2025 VACUUM PUMP

Floating Scroll Pump, SVF

Scroll Pump, SP

Vane pump, VP1, VP2

Multi-Root, EV-A

Roots Blower, RP

Screw Pump, PS & PD

Turbo Pump, EBT

We looked across the universe to find the best performing pumps.

This is a priority of ours.

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(510) 498-8518 **www.vacproducts.com**

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Vacuum Products Corporation

Mission Statement

Committed to provide services that lead the industry in customer satisfaction, quality, delivery and cost. We thrive to satisfy the increasing demand of rapidly changing applications at reasonalble price.

One Stop Shopping

We offer a broad range of pumps from roughing to high vacuum. We have vacuum fittings, valves, gauges, feedthroughs, and manipulators. We also make custom manifolds and gas lines. You can build a complete system from our catalog.
For vacuum components, visit www.vacproducts.com

Custom Design

Technical support plays an essential role in serving our customers. We collaborate with customers to develop the solution that fits their requirements.
Custom design for manufacturing and cost reduction is part of our service.

Logistics

Our manufacturing facilities are located in USA, and Asia. We ship from any where to your destination to save time and money.

Application

Research & Development

- University
- Government Lab
- Space Simulation

Instrumentation

- Electron optics
- Metrology
- Mass Spec

Thin-film Deposition

- Glass / Web / Optics
- Data storage
- Surface coating

Leak Detection

- Automotive
- Refrigeration
- Aerospace

Industrial vacuum

- Metallurgy and furnace
- Heat treatment
- Laser

Food Packaging

- Biopolymer
- Shelf life

Biotechnology

- Sample preparation
- Research

Semiconductor

- Sputtering / Evaporation
- CVD / ALD / MBE
- Ion Implant
- Etch

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Dry Scroll Pump

For those who are on tight budget, we offer an alternative selection to solve your budget concern.

Based on two spiral cylinders, first one fixed and the second offset and orbiting against the first with an offset of 180°. Thus several crescent-shaped pockets of differing sizes are created. By means of an eccentric drive, the orbiting scroll is made to orbit about the fixed scroll, reducing the volume of the pockets and compressing gases from the outside towards the inside thereby pumping the gases from vacuum chamber.

0°(360°) gas suction

90° gas pressing

180° further compressing

270° discharging

SP series of Scroll pumps are available in sizes from 2.5 cfm to 43 cfm. This series offers the lowest initial investment. 10,000 hour life warranty. This series pump has same performance of TriScroll but at a lower cost. This is a generic pump, designed for customers who does not require the image of a known brand.

Technical Specification

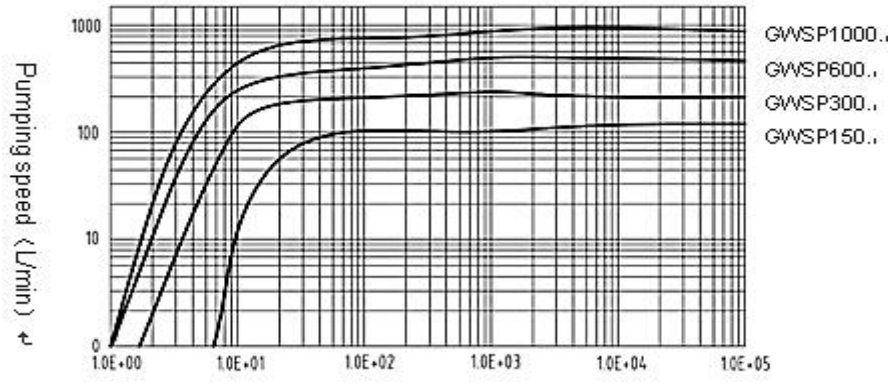
Model			SP75	SP150	SP300	SP600	SP1000
Pumping Speed	60 Hz	cfm	2.5	5.1	10.9	22.3	42.8
Ultimate pressure		Torr	≤7.5×10^{-2}	≤6.0×10^{-2}	≤1.9×10^{-2}	≤7.5×10^{-3}	≤7.5×10^{-3}
Noise Level		dB(A)	≤52	≤57	≤61	≤63	≤67
Leakage			0.75x10-3 std cc/ sec				
Max. Inlet/Exhaust Pressure		Atm	1.0 / 1.2				
Ambient Operation Temp.			5 C - 40 C				
Max. Water Treatment		G/h	50		60		
Motor 1 phase	Output	kW	0.15	0.25	0.55	0.75	---
	Voltage	V	110	110	110	110	---
	Frequency	Hz	60	60	60	60	---
	Speed	rpm	1710	1710	1730	1750	---
Motor 1 phase	Output	kW	0.15	0.25	0.55	0.75	---
	Voltage	V	220	220	220	220	---
	Frequency	Hz	50	50	50	50	---
	Speed	rpm	1425	1425	1440	1440	---
Motor 1 phase	Output	kW	0.15	0.25	0.55	0.75	---
	Voltage	V	230	230	230	230	---
	Frequency	Hz	50/60	50/60	50/60	50/60	---
	Speed	rpm	1710	1710	1710	1740	---
Motor 3 phase	Output	kW	---	0.37	0.55	0.75	1.5
	Voltage	V	---	380	380	380	380
	Frequency	Hz	---	50	50	50	50
	Speed	rpm	---	1400	1440	1440	1440
Inlet/Exhaust Flange			KF25/16	KF25/16	KF25/16	KF40/16	KF40/16×2
Dimensions		mm	350x210x245	430x250x280	492x268x324	530x312x343	580x360x400
Packing Dimension		mm	400x300x340	550x400x420	650x450x480	650x450x480	750x500x520
Net Weight		kg	13	18	32	38	52
Gross Weight		kg	21	27	42	50	65
Cooling Type			Air cooled				

Dry Scroll Pump

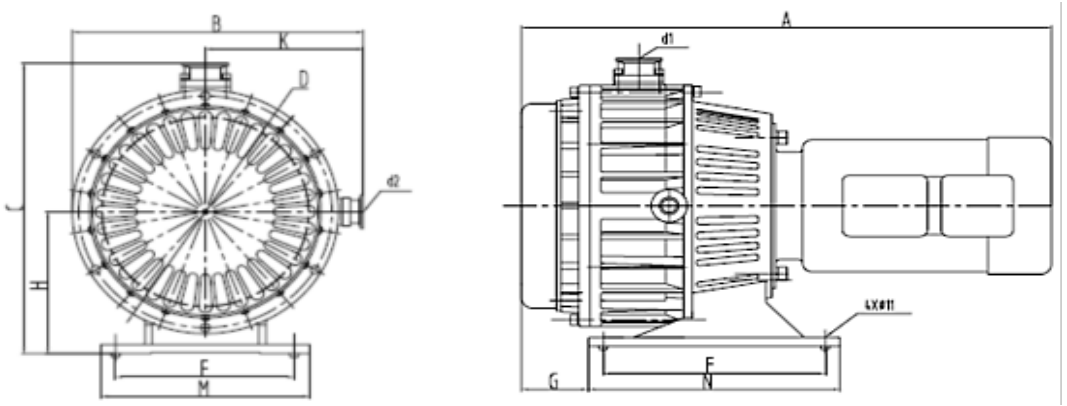
Performance curve

Inlet pressure (Pa)

Pressure-pumping speed relation curve



5.Connection



Model	A	B	C	D	E	F	G	H	M
SP150	430	250	280	220	214	109	86	130	155
SP300	490	290	340	267	252	145	101	201	192
SP600	520	316	360	291	252	160	93	175	206
SP1000	580	360	400	336	267	184	121	195	224

Advantage

1. Provide clean vacuum environment
   Provide oil free and clean vacuum vacuum environment.

2. Wider vacuum range, higher ultimate vacuum level, and higher pumping speed
   Pumping from atmosphere to ultimate vacuum level in seconds. Suitable for repeated switch on/off operation.

3. Low noise; less vibration; higher efficiency, low power consumption
   Continuous motion results in minimum pressure pulsation, less vibration and low noise. Inlet and exhaust are separated, gas pockets are efficiently sealed, ensures minimum gas leak.

"Floating" Scroll Pump

Operating principle

Consists of a fixed and a rotating scroll, same as the conventional Scroll. The difference is the fixed scroll "floats" with the rotating scroll. The two scroll touches each other very slightly through a dynamic balancer (controlable) which keeps the contact under a mild, and constant pressure.

The benefit is it has **No Tip Seal**.
It pumps moisture at a higher rate.

The major problem of a Scroll pump is the wearing of the Tip Seal.
The floating Scroll pump does not use Tip Seal. The wear is eliminated.
No replacement is necessary.

SVF Series

4 stanadard sizes:

SVF-5 (0.2 cfm), SVF-20 (0.7 cfm), SVF-50 (1.8 cfm) and SVF-100 (3.5 cfm).

The pump is 100% oil free and maintenance free. Very compact; ideal for portable equipment.
It is the prefer choice by military and widely used in medical field such as resperator for patients.
Common applications are analytical instrument, laboratory, backing pump or anywhere clean vacuum is needed.
Larger size pumps are available upon request.

Features and Benefits:

The oil-free floating scroll pump has fixed first scroll and spining second scroll that floats
Seals are dynamically balanced to a slight touch but in full contact.
This patented feature increases pumping speed for moisture at nearly no wear.
Life of pump is extremely extended without requireing seal change.

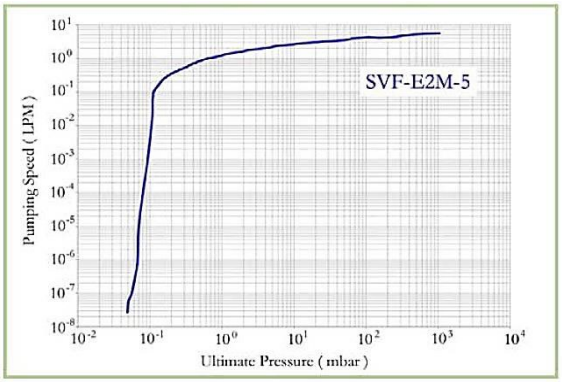
Conventional Scroll pump requires seal replacement after 6 month of running.
The Floating Scroll pump can run continuously for years without service requirement.

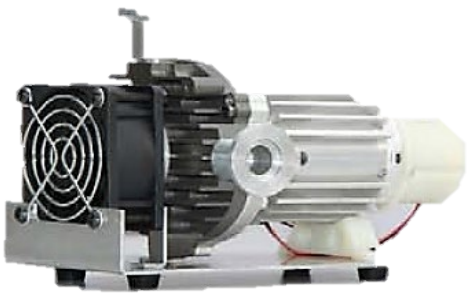
"Floating" Scroll Pump

Technical Data

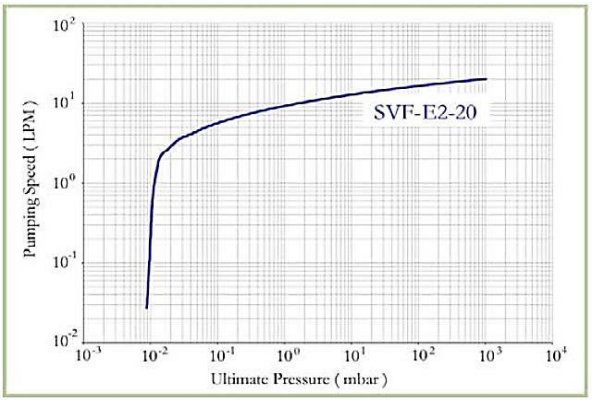
Model	SVF-E2M-5	SVF-E2-20	SVF-E1M-50	SVF-E2M-100
Ultimate Pressure	≤ 0.05 mbar (5 Pa)	≤ 0.01 mbar (1 Pa)	≤ 0.5 mbar (50 Pa)	≤ 0.05 mbar (5 Pa)
Pumping Speed	5 L/min (0.3 m3/h)	20 L/min (1.2 m3/h)	50 L/min (3 m3/h)	100 L/min (6 m3/h)
Power	15 W	70 W	95 W	200 W
Motor Type	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor	Brushless DC Motor
DC Voltage	12 or 24 VDC	24 VDC	24 VDC	24 / 48 VDC
AC Voltage (with adapter)	100-240 VAC	100-240 VAC	100-240 VAC	100-240 VAC
Max. Speed	3,600 RPM	4,500 RPM	5,300 RPM	4,000 RPM
Vapor Tolerance	Unlimited	Unlimited	Unlimited	Unlimited
Max. Inlet	Unlimited	Unlimited	Unlimited	Unlimited
Max. Outlet	1 barg	1 barg	1 barg	1 barg
Noise (OEM)	56 dB(A)	60 dB(A)	60 dB(A)	60 dB(A)
Noise (with case)		55 dB(A)	55 dB(A)	55 dB(A)
Weight (OEM1/2)	0.84 kg	2.1 kg /2.7 kg	1.0 kg /1.2 kg	5.4 kg
Weight (with base/case)	1.1 kg	4.5 kg	2.8 kg	6.8 kg
Dimension (OEM1/2)	150×88×85 mm	184×132×132 mm 243×132×132 mm	124×90×87 mm 189×116×110 mm	230×208×148 mm
Dimension (with base/case)	182×88×94 mm	294×200×165 mm	230×183×150 mm	325×191×160 mm
Inlet/Outlet Connection	G 1/8"	G 1/4"	G 1/4"	KF-25 / G 3/8”
Cooling System	Air-Cooled	Air-Cooled	Air-Cooled	Air-Cooled
Ambient	-40 to 50	-40 to 50	-40 to 50	-40 to 50

