

Agilent 1120 Compact Liquid Chromatograph

Overview | Specifications | Ordering



The Agilent 1120 Compact LC was developed specifically to address the needs of small- to medium-sized labs that are mainly concerned with routine analyses using standard HPLC methods. In keeping with its mission, the system delivers all the performance needed to meet stringent regulatory demands—while setting new standards for compactness, ease of operation and serviceability.



Agilent Technologies

The Agilent 1120 Compact LC is an easy-to-use, highly-reliable liquid chromatograph with a small footprint, which was developed specifically for China, India, Japan and other countries in Asia. By optimizing performance and minimizing complexity the Agilent 1120 Compact LC simplifies the work in the laboratory day-in, day-out.

The system is offered in five pre-set configurations that are fully tested at the factory, making each configuration easy to install and use, and to maintain and repair.

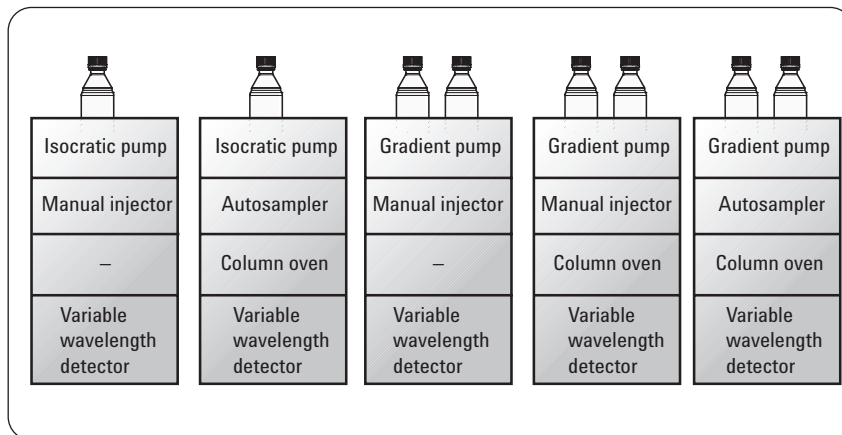


Figure 1
Preset configurations of the Agilent 1120 Compact LC. Additional external detector choices include Agilent 1200 Series refractive index detector, fluorescence detector and evaporative light scattering detector.

Solvent delivery

The optimized design of the pumping module used in the Agilent 1120 LC ensures stable, virtually pulse-free solvent flow up to 10 mL/min. Servo-controlled, dual floating pistons enable variable stroke volume optimized for the selected flow rate, and keeps maintenance to a minimum. Choose from different configurations, including either an isocratic pump or a gradient pump with up to two solvents and integrated two-channel degasser.

Pump Options

- Automated solvent selection valve for gradient pump – combines two-out-of-four solvents for gradient formation or for column flushing with different solvents.
- Continuous seal wash kit to prevent corrosion for applications running buffer solutions with high salt concentrations greater than 0.1 M.

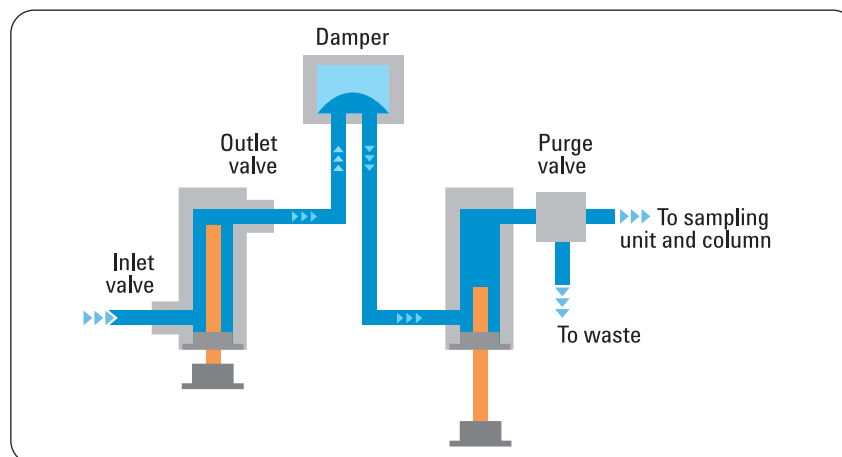


Figure 2
Principle of operation of the isocratic pump.

