OEM Module

SPM

Zero dead volume dilutor

This is an OEM product.
It can be tailored for the needs of your instrument.

BENEFITS

- Allows for multiple liquids
- Optimised to limit contamination
- Excellent chemical and biological compatibility
- Simple air removal
- Easy to use and integrate
- Swiss quality

APPLICATIONS

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

FUNCTIONS

- Dilute samples or reagents
- Aspirate liquids
- Dispense liquids
- Control the flow rate
- Prepare complex mixes
- Alternate air / liquid samples

THE ALL-IN-ONE SYRINGE PUMP

HANDLE DELICATE SAMPLES WITH GREAT PRECISION

Our OEM syringe pump is a high-precision dosing device for automated 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, this syringe pump is thus the ideal companion for your instruments and laboratory experiments at a reduced investment cost.

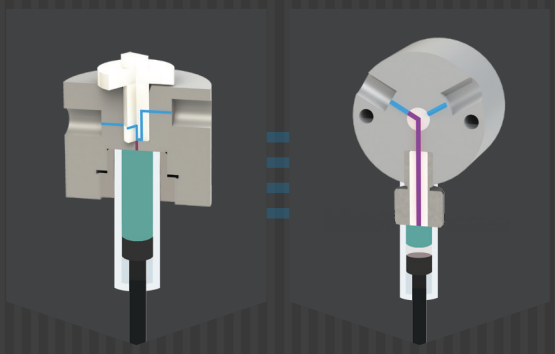
Pump Specifications

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 µl
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 3000 seconds
Dimensions	199.7 x 126.3 x 50.5 mm
Weight	1.5 kg

Syringes and valves specifications, see next page

Dead, internal and carryover volumes

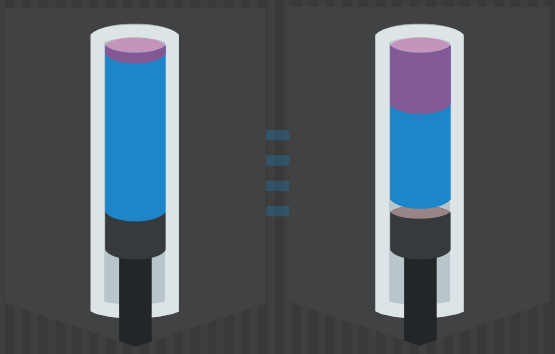
Our unique valve geometry limits the carryover volume to 1.5 µL (purple) whereas standard products exhibit up to 50 µL. The exceptionally small channel diameter of 0.5 mm reduces the internal volume to only 4 µL (blue + purple). There is no dead volume.



AMF TECHNOLOGY STANDARD PRODUCTS

High dilution ratio

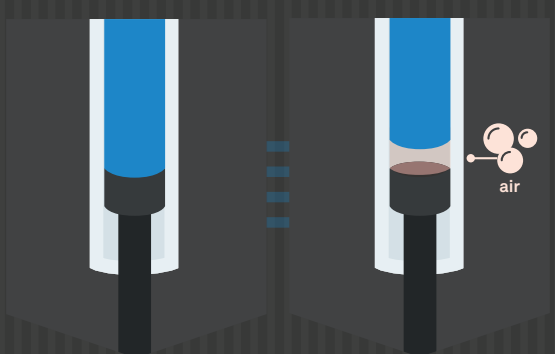
When rinsing, diluting or switching liquid, our minimal carryover volume (purple) leads to a maximal dilution ratio with the diluent (blue).



