警装置。

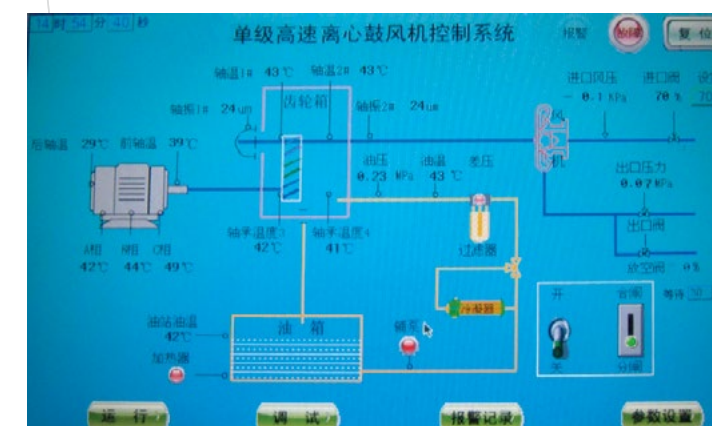
The lubrication system is consists of the oil tank and the oil pipeline.The pedestal doubles as a oil tank, the immersion-type electric heater and temperature control switch are both included in the oil tank. Lubrication piping is composed by: master oil pump, auxiliary oil pump, binocular filter and heat exchanger. The main oil pump would be driven by the low-speed gear and it supplies the pre-lubrication to gear and bearing with certain pressure when the units operate normally. The electric pump would supply the pre-lubrication before the units start and keep the oil pressure still under the emergency and downtime. The electric pump also plays a role of stand-by oil pump. The oil filter with double cylinder is high-precision. The pressure difference alarm device on filter is also equipped.



监测控制系统 MONITORING AND CONTROL SYSTEM

监测控制系统是专门为监控高速离心鼓风机运行设计制造的，该系统具备启动条件连锁、防喘振控制、辅助泵随油压变化自动启停、轴承温度过高和轴承振动过大保护等功能。在风机供油管路上配有油压传感器，在冷却器后配有油温传感器，高速滑动轴承配有测温、测振传感器，风机进出口管路配有测量气温、气压的一次、二次仪表及变送器，这样，可实时监测各种运行参数，保证风机安全、稳定、可靠的运行。

The monitoring and control system are designed for protecting running of high-speed centrifugal blower. The startup is provided with the mode of interlock,anti-surge control,the accessorial pump automatic start & stop according to the oil pressure, protection for over high bearing temperature and vibration. There are oil pressure sensors on oil-supplying pipeline,oil temperature sensors following oil coolers, temperature sensors and vibration sensors on high speed sliding bearings.The inlet and outlet pipeline are equipped with primary & secondary meters and transmitter to measure air temperature & pressure,so that,it can monitor the parameters real-time , to ensure the safe,stable and reliable operation of the blower.



CB系列高速离心鼓风机性能参数表

Performance table of series CB high-speed centrifugal blower

风机 型号 Type of Blower	进气状态 Suction Condition				升压 Discharge Pressure kPa	轴功率 Axial Power kW	电机Motor		机组 重量 Blower Weight kg	进口法兰 Inlet Flange DN (PN1.0MPa)	出口法兰 Outlet Flange DN (PN1.0MPa)
	流量 Capacity m³/min	压力 Pressure kPa	温度 Tempe- rature °C	密度 Density kg/m³			功率 Power kW	重量 Weight kg			
CB80-1.5	80	101.32	20	1.2	49	71.7	90	625	4915	DN300	DN250
CB80-1.6	80	101.32	20	1.2	58.8	84.1	110	900	5190		
CB80-1.7	80	101.32	20	1.2	68.6	96.8	132	1080	5430		
CB80-1.8	80	101.32	20	1.2	78.4	108.3	132	1080	5430		
CB80-1.9	80	101.32	20	1.2	88.2	119.4	160	1130	5480		
CB80-2.0	80	101.32	20	1.2	98.0	130.2	185	1130	5480		
CB80-2.1	80	101.32	20	1.2	107.8	139.5	185	1130	5480		
CB80-2.2	80	101.32	20	1.2	117.6	149.5	185	1130	5480		
CB80-2.3	80	101.32	20	1.2	127.4	159.2	200	1270	5620		
CB80-2.4	80	101.32	20	1.2	137.2	168.6	220	1600	6000		
CB80-2.5	80	101.32	20	1.2	147	177.8	220	1600	6000		
CB80-2.6	80	101.32	20	1.2	156.8	186.8	250	1630	6030		
CB80-2.7	80	101.32	20	1.2	166.6	195.5	250	1630	6030		
CB80-2.8	80	101.32	20	1.2	176.4	204.0	250	1630	6030		
CB100-1.5	100	101.32	20	1.2	49	89.7	110	900	5350	DN350	DN300
CB100-1.6	100	101.32	20	1.2	58.8	105.2	132	1100	5450		
CB100-1.7	100	101.32	20	1.2	68.6	120.9	160	1130	5480		
CB100-1.8	100	101.32	20	1.2	78.4	135.4	160	1130	5480		
CB100-1.9	100	101.32	20	1.2	88.2	149.3	200	1270	5510		
CB100-2.0	100	101.32	20	1.2	98.0	162.7	200	1270	5540		
CB100-2.1	100	101.32	20	1.2	107.8	174.4	220	1600	5870		
CB100-2.2	100	101.32	20	1.2	117.6	186.9	250	1630	5900		
CB100-2.3	100	101.32	20	1.2	127.4	199.0	250	1630	5900		
CB100-2.4	100	101.32	20	1.2	137.2	210.8	280	1780	6180		
CB100-2.5	100	101.32	20	1.2	147	222.3	280	1780	6180		
CB100-2.6	100	101.32	20	1.2	156.8	233.5	315	1780	6380		
CB100-2.7	100	101.32	20	1.2	166.6	244.4	315	1780	6380		
CB100-2.8	100	101.32	20	1.2	176.4	255.0	315	1780	6380		
CB125-1.5	125	101.32	20	1.2	49	112.5	160	1130	5700		
CB125-1.6	125	101.32	20	1.2	58.8	131.5	160	1130	5700		
CB125-1.7	125	101.32	20	1.2	68.6	151.2	185	1130	5700		
CB125-1.8	125	101.32	20	1.2	78.4	169.2	200	1270	5840		
CB125-1.9	125	101.32	20	1.2	88.2	186.6	220	1600	6170		
CB125-2.0	125	101.32	20	1.2	98.0	203.4	250	1630	6200		
CB125-2.1	125	101.32	20	1.2	107.8	218.0	280	1780	6350		
CB125-2.2	125	101.32	20	1.2	117.6	233.6	315	1780	6350		
CB125-2.3	125	101.32	20	1.2	127.4	248.8	315	1780	6350		
CB125-2.4	125	101.32	20	1.2	137.2	263.8	355	2700	7270		
CB125-2.5	125	101.32	20	1.2	147	277.5	355	2700	7270		
CB125-2.6	125	101.32	20	1.2	156.8	291.9	355	2700	7270		
CB125-2.7	125	101.32	20	1.2	166.6	305.5	400	2780	7350		
CB125-2.8	125	101.32	20	1.2	176.4	318.8	400	2780	7350		

风机 型号 Type of Blower	进气状态 Suction Condition				升压 Discharge Pressure kPa	轴功率 Axial Power kW	电机Motor		机组 重量 Blower Weight kg	进口法兰 Inlet Flange DN (PN1.0MPa)	出口法兰 Outlet Flange DN (PN1.0MPa)
	流量 Capacity m³/min	压力 Pressure kPa	温度 Tempe- rature °C	密度 Density kg/m³			功率 Power kW	重量 Weight kg			
CB150-1.5	150	101.32	20	1.2	49	135.0	160	1130	5420	DN400	DN350
CB150-1.6	150	101.32	20	1.2	58.8	157.8	200	1270	5560		
CB150-1.7	150	101.32	20	1.2	68.6	181.4	220	1600	5890		
CB150-1.8	150	101.32	20	1.2	78.4	203.1	250	1630	6030		
CB150-1.9	150	101.32	20	1.2	88.2	223.9	280	1780	6100		
CB150-2.0	150	101.32	20	1.2	98.0	244.1	315	1780	6170		
CB150-2.1	150	101.32	20	1.2	107.8	261.6	315	1780	6170		
CB150-2.2	150	101.32	20	1.2	117.6	280.4	355	2700	7090		
CB150-2.3	150	101.32	20	1.2	127.4	298.5	400	2780	7290		
CB150-2.4	150	101.32	20	1.2	137.2	316.5	400	2780	7290		
CB150-2.5	150	101.32	20	1.2	147	333.4	400	2780	7290		
CB150-2.6	150	101.32	20	1.2	156.8	353.0	450	2900	7410		
CB150-2.7	150	101.32	20	1.2	166.6	366.6	450	2900	7410		
CB150-2.8	150	101.32	20	1.2	176.4	382.5	450	2900	7410		
CB200-1.5	200	101.32	20	1.2	49	179.4	220	1600	5970	DN450	DN400
CB200-1.6	200	101.32	20	1.2	58.8	210.4	250	1630	6000		
CB200-1.7	200	101.32	20	1.2	68.6	241.9	315	1780	6150		
CB200-1.8	200	101.32	20	1.2	78.4	270.7	355	2700	6150		
CB200-1.9	200	101.32	20	1.2	88.2	298.6	355	2700	6350		
CB200-2.0	200	101.32	20	1.2	98.0	325.4	400	2780	6350		
CB200-2.1	200	101.32	20	1.2	107.8	348.8	450	2900	6470		
CB200-2.2	200	101.32	20	1.2	117.6	373.8	450	2900	6470		
CB200-2.3	200	101.32	20	1.2	127.4	398.0	500	3000	6570		
CB200-2.4	200	101.32	20	1.2	137.2	422.0	500	3000	6570		
CB200-2.5	200	101.32	20	1.2	147	444.0	560	4000	8180		
CB200-2.6	200	101.32	20	1.2	156.8	467.0	560	4000	8380		
CB200-2.7	200	101.32	20	1.2	166.6	488.8	630	4300	8680		
CB200-2.8	200	101.32	20	1.2	176.4	510.0	630	4300	8680		
CB250-1.5	250	101.32	20	1.2	49	224.3	280	1780	7200	DN500	DN450
CB250-1.6	250	101.32	20	1.2	58.8	263.0	355	2700	8120		
CB250-1.7	250	101.32	20	1.2	68.6	302.4	355	2700	8500		
CB250-1.8	250	101.32	20	1.2	78.4	338.4	400	2780	8580		
CB250-1.9	250	101.32	20	1.2	88.2	373.2	450	2900	8700		
CB250-2.0	250	101.32	20	1.2	98.0	406.8	500	3000	8800		
CB250-2.1	250	101.32	20	1.2	107.8	436.0	560	4000	10100		
CB250-2.2	250	101.32	20	1.2	117.6	467.1	560	4000	10100		
CB250-2.3	250	101.32	20	1.2	127.4	497.5	630	4300	10400		
CB250-2.4	250	101.32	20	1.2	137.2	527.5	630	4300	10400		
CB250-2.5	250	101.32	20	1.2	147	555.0	710	4600	10700		
CB250-2.6	250	101.32	20	1.2	156.8	583.8	710	4600	10700		
CB250-2.7	250	101.32	20	1.2	166.6	611.0	710	4600	10700		
CB250-2.8	250	101.32	20	1.2	176.4	637.5	800	4900	11000		

