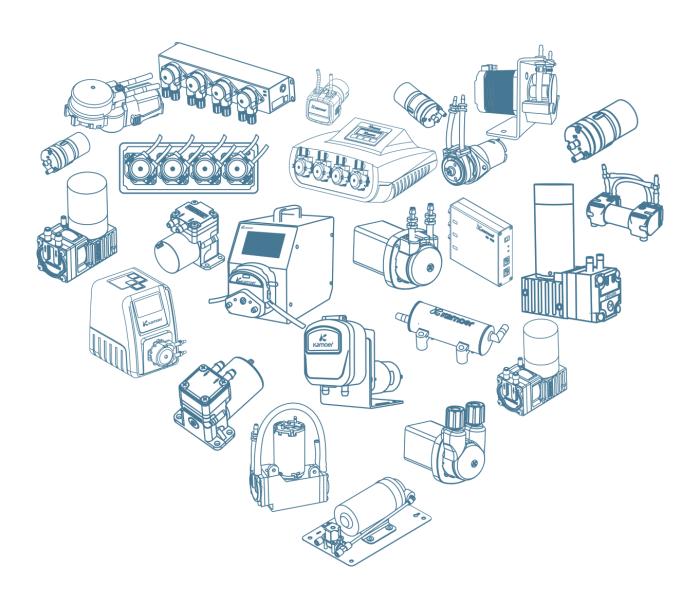


# Product Manual

Make It Smart To Pump Fluid



# Liquid pump and gas pump Kamoer easy to use











#### Company Profile:

Kamoer fluid tech (Shanghai) Co., Ltd. is an intelligent enterprise providing products and solutions in the field of fluid, incorporates research, manufacturing, sales and service with professional technologies and excellent manufacturing process.

The series of Kamoer products are: peristaltic pump, diaphragm pump, piston pump, intelligent peristaltic pump, liquid dispensing system, etc.; Accessories: tube, connectors, precision parts, such as micro valve.

With strong technical power, exquisite process, good corporate reputation, excellent product quality, continuous research and develop new and high technology products with a number of independent patent,we provide customers with quality products and technical services in the field of fluid, Kamoer establishes long-term relations with various enterprises. Company products are widely used in scientific research laboratory, biological pharmacy, food and beverage, fine chemical industry, environmental protection, and many other fields. The company passed ISO9001-2008 quality management system certification, We aim to carry out the idea to put people first and continuously innovate, with all ears for customers and provide good-quality products for all of our customers. We dedicated to make the company become a trusted and respected service provider in the field of fluid.

# Contents



# Peristaltic Pump

| Model<br>KPP<br>NKP<br>KCS<br>KCS-PLUS<br>KAS<br>KAS-ST<br>KFS<br>KFS-ST<br>KPP2<br>KCM<br>KCS3<br>KXF<br>KMPP<br>KHL<br>KDTS<br>KHS<br>KDTM | Flow rate<br>$1.2 \sim 90$ ml/min<br>$10 \sim 60$ ml/min<br>$4 \sim 306$ ml/min<br>$12 \sim 160$ ml/min<br>$12 \sim 160$ ml/min<br>$1.5 \sim 71.5$ ml/min<br>$26 \sim 85$ ml/min<br>$1 \sim 122$ ml/min<br>$1 \sim 122$ ml/min<br>$1 \sim 65$ ml/min<br>$12.5 \sim 155$ ml/min<br>$38 \sim 670$ ml/min<br>$2 \sim 80$ ml/min<br>$1 \sim 1.8$ ml/min<br>$1300 \sim 1800$ ml/min<br>$32 \sim 73$ ml/min<br>$200 \sim 260$ ml/min<br>$240 \sim 460$ ml/min | Page<br>01<br>02<br>03<br>04<br>05<br>06<br>07<br>09<br>10<br>11<br>13<br>14<br>15<br>16<br>17<br>18<br>19 |
|--|---|--|
|  |   |  |



# Pump Machine

| Model        | Flow rate      | Page |
|--------------|----------------|------|
| NKCP         | 2.6~65ml/min   | 28   |
| KCP-C        | 2.6~65ml/min   | 29   |
| KCP2-KXF     | 4~41.5ml/min   | 30   |
| KCP2-KFS     | 4~49ml/min     | 31   |
| KSP-F01A     | 1~40ml/min     | 32   |
| DRIPPING PRO | 1~40ml/min     | 33   |
| KCPPRO2      | 30~260ml/min   | 34   |
| KCS PRO2     | 14~145ml/min   | 35   |
| LLS-PLUS     | 13.2~352ml/min | 36   |
| uip wifi     | ≤1520ml/min    | 37   |
| DIP          | ≤670ml/min     | 39   |
| Lab          | 4~10L/min      | 40   |
| AIP WIFI     | ≤6000ml/min    | 41   |
| BIP          | ≤6000ml/min    | 43   |
| NP04         | 0.1~300ml/min  | 45   |

# Diaphragm pump series

| Model     | Flow rate    | Page |
|-----------|--------------|------|
| KVP04     | ≥1.1L/min    | 46   |
| KLP04     | 320±80ml/min | 47   |
| KLP40     | 4L/min       | 48   |
| KLP180    | ≥160ml/min   | 49   |
| KLP01     | ≥400ml/min   | 50   |
| KLP02     | ≥700ml/min   | 51   |
| KZP       | 7L/min       | 52   |
| KLVP3     | ≥2L/min      | 53   |
| KVP300    | ≥6L/min      | 54   |
| HLVP6     | 5L/min       | 55   |
| KVP8      | ≥8L/min      | 56   |
| HLVP8     | ≥8L/min      | 57   |
| KVP8-PLUS | ≥11L/min     | 58   |
| KVP15     | ≥16L/min     | 59   |
| HLVP15    | ≥16L/min     | 61   |

| Model   | Flow rate   | Page                       |
|---|---|----------------------------|
| KLVP1<br>EDZP1<br>EDZP02<br>HLVP8-2<br>JET500 | ≥1.5L/min<br>400mmHg<br>350mmHg<br>≥6L/min<br>500ml/min | 63<br>64<br>65<br>66<br>67 |
| Acces   | sories  |                            |
| Model   |   | Page                       |
| Silicone tube                                 |   | 71                         |
| Pharmed BPT/                                  | Norprene tube   | 73                         |
| Connector                                     |   | 76                         |

78

Driver board



# L Plate

Flat Plate

#### Three kinds of DC motors are available: 6V/12V/24V

- Flow rate range: 1.2ml/ min~90ml/min
- Working conditions: temperature 0~40°°C, humidity <80%
- Pump tube selection: food grade silicone tube, PharMed®BPT tube
- Pulsation: Three rotors, moderate pulsation
- Pump head: engineering plastic
- Weight: 110 grams

Peristaltic Pump-KPP

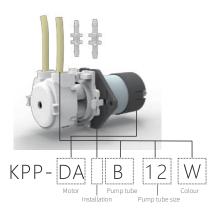
#### **Technical Parameters**

Pump tube length: 135mm (exposed 29.5mm) code-named B pipeline 175mm (exposed 49.5mm) code-named S pipeline

#### **Application Areas**



Trace element analyzer





Chemiluminescence analyzer

Straight

Unit: mm

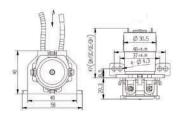


Water quality monitoring



Digital printing machine

L Plate



#### Performance parameter table

|                       | Code                      | S01   | S02   | S04   | S05   | S06   | S08     | S10   | B04  | B12     | B06 | B08     |
|-----------------------|---------------------------|-------|-------|-------|-------|-------|---------|-------|------|---------|-----|---------|
| ID*                   | OD (mm)                   | 0.4x3 | 0.6x3 | 1x3   | 1.5x4 | 2x4   | 2.5x4.5 | 3x5   | 1x3  | 1.5x3.5 | 2x4 | 2.5x4.5 |
| Pump to               | ube material              | S     | S     | S     | S     | S     | S       | S     | BPT  | BPT     | BPT | BPT     |
|                       | DH (3V)<br>Current 0.16A  | ≥1.2  | ≥2.8  | ≥4.5  | ≥10   | ≥17.5 | ≥30     | ≥41.5 | ≥5.2 | ≥12     | ≥15 | ≥22     |
| Flow Rate<br>(ml/min) | DE (6V)<br>Current 0.15A  | ≥3    | ≥5    | ≥10.5 | ≥22   | ≥36   | ≥60     | ≥90   | ≥11  | ≥25     | ≥38 | ≥48     |
|                       | DC (12V)<br>Current 0.25A | ≥2.6  | ≥4.5  | ≥10   | ≥22   | ≥37   | ≥55     | ≥80   | ≥10  | ≥22     | ≥33 | ≥47     |
|                       | DA (24V)<br>Current 0.3A  | ≥2    | ≥4    | ≥10   | ≥21   | ≥38   | ≥59     | ≥83   | ≥11  | ≥21     | ≥34 | ≥48     |

Note: the above flow parameters are measured at 20°C room temperatura and standard atmospheric pressure. Actually, depending on the medium, the outlet pressure is different, the DC motor speed error etc, the flow well have a certain error, the measured date as a reference.







- Three kinds of DC motors are available: 6V/12V/24V
- Flow rate range: 10ml/ min~60ml/min
- Working conditions: temperature 0~40°°C, humidity <80%
- Pump tube selection: food grade silicone tube, PharMed®BPT tube
- Pulsation: Three rollers, moderate pulsation
- Pump head: engineering plastic
- Weight: 110 g

#### **Technical Parameters**

**Application Areas** 



Sweeping robot



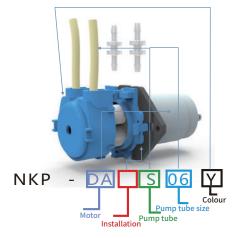
Fuel stoves



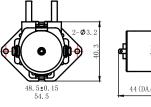
Soap dispenser

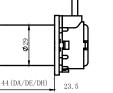


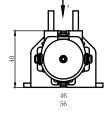
Fully automatic liquid-based cell dyeing machine



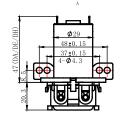








L plate



#### Performance parameter table

| Code                  |                           | S04   | S06 | S08     | B06 | B08     |
|-----------------------|---------------------------|-------|-----|---------|-----|---------|
| ID*OD (mm)            |                           | 1x3   | 2x4 | 2.5x4.5 | 2x4 | 2.5x4.5 |
| Pump tube material    |                           | S     | S   | S       | BPT | BPT     |
|                       | DA (24V)<br>Current 0.15A | ≥10   | ≥38 | ≥59     | ≥34 | ≥48     |
| Flow Rate<br>(ml/min) | DC (12V)<br>Current 0.25A | ≥10   | ≥37 | ≥55     | ≥33 | ≥47     |
|                       | DE (6V)<br>Current 0.35A  | ≥10.5 | ≥36 | ≥60     | ≥38 | ≥48     |

Note: the above flow parameters are measured at20°C room temperature and standard atmosphericpressure. Actually, depending on the medium, theoutlet pressure is different, the DC motor speederror etc. the flow will have a certain error, the measured date as a reference.

Pump tube length: 135mm (exposed 29.5mm) B tube 175mm (exposed 49.5mm) S tube

# Скатое

# Peristaltic Pump-KCS



Motor selection: stepper motor: SA24V/SB12V;

DC motor: SC24V/SD12V

Flow rate: DC motor: 4~99ml/min; 

> Stepper with 3 rollers 9~306ml/min Stepper with 6 rollers 7~207ml/min

- Working conditions: temperature 0~40°C, humidity <80%
- Pump tube selection: Silicone tube, PharMed®BPT tube, Fluorine rubber tube
- Rollers: 3 Rollers, 6 Rollers
- Power: 20W max; Weight: 520 g



Secretions Analysis Workstation

**Application Areas** 



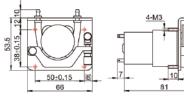


quality monitoring

8888

3 16 KCS-SA 3

Code C installation diagram (Available for SC and SD)



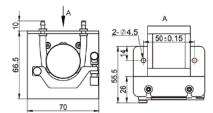
|         |          |     |      |     |     |     | L  | 66  | -   |   |
|---------|----------|-----|------|-----|-----|-----|----|-----|-----|---|
| Flow    | v rate   | 13  | 14   | 19  | 16  | 40  | 30 | 01  | 00  |   |
| 3 Rotor | Motor SA | 17  | 54   | 117 | 171 | 306 | 45 | 100 | 130 |   |
| 6 Rotor | 450rpm   | 12  | 47   | 95  | 135 | 207 | /  | /   | /   |   |
| 3 Rotor | Motor SB | 9   | 38   | 82  | 128 | 200 | 38 | 80  | 95  | P |
| 6 Rotor | 300rpm   | 7   | 30   | 48  | 88  | 120 | /  | /   | /   |   |
| 3 Rotor | Motor SC | 5.5 | 18   | 36  | 61  | 99  | 21 | 49  | 58  |   |
| 6 Rotor | 110rpm   | 4   | 13.5 | 27  | 45  | 60  | /  | /   | /   |   |
| 3 Rotor | Motor SD | 4.5 | 16   | 32  | 56  | 90  | 21 | 49  | 58  |   |
| 6 Rotor | 110rpm   | 4   | 13.5 | 27  | 45  | 60  | /  | /   | /   | ] |

Note: The wall thickness of V pump tube is 0.85mm, the remaining 1.6mm, the actual flow rate of the product is not less than the data in the table.

Electrolyte Ar

Nitrate nitrogen water quality monitor

Installation diagram of code B (Available for SA and SB)

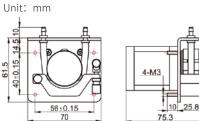


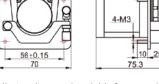
| Phase line    |    | Colour |
|---------------|----|--------|
| A Phase line  | A+ | Red    |
| A Flidse line | A- | Yellow |
| B Phase line  | B+ | Brown  |
| D T hase time | B- | Orange |

| Code      | 13  | 14    | 19  | 16    | 40  | 30   | 01   | 00   |
|-----------|-----|-------|-----|-------|-----|------|------|------|
| ID        | 0.8 | 1.6   | 2.4 | 3.2   | 4.0 | 1.65 | 2.54 | 2.79 |
| OD        | 4.0 | 4.8   | 5.6 | 6.4   | 7.2 | 3.35 | 4.24 | 4.49 |
| Pump tube | S   | B/N/S | B/S | B/N/S | S   | V    | v    | V    |
| Rotor     | 3/6 | 3/6   | 3/6 | 3/6   | 3/6 | 3    | 3    | 3    |

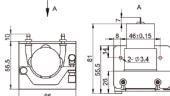
|         | -     |  |
|---------|-------|--|
| nalyzer | Water |  |

Installation diagram of code A (Available for SA and SB)





Code D installation diagram (Available for SC and SD) Stepper motor wiring instructions



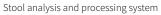
# Peristaltic Pump-KCS-PLUS



- Two stepper motors are available: 12V/24V
- Flow rate range: 4 rollers 20~160ml/min, 8 rollers 12~80ml/min
- Working conditions: temperature 0~40°°C, humidity <80%
- Pump tube selection: silicone tube, PharMed®BPT tube
- Rollers: 4 rollers, 8 rollers
- Current: 1.2A
- Weight: 500g

**Application Areas** 





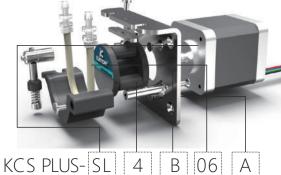






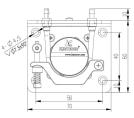
Chemiluminescence detection platform

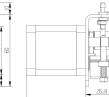
Reducing sugar analyzer

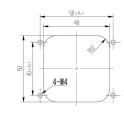


Outline dimension drawing of stepper motor straight board (A installation) Unit: mm

Stepper motor straight plate mounting plate opening size









EXCITING SEQUENCE(TWO PHASES VS. DIRECTION OF ROTATION



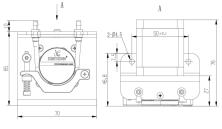
| Code                    |            | S04     | S06 | S10        | B04 | B06 | B10        | CLOCK WISE VIEW FROM MOUNTING SIDE |  |
|-------------------------|------------|---------|-----|------------|-----|-----|------------|------------------------------------|--|
|                         | ID*OD (mm) |         | 1*3 | 2*4        | 3*5 | 1*3 | 2*4        | 3*5                                |  |
| 1                       | Pump tube  |         | S   | S          | S   | В   | В          | В                                  |  |
|                         | 24V        | 4 Rotor | 25  | 80         | 160 | 22  | 80         | 160                                |  |
| Flow Rate               | (SL)       | 8 Rotor | 15  | 50         | 80  | 16  | 50         | 80                                 |  |
| (ml/min)<br>12V<br>(SM) | 12V        | 4 Rotor | 20  | 75         | 155 | 20  | 70         | 150                                |  |
|                         | 8 Rotor    | 12      | 45  | 65(400prm) | 12  | 40  | 60(400prm) |                                    |  |

Note 1: The above data is measured at standard atmospheric pressure, at 20 C, under 450rpm speed with pure water. The data is for reference only. The rate can be customized by demand. Note 2:The stepper motor is difrent from the current under the same current conditions: Low Voltage, rough pump tube cannot get a igher speec, there may be out of step motor stall, otherwise there is no problem.Example 1: 12V voltage, 8 rotors, 3 \* 5 BPT tube can only be used under 400 rpm, may cause a step out if the speed rate is too high.Example 2: 24V voltage, 4 rotors, 1 \* 3 BPT tube can increase the speed to 500 or more.



Rollers Pump tube Pump tube Installation

Outline dimension drawing of Z-shaped board of stepping motor (B installation method)



Stepper motor wiring diagram

Step angle 1.8° two-phase four-wire current 1.2A wiring length 400mm



## Peristaltic Pump-KAS



Two kinds of stepper motor: 12V / 24V Flow rate range: 11.5ml/min ~ 71.5ml/min Working conditions: temperature 0 ~ 40 ° C, humidity < 80% Pump tube selection: silicone tube, Pharmed? BPT tube Pulsation: 3 rollers, moderate pulsation Pump head: engineering plastics Weight: 225 g

#### Technical parameter

SE: 24 V Stepping motor SF: 12 V Stepping motor Current: 0.75A

#### **Application Areas**



Medical treatment



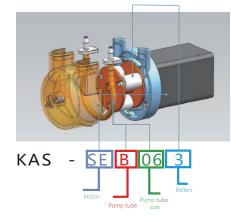
Experiment



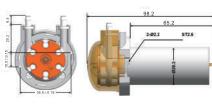
Food



Equipment



Stepper motor installation size diagram Unit: mm



Г Т

Stepper motor wiring instructions

| Phase line    |    | Colour |
|---------------|----|--------|
| A Phase line  | A+ | Red    |
| A Phase line  | A- | Blue   |
| B Phase line  | B+ | Green  |
| 5 i nase inte | B- | Black  |

#### Performance parameter table

|                       | Code   | S04 | S06 | S08     | S10   | B04   | B12     | B06 | B08     |
|-----------------------|--|-----|-----|---------|-------|-------|---------|-----|---------|
| ID                    | *OD (mm)   | 1x3 | 2x4 | 2.5x4.5 | 3x5   | 1x3   | 1.5x3.5 | 2x4 | 2.5x4.5 |
| Pump                  | tube material                                    | S   | S   | S       | S     | BPT   | BPT     | BPT | BPT     |
| Flow Rate<br>(ml/min) | Stepper motor SE (24V)<br>Stepper motor SF (12V) | ≥12 | ≥27 | ≥44.8   | ≥71.5 | ≥11.5 | ≥23     | ≥27 | ≥42     |

Note: the above flow rate was measured atstandard atmospheric pressure,KAS 250 RPMwith pure water, actually,depend on the medium, the outlet pressure is different, the flowwill have a certain error, the date as a reference.



- Two 42 stepper motors are available: 12V/24V
- Flow rate range: 3 rollers 45~85ml/min, 6 rollers 26-45ml/min
- Working conditions: ambient temperature 0~40°C, relative humidity <80%
- Pump tube selection: silicone tube, PharMed®BPT tube
- Rollers: 3 rollers, 6 rollers, two options
- Pump head: engineering plastic cover: high permeability PC plastic
- Low noise: Under 35dB ent, the operating noise is less than 53

dB at a distance of 50cm

#### Technical parameter

ST: 24 V Stepper motor SU: 12 V Stepper motor Current: 1.2A

#### **Application Areas**







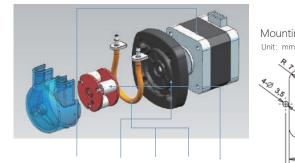
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Fast Solvent Extractor

Ammonia nitrogen detector

Precipitation sampler

Urine Analyzer



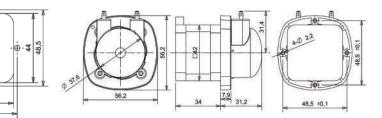
Installation Pump tube Pump tube Motor Rollers

Mounting plate hole size drawing

க் 44

48.5

Dimensions



|        | Code                             |         | S06 | S08     | S10 | B06 | B08     | B10 |
|--------|----------------------------------|---------|-----|---------|-----|-----|---------|-----|
|        | ID*OD (mm)                       |         | 2X4 | 2.5X4.5 | 3X5 | 2X4 | 2.5X4.5 | 3X5 |
| Ρι     | ımp tube m                       | aterial | S   | S       | S   | BPT | BPT     | BPT |
|        | 24V<br>Stepper motor<br>(ST)     | 3 Rotor | 45  | 60      | 85  | 42  | 66      | 88  |
| Flow   | Electric current                 | 6 Rotor | 33  | 38      | 45  | 26  | 36      | 44  |
| ml/min | 24V<br>Stepper motor             | 3 Rotor | 48  | 60      | 85  | 43  | 65      | 84  |
|        | (SU)<br>Electric current<br>1.2A | 6 Rotor | 32  | 38      | 45  | 26  | 35      | 44  |

Note: The above flow parameters are under the condition of 42 stepping motor at 300rpm (if the speed is too high for a long time, the accumulated heat may affect the normal operation of the pump, so please use it below 300rpm for safety), 20°C room temperature standard atmospheric pressure Measured with pure water without pressure. Actually, depending on the medium and outlet pressure, there will be a certain error in the flow rate. The data is for reference only.





