



更好的技术, 更好的环境  
Better Technologies Better Environment

# 无油螺杆压缩机与真空泵

Oil Free Screw Compressor and Vacuum Pump

- › 可靠 › 静音 › 高效
- › Reliable › Silent › Efficient



# Greatall 无油螺杆压缩机

## 概述

在气体压缩应用领域里，特别是在需要无油空气的系统中，格瑞拓拥有GHS系列无油螺杆压缩机。我们的产品特别适用于由于产品污染而导致浪费的气力输送系统中。我们的单级螺杆压缩机有一系列的标准机组和广泛的配件可供选择，同时也可提供定制化的解决方案。我们的产品可以满足大多数客户的需求，压力可达4.6bar a或真空到190mbar a。

## General

For any gas compression application in where it is essential to avoid oil contamination of the gas or the system in which it is being used, Greatall have a range of rotary screw compressors designed to produce "Oil free" air. This product is particularly used in pneumatic conveying systems where product contamination can be expensive. These single-stage screw compressor sets are produced as standard units and suitably customised with an extensive range of accessories and optional configurations which can provide customised solutions. To meet the majority of requirements, pressures are available to 4.6bar abs (66.7Psi abs) or vacuums down to 190 mbar abs (5.6"Hg abs).



## 应用

我们的无油螺杆压缩机在无油气体的应用场合是最佳的解决方案，应用领域广泛：

- 气体输送散装材料在石油化工、化学、制药和食品工业、水泥工程.....
- 污水处理（曝气）和饮用水处理（臭氧）.....
- 真空处理系统中的造纸工业、印刷业、玻璃制造业
- 采矿、炼铁和钢铁工业中的过滤器清洁
- 气体燃烧脱硫
- 真空元器件
- 喷砂
- 航空应用（喷气发动机）

## Applications

Screw compressors are an optimum solution for all applications requiring oil-free gases.

- Pneumatic conveying of bulk materials in the petrochemical, chemical, pharmaceutical and foodstuffs industries, cement works...
- Sewage treatment (aeration) and drinking water treatment (ozonation)...
- Vacuum handling systems in the paper industry, printing shops, glassworks...
- Filter cleaning in the mining, iron, and steel industries
- Homogenisation, fluidisation, desulphurisation of combustion gases
- Vacuum units
- Pressurisation of ballasts
- Aeronautical application (jet engines starters)

## 流量范围

对于流量范围从500m<sup>3</sup>/h到8000m<sup>3</sup>/h，格瑞拓GHS系列的无油螺杆压缩机拥有完美的表现。最高压力可达4.6bar a或190mbar的真空。

## Range

GHS dry screw-type compressors are perfectly suitable for all applications requiring flow 500 m<sup>3</sup>/h(290cfm) to 8000 m<sup>3</sup>/h(4700 cfm) at a maximum positive pressure of 4.6bar abs(66.4Psi abs)and 190 mbar abs(5.6"Hg abs)of vacuum.

Model 型号		GHS9	GHS14	GHS26	GHS42	GHS72
Max.Flow Rate 最大流量	m <sup>3</sup> /h	1150	1600	2900	5000	8000
	cfm	675	940	1705	2940	4700
Max.Pressure 最大压力	Bar	3.5	3.5	3.5	3.5	3.5
	psig	50	50	50	50	50

## 运行方式

GHS系列为风冷式、双螺杆无油压缩机组，每个轴由两个位于压缩腔外反向旋转的同步齿轮（阴齿和阳齿）驱动，所以压缩气体可以说是完全“无油”的。压缩后的气体通过排气口被输送到用气管道。GHS系列的不对称3+4转子特别适合低气压的气体压缩。

## Principle of operation

The GHS series are air-cooled, twin-shafted positive displacement compression machines.Each shaft contains two synchronised gears (male and female) which rotate in opposite directions these gears which are located outside of the compression chamber and so the compressed gas can be said to be completely “Oil-free”After compression the gas is discharged through the outlet into the delivery pipe.Our asymmetrical 4+3 screw section is especially well adapted to low-pressure operation.

