New Era Pump Systems Inc.

www.SyringePump.com

NE-4002X / NE-4502X Micro-Fluidic Syringe Pumps

Syringe Manufacturer (all names ™)	Syringe (mL)	Inside Diameter (mm)	Maximum Rate (µL/hr)	Minimum Rate (nL/hr)	Maximum Rate (µL/min)
B-D	1	4.699	2298	14.36	38.31
	3	8.585	7673	47.91	127.8
	5	11.99	9999	93.45	249.4
	10	14.43	9999	135.4	361.3
	20	19.05	9999	236	629.7
	30	21.59	9999	303.1	808.8
	60	26.59	9999	459.6	1226
HSW Norm-Ject	1	4.69	2290	14.3	38.16
	3	9.65	9695	60.54	161.5
	5	12.45	9999	100.8	268.9
	10	15.9	9999	164.4	438.6
	20	20.05	9999	261.4	697.5
	30	22.9	9999	340.9	909.9
	50	29.2	9999	554.3	1479
Monoject	1	5.74	3430	21.42	57.17
	3	8.941	8322	51.97	138.7
	6	12.7	9999	104.9	279.8
	12	15.72	9999	160.7	428.8
	20	20.12	9999	263.2	702.4
	35	23.52	9999	359.6	959.9
	60	26.64	9999	461.4	1231
	140	38	9999	938.7	2505
Terumo	1	4.7	2299	14.36	38.33
	3	8.95	8339	52.07	138.9
	5	13	9999	109.9	293.2
	10	15.8	9999	162.3	433.1
	20	20.15	9999	264	704.5
	30	23.1	9999	346.9	925.9
	60	29.7	9999	573.4	1530
Poulten &Graf (Glass)	1	6.7	4673	29.19	77.89
	2	8.91	8265	51.61	137.7
	3	9.06	8545	53.36	142.4
	5	11.75	9999	89.75	239.5
	10	14.67	9999	139.9	373.4
	20	19.62	9999	250.3	667.9
	30	22.69	9999	334.7	893.3
	50	26.96	9999	472.5	1261
Steel Syringes	1	9.538	9471	59.14	157.8
	3	9.538	9471	59.14	157.8
	5	12.7	9999	104.9	279.8
	8	9.538	9471	59.14	157.8
	20	19.13	9999	237.9	635
	50	28.6	9999	531.8	1419

	Syringe (µL)	Inside Diameter (mm)	Maximum Rate (µL/hr)	Minimum Rate (nL/hr)	SGE Syringe (mL)	Inside Diameter (mm)	Maximum Rate (µL/hr)	Minimum Rate (nL/hr)
SGE (Glass – Gas Tight)	5	0.343	12.24	0.077	0.25	1.03	110.4	0.69
	10	0.485	24.48	0.153	0.5	3.257	1104	6.896
	25	0.728	55.17	0.345	1	4.606	2208	13.8
	50	1.03	110.4	0.69	2.5	7.284	5523	34.49
	100	1.457	221	1.38	5	10.3	9999	68.97
Hamilton Microliter (Glass)	0.5	0.103	1.104	0.007	10	14.57	9999	138
	1	0.1457	2.21	0.014	25	23.03	9999	344.8
	2	0.206	4.418	0.028	50	27.5	9999	491.6
	5	0.3257	11.04	0.069	100	34.99	9999	795.9

1. Specifications

Model	Style	Stall Detection	Number of Syringes	Maximum Syringe Size
NE-4002X	Stand-Alone	Yes	2	60 mL; 140 mL partially filled
NE-4502X	OEM	Yes	2	60 mL; 140 mL partially filled

1.1 Mechanical & Electrical

Motor type:	Step motor
Motor steps per revolution:	400
Motor gearbox reduction:	25:1
Motor to drive screw ratio:	15/28
Drive screw pitch:	20.32 revolutions/"
Micro-stepping:	1/16 to 1/2 depending on motor speed
Advance per step:	4.185267857 nm to 33.4821429 nm depending on motor speed
Power supply type:	External wall adapter, power source specific
Power supply output rating:	12V DC @ 1000 mA
Power connector:	2.1 mm, center positive, DC
Voltage at power connector:	12V DC at full load
Amperage:	750 mA at full load
Dimensions:	8 3/4" x 5 3/4" x 4 1/2" (LxWxH) (Non-OEM versions) (22.86 cm x 14.605 cm x 11.43 cm)
Weight:	3.8 lbs. (1.63 kg)

1.2 Operational

Maximum force:	150 lbs. at minimum speed, 18 lbs. at maximum speed
Syringe inside diameter range:	0.100 to 50.00 mm
Maximum speed:	0.220934197 cm/min
Minimum speed:	8.27653E-05 cm/hr
Maximum pumping rate:	1226 µL/min with a B-D 60 mL syringe
Minimum pumping rate:	14.36 nL/hr with a B-D 1 mL syringe
Number of Program Phases:	41
RS-232 pump network:	100 pumps maximum
RS-232 selectable baud rates:	300, 1200, 2400, 9600, 19200