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EVP VARIABLE SPEED ROTARY SCREW VACUUM PUMP

Description: The design concept of EVP Rotary Screw vacuum pump allows customers to operate the design principle with one button.

Introduction

The design concept of EVP Rotary Screw vacuum pump allows customers to operate the design principle with one button. EVP vacuum pumps are not only sturdy and durable, but also can easily achieve the best performance in the working pressure section required by the customer. It is suitable for plastic, glass, bottle making, can making, wood, and packaging. , Printing, paper making, meat packaging, central vacuum system, factory central vacuum system and other applications.

The integrated design installs all components in a housing while making maintenance easier.Using the latest product screw introduction technology, permanent magnet variable frequency drive technology and integrated integrated design motor, EVP+ permanent magnet.

Rotary Screw Vacuum Pump advantages:

1, low bearing load, pump life is very long, low bearing load, pump life is very long
2. High efficiency, high reliability, high efficiency and high reliability
3. No vibration, low maintenance cost
4. No need for frequent oil changes
5. Low exhaust oil content
6, set high temperature jump protection, set high temperature jump protection
7. Capacity regulating inlet valve, capacity regulating inlet valve
8, air cooling, water cooling optional, air cooling, water cooling optional
9. Complete system including control system

Rotary Screw Vacuum Pump application

Electronic electrical

Semiconductor manufacturing

Printing (coinage)

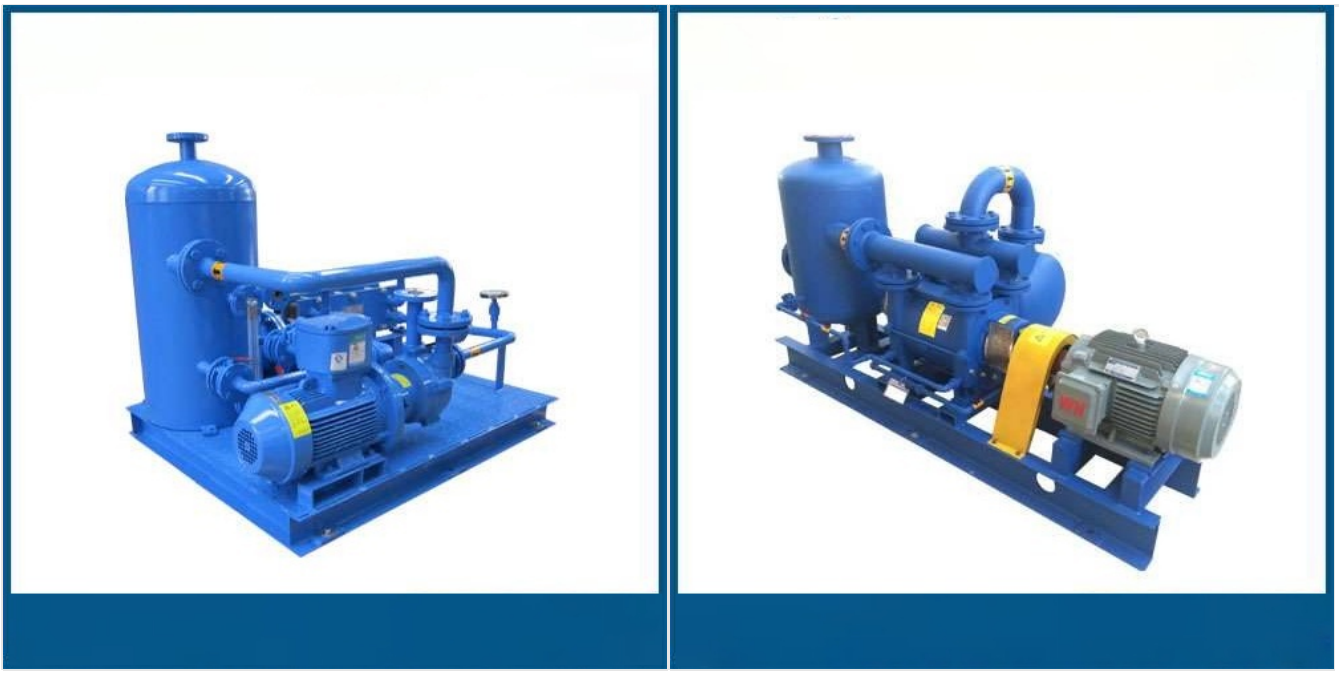
Medicine and food

packaging

tobacco

Aviation synthetic material manufacturing

Model	Power kW	Max.Suction Capacity		Ultimate vacuum (abs.)	Inlet Flange	Outlet Flange	Dimension (mm)
		m3/min	m3/h				
OSV590	7.5	9.8	588	30Pa	DN80	DN65	1500x880x1460
OSV690	11	11.5	690	30Pa	DN80	DN65	1850x920x1490
OSV880	15	14.63	878	30Pa	DN80	DN65	1850x920x1490
OSV1100	18.5	17.7	1062	60-80Pa	DN125	DN100	2000x1000x1670
OSV1300	22	22	1320	60-80Pa	DN125	DN100	2000x1000x1670
OSV1600	30	27	1620	60-80Pa	DN125	DN100	2300x1120x1827
OSV1800	37	30.2	1812	60-80Pa	DN150	DN100	2300x1120x1827
OSV2600	45	44	2640	60-80Pa	DN150	DN150	2860x1650x2114
OSV 3200	55	53	3180	60-80Pa	DN200	DN150	2860x1650x2114
OSV4500	75	75	4500	60-80Pa	DN200	DN200	3300x2250x2350
OSV 5400	90	90	5400	60-80Pa	DN250	DN200	3300x2250x2350



Open Cycle Water Ring Vacuum System

Description: We provide a full range of water ring pump units such as 2BE series, 2BV series, 2SY Series, ZJZ series of all sets of units, including the steam separator, heat exchanger, connecting pipe, etc.

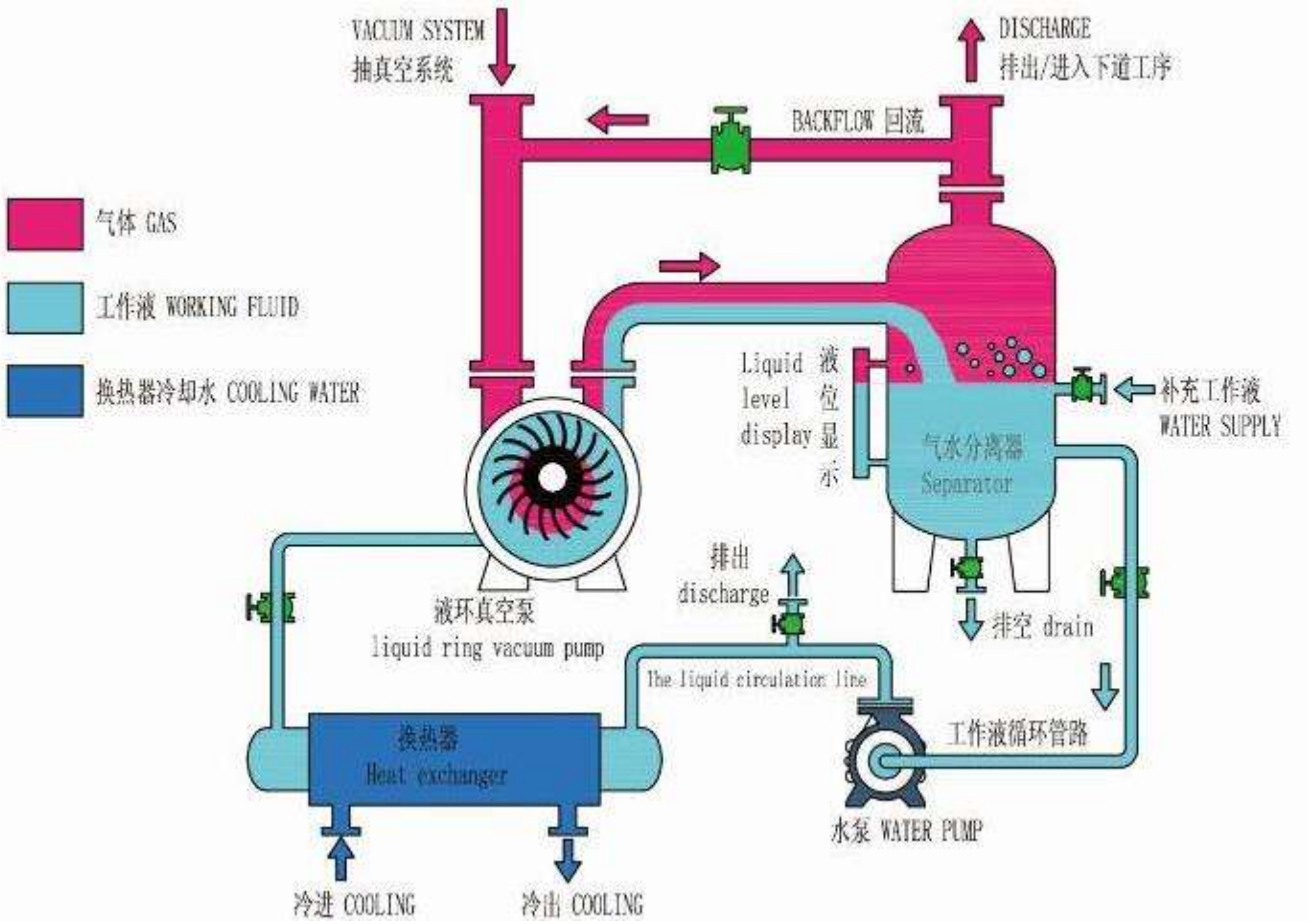
1. The normal operation of the water ring vacuum pump requires a lot of working fluid. Based on the different size of the pump, per hour of working fluid consumption is from 0.12m3 / h to 50m3 / h. If we only rely on continuous external water supply, then the consumption of water accumulated every year is very large. The application of the closed cycle vacuum system of the water ring pump can avoid the waste of working fluid.
2. In chemical industry, there are toxic and harmful liquid, and some flammable and explosive gas, the circulating fluid is not allowed to communicate with the outside world. So as to avoid pollution of the workplace, closed cycle vacuum system which adopts flow parts stainless steel & mechanical seal can solve such problems.
3. When under the situation that water quality can not be guaranteed, serious scale may be caused after running a very short period of time. And this can affect the normal operation of the pump. Then we can add a softening tank before the pump, composed of equipment similar to closed-loop unit to monitor the level with constantly adding soft water. By doing this can we guarantee the good operation of the system.
4. In order to make the system running smoothly and reliably, the pump group can be set to one open and one close (for preparation), or multiple open and multiple close (for preparation). When start the operation of the system, we open several pumps at the same time to meet the system process requirements within short time. Then after the return signal, electronically controlled or remote closed off the spare pump, leaving only one or several to maintain the pump to maintain the system vacuum,

reducing the power of the entire system, shorten the process time and improve the automation.

5. Large equipment of water ring complete sets of vacuum pump systems can be used in gas drainage, pressure adsorption, transportation filtration and other industries. Our company designed a full set of mobile gas pumping pumping station, and equipped with a sound monitoring and control system, all supporting 2BE products to ensure the unit's reliable operation.

6. When in the evacuation of closed containers, such as drying systems, the system required vacuum is much higher than the water ring pump, then we can connect Roots pump to become a Roots – water ring vacuum system to improve the suction capacity, ultimate vacuum to meet the requirements. The ultimate pressure of three Roots units plus water ring vacuum pumps can be about 0.5Pa.

7. High-pressure water ring compressor application must be added after a rear separator, the container is a pressure vessel category, playing the role of a gas-water separation, voltage transmission, and can provide circulating fluid. This kind of compressors can compress hydrogen, acetylene and other chlor-alkali industry generated gas. Generally with heat exchangers, centrifugal pumps and other accessories, all units only need to stay the interface, with user-friendly installation and commissioning.



Air-cooled Roots-liquid Ring Vacuum System

Description: Air-cooled roots-liquid ring vacuum system adopt air-cooled roots vacuum pump can work at the high pressure difference.

Closed Cycle Water Ring Vacuum System

Description: We provide a full range of water ring pump units such as 2BE series, 2BV series, 2SY Series, ZJZ series of all sets of units, including the steam separator, heat exchanger, connecting pipe, etc.

1. The normal operation of the water ring vacuum pump requires a lot of working fluid. Based on the different size of the pump, per hour of working fluid consumption is from 0.12m3 / h to 50m3 / h. If we only rely on continuous external water supply, then the consumption of water accumulated every year is very large. The application of the closed cycle vacuum system of the water ring pump can avoid the waste of working fluid.
2. In chemical industry, there are toxic and harmful liquid, and some flammable and explosive gas, the circulating fluid is not allowed to communicate with the outside world. So as to avoid pollution of the workplace, closed cycle vacuum system which adopts flow parts stainless steel & mechanical seal can solve such problems.
3. When under the situation that water quality can not be guaranteed, serious scale may be caused after running a very short period of time. And this can affect the normal operation of the pump. Then we can add a softening tank before the pump, composed of equipment similar to closed-loop unit to monitor the level with constantly adding soft water. By doing this can we guarantee the good operation of the system.
4. In order to make the system running smoothly and reliably, the pump group can be set to one open and one close (for preparation), or multiple open and multiple close (for preparation). When start the operation of the system, we open several pumps at the same time to meet the system process requirements within short time. Then after the return signal, electronically controlled or remote closed off the spare pump, leaving only one or several to maintain the pump to maintain the system vacuum,

reducing the power of the entire system, shorten the process time and improve the automation.

