Agilent

Trusted Answers

Every Sample, Every Day

Operational efficiency for your GC and GC/MS labs
with the Agilent 5987A GC/MSD





The Agilent 5987A GC/MSD system

Redefine What's Possible

To stay ahead in a highly competitive landscape, labs need to accelerate turnaround times and adapt quickly to shifting demands. That's where the Agilent 5987A GC/MSD comes in. Representing more than just the next evolution of the trusted GC/MSD platform, the 5987A brings together superior analytical capabilities and versatility. What's more, it includes technologies that reduce downtime, simplify operation, and improve sustainability. The result: You can expand your productivity and profitability with every sample, every day.

Performance

When your lab is at capacity, you can't afford downtime or frequent recalibrations. The Agilent 5987A lets you do more with less—maximizing throughput and scaling your operations effortlessly.

Intelligence

Maintaining peak reliability is easier when your system can self-diagnose, detect issues, and walk you through repairs. The 5987A with Agilent GC Assist provides features that streamline complex workflows.

Sustainability

Resource conservation is now essential. The 5987A utilizes technologies and integrated efficiencies to meet sustainability goals, directly supporting your long-term core business outcomes.

Working together, performance, intelligence, and sustainability expand the boundaries of **productivity** and **profitability**.



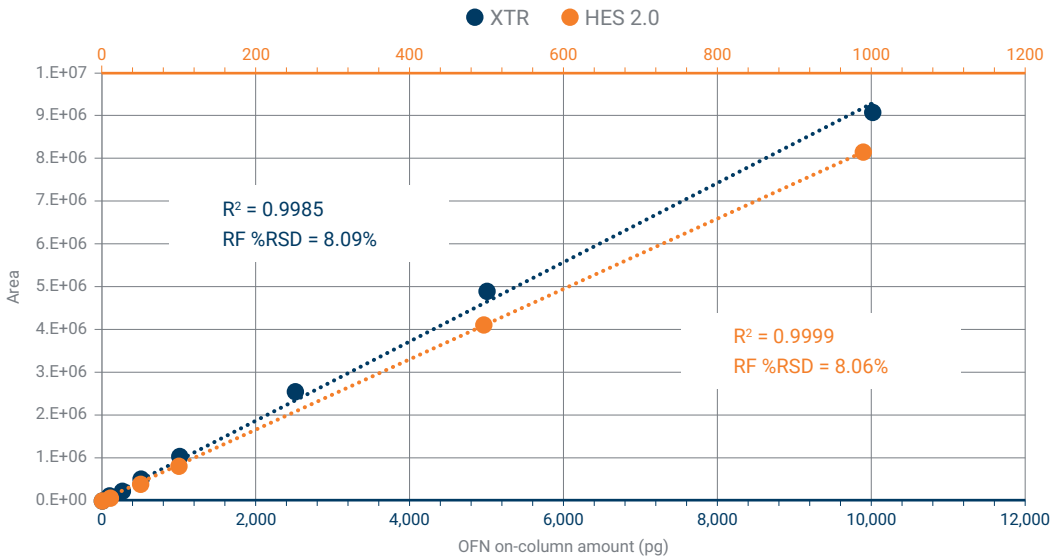
Performance that empowers you to meet your goals

Getting—and staying—ahead requires accurate identification and quantification, high sensitivity for trace analysis, and the specificity to differentiate complex mixtures. The 5987A GC/MSD delivers, with advances like faster scan speeds, extended linear dynamic range, and low detection limits.

Analyze complex samples with exceptional dynamic range and longer detector lifetime

The new extended range (ER) detector provides a ten-fold improvement in dynamic range and a three-fold increase in electron multiplier lifespan. The extended dynamic range extends your analysis of both low- and high-concentration compounds in a single run.

Agilent GC/MSD OFN linearity (extended range detector)

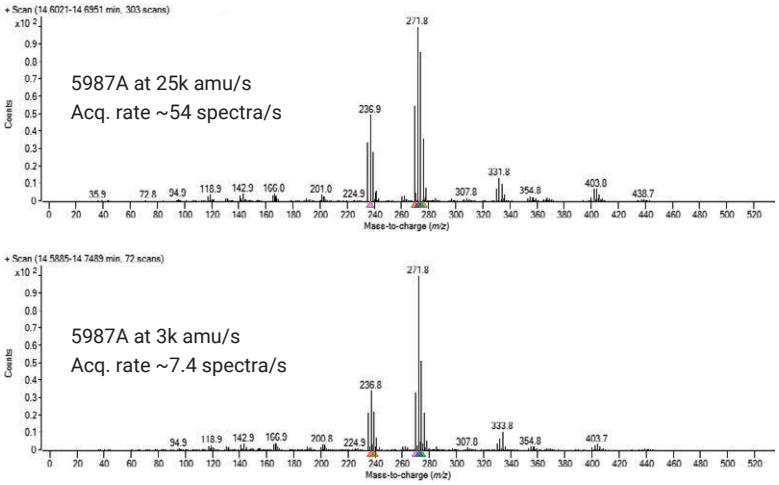


New extended range detector with six orders of magnitude dynamic range: 10 fg–10 ng for XTR ion source and 1 fg–1 ng for HES 2.0. The response factors (RF) %RSDs are ~8% with both ion sources.

