ALLIANCE HPLC HIGH THROUGHPUT SYSTEM

PRODUCTIVITY. PRECISION. RELIABILITY.

Today’s pharmaceutical laboratories are charged with moving thousands of samples through drug discovery screening processes, all while maximizing return on investment in both time and resources. You depend on automation to increase sample throughput and handle any sample format – tubes, vials, and/or well plates – all while meeting the need to produce reliable results and identify leads. Waters understands that when your lab is operating around the clock, keeping up with throughput demand means every second in your system’s analysis time counts.

The Waters® Alliance® HPLC High Throughput (HT) System with integrated and automated sample and solvent management is optimized for high efficiency separations, allowing valuable seconds to be saved from each step of the chromatography process. The Alliance HPLC HT System is specifically designed to improve the productivity of labs that require the selectivity and sensitivity of LC/MS to produce high quality data.

The Alliance HPLC HT System features:

- Flexible modes of LC operation (sequential and parallel)
- Sample format versatility – plates, tubes, or vials
- Automated SystemPREP routine for rapid unattended system equilibration
- Purge-wash-purge capability for minimal sample carryover

The highly reproducible flow rates generated by the Alliance HPLC HT System make it ideally suited for coupling with mass spectrometers, such as the Waters 3100 Mass Detector.
DESIGNED WITH EFFICIENCY IN MIND

From sample prep, analysis, sensitivity, and quantitation hurdles, to uptime, compliance maintenance, and support concerns, your Alliance HPLC HT System will allow you to meet these challenges and achieve the best performance and productivity for your laboratory’s requirements.

Choice of sample processing modes

Its integrated software and hardware design offers you the choice of traditional sequential mode or parallel processing. Parallel sample processing can reduce cycle time by performing multiple chromatographic and system operations simultaneously. While one sample is running, the next sample aspirates and loads; it is immediately injected once the previous sample run is complete. This accelerated injection-to-injection process greatly reduces cycle time, and allows more samples to be analyzed in less time.

Environmental control and sample stability

Controlling the environmental conditions of samples is accomplished with a Peltier-based heating and cooling module, which promotes sample stability, minimizes evaporation, and stabilizes labile samples. The factory-installed sample heater/cooler option maintains temperatures from 4 to 40 °C.

Auto-process up to 1536 samples

The robotics-based three-axis (X, Y, Z) sample manager provides expanded sample capacity for processing up to 1536 samples configured in four plates. The instrument stores pre-programmed coordinates for standard microtiter plates, or lets you input custom coordinates. To prevent needle damage and allow for minimal sample volumes, a sensing routine determines the well or vial bottom. And with rapid, automated initialization, system start-up is quick and easy.
Dual solvent wash

The Alliance HPLC HT System utilizes two solvents to purge, wash, and re-purge the needle assembly, loop, and injection port. This reduces the risk of sample carryover and assures assay integrity – critical for ADME and metabolite research – making it ideal for high-sensitivity LC/MS/MS.

No tools are necessary

Primary components, such as seals and pistons, can be maintained by hand.

Robust solvent management

The solvent management system blends up to four chromatographic solvents in precise proportions for smooth, pulse-free solvent flow delivery. This ensures that over multiple runs, your results are precise time after time. The PerformancePLUS™ In-line Degasser efficiently removes gases from the chromatographic solvents. A fifth chamber in the degasser handles purge solvent used in the sample management system.

Automated valve switching

Change column methods, run multiple methods, or perform unattended methods development with automated valve switching, for up to three or six columns. Columns can be heated or cooled in a Peltier-based forced air recirculation oven.
MAKING EVERY SECOND COUNT

From sample processing to solvent management, the Alliance HPLC HT System has been designed to provide significant time savings by enabling greater throughput along each step in your separation cycle. Key to this feature is being able to choose how you run your samples. You can maximize throughput while maintaining control of your chromatographic separations. You can select among three processing options:

- **Sequential** – Same as a traditional chromatography separation cycle — each function occurs in a step-by-step sequence.

