

Agilent 1290 Infinity Binary LC Agilent 1290 Infinity Quaternary LC

Infinitely more powerful



1290



INFINITELY MORE POWERFUL

The Agilent 1290 Infinity LCs are not only the most powerful but also the most adaptive UHPLC systems available. No matter what your laboratory requires, the 1290 Infinity LCs can handle the widest range of applications — from legacy HPLC methods to the most complex UHPLC applications.

Infinitely More Adaptive

The 1290 Infinity LC systems give you the possibility to develop high-end UHPLC methods and still run your established legacy HPLC methods for QA/QC on the same system.

- Switch between UHPLC and HPLC easier and more cost effectively than ever before, using Agilent's unique Intelligent System Emulation Technology (ISET)
- Gain full control of any Agilent UHPLC system through 3rd-party chromatography data systems using Agilent's new Instrument Control Framework (ICF)

Infinitely More Performance and Flexibility

With binary and quaternary pump options offering unmatched flow accuracy and precision, you can run ultrafast analyses as well as complex quaternary gradients.

- Gain 10 times more sensitivity and 30 times more linearity with Agilent's new high dynamic range detection solution
- Achieve highest sensitivity and accuracy by coupling to Agilent's 6490 Triple Quadrupole or 6550 Accurate-Mass Quadrupole Time-of-Flight (Q-TOF) LC/MS systems
- Extend your laboratory's flexibility with valve-based automation solutions for method development, 2D-LC and other demanding workflows

HPLC-like Cost of Ownership – UHPLC Productivity

The 1290 Infinity LCs are designed for highest reliability and for easy and fast maintenance.

- Lower your service costs to similar levels as HPLC equipment and take full advantage of the UHPLC productivity gain
- Achieve highest uptime through easy maintenance and straightforward diagnostics using Agilent Lab Advisor





Inside: see how the 1290 Infinity LCs can boost laboratory productivity through:

- Highest adaptivity
- Highest performance and flexibility
- HPLC-like cost of ownership



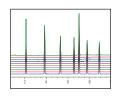
The best choice Pages 4-5

1290 Infinity LC with ISET

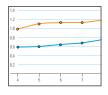
1100 Series Binary LC

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Highest adaptivity Pages 6-7



Highest performance Pages 8+9



Lowest cost-of-ownership Pages 10-11



Infinitely better technology Pages 12-13



Infinitely better instrument control Pages 16-17



Infinitely more solutions

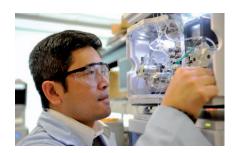
Pages 18-19

ALWAYS THE BEST CHOICE — FOR ANY APPLICATION

No matter how you apply liquid chromatography in your laboratory, the 1290 Infinity LCs are always the best choice. Whether you need a tool to answer scientific questions, an instrument to generate revenue where every cent per sample counts, or a system for product QA/QC where others must rely on your results, the 1290 Infinity LCs are the highest performing systems available — giving you the highest confidence in your results.

Performance and Speed for Research Applications

As a research scientist working in drug discovery, you will be asking open-ended analytical questions. Designed for running analyses on small diameter columns, the 1290 Infinity LCs give you the highest performance and highest sensitivity you need to find the answers you need.



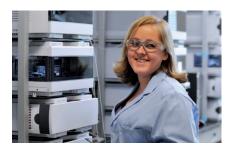
Speed and Confidence for Method Development

If you develop methods for routine analysis in QA/QC laboratories, you will know the analytes and your focus will be on optimizing speed, resolution and sensitivity of the separation. With the 1290 Infinity LCs, you get the chromatographic performance you need as well as instrument and eluent flexibility.



Confidence and Reliability for Quality Assurance

In QA/QC environments you are always under time pressure and need absolute confidence in your results to assure absolute product quality. The extreme reliability and robustness of the 1290 Infinity LCs allow you to run both established HPLC and new UHPLC methods — day in, day out — for highest confidence.



Reliability and Flexibility for Contract Laboratories

The business models of contract research and manufacturing organizations demand highest sample throughput at lowest cost per analysis. With service costs at similar levels as HPLC equipment, the 1290 Infinity LCs allow you to take full advantage of the productivity gains that UHPLC brings to your laboratory. Further, the high flexibility of these systems means you can adapt your service to meet any customer requirement.



