

kdScientific

the next
generation of
**Peristaltic
Pumps**



allegro™

**Peristaltic
Pump
System**

Intuitive Touch Screen

Selectable Tubing Table

Automatic Tubing Break-In

Flow Rate & Key Parameters Displayed

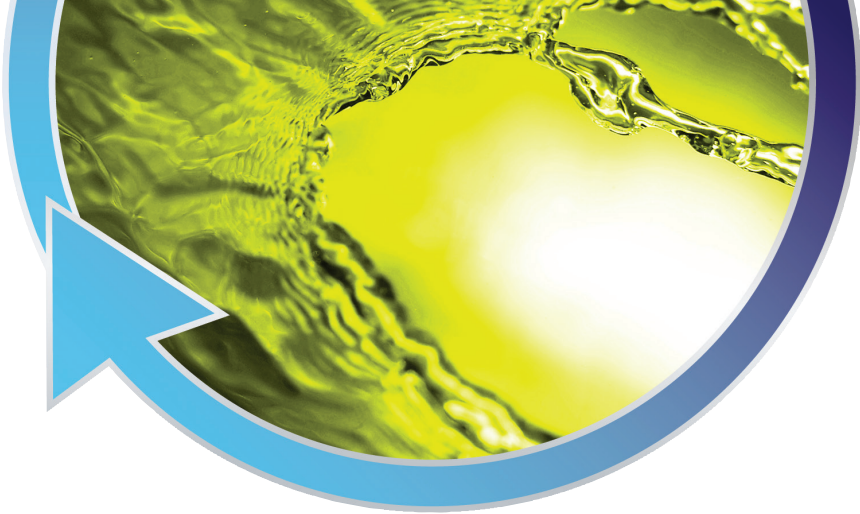
User Configurable Multi-Step Operation

kdScientific

Innovative

NEW

Peristaltic Pump System



The NEW KD Scientific Allegro™ Peristaltic Pump System allows maintenance free, continuous flow pumping of various liquids. The fluid contacts only the inside surface of the tubing negating concern for valves, O-rings or seals that might be incompatible with fluid being pumped.

- Clearly displays flow rate and total dispensed volume
- User configurable multi-step operation
- Dispenses in forward or reverse direction
- Adjustable flow rate while pump is running
- Stackable sealed remote pump drive with IP 32 rating
- Selectable tubing table
- Automatic tubing break-in
- Automatic calibration procedures
- External connectivity with USB interface and I/O port
- Easy to maintain

Masterflex® L/S® Easy Load® II Pump Head

The KD Scientific Allegro™ Peristaltic Pump System uses the prestigious Masterflex® L/S® Easy Load® II Pump Head. This fixed occlusion pump head requires no manual adjustments for tubing changes. Simply place your tubing in the pump head tubing retainer and rotate the lever to lock the cam in position.

- Delivers a wide range of flow rates
- Single or dual channel capability
- Quick and simple tubing changes with overhead cam
- Four-roller rotor reduces flow pulsation



World renowned Masterflex® L/S® Easy Load® II Pump Head

Remote pump head can be placed up to 1.5 m (5 ft) from controller with integrated controller cable

Sealed, cold rolled steel pump driver rated for ingress protection (IP 32)

Overhead CAM for quick and simple tubing changes

Automatic tubing retainers allow multiple tubing sizes

Compatible with Masterflex® 0.8 mm - 8.0 mm ID tubing

Flow rate and key parameters clearly displayed

Rugged controller housed in cold rolled steel

Intuitive graphical interface with touch screen control



the KD Scientific Advantage

Recognized Worldwide...

