

**Benefits**

- Entry level Legato model
- Accurate flow delivery
- High precision fluid dosing
- Use any manufacturer syringe
- Constant and variable flow rates
- User selectable volume delivery

**Features**

- Holds one or two syringes from 0.5  $\mu$ l to 10 ml
- Multi-step programming
- Unparalleled ease of use
- Password lock
- LED light on front panel
- Full metal chassis
- Built in syringe table
- Up to 30 lbs (5 kg) linear force
- Built in RS-485 interface
- USB port
- Footswitch Interface
- Spill dam
- CE, UL, CSA, CB Scheme, EU RoHS

**Applications**

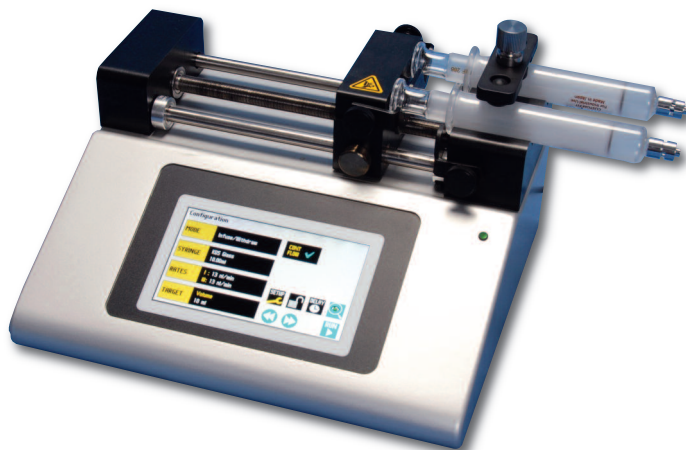
- Microfluidics
- Drug Discovery
- Nanofluidics
- Flow Cytometry
- Mass Spec Calibrant
- Organic Synthesis
- Surface Plasma Resonance

**Markets**

- Pharmaceutical
- Biotech
- Chemical
- Neuroscience
- Research and Development
- Government
- Petrochemical
- Food and Beverage

# KDS Legato™ 180

## Picoliter Syringe Pump



### The NEW Legato™ 180 picoliter syringe pump is ideal for microfluidics and low flow rate applications

The KDS Legato 180 infuse only dual syringe is ideal for applications where dual syringes are required with small volumes under 10ml. The Legato 180 is the ultimate in precision flow delivery. It offers the most stable flow delivery of all the Legato products. The Legato 180 has a finer lead screw and a different pulley ratio from the Legato 101/111. It offers multi step programs, each with 50 steps. The large touchscreen display allow the user to see all of the pumps operating parameters to ensure proper operation during the experiments. Syringe size and flow rate are easily displayed as well as the volume delivered and the elapsed time. Set up is easy using the icon driven software.

The Legato 180 is an infuse/withdraw syringe pump. It accommodates two syringes from 0.5  $\mu$ l to 10 ml. Any type of syringe can be used in the unit including glass, plastic and stainless steel. The syringes are held in place by KD Scientific's new clamping mechanism designed to hold syringes securely in place. The run screen has all of the pump parameters, as well as, the pumps running conditions. The basic pump offers the same easy to use touch screen configuration and "run" screen as the more advanced Legato 200.

An led light on the front panel makes it easy to see if the pump is running. Syringe size and flow rates

are easily displayed as well as the volume delivered and the elapsed time.

The pumps are versatile and can be connected through the RS485 interface. Advanced micro stepping techniques are employed to further reduce the step angle to eliminate flow pulsation. The accuracy is  $\pm 0.35\%$ . A wide dynamic flow range from pico liters per minute to millimeters per minute can be programmed into the pump. Add the New Adagio software to maximize the use of the pumps functions and features. Adagio allows you to configure the pump through the software as well as operate one or multiple pumps. In addition the National Instruments labview drivers are available on their website.

KD Scientific pumps are acknowledged as the industry's highest values solution for delivering precise and smooth flow. KD Scientific is recognized worldwide for quality and reliability at an economical price and has the broadest line of syringe pumps to meet your specific application. KD Scientific is committed to delivering the highest level of customer satisfaction, as well as technical support for all their products.