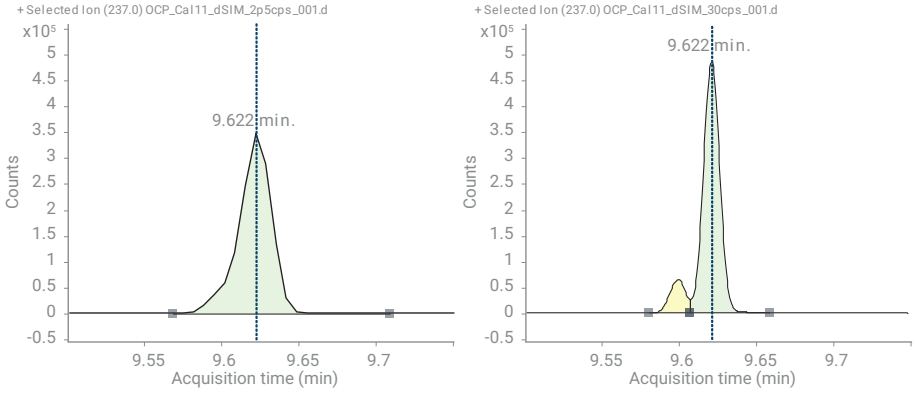
Drive your lab forward with mass spec scan speeds up to 25,000 u/sec

Faster scan speeds deliver more data points across each chromatographic peak while delivering quality spectra and increasing confidence in quantitation from trace to high-concentration compounds. This performance is especially critical for fast chromatography, very narrow peaks, and rapid switching between SIM and scan modes.

Compound	5987A 3k amu/s	5987A 20k amu/s	5987A 25k amu/s
Dichlorvos	97	96	95
Mevinphos	97	97	97
Ethalfluralin	98	97	96
Trifluralin	98	97	96
Atrazine	98	94	93
α-Lindane	99	93	93
Chlorpyrifos-methyl	98	93	93
Heptachlor	98	92	92
Malathion	99	96	93
Chlorpyrifos	98	90	91
p,p'-DDE	99	92	91
Dieldrin	98	90	92
Hexazinone	96	96	96
Propargite	95	94	92
Leptophos	97	93	92
Mirex	98	93	92
Fenarimol	98	92	92
Coumaphos	97	92	93
Etofenprox	96	95	94
Deltamethrin	97	91	89



High spectral fidelity across the 5987A acquisition scan speeds ("standard" and fast) as observed in the library match % results. Acquisition rates are up to 54 spectra/s at 25k amu/s scan speed, which is > 2x that of the 5977 instrument.



Higher sampling rates provide increased data density across the peak, delivering the superior peak shape required to resolve shoulder peaks and eliminate manual integration.

Reach industry-leading levels of GC/MS detection

Instrument detection limit (IDL) is based on the U.S. EPA definition of method detection limit (MDL). It is determined by a statistical analysis of precision (%RSD) over eight consecutive injections. Since IDL is measured close to the detection limit, it is a meaningful metric for what an instrument can achieve. All Agilent GC/MS systems include an IDL demonstration at installation. For more information, view our FAQs.

How does the 5987A measure up?

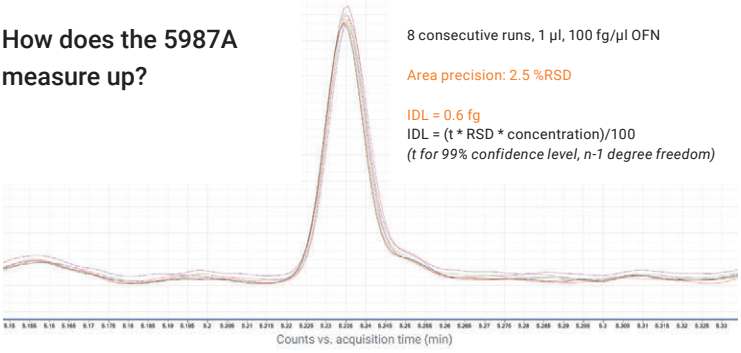
8 consecutive runs, 1 µl, 100 fg/µl OFN

Area precision: 2.5 %RSD

IDL = 0.6 fg

IDL = (t * RSD * concentration)/100

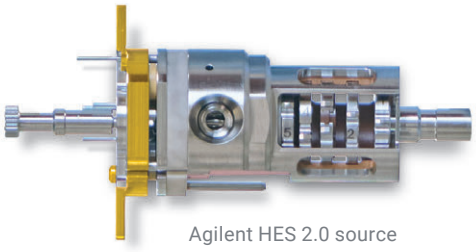
(t for 99% confidence level, n-1 degree freedom)



Gold-plated monolithic quartz quadrupole for stable and low-maintenance operation

Heated hyperbolic quadrupoles isolate and transmit ions efficiently with high precision and sensitivity. The quartz monolith guarantees perfect alignment for hyperbolic surfaces throughout the life of the mass spectrometer. Additionally, heated, quartz-based hyperbolic quadrupoles deliver long-term tuning stability and faster readiness after maintenance, so you get more consistent results with less downtime.