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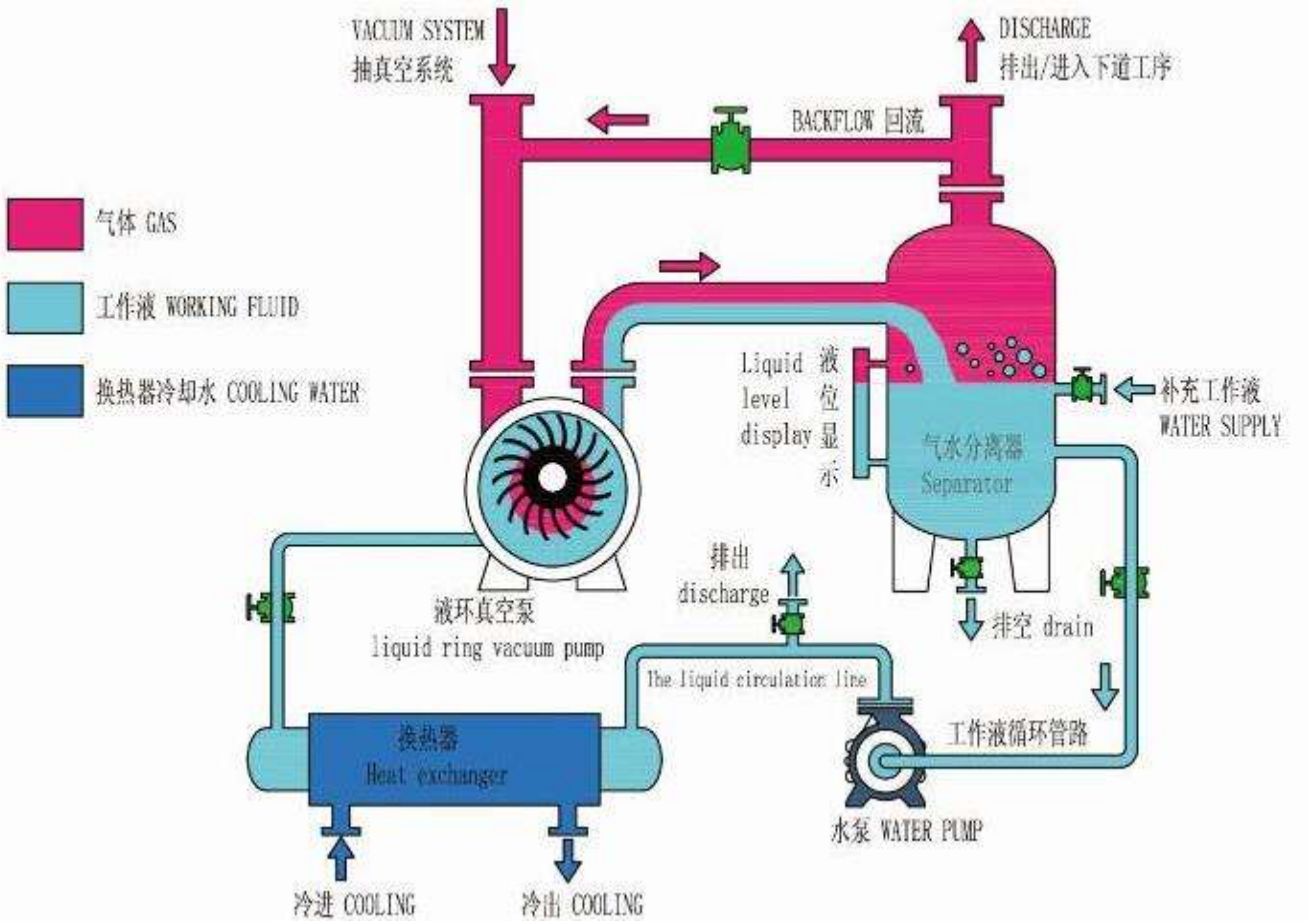


JZJLG150-3T Roots And Dry Screw Vacuum System

Description: JZJLG150-3T type Roots screw vacuum unit is a vacuum suction unit composed of ZJ150G Roots pump, LG50G screw vacuum pump in series.

Introduction:

JZJLG150-3T type Roots screw vacuum unit is a vacuum suction unit composed of ZJ150G Roots pump, LG50G screw vacuum pump in series. The main features of single crystal silicon vacuum-drawing process are as follows:

Advantage:

1. The unit is mainly composed of Roots vacuum pump, screw vacuum pump, muffler and so on. It belongs to dry vacuum pump, which has no oil and gas pollution in the contact part of the system, and is easy to be centralized treated or recycled by the exhaust body.

2. The pumping performance of the unit is stable, and the influence of ambient temperature and cooling water temperature is small.

3.The buffer dust removal tank in the inlet pipe of the unit (optional) can effectively filter a large amount of dust in the gas, reduce the dust into the vacuum pump cavity, and avoid the failure caused by dust.

4.There is no friction between the Roots vacuum pump and the wet part of the screw vacuum pump, the parts of the vacuum pump are not easy to wear, the life of the pump is long, and it is insensitive to the small particle dust, so the gas containing a small amount of small particle dust can be removed.

5.High vacuum unit, big capacity in high vacuum area .

6.Compact structure, small area, small vibration, easy to install and use, the user can only connect the intake and exhaust pipes, cooling waterways and circuits.

7.The vacuum unit adopts the vertical structure and occupies a small area.

8.The ZJ150G Roots pump is driven by frequency converter, and the control system of the unit adopts PLC intelligent control. The control program can be customized according to the customer's technological needs, which can automatically meet the requirements of different pumping speed and constant pressure of different air output of the customer's process in different periods of time, so as to better ensure the customer's production needs.

Model Meaning :

JZJLG150-3T Roots screw vacuum pump unit

J ——On behalf of Vacuum unit

ZJ ——Main pump for normal Roots vacuum pump

LG ——Backing pump is screw vacuum pump

150 —— Capacity of main pump in the vacuum unit (ZJ150 Roots pump)(L/S)

3 ——The ratio of the main pump Roots vacuum pump to the pump speed of backing pump screw vacuum pump

T ——Special Type

Specification:

Model		**Unit**	**JZJLG150-3T**	**JZJLG300-5T**
Max.Pumping Speed (50Hz/60Hz) **(adjust running speed by inverter)**		L/s	170/210	398/478
		m3/h	630/756	1430/1720
Ultimate Pressure		Pa	≤0.2/0.1	≤0.2/0.1
		Torr	≤$1.5X10^{-3}$/ ≤$7.5X10^{-4}$	≤$1.5X10^{-3}$/ ≤$7.5X10^{-4}$
Water-cooled motor	**Frequency**	Hz	50/60	50/60
	Voltage	V	380	380
	Rated Power	kW	3+4.5	4.5+4.5
	Roots vacuum pump	rpm	2900/3480	2900/3480

Rotary Speed	**Dry Screw Vacuum Pump**	rpm	2900	2900
N2/CDA	**Pressure**	MPa	0.05-0.1	0.05-0.1
	Purge Flow	l/min	6-20	6-20
Cooling Water	**Pressure**	MPa	0.2-0.4	0.2-0.4
	Pressure difference	MPa	0.1	0.1
	Temp.	°C	10-30	10-30
	Purge Flow	l/min	3-5	3-5
Inlet		mm	DN100	DN160
Outlet		mm	DN40	DN40
Weight		Kq	600	750
Noise		dB (A)	72	75
Outline Drawing L×W×H		mm	1000*660*1050	1100*660*1200

JZPX Series Roots-rotary Pump System

Description: JZPX Series Roots Rotary System contains roots pump and two-stage rotary pump. it is suitable for industries demanding high vacuum.

Introduction:

JZPX series roots-rotary pump system contains ZJ series roots pump as main pump and single or double stage rotary vane pump as fore pump. It is an ideal machine to achieve for low or high vacuum degree. Besides, the whole system will match the connecting pipe, valve, electric cabinet, and water cooling system (except for the two smallest models) as well. All components are assembled in one shell frame with the pumps, which is compact-designed and convenient to operation.

Advantage:

JZPX series system is your wonderful choice to remain high vacuum. It can continuously work for long time and owns the character of low noise. With a magnetic discharge valve (which will start or stop together with the fore pump)connecting the fore pump and pipe, this system can prevent the oil on the rotary pump being sucked back to the vacuum tank.

Application:

With the capability of sucking incondensable or non-corrosive air, as well as atmosphere, JZJX series roots-rotary system is widely applied in varied vacuum system for low or high vacuum, or high pumping capacity. Such as vacuum smelting, molten steel degassing, vacuum sintering,a dynamic vacuum achieving in large space simulation test, vacuum impregnation treating for power capacitors or transformers,

exhaust on fluorescent tube or bulb automatic production line, continuous air discharge for vacuum flask manufacturing, pre-pumping for vacuum coating machine, pumping for magnesium reduction process, degassing for single crystal silicon refining process, etc.

Model	Pump Model			Pumping Speed	Ultimate Vacuum		Inlet Diam	Motor Power (Kw)		
	Main Pump	Fore Pump						Main Pump	Fore Pump	
		Ⅰ	Ⅱ	L/s	Pa	Torr	mm		Ⅰ	Ⅱ
JZPX70-4	ZJP70	2X-15	–	70	2×10-2	1.5×10-4	80	1.1	2.2	–
JZPX150-5	ZJP150	2X-30A	–	150	2×10-2	1.5×10-4	100	2.2	3	–
JZPX300-4	ZJP300	2X-70A	–	300	2×10-2	1.5×10-4	150	4	5.5	–
JZPX300-7	ZJP300	2X-30A	–	300	2×10-2	1.5×10-4	150	4	3	–
JZPX600-8	ZJP-600	2X-70A	–	600	2×10-2	1.5×10-4	200	7.5	5.5	–
JZPX150-42	ZJP1500	ZJP30	2X-15A	150	1×10-2	7.5×10-5	100	2.2	0.75	2.2
JZPX300-42	ZJP300	ZJP70	2X-30A	300	1×10-2	7.5×10-5	150	4	1.1	3
JZPX300-44	ZJP300	ZJP70	2X-15A	300	1×10-2	7.5×10-5	150	4	1.1	2.2
JZPX600-42	ZJP600	ZJP150	2X-70A	600	1×10-2	7.5×10-5	200	7.5	2.2	5.5
JZPX600-45	ZJPP600	ZJP150	2X-30A	600	1×10-2	7.5×10-5	200	7.5	2.2	3
JZPX1200-44	ZJP1200A	ZJP300	2X-70A	1200	1×10-2	7.5×10-5	250	11	4	5.5

Remark:

1. Above are recommended models as per national standards, other pumps can also match according to customer special demands.

2. For technical specificatio of each pump, please click inter-linkage as below and check them.

3. The pumping speed in above sheet is only the main pump capacity.

4. 2X series is a double stage rotary vacuum pump, the number behind 2X is its capacity.

Inter-linkage: ZJ series roots pump, 2X rotary vacuum pump, EZS Rotary Vane Pump

JZJA(P)LG Screw Pump System

Description: JZJA(P)LG Screw pump system contains roots pump and screw pump. it can remain high suction capacity under high vacuum pressure, is an ideal system for high vacuum pressure and clean vacuum.

Introduction:

JZJA(P)LG series Screw vacuum pump system belongs to oil-free dry vacuum system, with roots pump(main pump & secondary pump), dry screw pump (fore pump). Roots pump is similar to screw pump in working principle and structure. The vacuum system could be assembled reasonably as per the size of pumped system, vacuum receiver and its working pressure. The available suction ratio ranges from 1:2 to 1:8 among variant pump.

Advantage:

1) With both advantage of roots pump and screw pump.

2) With doubled capacity and high pressure matching with large capacity roots pump.

3) Energy saving for large capacity.

4) High pumping capacity in high vacuum pressure.

5) Automatic controlling system

6) Capable for corrosive gas pumping.

7) Small area request with vertical or stepped construction.

8) With self protecting function for over-load, over-fluid, water-break condition.

9) Hard to accumulate dust or particles, specially suitable for condensable medium or dust suction.

Application:

It can be widely applied in industry like medicine, chemical, aerospace, electrical, solar energy, metallurgy, and food industry. In chemical industry, it is necessary for process of vacuum distillation, vacuum evaporation, vacuum dehydration and crystallization. And in electric industry, for process of vacuum impregnation and vacuum drying. Beside, it's the ideal choice for vacuum coating, vacuum melting, thermal treatment, oil filtration, vacuum freezing, space simulation test, etc.