		Sensitivity	Flexibility	High Performance	Lowest Delay	Adaptivity	Workflow Automation
Environmental		Residue Analysis	Screening	Highest Data Confidence	Ultrafast Methods	Reuse of Vali- dated Methods	Sample Enrichment, Screening
Food Testing & Agriculture		Residue Analysis	Pesticide Screening	Highest Data Confidence	Ultrafast Methods	Reuse of Validated Methods	Sample Preparation, Screening
Energy & Chemicals QA/QC		Impurity Testing	Multi-Method Applications	Automated Methods		Reuse of Validated Methods, 3rd-party Software	Sample Preparation,
Forensics & Toxicology		Trace Analysis	Multi-user Environment	Highest Data Confidence	Ultrafast Methods		Sample Preparation, High-Throughput Screening
Drug Discovery			Method Development, Multi-user Environment		Ultrafast Methods		High- Throughput Screening
Drug Development	OH OH		Method Development				DMPK, ADME
Drug QA/QC		Impurity Testing		Automatical Methods	Ultrafast Methods	Reuse of Validated Methods, 3rd-party Software	Sample Preparation
Proteomics	622			Highest Data Confidence			
Metabolomics	COA	Biomarker Identification & Quantification	Pesticide Screening	Highest Data Confidence			



ADAPTS TO THE NEEDS OF ANY LABORATORY

Your analytical instrumentation should always adapt to your needs — not vice-versa! Regardless of your application or the IT environment in which you work, the 1290 Infinity LCs will match your laboratory's infrastructure and meet your application needs better than any other LC system.

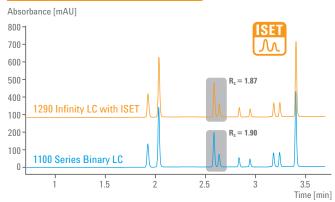
Infinitely Better Method Transfer

If your laboratory deploys methods developed on other HPLC or UHPLC systems, you will be concerned about deviations in resolution and retention times. At the same time you will probably be reluctant to alter the original method parameters or change your instrumentation. With Intelligent System Emulation Technology (ISET) from Agilent you can overcome these challenges. The 1290 Infinity LCs with ISET can execute any legacy HPLC or latest UHPLC method while delivering the same chromatographic results — all through a single mouse click!

Infinitely Better Instrument Control

In the past, laboratories using non-Agilent chromatography data systems were unable to benefit from the advanced capabilities and features of Agilent 1290 Infinity LCs. Now, Agilent's Instrument Control Framework (ICF) now gives access to this advanced functionality and ensures your Agilent LC instrumentation runs smoother than ever before when controlled through 3rd-party chromatography data systems such as Waters Empower or Dionex Chromeleon.

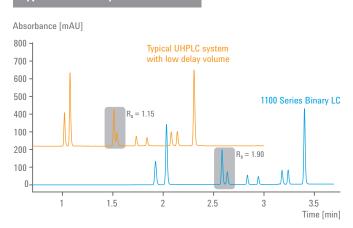
Agilent 1290 Infinity LC with ISET



Agilent ICF



Typical UHPLC system - no ISET



For examples of how ISET can be deployed, download these Application Notes from www.agilent.com/chem/library

Search for publication numbers 5990-9692EN, 5990-9703EN and 5990-9715EN.



Widest Power Range

The Agilent 1290 Infinity LC Series gives you the full power range you need for any analytical task. That means you can use conventional, standard-bore HPLC columns or typical 2.1 mm id columns for UHPLC.

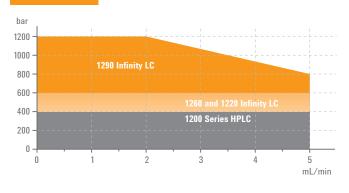
Widest Application Range

Whether you are working with binary or quaternary gradients, or with sub-2-micron or standard HPLC columns, the Agilent 1290 Infinity LCs give you the power to handle any application.

Widest Column Selection

Agilent offers you a broad range of analytical columns with various selectivity characteristics and dimensions. Whether you want to run standard or ultrafast chromatography, or develop methods with different phases — Agilent has a column that meets your needs.

