

Alliance iS Bio HPLC System

The Alliance™ iS Bio HPLC System is for applications that ensure uninterrupted supply of safe and effective biotherapeutics. The flow path is designed using biocompatible materials like MP35N and titanium, along with MaxPeak™ High Performance Surfaces (HPS) Technology solutions, ensuring resilient and durable performance for even the most challenging biopharmaceutical applications.

The instrument intelligently performs a series of automated checks before starting sample analysis, assuring users that the analysis will be completed successfully. The checks that the system performs reduce common errors by up to 40%. To ensure results are right the first time, a unique set of features within Empower™ Chromatography Data System (CDS) is unlocked for the Alliance iS Bio HPLC System.

SYSTEM FEATURES

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|-----------------------------|--|
| 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 | 10,000 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 | ≤30 seconds inject-to-inject |

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

QUATERNARY SOLVENT MANAGER (QSM)

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|----------------------|--|
| Solvent capacity | Blend up to four solvents in any combination (standard) |
| 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* | ≤0.04 min SD, for retention times <26.667 minutes ≤0.15% RSD, for retention times >26.667 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 | PPS, fluoropolymer, UHMWPE blend, sapphire, ruby, zirconia, DLC, PEEK and PEEK blend, titanium, MP35N, Inconel 600, fused silica |

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

COMBINED CONDUCTIVE HEATER AND COOLER

| | |
|--------------------------|--|
| Column capacity | Single column, up to 8.0 mm I.D.; up to 300 mm length with filter or guard column up to 30 mm |
| 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 enables tracking column usage history |

TUV DETECTOR^{1,3}

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|---|--|
| Wavelength range | 190 to 700 nm |
| Bandwidth | <5 nm |
| Wavelength accuracy | ±1.0 nm (via patented ² Erbium filter) |
| Wavelength repeatability | ±0.1 nm |
| Linearity and dynamic range | $r^2 \geq 0.999$ 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 |
| Drift | ≤100 µAU/hour |
| Thermal drift | ≤100 µAU/C |
| Sampling rate | 1, 2, 5, 10, 40, 80, 160 Hz (single channel) 1, 2 Hz (dual channel) |



TUV OPTICAL COMPONENT SPECIFICATIONS:

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|------------------|---|
| 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 | Fluoropolymer, fused silica, PEEK |

INSTRUMENT CONTROL

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|---------------------------|---|
| Informatics compatibility | Empower Chromatography Data System (CDS) (FR4 with Windows® 10 Operating System and later) |
| Communications | Ethernet |
| Event input/output | Contact closure and/or TTL input/output |

ENVIRONMENTAL SPECIFICATIONS

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|-------------------------------|--------------------------------|
| Acoustic noise [total system] | ≤55 dBA |
| Operating temperature range | 4.0°C to 40.0°C (39 to 104 °F) |
| Operating humidity range | 20% to 80% RH, non-condensing |

ELECTRICAL SPECIFICATIONS

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

PHYSICAL SPECIFICATIONS

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|--------|----------------------|
| Width: | 49.9 cm (19.64 in.) |
| Height | 74.2 cm (29.23 in.) |
| Depth | 63.5 cm (24.99 in.) |
| Weight | 72.5 kg (160.0 lbs.) |



References:

1. All performance specifications are measured following a warm-up period of one hour. Ambient $\Delta T \leq \pm 2.0$ °C
2. U.S. Patent Numbers: 6,423,249 and 6,783,705
3. ASTM E1657-98, unless otherwise specified

Waters™

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