



Agilent 1200 Series LC Systems and Modules



Agilent Technologies



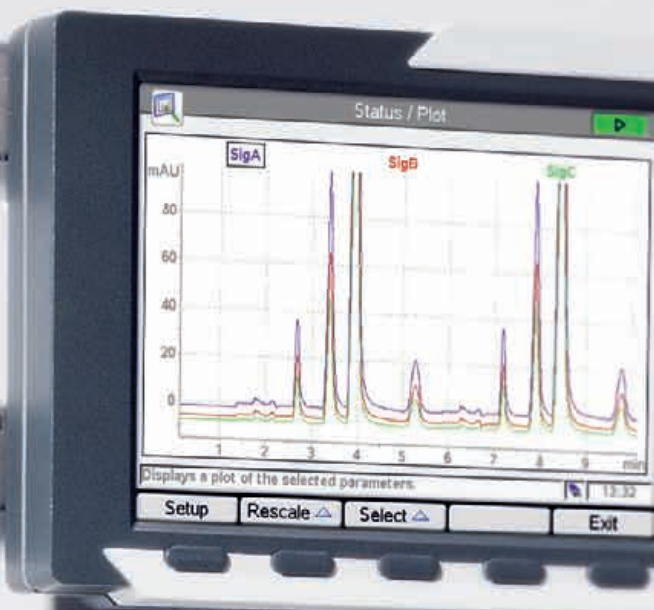
Agilent Technologies

Agilent Technologies 1200 Series

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Agilent Technologies 1200 Series

G1312A BioPump
REV 05/04





Agilent 1200 Series **Pure Liquid Chromatography**

Agilent Technologies has taken its world leading LC system and made it even more flexible, smarter and ultimately equipped for the future.

The new Agilent 1200 Series is finely tuned to give you a winning combination of speed, resolution and sensitivity, while the modular design ensures that you get a configuration ideally suited to meet your application requirements.

Agilent has been developing robust and reliable LC systems for over 30 years. The Agilent 1200 Series represents the latest advance in this evolution of excellent integrated solutions, designed to help you achieve uncompromised data quality and higher productivity.

Make a secure investment in the future of your lab with the scalable and open architecture of the Agilent 1200 Series.

All the performance.
All the time.

Sensitivity and Performance

Optimized to give you complete confidence in your results

The seamless integration of each module gives you unparalleled accuracy and precision for both quantitative and qualitative analysis. Highly sensitive detectors deliver the lowest possible detection limits for even the most demanding applications.

Spectral information from 190 to 950 nm

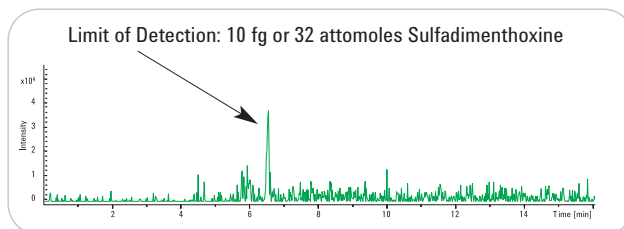
The dual-lamp design and the temperature control of the Agilent 1200 Series diode array detectors ensure outstanding sensitivity. Photodiode arrays with 1024 elements, programmable slit width (1, 2, 4, 8, 16 nm) and the selection of nine different flow cells enable optimization of resolution, linearity and sensitivity.

Mass selective detection for more confidence

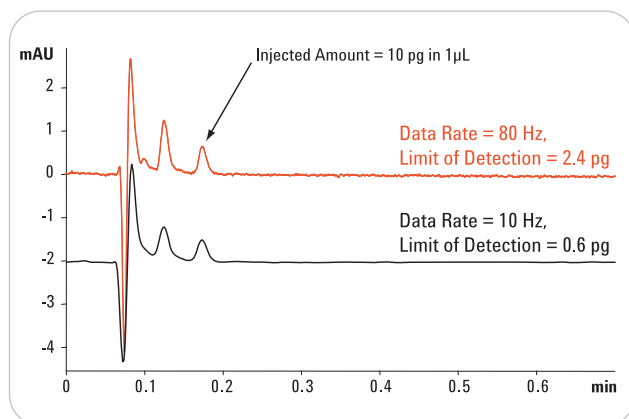
By providing molecular weight and structural information, which complements the spectral information from a diode array detector, the Agilent 6000 Series LC/MS systems are the ideal solutions for scientists who need additional selectivity and sensitivity for their chromatographic systems.

HPLC-Chip/MS for reliable high sensitivity nanospray

The easy-to-use HPLC-Chip/MS system significantly improves your nanoflow separations by eliminating all post-column dead volumes and is ideally suited for high sensitivity nanospray LC/MS with limited sample amounts.



Serum sample with HPLC-Chip/6320 Ion Trap LC/MS, EIC of 311.1 → Σ (155.9, 217.9, 245.0), 1 μ L injection.