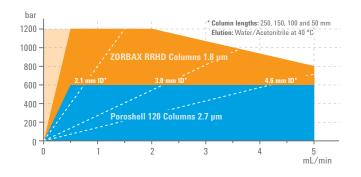
Power Range



Agilent LC Columns



Column Application Range





INFINITELY MORE PERFORMANCE THROUGHOUT

Every module in a 1290 Infinity LC delivers outstanding performance. This performance helps you to achieve higher levels of speed, resolution and reliability in your chromatography than ever before, giving you a decisive edge over other laboratories.

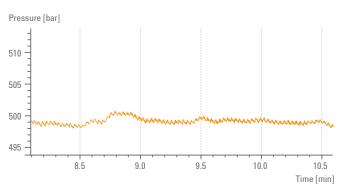
Infinitely More Performance – From Every Module

Regardless of the demands your application places on the pump, autosampler or detector, the 1290 Infinity LCs can rise to the challenge.

- Lowest pump ripple combined with unmatched composition accuracy for highest retention time precision gives you highest confidence in peak identification
- Unmatched composition accuracy also delivers highest area precision for more confidence in quantitative analysis
- Accurate and precise autosampler operation ensures highest reliability in qualitative and quantitative analysis, and lowest carryover gives you highest confidence in any positive or negative result

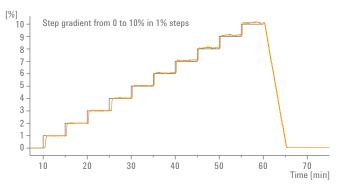
Pump Ripple

Smart pump intelligence achieves lowest ripple for lowest baseline noise



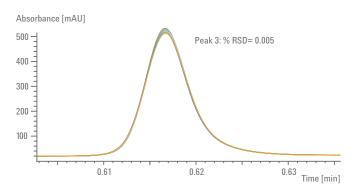
Composition Accuracy

Unmatched composition accuracy delivers highest area precision



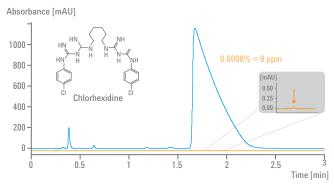
Area Precision

Superior area precision provides more confidence in quantitative analysis.



Carryover

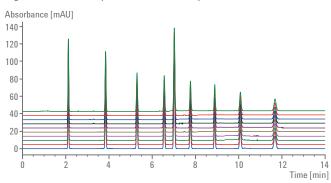
Lowest carryover gives you highest confidence in any result



- Highest detection sensitivity enables you to determine lowest concentration analytes such as minor impurities and to discover compounds previously not detected
- High dynamic range detection solution allows you to work at highest sensitivity and widest linear range — at the same time
- 30-times wider linear UV-range lets you determine and quantify analytes over a broader concentration range — in a single run saving you time and money, and ensuring highest data quality with less effort

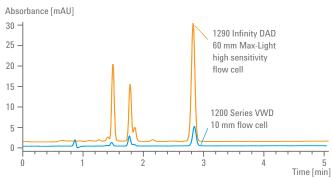
Retention Time Precision

Highest retention time precision for confident peak identification.

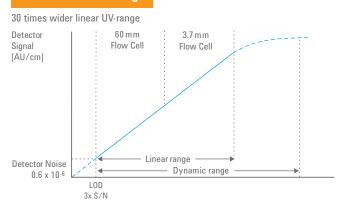


Detection Sensivity

10 times higher sensivity than the 1200 Series DAD and VWD.



Linear Detection Range





INFINITELY LOWER COST OF OWNERSHIP

The 1290 Infinity LCs significantly increase productivity by delivering faster results with higher data quality. The systems are designed for highest reliability and superior supportability, allowing you to decrease the total cost of ownership dramatically — get UHPLC productivity at service costs comparable to HPLC equipment.

Designed for Supportability

At introduction the 1290 Infinity LC already showed a higher quality index than the Agilent 1100 Series LC, which is renowned for its reliability. This proves the outstanding design of supportability of the 1290 Infinity LC.

