

# AIRSTONE OIL AND OIL FREE PUMP



The enterprise passes the ISO9001:2000 international quality system certification

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Hongkong Fengguang Industry Ltd  
Dongguan City Qianwei Mechanical Equipment Technology Ltd  
Airstone Screw Air Compressor Manufacturer



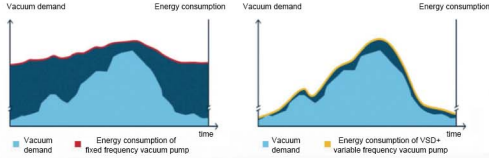
## SCREW VACUUM PUMP VSD+



Average energy saving 50%

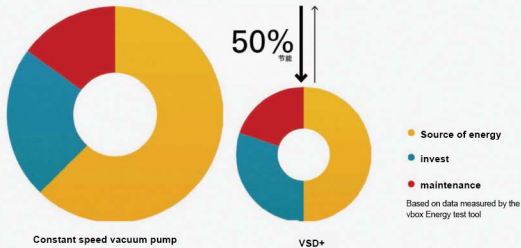
In almost all production environments, the demand for vacuum on different days of the year or month or even week will fluctuate with different factors.

Through the investigation and in-depth measurement of a large number of demand curves, it is found that there are different degrees of fluctuations in vacuum demand.



### WHY CHOOSE SCREW VACUUM PUMP VSD

- ⊙ Average energy savings of up to 50% over a large flow range (20-100%)
- ⊙ Saving on electrical installation costs (fuses and cables)
- ⊙ The integrated color controller controls the motor and frequency converter
- ⊙ Eliminates peak current shock during start/stop
- ⊙ Electromagnetic compatibility meets 2004/108/EG guidelines.



## Screw vacuum pump and traditional water ring vacuum pump

### Comparison of energy saving

#### SCREW VACUUM PUMP

- Heavy-duty screw compressor heads are used for light-duty vacuum pumps with a theoretical life of up to 400,000 hours.
- High efficiency and reliability. In the vacuum range of 10-600mBar, the efficiency is 20-30% higher than other vacuum pumps or vacuum generators
- Low noise and no pollution.
- System pressure is stable.
- Intelligent automatic frequency conversion control system.

#### WATER RING VACUUM PUMP

- The efficiency is low, generally about 30%.
- The power consumption is large, the efficiency is 50-60% lower than that of the screw pump, and a lot of water needs to be consumed.
- The calibration is the maximum pumping speed when the suction temperature is 20°C, the working liquid temperature is 15°C, and the suction medium is saturated air, which is difficult to meet the working condition requirements on site. Limited by the temperature of the working liquid, the pumping speed can only reach about 60% of the calibration.
- There is no frequency conversion adjustment system, the vacuum degree is unstable, not energy saving.

#### WATER RING VACUUM PUMP

At a working pressure of 80Kpa  
Provides 1100m<sup>3</sup>/h inspiratory capacity and 37KW energy consumption.

#### SCREW VACUUM PUMP

At a working pressure of 80kpa  
Power 18.5KW, can provide 1100m<sup>3</sup>/h suction capacity.

VS





**HIGH EFFICIENCY SCREW VACUUM HOST**

The main machine adopts a special sealing structure to provide pure compressed gas without oil and dust.  
Higher running speed, large displacement, wide speed range, higher cost performance.  
Cooling channels are provided on both sides of the housing to cool the exhaust temperature in order to achieve higher exhaust pressure



**HIGH EFFICIENCY SCREW VACUUM HOST**

The main machine adopts a special sealing structure to provide pure compressed gas without oil and dust.  
Higher running speed, large displacement, wide speed range, higher cost performance.  
More reasonable top speed, improve efficiency and reduce leakage.



**INTEGRATED FREQUENCY CONVERSION TECHNOLOGY**

Full power segment built-in DC reactor multi-channel analog input built-in accurate and efficient control process Unique detection synchronous motor magnetic loss function Unique protection performance to meet the unstable power grid, low voltage occasions.



