

Providing the most effective solutions
for design and use of test environments
in life science research

Infusion Pumps

UNO-LIFESCIENCE.COM

Syringe pumps

These syringe pumps are the #1 choice of life science and industrial researchers for their:

- High performance accuracy and precision
- Easy-to-use interface for simple operation
- Rugged design for long-life and reliability
- Anti-vibration technology eliminating operational noise
- Stall detection and alarms
- Superior engineering design without fans, eliminates thermal and environmental contamination for higher reliability and operation
- Considerability for your applications:
 - Single, double, four, ten syringes
 - Infuse or infuse/withdraw or push pull
 - Programmable and advanced programmable
 - Specialized systems
 - OEM models
 - High pressure
- Broad flow rate range from high to low
- World-wide support when you need it

Legato Series

The Legato® product line is the latest generation of syringe pumps. The Legato® series offers unparalleled ease of use through the high resolution color touch screen user interface. The full touch screen interface enables the user to quickly create configurations and recall them for easy use. The 4.3" TFT color display with touch pad interface presents all the pump operating parameters on one easy to view run screen.

Adagio® Graphic Software

The Adagio® Graphic Software adds a new dimension to pump control. Issue manual pump commands or run the pumps automatically with multistep programs. Works with the entire Legato® 200 and 100 pump series. Adagio® Pump Software – Enhances the Legato® Pumps Use. Adagio® will allow you to configure the pump through the software as well as operate one or multiple pumps. Programs can be executed as a tabular data drive spreadsheet or as a graphical. Control up to 50 pumps with the Legato 200 series and up to 20 pumps with the Legato 100 series. Pumps can be mixed or matched. Adagio® has been designed to maximize the use of the pumps functions and features and does not require knowledge of software programming..

The Legacy

The Legacy series is the foundation for all our Scientific Pumps. The Legacy pumps are acknowledged as the industry's highest valued solution for delivering precise and smooth flow in research, pilot plants and production applications. Simple and easy to use, these pumps are the favorite of research scientists and engineers. They use the Series100/200 syringe pumps more than any other for their outstanding reliability and performance. The 100 series pumps give customers the most cost effective solution for infusing fluids. Alternatively, the Series 200/Series 400 series give the customer advanced features with RS232 and TTL interfaces. All Series 200/400 series pumps can be daisy chained together to create a pumping network.

Legacy Infusion Pumps

Infusion Pumps pumps are ideal for delivering accurate and precise amounts of fluids for a multitude of applications, including injection of calibrant into a mass spectrometer or reaction chamber, long term drug delivery to animals and general infusion applications.

Legacy Infuse and withdrawal pumps

Infuse and withdrawal capabilities provide maximum flexibility for varied applications. This feature permits applications, such as automatic withdrawal of samples and unattended filling of syringes at very low flow rates. The unique Series 310 offers a remote pump head, which is perfect when space is limited. The small size and exceptional low flow rate capability allows direct mounting of the Series 310 on a stereotaxic manipulator without the need for long narrow tubing which is both difficult to use and requires larger volumes of valuable fluids.

Specialty Pumps for Custom

- Call us if you have specific requirements. A number of specialty pumps are available. (Dual rate, Emulsifiers, Single Syringe Infuse/Withdrawal OEM Module etc).

EZFlow Series

The new EZFlow Pump Series, is a line of economical pumps for simple infusions and dosing applications. The pumps are designed to combine high levels of performance together with ease of use and reliable operation. EZFlow products offer a complete line of pumps to meet many different applications. Micro-infusion pumps, volumetric infusion pumps, syringe pumps, portable pumps and disposable pumps are available.

Syringe pumps



Legato Series 100



Legato Series 200

Displays more information simultaneously

- Easy to use and set up different configurations
- Intuitive Graphic Interface and Touch Screen
- International Icons, make it easy to use in any language
- Alarm Indication and Messages
- Pump Diagnostic/Information
- USB Interface
- Graphic Software to configure and monitor the pumps

Legato's Design Advantages

In today's economic environment, multiple users with different experiments are using the same pump. The next generation of pump has to meet these demands. The pump's role in the experiment now changes more readily with multiple users using one pump and multiple tests being done with a single pump.

- Programs need to be stored & easily recalled
- Users want the flexibility of changing syringe mechanisms in the field: going from large to small syringes, or from 2 to 10 syringes
- Better flow performance and repeatability with measurements down to nl/hour
- Stronger syringe clamping at higher pressures -not just simple spring clamping

Engineered to Meet Global Regulatory Compliance

Worldwide use of the pumps and changing regulatory compliance meant redesigning the unit to meet these new standards including lead free boards. The new Legato® is a pump that will meet worldwide regulations.

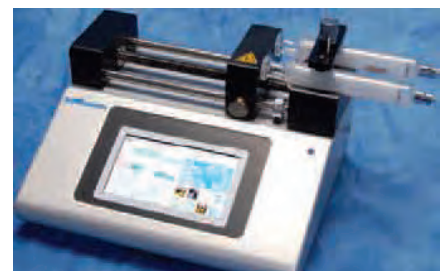
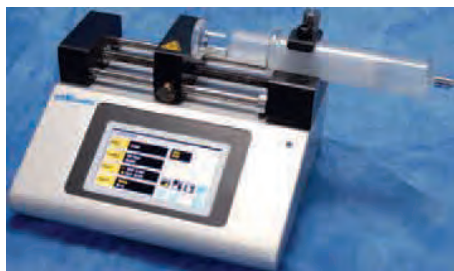
Optimize Bench Space

The Legato® Series optimizes the bench space in your lab. For limited laboratory space the Legato® series can be placed on its side to reduce the footprint by 4 Times. The display orientation changes automatically with the Legato® Series.

Intuitive Run Screen

Combining multiple parameters simultaneously with internationally recognizable icons allow the Legato® Series to provide a new level of intuitive syringe pump operation.

A large variety Legato 100 and 200 pumps is available, see table. More detailed information is available on demand.



Syringe pumps - Legato

	Infuse Only			Continuous Cycle Pump	
Legato Model	Legato 100	Legato 101	Legato 200	Legato 270	Legato 270P
Mode	Infuse only	Infuse only	Infuse only	Infuse/Withdraw/Continuous	Infuse/Withdraw/Continuous
Number of Syringes	One	Two	Two	Two and Two (Four total)	Two and Two (Four total)
Syringe Size	0,5µl to 60ml	0,5µl to 10ml	0,5µl to 140ml	0.5 µl to 140 ml	0.5 µl to 140 ml
User Interface	Touchscreen	Touchscreen	Touchscreen	Touchscreen	Touchscreen
Display	4,3" QVGA Display	4,3" QVGA Display	4,3" QVGA Display	4,3" QVGA Display	4,3" QVGA Display
Accuracy	+/- 0,5%	+/- 0,5%	+/- 0,35%	+/-0,35%	+/-0,35%
Repeatability	+/- 0,05%	+/- 0,05%	+/-0,05%	+/-0,05%	+/-0,05%
Linear Force	13,6kg	13,6kg	34kg	34kg	34kg
Force Adjustment	Yes	Yes	Yes	Yes	Yes
Minimum Flowrate 0,5µl Syringe	1,26pl/min	1,26 pl/min	3,06 pl/min	3,06 pl/min	3,06 pl/min
Maximum Flowrate 10ml Syringe	25,99 ml/min	25,99 ml/min	31,190 ml/min	31,190 ml/min	31,190 ml/min
Maximum Flowrate 60ml Syringe	88,28 ml/min	-	105 ml/min	105 ml/min	105 ml/min
Drive Motor	0,9" Stepper Motor	0,9" Stepper Motor	1,8" Stepper Motor	1,8" Stepper Motor	1,8" Stepper Motor
Microprocessor Motor Drive Control	1/16 microstepping	1/16 microstepping	1/16 microstepping	1/16 microstepping	1/16 microstepping
# microsteps/one revolution of lead screw	15360	15360	6400	6400	6400
Advance per microstep	0,069 µm/step	0,069 µm/step	0,1656 µm/step	0,1656 µm/step	0,1656 µm/step
Minimum Step Rate	27,5 sec/µstep	27,5 sec/µstep	27,5 sec/µstep	27,5 sec/µstep	27,5 sec/µstep
Maximum Step Rate	26 µsec/µstep	26 µsec/µstep	26 µsec/µstep	26 µsec/µstep	26 µsec/µstep
Pusher Travel Rate					
Minimum	0,15 µm/min	0,15µm/min	0,36µm/min	0,36µm/min	0,36µm/min
Maximum	159mm/min	159mm/min	190,8mm/min	190,8mm/min	190,8mm/min
Multi-step programming	N/A	N/A	N/A	1 Program / 100steps	40 Programs / 25 steps
Constant rate				Yes	Yes
Ramp				Yes	Yes
Pulsed				Yes	Yes
Stepped				Yes	Yes
Program export/import				Yes	Yes
Pusher Block stall Detection	Yes	Yes	Yes	Yes	Yes
Computer Interface	USB	USB	USB/RS-232	USB/RS-232	USB/RS-232
TTL	Yes	Yes	Yes	Yes	Yes
Networking	RS-485	RS-485	RS-485	RS-485	RS-485
Real Time clock	No	No	Yes	Yes	Yes
External triggers	One	One	Two	Two	Two
Analog input	No	No	No	Yes (option)	Yes (option)
Footswitch Interface	Yes	Yes	Yes	Yes	Yes
Maintenance Reminder	Yes	Yes	Yes	Yes	Yes
Calibration reminder	No	No	Yes	Yes	Yes
Password lock	Yes	Yes	Yes	Yes	Yes
Audible Alarm Indication	Yes	Yes	Yes	Yes	Yes
Display Rotation	Automatic	Automatic	Automatic	Automatic	Automatic
Multisyringe Rack Accessories	No	No	Yes	No	No
Run LED	Blue	Blue	Blue	Blue	Blue
Power	12-32 VDC	12-32 VDC	100/240VAC 50/60HZ	100/240VAC 50/60HZ	100/240VAC 50/60HZ
Weight	2,66kg	2,66kg	4,9kg	4,9kg	4,9kg
Dimensions (cm) H xWxL	22,6*19,05*15	22,6*19,05*15	8,89*25,4*27,94	8,89*25,4*27,94	8,89*25,4*27,94
Certification					
CE, ETL, UL, CSA, CB Scheme	Yes	Yes	Yes	Yes	Yes
EN61010, EN 61326	Yes	Yes	Yes	Yes	Yes
WEEE, EU RoHS	Compliant	Compliant	Compliant	Compliant	Compliant