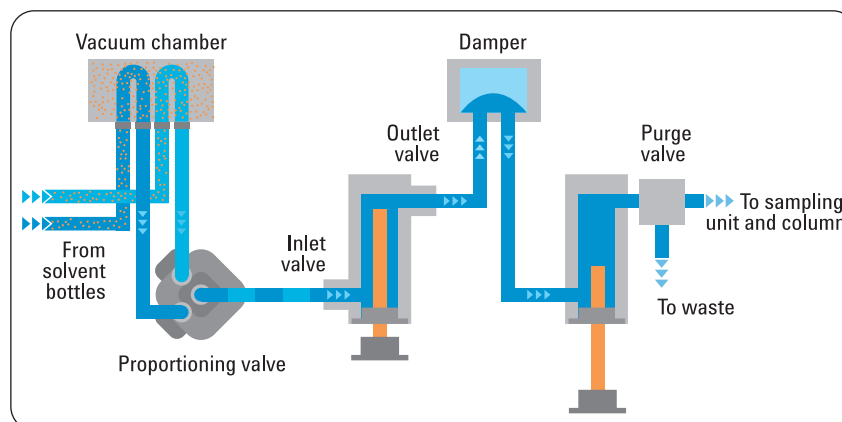


Figure 3
Principle of operation of the gradient pump with low-pressure mixing.

Degasser

The gradient pump includes an integrated dual-channel degasser with continuous vacuum using Teflon AF technology, which provides low internal volumes of 1.5 mL per channel. The degasser eliminates baseline fluctuations and shortens equilibration times.

Sample injection

Manual injector

An easy to use, easy to maintain solution for low throughput sampling, the manual injector includes a long-life Rheodyne 2-position, 6-port sample injection valve and standard 20 μL loop. Front access to the valve facilitates easy sample injection and straightforward exchange of sample loops.

Autosampler

The integrated autosampler is designed for reliability, safety, and easy maintenance, and facilitates reliable injections from 0.1 to 100 μL . The unit delivers high precision as well as excellent linearity over a wide volume range. The autosampler's flow-through design ensures that there is no loss of sample; the entire sample drawn from the vial is injected. The standard configuration offers a sample capacity of 100 2-mL vials; alternatively, two half-trays each with 40 2-mL vials or 15 6-mL vials can be used.

Column oven

The 1120 Compact LC's available column oven houses a single column, and provides accurate, stable column temperature from 10 degrees above ambient to 60°C, for applications where retention

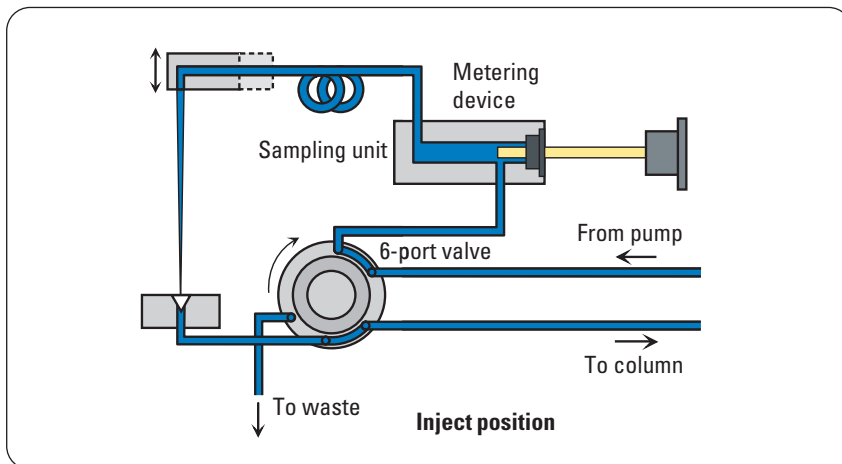


Figure 4
Flow-through design of the autosampler.