- · Accurate instrument monitoring
- · Superior onsite and remote diagnostic
- · Increased lifetime of parts
- Enhanced maintenance procedure
- · Easy and fast exchange of parts

Instrument Monitoring

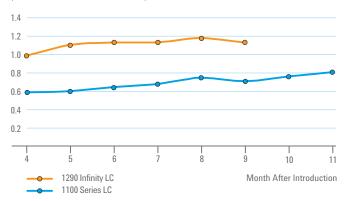
Early maintenance feedback (EMF) and progress bars in Agilent Lab Advisor provide instant visual indication of preventive maintenance need. RFID tags on lamp, flow cell, metering device, valve and pump head allow unambiguous data traceability, minimizing the risk of false data interpretation. You can rest assured that you are reducing the risk of unexpected breakdowns and getting maximum usage out of all consumables.

Superior Diagnostics

New pinpoint diagnostics in Agilent Lab Advisor allow you to troubleshoot down to the parts level fast and efficiently. You get unambiguous identification of the defect's source, reducing the time required for troubleshooting.

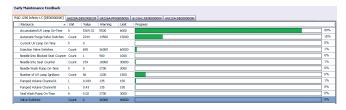
Quality Index

Agilent Quality Index (QI*) of the 1290 Infinity LC compared to the 1100 Series LC (*OI is based on annual failure rates).



Lab Advisor

Agilent Lab Advisor provides full diagnostic capabilities with an extended list of tests and calibrations procedures and automates basic diagnostic routines that help verify proper instrument performance.



Remote Support in Real-Time

Agilent Remote Advisor is a powerful set of proactive, real-time support and reporting features. Using a secure Internet connection, Remote Advisor provides simple, secure access to Agilent's support organization and configurable alert notifications when instruments have runtime and maintenance issues requiring attention. Agilent Remote Advisor follows the same industry-accepted communications standards as financial, medical, and IT institutions without requiring changes to existing IT policies or procedures. Through this attention to security, Remote Advisor has been deployed at 6 of the 10 leading pharmaceutical companies as well as top government organizations around the world.

Increased Lifetime of Parts

Pumping at high pressures and high flow rates puts extra stress on the pump seals. To guarantee maximum instrument uptime the 1290 Infinity binary and guaternary pumps deploy:

- · Variable stroke feature to reduce pump frequency at high flow
- · Adaptive piston control for compensation of minute leaks

Enhanced Maintenance Procedures

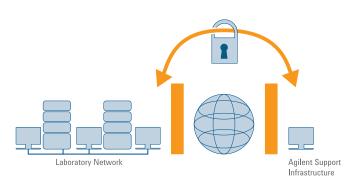
With a service contract from Agilent you can benefit from the exchange program that offers complete, fully-tested pump heads. To replace a worn seal, there is no need to completely disassemble the pump head, making maintenance an easy task.

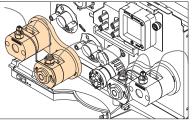
Easy and Fast Exchange of Parts

Component exchange would be time-consuming, if the entire stack needs to be disassembled and reassembled. Not so with the 1290 Infinity LCs where up to 95 percent of repairs can be done from the front of the system.

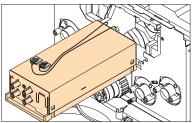
Remote Advisor

Agilent Remote Advisor – used at 6 of the 10 leading pharmaceutical companies.





Complete pump heads are available through an exchange program for fast and straightforward maintenance.



In-stack repair of the degassing unit in the 1290 Infinity binary pump.



INFINITELY BETTER TECHNOLOGY FOR MORE PERFORMANCE

The 1290 Infinity LC is more than just a UHPLC system. It combines latest technology and smartest software with highest flexibility and usability. When you are looking for the best performing, future-proof UHPLC system, there is only one choice — the 1290 Infinity LC from Agilent.

