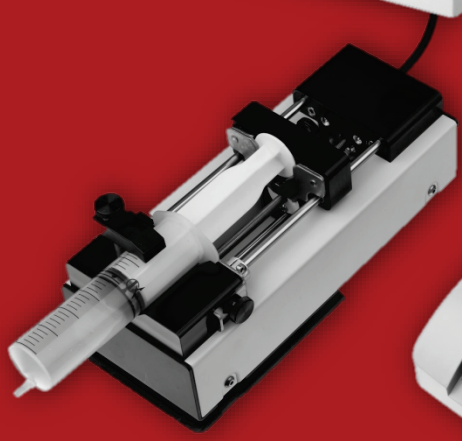
micrux
TECHNOLOGIES



Pumping Systems

-.- LP series -.-

Peristaltic Pumps

Different pumping systems are available for the use of microfluidic and electrochemical solutions offered by MicruX or any other supplier.

» Basic Peristaltic Pumps

» LP-L100-1E/DGX Peristaltic Pump

Compact multi-channel (up to 2) peristaltic pump with small-foot print for saving more space on your benchtop. **Speed range** is 0.1 - 100 rpm and **flow rate range** is 0.000166 – 32 mL/min. It is created for transferring, feed, sampling, or filling applications in laboratories and research settings.

» Easy operation. 5-digit LED display for current speed, direction and run/stop status intuitively.

» Low vibration, low noise. Imported bearings, little vibration, low noise, which could offer a quiet and comfortable lab environment.

» Prolong pump life time. Metal housing with anti-corrosion paint treatment, prolong the service life of the pump.

» Good electromagnetic compatibility, ensure stable and reliable operation.

» Precise peristaltic pump LP-BT100-2J/DGX

Precise multi-channel (up to 2) peristaltic pump with **speed range** of 0.1 - 100 rpm and **flow rates** from 0.0002 to 32 mL/min. The speed could be controlled through control panel, external control interface or RS485 interface. The running parameters are saved automatically, and the pump could be operated easily.

» Membrane keypad, easy to operate.

» Prime key for fast filling and emptying.

» Adjust speed manually or automatically through analog interface.

» 3-digit LED display for current speed. 3 LED indicators for operating state.

» Memory function, storing the running parameters automatically.

Peristaltic Pumps

Different pumping systems are available for the use of microfluidic and electrochemical solutions offered by MicruX or any other supplier.

» Flow Rate Peristaltic Pumps

» Standard Peristaltic Pump LP-L100-1S/DGX

Standard **multi-channel** (up to 4) peristaltic pump with precise speed control in **0.01 rpm resolution** (10000:1 turndown ratio) and flow rate calibration function. The pump has more accurate and wider range of **flow rate** from 0.15 µL/min to 32 mL/min.

» Mainly designed for laboratory and light industry applications.

» Control via membrane keypad, external control signal or communication control.

» Intelligent fan control, the pump has lower noise and better energy efficiency..

» LCD with specially designed run screen displays parameters and running status, which provides enough information for correct operation.

» LP-BT100-1L/DGX Multi-channel Peristaltic Pump

Multi-channel (up to 24) peristaltic pump with graphic LCD, which could display the parameters and running state. The high output torque could drive up to **24 channels**. The pump provides **flow rates** from 0.002 mL/min to 32 mL/min. The running parameters are saved automatically and the pump could be operated easily.

» Graphic LCD together with rotary encoded switch makes it friendly and easy to use. Display can switch between flow rates (mL/min) and speed (rpm).

» Calibration capability for more accurate flow rate.

» Higher torque to accept more pump heads and more channels.

» RS485 communication interface available. Offering communication protocol to customer and customizing software according to customer's requirements.

Peristaltic Pumps

Different pumping systems are available for the use of microfluidic and electrochemical solutions offered by MicruX or any other supplier.

