

Varian, Inc.
Vacuum Technologies

High Performance
IDP Series
Dry Scroll Pumps



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Inspiring Excellence



VARIAN

New High Performance IDP Series Dry Scroll Pumps

IDP Series Pumps are compact, high performance dry pumps that provide affordable oil-free vacuum and easy system integration, and are suitable for a wide variety of applications.

The IDP Series employs an innovative hermetic design in which the motor and bearings are outside the vacuum space allowing full isolation of all pumped gases.

In addition, the IDP dry pump technology is environmentally friendly, as it eliminates the need for oil disposal or the handling of contaminated oil in your laboratory.

IEC-320 Power Connector and Switch



Hermetically Sealed, Fully Isolated Bearing



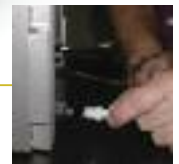
Scroll



Gas Ballast



Removable Polypropylene Exhaust Fitting



Understanding Scroll Technology



Gas enters scroll set



Gas is displaced and...



...compressed toward center hub



Gas exhausted at center hub

IDP Pumps create vacuum using a simple dual scroll mechanism in which one of the nested scrolls orbits about the other, creating moving zones of captured gas. Gas enters the scroll set at the perimeter and is displaced and compressed toward the center hub where it is exhausted.

The uncomplicated dual scroll design offers many benefits including lower noise and vibration levels, simple and infrequent maintenance requirements, and the elimination of catastrophic failure modes.

IDP Series Pumps, with high pumping speed and very low base pressure, provide all the advantages of Varian's patented scroll pump technology in a clean, compact, lightweight, and cost-effective package.



New!
IDP-2

- Pumping speed of 35 l/m (2.1 m³/hr)
- Achieves a base pressure of 750 milli Torr (1.0 mbar)
- Cost-effective alternative to other dry pumps
- Eliminates the cost of converting from oil-sealed
- Economical solution for the wide range of less demanding applications.



IDP-3

- Pumping speed of 60 l/m (3.6 m³/hr)
- Very low base pressure of less than 250 milli Torr (0.3 mbar)
- Truly high-performance solution for demanding applications

Why Choose the IDP Series Pump?

IDP Series vs. Rotary Vane Pumps

- The oil-free technology of the IDP Pumps eliminate the possibility of oil contamination in the vacuum system or of oil spills or leaks into the work environment.
- Maintenance of the IDP Pumps require only a simple, infrequent tip seal change as compared to oil checks, changes, and disposal.
- The IDP Pumps do not depend on the presence of sufficient oil to prevent seizing.

IDP Series vs. Membrane Diaphragm Pumps

- IDP Pumps measure a diminutive 358 x 181 x 140 mm (14 x 7 x 6 in.), yet provide base pressure of less than 250 milli Torr, almost 4 times lower than equivalently sized membrane/diaphragm pump.
- In turbo pump applications, the pumps' lower base pressure reduce power consumption and bearing temperature and increase reliability of the system.
- IDP Pumps avoid catastrophic failure mechanisms. A diaphragm-pumped system may suffer sudden, rapid loss of pressure when a membrane ruptures.
- IDP Pumps produce lower noise and vibration levels than diaphragm pumps, creating a quiet, pleasant work environment, and much lower contribution to system noise and vibration.

Features and Benefits



Powerful – High Performance

IDP dry scroll pumps deliver better vacuum performance than other pumps of similar size.

- High pumping speed provides rapid pumpdown and high gas throughput
- Very low base pressure ensures optimal performance of turbo pumps and increases system reliability



Oil-free – Affordable Dry Vacuum

Convenient, low maintenance pump provides affordable dry vacuum for research and industrial applications alike.

- IDP Pumps eliminate hydrocarbon contamination in the vacuum system
- No oil leaks into the work environment



Innovative – Hermetic Design

IDP Pumps fully isolate bearings and motor from vacuum space and provides containment of all pumped gases.

- Allows recovery of precious process gases
- Prevents leakage of toxic gases



Economical – Low Cost of Ownership

Robust, efficient scroll pump technology has a long service interval and a very low cost of ownership.

- Maintenance time and costs of oil topping, replacement and disposal are eliminated
- Simple tip seal or module exchange requires less than 30 minutes



System Friendly – Easy to Integrate

With a small footprint, low weight, and low power requirements, IDP Pumps are easy to accommodate in system design.

- IDP Pumps place little additional burden on system utilities and is suitable for use inside cabinet enclosures
- At only 21 pounds (9.5 kg), IDP Pumps are lighter than mechanical rotary vane and membrane pumps of similar pumping speed
- Lower noise and vibration provide a quieter, more pleasant work environment

Applications



Analytical Instrumentation

Monitoring and maintenance of oil sealed rotary vane vacuum pumps and the disposal of oil are a nuisance in a laboratory environment. High capacity IDP Pumps provide the pumping speed and base pressure required for your instruments that is simply not available with other types of dry pump technologies and allows the elimination of oil from your laboratory.