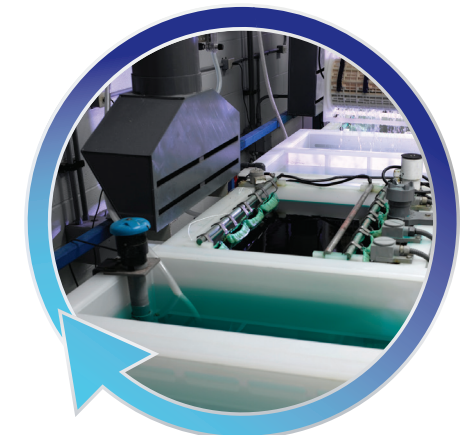
**KD Scientific
Liquid Handling Products
are the #1 choice
of Life Science and
Industrial Researchers**

Extensive Applications



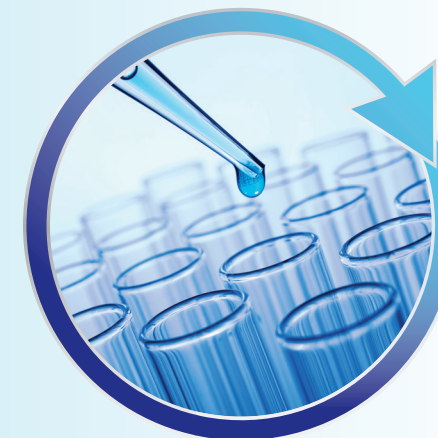
Life Sciences

pharmaceutical development • mixing chemicals
high flow drug screening • fermentation and cell culture
dispensing and dosing • solvent transfer



Industrial

compact and easily integrated into OEM applications
ink dispensing • slurry transfer • plating chemicals
paper manufacturing/pump monitoring • cleaning
chemical baths • pH control for water & waste



Research & Development Liquid or Gas Circulation

sample extraction • sterilized media dispensing
chemical metering • analytical chemistry
feeding continuous flow analyzers



Food & Beverage

hygienic pumping of chemicals, oils,
fats and other aggressive food products
withdraw sanitary samples from process line
easily pump viscous foods • quick tubing changes allow
for multiple batch testing

A Model for Your Application

The NEW KD Scientific Allegro™ Peristaltic Pump System allows maintenance free, continuous flow pumping of various liquids. The fluid contacts only the inside surface of the tubing, negating concern for valves, O-rings or seals that might be incompatible with the fluid being pumped.

The innovative Allegro™ Peristaltic Pump System can dispense in forward or reverse direction, be programmed for your specific flow profile or just dispense at the touch of the screen. All parameters are clearly displayed on the touch screen display for easy viewing.



Allegro™ I Peristaltic Pump System

- One channel pump head
- Flow rates up to 1500 ml/min
- Accepts tubing ID sizes 0.8 mm (0.03 in) - 8.0 mm (0.32 in)
- Compatible with Masterflex® L/S® 13, L/S® 14, L/S® 16, L/S® 25, L/S® 17 and L/S® 18 tubing



Allegro™ II Peristaltic Pump System

- Two channel pump head
- Two simultaneous individual flows or one combined flow
- Flow rates up to 720 ml/min with combined channels
- Accepts tubing ID sizes 0.8 mm (0.03 in) - 4.8 mm (0.19 in)
- Compatible with Masterflex® L/S® 13, L/S® 14, L/S® 16 and L/S® 25 tubing



Allegro™ III Peristaltic Pump System

- Two single channel pump heads
- Two simultaneous individual flows or one combined flow
- Flow rates up to 2000 ml/min with combined channels
- Accepts tubing ID sizes 0.8 mm (0.03 in) - 8.0 mm (0.32 in)
- Compatible with Masterflex® L/S® 13, L/S® 14, L/S® 16, L/S® 25, L/S® 17 and L/S® 18 tubing

