

Product Manual

Kamoer Fluid Tech(Shanghai) Co., Ltd.

Version : A/1

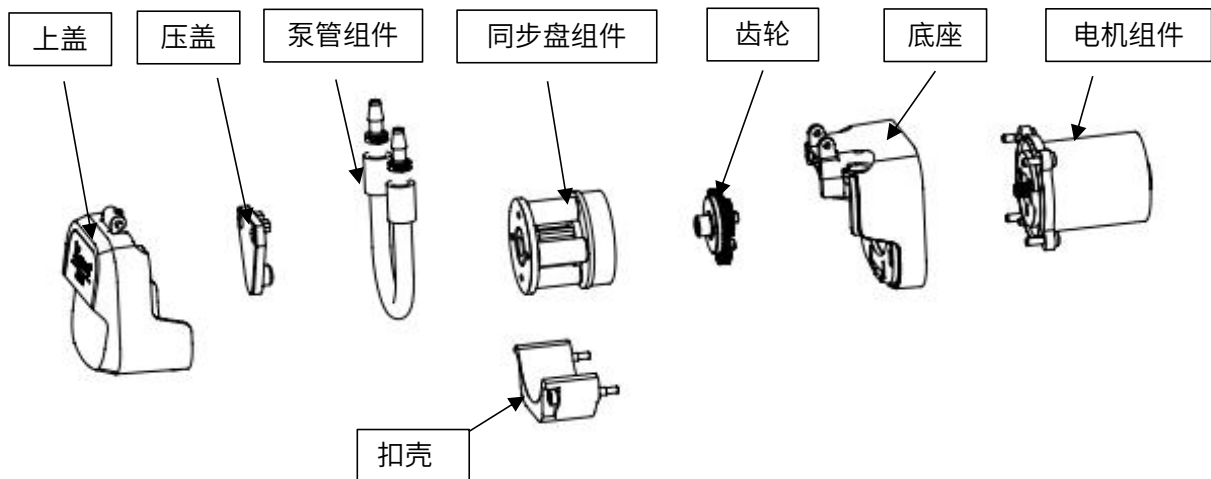
Product name	Micro peristaltic pump
Product model	KPK400
Execution date	2023.09.12
Company name	Kamoer Fluid Tech (Shanghai) Co.,Ltd.

A、 Product Overview

1. Product physical picture



2. Product assembly drawing



3. Model explanation

KPK400	SV	3	B	40	null
model	motor model	rotor	tube type	Pipe number	Installation method



3.1 Motor model



SW 12V DC brushed
SV 24V DC brushed



12B 12V DC brushless
24B 24V DC brushless



ST 24V stepper motor

3.2 Rotor

3 rotors

3.3 Tube type

B : BPT pump tube

3.4 Tube number

40# : 4.0mmx7.2mm 25 # : 4.8mmx8.0mm

3.5 Installation method

Empty : standard installation

3.6 Product material

Pump head model	Upper cover	Base	Gear	Sync disk	Rotor
KPK400	PC	PA	PTE	P OM	P ET

4. Performance characteristics, typical applications

4.1 Performance characteristics

◆ KPK400 series peristaltic pumps can be equipped with DC brushed, DC brushless and stepper motors to meet the needs of different application scenarios.

◆ The pump tube uses imported BPT(B) with a wall thickness of 1.6mm , which is suitable for various specifications of pump tubes to meet different liquid transmission needs .

◆ Easy to operate and can quickly replace the pump tube

◆ Fashionable and beautiful appearance, simple structure and high cost performance

◆ The DC motor transmission mode is gear transmission, with a reduction ratio of 1: 8 and high reliability.