System model	Pump model		suction speed	Ultimate vacuum	Inlet diam	Outlet diam	Motor power	
	Main pump	Fore pump	L/s	Pa	mm	mm	Kw	
JZJ(P)LG150-3	ZJ(P)150	LG50	150	0.5	100	40	3	7.5
JZJ(P)LG150-2	ZJ(P)150	LG70	150		100	40	3	7.5
JZJ(P)LG150-1	ZJ(P)150	LG110	150		100	50	3	11
JZJ(P)LG300-6	ZJ(P)300	LG50	300		150	40	4	7.5
JZJ(P)LG300-4	ZJ(P)300	LG70	300		150	40	4	7.5
JZJ(P)LG300-3	ZJ(P)300	LG110	300		150	50	4	11
JZJ(P)LG300-2	ZJ(P)300	LG150	300		150	65	4	18.5
JZJ(P)LG300-1	ZJ(P)300	LG200	300		150	65	4	22
JZJ(P)LG600-8	ZJ(P)600	LG70	600		200	40	7.5	7.5
JZJ(P)LG600-5	ZJ(P)600	LG110	600		200	50	7.5	11
JZJ(P)LG600-4	ZJ(P)600	LG150	600		200	65	7.5	18.5
JZJ(P)LG600-3	ZJ(P)600	LG200	600		200	65	7.5	22
JZJ(P)LG1200-6	ZJ(P)600	LG150	1200		250	65	11	18.5
JZJ(P)LG1200-6	ZJ(P)1200	LG200	1200		250	65	11	22
JZJ(P)LGB150-2	ZJ(P)150	LGB70	150		100	40	3	5.5
JZJ(P)LGB150-1	ZJ(P)150	LGB110	150		100	40	3	7.5
JZJ(P)LGB300-4	ZJ(P)300	LGB70	300		150	40	4	5.5
JZJ(P)LGB300-3	ZJ(P)300	LGB110	300		150	40	4	7.5

JZJ(P)LGB300-2	ZJ(P)300	LGB160	300		150	50	4	11
JZJ(P)LGB300-1	ZJ(P)300	LGB220	300		150	65	4	15
JZJ(P)LGB600-8	ZJ(P)600	LGB70	600		200	40	7.5	5.5
JZJ(P)LGB600-5	ZJ(P)600	LGB110	600		200	40	7.5	7.5
JZJ(P)LGB600-4	ZJ(P)600	LGB160	600		200	50	7.5	11
JZJ(P)LGB600-3	ZJ(P)600	LGB220	600		200	65	7.5	15
JZJ(P)LGB600-2	ZJ(P)600	LGB330	600		200	65	7.5	22
JZJ(P)LGB1200-6	ZJ(P)1200	LGB160	1200		250	50	11	11
JZJ(P)LGB1200-5	ZJ(P)1200	LGB220	1200		250	65	11	15
JZJ(P)LGB1200-4	ZJ(P)1200	LGB330	1200		250	65	11	22
JZJ(P)LGB2500-6	ZJ(P)2500	LGB330	2500		320	65	18.5	22
JZJ(P)LGB600-2	ZJ(P)600	LGB300	600	5	200	65	7.5	18.5
JZJ(P)LGB1200-4	ZJ(P)1200	LGB300	1200		250	65	1	18.5
JZJ(P)LGB2500-8	ZJ(P)2500	LGB300	2500		320	65	18.5	18.5

System model	Pump model			suction speed	Ultimate vacuum	Inlet diam	Outlet diam	Motor power		
	Main pump	Secondary pump	Fore pump	L/s	Pa	mm	mm	Kw		
JZJ(P)LG300-21	ZJ(P)300	ZJ(P)150	LG110	300	0.1	150	50	4	3	11
JZJ(P)LG600-43	ZJ(P)600	ZJ(P)150	LG50	600		200	40	7.5	3	7.5
JZJ(P)LG600-42	ZJ(P)600	ZJ(P)150	LG70	600		200	40	7.5	3	7.5
JZJ(P)LG600-41	ZJ(P)600	ZJ(P)150	LG110	600		200	50	7.5	3	11
JZJ(P)LG600-22	ZJ(P)600	ZJ(P)300	LG150	600		200	65	7.5	4	18.5
JZJ(P)LG600-21	ZJ(P)600	ZJ(P)300	LG200	600		200	65	7.5	4	22
JZJ(P)LG1200-43	ZJ(P)1200	ZJ(P)300	LG110	1200		250	50	11	4	11
JZJ(P)LG1200-42	ZJ(P)1200	ZJ(P)300	LG150	1200		250	65	11	4	18.5

JZJ(P)LG1200-41	ZJ(P)1200	ZJ(P)300	LG200	1200		250	65	11	4	22
JZJ(P)LG2500-44	ZJ(P)2500	ZJ(P)600	LG150	2500		320	65	18.5	7.5	18.5
JZJ(P)LG2500-43	ZJ(P)2500	ZJ(P)600	LG200	2500		320	65	18.5	7.5	22
JZJ(P)LGB300-21	ZJ(P)300	ZJ(P)150	LGB110	300		150	40	4	3	7.5
JZJ(P)LGB600-42	ZJ(P)600	ZJ(P)150	LGB70	600		200	40	7.5	3	5.5
JZJ(P)LGB600-41	ZJ(P)600	ZJ(P)150	LGB110	600		200	40	7.5	3	7.5
JZJ(P)LGB600-22	ZJ(P)600	ZJ(P)300	LGB160	600		200	50	7.5	4	11
JZJ(P)LGB600-21	ZJ(P)600	ZJ(P)300	LGB220	600		200	65	7.5	4	15
JZJ(P)LGB1200-43	ZJ(P)1200	ZJ(P)300	LGB110	1200		250	40	11	4	7.5
JZJ(P)LGB1200-42	ZJ(P)1200	ZJ(P)300	LGB160	1200		250	50	11	4	11
JZJ(P)LGB1200-41	ZJ(P)1200	ZJ(P)300	LGB220	1200		250	65	11	4	15
JZJ(P)LGB1200-22	ZJ(P)1200	ZJ(P)600	LGB330	1200		250	65	11	7.5	22
JZJ(P)LGB2500-44	ZJ(P)2500	ZJ(P)600	LGB160	2500		320	50	18.5	7.5	11
JZJ(P)LGB2500-43	ZJ(P)2500	ZJ(P)600	LGB220	2500		320	65	18.5	7.5	15
JZJ(P)LGB2500-42	ZJ(P)2500	ZJ(P)600	LGB330	2500		320	65	18.5	7.5	22
JZJ(P)LGB1200-22	ZJ(P)1200	ZJ(P)600	LGB300	1200	0.5	250	65	11	7.5	18.5
JZJ(P)LGB2500-42	ZJ(P)2500	ZJ(P)600	LGB300	2500		320	65	18.5	7.5	18.5

JZP2H Type Roots And Piston Vacuum System

Description: JZP2H is roots and rotary piston vacuum pump system. The unit used in transformer, coating, smelting, heat treatment, drying, distillation, such as aviation simulation test.

Introduction:

JZP2H series Roots-Piston vacuum pump system contains of ZJP series roots vacuum pump and H/2Hseries piston vacuum pump (roots vacuum pump as main pump and the Piston vacuum pump as backing pump).

Advantage:

1.This system has a remarkable energy saving effect.
2.This system has very fast pumping speed during high vacuum pressure range.
3.This system can work well with filter device, if the gas contains small amount of water vapor or dust.
4.This system has the advantages of compact structure and convenient operation.

Application:

It's widely used in electric power industry of transformer, wire and cable, condenser vacuum impregnation, vacuum drying process. It's the ideal vacuum equipment for the industry of vacuum coating, vacuum smelting, vacuum heat treatment, vacuum oil filter, freeze drying, aviation simulation test.

Roots and Rotary piston vacuum pump system has a remarkable energy saving effect. It has very fast pumping speed during high vacuum pressure range. It's widely used in electric power industry of transformer, wire and cable, condenser vacuum impregnation, vacuum drying process. It's the ideal vacuum equipment for the industry of vacuum coating, vacuum smelting, vacuum heat treatment,

vacuum oil filter, freeze drying, aviation simulation test.

It should be equipped with filter device if the gas contains small amount of water vapor or dust.

Roots and Rotary piston vacuum pump system includes two pumps (roots vacuum pump as main pump and the rotary vacuum pump as backing pump). It takes the vacuum relay or electric contact pressure gauge to realize the roots and rotary piston pump's automatic opening and closing and automatic overload protection.The whole system is installed in one mounting skid, which equipped with pipelines, valves, electrical control box, cooling water pipe system. This system has the advantages of compact structure and convenient operation.

The speed ratio range of each pump is from 4:1 to 10:1 which decided by the vacuum system size and ultimate pressure level. There is a pneumatic solenoid valve in the inlet pipe on the first stage to avoid the oil suction back when pump stops. The pneumatic solenoid valve moves towards with the motor, When the rotary piston pump stops, it pumps inlet gas and ensure the vacuum oil returns to the fuel tank of piston pump preventing the vacuum system from the vacuum oil pollution.

Technical Specification:

Model	Pump Model			Pumping Speed (L/s)	Ultimate Pressure		Inlet Diam. (mm)	Outlet Diam. (mm)	Motor Power(kW)		
	Brief pump	Backing pump							Brief pump	Backing pump	
		Ⅰ	Ⅱ		(Pa)	(Torr)				Ⅰ	Ⅱ
JZPH70-2	ZJP-80	H-30		70	1×10^{-1}	7.5×10^{-4}	80	50	1.1	3	
JZP2H150-5	ZJP-150	2H-30	—	150	2×10^{-2}	1.5×10^{-4}	100	50	2.2	4	—
JZJ2H300-6	ZJ-300	2H-50	—	300	2×10^{-2}	1.5×10^{-4}	150	50	4	5.5	—
JZJ2H300-4	ZJ-300	2H-70	—	300	2×10^{-2}	1.5×10^{-4}	150	50	4	7.5	—
JZPH300-4	ZJP-300	H-70G	—	300	1×10^{-1}	7.5×10^{-4}	150	50	4	7.5	—
JZPH300-2	ZJP-300	H-150G	—	300	1×10^{-1}	7.5×10^{-4}	150	80	4	11	—
JZP2H600-8	ZJP-600	2H-70	—	600	2×10^{-2}	1.5×10^{-4}	200	50	7.5	7.5	—
JZP2H600-5	ZJP-600	2H-120	—	600	2×10^{-2}	1.5×10^{-4}	200	80	7.5	11	—
JZPH600-4	ZJP-600	H-150G	—	600	1×10^{-1}	7.5×10^{-4}	200	80	7.5	11	—
JZPH1200-8	ZJP-1200	H-150G	—	1200	1×10^{-1}	7.5×10^{-4}	250	80	11	11	—
JZP2H300-22	ZJP-300	ZJP-150	2H-70	300	2×10^{-2}	1.5×10^{-4}	150	50	4	2.2	7.5
JZPH600-42	ZJP-600	ZJP-150	H-70G	600	2×10^{-2}	1.5×10^{-4}	200	50	7.5	2.2	7.5

JZPH600-22	ZJP-600	ZJP-300	H-150G	600	2×10^{-2}	1.5×10^{-4}	200	80	7.5	4	7.5
JZPH1200-42	ZJP-1200	ZJP-300	H-150G	1200	2×10^{-2}	1.5×10^{-4}	250	80	11	4	7.5
JZPH2500-44	ZJP-2500	ZJP-600	H-150	2500	2×10^{-2}	1.5×10^{-4}	250	80	18.5	7.5	15
JZP2H2500-24	ZJP-2500	ZJP-1200	2×2H-150	2500	2×10^{-2}	1.5×10^{-4}	320	80	18.5	11	2×15

Oil Diffusion Pump System

Description: JK Oil Diffusion Pump System can reach a high vacuum presure at 10^-2--10^-4 Pa. it is widely adpoted in high tech field.

Introduction:

JKT Oil Diffusion Pump System consist of oil diffusion pump and rotary vane vacuum pump, oil diffusion pump is the main pump, rotary vane vacuum pump is the backing pump.

Advantage:

JK Oil Diffusion Pump System aims for high vacuum pumping, which can reach around 10-2–10-4 Pa. The whole system equipped with main oil diffusion pump, valves, water-cooling baffle, pipe, and mechanical pump (a system of roots-pump). Since the improvement of the main pump and baffle, this system's pumping capacity in low vacuum has been highly increased.

The main advantage of this system is its high pumping speed (from 190L/s to 49,000L/s) and long-term continuous working stability.

Application:

JK series system is widely applied in high tech field, such as electric, chemistry, metallurgy, aviation, aerospace, material, bio-medicine, A-energy, universe exploration, etc. Besides, there are still many other normal industries are using this system as well, such as various vacuum furnance, vacuum coating machine, vacuum freezing or drying system.

Model	JKT-100	JKT-160	JKT-200	JKT-250	JKT-300	JKT-320	JKT-400	JKT-500	JKT-600	JKT-630	JKT-800	JKT-900	JKT-100

Ultimate pressure (Pa)	2.5×10-4												
Suction capacity (L/s)	275	900	1400	1750	2300	2500	4250	6000	8750	10000	15000	20000	25000
Critical backing pressure (Pa)	40												
Main Pump heating voltage (V) A.C.	220					380							
Main pump heating power (kw)	0.8-1	1.4-1.6	1.6-1.8	2.2-2.4	2.4-3	3.5-3.8	4-5	6-7	8-9	9-10	13-13.5	14-16	17-20
Type of main pump fluid	K3												
Main pump oil consumption (L)	0.15	0.45	0.55	1-1.2	1.2-1.3	1.4-1.8	3-4	4	6-7	7-8	12-14	14-15	15-16
Main pump cooling water consumption (L/h)	180	250	300	350	400	420	500	600	800	850	1200	1300	1500
Inlet Diam DN (mm)	100	160	200	250	300	320	400	500	600	630	800	900	1000
Recommend capacity for backing pump (L/s)	4	8	15	15	30	30	70	150	300	600	600	1200	1200
Dimension (mm)	L	700	1000	1250	1480	1600	1650	2400	2700	3600	3700	4100	4300	4500
	B	500	600	690	740	800	900	1300	1600	2000	2100	2200	2250	2300
	H	825	1075	1282	1516	1645	1813	2125	2605	2915	3044	3712	4310	4605
Weight (kg)	106	195	353	470	610	640	1500	1900	3100	3200	3700	4100	4500

PVD Vacuum Coating Machine System

Description: CJHL Series Magnetron Multi-arc Vacuum Coating Machine is integrated by multi-arc ion coating and magnetron sputtering coating deposition technologies

Operational principle:

CJHL Series Magnetron Multi-arc Vacuum Coating Machine is integrated by multi-arc ion coating and magnetron sputtering coating deposition technologies, It equipments with planar targets or cylindrical targets . It not only have the High ionization rate, High deposition rate of the ion coating way. But also have the low temperature and high stability .Especially applies to all kinds of metal films, multi-layer film, alloy film chemicals, such as coating the super-hard wear-resistant film, anti-corrosion film and decorative film (gold, silver, black, red, blue, green and other colors), the multilayer films can be coated in combining with the magnetron sputtering technology, stainless steel, aluminum, titanium, tungsten and other metal films can also be coated, such as TiN, TiC, TiCN, TiAlN, CrN, CU, AU, diamond film (DLC), decorative film ,metal film , nonmetal film and its compound layer and the composite film.

