

LSPone

**The
all-in-one
laboratory
pump**



Sampling



Multiplexing



Automating

The LSPone laboratory syringe pump is a high-precision dosing device for microfluidic applications. The high-accuracy dosing and nearly-pulseless flow stream capabilities make it the perfect tool for multiple liquid handling in the range of milliliter down to nanoliter.

The integrated zero dead volume selection valve allows you to handle multiple fluids with one syringe pump thanks to the high cleaning efficiency and low carryover. Coupled with its ease of use, the LSPone is thus the ideal companion for your laboratory experiments at a reduced investment cost.



Benefits

- Plug & play, installed in minutes
- Bubble-free priming
- Small footprint
- Integrated 6-port distribution valve
- Software for Windows
- Easy custom software integration



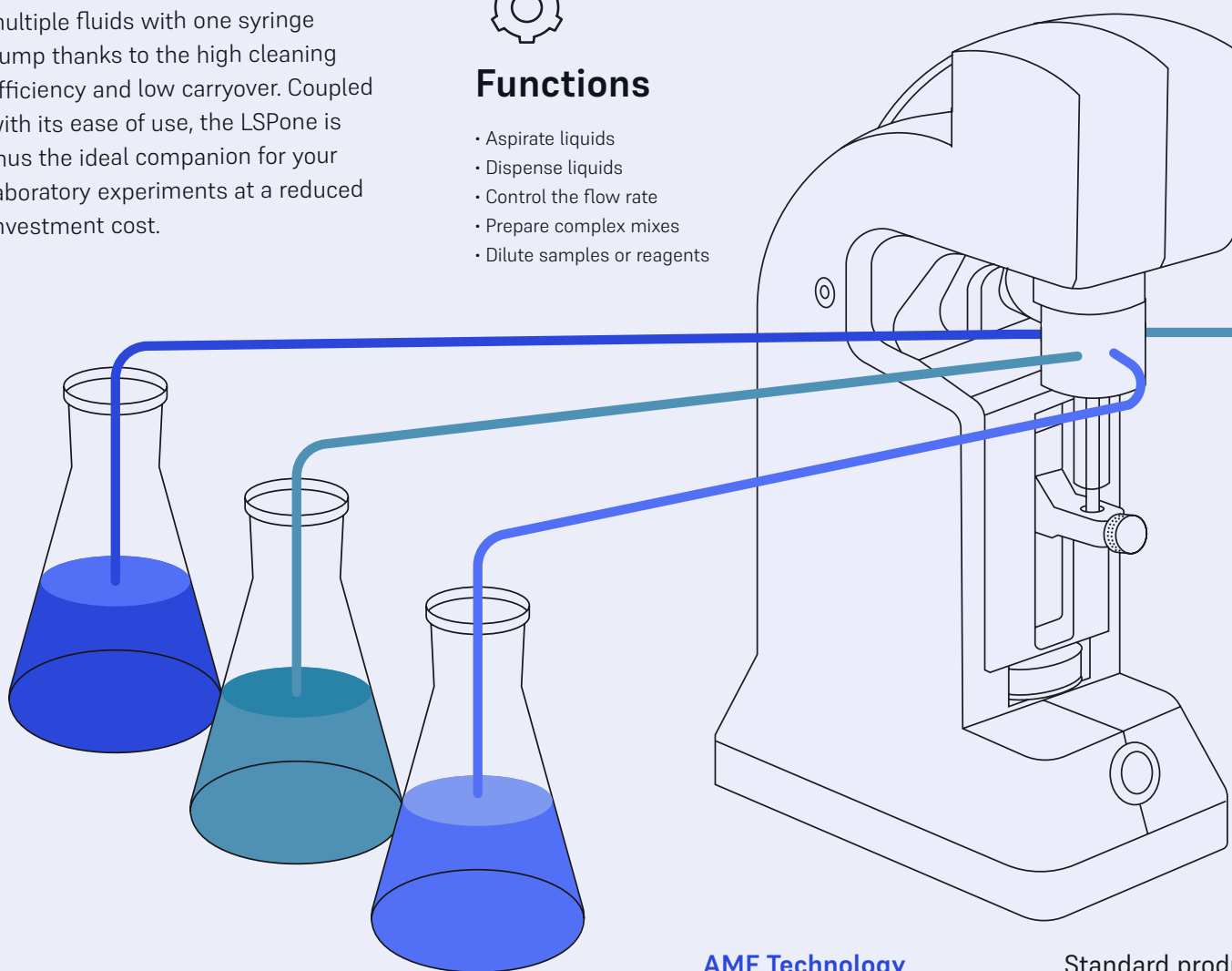
Functions

- Aspirate liquids
- Dispense liquids
- Control the flow rate
- Prepare complex mixes
- Dilute samples or reagents



