

Discover the
plus in
performance



Agilent 1200 Series Rapid Resolution LC System

Our measure is your success.



More Rapid Resolution power

for a new world of lab productivity and cost effectiveness

- High resolution chromatography – 90,000 plates in 4 minutes
- Ultra-fast separations – up to 20 times faster
- Full compatibility with existing HPLC methods
- More detection capabilities – from UV-visible and ELSD through LC/MS
- Near-zero sample carryover – for uncompromised data quality
- Highest system flexibility – for automated method development

Get the maximum in speed, resolution, sensitivity and flexibility

Increased productivity, confidence in analytical results and cost-effectiveness are key objectives in today's analytical laboratories. The Agilent 1200 Series Rapid Resolution LC (RRLC) system is designed to meet these challenges by delivering significantly faster results with higher data quality. On one system you can push RRLC performance to new limits and continue to run your conventional methods, too. Discover now the plus in separation power and detection capabilities with new innovative system components, providing you with a new level of information about your sample for more informed decisions in shorter time.

Further, the Agilent 1200 Series Rapid Resolution LC system offers new levels of serviceability, uptime and compliance.



Speed

Agilent 1200 Series RRLC systems, equipped with second generation ZORBAX Rapid Resolution HT 1.8 μm columns or with the new Poroshell 120 columns, facilitate analysis speeds that are up to 20 times faster than conventional HPLC, while maintaining the high quality resolution and precision that LC is renowned for.

Resolution

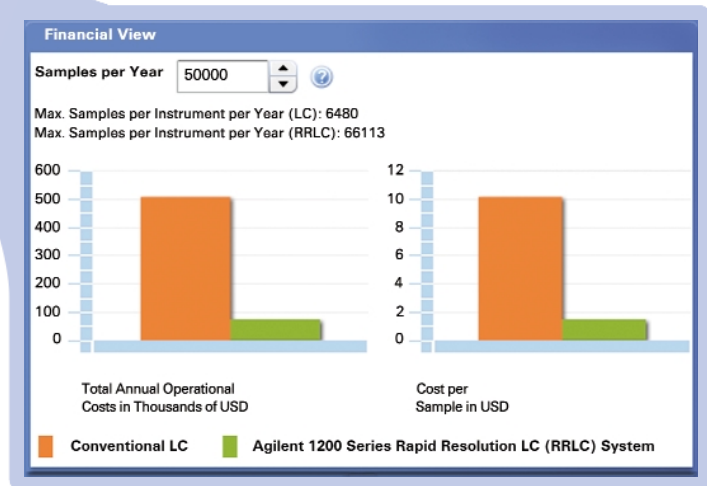
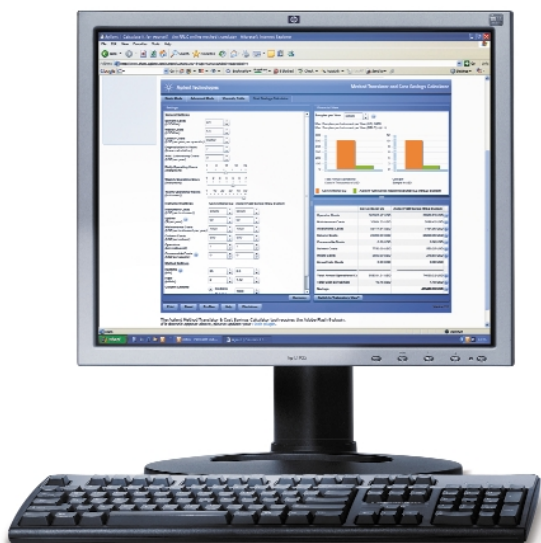
The low backpressure of the new Poroshell 120 columns enables several columns to be coupled together in-series, achieving highest separation power per time (90,000 plates in 4 minutes) and thereby making it possible to resolve more compounds than ever before.

Sensitivity

The capability of the Agilent 1200 Series RRLC system to achieve higher separation efficiency results in sharper peaks and higher signals. Combining this with the low noise characteristics of the new 1200 Series variable wavelength detectors provides for unmatched UV sensitivity – and lets you discover what you have not seen before.