CB系列高速离心鼓风机性能参数表

Performance table of series CB high-speed centrifugal blower

风机 型号 Type of Blower	进气状态 Suction Condition				升压 Discharge Pressure kPa	轴功率 Axial Power kW	电机Motor		机组 重量 Blower Weight kg	进口法兰 Inlet Flange DN (PN1.0MPa)	出口法兰 Outlet Flange DN (PN1.0MPa)
	流量 Capacity m³/min	压力 Pressure kPa	温度 Tempe- rature °C	密度 Density kg/m³			功率 Power kW	重量 Weight kg			
CB300-1.5	300	101.32	20	1.2	49	269.1	355	2700	8530	DN600	DN500
CB300-1.6	300	101.32	20	1.2	58.8	315.6	400	2780	8530		
CB300-1.7	300	101.32	20	1.2	68.6	364.9	450	2900	8650		
CB300-1.8	300	101.32	20	1.2	78.4	408.5	500	3000	8750		
CB300-1.9	300	101.32	20	1.2	88.2	450.5	560	4000	9850		
CB300-2.0	300	101.32	20	1.2	98.0	491.1	630	4300	10180		
CB300-2.1	300	101.32	20	1.2	107.8	523.2	630	4300	10180		
CB300-2.2	300	101.32	20	1.2	117.6	560.7	710	4600	10780		
CB300-2.3	300	101.32	20	1.2	127.4	597.0	710	4600	10780		
CB300-2.4	300	101.32	20	1.2	137.2	633.0	800	4900	11080		
CB300-2.5	300	101.32	20	1.2	147	666.0	800	4900	11080		
CB300-2.6	300	101.32	20	1.2	156.8	700.5	800	4900	11080		
CB300-2.7	300	101.32	20	1.2	166.6	733.2	900	5200	11380		
CB300-2.8	300	101.32	20	1.2	176.4	765.0	900	5200	11380		
CB350-1.5	350	101.32	20	1.2	49	313.9	400	2780	8660		
CB350-1.6	350	101.32	20	1.2	58.8	368.2	450	2900	8680		
CB350-1.7	350	101.32	20	1.2	68.6	425.8	500	3000	8780		
CB350-1.8	350	101.32	20	1.2	78.4	476.6	560	4000	9880		
CB350-1.9	350	101.32	20	1.2	88.2	525.6	630	4300	9980		
CB350-2.0	350	101.32	20	1.2	98.0	569.5	710	4600	10580		
CB350-2.1	350	101.32	20	1.2	107.8	610.4	710	4600	10580		
CB350-2.2	350	101.32	20	1.2	117.6	654.2	800	4900	10880		
CB350-2.3	350	101.32	20	1.2	127.4	696.5	800	4900	10880		
CB350-2.4	350	101.32	20	1.2	137.2	738.5	900	5200	11180		
CB350-2.5	350	101.32	20	1.2	147	802.6	1000	5440	11420		
CB350-2.6	350	101.32	20	1.2	156.8	817.3	1000	5440	11420		
CB350-2.7	350	101.32	20	1.2	166.6	855.4	1000	5440	11700		
CB350-2.8	350	101.32	20	1.2	176.4	892.5	1000	5440	11700		
CB400-1.5	400	101.32	20	1.2	49	358.8	450	2900	8400		
CB400-1.6	400	101.32	20	1.2	58.8	420.8	500	3000	8500		
CB400-1.7	400	101.32	20	1.2	68.6	491.5	630	4300	9800		
CB400-1.8	400	101.32	20	1.2	78.4	550.0	630	4300	9980		
CB400-1.9	400	101.32	20	1.2	88.2	606.3	710	4600	10580		
CB400-2.0	400	101.32	20	1.2	98.0	650.9	800	4900	10880		
CB400-2.1	400	101.32	20	1.2	107.8	697.6	800	4900	10880		
CB400-2.2	400	101.32	20	1.2	117.6	747.6	900	5200	11180		
CB400-2.3	400	101.32	20	1.2	127.4	796.0	1000	5440	11420		
CB400-2.4	400	101.32	20	1.2	137.2	844.0	1120	5650	11630		
CB400-2.5	400	101.32	20	1.2	147	917.9	1120	5650	11900		
CB400-2.6	400	101.32	20	1.2	156.8	934.0	1120	5650	11900		
CB400-2.7	400	101.32	20	1.2	166.6	977.6	1250	5880	12130		
CB400-2.8	400	101.32	20	1.2	176.4	1020.0	1250	5880	12130		

风机 型号 Type of Blower	进气状态 Suction Condition				升压 Discharge Pressure kPa	轴功率 Axial Power kW	电机Motor		机组 重量 Blower Weight kg	进口法兰 Inlet Flange DN (PN1.0MPa)	出口法兰 Outlet Flange DN (PN1.0MPa)
	流量 Capacity m³/min	压力 Pressure kPa	温度 Tempe- rature °C	密度 Density kg/m³			功率 Power kW	重量 Weight kg			
CB500-1.5	500	101.32	20	1.2	49	448.5	560	4000	9900	DN700	DN600
CB500-1.6	500	101.32	20	1.2	58.8	526.0	630	4300	10200		
CB500-1.7	500	101.32	20	1.2	68.6	614.3	710	4600	10500		
CB500-1.8	500	101.32	20	1.2	78.4	687.7	800	4900	10650		
CB500-1.9	500	101.32	20	1.2	88.2	757.8	900	5200	10700		
CB500-2.0	500	101.32	20	1.2	98.0	818.4	1000	5440	11850		
CB500-2.1	500	101.32	20	1.2	107.8	872.0	1120	5650	12360		
CB500-2.2	500	101.32	20	1.2	117.6	934.5	1120	5650	12360		
CB500-2.3	500	101.32	20	1.2	127.4	995.0	1250	5880	12590		
CB500-2.4	500	101.32	20	1.2	137.2	1055.0	1250	5880	12590		
CB500-2.5	500	101.32	20	1.2	147	1146.8	1400	6800	13550		
CB500-2.6	500	101.32	20	1.2	156.8	1167.5	1400	6800	13850		
CB500-2.7	500	101.32	20	1.2	166.6	1222.0	1400	6800	13850		
CB500-2.8	500	101.32	20	1.2	176.4	1275.0	1400	6800	13850		
CB600-1.5	600	101.32	20	1.2	49	538.2	630	4300	12350	DN800	DN700
CB600-1.6	600	101.32	20	1.2	58.8	631.2	800	4900	12550		
CB600-1.7	600	101.32	20	1.2	68.6	737.4	900	5200	12850		
CB600-1.8	600	101.32	20	1.2	78.4	825.1	1000	5440	13090		
CB600-1.9	600	101.32	20	1.2	88.2	909.7	1120	5650	13210		
CB600-2.0	600	101.32	20	1.2	98.0	982.1	1250	5880	13680		
CB600-2.1	600	101.32	20	1.2	107.8	1046.4	1250	5880	13980		
CB600-2.2	600	101.32	20	1.2	117.6	1121.4	1400	6800	14900		
CB600-2.3	600	101.32	20	1.2	127.4	1194.0	1400	6800	14900		
CB600-2.4	600	101.32	20	1.2	137.2	1266.0	1600	6900	15000		
CB600-2.5	600	101.32	20	1.2	147	1332.0	1600	6900	15000		
CB600-2.6	600	101.32	20	1.2	156.8	1401.0	1600	6900	15000		
CB600-2.7	600	101.32	20	1.2	166.6	1466.4	1800	7160	15260		
CB600-2.8	600	101.32	20	1.2	176.4	1530.0	1800	7160	15260		
CB700-1.5	700	101.32	20	1.2	49	627.9	800	4900	12700		
CB700-1.6	700	101.32	20	1.2	58.8	736.4	900	5200	13000		
CB700-1.7	700	101.32	20	1.2	68.6	840.2	1000	5440	13240		
CB700-1.8	700	101.32	20	1.2	78.4	940.3	1120	5650	13350		
CB700-1.9	700	101.32	20	1.2	88.2	1036.9	1250	5880	13580		
CB700-2.0	700	101.32	20	1.2	98.0	1145.8	1400	6800	14500		
CB700-2.1	700	101.32	20	1.2	107.8	1220.8	1400	6800	14500		
CB700-2.2	700	101.32	20	1.2	117.6	1308.3	1600	6900	14600		
CB700-2.3	700	101.32	20	1.2	127.4	1393.0	1600	6900	14600		
CB700-2.4	700	101.32	20	1.2	137.2	1477.0	1800	7160	14860		
CB700-2.5	700	101.32	20	1.2	147	1554.0	1800	7160	14860		
CB700-2.6	700	101.32	20	1.2	156.8	1634.5	2000	9450	17300		
CB700-2.7	700	101.32	20	1.2	166.6	1710.8	2000	9450	17300		
CB700-2.8	700	101.32	20	1.2	176.4	1785.0	2000	9450	17300		

