Agilent IDP-3 Dry Scroll Pump
For the Agilent 5977, 5975, and 5973 Series GC/MSD

CLEAN. QUIET. RELIABLE.
OIL FREE.

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LOUD NOISE, OIL LEAKS, AND PUMP BREAKDOWNS DON'T HAVE TO BE A FACT OF LIFE

Oil-sealed rotary vane pumps are a major source of frustration, excess costs, and lost productivity. For starters, the oil must be changed and disposed of whenever it becomes discolored—typically every 6 to 12 months. Even worse, the cost of disposing the used oil can be more expensive per liter than the original purchase price.

Rotary vane pumps also have a tendency to fail due to oil starvation, or from blocked internal lubrication passages. This can result in costly service calls—and hours of unexpected downtime.

Now there's a clean, compact, and cost-effective alternative to conventional oil-sealed pumps: the Agilent IDP-3 dry scroll pump

The Agilent IDP-3 dry scroll pump is an affordable way to make GC/MS productivity happen, and put the hassles of oil-sealed pumps behind you once and for all. It features:

- **Lower cost of ownership** since the IDP-3 dry scroll pump operates without oil. Even better, you won't have to worry about MS source contamination, oil leaks/spills, or hazardous waste disposal of used oil.
- **Better vacuum performance** than other pumps of similar size.
- **Innovative scroll design** reduces the distractions of noise and vibration. Plus, there's no hydrocarbon exhaust and no oil mist filter required.
- **Small footprint and lightweight construction** are ideal for any instrument configuration—even inside cabinets.

In addition, the IDP-3 scroll pump is MSD qualified, and is compatible with Agilent 5977, 5975, and 5973 GC/MSD systems.

Here's why oil-free scroll pumps are the wise choice for research and industrial applications

Better performance than pumps of similar size

Dry IDP scroll pumps rapidly pump down to low base pressures, which ensures optimal turbo pump performance and greater system reliability.

A cleaner environment inside—and outside—of your lab

IDP scroll pumps do not use oil, which can spill, leak, or infiltrate the MS source. They also eliminate the risk of hydrocarbon contamination in the vacuum system. Perhaps most importantly, IDP scroll pumps reduce the amount of hazardous waste in our air, water, and soil.

Less downtime, lower ownership costs

Unlike traditional pumps that demand hours of scheduled maintenance, IDP scroll pumps require a simple seal replacement that takes less than 30 minutes. Scroll pump technology also eliminates expensive oil topping, changing, and disposal—plus the risk of pump seizure.

Easy installation and integration

With their small footprint, lighter weight, and minimal power requirements, IDP pumps accommodate any system design. They place little burden on utilities, require no special voltage, and are suitable for use inside cabinet enclosures. Best of all, their low noise and minimal vibration—without a quiet cover—make the workday more pleasant for everyone in your lab.

Longer service life between maintenance activities

Replacing the tip seal on the IDP-3 scroll pump can be completed in less than 30 minutes—compared to several hours spent rebuilding the diaphragm on membrane pumps.

Innovative hermetic design

IDP Pumps fully isolate the bearings and motor from the vacuum space. This allows the safe recovery of precious process gases, and prevents the leakage of toxic gases.

IDP-3 tip seal replacement is fast and easy.

A CLOSER LOOK AT THE TECHNOLOGY BEHIND THE PUMP

The Agilent IDP-3 dry scroll pump employs an innovative hermetic design in which the motor and bearings are located outside the vacuum space—completely isolating all pumped gases.

This elegantly simple design offers many benefits including lower noise and vibration levels, simple, infrequent maintenance, and the elimination of catastrophic failure modes. In addition, dry pump technology is environmentally friendly, as it eliminates the need for oil disposal—and the risk of handling contaminated oil.

How does the scroll mechanism work?

Gas enters scroll set

Gas is displaced and...

...compressed toward center hub

Gas exhausted at center hub

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

Robust performance for demanding applications

By incorporating the latest scroll technology and tip seal design, the Agilent IDP-3 dry scroll pump delivers:

- Pumping speed of 60 L/m (3.6 m^3/hr)
- Very low base pressure: less than 250 mTorr (0.3 m bar)—that's 4 times lower than equivalently sized membrane/diaphragm pumps
- Optimal vacuum and operating conditions (current, power, and temperature) for turbo molecular pumps at equivalent gas loads

Side-by-side comparison: traditional pumps vs. the IDP-3 dry scroll pump

Rotary Vane Pumps	IDP-3 Scroll Pump
Oil can leak into the vacuum system, or spill into your work environment	Oil-free: No contamination, spills, or leaks
Frequent oil checks, changes, and disposals	Easy maintenance: Simply change the tip seal
Can seize when there is insufficient oil	No oil needed... no risk of seizing