Syringe pumps - Legato

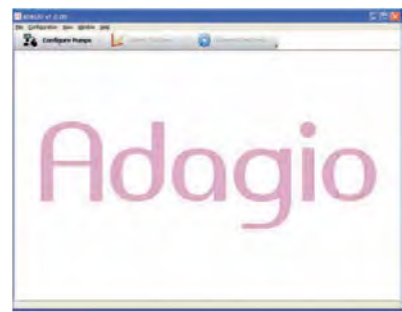
	Infuse / Withdraw					
Legato Model	Legato 110	Legato 111	Legato 180/185	Legato 130	Legato 210	Legato 210P
Mode	Infuse Withdraw	Infuse Withdraw	Infuse Withdraw	Infuse Withdraw	Infuse Withdraw	Infuse Withdraw
Number of Syringes	One	Two	Two / One	Two	Two	Two
Syringe Size	0,5µl to 60ml	0,5µl to 10ml	0,5µl to 10ml	0.5 µl to 1 ml	0.5 µl to 140 ml	0.5 µl to 140 ml
User Interface	Touchscreen	Touchscreen	Touchscreen	Touchscreen	Touchscreen	Touchscreen
Display	4,3" QVGA Display	4,3" QVGA Display	4,3" QVGA Display	4,3" QVGA Display	4,3" QVGA Display	4,3" QVGA Display
Accuracy	+/- 0,5%	+/- 0,5%	+/- 0,35%	+/- 0,5%	+/-0,35%	+/-0,35%
Repeatability	+/- 0,05%	+/- 0,05%	+/-0,05%	+/-0,05%	+/-0,05%	+/-0,05%
Linear Force	13,6kg	13,6kg	13,6kg	5kg	34kg	34kg
Force Adjustment	Yes	Yes	Yes	Yes	Yes	Yes
Minimum Flowrate 0,5µl Syringe	1,26pl/min	1,26 pl/min	0,540 pl/min	3,66 pl/min	3,06 pl/min	3,06 pl/min
Maximum Flowrate 10ml Syringe	25,99 ml/min	25,99 ml/min	11,7ml/min	3.818 ml/min 1ml syringe	31,190 ml/min	31,190 ml/min
Maximum Flowrate 60ml Syringe	88,28 ml/min	-	NA	NA	105 ml/min	105 ml/min
Drive Motor	0,9" Stepper Motor	0,9" Stepper Motor	0,9" Stepper Motor	1,8" Stepper Motor	1,8" Stepper Motor	1,8" Stepper Motor
Microprocessor Motor Drive Control	1/16 microstepping	1/16 microstepping	1/16 microstepping	1/16 microstepping	1/16 microstepping	1/16 microstepping
# microsteps/one revolution of lead screw	15360	15360	20480	3200	6400	6400
Advance per microstep	0,069 µm/step	0,069 µm/step	0,031 µm/step	0,198 µm/step	0,1656 µm/step	0,1656 µm/step
Minimum Step Rate	27,5 sec/µstep	27,5 sec/µstep	27,5 sec/µstep	27,5 sec/µstep	27,5 sec/µstep	27,5 sec/µstep
Maximum Step Rate	26 µsec/µstep	26 µsec/µstep	52 µsec/µstep	52 µsec/µstep	26 µsec/µstep	26 µsec/µstep
Pusher Travel Rate						
Minimum	0,15 µm/min	0,15µm/min	0,02µm/min	0,433µm/min	0,36µm/min	0,36µm/min
Maximum	159mm/min	159mm/min	71,55mm/min	228,97mm/min	190,8mm/min	190,8mm/min
Multi-step programming	2 Program / 50steps	2 Program / 50steps	2 Program / 50steps	2 Program / 50steps	1 Program / 100steps	40 Program / 25steps
Constant rate	Yes	Yes	Yes	Yes		Yes
Ramp	Yes	Yes	Yes	Yes		Yes
Pulsed	No	No	No	No		Yes
Stepped	No	No	No	No		Yes
Program export/import	Yes	Yes	Yes	Yes		Yes
Pusher Block stall Detection	Yes	Yes	Yes	Yes	Yes	Yes
Computer Interface	USB	USB	USB	USB	USB/RS-232	USB/RS-232
TTL	Yes	Yes	Yes	Yes	Yes	Yes
Networking	RS-485	RS-485	RS-485	RS-485	RS-485	RS-485
Real Time clock	No	No	No	No	Yes	Yes
External triggers	One	One	One	One	Two	Two
Analog input	No	No	No	No	Yes (option)	Yes (option)
Footswitch Interface	Yes	Yes	Yes	Yes	Yes	Yes
Maintenance Reminder	Yes	Yes	Yes	Yes	Yes	Yes
Calibration reminder	No	No	Yes	No	Yes	Yes
Password lock	Yes	Yes	Yes	Yes	Yes	Yes
Audible Alarm Indication	Yes	Yes	Yes	Yes	Yes	Yes
Display Rotation	Automatic	Automatic	Automatic	Automatic	Automatic	Automatic
Multisyringe Rack Accessories	No	No	No	No	Yes	Yes
Run LED	Blue	Blue	Blue	Blue	Blue	Blue
Power	12-32 VDC	12-32 VDC	12-32 VDC	12-32 VDC	100/240VAC 50/60HZ	100/240VAC 50/60HZ
Weight	2,66kg	2,66kg	2,66kg	2,05kg	4,9kg	4,9kg
Dimensions (cm) H xWxL	22,6*19,05*15	22,6*19,05*15	22,6*19,05*15	22,6*19,05*9,32	8,89*25,4*27,94	8,89*25,4*27,94
Certification						
CE, ETL, UL, CSA, CB Scheme	Yes	Yes	Yes	Yes	Yes	Yes
EN61010, EN 61326	Yes	Yes	Yes	Yes	Yes	Yes
WEEE, EU RoHS	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant

Syringe pumps - Adagio Graphic Software

The Adagio® Graphic Software adds a new dimension to pump control. Issue manual pump commands or run the pumps automatically with multistep programs. Works with the entire Legato® 200 and 100 pump series.

Adagio® Pump Software – Enhances the Legato® Pumps Use.

