

山东省章丘鼓风机股份有限公司

山东章鼓势加动力科技有限公司

地址：山东省济南市章丘区明水经济开发区世纪大道东首

ADD: Mingshui Economic Development Zone, Zhangqiu District,
Jinan City, Shandong, China

电话 (TEL): 0531-83250652 (悬浮风机市场部 Marketing Department)

0531-83250025 83250036(销售公司 Sales Company)

+86-531-83250080(外贸部 Foreign Trade Department)

传真 (FAX): 0531-83250067 (悬浮风机市场部 Marketing Department)

Http://www.blower.cn

邮编 (Zip Code): 250200



山东章鼓官方网站



山东章鼓微信公众平台

空气悬浮轴承 高速离心鼓风机

FOIL BEARING HIGH-SPEED CENTRIFUGAL BLOWER

更安静 | 更节能 | 更高效 | 更智能

QUIETER | MORE ENERGY SAVING | MORE EFFICIENT | MORE INTELLIGENT



诚招各地优秀代理商

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

山东章鼓势加动力科技有限公司
SHANDONG ZHANGGU XECA TECHNOLOGY CO.,LTD.

一流的产品品质

Super-quality product

永不停止创新

Never-ending innovation

为社会和用户创造价值

Create value for society and clients

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Company Profile

公司简介

山东省章丘鼓风机股份有限公司始建于 1968 年，具有五十多年的风机设计、生产、制造的技术和经验，先后建立了两个中日合资企业，并在美国设立了分公司，成为当时国内风机行业第一家在国外建立分公司的企业。公司制定了“拉长主业，上新创新，合资合作，发展大章鼓”的总体发展战略，提出了“做，就做到最好”的工作理念，经过不断发展，目前已成为集罗茨鼓风机、离心鼓风机、工业泵、通风机、工业水处理工程及设备、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的设计、生产、销售于一体的现代化机械加工规模企业。工业园区占地面积 43 万平方米，为企业跨越式发展和与世界各国企业的合资合作提供了广阔的发展空间，公司于 2011 年 7 月 7 日成功在深交所挂牌上市，股票代码：002598，成为公司发展史上又一新的里程碑。

随着国家产业政策及供给侧结构改革的深入推进，结合自身优势和市场机遇，公司实行相关多元化的经营战略，积极布局了智能制造、环保水处理、新材料开发应用三大产业平台，通过持续加大研发投入，加强外部资源整合，三大产业平台均已实现了较快增长。

山东省章丘鼓风机股份有限公司

山东省章丘鼓风机股份有限公司

Shandong Zhangqiu Blower Co., Ltd. was founded in 1968, with more than 50 years of blower design, production, manufacturing technology and experience, has established two Sino-Japanese joint ventures, and set up a branch in the United States, becoming the first domestic blower industry to establish branches abroad. Overall developing strategy: "Develop main business, pioneer new fields and innovate, cooperate to be a great company". Working concept: "Do the best", after continuous development, it has become a modern mechanical processing scale enterprise integrating the design, production and sales of roots blowers, centrifugal blowers, industrial pumps, ventilators, industrial water treatment projects and equipment, pneumatic conveying systems, electrical equipment, MVR evaporation concentration and crystallization technology and complete systems. The industrial park covers an area of 430,000 square meters, providing a broad development space for enterprises to leapfrog development and joint venture cooperation with enterprises from all over the world, the company was successfully listed on the Shenzhen Stock Exchange on July 7, 2011, stock code: 002598. It has become another new milestone in the company's development history.

With the in-depth promotion of national industrial policy and supply-side structural reform, combined with own advantages and market opportunities, our company implements relevant diversified business strategies and actively lays out three major industrial platforms: intelligent manufacturing, environmentally friendly water treatment and new material development and application. By continuously increasing R&D investment and strengthening the integration of external resources, the three major industrial platforms have achieved rapid growth.



Qualified Certificates 荣誉历程

汗水成就梦想 荣誉见证辉煌

Dreams will be realized from sweat, Certificates of honor witness the brilliance.