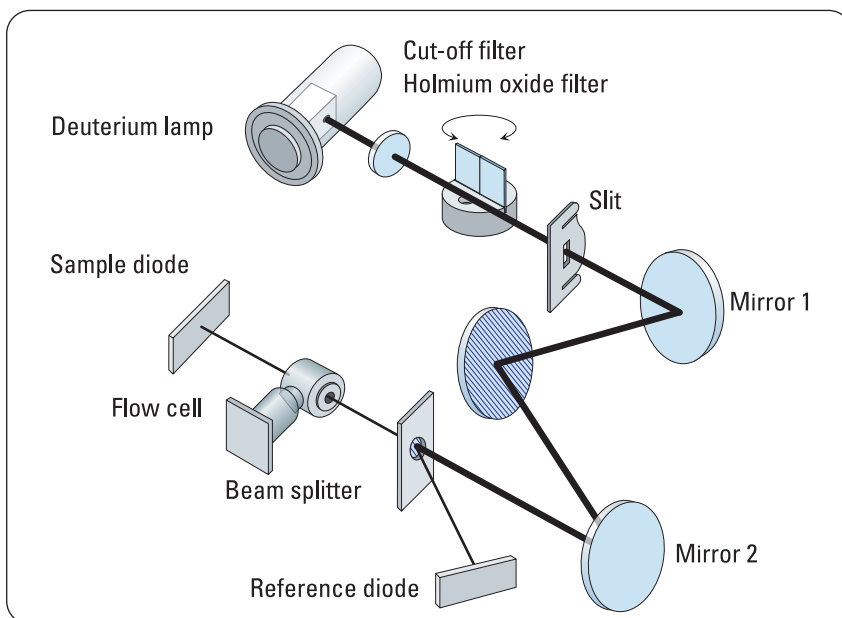


Figure 5
Principle of operation of the variable wavelength detector.

time reproducibility and separation quality improve above ambient temperatures.

Variable wavelength detector

Featuring simplified optics for high sensitivity, low baseline drift and wide linear range, Agilent's variable

wavelength detector not only lowers your detection limits; it lowers your cost of ownership with easy front access for fast lamp and flow cell replacement.

Instrument control

With the bundled Agilent EZChrom Elite Compact software, it's easy to put all of the capabilities of the Agilent 1120 Compact LC to work in your lab. As a fast, powerful chromatography data system, Agilent EZChrom Elite Compact provides full control of two Agilent 1120 Compact LCs from a single PC. Agilent EZChrom Elite Compact includes comprehensive data processing, flexible reporting and the full range of capabilities you would expect from a modern chromatography workstation. The Agilent EZChrom Elite Compact is scalable from single user to whole enterprise, and therefore future-proof. It provides comprehensive tools to help you address all the requirements of GLP/GMP and 21 CFR Part 11 compliance.

Instrument diagnostic

Lab Monitor and Diagnostic Software (LMD) detects instrument problems before they occur and you can schedule a convenient time to solve the problem without it impacting your analysis. From a "lab-at-a-glance" screen that displays a snapshot of all connected 1120 Compact LC instruments, to guided diagnostics tests and easy to perform maintenance routines, to a built-in suite of user information and help, Lab Monitor and Diagnostics software provides all the information a user needs in one convenient place at one time thus enabling you to maximize your instrument's efficiency and productivity.

Columns

Whatever your lab is analyzing, every method requires day-to-day reproducibility and superior reliability. To deliver optimal performance with all your samples and mobile phase, the Agilent ZORBAX Eclipse Plus columns give you the performance and consistency you're looking for. These columns deliver excellent peak shape under a wide range of operating conditions for the highest quality, reproducible results.

Try the Eclipse Plus C18 column included with your 1120 Compact LC. You'll appreciate its superior qualitative and quantitative performance. And if you need other columns the complete ZORBAX product line will have a choice for your application. ZORBAX columns and Agilent supplies for your new compact LC – the products you need to achieve peak productivity – day after day, and year after year.

