

Advanced  
MicroFluidics

LSPone

THE PUMP THAT KILLED  
THE DEAD VOLUME



### The all-in-ONE laboratory pump

Spend more time  
on your microfluidic  
experiment and less  
on the hardware setup

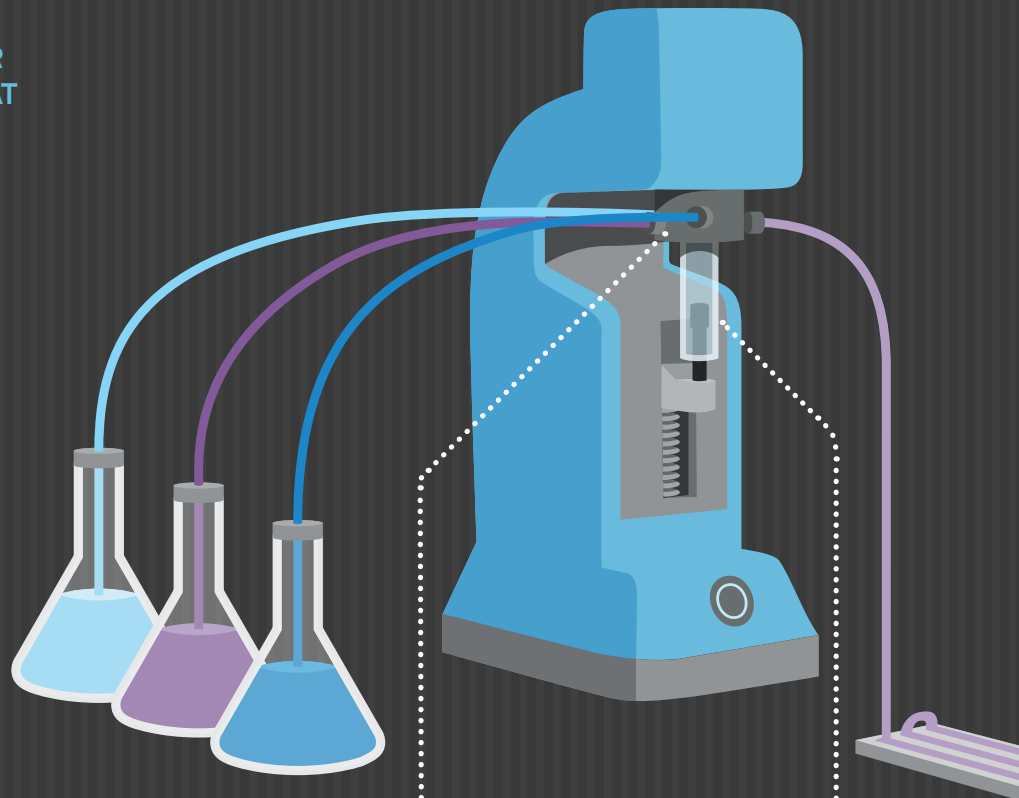
THE LSPone LABORATORY SYRINGE PUMP IS A HIGH-PRECISION DOSING DEVICE FOR MICROFLUIDIC APPLICATIONS. THE HIGH-ACCURACY DOSING AND NEARLY-PULSELESS FLOW STREAM CAPABILITIES MAKE IT THE PERFECT TOOL FOR MULTIPLE LIQUID HANDLING IN THE RANGE OF MILLILITER DOWN TO NANOLITER.



### BENEFITS

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

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.

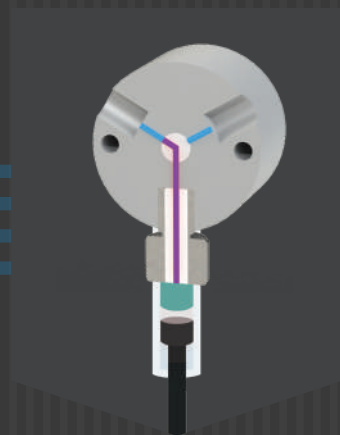


### Dead, internal and carryover volumes

Our unique valve geometry limits the carryover volume to 1.5  $\mu\text{L}$  (purple) whereas standard products exhibit up to 50  $\mu\text{L}$ . The exceptionally small channel diameter of 0.5 mm reduces the internal volume to only 4  $\mu\text{L}$  (blue + purple). There is no dead volume.



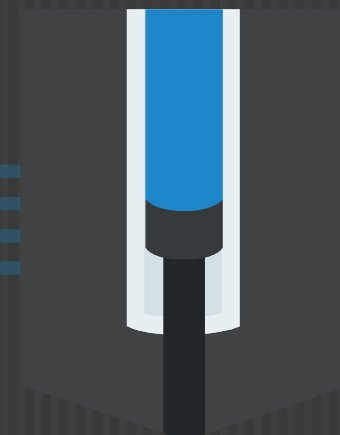
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STANDARD PRODUCTS

### Bubble free priming

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



AMF TECHNOLOGY



## APPLICATIONS

- Lab-on-a-chip
- High-precision sampling and dosing
- Accurate flow streams of fluids
- Biological sample handling
- Industry
- Research & Education