Main Facility 制造&装备基地

一流的精密制造及装配测试基地
First-class lean manufacturing and testing base

山东省章丘鼓风机股份有限公司建有实验室、研发大楼、加工车间等，拥有国际先进、国内领先的高精度加工设备。

Shandong Zhanggu Blower Co., Ltd. has built laboratories, R&D buildings, processing workshops, etc., with internationally advanced and China leading high-precision processing equipment.



Foil Bearing Technology 空气悬浮轴承技术



空气悬浮轴承在启动前转子和轴承之间有物理性的接触，启动时转子和轴承相对运动产生空气压力，转子旋转的时候，转子周围空气的速度能转变成压力能，在转子达到一定的回转速度时空气压力使得转子浮起，并起到润滑作用。

山东章鼓独创的第四代多筒支梁式动压气浮轴承，可以达到 25.5 万次启停寿命，20 年耐久运行寿命；满足 ISO16750-3 车规级随机振动和 25G 加速度的冲击振动标准；有效解决了传统的机械轴承传动系统效率低、寿命短、需要定期维护和润滑等问题。

Foil bearing has physical contact between the rotor and the bearing before starting, the relative movement of the rotor and the bearing generates air pressure when starting, when the rotor rotates, the speed of the air around the rotor can be converted into pressure energy, and the air pressure makes the rotor float when the rotor reaches a certain rotation speed and plays a lubricating role.

Shandong Zhanggu independent research and development the fourth generation of multi-simply supported beam dynamic pressure air suspension bearing, can reach 255,000 times of start and stop life, 20 years of durable operating life; Meet ISO16750-3 automotive-grade random vibration and 25G acceleration impact vibration standards; Effectively solve the traditional mechanical bearing transmission system problems of low efficiency, short life, requires regular maintenance and lubrication.

Core Technology

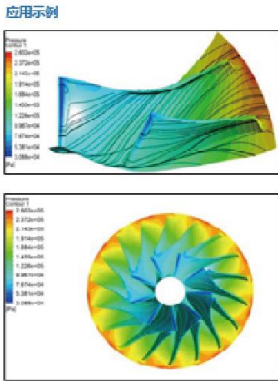
核心技术

宽工况高性能空气动力学设计方法

A high-performance aerodynamic design approach for wide working conditions

研发团队通过研究叶轮及蜗壳流动对效率和工作稳定性的影响规律，提出了改善主机性能的流动控制方法和气动优化设计方法，大大提高了主机的效率。

By studying the influence of impeller and volute flow on efficiency and working stability, the R&D team proposed a flow control method and a pneumatic optimization design method to improve the performance of the main engine, which greatly improved the efficiency of the main engine.

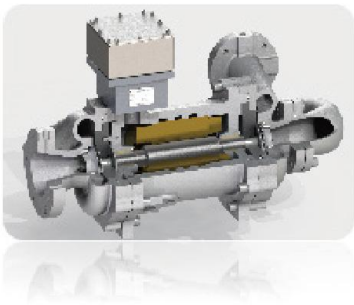


超高速大功率永磁同步电机技术

Ultra-high speed and high power permanent magnet synchronous motor technology

研发团队基于电 - 磁 - 机 - 热多物理场耦合设计技术，自主研发永磁同步电机（PMSM）；通过研究与控制策略协同的高速永磁电机电磁优化设计技术，解决了转子发热量大、转矩脉动高、电机噪声大的问题，使其具有高可靠性、高耐温性、低风阻损失的优势；攻克了转子结构完整性设计与工艺，开发出高功率密度、低成本、高效率的永磁同步电机。

Based on the thermal multiphysics coupling design technology of electromagnetic machine, the R&D team independently developed a permanent magnet synchronous motor (PMSM); Through the electromagnetic optimization design technology of high-speed permanent magnet motor coordinated with the control strategy, the problems of large rotor heat, high torque ripple and large motor noise are solved, so that it has the advantages of high reliability, high temperature resistance and low wind resistance loss. The design and process of rotor structural integrity were overcome, and a permanent magnet synchronous motor with high power density, low cost and high efficiency was developed.



