

Waters™

Purification Product Guide

Scalable and robust workflow solutions

Scalability. Robustness. Productivity.

To effectively turn your everyday challenges into competitive advantages, accept no substitutions for Waters™ Purification system solutions. Because only Waters workflow solutions are scalable and robust to streamline the entire process. Waters offers a wide range of purification solutions, including UV-and MS-directed LC and SFC purifications, at analytical, semi-preparative, and preparative scales. Please visit waters.com/prep to find the right system and consumables for your lab.



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LC Prep Product Portfolio Overview

Waters provides a wide range of UV-based and MS-based purification solutions, including analytical scale, semi-preparative, and preparative scales, to meet diverse application needs across various industries.

Waters Analytical Scale Purification System



Bring your analytical scale purification to the next level

- Achieve faster chromatography with improved resolution and sensitivity by enabling the use of sub-5-µm particle-size preparative columns
- Easier and predictable scale-up from UPLC™ (sub-2-µm column) methods
- Reduce lab operating costs by decreasing organic solvent usage and waste disposal fees
- High-capacity sample processing and fraction collection at smaller purification scales
- Accurate detection of various small and large molecule compounds, both small and large molecules (*e.g.*, peptides, oligos, and lipids)

LC Prep Autopurification System



Purify your compounds with confidence

- Unique dual flow path for analytical to preparative scale on the same platform
- Advanced and flexible solution for complex purification needs
- High throughput
- UV- and mass spec-directed fraction collection

LC Prep 150 System



A versatile system to suit your purification requirements

- Most simplified prep system
- Analytical to preparative scale
- A simple solution ideal for simple purification needs
- Low to medium throughput
- UV-directed fraction collection

LC Prep Modular Systems



Flexible purification solutions to meet your lab requirements

- Analytical to preparative scale
- Various detection, injection methods and solvent delivery managers to achieve the functionality and capacity required
- Low to medium throughput
- UV-directed fraction collection



Waters Analytical Scale Purification System with the PDA, ACQUITY™ QDa™ II, and ELS Detectors.

Waters Analytical Scale Purification System

The Waters Analytical Scale Purification System is a fully automated purification solution designed for purification labs that require more efficient purification solutions at smaller scales. It offers high-capacity sample processing, fraction collection, and high pressure capabilities, enabling the usage of sub-5-µm particle-size preparative columns for faster chromatography with improved resolution and sensitivity. The system delivers more predictable outcomes with easier scaling up from UPLC (sub-2-µm column methods), therefore it reduces lab operating costs by decreasing organic solvent usage, waste disposal and dry-down time.

Key Technologies

- Achieve faster chromatography with improved resolution and sensitivity
  - Flow rate ranges up to 10 mL/min
  - High-pressure capabilities up to 9500 psi
- High-capacity sample processing and fraction collection at smaller scales using the Waters 3767 Sample Manager (Injector/Collector)
  - Fraction capacity: 12x96 microtiter plates, 448 test tubes, and 576 vials
  - Injection volume: 20 µL to 25 mL
  - Injection-to-injection cycle times of less than 60 seconds
- Achieve predictable scale-up and confidence in recovery with the CM-30S Column Manager, which is designed for multicolumn heating and switching, ensuring consistent temperature control across the columns and directly scaling up the analytical method
  - Temperature range: 20–90 °C
  - Up to 10-mm ID by 300-mm columns
- Accurate detection of various compounds, both small and large molecules, e.g., peptides, oligos, and lipids
  - Compatible with UV, MS, and ELS detectors
- Benefit from an integrated offering of industry-leading chemistry and software solutions
  - Waters Optimum Bed Density (OBD™) Preparative Columns ensure consistency in column-to-column performance and increase the overall productivity of the purification workflow. In addition, the new MaxPeak™ Premier OBD Preparative Columns featuring MaxPeak High Performance Surfaces (HPS) Technology, an inert hardware, help achieve predictable scale-up for challenging molecular targets prone to interactions.
  - MassLynx™ Software with FractionLynx user-friendly console and software features simplify and automate the purification analysis, while OpenLynx Open Access Application Manager provides walk-up accessibility



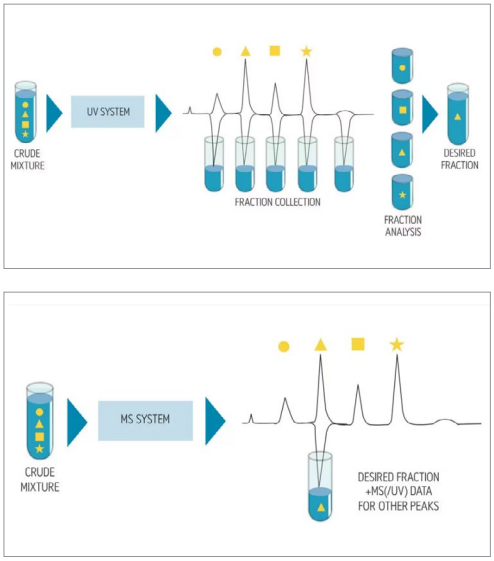
AutoPurification Mass-Directed HPLC System.