Membrane Diaphragm Pumps	IDP-3 Scroll Pump
Large, bulky design wastes precious lab space	Compact size: 358 mm x 181 mm x 140 mm
Excess power consumption	Less power consumption and lower bearing temperature
High base pressure can cause membrane rupture and sudden pump failure	Lower base pressure minimizes the risk of catastrophic vacuum loss
Loud noise, excess vibration	Promotes a quiet, pleasant work environment

SEE HOW THE IDP-3 DRY SCROLL PUMP IS LOWERING OPERATING COSTS FOR REAL-WORLD LABORATORIES

The following examples illustrate three typical maintenance scenarios in which the Agilent IDP-3 Dry Scroll Pump saved customers both time and money, compared with a traditional RVP oil pump.

Case Study 1: Agilent 5973 GC/MSD

A chromatography laboratory in Germany that performs its own pump maintenance dramatically lowered its annual consumables costs using the IDP-3 scroll pump.

The IDP-3 scroll pump eliminated the cost of:

- Oil bottle
- Oil mist filter
- Hazardous waste disposal

Total annual consumables savings: 66%

Case Study 2: Agilent 5977 GC/MSD

In this example, we compared internal shipping and logistics costs. Once again, the savings with the IDP-3 scroll pump are significant—even if the pump is replaced every 5 years.

The IDP-3 scroll pump eliminated the cost of:

- Hazardous materials shipping (pump oil)
- Logistics (per item)

Total annual logistics savings: 62%

HIGH EFFICIENCY, HIGH CAPABILITY AGILENT 5977B HES GC/MSD SYSTEM

Built on a long tradition of trusted single-quadrupole GC/MS systems, the 5977B HES GC/MSD breaks new ground with a High Efficiency Ion Source (HES).

The HES increases sensitivity by maximizing the number of ions that are created and transferred out of the source body and into the quadrupole analyzer. This novel design revolutionizes single-quadrupole MS performance, offering two distinct advantages:

- **10x greater sensitivity:** Bring yesterday's triple quadrupole performance into your single-quadrupole lab with detection limits as low as 1.5 fg IDL.
- **10x less sample required:** You'll spend less time performing sample prep and maintenance, while reducing your shipping costs.
- **Seamless integration** with the Agilent IDP-3 dry scroll pump for ultimate confidence in your investment and results.

WITH AGILENT INERT FLOW PATH SOLUTIONS, YOU WON'T MISS A THING IN YOUR GC AND GC/MS ANALYSIS

1 Ultra Inert liners

2 Inert Flow Path Split/Splitless inlet

3 Ultra Inert gold seals

4 Inert MS source

5 IDP-3 pump

6 Inert Capillary Flow Technology devices, including UltiMetal Plus 3-way splitter

7 UltiMetal Plus Flexible Metal ferrules

8 Agilent J&W Ultra Inert GC column and Ultimate Plus deactivated fused silica tubing

9 Gas Clean purifier

1 **Ultra Inert liners**

With or without deactivated glass wool, Ultra Inert liners are certified to provide both low surface activity and highly reproducible sample vaporization, facilitating best-in-class delivery for active analytes.

2 **Inert Flow Path Split/Splitless inlet**

The hot metal surfaces of each weldment are treated to prevent adsorption and degradation.

3 **Ultra Inert gold seals**

Only Agilent combines the best mechanical sealing with an inert surface. Unlike traditional machined seals, Ultra Inert gold inlet seals are manufactured using metal injection molding, followed by gold plating to ensure a smooth, consistent surface. We then apply our Ultra Inert chemistry on top of the gold plating to produce a leak-free seal that reduces active analyte adsorption.

4 **Inert MS source**

Precision design, material selection, surface deactivation, and rigorous testing ensure unmatched sensitivity when analytes reach the mass spectrometer.

5 **Go green, go dry with the oil-free IDP-3 scroll pump**

It offers a quieter laboratory environment, no oil contamination and lower cost of ownership compared to standard oil-sealed rotary vane pumps.

6 **Inert Capillary Flow Technology devices, including UltiMetal Plus 3-way splitter**

With their highly inert surfaces, Capillary Flow Technology tools extend your GC capabilities by modifying the flow path *without the risk of sample loss.* Our purged union allows you to backflush high boilers in heavy-matrix samples, increasing column lifetime and system productivity.

