Agilent

Trusted Answers

Intelligent and Configurable: Meet Your Analytical Needs Today and Tomorrow

Agilent 8890 gas chromatography system

How Much Is an Hour of Your Time Worth?

Whether you manage a lab that's large or small, contract or in-house, your challenges as a lab manager are universal. Success depends on the timeliness and accuracy of the data generated by your instruments and staff. And when everything's working smoothly, you can spend more time on tasks such as finding new customers and keeping up-to-date on methods.

The new Agilent 8890 GC system keeps you in control

Why the Agilent 8890 GC? Because it works. But there's much more to the 8890 besides decades of proven Agilent reliability and performance. As the most self-aware GC available, the 8890 senses—and compensates for—atmospheric pressure fluctuations to ensure precise chromatography.

Intelligent GC: Instruments that work as hard as you do

The 8890 GC is just one of a new breed of instrument that monitors system health, alerts you to potential issues, and helps you solve problems. That means you can plan your work—including maintenance—rather than react to unexpected downtime.

In addition, the instrument features core microchannel-based electronic pneumatic control (EPC) architecture. Unique to Agilent, this design protects against gas contaminants—such as particulates, water, and oils—improving reliability and longevity.

Check on your lab anytime, from anywhere

Now you don't have to be in your lab to make sure that things are running smoothly. Mobile access features let you view setup information, troubleshoot problems, check for leaks, backflush columns, pause and start sample runs, and manage method development.

Intelligent GC Simplifies Life Inside—and Outside—the Lab

The intelligent interfaces of the 8890 GC keep you in control, every step of the way. Over the lifetime of the instrument, downloadable updates will provide expanded capabilities—continuously improving your productivity.

Intuitive touch screen interface

Home screen

Provides at-a-glance updates on the system configuration and flow path.

Instrument actuals screen

Allows you to customize and identify frequently used setpoints for quick accessibility.

Plot screen

Confirms that analyses are progressing as intended.

Additional tabs

Give you quick access to key functions such as:

- Methods
- Diagnostics
- Maintenance
- Logs
- Settings
- Help

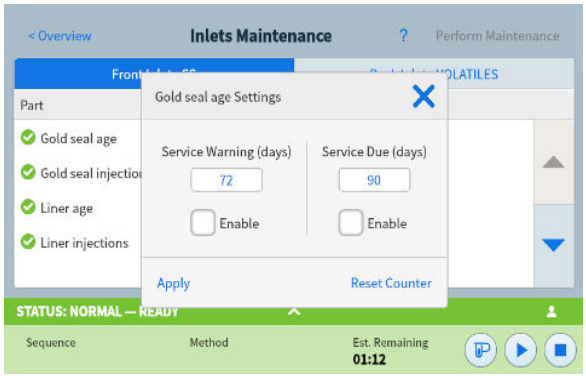
Browser interface

Access most of the functions available on the GC touch screen, plus help functions, without having to stand at the instrument.

- Gain access from any browser (tablet, laptop, or PC).
- Edit GC methods and sequences without the need for a data system.
- Call up Diagnostics, Maintenance, Logs, and Help menu items.
- Review logs, or consult the user manual, right at your desk.
- Check instrument status and run diagnostics from any place within reach of your secure lab network.

GC performance monitoring

The system examines data obtained from samples and evaluates the chromatography retention time, area, and shape of specified peaks. If the peaks are not what they should be, the system will notify you.

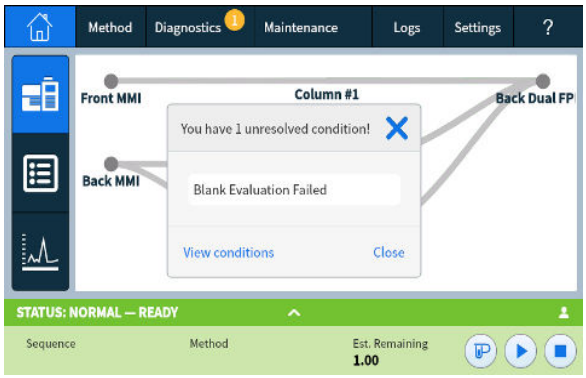


Blank run evaluation

Blank runs are used to trace the source of artificially introduced contamination. They are critical to accurate quantitative analysis, and are often required by regulatory agencies as part of the quality control process.