LC Prep Autopurification System

Waters advanced AutoPurification HPLC System offers robust, scalable solutions for every purification requirement.
The flexible, expandable platform grows with your lab's needs – from UV-based fraction collection of a few dozen samples to mass-directed purification when your workflow demands high-throughput runs for selective fraction collection of hundreds of samples.

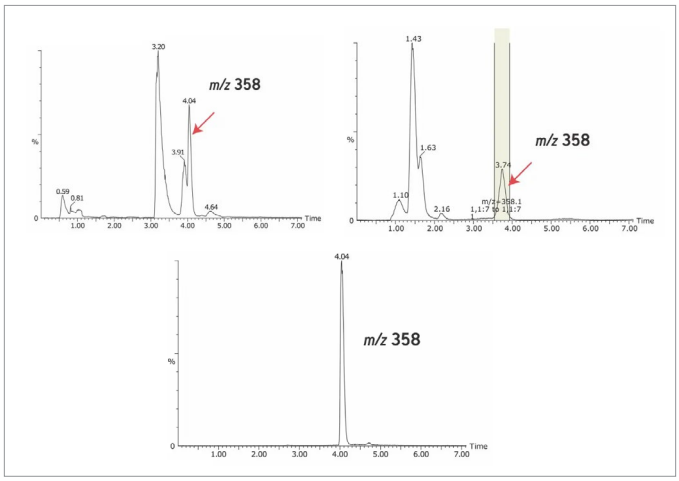
Key Technologies

- Streamline your purification process with versatile Waters solutions that can purify microgram to multigram quantities
- Automatically process hundreds of samples, or just a few, with configurable UV/Vis or MS-directed detection options



(Top) When fraction collection is based on UV absorbance, multiple fractions may result, requiring further analysis to determine the fraction of interest. (Bottom) When fraction collection is triggered by mass detection, fewer fractions result since you collect only the peak containing the mass of interest.

- A choice of the ACQUITY QDa II Mass Detector or the SQ Detector 2 Mass Spectrometer is designed for everyday mass-directed purification which enables the selectivity required to maximize throughput and efficiency
- Provide full-cycle automation for purification from evaluating and setting collection thresholds, to collection of the detected fractions, to tracking the samples and fractions, to presentation of the data in an easy-to-view format with FractionLynx Application Manager
- Manage solvents and samples more easily, whether you do manual or automated injections, with user-friendly console and software features
- Easily manage column selection and column regeneration with the System Fluidics Organizer



(Top left) Identification of the analytical-scale analysis of a crude compound indicates partial separation between the compounds. (Top right) Successful separation was achieved using a focused gradient; fraction collection is indicated by the shaded area. (Bottom) TIC chromatogram of the analysis of the collected fraction indicates a successful purification.



Purification System featuring Waters 2545 Quaternary Gradient Module, 2489 UV/Vis Detector, Waters Fraction Collector IV (WFC IV), and 2707 Autosampler.

LC Prep Modular Purification Systems

The LC Prep modular purification systems provide flexible solutions for your lab requirements. With Waters analytical to semi-preparative purification solutions, you can effectively purify a limited number of samples without the advanced features of a full preparative system. Waters modular systems are ideal for purifying micrograms to milligrams of your compounds by configuring the ideal system with various detections, injection methods and solvent delivery managers to achieve the functionality and capacity your application requires.