车规级无油高可靠空气悬浮轴承技术

Automotive grade oil-free and highly reliable Foil bearing technology

组建了“车规级无油高效空气悬浮轴承”联合研发团队，研制出了刚度合适、高阻尼、高抗振性、高可靠性和低损耗的箔片动压空气悬浮轴承，满足车用标准随机振动指标和冲击振动标准。

A joint R&D team of "automotive-grade oil-free and high-efficiency foil bearings" has been set up, and foil dynamic pressure foil bearings with suitable rigidity, high damping, high vibration resistance, high reliability and low loss have been developed to meet the random vibration indicators and shock vibration standards of automotive standards.

高速转子动力学设计方法

High-speed rotordynamic design method

高速转子动力学设计方法是保证转子在高转速下稳定运行的关键技术，与转子结构、轴承刚度等密切相关，同时与电机设计、空气动力学设计、轴承设计高度耦合。

The high-speed rotordynamic design method is a key technology to ensure the stable operation of the rotor at high speed, which is closely related to the rotor structure and bearing stiffness, and is highly coupled with the motor design, aerodynamic design and bearing design.

热管理设计技术

Thermal management design techniques

研发团队将航空发动机二次空气系统热管理设计和优化技术进行了跨界应用，形成了独特优势的设计技术和产品。

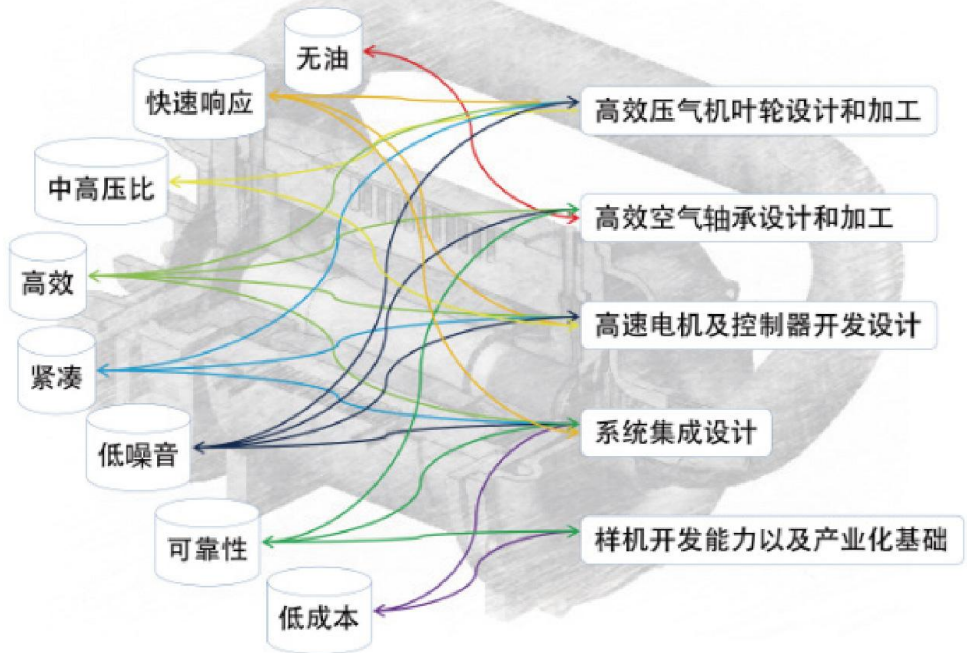
The R&D team has applied the thermal management design and optimization technology of the secondary air system of aero-engines across borders, forming unique design technology and products.

高效驱动控制技术

Efficient drive control technology

研发团队开发了全新高效变流拓扑、高密度电 - 磁 - 机 - 热多物理场集成和电磁兼容技术，解决了开关损耗大、效率低、电磁兼容性差的问题；开发了高速永磁矢量控制与解耦、延迟补偿技术，提升系统效率与可靠性，解决了高速电机转矩平稳性差的问题，形成先进的高速永磁电机控制解决方案。

The R&D team has developed a new high-efficiency conversion topology, thermal multiphysics integration and electromagnetic compatibility technology of high-density electromagnetic machine, which solves the problems of large switching loss, low efficiency and poor electromagnetic compatibility performance. The high-speed permanent magnet vector control, decoupling and delay compensation technology has been developed to improve the efficiency and reliability of the system, solve the problem of poor torque stability of high-speed motor, and form an advanced high-speed permanent magnet motor control solution.