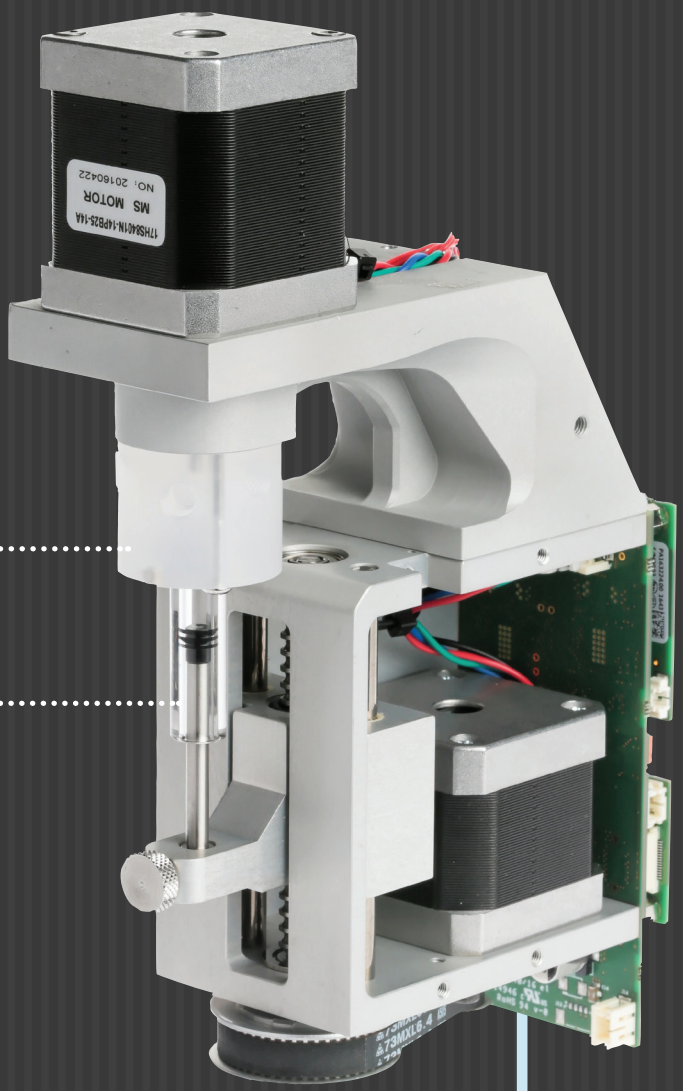
AMF TECHNOLOGY STANDARD PRODUCTS

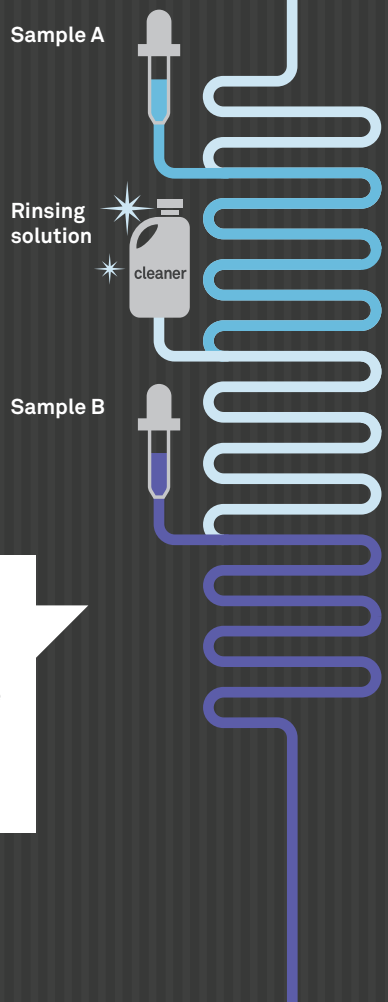
Bubble free priming

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



AMF TECHNOLOGY STANDARD PRODUCTS





Fast liquid switching

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

SPM OTHER SPECIFICATIONS

Syringes Specifications

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

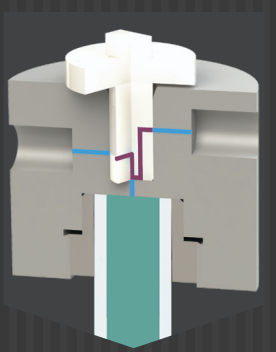
Chemical compatibility The wetted materials being PTFE, PCTFE and borosilicate glass, the pump offers an exceptional compatibility to most chemicals and biological samples.

Optional:
It is possible to add a heating/cooling module around the syringe to suit your specific application.

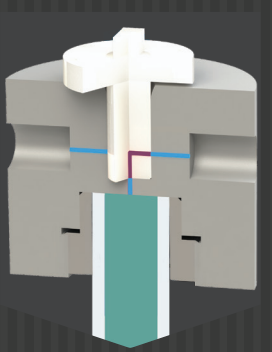
Valves Specifications

REF.	CONFIGURATION	WETTED MATERIALS	INTERNAL VOL.	CARRYOVER VOL.	FLUID PATH DIAMETER	MAX. PRESSURE
VD2-6-050	6-ports ultra-low carryover volume	PCTFE, PTFE	5.2 µL	1.5 µL	0.5 mm	5 bars
VD1-6-050	6-ports low carryover volume	PCTFE, PTFE	3.5 µL	2.6 µL	0.5 mm	5 bars
VD1-8-050	8-ports low carryover volume	PCTFE, PTFE	3.5 µL	2.6 µL	0.5 mm	5 bars
VD1-8-100	8-ports low carryover volume	PCTFE, PTFE	14.1 µL	10.2 µL	1 mm	5 bars
VFD1-8-100	8-ports low carryover volume	PCTFE, PTFE	18.1 µL	11 µL	1 mm	5 bars
VFD1-10-050	10-ports low carryover volume	PCTFE, PTFE	4.5 µL	2.8 µL	0.5 mm	5 bars
VFD1-10-100	10-ports low carryover volume	PCTFE, PTFE	18.1 µL	11 µL	1 mm	5 bars
VFD1-12-050	12-ports low carryover volume	PCTFE, PTFE	4.5 µL	2.8 µL	0.5 mm	5 bars

Other models available upon request. Check website for new models.



6-ports ultra-low carryover volume



multiport low carryover volume