The 8890 GC evaluates blank run data and identifies problems such as baseline excursions, unexpected peaks, and elevated baseline from the column stationary phase. It then raises a “not ready” notification if the blank isn’t truly blank.

A screen, accessible from the browser interface, lets you accept defaults based on Agilent recommendations or tailor blank analysis to your needs. You can also select what should happen if blank analysis fails (warn and continue, pause, or abort).



Detector evaluation

The system will automatically evaluate detector checkout samples, providing a written summary report in the diagnostic section.

Key GC intelligence and software-based features

Self-aware features:

– User-initiated diagnostic tests
– Autonomous diagnostic tests
– Autonomous continuous monitoring
– Self-guided diagnostic troubleshooting
– Early maintenance feedback (EMF) counters
– GC performance monitoring
– Self-guided maintenance procedures

Other features:

– Onboard enhanced methods and sequences
– Onboard storage of results
– Onboard enhanced help

Smart Instrument Features Let You Reduce Stress, Empower Employees, and Get Home on Time

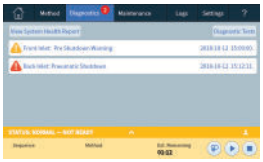
Intelligent capabilities built into the Agilent 8890 GC give you the freedom to work with your GC… not on it. These capabilities can also grow over time as your analytical needs change—so you can keep your lab moving toward a successful future.

Know that your GC is ready to run—before you begin

Initiate diagnostic tests at any time through the touch screen or browser interface.

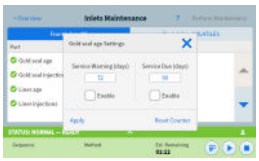
Keep your GC operating at its best

The 8890 GC continuously monitors setpoints and reference voltages. When issues are identified, an alert appears on both the touch screen and the browser interface.



Resolve problems quickly

Important issues, such as pressure shutdowns, have self-guided troubleshooting trees embedded in the touch screen and browser interface.

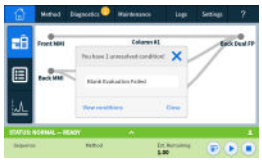


Stop problems before they start

Early maintenance feedback (EMF) counters let you monitor common consumables to maximize their lifetime.

Easily complete common maintenance procedures

Self-guided maintenance provides step-by-step instructions for replacing inlet components, columns, and GC detector consumables.



Monitor GC performance

Automatically evaluate blanks and GC detectors using advanced onboard analytical techniques.

Lower your cost of ownership

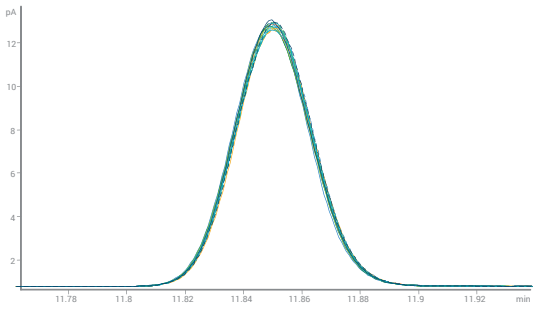
Hydrogen or nitrogen alternate carrier gas capability minimizes operating costs. The optional helium conservation module and hydrogen sensor help reduce gas use. Sleep/wake modes lower your gas and energy consumption.

Enhanced Chromatographic Capabilities: Produce Quality Data the First Time… and Every Time

Retention time locking for rock-solid consistency

Retention time locking (RTL) precisely matches the retention times of any GC system to those of another Agilent GC system with the same column and method. So, you can ensure long-term repeatability and correct retention times after column maintenance. You can also standardize your QA/QC measurements by comparing results between systems in the same lab—or at different locations.

RTL works by evaluating the relationship between inlet parameters and retention time during three to five reference runs. It then calibrates the system using the results. Later, you can match the original retention times on the locked method by performing a single relocking analysis.



Achieve unsurpassed retention time reproducibility in standard applications—even with multidimensional applications, such as this heart-cutting example.