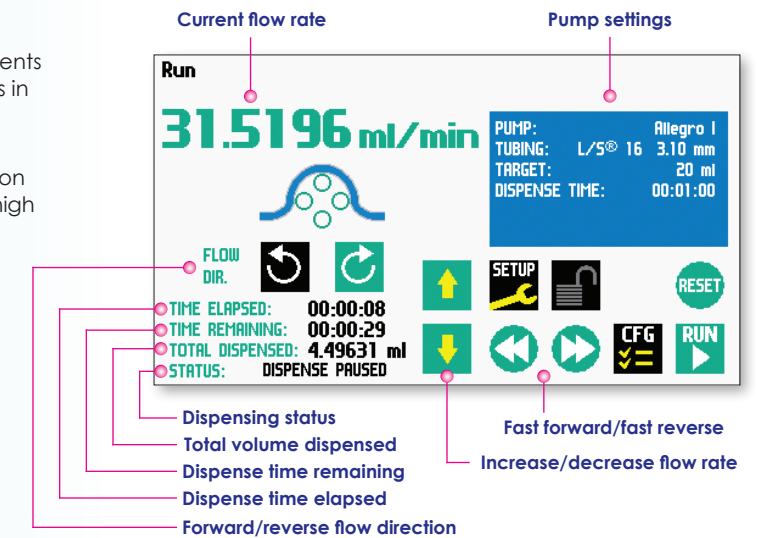
Simple Setup for Routine & Complex Applications

Intuitive Touch Screen

The Allegro™ touch display run screen presents the user with all key dispensing parameters in real time.

Flow rate, flow direction, dispense status, total dispensed volume and tubing selection parameters are clearly presented on the high resolution touch screen display.

- Intuitive graphical interface and touch screen
- Flow rate and key parameters clearly displayed
- Internationally recognized icons
- All program settings are indicated on the touch screen
- Alarm indication and messages
- Pump diagnostic/information
- Display rotates with horizontal/vertical orientation



Tubing Size Selection

Std. Tubing		1 of 6
L/S® 16	3.1 mm	PAGE
	3.2 mm	LINE
	4 mm	LINE
L/S® 25	4.8 mm	PAGE
L/S® 17	6.4 mm	PAGE
L/S® 18	7.9 mm	PAGE

BACK (X) ENTR (✓)

Tubing tables for quick tubing setup

Calibration

Reset Calibration to default setting

Enter Volume Delivered
106.8 ml Entered

NOTICE-Calibration Complete

PRESS TO CLEAR MESSAGE

Tubing : 7.9 mm L/S® 18
Rate : 750 ml/min
Volume : 106.68 ml

ENTR (✓) RUN (▶)

Tubing calibration procedure for precise accuracy



Simple Tubing Setup and Calibration

Tubing tables allow simple selection of any compatible tubing size. Masterflex® L/S® tubing selections are also available along with the ability to enter customer tubing sizes.

Automatic tubing break-in procedures allow the user to prepare tubing for operation. Simply insert tubing into the pump head and select the appropriate tubing break-in procedure. The Allegro™ Peristaltic Pump System does the rest.

Advanced Capabilities with Simple Configuration

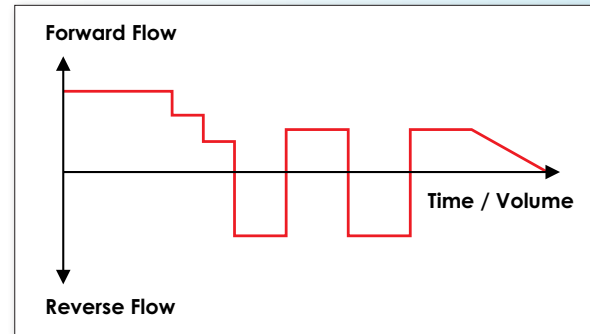
User Configurable Multi-Step Operation

The Allegro™ Peristaltic Pump System contains advanced features developed to allow quick setup of complex tasks.

