Infitek

LIQUID CHROMATOGRAPH



HPLC-L20 HPLC-2025
HPLC-W3200 HPLC-W3400 HPLC-6000

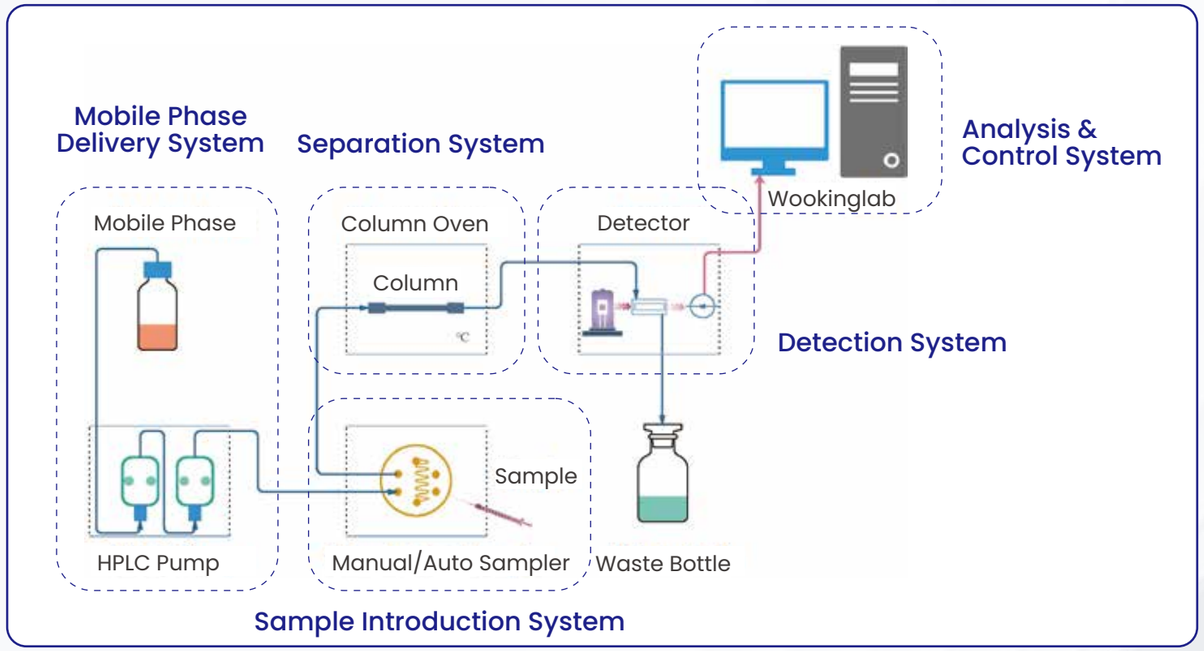
Laboratory and Medical equipment
one-stop solution provider







Principle & Applications



Applications


Pollutant Monitoring


Agriculture


Food Safety


Livestock


University Labs


Research Institutes


Biopharma


Chemical Drugs


Chemical Materials


Regulatory Testing


Judicial Identification


Disease Control

Quick Preview

Routine QC / Teaching / Economy Model

HPLC-L20 / HPLC-2025 / HPLC-W3200

- Pressure resistance: 42~45 MPa
- Compatible with conventional 5 μm columns
- Flexible modular configuration, reliable for routine tests

Ultra-fast analysis / Method development & speed enhancement

HPLC-W3400 / HPLC-6000

- High pressure resistance: 62~75 MPa
- Ultra-fast separation with 3 μm columns
- For complex multi-impurity samples with high resolution requirements
- High freedom in method development, R&D lab preferred



HPLC-L20 pp.3-6



HPLC-2025 pp.7-14



HPLC-W3200 pp.15-18



HPLC-W3400 pp.15-18



HPLC-6000 pp.19-22



Model	HPLC-L20	HPLC-2025	HPLC-W3200	HPLC-W3400	HPLC-6000
System Pressure Rating	42MPa	42MPa	45MPa	62/75MPa	45/62MPa
Pump Type	Binary, Quaternary	Isocratic, Binary, Quaternary	Isocratic, Binary, Quaternary	Binary, Quaternary	Quaternary
Injector Precision	≤0.3%	≤0.5%	≤0.3%	≤0.3%	≤0.25%
Column Oven Temperature Control Range	4℃～85℃	4℃～90℃	4℃～90℃	4℃～90℃	1℃～90℃
UV Detector Noise	≤0.35×10^{-5} AU	≤0.25×10^{-5} AU	≤0.8×10^{-5} AU	≤0.8×10^{-5} AU	≤0.25×10^{-5} AU
Compliance Capability	Supports audit trail, GMP and FDA 21 CFR Part 11	Supports audit trail, GMP and FDA 21 CFR Part 11	Supports audit trail, GMP and FDA 21 CFR Part 11	Supports audit trail, GMP and FDA 21 CFR Part 11	Supports audit trail, GMP and FDA 21 CFR Part 11

*The above parameters are for selection reference only and not standard configuration.

Liquid Chromatograph

HPLC-L20

Features

- 10,500 PSI (720 bar) max pressure for higher efficiency; 6,000 PSI system rating.
- Sample volume 2*54 1.5ml vials (Standard), or 2*96 well plate
- Precise Temperature Stability ±0.05 ℃ for Reproducible Methods
- Multi-Detector Flexibility, Configured Your Way

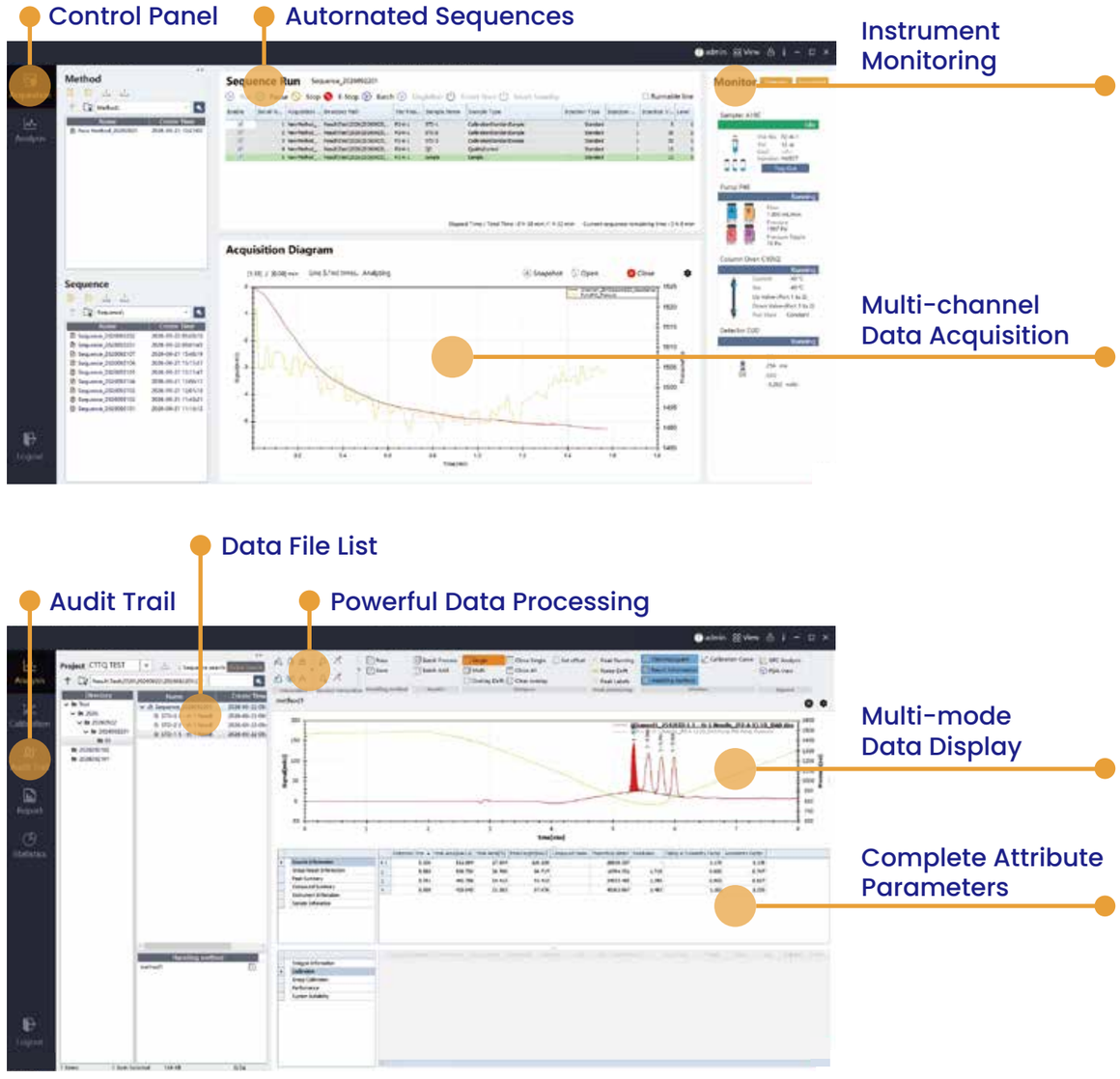


Intelligent Data System

Enhances laboratory efficiency with greater accuracy and speed.

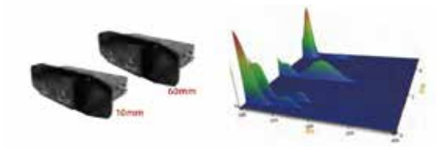
Effectively reduces operational costs and risks.