Key Technologies

- With either manual or automated injection capability, system configurations can vary by throughput and scale requirements
- Flexible solvent delivery capabilities with flow rates up to 300 mL/min
- Flexible collection formats designed for use in both small-scale and large-scale work environments. For instance, collect everything with time slicing or specific segments of the run on a time basis, eluent between triggered fractions, or detector triggers based on threshold, slope, or slope and threshold.
- User-friendly console and software features help you manage solvents and samples, whether you do manual or automated injections



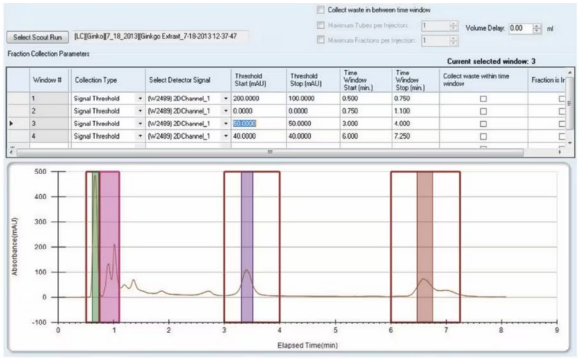
LC Prep 150 System featuring 2545 Binary Gradient Manager, 2998 PDA Detector, Prep Injector Module, and WFC IV.

LC Prep 150 System

The LC Prep 150 System is the ideal solution for scientists in need of robust system performance and intuitive software for dedicated personal purification or quick adoption in centralized labs. It's a fit-for-purpose solution designed for workflows requiring rapid separations of complex mixtures and delivers high purity and recovery with complete confidence. Versatile systems satisfy low throughput requirement of only a handful of samples to higher throughput needs with unattended operation. Tailored systems controlled by intuitive easy-to-navigate software suit your purification scale requirement from milligrams to grams.

Key Technologies

- ChromScope™ Software provides simplistic system control with robust functionality designed with helpful tools to increase efficiency
- Flexible solvent delivery systems provide gradient mixing, large sample volume loading, and flow rates up to 150 mL/min
- Manual or automated injectors satisfy workflow and throughput requirements
- Analytical to preparative scalability are available to accommodate your laboratory purification needs
- UV-directed fraction collection



Robust ChromScope Software featuring collection method development allows you to simulate and optimize fraction collection parameters without using valuable samples.

SFC Prep Product Portfolio Overview

Waters scalable, environmentally friendly systems satisfy the most challenging purification needs while minimizing costs.

SFC Prep 150 AP System



Designed for automated UV and/or MS-triggered purification

- Provide automated sample handling, column switching, fraction collection and tracking for fast separations, high resolution and high throughput
- Support a robust, efficient, and cost-effective open access

SFC Prep 150 MGM System



A greener approach to high-throughput purification

- Ideally designed for high-throughput, semi-prep to preparative scale purifications made for repeat injection
- Easily operate at higher flow rates than traditional HPLC without significant increase in back pressure
- High speed SFC purification and improved resolution of compounds for higher purity isolations
- Reduce normal-phase solvent usage and disposal to make your lab greener

SFC Prep 350 System



Rugged, simple, and productive bulk-scale SFC purification

- Ideally suited for large compound campaigns
- Modified stream injection improves sample loading without peak distortion caused by strong solvent effects
- Stacked injection capability improves isocratic purification productivity



SFC Prep 150 AP System with ACQUITY QDa II Detector.

SFC Prep 150 AP System

Bringing increased efficiencies and productivity to purification laboratories, the SFC Prep 150 AP System is perfectly suited to those high-throughput laboratories seeking to adopt a greener approach to purification. With flow rates up to 150 mL/min, the system is ideally suited for high throughput library compound purification, isolation of low-level impurities, and target compound isolation in complex sample matrices. With the addition of the ACQUITY QDa II Detector, the benefits of mass directed SFC purification have just become more attainable. While retaining the high specificity and sensitivity essential to MS directed purification, its intuitive user interface and small footprint make the ACQUITY QDa II Detector a natural fit for the SFC Prep 150 AP System.

Key Technologies

- 2545 QGM Pump provides accurate solvent delivery for applications that require low co-solvent percentage and improved gradient chromatography, combined with P200X CO_2 pump to deliver total flow of up to 150 mL/min
- Column oven, with unique pull-out drawer design for easy access, supports up to six, 2 to 3 cm preparative columns
- ACQUITY QDa II Detector offers information-rich detection and efficient mass triggering
- Gas-liquid separator enables open bed collection with uncompromised recovery
- Optional stacked injection improves isocratic purification productivity
- MassLynx Software with FractionLynx Application Manager can manage and automate sample purification process
- Reduce normal-phase solvent usage and disposal to make your lab greener



SFC Prep 150 Mgm System.

