WATERS 1500 SERIES HPLC PUMPS

Waters® 1500 Series HPLC Pumps have been designed to meet all of your flow range needs, from low flow to preparatory. Exceptional flow rate across all ranges provides you with precision and accuracy, delivering the chromatographic reproducibility that you need to fully automate all your processes. With exceptional solvent blending and pulse-free delivery, the Waters 1500 Series HPLC Pumps can meet your most sensitive application challenges.

1515/1525 HPLC Pumps

OPERATING SPECIFICATIONS

Number of eluents	1515: One 1525: One or two
Programmable flow rate range	0.00 to 10.00 mL/min in 0.01 mL increments
Flow precision	≤ 0.1% RSD or 2 sec SD, six replicates, based on retention time or volumetric measures, at 1.0 mL/min, 1000 to 2000 psi backpressure, PQ test (each pump individually)
Flow accuracy	± 1.0% of setting at 1.0 mL/min or 30.0 µL/min, whichever is greater, using degassed methanol, 1000 to 2000 psi backpressure (each pump individually)
Maximum operating pressure	6000 psi (41,370 kPa, 401 bar)
Operating pressure limits	Software programmable high and low pressure limits; user selectable in psi, kPa, bar
Delay volume (1525)	< 200 µL (with one GM 150 mixer)
Gradient compositional accuracy (1525)	± 0.5% of setting at 1 mL/min and 1000 psi backpressure (methanol:methanol with propylparaben) with one GM 150 mixer
Gradient compositional precision (1525)	< 0.5% RSD of setting at 1.0 mL/min and 1000 psi back pressure (methanol:methanol with propylparaben) with one GM 150 mixer (based on six replicates of compositional accuracy)
Pressure ripple (one pump)	≤ 2.0% at 1.0 mL/min, degassed methanol, at 1000 psi backpressure
Gradient ripple	< 1.5% normalized to full scale between 10% to 90%, 1.0 mL/min, and 1000 psi backpressure (methanol:methanol with propylparaben with one GM 150 mixer)

1525µ Binary HPLC Pump

OPERATING SPECIFICATIONS

Programmable flow rate	0.00 to 5.00 mL/min, in 0.01 mL/min increments
Flow precision	2 sec SD, six replicates based on retention time or volumetric measures at 0.2 mL/min, 1000 to 2000 psi back pressure, PQ test (each pump individually)
Flow accuracy	2.0% of setting at 0.1 mL/min using degassed methanol at 1000 to 2000 psi backpressure (each pump individually)
Maximum operating pressure	6000 psi (41,370 kPa, 401 bars)

[INSTRUMENT SPECIFICATIONS]

Operating pressure limits	Software programmable high and low pressure limits; user selectable in psi, kPa, bar
Delay volume	< 30 µL (without mixer), < 100 µL (with one 50 µL mixer)
Gradient accuracy	< 1.0% of setting (typical) at 0.1 mL/min between 10% to 90%, and 1000 psi backpressure (methanol:methanol with propylparaben and one 50.0 µL mixer)
Gradient precision	< 0.5% RSD (typical) between 10.0% to 90.0%, 0.1 mL/min, and 1000 psi backpressure (methanol:water with octanophenone and one 50.0 µL mixer)
Pressure ripple (one pump)	< 2.0% at 0.5 mL/min, degassed methanol, at 1000 to 2000 psi backpressure
Gradient ripple	< 1.5% normalized to full scale between 10.0% to 90.0%, 0.1 mL/min, and 1000 psi backpressure (methanol:methanol with propylparaben) with one 50.0 µL mixer

INSTRUMENT CONTROL

Communications	Ethernet, IEEE-488
External control	Empower,™ Breeze,™ or MassLynx™ Software
Event I/O	Back of instrument Detachable terminal strip

PHYSICAL/ENVIRONMENTAL SPECIFICATIONS

Physical size (without bottle holder)	Height: Depth: Width:	30.5 cm (12.0 in.) 61.0 cm (24.0 in.) 43.0 cm (17.0 in.)
Weight	1515: 1525:	20.4 kg (45.0 lbs) 27.2 kg (60.0 lbs)
Wetted surface material	316 stainless steel, sapphire, reinforced fluorocarbon polymer seals, carbon-reinforced Tefzel	
Acoustic noise	< 70 dB(A)	
Operating temperature range	4 to 40 °C	
Operating humidity range	20% to 80%, non-condensing	

1500 Series Manual Injector (Applicable for 1515 and 1525)

Rheodyne 7725I Injector

OPERATING SPECIFICATIONS

Inject switch	Contact closure, pre-wired
Mounting	Integral for 1500 Series HPLC pumps
Sample holdup	Zero
Flow during switching	Continuous, make-before-break
Injection	Partial or full loop
Loop size	20 µL (standard) Changeable (5-, 50-, and 200-µL loop supplied)
Wetted materials	316 ss, ceramic, inert polymers

1500 Series Column Heater

OPERATING SPECIFICATIONS

Set point temperature range	20 to 60 °C; set ≤ 5 °C above ambient temperature
Temperature accuracy	± 0.80 °C
Temperature precision	± 0.25 °C
Pre-column heating of mobile phase	± 0.50 °C of column temperature up to 5.00 mL/min
Pre-heat tube volume	Approximately 35 µL
Column capacity	Up to four 7.8 mm x 300.0 mm without guard columns
	Two columns with guard columns

PHYSICAL SPECIFICATIONS

Dimensions	Height:	43.0 cm (17.0 in.)
	Depth:	35.6 cm (14.0 in.)
	Width:	15.2 cm (6.0 in.)
Weight	5.9 kg (13.0 lbs)	

ELECTRICAL SPECIFICATIONS

Input voltage range	120/240 VAC
Input frequency range	50/60 Hz

INSTRUMENT CONTROL

Communications	Ethernet, IEEE – 488

Waters

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50 YEAR LEGACY
VISION ■ CONTRIBUTION ■ ADVANCEMENT

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