Compliant with FDA 21 CFR Part 11, GMP, and GLP, it features flexible deployment, multilingual support, and dozens of proprietary technologies that ensure data integrity and greatly enhance lab efficiency toward intelligent laboratories.



Superior Performance, Reliable Results

Diode Array Detector (DAD)

- Pixels: 1024 pixels
- Wavelength Range: 190–800 nm
- Slit Width: 1.2 nm / 6 nm
- Monitoring Channels: 12 channels simultaneously
- Additional Functions: 3D spectra, peak purity
- Flow Cell: Max path length 60 mm

UV-Vis Detector



- Optical Design: Automatic switching
- Wavelength Range: 190-900 nm
- Acquisition Rate: Up to 100 Hz
- Linear Range: 2.5 AU
- Standard Features: Wavelength time program, switching, stop-flow scanning
- Maintenance: Easy lamp replacement

Fluorescence Detector



- Sensitivity: New optical design
- Stray Light Suppression: Excellent S/N
- Wavelength Range: 200–750 nm / 900 nm
- Sampling Rate: Up to 100 Hz



Empowering fast analysis with reliable performance

Efficient sample delivery

- Multiple injection modes ensuring stable injection reproducibility.
- Optional sample tray cooling; compatible with multiple plate formats (2*54 vials or 2*96-well plates).
- Multi-solvent washing and inner/outer needle rinsing reduce carryover to < 0.002%.
- Graphical tray interface for easier injection setup.
- Supports pre-column derivatization, automatic dilution, and mixing.
- Cross-sequence operation enabling multiple projects to run automatically.



Beyond-standard pressure delivery

- Maximum pressure of 10,500 PSI (720 bar) for enhanced efficiency.
- Pressure pulsation suppression technology; no damper needed; pulsation <10 PSI.
- Synchronization function improves chromatographic retention time accuracy.



Accurate temperature control system

- Large column oven capacity accommodating 4* 300 mm columns.
- Forced-air circulation with optimized airflow ensures uniform temperature.
- Peltier temperature control: 4°C to 85°C.
- Built-in high-sensitivity leak sensor.



HPLC-L20 Specifications

Pump	P22	P40
Type	Binary high pressure gradient pump	Quaternary gradient pump
Gradient Model	Binary high pressure gradient 2 pieces of two-way solvent selection valves	Quaternary gradient
Online Degassing	2 channels online degassing	4 channels online degassing
Max. Pressure	10,500 PSI (72MPa) (@0-2mL/min) 6,000 PSI (41MPa) (@2-5mL/min) 3,000 PSI (21MPa) (@5-10mL/min)	
Flow Rate Range	0.001 mL/min - 10.000 mL/min (increment 0.001mL/min)	
Flow Rate Accuracy	±0.5% (@1 mL/min, water)	
Flow Rate Precision	≤0.1% (@1mL/min, Water) (JJG) ≤0.06% RSD (@1mL/min, Water) (ASTM)	
Pressure Pulsation	≤1% (@1mL/min,Water, Backpressure>10Mpa)	
Gradient Accuracy	±0.5%	
Gradient Precision	≤0.2% SD	
Online Wash	YES	
Power Supply	100 VAC - 240 VAC, 50/60 Hz	

Auto Sampler	A10S	A10C
Sampling Mode	Suction type (Full loop, Partial Loop & µL pick-up)	
Volume of Sample Loop	Standard 100µL; Optional: 20µL/50µL	
Max. Sampling Volume	Full loop= Loop volume; Partial Loop=1/2 loop volume; µL pick-up=(Loop volume-3*Needle volume)/2	
Sample Volume	2*54 1.5ml vials (Standard), or 2*96 well plate	
Sampling Repeatability	Full loop: ≤0.3% RSD; Partial Loop: ≤0.3% RSD (≥5µL) & ≤0.5% RSD (≥2µL); µL pick-up: ≤1.0% RSD"	
Cross Contamination	<0.002% (Fixed method and condition)	
Injection Linearity	≥0.999	
Injection Volume Accuracy	≤ 0.6% (50µL)	
Injection Cycle Time	15s	
Max. Pressure	6,000 PSI	
Cooling Range	/	Upper limit: Environment temperature: -5 ℃; Lower limit: Environment: - 21 ℃, Lowest: 4 ℃ Increment: 0.1 ℃
Communication	RS232; LAN	



HPLC-L20 Specifications

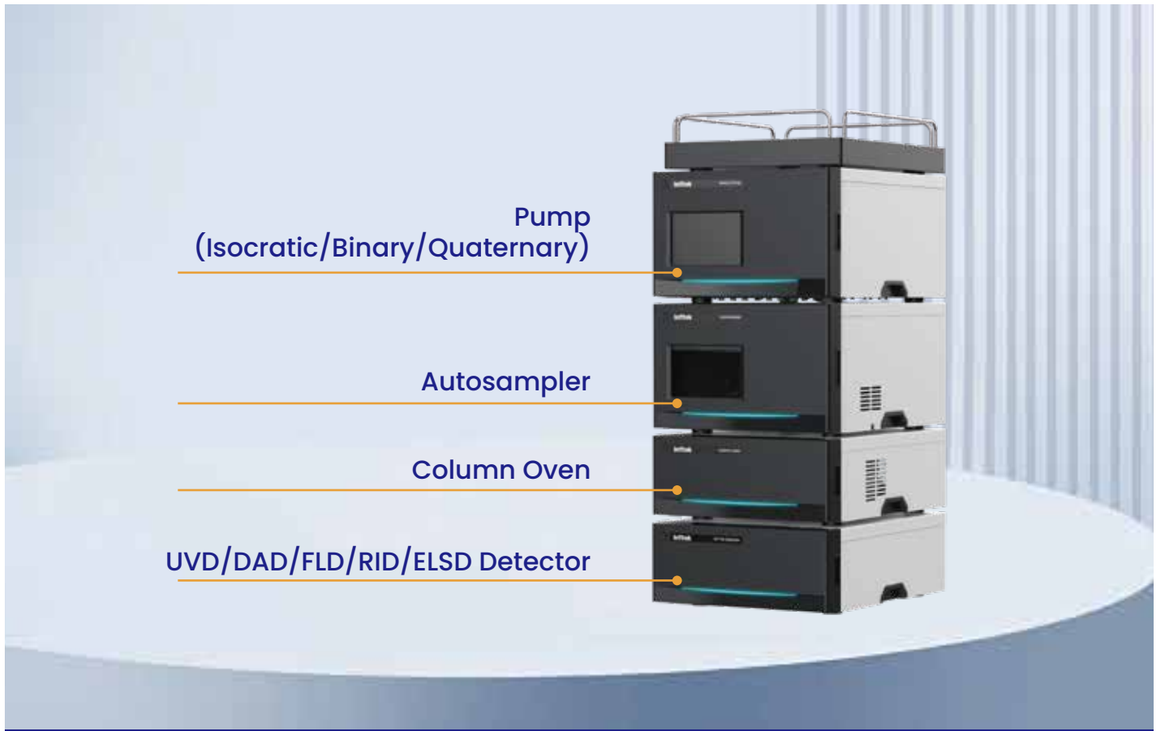
Column Oven	C10	C12
Type	Standard Heating function	Heating & Cooling function
Temp. Control Mode	Forced wind circulate	Peltier temperature control
Temperature Control Range	RT+5~85℃	4~85℃ (Lower limit: RT-21℃)
Temp Accuracy	±0.5 ℃	
Temp Stability	±0.05 ℃	
Column Capacity	Max. 4 * 300mm column or more short column	

Detector	UVD10	DAD20
Type	UV-VIS Detector	Diode Array Detector
Wavelength	190 nm - 900 nm	190 nm - 640 nm
Light Source	Deuterium lamp, Tungsten lamp	Deuterium lamp
Array Diode	/	1024 Pixels, 0.6nm/pixel
Spectral Width	8 nm	6 nm
Wavelength Accuracy	±1 nm	±1 nm
Wavelength Precision	±0.1 nm	±0.1 nm
Noise	$\pm5.0\times10^{-6}$ AU (JJG) $\pm3.5\times10^{-6}$ AU (ASTM)	$\pm5.0\times10^{-6}$ AU (JJG) $\pm3.5\times10^{-6}$ AU (ASTM)
Drift	$<1\times10^{-4}$ AU/Hr	$<1.0\times10^{-4}$ AU/Hr
Linear Range	$>5\times10^{4}$ (JJG) >2.5AU (ASTM)	>2.0AU (ASTM)
Max.Sampling Rate	100 Hz	12 Channels, 100 Hz
Flowcell	Volume : 12 μL, SS316 Light Path: 10 mm Max.pressure 1200 PSI	Cell : 12 μL, SS316 Light Path: 10 mm Max.pressure: 1200 PSI
Detection Limit	5×10^{-9} g/mL(naphthalene)	1×10^{-8} g/mL(Naphthalene)

Chromatography Data System	WV5.0
Type	Database version
Language	English version
Laws and Regulations Applicable	Comply with the FDA 21 CFR Part11 / GMP/GLP
Automatic Backup	3 floor automatic backup mechanism
An Audit Trail	detailed record so operation, can be traced back
User Multistage Rights Management	level 5 or higher
Report	Built-in standard report format, the user can also edit personalized report template
Instrument Control, Data Acquisition and Data Processing Function	Instruments and control parameters, data acquisition and data processing parameters set automatic peak width, automatic threshold algorithm, adaptive sampling data, automatic adjustment algorithm to achieve the best effect of integral
Diagnosis Maintenance Function	With functions of diagnosis maintenance: a variety of performance of individual components, automatic diagnostic instrument built-in a variety of common failure analysis
Maintenance of Early Warning Function	Maintenance of early warning function: record the main consumables total time and the number of change, take the initiative to remind customers change regular maintenance

Liquid Chromatograph

HPLC-2025



Features

Reliability

With the reliable design and high-quality components, HPLC-2025 can operate in good condition for a long time

Precision

The precision and accuracy of the results are guaranteed with the pumping and sampling technology, high sensitivity detector, and powerful data processing software.