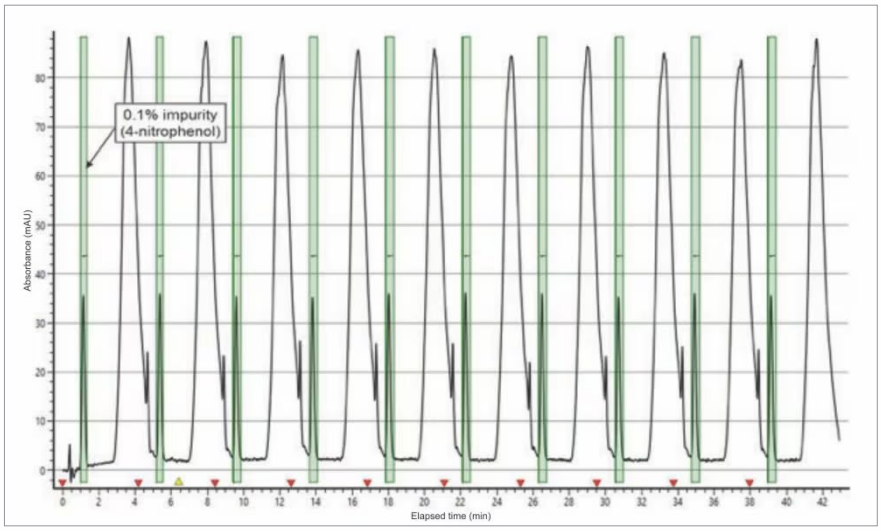
SFC Prep 150 MGM System

Many laboratories today are looking to adopt a greener approach for high throughput purification. Designed for high-throughput, semi-prep to preparative scale purifications, the SFC Prep 150 Mgm System is made for repeat injection (bulk purification) of chiral and achiral compounds. SFC systems utilize liquid carbon dioxide (CO_2) as its main mobile phase in combination with one or more organic solvents, resulting in faster equilibration, lower pressure drops across the column, solvent reduction, and lower cost per sample. The process is reproducible and applicable to a wide range of compounds relevant in the pharmaceutical, life sciences, food, chemical materials and environmental markets.

	Prep SFC 150 Mgm
Optimal column I.D.	30 mm
Recommended total flow rate	150 g/min
Typical throughput	Up to 40 g/day
Fractions	5 + 1 waste

Key Technologies

- 2545 QGM Pump provides accurate solvent delivery for applications that require low co-solvent percentage and improved gradient chromatography
- Patented modifier stream injection improves sample loading without peak distortion caused by strong solvent effects
- Stacked injection improves isocratic purification productivity
- Low pressure collection assembly offers easy operation and easy clean up to minimize carryover, ideally suited for small to medium size purification campaigns
- Enhanced, easy-to-use ChromScope Software allows maximum flexibility for instrument control, method programming, stacked injection capability, and data analysis



Example ChromScope v2.2 chromatogram of 10 stacked injections at 306 nm to show maximum detection of 4-nitrophenol. The peak of interest is highlighted in green with a collection time of 21 seconds.



SFC Prep 350 System.

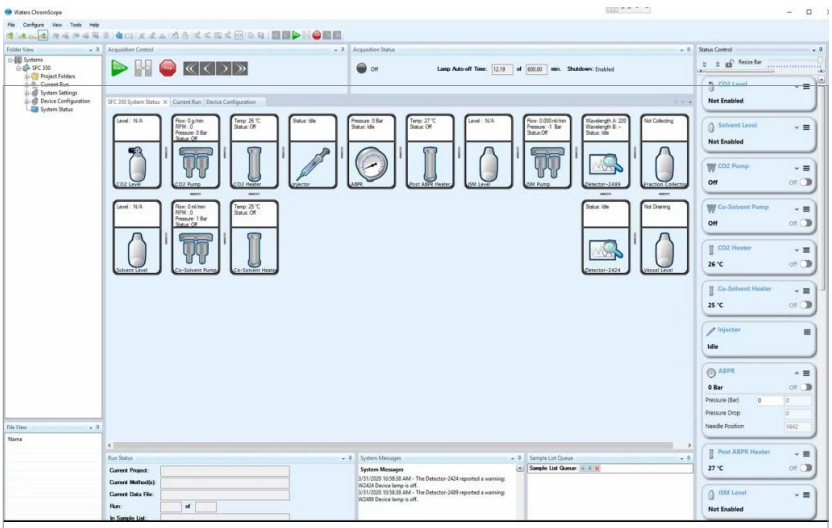
SFC Prep 350 System

One of the largest lab-scale SFC purification systems on the market, Waters SFC Prep 350 System is slated for 100's gram to kilogram scale compound purification. Ruggedness, simplicity, and productivity are the key principles reflected throughout the instrument design. Classic cyclonic collection is easy-to-use and durable, ideally suited for large compound campaigns. Modified stream injection and stacked injection capability are also featured in the SFC Prep 350 System for high productivity.

