Precise And Reliable Fluid Transfer

Product Manual

Kamoer Fluid Tech (Shanghai) Co.,Ltd.

Version：A/1

Product name	Mini Diaphragm Liquid Pump
Model	KLP100
Release Date	2022.06.06
Manufacturer	Kamoer Fluid Tech (Shanghai) Co.,Ltd.

A. Product Overview

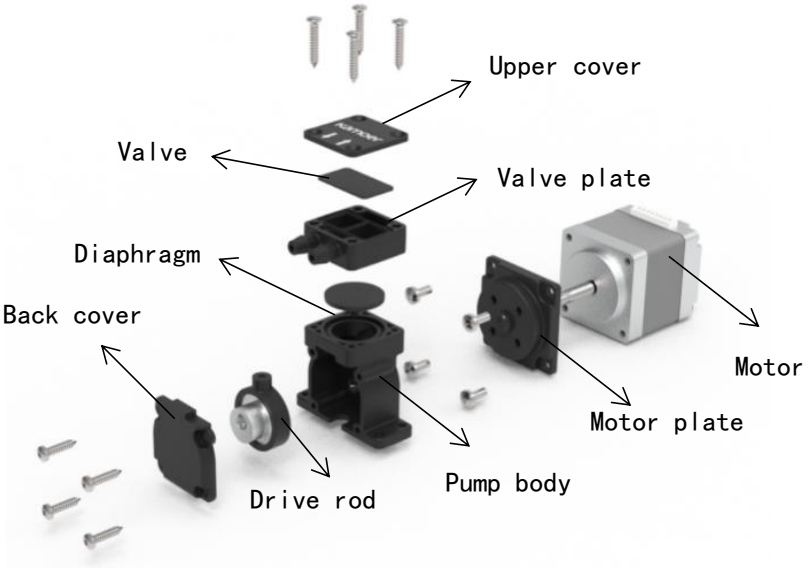
1. Product Image

Brushless motor

Brushed motor

Stepper motor

2. Product Structure



3. Model Explanation

Model	Motor Type	Input Voltage
KLP100	B	12

3.1 Motor Type

D: Brushled motor B: Brushless motor ST: Stepper motor

3.2 Input Voltage

12: 12V input voltage 24: 24V input voltage

4. Features & Applications

4.1 Features

- Available in 24V and 12V voltages
- Simple and elegant appearance
- Low power, high energy efficiency
- Gas-liquid dual-use, gas-liquid mixed use. Compatible with a variety of common media (mineral oil and strong corrosive liquids are not suitable)
- Micro flow, the effective gas flow is about 0.2L/min
- Low noise, the working noise is about 62dB, and the noise of the stepper motor is only 50dB
- Optional stepper motor, 10mL/min~50mL/min, repeatability about 5%

4.2 Applications

- Environmental protection industry: such as gas detection
- Food machinery: such as beverage canning
- White goods: such as washing liquid transmission
- Medical devices: e.g. transfer of analytical fluids

4.3 Risk Disclosure

- The medium will come into contact with the pump head and rubber. When selecting the model, you need to check the chemical compatibility or perform a soaking test.
- The working current of the stepper motor should not exceed 1A. Continuous operation will cause the motor to heat up.
- The working environment of the product should not exceed 40°C, and the humidity should not exceed 70% (no condensed water). The harsh working environment will cause the product to be damaged prematurely.
- Frequent start and stop, overpressure or underpressure and other unreasonable working conditions will lead to premature failure of the pump.
- High overload work may result in premature failure of the product.
- The medium containing dust, oil and other pollutants will contaminate the parts in the pump, which will lead to premature damage of the pump.

5. Product Certification & Intellectual Property

CN306950516S

ROHS certification

CE certification

B. Product Specification

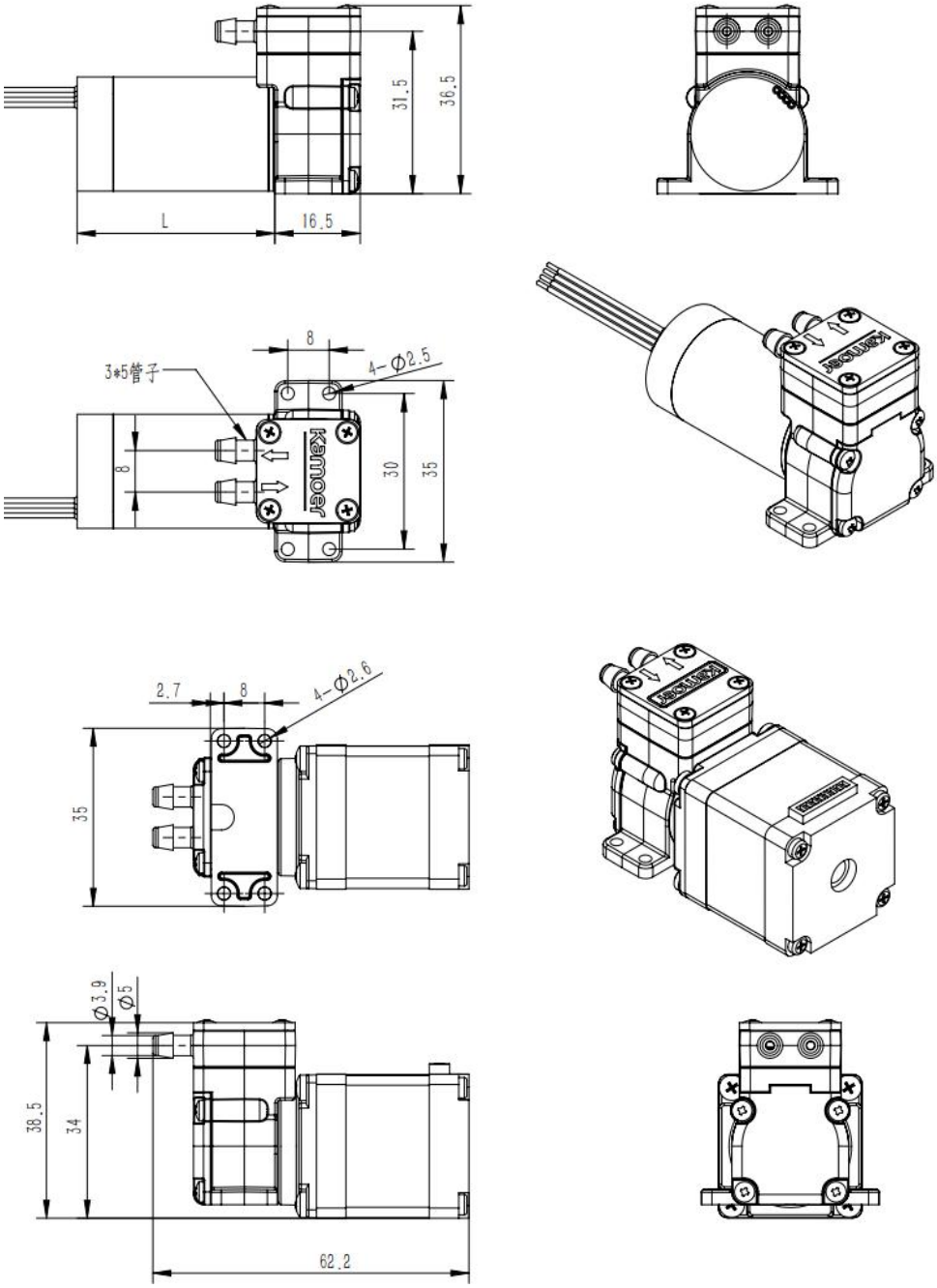
1. Technical parameter

Item		KLP100-D	KLP100-B	KLP100-ST (600rmp)
Basic Parameters	Flow Range (gas)	⩾0.2 L/min		/
	Flow Range (liquid)	⩾100 ml/min	⩾150 ml/min	10~50 ml/min
	Suction head	≥2m		
	Pressure head	≥30m		
	Power	About 5W		24V 1A
	Noise	≤65 dB	≤62 dB	≤50 dB
	Control Mode	Constant speed working	PWM speed control or constant speed working	Stepper motor drive, adjustable speed
	Weight	About 75g	About 80g	About 150g
	Rated Voltage	12V/24V		
	Motor Type	DC brushed motor	DC brushless motor	Stepper motor
	Lifetime	≥500h	≥5000h	≥5000h
Additional remarks		The test results of the above parameters at standard atmospheric pressure, room temperature 25°C, medium is water, and the pump has no load pressure (the liquid has no drop). Noise test conditions: under the ambient noise of 35dB, under the rated voltage of the product, measured at a distance of 50cm. The performance parameters of the product are affected by the environmental state, medium state and the load before and after the pump, and the above parameters may be different from the actual parameters.		

2. Product Materials

Model	Pump Head	Pump Body	Diaphragm	Valve	Eccentric Cam
KLP100	PPS	PA	EPDM	EPDM	Aluminium

3. Dimensions



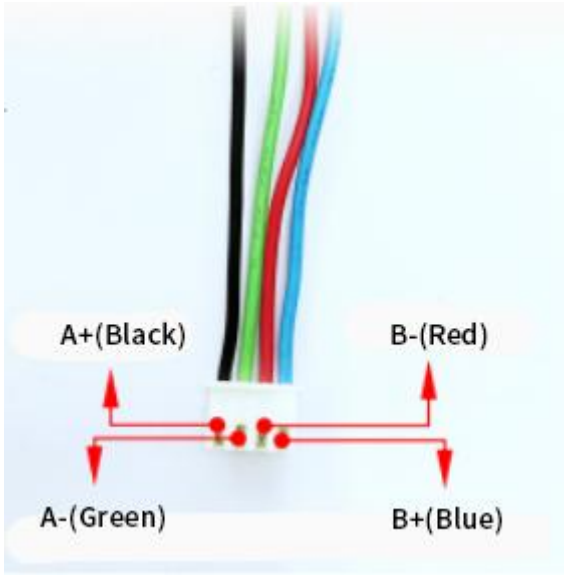
Model	Motor Type	Motor Length
KLP100-BXX	Brushless motor	38mm
KLP100-DXX	Brushled motor	40mm
KLP100-ST	Stepper motor	28mm

4. Motor Control (Brushless motor)

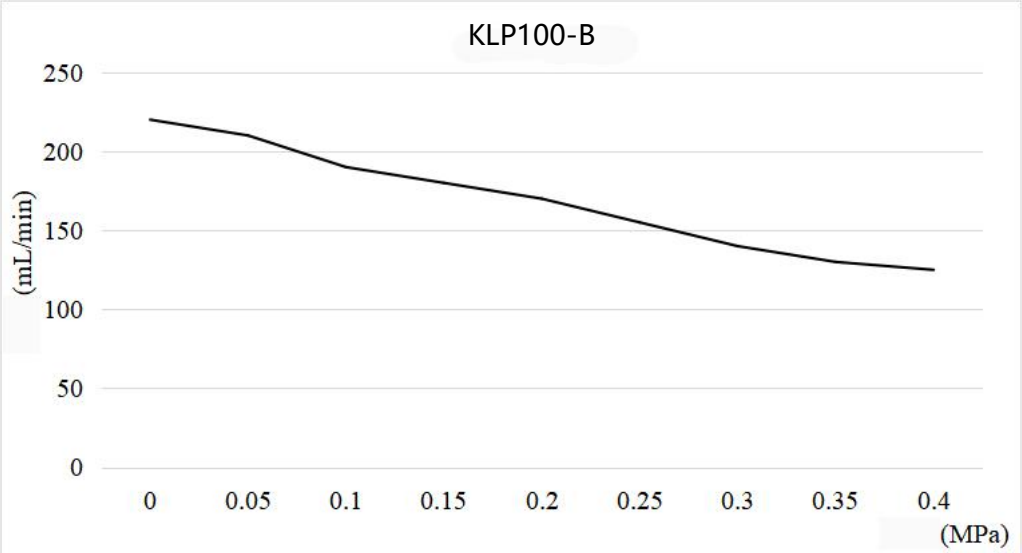
Red	Yellow	White (or Blue)	Black
Vcc	FG	PWM	GND
Positive electrode	Speed feedback	Speed regulation	Negative electrode

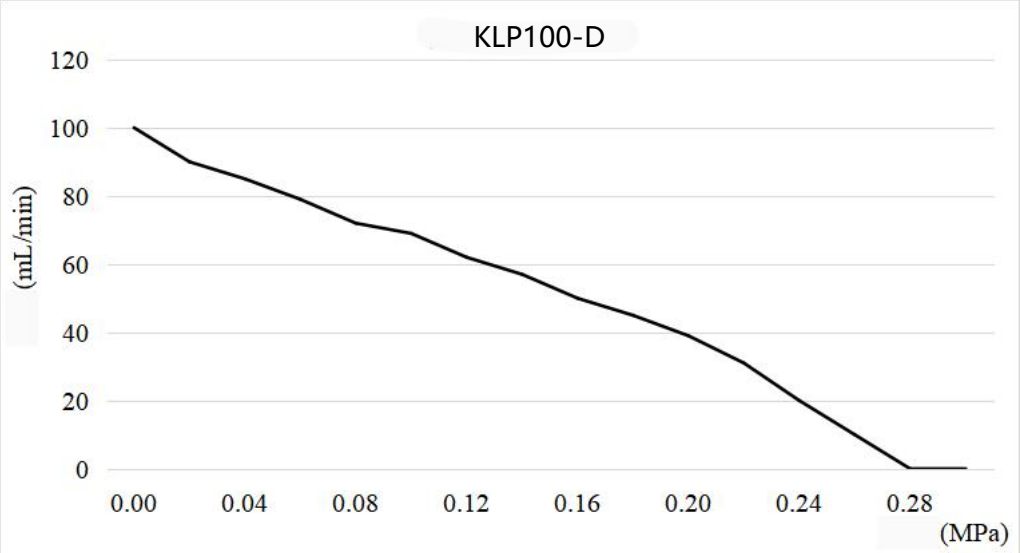
- PWM and 0-5V two speed regulation modes, PWM speed regulation: 10KHZ ~ 30KHZ, amplitude: 5V.
- The control ratio is 0-10% without rotation, 11%-100% speed regulation range.
- Analog voltage speed regulation: voltage 0-5V, 0-0.5V motor does not rotate, 0.6-4.5V for speed regulation range.
- The yellow wire is used for speed feedback, connected to the oscilloscope probe or the host computer. 1 pulse/rev Speed (rev/min)=FG signal*60
- Running at full speed: positive to red and white (blue); negative to black

5. Stepper Motor Wiring Diagram

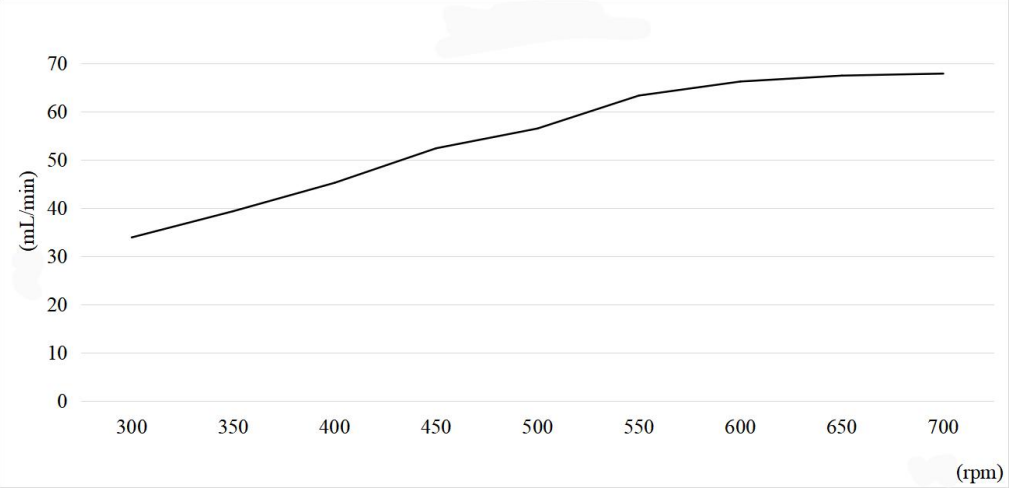


6. Brush/Brushless motor flow-pressure curve





7. Stepper motor speed-flow curve



C. Optional Accessories

Accessory name	Specification		Function
Connection tube PU tube	4mm×6mm		Suitable for gas transfer, economical choice
Connection tube Silicone tube	4mm×6mm		Suitable for gas transmission, does not pollute the medium
Connection tube PVC tube	4mm×6mm		Suitable for general liquid transfer
Prefilter	6mm		Filter dust contaminants within the media, extending service life
Pulse generator board + stepper driver board	2802 + KMD-42B-P	 	Support clockwise and counterclockwise operation, LED 4-digit digital tube display, various control methods: rotary encoder, foot switch, external analog, 485 communication control