CB系列高速离心鼓风机性能参数表

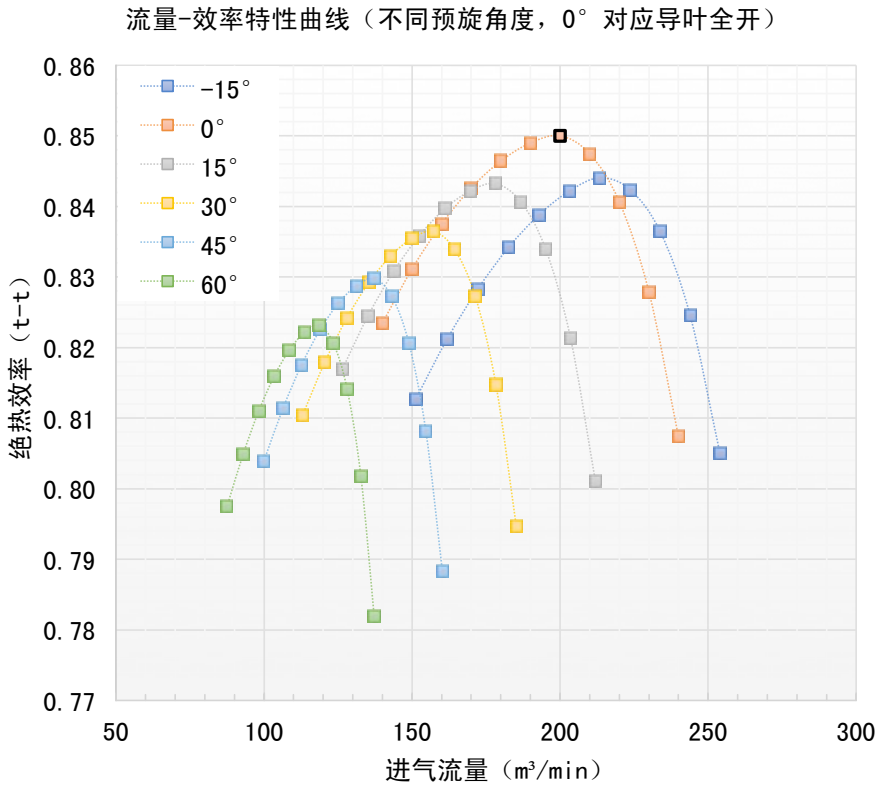
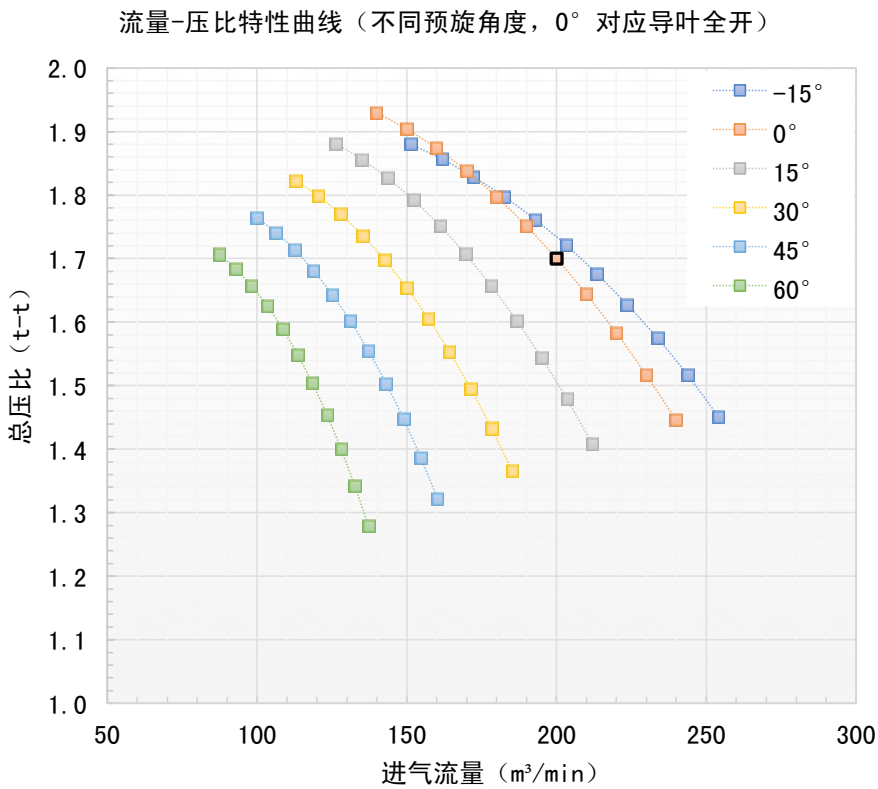
Performance table of series CB high-speed centrifugal blower

风机 型号 Type of Blower	进气状态 Suction Condition				升压 Discharge Pressure kPa	轴功率 Axial Power kW	电机Motor		机组 重量 Blower Weight kg	进口法兰 Inlet Flange DN (PN1.0MPa)	出口法兰 Outlet Flange DN (PN1.0MPa)
	流量 Capacity m³/min	压力 Pressure kPa	温度 Tempe- rature ℃	密度 Density kg/m³			功率 Power kW	重量 Weight kg			
CB800-1.5	800	101.32	20	1.2	49	717.6	900	5200	13200	DN900	DN800
CB800-1.6	800	101.32	20	1.2	58.8	841.6	1000	5440	13440		
CB800-1.7	800	101.32	20	1.2	68.6	960.2	1120	5650	13650		
CB800-1.8	800	101.32	20	1.2	78.4	1074.6	1250	5880	13880		
CB800-1.9	800	101.32	20	1.2	88.2	1185.1	1400	6800	14800		
CB800-2.0	800	101.32	20	1.2	98.0	1312.0	1600	6900	14900		
CB800-2.1	800	101.32	20	1.2	107.8	1395.2	1600	6900	15200		
CB800-2.2	800	101.32	20	1.2	117.6	1495.2	1800	7160	15460		
CB800-2.3	800	101.32	20	1.2	127.4	1592.0	1800	7160	15460		
CB800-2.4	800	101.32	20	1.2	137.2	1688.0	2000	9450	17750		
CB800-2.5	800	101.32	20	1.2	147	1776.0	2000	9450	17750		
CB800-2.6	800	101.32	20	1.2	156.8	1868.0	2240	9850	18150		
CB800-2.7	800	101.32	20	1.2	166.6	1955.2	2240	9850	18150		
CB800-2.8	800	101.32	20	1.2	176.4	2040.0	2240	9850	18150		
注：以上机型仅供参考，可根据客户要求定制产品。											

注：带 “*” 号的电机为6kV高压电机，其余为380V。当鼓风机的使用条件与上表不符时，需进行性能换算，我公司可根据用户要求进行非标设计，以满足用户各种工况的具体需要。

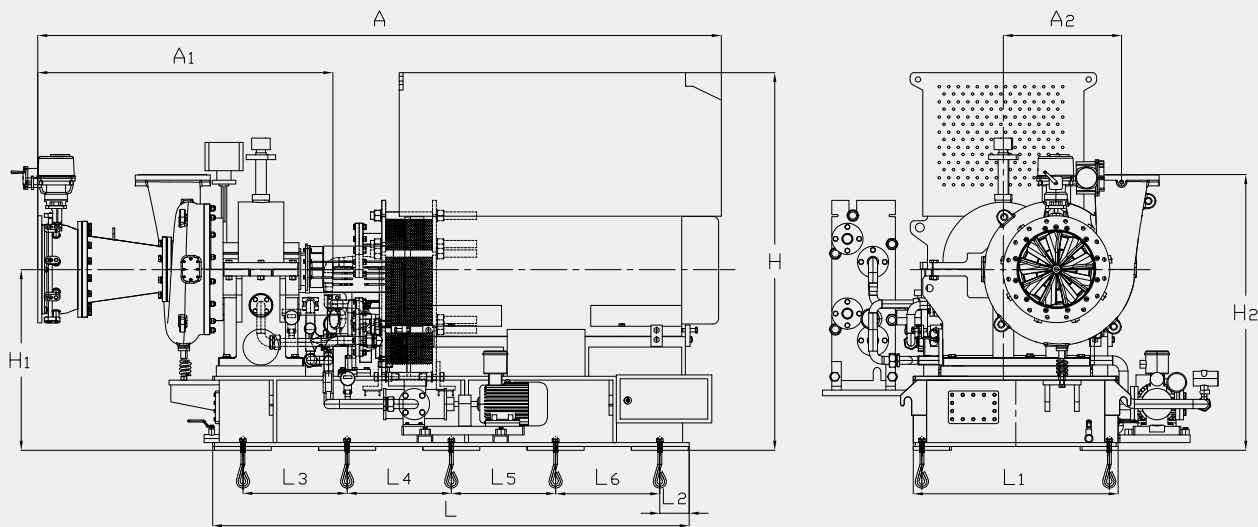
Notice: “*” are 6kV high-voltage motor , others are motors with voltage 380V. When the atmospheric conditions and medium are varied, the relative performance conversion calculation will be different.We can re-designed in accordance with the requirement of users to adapt to different working condition.

风机性能曲线（如：CB200-1.7）



鼓风机外形安装尺寸图 (以合同提供图纸为准)

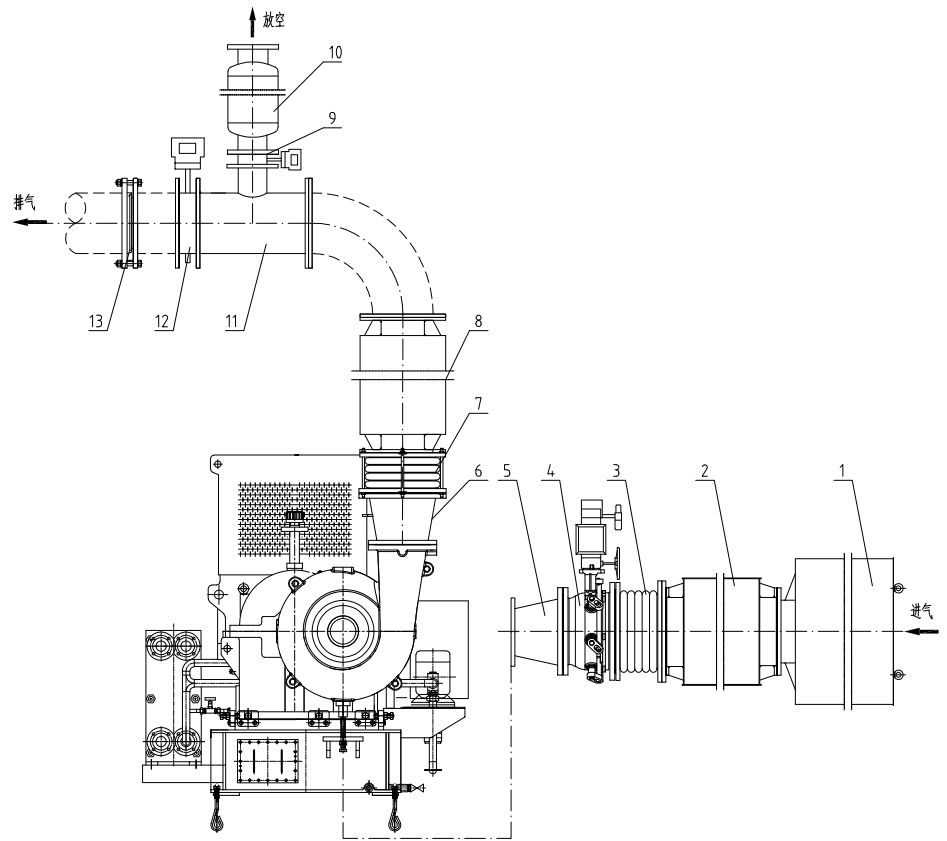
Outline and Installation Dimensions(Refer to the information given in the contract)