	Prep 350 SFC
Optimal column I.D.	50 mm
Recommended total flow rate	300 g/min
Typical throughput	Up to 100 g/day
Fractions	5 + 1 waste

Key Technologies

- Modifier stream injection improves sample loading without peak distortion caused by strong solvent effects
- Stacked injection improves isocratic purification productivity
- Cyclonic collection which is easy to use and allows for high pressure collection of fractions for improved cost-effectiveness



Key features of the SFC Prep 350 System.

Purification System Components

LC Solvent Managers

Waters reliable and robust solvent managers provide a wide range of capabilities for purification.

Typical column I.D. (mm)	Max flow rate (mL/min)	Solvent manager	Sample load	Software
2.0 to 19.0	22.5	1525	µg to tens of mg	MassLynx or Empower™ Software
4.6 to 30.0	50.0	2535 Quaternary Gradient Module	mg to g	MassLynx or Empower Software
4.6 to 50.0	150.0	2545 Quaternary Gradient Module	mg to g	MassLynx, Empower, or ChromScope Software
4.6 to 50.0	150.0	2545 Binary Gradient Module	mg to g	MassLynx or ChromScope Software
7.8 to 75.0	300.0	2555 Quaternary Gradient Module	mg to tens of g	MassLynx or Empower Software

1525 EF

The 1525, with EF (Extended Flow) heads, is an integrated, high-pressure, binary HPLC pump that features on-board pulse dampening and efficient mixing. Pulse-free solvent flow at semi-preparative flow rates makes it ideal for smaller scale purifications.

2535 Quaternary Gradient Module (QGM)

The 2535 QGM is a four-solvent, low pressure mixing gradient pump with a flow rate maximum up to 50 mL/min (up to 6000 psi) for columns up to 30 mm I.D. Two fluidic pathways (small-scale and large-scale) accommodate column selection while maintaining chromatographic efficiency.

2545 Quaternary Gradient Module (QGM)

The 2545 QGM is a four-solvent, low pressure mixing gradient pump that features up to 150 mL/min capability (6000 psi up to 100 mL/min with a roll off to 5000 psi at 150 mL/min) for columns up to 50 mm I.D. for purification of material ranging from milligrams to grams.

2545 Binary Gradient Module (BGM)

The 2545 BGM is a high-pressure mixing binary gradient pump that serves as the primary solvent delivery device for the Waters AutoPurification System, enabling subsequent isolation and purification of targeted compounds. It provides excellent performance at analytical and preparative flow rate scales (0.50 to 150.00 mL/min) with a maximum operating pressure of 6000 psi.

2555 Quaternary Gradient Module (QGM)

The 2555 QGM is a four-solvent, low pressure mixing gradient pump with a maximum flow rate of 300 mL/min (3000 psi at 200 mL/min with a roll off to 2500 psi at 300 mL/min) used with columns up to 75 mm I.D. for grams of material.

Sample Managers/Collectors

Waters offers an array of easy-to-use advanced sample managers and collectors to accommodate automated purification systems.

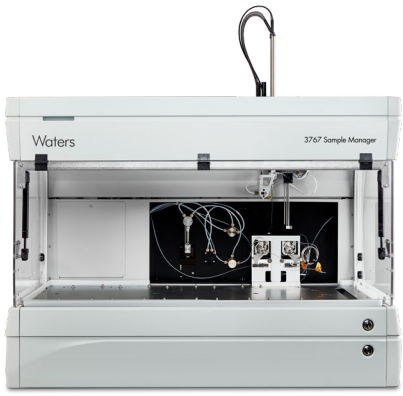


2707 Autosampler with Cooler Module

Enhance the stability of your samples and achieve consistent results by upgrading your 2707 Autosampler with a Cooler Module, enabling your easy-to-use and rugged autosampler to meet a wide variety of sample needs in pharmaceutical, chemical, and environmental laboratories. The Cooler Module is only compatible with Empower Software.

Installing a 2707 Autosampler with a Cooler Module allows you to work with a wide range of samples and provides significant benefits:

- Reduced sample components break down
- Versatile sampling formats usage — sample vials or 96-well plates
- Accurate setting of tray temperature — Minimum: 4 °C ± 2 °C, Maximum: ambient temperature -3 °C
- Precise engineering ensures minimum condensation effects and sample protection from light



3767 Sample Manager

The 3767 Sample Manager is a high-capacity sample processing system that easily and automatically manages sample aspiration and injection, collection, and fraction analysis on a single HPLC or LC-MS platform. Designed for use with Waters Purification systems, the 3767 Sample Manager has separate sampling and fraction dispensing probes ensuring sample integrity and purity. Intended for applications involving preparative scale purifications, the 3767 Sample Manager is controlled by MassLynx Software and compatible with the LC Prep AutoPurification System and the SFC Prep 150 AP System.