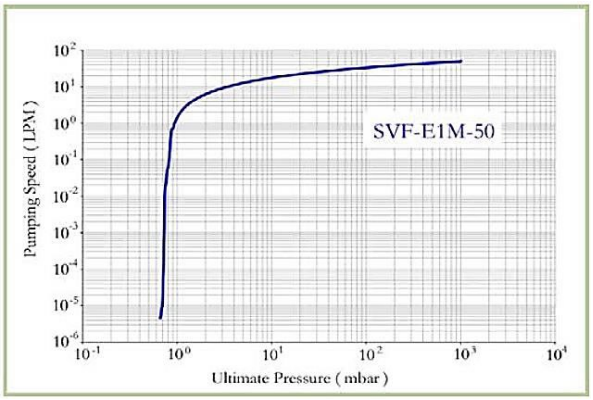
Pumping Speed Curves

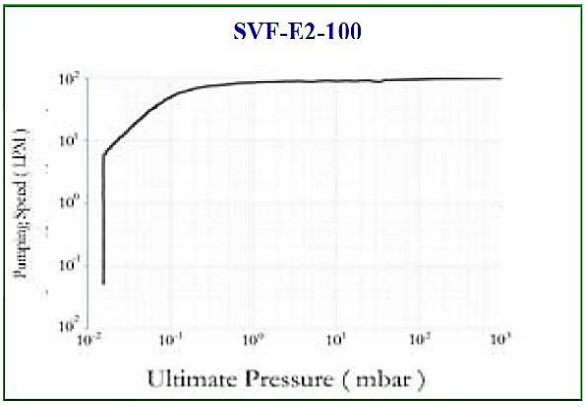




"Floating" Scroll Pump







Rotary Vane Pump

VP Series

VP Series pumps are rugged mechanical oil-sealed pumps with speeds ranging from 8 to 300 m3/hr (5 to 178 CFM). Compact and quiet, they feature advanced lubrication circuits, highly reliable to suit specific application. A built-in anti-suckback valve isolates the pump from the process during power interruptions, and keeps oil out of your system.
Vane pump has become industry's standard choice for laboratory and light industrial application. Known for its rapid pumping and ability to handle vapor, vane pumps are designed for reliable and long-term opeation. Single phase motors are equiped with thermal overload protection at no extra charge. Distinguished by high pumping speed even in low pressure ranges. Very quick pump-down time. It does not require regular maintenance other than oil change at service intervals.

Shipping includes: 1 litre of oil, KF25 center ring and O-Ring. Supplied at no extra charge. Fomblin oil, if required, must be purchased separately for PFPE pumps.

Application:

* Electron Microscopy (Surface Science)
* Vacuum oven & furnace
* Thin-film coating
* Vacuum Brazing
* Metrology and analytical
* Medical instrument
* Backing to Turbo pump
* Loadlock and transfer chamber
* Refrigeration & Freeze drying
* Glove box, Oven
* Gas bottle filling
* Automotive

Reliable system with anti suck-back protection

Every pump has protection device to prevent oil and air suck-back into the vacuum system if the pump stops while under vacuum. A variety of protection devices are used, depending on the pump size and cost, but emphasis is always placed on reliability and simplicity. When you use gas ballast on the pump, you must use a solenoid operated gas ballast control valve to prevent air suck-back.

Positive Pressure Oil Lubrication

The pumps incorporate a positive pressure oil lubrication system to ensure correct lubrication to prevent oil starvation with high gas loads.

An integral oil pump ensures that flow is adequately pumped throughout the stator/rotor assembly at all times. This oil lubrication level in the reservoir is less critical than other pump design.

Pump can operate at 50-70% of the maximum oil level . A sight glass allows convenient monitoring

Rotary Vane Pump

Gas Ballast

The pump has a gas ballast valve. The valve is used to introduce gas into the stator during the compression stage. This prevents vapor condensation inside the pump, dilutes and purges corrosive gas. Therefore, the use of gas ballast reduces oil degradation and pump corrosion.

Vane pumps are available in Single stage and Dual stage. Performance difference is in the vacuum

Single Stage Vane Pump

VP1 Series : VP1-10, VP1-20, VP1-25, VP1-40, VP1-63, VP1-100, VP1-160, VP1-250, VP1-300

Single Stage Vane pump is oil-sealed with pumping speed ranging from 6 CFM to 177 CFM. Compact and rugged designed. They feature advanced lubrication circuits with high reliability. This type of pump is commonly used in industrial application because of its high initial pump down and low cost.

Specifications

Model	Pump Speed	Ultimate pressure	In/Out port	Power	Noise	Oil	Water vapor	Water capacity
	cfm (m3/hr)	Torr	mm	kw	db	Litre	VP. Torr	Kg/hr
VP1- 10	6 (10)	1.5	G 1/2	0.37	69	1	30	0.15
VP1- 20	12 (20)	1.5	G 1/2	0.75	73	1	30	0.3
VP1- 25	15 (25)	1.5	G 1/2	0.75	73	1	30	0.3
VP1- 40	24 (40)	3.75×10^{-1}	G 1 1/4	1.5	65	1	30	0.4
VP1- 63	35 (60)	3.75×10^{-1}	G 1 1/4	1.5	65	2	30	35
VP1-100	59 (100)	3.75×10^{-1}	G 1 1/4	3	67	2	30	56
VP1-160	94 (160)	7.5×10^{-2}	G 2	4	70	5	30	141
VP1-250	147 (250)	7.5×10^{-2}	G 2	5.5	72	5	30	159
VP1-300	177 (300)	7.5×10^{-2}	G 2	5.5	74	5	30	176

Rotary Vane Pump

Dual stage Vane pump

VP2 Series : VP2-8, VP2-16, VP2-30, VP2-40, VP2-60, VP2-90,

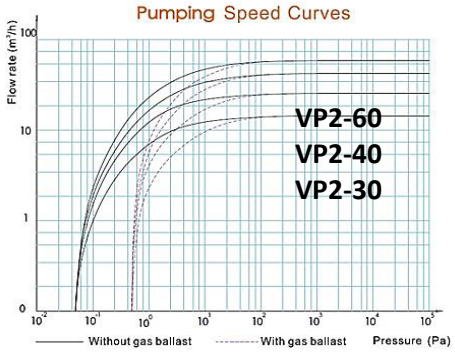
Dual Stage Vane pump is oil-sealed with pumping speed ranging from 5 CFM to 50 CFM.
Compact and rugged designed. They feature advanced lubrication circuits with high reliability.

Characteristics:

* 2 stage direct drive motor for any voltage (see specification)
* Gas ballast to keep oil clean and remove moisture and other vapor from condensing
* Anti-suck back valve to prevent oil back-streaming
* Single phase motor is equipped with thermal protection for safety
* Large, easy-to-see sight glass ensures proper oil level
* 18 months warranty for operating under clean environment
* Optional trap and oil mist eliminator
* Extremely quiet. Virtually vibration free
* Larger oil capacity keeps the pump cooler and reduce thermal degradation
* On / Off switch

Specifications

Model	ballast close	ballast open	Pump Speed	In/Out port	Power	Oil	Motor speed	Noise	Weight	Voltage
	Torr	Torr	cfm (m3/hr)	mm	kw	Liter	rpm	db	kg	
VP2-10	3.7×10^{-3}	3.7×10^{-2}	5 (10)	KF25/25	0.4	1.1	1440/1720	60	25	220V/ 380V
VP2-16	3.7×10^{-3}	3.7×10^{-2}	9 (14)	KF25/25	0.55	1.2	1440/1720	60	27	220V / 380V
VP2-30	3.7×10^{-3}	1.5×10^{-2}	18 (30)	KF40/40	1.5	2	1440/1720	60	63	3 ph/4 pole
VP2-40	7.5×10^{-3}	1.5×10^{-2}	24 (40)	KF40/40	1.5	2	1440/1720	65	65	3 ph/4 pole
VP2-60	7.5×10^{-3}	1.5×10^{-2}	35 (60)	KF40/40	2.2	3.4	1440/1720	65	87	3 ph/4 pole
VP2-80	7.5×10^{-3}	1.5×10^{-2}	50 (90)	KF40/40	3.7	3.4	1440/1720	65	101	3 ph/4 pole



Rotary Vane Pump

Optional Accessories:

1. Trap – minimize back streaming of oil vapor to vacuum chamber during power failure
2. Oil Mist Eliminator – keep oil mist off the exhaust port and recirculate back to reservoir
3. Angle valve – to keep pump under vacuum when chamber is vented for service

Dry Mechanical Pump, EV-A

This family of pumps are made by Ebara Technologies

Operating Principle

With two claw-shaped rotors turn in opposite direction inside the housing. Due to the shape of these claw rotors, the air or gas is sucked in, compressed and then discharged. The claw rotors do not come into contact with each other or with the cylinder in which they are rotating. Tight clearances between the claw rotors and the housing optimize the internal seal and porvide a consistently high pumping speed. A synchronization gearbox ensures exact synchronization of claw rotors.

The rotary claw operation principle reduces energy consumption considerably in comparison with conventional vacuum pumps so energy costs are reduced. Due to their near maintenance-free operation, a decrease in operating costs adds to the savings; no maintenance downtime occurs, no wearing parts or operating fluids need to be changed – only a gear box oil change is recommended after every 20,000 hours. When compared to conventional vacuum pump solutions, Mink claw vacuum pumps can save up to 60% on energy and operating costs.

The EV-A Series is a family of air-cooled, dry pumps that have industry-leading specifications. The family consists of the EV-A3 (9 cfm), the EV-A6 (21.6 cfm), the EV-A10 (36 cfm) and EV-SA20 (59 cfm) pumps. Typical applications include Load Locks, PVD Systems, Analytical Instruments and Electron Microscopes. These pumps are ideal for replacing wet pumps as well as Scroll type dry vacuum pumps.

EV-A pumps are manufactured by Ebara Technologies of Japan.

Features and Benefits:

* Load Locks
* Analytical Instruments (LCMS, ICPMS)
* Electron Microscopes
* Electron Microscopes
* PVD Systems
* Oxygen Plasma Systems

Applications:

* Small Air-Cooled Pump
* No-Contact Design
* No-Contact Design
* High Pumping Speeds at Atmosphere
* Highest Water Vapor Pumping of Any Air-Cooled Dry Pump
* UL, CE, and NRTL rated

Dry Mechanical Pump, EV-A

Model EV-A03

The Model EV-A03 air cooled dry pump offers high pumping speed (9 cfm) and high water vapor pumping (250 g/hr) when used with the optional gas ballast valve. The pump is available with optional casters/levelers.

Specifications

Pumping Speed, l/min	Max	250
	Atmospheric Open	150
Ultimate Pressure, Pa	Gas Ballast: Off	1
	Gas Ballast: On	10
Max. Inlet Pressure		Atmospheric Pressure
Max. Water Vapor Pumping Rate (at Gas Ballast: On), g/hr		250
Connection	Gas Inlet	NW25
	Gas Outlet	NW25
Approx. Power at Ultimate Pressure, kW		0.34
Weight	kg	23
	lbs	51
Power Supply	[1 Phase/100V model]	1 Phase, 100-115V, 50/60Hz
	[1 Phase/200V model]	1 Phase, 200-240V, 50/60Hz
	[3 Phase/200V model]	3 Phase, 200-240V, 50/60Hz

Model EV-A06

The Model EV-A06 air cooled dry pump offers high pumping speed (21.6 cfm) and high water vapor pumping (350 g/hr) when used with the optional gas ballast valve. The pump is available with optional casters/levelers.

Specifications

Pumping Speed, l/min	Max	600
	Atmospheric Open	480
Ultimate Pressure, Pa	Gas Ballast: Off	1
	Gas Ballast: On	10
Max. Inlet Pressure		Atmospheric Pressure
Max. Water Vapor Pumping Rate (at Gas Ballast: On), g/hr		350
Connection	Gas Inlet	NW40
	Gas Outlet	NW25
Approx. Power at Ultimate Pressure, kW		0.59
Weight	kg	54
	lbs	119
Power Supply	[1 Phase/100V model]	1 Phase, 100-115V, 50/60Hz
	[1 Phase/200V model]	1 Phase, 200-240V, 50/60Hz
	[3 Phase/200V model]	3 Phase, 200-240V, 50/60Hz

Dry Mechanical Pump, EV-A

Model EV-A10

The Model EV-A10 air cooled dry pump offers industry leading specifications in an air cooled dry pump. The pump comes standard with four lockable casters/levelers.

Specifications

Pumping Speed, l/min	Max	1000
	Atmospheric Open	800
Ultimate Pressure, Pa	Gas Ballast: Off	1
	Gas Ballast: On	2
Max. Inlet Pressure		Atmospheric Pressure
Max. Water Vapor Pumping Rate (at Gas Ballast: On), g/hr		500
Connection	Gas Inlet	NW40
	Gas Outlet	NW25
Approx. Power at Ultimate Pressure, kW		1.1
Weight	kg	72
	lbs	159
Power Supply	[1 Phase/100V model]	------
	[1 Phase/200V model]	1 Phase, 200-240V, 50/60Hz
	[3 Phase/200V model]	3 Phase, 200-240V, 50/60Hz

Model EV-SA20

The Model EV-S20 pump is engery efficient vacuum pump for clean to light duty processess such as Load Lock, SEM, PVD, Ashing, Ion Implant and Etch. It has a pumping speed of (59 CFM) with an ultimate pressure as low as 3 mTorr. Options include: nitrogen purge, Niresist (Nickel alloy) to prevent corrosion and idel mode allows the tool to send a remotely controlled signal to save additional energy.