鼓风机型号	鼓风机外形尺寸									地基尺寸		
	A	A1	A2	H	H1	H2	L	L1	L2	L3-Ln	螺栓数量	螺栓规格
CB50-2.0	2300	1050	500	1400	865	1220	1800	1000	150	500	8	M20×500
CB100-2.0	2700	1150	550	1800	890	1300	2300	1100	150	500	10	
CB120-2.0	2900	1150	550	2000	890	1350	2400	1150	150	525	10	
CB130-2.0	3100	1200	580	2100	900	1400	2500	1180	150	550	10	
CB200-2.0	3800	1300	650	2400	960	1500	2800	1280	150	625	10	
CB260-2.0	4200	1400	700	2500	960	1550	2900	1300	150	520	12	
CB300-2.0	4500	1500	750	2600	1000	1600	3000	1320	150	540	12	
CB400-2.0	4800	1600	800	2800	1000	1650	3150	1350	150	570	12	
CB500-2.0	5200	1700	840	2900	1000	1700	3300	1380	150	600	12	
CB650-2.0	5500	1850	900	3000	1050	1730	3500	1420	150	640	12	
CB800-2.0	5700	2000	940	3200	1100	1760	3640	1460	200	540	14	
CB1000-2.0	6000	2200	1000	3500	1100	1800	3850	1500	200	575	14	

鼓风机典型配管图 (以合同提供图纸为准)

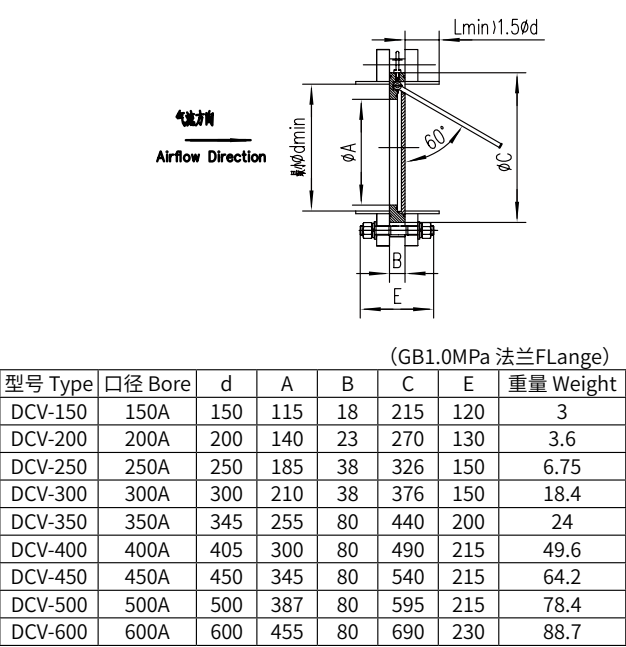
Typical Pipe Installation(Refer to the information given in the contract)



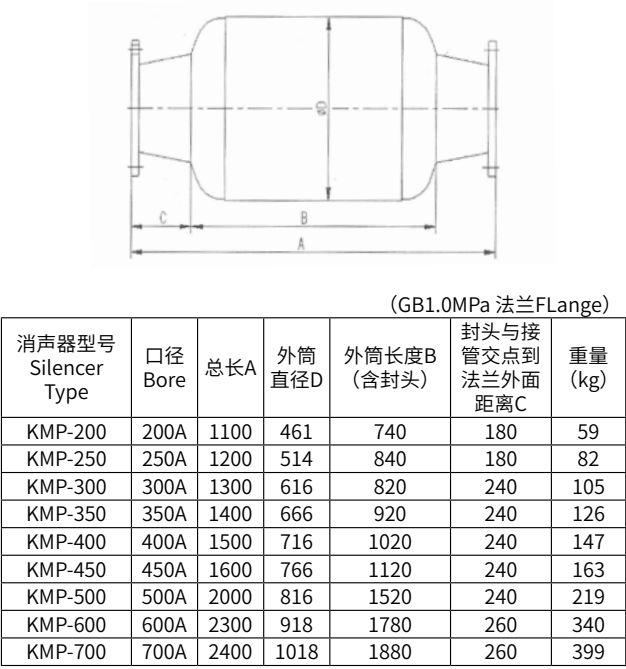
风机型号	配件及名称型号	1	2	3	4	5	6
		进口滤清器	进口消声器	进口波纹管	进口导叶器	进口变径管 I	进口变径管 II
CB50-2.0		ZRL-250	KMP-250	SHTJ-250	IGV-200-150	BJG-250-200	-
CB100-2.0		ZRL-300	KMP-300	SHTJ-300	IGV-250-200	BJG-300-250	-
CB200-2.0		ZRL-450	KMP-450	SHTJ-450	IGV-350-250	BJG-450-350	-
CB300-2.0		ZRL-500	KMP-500	SHTJ-500	IGV-400-350	BJG-500-400	BJG-350-250
CB400-2.0		ZRL-600	KMP-600	SHTJ-600	IGV-450-400	BJG-600-450	BJG-400-300
CB500-2.0		ZRL-700	KMP-700	SHTJ-700	IGV-500	BJG-700-500	BJG-500-350
CB650-2.0		ZRL-800	KMP-800	SHTJ-800	IGV-600	BJG-800-600	BJG-600-400
CB800-2.0		ZRL-900	KMP-900	SHTJ-900	IGV-600	BJG-900-600	BJG-600-450
CB1000-2.0		ZRL-1000	KMP-1000	SHTJ-1000	IGV-700	BJG-1000-700	BJG-700-500
风机型号	配件及名称型号	7	8	9	10	11	12
		出口波纹管	出口消声器	放空蝶阀	放空消声器	出口三通	出口蝶阀
CB50-2.0		SHTJ-200	KMP-200	DN100	KM-100	ST-200-100	DN200
CB100-2.0		SHTJ-250	KMP-250	DN150	KM-150	ST-250-150	DN250
CB200-2.0		SHTJ-400	KMP-400	DN200	KMP-200	ST-400-200	DN400
CB300-2.0		SHTJ-450	KMP-450	DN250	KMP-250	ST-450-250	DN450
CB400-2.0		SHTJ-500	KMP-500	DN250	KMP-250	ST-500-250	DN500
CB500-2.0		SHTJ-600	KMP-600	DN300	KMP-300	ST-600-300	DN600
CB650-2.0		SHTJ-700	KMP-700	DN350	KMP-350	ST-700-350	DN700
CB800-2.0		SHTJ-800	KMP-800	DN400	KMP-400	ST-800-400	DN800
CB1000-2.0		SHTJ-900	KMP-900	DN450	KMP-450	ST-900-450	DN900

配套产品
Accessories For Blowers

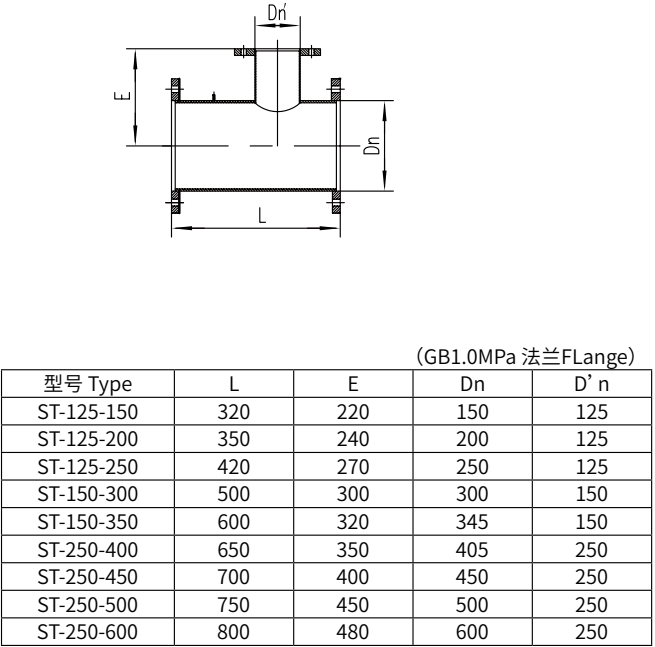
DCV型单向阀
Type DCV Non-return Valve



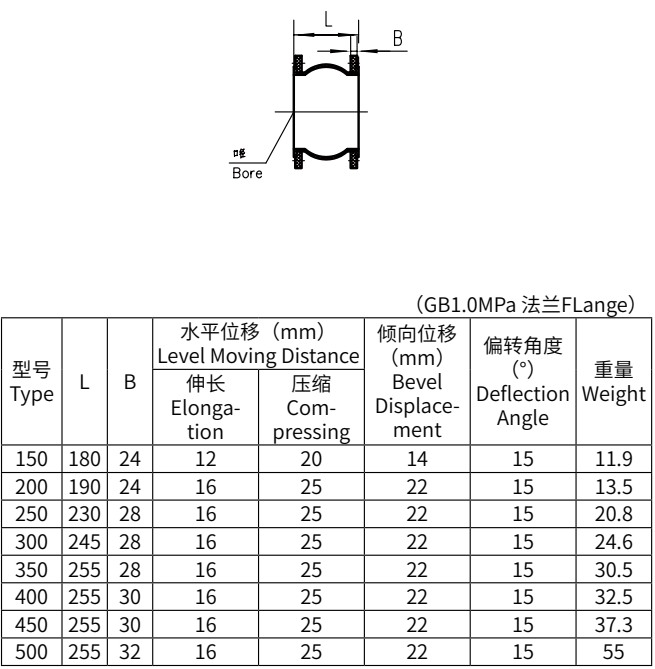
KMP消声器外形尺寸表
KMP silencer outline dimension table