Ease of use

The operation is more convenient and efficient with a variety of user-friendly designs.

Pump



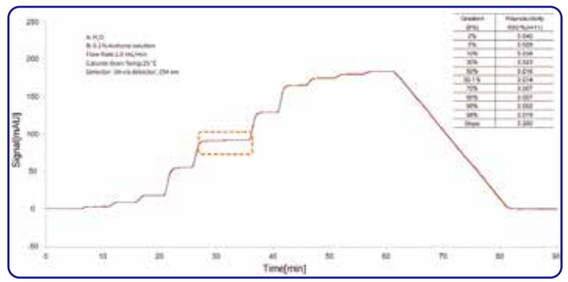
P2 Binary pump



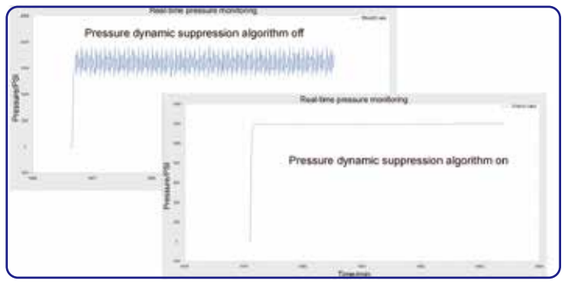
P4 Quaternary pump

Excellent repeatability

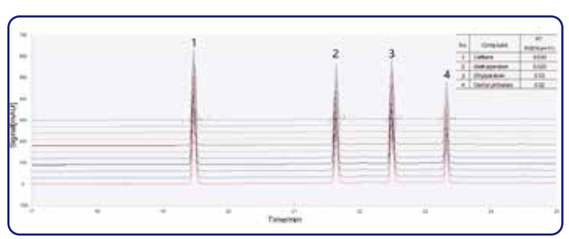
The precise gradient change and retention time are guaranteed with the reciprocating tandem plunger pump and pressure dynamic suppression algorithm. The repeatability of retention time is less than 0.2%.



Gradient test



Pressure fluctuation test



Retention time repeatability test

Pump

The reliable design makes service life longer

Material

The cam is integrally processed from high-hardness alloy steel and combined with high-frequency heat treatment technology, which makes the surface of the cam is more wear-resistant (the hardness is above 55HRC), and the service life is longer.

Power

The high-power customized motor, NSK bearings, and independent air duct make the power and life even better.

Gearing

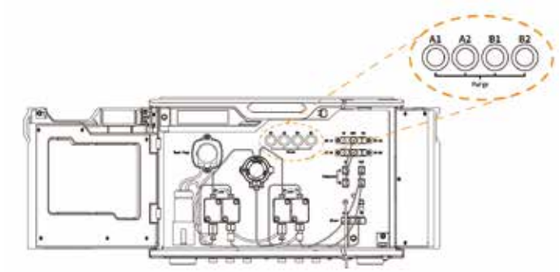
Self-lubricating and wear-resistant materials are used for the piston drive mechanism. Also, the inner wall rifling design prevents the piston from accidentally locking, making the gearing more reliable.

Plunger

The suspended floating plunger can adapt to the working conditions automatically, which is convenient for disassembly and prevents the eccentric wear of the sealing ring effectively. With the special sealing structure and the automatic cleaning of the plunger, the pump seal is more reliable.

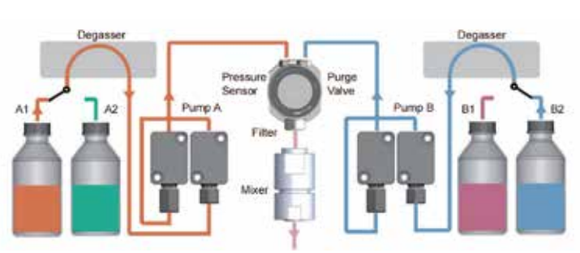
Ease of use

Easy to purge



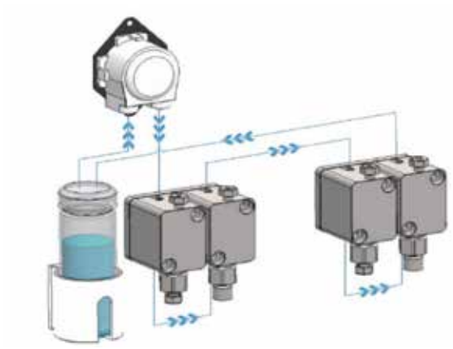
Both the Chromatography Data System and the instrument panel are equipped with a purging function, making it easier to purge.

Intelligent solvent switching to improve efficiency



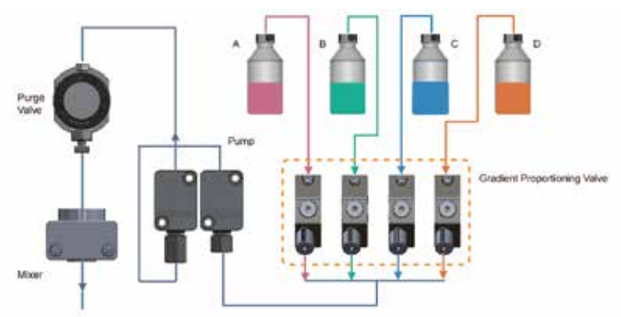
Equipped with a 4-channel solvent selection valve for binary pump. The solvent can be automatically switched according to the method.

Equipped with an online automatic rinsing mechanism.



When the pump is working, the rinsing pump is automatically turned on and runs periodically, which can effectively prevent the crystallization of buffer salts and the growth of microorganisms, and prolong the service life of the plunger and plunger sealing.

Independent 4-channel gradient proportioning valve, easy for maintenance



The gradient proportioning valve of the quaternary pump adopts a 4-channel independent design. The intelligent monitoring and diagnosis can realize real-time monitoring and independent replacement of each channel, the whole design can reduce maintenance costs effectively.

Autosampler

Precision

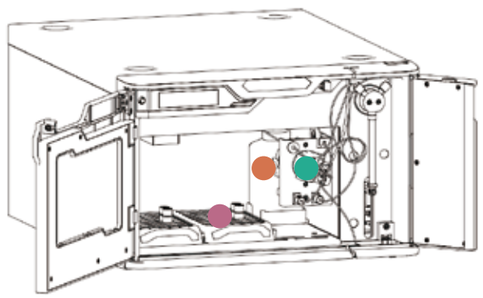
Precise injection volume

The autosampler adopts an integrated constant pressure needle and a precise syringe pump, which ensures accurate injection volume and excellent linearity, making the results more precise and accurate.

Low carryover to make results more accurate

The sampling needle is highly polished for the outer surface and passivated for the inner surface, which can effectively reduce the sample residue. The carryover is much lower when needle washing of the outer and inner surfaces are performed.

Ease of use



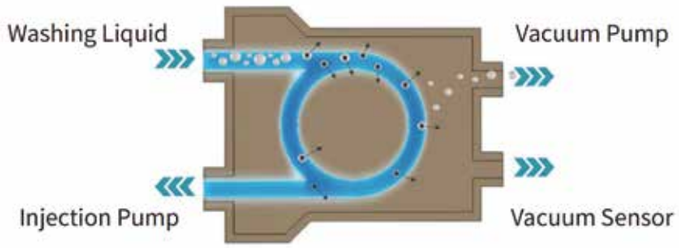
- Preloaded sample injection mode, the injection time can be shortened to 5s, which greatly improves the efficiency.
- A variety of injection modes combined with sample temperature control technology to satisfy different detection needs such as rare and unstable samples.
- The dehumidification function is optionally equipped to avoid the generation of condensed water, effectively prevent the sample from being diluted, and ensure accurate results.
- The maintenance is more convenient and efficient with the in-front injection valve.

Reliability



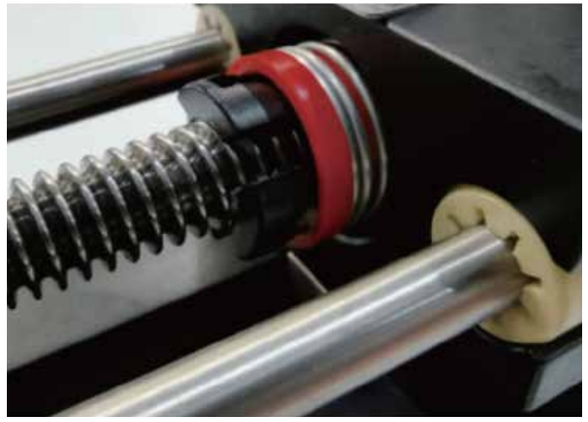
Design of needle

With our integrated constant pressure sampling needle, the air pressure inside and outside the sample bottle can be balanced during sampling; the injection port is set on the sidewall to prevent bottle pad debris from clogging the needle during puncture.



Design of degassing unit of washing liquid

The built-in autosampler degassing unit can be used for degassing of washing liquid, avoiding interference caused by air bubbles.



Design of self-compensation injection pump

The maintenance-free self-lubricating guide device and self-compensating sliding screw are used for real-time compensation of the slight wear, and it has excellent motion accuracy and is more durable.