Flexibility

The 1200 Series RRLC system provides full support for narrow and standard bore columns with lengths of 10 to 300 mm, internal diameters of 1.0 to 4.6 mm, and with particle sizes ranging from 1.5 to 10 μm . This unique flexibility gives you confidence that you have made a secure investment in an instrument which fulfills today's requirements and is prepared to meet the challenges of the future.



Calculate for yourself how much you can save by deploying Agilent Rapid Resolution LC technology! The online method translator and cost savings calculator helps you to transfer your HPLC methods and calculate your cost savings. Visit www.agilent.com/chem/RRLC_MT

More speed and throughput

for maximum lab productivity

Highest performance at lowest pressure

Short, Rapid Resolution HT columns with 1.8 μm particles offer you a unique opportunity to reduce analysis times dramatically by increasing flow rate and temperature – while maintaining separation performance. The Agilent 1200 Series RRLC system has been optimized for lowest pressure operation at high flow rates to achieve highest analysis speed. Combining this with elevated column temperatures up to 100 °C gives you analysis speeds 20 times faster than conventional HPLC.

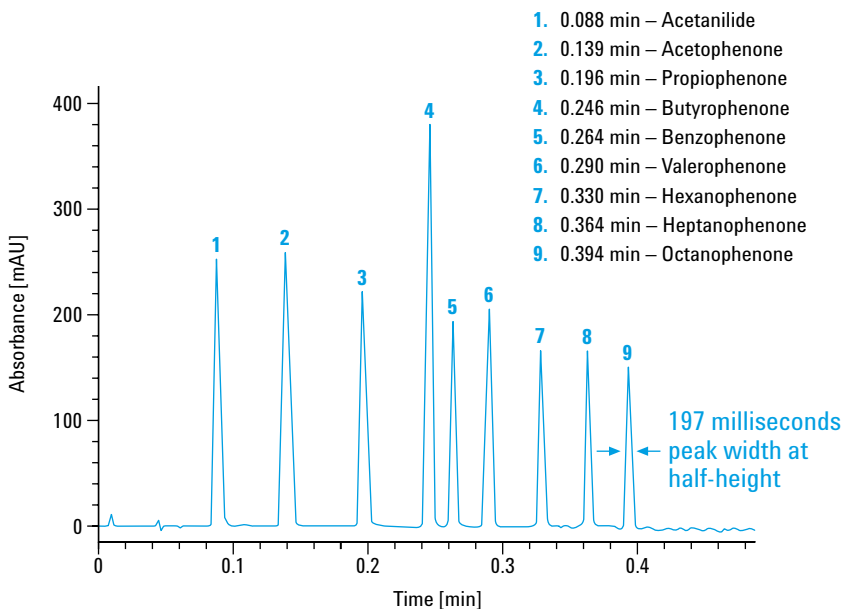
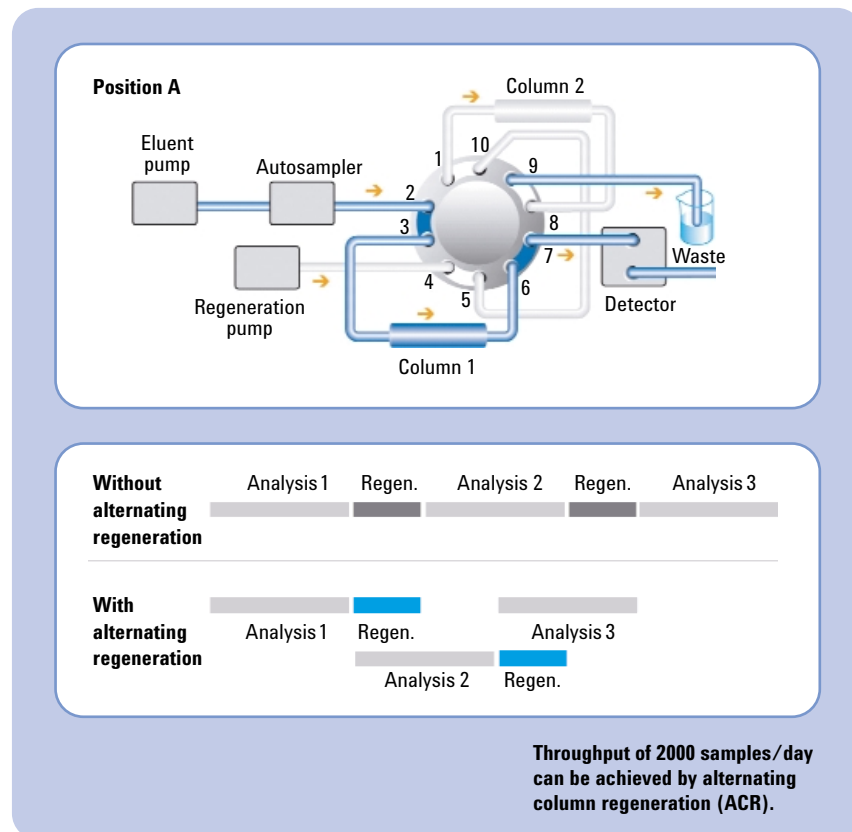
Achieve throughputs of 2000 samples per day

