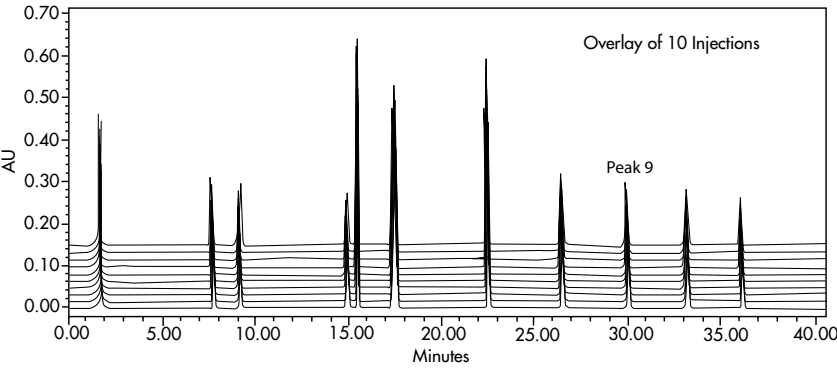


Outstanding Gradient Performance with Multi-pump Technology:

The design of Waters 515 pumps makes them well suited for gradient chromatography at a variety of operating conditions. Each solvent in the gradient is delivered to the column via a separate pump with Empower software controlling the rate of solvent delivered to the system. Solvent blending occurs after the eluent leaves each pump. The ability of Waters 515 pumps to deliver highly reproducible gradient separations of a complex test mixture is shown in Figure 2.

Figure 2. Waters 515 Pump gradient performance.*



Pumps: Two Waters 515 pumps

Mixer: 150 µL static mixer

Degasser: Waters In-line Degasser

Injector: 717+ with Low Volume Kit

Flow rate: 1.0 mL/min

Mobile Phase: A= Water with 0.015% H₃PO₄

B= Acetonitrile with 0.015% H₃PO₄

Detection: 254 nm

Sample: 24 µL Gradient test mix

Column: Symmetry® C₁₈ (3.6 x 150 mm)

Peak	Peak 1	Peak 2	Peak 3	Peak 4	Peak 5	Peak 6	Peak 7	Peak 8	Peak 9	Peak 10	Peak 11
R.T. Mean (N=10)	1.698	7.776	9.206	14.928	15.49	17.542	22.546	26.533	30.044	33.215	36.144
R.T. Std. Dev.	0.001	0.02	0.012	0.005	0.005	0.006	0.007	0.004	0.003	0.003	0.004

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Ordering Information

Waters 515 HPLC Pump (115/230V)
Plunger Wash Kit, 100 µL Heads
Extended Flow Range Option (22.5 mL/min.)
Plunger Wash Kit, 225 µL Heads
Static Mixer
Reference Valve and Mounting Kit

Part Number

WAT207000
WAT031870
WAT207119
WAT030852
WAT051518
WAT207144

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515 HPLC PUMP

Are these the HPLC challenges you face in your lab?

- Poor chromatographic reproducibility and precision?
- Limited flow rate ranges?
- Lack of sensitivity?
- Excessive system downtime?



* Waters Performance Perspective WPP42



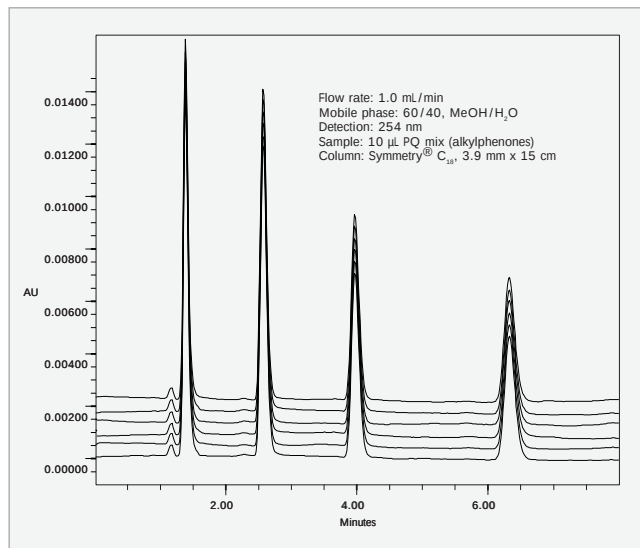


Figure 1
The overlay of six consecutive injections demonstrates the extremely consistent retention time performance of Waters 515 Series Systems.