- Configured with analytical and preparative injectors, as standard, allows accurate isolation and purification without hardware changes
- High capacity platform allows for variable sample formats: up to 15 96-well microtiter plates; 544 13x100-mm test tubes; 720 2-mL vials for sample injection and collection
- Collection of sample fractions sequentially or with one-to-one mapping of sample and fraction
- Self-venting probes that perform accurate sample injections from tightly covered containers
- High velocity wash pump (>30 mL/min flow) to rapidly and efficiently flush the sampling needle and tubing, while maintaining high sample throughput
- Optional fume hood for ventilation of hazardous vapors



Waters Fraction Collector IV (WFC IV)

The WFC IV is an easy-to-use, robust, and highly adaptable fraction collector that seamlessly integrates with Waters analytical and purification LC systems, enabling reliable fraction collection for various applications, including natural product, synthetic compounds, peptide, oligonucleotide, and lipid purification.

- Seamless integration with Waters analytical and purification LC systems, supporting efficient fraction collection from analytical through semi-preparative to preparative scales, with flow rates up to 300 mL/min
- Precise fraction collection using flexible time- and peak-based collection modes to accurately collect peaks of interest
- Diverter valve directs unwanted peaks and extraneous solvent to waste, achieving high-purity and high-recovery fraction collections
- Simplified operation with an integrated software interface enables intuitive use through Empower™, MassLynx™, or ChromScope™ Software
- Customizable collection bed layouts, flexible rack configurations and real time monitoring of collection location and system status provide greater control and confidence as lab workflows evolve
- Designed for evolving needs, the WFC IV delivers 50% greater capacity than the WFC III and supports a wide range of collection racks, from microtiter plates, vials, and tubes to preparative funnels and more



Waters Fraction Manager – Analytical

The Waters Fraction Manager-Analytical (WFM-A) is an ideal fit for accurately collecting fractions in pharmaceutical, biopharmaceutical, impurity isolation, metabolite and natural product applications. The WFM-A is developed on the ACQUITY UPLC™ platform, designed to collect the narrow and closely eluting compounds found with UPLC separations, which integrates seamlessly into Waters analytical UPLC/UHPLC and HPLC systems. The WFM-A is biocompatible when paired with the ACQUITY Premier System with MaxPeak™ High Performance Surfaces (HPS) Technology collection needle and inert flow path to collect fractions for biopharma applications.

- Developed with low internal volume and innovative technology to minimize dispersion, the WFM-A maintains narrow UPLC peaks, resulting in higher recovery
- Unique, fluidic design minimizes carryover, ensuring high purity
- Accurately collects fractions from 25 µL to 10 mL
- Rapid vial-to-vial movement minimizes fraction loss
- Tapered needle design inhibits droplet formation on tip
- Thermally-controlled sample compartment accommodates thermally-labile fractions
- Closed fraction compartment isolates from light and UV degradation, as well as from dust and particulate contamination
- The inert flow path allows effortless integration into UPLC or HPLC system, suitable for all biomolecule applications
- Robust and feature-rich software for easily tailored collection methods (triggered by time, peak, volume, etc.) to meet application requirements
- Supports flow rates up to 2.2 mL/min as standard, or up to 5 mL/min with optional high-flow needle

Detectors

Waters low-dispersion optical detectors enable you to analyze a wide variety of compounds. When paired with their accessories, such as flow cells or nebulizers, you can obtain more information per run, fulfilling multiple detection strategy requirements.



2489 UV/Visible Detector

A high sensitivity universal detector for routine UV-based applications to low-level impurity identification and quantitative analysis.

- Offering both single and dual wavelength capability
- Low noise performance (<5 µAU)
- Flexible sampling rate (1 to 80 Hz) for both normal and fast separations
- Patented TaperSlit™ flow cell technology channels light through the cell for better energy throughput, resulting in minimal RI effects and enhanced sensitivity
- Independent optimization of highspeed data rates and filter time constants allows for the accurate integration of narrow, sharp peaks



2998 Photodiode Array (PDA) Detector

A highly sensitive detector designed for trace impurity identification and quantitative analysis, compound identification, and method development applications.