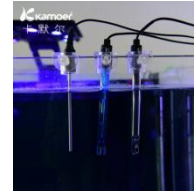
4.2 Typical applications



Water quality analyzer



Nutrient solution ratio



Aquarium water change

5. Product certification, intellectual property

CN307875349S



CN218844912U



RoHS certification



CE certification



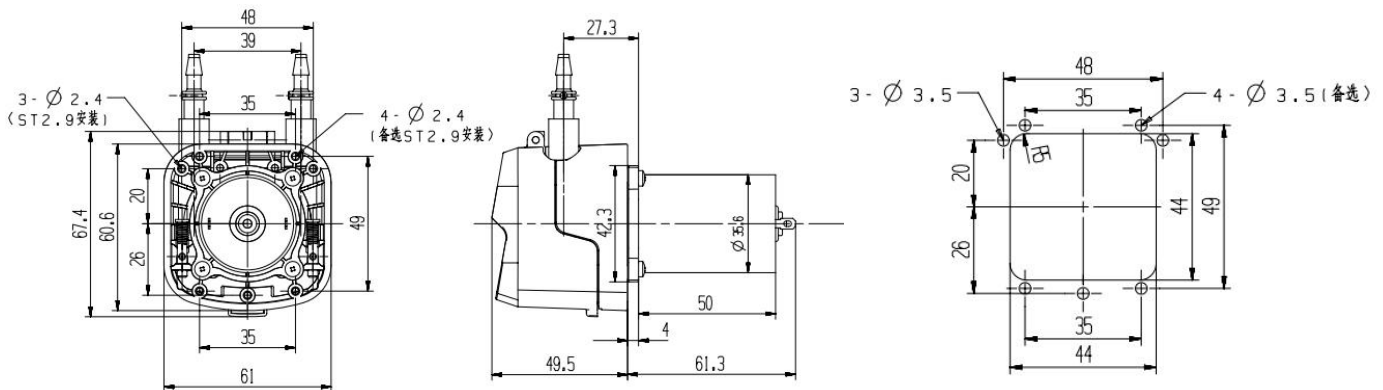
- ◆ Hoses that are resistant to liquid media need to check chemical compatibility or conduct immersion experiments. Improper hose selection may cause the hose to be damaged quickly.
- ◆ The working environment of the product should not exceed 45°C, and the humidity should not exceed 70% (no condensation). Harsh working environment will cause premature damage to the product.
- ◆ Fluid leakage accidents due to hose rupture depend on the fluid medium and your specific application conditions
- ◆ High overload may result in premature product damage
- ◆ Due to the influence of parts fit tolerances, the mechanical noise generated during work varies.



B、 Product Specifications

◆ KPK400 -SV/SW-3 DC brush product specifications

1. Product dimensions



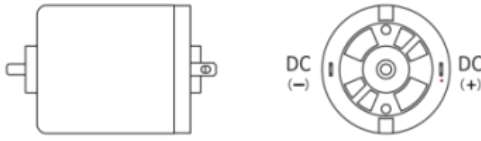
Recommended installation opening dimensions

2. Technical Parameters

Project		Technical Parameters	
Basic parameters	Motor type	DC brushed motor	
	Flow range	≥260 ml/min	
	Noise	≤68dB	
	Power	≤10W	
	Control method	Switch control	
	Weight	About 275 g	
	Rated voltage	12V/24V	
	Pump tube life	B: 1000h	
	Motor life	800h	
	Reference noise value	In a silent room with an ambient noise of 35 dB, the product is 50 cm away from the noise tester, and the noise is less than 68 dB	
Pump tube flow	Reference flow rate (unit: ml/min)		
	Pump tube code	B40	B25
	Inner diameter x Outer diameter	Metric : 4.0mmx7.2mm Imperial system: 5/32in×9/32in	Metric : 4.8mmx8.0mm Imperial: 3/16 in ×5/16 in
	Pump tube material	BPT	
	12V/Current: 0.8A	≥ 260ml/min	≥ 360ml/min
	24V/current: 0.4A	≥ 280ml/min	≥ 400ml/min
Additional information	The above parameters are measured with pure water without pressure at room temperature of 20°C and standard atmospheric pressure. In fact, there will be certain errors in flow rate due to different media, different outlet pressures, DC motor speed errors, etc. The data are for reference only. In addition, it can be customized according to customer needs		



