

DVS Series Dry Screw Vacuum Pump



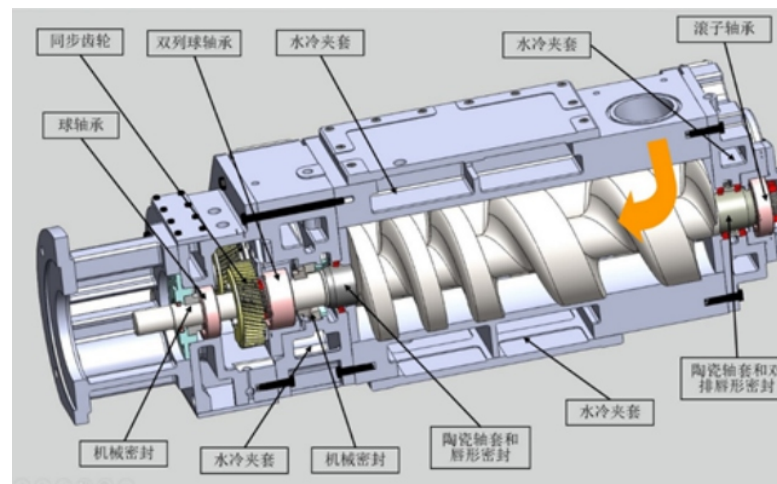
The DVS Series dry screw vacuum pump is a new-generation, high-technology vacuum pump designed for demanding operating conditions. It can handle condensable gases and gases containing small amounts of particulates, and it can readily be configured for corrosion resistance. It is especially suitable for petrochemical processing, electronics and semiconductors, biopharmaceuticals, aerospace and new-energy applications.

The pump chamber is completely oil-free. Compared with conventional liquid-ring, rotary-vane, slide-valve, reciprocating and water-jet vacuum pumps, it offers distinct process and environmental advantages and is an advanced replacement for traditional vacuum-pump technologies.

A dry screw vacuum pump uses no liquid as a sealing medium. A pair of screw rotors rotates synchronously at high speed in opposite directions inside the pump chamber to draw in and discharge gas. The rotors are precision dynamically balanced and supported by bearings. Designed clearances are maintained between the two rotors and between the rotors and housing, so there is no contact or friction. The pump therefore runs smoothly with low noise, and the process chamber requires no lubricating oil. It is suitable for gases containing large amounts of water vapour and small amounts of dust. Gas compression produces a relatively high exhaust temperature, which suppresses condensation inside the pump and helps high-vapour-pressure media such as dichloromethane and acetone leave through the discharge in the gas phase.

Many chemical and pharmaceutical processes, including drying, distillation, concentration, purification and cleaning, require excess solvents to be removed under vacuum. Because many organic solvents are toxic, flammable or environmentally harmful, they should be recovered. After passing through the dry screw vacuum pump, solvent vapour can be condensed and recovered directly at the exhaust without oil contamination.

For higher pumping capacity, a Roots vacuum pump can be combined with the dry screw vacuum pump to form a vacuum system.



The screw rotors of the DVS Series are designed from a three-dimensional mathematical surface model and machined on five-axis CNC equipment, providing high precision, reliable quality and stable performance.



- Twin-screw pumping: Non-contact compression eliminates screw-rotor wear and ensures reliable operation.
- High vacuum: Stable pumping speed is maintained from atmospheric pressure down to 1 Torr (133 Pa); vacuum performance is unaffected by changes in ambient, seasonal or operating conditions.
- Oil- and water-free chamber: The process path contains no oil or water and produces no wastewater or waste oil. Nitrogen, steam or compatible solvents may be used to flush the pump.
- Corrosion-resistant design: With Hastelloy alloy coating, the pump can handle toxic, corrosive and condensable gases.
- Free-flow exhaust: The short, straight-through gas path enables rapid discharge, tolerates entrained liquid and helps remove internal condensate and fine particles. Solvents and valuable process media can be recovered directly at the outlet.
- Helical jacket cooling: Efficient jacket-water cooling lowers the operating and discharge temperature to meet or approach T4 requirements.
- Reliable seals: Mechanical and lip seals are used. An air or nitrogen barrier can be provided ahead of the mechanical seal to prevent dust and contaminants from entering the pump.
- IEC flange: The C-flange simplifies installation, reduces noise and eliminates coupling-alignment issues; enlarged threads resist deformation and vibration.
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CONSTANT-PITCH SCREW PUMP

VARIABLE-PITCH SCREW PUMP

Lower discharge temperature.
Internal compression reduces energy consumption.

DVS Series dry screw vacuum pumps are used in high-purity vacuum processes and demanding operating conditions. They can handle condensable gases and gases containing particulates and can readily be configured for corrosion resistance. Typical fields include electronics, chemicals, biopharmaceuticals, metalworking and food processing.