三通
Three-way Pipe



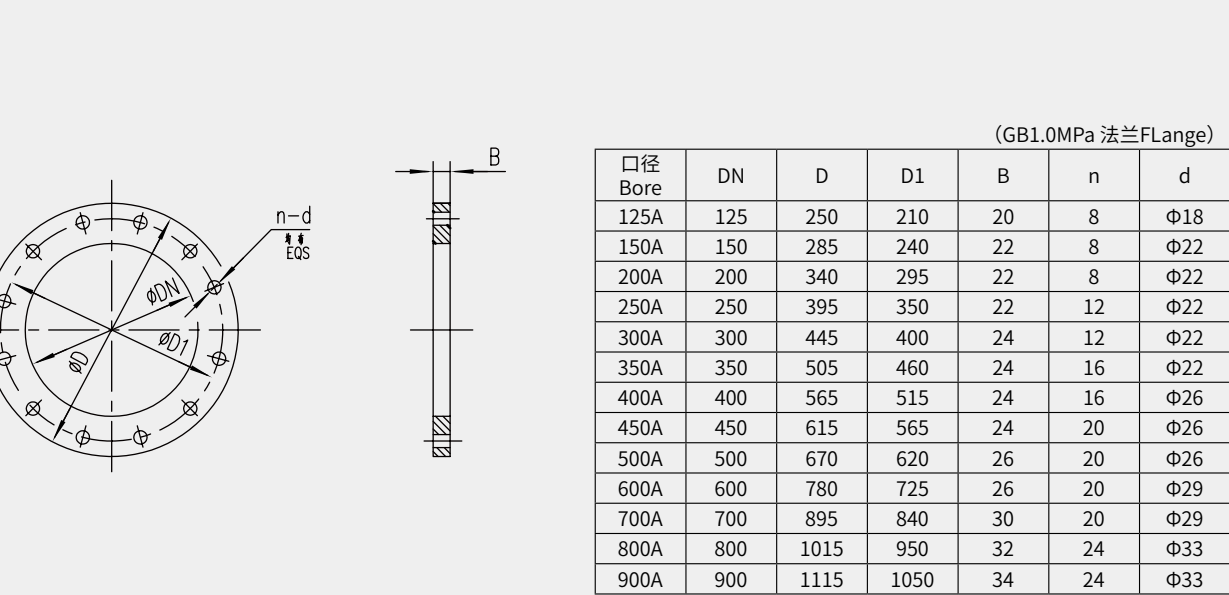
弹性接头 (KXT-III型)
Type KXT-III Flexible Connector



XSQ & ZRL型进口滤清器
Type XSQ & ZRL Inlet Filter



进、出口法兰 (参照GB1.0MPa法兰)
Suction、Discharge Flange (According GB1.0MPa FLange)



用户实例 USER INSTANCE

山东***气刀项目

应用描述：
流量：80 m³/min
升压：98 kPa
电机功率：200 kW



电厂脱硫增容项目

应用描述：
流量：210 m³/min
升压：83.3 kPa
电机功率：400 kW



河北***污水处理项目

应用描述：
流量：80 m³/min
升压：98 kPa
电机功率：200 kW



2×300MW机组脱硫改造项目

应用描述：
流量：225 m³/min
升压：176.4 kPa
电机功率：630 kW



用户实例 USER INSTANCE



应用描述：
流量：130 m³/min
升压：117.6 kPa
电机功率：250 kW

内蒙古***4×130t/h煤粉炉脱硫工程（出厂前）



应用描述：
流量：460m³/min
升压：170kPa
电机功率：1400KW

江苏***脱硫机组氧化风机



应用描述：
流量：200m³/min
升压：98kpa
电机功率：400kw

华能***2×350MW脱硫增容改造项目



应用描述：
流量：143m³/min
升压：135kPa
电机功率：355kW

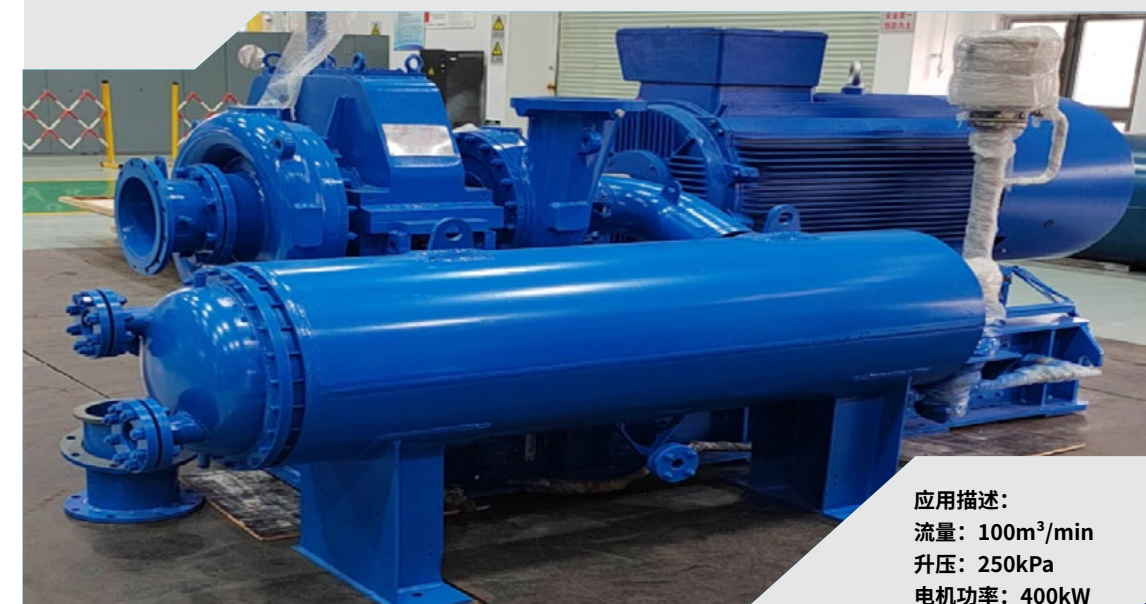
佛山市***LEP尾气加压风机

用户实例 USER INSTANCE



应用描述：
流量：112m³/min
升压：50kPa
电机功率：160kW

中国成达***天然气制乙炔解析气离心风机（发货前）



应用描述：
流量：100m³/min
升压：250kPa
电机功率：400kW

重庆***气刀风机（发货前）



应用描述：
流量：750m³/min
升压：160kPa
电机功率：2000kW

湖南***离心风机



应用描述：
流量：250m³/min
升压：215kPa
电机功率：710kW

曲靖***LEP尾气加压风机

CVP系列真空泵

产品简介 PRODUCT INTRODUCTION

CVP 系列高速离心真空泵是在山东省章丘鼓风机股份有限公司多年积累经验的基础上，引进北京航空航天大学专家团队，开发出的新一代高效节能产品。

该系列产品气动性能和结构设计均达到国内外领先水平，根据现场工况定制化设计，可广泛应用于造纸、铸造、氧化铝平盘 / 立盘真空脱水等真空工艺，亦可针对水环式真空泵进行节能改造。

CVP series high speed Turbo Vacuum Pump is newly developed product of high efficiency and power-saving based on the years' experience of Shandong Zhangqiu Blower Co.,Ltd and the introduction of Beijing University of Aeronautics and Astronautics (Beihang University) professional doctor team.

The pneumatic performance and structural design of this series product has reached the leading level in China and abroad, customized design according to the field conditions, can be widely used in Paper-making, Foundry, Alumina flat plate/vertical plate vacuum dewatering and other vacuum process. Also power-saving upgrading projects to replace Water Ring Vacuum Pumps.

产品代号 PRODUCT CODE 例：CVP200-25|400-35D

CVP 表示离心真空泵
200-25 第一个数值表示入口工况额定流量，单位 m^3/min ，第二个数值表示额定真空度，单位 kpa。
多个真空度和流量输出可依此排列，用符号 | 分开。
D 表示直接驱动，无则默认为齿轮箱驱动。
CVP600-80-2 其中 2 表示两级机头串联，无则默认为单机头。

CVP means Turbo Vacuum Pump
1st number means suction rated flow capacity, unit: m^3/min
2nd number means rated vacuum degree, unit: kpa
Multiple vacuum degree and flow capacity can be listed as per this example, just to separate by “|”
D means direct drive, null means driven by gear box.
Number 2 means two stage blowers in series, null means single stage

产品特点 PRODUCT CHARACTER

效率高 叶轮型线先进 定制化设计 节电效果明显

叶轮采用三元流动理论设计，全三维流态仿真，应用流动分析技术预测真空泵的性能，离心真空泵绝热效率可达 85% 左右，与同流量、真空度的其他真空泵相比，效率高 20-45%。

叶轮根据用户工况参数定制化设计，确保用户需求的工况参数处于叶轮高效区域，更加节能。

流量调节范围宽 真空度稳定

真空泵流量可通过变频、出口可调扩压器两种方式进行调节，流量调节范围宽，可以保证流量大幅度波动时，真空度保持稳定；同时配备防喘振装置可以有效避免真空泵发生喘振。

真空泵结构紧凑 体积小

采用整体撬装式结构，真空泵本体组装在齿轮箱的壳体上，润滑油系统、电机及齿轮箱布置在共用底座上，底座兼做油箱。单台机组可布置两个机头，满足不同的真空度需求，整机重量轻，占地面积小。

噪音低

通过先进的蜗壳、叶轮设计技术，抑制离散噪声和宽频噪声，实现对气动噪声的主动控制。更易衰减。

易损件少 安装维护方便

整机易损件少，现场维护量少，安装方便。

智能化程度高

整机的轴承振动、温升，进出口压力、温度，防喘振控制，启动停机联锁保护，故障报警，润滑系统油压、油温等一系列监测与控制均采用可编程逻辑控制器控制，同时实时传输到“章鼓云”智能云平台，用户与项目工程师可以实时监控真空泵运行状况。

High Efficiency Advanced Impeller Profile Customized Design, Excellent Power-saving Performance

The impeller is designed by three dimensional flow theory, and the full three dimensional flow simulation. The performance of the Turbo Vacuum Pump is predicted by flow analysis technology, and the adiabatic efficiency of the steam compressor can reach about 85%. It efficiency is about 20% ~45% higher than other vacuum pumps based on same vacuum degree and flow capacity.