Adagio® will allow you to configure the pump through the software as well as operate one or multiple pumps. Programs can be executed as a tabular data drive spreadsheet or as a graphical. Control up to 50 pumps with the Legato 200 series and up to 20 pumps with the Legato 100 series. Pumps can be mixed or matched. Adagio® has been designed to maximize the use of the pumps functions and features and does not require knowledge of software programming.



Adagio's versatile functionality will allow you to:

- Track multiple pumps by serial number and unique name
- Data log and store program information
- Store multiple programs by name
- Define and execute programs in the Adagio® Software
- Independent Manual Pump Control Program
- Graphic Interface or Tabular data interface
- Automatic pump communicator program
- Start/Stop/Reset programs in multiple pumps
- View pumps flow profile in multiple windows

Minimum computer requirements include:

- 2 Ghz Pentium processor or higher
- 512 MB of RAM (2 GB recommended)
- Windows XP SP3 or Vista (XP recommended)
- Free RS-232 or USB 2.0 ports
- Microsoft Excel 97 or higher.

Data Logging

Data can be stored in a file. Selectable formats include *.bmp, *.xls or *.txt. Comments in the text can be manually entered and will be stored in the data file.

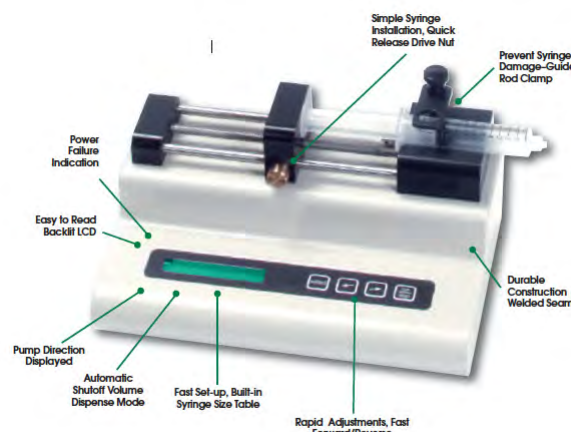
Pump parameters are stored as well as an event record table.

Pump Parameters

- Start time
- Name of the program executed
- Pump, rack and syringe models used
- Total duration of the program execution (in format hh:mm:ss)
- Total volume infused (accumulated positive flows)
- Total volume withdrawn (accumulated negative flows)
- Total volume disposed by the program (difference between infused and withdrawn)
- Flow units considered

Syringe pumps - Legacy

The **Legacy series** is the foundation for all Syringe Pumps. The Legacy pumps are acknowledged as the industry's highest valued solution for delivering precise and smooth flow in research, pilot plants and production applications. Simple and easy to use, these pumps are the favorite of research scientists and engineers. They use the Model 100/ Model 200 syringe pumps more than any other for their outstanding reliability and performance. The Model 100 series pumps give customers the most cost effective solution for infusing fluids. Alternatively, the Model 200/ Model 400 series give the customer advanced features with RS232 and TTL interfaces. All Model 200/ Model 400 series pumps can be daisy chained together to create a **pumping network**.



General Features Available on ALL Legacy pumps:

- Vibration Elimination System
- Flow Direction Indicator
- Fast Forward/Reverse
- Antisiphon Clamp (I/W Models only)
- CE Approved Model 100 series are ETL listed and conforms to ANSI/UL Standard 61010-1:2004 2ND ED. Certified to CAN/CSA STD C22.2NO.61010.1:2004 2ND ED
- Power Recovery Diagnostics
- Optional Foot Pedal Interface
- NIST Certificate Option
- Alarm Option
- CE Approved Models

Basic Programming

- Syringe Library
- Flow Rate Selection
- Volume Dispense Mode
- Direct Entry Syringe Diameter

Standard on Model 200/Model 400 Pumps

- Daisy Chain Connection
- RS232
- TTL
- Foot Switch Interface Standard
- Stall Detection
- Numeric Keypad
- Engineering Unit Selection



Network Multiple Pumps

Network up to 100 Pumps—Mix and Match any Model 200/400 Series Pump!

Advanced Programmable Pumps

Keypad programmable option now available with all Model 200/400 Series syringe pumps. Lets you program right from the keypad with software program on computer.

A large variety Legacy pumps is available, see table. More detailed information is available on demand.



Syringe pumps - Legacy

	Infuse Only						
Legacy Model	Legacy 100	Legacy 100L	Legacy 100Y	Legacy 101	Legacy 200	Legacy 220	Legacy 250
Mode	Infuse	Infuse	Infuse	Infuse	Infuse	Infuse	Infuse
Number of Syringes	One	Two	One	Two	Two	10 Maximum	Four
Syringe Size	10μl to 60ml	10μl to 60ml	10μl to 60ml	10μl to 10ml	10μl to 140ml	10μl to 10ml (upto 10) 40ml to 60ml (upto 6) 100ml to 140ml (upto4)	10μl to 10ml
User Interface	Keypad	Keypad	Keypad	Keypad	Keypad with numerics		
Display	Backlit LCD						
Accuracy	+/- <1%	+/- <1%	+/- <1%	+/- <1%	+/- <1%	+/- <1%	+/- <1%
Repeatability	+/- 0,1%	+/- 0,1%	+/- 0,1%	+/- 0,1%	+/- 0,1%	+/- 0,1%	+/- 0,1%
Linear Force	9kg	9kg	9kg	18kg	18kg	18kg	18kg
Force Adjustment							
Minimum Flowrate 10μl Syringe	0,1μl/hr	0,1μl/hr	0,1μl/hr	0,001μl/min	0,001μl/hr	0,001μl/hr	0,001μl/hr
Maximum Flowrate 10ml Syringe	127 ml/hr	127 ml/hr	127 ml/hr	0,351 ml/min	1270 ml/hr	1270 ml/hr	1270 ml/hr
Maximum Flowrate 60ml Syringe	423 nl/hr	423 ml/hr	423 ml/hr	-	4235 ml/hr	4235 ml/hr	-
Maximum Flowrate 140ml Syringe	-	-	-	-	8824 ml/hr	8824 ml/hr	-
Drive Motor	7,5' Stepper Motor	7,5' Stepper Motor	7,5' Stepper Motor	7,5' Stepper Motor	1,8' Stepper Motor	1,8' Stepper Motor	1,8' Stepper Motor
Motor Gearbox	25:1	25:1	25:1	150:1	N/A	N/A	N/A
Microprocessor Motor Drive Control	1/2 micro stepping	1/2 micro stepping	1/2 micro stepping	1/2 micro stepping	1/16 micro stepping	1/16 micro stepping	1/16 micro stepping
# microsteps/one revolution of lead screw	2400	2400	2400	14400	6400	6400	6400
Advance per microstep	0,529 μm	0,529 μm	0,529 μm	0,088 μm	0,1654 μm	0,1654 μm	0,1654 μm
Minimm Step Rate	30 sec/μstep	30 sec/μstep	30 sec/μstep	30 sec/μstep	120 sec/μstep	120 sec/μstep	120 sec/μstep
Maximum Step Rate	0,0025 sec/μstep	0,0025 sec/μstep	0,0025 sec/μstep	0,0025 sec/μstep	0,000625 sec/μstep	0,000625 sec/μstep	0,000625 sec/μstep
Pusher Travel Rate							
Minimum	0,10583 μm/min	0,10583 μm/min	0,10583 μm/min	0,001767 μm/min	0,10583 μm/min	0,10583 μm/min	0,10583 μm/min
Maximum	12700 μm/min	12700 μm/min	12700 μm/min	2033 μm/min	126900 μm/min	126900 μm/min	126900 μm/min
Multi-step programming							
Constant rate	No	No	No	No	Programmable Model		
Pusher Block stall Detection	No	No	No	No	Yes	Yes	Yes
Computer Interface	No	No	No	No	RS-232	RS-232	RS-232
TTL	No	No	No	No	Yes	Yes	Yes
Networking Daisy chain	No	No	No	No	Yes	Yes	Yes
Audible Alarm Indication							
END OF RUN	Optional	Yes	Optional	Optional	Optional	Optional	Optional
Run LED	No	No	No	No	No	No	No
Power	200-240 VAC 50/60HZ	200-240 VAC 50/60HZ	200-240 VAC 50/60HZ	200-240 VAC 50/60HZ	200-240 VAC 50/60HZ	200-240 VAC 50/60HZ	200-240 VAC 50/60HZ
Weight	2 kg	2 kg	2kg	2kg	4kg	4kg	4kg
Dimensions (cm) H xWxL	23*15,25*13	23*15,25*13	23*15,25*13	23*15,25*13	28*23,5*14	28*23,5*14	28*23,5*14
Certification							
CE, ETL, UL, CSA, CB Scheme	CE Model	CE Model	CE Model	CE Model	CE only	CE Only	CE Only
WEEE, NOT RoHs	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Programmable Model	N/A	N/A	N/A	N/A	200P	220P	250P

