Agilent Automation

Less work. More flow.

Agilent

Trusted Answers

The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

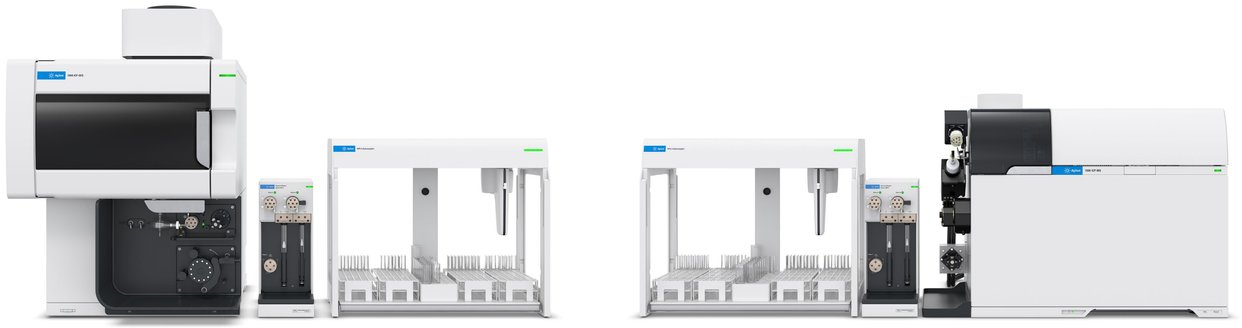
Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

The Agilent ICP Workflow Automation System



Looking for ways to get more out of your ICP analysis workflow? While increasing automation can boost lab efficiency, bringing in third-party automation accessories can add complexity.

Only Agilent offers a completely integrated ICP workflow automation system—comprising hardware, software, and support—designed to free up your analysts for more productive pursuits. Our simple and reliable single-vendor solution integrates automated calibration, dilution, analysis, and reporting to lower your cost-per-sample and turnaround time while improving the quality of your results.

Reduce the hassle of dealing with multiple vendors and improve your lab's efficiency with the Agilent ICP workflow automation system.

Benefit of automation

Automating manual tasks can have big payback for your lab, including:

- Improved data quality with consistent, automated dilutions
- Increased revenue from higher sample throughput
- One analysis—no reruns, data reported same day
- Less sample handling and contamination
- Reducing labware—vials and pipettes
- Staff can concentrate on more value-adding tasks

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Benefit of automation

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What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

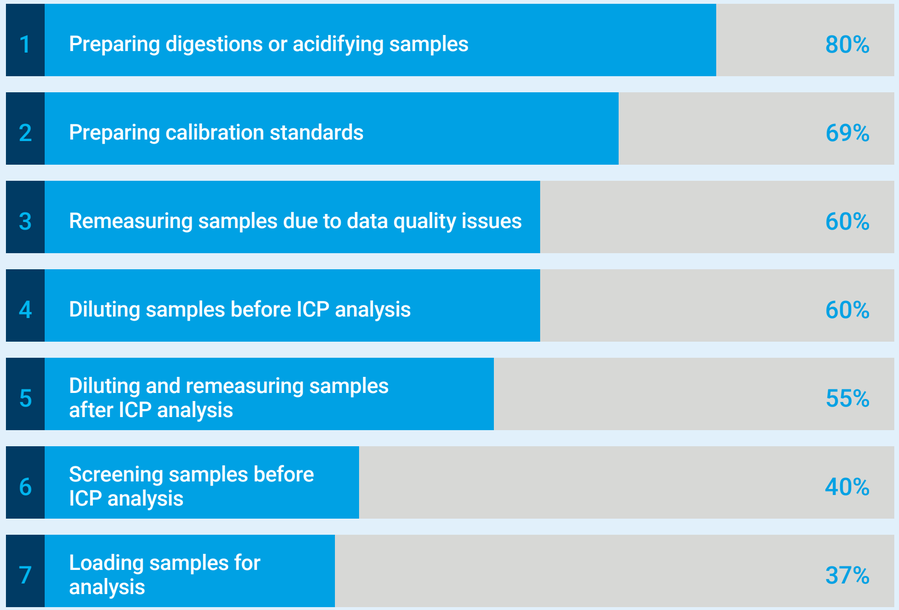
Improving Your ICP Workflow Efficiency

What are the most time-consuming manual tasks in the lab? ›

Why automate? ›

What else is driving automation in the lab? ›

A 2024 poll found that preparing calibration standards, remeasuring samples and diluting samples ranked 2nd, 3rd and 4th as the most time-consuming manual tasks. Many labs are seeking to automate these tasks to improve productivity.