Make reliable capillary connections with capillary flow technology (CFT)

- **Backflush** significantly reduces timing between injections, increasing productivity.
- **Purged Ultimate unions** provide leak-free connections, reducing downtime.
- **Flow splitters** enable data collection from up to three detectors.
- **Multidimensional chromatography:**
  - **Deans switch** facilitates heart-cutting, enabling resolution of trace compound in complex matrices.
  - **GC x GC flow modulation** enables multidimensional chromatography without the need for cryogen.

Agilent Ultra Inert liners ensure:

- **Less analyte buildup**, so you can analyze more samples without the need for frequent system maintenance.
- **Exceptional batch-to-batch uniformity** for more reproducible results.
- **Low to no bleed or background contamination** for your most accurate data.

Carrier Gas Options Let You Use Resources More Efficiently

Alternate carrier gases decrease costs

Many labs are switching to alternate carrier gases, such as nitrogen and hydrogen. Nitrogen is an inexpensive option when the separation chemistry achieves sufficient resolution. Hydrogen, too, has excellent chromatographic qualities and can increase throughput.

The Agilent hydrogen sensor detects potential leaks early, and puts your system into safe standby mode, if necessary.

Helium conservation for validated methods

Tools such as our helium conservation module and helium switch allow you to use helium for your GC runs. You can switch to an alternate gas (such as nitrogen) when your GC is idle.

External valve oven expands your gas sampling options

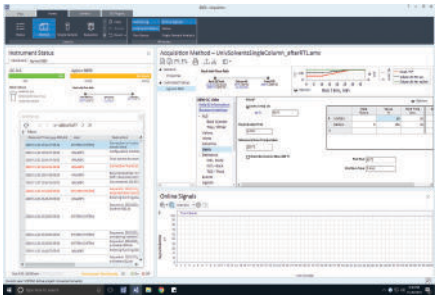
The Agilent large valve oven (LVO) for GC is a versatile, high-capacity external oven that can be configured to support complex, multivalve GC applications. That means you can implement multiple ASTM and EN methods on a single GC system—with a smaller laboratory footprint.

In addition, the LVO provides a homogeneous isothermal environment for up to six valves, plus open access for maintenance, adjustment, or customization. Accessibility, capacity, and thermal uniformity make the Agilent LVO well suited for combining multiple analyses on a single GC platform. Other advantages include:

- Easy maintenance and servicing
- Configurable analyzers
- Six valve positions plus two micro-valves, with a maximum 14-port valve
- One heated GC zone with optional valve configurations

Software Optimized for Your Lab

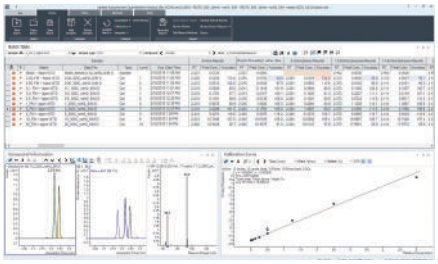
Keep your lab connected—and get the most from your Agilent GC system investment—with Agilent software. From data collection, analysis, and reporting… to interpretation and management… our software helps you transform analytical data into meaningful results.



Agilent OpenLab CDS

Capture, analyze, and share data

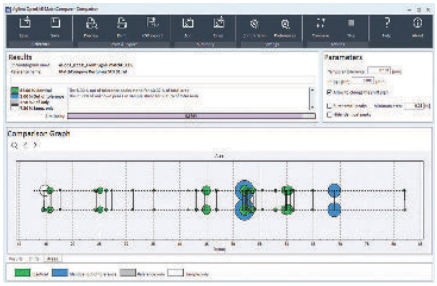
- Optimize LC, GC, and single quadrupole MS workflows on Agilent and non-Agilent LC/GC instruments.
- Quickly onboard staff with easy-to-use software and intuitive Help and Learning.
- Maintain quality and reliability with role-based access controls and comprehensive audit trails.
- Speed data review by visualizing large data sets with Peak Explorer.
- Identify out-of-spec results with visual highlights in customized reports.
- Automate time-consuming tasks by integrating Sample Scheduler for OpenLab with your LIMS..



Agilent MassHunter software

Streamline operations and boost productivity

- Enable powerful data collection, processing, and reporting
- Breeze through application-specific workflows with comprehensive GC and GC/MS support.
- Use one software platform for all Agilent GC and GC/MS instruments, including single quadrupole, triple quadrupole, and GC/Q-TOF.
- Analyze complex samples—including environmental and food matrices—with compound-based analysis and reporting workflows that use MassHunter Quantitative Analysis with Quant-My-Way customization.
- Simplify data analysis with powerful application-specific software, such as retention-time locked MS libraries, MRM databases, and high-resolution personal compound database and libraries.