- **Parallel** – Parallel processing offers an advantage over traditional (sequential) chromatography cycle times by performing chromatographic operations in parallel. Parallel processing maximizes throughput by minimizing cycle time. While one sample is running, a second sample can be drawn and injected immediately after the preceding injection is complete.

- **Parallel with rapid equilibration** – The system provides for rapid equilibration by switching the column off-line, purging the system at a high flow rate, and then loading the next sample during column re-equilibration. By using parallel processing with rapid equilibration, you can significantly increase throughput for some applications.

Further processing improvements can be achieved by alternating the offline column regeneration. The use of two columns with the system and a special regeneration valve, while incorporating parallel sampling allows for continuous data collection with no need for additional re-equilibration time.
INTEGRATED FLUIDICS FOR CONSISTENT PERFORMANCE AND ENHANCED REPRODUCIBILITY

The Waters e2795 Separations Module is the core of the system. Its integrated solvent management and sample management provides consistent performance and enhanced reproducibility for high-quality, high-throughput analysis for HPLC, LC/MS, or flow injection-mass spectrometry applications.

Solvent management

The simplified design of the e2795 Solvent Manager enables the blending and delivering of solvents in a pulse-free, low-dispersion flow path.

In addition, Synchronized Composition Control™ (SCC™) of the gradient proportioning valve (GPV) ensures that the e2795 Separations Module delivers excellent gradient composition accuracy and precision.

The overall design results in reduced complexity and enhanced overall ruggedness across a flow range that covers two orders of magnitude.

Sample management

The design of the e2795 Sample Manager ensures precise sampling – delivering predictable peak areas, and thus more consistent results. Complimenting the simplified design of the solvent flow path, a user programmable needle wash, and selectable “purge-wash-purge” cycle, ensures that any part of the system exposed to sample is fully washed, virtually eliminating the risk of sample carryover.

The inherent versatility of the three-axis (X, Y, Z) needle assembly of the e2795 Sample Manager allows for greater applications flexibility. The sample manager has a wide range of sample loops, holding loops, and syringe sizes available and can process samples from a variety of plates, vials, and/or tubes. This variety allows you to customize the configuration of the sample manager according to the needs of your applications.

Automated system start-up

The Alliance HPLC HT System features SystemPREP – a programmable, automated system preparation routine for fast, one-touch, walk-up operation. The SystemPREP function performs a series of automated steps, putting the separations module in a condition of complete system readiness for running samples. SystemPREP is useful when you are changing solvents or after extended periods of system inactivity and is a simple-to-use alternative to running the individual functions of Wet Prime, Purge Injector, Equilibrate, and Condition Column.
DO MORE WITH YOUR RESULTS

Waters software solutions enable you to capitalize on the results generated by your system. The Waters Laboratory Informatics Suite includes proven information management solutions that integrate all your lab resources in a consistent, scalable, and seamless application environment.

**Empower Software** provides control of the system, including data acquisition, management, processing, and reporting, all in the market-leading chromatography data software (CDS) platform. Empower Software is scalable from a single workstation to an enterprise-wide CDS solution, and offers advanced features for method development, reporting, and custom calculations, as well as Enterprise Options for advanced data management and automated method validation management.

**MassLynx Software**, for advanced mass spectrometry applications, enables researchers to acquire, analyze, manage, and distribute information. MassLynx Software offers flexible control over complex instrument configurations, and Application Managers that are tailored for specific LC/MS analyses.

**NuGenesis® SDMS** is a customizable scientific information management platform that automatically captures and stores data in a centralized data warehouse. SDMS makes information easier to access, facilitates regulatory compliance, and aids in the administration of intellectual property. SDMS converts scientific results into accessible and valuable corporate knowledge.

BE ASSURED. CHOOSE WATERS GLOBAL SERVICES.

With 94 offices in more than 50 countries, only the Waters Global Services team has the most in-depth and up-to-date knowledge of the advanced science and technologies that provide the foundation for Alliance HPLC Systems. Maximize system uptime, increase laboratory productivity, and meet stringent compliance requirements with the expertise and responsiveness you need.