A special high throughput configuration of the Agilent 1200 Series RRLC system enables maximized productivity for laboratories with high sample loads. While one column is used for the analysis the second column is washed and regenerated by a regeneration pump. With this high throughput configuration, cycle times can be reduced by up to 50 percent.

Ultra-fast separation of a phenone mixture using the Agilent 1200 Series Rapid Resolution LC system.

Chromatographic conditions:

Column: ZORBAX SB RRHT C18,
2.1 mm x 50 mm, 1.8 μm
Flow: 2.4 mL/min
Solvents: A - Water; B - Acetonitrile
Gradient: 0 min, 35 %B; 0.38 min, 95 %B;
0.46 min, 95 %B; 0.47 min, 35 %B
Column temp.: 95 °C
Pressure: 550 bar
Detection: DAD SL, 80 Hz data rate



More efficiency and sensitivity

for a new world of information and confidence

Highest separation power per unit time

The innovative Poroshell 120 columns deliver highest efficiency at very low backpressure. The Agilent 1200 Series RRLC system enables coupling several columns in series for highest efficiency and peak capacity. Connecting three 4.6 x 150 mm Poroshell 120 columns in series at 60 °C gives 90,000 plates within 4 minutes, allowing you to attain a new level of knowledge about your sample and more confidence in your results.

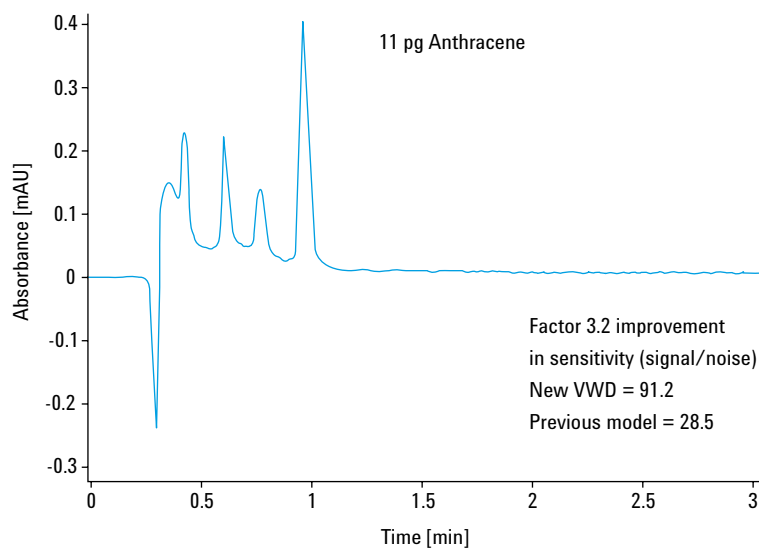
Ultra-fast universal detection

The 1200 Series evaporative light scattering detector (ELSD) provides universal measurement under isocratic and gradient conditions independent of a compound's absorbance, fluorescence or electro-activity. The patented gas supported focusing, which focuses the sample molecules, and an improved optical head design make the detector ideal for the fast chromatograms generated by RRLC.

