



## TWO-STAGE SCREW AIR COMPRESSOR 双级压缩螺杆空压机

**Airhorse®**  
**艾玛压缩机**

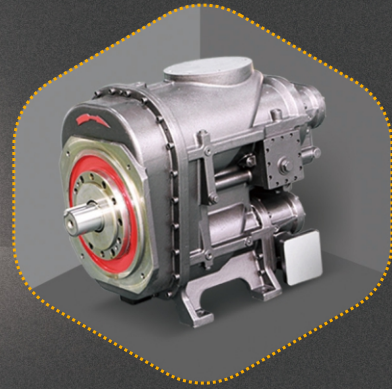


广州艾玛压缩机有限公司  
GUANGZHOU AIRHORSE COMPRESSOR CO.,LTD



## 高效节能的原理

## THE PRINCIPLE OF HIGH EFFICIENCY ENERGY SAVING



空气经过一级压缩后，通过强化喷油冷却，降低二级吸气温度，空气进行等温压缩，降低压缩功。



After the air is first compressed, the second suction temperature is reduced by strengthening the fuel injection cooling, and the air is isothermal compressed to reduce the compression work.

双级压缩采用等压比来设定级间压力，故每级压缩比都要比单级压缩比降低很多，转子之间的回流泄露大大降低了，容积效率和绝热效率得到了大大提高，相应的提升了压缩的产气量。



The two-stage compression uses an equal pressure ratio to set the inter stage pressure, so the compression ratio of each stage is much lower than the single-stage compression ratio. The back flow leakage between the rotors is greatly reduced, and the volumetric efficiency and adiabatic efficiency are greatly improved, it will increase the production of compressed air.

在相同的功率下双级压缩比单级压缩产气量高达15%，可以实现多达15%的节能效果。



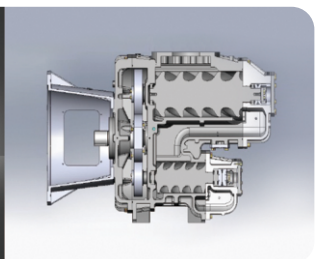
Under the same power, the air production of two-stage compression is as high as 15% compared with single-stage compression, and can be achieved up to 15% energy saving.

## 主机轴承

## AIR END BEARING

排气端独创的两对圆柱轴承组合，在极限条件下有出色的可靠性并延长了寿命。特大型轴承 - 在极限条件下亦有出色的可靠性。设计使用寿命达到10万小时以上。

与额定输出压力8bar的单级压缩螺杆式空气压缩机相比较，双级螺杆式空气压缩机的“压缩比”降低，低于前者的40%。压缩比降低会带来下述优势：压缩比低，回流泄露量大大降低，螺杆主机的输出流量得到提高。压缩比低，则压缩过程中产生的压缩热减少，压缩腔内温升低，这样可提升压缩空气的体积效率。压缩比低，则转子所产生的轴向力及径向力大大降低，这样大大降低转子轴承所承受的轴向力及径向力，极大地提高了转子轴承及转子的使用寿命及可靠性。



# 双级压缩螺杆空压机

## TWO-STAGE SCREW AIR COMPRESSOR

The unique combination of two pairs of cylindrical bearings on the exhaust end provides excellent reliability and extended life under extreme conditions. Extra Large Bearings - Excellent reliability under extreme conditions. The designed service life is more than 100,000 hours. Compared with the single-stage compression screw air compressor with a rated output pressure of 8 bar, the "compression ratio" of the two-stage screw air compressor is lower than 40% of the former. The reduction of the compression ratio will bring the following advantages: the compression ratio is low, the return leakage is greatly

reduced, and the output flow of the screw air end is improved. When the compression ratio is low, the heat of compression generated during the compression process is reduced, and the temperature rise in the compression chamber is low, which can improve the volumetric efficiency of the compressed air. When the compression ratio is low, the axial force and radial force generated by the rotor are greatly reduced, which greatly reduces the axial force and radial force on the rotor bearing, and greatly improves the service life and reliability of the rotor bearing and rotor.