Column Oven

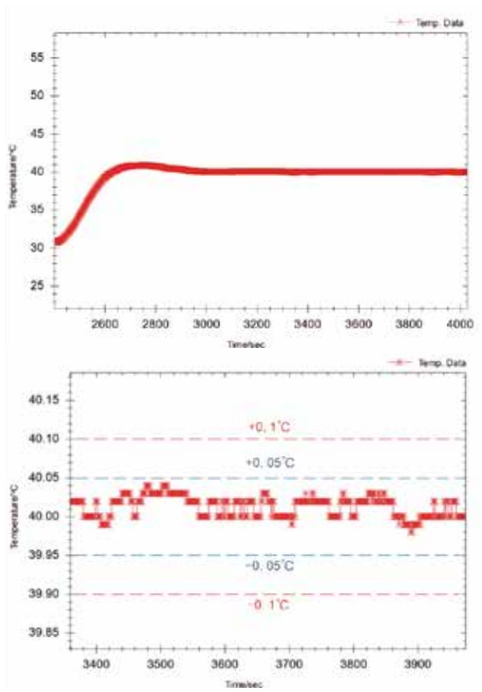
Features

Precise temperature control ensures good separation and repeatability.

Using fuzzy PID intelligent temperature control algorithm, ban-based air circulation, and multiple insulation layer design, the column temperature is more accurate, stable, and uniform, the temperature stability is ±0.1 ℃, and the temperature for each analysis are constant and consistent.

Triple protection, more safe to use.

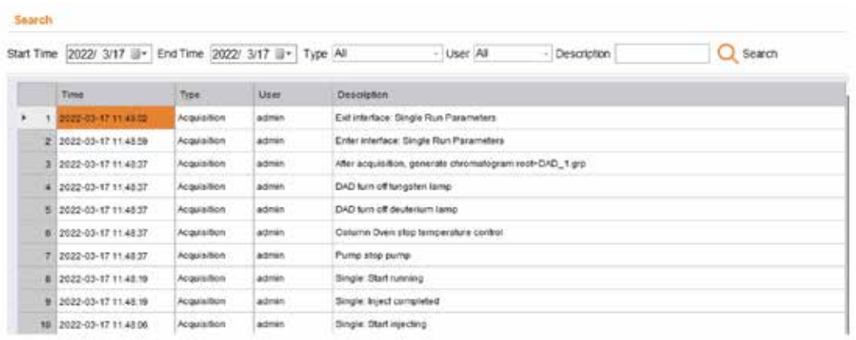
Real-time liquid leak protection, intelligent monitoring of Peltier and cavity temperature, over-temperature power-off protection, triple safety protection designs, effectively prevents accidental liquid leakage and dangers caused by over-heating.



Chromatography Data System

Features

Compliance



» Database storage

With the professional database system, the encryption of original files and security of raw data can be guaranteed.

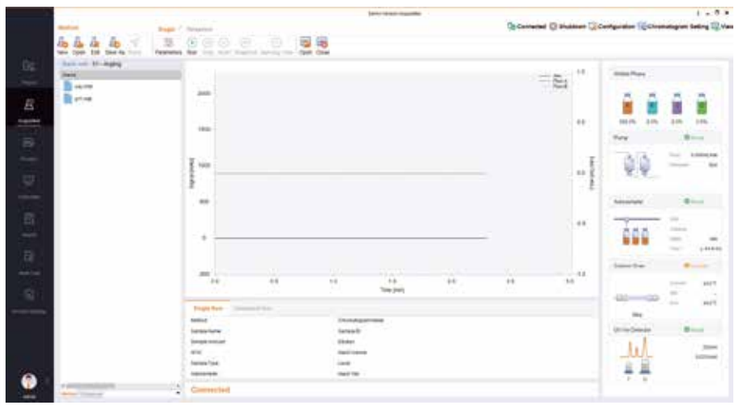
» Backup and restore

Backup and restore of data can be easily performed in the Chromatography Data System, which is convenient for users.

» Multi-level user system

Supports customized multi-level system for access to data, ensuring the effectiveness of the system.

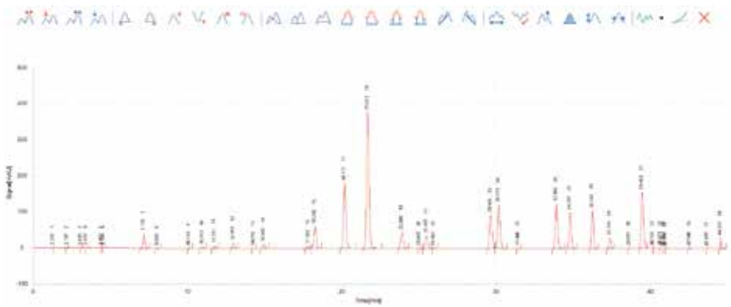
User-friendly



Ease of use

The Chromatography Data System interface is flat designed to quickly complete method development, data acquisition, data processing, report editing and printing, etc.

Precision



Powerful data-processing capability

Up to 25 integration events and 3 quantitative calculation methods (external standard method, internal standard method, and normalization method) for complex data.

UV-Vis Detector

Precision

Low LOD

The high-throughput optical path, reference subtraction algorithm, and ultra-precise signal acquisition circuit ensure the detector's excellent sensitivity.

Wide linearity

The UVD covers a wide linear range of 2.5AU, making it easier to analyze high concentration samples.

Reliability

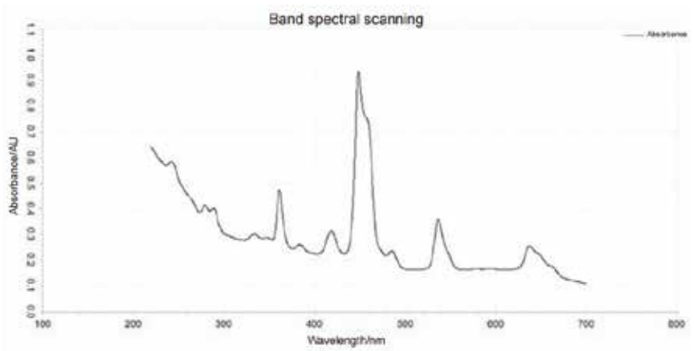


The transmission type deuterium lamp and static light path allow the light source switching without moving of lamp, which is more reliable.



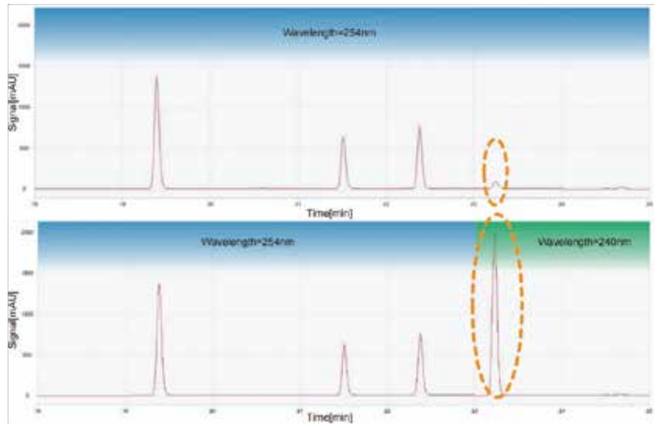
With the design of the optical unit and the light source module, the service life is much longer.

Ease of use



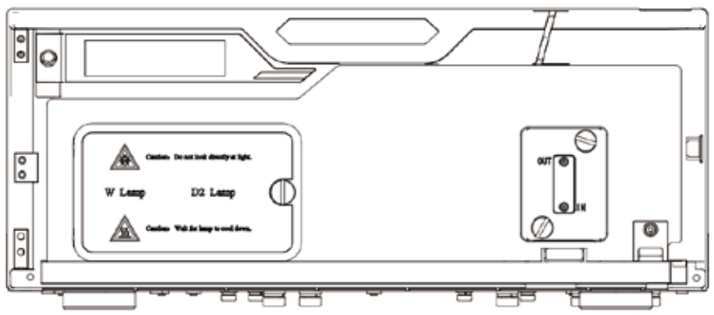
Full-band spectral scanning

A full-band spectral scanning can be performed to easily find the optimal absorption wavelength of the target analyte.



Wavelength time programming

Wavelength can be set for different analytes during different periods, to accomplish the high-sensitivity analysis of complex samples.



Good maintenance and high safety

- Built-in mercury lamp for wavelength calibration.
- Over-temperature protection of light source.
- Automatic tracking of light energy.
- With in-front light source and flow cell and Liquid leak sensor.