** Results from an online poll of over 120 laboratories, conducted in 2024*

The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

Improving Your ICP Workflow Efficiency

What are the most time-consuming manual tasks in the lab? ›

Why automate? ›

What else is driving automation in the lab? ›

Manual tasks, such as preparing calibration standards and samples for analysis, consume time and effort. Automating these manual tasks is a great way to reduce the risk of human error and increase the sample throughput of your lab.

Agilent has a range of accessories that will improve the automation and efficiency of your ICP analysis, from autosamplers through to automatic dilution systems.

The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

Improving Your ICP Workflow Efficiency

What are the most time-consuming manual tasks in the lab? ›

Why automate? ›

What else is driving automation in the lab? ›

Lab managers are implementing more laboratory automation due to staff shortages, delayed analytical reports, occupational health compliance, result variation between analysts, and the need to reduce the cost per sample.

The Agilent ICP Workflow Automation System

Benefit of automation

Improving Your ICP Workflow Efficiency

What are the most time-consuming manual tasks in the lab?

Why automate?

What else is driving automation in the

The Integrated, All-Agilent ICP Automation System

Why all-Agilent?

Advanced Dilution System

ADS 2 Autodilutor

Features and Benefits of the Autodilutor

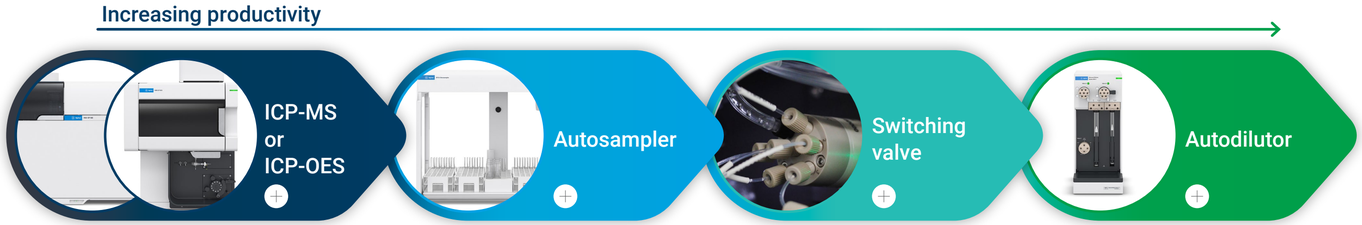
Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

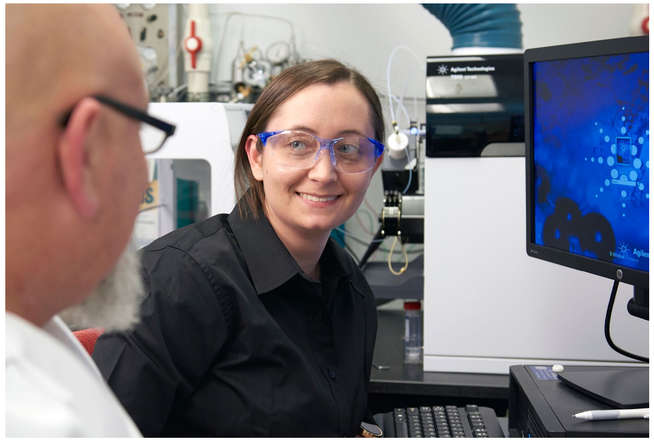
The Integrated, All-Agilent ICP Automation System



Why all-Agilent?

Our all-Agilent workflow automation systems:

- Are fully-integrated. There's no 3rd party.
- Are optimized for Agilent ICPs.
- Are designed to work as one system, with all settings included in the method and advanced features that can only be achieved when software and hardware are designed as one.
- Offer a simpler purchasing process and faster product support from a single point of contact.
- Require less staff training with only one software platform to learn.
- Contain no surprises. The system is tested to Agilent's strict QC requirements.



Having an all-Agilent system means one call, one field service engineer, and one trusted company to work with.