Foil Bearing High-speed Centrifugal Blowers

空气悬浮轴承高速离心鼓风机



空气悬浮轴承高速离心鼓风机是一种高效节能、绿色环保的产品，其机械结构简单、运动部件少、控制鲁棒性好、维护方便。采用车规级无油高可靠动压空气悬浮轴承，运行过程中无摩擦、机械损失小。采用先进的永磁同步电机技术，转速最高可达95000rpm，仅需 5s 可满转速运行。电机效率高达97%，达到双一级能效标准。

空气悬浮轴承高速离心鼓风机采用的宽工况高效三元流叶轮，突破了低比转速设计关键技术，效率高。主机的一体化特殊设计，使噪音小于 75dB (A)、震动小于 12μm。其采用无级调节，风机可快速启停，连续启停次数超过 25.5 万次。

Foil Bearing High-speed Centrifugal Blowers is a high-efficiency, energy-saving, green and environmentally friendly product, its mechanical structure is simple, the moving parts are few, the control robustness is good, and the maintenance is convenient. It adopts automotive-grade oil-free and high-reliability dynamic pressure foil bearing, which has no friction and small mechanical loss during operation. Using advanced permanent magnet synchronous motor technology, the maximum speed can reach 95000rpm, and it only takes 5s to run at full speed. The motor efficiency is as high as 97%, which meets the two-stage energy efficiency standard.

The high-efficiency ternary flow impeller used in the Foil Bearing High-speed Centrifugal Blowers breaks through the key technology of low specific speed design and has high efficiency. The integrated special design of the main engine makes the noise less than 75dB(A) and the vibration less than 12 μm. It adopts stepless adjustment, and the blower can start and stop quickly, and the number of continuous starts and stops exceeds 255,000 times.

Performance Comparison

性能比较

性能比较		罗茨鼓风机	多级离心鼓风机	单级离心鼓风机	空气悬浮鼓风机
轴承	轴承	滚珠轴承	滚珠轴承	可倾瓦轴承	空气箔片轴承
	技术来源	国产	国产	进口 / 国产	国产
	寿命	1-2 年	2-3 年	3-5 年	启停寿命 20 万次
	机械损失	轴承能耗 2%	轴承能耗 2%	滑动摩擦，轴承能耗 3%	运行时无摩擦
叶轮	形式	铸造二叶或三叶叶轮	焊接 / 铸造碳钢或铸铝叶轮	铝合金三元流叶轮	铝合金三元流叶轮
	寿命	5-8 年	10 年	15 年	20 年
	空气动力学寿命	低	高	较高	高
高速电机	电动机形式	低速异步电动机	低速异步电动机	异步交流电机	高速永磁同步电机
	传动形式	皮带或联轴器	联轴器	联轴器	直连
	电机效率	86%	87%	87%	97%
	能否控制转速	不能	不能	能	精准调速
	类型	无调速系统	无调速系统	变频调节	智能化直流调速系统
冷却	冷却方式	大量循环水冷却	风冷或水冷	外接水冷却塔	闭式水冷或空冷
安装	基础	需要	需要	需要	不需要
维护	润滑油	每班检查，定期添加，费用中等	每班检查，定期添加，费用中等	每班检查，定期添加，费用较高	无需润滑油
	易损件	轴承、齿轮	轴承、密封	轴承、齿轮、润滑油泵	过滤网
	费用	中	中	高	低
运行费用		最高	高	中	低
整机效率		63%	70%	78%	85%
整机价格		低	较低	高	低
售后维保		周期短，费用低，故障率高	周期短，费用较高	维保周期长，费用很高	维保及时，自主核心部件，维护周期短，费用低