## 更稳定

## MORE STABLE

### 变频调速·供气压力稳定 Variable frequency regulation stable supply pressure

采用充分发挥节能效果的变频调速控制，打造节电省力的新一代节能压缩机

Adopting frequency conversion speed control to make full use of energy-saving effects to create a new generation of energy-saving compressor that saves electricity and energy



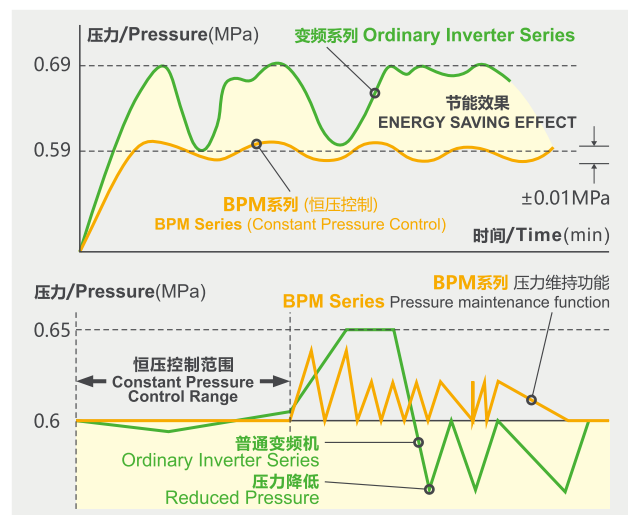
空压机传统的控制方式是通过调节入口阀的开度来进行吸入截流，从而调节进风量，且大量的能源消耗在阀门的截流过程中，当使用变频调速时，如果需要调节流量，通过主机转速即可满足要求，大大降低能源消耗。

The traditional control method of the air compressor is to adjust the opening of the inlet valve to carry out the suction cut-off, and then to adjust the intake air volume, and a large amount of energy is consumed in the process of valve closure.

When the frequency conversion is used, if the flow is needed to be adjusted, the host speed can meet the requirements and greatly reduce the energy consumption.

通过恒压控制，以必要的压力提供所必须的空气量

Provide the necessary amount of air with the necessary pressure through constant pressure control



可以进行压力变动幅度 $\pm 0.01$ MPa以下的高精度的恒压控制，从而有效地为使用机器提供所必要的最合适压力的空气。而且，设定压力的精度为0.01MPa，精确设定实现最大程度的节能。

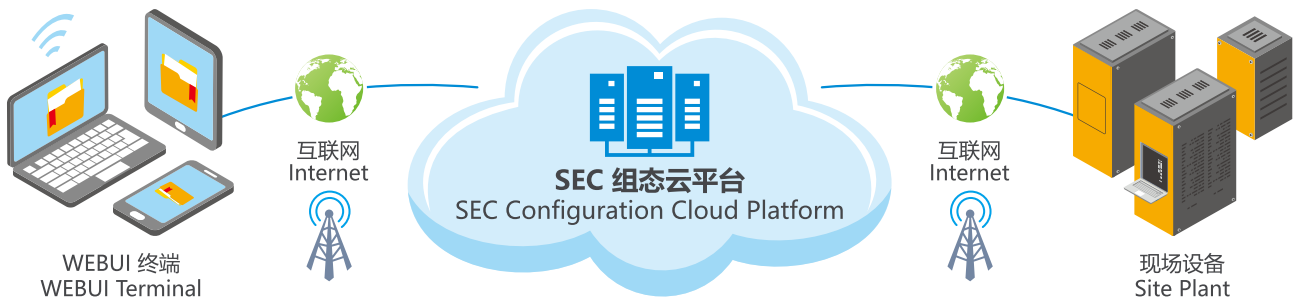
High-accuracy constant-pressure control with a pressure variation range of  $\pm 0.01$  MPa or less can be performed, effectively providing the machine with the most suitable air pressure necessary. Moreover, the accuracy of the set pressure is 0.01MPa, accurate setting to achieve maximum energy savings.

