

Ready to Maximize Your Return on Innovation?

Agilent Intuvo 9000 GC system





Do You Dream of Better Business Outcomes for Your Laboratory?

Let the Agilent Intuvo 9000 GC system turn your dreams into reality.

For decades, gas chromatography (GC) has seen only incremental developments in instrumentation. But Intuvo represents that rare transformative innovation. One that accomplishes GC in a completely different way—and clears a new path to productivity.

Intuvo integrates instrument, consumables, software, and services, greatly improving operational efficiency in the GC laboratory. What's more, Intuvo brings you enabling technologies available nowhere else. Its innovative design, ease of use, and speed are already driving success in labs around the world. And adding Intuvo to your lab can:

- Unlock substantial incremental savings
- Increase your daily sample runs
- Lower your power consumption
- Reduce system maintenance

How Do I Use This e-Book?



The resources you need to drive business certainty are just a click away

Intuvo provides a fresh perspective for handling challenging sample matrices, maintaining the integrity of critical data, and accommodating user training needs. To instantly access infographics, application notes, and more, simply choose one of these topics.

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So, How Does Intuvo Fit into the Agilent Intelligent GC Family?



Intuvo is part of a new line of Agilent GC instruments that aren't just smart—they're insightful. They go beyond collecting system information to help you increase productivity, minimize downtime, and improve efficiency. So you can spend more time on what matters. Agilent Intelligent GC systems work as hard as you do with features like these.

Browser interface

Allow remote access to key GC features from virtually anywhere.

Smart accessories

Save time and remove guesswork by automatically configuring flow path components and column dimensions—while maintaining diagnostic information, like column age.

Built-in maintenance tasks

Automatically load maintenance methods, give step-by-step guidance, and perform automated diagnostics (like leak and restriction testing) after maintenance has been completed.

Diagnostics and performance monitoring

Automatic and user-initiated diagnostics promote system health, while monitoring critical chromatographic attributes and detector signals provides peace of mind.

Early maintenance feedback

Track use and receive maintenance alerts, so you can plan preventive service and decrease downtime.

The Agilent Intelligent GC family

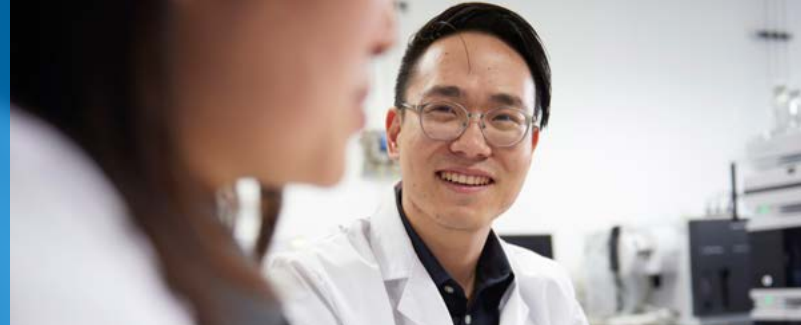


Agilent Intuvo 9000 GC

Agilent 8860 GC

Agilent 8890 GC

What Makes Intuvo Different from Traditional GC Systems?



By streamlining installation, setup, operation, and maintenance, Intuvo transforms the way GC is done. It's built with features not seen in other GC systems, enables fast chromatography, and shines anywhere that routine high-throughput GC analysis is carried out.

Smart

Self diagnostics, real-time feedback, and a unique smart-key flow path eliminate hardware errors.

Power saving

Cut power consumption by half with intelligent power management, coupled with a direct-heated flow path. Add rapid analysis, and your cost-per-sample could plummet.

In control

Agilent OpenLab and MassHunter software keep you on top of your analysis. Using an existing client/server? No problem. Intuvo works with all major CDS platforms.

Ultrafast

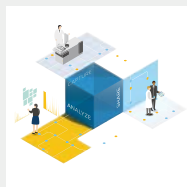
Find productivity gains in direct-heated columns, consistent temperature control, and rapid heating and cooling. Direct heating without an air bath oven also makes Intuvo inherently safe for hydrogen carrier gas.

Self-aware

Worried about a leak? Wondering if the detector needs replacing? Intuvo lets you know, and can help you carry out critical procedures.

Intuitive

An interactive user interface simplifies instrument control, data generation, status monitoring, and maintenance.



Need optimum control of your Agilent instruments?