**COMPUTER CONTROL PANEL**

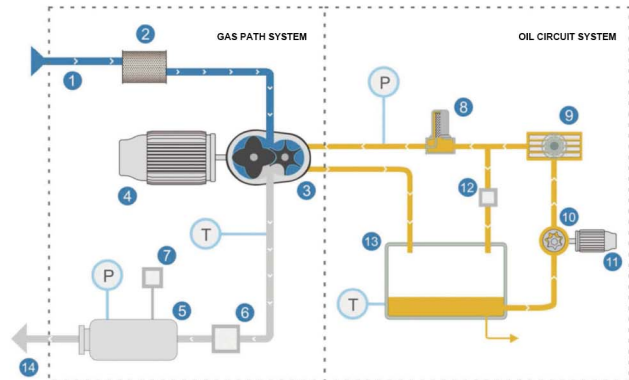
Microcomputer data drive system to achieve intelligent dynamic control variable speed control automatic regulation, load pneumatic, soft pneumatic, dynamic display and fault alarm, real-time intuitive pressure, temperature, current, etc., to meet different needs.  
Multilingual operation  
Professional Internet of Things cloud platform to achieve remote monitoring of color touch screen microcomputer control system



**HIGH EFFICIENCY PERMANENT MAGNET RARE EARTH MOTOR**

Permanent magnet rare earth motor, energy saving 10%~15%, Ultra-high temperature magnetic steel, motor efficiency is 5%-7% higher than ordinary, IP54 protection ensures stable operation in complex environments.

**产品特点** PRODUCT FEATURES



- |   |                       |                   |
|---|-----------------------|-------------------|
| 1 Vacuum inlet                                  | 9 Oil cooler          | → → → Gas path    |
| 2 Vacuum filter                                 | 10 Oil pump           | → → → Gas path    |
| 3 Oil-free screw energy-saving vacuum pump host | 11 Oil pump motor     | → → → Oil circuit |
| 4 Main motor                                    | 12 Reverse flow valve |                   |
| 5 Exhaust silencer                              | 13 Fuel tank          |                   |
| 6 Check valve                                   | 14 Air outlet         |                   |
| 7 Safety valve                                  | 15 Pressure sensor    |                   |
| 8 Oil filter                                    | 16 Temperature sensor |                   |
- 
- |                               |
|-------------------------------|
| ○ Dry and clean discharge air |
| ● Air                         |
| ● Lubricating oil             |

**工艺流程** TECHNOLOGICAL PROCESS

**AIRSTONE**  
**阿尔司顿**

## APPLICATION FIELD

Widely used in different industries, it is ideal for central systems and large equipment.  
Here are some representative industry applications

### GRIPPING, LIFTING AND TRANSFER APPLICATIONS

- 1 Take and place - mainly in the electronics industry  
HV, PV vacuum applications



- 2 CNC machining  
Adsorption, clamping vacuum applications



- 3 Glass industry  
Adsorption, handling vacuum applications



- 4 Envelope, printing production  
Clamping, suction vacuum applications



- 5 Wood processing  
Woodworking carving



### MOLDING AND SHAPING APPLICATIONS

- 1 Plastic  
For example, bathtub, shower basin, white goods liner, automotive plastic interior



- 2 Engineering pipe and other plastic molding



- 3 Universal packaging  
Packaging materials: such as thermoforming parts, foam products tray, Paper holder, egg holder,



- 4 Vacuum preservation  
Meat Packing (Vacuum packing)  
Vacuum packing of poultry  
Air conditioning fresh packaging (flush)  
Can making  
Freeze drying



### APPLICATIONS THAT REQUIRE HIGH ENVIRONMENTAL CLEANLINESS

- Heat treatment, nitriding treatment and metallurgy
- Spatial simulation
- Drying and general industrial vacuuming
- Coating film
- Other