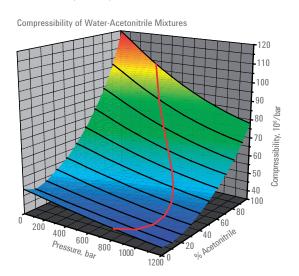
Agilent 1290 Infinity Binary and Quaternary Pumps – Based on Same High-Performing Technology

- True UHPLC power range up to 2 mL/min at 1200 bar and 5 mL/min at 800 bar – for unprecedented speed and resolution, as well as compatibility with methods developed on other platforms
- Dual-core microprocessor-controlled active damping compensates for solvent properties and provides real-time flow optimization to ensure negligible noise and highest retention time precision
- Integrated, high efficiency degassing offers fast change-over of solvents for purging and priming the pump
- Unique Agilent Jet Weaver mixer for highest mixing efficiency at lowest delay volume
- Active damping ensures lowest pump ripple and baseline noise
- Complete knowledge about solvent mixtures compressibility behavior enables unmatched composition and flow accuracy

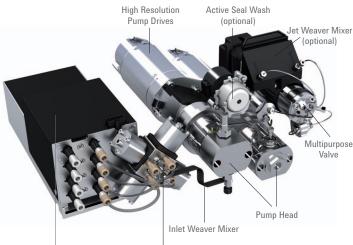


Compressibility

3D solvent compressibility functions.



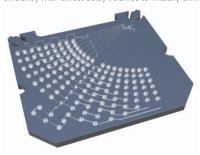
Quaternary Pump



4-Channel Degassing Unit Multi-Channel Gradient Valve

Agilent Jet Weaver

Agilent Jet Weaver mixer — based on multilayer technology — combines highest mixing efficiency with lowest delay volumes to virtually eliminate UV detector noise.



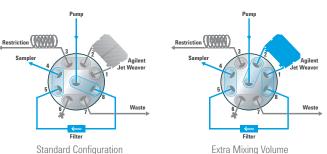
Agilent Inlet Weaver

Like the Jet Weaver mixer, the new Agilent Inlet Weaver mixer is based on multilayer technology and facilitates highest mixing efficiency.



Multipurpose Valve

The multipurpose valve in the quaternary pump extends your automation possibilities.

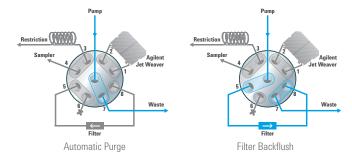


Agilent 1290 Infinity Binary Pump for Ultimate Performance

- Lowest delay volumes down to < 10 μ L enables ultrafast gradients for LC/MS and LC/UV
- 2D-LC capability only possible with lowest delay volume
- · Widest ISET range for infinitely better method transfer
- Complete composition range from 0 to 100 %
- Optimized for lowest dispersion
- Automatic purge valve with extended functionalities

Agilent 1290 Infinity Quaternary Pump for Ultimate Flexibility

- Quaternary gradient capabilities and blend assist function for simplified method development and solvent blending
- Lowest delay volumes less than 350 μL enable ultrafast gradients for LC/MS and LC/UV applications
- Integrated multipurpose valve for extended automatic functionality, facilitating automatic filter backflush, purge and additional mixing volume switching
- Unique Agilent Inlet Weaver mixer ensures solvents are thoroughly mixed before entering the pump head — the key to achieving binary pump-like performance





INFINITELY BETTER TECHNOLOGY FOR MORE **PERFORMANCE**

The 1290 Infinity LC is more than just a UHPLC system. It combines latest technology and smartest software with highest flexibility and usability. When you are looking for the best performing, future-proof UHPLC system, there is only one choice — the 1290 Infinity LC from Agilent.

Agilent 1290 Infinity Autosampler

Based on next-generation, flow-through design the 1290 Infinity Autosampler offers high precision injection of both large and small volumes without the need to change sample loops.

- Highest precision over an injection range from 0.1 to 40 μL
- · Short injection cycles for higher productivity through overlapped injections
- · Best carryover performance through inert seal and needle seat material (< 0.004 % chlorhexidine)
- Ultralow carry over (< 0.001 % chlorhexidine) through automated needle seat flushing with 1290 Infinity Flexible Cube

Agilent 1290 Infinity Column Compartment

The 1290 Infinity Column Compartment offers infinitely better flexibility to optimize a separation on speed and selectivity.

- Temperature stability specification of ± 0.05 °C for repeatable retention times
- · Maximum application flexibility through Peltier cooling and heating for two independent temperature zones from 10 degrees below ambient up to 100 °C
- · Low volume heat exchangers for lowest peak dispersion
- · Spacious column racks provide room for three 30 cm columns or many more shorter columns
- · Door-open sensor for improved safety and usability

Autosampler



Agilent Quick-Change Valves

For automated method development or for a multi-method system, you can combine two, or even three, column compartments - for up to six independent column temperature zones and the capability to switch up to 6 or 8 columns. Choose either external or internal, thermostatted Quick-Change valves to meet your demands for higher sample throughput or automated sample preparation.