The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

Agilent Advanced Dilution System

ADS 2 Autodilutor

Designed and manufactured by Agilent, the Advanced Dilution System (ADS 2) integrates with Agilent ICP-OES and ICP-MS instruments.

The autodilutor automates all common dilution tasks, including:

- Preparing calibration standards
- Premeasurement dilution of samples
- Reactive dilution and remeasurement of overrange samples
- Reactive dilution after internal standard or QC solution failure

Control of the autodilutor is an integral part of the instrument software (both ICP-OES and ICP-MS). Like the autosampler and switching valve, the autodilutor settings form part of the method.

Unlike other autodilutors, samples that don't require dilution bypass the autodilutor, so there's almost no increase in analysis time.

Learn more about the ADS 2 autodilutor on agilent.com ›

The Agilent ICP Workflow Automation System

Benefit of automation

Improving Your ICP Workflow Efficiency

What are the most time-consuming manual tasks in the lab?

Why automate?

What else is driving automation in the

The Integrated, All-Agilent ICP Automation System

Why all-Agilent?

Advanced Dilution System

ADS 2 Autodilutor

Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

Features and Benefits of the Autodilutor

Automatic standard preparation

Targeted dilutions

Results summary report

Setting optimization tools

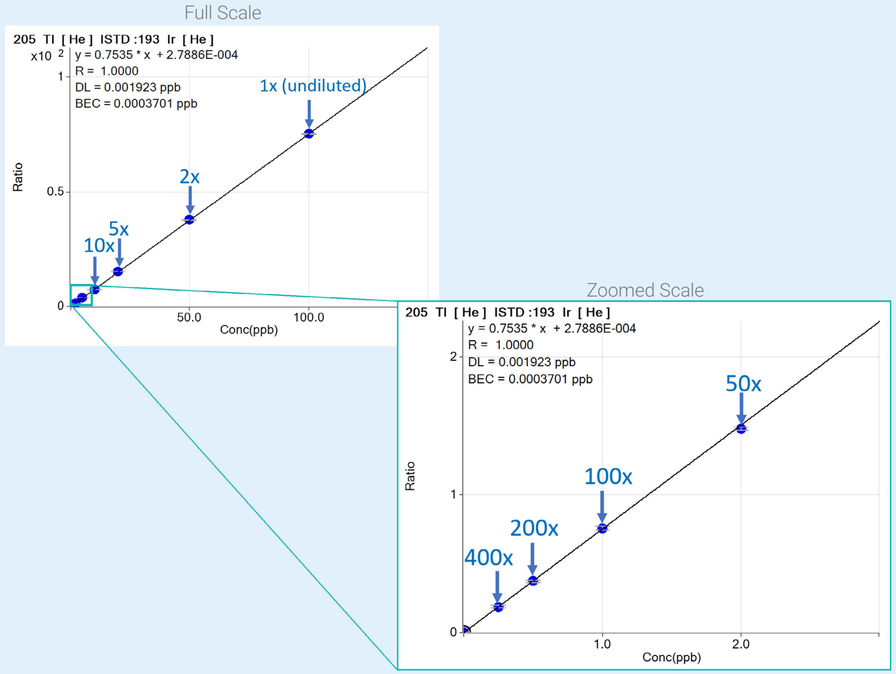
Easy setup

Find the path

Smart system health tracking

Automatic standard preparation

Specify which purchased or lab-prepared stock solutions are to be used to prepare standards, nominate the calibration range and the number of standards and the autocalibration assistant feature will prepare all the standards for you. The autodilutor can prepare up to 400 fold dilutions. Automated standard preparation means less handling of reagents, increasing safety and reducing contamination.