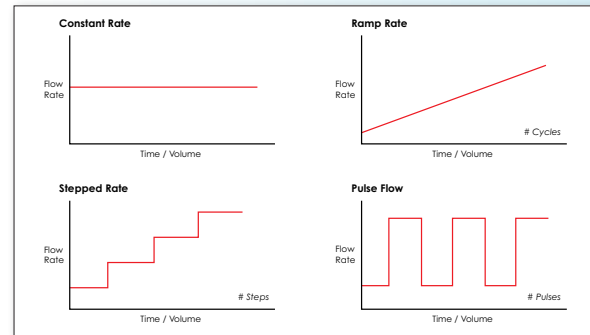
Multiple users can benefit from the Allegro™ programmable multi-step operation by saving their specific configurations and recalling them with the touch of a button.

Programmable multi-step operation makes application programs easy to set up. The user can select from advanced operational profiles including constant rate, ramp, stepped and pulse.

- Store multiple programs
- Easy program retrieval
- Simple flow configuration
- Predefined operational profiles
- Identify programs with alphanumeric labels
- Trigger pumps using programmable TTL port
- Export programs to a computer or another pump
- Advanced profile features: constant rate, ramp, stepped and pulsed flow



Multiple step operations is easy to configure



Pump operation profiles for all applications

Advanced Options Selection

Go To	Delay
Repeat	Link
Stop	I/O (out) Trigger
I/O (in) Event	I/O (in) Event Link

BACK

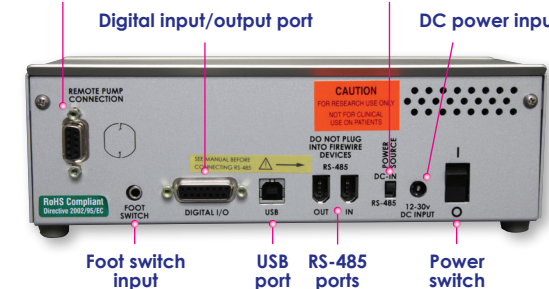
Trigger process steps with pre-defined options

Connectivity & Communication

The Allegro™ Peristaltic Pump System can easily accept commands or signals from external processes to control the pump. The unit offers USB, ideal for sending and receiving pump control commands. The Allegro™ can also be networked using RS-485. The digital I/O port can be used to send or receive remote signals from a contact or switch. An optional footswitch can be attached for start/stop external control.

- Communicate with commands or signals
- Control Allegro™ with external process or controller
- Remote start/stop footswitch capability

Pump head/drive connection DC/RS-485 power switch source



Rugged Design with World Class Specifications

The NEW Allegro™ Peristaltic Pump family is engineered for worldwide regulatory compliance. The outstanding durability and quality of this advanced peristaltic system is second to none.

Unit Specification	Parameter
Tubing Size (inner diameter min/max)	0.8-8.0 mm (Allegro™ I, II); 0.8-4.8 mm (Allegro™ III)
Tubing Durometer Range (min/max)	55A-62A (Consult KD Scientific if using a higher durometer)*
Flow Rate (per channel, tubing dependent)	Please see tube size flow rate chart
Accuracy	± 1.0 % **
Display	4.3 in WQVGA TFT color display with touch screen
Non-Volatile Memory	Stores all settings
Connectors:	
RS-485	IEEE-1394, 6 pos
USB	Type B
Input/Output (I/O)	15 pin D-Sub connector
Footswitch Connection	Mini phono jack
Pressure (max)	30 psi
Drive Motor	1.8° stepper motor
Motor Drive Control	Microprocessor with 1/16 microstepping
Step Rate:	
Minimum	27.5 sec/μstep (Allegro™ I, II & III)
Maximum	50 μsec/μstep (Allegro™ I); 60 μsec/μstep (Allegro™ II & III)
Maximum RPM:	
Allegro™ I	375 RPM
Allegro™ II/Allegro™ III	312 RPM
Input Power	30 VDC, 1.67 A using approved Allegro™ power supply (included)
Input Power Connection	2.5 ID x 5.5 mm OD male plug
Power Supply	100-240 VAC, 50-60 Hz/30 VDC, 8 watts universal
Power Supply, use only a KD Scientific	Use only a KD Scientific approved power supply and line cord
Dimensions (Control Box) (W x D x H)	22.9 x 19.7 x 7.6 cm (9.0 x 7.75 x 3.0 in)
Dimensions (Pump Motor/Head) (W x D x H)	11.5 x 24.1 x 11.8 cm (4.5 x 9.5 x 4.63 in)
Weight 2.66 Kg (5.9 lbs)	Weight 2.66 Kg (5.9 lbs)
Operating Temperature	4°C to 40°C (40°F to 104°F)
Storage Temperature	-10°C to 70°C (14°F to 158°F)
Ingress Protection	IP32 (pump head & drive)
Storage Humidity	20% to 80% RH, non condensing
Method of Operation	Continuous forward/continuous reverse
Classification	Class I
Pollution	Degree 1
Installation	Category II
Regulatory Certifications	CE, ETL (UL & CSA), CB scheme, EU RoHS, WEEE
Safety Declarations	EN 61010-1:3rd Ed.; CB scheme
EMC Declaration	IEC 61326-1 Ed. 1

