Waters™

Alliance iS HPLC System

The Alliance™ iS HPLC System supports FTQ (first-time quality) by reducing the risk of common errors and improving the reliability of analytical measurements. Your lab can reduce reagents and consumables waste, and automated system checks help to meet critical error reduction KPIs. The increase in operational efficiency and productivity will save time and money and boost the capacity of your lab.*

With ease of use at the heart of the user experience, the Alliance iS HPLC System identifies potential errors earlier, reducing the number of retests and failure investigations. Available with either a PDA or TUV Detector, this system supports a Quality culture that results not only in safer products critical to human health and well-being, but also an improved working environment, directly impacting employee retention and motivation.*

**vs. the Alliance HPLC System.*

SYSTEM FEATURES

Dwell volume (total system)	≤1600 µL
Gradient delay volume	≤1100 µL
Integrated leak management	Leak sensors, as standard, and safe leak handling
Quantum synchronization	Injection synchronization between pump and injector enhances retention time reproducibility
Operating flow rate range	0.001 to 10.000 mL/min, in 0.001-mL increments
Maximum operating range	12,000 psi up to 5.000 mL/min, linearly decreasing to 4000 psi at 10 mL/min
pH range†	1 to 13
Unattended operation	Leak sensors and safe leak handling, full 96-hour diagnostic data display through console software
Cycle time	≤60 s inject-to-inject

QUATERNARY SOLVENT MANAGER

Solvent capacity	Blend up to four solvents in any combination
Solvent conditioning	Integrated vacuum degassing, four chambers
Gradient formation	Low-pressure mixing, quaternary gradient
Gradient profiles	11 gradient curves [including linear, step (2), concave (4), and convex (4)]
Check valves	Passive check valves

Flow accuracy†	±1.0% from 0.2 to 5.0 mL/min
Flow precision†	≤0.01 min SD, for retention times <20.00 minutes; ≤0.05% RSD, for retention times ≥20.00 minutes based on six replicates
Composition ripple†	≤0.5 mAU over a 10-s window
Composition accuracy†	±0.5% absolute (full scale) from 5 to 95%; 0.5 to 5.0 mL/min
Composition precision†	≤0.04 min SD, for retention times <26.667 minutes; ≤0.15% RSD, for retention times ≥26.667 minutes based on six replicate injections
Compressibility compensation	Automatic and continuous
Priming	Wet priming can run at flow rates up to 10 mL/min
Pump seal wash	Standard
Primary wetted materials	316L stainless steel, PPS, fluoropolymer, UHMWPE blend, sapphire, ruby, zirconia, DLC, PEEK and PEEK blend, titanium alloy

SAMPLE MANAGER-FTN

Injection volume range	0.1 to 100.0 µL as standard
Sample capacity	1,152 (3x 384-well plate) or 174 (2-mL vials)
Any three of the following:	48-position, 2.00-mL vial holder 54-position, 2.00-mL vial holder 96-well plate 384-well plate 48-position, 0.65-mL micro-centrifuge tube plate 24-position, 1.50-mL micro-centrifuge plate
Sample compartment temp.	4.0–40.0 °C, settable in 0.1 °C increments
Temperature accuracy	±0.5 °C at the sensor
Temperature stability	±1.0 °C at the sensor
Injection needle wash	Integral, active, and programmable
Minimum sample required	3 µL residual, using total recovery 2-mL vials
Accuracy (aspiration)	±0.2 µL
Linearity†	≥0.999 R^2, for all injection volumes between 2% and 100% of the maximum injection volume supported by the system configuration
Precision†	≤0.25% RSD from 5.0 to 50 µL
Sample carryover	≤0.002% caffeine
Primary wetted materials	316L stainless steel, gold plated stainless steel, polyimide, PEEK blend, DLC, MP35N

COLUMN HEATER/COOLER

Column capacity	Single column, up to 8.0 mm I.D.; up to 300 mm length with filter or guard column
Column compartment temp.	4.0 (or 15.0 °C below ambient, whichever is greater) to 90.0 °C, settable in 0.1 °C increments
Temperature accuracy	±0.5 °C at the sensor
Temperature stability	±1 °C at the sensor
Solvent conditioning	Passive pre-heating
Column tracking	eConnect™ Technology tracks column usage and history

TUV DETECTOR

Performance Specifications:[1,2]	
Wavelength range	190 to 700 nm
Bandwidth	<5 nm
Wavelength accuracy	±1.0 nm (via Erbium filter)
Wavelength repeatability	±0.1 nm
Linearity and Dynamic range	r^2 ≥0.999 from 0.0001 to 2 AU, ≤5% deviation up to 2.5 AU
Baseline noise (dry), single wavelength	<5 µAU
Baseline noise (dry), dual wavelength	≤35 µAU
Baseline drift (dry)	≤100 µAU/hour
Thermal drift	≤100 µAU/C
Sampling rate	1, 2, 5, 10, 20, 40, 80, 160 Hz (single channel) 1, 2 Hz (dual channel)

Optical Component Specifications:	
Light source	Deuterium arc lamp, warranty 2000 hours or one year (whichever comes first)
Flow cell design	TaperSlit™ Flow Cell
Path length	10 mm (analytical cell)
Cell volume	16.3 µL (analytical cell)
Pressure limit	1000 psi (analytical cell)
Wetted materials	316 Stainless Steel, Fluoropolymer, fused silica, PEEK

PDA DETECTOR*

Performance Specifications:[1,2]

Wavelength range	190 to 800 nm
Wavelength accuracy	±1 nm (via patented Erbium filter)
Wavelength repeatability	±0.1 nm
Linearity and Dynamic range	r^2 ≥0.999 from 0.0001 to 2 AU, ≤5% deviation up to 2.5 AU
Baseline noise (dry)	≤10 µAU
Baseline drift (dry)	≤1000 µAU/hr
Sampling rate	1, 2, 5, 10, 20, 40, 80, 160 Hz
Digital resolution	Settable from 1–20 nm
Photodiodes	512
Thermal drift	≤150 µAU/° C
Effective resolution	1.0-4.4 nm based upon settable slit width

** Specifications subject to change*

Optical Component Specifications:

Light source	Deuterium arc lamp, warranty 2000 hours or one year (whichever comes first)
Flow cell design	TaperSlit™ Flow Cell
Path length	10 mm (analytical cell)
Cell volume	8.4 µL (analytical cell)
Pressure limit	1000 psi (analytical cell)
Wetted materials 316 Stainless	316 stainless steel, fluoropolymer, fused silica, PEEK, PTFE

INSTRUMENT CONTROL

Informatics compatibility	Empower™ Chromatography Data System (CDS) (Feature Release 4 with Windows™ 10 Operating System and later)
Communications	Ethernet
Event input/output	Contact closure output

ENVIRONMENTAL SPECIFICATIONS

Acoustic noise [total system]	≤55 dBA
Operating temperature range	4.0 to 40.0 °C
Operating humidity range	20% to 80%, non-condensing

ELECTRICAL SPECIFICATIONS

Power requirements	100 to 240 VAC
Line frequency	50 to 60 Hz
Power consumption	775 VA

PHYSICAL SPECIFICATIONS

Width:	49.9 cm (19.64 in.)
Height:	71.5 cm (28.13 in.)
Depth:	63.5 cm (24.99 in.)
Weight:	72.5 kg (160.0 lbs.)

† *For specific test conditions, contact your Waters sales representative.*

References)

1. All performance specifications are measured following a warm-up period of one hour. Ambient ΔT ≤±2.0 °C
2. ASTM E1657-98, unless otherwise specified

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