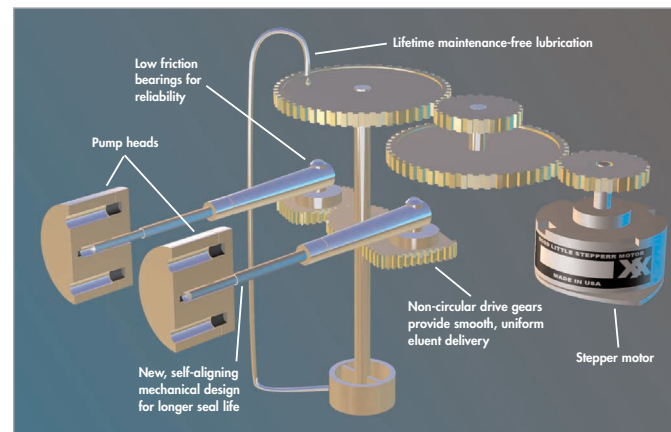
Designed for Reliable Operation

The precision of the HPLC pump can be the single most important factor that affects run-to-run retention time reproducibility for a well characterized separation method. Laboratories often use a Performance Qualification (PQ) test to determine the precision of their HPLC system, thereby establishing pump performance. Typical PQ test results for an isocratic 515 Series System show retention time variations of less than 0.1%, assuring proper peak identification throughout the analysis (Figure 1).



Simple-To-Use Interface

The flush front panel design and tactile keypad allow for error-free programming of the Waters 515 Pump parameters, including; flow rate, operating pressure limits, compressibility compensation, purge mode, calibration and diagnostics. Flow rate and operating pressure can be displayed in real time. Upon power down, pump parameters are automatically saved in the battery-backed memory.



Accurate, Precise Flow Delivery

Waters 515 Pump utilizes a simple mechanical design that has proven reliability. Precise stepper motor control (48 steps/µL resolution) of dual reciprocating pistons provides pulse-free solvent delivery over the 0.001-10.000 mL/min. flow rate range. What's more, user-programmable flow rate calibration and compressibility compensation factors ensure straightforward

pump operational qualification. Flow accuracy over a broad range of operating conditions and eluent compositions can be easily maintained. Combined with an advanced seal design and an automatic plunger alignment mechanism, the Waters 515 Pump provides the precision you require for the wide range of today's high efficiency separation methods.

Preparative Chromatography

The Waters 515 Pump is not limited to performing only analytical scale separations. The Extended Flow Range Option of the 515 Pump extends the flow range to 22.5 mL/minute. With this option you can use your 515 Pump for semipreparative purifications based on either isocratic or gradient methods.



Waters 515 Series Systems for Isocratic Analysis

The Waters 515 Pump can be configured with the Waters 717plus Autosampler and the Waters 2487 Dual λ Absorbance Detector, to create a high throughput system suitable for routine analysis. Using this system, a quality control lab can easily set up isocratic methods for unattended, overnight operation. Pulse-free flow assures maximum detector sensitivity for trace analysis and impurity profiling. Replacing the Waters 2487 Dual λ Absorbance Detector with the Waters 2414 Refractive Index Detector allows for polymer and sugar analysis.



Waters 515 Series Systems for Gradient Analysis

By using two or three 515 Pumps in a multiple pump gradient configuration, you get optimal application flexibility. Concurrent stream eluent blending ensures a rapid response to eluent composition changes and facilitates fast chromatography and complex gradient separations. Empower™ software offers comprehensive system control, results management and method documentation from a single keyboard.