### Suction side 吸气

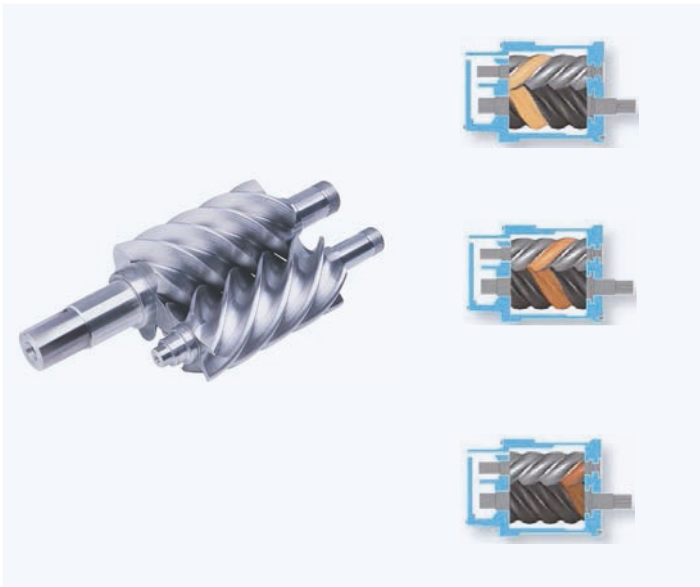
The gas enters the compression chamber when the rotors come in line with the suction inlet.  
当气体进入压缩机腔时，转子开始旋转吸入气体。

### Compression 压缩

The gas pressure increased as the available volume within the rotors reduces.  
气体压力增加，因为转子间容积减少，产生压缩过程。

### Delivery 排气

The internal compression ratio is attained and the gas is discharged through the outlet into the delivery pipe.  
压缩到设定压力，压缩过程完成，气体通过排气口进入用气管道。



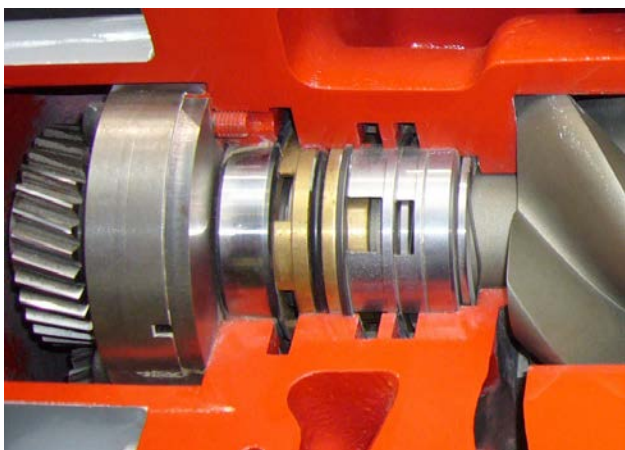
## 结构

我们的无油压缩机机头由GHH-RAND制造，是目前市场上技术领先的产品。

- 由于拥有专业的技术和多年的经验，我们能够生产出高性能和长寿命的产品。
- 出色的技术优势不仅体现在机身和转子之间间隙的精确优化计算，同时我们使用拥有自主知识产权的超级涂层能够防腐蚀、防高温并且适合长时间的负荷运载。高品质的防摩擦轴承，机头机身由高等级铸铁加工而成，直接连接于机头一体的齿轮箱上。油泵由主轴机械驱动。
- 润滑系统包括一体化的油箱和外置冷却器，以保证最佳的工作温度。
- 整个机头的设计结构紧凑，运行高效。

## 密封

轴密封的目的是防止油泄露到压缩腔内，GHS系列主机先后结合密封圈、迷宫式密封和非固定环，从而保证压缩过程绝对无油。



Discharge side  
排气端

## Construction

The bare shaft of screw compressor is manufactured by GHH-RAND and is the best of its type in the market today.

- With the highest level of technical proficiency and many years of experience. We are able to produce a product with high performance and long life expectancy.
  - Technical excellence is not only an optimised calculation of the clearances between body and rotor itself but also the use of very special coating obtained through a gradual development and improvement process to reach precision and stability against corrosion, temperature and time. Best practice is also achieved by the high quality anti-friction bearings.
- The air-end body is manufactured from high grade cast iron and is directly connected to an integral gearbox. The pump is driven mechanically from main shaft off the gearbox.
- The lubrication system consists of an integral oil tank and external air heat exchanger which guarantees an optimum temperature.
  - The entire unit is designed to be compact and simple to operate.