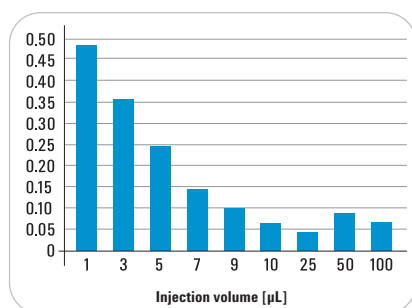
Limit of detection of anthracene at different data rates with diode array detector.



Revolutionary HPLC-Chip/MS integrates capillaries, nanocolumns and nanospray emitter on a single polymer chip.

Superior injection precision and lowest carryover

The selection of different autosamplers provides for precision levels of < 0.5 % RSD over an injection volume range from 0.01 μL to 2000 μL . The unique flow-through design, combined with the external needle wash and optional multiple wash solvents, virtually eliminates carryover, even for highly adsorptive compounds.



Typical repeatability data for injection volumes demonstrates the high precision of the standard autosampler.

High resolution chromatography reveals more

Small particle size and long separation columns are key for higher efficiency and resolution. The Agilent 1200 Series Rapid Resolution system fully exploits the power of Agilent ZORBAX Rapid Resolution HT columns with 1.8 μm particles, providing a new dimension of information for complex samples.



High resolution chromatography of a ginseng root extract with the Agilent 1200 Series Rapid Resolution system and TOF detection, with the average peak width of 0.13 minutes giving a peak capacity of 540.

Speed and Throughput

Modular and scalable platform lets you decide just how fast you want to work

By choosing a system from the fast quaternary/binary LC system through to the ultra-fast rapid resolution system you can achieve new levels of productivity, processing more samples in less time, while maintaining and even improving data quality.

Short columns with sub-2 μm particles offer a unique opportunity to dramatically reduce analysis time by increasing the flow rate without losing separation performance. In order to take full advantage of their power, you need a system that can do more than handle high back pressure. The answer is a fully integrated solution, optimized for system volumes, cycle times, detection rates and temperature control.

Column: ZORBAX SB RRHT C18,
2.1 mm x 50 mm, 1.8 μm
Flow = 2.4 mL/min
Gradient: water/acetonitrile
0 min 35 %
0.38 min 95 %
0.46 min 95 %
0.47 min 35 %
Temperature: 95 $^{\circ}\text{C}$
Pressure: 550 bar
Detection: DAD SL, 80 Hz data rate

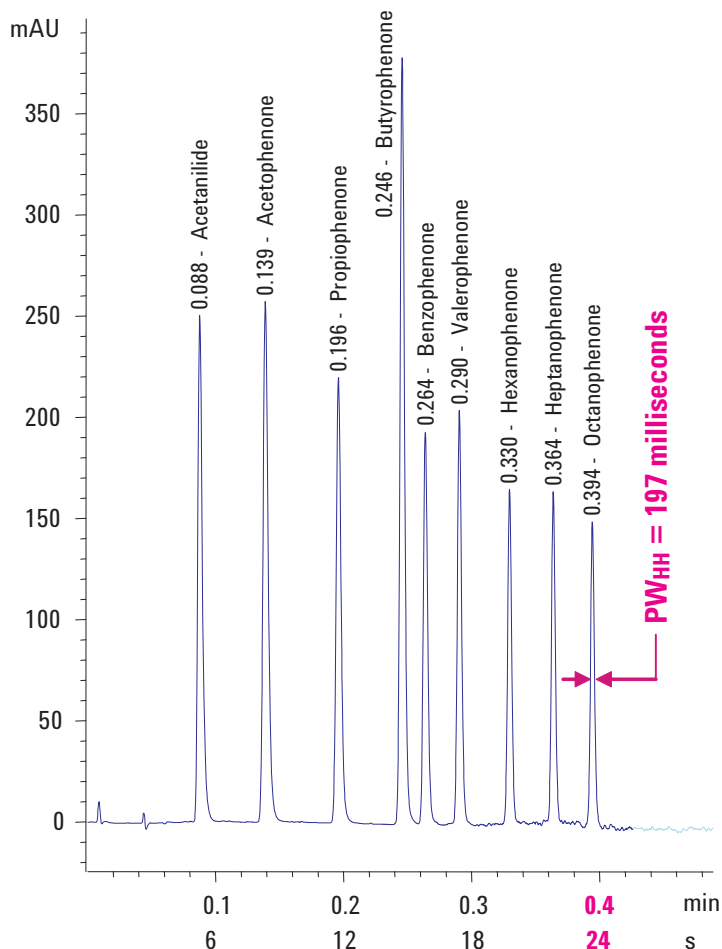
Ultra-fast separation of a phenone mix with the Agilent 1200 Series Rapid Resolution system.