Chemical & pharmaceutical - distillation, drying, concentration, solvent recovery, dehydration and molecular distillation

Food - freeze-drying and packaging

Electronics - chemical vapour deposition, dry etching and photovoltaics

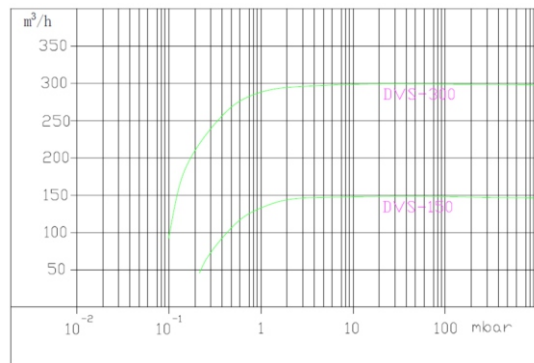
Industrial furnaces - welding, ovens, sintering and heat treatment

Aviation & aerospace - wind tunnels and space-simulation tests

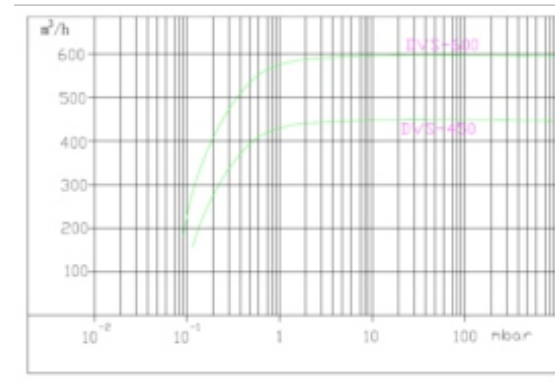
		DVS-150	DVS-300	DVS-450	DVS-600
Max. pumping speed	m3/h	150	300	450	600
Speed	rpm	2900	2900	2900	2900
Ultimate pressure	Pa	10	10	10	10
Max. discharge back pressure	Bar.g	0.3	0.3	0.3	0.3
Motor power	Kw	4/5.5	7.5/11	15	18.5
Inlet size	DN	40	50	80	100
Outlet size	DN	32	40	50	65
Cooling-water port		G3/8	G1/2	G1/2	1/2
Cooling-water flow	L/min	10	20	30	35
Pump weight	Kg	260	380	560	630
SEAL TYPE					
Inlet end		Double lip seal			
Discharge end		Lip seal + mechanical seal			
Drive end		Mechanical seal + lip seal			
MATERIAL					
Pump body		HT-250 (Hastelloy coating)			
End cover		HT-250			
Rotor		QT-500 (Hastelloy coating)			
Shaft		QT-500, integral with rotor			

		DVS-160V	DVS-230V	DVS-320V	DVS-450V	DVS-650V	DVS-800V	DVS-1100V
Max. pumping speed	m3/h	160	230	320	450	650	800	1100
Speed	rpm	2900	2900	2900	2900	2900	2900	2900
Ultimate pressure	Pa	10	10	10	10	10	10	10
Max. discharge back pressure	Bar.g	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Motor power	Kw	4	5.5	7.5	11	15	18.5/22	22/30
Inlet size	DN	40	50	50	80	100	100	125
Outlet size	DN	32	40	40	65	65	65	65
Cooling-water port		G3/8	G1/2	G1/2	G1/2	1/2	G3/4	G3/4
Cooling-water flow	L/min	10	20	20	35	35	40	40
Pump weight	Kg	260	320	380	560	630	700	820
SEAL TYPE								
Inlet end		Double lip seal						
Discharge end		Lip seal + mechanical seal						
Drive end		Mechanical seal + lip seal						
MATERIAL								
Pump body		HT-250 (Hastelloy coating)						
End cover		HT-250						
Rotor		QT-500 (Hastelloy coating)						
Shaft		QT-500, integral with rotor						