Foil Bearing High-speed Centrifugal Blowers Serie Selection

空气悬浮轴承高速离心鼓风机系列选型

测试条件：标准大气压，湿度65%，气温20℃，空气密度1.20kg/m³(偏差：±5%) Air Flow (m³/min): 1atm, 20℃, 65%RH, density=1.2kg/m³, Tolerance=±5%												
型号	出口压力(bar)									功率	重量	出口口径
	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	kW	kg	国际 PN1.0 MPa
	进口流量(m³/min)											
ZGK15	24	17	14	13	10	/	/	/	/	15	300	DN150
ZGK22	36	29	24	21	18	16	/	/	/	22	310	
ZGK30	49	39	33	28	25	22	/	/	/	30	330	
ZGK37	62	48	41	35	31	28	25	22	19	37	350	
ZGK45	78	62	51	45	39	34	32	28	23	45	550	DN200
ZGK55	94	76	60	54	47	40	38	34	28	55	630	
ZGK75	124	95	76	69	63	55	49	45	37	75	650	
ZGK90	157	120	95	86	79	69	62	56	46	90	830	DN300
ZGK110	190	150	115	104	93	85	72	67	57	110	880	
ZGK132	221	170	136	122	108	99	86	79	67	132	930	
ZGK150	252	190	156	140	122	112	99	90	77	150	1450	DN300
ZGK185	314	230	190	171	155	136	124	112	91	185	1720	
ZGK225	380	290	228	208	183	164	145	132	111	225	2140	DN400
ZGK300	504	378	312	276	243	220	198	181	150	300	2320	

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。空气悬浮风机冷却方式有自循环水冷和强制风冷两种形式，如对冷却方式有特殊要求，需提前说明。

When the atmospheric conditions and medium are varied,the relative performance conversion calculation will be different,we can re-designed in accordance wth the requirement of users to adape to different working condition. There are two cooling methods for air suspension centrifugal blower: self-circulating water cooling and forced air cooling. If you have special requirements on the cooling mode, please tell us in advance.



Air Foil Bearing Aeration Vacuum Pump Serie Selection

山东章鼓综合第四代多简支梁动压气浮轴承技术、高功率密度永磁同步电机技术、宽工况高性能空气动力学设计方法、高速转子动力学设计方法、热管理设计技术及高效驱动控制技术等 6 大核心优势技术，成功研制出山东章鼓空气悬浮真空泵产品，具有高效、低噪、无油、免维护、长寿命等显著特点。

山东章鼓空气悬浮真空泵，可应用于造纸行业、印刷行业、吸塑行业、陶瓷行业、电子行业等。

Shandong Zhanggu has successfully developed Shandong Zhanggu Air Foil Bearing Suspension Vacuum Pump products by combining 6 core technology: the fourth generation of multi-simply supported beam dynamic pressure air suspension bearing technology, high power density permanent magnet synchronous motor technology, wide working condition high-performance aerodynamic design method, high-speed rotor dynamic design method, thermal management design technology and efficient drive control technology. It has the characteristics of high efficiency, low noise, oil free, maintenance free and long life.

Shandong Zhanggu Air Foil Bearing Suspension Vacuum Pump can be used in paper-making industry, printing industry, blister industry, ceramic industry, electronics industry and so on.



Air Foil Bearing Aeration Vacuum Pump Serie Selection

空气悬浮真空泵系列选型

型号	功率 (kW)	真空度 (kPa)		
		30	40	50
		进口流量 (m³/min)		
ZGKV-15	15	25	19	15
ZGKV-22	22	38	29	22
ZGKV-30	30	51	38	31
ZGKV-37	37	68	49	37
ZGKV-45	45	81	61	47
ZGKV-55	55	102	75	58
ZGKV-75	75	135	104	82
ZGKV-90	90	164	125	104

Air Foil Bearing Aeration Turbo Blower
Air suspension compressor
空气悬浮增氧机及空气悬浮压缩机

空气悬浮增氧机										
产品系列	ZGZY7.5	ZGZY11	ZGZY15	ZGZY22	ZGZY30	ZGZY37	ZGZY45	ZGZY55	ZGZY75	ZGZY90
升压	进口流量 (m³/min) 1atm 20°C									
15	18	26	37	56	62	89	112	135	140	170
25	15	20	29	46	55	73	88	98	132	157
30	12	15	23	34	53	63	72	88	115	140
转速调节	连续可调									
电机类型	高速永磁同步电机									
轴承类型	箔片无油气浮动压轴承									
冷却方式	风冷									
噪音	>75dB									

