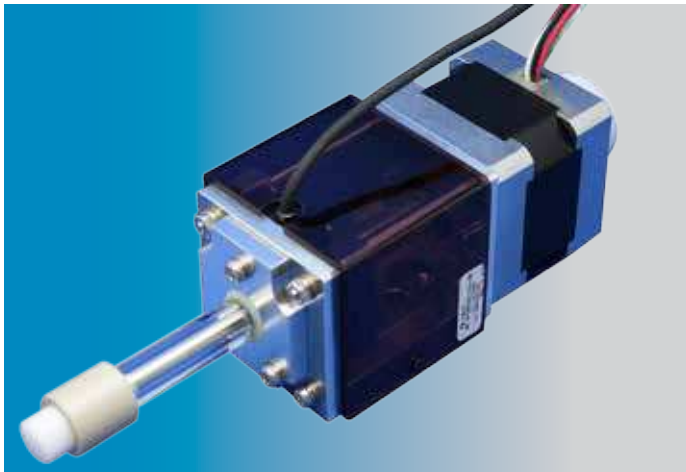


Syringe-Type Stepping Pump Series

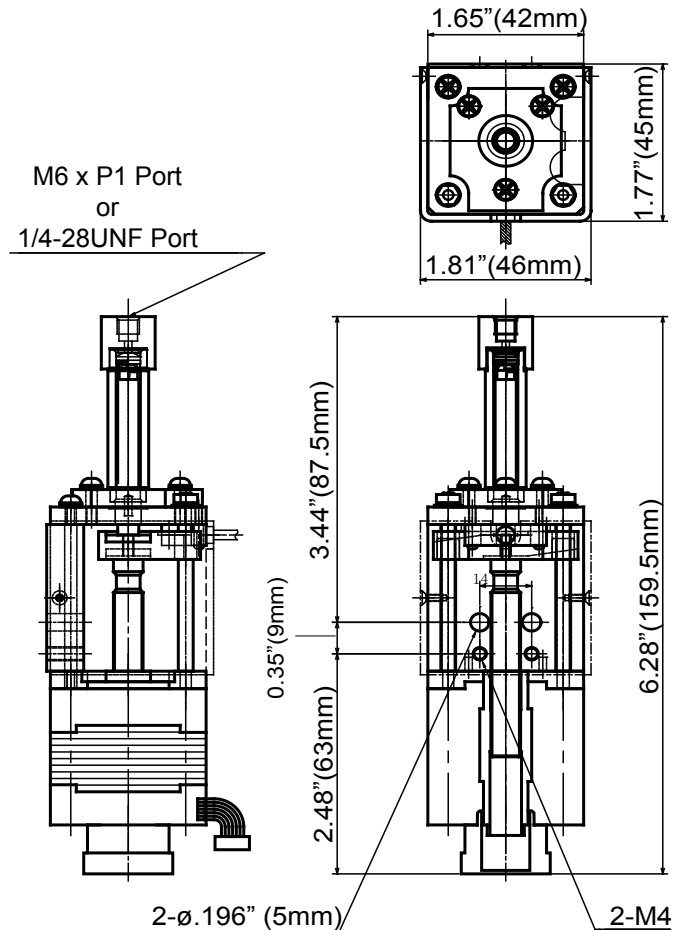
100µl / 250µl / 500µl / 1000µl



High Accuracy: ± 0.3%
Repeatability: 0.03%
High Resolution: 6000 steps/stroke

Model # MS-		SPV-100- (M6 or UNF)	SPV-250- (M6 or UNF)	SPV-500- (M6 or UNF)	SPV-1K- (M6 or UNF)
Volume		100 µl	250 µl	500 µl	1000 µl
Resolution	pulse/stroke	6000			
	µl/pulse	0.01667	0.04167	0.08333	0.16667
	mm/pulse	0.005 mm/pulse			
Speed	sec.	about 2 sec (by 100% aspiration)			
Wetted material	Head	PEEK			
	Cylinder	Borosilicate glass			
	Tip	PE			
Material of body		Aluminum, SUS304 (except for motor)			
Connecting port screw		M6 x P1 or 1/4-28 UNF			
Usable fluid		DI water, Acid, Weak Alkalai, Organic solvent			
Pressure resistance		0.5 MPa (2 minutes) ΔP<0.005 MPa			
Endurance		more than 1,000,000 times (DI water at normal temp., no pressure)			
Accuracy*		Below ±0.3%			
Repeatability (CV)*		Below 0.09%	Below 0.07%	Below 0.05%	Below 0.04%
Motor Specification		Unipolar 2 phase 1.8 Degree Stepper Motor (4.0 VDC, 3.3 Ω, 1.2A, 4.3 mH)/phase			
Origin sensor specification		Photomicrosensor (source voltage DC5V to 24V) Standard equipment of 2 independent outputs ON at detection of plunger origin point or at non-detection			