Syringe pumps - Legacy

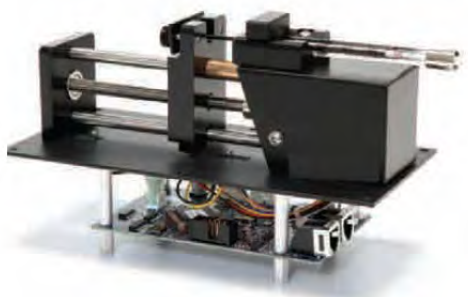
	Infuse/Withdraw		Push/Pull Pumps		Continuous	High Pressure Pumps	Remote Injector Pump
Legacy Model	Legacy 210	Legacy 230	Legacy 120	Legacy 260	Legacy 270	Legacy 410	Legacy 310plus
Mode	Infuse/Withdraw	Infuse/Withdraw	Push/Pull	Push/Pull	Infuse/Withdraw/Continuous	Infuse/Withdraw	Infuse/Withdraw
Number of Syringes	Two	10 Maximum	One and One	Two and Two	Two and Two	One	One
Syringe Size	10 μ l to 140ml	10 μ l to 10ml (upto 10) 40ml to 60ml (upto 6) 100ml to 140ml (upto4)	10 μ l 10ml	10 μ l to 60ml	10 μ l to 60 ml	10 μ l to 140ml	0,5 μ l to 250 μ l
User Interface	Keypad with numerics	Keypad with numerics	Keypad	Keypad with numerics	Keypad with numerics	Keypad with numerics	Keypad
Display	Backlit LCD						
Accuracy	+/- <1%	+/- <1%	+/- <1%	+/- <1%	+/- <1%	+/- <1%	+/- <1%
Repeatability	+/- 0,1%	+/- 0,1%	+/- 0,1%	+/- 0,1%	+/- 0,1%	+/- 0,1%	+/- 0,1%
Linear Force	18kg	18kg	9kg	18kg	18kg	45kg	0,9kg
Force Adjustment							
Minimum Flowrate 10 μ l Syringe	0.001 μ l/hr	0.001 μ l/hr	0,1 μ l/hr	0,001 μ l/min	0,001 μ l/hr		145,6 ML/min (100 μ l syr)
Maximum Flowrate 10ml Syringe	1270 ml/hr	1270 ml/hr	127 ml/hr	1270 ml/hr	1270 ml/hr	1270 ml/hr	-
Maximum Flowrate 60ml Syringe	4235 ml/hr	4235 ml/hr	423 ml/hr	4235 ml/hr	4235 ml/hr	4235 ml/hr	-
Maximum Flowrate 140ml Syringe	8824 ml/hr	8824 ml/hr	-	8824 ml/hr	8824 ml/hr	8824 ml/hr	-
Drive Motor	1,8' Stepper Motor	1,8' Stepper Motor	7,5' Stepper Motor	1,8' Stepper Motor	1,8' Stepper Motor	1,8' Stepper Motor	-
Motor Gearbox	N/A	N/A	25:1	N/A	N/A	N/A	N/A
Microprocessor Motor Drive Control	1/16 micro stepping	1/16 micro stepping	1/2 micro stepping	1/16 micro stepping	1/16 micro stepping	1/16 micro stepping	-
# microsteps/one revolution of lead screw	6400	6400	2400	6400	6400	6400	-
Advance per microstep	0,1654 μ m	0,1654 μ m	0,529 μ m	0,1654 μ m	0,1654 μ m	0,1654 μ m	1,58 μ m
Minimm Step Rate	120 sec/ μ step	120 sec/ μ step	30 sec/ μ step	120 sec/ μ step	120 sec/ μ step	120 sec/ μ step	-
Maximum Step Rate	0,000625 sec/ μ step	0,000625 sec/ μ step	0,0025 sec/ μ step	0,000625 sec/ μ step	0,000625 sec/ μ step	0,000625 sec/ μ step	-
Pusher Travel Rate							
Minimum	0,10583 μ m/min	0,10583 μ m/min	0,10583 μ m/min	0,001767 μ m/min	0,10583 μ m/min	0,10583 μ m/min	-
Maximum	126900 μ m/min	126900 μ m/min	12700 μ m/min	126900 μ m/min	126900 μ m/min	126900 μ m/min	-
Multi-step programming	Programmable Model		NO	Programmable Model			NO
Pusher Block stall Detection	Yes	Yes	No	Yes	Yes	Yes	No
Computer Interface	RS-232	RS-232	No	RS-232	RS-232	RS-232	No
TTL	Yes	Yes	No	Yes	Yes	Yes	No
Networking Daisy chain	Yes	Yes	No	Yes	Yes	Yes	No
Audible Alarm Indication							
END OF RUN	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Run LED	No	No	No	No	No	No	No
Power	200-240 VAC 50/60HZ	200-240 VAC 50/60HZ	200-240 VAC 50/60HZ	200-240 VAC 50/60HZ	200-240 VAC 50/60HZ	200-240 VAC 50/60HZ	200-240 VAC 50/60HZ
Weight	4 kg	4 kg	2kg	4kg	4kg	6,4kg	2kg
Dimensions (cm) H xWxL	28*23,5*14	28*23,5*14	23*15,25*13	28*23,5*14	28*23,5*14	15*28*24	17,8*4,4*5,1
Certification							
CE, ETL, UL, CSA, CB Scheme	CE Only	CE Only	CE Model	CE Only	CE only	CE Only	CE Model

Syringe pumps - Specialty

Pump customization is now easier with the new OEM modules. Integrate these modules into your systems or work with our engineering staff to design different syringe mechanisms or controllers. We offer the technology and engineering expertise to meet your demanding applications. It is possible to customize modules to meet your application requirements. With our technical expertise in syringe pump design, we can meet even the most demanding applications at an affordable price. OEM pumps can be modified with different mechanisms and configurations. The basic models are shown below:

Microliter & Milliliter Syringe Pump Modules are Highly Precise:

- Constant Current Drive offers more consistent force delivery over the entire dynamic flow rate range.
- Independent infuse and withdraw limit switches
- Emergency stop switch at pump
- Start/stop at pump
- Encoder for stall detection
- Power and run LED on the PC Board
- Supports external run LED
- Network multiple pumps
- Pump setting retained in NVRAM
- Adjustable force control
- Easily mounts to panel openings
- Customizable syringe mechanisms available
- Customizable chassis designs available
- Lead Free Design, RoHS compliant
- CE approved
- Advanced microstepping techniques



900 Customizable μ l OEM Module

- 0.5 μ l to 1 ml syringe
- Minimum flow rate 0.001 μ l/hr (0.5 μ l syringe)
- $< \pm 0.35\%$ Accuracy
- Maximum flow rate 1.330 ml/min (1 ml syringe)
- RS-232 Interface
- Linear Force 7 lbs.



910 Customizable Milliliter OEM Module

- 0.5 μ l to 50/60 ml syringes
- Minimum flow rate 0.001 μ l/hr (0.5 μ l syringe)
- $< \pm 0.35\%$ Accuracy
- Maximum flow rate 44.28 ml/min (50/60 ml syringe)
- RS-232 Interface
- Linear Force 25 lbs

Legato OEM 950 Single Syringe Infuse/Withdraw OEM Module

Based on the Legato® 100 series syringe pump design, the NEW Legato® 950 is ideal for applications interfacing to a computer. Accommodates syringes 0.5 μ l to 60 ml. User definable flow rates with selectable target volume or time values to control the total infusion volume.