Application field:

It applies to hardware, glass crafts, ceramic crafts, such as watches, mobile phone metal shell, sanitary ware, mould, electronic products, crystal glass, glasses, cutlery, knives and so on. You can make super-hard wear-resistant film coating, anti-corrosion film, decorative film (gold color, rose gold, brown, brown, bronze, blue, black, white, gray and other colors), it combined with magnetron sputtering technique can be plated the multilayer composite membrane and manufactured plated stainless steel, aluminum, titanium, tungsten and other metal films may be manufactured as coated TIN, TIC, TICN, TIALN, CRN, CU, AU, diamond film (DLC), decorative film metal , film and non-metallic composite coating film and its compounds film.

Main Feature:

1. it equipments cryogenic ion secondary source, some substrate without heating the material , It can directly do the cold plating film at room temperature, save energy, increase productivity.
2. the maximum of the temperature for tool coating chamber can 600 degrees ，In addition to the tool coater coating applications require heating device, other applications do not need the device.
3. High deposition rate, High coating speed, It can be widely used to do the decorative coating, functional coating on a variety of products . so it is a ideal equipment to do the high-grade and best coating for mass production.
4. Magnetron sputtering principle is based on the theory of the cathode glow discharge , it expend the cathode surface magnetic field near the work piece surface. Then it improves the sputtered atom ionization rate. It keeps the magnetron sputtering uniformity , also can improve the surface shining effect.
5,. The arc plasma evaporation source is reliable, it can work under 40A current in optimizing the cathode and the magnetic field structure , . It will happen atomic diffusion between the coating and the material. It also has the advantages that Ion Beam Assisted Deposition.
6, Vacuum pumping system, electric control system and complete vacuum coating system can be customized according to user requirements.

model	CJHL-800	CJHL-1000	CJHL-1200	CJHL-1400	CJHL-1600	CJHL-1800
Pumping speed	It will take less than 10 minutes from air pump to 9*10-3Pa					
Ultimate vacuum	6*10-4Pa					
pressure rising rate	0.67Pa/h					
ion	Φ100 ion source ，6—–20 Sets					
Ion source	5KW，45—-160A, 6—–20 Sets					
target	Cylindrical or planar targets 1—-12 PCS					
Target power source	10—–60KW DC or Mid-frequency 1-12sets					
bias voltage	10–15KW	20KW	30KW	40KW	40–50KW	60KW
pump	Diffusion pump or molecular pump					
heating	9KW	12KW	15KW	18KW	24KW	36KW
Work frame	It can be customized designed，public rotation，rotation speed can be controlled					
gas	Precision meter control 1-4 road work gas					
Control mode	Manual, semi-automatic and fully automatic control; Control panel use Chinese and English language					

Industrial Vacuum Furnace Vacuum System

Description: Heat Treatment is the process in which metallic/steel parts are exposed completely or partially to time-temperature sequences in order to change the mechanical and/or corrosion properties.

Vacuum Gas Quenching Furnace is applied for quenching high-speed tool steel, measuring vacuum hardening and cutting steel, tool steel and other alloy steel, with convection heating function, which can achieve the process of step hardening, isothermal quenching, but also tempering, annealing, carburizing, nitriding and other heat treatment process. Ultimate pressure :cooling gas ,6Bar or 10Bar.

The control system was controlled by PLC, temperature was controlled by intelligent temp controller, accurate control,high automation. User can choose auto or manual undisturbed switching toop erate it, this furnace has abnormal condition alarming function, easy to operate.

Environmental protection performance of vacuum furnace has been improved, maintenance cost saving, energy cost saving.

Model	Temperature Uniform Size	MAX Temperatire	Cooling Gas Pressure	Pressure rising rate	Temperature Uniformity	Loading Capacity
RVGQ-224	200*200*400mm(W*H*L)	1300°C	6/10/15/20Bar	0.5Pa/h	±5°C	30Kg
RVGQ-335	300*300*500mm(W*H*L)	1300°C	6/10/15/20Bar	0.5Pa/h	±5°C	50Kg
RVGQ-446	400*400*600mm(W*H*L)	1300°C	6/10/15/20Bar	0.5Pa/h	±5°C	100Kg
RVGQ-669	600*600*900mm(W*H*L)	1300°C	6/10/15/20Bar	0.5Pa/h	±5°C	200Kg

RVGQ-7710	700*700*1000mm(W*H*L)	1300°C	6/10/15/20Bar	0.5Pa/h	±5°C	500Kg
RVGQ-8812	800*800*1200mm(W*H*L)	1300°C	6/10/15/20Bar	0.5Pa/h	±5°C	800Kg
RVGQ-V0405	φ400*500mm(vertical)	1300°C	6/10/15/20Bar	0.5Pa/h	±5°C	100kg
RVGQ-V0507	φ500*700mm(vertical)	1300°C	6/10/15/20Bar	0.5Pa/h	±5°C	200kg
RVGQ-V7011	φ700*1100mm(vertical)	1300°C	6/10/15/20Bar	0.5Pa/h	±5°C	800Kg

EVP JZFB Series Turbo Molecular Pump Station

Description: JZFB series turbo molecular pump station is precisely designed with turbo/compound molecular pump and mechanical pump. It's easy for operation and convenient for installation.

JZFB series turbo molecular pump station is precisely designed with turbo/compound molecular pump and mechanical pump. It's easy for operation and convenient for installation. JZFB series molecular station can achieve 3×10-3Pa after turbo molecular pump reaching 400HZ, and 5×10-4Pa after turbo molecular pump started in 30mins. The station reaches 3×10-5Pa ultimate pressure.

The system is in movable car structure. All station equips molecular pump & its electric controller, device to start/stop the system, high & low vacuum gauge and its displayer. The station's mechanical pump can, according to different working environment request, use oil free dry pump(e.g. dry scroll pump, dry screw pump) or oil lubricated rotary vane vacuum pump. The equipment, with molecular pump keeping evacuating, allows operator to change working pieces. Hence the evacuating time is shortened, plant's production effciency can be highly improved.

Main advantage:

Convenient installation & transport: the system equips a foot wheel for operator to move it conveniently.

Easy operation: operator only need to connect the equipments to vacuum receiving chamber, then plug and run. No necessary for assembling works.

Model	Molecular pump capacity	Backing pump capacity	Air inlet flange (optional)	Ultimate pressure	Cooling type

	L/s	L/s	CF	ISO-K	Pa	
JZFB300	300	2	100	100	3×10-5	Air
JZFB600	600	4-8	150	160		Air/ Water
JZFB650	650	4-8	150	160		Water
JZFB1200	1200	8-15	200	200		Air/ Water
JZFB1300	1300	8-15	200	200		Water
JZFB1600	1600	15	250	250		Air/ Water
JZFB1800	1800	15	250	250		Water
JZFB2000	2000	8-15	250	250		Water
JZFB3600	3600	30-70	/	400		Water

Chemical Pharmaceutical Vacuum System

Description: molecular distillation, freeze-drying, drying, degassing, evaporation, distillation, filtration, organic solvent recovery, biotechnology, etc.

Chemical pharmaceutical vacuum system characteristic :

Characteristics of chemical pharmaceutical vacuum system

1) Specially developed for chemical and pharmaceutical industry, modular design

2) Automatic control system, one key start

3) It can communicate with DCS system and integrate into plant central control system

4) According to the actual working conditions of customers, the vacuum application system is customized

5) Claw pump, screw pump and supporting equipment form a single pump vacuum system, or a multi-stage Roots vacuum system with roots pump.

6) High pumping speed and extreme vacuum of vacuum system

7) Solvent recovery, tail gas treatment, energy saving and emission reduction

8) Green environmental protection, no industrial waste water, no pollution to the environment.

Chemical pharmaceutical vacuum system application :

Application scope

Chemical and pharmaceutical fields: molecular distillation, freeze-drying, drying, degassing,

evaporation, distillation, filtration, organic solvent recovery, biotechnology, etc.

1) Distillation: hydrocarbon resin distillation, eg distillation, organosilicon distillation, PPG distillation, PPG distillation, HF distillation, FEC / dfec, biodiesel distillation, DEG distillation, cyclohexane distillation, polycarbonate distillation;

2) Evaporation: hydrocarbon resin evaporation, pop evaporation, deodorization, resin evaporation, TDI evaporation;

3) Reaction: DEG esterification, PPG reaction, phenolic resin reaction, cyclohexane reaction;

4) Dehydration, degassing, desolvent and drying: silicon oil dehydration and desolvent, PE, PET chip drying, LCD liquid crystal drying, lithium battery drying;

5) Solvent recovery: carbon hydrocarbon resin solvent recovery, dichloromethane recovery, other organic solvent recovery;

6) Other applications: ABS extrusion, chemical purification.

1) Specification of general first level roots unit

Model / parameter	LH-150JZ(C)	LH-300JZ(C)	LH-600JZ(C)
Unit configuration	ZJP150+LG-30/ZJP150+ZB-30	ZJP300+LG-70/ZJP300+ZB-70	ZJP600+LG-150/ZJP600+ZB-150
Extreme vacuum (Pa)	1		
Pumping rate (L/s)	150	300	600
Motor power/KW	7	11.5	20.5
Intake port	DN100	DN160	DN200
Exhaust port	DN40	DN40	DN50
input voltage/V	380		
Cooling water flow (L/h)	500	900	1100
Control cabinet	One button control		

2) Specification of general multi-stage roots unit

Model / parameter	LH-1200JZD(C)	LH-2500JZD(C)	LH-5000JZD(C)
Unit configuration	ZJP1200+ZJ300+LG-110/ZJP1200+ZJ300+ZB-110	ZJP2500+ZJ600+LG-200/ZJP2500+ZJ600+ZB-200	ZJ5000+ZJ1200+LG-300
Extreme vacuum(Pa)	1×10-1		
Pumping rate(L/s)	1200	2500	5000
Motor power/kw	26.5	42.5	70
Intake port	DN250	DN320	DN400
Exhaust port	DN50	DN50	DN50
input voltage/V	380		
Cooling water flow (L/h)	1500	2000	2800
Control cabinet	One button control		

EVP Helium Mass Spectrometer Leak Detector

Description: ESFJ series helium mass spectrometer leak detector is learn from foreign advanced leak detection technology and our own design experience.

ESFJ series helium mass spectrometer leak detector

Product introduce:

ESFJ series helium mass spectrometer leak detector is learn from foreign advanced leak detection technology and our own design experience. The key components are imported, it has stable and reliable performance. It not only has high sensitivity, but also has the advantages of convenient operation, auto switching of two filaments, auto-zero, auto calibration, and auto range switching, it already reaching the international advanced level at present.

Performance characteristics:

Easy operate,only two key buttons(Leak detection and degassing)to be operate

Multi-port molecular pump from Germany

Dual filaments,auto switch from one to another

Auto-zero auto calibration

Auto range switching

Valve detection with PPM function

Full-automatic control, colour touch screen，powerful

Major dispositions:

Compound molecular pump of Germany Leybold

Mechanical pump (D16C) of Germany Leybold

Molecular pump of Germany Pfeiffer

Mechanical pump of Ulvac

Electromagnetic valve of Germany Burkert

Imported amplifier

Standard leak hole (Including calibration certificate)

Model	ESFJ-211	ESFJ-231	ESFJ-261	ESFJ-271
Min. detectable leak rate for He ($Pa·m^3/s$)	$5×10^{-12}$	$1×10^{-12}$	$5×10^{-13}$	$2×10^{-13}$
Leakage rate display range ($Pa·m^3/s$)	$1×10^{-3}$ ~ $1×10^{-12}$	$1×10^{-3}$ ~ $1×10^{-13}$	$1×10^{-3}$ ~ $1×10^{-13}$	$1×10^{-3}$ ~ $1×10^{-13}$
Sniffing leak type ($Pa·m^3/s$)	$1×10^{-3}$ ~ $1×10^{-9}$	/	$1×10^{-8}$	/
Warm-up time (min)	≤5	≤5	≤3	≤3
Response time (s)	< 1	< 1	< 1	< 1
Max. inlet test pressure (Pa)	1330	1500	1500	1500
Ultimate vacuum (Pa)	$5×10^{-4}$	$5×10^{-4}$	$5×10^{-4}$	$5×10^{-4}$
Dimensions (mm)	645*678*965	645*678*965	590*484*322	590*484*322

Model	ESFJ-231
Minimum detectable leak rate for He (vacuum leak)	5×10-13 Pa·m3/s
Minimum detectable leak rate for He (sniffing leak)	1×10-8 Pa ·m 3 /s
Inlet test pressure	Gross:1500Pa,Fine:200pa,Ultra:40pa
Roughing capacity	10 m 3 /h

Pumping speed for He（gross mode）	8 l/s
Pumping speed for He（Fine mode）	7 l/s
Pumping speed for He（Ultra mode）	2.5 l/s
Inlet port	DN 25 ISO-KF
Warm-up time (20°C)	≤3min
Interface	RS-232/485 USBx2
I/O interfaces	Digital and Analog I/O,Relays
Dimensions	645 x 678 x 965 mm
Weight	75kg
Universal voltage	220V±10%, 50 /60 Hz
Maximum power	1000 W
Selectable languages	Chinese,English
Operating temperature	10– 40 °C

Vacuum Freeze Dryer Vacuum System

Description: Vacuum freeze dryer for high-end raw materials, Chinese medicine Pieces, biological, wild vegetables, dehydrated vegetables, food, fruit, chemicals, pharmaceutical intermediates and other materials.

