

Waters

Ultra Performance LC™ System Solutions



For Complete & Confidence

Waters ACQUITY UPLC and nanoACQUITY UPLC Systems

Making more informed decisions in less time is a universal benefit in today's laboratory. Ultra Performance LC™ (UPLC™), a new category of separation science pioneered by Waters Corporation, will eliminate significant time and cost per sample from your analytical process—while improving the quality of your results.

Waters ACQUITY UPLC™
and nanoACQUITY UPLC™
systems use small particles,
very low system volumes,
and greater throughput to

The logo for Acquity Ultra Performance LC. The word "Acquity" is written in a large, blue, serif font. Below it, the words "Ultra Performance LC" are written in a smaller, blue, sans-serif font. A thin blue horizontal line is positioned between the two lines of text, with the letters of "Acquity" overlapping it.

detect more peaks in faster runs—adding significant value to our low dispersion, high-speed Waters detectors for successful UPLC, UPLC/MS, and UPLC/MS/MS analyses.

The systems incorporate innovative column chemistries, robust hardware, easy-to-use software, and specialized support services in a holistic solution that is designed to help you make the most of UPLC technology.

Together, Waters systems provide unprecedented improvements in speed, sensitivity, and quality of data.

Applications:

- Method development
- Complex sample analysis
- Qualitative and quantitative analysis
- Trace analysis
- QA/QC

Key Technologies:

- ACQUITY UPLC and nanoACQUITY UPLC systems
- Micromass[®] MS Technologies
- Empower[™] and MassLynx[™] software and Application Managers
- ACQUITY UPLC, nanoACQUITY UPLC, and XBridge[™] columns and chemistries
- Connections[®] INSIGHT[™] instrument diagnostics



ACQUITY UPLC System Detectors

Waters has a range of detectors to assist with analyzing a wide variety of compounds. Our ACQUITY UPLC Photodiode Array (PDA), Tunable UV (TUV), and Evaporative Light Scattering (ELS) detectors have been customized to enhance the detection capabilities of the ACQUITY UPLC System.

The PDA, TUV and ELS detectors are optimized for our advanced UPLC system technologies by virtue of their low dispersion characteristics, high data acquisition rates, and reliable performance with cost-effective maintenance support and parts.

By using Waters detectors and their accessories, such as multiple flow cells or nebulizers, scientists are able to obtain more information per run, fulfilling multiple detection strategy requirements. Each unit can be programmed and methods documented by robust lab automation software.

ACQUITY UPLC PDA Detector

The ACQUITY UPLC Photodiode Array (PDA) Detector offers sensitivity that is unmatched by any other photodiode array detector on the market.

With data rates up to 80 Hz and noise specifications as low as 10 μ AU, the ACQUITY UPLC PDA Detector provides unequalled trace impurity detection and quantification using maximum chromatographic sensitivity.



Waters ACQUITY UPLC Photodiode Array Detector.

ACQUITY UPLC TUV Detector

The ACQUITY UPLC Tunable UV (TUV) Detector is a tunable, dual-wavelength Ultraviolet/Visible (UV/Vis) detector specifically designed for use in the ACQUITY UPLC System.

Optimized for Ultra Performance LC, the TUV Detector's innovative light-guided flow cell, low-noise electronics, and support for data rates up to 80 Hz result in a detector that delivers the utmost in UPLC sensitivity.

The uniquely designed, light-guided flow cell incorporates Teflon[®] AF, an internally reflective surface, to improve light transmission efficiency by eliminating internal absorption. This design complements and maintains the significant advantages gained by the use of the ACQUITY UPLC fluidic technology.

***Waters ACQUITY
UPLC with TUV
Detector.***



ACQUITY UPLC ELS Detector

Adding a new dimension of performance and system versatility, the ACQUITY UPLC Evaporative Light Scattering (ELS) Detector has been designed for applications where compounds have poor to no UV/Vis response, such as sugars, triglycerides, phospholipids, antibiotics, and natural products.

To ensure dependable results, the ACQUITY UPLC ELS Detector has precise temperature control of the nebulization and desolvation processes. It is ideal for high throughput laboratories and open access environments.