Agilent OpenLab CDS MatchCompare

Quickly compare standard and reference chromatograms

- Makes a rigorous comparison between a reference chromatographic data file and an unknown sample.
- Reports the result in an objective format, giving you proof that the comparison was completed.
- Provides individual compound quantification using OpenLab CDS as an overall fingerprint comparison.

No matter which Agilent software you choose, you can take advantage of these productivity-enhancing capabilities

- A common, user-friendly interface allows easy access to advanced software features—including method translation, flow calculators, and retention time locking.
- Integrated method development tools and calculators guide you through changing carrier gas, selecting the right liner, or changing to a column of different dimensions.
- Graphical consumables and Parts Finder tools help you locate key part numbers and descriptions for easy ordering.
- Consumables database simplifies method development by minimizing tracking errors and automatically populating analytical methods with key configuration information.
- Resource conservation tools, such as automatic sleep and wake modes, reduce gas and power consumption.

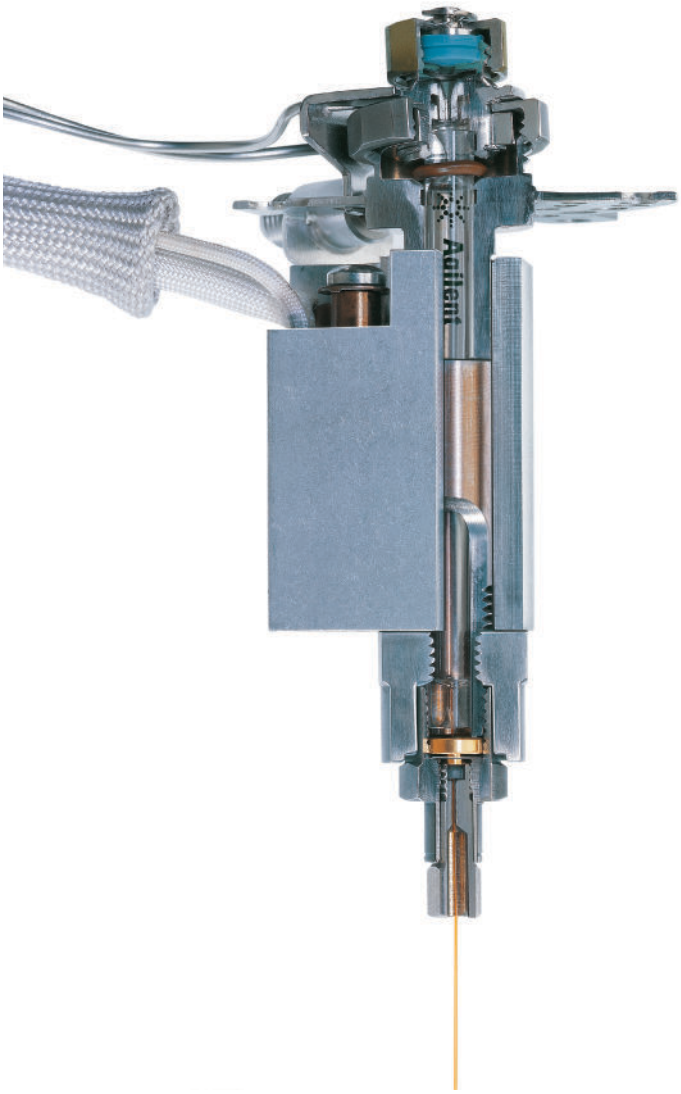
The 8890 GC is compatible with all current Agilent MassHunter and OpenLab software—as well as key versions of legacy systems, including OpenLab CDS ChemStation edition, OpenLab CDS EZChrom edition, OpenLab CDS, Multi-Technique ChemStation B.04.03SP2, and EZChrom Elite.

Produce Your Best Data and Process Sample Backlogs

Analyzers

More than just instruments, Agilent GC and GC/MS analyzers are complete workflow solutions. They incorporate innovations—such as capillary flow technology and target compound databases—that optimize your system for your unique application.