## Micro oil screw vacuum pump product parameters | FSV VSD+ series

Model	RATED POWER	LIMITING VACUUM	PEAK DISCHARGE	MOUNTING DIMENSION (MM)			AIR INLET	EXHAUST PORT	WEIGHT	
	KW	Kpa.A	m³/h	LENGTH	WIDTH	HEIGHT			Kg	
FSV-380VSD+	4.5	0.06	380	1100	850	1320	Dn80	Dn65	550	
FSV-600VSD+	7.5		600	1580	1020	1350	Dn80	Dn80	650	
FSV-750VSD+	11		750	1580	1020	1350	Dn80	Dn80	680	
FSV-900VSD+	15		900	1600	1050	1500	Dn80	Dn80	720	
FSV-1100VSD+	18.5		1100	1750	1220	1500	Dn125	Dn80	820	
FSV-1300VSD+	22		1300	2040	1400	1760	Dn125	Dn100	1160	
FSV-1600VSD+	30		1600	1900	2400	1480	1950	Dn150	1900	
FSV-1900VSD+	37		1900	2600	2400	1480	1950	Dn150	1900	
FSV-2600VSD+	45		2600	3300	3200	2000	2100	Dn200	Dn150	3500
FSV-3800VSD+	55		3800	4500	5100					3500
FSV-4500VSD+	75		4500							
FSV-5100VSD+	90		5100							

### Note:

1. Air filter built-in;
2. Air cooling/water cooling optional;
3. Slight difference in actual size/weight.

### Unit conversion:

- 1 Air pressure =0.1Mpa=100KPa;
- 1 Air pressure =1000mbar=1bar;
- 1 atmosphere =760mmHg=760torr;
- 1bar=100KPa;
- 1 bar = 750.06 mmHg;



## Oil-free screw vacuum pump product parameters |FDV VSD+ series

Model	RATED POWER	LIMITING VACUUM	PEAK DISCHARGE	MOUNTING DIMENSION (MM)			AIR INLET	EXHAUST PORT	WEIGHT	
	KW	Kpa.A	m³/h	LENGTH	WIDTH	HEIGHT			Kg	
FDV-450VSD+	7.5	20	450	1150	850	1320	Dn80	Dn65	550	
FDV-700VSD+(A)	11		700						600	
FDV-700VSD+(B)	11		700						860	
FDV-900VSD+	15		900						880	
FDV-1200VSD+	18.5		1200	1650	1050	1450	Dn125	Dn80	950	
FDV-1500VSD+	22		1500	1900					970	
FDV-1900VSD+	30		1900	2500					1100	
FDV-2500VSD+	37		2500	3100	1960	1300	1700	Dn150	Dn125	1350
FDV-3100VSD+	45		3100	3800					1420	
FDV-3800VSD+	55		3800	5100	2540	1670	1870	Dn200	Dn150	1500
FDV-5100VSD+	75		5100	6100				Dn250	Dn200	2700
FDV-6100VSD+	90		6100	7500	3000	1670	1870	Dn250	Dn200	3450
FDV-7500VSD+	110		7500	9000				Dn250	Dn200	3600
FDV-9000VSD+	132		9000	11500	3000	1670	2400	Dn300	Dn250	3700
FDV-11500VSD+	160		11500	16000				Dn350	Dn300	4500
FDV-16000VSD+	220		16000	23000	3700	1800	2700	Dn400	Dn300	4700
FDV-23000VSD+	315	23000							5500	

### Note:

1. Air filter external; First level silencer built in.
2. Secondary silencer is optional;
3. Air cooling/water cooling optional;
4. Slight difference in actual size/weight.

### Unit conversion:

- 1 atmospheric pressure =0.1Mpa=100KPa;
- 1 atmosphere =1000mbar=1bar;
- 1 atmosphere =760mmHg=760torr;
- 1bar=100KPa;
- 1 bar = 750.06 mmHg;