[OpenLab CDS](#) lets you take full advantage of the advanced features built into our state-of-the-art chromatographs. It incorporates the user interface standards of today's software to establish an immediate sense of familiarity and confidence.

Greater Business Certainty, Built Right In



Unplanned downtime, time-intensive tasks, and user technical limitations all impact your lab's ability to deliver data quickly—and deliver more to your bottom line. Intuvo answers these challenges with innovations that will impress you the minute you open the door.

Inert flow path

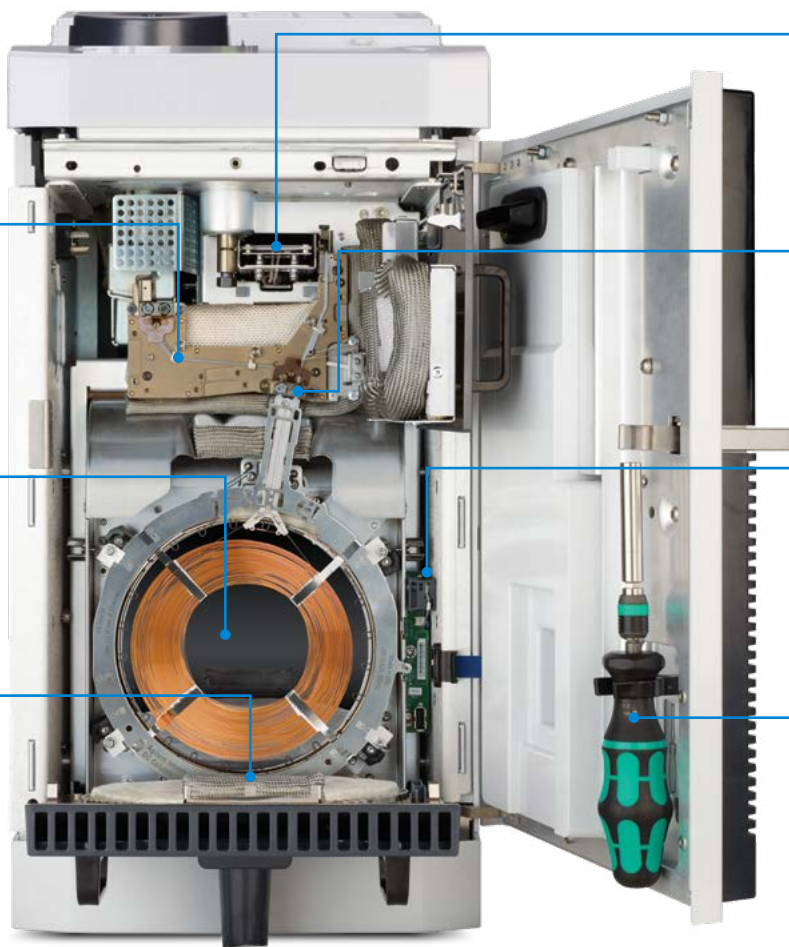
Flow path inertness is critical for accurate, reproducible analysis of active analytes, and Intuvo inert flow path components provide consistent inertness from injector to detector.

Direct heating

The planar column design enables direct-contact conduction heating, eliminating the need for large conventional ovens.

Shorter cycle times

Direct-heated columns, consistent temperature control, and rapid heating and cooling save you valuable time. Plus, direct heating without an air bath oven makes Intuvo safe for hydrogen carrier gas.



No more column trimming

Disposable, easy-to-install Guard Chips provide almost a meter of sample flow path just before the Intuvo GC column.

Fast, confident column changes

Intuvo uses ferrule-free face seals for all fittings within the gas flow path—making it easy to maintain flow path integrity.

Smart keys

Intuvo smart keys save time and remove guesswork by automatically configuring correct flow path components and column dimensions, while maintaining diagnostic information like column age.

Click-and-run, ferrule-free connections

Take the guesswork out of creating tight fittings. With just a “click,” you can create a leak-free seal in under one minute.

What Makes Intuvo Unique?



Like all Agilent GCs, Intuvo is built on a legacy of robust excellence and performance. Intuvo expands on this legacy by introducing technologies such as fast direct heating, ferrule-free fittings, Guard Chip retention gap technology, and no-trim columns.