Each analyzer arrives ready to perform with preset chromatography and checkout samples to verify separation capabilities. Your team can work toward system validation when installation is complete—and significantly reduce your method development costs. And as always, our support team is available, should any problems arise.



Inlets

A wide inlet selection lets you optimize your system for your analysis:

- Split/splitless (SSL) capillary
- Inert flow path split/splitless (ISSL) capillary
- Multimode inlet (MMI)
- Purged packed injection port (PPIP)
- Programmable cool on-column (PCOC)
- Cool on-column with solvent vapor exit (COC-SVE)
- Programmable temperature vaporizing (PTV)
- Volatiles interface (VI)
- High-pressure gas sample injection
- Gas sampling valve (GSV)
- Liquid sampling valve (LSV)

Detectors

High-sensitivity detectors accommodate every sample type:

- Mass selective detector (MSD)
- Triple quadrupole MS
- Quadrupole time-of-flight (Q-TOF)
- Triple quadrupole ICP-MS
- Flame ionization detector (FID)
- Thermal conductivity detector (TCD)
- Micro-electron capture detector (Micro-ECD)
- Flame photometric, single- or dual-wavelength detector (FPD)
- Nitrogen-phosphorus detector (NPD)
- Sulfur chemiluminescence detector (SCD)
- Nitrogen chemiluminescence detector (NCD)
- Atomic emission detector (AED)*
- Pulsed flame photometric detector (PFPD)*
- Photoionization detector (PID)*
- Electrolytic conductivity detector (ELCD)*
- Halogen specific detector (XSD)*
- Oxygenate flame ionization detector (O-FID)*
- Pulsed discharge helium ionization detector (PDHID)*

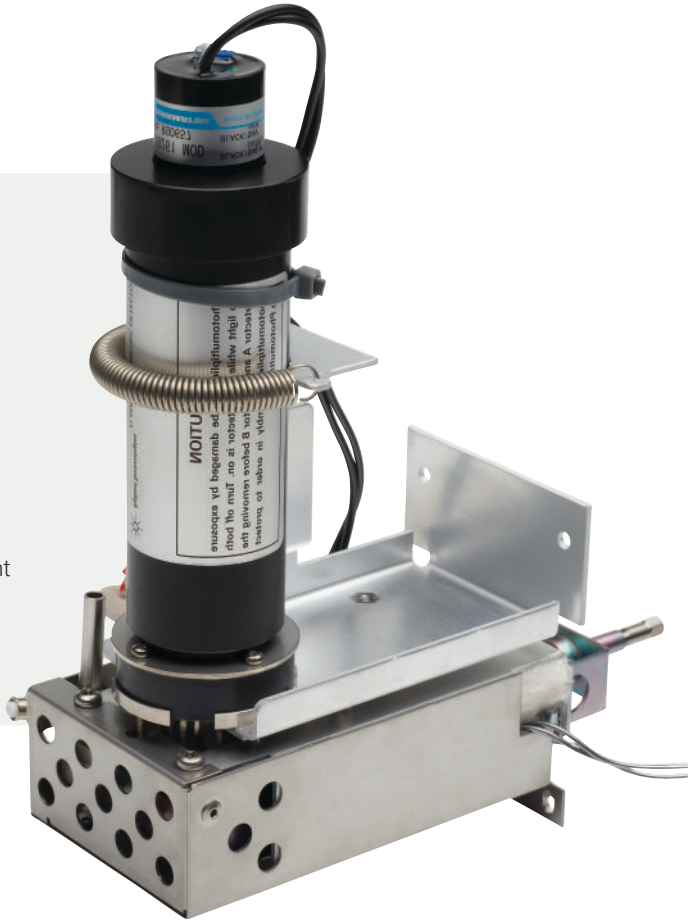
** Available through Agilent channel partners. Contact Agilent for custom configurations and channel partner solutions.*

Maximize flexibility and throughput

The Agilent 8890 GC accommodates up to four detectors, and can collect signals from all four detectors simultaneously:

- FID
- TCD
- NPD
- FPD/Dual FPD
- SCD/NCD
- ECD

What's more, new 6th-generation EPC design—with a core architecture unique to Agilent—allows you to configure up to eight EPC, PCM, and PSDs on an 8890 GC.