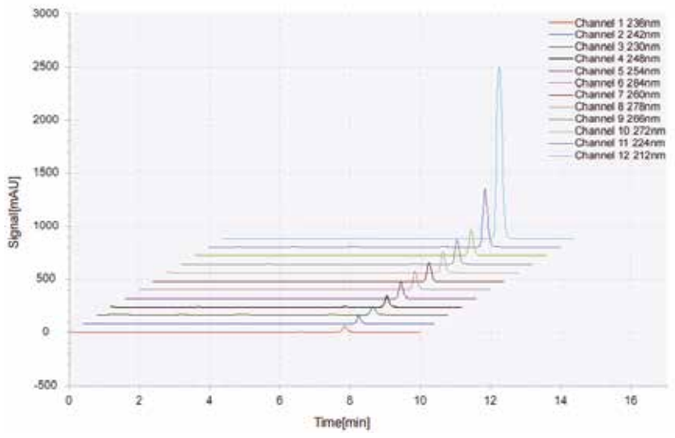
Diode Array Detector

Ease of use

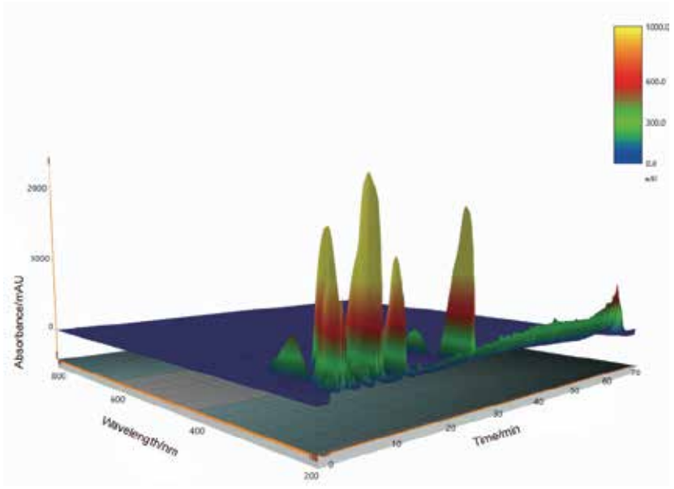
Supports 12-channel real-time data collection

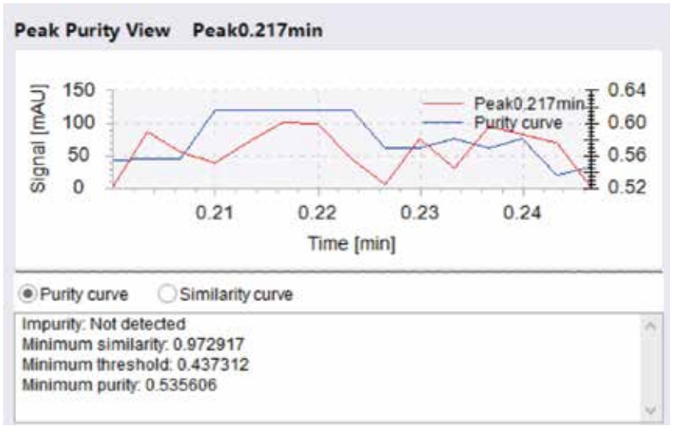
Significantly enhance the analysis efficiency by

- Up to 12 wavelengths can be set for real-time detection;
- Real-time analysis at a high sampling rate up to 150Hz;
- Full-spectrum detection.



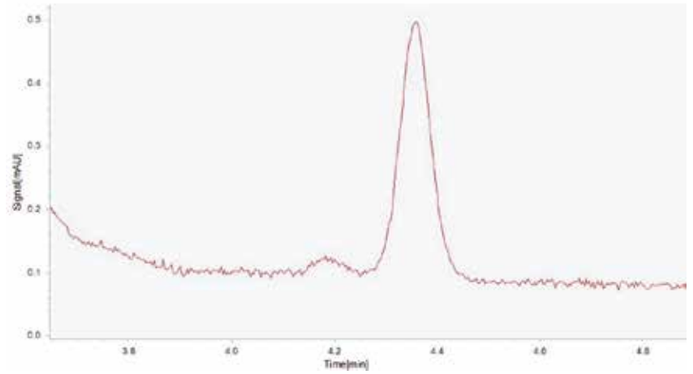
Precision





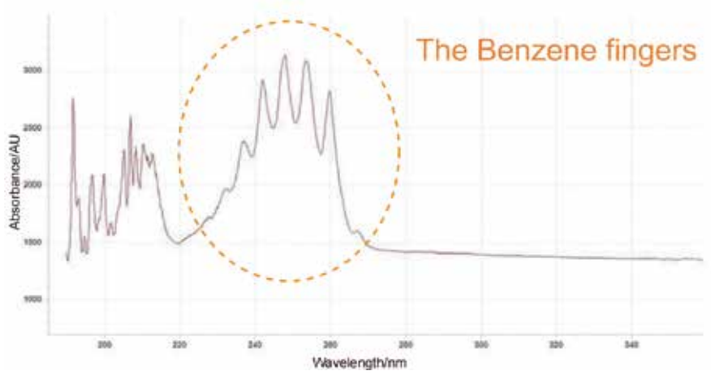
Spectral similarity alignment and peak purity determination are performed for precise qualitative and quantitative analysis.

DAD provides full-spectrum information. The compounds can be identified by similarity comparison in the spectral database. Peak purity determination can be performed in the Chromatography Data System.



High sensitivity—Close to UV Detector

High sensitivity mode can be performed for low concentration samples, the signal-to-noise ratio of DAD can be reached to the same level of UVD.



Achieving more accurate inspection data by high-resolution spectra.

When compound detection is performed in high-resolution mode, a finer spectral map can be output for better analysis of complex samples.

HPLC-2025 Specifications

Solvent Delivery Pump	P1 Isocratic Pump	P2 Binary Pump	P4 Quaternary Pump
Working Principle	Serial double plunger, fully floating plunger design		
Flow Rate Range	0.001–10.000 mL/min		
Flow Rate Accuracy	±0.5% (@1.000 mL/min, water)		
Flow Rate Precision	≤0.06% RSD (@1.000 mL/min, water)		
Gradient Accuracy	/	±0.5%	±1%
Gradient Precision	/	≤0.1% RSD	≤0.2% RSD
Max. Operating Pressure	62 MPa		
Pressure Pulsation	≤1% (flow rate ≤5 mL/min, pressure ≤4000 psi)		
Automatic Plunger Wash	Built-in		
Solvent Selection Valve	Built-in 2 channels	Built-in 4 channels	4-channel independent proportioning valve for easy monitoring and maintenance
Vacuum Degasser	Optional	Optional (built-in 2 channels)	4 channels
Mixer	/	Spiral-cross mixer, homogeneous mobile phase mixing	Chaotic mixer, homogeneous mobile phase mixing

Autosampler	AS	AS-TC (with Temperature Control)	MS Manual Injector
Sample Capacity	108 positions (54 × 2 mL vials × 2); Optional 2 × 96-well plates		/
Sample Loop	100 µL standard (10/20/50 µL optional)		Standard 20 µL loop + 50 µL syringe; optional 50 µL loop + 100 µL syringe; optional 100 µL loop + 250 µL syringe
Injection Precision	Standard type ≤0.5% RSD (5,10 µL), ≤1% RSD (2 µL); carrying type ≤1.0% RSD; low-loss carrying type ≤0.5% RSD (10 µL)		/
Injection Linearity	≥0.999		/
Injection Cycle Time	As low as 5 s (supports overlapped injection)		/
Cross Contamination (Carryover)	<0.003% (caffeine)		/
Max. Operating Pressure	42 MPa		48 MPa
Needle Wash Degassing Unit	Optional		/
Temperature Range of Sample Compartment	/	4°C–40°C (with dehumidification)	/
Injection Pump	Maintenance-free, self-lubricating, self-compensating ultra-precision injection pump		/
pH Range	1–10		1–10

Column Oven	CO	CO-C (Cooling Type)	PlusCO
Temperature Range	RT+5°C–85°C	RT-10°C–85°C	4°C–90°C
Temperature Accuracy	±0.5°C		±0.5°C
Temperature Stability	±0.1°C		±0.05°C
Temperature Control Principle	Peltier + Forced air circulation		Peltier semiconductor temperature control + forced air convection or static air mode
Heating Rate	25°C→40°C approx. 8 min	25°C→40°C approx. 8 min	25°C→40°C approx. 10 min
Cooling Rate	/	50°C→20°C approx. 12 min	50°C→20°C approx. 10 min
Safety Protection	Leak detection, door-open detection, over-temperature alarm, dual hardware/ software temperature protection		Dual hardware/software over-temperature protection; organic vapor and thermistor dual leak sensors
Switching Valve	/		Up to 2 (Optional)
Column Identification	/		Up to 4 columns (optional), with column information storage chip (optional)
Column Capacity	4 × 250 mm columns or 1 × 300 mm columns		4 × 300 mm columns or 8 × 100 mm columns

HPLC-2025 Specifications

Detector	UV-VIS Detector	Diode Array Detector	Fluorescence Detector	Refractive Index Detector
Light Source	Deuterium lamp (transmission type) + tungsten lamp		150 W Xenon lamp	Tungsten lamp
Wavelength Range	190–900 nm	190–800 nm	Excitation 200–850 nm / Zero order Emission 250–900 nm / Zero order (>731 nm requires PMT replacement)	Refractive Index 1.00–1.75
Data Acquisition Rate	Up to 100 Hz	Up to 125 Hz	/	/
Array	/	1024-element photodiode array, 12 Signal Channels	/	/
Slit Width	8 nm	1 / 2 / 4 / 8 nm adjustable	Excitation side: 15 nm; Emission side: 15 nm / 30 nm variable	/
Wavelength Accuracy	±1 nm		±3 nm	/
Wavelength Precision	±0.1 nm		±0.5 nm	/
Noise	≤±0.25×10^{-5} AU (empty cell, 254 nm, 1 Hz, 2 s, ASTM)	≤1×10^{-5} AU (ASTM, empty cell, 254 nm, 4 nm bandwidth, 1 Hz)	Water Raman peak S/N: ≥700 (15 nm, baseline method) / ≥525 (tangent method); ≥900 at 30 nm (baseline method)	≤0.0025 μRIU (Water, time constant 3 s, 25°C)
Drift	1×10^{-4} AU/h		/	≤0.1 μRIU/h(Water, time constant 3 s, 25°C)
Linear Range	>2.5 AU (or >5×10^{4})	>2.0 AU (or >10^{4})	/	500 μRIU
Flow Cell	Optical path 10 mm, volume 12 μL, max. pressure 10 MPa		12 μL, Max. pressure 1.0 MPa	Cell volume 9 μL, Max. pressure 1.9 MPa
Wavelength Calibration	Built-in mercury lamp automatic wavelength calibration	Built-in deuterium lamp + holmium glass calibration	/	/
Maintenance	Light source and flow cell replaceable from front panel	Light source and flow cell replaceable from front panel	/	/
Programming	Supports wavelength time-program switching and full-wavelength scan	/	9 programs, max. 600 min, programmable Ex/Em wavelength, baseline processing, PMT gain	Temperature Control 30–60°C (0.1°C step) or Off