Specifications

Pumping Speed, l/min	Max	1670
	Atmospheric Open	
Ultimate Pressure, Pa	Gas Ballast: Off	3
	Gas Ballast: On	5
Max. Inlet Pressure		Atmospheric Pressure
Max. Water Vapor Pumping Rate (at Gas Ballast: On), g/hr		100
Connection	Gas Inlet	NW40
	Gas Outlet	NW40
Approx. Power at Ultimate Pressure, kW		0.45
Weight	kg	65
	lbs	143
Power Supply	[1 Phase/100V model]	------
	[1 Phase/200V model]	1 Phase, 200-240V, 50/60Hz
	[3 Phase/200V model]	3 Phase, 200-240V, 50/60Hz

Dry Screw Vacuum Pump

Screw Pump

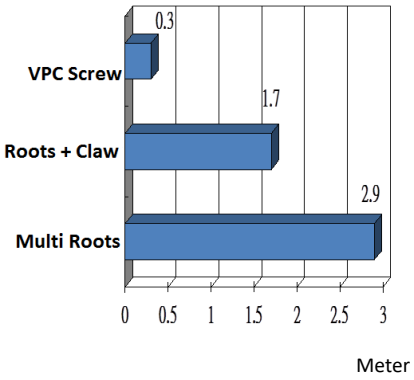
Thin-film, vacuum industry has been looking for a pump that is clean (oil free), long lasting and universally applicable to all processes such as Etch, CVD and PVD. Our Dry Screw Pump is designed to do just that.

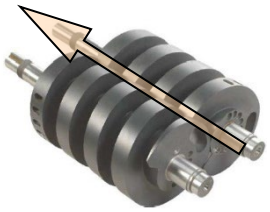
Operating principle

Dry Screw Pump consists of precision-grind screws rotors that rotates in opposite direction. The rotors makes no contact, therefore no need for lubrication. The pump is suitable for clean as well as harsh environment. It has the shortest gas discharge path which makes this pump more efficient than any other style of dry pump available on the market.

Unlike Scroll pump which deteriorates with use, screw pump maintains vacuum integrity year after year without needing service. Cost of ownership is lower than Scroll Pump. We produce more than 60,000 screw rotors each year.

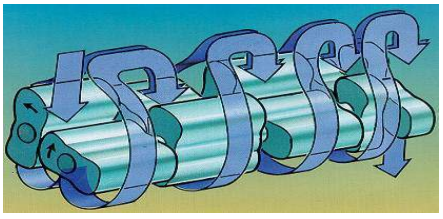
VPC pump is built with superior technology to achieve excellent vacuum performance and low running costs. The highly intelligent dry pump is ideal for replacing wet pumps as well as Scroll Pumps.





Application:

* Vacuum Coating
* Vacuum Oven
* Thermal Process
* Biotech
* Pharmaceutical
* Chemical
* Semiconductor
* TFT/LCD, LED
* Solar Cell
* Touch Panel
* Metallurgical
* Plasma processess
* Drying Process
* Degas



Roots + Claw

Screw pump sizes range from 170 CFM to 5,100 CFM

Dry Screw Vacuum Pump

FEATURES AND BENEFITS

* Environment friendly – no contaminated oil, no waste
* Applicable to all processes such as Etch, CVD and PVD
* Resistant to hash condition
* Short gas path – less contamination
* Runs well under unstable power
* Easy service, quick access to all service points
* High uptime, high throughput, high MTTR (mean time to repair)
* No wear, maintains vacuum integrity without degradation
* Low COO, long life, low upfront cost, low maintenance
* Sizes range from 57 CFM to 1,772 CFM

Screw pump Series: PS, PD

PS: Standard single-stage pump, water cooled motor **PSE:** Air cooled moter

PD: Low energy dual-stage pump. water cooled motor **PDE:** Air cooled moter


PS Series Screw Pump


PD Series Screw Pump

Heat exchanger is available (optional) as an integral part of cooling system at minimal cost
Explosion-proof motor is available upon request; used for Pharmaceutical & Chemical application

PS Screw Pump Model
Single stage

Model #	Screw	Booster
PS80	PS80	----
PS160	PS160	----
PS180	PS180	----
PS602	PS80	PR600
PS902	PS160	PR900
PS1302	PS180	PR1300
PS1802		PR1800

PD Screw Pump Model
Dual stage

Model #	Screw	Booster
PD120	PD120	----
PD300	PD300	----
PD500	PD500	----
PD702	PD120	PR600
PD1902	PD300	PR1800
PD2202	PD300	PR3000
PD2602	PD500	PR3000
PDE3012	PDE800	PR3000

E: indicates air-cooled motor

Dry Screw Vacuum Pump

Pump type: **A, H, G**

Pump Type	Pump	Controller	N2 heater	Air cool Kit	Inverter
A	x	x			1 or 2
H	x	x	x		1 or 2
G	x	x		x	1 or 2

Coating Type: **D, N, H, C**

Coating Type	Coating Material	Clean Process	Corrosive Process	Abrasive Process	Sticky Process
D	Defric	x			
N	Ni	x	x		
H	Ni-Teflon	x	x	x	
C	NMC	x	x	x	x

NMC: Nano Modified Ceramic

Part number system: **Pump model # -- Type -- Coating material -- Inverter --Special**

Example: PS602 -- HN1
PS80 pump + PR600 Booster + Advance controller + N2 heating + Ni coating + one Inverter

PS DRY SCREW PUMP

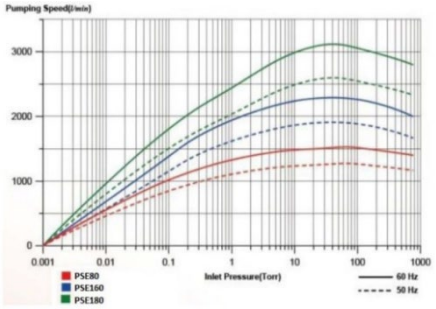
PS Standard Series (1600 - 21000 L/min)

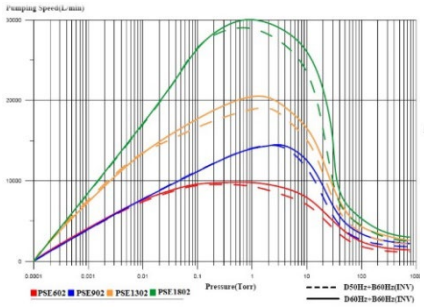
PS series pump down to an ultimate vacuum of 7.5 x 10^{-4} Torr. PS is robust and designed to work under harsh environment. The cost of ownership is lowest among competing technologies. You get all the reliability and performance for the processes.

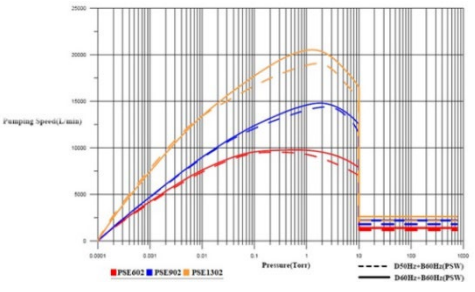
Technical Data for PSE Series Dry Vacuum Pump
Specification

Model		Unit	PSE80	PSE160	PSE180	PSE602	PSE902	PSE1302	PSE1802
Pumping Speed		L/min	1300/1600	2150/2600	2500/3000	8300/10000	12500/15000	17500/21000	25000/30000
		m^2/hr	80/96	130/156	150/180	500/600	750/900	1050/1260	1500/1800
		CFM	47/57	77/92	88/106	294/353	441/530	618/742	883/1060
Ultimate Pressure		Torr	≤ 7.5 x 10^{-3}			≤ 7.5 x 10^{-4}			
Motor	Voltage	V	220~380 (50/60 Hz)						
	Rated Power	kW	3.75	5.6	5.6	3.75+3.75	5.6+3.73	5.6+5.6	5.6+5.6
Connection	Inlet		NW50			ISO100		ISO160	
	Outlet		NW40						
N2	Pressure	Mpa	0.05						
	Dilute Flow	SLM	0~60 (Process Dependent)						
	Sealing Flow	SLM	6~8						
Dim	L x W x H	Inch	51x20x22	51x20x23	51x20x23	51x20x31	51x20x32	51x20x34	55x20x34
Weight		Lbs	662	750	805	1004	1158	1267	1235
Noise		dB(A)	<68	<70	<70	<70	<70	<70	<70
Interface		mbar l/s	SEMI E73-0299						
Operation Temp.		°F	41°F~104°F						
Operation Moisture		RH	≤ 90%						

PS Pumping Speed Curve | **PS Pumping Speed Curve (With Inverter)** | **PS Pumping Speed Curve (With Switch)**







Dry Screw Vacuum Pump

PD DRY SCREW PUMP

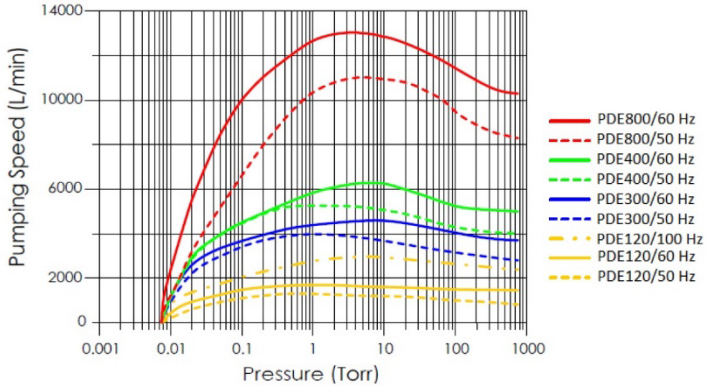
PD Series (Energy Saving, 2000 - 13330 L/min)

PDE series sets new benchmark in high-energy efficiency. It is environmentally friendly, and with low power consumption. PDE series give you all the reliability and performance you want with less utilities cost.

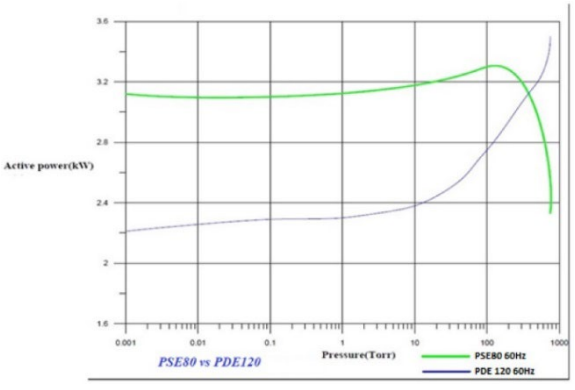
Technical Data for PD Series Energy Saving Dry Vacuum Pump
Specification

Model			Unit	PDE120	PDE300	PDE500
Pumping Speed			L/min	1300/2000	4500/5500	6950/8333
			m3/hr	80/120	270/330	417/500
			cfm	47/70	160/195	245/294
Ultimate Pressure			Torr	≤ 7.5 x 10^{-3}		
			mBar	≤ 1 x 10^{-2}		
			Pa	≤ 2		
Air-cooled Motor	Frequency		Hz	50/60		
	Voltage		V	220/380/440±5% (3Phase) 50/60Hz		
	Rated Power		kW	3.73	7.5	15
Connection		Inlet		NW50	ISO63	ND80
		Outlet		NW40		ND50
Cooling Water	Min. Flow		L/min	3		
	Max Pressure		kg/cm2	4		
	Pressure Dif		kf/cm2	1		
	Temp.		°F	64°F ~ 77°F		
	Connection			RC 38"		RC 1/2"
N2	Pressure		Mpa	0.05		
	Purge Flow		SLM	6~60		12~150
	Connection			Swagelok 1/4"		Swagelok 3/8"
Dim	L x W x H		Inch	46x21x24	54x23x24	72x31x30
Weight			Lbs	616	770	1907
Noise			dB(A)	< 70	< 72	< 80
System Max. Leak-rate			mbar l/s	1X10-5		
Operation Temp.			°F	41°F ~ 104°F		
Operation Moisture			RH	≤ 90%		
Interface				SEMI E73-0299		

PD Series Pumping Speed Curves

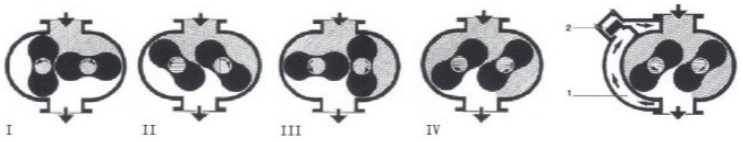


PD & PS Series Power Comsumption Curves



Rotary Roots Blowers

RP Series Roots Blower



Principle of Operation

Two symmetrically shaped impellors rotate inopposite directions inside the pump housing.
Roots pumps are used where great volumes have to be pumped. In combination with backing pumps, which compress against the atmosphere, these pumps are capable of improving the attainable ultimate pressure of a pump system by a factor of 10. With two Roots vacuum pump stages and a corresponding backing pump it is possible to attain pressure in the range down to 10-5 mbar (0.75x10-5 Torr).