- $\pm 0.5\%$ Accuracy
- 0.5 μ l to 60 ml syringes
- Continuous mode of operation
- Programmable with ASCII commands
- Encoder stall detection
- USB Interface
- TTL Interface
- Customizable syringe mechanisms available
- Customizable chassis designs available
- Advanced microstepping techniques
- Linear force 30 lbs (13.6 kg)
- CE, CB Scheme, EU RoHS compliant



Syringe pumps -Specialty



Legato 380 Emulsifier/Homogenizer

The NEW Legato® 380 emulsifying system is based on the Legato® Series of syringe pumps. It utilizes a modified Legato® 210P and Legato® 270P. All the standard features of the Legato® products are still available, but a custom emulsification program has been added to the software. This program is only available with the Legato® 380 system. The Legato® 210P and Legato 270P can also be used as stand alone syringe pumps. The emulsifying system mimics the same action as in manually pushing fluid back and forth between syringes, but does it automatically. You select the volume and the emulsifying rate. The pumps will automatically move the fluid back and forth between the syringes for a user determined time or number of cycles.

- Eliminate fatigue associated with manual emulsification
- Automatically move solutions between two syringes
- Multiple functionality – use as independent syringe pump units
- Selectable emulsifying rates
- Selectable volumes
- Adjustable duration – Enter the number of cycles or the total time
- Adjustable force makes it ideal for viscous fluids – up to 75 lbs (34 kg) of linear force
- Flexible syringe sizes and types



Gemini 88

Dual Rate Pump

This unique pump is really two pumps in one. Each side of the Gemini 88 has its own syringe rack, motor and leadscrew. The pump can infuse simultaneously at different rates, or infuse with one syringe and withdraw with the other. When combined with a valve box it provides continuous delivery.

- Reciprocal/Parallel Mode - Syringe mechanisms can run in the same or opposite directions (i.e. both infusing/withdrawing at the same time or one infusing and the other withdrawing)
- Proportional Mode - Different flow rates and syringe diameters can be set for each syringe mechanism
- AutoStop Mode - Pump stops operation when a limit switch is activated.
- Continuous Run Mode - When a limit switch is activated each syringe mechanism reverses direction.
- 57 lbs (25.8 kg) of linear force

Note: Glass syringe > 100 ml consult factory.

Syringe pumps - Specialty Products Specifications

	900	910	Legato 950	Gemini 88	Legato 380
Model	Microliter OEM	Milliliter OEM	Legato OEM	Independant Rate Control	Emulsifier
Mode	Infuse/Withdraw	Infuse/ Withdraw	Infuse/Withdraw	Infuse/Withdraw/Continuous	Infuse/Withdraw/ Push-Pull Emulsify
Number of Syringes	One	One	One	Two Independent	Four
Syringe Size	0,5µl to 1 ml max	05,µl to 60ml	0,5µl to 60ml	0,5¹ to 140ml	0,5µl to 140ml
User Interface	Computer	Computer	Computer	Keypad with Numerics	Touch Screen
Display	n/a	n/a	n/a	Backlit LCD	4,3 QVGA
Accuracy	+/- ≤ 0,35%	+/- ≤ 0,35%	+/- ≤ 0,5%	+/- ≤ 0,35%	+/- ≤ 0,35%
Repeatability	+/- 0,1%	+/- 0,1%	+/- 0,05%	+/- 0,1%	+/- 0,05%
Linear Force (Max)	7lbs Peak Min Adjustable	25 lbs Peak Min Adjustable	13,6kg @ 100% Force Selection	28,5kg	34 kg@ 100% Force selection
Minimum Flowrate 10µl Syringe	216 pl/hr	216 pl/hr	28,26 pl/min	6600 pl/hr	-
Maximum Flowrate 10ml Syringe	1330 µl/min (1ml syringe)	13,286 ml/min	25,99 ml/min	15,733 ml/min	31,190 ml/min
Maximum Flowrate 60ml Syringe	-	44,283 ml/min	88,28 ml/min	53,346 ml/min	105 ml/min
Maximum Flowrate 140ml Syringe	-	-	-	106,6 ml/min	220,97 ml/min
Drive Motor	0,9” stepper motor	0,9” stepper motor	0,9” stepper motor	0,9” stepper motor	1,8” stepper motor
Microprocessor Motor Drive Control	1/4 and 1/16 Microstepping	1/4 and 1/16 Microstepping	1/16 Microstepping	1/2 and 1/4 Microstepping	1/16 Microstepping
# microsteps/one revolution of lead screw	-	-	15,360	1600 steps ar 1/2 stepping or 3200 stpes at 1/4 stepping	6,400
Advance per microstep	-	-	-	0,33 µm/µstep	0,1656 µm/µstep
Minimm Step Rate	3,8 sec/µstep	3,8 sec/µstep	27,5 sec/µstep	27,3 sec/µstep	27,5 sec/ µstep
Maximum Step Rate	250 µsec/µstep	250 µsec/µstep	26 µsec/µstep	416,7 µsec/µstep	26 µsec/µstep
Pusher Travel Rate					
Minimum	1,3 µm/min	1,3 µm/min	0,15 µm/min	0,726699 µm/min	0,3 µm/min
Maximum	83,4 mm/min	83,4 mm/min	159 mm/min	95,25 mm/min	190,80 mm/min
Multi-step programming	No	No	No	No	Custom Emulsifying Program
Constant rate	-	-	-	-	Yes
Ramp	-	-	-	-	Yes
Pulsed	-	-	-	-	Yes
Stepped	-	-	-	-	Yes
Program Export/Import	No	No	No	No	Yes
Pusher Block stall Detection	No	Yes	Yes	Yes	Yes
Computer Interface	RS-232	RS-232	USB	RS-232	USB/ RS-232
TTL	No	No	Yes	Yes	Yes
Networking	Yes	Yes	RS-485	Yes	RS-485
Real time Clock	No	No	No	No	Yes
External triggers	No	No	One	No	Two
Analog Output	No	No	No	No	Yes (optional)
Footswitche Interface	Yes	Yes	Yes	No	Yes
Maintenance Reminder	No	No	Yes	No	Yes
Calibration Reminder	No	No	Yes	No	Yes
Password Lock	No	No	Yes	No	Yes
Audible Alarm Indication	No	No	End of run (optional)	End of run (optional)	End of run, Near end of run, Stall detection, Power-up, Keypad-clicks, Calibration reminder
Display Rotation	N/A	N/A	No	No	Automatic
Multisyringe Rack Accesories	No	No	No	No	No
Run LED	No	No	No	No	Yes
Weight	0,8kg	1,23 kg	3,62kg	9,8kg	9,8kg each
Dimensions (cm) H xWxL	18,4*9,2*11,4	23*15,25*13	15,25*10,16*24,13	31,75*28,57*15,25	Dependent on syringe size
Certification	-	-	Yes	-	-
CE, ETL, UL, CSA, CB Scheme	CE	CE	Yes	CE	Yes
EN61010, EN 61326	-	-	Yes	-	Yes

Syringe pumps -EZFlow Series

The new Scientific EZFlow Pump Series, is a line of economical pumps for simple infusions and dosing applications. The pumps are designed to combine high levels of performance together with ease of use and reliable operation. EZFlow products offer a complete line of pumps to meet many different applications. Micro-infusion pumps, volumetric infusion pumps, syringe pumps, portable pumps and disposable pumps are available at affordable prices.

EZFlow 2020/2021 Time Based Syringe Pump

EZFlow 2020/2021 is a durable syringe pump useful in high rate infusions. It is designed to enhance quick efficient operation while maintaining simplicity.

- Waterproof ergonomic touch control panel
- Broad infusion capability
- Typical accuracy ± 20 sec
- Set time indicator
- Set time button
- Fast purge feature
- Occlusion detection
- Wide range of plastic syringes
- 20/30 ml, 50/60 ml and 100 ml
- Audible & visual alarms
- Complete, occlusion detection,
- Low battery & near empty alarms
- Self test & self diagnostic



EZFlow 2010/2011 Flow Rate Syringe Pump

EZFlow 2010/2011 with NEW Advanced Features has user selected flow rates that are easy-to-use, with simple increment and decrement arrow keys. A rapid delivery key will allow the user to eliminate the dead volume and also eliminate excess air in the tubing prior to delivery of the fluids. The pump offers continuous mode of operation and reliable long-term fluid deliveries. The unit has occlusion detection from 5.0 kg to 5.5 kg.