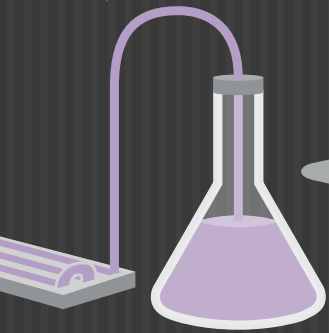
## FUNCTIONS

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

## LSPoneQuick GUI (MS Windows or Mac OSX)

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  
cleaner

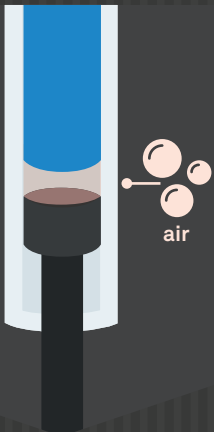
Sample B

## Fast liquid switching

The zero dead volume selection valve allows to rapidly switch liquid with an ultra low carryover.

## High dilution ratio

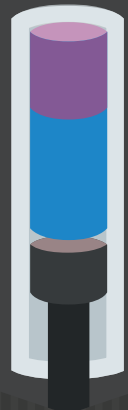
When rinsing, diluting or switching liquid, our minimal carryover volume (purple) leads to a maximal dilution ratio with the diluent (blue).



STANDARD PRODUCTS

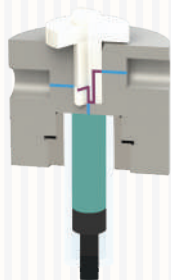


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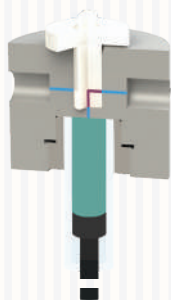


STANDARD PRODUCTS

# The all-in-ONE laboratory pump



6-ports ultra-low carryover volume



6- or 8-ports low carryover volume

## Valves Specifications

REF.	CONFIGURATION	WETTED MATERIALS	INTERNAL VOLUME	CARRYOVER VOLUME	FLUID PATH DIAMETER	MAX. PRESSURE
VD2-6-050	6-ports ultra-low carryover volume	PCTFE, PTFE	5.2 $\mu$ L	1.5 $\mu$ L	0.5 mm	5 bars
VD1-6-050	6-ports low carryover volume	PCTFE, PTFE	3.5 $\mu$ L	2.6 $\mu$ L	0.5 mm	5 bars
VD1-8-050	8-ports low carryover volume	PCTFE, PTFE	3.5 $\mu$ L	2.6 $\mu$ L	0.5 mm	5 bars
VD1-8-100	8-ports low carryover volume	PCTFE, PTFE	14.1 $\mu$ L	10.2 $\mu$ L	1 mm	5 bars

Other configurations are available upon request.

## Syringes Specifications

REFERENCE	VOLUME	PLUNGER MATERIAL	MIN. FLOW RATE	MAX. FLOW RATE	MIN. DOSING VOLUME
S25-P	25 $\mu$ L	PTFE	0.25 $\mu$ L/min	750 $\mu$ L/min	0.05 $\mu$ L
S50-P	50 $\mu$ L	PTFE	0.5 $\mu$ L/min	1500 $\mu$ L/min	0.1 $\mu$ L
S100-P or S100-U	100 $\mu$ L	PTFE or UHMW-PE	1 $\mu$ L/min	3000 $\mu$ L/min	0.2 $\mu$ L
S250-P or S250-U	250 $\mu$ L	PTFE or UHMW-PE	2.5 $\mu$ L/min	8000 $\mu$ L/min	0.5 $\mu$ L
S500-P or S500-U	500 $\mu$ L	PTFE or UHMW-PE	5 $\mu$ L/min	15000 $\mu$ L/min	1 $\mu$ L
S1000-P or S1000-U	1000 $\mu$ L	PTFE or UHMW-PE	10 $\mu$ L/min	30000 $\mu$ L/min	2 $\mu$ L

**Chemical compatibility** The wetted materials being PTFE, PCTFE and borosilicate glass, the pump offers an exceptional compatibility to most chemicals and biological samples.

The adjacent tables give the technical specifications, which allow you to assess compatibility with your application.

### CONTACT US

Advanced Microfluidics SA  
Ch. de la Dent d'Oche 1A  
CH-1024 Ecublens  
Switzerland

www.amf.ch  
info@amf.ch  
T. +41 21 552 14 30

## Pump Specifications

Operating temperature	5-40°C (41-104°F)
Operating humidity	20-80%, non condensing
Max. pressure	5 bars (72 psi)
Wetted materials	PTFE, PCTFE and borosilicate glass
Dead volume	None
Carryover volume	1.5 - 10.2 $\mu$ L
Plunger travel	30 mm with 96'000 micro-steps for nearly pulseless flow
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
Interface	USB mini, RS-232, RS-485
Communication type	Serial, I2C (other upon request)
Power	18 - 24 VDC, 2.2 A peak, 40 W / 18 VDC optimised for battery use
Time for full stroke	2 to 3'000 seconds
Dimensions	245 x 143 x 85 mm
Weight	2.2kg
Graphical user interface	MS Windows 7 and later vers., MAC OSX
Certifications	CE and CB certified