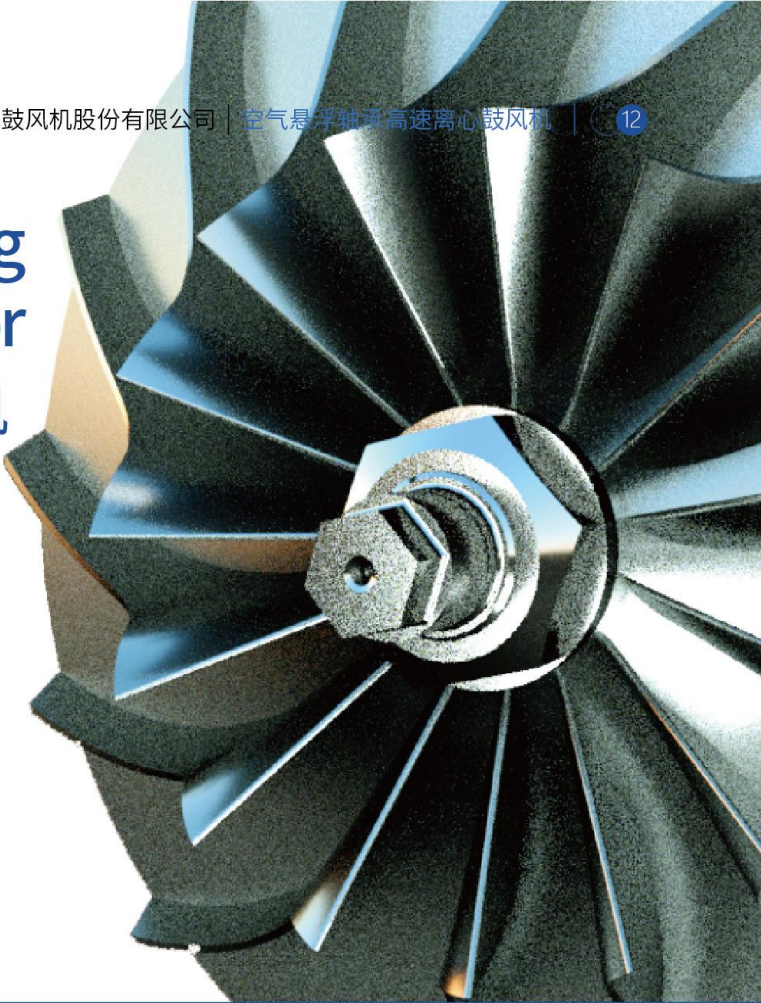
空气悬浮压缩机																					
型号	出口压力（kPa）																			功率	
	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	kW	
	进口流量（m³/min）																				
ZGK-5.5F	1	1.1	1.18	1.25	1.32	1.38	1.42	1.44	1.35	1.25	1.15									5.5	
ZGK-7.5F	2.45	2.7	2.8	2.85	2.75	2.7	2.6	2.55	2.45	2.35	2.25	2.1								7.5	
ZGK-11F	5.3	5.35	5.3	5.6	5.9	6.2	6.3	6.4	6.2	5.9	5.5	5.1	4.8	4.7	4.6	4.5	4.3	4.2	4	11	
ZGK-15F	4.4	4.8	5.1	5.4	5.7	6	6.3	6.5	6.6	6.3	6.2	6	5.7	5.4	5					15	
ZGK-22F	5.7	6.2	6.7	7.1	7.5	7.8	8.3	8.6	8.9	8.8	8.7	8.5	8.4	8.2	8.1	7.9	7.8	7.3		22	
ZGK-30F	13.3	14.4	15.5	16.3	16.1	15.8	15.5	15.2	14.8	14.3	13.8	13.4	13	12.5	12	11.5	10.9			30	

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。

When the atmospheric conditions and medium are varied,the relative performance conversion calculation will be different,we can re-designed in accordance wth the requirement of users to adape to different working condition.