Agilent 1200 Series binary pump SL

- Configurable delay volume down to 120 μL together with a flow range up to 5 mL/min provides universal applicability
- Electronic damping control for lowest baseline noise
- Perfect choice for fast and precise gradients using LC/MS, as well as UV-only systems
- Fully exploits the speed and separation potential of ZORBAX Rapid Resolution HT columns

Fast cycle time for ultra-fast analysis

- High performance autosamplers enable fast injection cycles without sacrificing lowest carryover
- Valve solutions for alternating column regeneration
- Minimized run-to-run instrument and software initialization time



Complete ZORBAX Rapid Resolution HT column portfolio

The optimized particle size distribution results in less back pressure which makes these columns the number one choice for all LC systems.

High temperature enables higher speed

The two independently controllable low volume heat exchangers allow ultra-fast, high temperature separation with unique post-column cooling for the lowest possible UV detection limits.



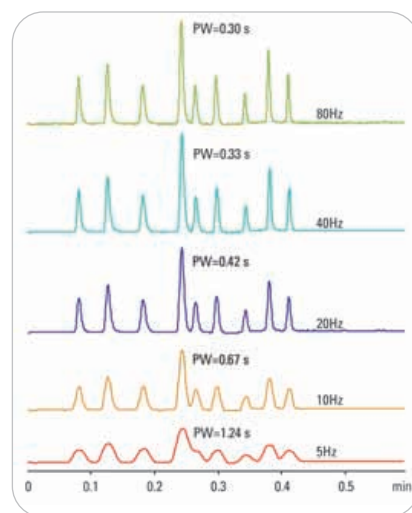
Peltier cooling/heating ranging from 10 °C below ambient up to 100 °C.

Ultra-fast detectors with uncompromised sensitivity

- Programmable variable wavelength detector VWD (55 Hz)
- Multiple wavelength detector MWD (80 Hz)
- Diode array detector for full spectral acquisition DAD (80 Hz)
- Five types of mass spectrometers, all with fast spectral acquisition that can keep up with the fastest chromatography



The ChemStation explorer enables fast data review.



80 Hz full spectral sampling rate provides resolution and peak capacity gains of 90 % relative to 10 Hz sampling rates.

Reliability and Lifetime

Easy maintenance and intelligent system monitoring for increased uptime

With an installed base of more than 60,000 LC systems, Agilent LC technology is renowned for its reliability under all operating conditions. The Agilent 1200 Series represents the next generation of LC, designed for even greater robustness and reliability together with enhanced performance.

Agilent pioneered technologies to monitor and track important system parameters with the goal of ensuring that you achieve greater productivity and keep operating costs low.

Robust components

- Long-life pistons and seals, together with active seal wash, reduce the frequency of preventive maintenance
- Deuterium and xenon lamps with a lifetime of over 2000 hours
- Patented orthogonal spray design substantially reduces ion source contamination and the need for cleaning

Easy maintenance

- Demonstration videos on a multimedia CD-ROM guide you through maintenance procedures
- Easily interchangeable ion sources
- E-Pac design significantly reduces assembly and disassembly time

Agilent system intelligence

- Early Maintenance Feedback (EMF) tracks system usage (such as lamp burn time, solvent usage) and alerts you for timely replacement of parts
- Column identification module records column parameters (such as number of injections, particle size and maximum pressure) and provides a unique column signature
- Patented RFID tracking technology in the DAD SL saves all relevant meta data from the flow cells and UV lamp
- Control Area Network (CAN) provides inter-modular, real-time communication for reliable operation, regardless of PC failures or network interruptions
- Software independent LC diagnostic tool assists users and the support experts interpreting the instrument status
- Agilent system intelligence provides a new generation of services with on-demand remote connectivity for a new level of productivity



Self-aligning, front access to replacement parts, such as lamp and flow cells.



A unique embedded data recovery card for DAD SL offers you "data-never-lost insurance".

Customer support and services

Agilent provides customer-focused products and services for all stages in an instrument's life cycle, from installation and upgrade to operation and repair. The Agilent global network of support services offers a broad range of options for customized or contract services, enabling you to choose the package which best suits your laboratory needs and budget requirements.