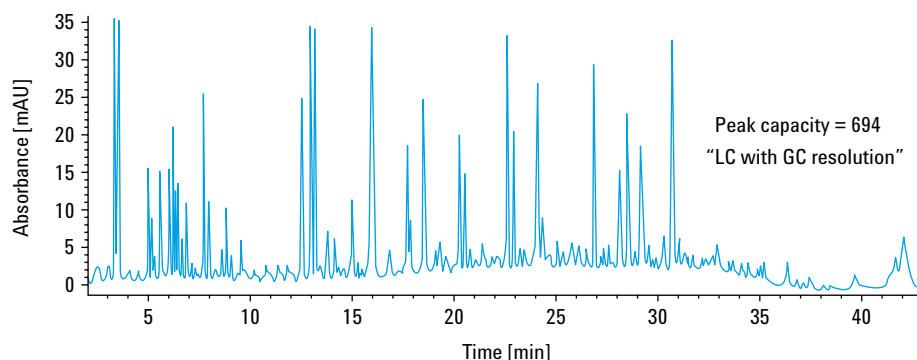
Ultimate UV-visible detection sensitivity

The Agilent 1200 Series RRLC offers high speed UV-visible detectors that best suits your needs, from programmable single wavelength to multi-wavelength and full spectral detection. New low noise flow cells and electronics provide maximum sensitivity and baseline stability. Electronic temperature control ensures baseline stability under fluctuating ambient temperature and humidity conditions.

Redesigned optics of the 1200 Series variable wavelength detector SL Plus provide high signal levels, low baseline noise, low baseline drift and minimum refractive index effects.



Peak capacities of more than 700 can be achieved using a ZORBAX RRHT SB-C18 column (2.1 x 150 mm, 1.8 µm) to analyze a tryptic digest of BSA.



Overview of 1200 Series RRLC Modules:

Solvent delivery



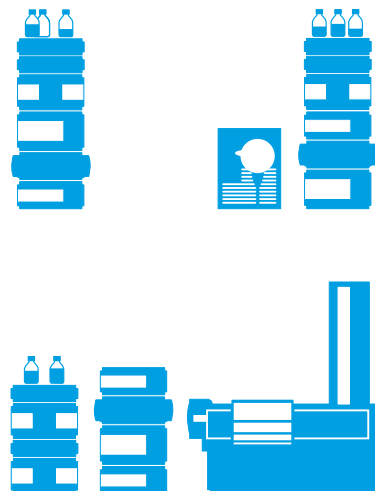
Micro Degasser

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



Binary Pump SL

Configurable delay volume:
120 µL, 320 µL and 600-800 µL
Flow rate: 0.05 – 5 mL/min (600 bar)
Optional: Solvent selection valve
for 4 solvents



Injection Systems



High Performance Autosampler SL Plus

Injection volume: 0.1 – 40 µL
without sample loss or loop change
(extendable to 1500 µL)
Area precision: < 0.25 % RSD from 5 – 40 µL
< 0.5 % RSD from 2 – 5 µL
< 1.5 % RSD from 0.5 – 1 µL
Capacity: 2 well-plates or 108 x 2 mL vials
Carryover: < 0.004 % with chlorhexidine



Standard Autosampler SL

Injection volume: 0.1 – 100 µL
without sample loss or loop change
(extendable to 1800 µL)
Area precision: < 0.25 % RSD from 5 – 100 µL,
< 1 % RSD from 1 – 5 µL
Capacity: 100 x 2 mL vials



Thermostat for Autosamplers and Fraction Collectors

Temperature range: 4 – 40 °C



CTC Analytics HTC PAL Injection System

Capacity:
Up to 24 shallow plates,
up to 12 deep well-plates,
or 324 x 2 mL vials,
thermostatted



CTC Analytics HTS PAL Injection System

Capacity:
Up to 24 shallow plates,
up to 18 deep well-plates,
or 648 x 2 mL vials,
thermostatted



Well Plate Handler

for High Performance Autosampler SL Plus
Capacity:
Up to 16 (80) shallow well-plates,
up to 4 (16) deep well-plates,
or up to 6 (24) vial plates