HPLC-2025 Specifications

Chromatography Data System	WS	WS-L	WS-G
Compliance	/	/	Complies with FDA 21 CFR Part 11 / GMP / GLP requirements
Electronic Signature	/	/	Supports electronic signatures for report submission, review, and approval
Data Management	Database management mode, supports manual and automatic backup/restore by project/time	Database management mode, supports backup/restore	Database backup/restore; program files protected from deletion; system date/time/timezone locked against tampering
Audit Trail	Detailed records of operator, modification time/ reason/ content, instrument operations, and alarm information	/	Detailed records of operator, modification time/reason/content, instrument operation and alarm information
Version Management	Automatically creates new version records upon modification of methods/sequences/chromatograms/calibrations/reports; Searchable and tamper-proof	/	Automatically creates new version records upon modification of methods/sequences/chromatograms/calibrations/reports; Searchable and tamper-proof
Permission Management	Multi-level user permission management		
Integration & Quantitation	27 integration events, 3 quantitation calculation methods, supports noise/drift calculation		
Pharmacopoeia Compliance	Supports system suitability calculations according to Ch.P / USP / EP / JP		
Others	Batch processing, QAMS relative retention time calculation, report template editing		/

Liquid Chromatograph

HPLC-W3200 HPLC-W3400



Features

Rapid Separation Liquid Chromatography (RSLC) System

Separable Modular Structure: Multiple RSLC main unit models available for customizable configurations.
Comprehensive Detector Range: Includes UV, DAD, FLD, ELSD, and RID detectors with intelligent control.
Smart Lab Chromatography Data System: Simplifies complex tasks with user-friendly interfaces.
Chromatography Consumables: Can be selected as needed.

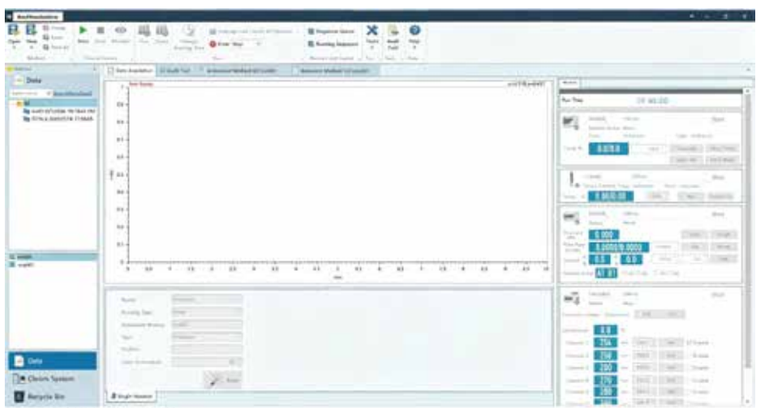
Needle-in-Flow Injection System

Flow through Needle Injection System: Eliminates sample loss and minimizes cross-contamination.
Advanced Online Functions: Supports online derivatization, dilution, and enrichment.
Optimized Needle Cleaning: This design reduces contamination risk.
Global Standard Performance: Ensures better qualitative and quantitative reproducibility.

Extended Functions to Meet Diverse User Needs

Enhanced Compatibility: Innovative one-way valve technology ensures acetonitrile compatibility.
Column oven with valve switching, providing 2 installation clips for 250mm HPLC columns, expandable to 4+ columns.
Innovative Technology: Effectively identifies shoulders and small peaks with guided operation and intelligent integration.

Smart Lab Chromatography Chromatography Data System



Validated at CMMI Maturity Level 5, which ensures international quality standards for software development.

Featuring a comprehensive audit trail function compliant with GMP, CGMP, 21 CFR Part 11, ICH guidelines, and other laws and regulations, ensuring full-process data traceability. Audit trail records are not allowed to be edited and deleted and can be printed.

Convenient data organization and storage capabilities, utilizing an efficient database system to safeguard user data security. Automatic backups and cyclic updates ensure complete backups within the latest 7 days, preventing data loss.

SmartPeak intelligent peak detection: a second-order algorithm combining Gaussian, exponential, and tangent skimming ensures accurate peak identification and consistent, reliable results across chromatograms.

Key Components

Auto sampler



- Needle-in-flow design ensures zero sample loss during injection.
- Compatible with different specifications of sample trays, expanding user application scenarios.
- Metering pump for precise sampling, offering longer lifespan and higher accuracy compared to syringe pumps.
- Optimized needle cleaning flow path minimizes cross-contamination, ensuring sample purity.
- Standard obstacle protection function effectively prevents damage to the injection needle.
- Standard empty bottle detection function to prevent invalid sample injection.
- Optional refrigeration component to ensure detection accuracy of thermally unstable substances.

High-Pressure Pump



- Maximum Pressure and Compatibility: Capable of withstanding up to 45MPa(HPLC-W3200), 75MPa(HPLC-W3400), compatible with smaller particle size chromatographic columns, enabling seamless method transfer.
- Acetonitrile-Resistant Valve: Features a high-precision, self-restoring, acetonitrile-resistant one-way check valve, ensuring stable fluid delivery in acetonitrile applications. The further optimized two-stage floating technology significantly reduces wear on highpressure seals, extending the lifespan of consumables.
- Quaternary Pump with Degassing: Quaternary pump integrated with 5-channel degassing (A, B, C, D, AS).

Column Oven



- Default configuration with semiconductor cooling module and electric-resistive heating module, achieving full temperature range control with heating and cooling functions. Two control modes ensure longer lifespan and higher reliability of temperature control components.
- Standard preheating module with the same temperature range as the set temperature to ensure optimal temperature consistency.
- Multi-column capacity design supporting up to 3 chromatographic columns of 300mm.

Full Range of Liquid Chromatography Detectors

Ultraviolet Detector



- Dual-lamp design with a high-transparency deuterium lamp and an optional tungsten lamp, greatly extending the detector's detection range and enabling full-range detection from 188nm to 900nm.
- Capabilities include flow-stop spectra scanning, dual-wavelength detection, and wavelength programming.



Full Range of Liquid Chromatography Detectors

Diode Array Detector



- Capable of acquiring chromatographic signals across all wavelengths from 190 to 800nm, exhibiting detailed spectral structures.
- Features a high-intensity deuterium lamp, concave holographic grating, 1024-element photodiode array, and all-solid-state, highly stable optical path structure.
- Provides three-dimensional spectra, contour plots, chromatograms, spectra, maximum intensity plots, and other information to support multiple application needs, including advanced functions such as peak purity calculations.

Fluorescence Detector



- Dual monochromator structure allows flexible setting of excitation and emission wavelengths, simultaneously monitoring four wavelength channels.
- Supports multiple scanning modes including laser spectral scanning, emission spectral scanning, and lamp spectrum scanning.
- Provides a stable light source with a direct-current xenon lamp, and multi-level precision detection gain settings for a large dynamic range and high signal-to-noise ratio.

Refractive Index Detector



- Designed with a two-chamber configuration and upgraded to a long-life LED light source for maintenance-free operation over its lifetime.
- Freely switchable between entry and exit of rinse modes for automatic rinsing of the reference flow cell.
- Utilizes a high-precision data acquisition system with sequential rinsing, polarity control, and temperature control.
- Equipped with temperature and leak detection alarms for real-time monitoring of instrument status.

Evaporative Light Scattering Detector



- Designed for low-temperature evaporation, offering high sensitivity for thermally unstable and semi-volatile compounds.
- Built-in gas mass flow meter with capillary heat transfer differential calorimetry for precise gas flow control. Independent flow control for nebulization, evaporation, and detection ensures excellent response reproducibility.
- Equipped with temperature, leak, and gas leakage detection alarms for real-time monitoring of instrument status.

Core Specifications Comparison of Detectors

Parameter	UV Detector	Diode Array Detector
Baseline Noise	Single wavelength ≤8.0×10^{-6} AU (254 nm, 1 mL/min, methanol, C18); Dual wavelength ≤6.0×10^{-5} AU (230/260 nm)	≤5.0×10^{-5} AU
Baseline Drift	≤1.0×10^{-4} AU/h (1 mL/min, methanol, C18)	≤1.0×10^{-3} AU/30min
Minimum Detectable Concentration	≤5.0×10^{-9} g/mL (naphthalene/methanol)	≤2.5×10^{-8} g/mL (naphthalene/methanol)
Wavelength Range	188–740 nm (standard deuterium lamp); 188–900 nm (optional tungsten lamp)	190～800 nm
Wavelength Accuracy	≤±1.0 nm (erbium perchlorate); ≤±2.0 nm (potassium dichromate)	≤±1.0 nm
Wavelength Repeatability	≤±0.1 nm	≤±0.1 nm
Light Source & Lifetime	Standard deuterium lamp (≥2000 h), optional tungsten lamp (≥1000 h)	/
Others	Spectral Bandwidth 6 nm	Spectral Resolution 0.6 nm/pixel; Array Elements 1024 elements