## 智能监控

## INTELLIGENT MONITORING

智能管家远程监控，24小时在线监测，无需专人管理打开手机即可快速获得机器运行资讯。机器遇到故障或者需要保养时，系统会自动发送预警信息。

Smart housekeeper remote monitoring, 24-hour online monitoring, no need for special management to open the phone to quickly obtain machine operation information. When the machine encounters a malfunction or needs maintenance, the system will automatically send an early warning message.



## 更简便

## MORE CONVENIENT

智能化的HMI人机交互界面，操作简洁方便，状态一目了然

Intelligent HMI human-computer interaction interface, the operation is very simple and convenient, and the state is clear at a glance.



✓ **最新开发的HMI人机界面，直观便捷。**  
可直接在显示屏上实现节能模式，远程操作的转换。而且，万一发生故障，显示屏上将显示故障之内容，可以迅速地排除故障。

In the newly developed HMI man-machine interface, it is very intuitive and convenient, which can directly realize the conversion of energy-saving mode and remote operation on the display screen. Moreover, in case of failure, the content of the failure will be displayed on the display, which can quickly troubleshoot the problem.

✓ **艾玛独有的闭环矢量控制和PID控制，既实现了快速响应，又保证了安全可靠。**  
BPM Series 机的可变速控制及压缩机的系统控制，都是艾玛压缩机自行开发的技术。精确至 0.01MPa 的恒压控制系统，在实现高度应答的同时，又可发挥超群的负载追随性和安全性。

AirHorse's unique closed-loop vector control and PID control not only realize fast response, but also ensure safety and reliability. The variable speed control of BPM Series compressor and the system control of compressor are all technologies developed By AirHorse Compressor. The constant pressure control system accurate to 0.01MPa not only achieves a high response, but also play a superior load tracking and safety.

✓ **轻触屏幕即可实现压力控制方式的设定及变更，在显示屏上可以简单的进行节电的压力控制模式变更。**  
The pressure control mode can be set and changed by touching the screen. Saving electricity pressure control mode can be easily changed on the display screen.

✓ **可利用定时运行功能，交替运行等功能实现节能，节省人工。**

You can use the functions of timing operation, alternate operation, etc. to save energy and save labor.

✓ **可在显示屏上确认压缩机的运行状态以及各种设定。**

The status of the compressor and various settings can be confirmed on the display screen.

## 级间喷油雾冷却设计

## INTERSTAGE OIL SPRAY COOLING DESIGN

- 级间润滑油立体喷射接近雾化;
- 冷却效率高，润滑均匀，大大降低消耗功率;
- 省却中间冷却器，减少压力损耗，降低维护成本。

Interstage lubricating oil three-dimensional spray close to atomization. High cooling efficiency, uniform lubrication, greatly reducing power consumption. Save the intermediate cooler, reduce pressure loss and reduce maintenance costs.

## 双级压缩优势

## ADVANTAGE OF TWO-STAGE COMPRESSION



### 双级压缩主机 提升20%排气量

### TWO-STAGE COMPRESSION AIR END INCREASE 20% EXHAUST VOLUME

- **主机采用最新设计的转子专利型线，经过二十余道工序精密加工，保证了转子型线的精密性，可靠性和有效性。**  
The air end adopts the newly designed rotor patent profile, which has been precisely processed through more than 20 procedures to ensure the precision, reliability and effectiveness of the rotor profile.
- **双级压缩主机大幅度降低单级压缩比，通过合理分配，减少内泄漏，提高容积效率，降低轴承负载，使得轴承使用寿命提高可达≥150000小时，大大提高了主机使用寿命。**  
The two-stage compression air end greatly reduces the single-stage compression ratio. Through reasonable distribution, the internal leakage is reduced, the volume efficiency is improved, and the bearing load is reduced, so that the bearing service life can be increased by more than 150,000 hours, which greatly improves the service life of the air end.
- **对比单级压缩，同等功率下，排气量提升15%-20%。**  
Compared with single-stage compression, the exhaust volume is increased by 15% -20% under the same power.