Introduction

Vacuum freeze dryer for high-end raw materials, Chinese medicine Pieces, seafood, wild vegetables, dehydrated vegetables, food, fruit, chemical intermediates and other materials dry.

Vacuum freeze-drying machine will be refrigeration system, vacuum system, thermal oil heating system, a combination of dehumidification system, a new type of box structure, the larger use of storage materials within the box space for drying vacuum drying, drying powder Have a good dispersion.

Frozen vacuum drying process is free of impurities into the object, to maintain the original ingredients and active ingredients and material body is not damaged.

working principle

After the start of the material into the material box to freeze the material of the freezing process, on the one hand is a vacuum system to vacuum part of the water away; the other hand, when the material is frozen when the water contained in some molecules The surface of the material is frozen, and after the freezing requirements are reached, the material is heated and dried by the heating system. The moisture contained in the material is brought to the freezing collection tank by vacuuming to meet the requirements of freeze drying.

Frozen drying refers to the process by which sublimation removes water or other solvents from frozen biological products. Sublimation refers to the solvent, such as water, like dry ice, without liquid, from solid to direct into the process of gaseous. The product obtained by freeze drying is called lyophilizer,

which is called lyophilisation. Traditional dryness can cause the material to shrink and destroy the cells. The structure of the sample during the freeze-drying process will not be destroyed because the solid component is supported by ice in its position. In the ice sublimation, it leaves the pores in the dry residue. This preserves the integrity of the biological and chemical structure of the product and its activity. In the laboratory, freeze-dried has many different uses, it is in many biochemical and pharmaceutical applications is indispensable. It is used to obtain long-term preservation of biological materials, such as microbial culture, enzymes, blood, and drugs, in addition to long-term preservation of stability, but also retains its inherent biological activity and structure. For this reason, lyophilization is used to prepare tissue samples for structural studies (eg, electron microscopy). Freeze-drying is also used in chemical analysis to obtain a dry sample or to concentrate the sample to increase the analytical sensitivity. Freeze-dried so that the sample composition is stable, do not need to change the chemical composition, is the ideal analysis of auxiliary means. Freeze-drying can occur naturally. In the natural case, this process is slow and unpredictable. Through the freeze-drying system, people improved, subdivided a lot of steps to speed up the process.

classification

From the structure points

Bell-type freeze-drying machine: freeze-drying chamber and cold trap for the vertical structure of the upper and lower, freeze-drying chamber without pre-freeze function. The type of freeze dryer in the material after the end of pre-freeze into the drying process requires manual operation. Most of the experimental freeze-drying machines are bell-type, its structure is simple, low cost. Most of the freeze-drying chamber using transparent plexiglass cover, easy to observe the freeze-dried materials. [2]

In situ freeze-drying machine: freeze-drying chamber and cold trap for two separate cavity, freeze-drying chamber with cooling function, the material into the freeze-drying chamber, the material pre-freeze, drying process without manual operation The This type of freeze-drying machine has a complicated manufacturing process and high manufacturing cost. However, the in-situ freeze-drying machine is the ideal choice for the freeze-drying process. It is especially suitable for pharmaceutical, biological products and other special products. Lyophilized.

A, ordinary type b, multi-manifold type c, gland type

From the function points

Ordinary shelf type: material in bulk material, suitable for food, Chinese herbal medicine, powdery materials freeze-dried.

With gland device type: suitable for Xilin bottled material drying, freeze-dried preparation, according to the need to separate the material in the vials, floating cover a good bottle after the freeze-drying, dry after the operation of gland press the bottle , To avoid secondary pollution, re-adsorption of water, easy to long-term preservation.

Multi-manifold type: in the drying room outside the flask, the frozen in the bottle wall of the material drying, then the flask as a container connected to the manifold outside the tank, the flask material heated by room temperature, through the differences Tube switch device, can be removed at any time or installed on the flask, do not need to stop.

With pre-frozen functional type: material pre-freezing process, cold trap as a pre-frozen pre-frozen

material, in the drying process, cold trap for the catcher, to capture the material overflow of water. Pre-freeze function with freeze-drying machine, freeze-drying process of pre-freezing, drying, etc. are completed in the freeze dryer, freeze-drying machine using high efficiency, saving the cost of low-temperature refrigerator.

Choose a few freeze-drying machine should pay attention to the parameters

Freeze dry area

The number in the freeze-drying machine model represents the freeze-dried area of ??the freeze-drying machine. For example, the freeze-drying area of ??the LGJ-18C type freeze-drying machine is 0.18㎡. Users should be based on their own needs, through the calculation to determine how much need to freeze the dry area of ??the freeze dryer. For example, each batch of freeze-dried 1.8 kg (l) liquid volume of the product, with the material tray loading materials, each loaded 10 mm thick, you can calculate the dry layer of dry weight:

A (area, ㎡) = V (volume, m) / H (height, m) = 0.0018m / 0.01m = 0.18㎡

That is required to use the board load area of ??0.18 square meters of freeze dryer.

Cold trap temperature

In theoretically, the lower the cold trap temperature, the higher the trap capacity of the cold trap, but the cold trap temperature is low, the refrigeration requirements are high, the machine cost and running cost are high. Experimental series of freeze-drying machine cold trap temperature is mainly around -45 °C, -60 °C or so, -80 °C and so on several grades. Freeze temperature of -45 °C freeze-dried for some easy to freeze-dried products, cold trap temperature of about -60 °C freeze dryer for most of the products freeze-dried, cold trap temperature of -80 °C freeze-dried Suitable for freeze-drying of some special products. The effect of cold trap temperature on catching capacity shows that the temperature of cold trap decreases from -35 °C to -55 °C, and the catching ability is improved obviously. The cold trap temperature is lower than -55 °C, and the catching ability of cold trap is not obvious. Therefore, in the absence of special needs, the choice of cold trap temperature around -60 °C is the ideal choice. The cold trap temperature of LGJ-10D freeze-drying machine in the four-ring freeze-drying machine is ≤-55 °C, the freezing temperature of LGJ-18 series and LGJ-25 series is less than -60 °C, and the refrigerant is cooled by mixed refrigerant Technology, in the case of the same refrigeration unit, the cooling temperature is low, the cooling capacity is large, the working stability is high and the failure rate is low. The four-cycle freeze-drying machine also includes a LGJ-10 freeze dryer with a cold trap temperature of ≤ -45 ° C for lyophilisation of products that are easily lyophilized. LGJ-50C freeze-drying machine cold trap temperature ≤ -80 °C, especially for pharmaceutical and special products freeze-dried. [3]

3, the cooling rate

Cooling rate reflects the refrigeration system cooling capacity, in the case of no-load, the cold trap temperature should be within 1 hour to reach the minimum temperature specified by the target. For example, a chiller with a cold trap temperature of ≤-60 ° C, the machine should start from the beginning of the cooling and the time when the cold trap temperature reaches -60 ° C should be no more than 1 hour.

4, the ultimate degree of vacuum

The ultimate vacuum reflects the leakage of the freeze dryer and the evacuation efficiency of the

vacuum pump. The vacuum of the freeze box, the past view that the vacuum is the higher the better, the industry's view that the vacuum should be within a reasonable range. Vacuum is too high, is not conducive to heat transfer, drying speed but decreased, but in any case freeze-drying box vacuum limit should be more than 15Pa vacuum.

5, the vacuum time

The temperature of the freezers in the freezer should be drawn from the atmospheric pressure to 15 Pa within half an hour.

6, the board temperature uniformity and flatness:

The uniformity and flatness of the slab temperature have a great influence on the homogeneity of the product quality. The better the temperature uniformity and the flatness, the better the uniformity of the dry product quality. Freeze-drying shelf shelf temperature control of the heater type and the middle fluid type, the use of intermediate fluid control plate layer freeze-drying machine shelf temperature uniformity and smoothness, and this freeze-drying machine board for the hollow sandwich structure, Of the cooling and heating through the intermediate fluid in the plate inside the fluid channel to achieve, so the board temperature uniformity. Four-stage freeze-drying machine LGJ-50C type freeze dryer on the use of shelf intermediate fluid technology. Bell-type freeze-drying machine shelf temperature control are basically using the heater, board temperature consistency is slightly worse. But in general, the temperature difference between the medicine should be controlled at ± 1.5 °C, the temperature difference between the plate is ± 1 °C, the food freeze dryer can be relaxed.

7, the control system

Freeze-drying machine control system types and functions vary, for the experimental series of freeze-drying machine, mainly used in the material freeze-drying process to explore and a small amount of trial production. Therefore, the control system should be able to display the freeze-drying process parameters in real time and automatically record; set, modify and effectively carry out freeze-drying process; with communication interface for easy data collection and preservation.

JZJ2B Roots-Liquid Ring Pump System

Description: JZJ2B Roots-Liquid Ring Vacuum Pump System contains roots pumps and liquid ring vacuum pump. this system is free from oil pollution, and can pump gas contains small amount of vapor and dust.

Introduction:

JZJ2B series Roots-Liquid Ring Pump System is a vacuum pumping system containing a roots pump as its main pump, and a 2BV types of liquid ring pump or a system of roots-liquid ring pump as fore pump.

Advantage:

Comparing with common liquid ring vacuum pump,the capacity to remain high pumping speed under high or ultimate vacuum degree becomes its main advantage. Except for normal gas suction, this system can also pump special gas with small amount of vapor or dust. Additionally, this system is free from oil pollution, as well as vapor and dust.

Since the 2BV type of liquid ring pump has been adopted as its fore pump, the JZJ2B series system is more efficient than JZJ2S series (which 2SK type of liquid ring pump has been adopted). And it is compact-designed with no air leakage and high protection level. Besides,our 2BV type is more anti corrosive than 2SK type, because all 2BV impeller are SS304 material.

Another note, the fore pump can be designed as a closed circulation system so to reduce the environment pollution greatly.

Application:

JZJ2B series system has become an ideal choice for vacuum drying or dehydration process, and vacuum degassing process in the field of light textile, food industry, chemistry, pharmacy, etc.

System Model	Pump Model		Pumping Speed	Max Suction Pressure (Pa)	Ultimate Vacuum (abs.)(Pa)		Motor
	Main Pump	Fore Pump	L/s		Liquid Ring	Oil Ring	KW
JZJ2B30-2	ZJ30	2BV2-061	30	8000	300	80	3
JZJ2B30-1	ZJ30	2BV5-110	30	12000			5.5
JZJ2B70-2	ZJ70	2BV5-110	70	6000			5.5
JZJ2B70-1	ZJ70	2BV5-111	70	12000			7
JZJ2B150-2A	ZJ150	2BV5-111	150	6000			8.5
JZJ2B150-2B	ZJ150	2BV5-121	150	8000			10.5
JZJ2B150-1	ZJ150	2BV5-131	150	10000			14
JZJ2B300-2A	ZJ300	2BV5-131	300	4000			15
JZJ2B300-2B	ZJ300	2BV5-161	300	5000			19
JZJ2B300-1	ZJ300	2BE1-202	300	10000			26
JZJ2B600-2A	ZJ600	2BE1-202	600	4000			27.5
JZJ2B600-2B	ZJ600	2BE1-203	600	5000			42.5
JZJ2B600-1	ZJ600	2BE1-252	600	12000			50.5
JZJ2B1200-2A	ZJ1200	2BE1-252	1200	2500			56
JZJ2B1200-2B	ZJ1200	2BE1-253	1200	4000			86
JZJ2B1200-1	ZJ1200	2BE1-303	1200	8000			121
JZJ2B2500-2	ZJ2500	2BE1-303	2500	3000			132

System Model	Pump Model		Pumping Speed	Max Suction Pressure (Pa)	Ultimate Vacuum (abs.)(Pa)		Motor
	Main Pump	Fore Pump	L/s		Liquid Ring	Oil Ring	KW

JZJ2B70-2.1	ZJ70	ZJ30/2BV5-110	70	6000	100	1	7
JZJ2B150-2.1	ZJ150	ZJ70/2BV5-111	150	6000			10
JZJ2B150-4.1	ZJ150	ZJ30/2BV5-110	150	3000			8.5
JZJ2B300-2.1	ZJ300	ZJ150/2BV5-131	300	5000			18
JZJ2B300-2.2	ZJ300	ZJ150/2BV5-121	300	4000			14.5
JZJ2B300-4.1	ZJ300	ZJ70/2BV5-111	300	2000			11
JZJ2B600-4.1	ZJ600	ZJ150/2BV5-131	600	1500			19.5
JZJ2B600-2.2	ZJ600	ZJ300/2BV5-161	600	2000			24.5
JZJ2B1200-4.2	ZJ1200	ZJ300/2BV5-161	1200	1000			30
JZJ2B1200-4.1	ZJ1200	ZJ300/2BE1-202	1200	1200			37
JZJ2B1200-2.2	ZJ1200	ZJ600/2BE1-203	1200	2500			53.5
JZJ2B1200-2.1	ZJ1200	ZJ600/2BE1-252	1200	3000			61.5
JZJ2B2500-4.1	ZJ2500	ZJ600/2BE1-252	2500	1000			72.5
JZJ2B70-2.1.1	ZJ70	ZJ30/ZJ30/2BV5-110	70	6000	0.5	0.05	8.5
JZJ2B150-2.2.1	ZJ150	ZJ70/ZJ30/2BV5-110	150	3000			10
JZJ2B300-2.2.1	ZJ300	ZJ150/ZJ70/2BV5-111	300	3000			14
JZJ2B300-4.2.1	ZJ300	ZJ70/ZJ30/2BV5-110	300	1200			11
JZJ2B600-2.2.1	ZJ600	ZJ300/ZJ150/2BV5-131	600	2500			23.5
JZJ2B600-4.2.1	ZJ600	ZJ150/ZJ70/2BV5-111	600	1200			15.5
JZJ2B1200-4.2.1	ZJ1200	ZJ300/ZJ150/2BV5-131	1200	1000			29
JZJ2B2500-4.2.1	ZJ2500	ZJ600/ZJ300/2BE1-202	2500	1000			53.5

JZPS Roots-Liquid Ring Vacuum System

Description: JZPS Roots-Liquid ring Vacuum system consisted of roots vacuum pump and liquid ring vacuum pump. The system are widely used in pharmaceutical, chemical industry as vacuum distillation.