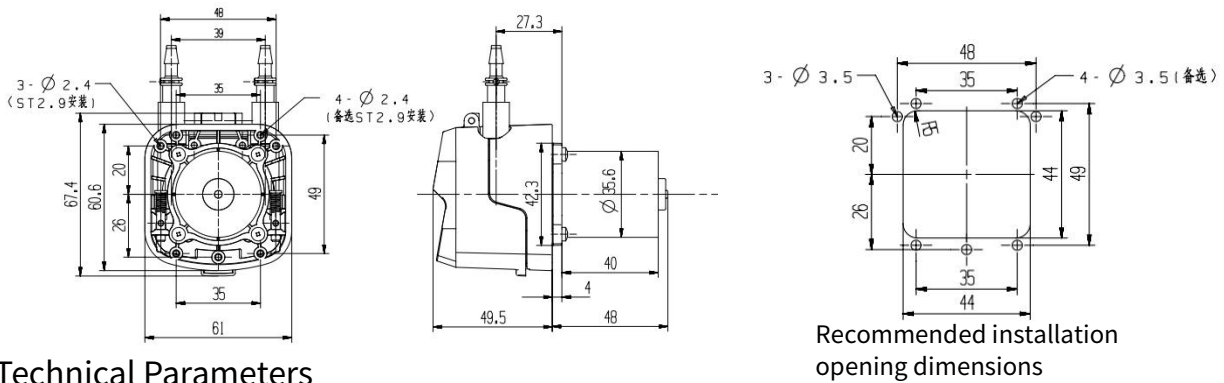
3. motor control



Note: According to the motor wiring diagram, the positive pole of the power supply is connected to positive and the negative pole is connected to negative.

◆ KPK400 -12B/24B-3 DC brushless product specifications

1. Product dimensions



2. Technical Parameters

Project		Technical Parameters	
Basic parameters	Motor type	Brushless DC motor	
	Flow range	≥260ml/min	
	Noise	≤68dB	
	Power	10W	
	control method	Switching control/PWM speed regulation	
	Weight	About 275g	
	Rated voltage	12V/24V	
	Pump tube life	B: 1000h	
	Motor life	2000h	
	Reference noise value	In a silent room with an ambient noise of 35dB, the product is 50cm away from the noise tester, and the noise is less than 68dB	
Pump tube flow	Reference flow rate (unit: ml/min)		
	Pump tube code	B40	B25
	Inner diameter x Outer diameter	Metric : 4.0mmx7.2mm Imperial system: 5/32in x 9/32in	Metric : 4.8mmx8.0mm Imperial: 3/16 in x 5/16 in
	Pump tube material	BPT	
	12V/Current: 0.8A	≥ 260ml/min	≥ 360ml/min
	24V/current: 0.4A	≥ 280ml/min	≥ 400ml/min
Additional information	The above parameters are measured with pure water without pressure at room temperature of 20 °C and standard atmospheric pressure. In fact, there will be certain errors in flow rate due to different media, different outlet pressures, DC motor speed errors, etc. The data are for reference only. In addition, it can be customized according to customer needs		



Brushless motor wireless correspondence instructions :