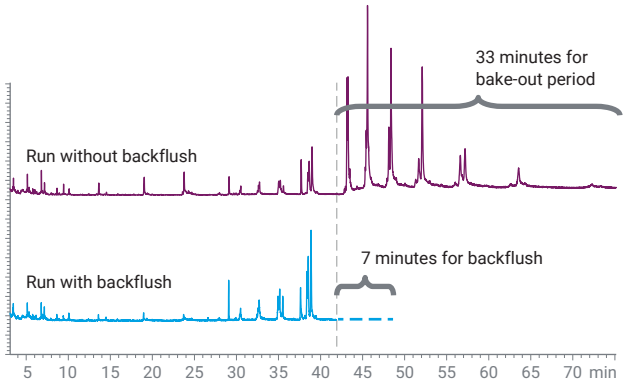
Agilent HES 2.0 source

Stay competitive with a versatile ion source portfolio

EI MSD source	Best for routine analysis.
Inert Plus EI source	Versatile and enhanced sensitivity for a wide variety of applications.
CI source	Softer ionization for molecular formula determination.
HES 2.0 source	Unparalleled analytical sensitivity for ultratrace-level applications. Learn more
HydroInert source	A novel EI source designed to improve performance with hydrogen carrier gas in GC/MS.

Boost GC performance with capillary flow technology

With Agilent capillary flow technology (CFT), you can make reliable, leak-free connections and simplify complex tasks like multidimensional chromatography. In addition, capillary flow technology lets you backflush the column once all peaks of interest have eluted, forcing out any remaining components. Benefits include reduced cycle times, less column maintenance, better data, and enhanced productivity.



Meet the next evolution of GC separation



The Agilent 8890B GC system maximizes productivity with high-quality data, outstanding flexibility, and unparalleled confidence for all users.



The Agilent 8860B GC system combines simplified operation with the proven reliability you expect from Agilent GC systems.



The Agilent 8850 GC system combines intelligence with the smallest, fastest high-performance benchtop GC on the market.

Technologies that minimize downtime—and its costs to your lab

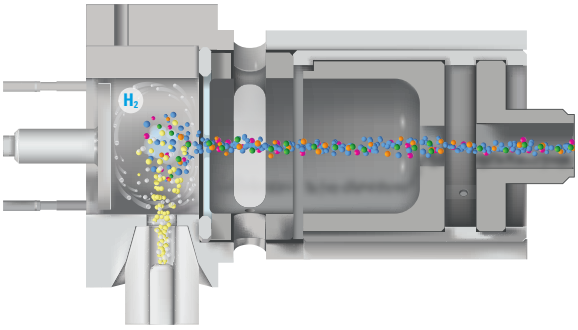
Unplanned downtime affects your lab's ability to deliver data quickly and accurately, which can hurt your bottom line. But the good news is, you can significantly reduce the frequency and impact of downtime by harnessing the latest innovations that drive productivity.

Maximize efficiency with Agilent QuickVent technology

This maintenance enhancement significantly reduces the time required to vent the mass spectrometer, bringing it back online sooner and allowing for faster ion source access. It also reduces instrument downtime by speeding up maintenance tasks such as replacing filaments and cleaning the ion source. Additionally, QuickVent ensures a controlled, safe shutdown of the vacuum system and minimizes contamination risk by preventing backstreaming of pump oil or atmospheric impurities.

Reduce manual cleaning frequency by 80% or more with JetClean

The Agilent JetClean self-cleaning ion source increases productivity by minimizing or eliminating time spent venting, cooling down, disassembling, cleaning, reassembling, retuning, and recalibrating. So you can extend periods of maintenance-free operation. It is compatible with Inert Plus and HES ion sources (EI only or EI/CI).



Quiet, oil-free, worry-free: Vacuum made better

The Agilent IDP-4 dry scroll pump is a compact, oil-free, and hermetic scroll pump delivering clean, dry vacuum in a 20% smaller footprint compared to the IDP-3. Its design isolates the motor and bearings from the vacuum path, extending bearing life and ensuring a contaminant-free environment. With universal voltage and a high-efficiency inverter for precise control and energy savings, the IDP-4 integrates easily into space-constrained setups. A single-sided scroll design enables quick, DIY service with simple tools, reducing downtime and total cost of ownership.





Intelligence that powers productivity

Analyzing the maximum number of samples reliably ensures lab profitability. The integrated Agilent 5987A GC/MSD features Agilent GC Assist—sophisticated, easy-to-use onboard intelligence that lets you monitor system health, predict maintenance, and solve problems. So, you can shorten turnaround times without sacrificing quality.

Newly integrated GC Assist keeps you informed and in control

A next-generation display screen maintains an intuitive user interface that also includes shortcuts for important and often-used features.