Tubing Size	Tubing ID	Maximum Flow Rate
Allegro™ I		
L/S® 13	0.8 mm (0.03 in)	15 ml/min
L/S® 14	1.6 mm (0.06 in)	60 ml/min
L/S® 16	3.1 mm (0.12 in)	240 ml/min
L/S® 25	4.8 mm (0.19 in)	540 ml/min
L/S® 17	6.4 mm (0.25 in)	960 ml/min
L/S® 18	7.9 mm (0.31 in)	1500 ml/min
Allegro™ II		
L/S® 13	0.8 mm (0.03 in)	10 ml/min
L/S® 14	1.6 mm (0.06 in)	40 ml/min
L/S® 16	3.1 mm (0.12 in)	160 ml/min
L/S® 25	4.8 mm (0.19 in)	360 ml/min
Allegro™ III		
L/S® 13	0.8 mm (0.03 in)	10 ml/min
L/S® 14	1.6 mm (0.06 in)	40 ml/min
L/S® 16	3.1 mm (0.12 in)	160 ml/min
L/S® 25	4.8 mm (0.19 in)	360 ml/min
L/S® 17	6.4 mm (0.25 in)	640 ml/min
L/S® 18	7.9 mm (0.31 in)	1000 ml/min

Allegro™ Specification Notes:
 * The Allegro™ Peristaltic Pump System can run higher durometer tubing depending on the Allegro™ model and customer application. Please consult KD Scientific for additional information.
 ** Accuracy specification assumes user performance of tubing break-in and calibration. KD Scientific pumps are for laboratory use only. They have not been approved by the FDA for clinical use on patients. Specifications are subject to change.

Ordering Information: Models & Tubing

The Allegro™ I, II & III are available as complete systems. An optional footswitch for remote start/stop, TTL communication cable for synchronous control and other accessories are available. Tubing is sold separately.

KD Scientific recommends Masterflex® L/S® tubing to achieve the best performance from your Allegro™ Peristaltic Pump. The tubing used in the Allegro™ Peristaltic Pump will depend on the pumping application. It is important to select tubing with appropriate chemical resistance for the liquid being pumped. KD Scientific offers various formulations of Masterflex® tubing. The tubing ordering table lists our current tubing offerings. If your desired formulation is not listed please contact KD Scientific for assistance.