ECC Series Air Foil Bearing
Refrigeration Compressor
ECC系列空气悬浮制冷压缩机



ECC（Environment Control Compressor）是应用于制冷、空调、供暖、高低温舱等人工环境的气悬浮无油离心式制冷 / 热泵压缩机。ECC 压缩机采用动压气浮轴承、高效气动设计、高效永磁电机、智能控制等独特技术，使 ECC 系列产品不仅具备节能、环保优势，而且具备无油、高可靠、免维护、低振低噪等突出特点。

ECC is an air foil bearing oil-free centrifugal type refrigeration/heating compressor which are widely used in refrigeration, air conditioning, heating, high and low temperature room and other artificial environment. It adopts dynamic pressure air suspension bearing, efficient pneumatic design, efficient permanent magnet motor, intelligent control and other unique technologies, which makes ECC series products not only have the advantages of energy saving and environmental protection, but also have the characteristics of oil-free, high reliability, maintenance-free, low vibration and low noise.

压缩机亮点

Highlights of compressors



无油

No oil



小型化

Miniaturization



低功耗

Low-power consumption



快速响应

Quick response



高可靠性

High reliability



低噪音

Low noise



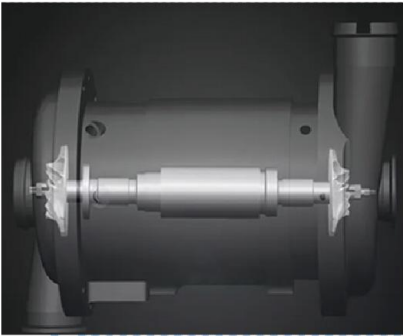
宽工况范围

Wide operating range

无油、高效

Oil-free, Efficient

压缩机采用气悬浮轴承，转子在运行中处于悬浮状态，轴承无摩擦，运转噪音低，机械损失小。运行无需润滑油系统、无需启机前准备，可连续启停，且无需维护。实现了无油运行，避免油膜覆盖在换热管上导致换热效率下降，减少了润滑油对于换热的影响，保证产品在整个使用寿命周期上具有可持续性。



Compressor adopt air foil bearing, there is no friction for the bearing due to the rotor is under in suspension during running, which could achieve low noise and less mechanical loss. No lubricating oil system, no starting preparation and no maintenance, continuous start-stop. Oil-free operation could avoid the decrease of heat transfer efficiency which caused by oil film covering the heat exchange tube, reduce the influence of lubricating oil on heat transfer, and guarantee the sustainability of product service life.

耐久可靠

Durability and Reliability

压缩机通过耐久性试验,安全启停超过25.5万次,无需气泵辅助。

The compressor has been tested for durability and has been safely started more than 255,000 times without the assistance of an air pump.



超高速高功率永磁同步电机技术

Ultra-high speed and high power permanent magnet synchronous motor technology

电机功率密度高，体积小，重量轻、结构紧凑；电机效率高，在机组运行范围内，对电机采用液态制冷剂冷却技术，从压缩机壳体喷洒低温液态制冷剂，通过壳体中的流道孔，均匀喷洒在电机机腔中，制冷剂蒸发吸热，从而带走热量。



High power density, small size, light weight and compact structure; The motor adopts the refrigerant cooling technology. The low-temperature liquid refrigerant is sprayed from the compressor shell and evenly sprayed into the motor chamber through the flow-channel hole of the shell. The refrigerant evaporates and absorbs heat to take away the heat.