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

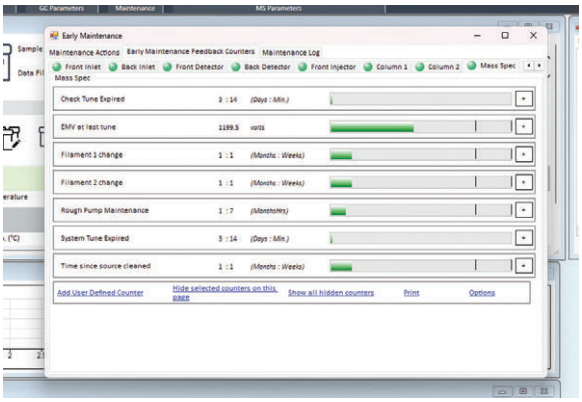


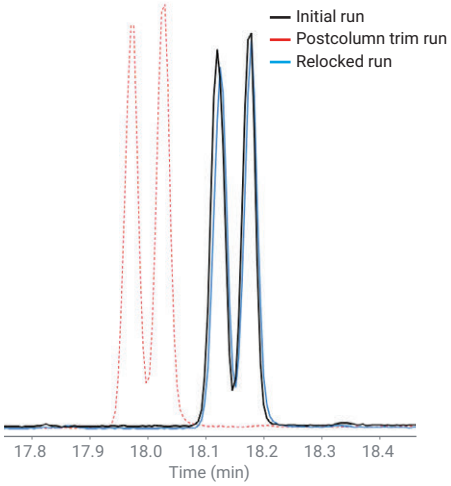
New onboard videos make common tasks as easy as pushing play

The single, intuitive touch screen not only tells you how to perform essential operational, maintenance, troubleshooting, and analytical tasks—it shows you, through on-screen video clips.

End-to-end diagnostics maintain system health and maximize uptime

Unexpected instrument downtime disrupts lab operations, especially if you don't know the source of the problem. The 5987A monitors its own vitals, giving you a real-time view of system health with early maintenance feedback. Self-guided maintenance procedures provide step-by-step instructions for common tasks and can be viewed from any mobile device. To ensure your instrument is ready when you are, the 5987A also performs a 360° system check before each tune.



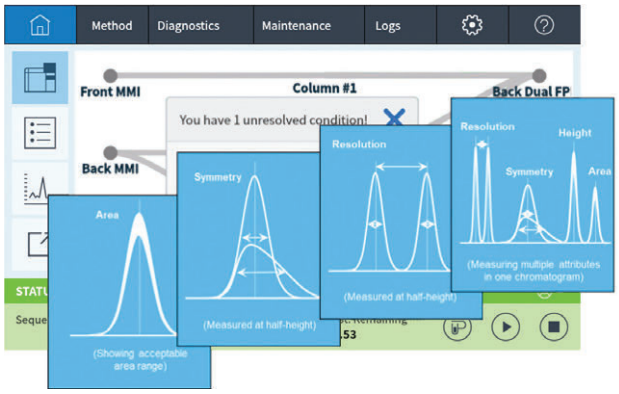


Retention time locking (RTL)

RTL provides an easy, flexible tool that reduces the time and complexity associated with updating expected retention times after routine chromatographic maintenance. It also allows different GC systems in the same lab—or across a lab network—to have the same retention times when running the same method. This functionality makes data comparison easier and simplifies quality control checks.

Peak evaluation on MS signal intelligently monitors key attributes

Peak evaluation is an automated and customizable tool for comparing chromatographic data to a previously collected reference chromatogram. Unlike other forms of GC intelligence, peak evaluation lets you specify analytes of interest and define acceptable criteria for your method. Throughout a sequence, peak evaluation can monitor these analytes of interest for changes in peak retention time, area, height, width, symmetry, resolution, and related attributes. When peak evaluation is enabled, the GC examines the data internally and compares it to the user-defined reference chromatogram after each run.