Applications

- Lab-on-a-chip
- High-precision sampling and dosing
- Accurate flow streams of fluids
- Biological sample handling
- Industrial research
- Academic research

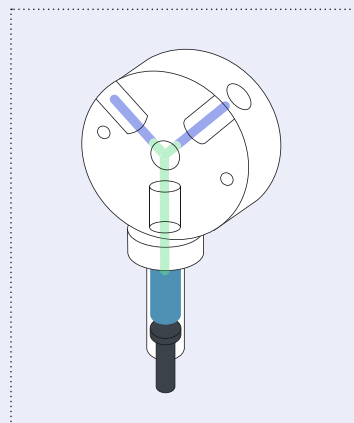
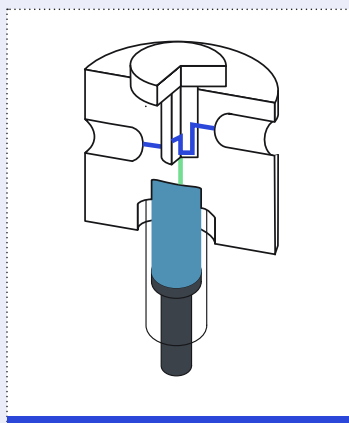



Dead, internal & carryover volumes

Our unique valve geometry limits the carryover volume to 1.5 μL (green) whereas standard products exhibit up to 50 μL . The exceptionally small channel diameter of 0.5 mm reduces the internal volume to only 4 μL (blue + green). There is no dead volume.

AMF Technology

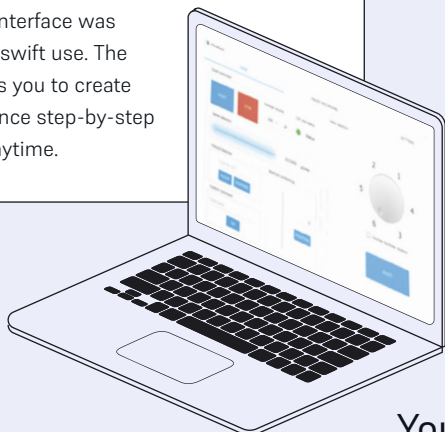
Standard products



 Carryover volume

LSPoneQuick GUI (MS Windows)

An intuitive graphical interface was designed for easy and swift use. The macro recording allows you to create your automated sequence step-by-step and come back to it anytime.



Your experiment

Sample A

Rinsing solution

Sample B

Fast liquid switching

The zero dead volume selection valve allows for a rapid liquid changeover, with an ultra-low carryover volume.

High dilution ratio

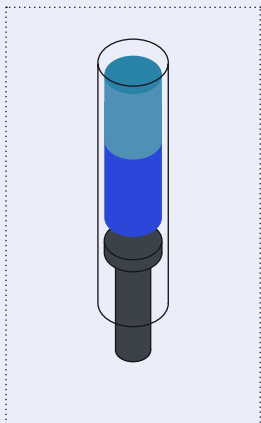
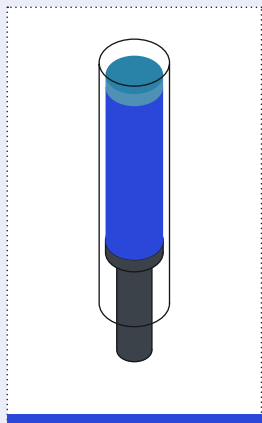
When rinsing, diluting or switching liquid, our minimal carryover volume (green) leads to a maximal dilution ratio with the diluent (blue).

Bubble-free priming

Our distinct valve design expels the air from the syringe and valve immediately, eliminating the traditional cumbersome priming procedure.