Core Specifications Comparison

Module		HPLC-W3200	HPLC-W3400
System Indicators	Qualitative Repeatability	RSD≤0.2%	
	Quantitative Repeatability	RSD ≤ 0.4% (UV, DAD); RSD ≤ 1.0% (RID); RSD ≤ 2.0% (ELSD)	
	Electrical Specifications	100–240 VAC, 50–60 Hz	
High-Pressure Pump	Flow Rate Setting Range	0.0000～10.0000 mL/min	0.0000～12.0000 mL/min
	Max. Operating Pressure	45 MPa	P3400B/P3400Q: 62 MPa; P3400BS/P3400QS:75 MPa
	Gradient Accuracy	≤±0.75% (National standard method; 5%~95%, 0.2-2.0 mL/min)	
	Flow Rate Accuracy	±0.2% (1 mL/min, water, 20 MPa, stable at room temperature)	
	Flow Rate Precision	RSD ≤ 0.075% (1 mL/min, water, 20 MPa, stable at room temperature)	
	Mixer	Titanium alloy mixer (standard 800 μL; optional 1000 μL)	
	Online Degassing	Vacuum membrane degassing system: built-in 3-channel degassing unit for binary pump, built-in 5-channel degassing unit for quaternary pump; max. flow rate of 5 mL/min per channel; pH range 1–14.	
Autosampler	Injection Volume Range	Standard 0.1–50.0 μL; expandable to 100/200/500 μL	Standard 0.1–50.0 μL; expandable to 100/200/500/1000/2000 μL
	Max. Operating Pressure	45 MPa	AS3400: 62 MPa; AS3400S: 75 MPa
	Injection Precision	RSD≤2.5% (0.1-0.2 μL); RSD≤1.0% (0.3-1.0 μL); RSD≤0.3% (1.1-50.0 μL); RSD≤0.5% (50.1-500.0 μL, requires optional extension loop)	
	Linearity Correlation Coefficient	R ≥ 0.9999 (1.0–20.0 μL); R ≥ 0.999 (20.1–500.0 μL, requires optional extension loop)	
	Carryover	≤0.002%	
	Sample Capacity	Standard 108 positions (2×54, 2 mL); Compatible with 96-well plates (requires optional adapter plate)	
	Min. Injection Cycle Time	10 s (Plate 2, Position F9, without wash)	
	Sample Temperature Control (Optional)	Temperature setting range: 4.0-35.0°C; control range: 4°C to (RT-5°C); setting accuracy: ±0.5°C; stability: ±1.0°C	
Column Oven	Temperature Setting Range	4°C (Optional) ~ 90°C	
	Temperature Control Range	RT-10°C (Optional) ~ RT+70.0°C (Max. 90°C)	
	Temperature Stability	±0.04°C	
	Temperature Setting Accuracy	±0.1°C	
	Temperature Setting Resolution	0.1°C	

Core Specifications Comparison of Detectors

Parameter	Fluorescence Detector	Refractive Index Detector	Evaporative Light Scattering Detector
Baseline Noise	≤5×10^{-6} FU	≤5.0×10^{-9} RIU	≤0.02 mV
Baseline Drift	≤2.0×10^{-4} FU/30min	5.0 × 10^{-7} RIU/h (pure water flow rate 1 mL/min)	≤0.05 mV/30min
Minimum Detectable Concentration	≤5.0×10^{-10} g/mL (naphthalene/methanol)	5.0 × 10^{-6} g/mL (cholesterol, methanol)	≤2.5×10^{-6} g/mL (cholesterol/methanol)
Wavelength Range	EX: 200～900 nm; Em: 200～900 nm	Detection Range：0.25～512 μRIU Refractive Index Range：1.00～1.75	/
Wavelength Accuracy	/	/	/
Wavelength Repeatability	/	/	/
Light Source & Lifetime	DC Mercury-Xenon Lamp, 150 W (≥1000 h)	/	/
Others	Signal-to-Noise Ratio：Water Raman peak S/N ≥ 1200	Flow Cell：Volume: 8 μL; Max. Pressure: 1 MPa	Temperature Range：Nebulization: RT–90°C; Evaporation: RT–110°C; Detection Chamber: RT–60°C

Liquid Chromatograph

HPLC-6000

Features

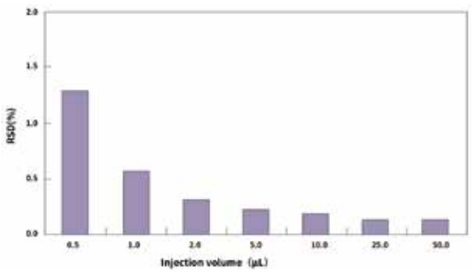
- More advanced technology
- More stable performance
- More reliable use
- More flexible configuration



Automatic Sampler System

Lower residue, Higher precision and Excellent reproducibility.

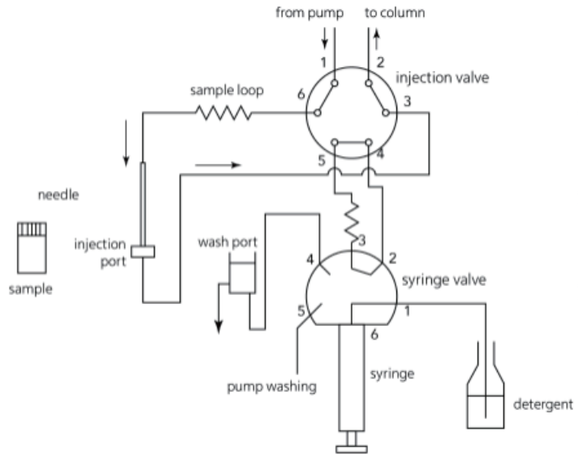
High injection reproducibility



The direct injection method combined with the improved design of a new high-precision injection driving unit ensures the accuracy and repeatability of the injection.

- FTN injection method
- Surf style needle outer wall cleaning
- Needle washing solution not to be reused

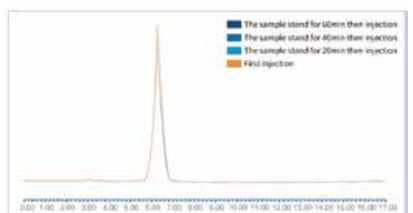
Low sample residue



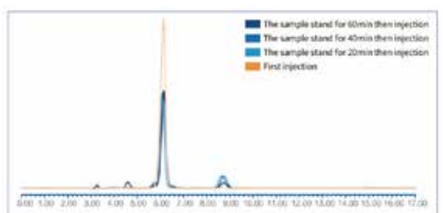
- Reduce sample waste, reduce sample residue and improve injection reproducibility;
- Improving the injection speed is beneficial for high-throughput sample analysis;
- The optimized injection system cleaning method further reduces sample residue.

Sampler with thermo rack (optional)

The system uses Peltier temperature control module to accurately stabilize the temperature of the sampler at the set value and ensure the stability of temperature sensitive samples.



For temperature-sensitive samples, an uncontrolled autosampler temperature leads to progressively increasing impurities.



Samples kept at 4 °C in the autosampler remain stable over time.



The inner part of the instrument is designed to prevent condensation and improve the service life of the instrument.

Pump System

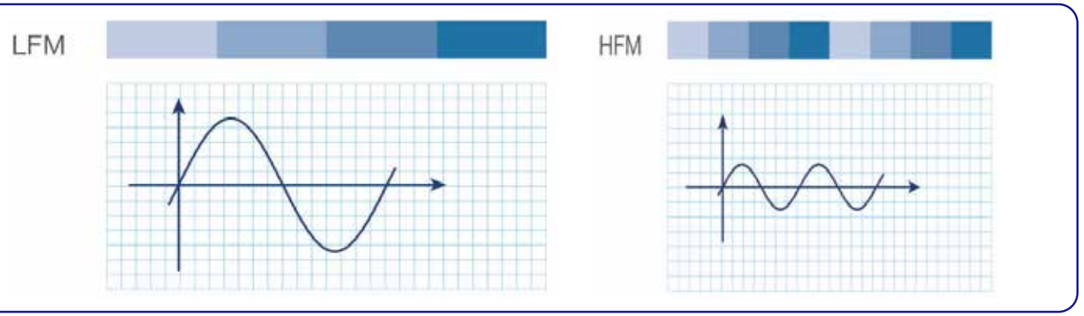
Higher precision, Lower pulsation and Excellent stability

The four element pump system achieves high-frequency mixing of the gradient system, reduces the generation of solvent mixing bubbles, reduces infusion pulsation, and ensures infusion accuracy and stability.

HFM high frequency hybrid mode

By increasing the switching frequency of proportional valve, the mixing accuracy of mobile phase is improved.

The sufficient mixing of solvent can be ensured without large volume mixer, which greatly reduces the system delay volume and baseline noise of the system.

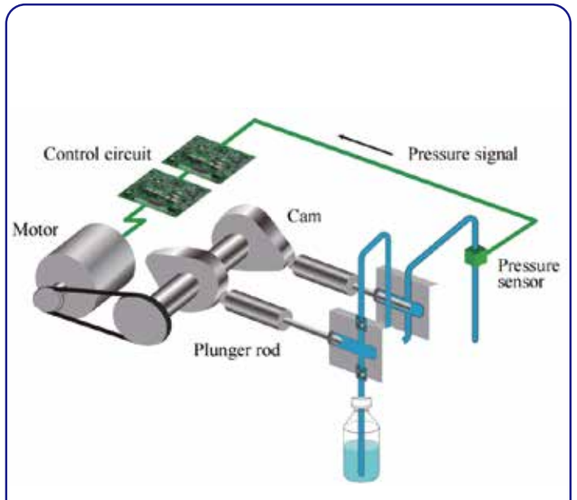


Special curve cam design

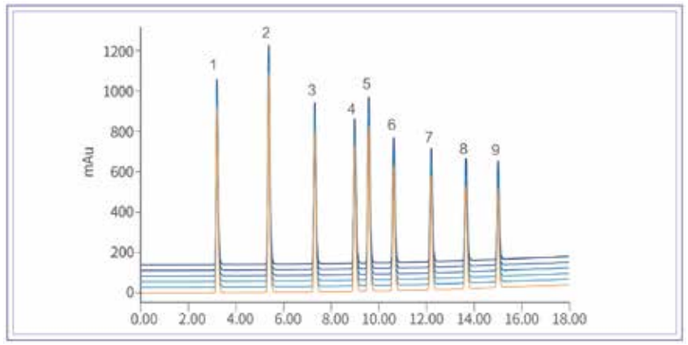
The special curve cam is used to drive the plunger to make the infusion more stable and lower pulsation.