The impeller is customized design according to the working parameters of the user to ensure that the working parameters required by the user are in the impeller efficient area, which is more energy saving.

Wide adjust range, stable vacuum degree

Turbo Vacuum Pump flow capacity is wide and can be adjusted by two modes: VFD, OGV, ensures stable vacuum degree under large fluctuation of flow. Anti-surge device is provided to avoid surge problem effectively.

Compact Design, Less Footprint

The overall skid-mounted structure is adopted. Turbo Vacuum Pump body is directly connected with gear box casing. The lubricating oil system, gear box and the motor are arranged on the common base which serves as the oil tank. Two air end can be arranged for single unit blower to fulfill diverse vacuum degree requirement. Less weight and less footprint.

Low noise level

Through the advanced design technology of spiral case and impeller, the discrete noise and wide-band noise are suppressed, and the active control of aerodynamic noise is realized. More easily decayed.

Less wearing parts, convenient installation and maintenance

Less wearing parts, less site maintenance, easy & fast installation.

High degree of intelligence

The bearing's vibration, temperature, the inlet and outlet pressure, temperature, anti-surge control, start-stop interlock protection, fault alarm, lubricating oil pressure, oil temperature and a series of monitoring and control system are controlled by PLC, and real-time transmission to the “Zhanggu Cloud” intelligent cloud platform, users can real-time monitoring equipment running status with project engineer.

主要结构

MAIN STRUCTURE

调节机构

根据工况可选配出口可调扩压器调节装置。可调扩压器由扩压器盘、导叶、传动机构、执行机构等组成，可以保证真空泵在进气量变化时，真空度保持基本不变，更好的保证工艺系统安全稳定性。

Regulating mechanism

OGV device can be selected as per working condition. OGV is composed by diffuser disc, guide vane, transmission mechanism, actuator and etc, to ensure constant vacuum degree under flow variation that will guarantee the system stability.



入口分离装置

真空泵入口介质一般含有杂质，如纸浆、沙砾、浆液等，我公司研发的入口分离装置可有效分离这部分杂质，保证真空泵吸入的气体无杂质，避免叶轮磨损及结垢进一步保证叶轮效率及叶轮的使用寿命。

Inlet separator

Vacuum pump suction medium contains impurity, such as pulp, sand, grout and etc., the inlet separator developed by our company can effectively separate the impurities, ensure the vacuum pump suction gas without impurities, avoid impeller wear and scaling to further ensure impeller efficiency and service life.



高效永磁同步电机

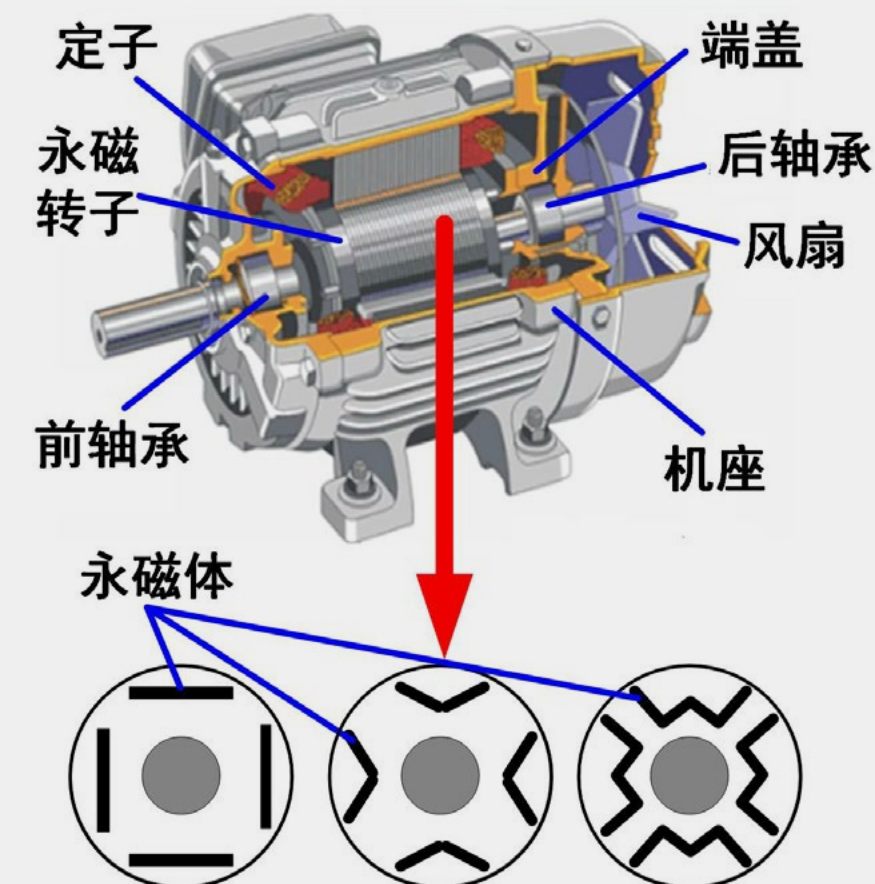
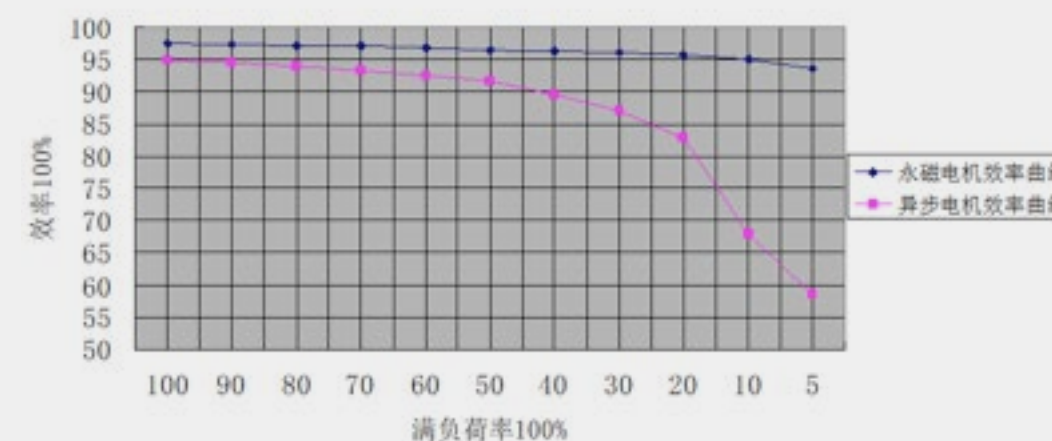
默认采用永磁同步电机，永磁同步电机效率更高，满足 GB30253-2013 标准的 1 级能效等级，额定点运行效率均为 94.5-97%，高于异步电机的 4-6%，结构简单，尺寸更小，噪音更低，空载阶段更加节能。

High Speed Permanent Magnet Synchronous Motor.

Permanent magnet synchronous motor is adopted as standard. Permanent magnet synchronous motor has higher efficiency and meets the grade 1 energy efficiency grade of GB30253-2013 standard. Its rated operating efficiency is 94.5-97%, 4-6% higher than asynchronous motor.

Simple structure, smaller size, lower noise, more energy saving in no-load stage.

永磁同步变频电机与异步变频电机效率曲线对比图



用户实例 USER INSTANCE



嘉兴***纸业真空项目

型号: CVP 45-350|60-230
流量: 350m³/min、230m³/min
真空度: -45kPa、-60kPa
应用行业: 造纸真空脱水
Application: Paper making dewatering



衢州***纸业真空项目

型号: CVP 260-50
流量: 260m³/min
真空度: -50kPa
应用行业: 造纸真空脱水
Application: Paper making dewatering



沛县***V法铸造项目

型号: CVP225-55
流量: 225/min
真空度: -55Pa
应用行业: V法铸造
Application: V method Casting



广西***氧化铝真空过滤项目

型号: CVP450-40
流量: 450m³/min
真空度: -40kPa
应用行业: 氧化铝行业平盘/立盘真空脱水
Application: Alumina flat plate/vertical plate vacuum dewatering

CBV系列 蒸汽压缩机

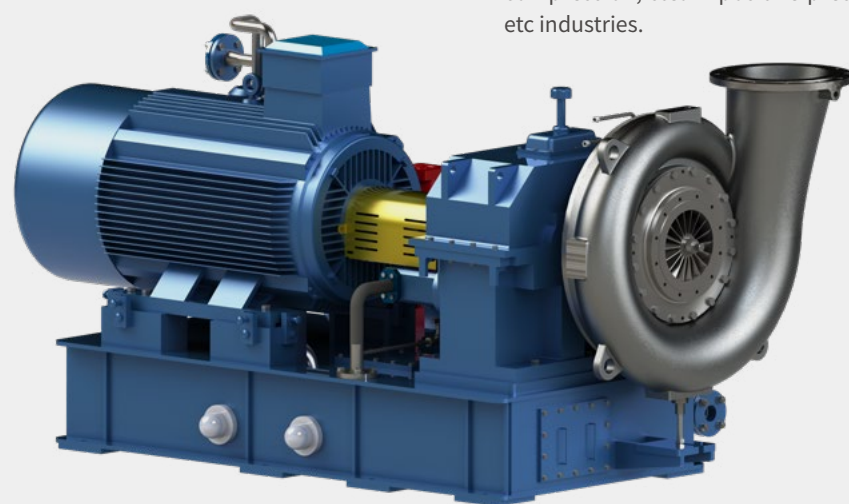
CBV 系列高速离心蒸汽压缩机是在山东省章丘鼓风机股份有限公司多年积累经验的基础上，引进北京航空航天大学专家团队，开发出的新一代高效节能产品。

该系列产品气动性能和结构设计均达到国内外领先水平，根据现场工况定制化设计，可广泛应用于 MVR 系统蒸汽压缩、蒸汽加压输送等行业。

产品简介 PRODUCT INTRODUCTION

CBV series Geared Steam Compressor is newly developed product of high efficiency and power-saving based on the years' experience of Shandong Zhangqiu Blower Co.,Ltd and the introduction of Beijing University of Aeronautics and Astronautics (Beihang University) professional doctor team.