Dilutions of a single stock solution from 1x to 400x

The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

Features and Benefits of the Autodilutor

Automatic standard preparation

Targeted dilutions

Results summary report

Setting optimization tools

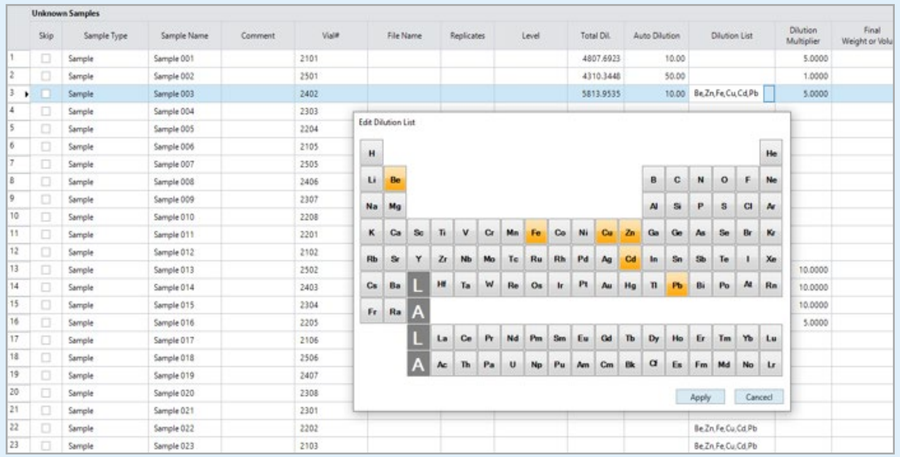
Easy setup

Find the path

Smart system health tracking

Targeted dilutions

Customized methods can be created for the autodilutor. Using the 'Dilution Lists' function, you can choose to dilute samples that are over-range only for a particular element, avoiding unnecessary dilutions that can impact sample consumption and throughput. This functionality is helpful if your samples have high levels of matrix elements, such as sodium in brine samples.



The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

Features and Benefits of the Autodilutor

Automatic standard preparation

Targeted dilutions

Results summary report

Setting optimization tools

Easy setup

Find the path

Smart system health tracking

Results summary report

Automatically select and display the optimal results for each element in a sample—from all the measurements taken. Export this data set, or all data, to LIMS. All data is retained for integrity purposes.

Simplifying data review frees up your skilled analyst's time and automating sample preparation and reactive dilutions delivers less errors and greater result consistency.

Solution Label	Al 237.312 nm mg/L	As 188.980 nm mg/L	Ba 455.403 nm mg/L	Fe 238.204 nm mg/L	Fe 239.563 nm mg/L
Summary	*538.80*	*0.41*	*6.62*	*897.20*	*849.50*
Original	*497.65 o*	*0.41*	*6.62*	*758.60 o*	*736.63 o*
Dilution -10	*53.88*	*0.04*	*0.76*	*89.72*	*84.95*

The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

Features and Benefits of the Autodilutor

Automatic standard preparation

Targeted dilutions

Results summary report

Setting optimization tools

Easy setup

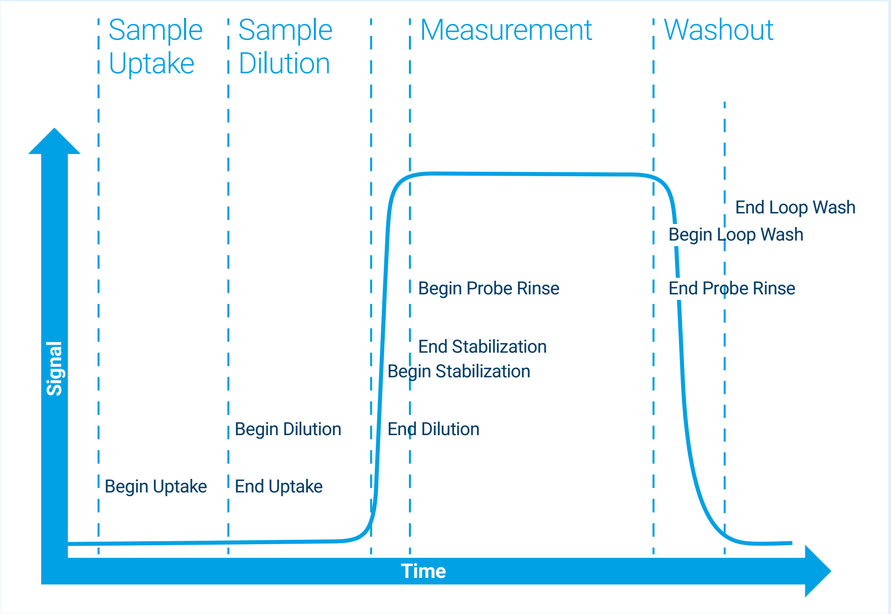
Find the path

Smart system health tracking

Setting optimization tools

Enter the tubing lengths and the sample loop size into the Conditions Calculator function and it will determine the optimum settings to be used.