End the waiting game with direct heating

Conventional GC systems use a convection air bath oven. Intuvo is different, because it uses direct conductive heating to temperature-program the entire flow path and column. Direct heating uses less than half the power of a conventional oven, takes up about half the bench space, and promotes faster heating and cooling. So, you can improve your throughput.



Prevent leaks and downtime using click-and-run connections

Tired of cumbersome ferrules used in conventional gas chromatographs? Intuvo uses direct face-seal connections that give you an audible and tactile “click” when the correct connection has been made. That means you can eliminate leaks from incorrectly fitted ferrules, decreasing unplanned downtime and business disruption.



Eliminate trimming and extend column life

Intuvo is designed with a simple, disposable Guard Chip, which serves as a precolumn retention gap. The Guard Chip prevents unwanted material from depositing on, and damaging, the column head. Best of all, there is no longer any need to trim the columns—enhancing your productivity.

The Most Intuitive GC Accessories Ever



Intuvo removes operational limitations, encouraging you to re-imagine workflows and outcomes. But that's only part of the story. These accessories make Intuvo one of the most efficient, cost-effective GC systems to own and operate.

Smart key columns

Intuvo knows every column's diameter, length, and maximum temperature, so you can be confident in your method and results.



Smart key Flow Chips

How do you set up for flow splitting or midpoint backflush? Intuvo knows the answer—and smart key Flow Chips eliminate mistakes.

Gas Clean filters

Now it's easy to deliver clean gases—reducing your risk of column damage, sensitivity loss, and downtime. Smart sensors tell Intuvo when your gas filter needs changing.



Catalog

for a closer look at Intuvo columns and supplies, [download our catalog](#).



How Does Intuvo Change the Way That GC Operators Work?



Intuvo makes accessible what used to be only within the realm of experts. It also minimizes the time spent on routine tasks and instrument maintenance—which is a constant concern for GC operators.



Saving time

- Intuvo direct heating is fast, reducing sample cycle time.
- Changing an Intuvo column is over 10 times faster.
- Eliminating column trimming, and its associated recalibration and requalification, increases uptime.



Solving the troubleshooting mystery

- Intuvo automatically measures several key instrument parameters simultaneously, with advanced status reporting.
- Getting—and keeping—the instrument in top operating condition is straightforward, regardless of the user's skill level.
- Leaks and improper installation are a thing of the past, thanks to no ferrules or column trimming.



Improving operations

Intuvo helps to drive sustainable operational improvement such as:

- On-time delivery
- Number of priority samples
- Cost per billable sample
- Resource and asset management

Want to learn more about Intuvo? Tune in to hear how the Intuvo 9000 can add gas sample analysis to your workflow, increase sample throughput, and improve productivity with ultrafast GC. Click here to [browse webinars](#).



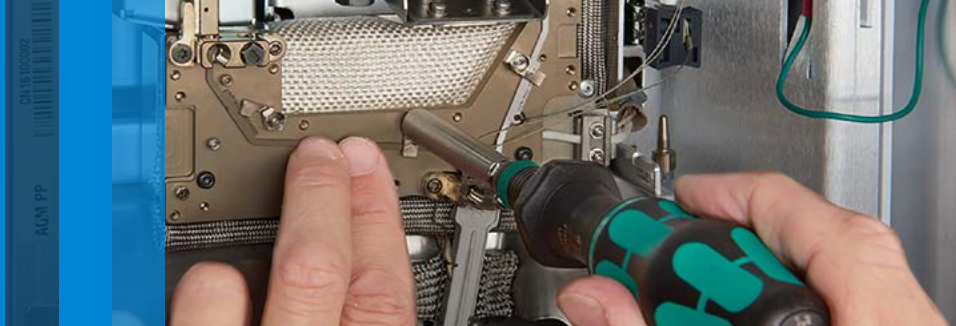
What Do We Mean by "Return on Innovation"?

By providing savings and efficiencies that impact every GC lab function, Intuvo clarifies your vision of how to grow your business, maximize profitability, and minimize costs.

One of the biggest values of Intuvo is the reduction in business uncertainty resulting from unplanned downtime. Providing more consistent and predictable business results—especially between operators and operational sites—can be one of the most important returns on an Intuvo investment.

On the following pages, you'll see how the transformational innovations of Intuvo could provide a much better return on innovation compared to conventional GC systems.

Leak-Free Connections



Challenge

Leaks resulting from faulty GC connections are a major source of unplanned downtime and productivity loss.