## Peristaltic Pump-KFS

- 5 Kinds of DC motors are available: brushed 6V/12V/24V, brushless 12V/24V
- Flow rate range: DC brush 1~85ml/min, DC brushless 1.2~122ml/min
- Working conditions: temperature 0~40°C, humidity <80%
- Pump tube selection: silicone tube, PharMed®BPT tube, imported MasterFlex fluorine rubber tube
- Transmission mode: gear transmission, one slowdown 1:14, two slowdown 1:196. The first-stage deceleration output speed is fast, focusing
  - on large flow; the second-stage deceleration output speed is slow, focusing on micro-flow
- Pump head: The upper cover is made of high permeability PC plastic, and the pump body and gear are made of imported synthetic engineering plastics.
- Rotor: 3 Rotors, 6 Rotors

#### **Technical Parameters**

Pump tube length: 135mm (exposed 30mm) BPT tube (B) Viton (V) 175mm (exposed 50mm) Silicone tube (S)

#### **Application Areas**







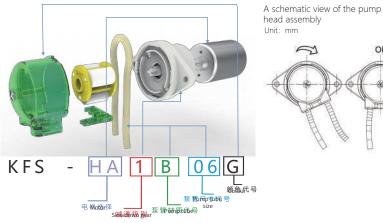


Ion chromatograph

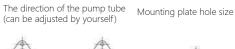
Automatic car washing machine

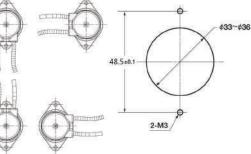
Blood analyzer

Hypochlorous acid water generator

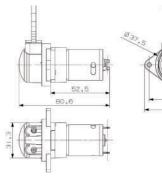


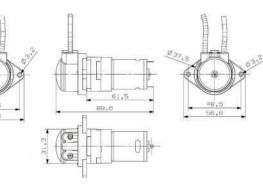
Unit: mm OK



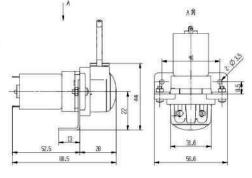


Dimensions





Dimensions (brushed motor with sheet metal bracket) First deceleration



One slowdown gear Dimensions

Two slowdown gear Dimensions

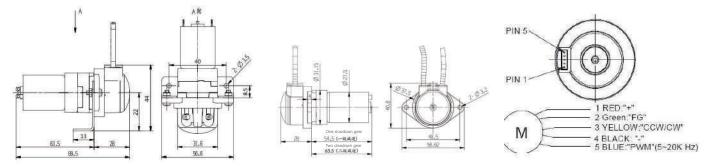




Two slowdown gear

Dimensions (brushless DC motor)

Brushless motor wiring diagram



#### KFS Brushed Flow model selection

|              | Code         |                         | S04 S06  |                                     | S10      | B04      | B06      | B10      | V01       |
|--------------|--------------|-------------------------|----------|-------------------------------------|----------|----------|----------|----------|-----------|
| C            | D*ID(m       | mm) 1.0*3.3 2.0         |          | 2.0*4.0                             | 3.0*5.0  | 1.0*3.3  | 2.0*4.0  | 3.0*5.0  | 2.54*4.24 |
|              | Materia      | als Silicon Silicon     |          | Silicon                             | BPT      | BPT      | BPT      | Viton    |           |
|              | 24V<br>0.2A  | One<br>slowdown<br>gear | 12ml/min | 45ml/min                            | 85ml/min | 12ml/min | 45ml/min | 85ml/min | 50ml/min  |
| (uiu         | 0.2A<br>(HA) | Two<br>slowdown<br>gear | 1ml/min  | 4ml/min                             | 7ml/min  | 1ml/min  | 4ml/min  | 7ml/min  | 5ml/min   |
| rate(ml/min) | 12V          | One<br>slowdown<br>gear | 12ml/min | 45ml/min                            | 85ml/min | 12ml/min | 45ml/min | 85ml/min | 50ml/min  |
| v rate       | 0.4A<br>(HB) | Two<br>slowdown<br>gear | 1ml/min  | 4ml/min                             | 7ml/min  | 1ml/min  | 4ml/min  | 7ml/min  | 5ml/min   |
| Flow         | 6V           | One<br>slowdown<br>gear | 12ml/min | 45ml/min                            | 85ml/min | 12ml/min | 45ml/min | 85ml/min | 50ml/min  |
|              | 0.6A<br>(HC) | Two<br>slowdown<br>gear | 1ml/min  | 4ml/min                             | 7ml/min  | 1ml/min  | 4ml/min  | 7ml/min  | 5ml/min   |
|              | ldeal w      | orking cor              |          | ital temperature 0~4<br>nidity <80% | 0℃       |          |          |          |           |

Note: when the environmental noicce is 35dB, the measured ditance is 50dB at a distance of 50cm, and its mreasured at 63dB for the attached product.

#### KFS Brushless Flow model selection

|              | Cod          | е                       | S04     | S06     | S10     | B04 | B06 | B10 | V01       |
|--------------|--------------|-------------------------|---------|---------|---------|-----|-----|-----|-----------|
| IC           | )*OD(1       | mm)                     | 1*3     | 2*4     | 3*5     | 1*3 | 2*4 | 3*5 | 2.54*4.24 |
|              | Materi       | ials                    | Silicon | Silicon | Silicon | BPT | BPT | BPT | Viton     |
|              | 24V          | One<br>slowdown<br>gear | 12      | 65      | 116     | 18  | 56  | 122 | 70        |
| rate(ml/min) | 0.2A<br>(HD) | Two<br>slowdown<br>gear | 1.2     | 4.5     | 8.3     | 1.3 | 4.3 | 8.5 | 6         |
| Flow rate    | 12V<br>0.35A | One<br>slowdown<br>gear | 12      | 65      | 116     | 18  | 56  | 122 | 70        |
| Ē            | (HE)         | Two<br>slowdown<br>gear | 1.2     | 4.5     | 8.3     | 1.3 | 4.3 | 8.5 | 6         |

Tubing size: 135mm(30mm exposed)BPT tubing(B)fluorine tubing

175mm(50mm exposed)sillicone tu bing(S)(V)

Ideal working conditions: Environmental temperature 0~40°C Relative humidity <80%

When the enviromental noise is 48db, the full load of 60dB measured at 30cm reduces the speed of the pump head and sacriPce Bow rates, the noise can be reduced.



# Peristaltic Pump-KFS Stepper motor



#### **Application Areas**



Drone spraying

#### Stepper motor voltage: 24V

- Flow rate range: 7~65ml/min
- Working conditions: temperature 0~40°C, relative humidity <80%
- Pump tube selection: silicone tube, PharMed®BPT tube, imported fluorine rubber tube
- Transmission mode: direct transmission by stepper motor.
- Pump head: the upper cover is made of high permeability engineering plastics
- Rollers: 3 rollers, 6 rollers

#### **Technical Parameters**

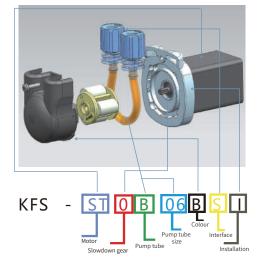
The 28 stepper motor has a maximum speed of 250rpm and a current of 1A. When the environmental noise is 35dB, the measured distance is 50dB at a distance of 50cm, and it is measured at 63dB for the attached product.



Mopping robot



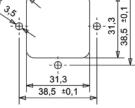
Sweeping robot



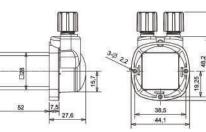
#### Ð ×.0

Mounting plate hole size

Unit: mm



Dimensions



#### Stepper motor 3 rollers

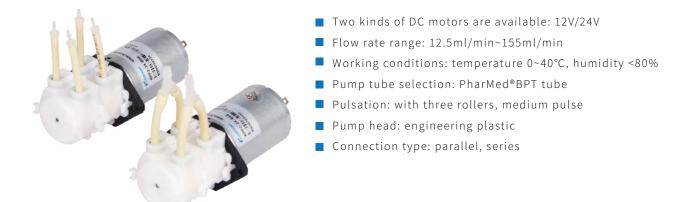
| tepper               | motor 3                            | rollers                                  |      |      |      |     |     |      |           | Stepper               | motor 6 r                          | ollers  |   |                                |
|----------------------|------------------------------------|--|------|------|------|-----|-----|------|-----------|-----------------------|------------------------------------|---|---|--------------------------------|
| Ρι                   | Imp tube                           | e code                                   | 504  | S06  | S10  | B04 | B06 | B10  | V01       | Мс                    | del explanat                       | ion   | KFS-stepping/no deceleration/tube type/color, | /thread/interlock/rotor number |
|                      | 10100 (                            |  | 1970 | 01/1 | 0115 |     |     | 21/5 |           |                       | Model                              |   | KFS-ST 0 B04 P S I 6                          | KFS-ST 0 806 P S I 6           |
|                      | ID*OD (mr                          | m)                                       | 1X3  | 2X4  | 3X5  | 1X3 | 2X4 | 3X5  | 2.54X4.24 | Pi                    | ump tube co                        | de  | B04   | B06                            |
|                      | Pump tub                           | e  | S    | S    | S    | BPT | BPT | BPT  | V         |                       | ID*OD (mm)                         |   | 1X3   | 2X4                            |
|                      |                                    | Motor speed                              |      |      |      |     |     |      |           | Pi                    | imp tube mate                      | rial  | BPT   | BPT                            |
| low Rate<br>(ml/min) | 24V Motor<br>(ST)<br>Current<br>1A | 1:1<br>output<br>without<br>deceleration | 10   | 34   | 65   | 9   | 32  | 60   | 48        | Flow Rate<br>(ml/min) | 24V Motor<br>(ST)<br>Current<br>1A | Motor speed<br>1:1<br>output<br>without<br>deceleration | 7ml/min                                       | 20ml/min                       |

Note: 28 stepping motor maximum speed 250rpm, current 1A; noise below 35dB, 50cm distance measured 50dB, posted product measured 63dB.

\*The above flow parameters are measured by pure water without pressure under the standard atmospheric pressure of 20 °C at room temperature. The reagents vary according to the medium, the outlet pressure is different, the DC motor speed error, etc., the flow will have a certain error, the data is for reference only, and according to customer needs custom made. \* Due to the material characteristics, the fluorine rubber tube is placed in the pump head for a long period of time without the medium being inoperative, and the tube wall is stuck with a small probability, which may result in the inability to absorb liquid. If it has been stuck, you can remove the pump tube and pinch it to restore the flexibility of the pump tube. If it is left for a long time, it is necessary to retain liquid in the pump tube, which will prevent the above phenomenon.

# Peristaltic Pump-KPP2





#### Application Areas



Experiment



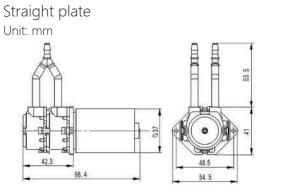
Print

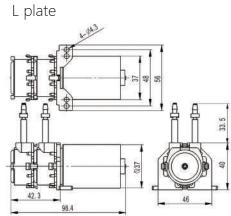


Environmental protection



Equipment





| Tubing PharMed BPT       | ID (Wall thickness 1) | Flow   |
|--------------------------|-----------------------|--|
| 24V DC In: 0.15-0.27 (A) | $\Phi$ (mm)           | (ml/min)                                     |
| KPP2-B04-24              | 1×3                   | $\geqslant$ 25 Single head $\geqslant$ 12.5  |
| KPP2-B06-24              | 2×4                   | $\geqslant$ 80 Single head $\geqslant$ 40    |
| KPP2-B10-24              | 3×5                   | $\geqslant$ 155 Single head $\geqslant$ 77.5 |
| Tubing PharMed BPT       | ID (Wall thickness 1) | Flow   |
| 12V DC In: 0.3-0.5 (A)   | $\Phi$ (mm)           | (ml/min)                                     |
| KPP2-B04-12              | 1×3                   | $\geqslant$ 25 Single head $\geqslant$ 12.5  |
| KPP2-B06-12              | 2×4                   | $\geqslant$ 80 Single head $\geqslant$ 40    |
| KPP2-B10-12              | 3×5                   | $\geq$ 1.50 Single head $\geq$ 77.5          |







- Two kinds of stepping motors are available: 12V/24V
- Flow rate range: 3 rollers 44~670ml/min; 6 rollers 38~375ml/min
- Working conditions: ambient temperature 0~40°C, relative humidity <80%</p>
- Pump tube selection: silicone tube, PharMed®BPT tube
- Rollers: 3 rollers, 6 rollers, the more the number of rotors, the higher the accuracy,

the smaller the pulsation, and the smaller the flow

- Pump head: engineering plastics, machined parts are SUS304 stainless steel
- Multiple subdivisions are available: 1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, 1/128

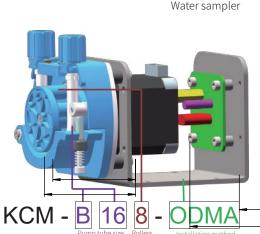
**Application Areas** 



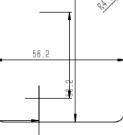
Water sampler



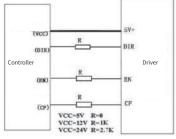
Blood cell analyzer



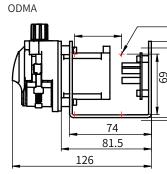
Hole size drawing of wall-mounted plate Unit<sup>,</sup> mm



Drive connection diagram

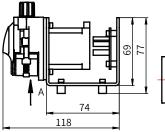


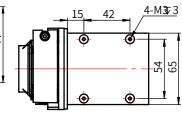
R is a series voltage limiting resistor. When the interface voltage of the controller is 5V, it is not necessary to connect R directly. When the interface voltage is 12V, please connect 1K resistor in series. When the interface voltage is 24V, please connect 2.7K resistor in series.



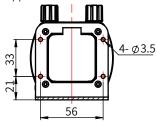
<u>4- Ø3.5</u> 35 4

ODMB





Support wall mount







## Performance parameter table

|  | Code                 |           | 14 | 19      | 16      | 40      | 25      |
|--|----------------------|-----------|----|---------|---------|---------|---------|
|  | ID*OD(mm)            |           |    | 2.4×5.6 | 3.2×6.4 | 4.0×7.2 | 4.8×8.0 |
|  | Pump tube material   |           |    | В       | В       | S       | В       |
|  | 24V 3 Rollers        |           | 70 | 175     | 300     | 480     | 670     |
| Flow rate<br>(ml/min)  | @550RPN <del>/</del> | 6 Rollers | 60 | 130     | 230     | 300     | 375     |
|  | 12V                  | 3 Rollers | 44 | 111     | 190     | 305     | /       |
|  | @350RPM              | 6 Rollers | 38 | 82      | 146     | 190     | /       |
| Current: 1.2A<br>Working conditions:Ambient temperature: 0°C-40°C<br>Relative humidity: <80% |                      |           |    |         |         |         |         |

Note:

1. The above flow parameters are measured at a standard atmospheric pressure of 20 ° C at room temperature, 30 minutes after aging of the new tube, 24 V @ 450 RPM / 12 V @ 350 RPM, measured with pure water without pressure, actual outlet pressure, assembly tolerance, etc. There will be some error in the flow, and the data is for reference only.

2. The stepping motor is different from the current. Under the same current condition: the low voltage, the high number of rotors, the rough pump tube can not obtain higher speed, there may be the possibility that the motor is out of step, and vice versa. For example: 12V voltage, 8 rotor, 3\*5BPT tube intelligence is used below 400 rpm, if the speed is too high, it will lose the step. For example: 24V voltage, 4 rotors, 1\*3BPT can also be used to increase the speed to above 500.

3. The life of the pump tube is closely related to the speed. The higher the speed, the shorter the life of the pump tube. Therefore, when the accuracy can be satisfied, try to select the large pump tube and low speed. It is recommended that the pump work at 400RPM.





# ) Peristaltic Pump-KCM

- Two kinds of stepping motors are available: 12V/24V
- Flow rate range: 3 rollers 44~670ml/min, 6 rollers 38~375ml/min
- Working conditions: temperature 0~40°C, humidity <80%
- Pump tube selection: silicone tube, PharMed®BPT tube
- Rollers: 3 rollers, 6 rollers, the more the number of rotors, the higher accuracy, the smaller pulsation and the smaller flow
- Pump head: engineering plastics, machined parts are SUS304 stainless steel
- Installation method: fixed through board or L-shaped fixed with optional bracket

#### Application Areas



Water sampler



Coffee machine



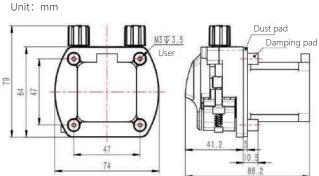
Small online water quality monitor



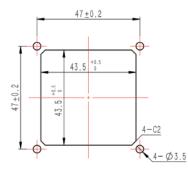
Blood cell analyzer



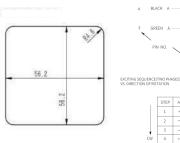
Appearance size chart Unit: mm







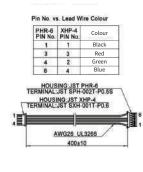
Recommended panel hole size



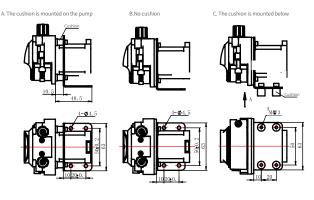
Stepper motor wiring diagram Step angle 1.8°, two-phase four-wire, wiring length 400mm

À B CCI

CLOCK WISE VIEW FROM MOUNTING SIDE



Optional bracket The pump can be equipped with a bracket to convert the direct mounting method of the through plate to the L-type mounting method



13





## Performance parameter table

|  | Code               |           | 14 | 19      | 16      | 40      | 25      |
|--|--------------------|-----------|----|---------|---------|---------|---------|
|  | ID*OD(mm)          |           |    | 2.4×5.6 | 3.2×6.4 | 4.0×7.2 | 4.8×8.0 |
|  | Pump tube material |           |    | В       | В       | S       | В       |
|  | 24V 3 Rollers      |           | 70 | 175     | 300     | 480     | 670     |
| Flow rate<br>(ml/min)  | @550RPM-           | 6 Rollers | 60 | 130     | 230     | 300     | 375     |
|  | 12V                | 3 Rollers | 44 | 111     | 190     | 305     | /       |
|  | @350RPM            | 6 Rollers | 38 | 82      | 146     | 190     | /       |
| Current: 1.2A<br>Working conditions:Ambient temperature: 0°C-40°C<br>Relative humidity: <80% |                    |           |    |         |         |         |         |

Note:

1. The above flow parameters are measured at a standard atmospheric pressure of 20 ° C at room temperature, 30 minutes after aging of the new tube, 24 V @ 450 RPM / 12 V @ 350 RPM, measured with pure water without pressure, actual outlet pressure, assembly tolerance, etc. There will be some error in the flow, and the data is for reference only.

2. The stepping motor is different from the current. Under the same current condition: the low voltage, the high number of rotors, the rough pump tube can not obtain higher speed, there may be the possibility that the motor is out of step, and vice versa. For example: 12V voltage, 8 rotor, 3\*5BPT tube intelligence is used below 400 rpm, if the speed is too high, it will lose the step. For example: 24V voltage, 4 rotors, 1\*3BPT can also be used to increase the speed to above 500.

3. The life of the pump tube is closely related to the speed. The higher the speed, the shorter the life of the pump tube. Therefore, when the accuracy can be satisfied, try to select the large pump tube and low speed. It is recommended that the pump work at 400RPM.





Stool analyzer

# ) Peristaltic Pump-KCS3

- Motor: 24V 42 stepping motor
- Flow rate range: 3 rollers 70~300ml/min, 6 rollers 55~250ml/min
- Working conditions: temperature 0~40°C, humidity <80%</p>
- Pump tube selection: silicone tube, PharMed®BPT tube
- 3 Rollers, 6 Rollers, the more the number of rotors, the higher accuracy, the smaller pulsation, and the smaller flow
- Pump head: buckle shell and synchronization disc are made of hard aluminum alloy, the sheet metal is Q235-A sprayed, the machined parts are SUS304 stainless steel, and the joint material is PP
- Current: 1.2A

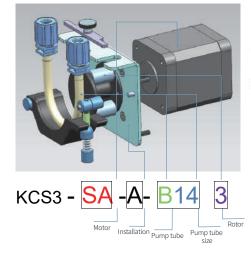


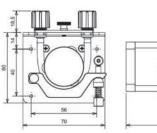
Programmable welding angle machine

Straight step size drawing of stepper motor (A mounting method)

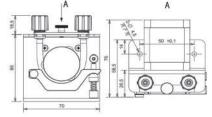


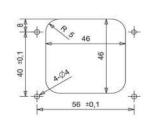
Brightener detector





Stepper motor Z-shaped form factor drawing (B mounting method)





Opening size

Stepper motor wiring diagram

Step angle 1.8° two-phase four-wire current 1.2A wiring length 400mm

| Viring Diagram | Pin No. vs.      | Lead Win | e Colour         |
|----------------|------------------|----------|------------------|
| $\sim$         | PHR-6<br>PIN No. | Colour   | XHP-4<br>PIN No. |
| ( )            | 1                | BRN      | 3                |
| $\bigcirc$     | 3                | ORG      | 4                |
|                | 4                | RED      | 1                |
|                | 6                | YEL      | 2                |

|           | Code        |         | B13 B14 B19 |         | B19     | S16     |
|-----------|-------------|---------|-------------|---------|---------|---------|
|           | ID*OD(mm)   |         | 1.6X4.8     | 2.4X5.6 | 3.2X6.4 | 4.0X7.2 |
| Pum       | p tube mate | erial   | BPT         | BPT     | BPT     | S       |
| Flow rate | 24V         | 3 Rotor | 70          | 120     | 225     | 300     |
| (ml/min)  | (SA)        | 6 Rotor | 55          | 105     | 155     | 250     |

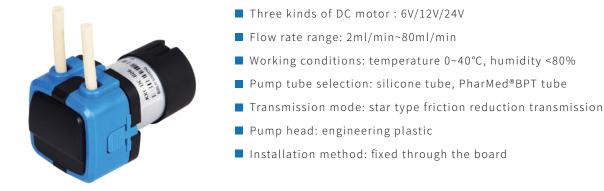
Note: The above flow parameters are measured at 20°C room temperature and standard atmospheric pressure, 450rpm speed, with pure water without pressure. Actually, according to different media, different outlet pressures, assembly tolerances, etc., there will be some errors in the flow rate. The data is for reference.