Due to the non-contact rotation of the impellers, Roots vacuum pumps are able to run at higher speeds. Thus a high pumping speed is obtained with a relatively small size pump. Pumping speed in excess of 1000 m3/h (589 cfm) can only be attained with Roots pumps. When selecting the right kind of backing pump it will be possible to pump large quantity of gas in connection with smaller backing pumps. Energy consumption is much less compared to a single backing pump offering the same pumping speed.

The pressure difference between the inlet side and outlet side of roots pump are limited. RP series roots pump adopts a bypass valve. When pressure difference reaches to a certain figure, the bypass valve opens automatically. Some air volume from the outlet side flows to the reverse direction of inlet side through the bypassvalve, which reduce the operational load of roots pump and backing pump greatly in the condition of high pressure system.

RP series vacuum pump and backing pump start at same time to avoid the overload for both of them.

Universal voltage motors, reduced capital and operating costs. Air cooled motors is standard that run quietly with minimum vibration. Water cooled motor is optional.

Important cost savings

When you use RP mechanical booster pumps, you save money on installation and operation. Your capital costs are reduced as you do not need valves, by-pass lines and pressure switches, and you can use a smaller front-stage pump than with conventional drive booster pumps.
Operating at relatively low pressures, the mechanical booster pump is not exposed to the same concentrations of corrosive process media as is thebacking pump, which makes it reliable.

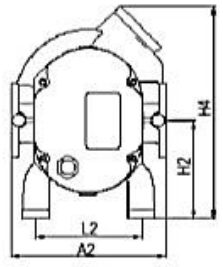
Rotary Roots Blowers

Advantages

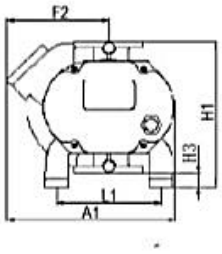
* Compact structure; easy to install horizontally or vertically
* Dynamically balanced, low vibration and low noise
* Pumps non-condensable gases
* Quick start and high pumping speed
* Low energy consumption and low maintenance
* By-pass valve offers overload protection and runs reliably
* Reduced capital and operating costs
* Can operate continuously at all pressures when used with a backing pump
* Fast pump down of chamber vacuum. Pump down times cut by up to 50%

Application

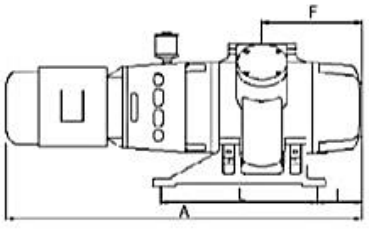
* Freeze drying in Chemical, food and textile industry
• Semiconductor processing
• Vacuum distillation
• Vacuum packaging
• De-gassing
• Thin film coating
• Vacuum metallurgy
• Low density wind tunnels
• Space simulation
* CO2 Laser



立式安装/Vertical Installation



卧式安装/Horizontal Installation



Dimensions	A	A1	A2	H1	H4	L	L2	F
RP150	670	300	290	285	348	355	194	165
RP250	740	300	290	285	330	420	185	209
RP500	845	395	316	350	446	370	218	236
RP1000	1080	495	370	419	553	510	240	301
RP2000	1236	642	460	530	760	740	292	370

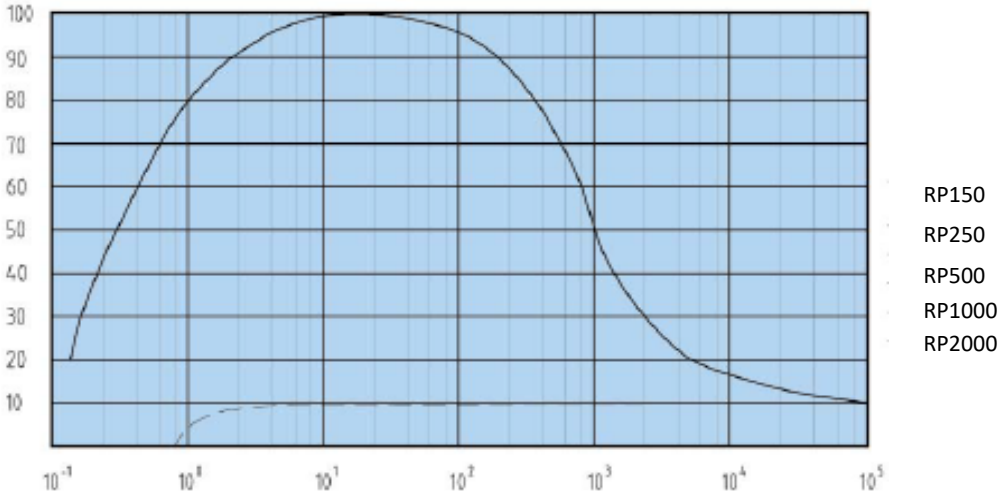
Rotary Roots Blowers

Dimensions	F2	H3	H2	I	d	S	N
RP150	180	5	168	37	70	M12	130
RP250	180	5	160	37	70	M12	130
RP500	238	35	207	106	70	M12	130
RP1000	302	49	252	139	100	M16	170
RP2000	410	70	351	154	150	M16	225

RP Specification：

ITEMS	Units	RP-150	RP-250	RP-500	RP-1000	RP-2000
Pumping speed	m^3/h (cfm)	153 (90)	253 (149)	505 (297)	1000 (589)	2050 (1207)
Ultimate pressure	Torr	$3.75x\ 10^{-4}$				
Extreme full pressuer	Torr	$3.75x\ 10^{-3}$				
Max.Differential pressure	Torr	60				
In and out of caliber	mm	65	65	65	100	150
Zero flow compression	max	≥35	≥35	≥40	≥40	≥50
Noise	Db(A)	63	63	63	68	75
Motor power	kW	1.1	1.1	2.2	4	7.5
Motor synchronous speed	r/min	3000				
Cooling model		natural air cooling				
Weight	kg	90	100	155	233	465
Recommend backing pump models		X-63, 2X-8	X-100, 2X-15	X-160, 2X-30	X-302, 2X-70	X-630, two2X-70

Pump Curve



Dotted line represents the backing pump's pump speed at 10%

Turbo Pumps, EBT, EMT

Innovative Technology - Ceramic-Bearing

Model EBT

Model EBT are mechnical-bearing, compound turbomolecular pumps which compliment line of Model EMT mag-lev turbomolecular pumps. Model EBT pumps are highly efficient, cost effective solutions to your high vauum pumping requirements. Model EBT compound turbomolecular pumps offer an extremely rugged, mechnical bearing design which provides clean, reliable vacuum generation for high tech manufacturing. Typical applications include semiconductor, thin film, photovoltaic, and analytical instruments. Model EBT of compound turbomolecular pumps can be mounted in any orientation. These pumps offer high pumping speed and high, light gas compression, making them ideal for UHV and analytical systems.

EBT70

EBT240

Features and Benefits

* Rugged Bearing Design Ideal for Mobile Applications
* High Pumping Speeds
* High Compression Ratios for Light Gase
* Fast Starts and Stops
* Quick Venting (No Vent Pulsing)
* Fan or Water Cooling
* ISO or Conflat (CF) Flanges
* Integrated Controller (Select Models)

Applications

* Surface Treatment
* Analytical Instrument Lamps
* Electron / X-Ray Tubes
* Ion / EB-Source
* Wafer Bonding
* Sputter
* Glass / Film Coating
* Exhaust Carts

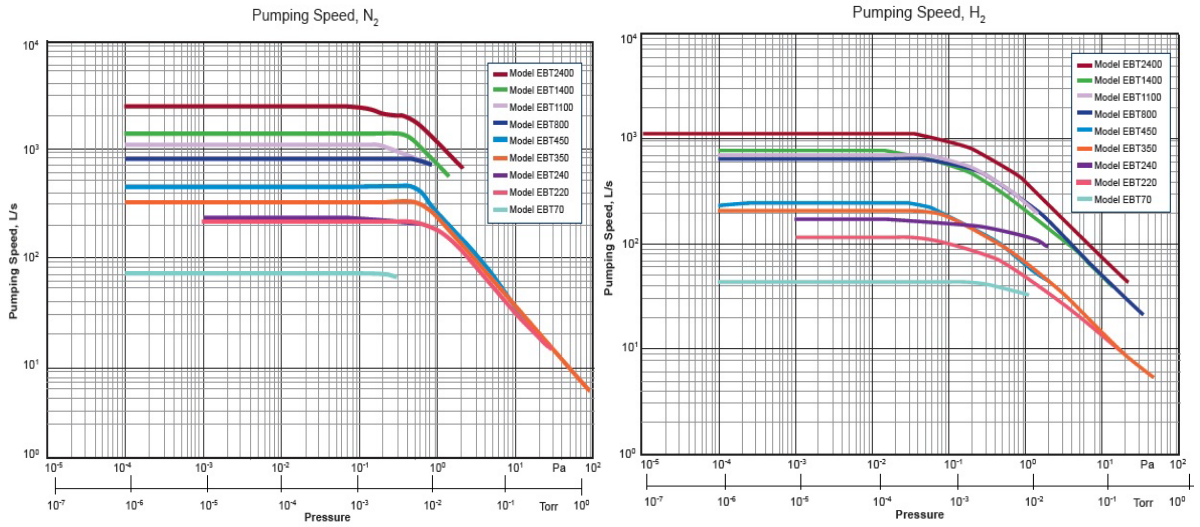
Options

* Natural Air or Water Cooling
* Vent Valve Kit
* Nitrogen Purge
* Install Kit (Valves, etc.)
* Isolation Valves

Specifications

Model			EBT70	EBT220	EBT240	EBT350	EBT450	EBT800	EBT1100	EBT1400	EBT2400
Pumping Speed, L/s		N_2	75	220	240	350	450	820	1100	1400	2400
		H_2	45	100	160	210	240	650	720	750	1100
Compression Ratio		N_2	1×10^8								
		H_2	1.0×10^5	4.0×10^2	4.0×10^4	2.0×10^3		1.0×10^4	4.3×10^3	1.4×10^4	
Ultimate Pressure	CF	Pa	$< 1 \times 10^{-7}$	$< 1 \times 10^{-6}$	$< 5 \times 10^{-7}$	$< 1 \times 10^{-6}$					-
		Torr	$< 7.5 \times 10^{-10}$	$< 7.5 \times 10^{-9}$	$< 3.8 \times 10^{-10}$	$< 7.5 \times 10^{-9}$					-
	ISO-R	Pa	$< 5 \times 10^{-7}$	$< 1 \times 10^{-6}$							
		Torr	$< 3.8 \times 10^{-9}$	$< 7.5 \times 10^{-9}$							
Recommend Backing Vacuum Pump		L/min	> 25	> 80				> 250			
		CFM	> 0.88	> 2.85				> 8.80			
Startup Time		min	2.0 - 2.5	1.0 - 1.2	5.5 - 6.0	2.0 - 2.5		7.0 - 9.0		5.5 - 7.0	5.0 - 7.0
Cooling Type			Air (Fan) / Convection	Air (Fan) / Water							
Weight	CF	kg	5.0	8.0	10.5	9.0	10.0	27.0	28.0	30.0	-
		lb	11.0	17.6	23.1	19.8	22.0	59.5	61.7	66.1	-
	ISO-R	kg	3.0	5.8	7.3	6.0	7.0	26.0	27.0	29.0	45.0
		lb	6.6	12.0	16.1	13.0	15.4	57.3	59.5	63.9	99.2

Performance Curves



FS (Float Suspension) Turbo Pump

New generation pump based on **"Float Suspension"** technology.
Best performance in its class; backed by Agilent quality program.