Allegro™ System Ordering Information

Order #	Product Name	Description
System		
785501	Allegro™ I Peristaltic Pump System	Single channel, Masterflex® Pump Head, drive and controller
785502	Allegro™ II Peristaltic Pump System	Dual channel, Masterflex® Pump Head, drive and controller
785503	Allegro™ III Peristaltic Pump System	Two, single channel, Masterflex® Pump Head, drive and controller

Accessories

780225	Allegro™ Footswitch	Footswitch with phono jack plug for Allegro™ I, II, & III
785531	Allegro™ I to III Conversion Kit	Single channel, thin wall tubing head and hardware
785542	Allegro™ Stacking Base	Allows two Allegro™ head/drive units to be vertically stacked
788355	TTL Communication Cable	Connects two Allegro™ controllers for programmable control

Additional Components

785511	Allegro™ I Head/Driver	Single channel, thin wall tubing head and drive
785512	Allegro™ II Head/Driver	Dual channel, thin wall tubing head and drive
785513	Allegro™ III Head/Driver	Two single channel, thin wall tubing head and drive
785521	Allegro™ Touch Controller	Allegro™ touch controller for Allegro™ I, II, & III

Registered trademarks belong to their respective companies.

Tubing Ordering Information

Order #	Tubing Size	Tubing ID	Description
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C-Flex® Ultra

Characteristics

C-Flex® Ultra is a transparent tubing comprised of a silicone like material with the chemical compatibility of Tygon®.

Formulation: Thermoplastic elastomer. Styrene-ethylene-butylene modified block copolymer with silicon oil.

Application Compatibility

Acids: Good • Alkalies: Good • Organic Solvents: No • Viscous Fluids: Fair
Sterile Fluids: Excellent

785601	L/S® 14	1.6 mm (0.06 in)	7.6 m (25 ft)/pk
785602	L/S® 16	3.1 mm (0.12 in)	7.6 m (25 ft)/pk
785603	L/S® 25	4.8 mm (0.19 in)	7.6 m (25 ft)/pk
785604	L/S® 17	6.4 mm (0.25 in)	7.6 m (25 ft)/pk
785605	L/S® 18	7.9 mm (0.31 in)	7.6 m (25 ft)/pk

FDA Viton®

Characteristics

FDA Viton® is an opaque, black tubing perfect for food applications where FDA compliance is required. Resistant to corrosives, solvents and oils at elevated temperatures.

Formulation: Thermal set rubber. Viton® B (67% fluorine).

Application Compatibility

Acids: Excellent • Alkalies: Excellent • Organic Solvents: Test First
Viscous Fluids: Good • Sterile Fluids: Fair

785606	L/S® 13	0.8 mm (0.03 in)	7.6 m (25 ft)/pk
785607	L/S® 14	1.6 mm (0.06 in)	7.6 m (25 ft)/pk
785608	L/S® 16	3.1 mm (0.12 in)	7.6 m (25 ft)/pk
785609	L/S® 25	4.8 mm (0.19 in)	7.6 m (25 ft)/pk
785610	L/S® 17	6.4 mm (0.25 in)	7.6 m (25 ft)/pk
785611	L/S® 18	7.9 mm (0.31 in)	7.6 m (25 ft)/pk

Tygon® ELFL

Characteristics

Tygon® ELFL is a clear tubing with long life and broad chemical resistance.

Formulation: Thermoplastic. PVC based material with plasticizer. Firm transparent material.

Application Compatibility

Acids: Good • Alkalies: Good • Organic Solvents: No • Viscous Fluids: Excellent
Sterile Fluids: Good

785612	L/S® 13	0.8 mm (0.03 in)	7.6 m (25 ft)/pk
785613	L/S® 14	1.6 mm (0.06 in)	7.6 m (25 ft)/pk
785614	L/S® 16	3.1 mm (0.12 in)	7.6 m (25 ft)/pk
785615	L/S® 25	4.8 mm (0.19 in)	7.6 m (25 ft)/pk
785616	L/S® 17	6.4 mm (0.25 in)	7.6 m (25 ft)/pk
785617	L/S® 18	7.9 mm (0.31 in)	7.6 m (25 ft)/pk

Tygon® E-FOOD

Characteristics

Tygon® E-FOOD is a clear tubing designed especially for food products. The bore is smooth and the tubing is non-toxic.

Formulation: Thermoplastic. PVC based material with plasticizer. Firm transparent material.