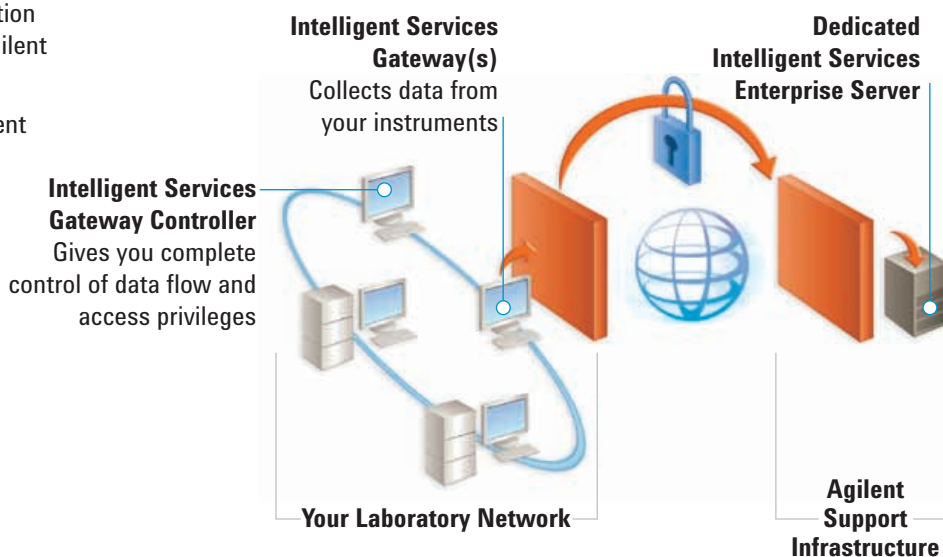
Agilent intelligent services

Using the remote capabilities of your instrument, the latest generation of Agilent services offers real-time insight into instrument utilization and performance. Backed by highly skilled Agilent service engineers and application scientists, these intelligent services provide a whole new level of performance.

- Agilent LC diagnostics instrument status report includes all important information, such as system configuration, error log book, EMF and guidance report
- Maximized lab productivity – secure and streamlined communication between your lab and the Agilent support organization
- Optimized return on instrument capital – proactively monitor instrument performance and utilization



At the push of a button, Agilent LC diagnostics generates complete instrument status reports in pdf format.



Open and Organized

Scalable and open software architecture with Agilent OL operating system

In parallel to the development of enhanced analytical hardware, Agilent develops software solutions designed to meet your specific needs. The Agilent range extends from single workstations through to client-server solutions and an innovative informatics framework to unite your enterprise, ensuring that you can expand your operations easily and effectively.

Workstation software systems to improve your daily output

Agilent workstations give you high level instrument control, data acquisition and data management capabilities, designed to help you increase productivity. All software systems are available with Installation Qualification (IQ) and Operational Qualification (OQ).

- Reduce training costs
- Comply with regulatory guidelines
- Extend the system as lab needs grow
- Employ sophisticated level 4 and 5 instrument control

ChemStation for research and method development tasks

Agilent ChemStation enables you to acquire, review and organize large amounts of data, giving you instant access to online instrument modifications and results. The built-in macro language makes it easy to customize and the software supports numerous add-ons.

- Level 5 instrument control for your Agilent instruments
- Built-in diagnostics, maintenance and Early Maintenance Feedback (EMF) functions for maximum uptime
- Control of LC/MS, GC/MS, CE, CE/MS and generic A/D converters
- Add-on modules for specific solutions, such as high throughput purification software, GPC/SEC Data Analysis, Analyst, LC/MS Easy Access, ChemStation Data Browser

EZChrom Elite for maximum flexibility and compliance

Agilent EZChrom Elite workstation is an easy to use software solution for labs with instruments from multiple vendors. It also provides high automation capability with advanced "smart" sequencing and reporting capabilities with automated spreadsheet calculations.

- Full compliance features
- Integrated multi-vendor instrument control
- Powerful and flexible reporting
- SMART sequencing for flexible automation tasks
- Easy scale-up from workstation to client-server system

Agilent 1200 Series instant pilot

- Cost-effective, standalone solution for single instrument control
- Full instrument control and display of online signal(s), maintenance, diagnostic and Early Maintenance Feedback (EMF) functions
- Comfortable operation in the palm of your hand or securely mounted on one of the 1200 Series modules
- Large, high-brightness colored screen
- USB memory stick for method and sequence storage, and transfer to another 1200 system
- Intuitive software with online tip-tool and context-sensitive help for ease of use

Parameters can be changed immediately

Online tip-tool shows limits instantly for ease of use



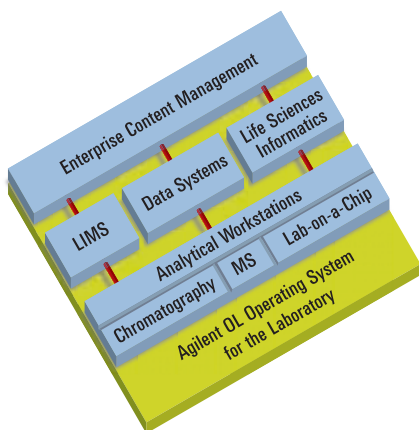
Color-coded information on status of 1200 Series system

Signal plot(s) can be enlarged to full screen

Agilent OL ECM reaches beyond the single laboratory

The Agilent OL philosophy lets you communicate beyond the boundaries of a single lab. By implementing Agilent OL's core component – the Enterprise Content Management system (ECM) – you can acquire and organize your data across laboratories and departments.

