

LC-20AD/AT/AB Pumps

Providing the World's Best Solvent Delivery Performance



The Shimadzu family of pumps continues to set the standard by which others are judged. From the LC-20AD with its Mass Spec friendly, pulse-free delivery to the LC-20AT designed for traditional analytical flow rates to the new space-saving LC-20AB, the entire line has been enhanced.

LC-20AD

Parallel Double Micro Plunger

- 0.0001 to 10 mL/min
- 10uL piston stroke volume
- 3nL/step motor resolution

LC-20AB

Binary Solvent Delivery Unit

- Two LC-20AD pumps in one compact module
- Identical performance to the LC-20AD

LC-20AT

Tandem Dual Plunger

- 0.001 to 10 mL/min
- 47 uL primary and 23 uL secondary piston stroke volume
- Improved ability to handle bubbles

Enhanced Solvent Delivery Specifications

Performance in the micro-flow rate range less than 50 μ L/min has been improved in the LC-20AD/AB pumps. First, a new spring-loaded check valve design has been incorporated. The spring assists in closing the check valve to prevent leak-back, resulting in more accurate and precise flow rates and gradient formation. This new check valve design will also increase the dependability and stability of the pump with non-polar mobile phases like hexane where static buildup can cause check valve problems. Second, the firmware has been modified for enhanced pulsation correction of the high-speed drive motor, yielding pulse-free solvent delivery. The LC-20AD/AB pumps are ideal as a front-end component for LCMS systems where stable, quiet, and precise solvent delivery is critical for optimal performance from the mass spectrometer. Of course, these improvements will enhance the performance of other detectors as well.

Improved Durability

The durability of all of the pumps has been improved in several ways. All of the plungers used in the Prominence series pumps are specially machined to exploit the sapphire's crystal structure properties. The plungers obtained from this process have the best hardness and highest chemical resistivity possible. This means that the highly polished surface of the piston will retain its surface longer and result in longer seal life. Another important factor in seal life is proper plunger and seal alignment. The plungers are mounted in a free-floating mechanism designed to ensure precise alignment of the plunger in the seal and pump head, again resulting in an increase in the service life of the high-pressure pump seals.

Standalone or Part of a System

The Prominence Series Pumps are fully capable of being run from the front panel keypad. Or, for the most convenience, connect it to Shimadzu's innovative CBM-20 controller and take advantage of its industry exclusive web-based control. This means you can monitor and control the pumps and any other components connected to the CBM from anywhere in the world through your web browser. The CBM also acts as the conduit between the HPLC and the controlling software, whether it is a Shimadzu CDS package, MS control package, or any other software package that contains Shimadzu control.



SPECIFICATIONS

	LC-20AD	LC-20AT	LC-20AB
Solvent delivery method	Parallel-type double plunger	Serial-type double plunger	Parallel-type double plunger (2 sets)
Plunger capacity	10 μ L	Primary side: 47 μ L, Secondary side: 23 μ L	10 μ L
Maximum discharge pressure	40MPa		
Flow-rate setting range	0.0001 to 10.0000 mL/min.	0.001 to 10.000 mL/min.	0.0001 to 10.0000 mL/min.
Flow-rate accuracy	No more than 1% or 0.5 μ L/min., whichever is greater (0.01 to 2 mL/min.)	No more than 2% or 2 μ L/min., whichever is greater (0.01 to 5 mL/min.)	No more than 1% or 0.5 μ L/min., whichever is greater (0.01 to 2 mL/min.)
Flow-rate precision	0.3% max. (RSD: 0.1% max.)		
Pulsation	0.1 MPa (for water at 1.0 mL/min. and 7MPa)	0.3 MPa (for water at 1.0 mL/min. and 7MPa)	0.1 MPa (for water at 1.0 mL/min. and 7MPa)
Constant-pressure solvent delivery	Supported		
Plunger rinsing mechanism	Manual rinsing or automatic rinsing using optional product		
Safety measures	Liquid-leakage sensor, high-pressure/low-pressure limits		
Operating temperature range	4°C to 35°C (non-condensing atmosphere)		
Dimensions, weight	260 (W) x 140 (H) x 420 (D) mm, 10 kg	260 (W) x 140 (H) x 420 (D) mm, 11 kg	260 (W) x 140 (H) x 420 (D) mm, 13 kg
Power requirements	100 VAC, 150 VA, 50/60 Hz		100 VAC, 180 VA, 50/60 Hz
GRADIENT SYSTEM			
	LC-20AD/20AT, low-pressure GE specifications	LC-20AD/20AT, high-pressure GE specifications	LC-20AB
Gradient type	Low-pressure mixing	High-pressure mixing	
Number of mixed solvents	4 max.	2 or 3	2
Mixing concentration accuracy	0.5% max. (LC-20AD), 1.0% max. (LC-20AT)		0.5% max.

Shimadzu Scientific Instruments
7102 Riverwood Drive, Columbia, MD 21046
Ph: 410-381-1227/800-477-1227
Fax: 410-381-1222
www.ssi.shimadzu.com

Shimadzu Corporation
Int'l Marketing Division, 3, Kanda-Nishikicho 1-chome
Chiyoda-ku, Tokyo 101, Japan
Ph: 81(3) 3219-5641
Fax: 81(3) 3219-5710