Cantilever turbine is dynamically balanced
Perfectly suited for Metrology and Sputtering
More tolerrant to moisture or dust
Optimized thermal design

Academia and Research
Optimized for Hydrogen compression. Unmatched in its class in performance

Surface Analysis
Low Vibration, low noice and high stabiility. Best choice for electron microscopes

Analytical
High throughput and optimized for light gases. Perfectly suitable for use in analysis

Industrial
Dry and clean pumping. Suitable for demanding sputtering application

Features and benefits
Proven robustness and reliability.
Reduced cost of ownership and down time
Operate in any position
Noice: < 40-43 dba
2 years warranty

	pump speed, L/S		pressure, Torr	Inlet Flange	Outlet flange
TP-FS84	36-67		3.75 x 10-10	KF40, CF2.75, ISO63, CF4.5	NW16
TP-FS304	220-255		1 x 10-10	CF6, CF8, ISO100, ISO160	NW16
TP-FS404	320-470		1 x 10-10	ISO100, ISO160, CF6	NW25
TP-FS704	480-660		1 x 10-10	ISO160, CF8	NW25
TP-FS804	485-720		1 x 10-10	ISO200, ISO250, CF10	NW25, NW40

Please inquire about detail spec. and pumping curve

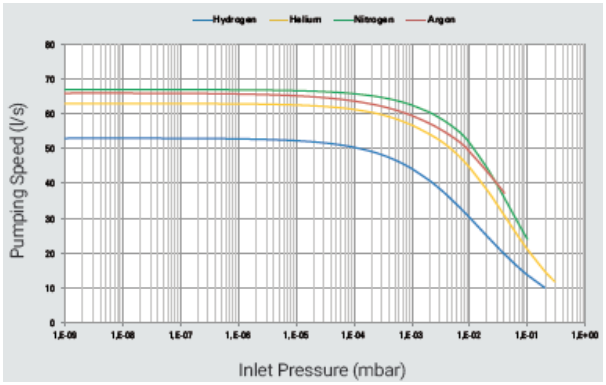
Turbo Pumps, EBT, EMT

Specification

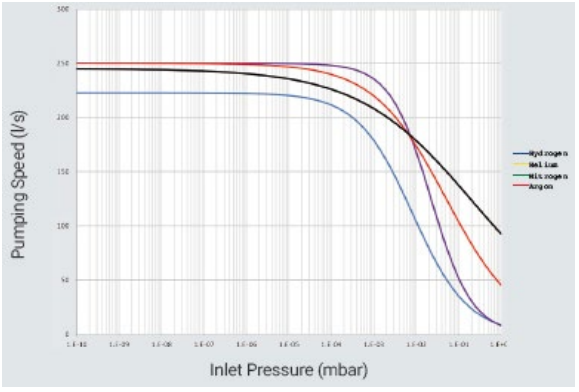
		FS-84	FS-304	FS-404	FS-704	FS-804
Pump speed, L/s	N2	67	250	355	680	720
	H2	53	220	445	480	485
Compression	N2	1x 10 (11)	1x 10 (11)	1x 10 (11)	1x 10 (11)	1x 10 (11)
	H2	5x 10 (4)	1.5x 10 (6)	3x 10 (6)	3x 10 (6)	3x 10 (6)
Ult. Pressure (Torr)		3.75x 10-10	1x 10-10	1x 10-10	1x 10-10	1x 10-10
Cooling		air / water	air / water	air / water	air / water	air / water
Startup time		< 2 min	< 3 min	< 5 min	< 5 min	< 5 min
Noice (dba)		<40	<50	<43	< 43	< 43
Wt. (lb)		7.7	9.7	48.5	51.9	49.7

CE, C-CSA-USA, RoHS Compliant

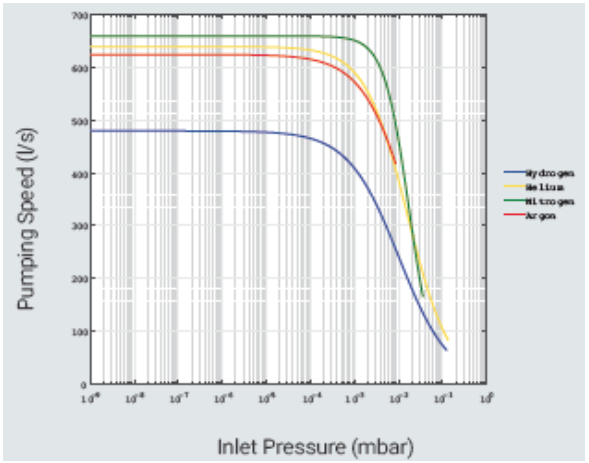
Pump Curve



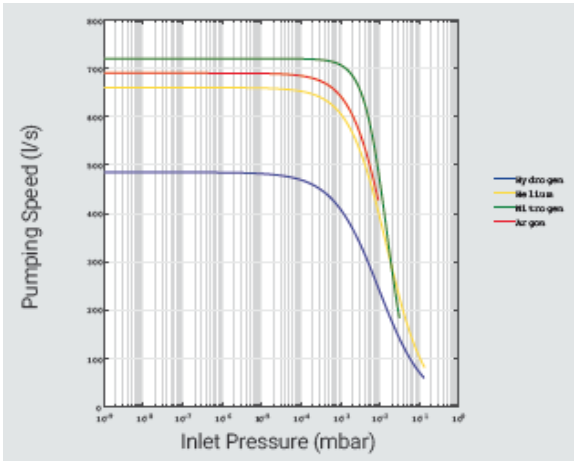
FS-84



FS-304 / 404



FS-704



FS-804

Oil Mist Filters and Traps

Compact, Closed Oil Mist Filters

EE/SV Series

Features and Benefits :

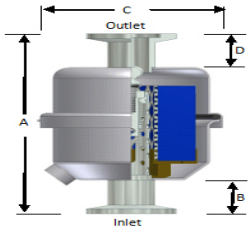
* Captures oil fog, mist or smoke from exhaust of oil flooded vacuum pumps
* Seamless drawn housings – no welds to rust or vibrate apart
* Rugged all steel construction
* Compact low profile design
* Easy field maintenance

Technical Specifications:

* 03 micron media; 99.97% efficiency
* Continuous operating temp: 68˚F (20˚C) to 180˚F (80˚C)

Options:

* Additional ISO flange connections
* Additional coating options available
* Side outlet configuration
* Drain for SV Series



EE Series Specification

Inlet	Outlet	CFM	P/N	P/N	A	B	C	D	Wt (lb)
KF16	KF16	8	EE-GL915-KF16		4.69	0.88	3.25	0.88	1.2
KF25	KF25	8	EE-GL915-KF26		4.69	0.88	3.25	0.88	1.2
KF25	KF25	20	EE-PSG925-KF26		7.75	0.88	5.25	0.88	5

*** Back pressure valve to release element at 7.35 psi differential for pump safety**

*** 1/8" port for oil drain**

SV Series Specification

Inlet	Outlet	CFM	P/N	A	B	C	D	Wt (lb)
KF16	KF16	8	SV-GL915-KF16	4.69	0.88	3.25	0.88	1.20
KF25	KF25	8	SV-GL915-KF25	4.69	0.88	3.25	0.88	1.20
KF25	KF25	20	SV-PSG925-KF26	7.75	0.88	5.25	0.88	5.00

*** Same dimension as EE Series. Without valve or external drain**

Oil Mist Filters and Traps

Compact, Oil Mist Eliminator

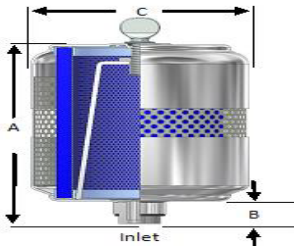
EF Series: **1/2" - 1 3/4", NW16 - NW40**

Features and Specifications:

* Captures oil fog, mist or smoke from exhaust of oil flooded vacuum pumps
* Easy thumbscrew access for maintenance
* Steel construction with Nickel plated finish
* Seamless drawn housings – no welds to rust or vibrate apart
* Minimum 99.97% D.O.P. on 0.3 micron particles Vacuum Coating
* Temp (continuous): min 40°F (4.4°C) max 220°F (104°C)

Applications and Equipment :

* Vacuum Furnaces & Ovens
* Vacuum Freeze Drying & Outgassing
* Custom Vacuum Pumping Systems
* Vacuum Drying
* Vacuum Metallizing
* Vacuum Coating
* Refrigeration and Air Conditioning evacuation service
* Semiconductor Industry
* Laboratory Industry
* Autoclaving, Sterilization
* Electronic tube and light bulb evacuation



Options:

* ISO flange connections
* Special connections
* Drain Back Design Available on Selected Models

Specification

ISO Flg Vacuum Filters, CSL Series (Electorless Nickel Finish, SS Fittings)
(Compact Inlet "L" Style Vacuum Filters with ISO-NW Flanges)

Inlet	Outlet	CFM	P/N	A	B	C	Wt (lb)
KF16	KF16	4.5	EF-FG5-KF16	4.50	0.88	2.50	0.60
KF25	KF25	4.5	EF-FG5-KF25	4.50	0.88	2.50	1.40
KF25	KF25	24	EF-FG10-KF25	9.25	2.13	5.13	3.50
KF40	KF40	44	EF-FG20-KF40	7.50	2.13	10.25	7.00
KF40	KF40	55	EF-FG24-KF40	9.25	2.13	10.25	9.00

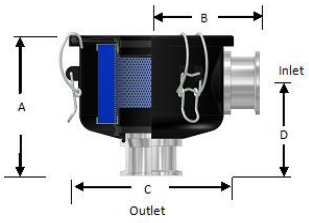
Features :

* Temp (continuous): min -15°F (-26°C) max 220°F (104°C)
* Positive sealing O-ring seal system
* Carbon steel construction
* Seamless drawn housings
* Large dirt holding capacity and easy field cleaning, especially when mounted horizontally or inverted
* Vacuum leak rate: Typecally 1x10-5mmHg (1x10-5mbar-L/sec)
* Stainless steel ISO flanges
* Electroless nickel finish

Oil Mist Filters and Traps

Applications:

* Leak Detection
* Medical
* Vacuum Pump-Rotary Piston
* Vacuum Pump-Rotary Vane
* Scroll Dry Pump
* Backstreaming-Protect the system from pump fluid or particulate migration
* Prevent dry scroll tip seal migration
* Laser technology
*Vacuum coating and lamination



Specification

Inlet	Outlet	CFM	P/N	A	B	C	D	Wt (lb)
KF16	KF16	8	CLS-824-KF16	3.88	2.63	3.75	2.25	1.20
KF25	KF25	8	CLS-824-KF25	3.88	2.63	3.75	2.25	1.20
KF25	KF25	20	CLS-842-KF25	4.38	3.38	5.75	2.75	3.00
KF40	KF40		CLS-842-KF40	4.38	3.38	5.75	2.75	3.00
KF40	KF40		CLS-848-KF40	7.19	4.63	7.38	5.00	5.00

Vacuum Gauge

Digital Compact Vacuum Meters / Data Loggers

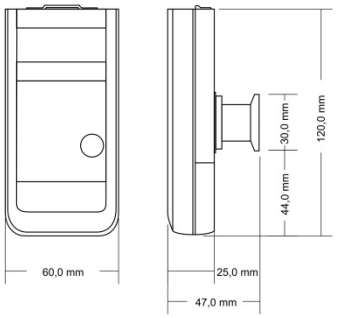
Thyracont has been developing and manufacturing vacuum measurement instruments in Germany for more than 40 years. Our company provides the world's end-users and original equipment manufacturers of vacuum pumps and vacuum process equipment with innovative vacuum measurement instrumentation.

VD81 Compact Vacuum Meter ● Piezo ● 1600 to 1 mbar

* Chemically resistant ceramic sensor with FKM sealing
* Min/Max Memory: Storage and display of high and low values
* Up to 5000 h battery life
* Data logger functionality: Save up to 2000 measurements in the vacuum meter
* High repeatability, excellent long term stability
* Pressure units mbar, Torr, hPa
* Measurement range: *1600 – 1 mbar (1200 – 1 Torr)*
* Automatic switch off or continuous operation
* Vacuum connection by small flange, G1/4 female thread or screw in hose nozzle

VD83 Compact Vacuum Meter ● Pirani ● 100 to 5e-4 mbar

* Temperature compensated, metal sealed Pirani sensor with durable helix filament
* High accuracy, excellent repeatability
* Min/Max memory: Storage and display of high and low values
* Gas correction factors for correct pressure readings
* High battery life due to clocked measurement
* The sensor is well protected against condensing solvents
* Pressure units: mbar, Torr, hPa
* Measurement range: *100 – 5e-4 mbar (75 to 5e-4 Torr)*
* Battery conserving auto-off mode or continuous operation

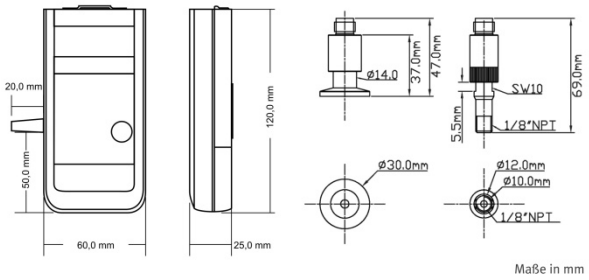


Vacuum Gauge

Digital Compact Vacuum Meters / Data Loggers

VD84 Compact Vacuum Meter ● external Pirani ● 100 to 1e-3 mbar

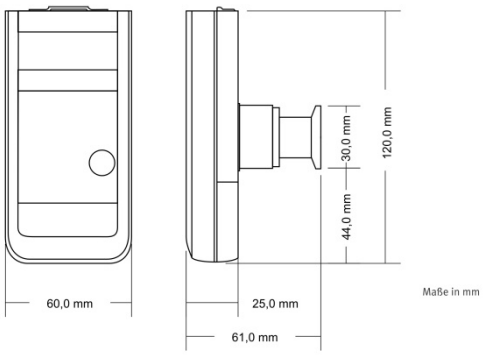
* Temperature compensated Pirani sensor with durable helix filament
* Min/Max memory: Storage and display of high and low values
* Excellent reproducibility
* Gas correction factors for correct pressure readings
* Long battery life due to clocked measurement
* The sensor is well protected against condensed solvents
* Automatic switch off or continuous operation
* Pressure units mbar, Torr, hPa
* Measurement range: *100 – 1e-3 mbar (75 – 1e-3 Torr)*