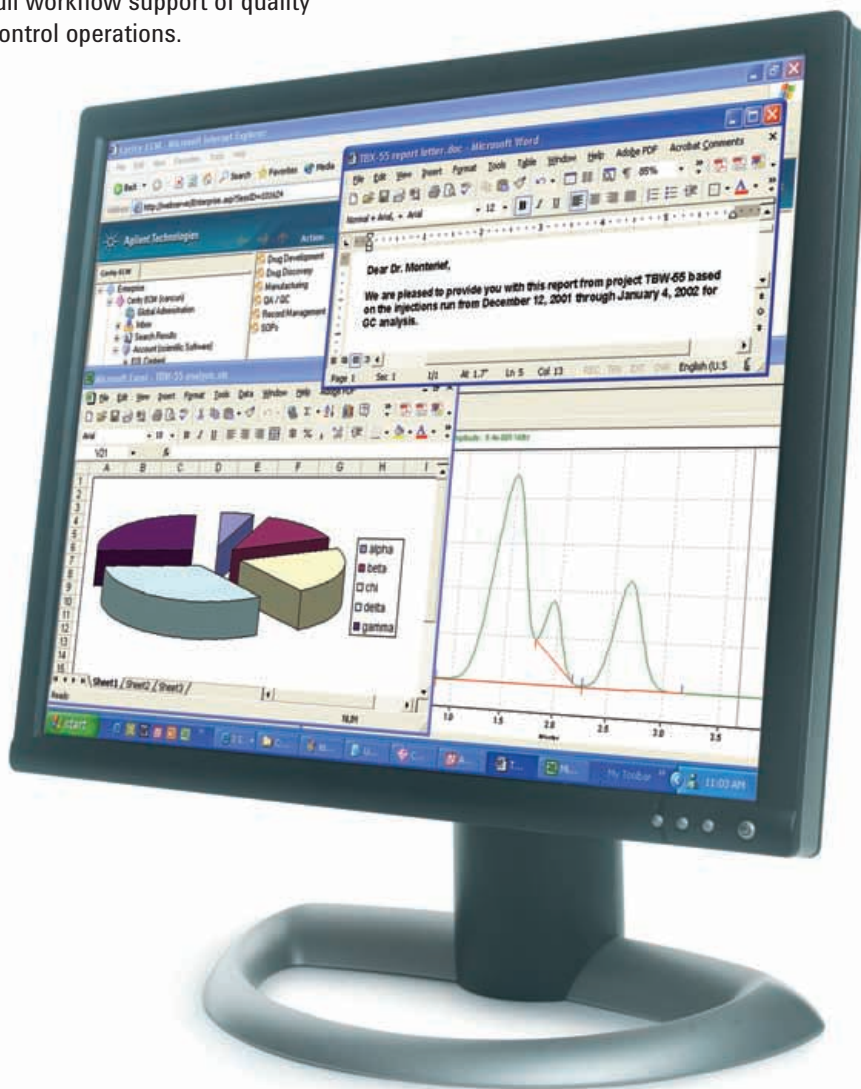
- Saves all documentation and data in a single repository
- Organize and retrieve data using advanced search engines
- Enables several people to rapidly and easily review a complete result set for a sample, including graphical results



Easy scale-up from single workstation to enterprise-wide solutions within the Agilent OL operating system for the laboratory.

Client-server systems expand your operations

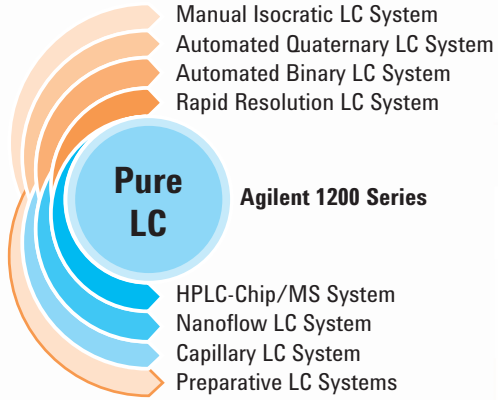
As your facility grows, EZChrom Elite workstations can be easily scaled up to client-server systems, enabling you to access and control your instruments from any PC within the network. If you are working in a highly regulated environment, Agilent Cerity for Pharmaceutical QA/QC provides full workflow support of quality control operations.



Agilent OL enables total content management of instruments as well as general laboratory information.