The Timing Monitor function watches the measurement signal and reports important system actions to make sure everything is as expected. You can use the information to fine-tune method conditions or assist with troubleshooting.



The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

Features and Benefits of the Autodilutor

Automatic standard preparation

Targeted dilutions

Results summary report

Setting optimization tools

Easy setup

Find the path

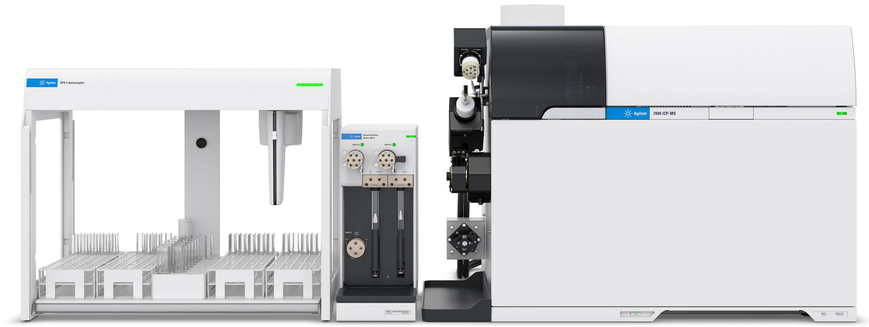
Smart system health tracking

Easy setup

Designed for simplicity of use and lowest cost of ownership, the autodilutor has a small footprint for close-coupling with your ICP and autosampler to minimize tubing lengths and maximize sample throughput.

All tubing is pre-plumbed, color-coded and labeled for easy installation and maintenance.

Adding the autodilutor to an ICP system increases overall lab productivity as the automation of manual tasks frees up analysts' time.



The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

Features and Benefits of the Autodilutor

Automatic standard preparation

Targeted dilutions

Results summary report

Setting optimization tools

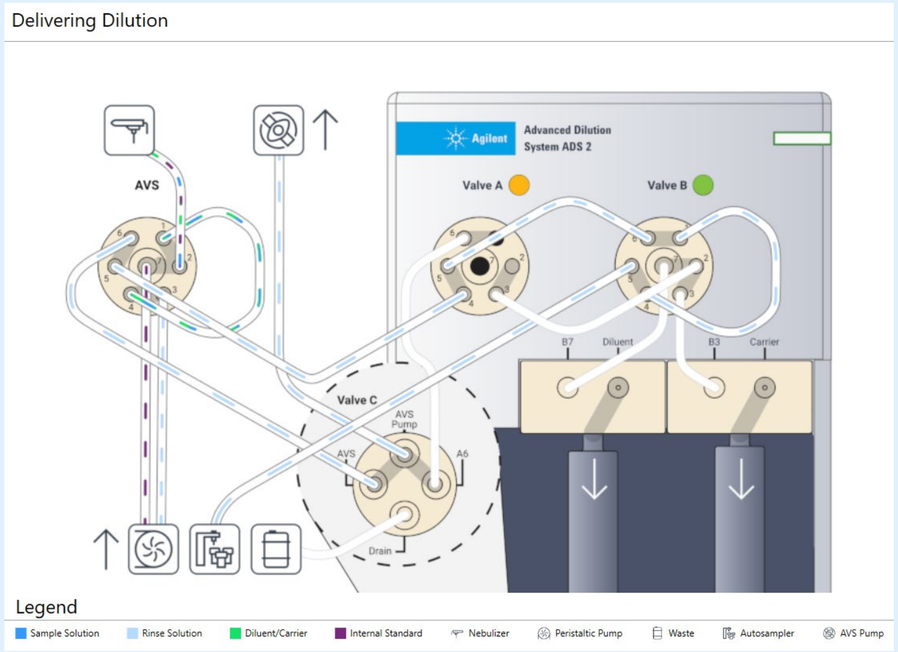
Easy setup

Find the path

Smart system health tracking

Find the path

A real-time flow-path animation shows the direction of flow for sample, internal standard, rinse, diluent and carrier solutions as the autodiluter operates. The diagram and the accompanying Help and Learning Centre aid quick set up, learning (i.e. less staff training) and troubleshooting.