- 1- Red wire : positive pole of power supply, black wire negative pole of power supply, white wire speed regulating wire, yellow wire signal feedback wire (measuring speed), green wire reversal wire (suspended for reverse rotation, connected to the negative pole of power supply for forward rotation)
- 2- Black wire : GND
- 3- Green line : F/R is connected to high level (3.0-5.0V) or suspended, the motor turns to C CW, connected to low level (0-0.8V), the motor turns to CW
- 4- Yellow line : FG speed signal output port, 1puls/revolution, motor speed $N=60 \cdot f_{FG}$
- 5- White line : voltage and PWM two speed controls :
 - 1) Voltage speed regulation : floating or 0~0.5V motor stops, 0.6~4.5V speed regulation, 4.6~5V full speed
 - 2) PWM speed regulation : (carrier frequency 10~30KHz, amplitude 5.0V) floating or 0~10% motor stop, 11%~94% speed regulation, 95%~100% full speed
- 6- Current limiting protection : Current limiting protection $2.5 \pm 0.3A$
- 7- Stalled rotor protection : The motor stops after 2 seconds of stalled rotor until VCC is reconnected and the motor starts.
- 8- Working temperature range: -30 °C ~65 °C

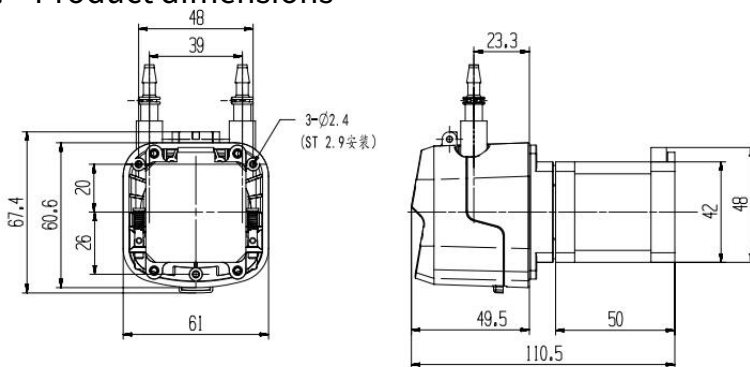
UL1332 Material : PTFE

- 9-FG-24AWG-yellow signal feedback (yellow)
- 10-Vcc-24AWG-red power supply positive pole (red)
- 11-SP-24AWG-white speed control port (white)
- 12-GND-24AWG-black power supply negative pole (black)
- 13-F/R-24AWG-green reversing port (green)