Application Areas

15







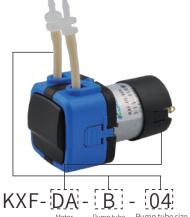
**Application Areas** 



Chemiluminescence analyzer

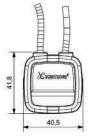


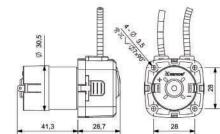
Trace element analyzer



Pump tube size Pump tube







|         | Code           | S01   | S02   | S04   | S06 | S08     | S10 | B04 | B12     | B06 | B08     |
|---------|----------------|-------|-------|-------|-----|---------|-----|-----|---------|-----|---------|
| 1[      | D*OD(mm)       | 0.4*3 | 0.6*3 | 1*3   | 2*4 | 2.5*4.5 | 3*5 | 1*3 | 1.5*3.5 | 2*4 | 2.5*4.5 |
|         | Materials      | S     | S     | S     | S   | S       | S   | BPT | BPT     | BPT | BPT     |
| rate    | DA (24V) 0.12A | ≥2    | ≥4    | ≥10   | ≥38 | ≥59     | ≥75 | ≥11 | ≥21     | ≥34 | ≥48     |
| Flow rg | DC (12V) 0.25A | ≥2.6  | ≥4.5  | ≥10   | ≥37 | ≥55     | ≥70 | ≥10 | ≥22     | ≥33 | ≥47     |
| Ξ       | DE (6V) 0.53A  | ≥3    | ≥5    | ≥10.5 | ≥36 | ≥60     | ≥80 | ≥11 | ≥25     | ≥38 | ≥48     |

Note: The above flow parameters are measured with pure water pressure at 20°C room temperature standard pressure. Actually, depending on the medium, the output pressure is different, the DC motor speed error, etc., the flow will have a certain error, the data is based on For reference, the current value is the thickest tube reference current, which is actually affected by the head, viscosity, and the length of the water inlet and outlet!





# ) Peristaltic Pump-KMPP

- One type of DC gear motor is optional: 3.7V
- Flow rate range: 1~1.8ml/min
- Working conditions: temperature 0~40°C, humidity <80%
- Pump tube selection: silicone tube
- Transmission mode: DC geared motor drive
- Pump head: the pump casing is made of PP plastic, and the internal moving parts are made of POM plastic
- Current: 0.1A

#### Application Areas



Experiment



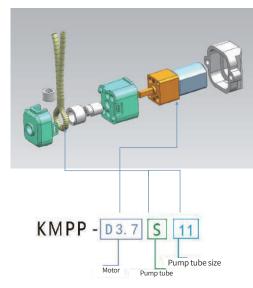
Chemical Medicine



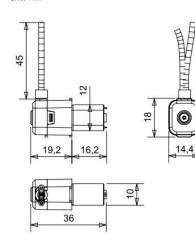
Research institutions



Electronic chip

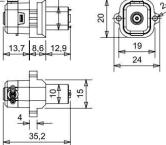








Dimensions with rubber shock mount



#### Performance parameter table

| ID,                   | °OD(mm)        | 2x3                   |
|-----------------------|----------------|-----------------------|
| Pump                  | tube material  | S (Silicone)          |
| Flow rate<br>(ml/min) | (3.7V)<br>0.1A | ≈ 1.8 ml/min (100rpm) |

Note 1: This motor needs to work under the rated voltage. Because the deceleration is relatively large, the motor speed is more than 10,000 rpm, and the motor brushes wear quickly, so the overall continuous test life is 50 hours. If the life expectancy is higher, please be careful Optional.

Note 2: The above flow parameters are measured with pure water without pressure at 20°C room temperature and standard atmospheric pressure. Actually, according to different media, different outlet pressures, DC motor speed errors, etc., the flow will have certain errors. The data is for reference. The current value is the thickest tube reference current, which is actually affected by the head, viscosity, and the length of the water inlet and outlet!







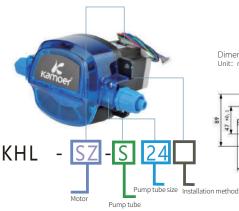
- 2 kinds of 57 stepper motors are available: 12V/24V
- Flow rate range: 1300~1800ml/min
- Working conditions: temperature 0~40°C, humidity <80%
- Pump tube selection: silicone tube
- Transmission mode: the motor shaft is directly driven, the motor rotates once, and the pump head rotates once
- Pump head: the upper cover is made of PC plastic, and the pump body is made of PA engineering plastic
- Installation method: fixed through the board

**Application Areas** 

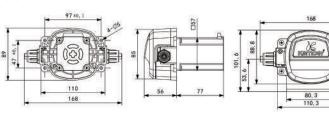




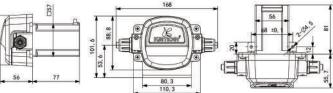
Juice Drink Machine



Dimensions (through board installation method)

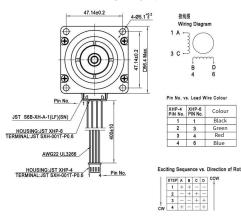


Dimensions (L-board installation method)



#### Stepper motor wiring diagram

Step angle 1.8° two-phase four-wire current 1.8A wiring length 400mm Connect client sub-model JXT XHP-4 (pin 2.54 pitch)



Clockwise view from mouting side

6.4\*11.4 7.9\*12.7 ID\*OD(mm) 7.9\*11.1 Materials S S врт 24V, 12V rate 1300ml 1800ml 1800 ml Stepper motor 3 Rollers (SZ) (350rpm) Flow (350rpm) (350rpm) 1.8A

Note 1: Due to the relatively hard 18# BPT pipe, thin wall thickness and motor torque, the pump pipe cannot be over-preloaded. The use of a single pump may have some backflow phenomenon. If the requirement for backflow is high, it needs to be combined with one-way Valve use!

Note 2: The above flow parameters are measured with pure water without pressure at 20°C room temperature and standard atmospheric pressure. Actually, according to different media, different outlet pressures, DC motor speed errors, etc., the flow will have certain errors. The data is for reference. The accuracy error of different individual flows is within 5%.

The repetition accuracy is within 2%. This accuracy is a conservative data. The size of the test pump tube, the viscosity of the liquid, and the suction head are different. The actual application shall prevail.

Small online water quality monitor



# Peristaltic Pump-KDTS

- Two kinds of DC motors are available: 12V/24V
- Flow rate range: 32~73ml/min
- Working conditions: temperature 0~40°C, humidity <80%
- Pump tube selection: silicone tube
- Transmission mode: single-stage planetary gear transmission
- Pump head: The pump head is made of PC plastic, and the internal moving parts are POM plastic

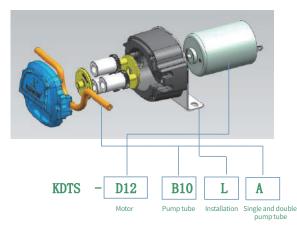
76

Current: 0.4A/0.2A

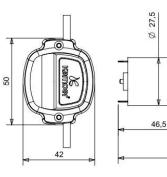
Application Areas

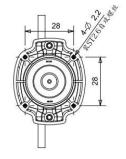


Fuel stoves



Dimensions (through board installation method) Unit: mm





|                     |                | Single pump tube flow rate |             |     |     |  |
|---------------------|----------------|----------------------------|-------------|-----|-----|--|
| Code                |                | S06                        | S06 B06 S10 |     | S10 |  |
| ID*OD               | (mm)           | 2*4                        | 2*4         | 3*5 | 3*5 |  |
| Materials           |                | S                          | BPT         | S   | BPT |  |
| Flow rate<br>ml/min | (24V)<br>0. 2A | 35                         | 32          | 73  | 70  |  |
|                     | (12V)<br>0. 4A | 35                         | 32          | 73  | 70  |  |

Note: The above flow parameters are measured with pure water without pressure at 20°C, room temperature and standard atmospheric pressure. Actually, according to different media, different outlet pressures, DC motor speed errors, etc., the flow will have certain errors. The data is for reference, and the current value is The reference current of the thickest tube type is actually affected by the head, viscosity, and the length of the water inlet and outlet!



# Peristaltic Pump-KHS



- 4 types of DC motors are available: DC brushed 12V/24V DC brushless 12V/24V
- Flow rate range: 12V200~260ml/min, 24V200~260ml/min
- Working conditions: temperature 0~40°C, humidity <80%
- Pump tube selection: silicone tube, imported Norprene® tube
- Transmission mode: planetary gear transmission, reduction ratio 1:8
- Pump head: the upper cover is made of engineering plastics, the pump body PA and gears are made of synthetic engineering plastics
- Installation method: through plate fixing and L plate installation



machine



Urine formed element analyzer



Coagulation Analyzer

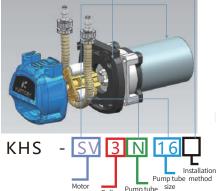


Fluorescence immunoassay



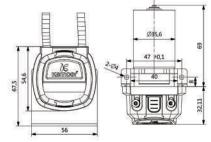
analyzer

Ø35.

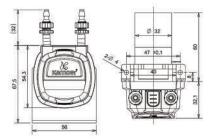


DC Brushed (L board installation method)

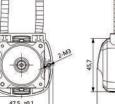
Pump tube

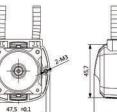


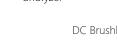
DC Brushless(L board installation method)



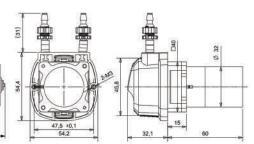
Unit: mm







DC Brushless(Board mounting method)



| Code                |   |           | S16       | S40   | N16      | N40      |
|---------------------|---|-----------|-----------|-------|----------|----------|
|                     | ID*OD(mm                                | )         | 3. 2*6. 4 | 4*7.2 | 3.2*6.4  | 4*7.2    |
|                     | Material                                | S         | S         | S     | Norprene | Norprene |
|                     | 24V<br>Brushed motor<br>(SV)<br>0.4A    | 3 Rollers | 210       | 260   | 200      | 260      |
| Flow rate<br>ml/min | 12V<br>Brushed motor<br>(SW)<br>0.8A    | 3 Rollers | 210       | 260   | 200      | 260      |
|                     | 24V<br>Brushless Motor<br>(24B)<br>0.3A | 3 Rollers | 210       | 260   | 200      | 260      |
|                     | 12V<br>Brushless Motor<br>(12B)<br>0.6A | 3 Rollers | 210       | 260   | 200      | 260      |

Note: The above flow parameters are measured with pure water without pressure at 20°C, room temperature and standard atmospheric pressure. Actually, depending on the medium, outlet pressure, DC motor speed error, etc., there will be certain errors in the flow rate. The data is for reference.

**Application Areas** 

DC Brushed(Board mounting method)





## Peristaltic Pump-KDTM



- 2 kinds of DC motors and 1 kind of stepper motor are optional: 12V/24V
- Flow rate range: three rollers 240~460ml/min
- Working conditions: temperature 0~40°C, humidity <80%
- Pump tube selection: silicone tube, Norprene® tube
- Transmission mode: planetary gear transmission, reduction ratio 1:8
- Pump head: The upper cover is made of PC plastic, and the pump body and gear are made of synthetic engineering plastics.
- Installation method: through plate fixing and L plate installation

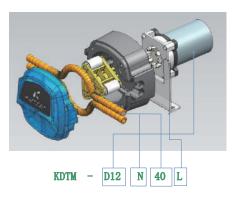
**Application Areas** 



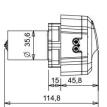


Intelligent drum cooking machine

Hydrogen peroxide sterilizers

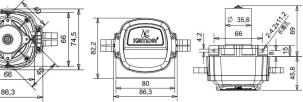


DC Brushed(Board mounting method) Unit: mm



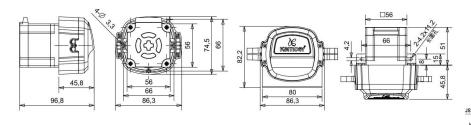
4-Ø 3.3

DC Brushed (L board installation method)

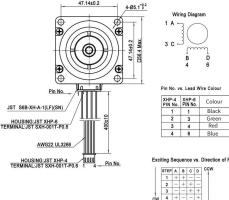


47.14±0.2

Stepper motor(Board mounting method)



Stepper motor wiring diagram Step and 1.8° Two-phase four-wire Current 1.8A Wiring length 400mm Connect to client sub-model JXT XHP-4 (pin 2.54 pitch)



view from mouting side



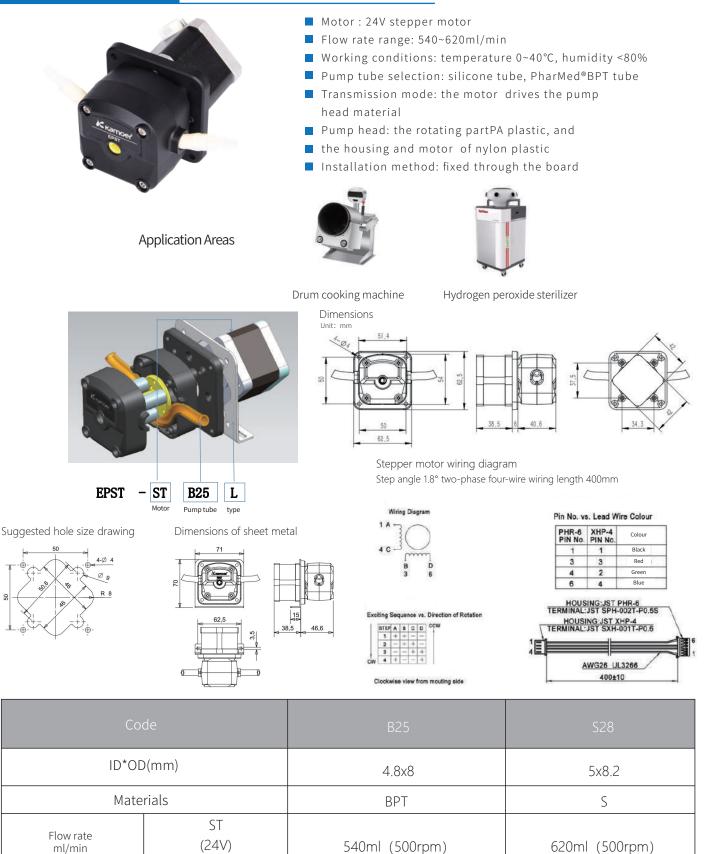
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|---|--------|
|   |        |

|                     |                                       |         | Single pump tube flow | Single pump tube flow |
|---------------------|---------------------------------------|---------|-----------------------|-----------------------|
|                     | Code S40                              |         | S40                   | N40                   |
|                     | ID*OD(r                               | nm)     | 4*7.2                 | 4*7.2                 |
|                     | Materia                               | als     | S                     | Norprene              |
|                     | 24V<br>Brushed motor<br>(D24)<br>0.6A | 3 Rotor | 460                   | 450                   |
| Flow rate<br>ml/min | 12V<br>Brushed motor<br>(D12)<br>1.1A | 3 Rotor | 450                   | 440                   |
|                     | 24V<br>Stepper motor<br>(ST)<br>1.8A  | 3 Rotor | 245 (200rpm)          | 240 (200rpm)          |

Note: The above flow parameters are measured with pure water without pressure at 20°C room temperature and standard atmospheric pressure. Actually, depending on different media, different outlet pressures, and DC motor speed errors, there will be certain errors in the flow rate. The data is for reference.

# Скатоеř

# Peristaltic Pump-EPST



Note: The above flow parameters are measured with pure water without pressure at 20°C room temperature and standard atmospheric pressure. Actually, depending on the medium and outlet pressure, there will be a certain error in the flow rate, the data is for reference. Current data is measured based on the thickest tube. It is affected by the viscosity, and the distance of liquid, it is necessary to perform uniform acceleration and deceleration when controlling the stepper motor. There is a risk of out of step when directly reaching the highest speed!

1.5A





- 5 kinds of motors are available: synchronous geared motor (FA), stepper motor (FB), AC hood-level motor (FD) 24v/12v DC brushed motor (FC/FE)
- Flow rate range: synchronous motor 100~110ml/min, stepper motor 5~600ml/min, DC motor 340~380ml/min
- Working conditions: ambient temperature 0~40°C, relative humidity <80%
- Pump tube selection: silicone tube, PharMed®BPT tube, imported Norprene® tube Transmission mode: The main working parts are 2 movable rotors. Both ends of the movable rotor are equipped with self-adaptive springs to ensure that the outlet pressure is not changed by the degree of wear and tear of the pump tube. It can
- also pump liquids containing fine particles, avoiding the easy fixation of the rotor. Pump head: pump body structural parts are made of high-strength synthetic
- engineering plastics, and all metal parts are made of high corrosion resistance Corrosive stainless steel, the bearing adopts are imported .
- Installation method: bracket fixing and veneer plate fixing





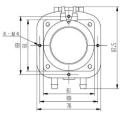
Drum cooking machine

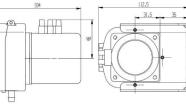


Hydrogen peroxide sterilizer

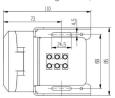


AC synchronous motor version installation diagram 1 Unit: mm



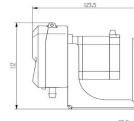


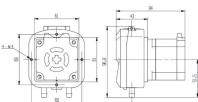
AC synchronous motor version installation diagram 2 (With bracket)



Stepper motor version installation diagram 1 (including bracket and circuit board)







Stepper motor version installation diagram 2





Stepper motor version installation diagram 3 (including bracket)

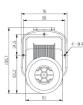


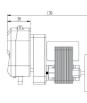
# Peristaltic Pump-KDS

38

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Shaded Pole Motor Wiring diagram





Shaded Pole Motor Wiring diagram (With bracket)

Synchronous Motor Wiring diagram

630V 334J

口接线图

□ 按 3 m 1----0 逆时针 2----0 顺时针

#### Stepper motor wiring instructions (step angle 1.8°)

|              | Colour |        |
|--------------|--------|--------|
|              | A+     | Black  |
| A Phase line | A-     | White  |
| B Phase line | B+     | Yellow |
| DTHasetine   | B-     | Green  |

Warning: Because the KDS series will involve 220V AC high voltage and precision electronic circuits, in order to ensure your life safety and the correct and safe use of the peristaltic pump, the wiring must be completed by professionals! If you have any questions, please consult the customer service staff at any time, thank you!

| Motor<br>Project                                | Synchronous Motor | Stepper motor     | DC motor         | Shaded Pole Motor |
|---|-------------------|-------------------|------------------|-------------------|
| Model   | FA                | FB                | FC/FE            | FD                |
| Voltage   | AC220V/50Hz       | DC24V             | DC24V/DC12V      | AC220V/50Hz       |
| Current   | 0.07A             | 1.8A max          | 0.28A/0.56A      | 0.45A             |
| Temperature                                     | ≪80°C             | ≪55°C             | ≪35°C            | ≪75°C             |
| Speed   | 100rpm            | 1-400rpm          | 300rpm           | 300rpm            |
| Net weight                                      | $\approx$ 0.93kg  | $\approx$ 1.03kg  | $\approx$ 0.75kg | $\approx$ 1.31kg  |
| 2 Rollers 3.2*6.4 (B16)<br>PharMed®BPT ml/min   | 100               | 5~440<br>(400rpm) | 340              | 300               |
| 2 Rollers 3.2*6.4 (N16)<br>Norprene ml/min      | 100               | 5~440<br>(400rpm) | 340              | 300               |
| 2 Rollers 3.2*6.4 (S16)<br>Silicone tube ml/min | 110               | 5~600<br>(500rpm) | 380              | 380               |

Note: The above flow parameters are measured with pure water without pressure at 20°C, room temperature and standard atmospheric pressure. Actually, depending on the medium, outlet pressure, DC motor speed error, etc., there will be certain errors in the flow rate. The data is for reference.