The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

Features and Benefits of the Autodilutor

Automatic standard preparation

Targeted dilutions

Results summary report

Setting optimization tools

Easy setup

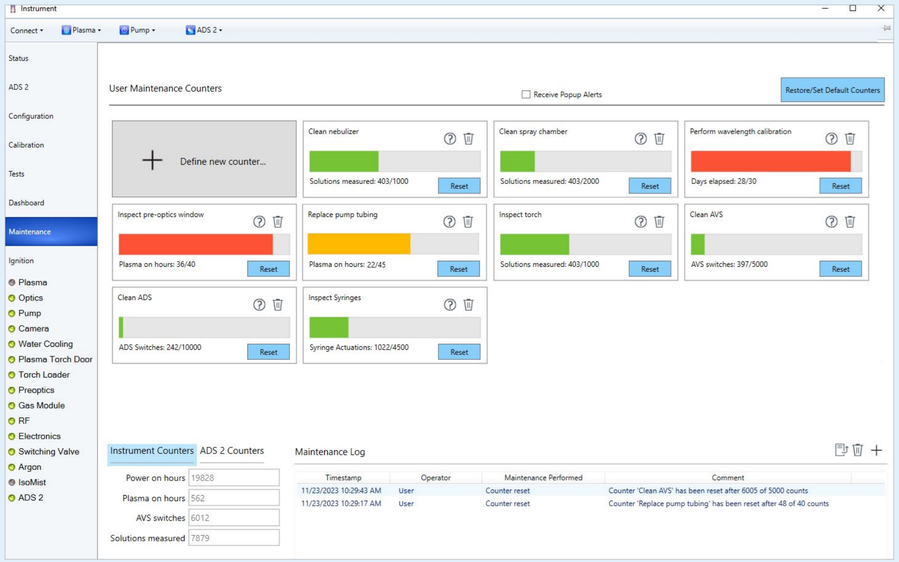
Find the path

Smart system health tracking

Smart system health tracking

The Early Maintenance Feedback function notifies the analyst when cleaning and maintenance is required. Traffic light color-coding of the counters visually shows which maintenance activities should be done immediately, and which can wait. The function monitors the instrument, autodilutor, and switching valve.

The instrument self test function includes testing of the autodilutor, identifying any incorrectly connected tubing.



The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

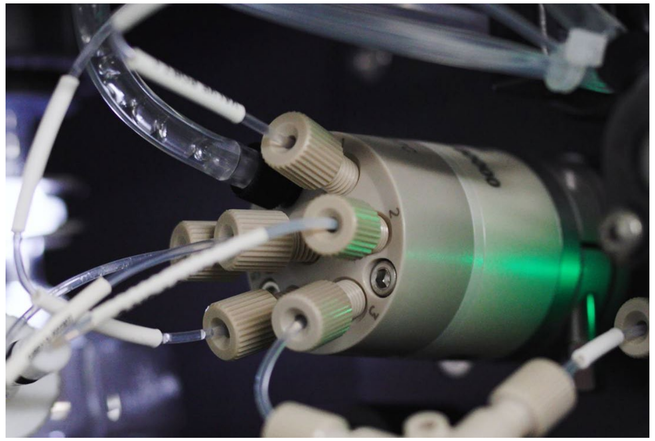
Switching Valve

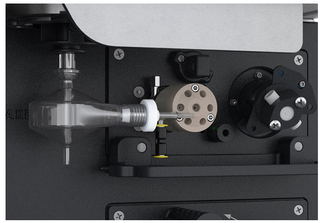
Autosampler

Agilent Services, Spares, and Consumables

Contact

Switching Valve





The switching valve is integrated into both the ICP-OES and ICP-MS hardware and software, with all settings recorded as part of the method. The images show an AVS 7 switching valve on an ICP-OES (top and bottom left) and an AVS MS switching valve on an ICP-MS (bottom right).

Advanced Valve System

The Agilent Advanced Valve System (AVS) is a switching valve that doubles sample throughput, reduces cost per sample and results turnaround time. The valve achieves this by rinsing the sample introduction system while a sample is being measured, eliminating the delay usually caused by rinsing between samples.

The switching valve also reduces maintenance frequency and increases the life-time of consumables as there's less exposure of torches, nebulizers, pump tubes, and ICP-MS cones to aggressive chemicals and harsh samples.

Application Note: Routine Analysis of Soils using ICP-MS and a Switching Valve ›

Technical Overview: Reduce Costs and Boost Productivity with the Advanced Valve System ›

The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

Autosampler

SPS 4 Autosampler

The Agilent SPS 4 autosampler offers a short sample-to-sample time and is fully integrated into the instrument software.