Services

The 1120 Compact LC's integrated hardware and software design features provide a completely new level of operational simplicity. There's a guided system set-up so that you can get your new 1120 Compact LC up and running without having to schedule a visit by an Agilent service representative. Of course, Agilent's world class customer service engineers and certified support partners are available to provide a full range of Agilent services, including installation, familiarization, training, maintenance, contractual repair, and regulatory compliance support.

Literature

- Application Note, "Analysis of herbicides in drinking water using the Agilent 1120 Compact LC", publication number 5989-7455EN
- Application Note, "Analysis of antioxidants in chewing gum using the Agilent 1120 Compact LC", publication number 5989-7456EN
- Application Note, "Development and validation of a method for simultaneous determination of paracetamol, diclofenac and ibuprofen using the Agilent 1120 Compact LC", publication number 5989-7457EN
- Application Note, "Analysis of notoginseng using the Agilent 1120 Compact LC", publication number 5989-7458EN
- Technical Note, Performance characteristics of the Agilent 1120 Compact LC, publication number 5989-7459EN

Ordering information

System configurations

Order number	Description
G4286AA	Agilent 1120 Compact LC. Includes isocratic pump, manual injector, variable wavelength detector, EZChrom Elite Compact software, LMD software, startup column.
G4287AA	Agilent 1120 Compact LC. Includes isocratic pump, autosampler, column oven, variable wavelength detector, EZChrom Elite Compact software, LMD software, startup column.
G4288AA	Agilent 1120 Compact LC. Includes gradient pump, manual injector, variable wavelength detector, EZChrom Elite Compact software, LMD software, startup column.
G4289AA	Agilent 1120 Compact LC. Includes gradient pump, manual injector, column oven, variable wavelength detector, EZChrom Elite Compact software, LMD software, startup column.
G4290AA	Agilent 1120 Compact LC. Includes gradient pump, autosampler, column oven, variable wavelength detector, EZChrom Elite Compact software, LMD software, startup column.

Software options

Order number	Description
G4286AA#131	EZChrom Elite Compact Compliance
G4287AA#131	EZChrom Elite Compact Compliance
G4288AA#131	EZChrom Elite Compact Compliance
G4289AA#131	EZChrom Elite Compact Compliance
G4290AA#131	EZChrom Elite Compact Compliance

Service options

Order number	Description
#44R	Installation
#44L	Familiarization
#44N	Installation and Familiarization
#44F	Preventive Maintenance During Warranty
#11K	2-year Intelligent Repair Warranty Extension
#11L	3-year Intelligent Repair Warranty Extension
R1898A	LC Enterprise Edition OQ
R1821A	EZChrom Elite Workstation OQ

Additional software products

Order number	Description
G6791AA	EZChrom Elite Compact to EZChrom Elite Workstation Upgrade
G6792AA	EZChrom Elite Compact to EZChrom Elite Compact Compliance Upgrade

Solvent delivery accessories

Order number	Description
G4280-68708	Solvent selection valve for 1120 Compact LC gradient pump
01018-68722	Continuous seal wash kit

Manual injector accessories

Order number	Description
0101-1248	5 µL Sample Loop 0.18 mm (0.007 in)
0100-1923	10 µL Sample Loop 0.30 mm (0.012 in)
0100-1922	20 µL Sample Loop 0.30 mm (0.012 in)
0100-1924	50 µL Sample Loop 0.51 mm (0.020 in)
0100-1921	100 µL Sample Loop 0.51 mm (0.020 in)

Autosampler accessories

Order number	Description
G1313-44510	Tray for 100 x 2-ml vials (included in shipment)
G1313-44512	Tray for 40 x 2-ml vials
G1313-44513	Tray for 15 x 6-ml vials
G1313-68711	Multi-draw kit for autosampler

Flow cells for variable wavelength detector

Order number	Description
G1314-60087	Micro flow cell
G1314-60082	High pressure flow cell
G1314-60083	Semi-micro flow cell
G1314-60086	Standard flow cell (included in shipment)

Columns

For order details of Agilent's extensive range of ZORBAX columns, visit our web site at www.agilent.com/chem/columns