» Intelligent & Dispensing Peristaltic Pumps

» Intelligent Peristaltic Pump LP-L100-1F(1FS)/DGX

Intelligent multi-channel (up to 4) peristaltic pump with 7 inch color display, **full touch screen** and intuitive graphic interface, provide easy-to-use operations. Powerful function and flexible configuration, make it easier to run multi-step complex programs. Suitable for laboratorial and industrial application.

» Customize parameters by programming, and the parameter programs can be stored and easily recalled.

» Multiple function modules and intelligent algorithms are designed for a wide variety of applications, including routine and multi-step complex applications.

» Control through touch screen, foot switch, analog signal and communication commands, combined with a variety of interfaces (USB, RJ11, DB9 etc.).

» Automatic identification *(model 1FS)* of pump head and tubing, simplify the operation process and provide reliable guarantee for high-precision fluid transferring.

» LP-BT100-1F/DGX Dispensing Peristaltic Pump

Dispensing multi-channel (up to 4) peristaltic pump with LCD display, which could display the parameters and running state. The pump offers **flow rate** from 0.0002 mL/min to 32 mL/min, and the dispensing volume is from 0.01 mL to 9990 mL.

» Dispensing function: dispense the fluid at desired volume, dispensing time and batch cycles.

» Back suction function: 0 s - 99.9 min, resolution is 0.1 s.

» Operating mode: Membrane keypad and rotary encoded switch.

» The speed can be adjusted manually or automatically through external control interface.

» The flow rates and the dispensing volume can be calibrated to increase the accuracy.

» Control through control panel, external control interface and RS485 communication .

Peristaltic Pumps

» Multi-channel Peristaltic Pumps Specifications

	L100-1E	L100-1S	L100-1F
» Channels (DG Series):	1-2	1-4	
» Flow rate range:	0.000166 to 32 mL/min	0.15 μL/min to 32 mL/min	
» Speed range:	0.1 -100 rpm, CW/CCW	0.01 -100 rpm, CW/CCW	0.1 -100 rpm, CW/CCW
» Speed resolution:	0.1 rpm	0.01 rpm	0.1 rpm
» Work Mode:	--	Speed control and flow rate mode	Programming
» Display:	3-digit LED display for current speed. 2 LED indicators for running direction	LCD	7" 1024*600 color LCD
» Control mode:	Membrane keypad control	Membrane keypad, external signal and communication control	Touch screen control, footswitch control, external signal control and communication control
» External control:	--	Start/stop, direction and speed control (4-20mA, 0-5V, 0-10V, 0-10kHz external control module optional)	Start/stop control, direction control: voltage level signal or switch signal (dry contact)
» Communication interface:	--	RS485. Longer or Modbus protocol	USB or RS485(RJ11). Modbus protocol
» Power-off memory:	Return to previous state when power on	Operating parameters will be saved automatically. The pump status when powered up could be set as stop or as the status before power loss	Pump can start running at desired time
» Prime:	Fast filling or emptying at full speed		
» Power supply:	AC 100-240V, 50/60Hz		AC 220V ± 20% / AC 110V ± 20%, 50Hz/60Hz
» Dimensions (L x W x H):	197 x 110 x 91 mm	232 x 142 x 149 mm	180 x 292 x 235 mm
» Weight:	2.3 Kg	2.38 Kg	5.0 Kg
» Power consumption:	15W	25W	50W
» Operating temperature:	0 to 40 °C		
» Relative humidity:	< 80%		
» IP rate:	IP31		

Other options (with different channels, precision, flow rate...) are available on demand depending on the specific requirements.