Digital Compact Vacuum Meters / Data Loggers

VD85 Compact Vacuum Meter ● Piezo/Pirani ● 1200 to 5e-4 mbar

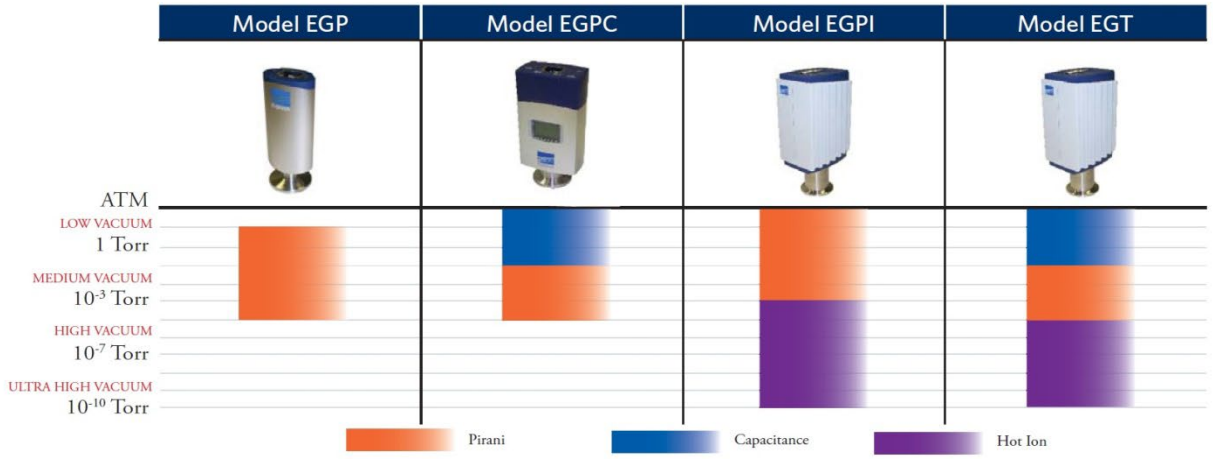
* Wide measuring range due to combined sensor piezo/Pirani
* High precision and optimal resolution over the whole range
* Min/Max memory: Storage and display of high and low values
* Excellent long term stability
* Gas correction factor for correct pressure readings
* Pressure units mbar, Torr, hPa
* Measurement range: *1200 to 5e-4 mbar (900 to 5e-4 Torr)*
* Automatic switch off and continuous operation
* Continuous pressure display over the whole range



Vacuum Gauge

VPC offers a wide range of compact vacuum gauges to meet your measurement needs. VPC vacuum gauges include Pirani, Pirani/Capacitance, Pirani/Ionization and The TotalOne Guage, a Pirani/Capacitance/Ionization, covering pressures from atmosphere to ultra-high vacuum. VPC supplies a range of power supply display units to control all the gauges or can be powered by the user while utilizing the gauge output or the optional gauge mounted display. Gauge options include KF or CF flanges and process control setpoint outputs. Our gauges can be used in applications including load locks, PVD Systems, analytical systems and many others.

MODEL TYPES



Model EGP500: Pirani Gauge, 5 x 10-4...1000, KF16 Flange

* Available with Tungsten or Nickel filament or with a fully ceramic coated sensor unit for highly corrosive applications
* Easy to exchange plug & play senor element with on-board calibration data - guarantees high reproducibility and low cost of ownership
* Eligible output signal and various plug versions for easy integration
* Mounts in any orientation
* Diagnostic port on all versions
* Measurement range: 5 x 10-4...1000
* Optional display, setpoints and digital interfaces

Vacuum Gauge

Model EGPC550: Pirani/Capacitance Gauge, 5 x 10-5...1500, KF16 Flange

* Gas-type independent above 10 mbar - allows safe venting with any gas mixture
* High accuracy and reproducibility at atmosphere - for reliable atmospheric pressure detection
* Fast atmospheric detection - eliminates waiting time and shortens process cycle
* Mount in any orientation
* Available with Tungsten or Nickel filament or with a fully ceramic coated sensor unit for highly corrosive applications
* Easy to exchange plug & play sensor element with on-board calibration data - guarantees high reproducibility and low cost of ownership
* Eligible output signal for easy integrationDiagnostic port
* Optional atmospheric switch, display and digital interfaces

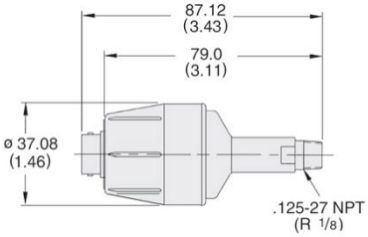
Model EGPI400: Pirani/Ionization Gauge, 5 x 10-10...1000, KF25 Flange

* Extremely wide measurement range from 5 x 10^{-10} mbar to atmosphere (3.8 x 10^{-10} Torr to atmosphere)
* Excellent repeatability in the process pressure range from 10^{-8}...10^{-2} mbar of 5%
* The Pirani interlock protects the Bayard-Alpert system from premature filament burnout and excess contamination from high pressure operation
* Long-life yttrium oxide coated iridum filament
* Automatic high vacuum Pirani adjustment reduces operator interventions
* Optional graphic display and Fieldbus interfaces available

Model EGT450: Pirani/Capacitance/Ionization Gauge, 5 x 10-10...1500, KF25 Flange

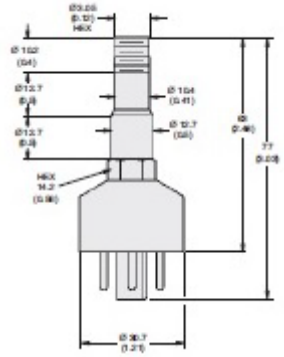
* EGT450 saves cost and tool space and reduces the complexity of vacuum measurement, installation and setup
* Gas-type-independent pressure measurement above 10 Torr provides more reliable loadlock control for any gas mixture
* Pirani interlock protects the hot filament from premature burnout
* Automatic high vacuum Pirani adjustment reduces operator interventions
* Differential pressure measurement at atmosphere eliminates uncertainty related to atmospheric pressure changes
* Easy-to-exchange sensing element with on-board calibration data guarantees reproducibility
* Optional graphic display and Fieldbus interfaces available
* RoHS compliance

Vacuum Gauge



ConvecTorr: Thermalcouple Gauge, 1 x 10-4...1000

* Measurement range: 1 x 10-4 Torr to atmosphere
* Measure precision: +30% within a pressure decade
* Pressure response time: Less than 0.2 seconds
* KF16 Flange (other flange available upon request)
* 304 SST with platinel filament and ABS housing



531TC: Thermalcouple Gauge, 1 x 10-3...760

* Measurement range: 1 x 10-3 Torr to atmosphere
* Pressure response time: Less than 3 seconds
* KF16 Flange (other flange available upon request)
* Nickel plated, soldered construction

Vacuum Gauge Controller

Model EGC1000: Gauge Controller, Single Channel

* Automatic identification of the connected EBARA Gauges
* User selectable measurement unit (mbar, Torr, Pascal, micron)
* High resolution - 16 bit A/D converter
* Up to six adjustable setpoints with adjustable hysteresis, may be assigned to any channel
* Programmable 0 to 10 V chart recorder output with logarithmic / linear characteristics for each gauge or gauge combination (Model EGC-3000 only)
* Firmware upgrades available online are easily downloaded via the RS232C interface
* Versatile, compact bench-top model design can easily be mounted in a panel or 19 rack
* Wide range power supply 90 to 250V, 50 to 60 Hz

Poppet Valve

Stainless and Aluminum Angle & Inline Valve

Our valves are uniquely designed for:

- Ø Longevity
- Ø High conductance
- Ø Cost efficiency
- Ø KF, ISO, CF flange configuration
- Ø Size from 0.5" to 25"
- Ø Leak rate achievable to 2x10-10 standard cc/sec, He

These valves are designed for 3 million cycles with warranty of 1.5 million cycles (or 12 months). Valve body is made of 304 stainless steel. Welded bellows are made of AM350 for long life. To guarantee long lasting seal life, actuator housings are machined and honed to micron precision -- contrary to traditional tube-housing which are neither round nor straight.

Our standard pneumatic valves up to 50mm are normally closed. Standard valves over 50mm are air-open / air-close. Valve size goes up to 630mm. Optional "pneumatic lock" is available.

Options:

- ☐ Flange configuration
- ☐ Solenoid valve
- ☐ Reed sensor
- ☐ Kalrez O-Ring
- ☐ Heating jacket

VPC Core Competencies

- ➢Application expertise
- ➢Strong engineering R&D
- ➢Superior product offering
- ➢System level know-how

Specification:

Vacuum range :		1 x 10^{-9} Torr
Leak test :		1 x 10^{-9} std cc/sec He
Bake temperature :		120° C
MTTF (life) :		1.5 million cycle
Time from open-close :		<0.5 sec
Operating temperature :		20° to 90° C
Differential pressure :		15 psi
Position indicator :		24 VDC or 120 VAC
Operating pressure :		60 -- 95 psi

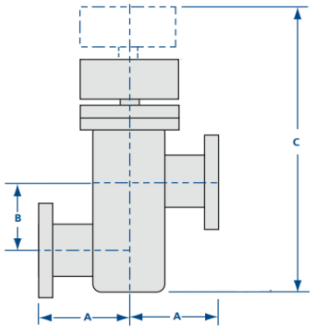
Poppet Valve

Stainless Z Angle Valve

- ❖ Any flange configuration.
- ❖ Large conductance
- ❖ Cycle life of 1.5 million

Pneumatic Z Valve-KF Flange

Part No.	A (inch)	B (inch)	C (inch)
ZVP -KF16	2.15	1.12	N/A
ZVP -KF25	2.03	1.37	N/A
ZVP -KF40	2.40	1.88	N/A
ZVP -KF50	3.40	2.62	N/A

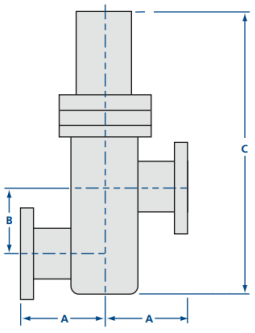


Pneumatic Z Valve-CF Flange

Part No.	A (inch)	B (inch)	C (inch)
ZVP-CF1.33-HV	2.50	1.12	N/A
ZVP-CF2.12-HV	2.05	1.37	N/A
ZVP-CF2.75-HV	2.46	1.88	N/A
ZVP-CF3.38-HV	3.48	2.62	N/A
ZVP-CF4.50-HV	3.38	3.12	N/A

Manual Z Valve-KF Flange

Part No.	A (inch)	B (inch)	C (inch)
ZVM-KF16	2.15	1.12	5.19
ZVM-KF25	2.03	1.37	5.69
ZVM-KF40	2.40	1.88	8.02
ZVM-KF50	3.40	2.62	10.73



Manual Z Valve-CF Flange

Part No.	A (inch)	B (inch)	C (inch)
ZVM-CF1.33-HV	2.50	1.12	5.19
ZVM-CF2.12-HV	2.05	1.37	5.69
ZVM-CF2.75-HV	2.46	1.88	8.02
ZVM-CF3.38-HV	3.48	2.62	10.73
ZVM-CF4.50-HV	3.38	3.12	12.70

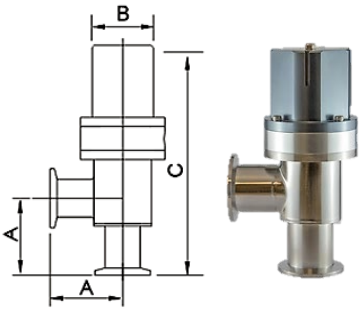
Poppet Valve

Stainless KF Angle Valve

- ❖ Any flange configuration.
- ❖ Large conductance
- ❖ Cycle life of 1.5 million

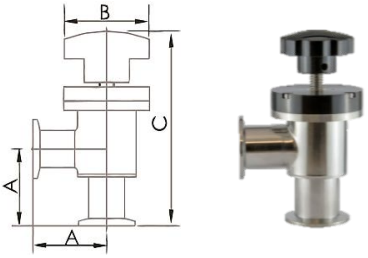
Pneumatic Angle Valve-KF Flange

Part No.	A (inch)	B (inch)	C (inch)
AVP -KF16	2.15	2.03	6.35
AVP -KF25	2.05	2.03	6.13
AVP -KF40	2.56	2.56	6.94
AVP -KF50	3.00	2.62	9.36
AVP-ISO 63	3.25	2.76	9.55
AVP-ISO 80	3.50	3.25	11.15
AVP-ISO100	4.47	3.51	13.53
AVP-ISO160	6.25	5.51	18.23
AVP-ISO200	7.01	5.51	25.51
AVP-ISO250	9.84	7.95	25.98



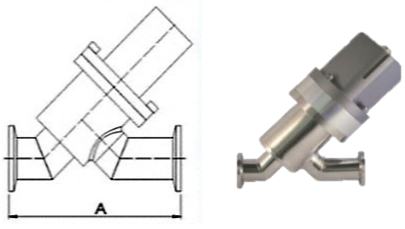
Manual Angle Valve-KF Flange

Part No.	A (inch)	B (inch)	C (inch)
AVM-KF16	2.15	2.36	5.42
AVM-KF25	2.05	2.36	5.27
AVM-KF40	2.56	2.36	6.45
AVM-KF50	3.00	2.36	7.80



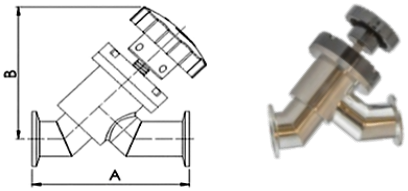
Pneumatic In-Line Valve-KF Flange

Part No.	A (inch)	B (inch)	C (inch)
IVP-KF16	4.00		
IVP-KF25	4.25		
IVP-KF40	5.20		
IVP-KF50	7.01		