An integrated cover protects samples from contamination and protects your lab from corrosive samples, without increasing the footprint. A dual port-wash reservior allows multiple rinse solutions to be used to eliminate cross-contamination between samples.

With a compact footprint, the SPS 4 can be placed on the lab bench or on a trolley to preserve your lab's valuable space.

Flyer:
Overview of the SPS4 ›

The Agilent SPS 4 Autosampler can hold up to 360 tubes. The autodiluter can either fit neatly between the SPS 4 and the instrument or the SPS 4 can be placed on a trolley next to the lab bench, making it easy to move the autosampler around.

The Agilent ICP Workflow Automation System
Benefit of automation

Improving Your ICP Workflow Efficiency
What are the most time-consuming manual tasks in the lab?
Why automate?
What else is driving automation in the

The Integrated, All-Agilent ICP Automation System
Why all-Agilent?

Advanced Dilution System
ADS 2 Autodilutor
Features and Benefits of the Autodilutor

Switching Valve

Autosampler

Agilent Services, Spares, and Consumables

Contact

Agilent Services, Spares, and Consumables

Product service and maintenance
Reduce downtime, produce accurate, reliable data, and comply with industry regulations with flexible service and maintenance plans.
Instrument service | CrossLab Connect

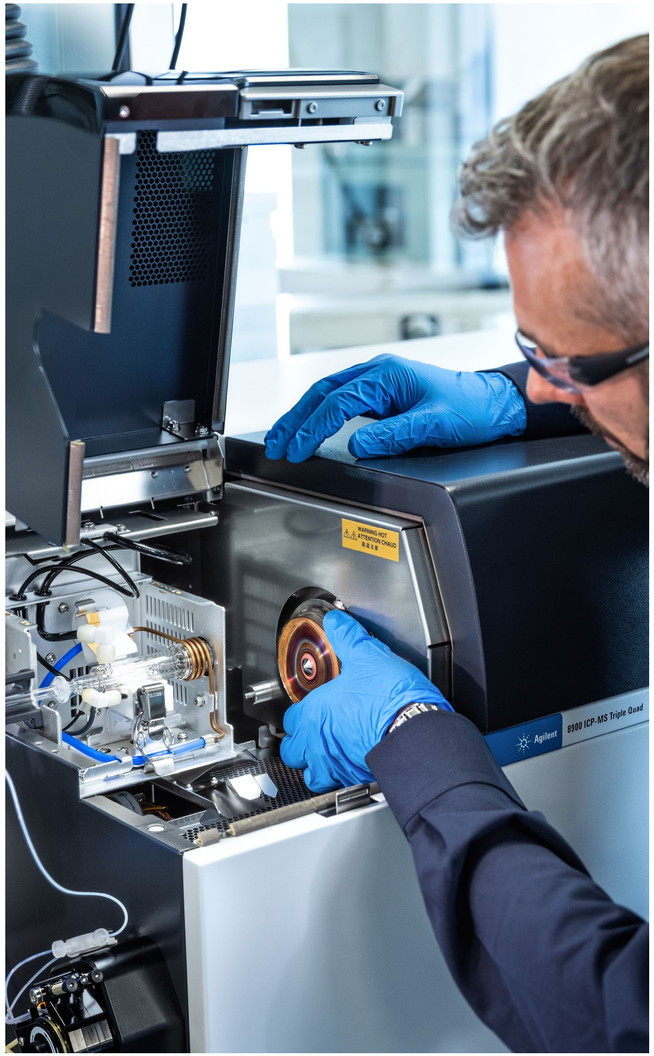
Financial services
Agilent offers flexible payment plans for capital expenditure, instrument subscription services, and bundled services, consumables, and support with a single, predictable monthly payment.
More information

Analytical method development and application consulting
Improve the economics of your testing with the optimum methods, instruments, and protocols.
Method consulting services

Laboratory supplies
Achieve optimum performance from your instruments with Agilent spares and consumables, chemical standards, certified reference materials, and sample preparation supplies.
More information

Pre-owned instruments, instrument buy-back
Certified pre-owned instruments deliver performance and reliability at an affordable price. Our trade-in and buyback program turns assets into income. Products at end-of-life instruments are safely disposed of.
Certified pre-owned instruments | Instrument Buy Back

Analyst training and support
Improve lab operations and minimize downtime with courses covering troubleshooting, maintenance, sample preparation, and software operations. An active online community provides answers for problems faced by analysts.
Agilent Education | Agilent Community



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.

