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

CLEAN. QUIET. RELIABLE.
OIL FREE.
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.
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 m³/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

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

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

Inert Flow Path Split/Splitless inlet
The hot metal surfaces of each weldment are treated to prevent adsorption and degradation.

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.

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

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.

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.

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).

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.

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

Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>Peak pumping speed</td>
<td>60 L/m, 3.6 m³/hr, 2.1 cfm</td>
</tr>
<tr>
<td>Ultimate pressure</td>
<td>2.5 x 10⁻¹ torr (3.3 x 10⁻¹ mbar, 33 Pa)</td>
</tr>
<tr>
<td>Maximum inlet pressure</td>
<td>1 atmosphere (1.0 bar, 101 kPa)</td>
</tr>
<tr>
<td>Maximum outlet pressure</td>
<td>1.4 atmospheres (1.4 bar, 142 kPa)</td>
</tr>
<tr>
<td>Inlet connection</td>
<td>NW16 KF flange</td>
</tr>
<tr>
<td>Exhaust connection</td>
<td>Female 3/8&quot; NPT</td>
</tr>
<tr>
<td>Gas ballast connection</td>
<td>Female 1/8 in. NPT</td>
</tr>
<tr>
<td>Ambient operating temperature</td>
<td>5 to 40 °C (41 to 108 °F)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-20 to 60 °C (.4 to 140 °F)</td>
</tr>
<tr>
<td>Motor rating</td>
<td>0.16 HP (0.12 KW) Peak rating: 0.27 HP (0.20 KW)</td>
</tr>
<tr>
<td>Supply power</td>
<td>24V DC, +/-10%, 7 FLA</td>
</tr>
<tr>
<td>Motor thermal protection</td>
<td>Automatic</td>
</tr>
<tr>
<td>Rotation speed</td>
<td>3200 RPM</td>
</tr>
<tr>
<td>Cooling</td>
<td>Air-cooled</td>
</tr>
<tr>
<td>Weight</td>
<td>9.5 kg (21 lbs); Shipping-10.5 kg (23 lbs)</td>
</tr>
<tr>
<td>Restrictions</td>
<td>No corrosive, explosive, or particulate-forming gases</td>
</tr>
<tr>
<td>Leak rate</td>
<td>&lt;1 x 10⁻⁹ std-cc/sec helium</td>
</tr>
<tr>
<td>Noise level (per ISO 11201)</td>
<td>55 dBA</td>
</tr>
<tr>
<td>Vibration level at inlet (per ISO 10816-1)</td>
<td>1.5 mm/second</td>
</tr>
<tr>
<td>Compliance</td>
<td>Conforms with CE, CSA, CSA/CUS, Semi S2-703, and RoHS</td>
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</tbody>
</table>

Pumping Speed

![Graph showing pumping speed vs. pressure](image)

Technical Specifications: A table summarizing the specifications of the Agilent IDP-3 Dry Scroll Pump, including pumping speed, ultimate pressure, maximum pressures, connection details, operating and storage temperatures, motor rating, supply power, cooling, weight, restrictions, leak rate, noise level, vibration level, and compliance standards.
Ordering Information

<table>
<thead>
<tr>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil free IDP-3 scroll pump for 5973, 5975, and 5977 Includes IDP-3 pump, power supply, new foreline hose, and fittings</td>
<td>G6696A</td>
</tr>
<tr>
<td>IDP-3 tip seal kit</td>
<td>5190-9561</td>
</tr>
</tbody>
</table>

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 H₂ carrier gas
- CI instruments using NH₃ reagent gas

IDP-3 Dry Scroll Pump for 5977, 5975, and 5973 Series GC/MSD
Agilent CrossLab, the world leader in innovative laboratory services, software, and consumables, delivers vital, actionable insights to drive improved economic, operational and scientific outcomes.

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