

True Volume™ Piston Positive Displacement Pump Digital Dispensing System

The True Volume™ Piston Positive Displacement Pump uses a Creative Automation patented technology to offer the most accurate volume control available in the fluid dispensing industry. True Volume™ pumps maintain accuracy in the most demanding circumstances. Changes in temperature, viscosity or deposit size will not impact the accuracy or speed of the True Volume pump.

The True Volume™ technology employs a piston that moves within the dispensing chamber to deliver an exact amount of fluid through the tip. The True Volume Pump delivers true piston positive displacement dispensing, with no delay for refill and with unrivaled accuracy.

Material is held in a syringe or reservoir and transferred under low pressure (2 – 15 psi) to a pumping chamber. The material is then dispensed under high pressure through precision tips, by the stroke of the piston. The high-pressure internal pump action ensures fast, accurate, homogeneous dispensing. The True Volume Pump is unaffected by changes in viscosity and allows dispensing of materials from 1 cps up to 1,000,000 cps.

The True Volume pump family includes models designed for all applications. The lightweight version (SP-2) is perfect for applications requiring multiple dispense heads. Standard models use stainless steel for wetted parts. Models for abrasive materials are also available. Patented tips and pistons are available for single shot volumes ranging from .001 microliters (1 nanoliter) to 274 microliters.



Digital Dispensing is the dispensing process that utilizes the True Volume Positive Displacement Pump. Very similar to the way a video screen is composed of tiny pixels or the way a digital clock divides time into small increments, Digital Dispensing creates a high-definition dispense pattern one shot at a time. 90,000 fluid pixels per hour!

Digital Dispensing is the opposite of "analog" or timed dispensing. Time/pressure on/off valves, rotary valves and linear positive displacement valves are all "analog" timed extrusion dispensing devices. The accuracy of these timed devices is dependant on controlled flow over the defined time segment. They require frequent flow calibration and readjustment.

The True Volume pump meters out a defined increment of material and repeats that identical metering action 90,000 times per hour to create volumetrically accurate dots, beads, fills and underfills. Digital Dispensing is accurate regardless of material viscosity, temperature, deposit size, or any of the other variables that negatively impact timed dispensing.

The unique strength of the True Volume Positive Displacement Piston Pump is volumetrically accurate, metered shots, dispensed at a high rate of speed down to dot diameters of .006 inches. 90,000 true positive displacement shots per hour, with top end flow rates greater than 1.5 milliliters per second.

... If volumetric accuracy is required

... If high speed dispensing is a must

Digital Dispensing is the ultimate solution.

Digital Dispensing



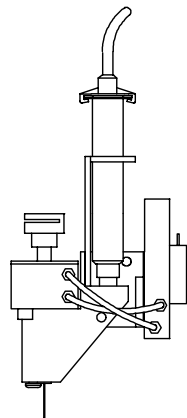
Creative Automation Company

11641 Pendleton Street • Sun Valley, CA 91352 • Tel.: 818-767-6220 • Fax: 818-767-0123

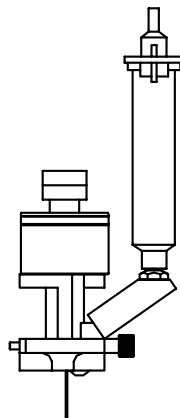
E-mail: sales@creativedispensing.com • Web Site: www.creativedispensing.com

800-688-6220

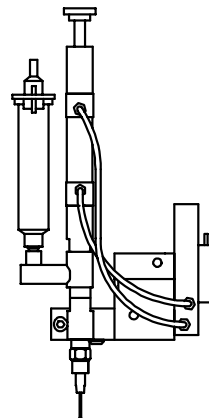
Dot Diameter		Dot Volume (microliter)	SP-1/SP-2						LV-1	
(inches)	(mm)		0.005" Piston	0.007" Piston	0.010" Piston	0.014" Piston	0.025" Piston	0.040" Piston	0.125" Piston	0.250" Piston
0.004	0.102	0.00027	■							
0.005	0.127	0.00054	■	■						
0.006	0.152	0.00100	■	■	■					
0.008	0.203	0.00220	■	■	■	■				
0.010	0.254	0.00430	■	■	■	■				
0.015	0.381	0.01450	■	■	■	■	■			
0.020	0.508	0.03430		■	■	■	■	■		
0.025	0.635	0.06700			■	■	■	■		
0.030	0.762	0.11580			■	■	■	■		
0.035	0.889	0.18390				■	■	■	■	
0.040	1.016	0.27460				■	■	■	■	
0.045	1.143	0.39090				■	■	■	■	
0.050	1.270	0.53630					■	■	■	
0.055	1.397	0.71380					■	■	■	■
0.060	1.524	0.92670					■	■	■	■
0.065	1.651	1.17820					■	■	■	■
0.070	1.778	1.47150						■	■	■
0.075	1.905	1.80990						■	■	■
0.080	2.032	2.19650						■	■	■
0.085	2.159	2.63470						■	■	■
0.090	2.286	3.12750						■	■	■
0.095	2.413	3.67820							■	■
0.100	2.540	4.29010							■	■
0.125	3.175	8.37910							■	■
0.150	3.810	14.4791							■	■
0.175	4.445	22.9923							■	■
0.200	5.080	34.3209							■	■
0.225	5.715	48.8670							■	■
0.250	6.350	67.0329							■	■
0.275	6.985	89.2208								■
0.300	7.620	115.8329								■
0.325	8.255	147.2713								■
0.350	8.890	183.9383								■
0.375	9.525	226.2361								■
0.400	10.160	274.5668								■