# Peristaltic Pump-KKDD

stepper motor ≤1600ml/min

gear transmission, reduction ratio 1:20





Application Areas



Drum cooking machine

Three kinds of motors are available: 12V/24V DC motor, stepper motor
 Flow rate range: 12V DC motor ≤1240ml/min, 24V DC motor ≤1300ml/min,

Working conditions: temperature 0~40°C, humidity <80%</li>
 Pump tube selection: silicone tube, PharMed®BPT tube

gears are made of synthetic engineering plastics.Installation method: Straight plate and L plate

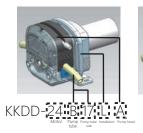
Transmission mode: DC motor transmission mode is multi-stage

Pump head: The pump head is made of PC plastic, and the pump body and

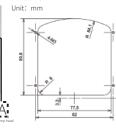
Hydrogen peroxide sterilizer



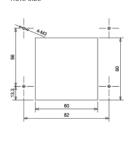
KKDD L plate installation method



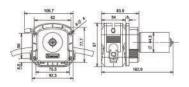
KKTS-24:B:17:12:A



KKDD Straight plate reference hole size



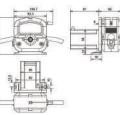
KKDD Straight plate size chart





KKTS Straight plate size chart

KKTS L plate installation method



|   | Code                                      |             | S40     | S25     | S17      | S18   | B40     | B25     | B17  |
|---|---|-------------|---------|---------|----------|-------|---------|---------|------|
| ID*OD(mm)                                     |   | 4*7.2       | 4.8*8.0 | 6.4*9.6 | 7.9*11.1 | 4*7.2 | 4.8*8.0 | 6.4*9.6 |      |
| Materials                                     |   | S           | S       | S       | S        | S     | BPT     | BPT     | BPT  |
| Flow rate<br>ml/min<br>24<br>Step<br>mo<br>KK | DC<br>Brushed -                           | 0.6A        | 440     | 600     | 1000     | 1300  | 440     | 600     | 860  |
|   | KKDD                                      | 12V<br>1.2A | 440     | 570     | 900      | 1240  | 410     | 560     | 800  |
|   | 24V<br>Stepper<br>motor<br>KKTS<br>350rpm | 1.8A        | 420     | 650     | 1100     | 1600  | 420     | 650     | 1000 |

Note: The above flow parameters are measured with pure water without pressure at 20°C room temperature and standard atmospheric pressure. Actually, according to different media, different outlet pressures, DC motor speed errors, etc., the flow will have certain errors. The data is for reference.

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# Peristaltic Pump-KHM



**Application Areas** 



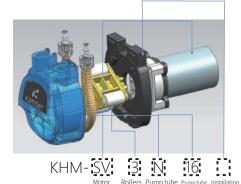
Automatic washing machine

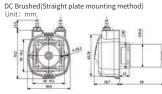


Installation method: Straight plate and L plate

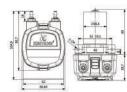


Soil analyzer

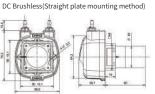




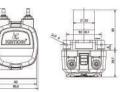
DC Brushed( L plate installation method)







DC Brushless( L plate installation method)



| Code                |                                   |           | S16      | S40      | N16      | N40      |
|---------------------|-----------------------------------|-----------|----------|----------|----------|----------|
|                     | ID*OD(mm)                         | )         | 3.2*6.4  | 4*7.2    | 3.2*6.4  | 4*7.2    |
|                     | Materials                         |           | Silicone | Silicone | Norprene | Norprene |
| Flow rate<br>ml/min | 24V<br>Brushed<br>(SV)<br>0.4A    | 3 Rollers | 360      | 580      | 340      | 530      |
|                     | 12V<br>Brushed<br>(SW)<br>0.8A    | 3 Rollers | 350      | 540      | 330      | 500      |
|                     | 24V<br>Brushless<br>(24B)<br>0.3A | 3 Rollers | 350      | 560      | 350      | 560      |
|                     | 12V<br>Brushless<br>(12B)<br>0.6A | 3 Rollers | 350      | 560      | 350      | 560      |

Note: The above flow parameters are measured with pure water without pressure at 20°C room temperature and standard atmospheric pressure. Actually, according to different media, different outlet pressures, DC motor speed errors, etc., the flow will have certain errors. The data is for reference.





monitor

Ammonia nitrogen automatic Total phosphorus automatic monitor

4 kinds of motors are available: 24V/12V DC brush motor and brushless motor

■ Flow rate range: 12V330~560ml/min, 24V340~580ml/min Working conditions: temperature 0~40°C, humidity <80% Pump tube selection: silicone tube, imported Norprene® tube

PA and gears are made of synthetic engineering plastics

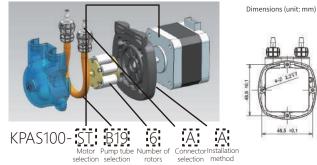
Transmission mode: planetary gear transmission, reduction ratio 1:8 Pump head: the upper cover is made of engineering plastics, the pump body

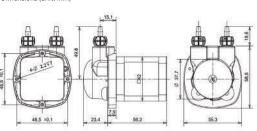


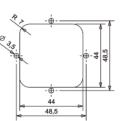




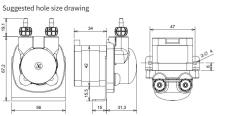
- 1 kinds of stepping motor:42 stepper motor (24V/1.2A)
- Flow rate range:20-110ml/min
- Working conditions:Ambient temperature 0-40°C , relative humidity <80%
- Pump pipe selection :silicone tube,imported PharMed BPT tube
- Transmission mode :the motor drives the pump head directly to output
- Installation mode: the installation mode is fixed through the plate

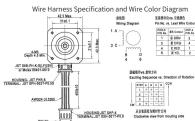






Suggested hole size drawing





| Pump tube code               | B14      |    | B19     |    | B16     |
|------------------------------|----------|----|---------|----|---------|
| Inner diameter*outer<br>(mm) | 1.6x4.8  |    | 2.4x5.6 |    | 3.2x6.4 |
| Pump tube material           | S/BPT    |    | S/BPT   |    | S/BPT   |
| Number of rotors             | 3        | 6  | 3       | 6  | 3       |
| Flow rate<br>ml/min          | 32       | 20 | 70      | 40 | 110     |
| Rotating speed<br>rpm        | 350rpm   |    |         |    |         |
| Voltage and current          | 24V/1.2A |    |         |    |         |

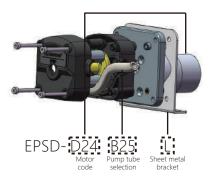
Note: The above flow parameters are measured with pure water without pressure at 20 degrees Celsius, room temperature and standard atmospheric pressure. Actually, depending on the medium and outlet pressure, there will be a certain error in the flow rate. The data is used as a reference. The current value is the input current and the actual head, Viscosity, and the length of the water inlet and outlet, it is necessary to do uniform acceleration and deceleration when controlling the stepper motor, there is a risk of loss of step when directly reaching the highest speed

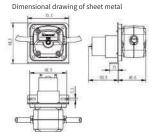


## Peristaltic Pump-EPSD



- 1 type of DC motor: 24V DC geared motor
- Flow rate range: 270~330ml/min
- Main material: The rotating part is made of PA plastic, and the housing and motor seat are made of nylon plastic
- Pump tube selection: silicone tube, imported PharMed BPT tube
- Transmission mode: The transmission mode is that the motor drives the pump head to output after transmission through the gearbox
- Main material: The rotating part is made of PA plastic, and the housing and motor seat are made of nylon plastic
- Installation method: The installation method is fixed through the board





| Dimensions (unit: mm) |             |      | Suggested hole size drawing           |
|-----------------------|-------------|------|---------------------------------------|
| 51.4                  |             |      | - total                               |
|                       |             | 1-Th | A A A A A A A A A A A A A A A A A A A |
|                       |             |      |                                       |
| 42,5                  | 51.5 0 40.0 | 34.1 | · • * * * •                           |

| Pump tube code               |                       | B25   | S28   |
|------------------------------|-----------------------|-------|-------|
| Inner diameter*outer<br>(mm) |                       | 4.8x8 | 5x8.2 |
| Pump tub                     | e material            | ВРТ   | S     |
| Flow rate<br>ml/min          | Rotating speed<br>rpm | 32    | 110   |

Note: The above flow parameters are measured with pure water without pressure at 20 degrees Celsius, room temperature and standard atmospheric pressure. Actually, depending on the medium and outlet pressure, there will be a certain error in the flow rate. The data is used as a reference. The current value is the tube-type reference current. Influence of head, viscosity, length of inlet and outlet







**Application Areas** 

- Low cost adjustment of flow rate
- Convenient and quick replacement of pump tube
- Low noise, small space occupation
- Simple structure, maintenance-free
- With three rollers, moderate pulsation
- Liquid transfer direction can be changed
- Flow rate range: 2.6~65ml/min

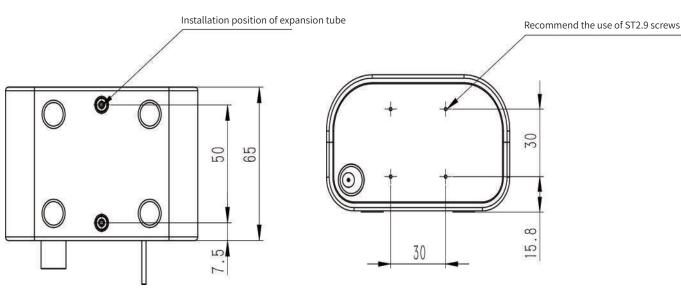


Pipeline liquid addition



Laboratory doser

Dimensional drawing



| Code                | S02      | S04      | S06      | S08      | S10      | B06     | B08       |
|---------------------|----------|----------|----------|----------|----------|---------|-----------|
| ID*OD(mm)           | 0.6×3.0  | 1.0×3.3  | 2.0×4.0  | 2.5×4.5  | 3.0×5.0  | 2.0x4.0 | 2.5x4.5   |
| Materials           | Silicone | Silicone | Silicone | Silicone | Silicone | BPT     | BPT       |
| Flow rate<br>ml/min | 2.6~4    | 4~14     | 11~34    | 17~50    | 19~65    | 9.3~32  | 14.6~41.5 |

#### Parameter

Weight: about 185 g

Pump tube length: 135mm (exposed 29.5mm) Code-B

175mm (exposed 49.5mm) Code-S

Working conditions: ambient temperature 0 $\sim$ 40°C relative humidity <80%



# Iab Pump Serier-KCP-C



- Low cost adjustment of flow rate
- Convenient and quick replacement of pump tube
- Low noise, small space occupation
- Simple structure, maintenance-free
- With three rollers, moderate pulsation
- Flow rate range: 2.6~65ml/min

#### Application Areas



Equipment

Dimensional drawing

Unit: mm



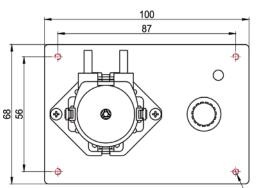
Research institutions



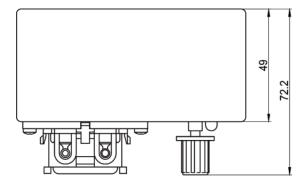
Aquarium fish tank



laboratory



Need to be customized, there is no opening by default



| Code                | S02      | S04      | S06      | S08      | S10      | B04     | B06     | B08       |
|---------------------|----------|----------|----------|----------|----------|---------|---------|-----------|
| ID*OD(mm)           | 0.6×3.0  | 1.0×3.0  | 2.0×4.0  | 2.5×4.5  | 3.0×5.0  | 1.0x3.0 | 2.0x4.0 | 2.5x4.5   |
| Materials           | Silicone | Silicone | Silicone | Silicone | Silicone | BPT     | BPT     | BPT       |
| Flow rate<br>ml/min | 2.6~4    | 4~14     | 11~34    | 17~50    | 19~65    | 3~13    | 9.3~32  | 14.6~41.5 |

#### Parameter

Pump tube length: 135mm (exposed 29.5mm) Code-B

175mm (exposed 49.5mm) Code-S

Working conditions: temperature 0~40°C, humidity <80%

Weight: 270g (excluding power supply), 330g (including power supply)

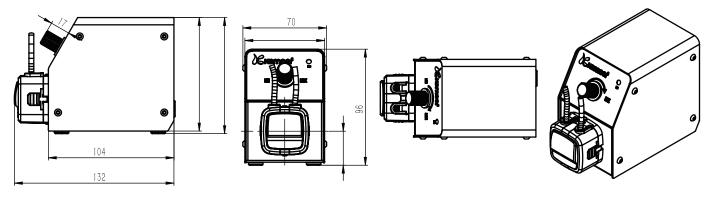
I Lab Pump Serier-KCP2-KXF





- Low cost to adjust the flow rate, multiple pumps in one
- Convenient and quick replacement of pump tube
- Low noise, small space occupation
- Simple structure, maintenance-free
- With three rollers, moderate pulsation
- Flow rate range: 2.6~41.5ml/min

Dimensional drawing



| Part No       | Power supply | Silicone tube | BPT tube | Flow rate ml/min |
|---------------|--------------|---------------|----------|------------------|
| CK.10.36.0645 | DC24V        | 1X3.3         | 1X3.3    | 4-10             |
| CK.10.36.0646 | DC24V        | 2.0X4.0       | 2.0X4.0  | 9.3-32           |
| CK.10.36.0647 | DC24V        | 2.5X4.5       | 2.5X4.5  | 14.6-41.5        |

### Parameter

BPT pump tube length 135 (exposed 29.5mm)

Working environment: ambient temperature 0-40 °C relative humidity <80% Bare metal weight: 500g packaging weight 700g (including power supply)





- Low cost to adjust the flow rate, multiple pumps in one
- Convenient and quick replacement of pump tube
- Low noise, small space occupation
- Simple structure, maintenance-free
- With three rollers, moderate pulsation
- Gear transmission, higher precision
- Flow rate range: 4~49ml/min



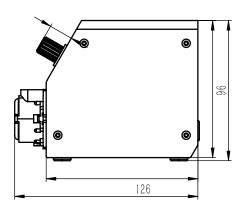


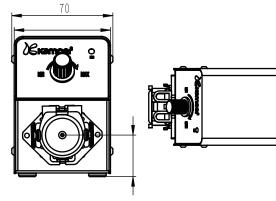
Pipeline liquid addition

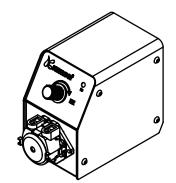


Laboratory doser

Dimensional drawing







| Part No       | Power supply | Silicone tube | BPT tube | Flow rate ml/min |
|---------------|--------------|---------------|----------|------------------|
| CK.10.36.0648 | DC24V        | 1X3.3         | 1X3.3    | 4-10             |
| CK.10.36.0649 | DC24V        | 2.0X4.0       | 2.0X4.0  | 14-49            |

### Parameter

BPT pump tube length 135 (exposed 29.5mm)

Working environment: temperature 0-40°C, humidity <80%

Bare metal weight: 580g packaging weight 650g (including power supply)

# • Lab Pump Serier-KSP-F01A



KSP-F01A

- Small appearance, powerful
- LCD screen display, key operation, friendly man-machine interface
- Support speed control, can be adjusted to the required speed through the speed control knob
- Real-time clock, support timing start and stop
- Run interval time can be set, support circulation operation, support time period operation
- Calibration function
- Support multi-machine serial use through extension cable

Key Description

Flow rate range: DC motor 27~40ml/min, stepper motor 1~10ml/min

Application Areas



Precision wire saw emery addition



Laboratory doser

Appearance introduction







Manual key: manual operation button; Calibration key: calibration button; set key: set button; OK key : OK button; Automatic key: automatic operation button;

Скатоег

1. Button 2. LCD screen 3. LCD protection screen 4. Pump head assembly 5. Speed control knob 6. DC IN 7. DC OUT

| Coc                     | le          | F01A-DC                      | F01A-STP          |  |
|-------------------------|-------------|------------------------------|-------------------|--|
| Pump                    | head        | KPP DC                       | KAS Stepper motor |  |
| Adaptor                 | Input       | AC 100-240V 50-60Hz 1.0A max |                   |  |
| Adapter                 | Output      | DC 12V 1A                    | DC 24V 1A         |  |
| Power inp               | ut power    | 12'                          | W                 |  |
| Add tir                 | mes         | 96 Times/Day-1 Time/4 Days   |                   |  |
| Capacity                | range       | 1 ml-9999 ml                 |                   |  |
| Quantitative            | accuracy    | <±2%                         |                   |  |
| Operating te            | emperature  | 0-70°C                       |                   |  |
| Storage                 | Humidity    | 10%-90% (No                  | on-condensing)    |  |
| environment             | Temperature | -20°C-85°C                   |                   |  |
| Length * Width * Height |             | 200*170*110mm                |                   |  |
| Wei                     | ght         | 660g                         |                   |  |





1. Water inlet 2. Water outlet 3. Indicator light 4. DC 12V power input 5. RESET button

| Indicator light  | Status                 | Description  |
|------------------|------------------------|--|
|                  | The light is always on | Already connected to the cloud through a router  |
| Status Indicator | Light is off           | Disconnected from router   |
| (Blue)           | Flashes quickly        | In network distribution mode, the APP can configure the dosing pump to connect to the router |
|                  | Flashing slowly        | Disconnected from the cloud  |
| Power indicator  | The light is always on | The power has been turned on   |
| (Red)            | Light is off           | No power supply or power failure   |

Note: Drip pro uses red and blue two-color indicator lights. When red and blue light up at the same time, the indicator lights are purple.



**Application Areas** 

# Lab Pump Serier-KCP PRO2





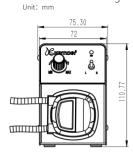
- Upgrade version, large pump head design,
- Motor life is up to about 1000 hours
- Low noise, small space occupation
- Standard configuration of French Saint-Gobain Norprene® pump
- tube (in line with FDA certification, very suitable for food and dairy applications, heat resistance, ozone resistance, acid and alkali resistance, anti-aging, anti-oxidation, working temperature -60°C-135°C)
- Flow rate range: 30~260ml/min

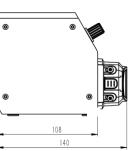
Precision wire saw emery addition

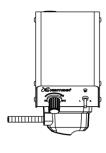


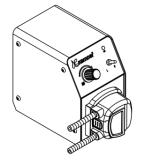
Laboratory doser

Dimensional drawing





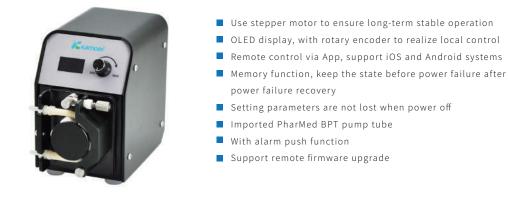




| Product number     | KCPPro2 - N19 KCPPro2 - N16    |              | KCPPro2 - N40 |  |  |  |
|--------------------|--------------------------------|--------------|---------------|--|--|--|
| Pump tube material | Saint-Gobain voitn BPT tube    |              |               |  |  |  |
| Pump tube model    | 2.4x5.6mm                      | 3.2*6.4mm    | 4.0*7.2mm     |  |  |  |
| Flow               | 30-150 ml/min                  | 40-210ml/min | 50-260ml/min  |  |  |  |
| Positive pressure  | 0.15 Mpa                       |              |               |  |  |  |
| Negative pressure  | -0.09 Mpa                      |              |               |  |  |  |
| Voltage            | 24V                            |              |               |  |  |  |
| Current            | 0.3- 0.35(A)                   |              |               |  |  |  |
| Net size           | L139 x W79 x H110              |              |               |  |  |  |
| Weight             | About 765g (with power supply) |              |               |  |  |  |



### 



Appearance introduction

# A B C C

1. Display 2. Adjusting knob 3. Adjusting screw 4. Water inlet 5. Water outlet 6. DC24V power interface

| Length * Width * Height | 136mmx87mmx124mm                               |
|-------------------------|--|
| Weight                  | 1177g(Without power adapter)                   |
| Power Adapter           | In put: AC100-240V                             |
|                         | Output: DC24V 1.9A                             |
| Parameter               | Pump head: KCS                                 |
| Interface               | Rotary encoder /WiFi                           |
| Working environment     | 0 - 70°C, Humidity 10% - 90% (Non-condensing)  |
| Storage environment     | 20°C 85°C, Humidity 10% - 90% (Non-condensing) |
| Flow range              | 14~145ml/min                                   |



Parameter

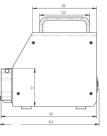




Application Areas



Dimensional drawing



Low noise and high precision Simple structure, maintenance-free

Flow rate range: 13.2~352ml/min

LLS Plus pump weight: 2.5 kg Power: 110v~220v Power: 20W max

Convenient and quick replacement of pump tube

Timed and quantitative work according to customer needs

Working conditions: ambient temperature 0 $\sim$ 40°C relative humidity <80%

Reagent dispensing machine

CILL



The number of rollers is adjustable, which can balance the flow rate and pulsation

| Norp        | rene <sup>®</sup> | PharMe      | PharMed® BPT Silicone tube |                     | Pump tube size | Flow     |            |
|-------------|-------------------|-------------|----------------------------|---------------------|----------------|----------|------------|
| 6 Rollers   | 3 Rollers         | 6 Rollers   | 3 Rollers                  | 6 Rollers 3 Rollers |                | (mm)     | FIOW       |
| /           | /                 | /           | /                          | CK 40200601         | /              | 0.8×4    | 13.2ml/min |
| /           | /                 | /           | /                          | /                   | CK 40200301    | 0.0×4    | 17.6ml/min |
| CK 40200609 | /                 | CK 40200606 | /                          | CK 40200602         | /              | 1.6×4.8  | 49.5ml/min |
| /           | CK 40200309       | /           | CK 40200306                | /                   | CK 40200302    | 1.07 1.0 | 71.5ml/min |
| /           | /                 | CK 40200608 | /                          | CK 40200604         | /              | 2.4×5.6  | 99ml/min   |
| /           | /                 | /           | CK 40200308                | /                   | CK 40200304    | 2.475.0  | 132ml/min  |
| CK 40200610 | /                 | CK 40200607 | /                          | CK 40200603         | /              | 3.2×6.4  | 165ml/min  |
| /           | CK 40200310       | /           | CK 4020307                 | /                   | CK 40200303    | 3.2×0.4  | 231ml/min  |
| /           | /                 | /           | /                          | CK 40200605         | /              | 4.0×7.2  | 220ml/min  |
| /           | /                 | /           | /                          | /                   | CK 40200305    | 7.0^7.2  | 352ml/min  |

Note: The product code starts with CK in the selection table. For example: "CK40200301", it means that this LLS Plus pump is equipped with 3 rollers,  $0.8 \times 4$  domestic silicone pump tube, and the factory qualified flow rate is  $\geq$ 17.6ml/min.