### 永磁同步电机 性能提高10%

### PERMANENT MAGNET SYNCHRONOUS MOTOR 10% HIGHER PERFORMANCE

- **电机采用高性能钕铁硼磁性材料制作，电机性能提升5%-10%。**  
The motor is made of high-performance NdFeB magnetic material, and the motor performance is improved by 5%-10%.
- **同时具有优异的磁性能，使得电机在不同频率段均可保持高性能，更合适空压机变频使用。**  
It has excellent magnetic properties, so that the motor can maintain high performance in different frequency bands, which is more suitable for air compressor frequency conversion.
- **IP55防护等级，有效防止灰尘和水分进入电机，F级绝缘，B级温升。**  
Ip55 protection level, effectively prevent dust and moisture from entering the motor, F-level insulation, B-level temperature rise.
- **标配轴承陶瓷材料镀层技术，杜绝静电电击主轴，确保长期连续无故障运行。多数据变频器控制 - 机组有效性上涨20%。**  
The standard bearing ceramic material coating technology prevents electrostatic shock to the spindle and ensures long-term continuous and trouble-free operation. Multi-data inverter control - 20% increase in unit effectiveness.
- **系统采用PID矢量控制技术，内嵌电脑读取更多运行数据，通过独特高级算法，使得机组可在确保电击温升最低的情况下，调整到合适扭矩和转速，实现更高效平稳地驱动主机，满足更广域的排气量要求，机组有效性上涨20%。**  
The system adopts PID vector control technology, and the embedded computer reads more operating data. Through the unique advanced algorithm, the unit can be adjusted to the appropriate torque and speed under the condition of ensuring the lowest temperature rise of the electric shock, so as to drive the air end more efficiently and smoothly, meet the requirements of wider range of exhaust volume, and increase the effectiveness of the unit by 20%.



### 性能

### PERFORMANCE

- **双级压缩主机搭配永磁电机驱动和多数据变频算法控制，通过独立研发系统组合，确保机组平稳运行，降低噪音和振动，经久耐用。**  
The two-stage compression air end is equipped with permanent magnet motor drive and multi-data frequency conversion algorithm control. Through independent research and development system combination, the unit is ensured to run smoothly, reduce noise and vibration, and be durable.
- **同时对比同等功率下的单级压缩空压机，能效平均提升30%，达到国家一级能效标准。**  
Compared with single-stage air compressors with the same power, the energy efficiency is increased by 30% on average, reaching the national first-class energy efficiency standard.

# SLPM 系列双级压缩单驱永磁变频螺杆空压机技术参数

SLPM SERIES TWO-STAGE SINGLE-DRIVE PMSM INVERTER SCREW AIR COMPRESSOR TECHNICAL PARAMETER LIST

型号 Model	排气压力 Pressure (Mpa)	排气量 Air Flow (m <sup>3</sup> /min)	电机功率 Motor Power (KW)	出口尺寸 Outlet Size	外形尺寸 Dimension L×W×H(mm)	重量 Weight (kg)
SLPM-30A	0.7	4.5	22	1"	1400×900×1225	680
	0.8	4.3				
	1.0	3.8				
SLPM-50A	0.7	7.6	37	1½"	1560×1000×1365	780
	0.8	7.2				
	1.0	6.5				
SLPM-75A	0.7	12.5	55	2"	2100×1430×1740	2180
	0.8	11.9				
	1.0	10.3				
SLPM-100A	0.7	16.2	75	2"	2100×1430×1740	2280
	0.8	15.7				
	1.0	15.2				
SLPM-120A	0.7	19.7	90	2½"	2500×1480×1770	3200
	0.8	19.1				
	1.0	16.0				
SLPM-150A	0.7	24.5	110	2½"	2500×1480×1770	3360
	0.8	23.5				
	1.0	19.5				
SLPM-175A	0.7	28.2	132	2½"	2700×1580×1770	3650
	0.8	27.0				
	1.0	24.4				
SLPM-220A	0.7	34.6	160	DN80	2800×1910×2320	4150
	0.8	32.5				
	1.0	30.9				
SLPM-250A	0.7	39.5	185	DN80	3250×2210×2320	4700
	0.8	37.5				
	1.0	34.9				
SLPM-280A	0.7	43.1	200	DN80	3250×2210×2320	5000
	0.8	40.7				
	1.0	38.3				
SLPM-300A	0.7	47.5	220	DN80	3250×2210×2320	5250
	0.8	45.6				
	1.0	40.7				
SLPM-350A	0.7	53.8	250	DN125	4330×2130×2370	6300
	0.8	51.0				
	1.0	45.0				
SLPM-380A	0.7	59.2	280	DN125	4330×2130×2370	6500
	0.8	55.7				
	1.0	48.5				
SLPM-420W	0.7	63.5	315	DN150	4200×2350×2400	7800
	0.8	60.7				
	1.0	55.8				
SLPM-480W	0.7	77.9	355	DN150	4700×2350×2400	8500
	0.8	74.5				
	1.0	65.7				