*By 100% aspiration and backlash compensation

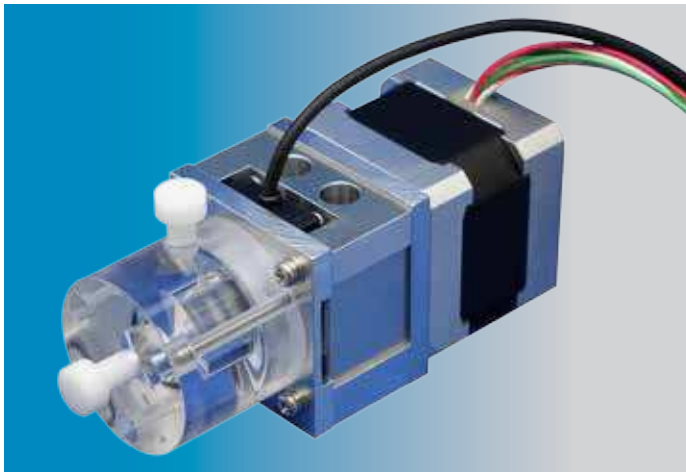


Applications:

- In-Vitro Diagnostic Devices
- Biochemical Analyzers
- Dispensing and Aspiration
- Manufacturing equipment for Liquid Crystal Panels

Piston-Type Stepping Pump Series

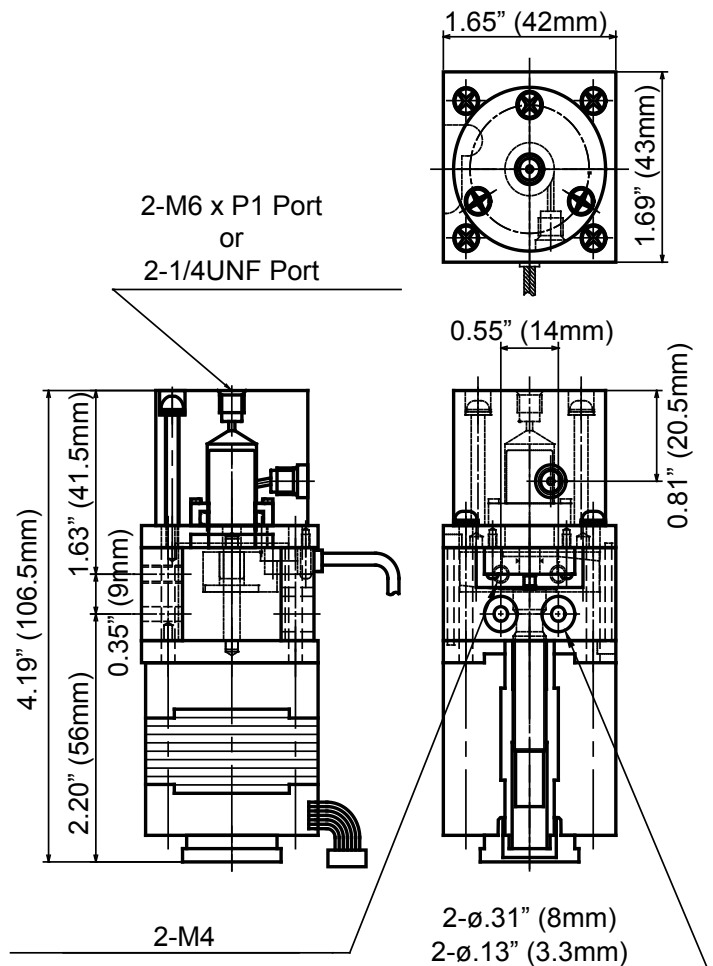
100µl / 250µl / 500µl / 1000µl



High Accuracy: ± 0.5%
Repeatability: 0.04%
Ultra-Compact

Model # MS-		SPX-100- (M6 or UNF)	SPX-250- (M6 or UNF)	SPX-500- (M6 or UNF)	SPX-1K- (M6 or UNF)
Volume		100 µl	250 µl	500 µl	1000 µl
Resolution	pulse/stroke	2000			
	µl/pulse	0.05	0.125	0.25	0.5
	mm/pulse	0.005 mm/pulse			
Speed	sec.	about 1 sec (by 100% aspiration)			
Wetted material	Cylinder	Acrylic (special type: PEEK)			
	Sealing	PE			
	Piston	Borosilicate Glass			
Material of body		Aluminum, SUS304 (except for motor)			
Connecting port screw		M6 x P1 or 1/4-28 UNF			
Usable fluid		DI water (Special type: Acid, Weak Alkalai, Organic solvent)			
Pressure resistance		0.5 MPa (2 minutes) ΔP<0.005 MPa			
Endurance		more than 2,000,000 times (DI water at normal temp., no pressure)			
Accuracy*		Below ±0.5%			
Repeatability (CV)*		Below 0.1%	Below 0.08%	Below 0.06%	Below 0.04%
Motor Specification		Unipolar 2 phase 1.8 Degree Stepper Motor (4.0 VDC, 3.3 Ω, 1.2A, 4.3 mH)/phase			
Origin sensor specification		Photomicrosensor (source voltage DC5V to 24V) Standard equipment of 2 independent outputs ON at detection of plunger origin point or at non-detection			

*By 100% aspiration and backlash compensation



Applications:

- In-Vitro Diagnostic Devices
- Biochemical Analyzers
- Dispensing and Aspiration
- Manufacturing equipment for Liquid Crystal Panels