Manual In-Line Valve-KF Flange

Part No.	A (inch)	B (inch)	C (inch)
IVM-KF16	4.00	3.47	N/A
IVM-KF25	4.20	3.42	N/A
IVM-KF40	5.12	4.55	N/A
IVM-KF50	7.01	6.19	N/A



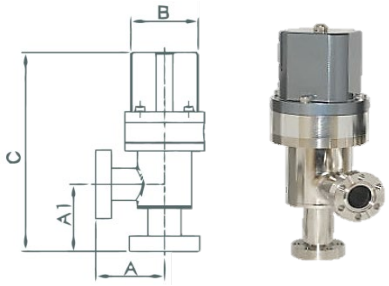
Poppet Valve

Stainless CF Angle and Inline Valve - HV (High Vacuum)

❖Any flange configuration. ❖Large conductance
❖Cycle life of 1.5 million ❖ O-Ring@ bonnet

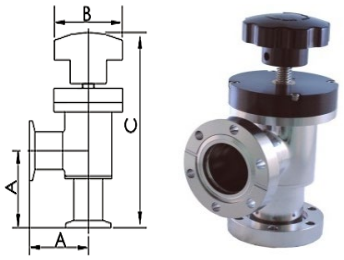
Pneumatic Angle Valve-CF Flange

Part No.	A (inch)	B (inch)	C (inch)
AVP -CF1.33-HV	2.18	2.03	6.38
AVP -CF2.12-HV	2.07	2.03	6.14
AVP -CF2.75-HV	2.47	2.56	7.00
AVP -CF3.38-HV	3.08	2.62	9.44
AVP -CF4.50-HV	3.38	2.76	9.68
AVP -CF4.62-HV	3.63	3.25	11.28
AVP-CF6.00-HV	4.66	3.51	13.70
AVP-CF8.00-HV	5.68	5.51	17.66



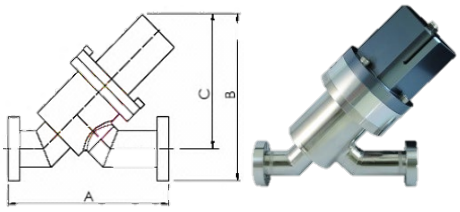
Manual Angle Valve-CF Flange

Part No.	A (inch)	B (inch)	C (inch)
AVM-CF1.33-HV	2.18	2.36	5.45
AVM-CF2.12-HV	2.07	2.36	5.22
AVM-CF2.75-HV	2.62	2.36	6.70
AVM-CF3.38-HV	3.08	2.36	7.85
AVM-CF4.50-HV	3.35	2.36	8.00



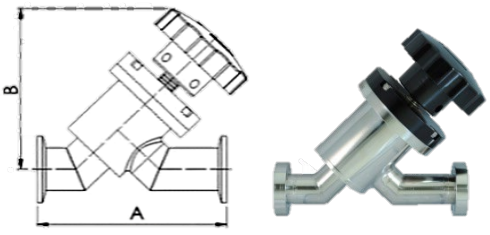
Pneumatic In-Line Valve-CF Flange

Part No.	A (inch)	B (inch)	C (inch)
IVP-CF1.33-HV	4.70	N/A	N/A
IVP-CF2.12-HV	4.24	N/A	N/A
IVP-CF2.75-HV	5.26	N/A	N/A
IVP-CF3.38-HV	7.00	N/A	N/A
IVP-CF4.50-HV	N/A	N/A	N/A



Manual In-Line Valve-CF Flange

Part No.	A (inch)	B (inch)	C (inch)
IVM-CF1.33-HV	4.70	3.92	N/A
IVM-CF2.12-HV	4.24	3.83	N/A
IVM-CF2.75-HV	5.24	4.83	N/A
IVM-CF3.38-HV	7.00	5.97	N/A
IVM-CF4.50-HV	7.30	6.72	N/A



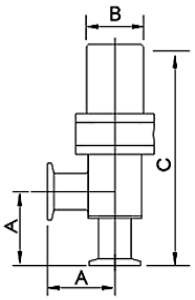
Poppet Valve

Stainless CF Angle and Inline Valve - UHV (Ultra High Vacuum)

❖Any flange configuration. ❖Large conductance
❖Cycle life of 1.5 million ❖Cu @Bonnet

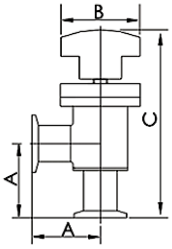
Pneumatic Angle Valve-CF Flange

Part No.	A (inch)	B (inch)	C (inch)
AVP-CF1.33-UHV	2.18	2.03	6.38
AVP-CF2.12-UHV	2.07	2.03	6.14
AVP-CF2.75-UHV	2.47	2.56	7.00
AVP-CF3.38-UHV	3.08	2.62	9.44
AVP-CF4.50-UHV	3.38	2.76	9.68
AVP-CF4.62-UHV	3.63	3.25	11.28
AVP-CF6.00-UHV	4.66	3.51	13.70
AVP-CF8.00-UHV	6.50	9.97	18.47



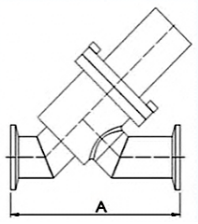
Manual Angle Valve-CF Flange

Part No.	A (inch)	B (inch)	C (inch)
AVM-CF1.33-UHV	2.18	2.36	5.47
AVM-CF2.12-UHV	2.07	2.36	5.22
AVM-CF2.75-UHV	2.62	2.36	6.50
AVM-CF3.38-UHV	3.08	2.36	7.85
AVM-CF4.50-UHV	3.38	2.36	8.15



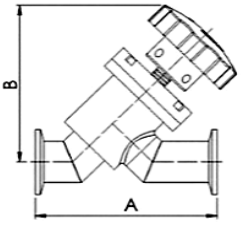
Pneumatic In-Line Valve-CF Flange

Part No.	A (inch)	B (inch)	C (inch)
IVP-CF1.33-UHV	4.70	N/A	N/A
IVP-CF2.12-UHV	4.24	N/A	N/A
IVP-CF2.75-UHV	5.24	N/A	N/A
IVP-CF3.38-UHV	7.15	N/A	N/A
IVP-CF4.50-UHV	N/A	N/A	N/A



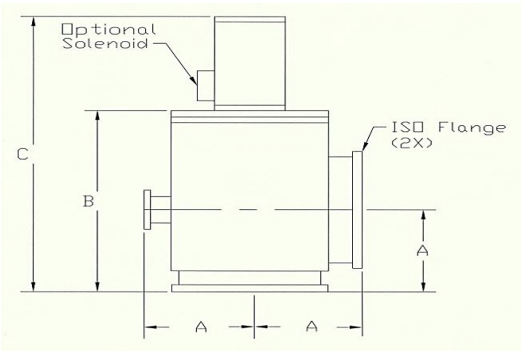
Manual In-Line Valve-CF Flange

Part No.	A (inch)	B (inch)	C (inch)
IVM-CF1.33-UHV	4.70	3.93	N/A
IVM-CF2.12-UHV	4.24	3.83	N/A
IVM-CF2.75-UHV	5.24	4.88	N/A
IVM-CF3.38-UHV	7.00	5.97	N/A
IVM-CF4.50-UHV	N/A	N/A	N/A



Poppet Valve

Large Pneumatic Stainless Steel Angle Valve



Angle Valve Features:
Valve body and poppet material: 304L
Electropolished surface finish interior
Rotatable ISO flange on 200mm and up
Magnetic position indicator included on 200 mm and up
Edge welded bellow with 90% full conductance
Viton O-Ring

Specification :	
Leak rate	$1x10^{-9}$ atm cc/sec He
Vacuum rating	$1x10^{-9}$ Torr
Bake temperature	120^{0} C
Operating temperature	20^{o} C -- 90^{o} C
Mounting position	Any
Air pressure required	60 -- 95 psig
Cycle life	100K cycles before maintenance

Part No	A (inch)	B (inch)	C (inch)	Mtg. hole	B.C.		Side port
AVP-200	210	370	592	12x-11	260		----
AVP-250	264	469	724	12x-11	310		----
AVP-320	250	494	838	12x-14	395		DN 80
AVP-400	330	624	1040	12x-14	480		DN100
AVP-500	360	740	1004	16x-14	580		DN125
AVP-630	450	860	1330	20x-14	720		DN160

**** Please inquire about our bellow-less valves and pricing ****

Stainless Steel Custom Valve

VPC core strenght is in custom design and manufacture of our Poppet Valve, Gate Valve, Ball Valve , Butterfly Valve and Slit Valve. Beside offering of our standard valve, if you ever have a need for custom valve that our standard valve doesn't meet your application requirement, our eningeers is stand by to help you from design implementation to production.

We also have a superf customer service team that will help you every steps of the way. Give us a call or email us to support@vacproducts.com with your custom valve need and an engineer will reach out to you to discuss your requirement within 24 hours. We can also be reached at (510) 498-8518 Monday - Friday from 9:00 am - 5:00 pm PST.

VPC STAFFS IS READY TO SERVE YOU SO GIVE US A CALL!

Poppet Valve

Solenoid Valve

3V1 series

3-way Solenoid

3V1

4V series

4-way Solenoid (LED)

4V210

	P/N		Cv	Port	
2-position 3-WAY	3V1-06-24		0.15	1/8	LED
	3V1-06-110		0.15	1/8	LED
2-position 4-WAY	4V210-08-24		0.89	1/4	LED
	4V210-08-110		0.89	1/4	LED

Buying guide

Normally closed valves:
2-position ,3-way

Double acting valves:
2-position, 4 -way

1/2"-2" valve s use 3V1 solenoid
2.5"-12" valves use 4V210 solenoid

Voltage: 24 VDC or 110 VAC

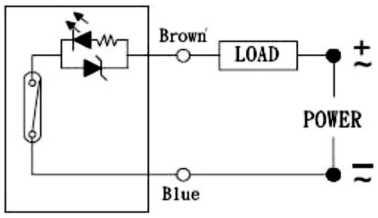
CE certified

LED light to indicate valve open

ACCESSORIES

Position Sensor

Part No#	Specification	Size
Position Indicator	POSITION INDICATOR, DC/AC 5-120V	KF16 ~ ISO250

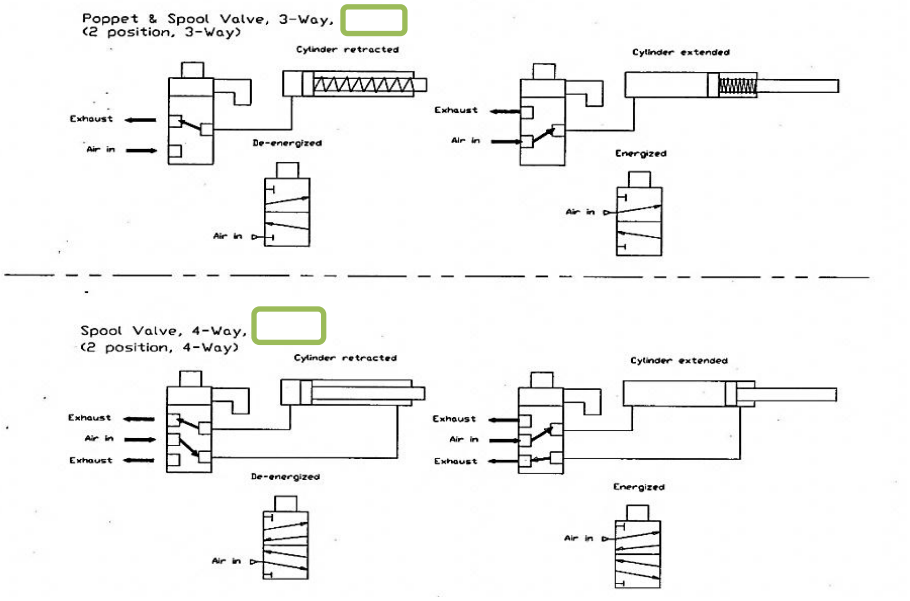


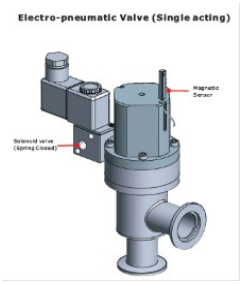
Air supply fitting 1/8" NPT (KF16-KF50) / 1/4" NPT (ISO63-ISO250)

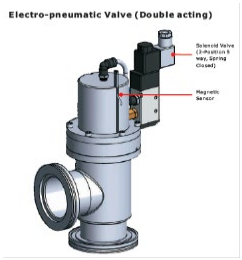
Voltage option DC: 24V / AC: 110V / 220V

Solenoid Valve

Part No#	Specification	Size
3V1-06- 24	DC 24V, 1/8" NPT	
3V1-06-110	AC110V, 1/8" NPT	
4V-210-08-24	DC 24V, 1/4" NPT	
4V-210-08-110	AC110V, 1/4" NPT	

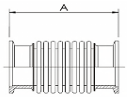






Bellows - Flex Formed Hose

Material: SS 316



KF Flange Thin Wall Bellow

Wall Thickness: .006"