Agilent 1290 Infinity Diode Array Detector

The 1290 Infinity Diode Array Detector achieves unmatched sensitivity for both UHPLC and conventional HPLC analyses. The Agilent Max-Light cartridge cells with optofluidic waveguides improve light transmission to near 100% efficiency without sacrificing resolution caused by cell dispersions effects. Any compromising refractive index and thermal effects are almost completely eliminated, resulting in significantly less baseline drift.

- The universal Agilent Max-Light standard cartridge cell with 10 mm optical path length provides high sensitivity with noise less than \pm 3 μAU and lowest peak dispersion for 2.1, 3.0 and 4.6 mm ID columns
- Less baseline drift for more reliable and robust peak integration

- Multiple wavelength and full spectral detection at high sampling rate of 160 Hz keeping pace with the analysis speed of ultrafast LC
- Programmable slit from 1 to 8 nm for rapid optimization of sensitivity, linearity and spectral resolution through optimum incident light conditions
- RFID tags on flow cell and lamps for data traceability and usage tracking
- · Cartridge design of flow cells for easy exchange
- High dynamic range DAD solution extends your insight with a 30x wider linear UV-range by combining two detectors with different path-length flow cells







INFINITELY BETTER INSTRUMENT CONTROL

Control of any 1290 Infinity module starts with the software driver and Agilent has standardized on RC.net drivers, which are used in all of Agilent's chromatographic data systems and are even supported by many 3rd-party chromatography data systems.

RC.net Drivers for Better Instrument Control

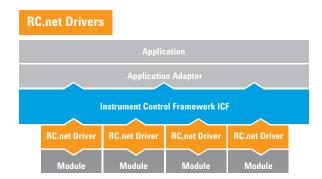
Besides standard control functions, the modules' RC.net drivers include special functionalities such as ISET control of the 1290 Infinity pumps or the BlendAssist feature of the 1290 Infinity quaternary pump. Clustering drivers simplifies both user-interfaces and workflows. In method development systems two or even three column compartments with built-in valves can be clustered and all can be controlled through a single, easy-to-use interface. Including this functionality in the drivers makes these advanced features available regardless of the chromatographic data system.

Agilent Instrument Control Framework

Agilent Instrument Control Framework (ICF) facilitates comprehensive and straightforward control of your Agilent 1290 Infinity LC system regardless of the chromatography data system you deploy in your laboratory. It ensures your Agilent 1290 Infinity LC system run smoother than ever before ,when controlled through 3rd-party chromatography data systems (CDS) such as Waters Empower or Dionex Chromeleon.

Agilent OpenLAB CDS ChemStation Edition

OpenLAB CDS ChemStation Edition is designed for the advanced needs of research and development scientists in chemical and pharmaceutical laboratories. It is easy to customize to specific needs and offers a broad range of add-on modules to support specific applications. ChemStation is the most comprehensive control software for 1290 Infinity LC systems.









Agilent EZChrom Compact



Agilent Mass Hunter



Agilent Lab Advisor | International Content of Content

Agilent OpenLAB CDS EZChrom Edition

OpenLAB CDS EZChrom Edition is fully scalable from an entry-level configuration with EZChrom Compact to a multi-user, multi-site distributed systems with hundreds of instruments and users. This makes it ideal for routine operation in QA/QC laboratories.

Agilent MassHunter Workstation

The 1290 Infinity Binary LC is the best choice as the front-end of an LC/MS system and MassHunter Workstation is designed to give you the best results out of your LC/MS System. Whether you have an Agilent 6100 Series Single Quadrupole, 6400 Series Triple Quadrupole or 6500 Series Accurate-Mass Q-TOF, you can rest assured you will always maximize your LC/MS performance

Agilent Lab Advisor

Agilent Lab Advisor helps you to keep your lab's instruments in top condition and reduces unnecessary lab downtime. It provides you with advanced diagnostic and maintenance capabilities for your 1200 Infinity Series LC — independent of the software you use to control your instrument. In short, Lab Advisor helps you achieve high quality chromatographic results in the most efficient way.