## SLD系列双级压缩单驱螺杆空压机技术参数

### SLD SERIES TWO STAGE COMPRESSION SCREW AIR COMPRESSOR

型号 Model	排气压力 Pressure (Mpa)	排气量 Air Flow (m <sup>3</sup> /min)	电机功率 Motor Power (KW)	出口尺寸 Outlet Size	外形尺寸 Dimension L×W×H(mm)	重量 Weight (kg)
SLD-30A	0.7	4.3	22	1"	1400×900×1225	680
	0.8	4.1				
	1.0	3.6				
SLD-50A	0.7	7.1	37	1½"	1560×1000×1365	780
	0.8	6.9				
	1.0	6.3				
SLD-75A	0.7	11.8	55	2"	2100×1430×1740	2180
	0.8	11.5				
	1.0	10.0				
SLD-100A	0.7	15.7	75	2"	2100×1430×1740	2280
	0.8	15.2				
	1.0	14.7				
SLD-120A	0.7	19.1	90	2½"	2500×1480×1770	3200
	0.8	18.5				
	1.0	15.5				
SLD-150A	0.7	23.2	110	2½"	2500×1480×1770	3360
	0.8	21.7				
	1.0	18.9				
SLD-175A	0.7	27.4	132	2½"	2700×1580×1770	3650
	0.8	26.2				
	1.0	23.7				
SLD-220A	0.7	33.6	160	DN80	2800×1910×2320	4150
	0.8	31.5				
	1.0	29.9				
SLD-250A	0.7	38.3	185	DN80	3250×2210×2320	4700
	0.8	36.4				
	1.0	33.9				
SLD-280A	0.7	41.8	200	DN80	3250×2210×2320	5000
	0.8	39.5				
	1.0	37.2				
SLD-300A	0.7	46.1	220	DN80	3250×2210×2320	5250
	0.8	44.2				
	1.0	39.5				
SLD-350A	0.7	52.2	250	DN125	4330×2130×2370	6300
	0.8	49.5				
	1.0	43.7				
SLD-380A	0.7	57.4	280	DN125	4330×2130×2370	6500
	0.8	54.0				
	1.0	47.0				
SLD-420W	0.7	61.6	315	DN150	4200×2350×2400	7800
	0.8	58.9				
	1.0	54.1				
SLD-480W	0.7	75.6	355	DN150	4700×2350×2400	8500
	0.8	72.3				
	1.0	63.7				



艾玛压缩机在国内具有较完善的经销商服务体系及5个公司直属售后服务办事处，海外40多个国家分布约130家经销商。可有效对接客户及国内外各种订单，并提供及时有效的售后服务。

AirHorse Compressor has a complete dealer service system in China and 5 after-sales service offices directly under the headquarters, and we have about 130 dealers in more than 40 countries overseas. It can effectively provide service for our customers and process various orders in China and abroad market, we will provide timely and effective after-sales service for you.

**AirHorse® 艾玛**

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