Application Compatibility

Acids: Good • Alkalies: Good • Organic Solvents: No • Viscous Fluids: Excellent
Sterile Fluids: Fair

785618	L/S® 13	0.8 mm (0.03 in)	15.2 m (50 ft)/pk
785619	L/S® 14	1.6 mm (0.06 in)	15.2 m (50 ft)/pk
785620	L/S® 16	3.1 mm (0.12 in)	15.2 m (50 ft)/pk
785621	L/S® 25	4.8 mm (0.19 in)	15.2 m (50 ft)/pk
785622	L/S® 17	6.4 mm (0.25 in)	15.2 m (50 ft)/pk
785623	L/S® 18	7.9 mm (0.31 in)	15.2 m (50 ft)/pk

More from KD Scientific

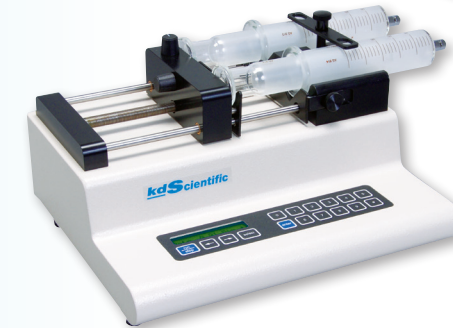
KDS Legacy Series Syringe Pumps

The Legacy series syringe pumps are the industry standard with proven performance.

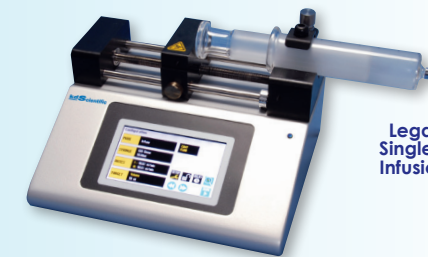
- Single and dual syringe infuse, infuse withdraw & continuous models
- Flow direction indicator
- Anti-siphon clamp (infuse/withdraw models only)
- Easy-to-use and set up different configurations
- User controllable multi-step operation (model dependent)



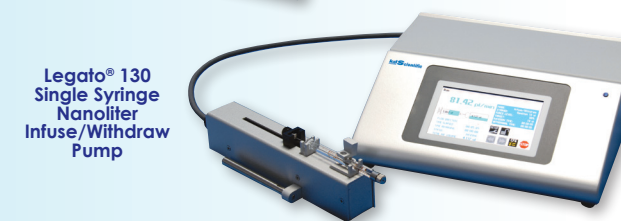
KDS 100
Single Syringe
Infusion Pump



KDS 210
Two-Syringe
Infusion/Withdrawal
Pump



Legato® 100
Single Syringe
Infusion Pump



Legato® 130
Single Syringe
Infuse/Withdraw
Pump



Legato® 210
with Multirack



Legato® 200
Dual Syringe
Infusion Pump

KDS Legato® 100 Series Syringe Pumps

The Legato series syringe pumps are the latest generation of syringe pumps. The Legato series offers unparalleled ease of use through the high resolution touch screen interface.

- Single and dual syringe infuse, infuse withdraw & continuous models
- Easy to set up graphical interface
- Key operating parameters clearly displayed
- Easy to use and set up different configurations
- User controllable multi-step operation (model dependent)
- USB Interface

KDS Legato® 200 Series Syringe Pumps

- Standard syringe library
- USB interface
- RS 232 interface
- Better flow performance and repeatability down to nl/hour
- Eliminate dead volume with fast forward/fast reverse
- Multi-rack configurations available

KD Scientific pumps are for laboratory use only. They have not been approved by the FDA for clinical use on patients.