- Low noise performance (<10 µAU)
- Flexible sampling rates for normal and fast separations (1 to 80 Hz)
- Patented TaperSlit flow cell technology ensures high sensitivity while maintaining optimal spectral performance



2424 Evaporative Light Scattering (ELS) Detector

A low dispersion detector, featuring a temperature-controlled nebulizer, produces analysis results that you can have confidence in for compounds that lack UV/V is chromophores including triglycerides, sugars, and natural products.

- High sensitivity and low noise performance
- Full control and time programming of all control parameters including events, temperature, photomultiplier tube, and gas pressure
- Addresses laboratory safety needs with automatic solvent, gas shut-off switches and leak detection alarms
- Flexible sampling rate (1 to 80 Hz)



SQ Detector 2 Mass Detector

Using the SQ Detector 2 as part of a Waters Purification System for HPLC and SFC provides users with the most accurate way to collect the purest fractions possible.

- Engineered Simplicity – our design philosophy ensures every analyst can consistently generate the highest quality data with minimal training
- IntelliStart™ automates routine tasks, such as resolution and calibration checks, allowing you to focus on isolating and collecting the purist fractions possible
- Universal Ion Source Architecture offers the most extensive range of interface capabilities able to service the broadest range of applications
- Mass range of 3000 *m/z*



ACQUITY QDa II Mass Detector

The ACQUITY QDa II Mass Detector provides greater compound coverage of mass-directed purification to support the purification of small molecules, large molecules, and new modalities with the simplicity of an optional detector.

- **More Performance:** Builds on the success of the ACQUITY QDa Detector, adding an increased mass range (*m/z* 30–1500) for better coverage of compounds, optimizing designs for more robustness, reliability, and repeatability
- **More Efficiency:** Its plug-and-play performance, combined with its intuitive design, simplifies the purification workflows and maximizes sample throughput
- **More Sustainability:** Improve efficiency with an ACT Eco label, which highlights its exceptional sustainability credentials and seamlessly integrates into existing workflows. This results in less bench space and more energy savings, minimal cleaning, and routine maintenance to maximize uptime



Waters Charged Aerosol Detector

The Waters Charged Aerosol Detector delivers broad compound coverage for purification applications, enabling the detection and collection of semi-volatile and non-volatile analytes regardless of chromophore presence. By providing insight beyond UV detection, it helps scientists make more informed purification decisions across small molecules and emerging modalities.

- **Broader Compound Visibility:** Reveal compounds that may be missed by UV alone with a sensitive, near-universal detection approach that supports confident purification decisions
- **Simplified Purification Workflows:** Reduce method development complexity and accelerate purification workflows with straightforward operation and seamless integration into existing systems
- **Uninterrupted Data Workflows:** Acquire, process, and manage CAD data directly within Empower or MassLynx Software, streamlining workflows and reducing complexity
- **Dependable Laboratory Performance:** Maximize uptime with a robust, low-maintenance detector design that reduces routine intervention and supports efficient laboratory operation

Software

Laboratory informatics solutions convert the scientific data generated in the lab into valuable information throughout your organization – compile, analyze, find, and share your purification data for faster and more effective decision-making.

MassLynx Software with FractionLynx

FractionLynx Application Manager manages and automates your sample purification process. FractionLynx controls fraction collection and tracks your samples, their fractions, and associated data, all accessible through the FractionLynx browser.

- FractionLynx offers you flexible compound detection, fraction triggering and collection capabilities
- Fraction triggering options using time-based criteria or signal intensity threshold and slope
- Fraction collection options include sequential (continuous in one tube after another), one-for-one (collects fractions into a single location), and reserved tubes (allocates a specified number of tubes for a single sample analysis)
- The dedicated FractionLynx browser presents sample and fraction information and data in one interactive location. You may review chromatograms, fraction spectra and fraction information. Further, the browser allows you to manually modify sample and fraction status if necessary
- FractionLynx's AutoPurify features automated sample analysis, purification, and fraction assessment. By automating the transition between these processes, AutoPurify provides you with an integrated solution to the overall purification and analysis process

Empower Software

From acquisition to real-time monitoring and total results management, you'll never be more than a few clicks away from the purification answers you are looking for.

- Controls the WFC IV enabling the user to configure collection vessels and program collection routines; Real-time feedback from the fraction collector indicates the state of the collection process and the location of the collected fractions
  - Perform these different collection techniques:
    - Collection of everything with time slicing
    - Time-based collection of specific segments of the run
    - Collection of eluent between triggered fractions
    - Detector-triggered collection based on:
      - Threshold
      - Slope
      - Slope and threshold



ChromScope Software

Waters ChromScope Software, for use on Waters supercritical fluid chromatography (SFC) and liquid chromatography (LC) systems, enables fully automated instrument control and facilitates the process of developing SFC methods and LC methods.