Roots-water ring vacuum system (JZJ type) consists of ZJ type roots vacuum pump and the backing pump,such as2BE/2BV/2SK series water ring vacuum pump. It can not only pump the common gas but also can pump the gas that contains vapor and a little dust.

it is widely used in pharmaceutical, chemical industry, vacuum distillation, material dehydration, vacuum impregnation of electrical industry, kerosene vapor phase drying, powder metallurgy sintering, freeze drying technology in food industry.

Model	Main Pump	Backing Pump		PumpSpeed	Ultimate Pressure		Motor Power (Kw)		
							Main Pump	Backing Pump	
		I	II	L/S	Pa	Torr	–	I	II
JZPS30-1	ZJP30	SK1.5	–	30	3×10^{-2}	2.25	0.75	4	–
JZPS70-1	ZJP70	2SK3	–	70	3×10^{-2}	2.25	1.1	7.5	–
JZPS150-1	ZJP150	2SK6	–	150	3×10^{-2}	2.25	2.2	11	–
JZPS300-1	ZJP300	SK12	–	300	3×10^{-2}	2.25	4	22	–

JZPS600-1	ZJP600	SK25	–	600	3×10^{-2}	2.5	7.5	45	–
JZPS70-21	ZJP70	ZJP30	SK1.5	70	100	0.75	1.1	0.75	4
JZPS150-21	ZJP150	ZJP70	2SK3	150	40	0.3	2.2	1.1	7.5
JZPS300-21	ZJP300	ZJP150	2SK6	300	40	0.3	4	2.2	11
JZPS600-21	ZJP600	ZJP300	SK12	600	40	0.3	7.5	4	22
JZPS1200-21	ZJP1200	ZJP600	SK25	1200	40	0.3	11	7.5	45

ZJZSK Roots Liquid Ring Vacuum Pump System

Description: ZJZSK Roots Liquid Ring Vacuum Pump System contain one or two roots pump and one water ring vacuum pump. This system allows relatively large amount of vapor pumping.

Introduction:

ZJZSK series roots-liquid ring pump system connected a roots vacuum pump as its main pump and a backing pump (2SK liquid ring vacuum pump).

Advantage:

Equipped with a liquid ring pump as its backing pump, this system has successfully overcome some shortages for separate liquid ring pump application. Such as low ultimate vacuum in usage, slow pumping speed in certain vacuum degree. Simultaneously, the advantages like high pumping capacity and fast start-up time for roots pump has been remained. Another note, this system can pump a large amount of condensable vapor. This trait will be more obvious especially when the gas contains too much vapor to be pumped by gas ballast oil-sealed mechanical pump, or the pump performance is influenced when pump oil exacerbated by the pump oil, or oil pollution is impermissible for the vacuum system. Matching with an anti-explosive motor and properly operated, explosive gas can be pumped by this system.

Application:

JZJSK series roots liquid ring vacuum pump system is widely used in the chemistry industry, such as below process: vacuum distillation, vacuum evaporation, dehydration and crystallization, etc. And the system is also required by following industry and process, freezing and drying in food industry,

vacuum drying in medical industry, stripe slicing in light textile industry, high-altitude simulation test in vacuum system.

For technical specification of each pump and other types of roots liquid ring vacuum pump, please check below inter-linkage.

Inter-linkage: ZJ series roots pump, 2SK liquid ring vacuum pump, JZJ2B roots liquid ring vacuum pump, JZPS roots liquid ring vacuum pump.

Model	Suction Speed	Ultimate Vacuum	Pump System Construction			Motor Power	Inlet Diam	Outlet Diam	Weight
	L/s	Pa	Main Pump	Holding Pump	backing Pump	Kw	mm	mm	Kg
JZJSK30.25	30	≤300	ZJ-30	/	2SK-0.8	2.95	25	25	120
JZJSK70.40	70	≤300	ZJ-70	/	2SK-2	5.5	50	50	160
JZJSK70.50	70	≤300	ZJ-70	/	2SK-3	6.6	50	50	210
JZJSK150.50	150	≤300	ZJ-150	/	2SK-3	7.7	80	80	260
JZJSK150.100	150	≤300	ZJ-150	/	2SK-6	13.3	80	80	520
JZJSK300.100	300	≤300	ZJ-300	/	2SK-6	14	160	100	540
JZJSK300.200	300	≤300	ZJ-300	/	2SK-12	19	160	100	580
JZJSK600.200	600	≤300	ZJ-600	/	2SK-12	20.5	200	120	760
JZJSK1200.200*2	1200	≤300	ZJ-1200	/	2SK-12*2	37.5	250	120	1200
JZJSK70.30.25	70	≤20	ZJ-70	ZJ-30	2SK-0.8	4.1	50	25	170

JZJSK70.70.35	70	≤20	ZJ-70	ZJ-70	2SK-2	6.6	50	40	220
JZJSK150.70.50	150	≤20	ZJ-150	ZJ-70	2SK-3	8.8	80	50	320
JZJSK150.150.100	150	≤20	ZJ-150	ZJ-150	2SK-6	15.4	80	80	540
JZJSK300.150.100	300	≤20	ZJ-300	ZJ-150	2SK-6	17.2	160	80	650
JZJSK600.300.200	600	≤20	ZJ-600	ZJ-300	2SK-12	26.5	200	120	870
JZJSK1200.600.200*2	1200	≤20	ZJ-1200	ZJ-600	2SK-12	39.5	250	120	1380
JZJSK2500.1200.200*2	2500	≤20	ZJ-2500	ZJ-1200	2SK-12*2	52.5	250	120	1870
JZJSK3300.1200.200*2	3300	≤20	ZJ-3300	ZJ-1200	2SK-12*2	55.5	320	120	2780
JZJSK70.70.30.25	70	≤1	ZJ-70*2	ZJ-30	2SK-0.8	4.9	50	25	290
JZJSK150.70.70.50	150	≤1	ZJ-150	ZJ-70*2	2SK-3	10.7	80	50	320
JZJSK300.150.150.100	300	≤1	ZJ-300	ZJ-150*2	2SK-6	19.4	160	100	380
JZJSK300.300.300.200	300	≤1	ZJ-300	ZJ-300*2	2SK-12	27	160	1120	450

JZJSK600.600.300.200	600	≤1	ZJ-600*2	ZJ-300	2SK-12	35	200	120	870
JZJSK1200.600.600.200	1200	≤1	ZJ-1200	ZJ-600*2	2SK-12	38.5	250	120	1280
JZJSK2500.1200.1200.200*2	2500	≤1	ZJ-2500	ZJ-1200	2SK-12*2	63.5	320	120	3400

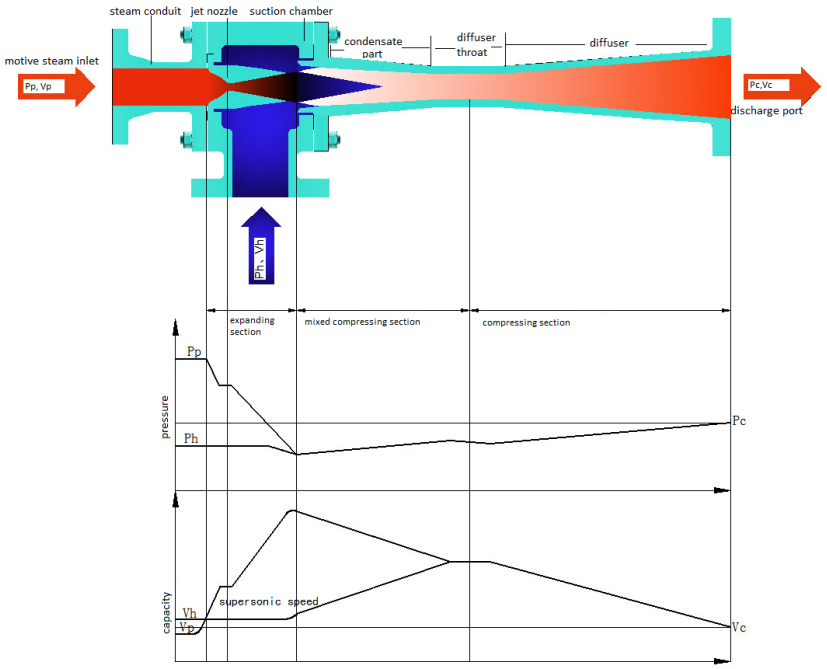
Note: For technical specification of each pump and other types of roots liquid ring vacuum pump, please check below inter-linkage.

Inter-linkage: ZJ series roots pump, 2SK liquid ring vacuum pump, JZJ2B roots liquid ring vacuum pump, JZPS roots liquid ring vacuum pump.

Steam Ejector System

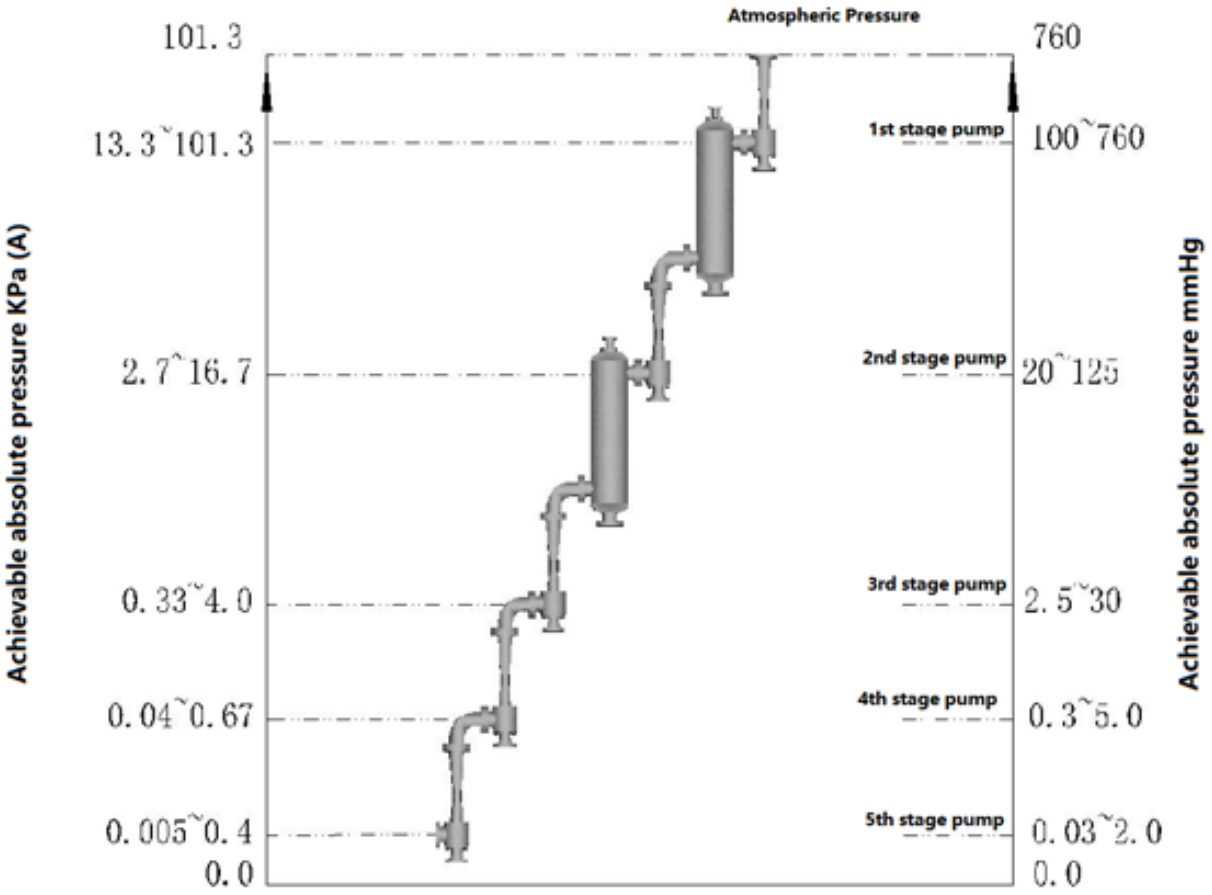
Description: EVP steam ejector and air ejector with water-saving, steam conservation features, it's widely used in edible oil,waste oil refining,fatty acid distillation, deodorization.