Part No.	FREE LENGTH A (INCH)
FH-KF16-100-006-316	4.00
FH-KF16-250-006-316	10.00
FH-KF16-305-006-316	12.00
FH-KF16-500-006-316	20.00
FH-KF16-610-006-316	24.00
FH-KF16-750-006-316	30.00
FH-KF16-915-006-316	36.00
FH-KF16-1000-006-316	39.00
FH-KF16-1219-006-316	48.00
FH-KF16-2000-006-316	79.00
FH-KF25-100-006-316	4.00
FH-KF25-250-006-316	10.00
FH-KF25-305-006-316	12.00
FH-KF25-500-006-316	20.00
FH-KF25-610-006-316	24.00
FH-KF25-750-006-316	30.00
FH-KF25-915-006-316	36.00
FH-KF25-1000-006-316	39.00
FH-KF25-1219-006-316	48.00
FH-KF25-2000-006-316	79.00
FH-KF25-2500-006-316	98.00
FH-KF40-100-006-316	4.00
FH-KF40-250-006-316	10.00
FH-KF40-305-006-316	12.00
FH-KF40-500-006-316	20.00
FH-KF40-610-006-316	24.00
FH-KF40-750-006-316	30.00
FH-KF40-915-006-316	36.00
FH-KF40-1000-006-316	39.00
FH-KF40-1219-006-316	48.00
FH-KF40-2000-006-316	79.00
FH-KF50-100-006-316	4.00
FH-KF50-250-006-316	10.00
FH-KF50-305-006-316	12.00
FH-KF50-500-006-316	20.00
FH-KF50-610-006-316	24.00
FH-KF50-750-006-316	30.00
FH-KF50-915-006-316	36.00
FH-KF50-1000-006-316	39.00
FH-KF50-1215-006-316	48.00
FH-KF50-2000-006-316	79.00

KF Flange Medium Wall Bellow

Wall Thickness: .008"

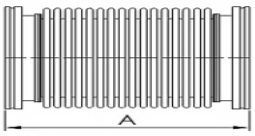
Part No.	FREE LENGTH A (INCH)
FH-KF16-100-008-316	4.00
FH-KF16-250-008-316	10.00
FH-KF16-305-008-316	12.00
FH-KF16-500-008-316	20.00
FH-KF16-610-008-316	24.00
FH-KF16-750-008-316	30.00
FH-KF16-915-008-316	36.00
FH-KF16-1000-008-316	39.00
FH-KF16-1219-008-316	48.00
FH-KF16-2000-008-316	79.00
FH-KF25-100-008-316	4.00
FH-KF25-250-008-316	10.00
FH-KF25-305-008-316	12.00
FH-KF25-500-008-316	20.00
FH-KF25-610-008-316	24.00
FH-KF25-750-008-316	30.00
FH-KF25-915-008-316	36.00
FH-KF25-1000-008-316	39.00
FH-KF25-1219-008-316	48.00
FH-KF25-2000-008-316	79.00
FH-KF25-2500-008-316	98.00
FH-KF40-100-008-316	4.00
FH-KF40-250-008-316	10.00
FH-KF40-305-008-316	12.00
FH-KF40-500-008-316	20.00
FH-KF40-610-008-316	24.00
FH-KF40-750-008-316	30.00
FH-KF40-915-008-316	36.00
FH-KF40-1000-008-316	39.00
FH-KF40-1219-008-316	48.00
FH-KF40-2000-010-316	79.00
FH-KF50-100-008-316	4.00
FH-KF50-250-008-316	10.00
FH-KF50-305-008-316	12.00
FH-KF50-500-008-316	20.00
FH-KF50-610-008-316	24.00
FH-KF50-750-008-316	30.00
FH-KF50-915-008-316	36.00
FH-KF50-1000-008-316	39.00
FH-KF50-1215-008-316	48.00
FH-KF50-2000-010-316	79.00

Bellows - Flex Formed Hose

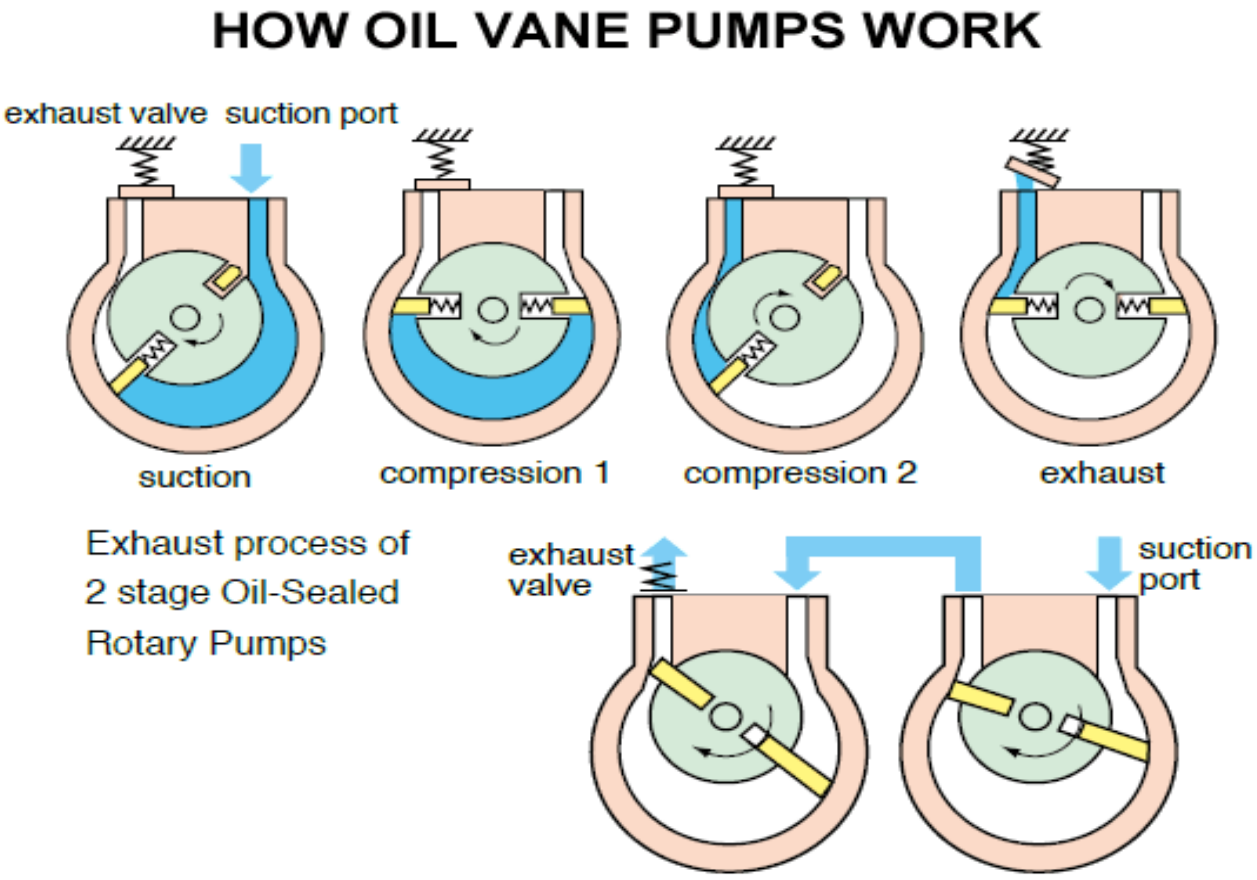
ISO Flange Bellow - flex hose

Materials : SS 316

Part No.	A (INCH)
FH-ISO63-100-007-316	4.00
FH-ISO63-250-007-316	10.00
FH-ISO63-305-007-316	12.00
FH-ISO63-500-007-316	20.00
FH-ISO63-610-007-316	24.00
FH-ISO63-750-007-316	30.00
FH-ISO63-915-007-316	36.00
FH-ISO63-1000-007-316	39.00
FH-ISO63-1219-007-316	48.00
FH-ISO80-100-007-316	4.00
FH-ISO80-250-007-316	10.00
FH-ISO80-305-007-316	12.00
FH-ISO80-500-007-316	20.00
FH-ISO80-610-007-316	24.00
FH-ISO80-750-007-316	30.00
FH-ISO80-915-007-316	36.00
FH-ISO80-1000-007-316	39.00
FH-ISO80-1219-007-316	48.00
FH-ISO100-100-008-316	4.00
FH-ISO100-250-008-316	10.00
FH-ISO100-305-008-316	12.00
FH-ISO100-500-008-316	20.00
FH-ISO100-610-008-316	24.00
FH-ISO100-750-008-316	30.00
FH-ISO100-910-008-316	36.00
FH-ISO100-1000-008-316	39.00
FH-ISO100-1219-008-316	48.00
FH-ISO160-100-010-316	4.00
FH-ISO160-250-010-316	10.00
FH-ISO160-305-010-316	12.00
FH-ISO160-500-010-316	20.00
FH-ISO160-610-010-316	24.00
FH-ISO160-750-010-316	30.00
FH-ISO160-915-010-316	36.00
FH-ISO160-1000-010-316	39.00
FH-ISO160-1219-010-316	48.00



Vane Pump


HOW OIL VANE PUMPS WORK
exhaust valve
suction port
suction
compression 1
compression 2
exhaust
Exhaust process of
2 stage Oil-Sealed
Rotary Pumps
exhaust
valve
suction
port

Calculation of pumping Speed

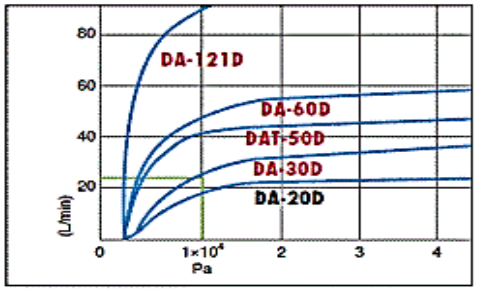
HOW TO SELECT A VACUUM PUMP

Pumping time calculation

$$t_{\text{Pumping time (min)}} = \frac{V_{\text{Tank Volume (L)}}}{S_{\text{Pumping speed (L/min)}}} \times 2.303 \log \frac{P_{1\ \text{First pressure (Pa)}}}{P_{2\ \text{Ultimate pressure (Pa)}}}$$

$$t_0 = t_1 + t_2 + t_3 + \cdots\cdots$$

example 1 We want to decrease pressure from atmospheric pressure (100kPa) to 10kPa in 50 liter of tank within 5 minutes. Which pump is suitable?

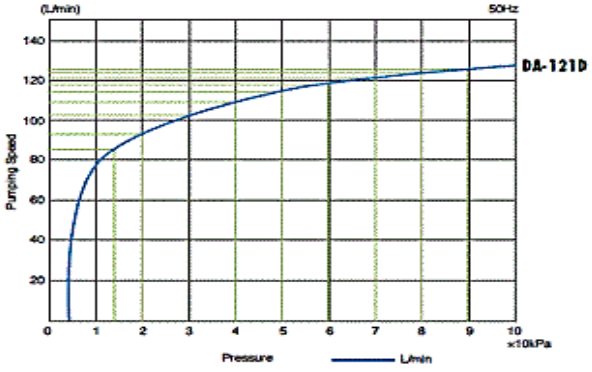


From this example, 23 L/min or larger pumping speed is required, so model DA-30D is recommended. Please also take consideration of vacuum hose leak.

$$S = \frac{V\ 50}{t\ 5} \times 2.303 \log \frac{P_1\ 100000}{P_2\ 10000}$$

$$S \fallingdotseq 23\ \text{L/min (at 10000Pa)}$$

example 2 How long does it take to decrease pressure from atmospheric pressure (100kPa) to 13kPa in 80 liter of tank? DA-121D is used at this case.



$$S = \frac{V}{t} \times 2.303 \text{Log} \frac{P_1\ \text{First pressure}}{P_2\ \text{Ultimate pressure}}$$

Atmospheric pressure 90kPa S_1=124L/min $t_1 = \frac{80}{124}$ 2.303 log $\frac{101324}{90000}$ =0.08

90kPa×80kPa S_2=123L/min $t_2 = \frac{80}{123}$ 2.303 log $\frac{90000}{80000}$ =0.08

80kPa×70kPa S_3=122L/min $t_3 = \frac{80}{122}$ 2.303 log $\frac{80000}{70000}$ =0.09

70kPa×60kPa S_4=120L/min $t_4 = \frac{80}{120}$ 2.303 log $\frac{70000}{60000}$ =0.10

60kPa×50kPa S_5=116L/min $t_5 = \frac{80}{116}$ 2.303 log $\frac{60000}{50000}$ =0.13

50kPa×40kPa S_6=111L/min $t_6 = \frac{80}{111}$ 2.303 log $\frac{50000}{40000}$ =0.16

40kPa×30kPa S_7=108L/min $t_7 = \frac{80}{108}$ 2.303 log $\frac{40000}{30000}$ =0.21

30kPa×20kPa S_8=96L/min $t_8 = \frac{80}{96}$ 2.303 log $\frac{30000}{20000}$ =0.34

20kPa×13kPa S_9=86L/min $t_9 = \frac{80}{86}$ 2.303 log $\frac{20000}{13000}$ =0.40

$t_0 = t_1 + t_2 \cdots + t_9 = 1.59\text{min}$

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It should only be clean, reliable and robust"

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