Recommended consumables

Order number	Description
G4280-68710	PM Kit for 1120 Compact LC manual injector
G4280-68730	PM Kit for 1120 Compact LC autosampler
2140-0813	UV lamp
01078-68705	Crimper, 100 crimp vials and caps
5182-0732	500 screw vials and caps with PTFE silicon septa

Specifications

Isocratic pump

Description	
Flow precision	≤ 0.07 % RSD, or ≤ 0.02 min SD whichever is greater, based on retention time at constant room temperature
Flow accuracy	± 1 % or 10 µL/min whichever is greater
Flow range	Setpoints from 0.001 to 10.0 mL/min, in 0.001 mL/min increments
Pressure range	0–40 MPa (0–400 bar, 0–5880 psi) up to 5 mL/min; 0–20 MPa (0–200 bar, 0–2950 psi) up to 10 mL/min
Pulsation	< 2 % amplitude (typically < 1 %) at 1 mL/min isopropanol at all pressures > 2 MPa (> 20 bar, > 294 psi)
Compressibility compensation	User selectable, based on mobile phase compressibility
Recommended pH range	1.0–12.5; solvents with pH < 2.3 should not contain acids which attack steel

Gradient pump

Description	
Flow precision:	≤ 0.07 % RSD, or ≤ 0.02 min SD whichever is greater, based on retention time at constant room temperature
Flow accuracy	± 1 % or 10 µL/min whichever is greater
Flow range	Setpoints from 0.001 to 10.0 mL/min, in 0.001 mL/min increments
Pressure range	0–40 MPa (0–400 bar, 0–5880 psi) up to 5 mL/min; 0–20 MPa (0–200 bar, 0–2950 psi) up to 10 mL/min
Pulsation	< 2 % amplitude (typically < 1 %) at 1 mL/min isopropanol at all pressures > 2 MPa (> 20 bar, > 294 psi)
Compressibility compensation	User selectable, based on mobile phase compressibility
Gradient delay volume	800–1100 µL depending on back pressure
Composition precision	< 0.20 % SD, at 0.2 and 1 mL/min
Composition range	0–95 %, or 5–100 %
Recommended pH range	1.0–12.5; solvents with pH < 2.3 should not contain acids which attack steel

Degasser

Description	
Maximum flow rate	10 mL/min per channel
Number of channels	2
Internal volume	1.5 mL/channel

Autosampler

Description	
Injection range	0.1–100 µL in 0.1 µL increments; up to 1500 µL with multiple draw (hardware modification required)
Precision	< 0.25% RSD from 5–100 µL, < 1% from 1–5 µL, variable volume
Sample viscosity	0.2–5 cp
Sample capacity	100 2-mL vials in 1 tray 40 2-ml vials in half-tray 15 6-ml vials in half-tray (Agilent vials only)
Injection cycle time	Typically 50 s depending on draw speed and injection volume
Carry-over	Typically < 0.1 %, < 0.05 % with external needle cleaning

Column oven

Description

Temperature range	5 degrees above ambient to 60 °C
Temperature stability	± 0.15 °C
Temperature accuracy	± 0.8 °C with calibration ± 0.5 °C
Column capacity	one 25 cm column
Heat-up/cool-down time	not yet defined
Internal volume	6 µL

Variable wavelength detector

Description

Detection type	Double-beam photometer
Light source	Deuterium lamp
Noise	± 0.35 x 10 ⁻⁵ AU (2 s time constant) under specified conditions
Drift	3 x 10 ⁻⁴ AU/hr, at 254 nm
Linearity	> 2 AU upper limit
Wavelength range	190–600 nm
Wavelength accuracy	± 1 nm, self-calibration with deuterium lines, verification with holmium oxide filter
Wavelength bandwidth	6.5 nm typical over whole wavelength range
Maximum data rate	20 Hz
Flow cell	Standard: 14 µL volume, 10 mm cell path length and 40 bar (588 psi) pressure maximum (included) High pressure: 14 µL volume, 10 mm cell path length and 400 bar (5880 psi) pressure maximum Micro: 1 µL volume, 5 mm cell path length and 40 bar (588 psi) pressure maximum Semimicro: 5 µL volume, 6 mm cell path length and 40 bar (588 psi) pressure maximum

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