Innovation

Intuvo does not require nuts and ferrules to make flow path connections. Instead, it uses direct, face-to-face, click-and-run connections. The audible and tactile “click” tells operators that they have successfully made a leak-free connection, while automatic leak detection provides continuous assurance.

Savings

Cut downtime by 24 hours per year, based on 8 leaks per year.



[Want more proof?](#)
[Download our white paper](#)

Problem

~6-8 hours per quarter is spent troubleshooting and fixing flow path leaks

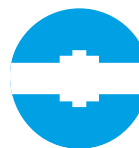


= Run time for at least **72** samples per year

Unplanned downtime due to leaks resulting from faulty GC connections is a major source of productivity loss for many labs.

Return on Innovation

Ensure a leak-free connection is made and unplanned downtime is eliminated



= Approximately **\$9,000** incremental revenue annually

It is vital that a lab can deliver results with confidence day to day and plan their workflow without disruption.

Even if revenue were subject to a 20% profit margin, the lab could gain **\$1,800** of incremental profit annually.

Fast Heating and Cooling



Challenge

Minutes matter to many GC labs. Police labs need fast results to support cases. Service labs can charge premium rates for faster analyses. QA labs must maintain production flow.

Innovation

Intuvo uses direct heating and cooling, so columns can be heated as quickly as 250 degrees per minute—and cooled up to two minutes faster. All while using half the power consumption, taking up half the space, and placing half the demand on your HVAC system.

Savings


Just one extra sample per day could increase revenue by over \$30,000 per year.



[Want more proof?](#)
[Download our white paper](#)

Problem

Running a conventional air bath oven under routine use




= **Longer time-to-result**

Minutes matter to many GC labs, as there is an ever-increasing demand for greater GC productivity within limited lab space.

Return on Innovation

Direct heating greatly increases heating and cooling rates, decreasing cycle time



= **At least 250 additional samples could be run**

It is vital that a lab can deliver results with confidence day to day and plan their workflow without disruption.

Running an additional 250 samples per year could represent an incremental revenue of **\$31,250** annually.

Elimination of Column Trimming



Challenge

Trimming capillary columns to remove sample matrix contamination is a time-consuming task that can lead to downtime if not done properly. Over time, trimming also degrades column performance, and the change in column length makes recalibration necessary.

Innovation

Intuvo eliminates the need for trimming by inserting a disposable Guard Chip between the inlet and the column. The Guard Chip acts as a retention gap to keep unwanted high-molecular-weight material from depositing on the column. What's more, the Guard Chip can be changed in about five minutes, compared to 30 minutes to trim and reinstall a conventional column. Best of all, there is no change in column length and no shift in retention time.

Saving

In a typical food or environmental lab, eliminating column trimming could save over \$7,500 per year, while reducing recalibration could save over \$9,000.

Problem

Capillary columns frequently require trimming



= **Unplanned downtime**

Considerable time can be lost through column trimming, particularly if done incorrectly, which could be used to run additional samples, increasing lab efficiency.

Return on Innovation

Replace the capillary column with a disposable Guard Chip



= **6X less maintenance**

This translates into an additional 125 samples that could be run per year and at \$125/sample, which could lead to a net \$7,625 revenue annually.

The Guard Chip could also extend the life of the analytical column by as much as 2 weeks, which could translate into approximately **\$9,375** incremental revenue annually.

Intuvo Applications



Intuvo proves its worth by providing a fresh perspective and previously unavailable approaches to overcoming your daily challenges. These application notes will show you how.



Food Testing

- [!\[\]\(815df092dd722ee9268ef8e6d0193e3a_img.jpg\) Dioxins Analysis in Food and Feed by Intuvo 9000/7010 GC-QQQ System](#)
- [!\[\]\(c72edb9626cad660f3a9f5fb0f22a68c_img.jpg\) Fast Analysis of Pesticide Residues in Food Samples Using GC/MS/MS](#)
- [!\[\]\(0c564128c6342bd2f601e97f4518828a_img.jpg\) Rapid Separation of Fatty Acid Methyl Esters Using DB-FastFAME Intuvo GC Columns](#)
- [!\[\]\(5cb79a1c9acdf5d94bce345803852578_img.jpg\) Multiresidue Pesticide Analysis: Improving Peak Shape Consistency](#)