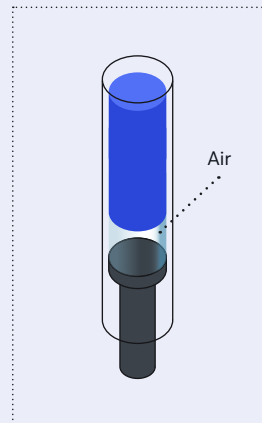
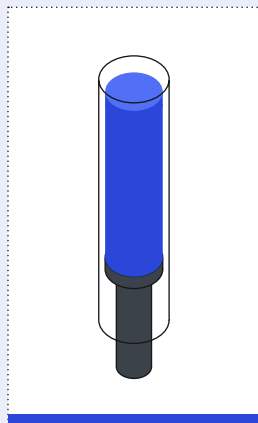
AMF Technology

Standard products



AMF Technology

Standard products



Syringe specifications

Ref.	Volume	Plunger material	Minimum flow rate	Maximum flow rate	Minimum dosing volume
S-50-P	50 µL	PTFE	0.00745 µL/min	1,500 µL/min	0.1 µL
S-100-P	100 µL	PCTFE	0.0149 µL/min	3,000 µL/	0.2 µL
S-250-P	250 µL	PCTFE	0.0373 µL/min	7,500 µL/min	0.5 µL
S-500-P or S-500-U	500 µL	PCTFE or UHMW-PE	0.0745 µL/min	15,000 µL/min	1 µL
S-1000-P	1000 µL	PCTFE	0.149 µL/min	30,000 µL/min	2 µL
S-2500-P	2500 µL	PCTFE	0.373 µL/min	75,000 µL/min	5 µL
S-5000-P	5000 µL	PCTFE	0.745 µL/min	150,000 µL/min	10 µL

LSPone: 50µL to 1000µL / **LSPone+:** 2500µL or 5000µL

Chemical compatibility: The wetted materials being PTFE, PCTFE and borosilicate glass, this pump offers exceptional compatibility with most chemicals and biological samples.

Valve specifications

Ref.	Configuration	Wetted materials	Internal volume	Carryover volume	Fluid path diameter	Maximum pressure
V-D-1-6-050-C-P	6 ports low carryover volume	PCTFE, PTFE	3.6 µL	2.6 µL	0.5 mm	7 bars
V-D-1-10-050-C-P	10 ports low carryover volume	PCTFE, PTFE	4.6 µL	2.8 µL	0.5 mm	7 bars
V-D-1-10-100-C-P	10 ports low carryover volume	PCTFE, PTFE	15 µL	8 µL	1 mm	7 bars
V-D-1-12-050-C-P	12 ports low carryover volume	PCTFE, PTFE	4.6 µL	2.8 µL	0.5 mm	7 bars

Other configurations are available upon request.

LSPone specifications

Operating temperature	15 – 45°C (59-113°F)
Operating humidity	20-80%, non condensing
Max. pressure	7 bars (102 psi)
Wetted materials	PTFE, PCTFE and borosilicate glass
Syringe size capacity	From 50 µL to 1 mL (LSPone) & 2,5 mL or 5 mL (LSPone+)
Dead volume	None
Plunger travel	30 mm with 96,000 micro-steps
Plunger resolution	Selectable 3,000 steps (standard) / 24,000 steps (high)
Plunger drive	Screw drive with linear encoder for step loss detection
Valves configuration	Zero-dead-volume multi-port distribution with angular encoder
Tube port fittings	Standard 1/4 – 28 UNF, flat-bottom
Cross-contamination	Typically from 1/100 to 1/1000 per cleaning cycle
Accuracy	< 1% deviation from expected value at full stroke
Electrical interface	USB mini, 9–pin D–Sub
Communication type	Serial (serial over USB, RS232, RS485)
Power	18 - 24 VDC, 2.2 A peak, 40 W / 18 VDC optimized for battery use
Time for full stroke	2 seconds to 6400 minutes
Dimensions	LSPone: 247 x 147 x 85 mm / LSPone+: 260 x 147 x 85 mm
Weight	LSPone: 2.2 kg / LSPone+: 2.3 kg
Graphical user interface	MS Windows 10 and later vers.
Certifications	CE and CB certified

This table shows the technical specifications, which allows you to assess compatibility with your application.



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