## Seals

Shaft seals are designed to prevent any oil leakage towards the compression chamber, and successively combine ring seals, labyrinth seals, and non-retaining rings, thus making compression absolutely oil-free.



Suction side  
吸气端

## UltraCoat™ 超级涂层更节能，使用寿命更长

压缩机转子高速运转，随着时间的推移，其表面会磨损使转子越来越容易受压缩空气中杂质和温度的影响，从而使压缩机效率降低，空气的纯度降低并导致压缩机产生故障。

GHH-RAND为了消除这一问题研发了粘附度高和耐高温性强的UltraCoat超级持久涂层，从而能够对转子和压缩腔室提供良好的保护。

GHH-RAND的每个无油转子和机壳都经过精心设计的，UltraCoat超级涂层紧密贴合于转子表面，超高的粘附度使其不易脱落。

总而言之，UltraCoat超级涂层可以为用户提供更稳定的运行性能和空气质量，更长的转子寿命，增加正常运行时间，并有效地降低能耗。

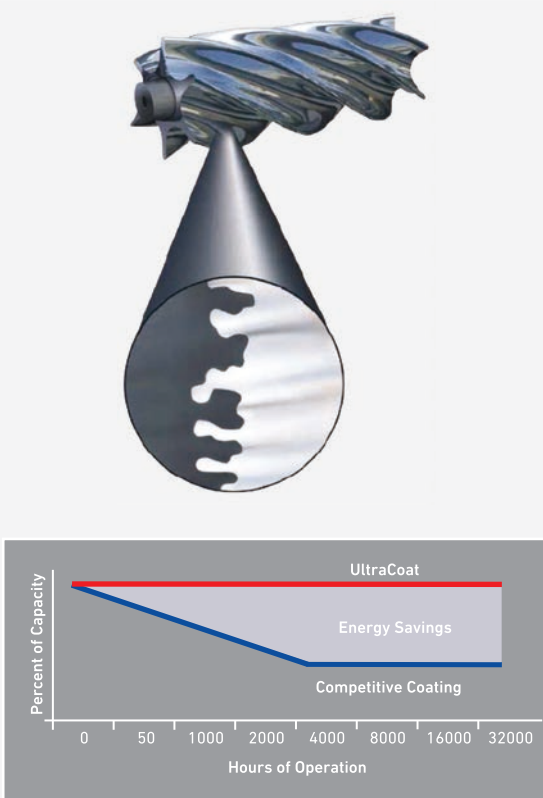
## UltraCoat™ energy savings and longer life

Compressor rotors take a beating. Over time their surfaces can deteriorate, making rotors increasingly susceptible to compressed air impurities and temperature fluctuation, which lead to reduced efficiency, decreased air purity, and compressor failure.

GHH-RAND eliminates this problem with UltraCoat, an advanced rotor and housing protection process that ensures the most durable coating, with unmatched adhesion and temperature resistance.

Every GHH-RAND oil-free rotor and housing is specially prepared, creating a surface texture to which the UltraCoat micro-coating bonds with the tightest, longest-lasting grip possible.

Ultimately, UltraCoat delivers greater reliability in performance and air quality, rotor longevity, increased uptime, and reduced energy costs.



## 整机设计

压缩机整机设计以紧凑为前提条件，并保留了一定范围的可选择配件作为扩充。我们完全可以根据客户的要求来做设计。这种模块式的理念让我们的产品广泛应用于各种无油应用。

## 选项

GHS无油螺杆压缩机隔音罩的设计易于客户对机组检查和维修，配有通风设备隔音效果优良。

其他可选配件

- 带有滤芯的消音器
- 特殊尺寸的隔音罩
- 特殊的消音装置
- 变频调速
- 冷冻式干燥机、冷却器
- 防雨保护
- 放空阀
- 可选防爆机型

## 控制系统

我们会为客户制定一个在功能和价格方面都最为合适的解决方案，如果需要，也可以为客户设计两套独立的控制系统。

A: 《安全模块》能够保证系统不间断检查所有运行参数以确保机组的正常运行和启动/停止控制。

B: 《先进模块》远程控制处理器通过分析类比数字信号所传送的参数对机组进行控制，确保机组的正常运行。简洁的面板设计保证了简单快速的诊断和显示。根据客户的需求，该模块能够便捷地与客户MCP（主控制器）或VFD(变频电机)连接匹配。



## Packaging

The packaging of our compressors has been carefully considered to produce compact units but retaining a wide range of options. This allows a certain amount of 《customising》 to meet, more exactly, your requirements. This modular concept allows freedom of choice for all types of dry compression applications.