Agilent Autosamplers: The Perfect Partners for Your 8890 GC

Agilent autosamplers eliminate manual errors and provide unmatched reproducibility during sample injection. From smaller runs of up to 16 samples to larger runs of up to 150 samples or more… there's an autosampler that will keep you on track and on time.

Agilent 7693 Series automatic liquid sampler (ALS)

Inject new performance into your GC

With the fastest injection time of any GC autosampler, the Agilent 7693 Series ALS virtually eliminates thermal discrimination. It minimizes variability and manual errors with enhanced capabilities—such as 3-layer sandwich injections, heating, mixing, and barcode reading. What's more, its modular design lets you upgrade from 16 vials to 150 vials as your lab expands.

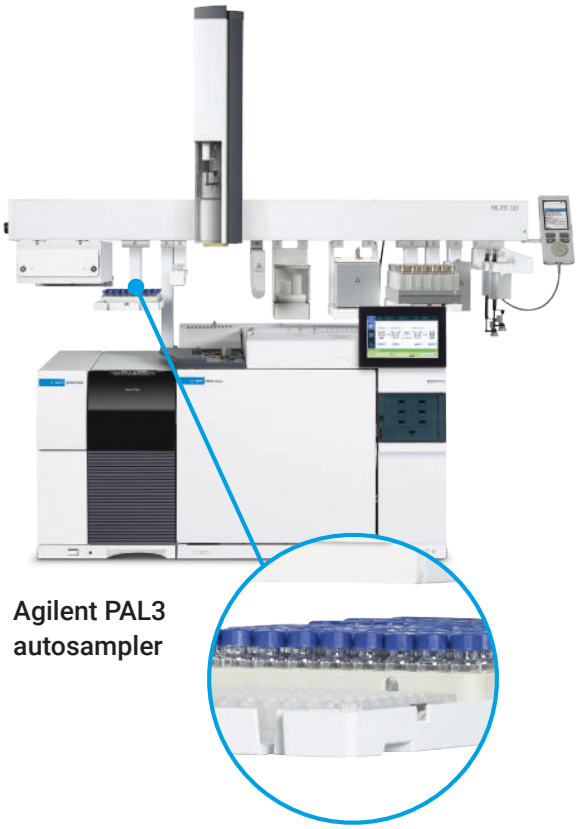
7693A ALS
16/150-vial capacity

Agilent 7650A automatic liquid sampler (ALS)

Intermediate vial capacity with high precision

For labs that process fewer than 50 samples per day, the robust Agilent 7650A ALS maximizes sample throughput. It provides the same high-speed injection as the 7693 Series ALS to virtually eliminate thermal discrimination. Plus, it includes the enhanced sampling capability of 3-layer sandwich injections.

7650A ALS
50-vial capacity



Agilent PAL3 autosampler

Agilent PAL3 autosampler

Boost output with advanced sample preparation capabilities

The versatile Agilent PAL3 platform is easily configured for liquid injection, and offers large-volume injection (LVI), multiple vial sizes, and extended sample vial capacity. It is ideal for liquid injection, headspace, and solid-phase microextraction (SPME) applications.