Column compartment



Thermostatted Column Compartment SL

Temperature range:
10 °C below ambient to 100 °C
Two independent heat exchangers allow
pre-column heating and post-column cooling
for lowest detection limits

Valves



Internal Valves

(in column compartment)
2-position/6-port valve
2-position/10-port valve
8-position/9-port valve



External Valve

2-position/6-port valve
(for example, for automated
delay volume switching)

Detectors



Variable Wavelength Detector SL Plus

Short-term noise:* $\pm 0.15 \times 10^5$ AU at 230 nm
Linearity: > 2.5 AU upper limit
Maximum sampling rate: 160 Hz
* Under specified conditions



Multiple Wavelength Detector SL

Short-term noise:**
 $\pm 0.8 \times 10^5$ AU at 254 and 750 nm
Linearity: > 2.0 AU upper limit
Maximum sampling rate: 80 Hz
** According to ASTM E 1657-98



Diode Array Detector SL

Short-term noise:**
 $\pm 0.8 \times 10^5$ AU at 254 nm and at 750 nm
Linearity: > 2.0 AU upper limit
Maximum sampling rate: 80 Hz
** According to ASTM E 1657-98

Data recovery card provides "data-never-lost insurance" – RFID tags for flow cells and lamps provide seamless traceability



Fluorescence Detector

Multi-signal detection and
online fluorescence spectra
LOD: 10 fg anthracene (Ex 250 nm, Em 400 nm)
Maximum sampling rate: 37 Hz



Evaporative Light Scattering Detector

Flow rate: 5 μ L/min – 5 mL/min
For peak widths of 0.7 seconds and larger



6000 Series LC/MS Systems

6100 Series Quadrupole LC/MS Systems (illustrated)
6200 Series Accurate-Mass TOF LC/MS Systems
6300 Series Ion trap LC/MS Systems
6400 Series Triple Quadrupole LC/MS Systems
6500 Series Accurate-Mass Q-TOF LC/MS Systems

A new level of flexibility

for easy transfer to RRLC technology

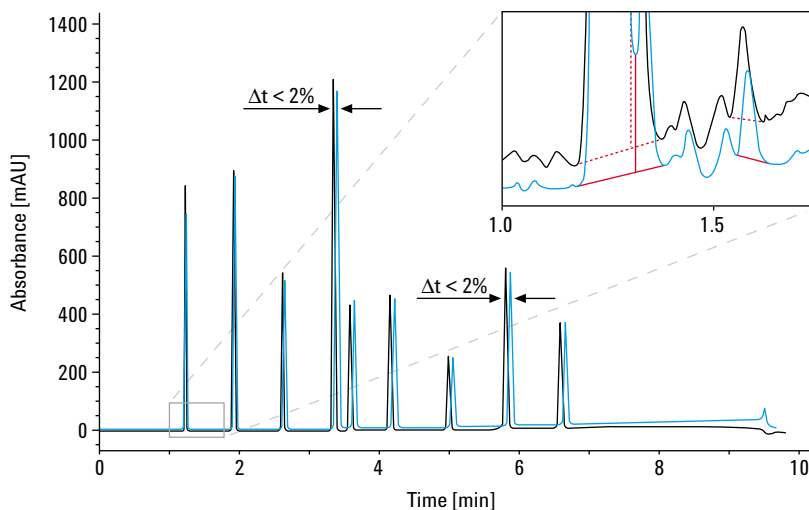
Two tasks – one system

The Agilent 1200 Series RRLC offers uncompromised support of both RRLC and conventional HPLC methodologies with standard and narrow bore columns. This unique feature facilitates not only straightforward method transfer to RRLC – it also gives confidence of a secure investment in an instrument that fulfills the requirements of today and the challenges of the future.