Note: Specifications subject to change without prior notice

Peristaltic Pumps

» Multi-channel Peristaltic Pumps Specifications

	BT100-2J	BT100-1F	BT100-1L
» Channels (DG Series):	1-2	1-4	4-24
» Flow rate range:	0.000166 to 32 mL/min		0.002 mL/min to 32 mL/min
» Speed range:	0.1 -100 rpm, CW/CCW		
» Speed resolution:	0.1 rpm		
» Work Mode:	--	Flow rate and dispensing mode	--
» Display:	3-digit LED display for current speed. 3 LED indicators for operating state	LCD for running state	128 × 64 graphic LCD for current running status
» Control mode:	Membrane keypad, external signal and communication control is available	Control panel, external signal and communication control	
» External control:	Start/stop, direction and speed control (4-20mA, 0-5V, 0-10V, 0-10kHz external control module optional)		
» Communication interface:	RS485		
» Power-off memory:	Return to previous state when power on		
» Prime:	Fast filling or emptying at full speed		
» Power supply:	AC 90V-260V		AC 220 V ± 10% 50/60 Hz (standard) or AC 110 V ± 10% 50/60 Hz (optional)
» Dimensions (L x W x H):	232 x 142 x 149 mm	285 x 207 x 180 mm	202 × 160 × 239 mm
» Weight:	2.3 Kg	3.8 Kg	5.3 Kg
» Power consumption:	30W	40W	50W
» Operating temperature:	0 to 40 °C		
» Relative humidity:	< 80%		
» IP rate:	IP31		

Other options (with different channels, precision, flow rate...) are available on demand depending on the specific requirements.

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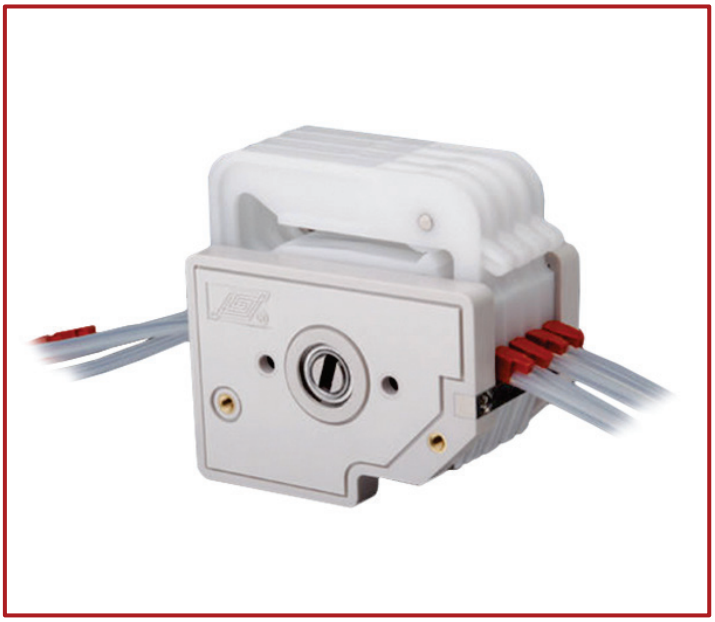
Peristaltic Pumps

Different pumping systems are available for the use of microfluidic and electrochemical solutions offered by MicruX or any other supplier.

» Multi-channel Pump Head – DG(10) Series



DG series pump heads are designed for micro flow-rates and multi-channel fluids transfer. Easy to change and fix the tubing. Occlusion can be adjusted slightly. The pump head consists of base, rotor assembly and easily dismounted cartridge.

The rollers adopt high quality materials. It is designed with stainless steel 10-rollers assembly for high precision small flow rates. More rollers reduce pulsation and flow rates slightly.

*Reference	Pump head		Tubing	Max. pressure	Flow rate
	# Rollers (material)	# Channels			
» DG-1	10 (stainless steel)	1	ID < 3.17 mm Wall thickness 0.8-1 mm	0.1 MPa	0.15 µL/min – 32 mL/min
» DG-2		2			
» DG-4		4			
» DG-6		6			
» DG-8		8			
» DG-12		12			
» DG-8*2		16			
» DG-12*2		24			

Other pump heads with different features (channels, pressure, flow rate...) are also available for different applications and requirements.

Note: Specifications subject to change without prior notice

Peristaltic pumps provided by MicruX are commercialized by Baoding Longer Precision Pump Co, Ltd (part of Halma PLC).
www.longerpump.com

Syringe Pumps

Different pumping systems are available for the use of microfluidic and electrochemical solutions offered by MicruX or any other supplier.