7697A headspace sampler
12/111-vial capacity

Agilent 7697A headspace sampler

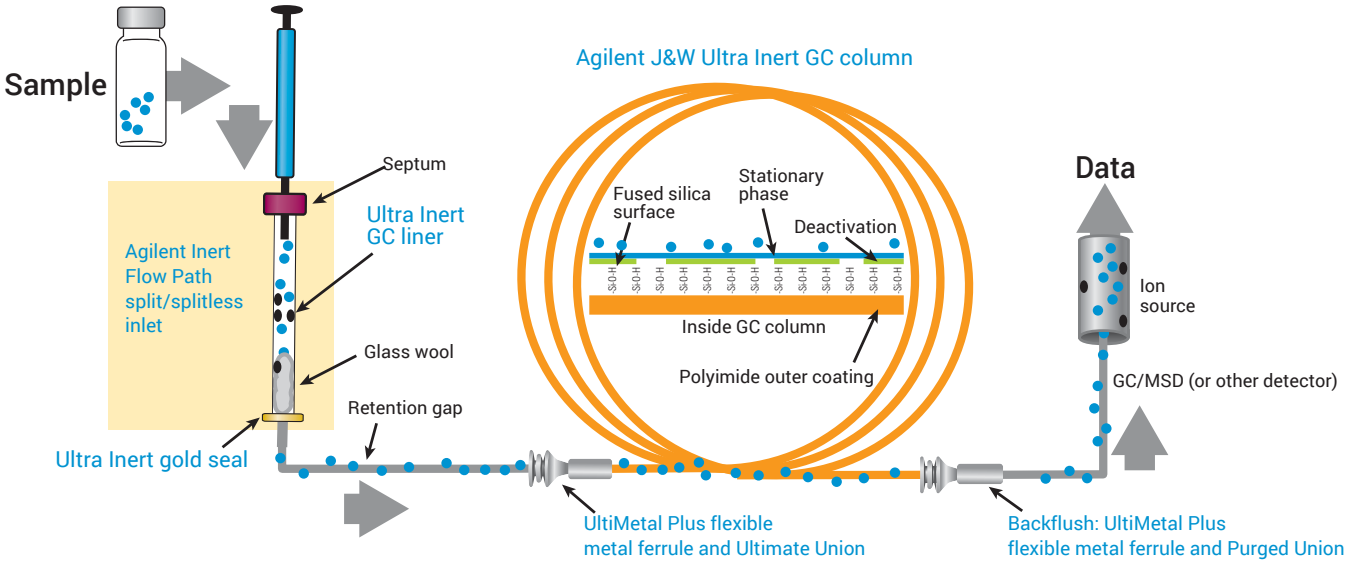
Automatically introduce volatile compounds from almost any sample matrix

Ensure an inert sample pathway for superior GC system performance without analyte degradation or loss. Electronic pneumatic control (EPC), a 111-vial capacity, and three exchangeable 36-vial racks make the 7697A an ideal choice for high-throughput labs. In addition, the Agilent 7697A headspace sampler supports the use of hydrogen as a carrier gas.

Protect your instrument—and the integrity of your samples—with Agilent industry-leading vials, caps, and syringes. View the Agilent sample introduction brochure at **www.agilent.com/chem/vialsresources** and search for 5991-1287EN.

Agilent Inert Flow Path: Ensure Reliable, Consistent Inertness

Actionable concentrations continue to decrease and new, relevant compounds are becoming increasingly active. The Agilent Inert Flow Path ensures reliable, consistent inertness from injector to detector—decreasing analyte adsorption for lower limits of detection (LODs) and better signal-to-noise response.



Self tightening column nuts are especially well suited for oxygen-sensitive detectors such as MS and ECD. Their tight connection remains leak free even after hundreds of injections.

Learn more at **www.agilent.com/chem/stnut**

An integrated approach to inertness

Achieve the parts-per-billion, parts-per-trillion, or lower detection levels that today's analyses demand with a totally inert flow path.

- Agilent J&W Ultra Inert GC columns are tested with the industry's toughest test probe mixture to ensure consistent column inertness and exceptionally low column bleed. Smart ID keys attached to the GC columns provide information such as column usage, column configuration, column age, number of injections, and column temperature limits; with default parameters for configuration.
- Ultra Inert inlet liners deliver a robust, reproducible, and reliable inert flow path—with or without glass wool.
- Inert flow path split/splitless inlet options provide an extra measure of inertness to the sample pathway.
- Ultra Inert gold seals feature deactivation chemistry applied on top of their gold plating for the most inert surface and highest-quality seal.
- UltiMetal Plus flexible metal ferrules promote a leak-free seal that requires less torque and reduces the risk of column breakage.
- Self tightening column nuts are finger-tight, maintain a leak-free seal, and reduce background noise for reliable results.
- Gas Clean filter systems deliver the cleanest possible gas, reducing column damage, sensitivity loss, and downtime.
- GC detectors allow the selectivity or sensitivity that your application requires—and the ability to handle your data with a unified platform.

For more information about creating an inert GC flow path, visit **www.agilent.com/chem/inert**

A Complete GC Workflow That Helps You Get from Where You Are to Where You Want to Be

For over 50 years, Agilent has led the way with industry-changing GC and GC/MS instruments, consumables, software, and more. And every step of the way, your goals become *our* goals: Improving user experience, laboratory operation, and business success.