◆ KPK400 - ST -3 Stepper Motor Product Specifications

1. Product dimensions



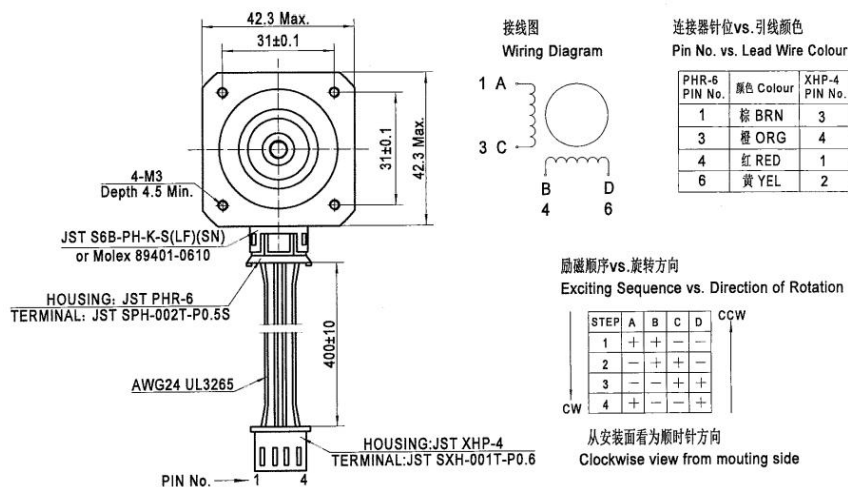
It is recommended to install



2. Technical Parameters

Project		Technical Parameters	
Basic parameters	Motor type	Stepper motor	
	Flow range	0.01 ml/min-550 ml/min	
	Noise	≤60dB	
	Power	24W	
	Control method	PWM/analog voltage speed regulation	
	Weight	About 520 g	
	Rated voltage	24V	
	Pump tube life	B: 1000h	
	Motor life	6000h	
	Reference noise value	with an ambient noise of 35dB, the product is 50cm away from the noise tester, and the noise is less than 60dB	
Reference flow rate (unit: ml/min)			
Pump tube flow	Pump tube code	B40	B25
	Inner diameter × outer diameter	Metric : 4.0mm×7.2mm Imperial system: 5/32in×9/32in	Metric : 4.8mm×8.0mm Imperial: 3/16 in ×5/16 in
	Pump tube material	BPT	
	m l / min 40 0 rpm	300ml/min	410ml/min
Additional information	The above parameters are measured with pure water without pressure at room temperature of 20°C and standard atmospheric pressure. In fact, there will be certain errors in flow rate due to different media, different outlet pressures, DC motor speed errors, etc. The data are for reference only. The buckle shell adopts a spring structure. When working at high speed, the product will make a ticking sound. The sound will disappear when working below 200 rpm. In addition, it can be customized according to customer needs.		

3. Motor parameters and wire color diagram

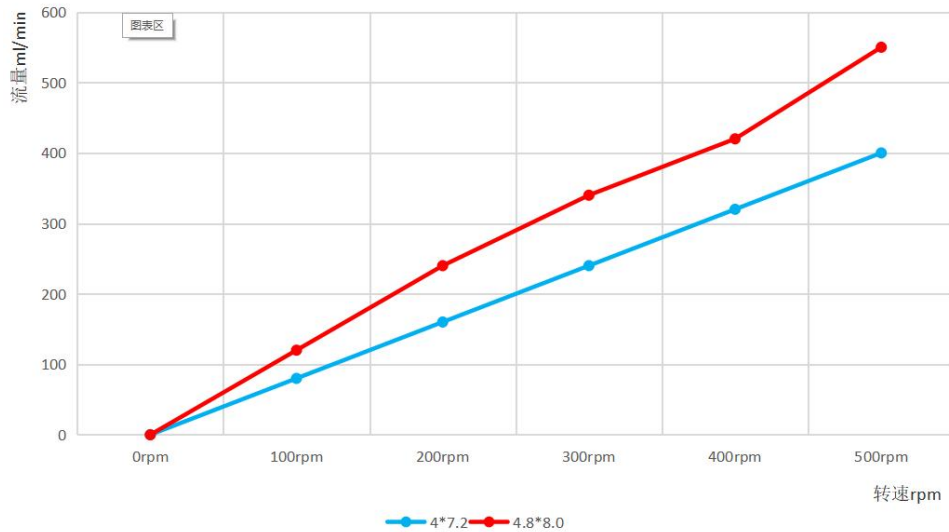


Phase	Resistance	Inductance	Current	Holding torque	Insulation level
2	3.1 ±10%Ω	4.9 ±20% mH	1.2A	0.54Nm	B



4. Flow curve


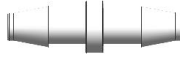

B管流量转速折线图



C. Adapter Hose

Pump tube material	Characteristic	Standards compliant	Tube number
BPT tube (B)	Resistant to common chemicals, acid and alkali, and oxidation resistant, with a lifespan of more than 1,000 hours	RoHS FDA	40 #, 25 #

D. Optional Accessories

Name	Specifications and models	Function introduction
Straight connector	5/3 2 	Can be connected to an external 4.0 mmx7.2 mm hose
Straight connector	3/16 	Can be connected to an external 4.8 mmx8.0 mm hose
Peristaltic pump stepper driver	MODBUS - RTU 	It can realize speed regulation by built-in or external potentiometer, it can realize MODBUS RS485 communication and 0-10V analog speed regulation, and realize two start and stop modes of electric and trigger, with a maximum subdivision of 32, and the drive current can be set (0.7A, 1.2A, 1.7A, 2.2A, 2.7A, 2.9A, 3.2A, 4.0A)