The ELS Detector interfaces with the ACQUITY UPLC console for convenient instrument parameter access and control, and has a snap-in self-aligning lamp and nebulizer for optimized performance. It is controlled by Empower or MassLynx software.



Waters ACQUITY UPLC Evaporative Light Scattering Detector.

Waters Systems for UPLC/MS and UPLC/MS/MS Analysis

Complementing the ACQUITY UPLC and nanoACQUITY UPLC systems, the family of Waters Micromass MS Technologies mass spectrometers brings unprecedented gains in performance and quality of data. UPLC flow rates are optimized for Waters MS API interfaces, eliminating the need for flow splitting and making ACQUITY UPLC Systems an ideal inlet for single and tandem quadrupole and time-of-flight mass spectrometers.

Waters Micromass MS Technologies also includes easily configurable ionization and source capabilities for mass spectrometry that are designed to maximize instrument uptime and provide versatility for the analysis of a wide range of compound classes.

***Waters systems for UPLC/MS and UPLC/MS/MS
provide unsurpassed versatility for your laboratory's
qualitative and quantitative experiments.***

Applications:

- Pharmaceutical (Discovery, development, QA/QC)
- Chemical Analysis (Food safety, environmental, chemicals)
- Life Sciences (Proteomics)
- Clinical (Drugs of abuse, therapeutic drug monitoring, neonatal screening)

Key Technologies:

- ACQUITY UPLC and nanoACQUITY UPLC systems
- Micromass MS Technologies
- Wide range of detector options
- Informatics and software solutions
- Columns and chemistries
- Services and support



Qualitative UPLC/MS

Waters has designed a complete UPLC/MS-based system solution for qualitative analysis that meets the most rigorous requirements to confirm identities of known compounds, to rapidly identify unknowns, and to characterize complex sample components.

Our solution pairs the speed, sensitivity, and resolution of the Waters ACQUITY UPLC System with the exact mass capabilities of the Waters Micromass LCT Premier™ Mass Spectrometer. The instruments are complemented by advanced chemistries and specialized software application managers that capture, process, and store the resulting data. A comprehensive set of services and support ensures that your lab maintains the productivity made possible by your instrumentation.

***Waters ACQUITY UPLC System with LCT Premier
and MassLynx Software.***

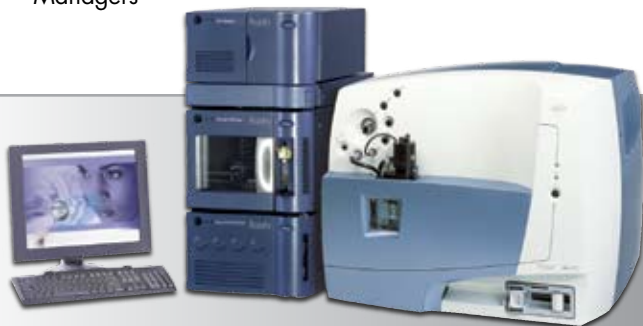
The result: a first-of-its-kind integrated system that provides high resolution, high sensitivity analyses and gives scientists complete confidence in their qualitative results.

Applications:

- Impurity profiling
- Trace analysis
- Degradation analysis
- Biomarker discovery

Key Technologies:

- ACQUITY UPLC System
- LCT Premier Mass Spectrometer
- Chromalynx™ and MarkerLynx™ db Application Managers



Quantitative UPLC/MS/MS

Matching the ACQUITY UPLC System with tandem mass spectrometry creates new possibilities for quantification and confirmation. From routine screening to trace monitoring; from pharmaceutical drug discovery, to environmental and clinical analyses; to general quantification tasks, Waters UPLC/MS/MS system solutions provide accurate, precise analysis and even higher throughput.

We combine complementary analytical and informatics technologies for a truly integrated quantitative analysis solution, including our ACQUITY UPLC system, Quattro family of MS/MS technologies, chemistries, software, and support services.

The result: an unparalleled suite of compliant-ready systems for high-throughput UPLC/MS/MS applications. Expect superior sensitivity, specificity, reproducibility and productivity—and maximum efficiency.