Agilent sample preparation solutions

From particulate removal all the way to the most selective solid phase extraction techniques, the Agilent sample preparation portfolio offers the right solution for your lab and analysis.

Simplify sample preparation with prepackaged Agilent Bond Elut QuEChERS kits

- Extraction kits with preweighed salts in anhydrous packets let you add salts after the organic solvent—avoiding exothermic reactions.
- Dispersive kits accommodate the aliquot volumes specified by current AOAC and EN methodologies.

Produce cleaner extracts using Agilent Bond Elut SPE

- A selection of polymer, silica, and other sorbents in formats ranging from multiple cartridge sizes to 96-well plates.
- Consistent particle size ensures superior flowthrough and performance.
- Vacuum manifolds and accessories help you meet all your SPE challenges.

Remove lipids and simplify sample prep with Agilent Captiva EMR-Lipid

- Quickly and easily remove ion-suppressing lipids without analyte loss.
- Increase productivity with shorter run times and less time spent cleaning the MS source and backflushing the system.

Make sample preparation consistent, accurate, and safe with the Agilent 7696A sample preparation workbench

- Combines precise automation with an intuitive software interface to eliminate variability in dilution, extraction, standards addition, and other key steps.
- Significantly reduces exposure to hazardous solvents for long-term peace of mind.
- All prepared samples are finished in 2-mL vials that are compatible with most GC and LC autosamplers for direct analysis without transferring to other sample containers.

To learn more about Agilent sample preparation solutions, visit www.agilent.com/chem/sampleprep

Intelligent GC systems

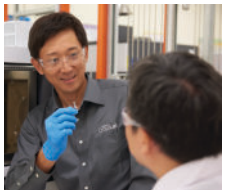
Increased freedom with GC assurance

The 8890 GC is one of several new instruments that give you the freedom to work the way you want—while delivering quality data, every time.

Mass spectrometry compatibility

Improved confidence in detection and identification

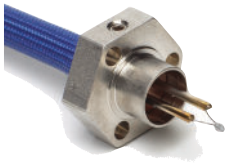
The 8890 GC is compatible with the Agilent single quadrupole, triple quadrupole, and Q-TOF GC/MS systems.



Flexible service and support options

Keep your lab up and running

- Agilent University: Education and training to fit your needs with classroom and online training.
- Maintenance and repair: On-demand, service plans, and service center repair options available.
- CrossLab Connect: Smart Alerts for email notification of consumables replacement and preventive maintenance, as well as instrument monitoring for your entire lab.



Genuine replacement parts for Agilent detectors

Replacement part authenticity counts

- Minimize background interference, low signal counts, and response changes.
- Maintain reliable performance, consistent signal output, and maximum uptime.
- Backed by the Agilent service agreement—plus a 90-day warranty from the date of shipment.

Gas Clean filters with Smart sensor

The Agilent Gas Clean filter system delivers clean gasses, reducing the risk of column damage, sensitivity loss, and instrument downtime. Inserting a Gas Clean filter system in the gas line immediately before the instrument inlet greatly reduces the level of impurities and improves trace analysis.

The sensitive indicators within the filter change color, alerting you that the filter needs to be replaced. Replacing the filters when they have reached absorption capacity ensures maximum protection of your GC columns and analytical hardware.

With the Agilent 8890 GC, remembering to replace your filters is now easier. The new Smart Gas Clean sensor:

- Automatically monitors and notifies you when a filter becomes saturated from a leak or regular use.
- Alerts you to whether the moisture or oxygen indicator is reaching capacity and the effect it will have on your GC.

The 8890 touch screen and software provides step-by-step instructions for replacing a saturated filter. The system automatically purges the filter after completion and provides instruction on how to check for leaks and other troubleshooting tips.

Agilent CrossLab: Real insight, real outcomes

CrossLab goes beyond instrumentation to bring you services, consumables, and lab-wide resource management. So your lab can improve efficiency, optimize operations, increase instrument uptime, develop user skill, and more.

Agilent CrossLab
From Insight to Outcome

Learn more:
www.agilent.com/chem/gc

GC column selection tool:
http://selectgc.chem.agilent.com

GC/MS instruments:
www.agilent.com/chem/ms

Inert flow path:
www.agilent.com/en/promotions/inertflowpath

Buy online:
www.agilent.com/chem/store

Find a local Agilent customer center in your country:
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