Scalable Solutions

For future expandability and adaptability





System Check	
Module	Status
Binary Pump	ON
Micro Autosampler	DOOR OPEN
Column Compartment	TEMP OFF
Diode Array Detector	UV ON, VIS ON

Module Selection Guide

Agilent 1200 Series pumping systems * settable flow range with degasser



Isocratic Pump

Flow range: 0.001–10 mL/min*,
for isocratic analysis
(column ID: 2.1–9.4 mm)



Quaternary Pump

Flow range: 0.001–10 mL/min*,
for gradient analysis
(column ID: 3–9.4 mm)



Binary Pump

Flow range: 0.001–5 mL/min,
for fast gradient analysis
(column ID: 2.1–4.6 mm)



Binary Pump SL

Flow range: 0.001–5 mL/min*,
for ultra-fast and high resolution
gradient and analysis
(column ID: 1–4.6 mm)



Preparative Pump

Flow range: 0.001–100 mL/min
(extendable to binary gradient)
for isolation and purification
(column ID: 4.6–50 mm)



Capillary Pump

Flow range: 0.01–100 μ L/min
(extendable up to 2.5 mL/min)*,
for gradient analysis
(column ID: 0.18–1 mm)



Nanoflow Pump

Flow range: 0.01–1 μ L/min
(extendable up to 2.5 mL/min)*,
for gradient analysis
(column ID: 0.075–0.1 mm)

www.agilent.com/chem/1200pumps

Agilent 1200 Series column/valve organization



Thermostatted Column Compartment

Temperature range: 10 °C below
ambient to 80 °C



Thermostatted Column Compartment SL

Temperature range: 10 °C below
ambient to 100 °C



Column/Valves Organizer

Agilent interfaces



35900 A/D Converter

for non-Agilent equipment



For more information you can download
Data Sheets from the Agilent website:
www.agilent.com/chem/1200datasheets

Agilent 1200 Series injection systems

Manual Injectors

Injection range:
loops for 5 μ L–20 mL



Standard Autosampler

Injection range: 0.1 μ L–100 μ L
(extendable up to 5000 μ L)
Sample container: vials



Micro Well-plate Autosampler

Injection range: 0.01–8 μ L
(extendable up to 40 μ L)
Sample container:
vials and well-plates



High Performance Autosampler

Injection range: 0.1 μ L–100 μ L
(extendable up to 1500 μ L)
Sample container: vials and
well-plates



High Performance Autosampler SL

Injection range: 0.1 μ L–100 μ L
(extendable up to 1500 μ L)
Sample container: vials and
well-plates



Dual Loop Autosampler PS

Injection range: up to 10 mL
Sample container: vials and
well-plates



Preparative Autosampler

Injection range: 0.1–5000 μ L
Sample container: vials



Thermostat for Autosampler

Temperature range: 4–40 $^{\circ}$ C



Plate Handler with automation
interface (scalable)
Shallow well-plates: up to 16 (80)
Deep well-plates: up to 4 (16)
Vial plates: up to 6 (24)



www.agilent.com/chem/1200autosamplers

Agilent 1200 Series degassers

Vacuum Degasser

Flow rate: up to 10 mL/min
Internal volume: 12 mL



Micro Degasser

Flow rate: up to 5 mL/min
Internal volume: 1 mL



Agilent 1200 Series fraction collectors

Micro Collector/Spotter

Flow rate: up to 100 μ L/min



Fraction Collector (AS)

Flow rate: up to 10 mL/min



Fraction Collector (PS)

Flow rate: up to 100 mL/min



Thermostat for Fraction Collector

Temperature range: 4–40 $^{\circ}$ C



All the performance.

Agilent 1200 Series detectors



Variable Wavelength Detector
for programmable single λ analysis,
1 signal, 13 Hz data rate



Variable Wavelength Detector SL
for ultra-fast, programmable single λ
analysis, 1 signal, 55 Hz data rate



Multiple Wavelength Detector
for multi- λ analysis
5 signals, 20 Hz data rate



Multiple Wavelength Detector SL
for ultra-fast multi- λ analysis
8 signals, 80 Hz data rate



Diode Array Detector
for multi- λ and spectral analysis
5 signals, 20 Hz data rate



Diode Array Detector SL
for ultra-fast multi- λ and spectral
analysis, 8 signals, 80 Hz data rate



Fluorescence Detector
for multi-signal detection and
online fluorescence spectra



Refractive Index Detector
for refractive index range:
1.00–1.75 calibrated

www.agilent.com/chem/1200detectors

Agilent 1200 Series external valves



2-position/10-port valve



2-position/10-port micro valve



2-position/6-port valve



2-position/6-port micro valve



6-position selection valve



12-position/13-port valve

Controllers



Agilent 1200 Series Instant Pilot



**Agilent Workstations and
Chromatographic Data Systems**

Agilent ChemStation

Agilent EZChrom Elite

**Agilent Cerity for
Pharmaceutical QA/QC**

All the time.