Steam ejector is type of vacuum obtain device with certain pressure. Motive steam passing through the jet nozzle，its pressure decreased and speed accelerated, the steam's potential energy is turned into kinetic energy, ejected into suction (mixing) chamber and mixed with evacuated gas. Then the energy is exchanged. When mixed air entering the diffuser, its speed lowered and pressure increased, the kinetic energy is turned into pressure energy. Followed can be found the general working principle:



besides, it's also good option to be worked together with liquid ring vacuum pump to create higher ultimate pressure.

The combination of ejector and condenser meets various needs of vacuum



Main Features:

The working vacuum range is very wide: 0.005-101.3KPa (A);

The pumping volume can theoretically be unlimited;

There are no strict restrictions on the pumping medium, no matter the humidity of the pumped medium is high or low, whether there is dust or corrosion, it can be used;

No rotating parts, long service life;

Safe and reliable work, simple operation, low cost and easy maintenance;

With an intermediate condenser, a 12m high position is required;

Simple structure; reliable technology;stable vacuum degree; low maintenance and long service life.

It can be used to suction some corrosive gas, flammable, explosive gas and particulate medium,etc. directly.

Multi-stage steam ejector vacuum system with leading technology, stable performance and the lowest operating cost features. The other products are incomparable.

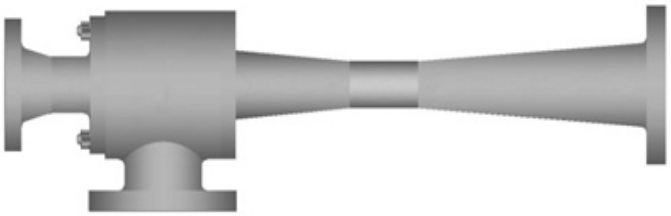
Steam jet vacuum pump features and applications:

vacuum metallurgy, vacuum deaeration, vacuum impregnation, freeze drying, concentration, distillation, refrigeration,vacuum evaporation of petroleum, chemical, pharmaceutical, oil, sugar, salt, paper and other fields,such as concentration, drying, distillation, distillation, crystallization, dehydrated, filtering, vacuum conveying material, chemical absorption and degassing process. With

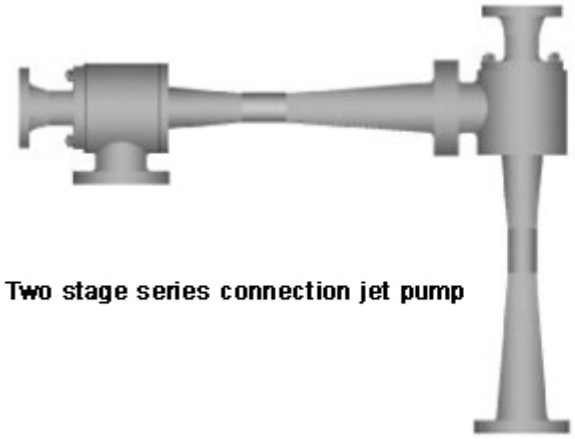
different pumping speed and working vacuum, we have many types of model for customer selection.

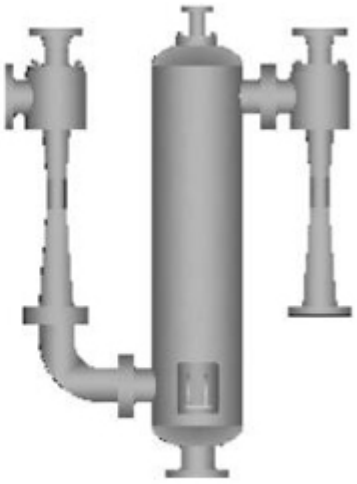
Steam jet vacuum pump layout :

Single stage steam jet vacuum pump



Two stage steam jet vacuum pump

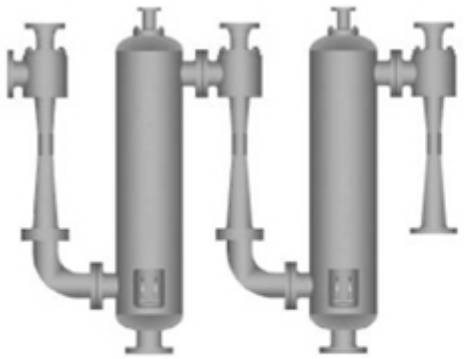


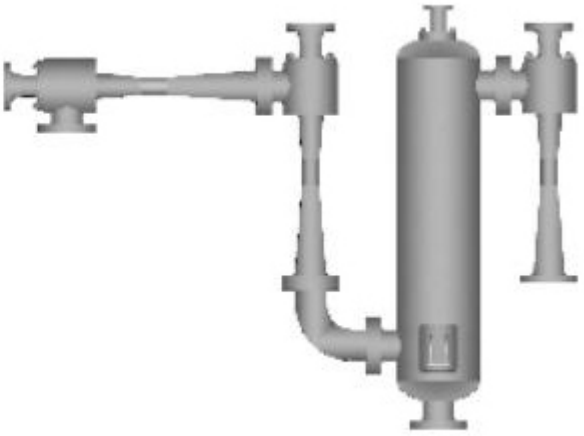


model	Vacuum absolute pressure		Pumping volume Air + water vapor kg/h	Working steam pressure MPa	Working steam consumption kg/h	Cooling water temperature OC	Cooling water circulation m3/h
	Working vacuum mmhg/KPa	Ultimate vacuum mmhg/Pa					
ⅡZPL(5/10)-40	40/5.3	16/2	5+10	0.5	68	32	3
ⅡZPL(5/18)-40	40/5.3	16/2	5+18	0.5	110	32	4
ⅡZPL(10/25)-40	40/5.3	16/2	10+25	0.5	188	32	6
ⅡZPL(10/35)-40	40/5.3	16/2	10+35	0.5	198	32	7.5
ⅡZPL(15/50)-40	40/5.3	16/2	15+50	0.5	273	32	11

ⅡZPL(15/80)-40	40/5.3	16/2	15+80	0.5	420	32	16
ⅡZPL(25/45)-75	75	30/4	25+45	0.8	135	32	6.8
ⅡZPL(35/55)-75	75	30/4	35+55	0.8	238	32	7

Three stage steam jet vacuum pump

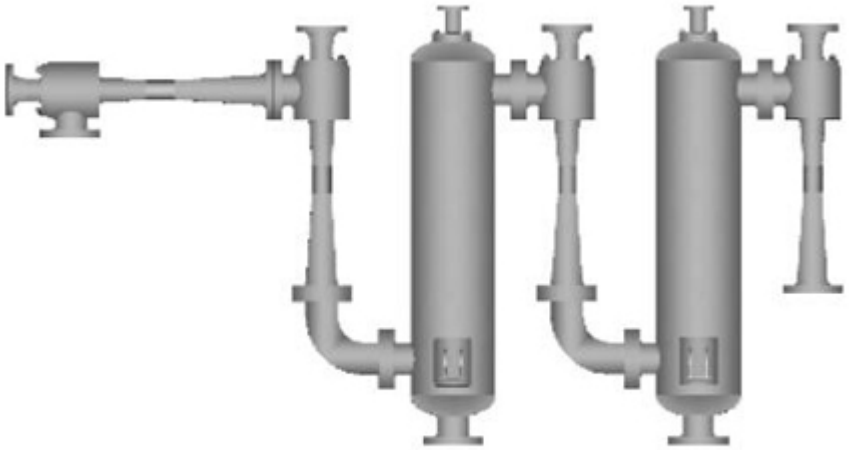




model	Vacuum absolute pressure		Pumping volume Air + water vapor kg/h	Working steam pressure MPa	Working steam consumption kg/h	Cooling water temperature OC	Cooling water circulation m3/h
	Working vacuum mmhg/KPa	Ultimate vacuum mmhg/Pa					
ⅢZPL(8/20)-20	20/2.6	8/1	8+20	0.5	80	32	5
ⅢZPL(8/30)-20	20/2.6	8/1	8+30	0.5	130	32	8
ⅢZPL(10/40)-20	20/2.6	8/1	10+40	0.5	155	32	10
ⅢZPL(10/50)-20	20/2.6	8/1	10+50	0.5	234	32	15
ⅢZPL(10/60)-20	20/2.6	8/1	10+60	0.5	256	32	18
ⅢZPL(10/80)-20	20/2.6	8/1	10+80	0.5	289	32	20
ⅢZPL(10/100)-20	20/2.6	8/1	10+100	0.5	335	32	35
ⅢZPL(20/150)-20	20/2.6	8/1	20+150	0.5	387	32	35
ⅢZPL(20/200)-20	20/2.6	8/1	20+200	0.5	456	32	40

ⅢZPL(30/250)-20	20/2.6	8/1	30+250	0.5	491	32	45
ⅢZPL(30/300)-20	20/2.6	8/1	30+300	0.5	532	32	48
ⅢZPL(30/350)-20	20/2.6	8/1	30+350	0.5	732	32	50
ⅢZPL(40/400)-20	20/2.6	8/1	40+400	0.5	789	32	55
ⅢZPL(40/450)-20	20/2.6	8/1	40+450	0.5	888	32	60

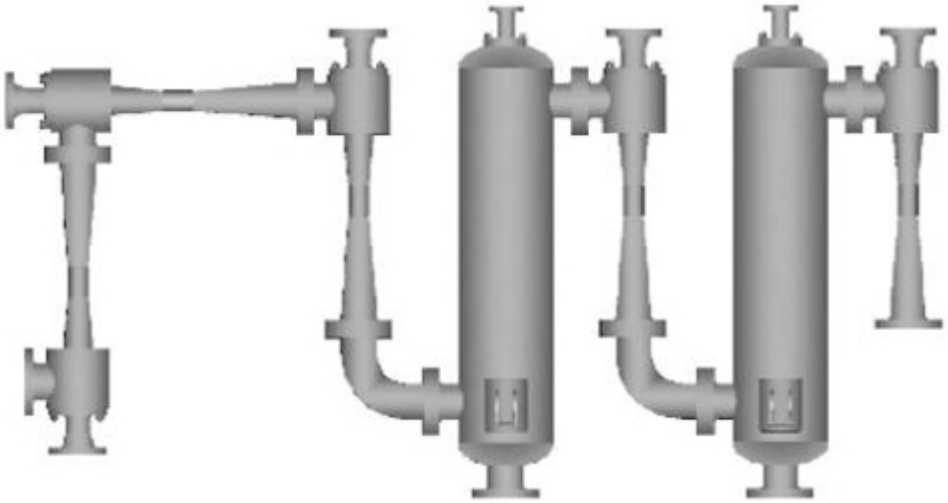
Four stage steam jet vacuum pump



model	Vacuum absolute pressure		Pumping volume	Working steam pressure	Working steam consumption	Cooling water temperature	Cooling water circulation
	Working vacuum mmhg/KPa	Ultimate vacuum mmhg/Pa	Air + water vapor kg/h	MPa	kg/h	OC	m3/h
ⅣZP$_L$(8/20)-1	1/133	0.2/27	8+20	0.5	362	32	50
ⅣZP$_L$(8/30)-1	1/133	0.2/27	8+30	0.5	430	32	50
ⅣZP$_L$(10/40)-1	1/133	0.2/27	10+40	0.5	680	32	70
ⅣZP$_L$(10/60)-1	1/133	0.2/27	10+60	0.5	980	32	100
ⅣZP$_L$(10/80)-1	1/133	0.2/27	10+80	0.5	1230	32	160
ⅣZP$_L$(10/100)-1	1/133	0.2/27	10+100	0.5	1500	32	180
ⅣZP$_L$(20/120)-1	1/133	0.2/27	20+120	0.5	1980	32	200

IVZP$_L$(20/150)-1	1/133	0.2/27	20+150	0.5	2500	32	200
IVZP$_L$(20/200)-1	1/133	0.2/27	20+200	0.5	3000	32	250
IVZP$_L$(30/300)-1	1/133	0.2/27	30+300	0.5	4500	32	300
IVZP$_L$(40/400)-1	1/133	0.2/27	40+400	0.5	6000	32	380
IVZP$_L$(50/500)-1	1/133	0.2/27	50+500	0.5	7000	32	550
IVZP$_L$(80/800)-1	1/133	0.2/27	80+800	0.5	10000	32	650
IVZP$_L$(8/20)-2	2/267	0.3/40	8+20	0.5	256	32	50
IVZP$_L$(8/30)-2	2/267	0.3/40	8+30	0.5	295	32	50
IVZP$_L$(10/40)-2	2/267	0.3/40	10+40	0.5	490	32	60
IVZP$_L$(10/60)-2	2/267	0.3/40	10+60	0.5	680	32	70
IVZP$_L$(10/80)-2	2/267	0.3/40	10+80	0.5	930	32	100
IVZP$_L$(10/100)-2	2/267	0.3/40	10+100	0.5	1000	32	120
IVZP$_L$(20/120)-2	2/267	0.3/40	20+120	0.5	1100	32	150
IVZP$_L$(20/150)-2	2/267	0.3/40	20+150	0.5	1234	32	180
IVZP$_L$(20/200)-2	2/267	0.3/40	20+200	0.5	1600	32	200
IVZP$_L$(30/300)-2	2/267	0.3/40	30+300	0.5	2332	32	250
IVZP$_L$(40/400)-2	2/267	0.3/40	40+400	0.5	2567	32	300
IVZP$_L$(50/500)-2	2/267	0.3/40	50+500	0.5	3200	32	350
IVZP$_L$(80/800)-2	2/267	0.3/40	80+800	0.5	3819	32	400

Five stage steam jet vacuum pump



Note:

1. The models listed in the table are not exhaustive, and can be designed according to the technical parameters provided by users.