- Small volume, large flow
- Suitable for the transfer of viscous and non-viscous liquids
- Simple replacement of pump tubing
- Stainless steel rollers, long life
- Stepper motor, precise control
- The pump tube has a thicker wall and can withstand greater pressure
- Induction device can be connected externally to realize automation
- Can realize remote control of mobile phone App
- Built-in 2 working modes, easier to use
- Advanced calibration method

Application Areas



Food packaging machine



Reagent dispensing machine



Laboratory

| BPT            | #19       | #16       | #25       | #17        | #18        |
|----------------|-----------|-----------|-----------|------------|------------|
| CK15/3 Rollers | 190ml/min | 310ml/min | 650ml/min | /          | /          |
| CK15/6 Rollers | 140ml/min | 220ml/min | 390ml/min | /          | /          |
| Silicone tube  | #19       | #16       | #25       | #17        | #18        |
| CK15/3 Rollers | 170ml/min | 300ml/min | 670ml/min | 1050ml/min | 1520ml/min |
| CK15/6 Rollers | 120ml/min | 200ml/min | 440ml/min | 630ml/min  | 780ml/min  |
| Silicone tube  | #15       | #24       |           |            |            |
| CK25/3 Rollers | 530ml/min | 950ml/min |           |            |            |

### Technical Parameters

Instrument size: 299mm×152mm×244mm (including handle and pump);Motor life: ≥6000h<sup>+</sup>;Working voltage: AC 100~240V;Maximum power: 75W; Maximum speed: 350RPM;Speed control resolution: 0.1RPM;Language setting: English;Mode setting: continuous mode, volume mode External control: temperature sensor (optional), liquid level sensor (optional), bracket (optional), foot switch (standard)

Accessories selection

UIP WIFI series intelligent peristaltic pump provides the following accessories:

Temperature sensor (optional) Liquid level sensor (optional) Bracket (optional) Foot switch (standard)



# Lab Pump Serier-UIP WIFI



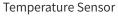




### Each interface definition:

- 1. Fan: machine fan, used to remove heat when the machine is working;
- 2. Liquid level sensor interface: used to connect the expansion element of the liquid level sensor, so that the instrument has the function of liquid level detection;
- 3. Temperature sensor interface: used to plug in temperature sensor extension components, so that the instrument has the function of temperature detection;
- 4. CAN communication interface: connected to the RJ45 connector network cable, the machine can be remotely controlled via CAN;
- 5. RS485 communication interface: connect to the RJ45 connector network cable, the machine can be remotely controlled through RS485;
- 6. Wi-Fi antenna: 2.4G Wi-Fi antenna, which can be controlled by mobile phone App;
- 7. Integrated switch: switch and power cord interface;
- 8, 9. Expansion interface: used to connect with expansion equipment, such as foot switch, PC, PLC and other equipment, the two ports can be plugged freelyuse. But to ensure availability, please use the standard wiring harness provided by our company.

Note: The damage to the instrument caused by the use of a standard wire harness not provided by our company is not covered by the warranty.



Temperature sensors can be used to monitor ambient temperature, liquid temperature, or the temperature of other objects. We have two temperature sensors, one is a normal temperature model, codenamed CT-2, and its sensing temperature range is -55°C to +85C. The other is a high temperature model, codenamed GT-2, which has an induction temperature range of -55. °C ~ +125 °C; under the usual temperature (-10 °C ~ +85 °C) conditions, the temperature accuracy can reach  $\pm$  0.5 °C. The temperature sensor line length defaults to 2 meters, which is CT-2 or GT-2; however, custom temperature sensor lines can be selected as 1, 3, 4, 5 meters.



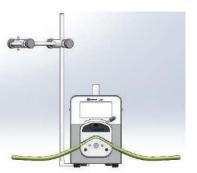
### Foot switch

The foot switch is used to replace the start/stop button. Under the appropriate interface, the foot switch can be used to control the start and stop of the pump, which greatly improves the user experience. The foot switch is a standard accessory with a line length of 1.5 meters.



### Liquid level sensor

 A liquid storage bottle for supplying a raw liquid, the instrument provides an alarm when the amount of liquid in the liquid storage bottle is exhausted; 2. a liquid collecting bottle for collecting externally transporting liquid, when the liquid collecting bottle is almost full, the instrument Provides an alarm and automatically stops the liquid supply.
 The default container capacity is 2L, the container size is 125m\*230mm; the sensor line is 2 meters long, the pipeline length is 2 meters, and the default tube size is 5mm\*10mm.
 The liquid collection bottle can provide a vacuum container and a non-vacuum container.
 If you are using your own container, we can also customize the sensor without a container.



### Bracket

The default pole height is 450mm and the crossbar length is 180mm. The crossbar can be loaded with all the accessories that the user needs. The brackets are divided into two types. The code on the left is UIPZJ-the code on the right is UIPZJ-Y.



### 



**Application Areas** 





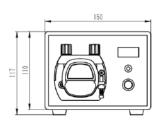
Reagent dispensing machine

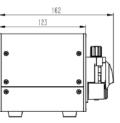
Laboratory

- Speed range: 0.1RPM-500RPM, forward and reverse
- Speed adjustment resolution: 0.1RPM
- Control mode: encoder, switch, external analog signal control, external R485 communication control, foot switch control
- External analog signal mode: 4-20mA, 0-5V
- Display mode: LED 4-digit digital tube, speed display, duration display
- Power-off parameter memory: support
- Working mode: automatic cycle, semi-automatic cycle, manual
- Support functions: start and stop, positive and negative, speed regulation, parameter memory, etc.
- Multi-machine interconnection: the maximum can be expanded to 15
- Flow range: ≤670ml/min; power: <50W
- Power supply: external power adapter

### **Dimensional drawing**

Unit: mm





| Code       | Pump tube size | Number of roller | Flow rate ml/min |
|------------|----------------|------------------|------------------|
|            |                | 3                | 26               |
| S13        | 0.8x4.0        | 4                | 25               |
|            |                | 6                | 22               |
| B14        |                | 3                | 70               |
| S14        | 1.6*4.8        | 4                | 68               |
|            |                | 6                | 60               |
| B19        |                | 3                | 175              |
| S19        | 2.4*5.6        | 4                | 165              |
| 515        |                | 6                | 130              |
| 246        |                | 3                | 300              |
| B16<br>S16 | 3.2*6.4        | 4                | 285              |
| 510        |                | 6                | 230              |
| D 40       |                | 3                | 480              |
| B40<br>S40 | 4.0*7.2        | 4                | 420              |
| 540        |                | 6                | 300              |
|            |                | 3                | 670              |
| B25        | 4.8*8.0        | 4                | 580              |
| S25        |                | 6                | 375              |

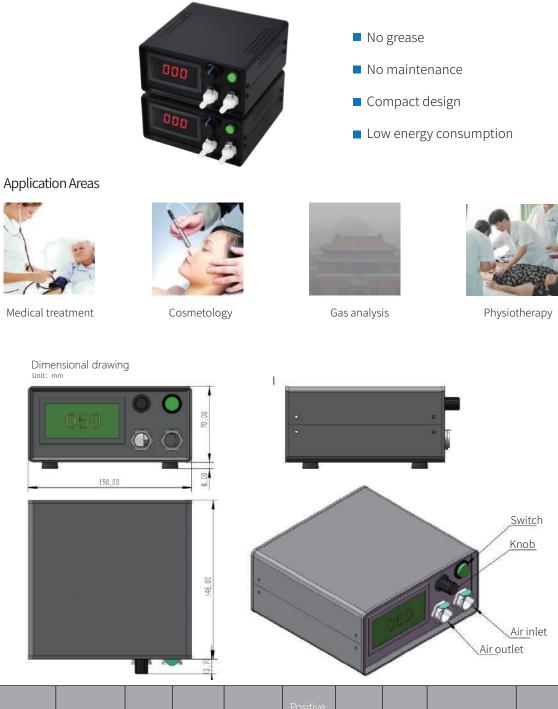
"Note": The maximum flow test environment is standard atmospheric pressure, transmission medium water, and new pump tubing; actual flow depends on the transmission medium, air pressure and the degree of newness of the pump tubing.

### Working conditions

Environment temperature: -20°C~60°C Rated voltage: 24V Maximum current: 2A ۰

Medical treatment





| вом           | Motor<br>(V) | Power<br>(W) | Gas Flow<br>I/min | Liquid Flow<br>ml/min | Positive<br>pressure<br>Mpa | Negative<br>pressure<br>Mpa | Noise<br>m/db | Model        | Power supply |
|---------------|--------------|--------------|-------------------|-----------------------|-----------------------------|-----------------------------|---------------|--------------|--------------|
| ck.33.03.0001 | 12           | 10           | 4-10              | /                     | ≥0.1                        | ≥0.065                      | ≤74           | Lab VP15-D12 | 12V/1A       |
| ck.33.03.0002 | 12           | 12           | /                 | ≥1200                 | ≥0.05                       | ≥0.04                       | ≤65           | Lab LP02-D12 | 12V/1A       |



# 🛞 💿 🛛 Lab Pump Serier-AIP WIFI



- Small volume, large flow
- Suitable for transmission of viscous and non-viscous liquids
- Simple replacement of pump tubing
- Stainless steel rotor, long life
- Step motor, precise control
- The pump tube has a thicker wall and can withstand greater pressure
- Can be connected externally to realize automation
- Can be controlled via mobile app
- Built-in two working modes
- Advanced calibration method

### Application Areas



Food packaging machine





Reagent dispensing machine

Laboratory

| Pump head | Code | Pump tube size(mm) | Maximum flow (ml/min) |
|-----------|------|--------------------|-----------------------|
|           | 19#  | 2.4x5.6            | 300                   |
| KK15      | 16#  | 3.2x6.4            | 500                   |
|           | 25#  | 4.8x8              | 1000                  |
| 3 Rollers | 17#  | 6.4x9.6            | 1700                  |
|           | 18#  | 7.9x11.1           | 2400                  |
|           | 19#  | 2.4x5.6            | 160                   |
| КК15      | 16#  | 3.2x6.4            | 400                   |
|           | 25#  | 4.8x8              | 800                   |
| 6 Rollers | 17#  | 6.4x9.6            | 1090                  |
|           | 18#  | 7.9x11.1           | 1200                  |
|           | 15#  | 4.8x9.8            | 2000                  |
|           | 24#  | 6.4x11.4           | 3000                  |
| KK25      | 35#  | 7.9x12.7           | 5000                  |
|           | 36#  | 9.6x14.6           | 6000                  |

Technical Parameters

Instrument size: 304×164×244mm (including handle and pump head)

Working voltage: AC 100~240V

Maximum power: 150W; Maximum speed: 600RPM; Speed control resolution: 0.1RPM

Whole machine weight: 7.6 kg (including a single pump head); language setting: Chinese/English; mode setting: continuous mode, volume mode

External control: foot switch (standard)

Temperature sensor (optional)

Liquid level sensor (optional)

Motor life: ≥6000h\*

•





### **Temperature Sensor**

Temperature sensors can be used to monitor ambient temperature, liquid temperature, or the temperature of other objects. We have two temperature sensors, one is a normal temperature model, codenamed CT-2, and its sensing temperature range is -55°C to +85C. The other is a high temperature model, codenamed GT-2, which has an induction temperature range of -55. °C ~ +125 °C; under the usual temperature (-10 °C ~ +85 °C) conditions, the temperature accuracy can reach  $\pm$  0.5 °C. The temperature sensor line length defaults to 2 meters, which is CT-2 or GT-2; however, custom temperature sensor lines can be selected as 1, 3, 4, 5 meters.



### Foot switch

The foot switch is used to replace the start/stop button. Under the appropriate interface, the foot switch can be used to control the start and stop of the pump, which greatly improves the user experience. The foot switch is a standard accessory with a line length of 1.5 meters.

### Liquid level sensor

 A liquid storage bottle for supplying a raw liquid, the instrument provides an alarm when the amount of liquid in the liquid storage bottle is exhausted; 2. a liquid collecting bottle for collecting externally transporting liquid, when the liquid collecting bottle is almost full, the instrument Provides an alarm and automatically stops the liquid supply.
 The default container capacity is 2L, the container size is 125m\*230mm; the sensor line is 2 meters long, the pipeline length is 2 meters, and the default tube size is 5mm\*10mm.
 The liquid collection bottle can provide a vacuum container and a non-vacuum container.
 If you are using your own container, we can also customize the sensor without a container.

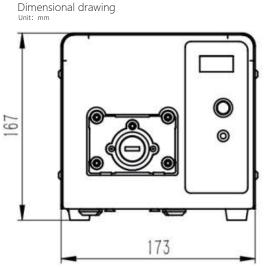


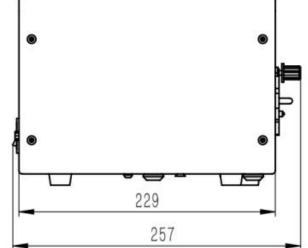


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# Lab Pump Serier-BIP

- Speed range: 0.1RPM-600RPM, forward and reverse
- Speed adjustment resolution: 0.1RPM
- Control mode: encoder, switch, external analog signal control, external R485 communication control, foot switch control
- External analog signal mode: 4-20mA, 0-5V
- Display mode: LED 4-digit digital tube, speed display, duration display
- Power-off parameter memory: support
- Working mode: automatic cycle, semi-automatic cycle, manual
- Support functions: start and stop, positive and negative, speed regulation, parameter memory, etc.
- Flow range: ≤6000ml/min CIPump600
- Power: <150W CIPump600





### Working conditions

Environment temperature: -20°C~60°C

Rated voltage: 220VAC

Working voltage: AC 100~240V

Maximum power: 150W

Maximum current: 2A @220VAC





| Product model    | Pump head type and quantity | Recommended maximum speed |
|------------------|-----------------------------|---------------------------|
| BIPump600-KK25   | KK25 X1                     | 600RPM                    |
| BIPump600-KK25D  | KK25 X2                     | 600RPM                    |
| BIPump600-KK153  | KK15 3 Rollers X1           | 600RPM                    |
| BIPump600-kk153D | KK15 3 Rollers X2           | 600RPM                    |
| BIPump600-KK156  | KK15 6 Rollers X1           | 600RPM                    |
| BIPump600-KK156D | KK15 6 Rollers X2           | 600RPM                    |

| Code | Pump tube size | Applicable pump head | Flow ml/min   |
|------|----------------|----------------------|---------------|
| 19#  | 2.4x5.6        |                      | 320           |
| 16#  | 3.2x6.4        | KK15                 | 550           |
| 25#  | 4.8x8          | 3 Rollers            | 1100          |
| 17#  | 6.4x9.6        |                      | 1900          |
| 18#  | 7.9x11.1       |                      | 2400          |
| 19#  | 2.4x5.6        |                      |               |
| 16#  | 3.2x6.4        |                      |               |
| 25#  | 4.8x8          | KK15<br>6 Rollers    |               |
| 17#  | 6.4x9.6        |                      |               |
| 18#  | 7.9x11.1       |                      |               |
| 15#  | 4.8x9.8        |                      | 2000          |
| 24#  | 6.4x11.4       | KK25                 | 3000          |
| 35#  | 7.9x12.9       |                      | B/5000 C/3500 |
| 36#  | 9.6x14.6       |                      | 6000          |





- 7-inch color touch screen control, easy to operate Support a variety of pump heads, a variety of tube types,
- adapt to different flow requirements
- App upgrade via Wi-Fi firmware
- Setting parameters are not lost when power off
- With continuous mode, quantitative mode, proportioning mode
- Contains CAN and RS485 external communication interfaces
- Contains cumulative usage record function

Appearance introduction





1 : Touch screen 2: KCS pump head 3: Screen program programming interface 4: Buttons 5: Indicator light 6: CAN/RS485 communication interface 7: Fan 8.: Integrated power switch

| Dimensions (length x width x height) | 373x199x90mm  |
|--------------------------------------|---|
| Weight                               | 6kg   |
| Power adapter input                  | AC100~240V  |
| Pump parameters                      | Adding accuracy: 2%<br>Flow range: 0.1-300 ml<br>Speed range: 0.1-450 rpm |
| Software function                    | continuous mode/quantitative mode/proportioning mode                      |
| For external                         | RS485/CAN/Wi-Fi   |
| Working environment                  | Temperature 0-70°C<br>Humidity: 10%-90% (non-condensing)                  |
| Storage environment                  | Temperature -20°C-85°C<br>Humidity: 10%-90% (non-condensing)              |



# Vacuum Pump-KVP04

Small size and powerful

Good sealing and low noise

Using DC brushless motor, long life

and has strong chemical stability

12V and 24V voltage optional

Can run dry, good durability and maintenance-free

■ The diaphragm material is EPDM, which has good resistance to chemicals such as alcohol, acid, alkali, oxidant, ketone and grease,

PWM speed control is optional, wide range flow control





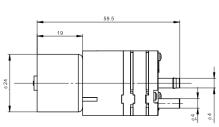
### **Application Areas**



Fully automatic enzyme immune workstation

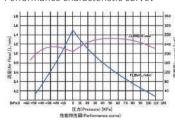
Dimensional drawing





VOCs online detector

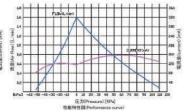
A) KVP 04-1.1-12 KVP 04-1.1-12(N) Performance characteristic curve:





Automatic luminescence immunoassay analyzer

> B) KVP 04-1.1-24 Performance characteristic curve:



| type                 | Parameter                               |                  |  |  |  |  |
|----------------------|---|------------------|--|--|--|--|
| Motor                | DC brushless                            |                  |  |  |  |  |
| Model                | KVP04-1.1-12(N)                         | KVP04-1.1-24     |  |  |  |  |
| PWM Speed regulation | Can't adjust speed                      | Adjustable speed |  |  |  |  |
| Rated voltage        | 12V                                     | 24V              |  |  |  |  |
| Load current         | 320mA                                   | 170mA            |  |  |  |  |
| Flow                 | ≥1.1L/min                               |                  |  |  |  |  |
| Maximum pressure     | 90kpa                                   |                  |  |  |  |  |
| Vacuum               | -40kpa                                  |                  |  |  |  |  |
| Diaphragm material   | EPDM:Good sealing and strong chemical s | tability         |  |  |  |  |
| Noise                | <50Db                                   |                  |  |  |  |  |
| Product weight       | 40g                                     |                  |  |  |  |  |
| Life                 | ≥3000h                                  |                  |  |  |  |  |





# Diaphragm Pump-KLP04



- Exquisite workmanship, strong and durable structure
- Small size and powerful
- Dry running, durable, chemically stable
- Long-life DC brushless

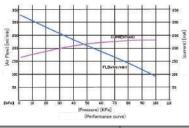
### **Application Areas**



Potassium Permanganate Index Tester

Flow curve

A) KLP 04-320-12 Performance characteristics chart:



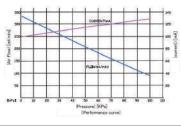
Electrode polishing machine

Fluorescence in situ hybridization dyeing machine



Automatic liquid-based cell staining machine

B) KLP 04-320-24 Performance characteristics chart:



| type               | Parameter   |  |  |  |  |
|--------------------|---|--|--|--|--|
| Motor              | DC brushless(PWM Speed regulation)  |  |  |  |  |
| Model              | KLP04-320-12  | KLP04-320-24   |  |  |  |
| Rated voltage      | 12V   | 24V  |  |  |  |
| Load current       | 250mA   | 150mA  |  |  |  |
| Flow               | 320±80  | )<br>ml/min  |  |  |  |
| Lift range         | >   | 2m   |  |  |  |
| Maximum pressure   | 90  | kpa  |  |  |  |
| Diaphragm material | Good airtightness; good resistance to chem<br>and esters, etc., with strong chemical stabil<br>resistance is required | icals such as alcohols, acids, oxidants, ketones<br>ity and poor oil resistance; NBR: strong oil |  |  |  |
| Noise              | <50Db   |  |  |  |  |
| Product weight     | 40g   |  |  |  |  |
| Life               | ≥30   | 000h   |  |  |  |







### Appearance size chart



| Model     | Colour      | Voltage    |        | Protection type               | Working pressure | Water flow |      |      | Lift |
|-----------|-------------|------------|--------|-------------------------------|------------------|------------|------|------|------|
| KLP40-08T |             | 12V        | 60W    | Pressure<br>adjustment switch | 5bar(75psi)4~6KG | 4l/min     | 3.5A | 1.5M | 50M  |
| KLF40-001 | Transparent | rent I∠V   | 00 00  | Backflow                      | 5bar(75psi)4~6KG | 4l/min     | 3.5A | 1.5M | 50M  |
| KLP40-00Y | Vollow      | Yellow 12V | 2V 60W | Pressure<br>adjustment switch | 5bar(75psi)4~6KG | 4l/min     | 3.5A | 1.5M | 50M  |
| NLP40-001 | renow       |            |        | Backflow                      | 5bar(75psi)4~6KG | 4l/min     | 3.5A | 1.5M | 50M  |

### KLP40-08T Wiring diagram



### KLP40-00Y Wiring diagram



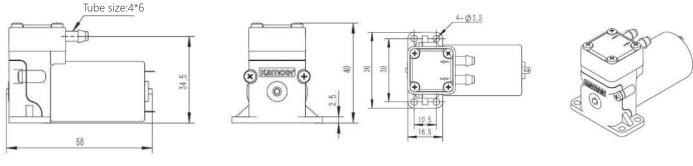
# Скатоег

# 💭 Diaphragm Pump-KLP180

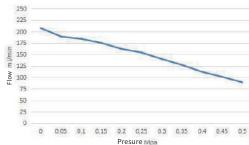


- Small size, high pressure
- Chemical stability
- Low noise, small space occupation
- Dry running, durable and maintenance-free
- Motor optional

Dimensional drawing



Flow curve



| Flow       | Liquid pressure<br>(max) | Negative<br>pressure (Air) | Noise | Power | Life                         | Diaphragm material |
|------------|--------------------------|----------------------------|-------|-------|------------------------------|--------------------|
| ≥160ml/min | 0.3Mpa                   | 0.02Mpa                    | ≤58Db | ≤6W   | Brushed 500H/brushless 5000H | V                  |
| ≥180ml/min | 0.3Mpa                   | 0.02Mpa                    | ≤58Db | ≤6W   | Brushed 500H/brushless 5000H | E                  |

"Note": The flow rate is tested under standard atmospheric pressure, temperature 25°C, and direct discharge without pressure at the inlet and outlet. The noise is tested at a distance of 500mm from the product in a silent room.