The pneumatic performance and structural design of this series product has reached the leading level in China and abroad, customized design according to the field conditions, can be widely used in MVR system steam compression, steam positive pressure transportation and etc industries.



产品代号 PRODUCT CODE

CBV 表示蒸汽压缩机
8.0 表示蒸发量，单位 t/h
90 表示蒸发温度（即入口饱和温度）
117 表示出口饱和温度（蒸发温度 + 饱和温升），单位℃
2 表示两级机头串联，无则默认为单机头
D 表示直接驱动，无则默认为齿轮箱驱动

例 EXAMPLE : CBV8.0-90/117-2D

CBV: Steam Compressor
Evaporate Capacity, unit: t/h
Evaporate Temperature: Suction Saturated Temperature
Discharge Saturated Temperature (Evaporate
Temperature + Saturated Temperature Rise), Unit: °C
2 means Double stage in series, Null means single stage
D means Direct Drive, Null means driven by gear box

产品特点 PRODUCT CHARACTER

效率高 叶轮型线先进 定制化设计 节电效果明显

叶轮采用三元流动理论设计，全三维流态仿真，应用流动分析技术预测蒸汽压缩机的性能，使离心蒸汽压缩机绝热效率高达 85%。

叶轮根据用户工况参数定制化设计，确保用户需求的工况参数处于叶轮高效区域，更加节能。

流量调节范围宽 真空度稳定

蒸发量可通过变频、蒸发温度调节两种方式进行调节，调节范围宽；同时配备防喘振装置可以有效避免真空泵发生喘振。

风机结构紧凑 体积小

采用整体撬装式结构，离心蒸汽压缩机本体组装在齿轮箱的壳体上，润滑油系统、电机及齿轮箱布置在共用底座上，底座兼做油箱，重量轻、占地面积小。

噪音低

通过先进的蜗壳、叶轮设计技术，抑制离散噪声和宽频噪声，实现对气动噪声的主动控制。更易衰减。

易损件少 安装维护方便

整机易损件少，现场维护量少，安装方便

智能化程度高

整机的轴承振动、温升，进出口压力、温度，防喘振控制，启动停机联锁保护，故障报警，润滑系统油压、油温等一系列监测与控制均采用可编程逻辑控制器控制，同时实时传输到“章鼓云”智能云平台，用户与项目工程师可以实时监控真空泵运行状况。

High Efficiency Advanced Impeller Profile Customized Design, Excellent Power-saving Performance

The impeller is designed by three dimensional flow theory, and the full three dimensional flow simulation. The performance of the steam compressor is predicted by flow analysis technology, and the adiabatic efficiency of the steam compressor can reach about 85%.

The impeller is customized design according to the working parameters of the user to ensure that the working parameters required by the user are in the impeller efficient area, which is more energy saving.

Wide adjust range, stable vacuum degree

Evaporate capacity is wide and can be adjusted by two modes: VFD, Evaporate Temperature; Anti-surge device is provided to avoid surge problem effectively.

Compact Design, Less Footprint

The overall skid-mounted structure is adopted. Centrifugal steam compressor body is directly connected with gear box casing. The lubricating oil system and the motor are arranged on the common base which serves as the oil tank. Less weight and less footprint.

Low noise level

Through the advanced design technology of spiral case and impeller, the discrete noise and wide-band noise are suppressed, and the active control of aerodynamic noise is realized. More easily decayed.

Less wearing parts, convenient installation and maintenance

Less wearing parts, less site maintenance, easy & fast installation.

High degree of intelligence

The bearing's vibration, temperature, the inlet and outlet pressure, temperature, anti-surge control, start-stop interlock protection, fault alarm, lubricating oil pressure, oil temperature and a series of monitoring and control system are controlled by PLC, and real-time transmission to the "Zhanggu Cloud" intelligent cloud platform, users can real-time monitoring equipment running status with project engineer.

主要结构

MAIN STRUCTURE

叶轮

根据三元流理论设计的叶轮效率高，经严格的精密加工后作动静平衡校正，并通过 1.15 倍额定转速的超速试验，保证了叶轮强度。为了满足蒸汽压缩机不同工况的需求，叶轮材料可选用钛材、双相不锈钢等材料。

Impeller

The high efficiency impeller is designed by three dimensional flow theory which is calibrated by static and static balance after strict precision machining and passed the over speed test of 1.15 times the rated speed ensures the impeller strength. In order to meet the requirement of different working conditions of steam compressor, the impeller material can be titanium, duplex stainless steel and other materials.



蜗壳

采用圆截面蜗壳，蜗壳壁的型线设计成对数螺旋线，符合气流的运动规律，对风机冲击小，因此风机的流动效率高，振动小，噪音低。蜗壳材质根据不同工况可选用 304、316L、2205、2507 等不锈钢。

Volute Casing

Using circular section volute, volute wall profile is designed to be log spiral lines, in line with the law of airflow movement, less impact on the blower. So the blower's flow efficiency is high, small vibration, low noise. Volute casing material can be 304, 316L, 2205, 2507 stainless steel according to different working conditions.

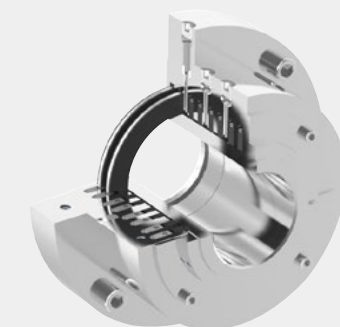


密封

根据工况需求，蒸汽压缩机有多种密封形式的选择，常规有迷宫充蒸汽、碳环密封充蒸汽、干气密封等。

Seal

According to the requirements of working conditions, diverse options of sealing are available for the steam compressor, the standard options: labyrinth seal with steam purging, carbon ring sealing with steam purging, dry gas seal, etc.



电机

推荐采用永磁同步电机（永磁同步低速或永磁同步高速），效率高，满足 GB30253-2013 标准的 1 级能效等级，额定点运行效率 94.5-97%，高于异步电机 4-6%，结构简单，尺寸更小，噪音更低，节能效果更佳。

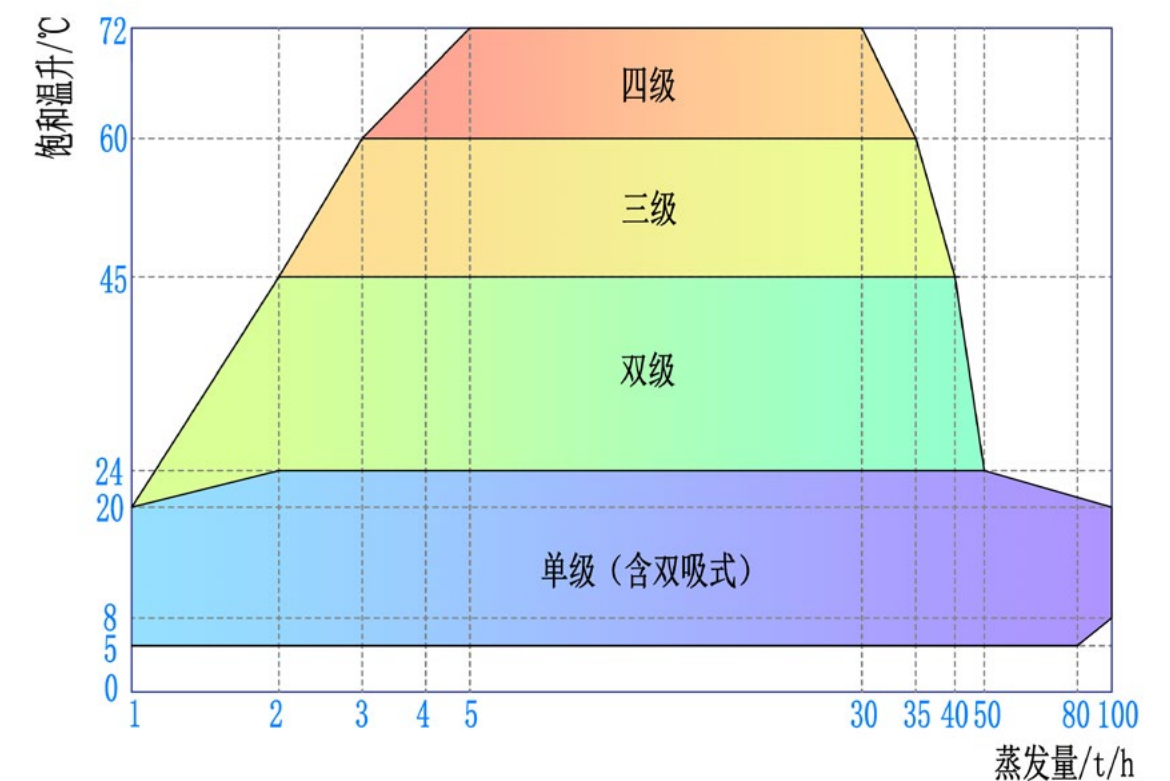
Motor

Recommend to use permanent magnet synchronous motor of high efficiency meets the grade 1 energy efficiency grade of GB30253-2013 standard. Its rated operating efficiency is 94.5-97%, 4-6% higher than asynchronous motor. Simple structure, smaller size, lower noise, better energy saving performance.

产品图谱

PRODUCT MAP

CBV 系列蒸汽压缩机图谱



以上范围针对蒸发温度 80~100℃；
低温或高温蒸发的情况对蒸发量适用范围有一定影响，详询章鼓力魄锐。

用户实例 USER INSTANCE



河北***MVR蒸汽压缩机



江苏***MVR蒸汽压缩机



宁夏***MVR蒸汽压缩机



济南***MVR蒸发浓缩系统

高速永磁直驱风机

高速永磁直驱风机是在山东省章丘鼓风机股份有限公司多年积累经验的基础上，引进北京航空航天大学专家团队，开发出的新一代高效节能产品。

该系列产品气动性能和结构设计均达到国内外领先水平，根据现场工况定制化设计，可广泛应用于正压、负压，输送介质多样，空气、工艺气、蒸汽等气体均可输送。

产品简介 PRODUCT INTRODUCTION

High-speed Permanent Magnet Direct Drive Turbo Blower is newly developed product of high efficiency and power-saving based on the years' experience of Shandong Zhangqiu Blower Co.,Ltd and the introduction of Beijing University of Aeronautics and Astronautics (Beihang University) professional doctor team.