## Oil-free screw vacuum pump product parameters | FDV VSD+ series

Model	RATED POWER	LIMITING VACUUM	PEAK DISCHARGE	MOUNTING DIMENSION (MM)			AIR INLET	EXHAUST PORT
	KW	Kpa.A	m³/h	LENGTH	WIDTH	HEIGHT		
FDRV-750VSD+	11	20	750	1450	880	1620	Dn125	Dn125
FDRV-900VSD+	15		900					
FDRV-1100VSD+	18.5		1100	1450	1025	1665	Dn150	Dn125
FDRV-1300VSD+	22		1300					
FDRV-1600VSD+	30		1600	1450	1025	1665	Dn150	Dn150
FDRV-2200VSD+	37		2200					
FDRV-2600VSD+	45		2600	1600	1400	1785	Dn150	Dn150
FDRV-3800VSD+	55		3300	1650	1490	1785	Dn200	Dn200
FDRV-4500VSD+	75		4500	1850	1530	1990	Dn200	Dn200
FDRV-5100VSD+	90		5100					
FDRV-7500VSD+	110	7500	2000	1630	2210	Dn200	Dn200	

Note:

1. Air filter external;
2. Muffler external;
3. Slight difference in actual size/weight

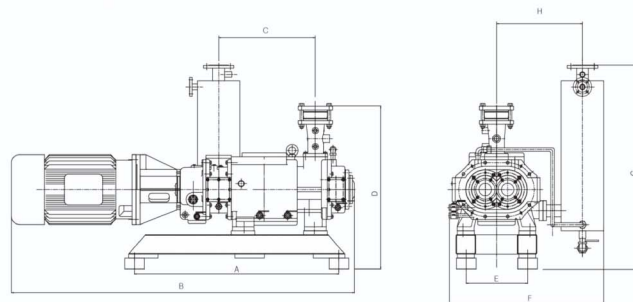
Unit conversion:

- 1 atmospheric pressure = 0.1Mpa=100KPa;
- 1 atmosphere = 1000mbar=1bar;
- 1 atmosphere = 760mmHg=760torr;
- 1bar=100KPa;
- 1 bar = 750.06 mmHg;



## Dry screw vacuum pump parameters | VPS-C series

Specification	Model	VPS-C200	VPS-C350	VPS-C45C	VPS-0650	VPS-C900	VPS-C1500	VPS-C1800	VPS-C2700
	理论抽速 Nominal Displacement	M3/Hr	160/200	280/350	360/450	540/650	750/900	1250/1500	1500/1800
Nominal Displacement	CFM	94.2/117.7	164.8/206	211.9/264.8	317.9/382.6	441.4/529.7	735/882.8	882.8/1095.4	1324/1589
	/min	2667/3333	4667/5833	6000/7500	9000/10800	12500/15000	20833/25000	25000/30000	37500/45000
极限压力 Ultimate Pressure	mbar	0.04/0.013	0.013/0.01	0.013/0.01	0.013/0.01	0.013/0.01	0.13/0.07	0.13/0.07	0.13/0.07
	torr	0.03/0.01	0.01/0.0075	0.01/0.0075	0.01/0.0075	0.01/0.0075	0.1/0.05	0.1/0.05	0.1/0.05
Pa	Pa	4.0/1.33	1.33/1.0	1.33/1.0	1.33/1.0	1.33/1.0	13.3/6.7	13.3/6.7	13.3/6.7
	电机功率 Power(50/60Hz)(KW)	5.5	7.5	11.0	15.0	18.5	37.0	37.0	55.0
口径 Port Size	入口 Suction(A)	40	50	65	80	100	125	125	150
	出口 Discharge(A)	40	40	50	65	65	80	80	100
冷却水 Cooling Water(L/Min)		5	10	10	15	15	20	20	28
齿轮油 Gear Oil Front(L)		1.0	1.0	1.2	2.0	2.0	5.3	5.3	7.4
泵转速 Rotation(50/60Hz)(RPM)		2900/3450					1450/1750	2900/3450	1450/1750
重量(Kg,泵体) Weight Pump Only(kg)		220	320	410	550	630	1350	1200	2500



## VACUUM PRODUCT SERIES



FSV MICRO OIL SCREW VACUUM PUMP SERIES



FDV OIL-FREE SCREW VACUUM PUMP SERIES



FDV OIL-FREE SCREW VACUUM PUMP SERIES



FHDV HIGH VACUUM DRY SCREW VACUUM PUMP SERIES



Vacuum connection diagram

## OTHER PRODUCTS

Oil-free screw blower



Screw air compressor



Other customization requirements



Vacuum equipment expansion accessories