Learn more:
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Get answers to your technical questions and access resources in the Agilent Community:
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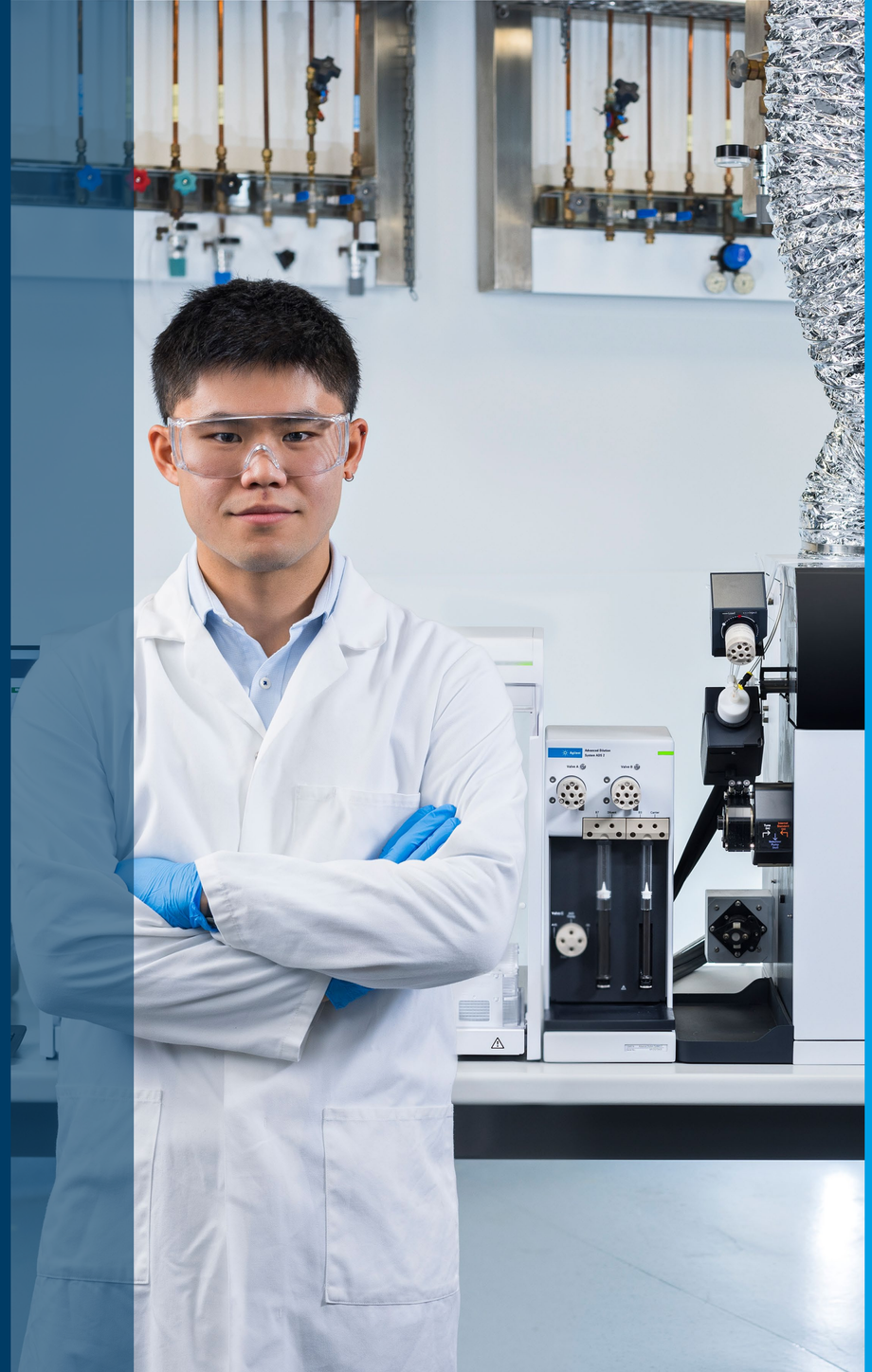

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