Environmental Testing

- [!\[\]\(97faa0168e491544be255cfcab218e9b_img.jpg\) Analysis of Semivolatile Organic Compounds Using the Agilent Intuvo 9000 Gas Chromatograph](#)
- [!\[\]\(b2166b76608b8499cffc130bf1b1fe60_img.jpg\) Reducing Analysis Time of 8270D with the Intuvo 9000 GC](#)
- [!\[\]\(b29da0f81af7d31816596405aed0e378_img.jpg\) Organochlorine Pesticide Analysis Using an Agilent Intuvo 9000 Dual ECD GC System](#)
- [!\[\]\(52b4a21f1e75ded8f9710f4114e70d28_img.jpg\) Increased Reproducibility in the Analysis of EU and EPA PAHs with the Agilent J&W Select PAH GC Column and Agilent Intuvo 9000 GC](#)

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Flavour, Fragrances, and Chemical Testing

- [!\[\]\(aca6fcc8bd95e8255b9ea1b1d08ef300_img.jpg\) Quality Control of Fragrance Samples by GC-FID: Method Transfer from the Agilent 7890 GC to the Agilent Intuvo 9000 GC](#)
- [!\[\]\(0083087c61cec498ac803a4aec5bb1bd_img.jpg\) Profiling Flavors and Fragrances in Complex Matrices Using Linear Retention Indices Without Sample Preparation](#)



Hydrocarbon Testing

- [!\[\]\(67ff022fd78f943b679992c2874bbfd1_img.jpg\) Analysis of Total Petroleum Hydrocarbons in Environmental Samples Using Ultra-Fast Gas Chromatography](#)
- [!\[\]\(042ea11c58a77088d3dd7150909adec0_img.jpg\) Light Hydrocarbons on the Agilent Intuvo 9000 GC with a Gas Sampling Valve](#)
- [!\[\]\(5890ff4c38007932c846fa9d39ba1fe6_img.jpg\) Ultrafast Simulated Distillation of Middle Distillates Using ASTM Method D7798 on the Agilent Intuvo Gas Chromatograph](#)
- [!\[\]\(0951d374ca92713a262635cd1d2251b2_img.jpg\) Sulfur in Gasoline: Light Petroleum Liquids According to ASTM D5623](#)



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Pharmaceutical Testing

-  [Extractables and Leachables: A Complex Analysis](#)
-  [Residual Solvents Analysis Using an Agilent Intuvo 9000 GC System](#)



Forensics Testing

-  [Determination of Blood Alcohol with Dual Column/Dual FID and the Agilent Intuvo 9000 GC](#)

For Forensics Use

Intuvo in Action



Just press play to learn more about the technology behind Intuvo—and hear how labs are maximizing their return on innovation.



The Intuvo Story

Watch how the transformational power of Intuvo translates into greater analytical and business success.



The Importance of Innovation

with Lee Polite, Axion.



Increased Productivity in Pesticide Testing

with Amadeo Fernandez-Alba, European reference laboratory for pesticides in fruits and vegetables.



Using Agilent Intuvo GC 9000 in an Environmental Research Lab

with Johnny Mitchell, ESC Laboratories.

Intuvo is Fast, Smart, Robust and Drives Better Business Outcomes



Discover how the innovative Intuvo 9000 Gas Chromatograph system delivers unexpected payoffs on your ROI. Just press play to learn more about the technology behind Intuvo.

INTUVO IS FAST

COLUMN REPLACEMENT LESS THAN 1 MIN

Agilent Intuvo 9000 GC System is Fast.

INTUVO IS SMART

CONSTANTLY SELF-MONITORING

Agilent Intuvo 9000 GC System is Smart.

INTUVO IS ROBUST

PROTECTS THE SYSTEM

Agilent Intuvo 9000 GC System is Robust.

Flow Chip Configurability For:

- multi-column
- back flush
- straight-to-column

Agilent Intuvo 9000 GC System Drives Better Business Outcomes.

Agilent CrossLab services

CrossLab is an Agilent capability that integrates services and consumables to support workflow success and important outcomes like improved productivity and operational efficiency. Through CrossLab, Agilent strives to provide insight in every interaction that helps you achieve your goals. CrossLab services include method optimization, flexible service plans, and training for all skill levels. We have many other products and services to help you manage your instruments and your lab for best performance.

Learn more about Agilent CrossLab, and see examples of insight that leads to great outcomes, at www.agilent.com/crosslab

Agilent
CrossLab

From Insight to Outcome

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