Other technical parameters

Fluid medium: water, corrosive medium. Not viscous liquid, not high temperature liquid.

Working environment: temperature range: 0°C~40°C;

Relative humidity: <80%







### **Application Areas**



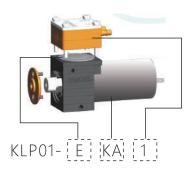


Vaginal secretion analyzer Stool analysis and processing system

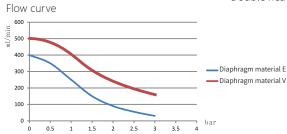
Dimensional drawing

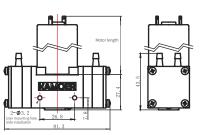


Solder Mask Printing Machine



Single pump head pump





Double head pump

| Model | Voltage | Motor     | Pump head | Load current | Weight |
|-------|---------|-----------|-----------|--------------|--------|
| KA    | 24      | Brushed   | 1         | 0.3          | 0.2    |
| КВ    | 24      | Brushless | 1         | 0.26         | 0.245  |
| КС    | 12      | Brushed   | 1         | 0.36         | 0.2    |
| KD    | 12      | Brushless | 1         | 0.38         | 0.275  |
| KG    | 24      | Brushed   | 2         | 0.38         | 0.322  |
| КН    | 12      | Brushed   | 2         | 0.69         | 0.322  |

| Pump<br>head | Diaphragm<br>material | Flow<br>(ml/min) | Positive<br>(bar) | Negative<br>(bar) |  |
|--------------|-----------------------|------------------|-------------------|-------------------|--|
| 1            | EPDM                  | ≥400             |                   |                   |  |
| Ι            | Fluorine<br>diaphragm |                  |                   | 0.5               |  |
| 2            | EPDM                  | ≥700             | 0.6               | 0.5               |  |
| 2            | Fluorine<br>diaphragm | ≥700             |                   |                   |  |



# Diaphragm Pump-KLP02



- Small size but powerful
- Positive liquid pressure up to 3bar
- Chemical stability
- Dry running, durable and maintenance-free
- Multiple choices of brush and brushless motors

### Application Areas



Automobile exhaust gas tester



Dust removal spray



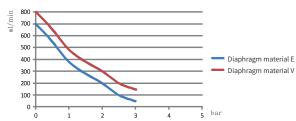
Inkjet printer

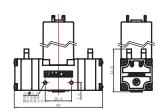


Dimensional drawing Unit: mm

Single head pump

Flow curve





Double head pump

| Model | Voltage | Motor     | Pump head | Load current | Weight |
|-------|---------|-----------|-----------|--------------|--------|
| KA    | 24      | Brushed   | 1         | 0.3          | 0.212  |
| КВ    | 24      | Brushless | 1         | 0.26         | 0.250  |
| KC    | 12      | Brushed   | 1         | 0.36         | 0.212  |
| KD    | 12      | Brushless | 1         | 0.49         | 0.250  |
| KG    | 24      | Brushed   | 2         | 0.38         | 0.336  |
| КН    | 12      | Brushed   | 2         | 0.69         | 0.336  |

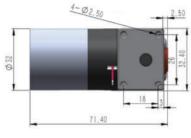
| Pump<br>head | Diaphragm<br>material | Flow<br>(ml/min) | Positive<br>(bar) | Negative<br>(bar) |  |
|--------------|-----------------------|------------------|-------------------|-------------------|--|
| 1            | EPDM                  | ≥700             |                   | 0.4               |  |
| 1            | Fluorine<br>diaphragm | ≥800             | 0.6               |                   |  |
| 2            | EPDM                  | ≥1400            | 0.0               |                   |  |
| 2            | Fluorine<br>diaphragm | ≥1500            |                   |                   |  |

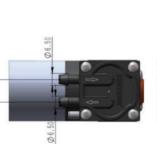






Dimensional drawing



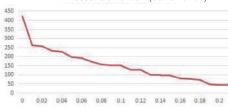


Flow curve





Pressure and flow(as refrence)



| вом           | Voltage<br>(V)    | Electric<br>current<br>(A) | Power<br>(W) | Air flow<br>I/H | Positive<br>Mpa | Negative<br>Mpa | Noise<br>m/db | Life<br>H | Model  | Net<br>weight<br>g |
|---------------|-------------------|----------------------------|--------------|-----------------|-----------------|-----------------|---------------|-----------|--------|--------------------|
| CK.20.81.0005 | Outer<br>roller12 | 1                          | 12           | 420             | ≥0.2            | 0.05            | ≤78           | 5000      | KZP-PE | 160                |
| CK.20.81.0006 | Outer<br>roller24 | 0.5                        | 12           | 420             | ≥0.2            | 0.05            | ≤78           | 5000      | KZP-PF | 160                |

Other technical parameters

Diaphragm note--At present, our company adopts high fluorine diaphragm, and the diaphragm is made of PTFE material, which can withstand conventional corrosive gases.

Selection of accessories---A variety of connecting pipes, which can be used for different fluid transmission and docking with customer products. Working environment-ambient temperature 0-40 degrees Celsius relative humidity <80%, it is recommended not to work for a long time under positive

pressure> 0.2Mpa, otherwise it will greatly shorten the product life.

Note:product temperature  $\leq 85^{\circ}$  is a normal phenomenon, suitable for tube type: 4X6, please install a filter device at the air inlet to prevent foreign matter from entering the cavity.



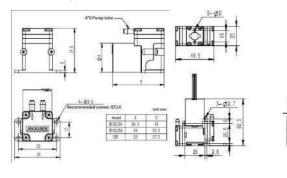


# Vacuum Pump-KLVP3



Dimensional drawing <sub>Unit: mm</sub> Single head type (SB series/SD series/SBP series)

Double head type (DB series)



- High-quality engineering plastics, stable and reliable
- EPDM diaphragm & valve disc, high performance, long life
- Simple design, beautiful and generous
- High-performance brushless motor, Super power, enduring

### **Application Areas**





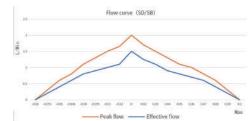
On-line flue gas detector

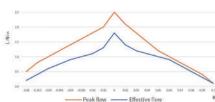
VOCs online detector

|    |     | 840 |      |  |
|----|-----|-----|------|--|
|    |     |     |      |  |
| Mo | tor | wii | ring |  |

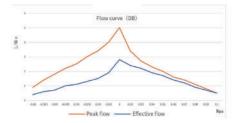
|                       | Motor winnig      |                  |                       |  |  |  |  |  |
|-----------------------|-------------------|------------------|-----------------------|--|--|--|--|--|
| Red line              | Yellow line       | White line       | Black line            |  |  |  |  |  |
| Vcc                   | FG                | PWM              | GND                   |  |  |  |  |  |
| Positive<br>electrode | Speed<br>feedback | Speed regulation | Negative<br>electrode |  |  |  |  |  |

Full-speed operation: the red and white wires are connected to the positive pole of the power supply, and the black wire is connected to the negative pole.





Flow curve (SBP)



| Model      | Peak flow<br>L/H | Effective flow<br>L/H | Negative pressure<br>Mpa | Positive pressure<br>Mpa | Noise<br>dB | Power<br>W |
|------------|------------------|-----------------------|--------------------------|--------------------------|-------------|------------|
| KLVP3-SB12 | 2                | 1.5                   | 0.05                     | 0.08                     | 62          | 2.5        |
| KLVP3-SB24 | 2                | 1.5                   | 0.05                     | 0.08                     | 62          | 2.5        |
| KLVP3-SD12 | 2                | 1.5                   | 0.05                     | 0.08                     | 65          | 2.5        |
| KLVP3-SD24 | 2                | 1.5                   | 0.05                     | 0.08                     | 65          | 2.5        |
| KLVP3-SBP  | 2.5              | 1.8                   | 0.05                     | 0.08                     | 65          | 4          |
| KLVP3-DB12 | 4                | 2.5                   | 0.06                     | 0.08                     | 65          | 5          |
| KLVP3-DB24 | 4                | 2.5                   | 0.06                     | 0.08                     | 65          | 5          |

Other technical parameters

Fluid medium: air, general gas

Working environment: temperature: 0°C $\sim$ 40°C; humidity: <70%

Product weight: 80g~90g

Maximum power consumption: 5W; product life: 5000H current

Tolerance:  $\pm 10\%$ ; protection level: IP42







### Application Areas



On-line flue gas detector







Oil mist purification equipment

VOCs online detector

Air monitoring station

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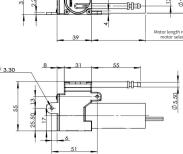
Flow curve



KVP300-KK

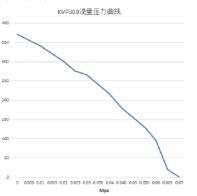


KD: 12V DC Brushless motor



Dimensional drawing

Unit: mm



| Model     | Voltage<br>V | No-load current<br>V | Rated current<br>A | Motor length<br>mm | Weight<br>g | Power<br>W | Flow<br>L/H | Positive pressure<br>Mpa | Negative pressure<br>Mpa | Noise<br>dB |
|-----------|--------------|----------------------|--------------------|--------------------|-------------|------------|-------------|--------------------------|--------------------------|-------------|
| KVP300-KK | 12           | 0.42                 | < 1.2              | 58                 | 240         |            |             |                          |                          |             |
| KVP300-KD | 12           | 0.55                 | < 1.5              | 67                 | 280         |            | . 200       |                          | 0.05                     |             |
| KVP300-KJ | 24           | 0.2                  | < 0.5              | 58                 | 238         | 8W         | ≥360        | ≥0.1                     | ≤ <b>-</b> 0.05          | < 70        |
| КVР300-КВ | 24           | 0.32                 | < 0.6              | 67                 | 277         |            |             |                          |                          |             |

"Note" This type of diaphragm air pump can not work continuously for a long time under the condition of positive pressure> 0.02MPa, otherwise the product life will be greatly shortened. For other special working conditions, please contact our company before purchasing.

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# Vacuum Pump-HLVP6



Master -level professional design, beautiful and generous

- Large cavity High flow rate, low noise
- EPDM diaphragm & valve plate special process treatment, greatly prolonged life
- Brushless motor Long life, stable performance
- Rubber machine feet, effective vibration reduction

**Application Areas** 



On-line flue gas detector



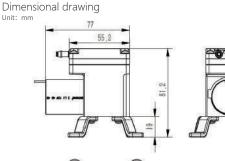
Flow curve





Air monitoring station

Oil mist purification equipment

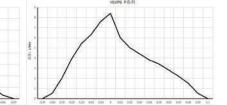


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Recommended mounting screw M3/ST2.9 The rubber machine feet can rotate freely, and the installation dimensions are for reference only. Recommended installation pipe: 4\*6PU pipe.



Two-wire connection (the pump runs at full speed): the positive pole is connected to the red wire and the blue wire; the negative pole is connected to the black wire. Motor wiring

| Red line              | Yellow line       | Blue line           | Black line            |
|-----------------------|-------------------|---------------------|-----------------------|
| Vcc                   | FG                | PWM                 | GND                   |
| Positive<br>electrode | Speed<br>feedback | Speed<br>regulation | Negative<br>electrode |

| Model      | Flow L/H | Negative<br>MPa | Positive<br>MPa | Noise<br>Db | Power<br>W | Life<br>H |
|------------|----------|-----------------|-----------------|-------------|------------|-----------|
| HLVP6-NB12 | 300      | 0.05            | 0.08            | 60          | 5          | 5000      |
| HLVP6-NB24 | 300      | 0.05            | 0.08            | 60          | 5          | 5000      |
| HLVP6-PB12 | 400      | 0.06            | 0.10            | 62          | 8          | 5000      |
| HLVP6-PB24 | 400      | 0.06            | 0.10            | 62          | 8          | 5000      |

Note: The flow rate is tested under standard atmospheric pressure, room temperature 25°C, and direct discharge without pressure at the inlet and outlet.

Noise is tested at a distance of 500mm from the product. Quiet room test. There are currently no burshless models for sale. For other information, please contact customer service.

Note: The flow curve test environment (under standard atmospheric pressure, room temperature 25°C), due to differences in practicality, is for reference only. 57

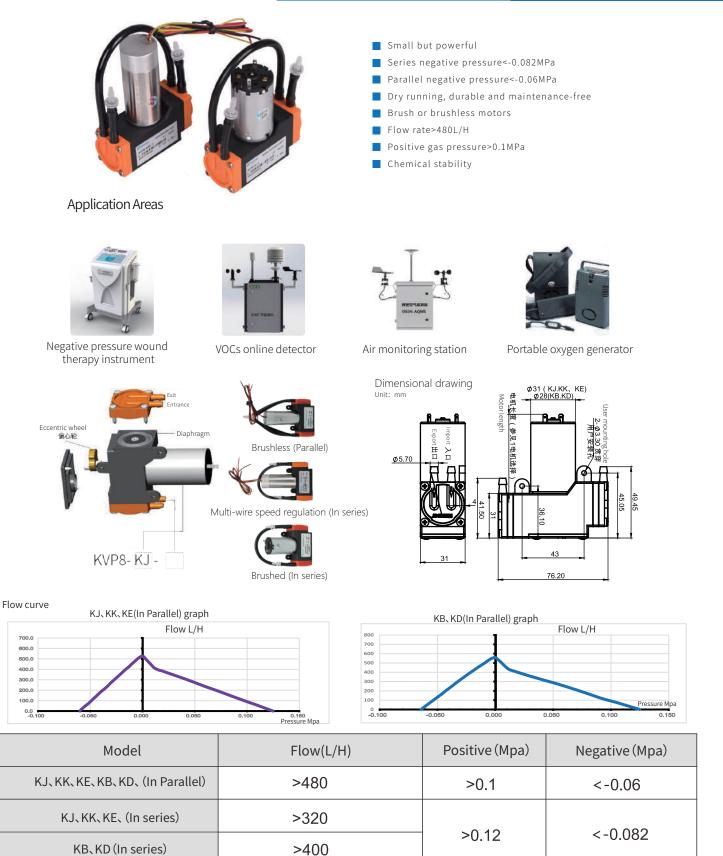
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## Vacuum Pump-KVP8





Note:

1. No-load current is the current when no gas is delivered.

2. The rated current is the current value of the input and output terminals that are approximately the gas delivered under atmospheric pressure. In actual use, as the gas input and output pressure increase, the actual current value will increase accordingly.

Working conditions: enviroment temperature 0~40°C

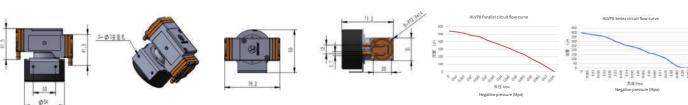
Relative humidity <80%





# Vacuum Pump-HLVP8





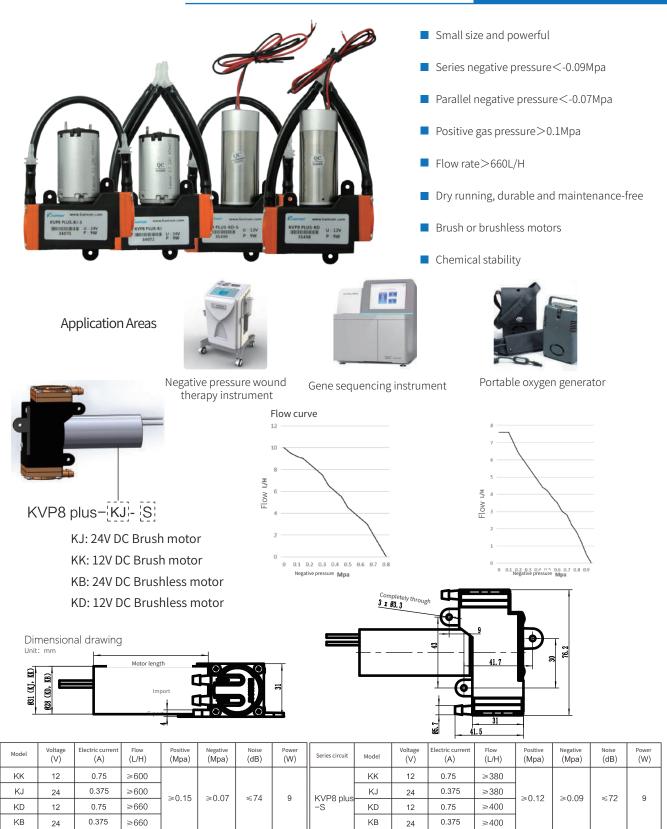
| Model                    | Flow (L/H) | Positive pressure<br>(Mpa) | Negative pressure<br>(Mpa) | Noise<br>(Db) |
|--------------------------|------------|----------------------------|----------------------------|---------------|
| HLVP8-WB12-S(In serier)  | ≥360       | Lnvalid use                | ≥0.09                      | ≤72           |
| HLVP8-WB12-(In parallel) | ≥480       | ≥0.1                       | ≥0.07                      | ≤72           |
| HLVP8-WB24-S(In serier)  | ≥360       | Lnvalid use                | ≥0.09                      | ≤72           |
| HLVP8-WB24(In parallel)  | ≥480       | ≥0.1                       | ≥0.07                      | ≤72           |

# Motor wiring

| Red line              | Yellow line       | White line       | Black line            |
|-----------------------|-------------------|------------------|-----------------------|
| Vcc                   | FG                | PWM              | GND                   |
| Positive<br>electrode | Speed<br>feedback | Speed regulation | Negative<br>electrode |

# Vacuum Pump-KVP8-PLUS





Note: 1. The flow parameters are measured without pressure at 20°C room temperature and standard atmospheric pressure. Actually, depending on the medium, outlet pressure, DC motor speed error, etc., the flow will have a certain error, and the data is for reference.

2. When the DC motor is running, temperature rise and heat generation are normal. 3. The vacuum diaphragm pump is mainly used as a vacuum pump. If it is used as a positive pressure source,

it will affect the product life and performance. Please consult our company for specific use. In addition, it can be customized according to customer needs.

### Other technical parameters

Parallel circuit

KVP8 plus

Working conditions: temperature 0~40°C; humidity <80%

This diaphragm air pump can not work continuously for a long time under the condition of positive pressure> 0.02MPa, otherwise it will greatly shorten the life of the product. Other special working conditions, please contact our company before purchasing



# 🚺 Vacuum Pump-KVP15



- Large negative pressure (In series ≤ 0.092Mpa)
- Use DC brush motor
- Large flow (In parallel ≥13L/Min)
- Good stability
- Dry running, durable, maintenance-free
- 12v or 24v voltages are optional.