INFINITELY MORE SOLUTIONS

The 1290 Infinity LCs are truly the most adaptive systems available, giving you the flexibility to choose a solution that fits perfectly to your application needs. In short, the 1290 Infinity LCs can help you to solve virtually any conceivable application challenge.

Highest Throughput with Lowest Carryover

With a capacity of up to 24 shallow microtiter plates the 1290 Infinity LC Injectors are specifically designed to meet the requirements of high-throughput applications. The combination of the Agilent proprietary 1200 bar injection valve and the dynamic load and wash procedure facilitates fast cycle times and lowest carryover — typically less than 0.004 % chlorhexidine0.

Enhanced Automation Options

The 1290 Infinity Flexible Cube is an auxiliary module for the 1290 Infinity Autosampler. Built-in pump and valves facilitate enhanced flushing and switching capabilities. For example, you can access three solvents for flushing of critical parts in the flow path. Or, you can run two-valve applications such as sample enrichment by SPE and matrix stripping.

LC Injectors HTC and HTS



Automation Solutions



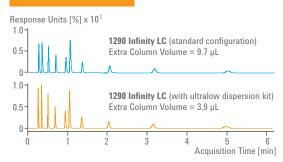
Increased Peak Capacity

A unique kit is available for the 1290 Infinity LCs, which further reduces the extra column volume. Containing special capillaries, needle seat and heat exchanger, the ultralow dispersion kit helps you to increase peak capacity and separation efficiency.

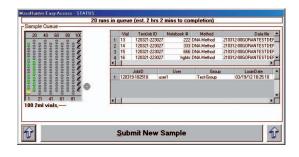
Simplified Access to the Power of LC/MS

For casual LC/MS users, or workgroups that share LC/MS instruments, Agilent's LC/MS Easy Access software enables simple, walk-up operation of 6100 Series Quadrupole LC/MS and 6210 Time-of-Flight LC/MS systems. You simply "walk up" to the system, input sample information and choose your analysis method or purification scheme, and the results are emailed to your office or laboratory.

Ultralow Dispersion



Easy Access to LC/MS



Extended Insights with 30x Wider UV-Range

Expand your UV-detection capabilities with the 30x wider linear UV-range offered by Agilent's high dynamic range detection solution. By combining the signals from two diode array detectors with different path length Max-Light flow cells, the Agilent 1200 Infinity Series High Dynamic Range DAD solution allows you to detect and quantify all components in your sample in a single run — making it ideal for analysis of mixtures with widely different concentration levels.

A Second Dimension of Separation Power

Agilent's 2D-LC solution adds a second dimension to your chromatography to widen your separation power. The solution makes it easy to combine orthogonal separations in one run and gives you the flexibility to perform heart-cutting or comprehensive 2D-LC.

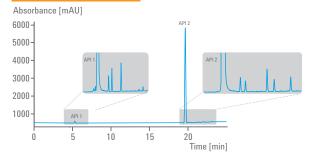
Highest Sensitivity and Accuracy Through LC/MS

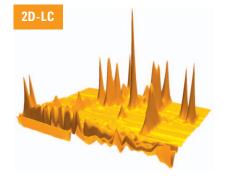
Agilent offers a broad portfolio of industry-leading LC/MS platforms — including single-quadrupole, triple-quadrupole, time-of-flight and quadrupole time-of-flight — for highest sensitivity in target compound analysis and highest accuracy for identification of unknowns.

Method Development Made Easy

By clustering up to three 1290 Infinity Column Compartments you can simply your method development with access to 8 columns, 26 solvents and 6 temperature zones. The Agilent Scouting Wizard gives the ultimate tool for method screening. For advanced functionality including fully automated optimization of separation parameters, Agilent has partnered with Advanced Chemistry Development and ChromSword.

High Dynamic Range

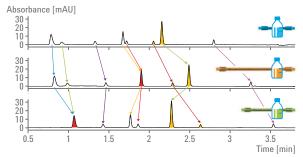




Method Development

2 -

LC/MS Coupling



40

Counts vs. Acquisition Time [s]



Learn more

www.agilent.com/chem/1290

Find an Agilent customer center

www.agilent.com/chem/contactus

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