» Single & Dual-channel Syringe Pumps

Syringe pumps offer a suitable solution for high accuracy and small flow rate liquid transferring.

» LP Single-channel Syringe Pumps (just infusion)

» LSP01-3A

LSP01-3A is a single-channel syringe pump which only have infusion mode. These pumps are very easy to operate including a LCD display with rotary coded switch and a simple membrane keypad.

» LP Single-channel Syringe Pump (infusion / withdrawal)

» TJ-3A / W0109-1B

TJ-3A / W0109-1B is a single-channel syringe pump with infusion / withdrawal mode. The controller (TJ-3A) and drive unit (W0109-1B) are separated. It combines precision, compact size and multiple functions with ease of operation. Moreover, other controller (TS-1B-B) is also available for managing up to four drive units.

» LP Dual-channel Syringe Pump (infusion / withdrawal)

» LSP02-2B

LSP02-2B is a multi-channel syringe pump with infusion/ withdrawal mode. This pump is very easy to operate including a LCD display with rotary coded switch and a simple membrane keypad.

Syringe Pumps

Different pumping systems are available for the use of microfluidic and electrochemical solutions offered by MicruX or any other supplier.

» Single & Dual-channel Syringe Pumps

» Syringe pump specifications

	LSP01-3A	TJ-3A / W0109-1B	LSP02-2B
» Working Mode:	Infusion	Infusion, withdrawal, infusion/withdrawal, withdrawal/infusion, continuous	
» Channels:	1		2
» Pump stroke:	140 mm	90 mm	140 mm
» Advance per microstep:	0.156 µm	0.165 µm	0.156 µm
» Max. linear rate:	65 mm/min	79.4 mm/min	130 mm/min
» Min. linear rate:	5 µm/min	7.94 µm/min	5 µm/min
» Linear force:	> 90 N		> 180 N
» Accuracy:	≤ ± 0.5% error in the condition of > 30% of max. infusion distance		
» Flow rate:	0.831 nL/min – 54.2 mL/min	0.139 µL/min – 52.9 mL/min	0.831 nL/min – 150.5 mL/min
» Syringe size:	10 µL - 60 mL	1 – 60 mL	10 µL - 140 mL
» Display setting:	Display volume, flow rate or linear speed (128x64 graphic LCD)		
» Power-off memory:	Storing the running parameters automatically		
» State signal output:	2 output signals (OC gate signal) to indicate start/stop and direction		
» Control signal input:	Falling edge or TLL signal to control start/stop		
» Communication interface:	RS485		
» Power supply:	AC 196V-240V / 20W	AC 100V-240V / 10W	AC 196V-240V / 40W
» Operating temperature:	0 to 40 °C		
» Relative humidity:	< 80%		
» Dimensions (D X W X H):	280 x 210 x 140 mm	170 x 108 x 70 mm (controller) 245 x 100 x 95 mm (drive unit)	280 x 250 x 140 mm
» Weight:	3.6 Kg	0.8 Kg (controller) 1.3 Kg (drive unit)	4.3 Kg

Other options (with different channels, precision, flow rate...) are available on demand depending on the specific requirements.

Note: Specifications subject to change without prior notice

Syringe pumps provided by MicruX are commercialized by Baoding Longer Precision Pump Co, Ltd (part of Halma PLC).
www.longerpump.com