## Options

While still allowing easy access for inspection and maintenance, the GHS oil-free screw compressor unit is fitted with a ventilated acoustic enclosure which assures low level. Various other accessories are available:

- Silencer with integrated filtration
- Enhanced enclosure
- Reinforced noise level attenuation
- Variable speed
- Refrigeration dryer/cooler
- Rain protection
- Vent valve
- Explosion proof version available

## Control systems:

We offer you a standard solution which best fits to your functional and price requirement, in the form of two individually designed control systems.

A: 《Secure Module》 allowing a guarantee of permanent checking of all operating parameters to secure the group and control start/stop.

B: An 《Advanced Module》 remote-controlled by a processor allows to secure the group and also to control and analyse the parameters transmitted by analogical and digital transmitter signal. The user-friendly panel design ensures quick and easy diagnostic. Depending to your requirement, the module easily configured to communicate with your MCP or VFD.

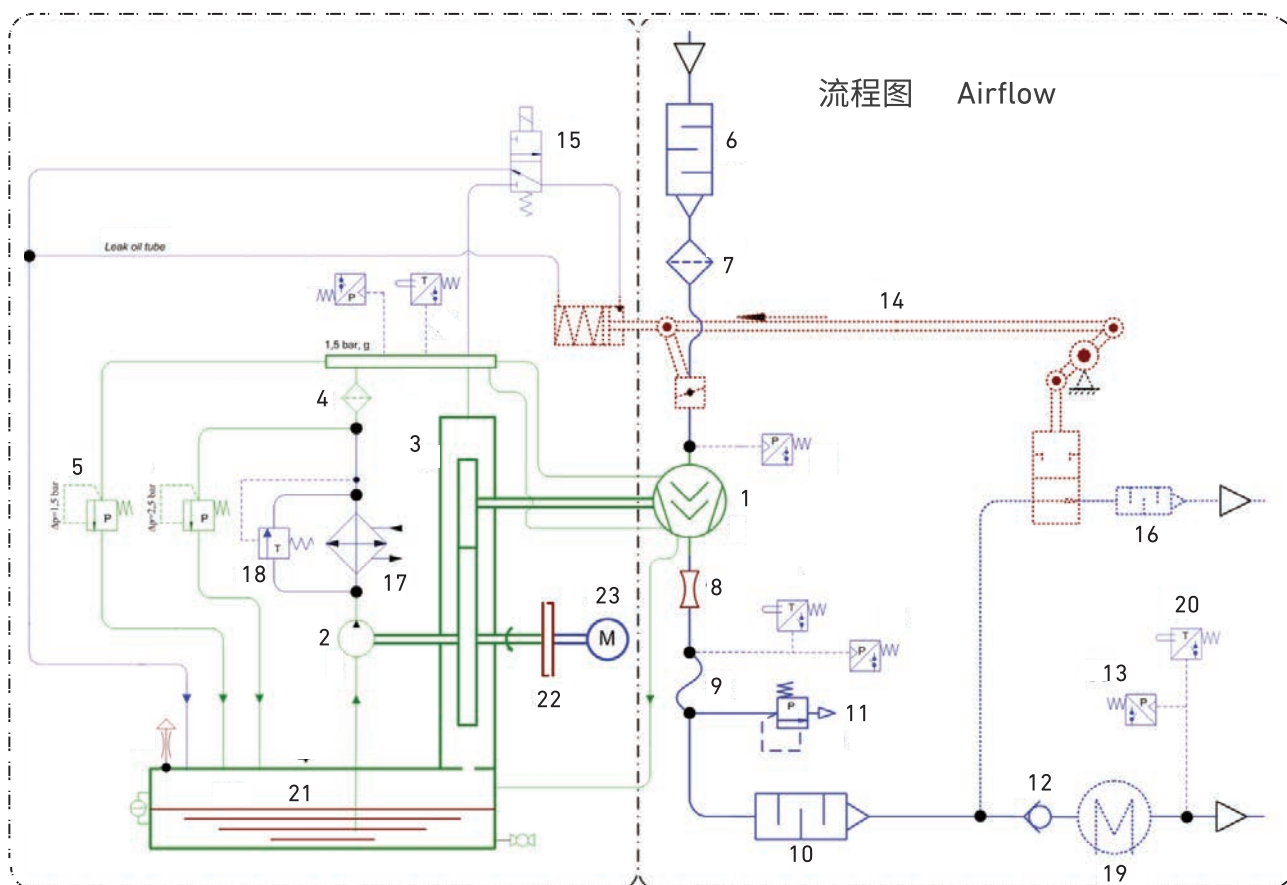


## 选项

- |          |                |
|----------|----------------|
| 1.主机     | 13.出口压力开关      |
| 2.油泵     | 14.进气阀 (选配)    |
| 3.齿轮装置   | 15.电磁阀 (选配)    |
| 4.油滤     | 16.放空消音器 (选配)  |
| 5.调压阀    | 17.油冷却器        |
| 6.进气消音器  | 18.温控阀         |
| 7.进气过滤器  | 19.后部冷却器 (选配)  |
| 8.文丘里管   | 20.出口温度开关 (选配) |
| 9.补偿器    | 21.油池          |
| 10.排气消音器 | 22.联轴器         |
| 11.安全阀   | 23.电机          |
| 12.逆止阀   |                |

## Scope of supply

- |  |   |
|--|---|
| 1.Screw Airend                             | 13.Pressure switch net pressure           |
| 2.Oil pump                                 | 14.Inlet blowdown valve(optional)         |
| 3.Gear unit                                | 15.3/2 way solenoid valve(optional)       |