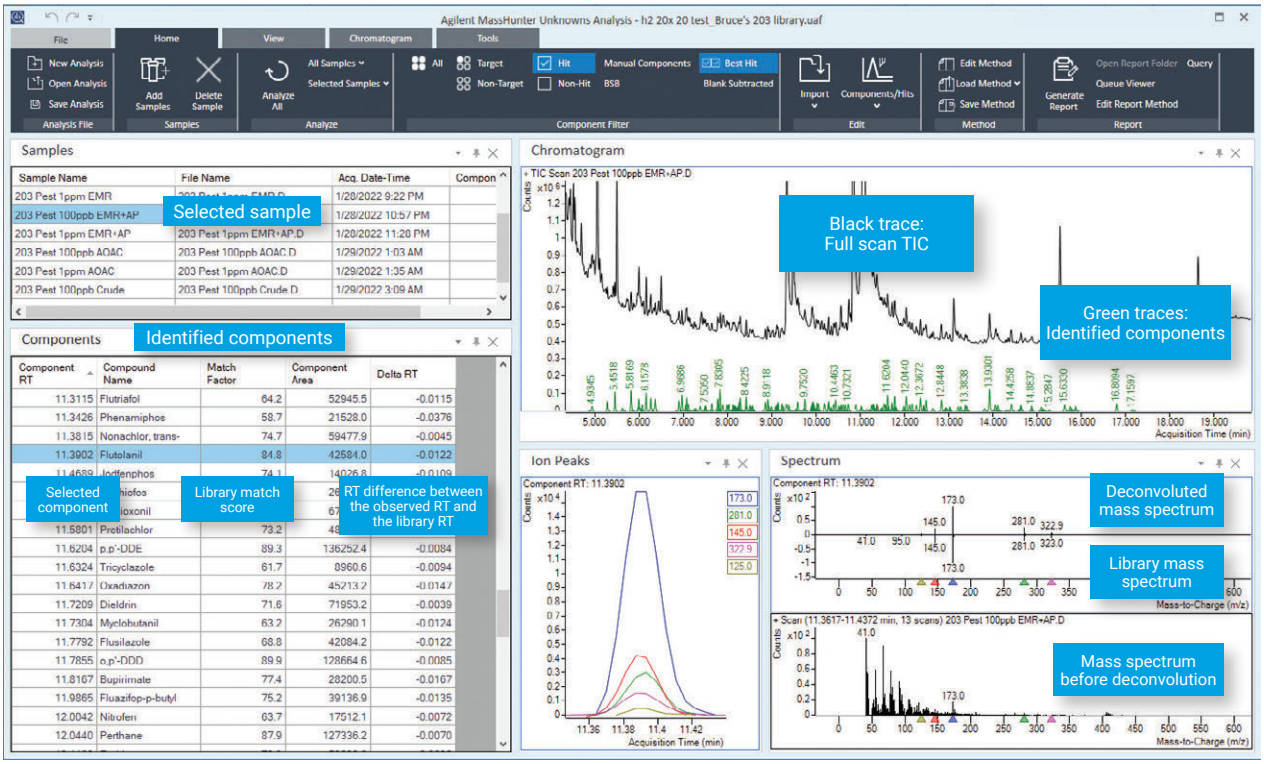
A fast, familiar route to insight: New MassHunter Acquisition 14.0 software

The Agilent 5987A GC/MSD introduces next-generation core processors, ensuring faster performance, greater capacity, and enhanced intelligence capabilities. Central to this intelligence-driven efficiency is Agilent MassHunter Acquisition 14.0, which is designed to enable operators of all levels to maximize confidence in their results.

- Streamlined retention time locking interface improves usability.
- Ion source scheduling features like Agilent JetClean reduce the frequency of cleaning cycles when used while samples are being acquired or during offline cleaning mode.
- Agilent Easy SamplePrep software simplifies the automation of sample introduction via extensive Agilent autosampler technologies.
- Easy-to-use method templates support multiple applications.
- Built-in technical and procedural controls enable compliance with data security and access management requirements defined by US FDA 21 CFR Part 11, EU Annex 11, and similar electronic record regulations.

Simplify data acquisition and streamline data analysis

Agilent MassHunter Unknowns Analysis software provides automated deconvolution and library searching to identify compounds of concern.



New acquisition modes maximize method versatility

MassHunter Optimizer for GC/MSD

This fully automated tool saves time by taking the guesswork and tedious step-by-step process out of method optimization when developing SIM data acquisition methods.

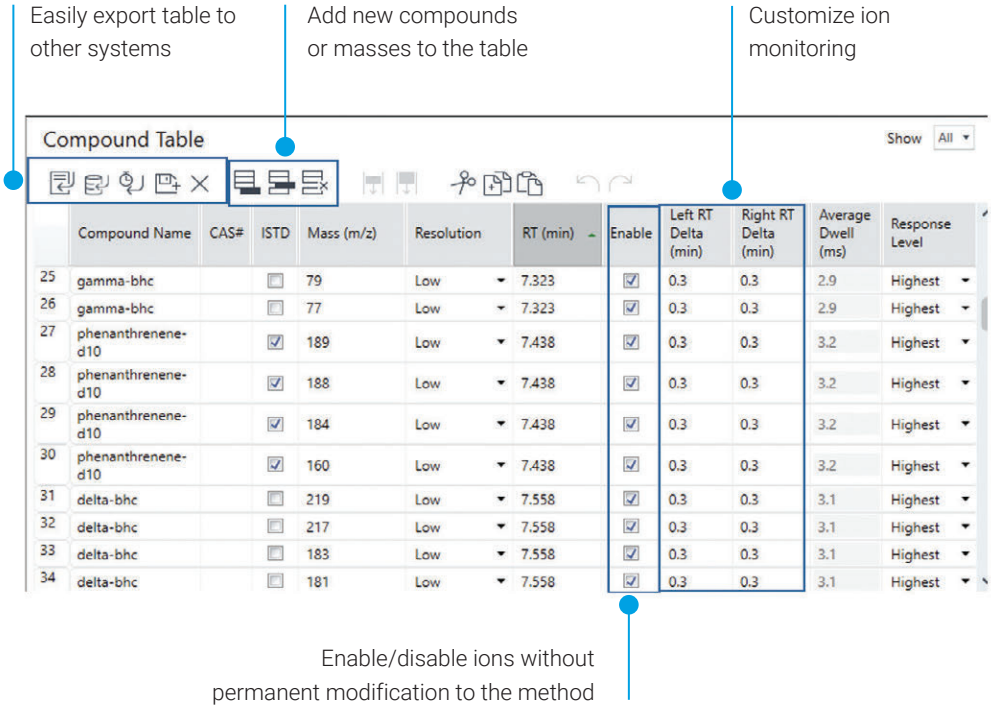
Dynamic SIM (dSIM)

dSIM automates the task of managing time segment boundaries, compared to traditional SIM, and improves GC/MS performance by:

- Increasing sensitivity through monitoring of more target and qualifier ions and longer effective dwell times.
- Improving quantitative precision via more data points across each peak.
- Optimizing cycle time to preserve narrow peak integrity.
- Reducing background noise by monitoring ions only when needed.