Wide range of column choices

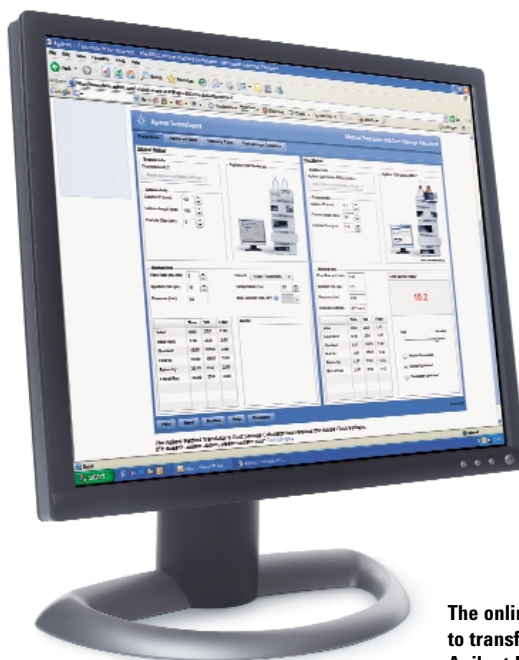
More than 140 ZORBAX 1.8 μm RRHT columns are available in 14 selectivity choices, from 15 to 150 mm in length, and with internal diameters from 2.1 to 4.6 mm. ZORBAX RRHT columns use the same chemistry as ZORBAX columns with 3.5 and 5.0 μm particles. As a result, all bonded phases with 5.0, 3.5 and 1.8 μm particles provide identical selectivity, which allows easy, fast and secure bidirectional method transfer between conventional HPLC, RRLC and preparative LC.

For complex samples the innovative Poroshell 120 columns provide highest efficiency at lower pressure, which enables the use of long columns for maximum resolution. These columns are available with the most popular SB-C18 and EC-C18 phases, from 50 to 150 mm in length, with internal diameters from 2.1 to 4.6 mm.



The standard delay volume configuration allows you to run not only RRLC but also conventional HPLC methods without compromising performance or changing chromatographic patterns.

Sample: Phenones Test Mix
Systems: 1100 Binary System
1200 RRLC System
(Standard delay volume configuration, 600 – 800 μL)
Column: ZORBAX RRHT,
4.6 x 250 mm,
5 μm , XDB-C18



The online method translator helps you to transfer your HPLC methods to Agilent Rapid Resolution technology. Visit www.agilent.com/chem/RRLC_MT

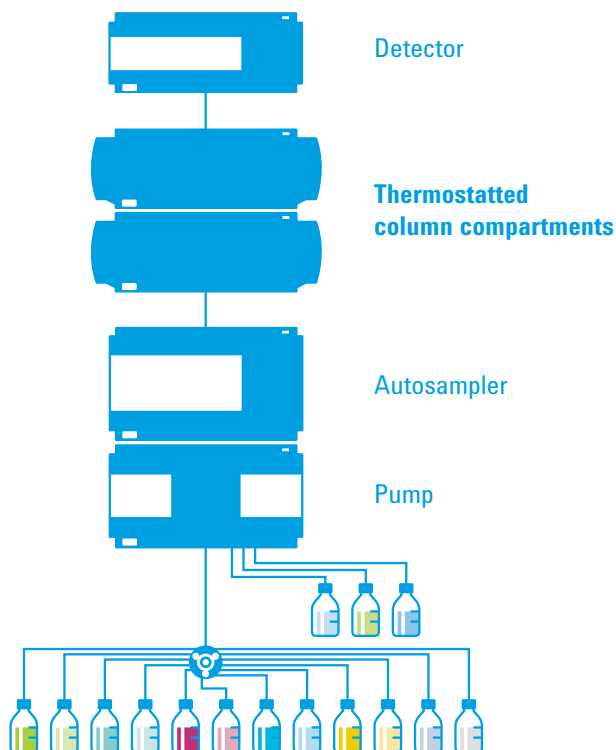
Fast and automated method development

Selectivity has the strongest impact on chromatographic resolution. That means the selection of appropriate mobile and stationary phase properties as well as respective temperatures is critical for successful separations.

Now, the new Agilent 1200 Series RRLC method development solution facilitates complete automation of this time consuming selection process – making method development and method transfer an easy and reliable task. Accelerate your method development procedures with the high speed capabilities of the Agilent 1200 Series RRLC method development solution.