***Waters ACQUITY UPLC with Quattro Premier XE
Mass Spectrometer and MassLynx Software.***

Applications:

- Environmental and food safety analysis
- Pharmaceutical discovery and development
- Quantitative bioanalysis
- Clinical analysis

Key Technologies:

- ACQUITY UPLC System
- Quattro micro™ and Quattro Premier™ XE mass spectrometers
- QuanLynx™, Chromalynx, QuanOptimize™, and TargetLynx™ Application Managers
- Waters sample preparation solutions



Exact Mass UPLC/MS/MS

The detection and characterization of metabolites of candidate pharmaceuticals and endogenous biomarkers of disease and toxicity are essential parts of drug discovery and development.

Our UPLC/MS/MS solutions combine the benefits of the ACQUITY UPLC System with Waters Micromass MS Technologies for exact mass determination studies, providing an unrivalled platform for small molecule identification.

The high-quality information and increased data acquisition rates of the Q-ToF Premier™ makes it the primary choice for UPLC/MS/MS in applications such as metabonomics, metabolite identification and impurity identification.

The result: a new standard in the disciplines of metabolic profiling and structural identification, superior chromatographic separations, increased throughput and sensitivity, and easy processing with specialized data interpretation tools.

***Waters ACQUITY UPLC with Q-ToF Premier
Mass Spectrometer and MassLynx Software.***

Applications:

- Identification of toxicity markers
- Metabolic profiling
- Metabolite identification
- Impurity identification

Key Technologies:

- ACQUITY UPLC System
- Q-ToF Premier and Q-ToF micro™ Mass Spectrometers
- MarkerLynx db, ChromaLynx, and Metabolynx™ Application Managers



Exact Mass Nano-Scale UPLC/MS/MS

Proteomics is increasingly focused on elucidating disease mechanisms, drug target discovery, biomarker discovery, and targeted treatment solutions.

Waters' integrated nano-scale UPLC/MS/MS solutions deliver excellent retention time reproducibility and gradient formation performance that is essential for optimized proteomics applications. The unique combination of speed, sensitivity, dynamic range, resolution and mass accuracy of the nanoACQUITY UPLC/Q-ToF Premier platform makes it ideal for multiplexed quantitative and qualitative protein profiling.

The result: the high performance and reliability you need to maximize productivity in proteomics, including the most technologically advanced analyses with exact mass-powered nano-scale UPLC/MS/MS technology and application-specific software solutions.

Waters Multiplexed Protein Expression System features the Waters nanoACQUITY UPLC System, Q-ToF Premier Mass Spectrometer, MassLynx Software, Protein Expression Informatics and optimized chemistries.

Applications:

- Label-free quantitative proteomics/biomarker discovery
- Protein separations, identification, and characterization
- Ultra-sensitive post-translational modification (PTM) analysis
- Exact mass protein interaction analysis

Key Technologies:

- nanoACQUITY UPLC System
- Q-ToF Premier Mass Spectrometer
- Q-ToF micro Mass Spectrometer
- ProteinLynx™ Global SERVER 2.2 Bio-Informatics Software
- Specialized reagents and chemistries

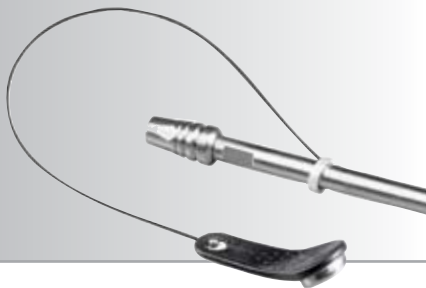


ACQUITY UPLC Columns

ACQUITY UPLC columns utilize highly efficient, pressure-tolerant 1.7 μm particles with unique and innovative bonding chemistries that provide column performance that surpasses current HPLC column technology.

The ACQUITY UPLC BEH columns feature:

- Patented BEH Technology™ that combines the efficiencies of silica-based materials with the pH resistance more common to polymer packing materials
- Four complementary column chemistries (C₁₈, C₈, Shield RP₁₈ and Phenyl) for faster and easier method development
- Choices of 50, 100, and 150 mm column lengths and 1.0 and 2.1 mm internal diameters for optimizing speed, sensitivity, and resolution
- A wide pH range (pH 1-12) for long, predictable column lifetimes under virtually any conditions



nanoACQUITY UPLC Columns

Waters nanoACQUITY UPLC columns are manufactured to exacting specifications and provide unmatched peak symmetry for maximum performance, sensitivity and accurate quantitation. Superior column longevity is obtained by using a novel frit technology that minimizes disturbance of the packed bed throughout the life of the column. nanoACQUITY columns are available in various chemistries, column configurations, and nonstainless steel connection hardware.