- Its simple work-flow-based architecture and intuitive user-friendly interface makes routine chromatographic analysis, reporting, and fraction collection easy. Simple wizards guide users through a stepwise process of creating new sequences, including method screening, purification, and calibration curve building
- When there is a large amount of sample to be purified, ChromScope Software includes a stacked injection wizard. Stacked injections allow the system to optimize the collection of the same samples over multiple injections. In all cases, fractions can be collected based on a number of criteria, and there is a graphical interface to aid in the determination of optimal settings

Optional Components

System Fluidic Organizer

The System Fluidic Organizer (SFO) is an integrated valve and instrument communications module, which also houses the leak detection system. The Ethernet-controlled valves provide:

- Switching mechanisms for up to two preparative and three analytical columns
- Flow path changes for sample flow coming from either the analytical or preparative columns to the UV and MS detectors
- The on-board pump control module can integrate with up to three additional 515 pumps providing unique capabilities such as At-Column Dilution, solvent modifier addition, and an MS makeup flow for mass-directed purification. The Ethernet hub provides the communications hub for the various detectors and solvent delivery systems

FlexInject

The FlexInject is a manual dual-injector module that can be mounted on the side of any of the fluid delivery systems (2545 BGM, 1525EF Binary HPLC Pump, 2535 QGM, 2545 QGM, and 2555 QGM).

- With dual flow paths for both analytical and preparative operation, selectable with an integrated valve, the FlexInject module is designed to complement the dual inlet AutoPurification flow cells for the 2489 TUV and 2998 PDA detectors. It provides a no-compromise small or large volume injector for flow rates up to 150 mL/min



Purification System with FlexInject module.



OBD Preparative Columns for HPLC Purification

Why struggle with inconsistencies in column-to-column performance, diminished column lifetimes, lost samples, repeat purification runs, and poor scalability? Increase your productivity through higher recoveries and longer column lifetimes.

With Optimum Bed Density (OBD) Preparative Columns, you have the ability to:

- Achieve fast, efficient, lab-scale separations for greater throughput
- Directly scale from UPLC, UHPLC, or HPLC screening to lab-scale purification
- Select robust chromatographic particles designed for purification.
- Reliably isolate sensitive target compounds prone to interactions.

OBD Prep columns are available in a multitude of scalable chemistries designed to achieve high purity and recovery for all your compounds.

- XBridge™ OBD Preparative Columns*
- XSelect™ OBD Preparative Columns*
- Atlantis™ OBD Preparative Columns
- SunFire™ OBD Preparative Columns
- Peptide BEH C_{18} 130 Å OBD Preparative Columns*
- Oligonucleotide BEH™ C_{18} 130 Å OBD Preparative Columns*
- Protein BEH C_{18} 130 Å OBD Preparative Columns

**Columns are available in stainless-steel or inert MaxPeak HPS Technology hardware options. MaxPeak Premier OBD Prep Columns allow for predictable scale-up from their analytical column equivalents and help improve fraction triggering resulting in higher purities and recoveries.*

Download a copy of Waters OBD Preparative Column Ordering Guide



OBD Preparative Columns for SFC Purification

Viridis™ SFC Columns

Utilizing our patented OBD Technology, Viridis columns offer a range of achiral SFC selectivities. These columns are based on the bridged ethylene hybrid (BEH), charged-surface hybrid (CSH™), high-strength silica (HSS) and high-grade silica particle technologies. The reduction and control of surface silanol activity on the Viridis particles delivers, under SFC conditions, exhibit good retention, excellent peak shapes and selectivity properties both with and without the use of additives. These columns are rugged and deliver reliable separation performance for compound mixtures and exceptional lifetimes.

- Viridis BEH 2-EP (2-Ethylpyridine) Columns
- Viridis BEH Columns
- Viridis CSH Fluor-Phenyl Columns
- Viridis Silica 2-EP Columns
- Viridis Silica Columns
- Viridis HSS C_{18} SB OBD Prep Column

Torus SFC Columns

Utilizing our patented OBD Technology and patented two-stage functionalization of BEH particles, Torus™ Columns offer robust chromatographic performance and excellent peak shape in a broad range of selectivities for achiral separations. Torus columns are available in four scalable chemistries:

- Torus 2-PIC
- Torus DEA
- Torus DIOL
- Torus 1-AA



waters.com/prep

For your local sales office, please visit
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