The Agilent 1200 Series RRLC method development solution:

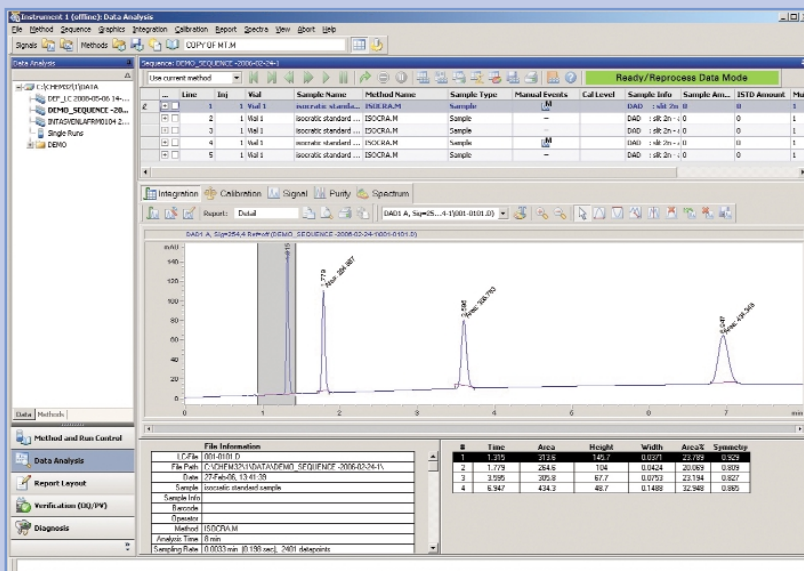
- Facilitates automated switching between up to 8 columns
- Facilitates automated switching between up to 15 solvents to maximize separation selectivity
- Accommodates column lengths up to 300 mm and inner diameters of 2.1 to 4.6 mm
- Provides for up to 6 independent temperature zones for columns to give you more flexibility and speed in temperature optimization
- Allows you to design complex method scouting campaigns within a few mouse clicks through the application-specific Agilent ChemStation Method Scouting Wizard
- Connects to one of Agilent's four 6100 Series single quadrupole LC/MS systems for unambiguous peak identity.



Ease of use in every detail – color coding of flow paths in hardware and software reduces system complexity significantly. A pull-out valve facilitates easy access to capillary fittings and valve head.

Software and services

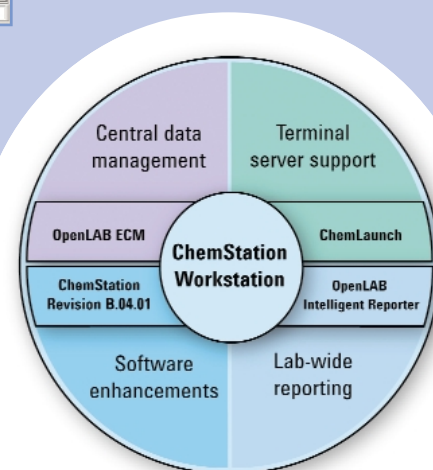
for new levels of usability, uptime and robustness



ChemStation
Workstation

Agilent ChemStation – an easy-to-use interface for your Agilent instruments.

Agilent ChemStation modules – add functionality according to your needs.



New Agilent ChemStation for increased lab efficiency and configurable security

The new Agilent ChemStation facilitates level-5 control of Agilent 1200 Series RRLC systems as well as Agilent 6100 Series quadrupole LC/MS systems.

- Seamless fit in non- or highly-regulated environments
- Easily extendable through built-in macro language
- Enhanced workflow support – for example, through new custom fields
- Better usability and faster results review
- Specific workflow solutions for drug discovery and development
- Integration of 3rd party detectors (ESA, CAD, CCIII)
- Control of Agilent LC, GC, CE, CE/MS and LC/MS instruments and generic A/D converters.

The unique modular approach of Agilent data systems allows you to purchase only the functionality that you need. If you need more, a suite of targeted add-on modules gives you extended data system functionality.