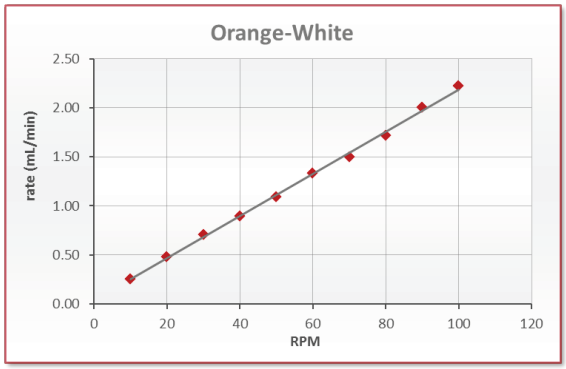
Accessories

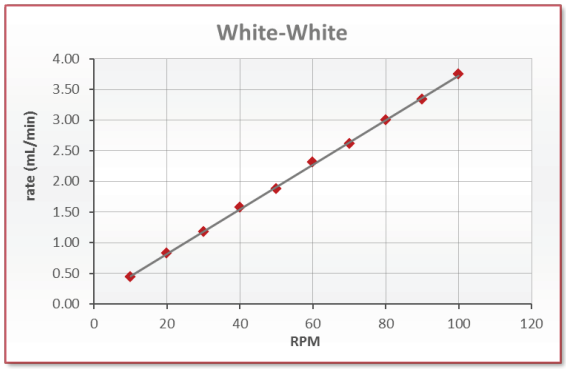
Different tubing and syringes are compatible with the pumping systems (peristaltic or syringe pumps).

» Peristaltic Pump Tubing

3 bridge PVC pump tubing offers an inexpensive all-round tubing for general laboratory use, compatible with the peristaltic pump *(DG pump head series)*.

Color Code	Inner Diameter (mm)	Outer Diameter (mm)
» orange/black	0.127	2.007
» orange/red	0.191	2.032
» orange/blue	0.254	2.083
» orange/green	0.381	2.209
» orange/yellow	0.508	2.337
» orange/white	0.635	2.464
» black/black	0.762	2.438
» orange/orange	0.889	2.565
» white/white	1.016	2.692
» red/red	1.143	2.819
» grey/grey	1.295	2.972
» yellow/yellow	1.422	3.099
» yellow/blue	1.524	3.200
» blue/blue	1.651	3.327
» blue/green	1.750	3.430
» green/green	1.854	3.531
» purple/purple	2.057	3.734
» purple/black	2.286	3.962
» purple/orange	2.540	4.216
» purple/white	2.794	4.470
» black/white	3.175	4.851





Flow rate will depend on tubing selection

» Syringes

Syringe	Syringe ID (mm)	LSP01-3A	TJ-3A / W0109-1B	LSP02-2B
		Flow rate (µL/min – mL/min)		
10 µL	0.50	0.001 - 0.0128	-	0.001 - 0.0255
25 µL	0.80	0.0025 - 0.0327	-	0.0025 - 0.0653
50 µL	1.10	0.0048 - 0.0618	-	0.0048 - 0.1235
100 µL	1.60	0.0101 - 0.1307	-	0.0101 - 0.2614
250 µL	2.30	0.0208 - 0.2701	-	0.0208 - 0.5401
500 µL	3.25	0.0415 - 0.5392	-	0.0415 - 1.0784
1 mL	4.72	0.0875 - 1.1373	0.139 - 1.39	0.0875 - 2.2747
2 mL	9.00	0.3181 - 4.1351	0.505 - 5.05	0.3181 - 8.2702
5 mL	13.10	0.6739 - 8.7608	1.07 - 10.7	0.6739 - 17.522
10 mL	16.60	1.0821 - 14.068	1.718 - 17.18	1.0821 - 28.135
20 mL	19.00	1.4176 - 18.429	2.251 - 22.51	1.4176 - 36.859
30 mL	23.00	2.0774 - 27.006	3.298 - 32.98	2.0774 - 54.012
60 mL	29.14	3.3346 - 43.349	5.295 - 52.95	3.3346 - 86.699
100 mL	34.90	-	-	4.7832 - 124.36
140 mL	38.40	-	-	5,7907 - 150,56

The selection of the syringe size will affect to the range of the flow rate.

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Mora-Garay Industrial Park
Juan de la Cierva, 2C, Bldg. # 6
33211 · Gijón (Asturias) · SPAIN

Phone/FAX: +34 984151019

E-mail: info@micruxfluidic.com
Web: www.micruxfluidic.com

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