Application Areas



Automobile exhaust gas tester



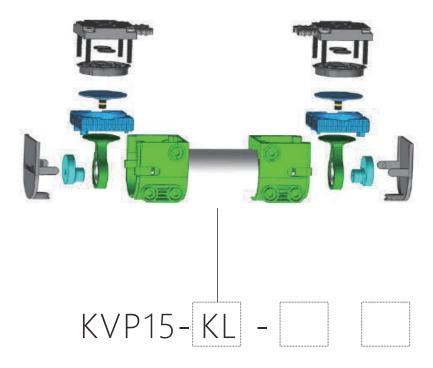
VOCs online detector



On-line flue gas detector



Traditional Chinese Medicine Sulfur Dioxide Analyzer



KK: 12V DC brush motor (single head)

KVP15-KL

1.Motor selection

A

At present we provide 4 types of motors: KL: 24V DC brushless motor KM: 12V DC brushless motor KJ: 24V DC brush motor (single head)

2. Single and double head selection 1. Single head 2. Double head

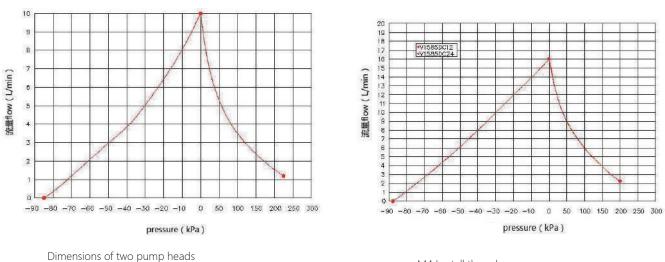


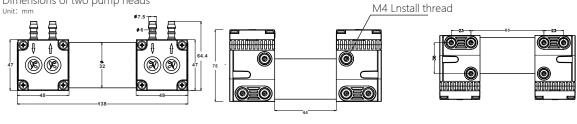
<sup>2.</sup> PTFE



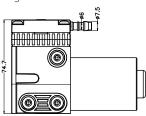
# Скатоег

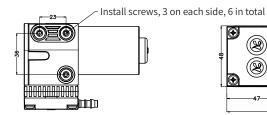


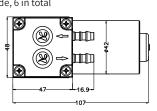




Single head size chart





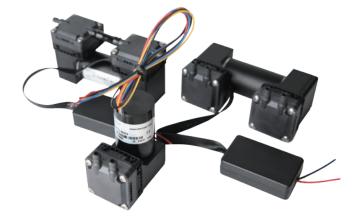


| Model                                | Flow<br>(L/min) | Positive<br>(Mpa) | Negative<br>(Mpa) | Power<br>(W) | Noise<br>(dB) |
|--------------------------------------|-----------------|-------------------|-------------------|--------------|---------------|
| KJ、KK、KL、<br>KM Single head          | 10L/min         | ≥0.10             | ≤-0.065           | 7            | ≤74           |
| KL、<br>KM Double head<br>In parallel | 16L/min         | ≥0.15             | ≤-0.075           | 12.5         | ≤78           |
| KL、<br>KM Double head<br>In series   | 10L/min         | ≥0.15             | ≤-0.092           | 12.5         | ≤78           |

Note: The above flow parameters are measured with pure water without pressure at 20°C room temperature and standard atmospheric pressure. Actually, according to different media, different outlet pressures, DC motor speed errors, etc., the flow will have certain errors. The data is for reference. In addition, it can be customized according to customer needs.



# Vacuum Pump-HLVP15



- Fluid medium: Air, general gas
- Working environment: Temperature: 0°C~50°C; Humidity: <80%
- Product weight: Type A 240g Type B/Type C 360g
- Rated power: 8W/10W
- Pump head material: PPS
- Product life: 8000H
- Diaphragm material: EPDM
- Protection level: IP42
- Motor type: Brushless motor

### Application Areas



Automobile exhaust gas tester



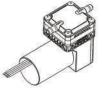
VOCs online detector

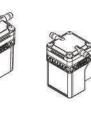


Medical washing microtiter plates



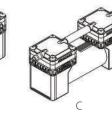
Automatic Chinese Medicine Sulfur Dioxide Analyzer



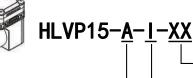


В

U

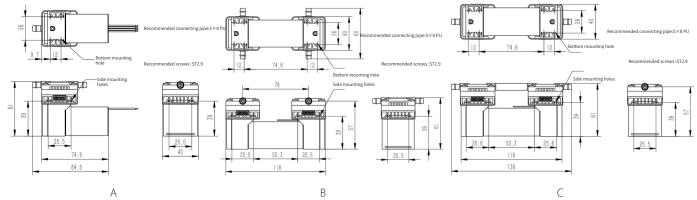


Т



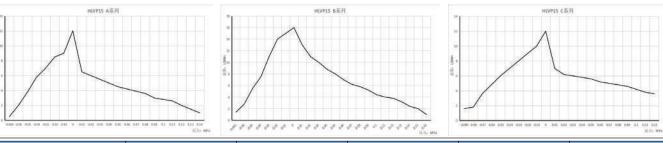
Voltage: 12V 24V Valve plate: I type U type T type Type: A single head B parallel C series











| Model       | Flow<br>(L/min) | Negative<br>(Mpa) | Positive Noise<br>(Mpa) (dB) |    | Power<br>(W) |
|-------------|-----------------|-------------------|------------------------------|----|--------------|
| HLVP15-AIXX | 12              | 68                | 0. 12                        | 65 | 8w           |
| HLVP15-AUXX | 12              | 68                | 0. 12                        | 65 | 8w           |
| HLVP15-ATXX | 12              | 68                | 0.12                         | 65 | 8w           |
| HLVP15-BIXX | 16              | 68                | 0. 16                        | 70 | 10W          |
| HLVP15-BUXX | 16              | 68                | 0. 16                        | 70 | 10W          |
| HLVP15-CIXX | 12              | 90                | Lnvalid use                  | 72 | 10W          |
| HLVP15-CUXX | 12              | 90                | Lnvalid use                  | 72 | 10W          |

The above green shades are regular products

Disclaimer: Plesae read the following parameter descriptions carefully before buying

1. Flow rate: under standard atmospheric pressure, the product is running without load, and the gas flow rate is tested;

2. Noise: the product runs without load; the distance of the decibel meter is 50CM; the silent room (environmental noise 40Db) test;

3. Life: refer to working environment. Harsh working conditions will reduce product life;

4. Pressure: The maximum pressure parameter that the pump can output under standard atmospheric pressure and normal power-on operation;

5. Positive pressure: It is not recommended to use positive pressure. When working under positive pressure, the output pressure should not exceed 0.1Mpa;

6. Power consumption: In order to ensure the normal operation of the product, the output should be larger than or equal to this value, and it is lower than this value during actual operation;

7. For other unreported questions, please contact customer service;

8. The final interpretation right of this product belongs to Kamoer Fluid Technology (Shanghai) Co., Ltd.

# Motor wiring

| Red line              | Yellow line       | Blue line           | Blackline             |  |
|-----------------------|-------------------|---------------------|-----------------------|--|
| Vcc                   | FG                | PWM                 | GND                   |  |
| Positive<br>electrode | Speed<br>feedback | Speed<br>regulation | Negative<br>electrode |  |

In addition to the above conventional models, HLVP15 can also achieve customized services:

A. The valve plate can be replaced with a T-type valve plate: to realize a single flow channel, for customers who only need air intake/intake, saving customer space.

B. The air outlet direction can be freely customized on the four quadrant axes.

C. Please consult customer service for other customization

Скатоег



# 🗧 Vacuum Pump-KLVP1

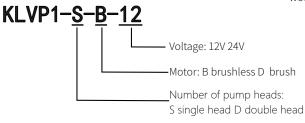


- High-quality engineering plastics, stable and reliable
- EPDM diaphragm & valve disc
- High performance, long life
- Simple design, beautiful and generous
- High performance brushless motor
- Straight power, durable
- Fluid medium: air, general gas
- Temperature range: 0°C~40°C
- Relative humidity: <60% (no condensation water)

Application Areas

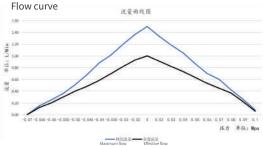


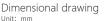


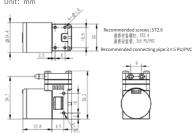




Automatic luminescence immunoassay analyzer







### Motor wiring

| Red line              | Yellow line       | White line       | Black line            |
|-----------------------|-------------------|------------------|-----------------------|
| Vcc                   | FG                | PWM              | GND                   |
| Positive<br>electrode | Speed<br>feedback | Speed regulation | Negative<br>electrode |

|            | -                   |                       |                 |                 |             |            |           |
|------------|---------------------|-----------------------|-----------------|-----------------|-------------|------------|-----------|
| Model      | Maximum flow<br>L/H | Effective flow<br>L/H | Negative<br>MPa | Positive<br>MPa | Noise<br>Db | Power<br>W | Life<br>H |
| KLVP1-SB12 | 1.5                 | 1                     | 0.05            | 0.08            | 60          | 2          | 6000      |
| KLVP1-SB24 | 1.5                 | 1                     | 0.05            | 0.08            | 60          | 2          | 6000      |
| KLVP1-SD12 | 1.5                 | 1                     | 0.05            | 0.08            | 60          | 2          | 600       |
| KLVP1-SD24 | 1.5                 | 1                     | 0.05            | 0.08            | 60          | 2          | 600       |

Peak flow: the test value under the glass rotameter. Effective flow rate: The measured flow rate under the TSI electronic flowmeter is tested under standard atmospheric pressure, room temperature 25°C, and direct discharge without pressure at the inlet and outlet.

The noise is at a distance of 500mm from the product. The test life data of the silent room is the test result under the general environment. Bad working conditions will reduce the product life. The flow curve test environment under standard atmospheric pressure, room temperature 25°C, there will be errors due to differences in practicality, is for reference only. For other information that has not been notified, please contact customer service.







- Maximum pressure time: 11.5 seconds
- Rated voltage: DC6V
- Temperature: 5°C~50°C; humidity 30%RH~85%RH.
- Maximum current consumption: 430Ma
- Maximum test noise: 55DB
- Maximum pressure: 400mmHg

Application Areas



Sphygmomanometer

### **Reliability test**

1. Low temperature test -25°C for 96 hours, then take it out, and place it at room temperature for another 2 hours before measuring the characteristics.

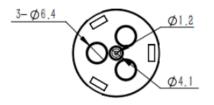
2. High temperature test +70°C for 96 hours, then take it out, and then place it at room temperature for another 2 hours, then perform characteristic measurement.

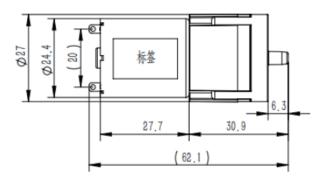
3. High-temperature and high-humidity test +70°C95%RH for 96 hours, then take it out, and then place it at room temperature for another 2 hours, then perform characteristic measurement.

4. Temperature and humidity cycle test +70°C85%RHx×3H→-20°C×3H Treat these as one cycle and repeat 10 cycles.

5. Endurance test Tested as follows, after 30,000 cycles, the following technical parameters can be met: Maximum pressure time: 15S Maximum current consumption: 520Ma; Air leakage: 10mmHg/min Maximum noise: 60Db

6. Landing test In the standard packaging state, the height is 50cm from the concrete floor, and there is no abnormality after free fall on each of the six sides.







### **Reliability test**

1. Low temperature test -25°C for 96 hours, then take it out, and place it at room temperature for another 2 hours before measuring the characteristics.

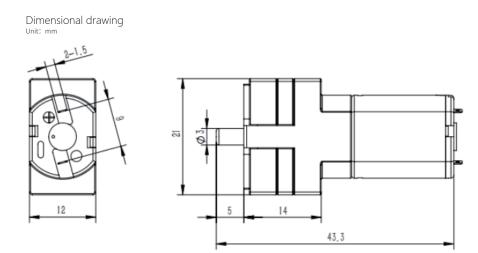
2. High temperature test +70°C placed for 96 hours and then taken out, placed at room temperature for another 2 hours and then measured characteristics.

3. High-temperature and high-humidity test +70°C95%RH for 96 hours and then take it out, and then place it at room temperature for another 2 hours and then perform characteristic measurement.

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## Vacuum Pump-HLVP8-2



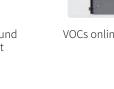


#### **Application Areas**



Negative pressure wound therapy instrument







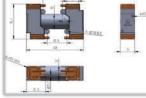
VOCs online detector

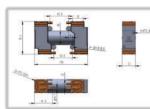


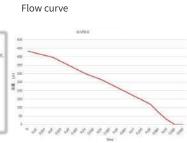
Air testing station

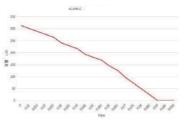


Portable oxygen generator









| Model         | Flow(L/H) | Negative<br>MPa | Positive<br>MPa | Noise<br>DB |
|---------------|-----------|-----------------|-----------------|-------------|
| HLVP8-B24-2-S | ≥360      | ≥0.098          | Invalid use     | ≤75         |
| HLVP8-B12-2-S | ≥360      | ≥0.098          | Invalid use     | ≤75         |
| HLVP8-C24-2-S | ≥270      | ≥0.098          | Invalid use     | ≤75         |
| HLVP8-C12-2-S | ≥270      | ≥0.098          | Invalid use     | ≤75         |

Note:

1. The no-load current is the current when no gas is delivered.

2. The rated current is the current value of the input and output terminals that are approximately the gas delivered under atmospheric pressure. In actual use, as the gas input and output pressure increase, the actual current value will increase accordingly.

68

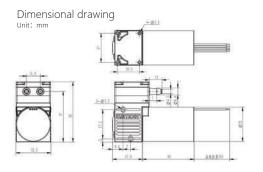


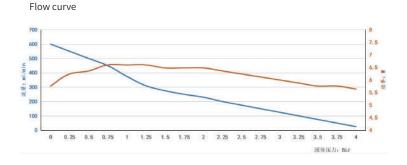


#### Diaphragm Pump-JET500



- Fluid medium: general liquid (compatibility test is required for special liquid)
- Liquid pressure: the maximum pressure can reach 3.5Bar
- Core material: PPS pump head & EPDM diaphragm
- Core drive: high-quality DC motor
- Installation method: two installation methods, supporting vibration damping machine feet
- Control method: PWM and analog voltage speed regulation
- Input voltage: 12V/24V input
- Working environment: temperature range: 5°C~50°C; relative humidity: <90%
- Product weight: 200g





| Red line           | Yellow line    | Blue line        | Black line         |
|--------------------|----------------|------------------|--------------------|
| Vcc                | FG             | PWM              | GND                |
| positive electrode | Speed feedback | Speed regulation | negative electrode |

1. Two-wire connection (the pump runs at full speed): the positive pole is connected to the red and blue wires, and the negative pole is connected to the inner wire

2. FG feedback: one pulse speed per revolution (revolution/min) = FG signal \* 60  $\,$ 

3.PWM speed regulation: 10K-30K full speed: high level 100%

| Model      | Flow(ml/min) | Suction Lift(M) | Lift(M) | Maximum Pressure<br>(Bar) | Maximum Power<br>(W) | Life(H) |
|------------|--------------|-----------------|---------|---------------------------|----------------------|---------|
| JET500-D12 | 500          | 2               | 30      | 3.5                       | 8                    | 2000    |
| JET500-D24 | 500          | 2               | 30      | 3.5                       | 8                    | 2000    |
| JET500-B12 | 500          | 2               | 30      | 3.5                       | 8                    | 8000    |
| JET500-B24 | 500          | 2               | 30      | 3.5                       | 8                    | 8000    |

Note: There are currently two motors available: brushed motor/brush less motor

The flow rate is tested under standard atmospheric pressure, room temperature 25°C, and direct discharge without pressure at the inlet and outlet.

The life data is the test result under the general environment. The harsh working conditions will reduce the life of the product Flow curve (brush less motor, standard atmospheric pressure, room temperature 25°C), due to practical differences, for reference only

For other uninformed information, please contact customer service

## Accessories

# Катоег











Silicone tube

PharMed®BPT tube

Noeprene®tube

Viton tube

Tefon tube



PVC tube



Tygon tube



Tygon Ink tube

| Pump tube code | Pump tube material | Pump tube performance parameters   |
|----------------|--------------------|--|
| S              | Silicone tube      | Good adsorption, low temperature resistance, low deposition, chemical corrosion resistance can be decreased with the rise of temperature. Suitable for transporting weak corrosive liquid (30%).   |
|                |                    | Applicable Temperature: -60°C~200°C。 Lifetime: 200H  |
| В              | PharMed®BPT tube   | Has very good general chemical resistance, and excellent acid, alkali<br>and oxidation properties.Product is not transparent and resistance<br>to ultraviolet radiation, thus helps protect sensitive liquid.  |
|                |                    | Applicable Temperature: -51°C~132°C。 Lifetime: 2000H   |
| N              | Noeprene® tube     | Resistant to almost all of the food disinfectant, UV resistance is good, can repeat subjected to pressure the effect of heat exchanger, a wide range of chemical resistance.Comply with FDA, 3 - A and NSF certiPcation.   |
|                |                    | Applicable Temperature: -60°C~135°C。 Lifetime: 1000H   |
| Р              | PVC tube           | Surface gloss and elastic.PVC pipe is transparent, PU black, resistance to ultraviolet radiation, thus helps protect sensitive liquid.   |
|                |                    | Applicable Temperature: 5°C~60°C   |
| V              | Viton tube         | Good resistance to oil, fuel, lubricants, and most of the mineral acid.<br>Good tolerance environmental exposure, such as the sun.Excellent high<br>temperature resistant ability.   |
|                |                    | Applicable Temperature: -20°C~250°C。 Lifetime: 500H  |
| /              | Tefon tube         | Non-sticky, high insulation, high flame retardancy, 60HZ, 60MHZ high and low temperature dielectric constant is 2.1, non-toxic and corrosion resistant, concentrated, dilute inorganic acid, alkali, ester have no effect, low absorption rate <0.01% The light refractive index is low, and the arc resistance is >165 seconds without leakage. |
|                |                    | Working temperature: -200°C-200°C  |

Note: The above working life is the life at 300 RPM rotation speed of pure water at normal temperature.



#### Silicone tube

| ID (mm) | OD (mm) | Wall thickness (mm) | Cross section (mm) |
|---------|---------|---------------------|--------------------|
| 3.0     | 5.0     |                     | 0                  |
| 4.0     | 6.0     |                     | 0                  |
| 1.0     | 3.0     |                     | 0                  |
| 2.5     | 4.5     | 1.0                 | Ο                  |
| 2.0     | 4.0     |                     | 0                  |
| 8.0     | 10.0    |                     | 0                  |
| 2.0     | 4.0     |                     | Ο                  |
| 0.8     | 3.0     | 1.1                 | 0                  |
| 1.0     | 3.3     | 1.15                | 0                  |
| 0.6     | 3.0     | 1.2                 | 0                  |
| 1.5     | 4.0     |                     | 0                  |
| 1.0     | 3.5     | 1.25                | 0                  |
| 2.0     | 5.0     |                     | 0                  |
| 0.4     | 3.0     | 1.3                 | •                  |
| 3.0     | 6.0     |                     | 0                  |
| 5.0     | 8.0     | 1.5                 | 0                  |
| 4       | 7.2     | 1.6                 | 0                  |
| 8       | 12      | 2                   | Ο                  |
| 7.9     | 12.7    | 2.4                 | Ο                  |
| 9.6     | 14.6    | 2.5                 | 0                  |



| Tube number | ID (mm) | OD (mm) |     | Cross section (mm) |
|-------------|---------|---------|-----|--------------------|
| 13#         | 0.8     | 4.0     |     | 0                  |
| 14#         | 1.6     | 4.8     |     | 0                  |
| 19#         | 2.4     | 5.6     |     | 0                  |
| 16#         | 3.2     | 6.4     |     | 0                  |
| 25#         | 4.8     | 8.0     | 1.6 | 0                  |
| 17#         | 6.4     | 9.6     |     | Ο                  |
| 18#         | 7.9     | 11.1    |     | 0                  |

| ID (mm) | OD (mm) | Wall thickness (mm) | Cross section (mm) |
|---------|---------|---------------------|--------------------|
| 5.0     | 8.2     | 1.6                 | 0                  |

| Tube number | ID (mm) | OD (mm) | Wall thickness (mm) | Cross section (mm) |
|-------------|---------|---------|---------------------|--------------------|
| /           | 5.0     | 10.0    |                     | 0                  |
| 24#         | 6.4     | 11.4    |                     | 0                  |
| /           | 10.0    | 15.0    | 2.5                 | 0                  |
| 15#         | 4.8     | 9.8     |                     | 0                  |
| /           | 7.5     | 13.0    | 2.8                 | 0                  |

### Tygon Ink tube

| Colour      | ID (mm) | OD (mm) | Wall thickness (mm) | Cross section (mm) |
|-------------|---------|---------|---------------------|--------------------|
| Transparent | 3.2     | 6.4     | 1.6                 | 0                  |
| Yellow      | 2       | 4       | 1                   | 0                  |





#### Noeprene® tube

| Color | Tube number         | ID (mm) | OD (mm) | Wall thickness (mm) | Cross section (mm) |
|-------|---------------------|---------|---------|---------------------|--------------------|
|       | 17#                 | 6.4     | 9.6     |                     | 0                  |
|       | 16#                 | 3.2     | 6.4     |                     | 0                  |
| Beige | 25#                 | 4.8     | 8.0     |                     | 0                  |
|       | 14#                 | 1.6     | 4.8     |                     | 0                  |
|       | 19#                 | 2.4     | 5.6     | 1.6                 | 0                  |
|       | /                   | 4       | 7.2     |                     | 0                  |
|       | 16#<br>25#<br>Black | 3.2     | 6.4     |                     | 0                  |
| Black |                     | 4.8     | 8.0     |                     | 0                  |
|       | 14#                 | 1.6     | 4.8     |                     | 0                  |
|       | /                   | 6.4     | 9.6     |                     | 0                  |

#### PVC tube

| Color                    | Material | ID (mm) | OD (mm) | Wall thickness (mm) | Cross section (mm) |
|--------------------------|----------|---------|---------|---------------------|--------------------|
|                          | PVC      | 3.0     | 5.0     |                     | 0                  |
| Transparent              | PVC      | 2.0     | 4.0     | 1                   | 0                  |
|                          | PVC      | 4.0     | 6.0     |                     | 0                  |
| Red Green<br>Blue Yellow | PVC      | 3.0     | 5.0     |                     | 0                  |

#### PU tube

| ID (mm) | OD (mm) | Wall thickness (mm) | Cross section (mm) |
|---------|---------|---------------------|--------------------|
| 4       | 6       |                     | 0                  |
| 3       | 5       | 1                   | 0                  |





#### Viton tube

| ID (mm) | OD (mm) | Wall thickness (mm) | Cross section (mm) |
|---------|---------|---------------------|--------------------|
| 2.79    | 4.49    | 0.85                | 0                  |
| 2.54    | 4.24    | 0.85                | 0                  |
| 1.65    | 3.4     | 0.875               | 0                  |
| 1.6     | 4.8     | 1.6                 | 0                  |
| 3.1     | 6.3     | 1.6                 | 0                  |
| 0.8     | 4       | 1.6                 | •                  |