SP-1

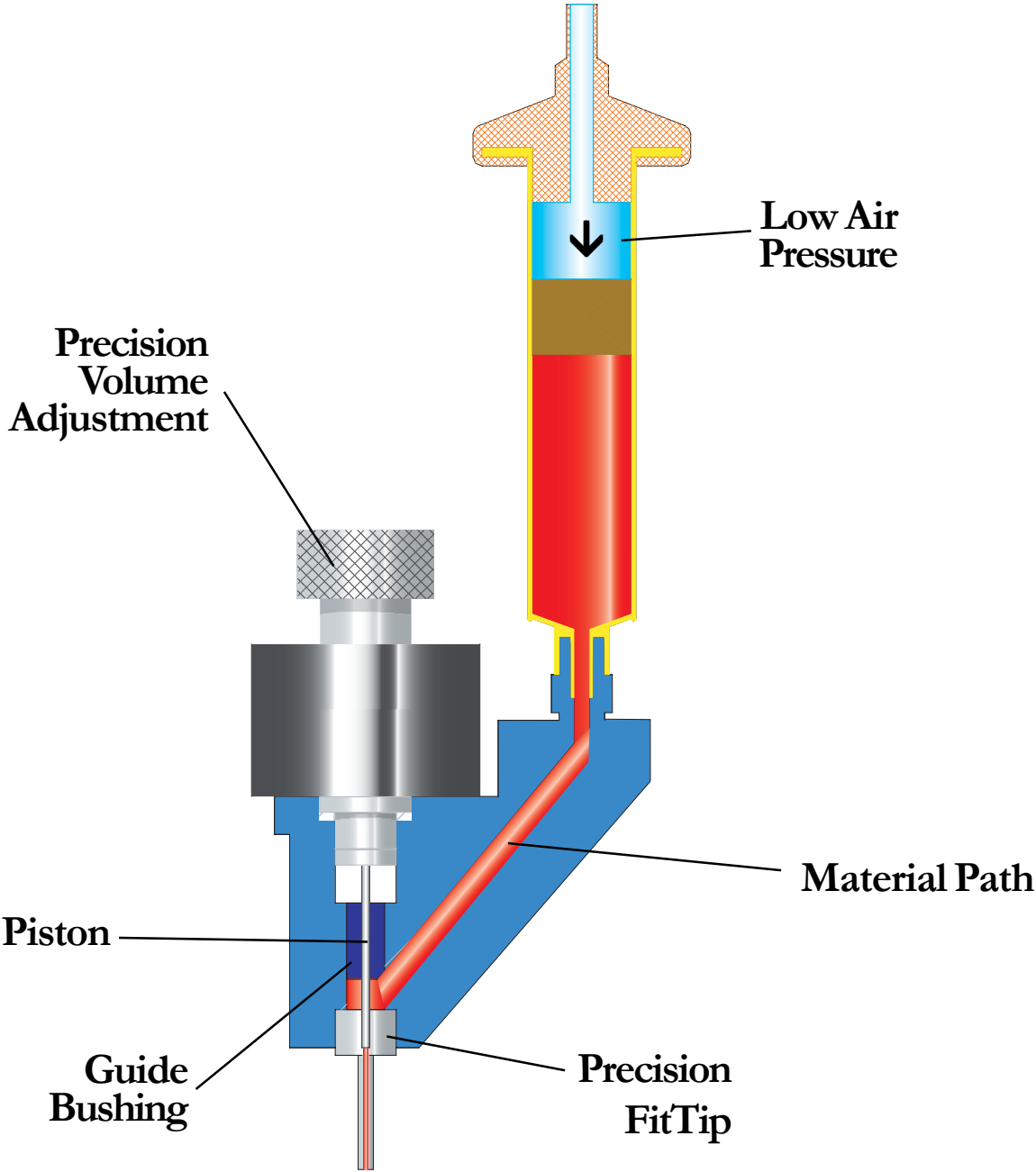


SP-2



LV-1

SP-1 Piston Positive Displacement Pump



Nano-Dispensing Tips				
Part Number	Tip Internal Diameter	Chamber Diameter (Piston)	Canula Length	Chamber Material
0008-12-067	0.002	0.005	0.375	SS
0008-12-069	0.004	0.005	0.375	SS
0008-12-064	0.002	0.007	0.375	SS
0008-12-060	0.004	0.007	0.375	SS
0008-12-070	0.006	0.007	0.375	SS
0008-12-053	0.004	0.010	0.180	SS
0008-12-045	0.004	0.010	0.180	SS
0008-12-057	0.004	0.010	0.375	SS
0008-12-058	0.006	0.010	0.375	SS
0008-12-055	0.006	0.010	0.188	SS
0008-03-084	0.004	0.010	0.660	SS
0008-03-085	0.006	0.010	0.660	SS

Extended Tip (Free Length is 1.100")			
Part Number	Tip Internal Diameter	Chamber Diameter (Piston)	Chamber Material
0008-03-042	0.006	0.014	SS
0008-03-045	0.008	0.014	SS
0008-03-057	0.010	0.014	SS
0008-03-051	0.012	0.025	SS
0008-03-017	0.020	0.025	SS
0008-03-019	0.020	0.040	SS
0008-03-023	0.023	0.025	SS
0008-03-025	0.023	0.040	SS

Piston Bushings			
Part Number	Fit	Bushing Material	Piston Size
0001-54-017	Standard	SS	0.010 - 0.040
0001-54-021	Standard	Delrin	0.010 - 0.040
0001-54-018	Standard	UHMWPE	0.010 - 0.040
0001-54-032	Standard	UHMWPE	0.005 - 0.007
0001-54-038	Wiper	UHMWPE	0.010 - 0.040
0001-54-039		UHMWPE	0.040

Standard Tips (Free Length is 0.660")			
Part Number	Tip Internal Diameter	Chamber Diameter (piston)	Chamber Material
0008-03-041	0.006	0.014	SS
0008-03-043	0.006	0.025	SS
0008-03-046	0.008	0.014	SS
0008-03-053	0.008	0.025	SS
0008-03-001	0.010	0.014	SS
0008-03-086	0.010	0.014	Delrin
0008-03-002	0.010	0.025	SS
0008-03-004	0.010	0.040	SS
0008-03-006	0.012	0.014	SS
0008-03-040	0.012	0.025	SS
008-03-064	0.012	0.025	Delrin
0008-03-052	0.012	0.040	SS
0008-03-010	0.016	0.025	SS
0008-03-012	0.016	0.040	SS
0008-03-014	0.016	0.040	Delrin
0008-03-016	0.020	0.025	SS
0008-03-018	0.020	0.040	SS
0008-03-020	0.020	0.040	Delrin
0008-03-022	0.023	0.025	SS
0008-03-024	0.023	0.040	SS
0008-03-026	0.023	0.040	Delrin
0008-03-028	0.033	0.040	SS
0008-03-032	0.033	0.040	Delrin

Piston Assemblies		
Part Number	Piston Diameter	Piston Material
0008-13-029	0.014	Abr Res
0008-13-013	0.014	SS
0008-13-030	0.025	Abr Res
0008-13-005	0.025	SS
0008-13-021	0.040	Tungsten
0008-13-031	0.040	Abr Res
0008-13-007	0.040	SS

Cleaning Wires		
Part Number	Pkg Pieces	Diameter (inches)
0114-03-016	10	0.0050
0114-03-017	10	0.0090
0114-03-018	10	0.0110
0114-03-019	10	0.0140
0114-03-020	10	0.0180
0114-03-021	10	0.0220
0114-03-022	10	0.0300
0114-03-100	25	0.0030
0114-03-101	25	0.0035
0114-03-114	10	0.0017

Nano-Dispensing Piston Assemblies		
Part Number	Piston Diameter	Piston Material
0008-13-033	0.005	SS
0008-13-032	0.007	SS
0008-13-026	0.010	SS

Tip Gasket
Part Number
0001-54-013

For over 35 years, Creative Automation Company has provided customers with automated manufacturing solutions. The company has set the industry standard in dispensing with over 19 patents, developing innovative concepts based on proven, leading edge technologies.

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Call 800-688-6220

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Tel.: 818-767-6220 • Fax: 818-767-0123

sales@creativedispensing.com

www.creativedispensing.com

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