



SmoothFlow™ Microfluidic Pump Specifications

Parameter	SmoothFlow 100	SmoothFlow 630
Physical Specifications		
Dimensions	See drawing	See drawing
Weight, pump	520 g	520 g
Weight, motor & gear assy.	530 g	645 g
Weight, stepper controller	300 g	300 g
Weight, power supply	300 g	300 g
Volume per revolution	100 uL	630 uL
Resolution MSEL = 256	243,200 micro steps/100 uL	504,811 micro steps/630 uL
Pump volume range	10 nL - 10 ⁹ L or continuous flow	100 nL - 10 ⁹ L or continuous flow
Pump speed range	0.0001 - 167 uL/sec (6 nL - 10 mL/min)	0.001 - 500 uL/sec (60 nL - 30 mL/min)
Back pressure	100 psi	100 psi
Volume precision	<0.08% at 1.25 mL; <0.7% AT 12.5 uL	<0.1% at 1.25 mL; <0.6% at 125 uL
Fittings	10-32 female thread	1/4-28 female thread with flat bottom
Fluid contact	PTFE, Sapphire, Viton, Valcon E-3 and Valcon P	PTFE, cermaic and Valcon H2
Power Requirements		
Rest current draw	200 mA typical; 1600 mA peak at acceleration	200 mA
Operational current draw	200 mA typical; 1600 mA peak at acceleration	1400 mA typical; 1600 mA peak at acceleration
Voltage	12-48 VDC, 24 VDC typical	12-48 VDC, 24 VDC typical
Motor		
Type	2 phase bipolar (1.8 degrees per step)	2 phase bipolar (1.8 degrees per step)
Gear Assembly		
Type	Planetary	Planetary
Ratio	1:4.75	1:9.86
Communications		
Type	COM1 RS-232; COM2 RS-485 (RS-422)	COM1 RS-232; COM2 RS-485 (RS-422)
Baud rate	9600 default	9600 default
Parity	None	None
Data bits per character	8	8
Stop bits	1	1
Error checking	None	None
Mode	ASCII	ASCII
Environmental		
Operating temperature	0 - 50° C	0 - 50° C
Operating humidity	<90% non-condensing	<90% non-condensing
Storage temperature	-20 - +70° C	-20 - +70° C

SmoothFlow Microfluidic Pump and Controller Mechanical Drawings

The mounting points of the pump and controller are given in the figure below together with the external dimensions of each module. Because the high flow pump (Model 630) makes use of a dual stage gearbox, its enclosure is 1" (25.4 mm) longer than the low flow pump (Model 100) shown in the drawing. All other dimensions are the same. The pump should always be mounted vertically and the controller should be mounted in to allow adequate cooling and circulation of air around it.