Agilent 6000 Series LC/MS systems



Agilent 6100 Series Single Quadrupole LC/MS Systems

Nominal mass detection



Agilent 6410 Triple Quadrupole LC/MS

Accurate MS/MS quantification



Flow range: 0.1–1 $\mu\text{L}/\text{min}$

Agilent 1200 Series HPLC-Chip/MS with nanospray source



Agilent 6210 Time-of-Flight LC/MS

Ultra-fast accurate mass



Agilent 6300 Series Ion Trap LC/MS Systems

Sensitive MSⁿ



Agilent 6510 Quadrupole Time-of-Flight LC/MS

MS/MS structural information with accurate mass

Ionization sources



Electrospray (ESI) Source



Atmospheric Pressure Chemical Ionization (APCI) Source



Multimode Source (ESI/APCI)



Atmospheric Pressure Photoionization (APPI) Source



Nanospray Source



Pulsed Dynamic Focusing MALDI (PDF-MALDI) Source

For more information visit: www.agilent.com/chem/1200

Scalable Solutions

For multiple performance levels and future expandability

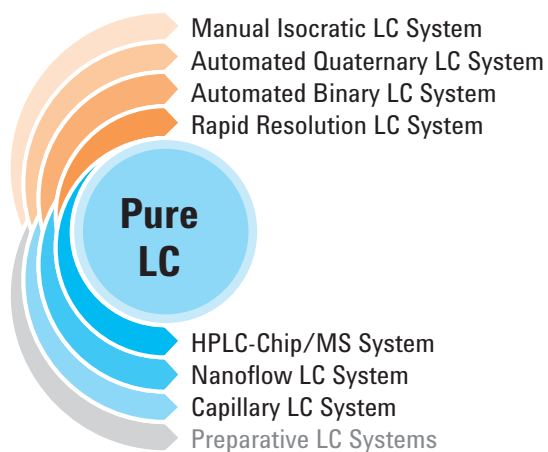
Speed and resolution

The performance of a liquid chromatographic system with regards to speed and resolution is influenced by various aspects of the overall system. The automation capabilities and cycle times have a big impact on speed, whereas column technology, temperature, gradient and detector performance will affect both speed and resolution.

Manual Isocratic LC System

Workhorse for demanding QA/QC applications

- Entry-level system for world-class LC technology
- Easy and fast maintenance
- Flow rates up to 10 mL/min for a wide range of column dimensions and applications
- Upgrade options from isocratic up to automated quaternary LC system



Speed and resolution

Sensitivity

Highest sensitivity detection, especially in combination with limited sample amounts, is a challenge in applications, such as proteomics and drug metabolism studies. At constant injection volumes, decreasing the column inner diameter creates smaller elution volumes. This results in higher concentrations, as well as higher signals in concentration sensitive detectors, such as UV absorbance or electrospray LC/MS.

- Electronic Flow Control (EFC) measures and actively controls the flow in real time for highest retention time stability
- Dedicated, thermostatted micro autosamplers designed for reproducible injection of small sample amounts, as low as 10 nL
- Theoretical sensitivity increase = $\frac{r_1^2}{r_2^2}$
r = column radius

Sensitivity

Automated Quaternary LC System

For routine method development and high throughput gradient applications

- Greatest flexibility for multi-solvent gradients by accessing up to 4 solvents
- Flow rates up to 10 mL/min support both standard bore and semi-preparative applications
- Wide selection of autosamplers for full flexibility in injection volumes and sample containers

Automated Binary LC System

For research, high-throughput and fast applications

- High pressure gradient mixing for superior gradient performance even at lower flow rates
- Optimized delay volumes for fast chromatography
- Flow rates from 0.05 to 5 mL/min provides ideal support for narrow and standard bore applications

Rapid Resolution LC System

Highest speed and resolution with uncompromised data quality

- Up to 60 % more resolution and up to 20 times faster compared to conventional LC
- Flow rates up to 5 mL/min provide universal applicability
- Full, uncompromised compatibility with existing methods
- Ideally suited for use with ZORBAX Rapid Resolution HT 1.8 μm columns
- Throughput of 2000 samples per day

Capillary LC System

Enter the world of low flow applications

- Up to 500 times more sensitive compared to conventional LC
- Typical flow rates 1 – 100 $\mu\text{L}/\text{min}$, extendable up to 2.5 mL/min
- Advanced diode array detection from 190 – 950 nm

Nanoflow LC System

Unsurpassed nanoflow performance and stability

- Up to 3500 times more sensitive compared to conventional LC
- Typical flow rates 0.1 – 1 $\mu\text{L}/\text{min}$, extendable up to 2.5 mL/min
- Compatibility with third-party MS platforms

HPLC-Chip/MS System

For reliable high sensitivity nanospray LC/MS

- Up to 3500 times more sensitive compared to conventional LC
- No peak dispersion for uncompromised chromatographic performance
- Sample preparation and separation columns, connection capillaries, fittings and nanospray emitter directly integrated on the polymer chip

Preparative LC Solutions

For isolation and purification with highest recovery and purity

Preparative LC is the technique of choice for isolation and purification. For lowest peak dispersion, Agilent has developed dedicated preparative solutions for a range of sample quantities and flow rates, optimized for highest recovery and purity, throughput and productivity.