#### Tefon tube

| ID (mm) | OD (mm) | Wall thickness (mm) | Cross section (mm) |
|---------|---------|---------------------|--------------------|
| 2.0     | 4.0     |                     | Ο                  |
| 3.0     | 5.0     | 1.0                 | Ο                  |
| 4.0     | 6.0     |                     | 0                  |
| 4.0     | 5.0     | 0.5                 | 0                  |



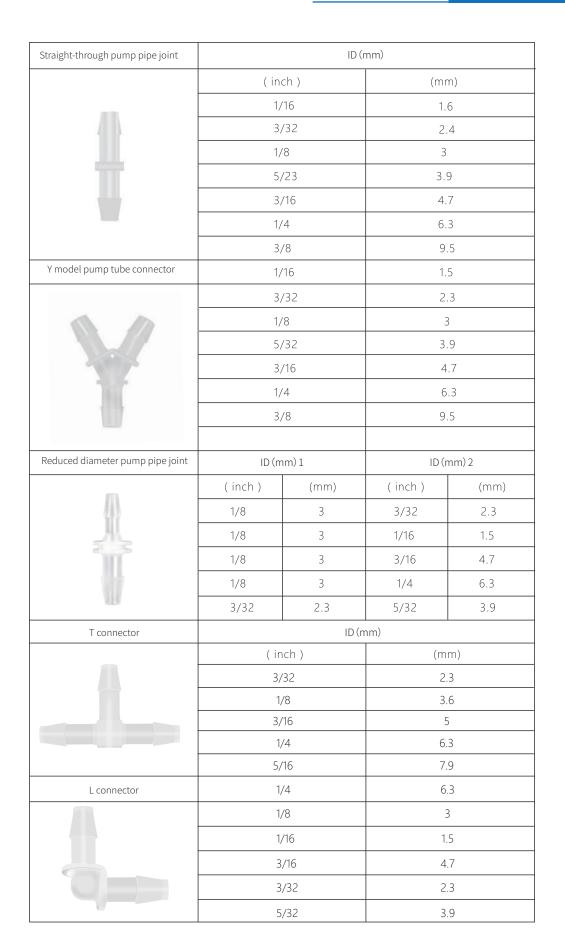


#### Pharmed<sup>®</sup> BPT tube

| Tube number | ID (mm) | OD (mm) | Wall thickness (mm) | Cross section (mm) |
|-------------|---------|---------|---------------------|--------------------|
| /           | 1.5     | 3.5     |                     | 0                  |
| /           | 2       | 4       |                     | Ο                  |
| /           | 2.5     | 4.5     | 1.0                 | 0                  |
| /           | 3       | 5       |                     | 0                  |
| /           | 4       | 6       |                     | 0                  |
| /           | 1       | 3.2     | 1.1                 | 0                  |
| /           | 0.8     | 4       |                     | 0                  |
| 14#         | 1.6     | 4.8     | - 1.6               | 0                  |
| /           | 2.38    | 5.56    |                     | 0                  |
| 16#         | 3.2     | 6.4     | 1.0                 | 0                  |
| /           | 4       | 7.2     |                     | Ο                  |
| 25#         | 4.8     | 8       |                     | 0                  |
| 17#         | 6.4     | 9.6     | -                   | 0                  |
| /           | 1.6     | 3.2     | 0.8                 | ο                  |
| /           | 4.8     | 9.8     | 2.5                 | 0                  |

#### MasteFlex® tube

| 内径(单位:mm) | 外径(单位:mm) | 壁厚(单位:mm) | 软管截面(比例1:1) |
|-----------|-----------|-----------|-------------|
| 2.79      | 4.49      | 0.85      | 0           |
| 2.54      | 4.24      | 0.85      | 0           |
| 1.65      | 3.4       | 0.875     | 0           |
| 1.6       | 4.8       | 1.6       | 0           |
| 3.1       | 6.3       | 1.6       | 0           |
| 0.8       | 4         | 1.6       | 0           |





Accessories





| Cross connector    | ID (r                              | nm)                 |
|--------------------|------------------------------------|---------------------|
|                    | (inch)                             | (mm)                |
|                    | 1/16                               | 1.5                 |
|                    | 1/8                                | 3                   |
|                    | 1/8 Six joints                     | 3                   |
| Threaded connector | 1/8                                | 6*4                 |
|                    | 1/8                                | 8*5~6               |
|                    | 1/8                                | 10*6.5              |
| 6                  | 1/4                                | 6*4                 |
|                    | 1/4                                | 8*5~5               |
|                    | 1/4                                | 10*6.5              |
| Check valve        | 1/4                                | 7                   |
|                    | 1/8                                | 3.8                 |
|                    | 3/16                               | 5                   |
|                    | 3/32                               | 2.6                 |
| п                  | 5/32                               | 4                   |
|                    | 1/8 Ruhr connector                 | 3.7                 |
|                    | 1/16 Ruhr connector                | 2                   |
|                    | 1/8 Ruhr Joint                     | 3.4                 |
| T                  | 3/32 Ruhr connector                | 3.2                 |
| м                  | 3/16 Joint connector               | 5                   |
|                    | 3/16 Filter connector              | 22.6                |
|                    | 3/32 Ruhr Joint                    | 2.6                 |
|                    | 5/32 Six-joint                     | 4                   |
|                    | 3/32 to 5/32 (Reducer check valve) | ID 1(2.6) ID 2(5.8) |

## Prevent drifting joints

| Model                           | K01                    | К02    |  |  |
|---------------------------------|------------------------|--------|--|--|
| Products real shot              |                        |        |  |  |
| Temperature range               | 5~60°C                 | 150°C  |  |  |
| Pressure resistance             | 1.0Mpa                 | 1.5Mpa |  |  |
| Suitable material for pump tube | Hard tube              | Hose   |  |  |
| Interface pump tube caliber(mm) | (                      | ρ6     |  |  |
| Installation form               | Direct insertion       |        |  |  |
| Scope of application            | Exhaust/neutral liquid |        |  |  |
| The main material               | E                      | Brass  |  |  |





| Model                   | Exterior | Motor use   | Size        | Speed<br>adjustment | RS232 Communication<br>Interface | RS485 Communication<br>Interface | Use Model   |
|-------------------------|----------|---|-------------|---------------------|----------------------------------|----------------------------------|-------------|
| 2405.2                  |          | Brushless DC motor, external<br>PWM speed control board |             |                     |                                  |                                  |             |
| Driver board            |          | Brushless DC motor, built-in<br>PWM speed control board | 8.5         | V                   | ×                                | ×                                | KVP04/KLP04 |
| 2300.3<br>Driver board  |          | Stepper motor control driver<br>board                   | 7.8*6.8     | $\checkmark$        | V                                | $\checkmark$                     | KAS/KCS/KDS |
| 4460.4<br>Driver board  |          | Control drive board                                     | 6.1*6.1     | V                   |                                  | V                                | KAS/KCS/KDS |
| KMD-542<br>Driver board |          | Stepper motor driver                                    | 9.6*7.1*3.6 | ×                   | ×                                | ×                                | KAS/KCS/KDS |

| Exterior    | Model            | Material | Sealing material | Inner hole size | Voltage | KV Value | Qnn Value |
|-------------|------------------|----------|------------------|-----------------|---------|----------|-----------|
| All and the | KVE33PL12F11Q161 |          |                  |                 | 12/DC   | 0.045    | 49        |
|             | KVE32PL24FF1Q163 | PVDF     | FKM              | 1.6mm           | 24/DC   | 0.025    | 27        |
|             | KVE32PL12FF1Q163 |          |                  |                 | 12/DC   | 0.025    | 2,        |
| Anne Martin | KVE21PS24N2N651  | РР       | NBR              | 6.5mm           | 24/DC   |          |           |

| Bucket               | High temperature plastic water storage bucket                                 |
|----------------------|---|
| Vacuum pump silencer | Extend the life of the air pump, small size,<br>no consumables                |
| Anti-floating joint  | 316L stainless steel material, two passages are 6mm<br>and 2.5mm respectively |



| Power adapter        | SpeciÞcation   |
|----------------------|--|
|                      | Voltage: 3V, 6V, 12V, 24V<br>Input: AC100-240V 50/60HZ<br>Output: DC12V<br>Output current: 1A<br>Deviation: ±5% (on-load)<br>Proarity: inside (+) outside (-)<br>Plug stype: 5.5*2.1mm |
| Multi-function power | SpeciPcation   |
|                      | 12V Large power supply<br>Input: 100-240V 50-60HZ 0.8A<br>Output:: 12V , 2A<br>L.T.E.POWER SUPPLY<br>Proarity:inside(+) outside(-)<br>Plug style:5.5*2.1mm                             |

### The compatibility of the pump

Tygon hose table chart chemical resistance performance assessments are based on laboratory test results. They reßect a variety of hose formula the relative ability of resistance to specific chemicals. Note: the estimates in the table cannot be reßected in the media contact with the hose may occur in the extraction and medium levels of physical performance or composition changes. Saint-Gobain performance plastics companies in extraction may occur due to transmission medium pipe components resulting in a medium polluted or its performance/composition change on this sensitive issue without any representations or warranties. For prolonged exposure may be some corrosion of the pipes are destructive, provided that it can be often ßush in a timely manner, satisfactory results can be obtained. All estimates are at room temperature (23 ° c/73 ° f) measured. Chemical resistance due to temperature rise and decline. Important notice: users are responsible for ensuring that all of its intended use and safety, including compatibility of the transmission medium. Laboratory, Peld and clinical tests must be operated according to the actual requirements, to pipe in any specific application in safety and effectiveness. If used for medical, pipe in line with actual business, users are responsible for ensuring that the regulatory requirements.

| Compatibility<br>E=Excellent<br>G=Good   | PharMed <sup>®</sup> BPT | Viton | Norprene® | Norprene®Food | Silicon |
|--|--------------------------|-------|-----------|---------------|---------|
| F=Not bad<br>X=Incompatible<br>/=No info |                          |       |           |               |         |
| Acetaldehyde                             | X                        | X     | X         | X             | E       |
| Acetate LMW                              | E                        | /     | E         | E             |         |
| Acetic acid <5%                          | E                        | /     | E         | E             | /       |
| Acetic acid >5%                          | E                        | G     | E         | E             | /       |
| Acetic anhydride                         | E                        | Х     | E         | E             | F       |
| Acetone                                  | Х                        | Х     | Х         | Х             | Х       |
| Acetonitrile                             | G                        | Х     | G         | G             | /       |
| Acetyl bromide                           | F                        | /     | F         | F             | /       |
| Acetyl chloride                          | F                        | E     | F         | F             | /       |
| Air                                      | E                        | E     | E         | E             | /       |
| Aliphatic hydrocarbons                   | Х                        | /     | Х         | Х             | /       |
| Aluminum chloride                        | E                        | E     | E         | E             | G       |
| Aluminum sulfate                         | E                        | E     | E         | E             | E       |
| Alums                                    | E                        | E     | E         | E             | E       |
| Ammonia, gas/liquid                      | E                        | Х     | E         | E             | /       |
| Ammonium acetate                         | E                        | Х     | E         | E             | /       |
| Ammonium carbonate                       | E                        | E     | E         | E             | F       |
| Ammonium chloride                        | E                        | E     | E         | E             | F       |
| Ammonium hydroxide                       | E                        | G     | E         | E             | E       |
| Ammonium nitrate                         | E                        | E     | E         | E             | F       |
| Ammonium phosphate                       | E                        | E     | E         | E             | /       |
| Ammonium sulfate                         | E                        | E     | E         | E             | E       |
| Amyl acetate                             | G                        | Х     | G         | G             | Х       |
| Amyl alcohol                             | Х                        | E     | Х         | Х             | Х       |
| Amyl chloride                            | F                        | E     | F         | F             | Х       |
| Aniline                                  | F                        | G     | F         | F             | G       |
| Aniline hydrochloride                    | F                        | G     | F         | F             | Х       |
| Aqua regia (80% HCl, 20% H)              | Х                        | G     | Х         | Х             | /       |
| Aromatic hydrocarbons                    | Х                        | E     | Х         | Х             | Х       |
| Arsenic salts                            | E                        | Х     | E         | E             | /       |

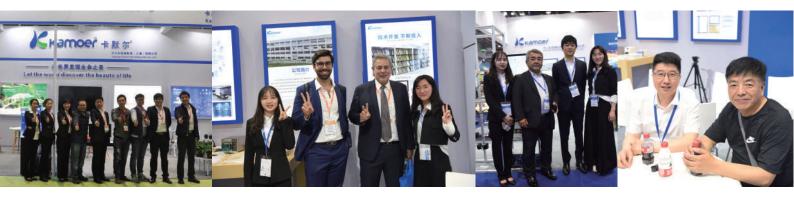
| Compatibility             | PharMed <sup>®</sup> BPT | Viton | Norprene® | Norprene®Food | Silicon |
|---------------------------|--------------------------|-------|-----------|---------------|---------|
| E=Excellent               |                          |       |           |               | 0       |
| G=Good                    |                          |       |           |               |         |
| F=Not bad                 |                          |       |           |               |         |
| X=Incompatible            |                          |       |           |               |         |
| /=No info                 |                          |       |           |               |         |
|                           |                          |       |           |               |         |
| Barium salts              | E                        | E     | E         | E             | /       |
| Benzaldehyde              | Х                        | Х     | Х         | Х             | Х       |
| Benzenesulfonic acid      | Х                        | E     | Х         | Х             | /       |
| Bleaching liquors         | E                        | E     | E         | E             | G       |
| Boric acid                | E                        | E     | E         | E             | E       |
| Bromine                   | Х                        | E     | Х         | Х             | Х       |
| Butane                    | E                        | E     | E         | E             | Х       |
| Butanol (butyl alcohol)   | Х                        | E     | Х         | Х             | G       |
| Butyl acetate             | G                        | Х     | G         | G             | /       |
| Butyric acid              | G                        | G     | G         | G             | Х       |
| Calcium oxide             | E                        | E     | E         | E             | E       |
| Calcium salts             | E                        | E     | E         | E             | /       |
| Carbon bisulfide          | Х                        | /     | Х         | Х             | /       |
| Carbon dioxide            | E                        | E     | E         | E             | G       |
| Carbon tetrachloride      | Х                        | E     | Х         | Х             | Х       |
| Chlorine, dry             | F                        | E     | F         | F             | /       |
| Chlorine, wet             | Х                        | G     | Х         | Х             | /       |
| Chloroacetic acid         | G                        | Х     | G         | G             | Х       |
| Chlorobenzene             | Х                        | E     | Х         | Х             | Х       |
| Chlorobromomethane        | G                        | E     | G         | G             | Х       |
| Chloroform                | F                        | E     | F         | F             | Х       |
| Chlorosulfonic acid       | Х                        | Х     | Х         | Х             | Х       |
| Chromic acid, 30%         | E                        | E     | E         | E             | /       |
| Chromium salts            | E                        | /     | E         | E             | /       |
| Copper salts              | E                        | E     | E         | E             | /       |
| Cresol                    | Х                        | E     | Х         | Х             | Х       |
| Cyclohexane               | Х                        | E     | Х         | Х             | Х       |
| Cyclohexanone             | Х                        | Х     | Х         | Х             | Х       |
| Diacetone alcohol         | E                        | Х     | E         | E             | Х       |
| Dimethyl formamide        | G                        | Х     | G         | G             | F       |
| Dimethyl Sulfoxide (DMSO) | E                        | /     | E         | E             | /       |
| Essential oils            | Х                        | /     | Х         | Х             | /       |
| Ethanol (ethyl alcohol)   | F                        | E     | F         | F             | /       |
| Ether                     | F                        | Х     | F         | F             | Х       |
| Ethyl acetate             | G                        | Х     | G         | G             | G       |
| Ethyl bromide             | Х                        | E     | Х         | Х             | /       |
| Ethyl chloride            | F                        | E     | F         | F             | X       |
| Ethylamine                | X                        | X     | X         | X             | /       |
| Ethylene chlorohydrin     | E                        | E     | E         | E             | F       |
| Ethylene dichloride       | F                        | E     | F         | F             | X       |
| Uric acid                 | E                        | /     | E         | E             | /       |

| Compatibility              | PharMed <sup>®</sup> BPT | Viton | Norprene® | Norprene®Food | Silicon |
|----------------------------|--------------------------|-------|-----------|---------------|---------|
| E=Excellent                |                          |       |           |               |         |
| G=Good                     |                          |       |           |               |         |
| F=Not bad                  |                          |       |           |               |         |
| X=Incompatible             |                          |       |           |               |         |
| /=No info                  |                          |       |           |               |         |
| Ethylene glycol            | E                        | E     | E         | E             | E       |
| Ethylene oxide             | E                        | Х     | E         | E             | Х       |
| Fatty acids                | F                        | E     | F         | F             | F       |
| Ferric chloride            | E                        | E     | E         | E             | G       |
| Ferric sulfate             | E                        | E     | E         | E             | G       |
| Ferrous chloride           | E                        | E     | E         | E             | /       |
| Ferrous sulfate            | E                        | E     | E         | E             | /       |
| Fluoboric acid             | Х                        | /     | Х         | Х             | /       |
| Fluoroborate salts         | E                        | /     | E         | E             | /       |
| Fluosilicic acid           | F                        | E     | F         | F             | /       |
| Formaldehyde               | X                        | X     | X         | X             | G       |
| Formic acid, 25%           | E                        | Х     | E         | E             | G       |
| Zinc oxide                 | E                        | E     | E         | E             | /       |
| Gasoline, high-aromatic    | Х                        | E     | Х         | Х             | /       |
| Gasoline, nonaromatic      | Х                        | E     | Х         | Х             | /       |
| Glucose                    | E                        | E     | E         | E             | E       |
| Glue, P.V.A.               | E                        | E     | E         | E             | E       |
| Glycerin                   | E                        | E     | E         | E             | E       |
| Hydriodic acid             | X                        | E     | Х         | Х             | /       |
| Hydrobromic acid, 30%      | Х                        | E     | Х         | Х             | /       |
| Hydrochloric acid (conc)   | /                        | F     | /         | /             | /       |
| Hydrochloric acid (dil)    | E                        | E     | E         | E             | /       |
| Hydrochloric acid (med)    | G                        | E     | G         | G             | /       |
| Hydrocyanic acid           | E                        | E     | E         | E             | F       |
| Hydrocyanic acid, gas, 10% | E                        | E     | E         | E             | /       |
| Hydrofluoric acid, 50%     | Х                        | Х     | Х         | Х             | /       |
| Hydrofluoric acid, 75%     | /                        | Х     | /         | /             | /       |
| Hydrogen peroxide (dil)    | E                        | E     | E         | E             | /       |
| Hydrogen peroxide, 90%     | G                        | E     | G         | G             | /       |
| Hypochlorous acid          | E                        | E     | E         | E             | /       |
| lodine solutions           | E                        | E     | E         | E             | /       |
| lodoform                   | /                        | F     | /         | /             | /       |
| Kerosene                   | Х                        | E     | Х         | Х             | Х       |
| Ketones                    | Х                        | /     | Х         | Х             | /       |
| Lacquer solvents           | G                        | Х     | G         | G             | /       |
| Lactic acid, 3–10%         | E                        | E     | E         | E             | /       |
| Lead acetate               | E                        | Х     | E         | E             | E       |
| Linseed oil                | F                        | E     | F         | F             | /       |
| Lithium hydroxide          | G                        | E     | G         | G             |         |
| Magnesium chloride         | E                        | E     | E         | E             | E       |
| Water, fresh               | E                        | E     | E         | E             | G       |

| Compatibility                                    | PharMed <sup>®</sup> BPT | Viton  | Norprene® | Norprene®Food | Silicon |
|--|--------------------------|--------|-----------|---------------|---------|
| E=Excellent                                      |                          |        |           |               |         |
| G=Good   |                          |        |           |               |         |
| F=Not bad  |                          |        |           |               |         |
| X=Incompatible                                   |                          |        |           |               |         |
| /=No info  |                          |        |           |               |         |
| Magnesium sulfate                                | E                        | E      | E         | E             | E       |
| Malic acid                                       | E                        | E      | E         | E             | G       |
| Manganese salts                                  | E                        | E      | E         | E             | /       |
| Mercury salts                                    | E                        | E      | E         | E             | /       |
| Methane  | E                        | E      | E         | E             | Х       |
| Methanol (methyl alcohol)                        | E                        | G      | E         | E             | E       |
| Methyl chloride                                  | F                        | G      | F         | F             | X       |
| Methyl ethyl ketone (MEK)                        | Х                        | Х      | Х         | Х             | /       |
| Mixed acid (40% H2SO4, 15% HNO3)                 | G                        | /      | G         | G             | /       |
| Molybdenum disulfide                             | /                        | E      | /         | /             | /       |
| Monoethanolamine                                 | F                        | X      | F         | F             | G       |
| Naphtha  | X                        | E      | X         | X             | X       |
| Natural gas                                      | E                        | E      | E         | E             | E       |
| Nickel salts                                     | E                        | E      | E         | E             | /       |
| Nitric acid (conc)                               | Х                        | E      | X         | Х             | /       |
| Nitric acid (dil)                                | E                        | G      | E         | E             | /       |
| Nitric acid (med)                                | E                        | E      | E         | E             | /       |
| Nitrobenzene                                     | X                        | G      | X         | X             | X       |
| Nitrogen oxides                                  | E                        | Х      | E         | E             | /       |
| Nitrous acid                                     | E                        | /      | E         | E             | /       |
| Oils, animal                                     | F                        | E      | F         | F             |         |
| Oils, mineral                                    | Х                        | E      | