

# FL03/LP13 Special for $\mu$ L filling- start from 1 $\mu$ L

**Flow range:** 0.0042-25.2mL/min (0.1-600rpm)

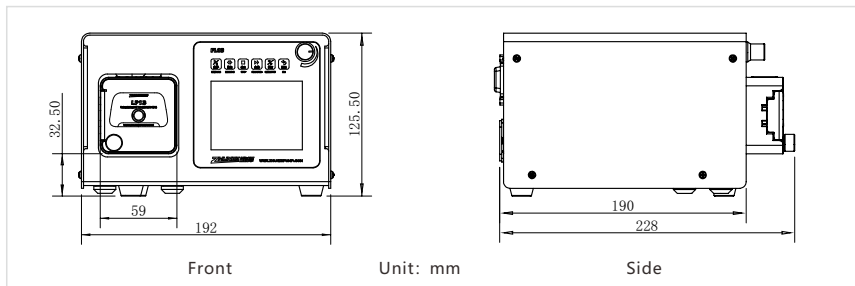
**Initial filling:** 1 $\mu$ L **Using tubing:** 13#

**Application:** ZHUNZE micro filling series product FL03/LP13, which solves the filling problem of peristaltic pump with a capacity of less than 100 microliters. The filling accuracy of this product is  $\pm 1$  microliter for a capacity of less than 200 microliters, and  $\pm 0.5\%$  for a capacity of more than 200 microliters. It can replace Pipette and other micro filling products in use.

## Characteristics

1. This product is a series of special Peristaltic pump for filling, which solves the problem of filling below 100  $\mu$ L.
2. 3.5-inch 320 \* 240 high brightness LCD display, all operating parameters displayed on the same screen, easy to understand operation.
3. Adopting a "dual CPU" control, drive control separation, fast calculation speed, stable operation, high transmission accuracy, precise filling function, and repeatability up to  $\pm 0.3\%$  (turn on the accurate filling) .
4. It has the functions of flow Autocorrection, sound reminder, stepless speed regulation, start stop, reversing, etc., and is equipped with full speed button, which has the functions of rapid filling and emptying.
5. There are two working modes: allocation mode and transmission mode; Three allocation modes: traffic allocation, time allocation, and replication allocation; The suction angle can be set arbitrarily within 720  $^{\circ}$ .
6. Rich external control functions to choose from. For example, DC12V output facilitates direct connection to various sensors, capacitance sensors, liquid level sensors, photoelectric sensors, etc; The product hardware reserves multiple circuit interfaces to meet customers' special customization needs.
7. Adopting a stepper motor to control the speed, unaffected by load changes, with high torque, low power consumption, and strong adaptability.
8. The driving circuit has excellent performance, good heat dissipation, low working noise, smooth operation, and has a power failure memory function. The internal circuits are designed with three protection measures, anti-interference, and wide voltage, suitable for complex power supply environments.
9. Can be used as micro liters filling, with damping spring design and good filling stability.
10. Low Moment of inertia design, high speed sprinkler irrigation, low pulsation design, stable liquid flow.
11. Disposable processing and forming, high precision, good structural rigidity, high stability, and strong anti-interference ability.
12. Small size, direct connected with the motor, convenient for matching; Removable design for easy maintenance.
13. The gaskets are made of polytetrafluoroethylene material, which is resistant to high temperatures and has a long lifespan.

## Size



## Filling Data

	1 $\mu$ L	5 $\mu$ L	10 $\mu$ L	50 $\mu$ L
		unit: $\mu$ L	unit: $\mu$ L	unit: $\mu$ L
Explanation: The target filling volume in the video is 1 $\mu$ L. Due to the difficulty of weighing 1 $\mu$ L, the video shows the size of the water droplets and the total amount is about 20 $\mu$ L after 20 times of filling.		5.0	10.1	50.3
		4.9	9.8	50.5
		5.3	10.1	49.2
		4.4	10.3	50.4
		5.7	10.1	50.4
		4.2	10.1	49.3
		5.7	10	50.4
		4.4	10.3	50.3
		5.8	10.1	49.8
		5.1	10.5	50.4
		5.1	10.2	50.1
		4.6	9.4	50
		5.1	9.5	50.4
		4.8	9.8	50.2
		4.5	9.9	50
		5.6	10.1	50.4
		4.3	10	50.3
		5.8	10.1	50.5
		4.6	10	49.9
		5.4	10.3	50.3

## Specifications

Drive Model			Pump head model		
FL03			LP13		
Technical index			Technical index		
RPM	0.1-600rpm	Dispensing time	Using tubing	13# (0.8*1.6mm)	
Speed resolution	0.1rpm( $\leq 100$ rpm); 1rpm(> 100rpm)	Dispensing volume	Flow range	0.0042-25.2mL/min (0.1-600rpm)	
Filling volume resolution	1 $\mu$ L start filling, infinitely adjustable	Times	Tubing wall	1.6mm	
Repeat error	$\pm 1\mu$ L ( $\leq 200\mu$ L); $\pm 0.5\%$ (> 200 $\mu$ L) turn off the accurate filling	Intervals	Flow fine-tune	No	
Accurate filling instructions	After turn on the accurate filling, the filling volumesetting will be limited, but higher repeatability accuracy can be achieved	Suction angle	Shell material	Aluminum alloy (cover ss.)	
Display	LCD screen (3.5 inch)	Protection level	Roller material	SS.	
Operation	Membrane keypad + Digital control knob	Power	Roller No.	4	
Working environment	Temperature, 0 $^{\circ}$ C to 40 $^{\circ}$ C; Relative humidity < 80%	Weight	Max. pressure	0.15Mpa	
Port output	DC12V Power Output; DC5V TTL Output (optional)		Product No.	02101512	
Type of external control	Start /stop, Direction change [TTL 5V (standard), TTL 12V (optional), TTL 24V (optional)]				
Communication Interface	Modbus485-RTU ((Start/stop, Direction change, speed control))				
Power supply	AC220V $\pm 10\%$ , 50Hz/60Hz(standard); AC110V $\pm 10\%$ , 50Hz/60Hz				