Simultaneous dSIM/Scan

MassHunter Acquisition software allows you to perform Dynamic SIM with a simultaneous scan. Dynamic SIM saves dwell time, while the simultaneous scan lets you perform retrospective analysis without the need for reinjection.



	Compound Name	CAS#	ISTD	Mass (m/z)	Resolution	RT (min)	Enable	Left RT Delta (min)	Right RT Delta (min)	Average Dwell (ms)	Response Level
25	gamma-bhc		☐	79	Low	7.323	☑	0.3	0.3	2.9	Highest
26	gamma-bhc		☐	77	Low	7.323	☑	0.3	0.3	2.9	Highest
27	phenanthrenene-d10		☑	189	Low	7.438	☑	0.3	0.3	3.2	Highest
28	phenanthrenene-d10		☑	188	Low	7.438	☑	0.3	0.3	3.2	Highest
29	phenanthrenene-d10		☑	184	Low	7.438	☑	0.3	0.3	3.2	Highest
30	phenanthrenene-d10		☑	160	Low	7.438	☑	0.3	0.3	3.2	Highest
31	delta-bhc		☐	219	Low	7.558	☑	0.3	0.3	3.1	Highest
32	delta-bhc		☐	217	Low	7.558	☑	0.3	0.3	3.1	Highest
33	delta-bhc		☐	183	Low	7.558	☑	0.3	0.3	3.1	Highest
34	delta-bhc		☐	181	Low	7.558	☑	0.3	0.3	3.1	Highest



Partnering for sustainability and business success

Sustainable thinking transforms the way researchers, scientists, and manufacturers approach their products, processes, and supply chains. However, it can be a challenge for labs to reduce their environmental impact while continuing to optimize workflows and lower costs.

Prevent disruptions and protect our planet by managing your helium use

Helium has long been the carrier gas of choice for GC and GC/MS analyses. However, the global helium shortage has reduced the availability—and increased the cost—of helium gas, jeopardizing the day-to-day operations of labs that depend on gas chromatography. Here are some strategies for conserving helium and converting to an alternative carrier gas.

Helium conservation module

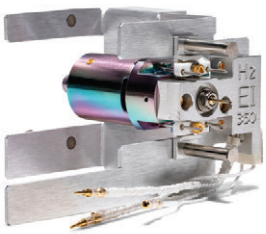
Extend the life of your helium tanks by up to 30 times. The Agilent helium conservation module allows you to use helium for your GC runs and switch to a different gas (typically nitrogen) when your GC is idle. That means you can achieve better control of laboratory operating expenses and avoid workflow disruptions.



HydroInert source

Hydrogen is a low-cost, renewable gas that is the best alternative to helium. The Agilent HydroInert source minimizes sensitivity loss and spectral anomalies associated with H_2. It also:

- Maintains spectral fidelity, even for compounds highly susceptible to hydrogenation.
- Improves peak shape for high-boilers, especially polycyclic aromatic hydrocarbons (PAHs).



Agilent HydroInert source

Resources to help conserve or convert your GC/MS carrier gas

- Handle the Hassles of the Helium Shortage
- Helium Conservation Cost Savings Calculator
- Agilent EI GC/MS Instrument Helium to Hydrogen Carrier Gas Conversion User Guide
- Agilent Hydrogen Safety Manual

At Agilent, we believe that intelligence, productivity, and sustainability are interlinked

Working toward sustainability is an integral part of how we conduct business and respond to our customers' challenges. Together, we can help your lab achieve its sustainability goals—while increasing output, maintaining accuracy, and staying competitive.

Partnership with My Green Lab

Agilent has joined with My Green Lab to have our instruments independently audited for their Accountability, Consistency, and Transparency (ACT) label. ACT labels provide information about the environmental impact of manufacturing, use, and disposal of a product and its packaging, so purchasers can make informed, sustainable choices. Agilent 5987, 8860, 8890, and 8850 GC systems have been comprehensively evaluated and have earned ACT labels.

my green lab. ACT® Ecolabel

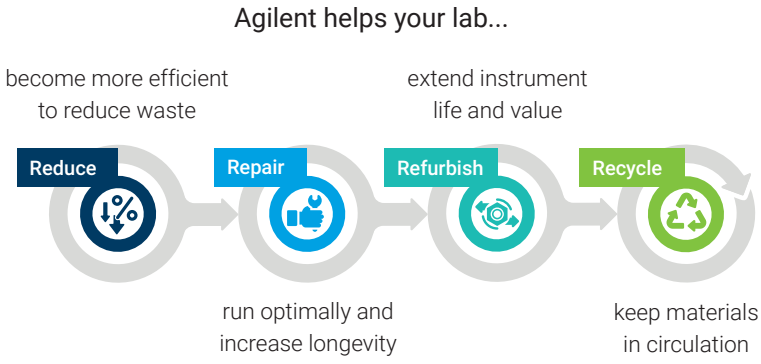


Trade-in and Buyback

The Agilent Trade-in and Buyback Program covers everything from deinstallation, shipping, packaging, and customs fees—free of charge. The program is available in over 20 countries and uses reusable return packaging where possible. You may also get cash or credit for returned instruments.