High speed feedback and real-time control

Through real-time monitoring the pressure of the system, adjusting the motor speed, and equipped with special curve cam transmission, the infusion pulsation can be further reduced while ensuring the stability of flow.

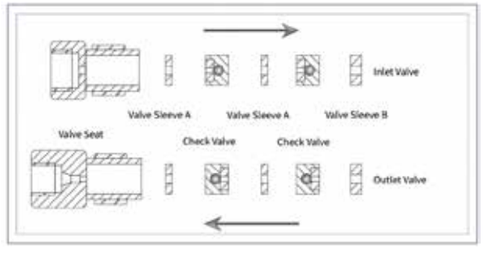


Excellent retention time reproducibility



Sample	Number	Sample	RT(min)	RT(%RSD)
Alkylphenol compounds (9 components)	1	acetanilide	3.220	0.03
	2	acetophenone	5.397	0.04
	3	phenylacetone	7.328	0.03
	4	phenylbutanone	9.006	0.02
	5	benzophenone	3.593	0.02
	6	phenylpentanone	10.642	0.02
	7	benzophenone	12.214	0.02
	8	phenylheptanone	13.679	0.02
	9	octyl benzene	15.026	0.02

Cascade inlet and outlet valve core design



The two-stage series valve core of the inlet and outlet valve ensures the stability of infusion and reduces the pulsation of the pump system.

Rich options and easy maintenance

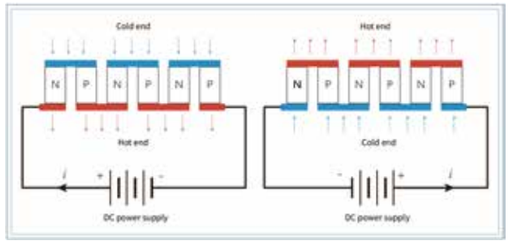


Pump seals, cleaning-device seals, check valves and plunger rods can all be replaced from the front of the pump for easy maintenance, while the built-in degasser and gradient unit keep the design compact and clean.

Column Oven

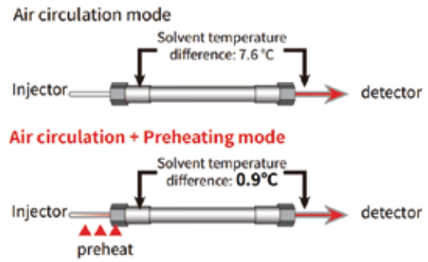
- Wider temperature control range: 1-90℃
- More flexible column management;
- The column temperature box adopts a Peltier temperature control unit and a specially designed preheating function to ensure sharp, symmetrical, and reproducible chromatographic peaks.

Peltier temperature control mode



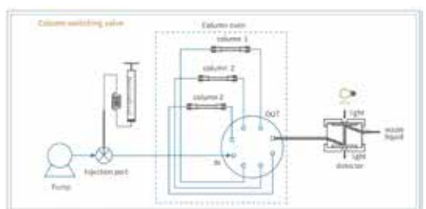
Capable of simultaneously heating and cooling, providing a wider temperature control range.

Mobile phase preheating function

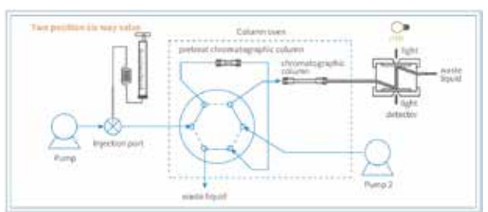


Preheated mobile phase and continuous oven air circulation keep the column temperature constant throughout the run.

Optional valve



Column switching valve: three chromatographic columns can be placed at the same time. Through the three column switching valve, the flexible switching between chromatographic columns can be realized, which is convenient for method development and column screening.



Two position six way valve: it can meet the experimental needs of a variety of chromatographic methods, such as online sample processing, online enrichment, two-dimensional chromatography, etc.

A Variety of Detectors with Excellent Performance

A variety of detectors can be selected to meet the different needs of users.

UV Detector

- High-Quality Optical Unit
- Optimized Optical Path Design
- Enhanced Sensitivity for Trace Analysis



DAD

- High quality optical units
- Optimized optical path design
- 1024 diode array
- Mechanical engraved grating



RI

- Shorter preheating time
- Adjustable flow cell temperature
- Outstanding sensitivity for carbohydrates



FL

- Ultra-high sensitivity
- Extra-long lamp service life
- Compatible with post-column photochemical derivatizer



System Core Specifications (Main Unit)

Module		HPLC-6000
System	Operating Temperature and Humidity Conditions	4–35°C, 20–85%
	Total System Delay Volume	<1200 µL
	Gradient Delay Volume	700 µL
	pH Range	2–12
	Max. System Operating Pressure	45 MPa / 62 MPa
	Flow Rate Range	0.001-10.000 mL/min
	Safety Alarm and Waste Management	Liquid leakage alarm, overpressure protection, centralized waste management
	Electrical Specifications	100–240 VAC, 50–60 Hz
Quaternary Gradient Pump	Solvent Channels	4 solvent channels
	Degassing	5-channel vacuum degasser
	Gradient Mixing Mode	Quaternary low-pressure gradient, high-frequency mixing mode (HFM)
	Check Valve	Double ball passive check valve
	Flow Rate Accuracy	≤±0.5%
	Flow Rate Precision	≤0.05% RSD
	Mixing Accuracy	≤±0.5%
	Mixing Precision	≤0.15% RSD
	Plunger Seal Wash	Automatic or independent automatic seal wash
	Purge Method	Manual purge, automatic purge (optional)
Autosampler	Injection Volume Range	0.1–100 µL, expandable to 1000 µL
	Sample Capacity	120 positions (standard), ANSI compatible trays × 2
	Sample Temperature Range	1℃ (RT-24°C) -45°C, or no temperature control
	Temperature Accuracy	±1°C
	Needle Wash	Automatic, single channel
	Injection Precision	<0.25% RSD
	Carryover	≤0.003%
	Injection Mode	Direct injection (Flow-Through Needle)
Column Oven	Column Capacity and Selection	30 cm × 3, switching valve (optional)
	Temperature Setting Range	1 °C-90 °C (1 °C step)
	Temperature Accuracy	±1°C
	Solvent Pre-heating Mode	Passive pre-heating
	Temperature Control Mode	Peltier + air circulation
Instrument Control	Control Software	Chromloong Software
	Communication	Ethernet
	Maintenance Software	Independent maintenance software
	Input/Output	Trigger & Switch, time event, error event, etc.

Core Specifications Comparison of Compatible Detectors

Module		HPLC-6000
UV 6410A UV Detector	Optical / Detection Mode	Dual-beam mode
	Wavelength Range	190–700 nm
	Wavelength Accuracy	±1 nm
	Max. Sampling Rate	100 Hz
	Noise	≤0.25×10^{-5} AU
	Drift	≤0.8×10^{-4} AU/h
	Signal Range	0-2.5 AU
	Acquisition / Operation Mode	Single wavelength, dual wavelength
	Flow Cell	10mm optical path (standard), 1.0 MPa
	Calibration	Automatic, mercury lamp calibration
DAD 6430A Diode Array Detector	Optical / Detection Mode	Diode array (1024 elements)
	Light Source	Deuterium lamp, tungsten lamp, mercury lamp
	Wavelength Range	190–900 nm
	Wavelength Accuracy	±1 nm
	Max. Sampling Rate	160 Hz
	Noise	≤0.5×10^{-5} AU
	Drift	≤0.4×10^{-3} AU/h
	Slit / Bandwidth	1 nm / 2 nm / 4 nm, auto-switching
	Flow Cell	10mm optical path (standard)
	Calibration	Automatic, mercury lamp calibration
FLD 6440 Fluorescence Detector	Optical / Detection Mode	Fluorescence detection
	Light Source	Xenon lamp, Mercury lamp (for calibration)
	Wavelength Range	Excitation: 200–850 nm / Emission: 250–900 nm
	Wavelength Accuracy	±0.5 nm
	Max. Sampling Rate	20 Hz
	Noise	Raman S/N (water) > 900
	Acquisition / Operation Mode	Single wavelength, dual wavelength, scanning
	Slit / Bandwidth	15 nm or 30 nm (selectable)
	Flow Cell	12 µL, Max. 1.0 MPa (standard)
	Calibration	Automatic, mercury lamp calibration
RID 6450 Refractive Index Detector	Optical / Detection Mode	Refractive index
	Light Source	Tungsten lamp
	Refractive Index Range	1.00–1.75
	Max. Sampling Rate	20 Hz
	Noise	<2.5 nRIU
	Drift	<0.2 µRIU
	Flow Cell	8 µL, Max. 0.2 MPa
	Temperature Control Range	RT+5°C to 50°C
	Max. Allowable Flow Rate	10 mL/min
	Calibration	Automatic, mercury lamp calibration

@V.27 We reserve the right to change specifications without prior notice.

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