7 **UltiMetal Plus Flexible Metal ferrules**

With their proprietary surface deactivation, Agilent's NEW UltiMetal Plus Flexible Metal ferrules are the *only* ferrules that won't introduce active sites into the flow path. Unlike graphite/Vespel ferrules, our inert flexible metal ferrules *don't* have to be retightened. Their flexible metal construction also solves the problem of column breakage (or leakage) associated with standard metal ferrules. Compatible with Capillary Flow Technology (CFT) and inlet/detector fittings. (Note: color variations between ferrules are a normal result of the UltiMetal coating).

8 **Agilent J&W Ultra Inert GC column and Ultimate Plus deactivated fused silica tubing**

Each column is rigorously tested to ensure exceptionally low bleed and consistently high inertness for optimal active analyte delivery to the GC or MS detector. Available in a variety of phases to support environmental, food safety, and toxicology applications.

For applications of complex or heavy matrices where guard columns are typically used, Ultimate Plus deactivated fused silica tubing is designed for the best inertness.

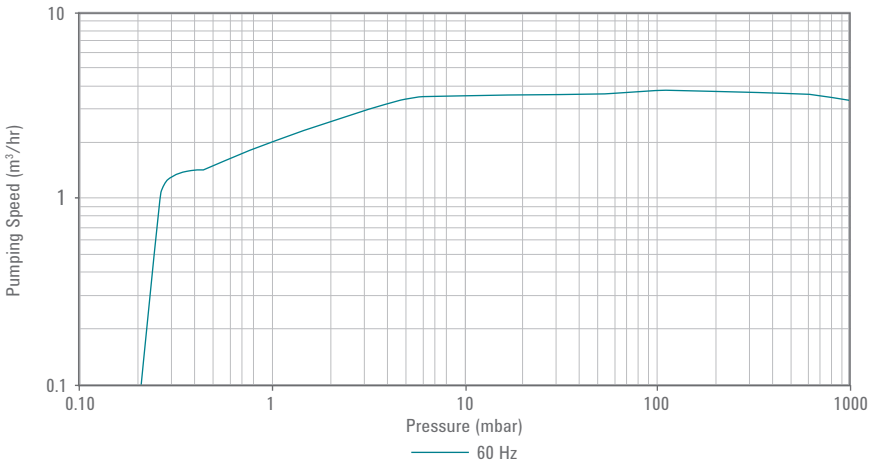
9 **Gas Clean purifier**

Contaminants such as oxygen, moisture, and hydrocarbons can increase the risk of column damage, sensitivity loss, and instrument downtime. Installing an Agilent Gas Clean purifier in your carrier gas line removes these contaminants, which helps maintain flow path inertness, ensure the highest quality gas, and keep your gas lines clean and leak-free. Sensitive indicators protect your instrument and GC column, while fast stabilization enhances productivity and reduces helium gas consumption.

Visit **www.agilent.com/chem/gasclean** for more strategies on clean gas delivery.

AGILENT IDP-3 DRY SCROLL PUMP

Pumping Speed



Technical Specifications

Peak pumping speed	60 L/m, 3.6 m^3/hr, 2.1 cfm
Ultimate pressure	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 3/8" NPT
Gas ballast connection	Female 1/8 in. 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 HP (0.12 KW) Peak rating: 0.27 HP (0.20 KW)
Supply power	24V DC, +/-10%, 7 FLA
Motor thermal protection	Automatic
Rotation speed	3200 RPM
Cooling	Air-cooled
Weight	9.5 kg (21 lbs); Shipping-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

Description	Part No.
Oil free IDP-3 scroll pump for 5973, 5975, and 5977 Includes IDP-3 pump, power supply, new foreline hose, and fittings	G6696A
IDP-3 tip seal kit	5190-9561

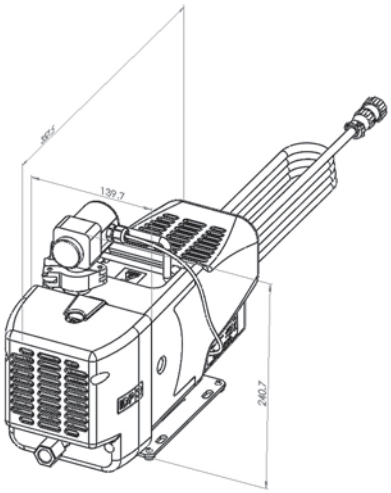
Important:

Agilent scroll pumps are limited to EI (Electron Impact Ionization) GC/MS systems. GC/MS systems driven predominantly in Chemical Ionization (CI) mode are excluded.

IDP-3 dry scroll upgrade kits are **not** compatible with the following 5973, 5975, and 5977 instruments:

- Diffusion pump equipped instruments
- Instruments using H_2 carrier gas
- CI instruments using NH_3 reagent gas

IDP-3 Dry Scroll Pump for 5977, 5975, and 5973 Series GC/MSD



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