**NOTE: KD Scientific syringe pumps are for laboratory use only.**

# **kdScientific**

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Rev A

## 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.

## Flow Rates

Syringe	Diameter	Minimum	Maximum
0.5 µl	0.103 mm	0.540 pL/min	596.200 nL/min
1 µl	0.146 mm	1.140 pL/min	1.193 µL/min
2 µl	0.206 mm	2.280 pL/min	2.385 µL/min
5 µl	0.343 mm	6.360 pL/min	6.612 µL/min
10 µl	0.485 mm	12.720 pL/min	13.220 µL/min
25 µl	0.729 mm	28.740 pL/min	29.870 µL/min
50 µl	1.03 mm	57.360 pL/min	59.620 µL/min
100 µl	1.457 mm	114.800 pL/min	119.300 µL/min
250 µl	2.304 mm	287.200 pL/min	298.300 µL/min
500 µl	3.256 mm	573.700 pL/min	595.800 µL/min
1000 µl	4.608 mm	1.149 nL/min	1.193 mL/min
1 ml	4.699 mm	1.195 nL/min	1.241 mL/min
3 ml	8.585 mm	3.988 nL/min	4.142 mL/min
5 ml	11.989 mm	7.778 nL/min	8.078 mL/min
10 ml	14.427 mm	11.260 nL/min	11.700 mL/min

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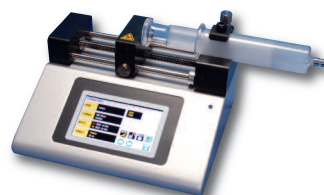
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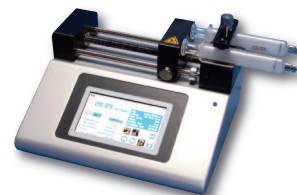
## Specifications

Model	KDS Legato 180
Syringe Size	0.5 µl to 10 ml
Power	100-240 VAC: 50/60 Hz, 50 W. 0.5 A fuse
Motor Drive Control	Microprocessor with 1/16 microstepping
Linear Force (Maximum)	13.6 kg (30 lbs) @ 100% Force Selection
Number of Microsteps per One Revolution of Lead Screw	15,360
Step rate (Minimum)	27.5 sec/µstep
Step rate (Maximum)	26 µsec/µstep
Drive Motor	0.9" Stepper Motor
Pusher Travel Rate - (Minimum)	0.02 µm/min
Pusher Travel Rate - (Maximum)	71.55 mm/min
Flow Rate (Minimum)	0.540 pL/min (0.5 µl syringe)
Flow Rate (Maximum)	11.700 mL/min (1 ml syringe)
Dimensions	22.6 x 19.05 x 15 cm (9 x 7.5 x 5 in)
Weight	2.66 kg (5.9 lbs)
Connectors	RS-232 - 9 Pin D-Sub Connector, RS485 - IEEE-1394 6 pos, USB - Type B

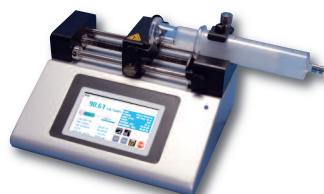
## KDS Legato™ 100 Family of Syringe Pumps



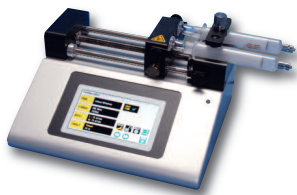
**Legato 100**  
 Infuse Only  
 Single Syringe



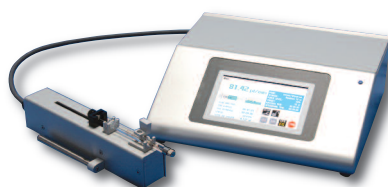
**Legato 101**  
 Infuse Only  
 Dual Syringe



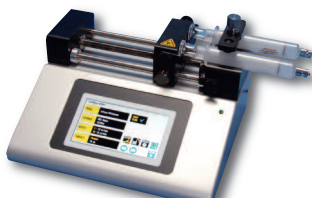
**Legato 110**  
 Infuse/Withdraw  
 Single Syringe



**Legato 111**  
 Infuse/Withdraw  
 Dual Syringe



**Legato 130**  
 Infuse/Withdraw  
 Remote Control  
 Nanoliter



**Legato 180**  
 Infuse Withdraw  
 PicoLITER

Recommended for microfluidic applications



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