**Micro Collection/
Spotting System**
flow rates up to
100 $\mu\text{L}/\text{min}$

**Purification System
Analytical Scale**
flow rates up to
10 mL/min

**Purification System
Preparative Scale**
flow rates up to
100 mL/min

Flow rate 

Purification System

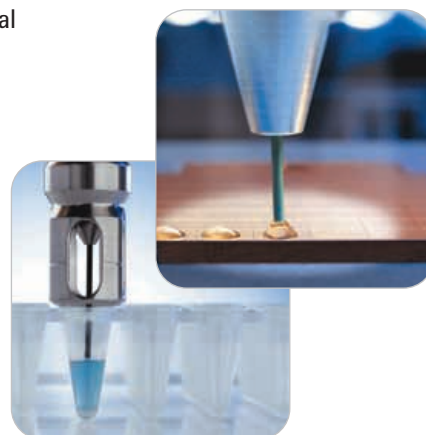
- Automated delay volume calibration
- Integrated safety features
- Software solutions for different user needs
- Smart fraction collection based on time, peak and mass, or both



Micro Collection/Spotting System

Allows the collection of micro fractions in different well-plate formats and also provides users the advantage of combining chromatography with the power of MALDI MS by direct spotting on MALDI targets.

- Active flow control for exceptional flow stability
- Flexibility of collection in well-plates, Eppendorf tubes and MALDI targets
- Liquid control for highest reproducible collection of small volumes
- Fraction cooling prevents evaporation and thermal decomposition



Extensive LC Column Portfolio

A superior level of chromatography performance to match your separation needs

Maximize system performance and reliability for all your separation needs by combining the new Agilent 1200 Series system with Agilent ZORBAX LC columns and LC supplies. Designed with the same attention to detail, quality and superior performance you have come to expect from Agilent instruments and backed by over 30 years of chromatography experience, you can count on Agilent's columns and supplies to deliver the high quality results you need and expect, time after time.



Unparalleled quality and flexible choices within the ZORBAX LC column family

- Wide selection of chemistries – Eclipse XDB, StableBond, Extend, Bonus-RP, Rx and more
- Column sizes from nano to preparative scale
- Security of reproducible performance with unparalleled column life over thousands of injections
- Individual column performance reports to document column-to-column and lot-to-lot reproducibility
- Superior particle strength for even the most demanding high pressure applications

ZORBAX Eclipse LC column family – an excellent first choice for your method development needs

- Unsurpassed peak shape performance and superior, reproducible separations of basic compounds with Eclipse Plus
- Flexible choices for a broad range of conditions and a wide variety of sample types
- Broad selectivity choices for enhanced resolution with **six** different bonded phases (two Eclipse Plus, four Eclipse XDB) for the column that is best for your separation needs
- Quick and seamless method transfer from analytical to prep and to fast and ultra-fast LC with particle sizes from 1.8 to 7 μm

Fast, high-throughput separations maximize your resources and improve productivity

- Achieve higher speed without compromising the quality of your separation with Rapid Resolution and Rapid Resolution High-Throughput LC Columns
- Separations up to 20 times faster with 1.8 μm RRHT LC columns
- Lengths from 20 – 150 mm for high speed and high resolution analyses
- 60% resolution improvement over conventional LC
- ZORBAX RRHT columns are available in 8 different bonded phases



Compliance

Complete qualification portfolio for highest level of operation

Agilent Qualification Portfolio is the cost-effective way to maximize system operability while minimizing regulatory exposure. With a complete qualification portfolio designed to maintain the highest level of lab operation, Agilent's services account for all phases of a system's life cycle and create customized compliance programs based on your needs.



An independent 2004 LCGC magazine survey ranked Agilent No. 1 in general compliance services, hardware and method validation, and system suitability.

Classic Edition

Installation Qualification (IQ)

Ensures that new Agilent hardware and software is installed correctly from the moment it is unpacked to the point it is ready for operation.

Operational Qualification (OQ)

A comprehensive test of the complete system to ensure basic accuracy and precision of instruments, as well as uncovering potential problems before they occur.

Instrument Re-Qualification (RQ)

Ensures that the qualified status of a complete system is restored after a given component has been repaired.

Enterprise Edition

Organizations which utilize many different types and brands of analytical instruments can rely on Agilent as their single source for instrument qualification.

Harmonized qualification protocols with comparable results provide a consistent approach to complete instrument qualification needs, now and in the future.

Partner Edition

Enterprise Edition managed by you. Licensed self-delivery of qualification protocols using the Agilent Compliance Engine allows you to complement Agilent's Enterprise Edition service by delivering the protocols when, where and how you want.

Software Edition

Fast, accurate and comprehensive qualification for Agilent software provides evidence that it is properly installed and configured.

Network Edition

Patent-pending, metrology-based IQ/OQ and troubleshooting service for your network helps to maximize network uptime while minimizing regulatory exposure. It is the perfect complement to data system implementation and infrastructure validation.

"I believe Agilent provides the most complete range of compliance validation services in the world"

Ludwig Huber, Compliance Fellow at Agilent Technologies



**All the performance.
All the time.**

www.agilent.com/chem/1200

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