- Large LED display for flow rate indication
- Wide flow rate range 0.1 – 500 ml/hr
- Typical accuracy $\pm 2.0\%$
- Quick flow rate selection
- Fast purge feature
- Visual run indicator
- Toggle to indicate total volume dispensed
- Occlusion detection alarm indicator
- Wide range of plastic syringes
- 10 ml, 20/30 ml, 50/60 ml and 100 ml
- Easy calibration for different syringes
- Audible & visual alarms
- Complete, occlusion detection
- Low battery & near empty
- Includes IV pole mount
- CE certification



EZFlow 2040 Infusion Pump

EZFlow 2040 is a volumetric infusion pump designed to enhance quick efficient operation while maintaining simplicity. It meets the CE directive and is EC 93/42 EEC. It is designed to deliver precise infusions at rates from 0.1 to 1200 ml/hr. It features a bright 2.7 inch OLED with separate display which shows volume delivered, volume rate, time and date. There are 5 preset languages and many other advanced features that make the EZFlow 2040 one of the most outstanding infusion pumps in its class. The EZFlow 2040 is portable, user friendly and offers a new alternative for micro reliable infusions. The ergonomic touch screen panel offers ease of selection and programming.

- Dual infusion modes
- Set at ml/hr or drops/min
- Flow rate range 0.1 ml to 1200 ml/hr
- Typical accuracy $\pm 2.0\%$
- Audible & visual alarms
- Programmable infusion mode
- Store up to 10 memory settings
- Battery capacity 3 hours
- IPX1 enclosure
- CE 0197 certified
- 12 month warranty• Includes IV pole mount
- CE certification



Syringe pumps -EZFlow Series

EZFlow 2030 Portable Syringe Pump

EZFlow 2030 with NEW Advanced features is a small, light and completely portable syringe pump. It is designed to deliver small volumes with a linear flow rate of 1 - 99 mm per/hr with $\pm 2\%$ accuracy and can be used in a wide variety of applications. It is cost effective and the most compact and lightest pump in its class. This portable, user friendly syringe pump offers a new alternative for micro reliable infusions. It can use a wide variety of plastic syringes from 1 ml to 20 ml. Ergonomic, easy-to-use, horizontal design protects the syringe barrel and allows single-handed loading.

- Easy-to-use
- Linear flow rate 0.1 – 99 mm/hr
- Typical accuracy $\pm 2.0\%$
- Bolus feature 1/4 of syringe size
- Wide range of plastic syringes from 1 - 20 ml
- Audible & visual alarms
- Complete occlusion detection
- Low battery alarm
- Battery operation 30 days
- DC power supply 4.5V
- IPX1 enclosure
- 12 month warranty
- CE certification



EZFlow 2050 Disposable Infusion Pump

EZFlow 2050 disposable infusion pump is simple, convenient, and affordable. It is designed to electronically deliver continuous, constant controlled infusions. Simply dial to set infusion rate in seconds, with flow rates ranging from 2 to 10 ml/hr. Choice of 100 ml or 260 ml sterilized reservoir box. The pump can be used multiple times, the reservoir needs to be disposed of after each use. The EZFlow 2050 disposable infusion pump is portable and user friendly. It offers a new alternative for micro reliable infusions. It comes complete with a convenient carrying belt. The EZFlow 2050 uses 2 AA batteries, up to 400 hours at 1 ml/hr. The pump is completely portable weighing less than 100 g (less than 0.5 lbs).

- Ergonomic touch buttons
- Simple operation
- Flow rate options 1 to 10 ml/hr
- Typical Accuracy $\pm 10\%$
- Audible & visual alarms
- Disposable pump and reservoir
- Convenient carrying belt
- CE 0197 certified
- 12 month warranty
- Weight 100 g (without battery)



Syringe pumps - EZFlow Series

Model	EZFLOW2010	EZFLOW2011	EZFLOW2020	EZFLOW2021	EZFLOW2030	EZFLOW2040	EZFLOW2050
Syringe size	10ml, 20/30ml, 50/60ml, 100ml	10ml, 20/30ml, 50/60ml, 100ml	20/30ml, 50/60ml, 100ml	20/30ml, 50/60ml, 100ml	1 ml to 20ml	Infusion Pump	-
Syringe Type	Plastic Only	Plastic Only	Plastic Only	Plastic Only	Plastic Only	-	-
Reservoir Size	N/A	N/A	N/A	N/A	N/A	N/A	100 or 260ml
Accuracy	+/- 2%	+/- 2%	+/- 20 sec	+/- 20sec	< +/- 2%	< +/- 2% pump only	+/- 10%
Linear Rate	-	-	-	-	0,1mm/hr to 99 mm/hr	-	-
5ml Syringe	-	-	-	-	-	-	Flow rate option Purge 1,2,3,4,6,8,10 ml/hr
20/30ml Syringe	0,1ml hr to 500ml /hr	0,1ml hr to 500ml /hr	-	-	-	-	-
50/60ml Syringe	0,1 ml/hr to 1200 ml/hr	0,1 ml/hr to 1200 ml/hr	-	-	-	-	-
100 ml Syringe	0,1 ml/hr to 1500 ml/hr	0,1 ml/hr to 1500 ml/hr	-	-	-	-	-
Flow rate increment	0,1 ml/hr increment	0,1 ml/hr increment	-	-	-	-	-
Time Settings	-	-	4, 8, 12, 16, 20 min	-	-	-	-
Alarms	-	-	-	-	Yes	-	-
Near Empty	Yes	Yes	Yes	Yes	Yes	-	N
Complete	Yes	Yes	Yes	Yes	Yes	-	Yes
Occlusion	Yes	Yes	Yes	Yes	Yes	-	Yes
Low Battery	Yes	Yes	Yes	Yes	Yes	-	Yes
Power Supply	50/60 Hz; 12 VDC	100-240 VAC	110 VAC 60 Hz 12 VDC	220 VAC 50Hz 12 VDC	DC4,5 V3 AA Batteries	100 AC to 240 VAC or 12 VDC	2 AA Batteries
Enclosure	Drop Proof IPX1	Drop Proof IPX1	Drop Proof IPX1	Drop Proof IPX1	-	-	-
Battery Operation	4 Hours Continuously Operation at 50ml/hr	4 Hours Continuously Operation at 50ml/hr	-	-	-	-	-
Dimensions (mm)	120x335x142	120x335x142	120x366x115	-	60x166x30	240x105x172	140x95x35
Weight	2,5kg	2,25kg	1,8kg	-	180g without batteries	2,9kg	100gr without batteries
Certifications	-	-	-	-	-	-	-
CE 0197	Yes	Yes	No	No	Yes	-	-
EC Directive 93/42/EEC, Annex II, Article 3	Yes	Yes	No	No	-	-	-

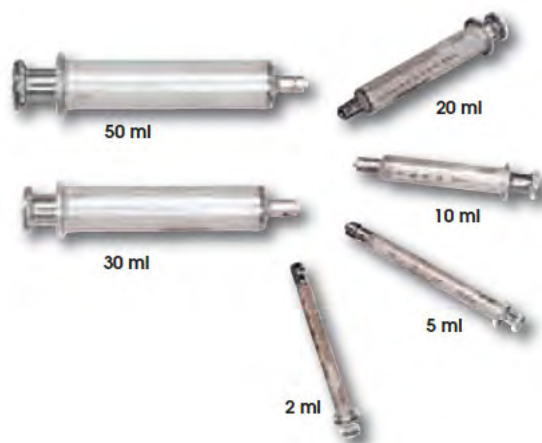
Syringe pumps - Premier Glass Syringes

We offer a Glass Syringes new line of glass syringes to meet scientific applications in the laboratory environment. Over ten different sizes of glass syringes ranging from 1.0 ml to 50 ml are available.

All syringes are made from heat resistant borosilicate glass. The material and construction are resistant to breakage from shock and sudden temperature changes. They are all annealed and tested until free of internal strain to withstand repeated washing.