The pneumatic performance and structural design of this series product has reached the leading level in China and abroad, customized design according to the field conditions, can be widely used in positive pressure, negative pressure, diverse transmission medium: air, process gas, steam and other gases can be transported.



产品特点 PRODUCT CHARACTER

效率高 叶轮型线先进 定制化设计 节电效果明显

叶轮采用三元流动理论设计，全三维流态仿真，应用流动分析技术预测风机的性能，风机绝热效率可达 85% 左右。

叶轮根据用户工况参数定制化设计，确保用户需求的工况参数处于叶轮高效区域，更加节能。

高速永磁同步电机

高效叶轮与高速永磁同步电机直联，省去增速齿轮箱部件，机组机械损失小，比常规齿轮箱式离心风机节能 10% 左右。

风机结构紧凑 体积小

采用整体撬装式结构，高效叶轮与高速永磁同步电机直联，润滑油系统、电机布置在共用底座上，底座兼做油箱，重量轻、占地面积比齿轮箱式结构更小。

噪音低

通过先进的蜗壳、叶轮设计技术，抑制离散噪声和宽频噪声，实现对气动噪声的主动控制。更易衰减。

承载能力强

采用陶瓷滚动或滑动轴承形式，抗载荷变化能力强，可适应工况工艺。

易损件少 安装维护方便

整机易损件少，现场维护量少，安装方便、快捷。

智能化程度高

整机的轴承振动、温度，进出口压力、温度，防喘振控制，启动停机联锁保护，故障报警，润滑系统油压、油温等一系列监测与控制均采用可编程逻辑控制器控制，同时实时传输到“章鼓云”智能云平台，用户与项目工程师可以实时监控设备运行状况。

High Efficiency Advanced Impeller Profile Customized Design, Excellent Power-saving Performance

The impeller is designed by three dimensional flow theory, and the full three dimensional flow simulation. The performance of the blower is predicted by flow analysis technology, and the adiabatic efficiency of the blower can reach about 85%.

The impeller is customized design according to the working parameters of the user to ensure that the working parameters required by the user are in the impeller efficient area, which is more energy saving.

High speed permanent magnet synchronous motor

High efficiency impeller is directly connected with high speed permanent magnet synchronous motor, which eliminates the parts of gear box. The mechanical loss of the unit is small, and the energy saving is about 10% compared with the conventional Geared Turbo Blower.

Compact Design, Less Footprint

The overall skid-mounted structure is adopted. High efficiency impeller is directly connected with the high-speed permanent magnet synchronous motor. The lubricating oil system and the motor are arranged on the common base which serves as the oil tank.

Less weight and less footprint than Geared Turbo Blower.

Low noise level

Through the advanced design technology of spiral case and impeller, the discrete noise and wide-band noise are suppressed, and the active control of aerodynamic noise is realized. More easily decayed.

High carrying capability

Adopt ceramic rolling bearing or slide bearing, strong endurance on load variation and adapt for variable working conditions.

Less wearing parts, convenient installation and maintenance

Less wearing parts, less site maintenance, easy & fast installation.

High degree of intelligence

Blower bearing' s vibration, temperature, the inlet and outlet pressure, temperature, anti-surge control, start-stop interlock protection, fault alarm, lubricating oil pressure, oil temperature and a series of monitoring and control system are controlled by PLC, and real-time transmission to the "Zhanggu Cloud" intelligent cloud platform, users can real-time monitoring equipment running status with project engineer.

主要结构

MAIN STRUCTURE

转子

三元流叶轮直接与直驱电机转子连接，根据参数的不同，可采用单叶轮或双叶轮结构形式。

Rotor

Three dimensional impeller is directly mounted to the direct-drive motor's rotor.

Single impeller or double impellers' structure can be adopted according to different performance parameter.



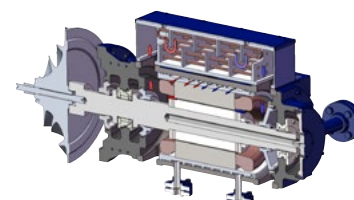
电机

采用高速永磁直驱电机，具有高效率、高功率因数、高性能、体积小、高承载等特点。轴承形式根据参数不同，可选用滚动轴承或滑动轴承。

Motor

Adopt high speed permanent magnet direct drive motor, with high efficiency, high power factor, high performance, less footprint, high load capacity characteristics.

Bearing form according to different parameters, can choose rolling bearing or sliding bearing.



油站

底座兼做油站，含油路系统、水路系统、辅助油泵、油过滤器、冷却器、仪表等。

Oil Station

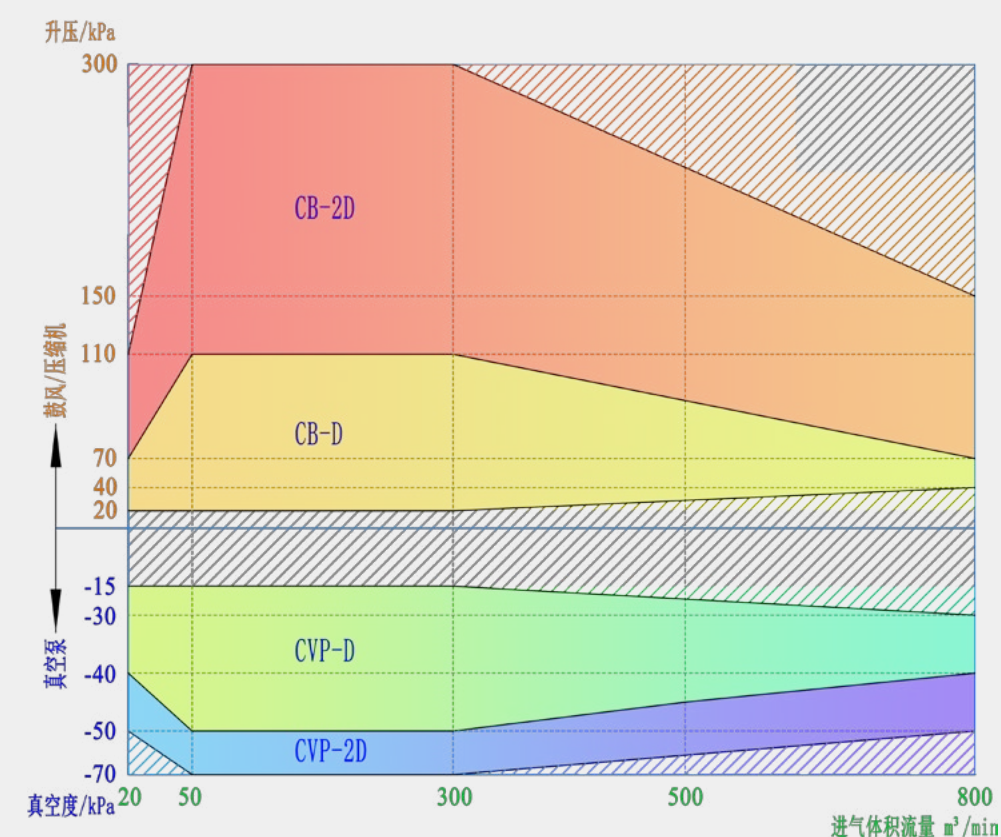
Base frame=Oil station, including oil piping system, water piping system, auxiliary oil pump, oil filter, cooler and instruments.



产品图谱

PRODUCT MAP

高速直驱鼓风机 / 真空泵图谱



CB-D: 鼓风机单级；CB-2D: 鼓风 / 压缩机双级；
CVP-D: 真空泵单级；CVP-2D: 真空泵双级。

- 1、本图适用条件为：鼓风 / 压缩机进气常温（-20~40℃）、常压（99~101kPaA）；真空泵进气常温、排气常压。不满足条件的（常见的如高海拔地区），按压比进行折算；
- 2、单级包括双机头并联式；
- 3、位于本图中非适用区或本图范围之外的，详询章鼓力魄锐。

用户实例 USER INSTANCE



保定***纸业有限公司

型号: CVP315-60|135-45
应用行业: 造纸真空脱水

Application: Paper Making Vacuum
Dewatering

智能云平台 — “章鼓云” INTELLIGENT CLOUD PLATFORM “ZHANGGU CLOUD”

云计算在企业数字化中盛行，云计算使信息系统资源实现了资源按需分配的灵活性和可伸缩性，更有效地实现企业信息系统的技术标准化和管理规范化，为企业信息系统提供更好的支持。

章鼓云利用先进的云技术实现大量设备入网通信、数据传输、云计算、远程运维等功能，可以实时查看设备数量、分布情况、故障报警信息、运行历史记录等。可以通过实时数据来确定故障的具体信息，为客户提出更精确的解决方案，为派遣相应的售后人员提供参考。故障报警也可以随时查询，同时支持短信报警和微信报警，及时推送，使工程师第一时间了解设备运行状态。

Cloud computing prevails in enterprise digitization. Cloud computing enables the flexibility and scalability of on-demand resource allocation of information system resources, more effectively realizes the standardization of technology and management of enterprise information system, and provides better support for enterprise information system.

Zhanggu Cloud uses advanced cloud technology to realize a large number of equipment network communication, data transmission, cloud computing, remote operation and maintenance functions, and can view the number of equipment, distribution, fault alarm information, operation history records, etc. You can use real-time data to determine specific fault information, propose more accurate solutions for customers, and provide reference for corresponding after-sales personnel. Fault alarm can also be queried at any time, while supporting SMS alarm and wechat alarm, timely push, so that engineers can know the operating status of the device in the first time.



CB系列高速离心鼓风机
工况调查表

一、项目概况					
单位名称					
项目名称					
项目负责人		联系方式			
二、参数要求					
当地海拔	m		入口风量	m³/min	
当地大气压	kPa		输送介质		
入口温度	°C		入口压力	kPa (A)	
材质要求			出口压力	kPa (A)	
噪音要求	dB		供电电压	V	
安装位置		室内 ☐ 室外 ☐	防爆等级		
控制要求					
电机要求					
三、其他要求					

CBV系列高速离心蒸汽压缩机
工况调查表

一、单位概况					
单位名称					
项目名称					
项目负责人		联系方式			
二、参数要求					
蒸发量	t/h		蒸发介质		
入口压力	kPa		入口温度	°C	
出口压力	kPa		饱和温升	°C	
材质要求					
控制要求					
电机要求					
三、其他要求					

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Add: Tsinghua innovation building (R & D center), No. 1, Zhizhi Road, Huishan District, Wuxi City, Jiangsu Province
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