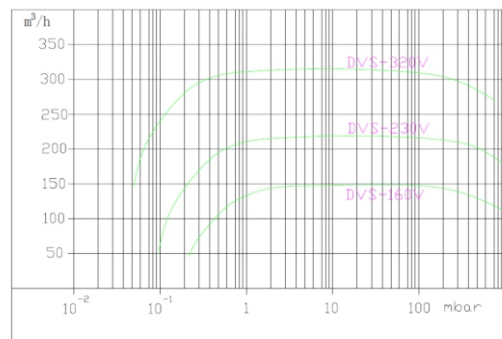
DVS-150 & DVS300



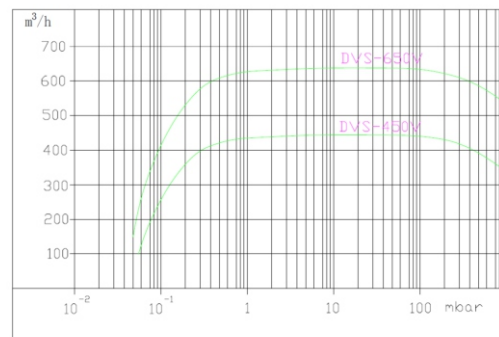
DVS-450 & DVS600



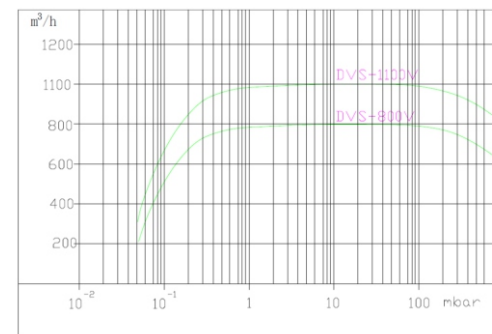
DVS-160V & DVS-230V & DVS-320V

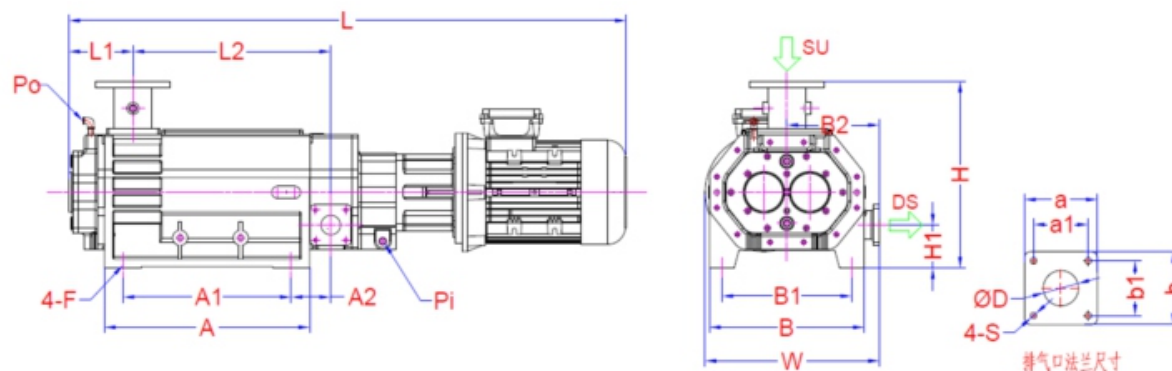


DVS-450V & DVS-650V



DVS-800V & DVS-1100V





Unit: mm

	L	L1	L2	A	A1	A2	B	B1	B2	W	H	H1	F	SU	Pi/Po	D	a	b	a1	b1	S
DVS-150	1170	122	400	420	312	93	285	252	157	326	350	75	Φ15	DN40	G3/8	Φ32	95	85	60	50	M8
DVS-300	1360	158	485	504	400	107	356	320	180	385	310	125	Φ15	DN50	G1/2	Φ40	100	100	64	64	M10
DVS-450	1540	200	468	390	350	133	460	400	275	520	552	115	Φ18	DN80	G1/2	Φ60	120	120	90	90	M12
DVS-600	1660	200	588	610	470	133	460	400	275	520	552	115	Φ18	DN100	G1/2	Φ60	120	120	90	90	M12
DVS-160V	1170	122	400	420	312	93	285	252	157	326	350	75	Φ15	DN40	G3/8	Φ40	95	85	60	50	M8
DVS-230V	1225	158	350	369	265	107	356	320	180	385	310	125	Φ15	DN50	G1/2	Φ40	100	100	64	64	M10
DVS-320V	1360	158	485	504	400	107	356	320	180	385	310	125	Φ15	DN50	G1/2	Φ40	100	100	64	64	M10
DVS-450V	1540	200	468	390	350	133	460	400	275	520	552	115	Φ18	DN80	G1/2	Φ60	120	120	90	90	M12
DVS-650V	1660	200	588	610	470	133	460	400	275	520	552	115	Φ18	DN100	G1/2	Φ60	120	120	90	90	M12
DVS-800V	1880	245	455	497	337	150	530	465	320	605	440	105	Φ23	DN100	G3/4	Φ65	136	136	100	100	M12
DVS-1100V	2055	245	630	672	512	150	530	465	320	605	440	105	Φ23	DN125	G3/4	Φ65	136	136	100	100	M12

Note: Dimensions may change due to technical improvements. Please consult DV Vacuum engineers for the latest dimensions.