Easy to clean and maintain

- Accurate dispensing
- Reusable
- Economical
- Durable
- Chemically resistant
- Resistant to thermal shock



Specifications

Min. Order Qty.	6	6	6	6	6	6	6
Volume*	1,0ml	2,0ml	5,0ml	10ml	20 ml	30ml	50ml
Barrel Inside Diameter (mm)	$4,8 \pm 0,1$	$6,45 \pm 0,1$	$12,6 \pm 0,1$	$15,15 \pm 0,15$	$20,4 \pm 0,2$	$22,9 \pm 0,2$	$27,45 \pm 0,2$
Barrel Diamter Outside (mm) D1	$9,3 \pm 0,2$	$9,95 \pm 0,2$	$15,4 \pm 0,3$	$18,35 \pm 0,35$	$24,20 \pm 0,4$	$27,3 \pm 0,4$	$32,35 \pm 0,55$
Barrel Collar diameter (mm) D2	$14,95 \pm 0,5$	$16,40 \pm 0,5$	$22,25 \pm 0,75$	$26,20 \pm 0,75$	$32,25 \pm 0,75$	$37,55 \pm 0,75$	$44,0 \pm 0,75$
Piston Collar Diameter (mm) D	$11,5 \pm 0,50$	$12,25 \pm 0,75$	$17,25 \pm 0,55$	$19,95 \pm 0,6$	$24,65 \pm 0,65$	$27,95 \pm 0,65$	$34,05 \pm 0,65$
Length (mm) L	$115 \pm 0,5$	$115 \pm 0,5$	$105 \pm 0,5$	$128,5 \pm 0,5$	$145,5 \pm 0,5$	$163 \pm 0,5$	$178 \pm 0,5$
Major Graduations (ml)	0,20	0,50	1,0	1,0	5,0	5,0	10
Minor Graduations (ml)	0,02	0,05	0,20	0,20	1,0	1,0	2,0
Order code	78871	780872	780873	780874	780875	78076	780877



Glass Properties

Volume	* 1,5% of rated volume
Expansion Coefficient	$52 \times 10^{-7}/^{\circ}\text{C}$
Density	$2,36 \text{ g/cm}^3 \pm 0,03 \text{ g/cm}^3$
Modulus of Elasticity	$64 \times 10^3 \text{ N/m}^2$
Water Resistance	First Class
Acid Resistance	First Class
Alkali Resistance	First Class
Softening Point	785°C
Melting Temperature	1260°C
Strain Point	525°C
Annealing Point	570°C
Hardness	7
Color	Clear

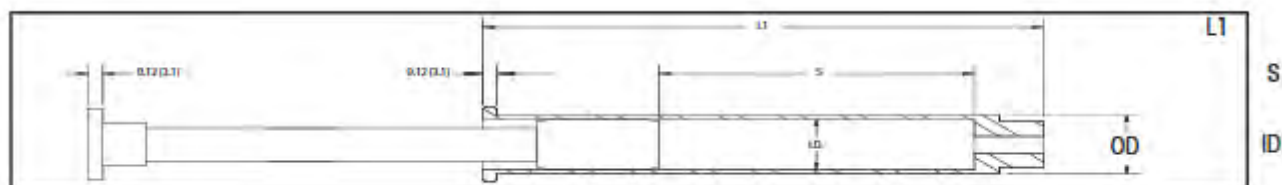
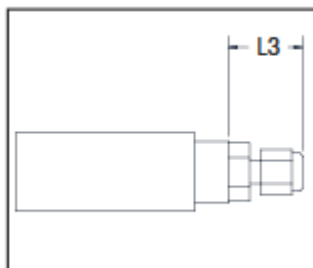
Syringe pumps - Steel Syringes

A premier line of stainless steel syringes is now available. Rugged stainless steel syringes are an ideal solution when the pressures and the force are high, completely eliminating the problem of breaking glass syringes.

Stainless steel offers good resistance to most aggressive liquids. Wetted parts are #316 stainless steel and Viton or Perfluoroelastomer. Syringes are available in 2.5, 8, 20, 50 and 100 ml sizes with removable, replaceable tips. Genuine SWAGELOK™ syringe to tube fittings are available in 1/16, 1/8 and 1/4 inch sizes. A luer lock end fitting is also available. Tips are interchangeable with all syringes from 20 to 100 ml in size.

- Compatible with Most Syringe Pumps
- Eliminate Hazards of Glass Syringe Breakage
- Adaptable to Luer Lock or Swagelok™ Fittings
- Rugged Construction #316 Stainless Steel
- Reuseable - Fully Autoclavable
- Resistance to Most Chemicals

Syringe	Fitting	L3 (mm)
2,5 to 8ml	1/16	18,8
2,5 to 8ml	1/8	23,1
20 to 200ml	1/16	17,0
20 to 200ml	1/8	21,3
20 to 200ml	1/4	23,9
20 to 200ml	Luer	34,0



Specifications

Volume	2,5ml	8ml	20ml	50ml	100ml
Dimensions:					
Overall length of Barrel (L1)	168,7	170,8	120,0	139,3	170,9
Stroke (S)	137,5	112,4	69,6	77,83	140,5
Outside Diameter (OD)	12,7	12,7	22,2	31,8	38,1
Inside Diameter (ID)	4,85	9,525	19,13	28,6	34,90
Maximum Test pressure	9000psi	4000psi	1500psi	1500psi	1500psi
Working Pressure	7000psi	1500psi	700psi	700psi	700psi
O-ring Material Standard	Perfluoroelastomer	Perfluoroelastomer	Viton	Viton	Viton
O-ring specials (optional)	N/A	N/A	Perfluoroelastomer	Perfluoroelastomer	Perfluoroelastomer
Order code with Swagelok 1/16	780801	780802	780803	780804	780805
Order code with Swagelok 1/8	N/A	780807	780808	780809	780810
Order code with Swagelok 1/4	N/A	N/A	780812	780813	780814
Order code with Luer	N/A	N/A	780816	780817	780818

Syringe pumps - Gas tight Syringes

A new line of Gas Tight Syringes range from 0.5 μ l to 100 ml for precision sampling and dosage in synthesis, spectroscopy, preparation of standard solutions, for manual application, and for use in syringe pumps, autosamplers, diluters, dispensers & other liquid handling instruments.

Precision bore tubing from 3.3 borosilicate a highly resistant glass are used with this syringes and all metal parts and PTFE-seals are made in-house. State of the art computer controlled equipment such as milling machines, lathes and glass shrinking equipment, together with years of glass working experience, guarantee the optimum quality of the products.

- Borosilicate glass 3.3 x 10-6K-1
- Precision Machined Polymer Plunger Tip
- Compatible with gas or liquids
- Highly chemical resistant
- Leak Free PTFE Seal
- Stainless Steel Plunger
- Syringes > 2.5 ml have metal flange with threaded screw



Specifications

Volume	250 μ l	500 μ l	1,0ml	2,5ml	5,0ml	10,0ml	25ml	50ml	100ml
Barell Inside Diameter Nominal (mm)	2,303	3,26	4,606	7,28	10,3	14,567	23,032	32,573	32,573
Total length (mm)	117	120	119	119	123	119	131	132	179
Scale length (mm)	60	60	60	60	60	60	60	60	60
Major Graduations	50 μ l	100 μ l	100 μ l	0,5ml	1ml	1ml	5ml	10ml	10ml
Minor Graduations	10 μ l	10 μ l	10 μ l	50 μ l	10 μ l	10 μ l	50 μ l	1ml	1ml
Maximum Temperature (°C)	120	120	120	120	120	120	120	120	120
Minimum Temperature (°C)	10	10	10	10	10	10	10	10	10
Maximum Pressure Rating (psi)	1,100	800	500	300	200	180	150	115	115
Order code	780882	780883	780884	780885	780886	780887	780888	780889	780890

Syringe pumps - Plastic Syringes

We offers a new line of disposable Plastic Sterile Syringes for all scientific applications. Available in sizes ranging from 3 ml to 50 ml with Luer Lock (LL) or Luer Slip (LS) Tip. Normject syringes are the ideal solution for any situation. Their unique two-part system is latex free and contains no silicone lubricant or rubber. Our syringes are made from laboratory grade polypropylene and polyethylene. There is no rubber tip on the plunger making them more chemically resistant than rubber tipped syringes. These unique plastic syringes have a positive safety stop to prevent accidental spills.

- Sterile Packed and Disposable
- Compatible with Most Syringe Pumps
- Disposable Substitute for Glass Syringes
- No Silicone Lubricant or Rubber
- Economical



Specifications

	LUER LOCK Package of 25					
Volume (cc)	3	5	10	20	30	50
Total length (mm)	74,9	87	98,5	115,1	132,5	150,0
Length of Cylinder (mm)	65,1	73,8	85,3	102,4	105,2	120,3
Outside Diameter (mm)	10,8	13,7	17,3	21,55	24,1	30,9
Inside Diameter (mm)	9,65	12,45	15,9	20,5	22,9	29,2
Nozzle configuration	Centric	Centric	Centric	Centric	Centric	Centric
Order Code	780851	780852	780853	780854	780855	780856

Dose saver design with 0,025 low dead space plug on the piston to minimize waste.

the 5cc has graduations to 6cc, 10ml has graduations to 12cc, 20cc has graduations to 24cc and 50cc has graduations to 60cc.