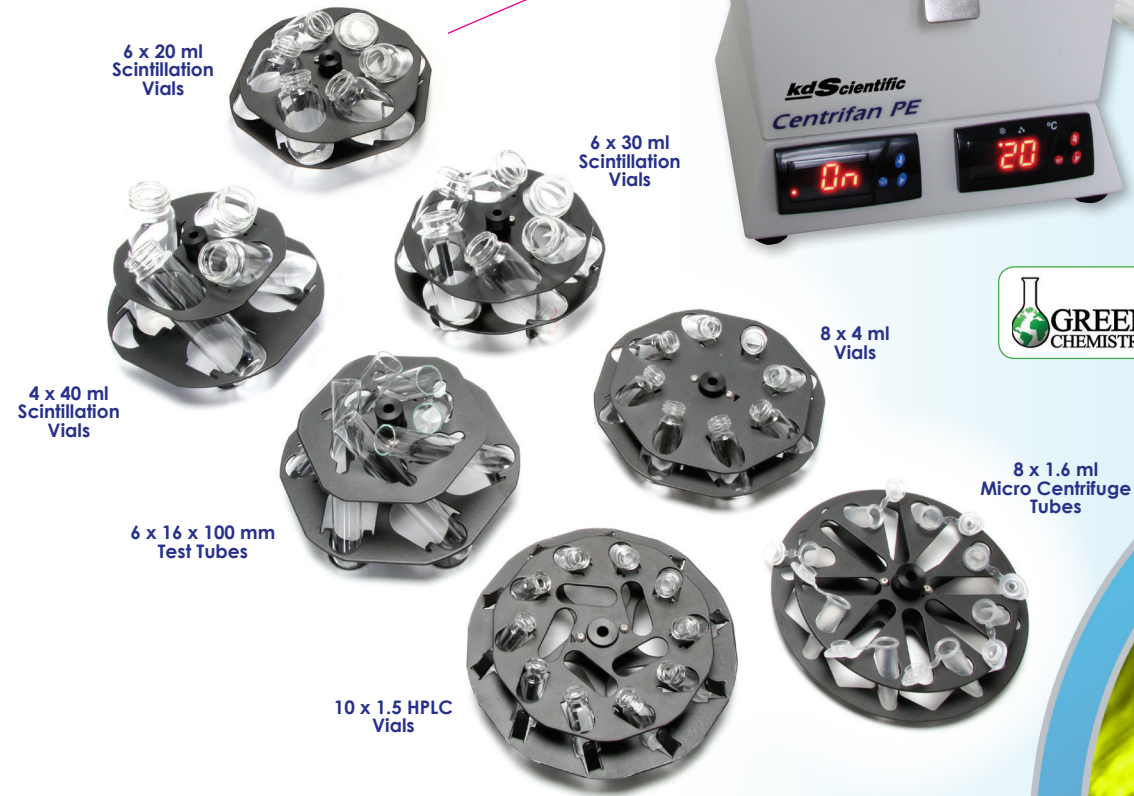
More from KD Scientific

Centrifan® Small Volume Evaporator

Now Evaporate Without Bumping!

The Centrifan™ PE Evaporator/Concentrator is a small volume evaporator that eliminates the problem of bumping using patented SBT (Self Blowdown Technology). SBT allows solvent drying using heated, circulating gas flow and NO VACUUM PUMP!

- No vacuum pump - no bumping!
- Easy-to-use - no monitoring
- Quick set-up - put in the samples and close the cover
- Small footprint
- Dry directly in vials
- Cost effective



Worldwide Sales & Support



KD Scientific is recognized worldwide for their technical expertise & high performance products with unmatched reliability.
 KD Scientific is committed to delivering the highest level of customer satisfaction, as well as technical support for all their products.

Worldwide coverage to meet your individual needs • Factory trained distribution channels to help you solve your application problems • Largest selection of products to meet your demanding applications

kdScientific

84 October Hill Road
 Holliston, Massachusetts 01746, USA

phone: 508.429.6809 • fax: 508.893.0160
 e-mail: info@kdscientific.com
www.kdscientific.com



Please scan for more information about the Allegro™



Please scan for the KD Scientific general catalog.

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