- GC/MS
- Residual gas analyzers
- Load locks for mass spectrometers
- Electron microscopes
- Surface area analyzers
- EM Sample prep coaters



Semiconductor Fabrication

The hermetic design of the IDP Series ensures against gas leakage into the environment, essential for evacuation and cycle purging of gas transfer lines and gas panels in wafer fabs. Its low base pressure eliminates 99.9% of the volume gas on a single pumpdown allowing reductions in the number of purge/vent cycles to maintain ultra-pure gases.

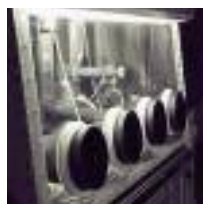
- Gas panels
- Gas delivery systems
- Double wall containment vessels



High Energy Physics

Chamber evacuation and backing of turbo pumps on beam lines are just some of the applications that benefit from the clean, dry pump technology of the IDP Series. A compact, rugged, high performance design makes it a superior choice over membrane pumps, and the 55 dBA noise spec makes it virtually unnoticeable in the work environment.

- Accelerators
- Beam lines
- Synchrotrons



Industrial processing

Cleanliness of vacuum is critical for many precision components such as optics, lasers, and electron devices. With hermetically sealed design and all bearings outside the vacuum space, the IDP Pumps are the ideal choice to provide clean vacuum. Low base pressure and high pumping speed makes the IDP Series the superior choice compared to membrane pumps.

- Laser evacuation
- Cryogenic dewars
- Glove boxes
- Gas recovery and recirculation
- Cryopump roughing
- Tube processing
- Vacuum chucks



General Research & Development

A cost effective solution for clean vacuum when fast pumpdown times are desired. The IDP Series outperforms other dry technologies in having higher retained pumping speed both at high pressure and at base vacuum.

- Experimental chambers
- Sample prep systems
- Surface analysis systems
- Backing turbo pump on beam lines

Technical Specifications

TECHNICAL SPECIFICATIONS			
		IDP-2	IDP-3
Peak pumping speed	60 Hz	35 l/m, 2.1 m ³ /hr, 1.2 cfm	60 l/m, 3.6 m ³ /hr, 2.1 cfm
	50 Hz	30 l/m, 1.8 m ³ /hr, 1.1 cfm	50 l/m, 3.0 m ³ /hr, 1.8 cfm
Ultimate pressure		7.5 x 10 ⁻¹ torr (1.0 mbar, 100 Pa)	2.5 x 10 ⁻¹ torr (3.3 x 10 ⁻¹ mbar, 33 Pa)
Maximum inlet pressure		1 atmosphere (1.0 bar, 101 kPa)	
Maximum outlet pressure		1.4 atmospheres (1.4 bar, 142 kPa)	
Inlet connection		NW16 KF flange	
Exhaust connection		Female 1/4" NPT (10 mm hose barb provided)	
Gas ballast connection		Female 1/8" NPT	
Ambient operating temperature		5 to 40°C (41 to 108°F)	
Storage temperature		-20 to 60 °C (-4 to 140°F)	
Motor rating		0.16 horsepower (0.12 kW)	
Supply power		1Ø – 100 VAC, 50-60 Hz : 115 VAC, 60 Hz : 220-240 VAC, 50-60 Hz	
Motor thermal protection		Automatic	
Rotation speed	60 Hz	3200 RPM	
	50 Hz	2600 RPM	
Cooling		Air-cooled	
Weight		9.5 kg (21 lbs)	
Shipping weight		10.5 kg (23 lbs)	
Restrictions		No corrosive, explosive, or particulate-forming gases	
Leak rate		<1 x 10 ⁻⁶ std-cc/sec helium	
Noise level (per ISO 11201)		55 dB(A)	
Vibration level at inlet (per ISO 10816-1)		1.5 mm/second	
Compliance		Conforms with CE, CSA, CSA/CUS, Semi S2-703, and RoHS	

ORDERING INFORMATION						
IDP Series Dry Vacuum Pumps		with Hour Meter	with Isolation Valve	with Hour Meter and Isolation Valve	Tip Seal Kit	Replacement Module
IDP-2, 1Ø, 220V, 50/60Hz	IDP2A01	IDP2A11	IDP2A21	IDP2A31	IDP2TS	IDP2
IDP-2, 1Ø, 115V, 50/60Hz	IDP2B01	IDP2B11	IDP2B21	IDP2B31		
IDP-2, 1Ø, 100V, 50/60Hz	IDP2C01	IDP2C11	IDP2C21	IDP2C31		
IDP-2, 24 VDC	IDP2D01	IDP2D11	IDP2D21	IDP2D31		
IDP-3, 1Ø, 220V, 50/60Hz	IDP3A01	IDP3A11	IDP3A21	IDP3A31	IDP3TS	IDP3
IDP-3, 1Ø, 115V, 50/60Hz	IDP3B01	IDP3B11	IDP3B21	IDP3B31		
IDP-3, 1Ø, 100V, 50/60Hz	IDP3C01	IDP3C11	IDP3C21	IDP3C31		
IDP-3, 24 VDC	IDP3D01	IDP3D11	IDP3D21	IDP3D31		