| 4.Oil filter                               | 16.Blow off silencer(optional)            |
| 5.Pressure limiting valve for oil manifold | 17.Oil cooler                             |
| 6.Suction silencer                         | 18.Thermostatically working control valve |
| 7.Suction filter                           | 19.Aftercooler(optional)                  |
| 8.Venturi                                  | 20.Temperature switch(optional)           |
| 9.Compensator                              | 21.Oil sump                               |
| 10.Silencer                                | 22.Coupling                               |
| 11.Pressure relief valve                   | 23.Drive motor                            |
| 12.Non return valve                        |   |





格瑞拓动力股份有限公司

武汉市江夏区庙山邬树村幸福一路2号

电话: 027-50757677

传真: 027-50757678

邮编: 430223

Greatall Dynamic Co., Ltd.

No 2 Xingfu Yi Road , Wushu Village,Miaoshan Economic  
Development Zone, Jiangxia District, Wuhan 430223

Tel: 0086 27 50757677

Fax:0086 27 50757678

#### 北京公司

北京市海淀区常青园南里二区97-1号

电话: 010-58720695

传真: 010-58720795

邮编: 100195

#### Beijing Office

No 97-1, Zone 2, Changqingyuan Nanli, Haidian District,  
Beijing 100195

Tel: 0086 10 58720695

Fax:0086 10 58720795

#### 上海公司

上海市闵行区罗阳路168号A座501室

电话: 021-54304001~6

传真: 021-54304007

邮编: 201100

#### Shanghai Office

A501 No 168 Luo Yang Road, Min Hang District,  
Shanghai 201100

Tel: 0086 21 54304001~6

Fax:0086 21 54304007

#### 成都公司

四川省成都市青羊区蜀金路1号金沙万瑞中心  
C座904室

电话: 028-87011559

传真: 028-87011303

邮编: 610091

#### Chengdu Office

Room 904, Building C Winera Plaza, No 1 Shu Jin Road,  
Qingyang District, Chengdu, Sichuan Province, 610091

Tel: 0086 28 87011559

Fax:0086 28 87011303

#### 服务热线: 4007-888-077

E-mail: sales@greatall.com

http: //www.greatall.com

\* 本公司保留随时修改机器设计的权利以保证持续地进步。

We reserve rights of changing design without notice for continuous improvements.