- Lab-wide remote instrument management
- Full compliance support with configurable options
- Enhanced method and result traceability with configurable audit trails
- Cross-sequence reports with advanced calculations and trend-charting
- Thin clients for reduced validation and upgrade costs
- Centralized management of master methods

Agilent 1200 Series instant pilot

- Cost-effective, standalone solution for single instrument control
- Provides full instrument, method and sequence control and display of online signals

Agilent EZChrom Elite for maximum flexibility

An easy to use software solution for labs with instruments from multiple vendors.

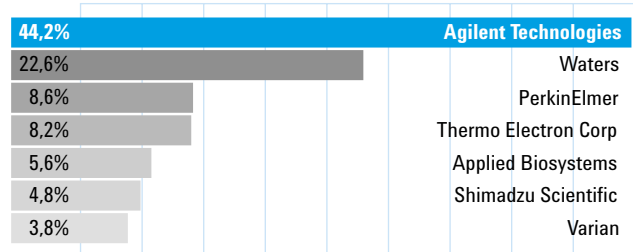
- Full compliance features
- Powerful and flexible reporting capabilities with automated spreadsheet calculations
- SMART sequencing for flexible automation tasks
- Easy scale-up from workstation to client-server system

Agilent OpenLAB reaches beyond the lab

Agilent OpenLAB enables you to 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

2007 LC/GC Magazine Compliance Survey Results



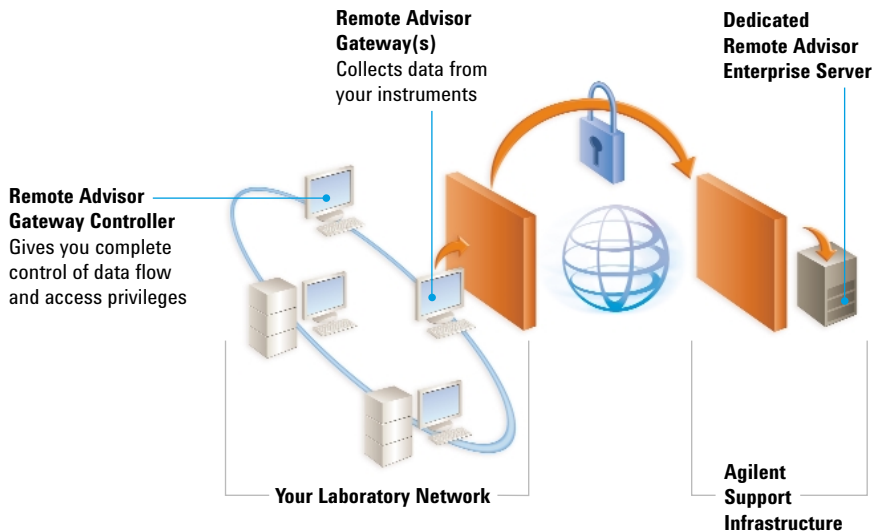
North America and Europe responses clearly state that Agilent is the preferred choice for general laboratory Compliance Services.

Agilent Remote Advisor

Agilent Remote Advisor, now included in all Agilent Advantage service plans, uses a secure internet connection to your site to provide proactive and predictive instrument support services – helping you to maximize instrument uptime and optimize your lab’s productivity.

Enterprise Edition Qualification Services

Regardless of system model or manufacturer, Agilent Enterprise Edition offers a comprehensive, single protocol qualification approach to streamline your compliance procedures and reduce regulatory risk across your entire company. With ACE (Agilent’s new Agilent Compliance Engine software), we can help you save time and money.



Backed by highly skilled Agilent service engineers and application scientists, Agilent Remote Advisor provides a whole new level of performance.

The Agilent Value Promise—10 years of guaranteed value

In addition to continually evolving products, we offer something else unique to the industry—our 10-year value guarantee. The Agilent Value Promise guarantees you at least 10 years of instrument use from your date of purchase, or we will credit you with the residual value of that system toward an upgraded model. Not only does Agilent ensure a safe purchase now, we help ensure your investment is as valuable to you in the long run.

The Agilent Service Guarantee

Should your Agilent instrument require service while covered by an Agilent service agreement, we guarantee repair or we will replace your instrument for free. No other manufacturer or service provider offers this level of commitment to keeping your laboratory running at maximum productivity.



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