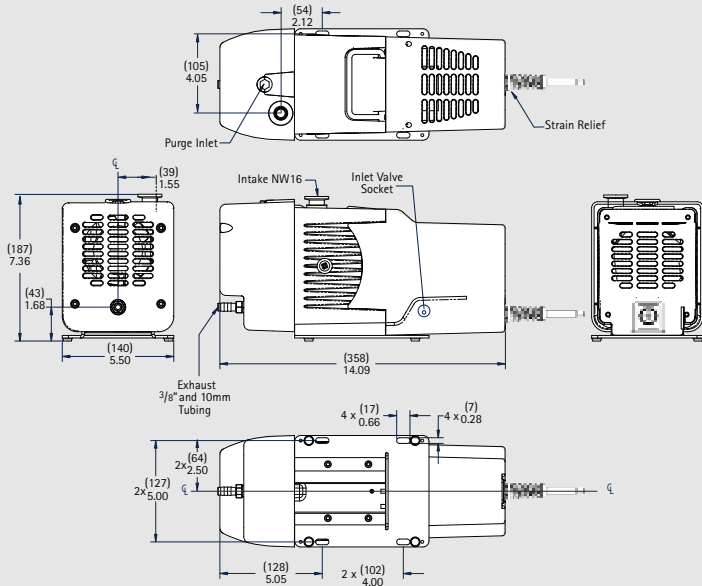
Power Cord Selection

Europe, 10A/220-230V, 2.5 Meter	656494220	Israel, 10A/230V, 2.5 Meter	656494230
Denmark, 10A/220-230V, 2.5 Meter	656494225	Japan, 12A/100V, 2.3 Meter	656494240
Switzerland, 10A/230V, 2.5 Meter	656494235	North America, 15A/125V, 2.0 Meter	656458203
UK/Ireland, 13A/230V, 2.5 Meter	656494250	North America, 10A/230V, 2.5 Meter	656494255
India, 10A/220-250V, 2.5 Meter	656494245		

Technical Specifications

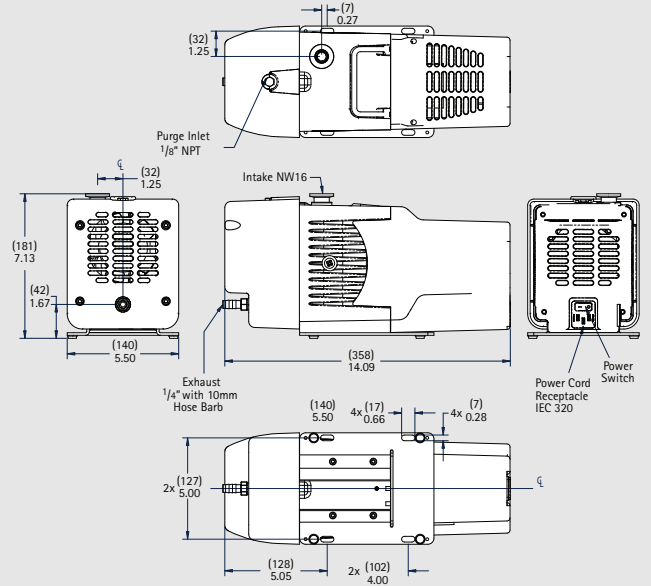
IDP-2 OUTLINE DRAWING

IDP-2 shown with DC power cord available for both pumps

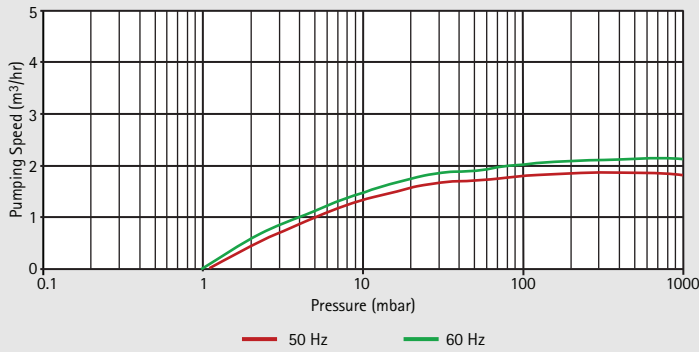


IDP-3 OUTLINE DRAWING

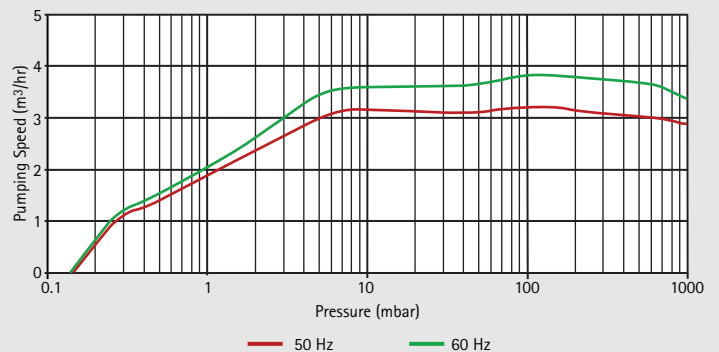
IDP-3 shown with IEC power connector available for both pumps



IDP-2 PUMPING SPEED



IDP-3 PUMPING SPEED



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