Waste reduction strategies for lab instruments

Building a more sustainable laboratory can feel overwhelming. Agilent offers a range of programs and services to help labs reduce resource consumption and minimize waste. From relocation and repair to trade-in, recycling, and reuse programs, these solutions support a more sustainable lab environment by extending instrument life and enhancing operational efficiency—all while advancing circular economy principles.



Maximize your investment with an ecosystem of supplies and support designed to ensure your entire analytical workflow operates at peak potential.





With Agilent columns, supplies, and services, you get more than just products

You also benefit from stringent Agilent specifications and consistent quality, enhancing the sensitivity and performance of your instrument.

Agilent is your one-stop source for consumables that let you assemble complete solutions for every application. What's more, comprehensive workflow guides capture the experience and expertise of the Agilent team.



Ensure accurate peak identification and quantification with Agilent GC columns

As the industry leader in GC/MS column innovation, Agilent is continuously improving our portfolio of GC/MS columns and supplies. We now offer more than 3,600 Agilent J&W GC column options, including:

- Low bleed columns for MS systems.
- Ultra Inert (UI) and Ultra-Low Bleed (Q) columns. All feature the best inertness for acids/bases/mixed functional compounds, the lowest bleed levels, and the tightest column-to-column reproducibility.

Need help finding the right GC columns? Try our GC Column Selector Tool.





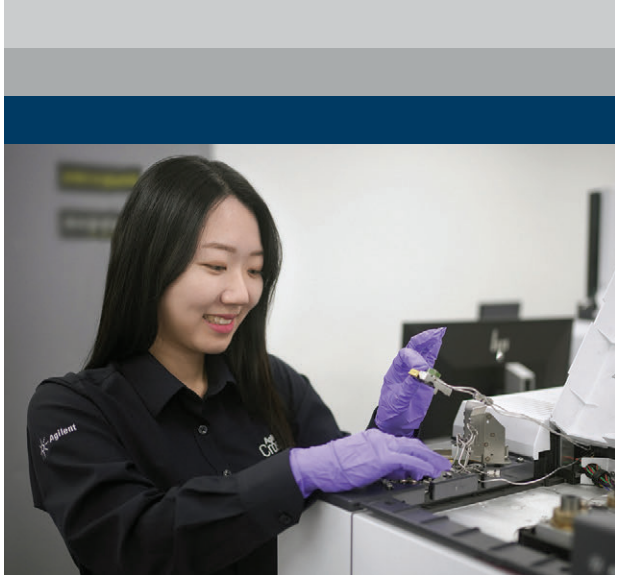
Get the most from your MS with Agilent J&W DB-5Q and HP-5Q GC columns

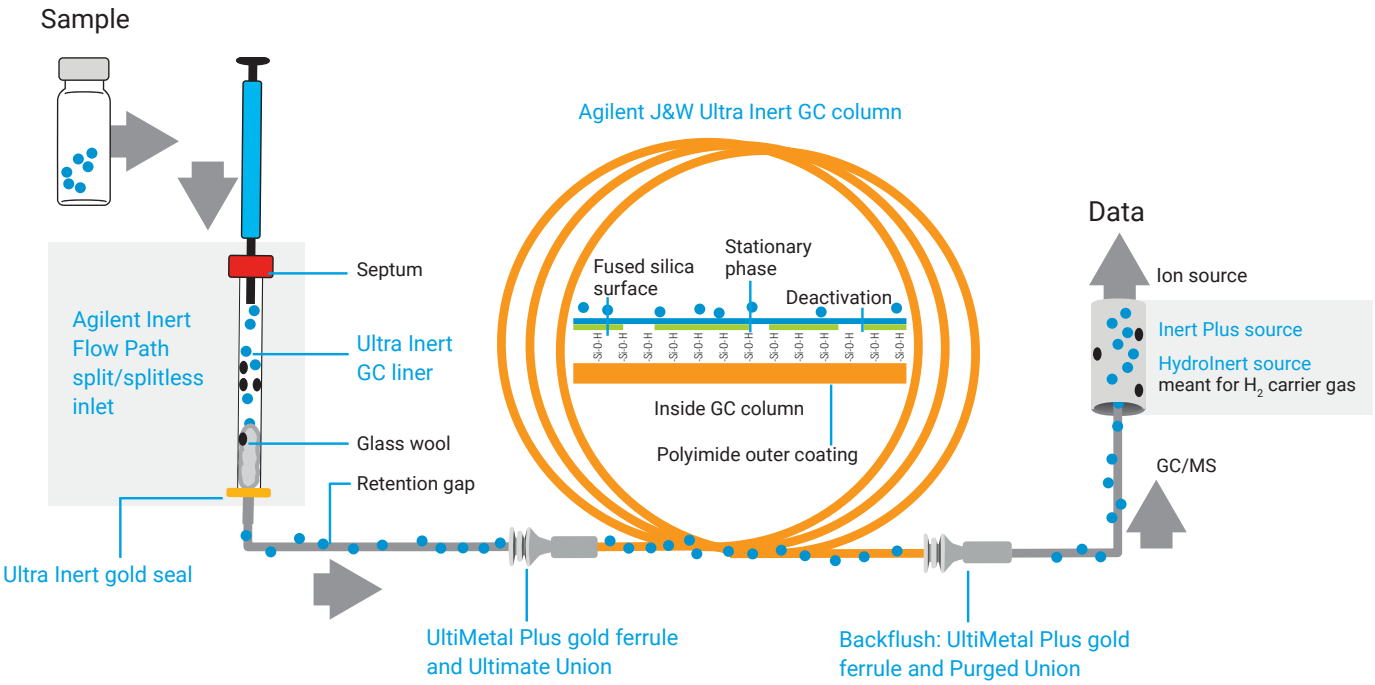
Mass spec continues to push the boundaries of sensitivity and speed—and you need a column that can do the same.