		Slip LOCK Package of 25					
Volume (cc)	1	3	5	10	20	30	50
Total length (mm)	94,8	74,9	87	98,5	115,1	132,5	150,0
Length of Cylinder (mm)	84,7	65,1	73,8	85,3	102,4	105,2	120,3
Outside Diameter (mm)	6,4	10,8	13,7	17,3	21,55	24,1	30,9
Inside Diameter (mm)	4,69	9,65	12,45	15,9	20,5	22,9	29,2
Nozzle configuration	Tuberculin	Centric	Centric	Centric	Centric	Centric	Centric
Order Code	780850	780857	780858	780859	780860	780861	780862

The 5 cc has graduations to 6 cc, 10ml has graduations to 12 cc, 20 cc has graduations to 24 cc and 50 cc has graduations to 60 cc.

Total length is piston thumb rest to syringe tip on an assembled syringe. Cylinder Length is cylinder only, finger grip to tip. The barrel is polypropylene, piston is high density polyethylene

Syringe pumps - valve boxes for Legacy & Legato Pumps

We offer two types of valve boxes; autofill and continuous. The autofill valve has a single valve, which is used to reload the syringe once it is empty or partially empty. This type of valve box will work with any infusion/withdrawal pump. Each syringe must have its own valve box. The continuous valve box has 2 valves mounted. The continuous valve box can be used with the push/pull pumps and our continuous flow pumps or a continuous flow setup using 2 separate pumps to create continuous flow. As one syringe is filling, the other syringe is dispensing.

Medium Pressure

< 25 psi (1.7 bar)

- Pinch valves
- C-flex tubing supplied 1/16" ID x 1/8" OD



Low Pressure

< 100 psi (6.8 bar)

- PTFE valves
- All wetted parts PTFE
- 3 port (1/4-28 with 1/16" OD-tube fittings for plastic tubing



High Pressure

< 200 psi (13.8 bar)

- 303 stainless steel
- Wetted seals perfluoroelastomer and PTFE
- 3 port (1/8" NTP with 1/4" OD swagelok fitting for stainless steel tubing (not supplied)



Example of Medium Pressure. Autofill valve box with Legato 110 Barb Connection Kit (788349)



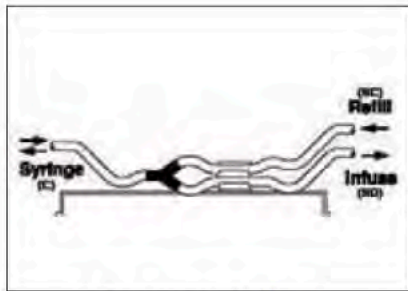
Example of Medium Pressure Continuous Valve Box with Legato 270 Barb Kit (788351)

Syringe pumps - Valve Boxes

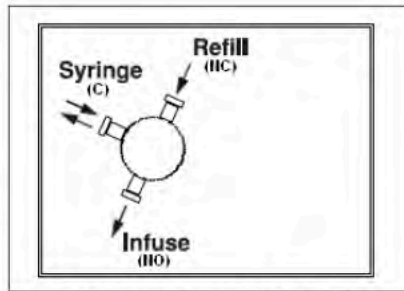
Valve Box Diagrams

Auto Fill Valve Boxes:

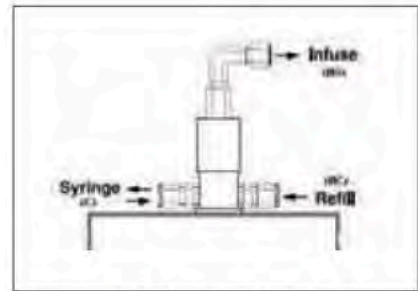
Single Valve - Commonly used to reload syringe once it is empty or partially empty.



Low Pressure Auto Fill



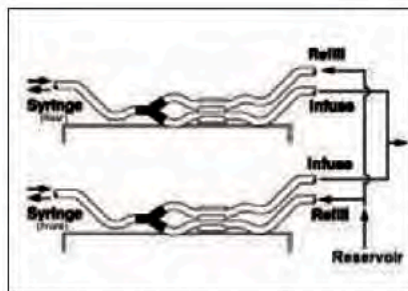
Medium Pressure Auto Fill



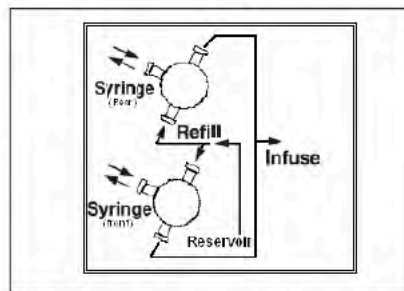
High Pressure Auto Fill

Continuous Delivery Valve Boxes:

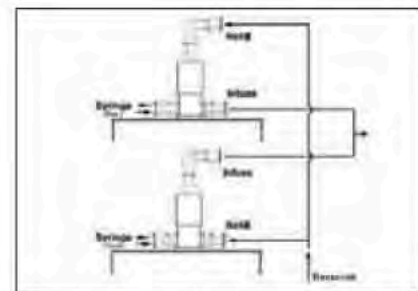
Dual mounted valves - Commonly used with a Legato 270 Continuous Pump or Model 270.



Low Pressure Continuous



Medium Pressure Continuous



High Pressure Continuous

Specifications



Order number	VALVE KITS
788345	Low Pressure Auto Fill Kit
788346	Low pressure Continuous Delivery Kit - (2x Autofill kit)
788347	Medium pressure Nut / Ferrule Auto Fill kit nut PEEK 1/16, 1/4-28 (3pcs) Ferrule, falngeless 1/16 (3pcs) & PTFE tubing (5ft)
788348	Medium pressure Nut/ Ferrule Continuous delivery Kit- (2x Auto fill kit)
788349	Medium Pressure Barb Auto Fill Kit Barb 1/16 (3pcs) & C-flex tubing (10ft)
788351	Medium Pressure Luer Auto Fill Kit, female to male luer lock 1/4-28 (1pc), Male to female luer lock 1/4-28 (2pcs).
788352	Medium Pressure Luer Continuous Delivery Kit - (2x autofill kit)
788353	Medium Pressure barb Continuous Delivery Kit - (2x autofill kit)

Order number	Standard Version
788333	Auto fill Valve Box, Low Pressure
788336	Auto fill Valve Box, Medium Pressure
788338	Auto fill Valve Box, High Pressure
788332	Continuous Flow Valve Box, Low Pressure
788335	Continuous Flow Valve Box, Medium Pressure
788337	Continuous Flow Valve Box, High Pressure

Pegasus pumps

The Pegasus Pumps are distributed solely by UNO to the lab animal market. This well known pump is available in 2 versions:

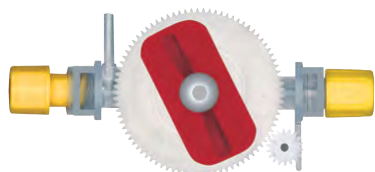
Pegasus 500V (formerly Pegasus Vario) and Pegasus 500L (formerly Pegasus Lab Light).

	Pegasus 500V	Pegasus 500L
	Micropulsing Pump	Peristaltic
Flowrates	0,01 - 15,00 ml/hr	0,10 - 100ml/hr
Pulses	0,8µl	7µl
Size	8,4 * 6,2 * 3,1cm	8,4 * 6,2 * 3,1cm
Weight	180gr	180gr
Accuracy	+/- 2%	+/- 5%
		



Features & Specifications

- Small Size
- Low weight
- Quiet Operation
- Battery Efficient
- High accurate flow



Pumphead for the Pegasus 500V



Pegatube for the Pegasus 500L



Drugbags

Drug bag with luer lock connector

- Filling using a syringe
- Available in different sizes - 50 ml, 100 ml, 150 ml and 300 ml
- Latex-free



Pegaboxes

For holding and protection of the drugbag. Available in three different sizes (50 ml, 100 ml and 150 ml).



Pumpreader

The PEGA® PUMP READER SET comprises the PEGA® INTERFACE 2.0 for connecting the PEGA® infusion pump to a computer, and documentation software, the PEGA® PUMP READER.

Fully integratable in the Orchestra System.



P.O. Box 15
NL - 6900 AA Zevenaar
Phone +31 316 524 451
Email info@unobv.com
www.unobv.com