Easy Method Transfer from HPLC to UPLC

BEH Technology expands to HPLC and preparative chromatography with XBridge HPLC column particle sizes. XBridge columns allow for easy HPLC-to-UPLC method transfer and UPLC-to-preparative chromatography scale-up. XBridge columns are available with four particle sizes (2.5 μm , 3.5 μm , 5 μm and 10 μm^*), each with four chemistries (C_{18} , C_8 , Shield RP_{18} , and Phenyl) in 350 column dimension choices.

***The ACQUITY UPLC Column comes with eCord™
technology that records column history.***



**XBridge 10 μm particle size available early 2006*

Waters Laboratory Informatics

Waters software products help you convert the scientific information generated by the ACQUITY UPLC and nanoACQUITY UPLC systems into valuable knowledge. With the Waters Laboratory Informatics suite at the core of your lab, you bring together all of the information management solutions needed to compile, analyze, find, share and store your data for faster and more effective decision-making.

- Empower Software for chromatography data
- MassLynx Software and specialized Application Managers for mass spectrometry data
- eLab Notebook™ Software for accessing all data and programs through a single, electronic notebook
- NuGenesis® SDMS Software for enterprise-wide scientific data management
- Analytical Workflow Manager Software

Waters Global Services

The Waters Global Services organization delivers proven services designed to ensure our customers' success with Waters UPLC technology throughout the product lifecycle. We offer a variety of programs that can optimize your entire laboratory and information management processes.

With 94 offices in more than 50 countries, our localized customer service teams offer highly skilled and experienced professionals whose mission is to provide you with the level of expertise and responsiveness that you need. We offer:

- Service plans and warranties
- GxP regulatory compliance options
- Education and training
- Technical support
- Connections INSIGHT instrument diagnostics

Visit www.waters.com/education to learn more about ACQUITY UPLC System training courses.

Instrument Diagnostics for ACQUITY UPLC Systems

Connections INSIGHT is revolutionizing the way instruments are serviced, by using Intelligent Device Management technology to provide diagnostic information for the ACQUITY UPLC and nanoACQUITY UPLC systems.

Connections INSIGHT creates a virtual technical support presence in your lab, enabling Waters to provide you with proactive and timely service, with the highest level of support and satisfaction.

Connections INSIGHT can help you:

- Maximize system uptime and productivity through proactive maintenance scheduling
- Gain confidence in the accuracy and quality of results
- Improve Mean Time to Repair (MTTR) through automated notification of potential performance issues
- Better monitor the usage of system components



Waters Service Plans

Our Total Assurance Plan is a uniquely integrated service and support offering that extends the complimentary coverage on your Waters ACQUITY and nanoACQUITY UPLC systems.

All for one economical price, this comprehensive plan is designed to extend the life of your system, eliminate the risk of excessive repair expenses, reduce downtime, and keep your lab running at peak capacity. Plan Benefits:

- Annual Performance Maintenance (PM) Visit
- Full coverage of electrical and mechanical assemblies and normal wear-and-tear items
- Priority service response
- All firmware updates
- Discount on hardware upgrades
- Connections INSIGHT instrument diagnostics

Sales Offices:

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Acquity
Ultra Performance LC™

Waters, Ultra Performance LC, UPLC, ACQUITY UPLC, nanoACQUITY UPLC, Atlantis, BEH Technology, Chromalynx, Connections, Connections INSIGHT, eCord, eLab Notebook, Empower, GCT, LCT Premier, MALDI micro MX, Markerlynx, Masslynx, Metabolynx, Micromass, NanoEase, NuGenesis, Proteinlynx, Q-ToF micro, Q-ToF Premier, Quanlynx, QuanOptimize, Quattro micro, Quattro Premier, XBridge, RapiGest, Symmetry, Targetlynx, and Waters Quality Parts are trademarks of Waters Corporation. Teflon AF is a trademark of DuPont.

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