Air Foil Bearing Refrigeration Compressor Selection
空气悬浮制冷压缩机系列选型

	序号	型号	名义冷量		最大压比	转速 (krpm)	配置功率 (kW)	重量 (kg)	叶轮形式	
			(RT)	(kW)					半开	封闭
D 丹青系列	1	D0500A	50	176	5.5	25~50	50	45	✓	
	2	D0750A	75	264	5.5	25~50	75	85	✓	
	3	D1951A	200	703	4.8	9~21	195	260		✓
	4	D0500W	75	264	3.5	25~45	50	45	✓	
		D0501W	75	264	3.5	25~45	50	45	✓	
	5	D0751W	125	440	3.5	16~28	75	95		✓
	6	D0901W	150	528	3.5	16~28	90	98		✓
	7	D1251W	200	703	3.5	9~18	125	214		✓
	8	D1351W	250	880	3.5	9~18	135	220		✓
	9	D1501W	300	1055	3.5	8~15	150	268		✓
	10	D1751W	350	1231	3.5	8~15	175	275		✓
	11	D2201W	400	1407	3.5	6~14	220	571		✓
G 绿控系列	12	D2451W	450	1583	3.5	6~14	245	585		✓
	13	G0280A	57	200	2.5	22~36	30	45	✓	
	14	G0281W	75	264	2.0	22~36	40	85		✓
	15	G1401W	400	1410	1.3	9~13.5	140	270		✓

Selected Cases

部分案例

成都某精密机械厂

A Precision Machinery Factory in Chengdu

使用环境：塑料模具冷却水需求，它是通过水泵将低温水送入模具，利用水在模具表面传热，把模具内部的热量带走，从而达到冷却降温的目的。

冷却水温度要求：8℃

使用情况对比：

原机组采用 6 台涡旋压缩机并联而成，5 台全年满负荷运行，1 台备用，高负载时无法满足整套工艺路线冷水需求，整机效率低，维护费用高。

现机组采用 200RT 气悬浮冷媒压缩机，整机效率高，运行稳定，后期维护成本低，夏季满负荷运行可满足生产线冷水需求，淡季以低功耗运行。



Using environment: cooling water requirements for plastic mould. The low temperature water will be transferred to the mould by water pump, the inner heat will be taken away by the surface heat transfer principle to achieve the cooling purpose.

Cooling water temperature: 8℃

Comparison:

Original unit adopt six sets of scroll compressor, five sets at full load throughout the year and one standby. The cooling water demand of the entire process line can't be meet under the high load, low efficiency and high maintenance costs.

Current unit using XECA 200RT Air Foil Bearing Refrigeration Compressor, It could meet the cooling water requirements under the full load in summer and will running on low power in off-season. The advantage is high efficiency, stable running and low maintenance costs.

品牌		山东章鼓	某品牌	备注
型号		ECCT02U-SM200	/	原机组为6台涡旋压缩机
制冷量	RT	200	186	
	kW	730	651	
耗电功率	kW	105	186	
制冷效率	COP	6.95	3.5	
运行时间	天/年	353		自动化产线，几乎全年24小时运行， 一个季度产线停机检修3天
	小时	8472		
能量调节		10%~100%	25%~100%	无级调节，范围越大，节能稳定性越好
运行能耗	kW/年	846270	1428480	按8个月满负荷运行，4个月80%符合运行计算， 其中非满负荷运行时，原机组只开5台压缩机
	电费单价(元/kW·h)	1		按成都全年平均工业用电电价计算
设备运行维护费用	元/年	2700	20000	制冷剂、润滑油、雪油以及油路过滤器等 材料更换的费用
年度运行费用	元/年	849420	1448480	不含管理费
年度节约运维费用	元/年	599060	0	

相比之前冷水机组，替换后可节能40%左右，每年运行及维护费用可节约60万。
Compared with the original unit, SZB compressor could save about 40% energy and 600000 yuan on annual operation and maintenance costs.

Application Industry

应用行业

适用于污水处理业、石化工业、食品药品业、冶金纺织业、水泥建材业、皮革印染业等。

It is suitable for sewage treatment industry, petrochemical industry, food and drug industry, textile industry, metallurgy industry, cement and construction materials industry, printing and dyeing industry and other industries.



Service And Support

服务及支持

我们在全各地共设42个办事处，目前除台湾省外全国33个省份行政区域均有完善的销售和服务网络。能够及时便捷的为您提供售前、售中和售后服务，从中了解您的需求，在满足客户定制化需求同时，不断完善服务及质量体系。

We have 42 offices throughout the country, in addition to Taiwan Province, 33 provinces in the country's administrative regions have a sound sales and service network. We can provide you with pre-sale, in-sale and after-sales service in a timely and convenient manner, understand your needs, and constantly improve the service and quality system while meeting the customized needs of customers.