Agilent J&W 5Q GC columns are designed to ensure optimal analyte delivery to your quadrupoles. They combine industry-leading ultra inert performance with ultra-low bleed technology, setting a new standard for GC/MS column reliability and durability.

Ensuring an inert flow path has never been more critical

As samples become smaller, increasingly active, and more complex, you cannot afford losses caused by flow path activity. Having to repeat or verify suspect analyses wastes valuable resources, hinders productivity, and hurts your bottom line. With trace amounts of active analytes, you might not even get a second chance because there may be no more sample left to analyze.







Don't miss a thing in your GC/MS analysis

From analyzing active environmental samples to screening for drugs of abuse, Agilent Inert Flow Path solutions help ensure higher analytical sensitivity, accuracy, linearity, and reproducibility.

Put our insights to work for you

Agilent CrossLab
From Insight to Outcome

CrossLab is an Agilent capability that integrates services and consumables to support workflow success, improve productivity, and enhance operational efficiency. In every interaction, we strive to provide insight that helps you achieve your goals. We offer a wide range of products and services—from method optimization and training to full-lab relocations and operations analytics—to help you manage your instruments and your lab for best performance.

Learn more about Agilent CrossLab services.

New to Agilent GC/MSDs? Transitioning from the Agilent 5977 GC/MSD?

When it comes to adding new instruments to your lab, no two experiences are quite the same. We're here to help you succeed with flexible service and support options.



Agilent CrossLab installation

Agilent CrossLab installation ensures that all hardware and relevant software are unboxed and installed properly. An Agilent expert will make sure your new GC system is free from defects and missing items, tested against manufacturing specifications, and ready for operators to begin training.



Agilent CrossLab Method Consulting Services and Agilent University

Method consulting services offer Agilent expertise to customers looking to improve and expand their lab workflows. They consist of four key products: method maintenance, method optimization, method implementation, and method development.

Agilent University offers flexible, cost-effective training options to help you boost efficiency, minimize downtime, and make a stronger impact on your lab's success. Choose the training format that suits you best—including in person, virtual, and online.



Agilent CrossLab service plans

Agilent CrossLab service plans, on-demand repairs, and preventive maintenance services help you maintain productivity and minimize downtime.



Agilent CrossLab Connect Smart Alerts

Agilent CrossLab Connect Smart Alerts gives you key insights into instrument health—reducing unplanned downtime and sustaining instrument performance for optimal throughput. As part of CrossLab Connect, Smart Alerts notifies you the instant an instrument stops running and when it's time to perform preventive maintenance or replace key consumables.You can also send a service request directly to Agilent using the Remote Assist feature.

The people behind your service and support

Agilent CrossLab connects you to a global network of experts who strive to deliver insight in every interaction to support your success. From instrument maintenance and repair, relocation and inventory management services, to compliance and software solutions, or consulting and education, Agilent CrossLab is here to help protect your Agilent and non-Agilent instruments. So you can transform your laboratory operations in the best ways possible.



Here's what sets CrossLab service engineers apart

10 years
Average instrument repair experience

96%
Parts available right away

Millions
Parts accessible at our world-wide logistics centers

85%
Repairs fixed during first visit



30,000
Technical training days

>1,850
Field service engineers worldwide

50+
Technology platforms covered

1–2 days
Typical turnaround time for priority service calls

Promising 10 Years of Value

The Agilent Value Promise reflects the utmost confidence in our unrivaled industry standards for quality system design and manufacturing.

From the date you purchase select Agilent chromatography, spectrometry, and spectroscopy instruments, we guarantee at least 10 years use or residual-value credit toward an upgraded replacement. Because we stand behind our systems, our guarantee maximizes your return on investment by ensuring your purchase is safe.

Learn more:
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Trusted Answers