2. The technical parameters change accordingly when the user’s process conditions change, so the technical parameters are subject to the technical parameters given at the time of signing the contract.

Air Ejector Liquid Ring Vacuum Pump System

Description: Water ring vacuum pump will generate the cavitation when worked under limited vacuum which can cause equipment damage, lower reliability.

Water ring vacuum pump will generate the cavitation when worked under limited vacuum which can cause equipment damage, lower reliability.

The vacuum system unit suction ability is insufficient when it’s running. Air ejector, also called air jet vacuum pump, it takes the pressure difference between ejector and liquid ring pump to produce air jet. The vacuum inside of the ejector could be lower than the vacuum pump for suction pressure.

The air ejector liquid ring vacuum system improves the ultimate vacuum of the vacuum pump, prevents the liquid ring vacuum pump cavitation, eliminate noise and vibration(protect the vacuum pump), which make the main system works safely during the operation at the same time.

Such as power plant main body of electricity generator.

JZJP Roots Ejection Pump System

Description: JZJP roots ejection pump system contains roots pump and water ejection pump.it can be widely used in process of vacuum drying, vacuum distillation, vacuum concentration, etc.

JZJP Roots Ejection Pump System adopt roots pump as main pump, and water ejection pump as backing pump. Additionally, the main pump includes a middle pump, which has anti-corrosive and easy corroded two types for different request. The anti-corrosive one is painted with anti-corrosive paint. Matching with a vertical water ejection pump, corrosive gas pumping is workable for this pump. The first level roots pump can reach an ultimate vacuum degree at 150 Pa, and the second one, 25 Pa.

Application:

JZJP roots ejection pump system can be applied in the process of vacuum drying, vacuum distillation, vacuum concentration, and the industry of metallurgy, petrochemical, paper making, food industry, electric industry. As per various customer requiring, multilevel pump system for pumping capacity and vacuum degree improving is available.

Model	Suction Speed	Ultimate Pressure	Pump System Construction			Motor Power
	L/s	Pa	Main Pump	Holding Pump	Backing Pump	Kw
JZJP-30.60	30	267	ZJ-30		RPP-40-60	3.7
JZJP-70.180	70	267	ZJ-70		RPP-54-180	9

JZJP-150.280	150	267	ZJ-150		RPP-65-280	18
JZJP-150.360	150	267	ZJ-150		PRR-65-360	18
JZJP-150.500	150	267	ZJ-150		RPP-80-500	18
JZJP-70.30.60	70	25	ZJ-70	ZJ-30	RPP-40-60	5.25
JZJP-150.70.180	150	25	ZJ-150	ZJ-70	RPP-54-180	12
JZJP-150.150.280	150	25	ZJ-150	ZJ-150 (low speed)	RPP-65-280	21
JZJP-300.150.300	300	25	ZJ-300	ZJ-150	RPP-65-360	22
JZJP-300.150.500	300	25	ZJ-300	ZJ-150	RPP-80-50	22

note: more specification for each model, please view below interlink.

zj roots pump, zjp roots pump,zjl roots pump, related vacuum system

Water Vapor Cryopump

Description: EVP ETH series of ultra-low temperature products are used in the vacuum system, condensing water vapor and oil mist to reduce the evacuation time and increase vacuum degree to get clean vacuum.

Application principle: There is a certain amount of residual gas in the high-vacuum environment where the oil diffusion pump is used. More than 80% of the residual gas is water vapor, oil vapor and other high-boiling vapors. But all the residual gas is also the source of the workpiece, which will affect the quantity and quality of the product. Cryogenic pump is a good choice to solve such problems.

The working principle of cryogenic pump: place a cooling coil that can be below -120 °C in a vacuum chamber or oil diffusion pump port to capture rapaidly the residual gas vacuum system through the surface of the low-temperature condensation effect. So that it reduce evacuation time (60-90% reduction in evacuation time) and geta clean vacuum environment (up to a half-order vacuum, 10-8 Torr, 10-5 Pa).

The main performance characteristics

1, It can absorb vapor of water and oil quickly, so that it can reduce evacuation time 60-90%;
2, It can improve coating quality and making coating not fall off and pure color;
3,Cooling rapidly. It can cool to -120 °C or even -150 °C within 1 minute;
4,hot gas can defrost within 30 seconds,then return to warm and cooling within 2 minutes;
5, There is touch screen and PLC which makes a perfect automation control;
6, Dual-way load can be designed;
7,mixed of imported compressors and green environment mixed refrigerant;
8, with two load inlet and outlet temperature display and device temperature display;
9, defrost temperature can be freely set;

10, with water temperature and exhaust temperature display;

11, With water shortage and high temperature alarm;

12, Self protection when compressor exhaust and pressures is too high;

13, It can be free conversion between local and remote control;

14, With RS485 computer data interface, the computer can read temperature data and its control.

	ETH-135-20A	ETH-135-32A	ETH-135-32AX	ETH-135-50A	ETH-135-50AX
Compressor	**Bitzer**	**Bitzer**	**Bitzer**	**Bitzer**	**Bitzer**
Compressor power (HP)	**10**	**12**	**12**	**15**	**15**
Maximum power (kW)	**11.7**	**14.1**	**14.1**	**18.1**	**18.1**
Working current (A)	**21**	**24**	**24**	**31**	**31**
Rated current voltage	**380V，50Hz， three phase and four wire**				
Working temperature (℃)	**-100～-150**				
Evacuation(L/s)	**149000**	**238400**	**238400**	**372500**	**280000**
Maximum cooling capacity (W) (-100℃)	**2100**	**2800**	**2800**	**3800**	**3800**
Length of refrigerating pipe	**20m，Φ16mm**	**32m，Φ16mm**	**double lines 16m，Φ10mm**	**50m，Φ16mm**	**double lines 14m，Φ16mm**
Suface area of refrigerating pipe (m²)	**1**	**1.6**	**1**	**2.5**	**1.5**
Cooling mode	**Water cooled，temperature18℃~30℃，The water pressure2bar~4bar**				
The cold water flow (t/h)	**1.8**	**2.5**	**2.5**	**3.2**	**3.2**
Cold water interface size (mm)	**16**	**16**	**16**	**19**	**19**

Pre-refrigerating time (min)	**30**				
cooling downtime (min)	**≤3**	**≤4**	**≤4**	**≤5**	**≤5**
Defrosting time (min)	**≤3**	**≤3**	**≤3**	**≤4**	**≤4**
Re-cooling downtime (min)	**≤3**	**≤3**	**≤3**	**≤3**	**≤3**
Apply oil diffusion pump diameter (mm)	**≤800**	**≤900**	**≤600**	**≤1000or 2×600**	**≤800**
Apply cavity diameter (mm)	**≤1300**	**≤1500**	**≤1000**	**≤1800**	**≤1500**
Need power cold water machine (HP)	**7**	**8**	**8**	**10**	**10**
Weight	**480kg**	**550kg**	**550kg**	**580kg**	**580kg**

CVS Centre Vacuum System

Description: CVS Rotary vane vacuum pump system is consisted of SV series rotary vane vacuum pump and the vacuum tank or vacuum chamber. It's widely used in vacuum suction and vacuum holding, CNC router.

Construction:

CVS series Vacuum system adopt SV single-stage rotary vane vacuum pump as host machine, and it is equipment integration equipped with a vacuum tank, vacuum gauge, automatic control system etc.

The system features:

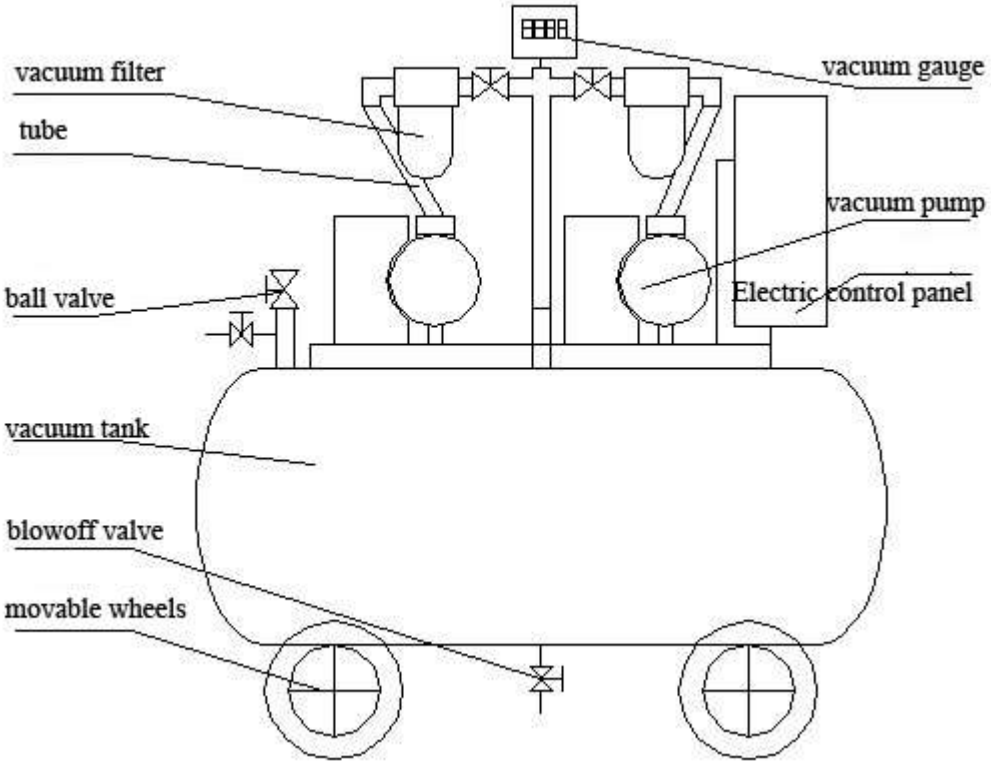
To adopt environmentally high-performance vacuum pump, no oil injection
Manual and automatic can be control to option, the vacuum can be set to adjust
Two options of vacuum tank: Vertical or horizontal
Simple operation and strong vacuum, can meet every kinds of inquire from different customers.
Easy moving, space small
CVS intergration is a preferred central Vacuum system for enterprise...

Application:

CVS Series Pump System can offer vacuum source for medical gas station in varied large or middle size hospital. Meanwhile, it is widely applied in chemical industry, canning system of light industry, pressure molding of polymer processing components in automobile industry, extruding machine degassing, as well as electric and food industry. Besides, it plays an irreplaceable role in V-EPC casting technology, mainly for casting process. For example, it can act as the vacuum source in the infusion and casting process of anti-flaming transportation type, which has been adopted in mine and coal exploitation.

Size	Speed(m3/h)	Vacuum pump	Pump quantity	Pressure(MPA)	Vacuum tank(m3)
CVS-1X010	10	SV-010	1pcs	0~-0.1	0.06-0.2
CVS-1X020	20	SV-020	1 pcs	0~-0.1	0.06-0.2
CVS-1X025	25	SV-025	1 pcs	0~-0.1	0.06-0.2
CVS-1X040	40	SV-040	1 pcs	0~-0.1	0.06-0.2
CVS-1X063	63	SV-063	1 pcs	0~-0.1	0.06-0.2
CVS-1X100	100	SV-100	1 pcs	0~-0.1	0.06-0.2
CVS-1X160	160	SV-160	1 pcs	0~-0.1	0.3-2
CVS-1X250	250	SV-250	1 pcs	0~-0.1	0.3-2
CVS-1X300	300	SV-300	1 pcs	0~-0.1	0.3-2
CVS-2X010	20	SV-010	2 pcs	0~-0.1	0.06-0.3
CVS-2X020	40	SV-020	2 pcs	0~-0.1	0.06-0.3
CVS-2X025	50	SV-025	2 pcs	0~-0.1	0.06-0.3
CVS-2X040	80	SV-040	2 pcs	0~-0.1	0.06-1
CVS-2X063	126	SV-063	2 pcs	0~-0.1	0.3-2
CVS-2X100	200	SV-100	2 pcs	0~-0.1	0.3-2
CVS-2X160	320	SV-160	2 pcs	0~-0.1	0.5-2
CVS-2X250	500	SV-250	2 pcs	0~-0.1	0.5-2
CVS-3X100	100	SV-100	3 pcs	0~-0.1	0.5-2
CVS-3X160	480	SV-160	3 pcs	0~-0.1	0.5-2
CVS-3X250	750	SV-250	3 pcs	0~-0.1	0.5-2
CVS-3X300	900	SV-300	3 pcs	0~-0.1	0.5-2

Pump System Components Specification:



weblink: SV rotary vane vacuum pump, vacuum valeves, vacuum parts.

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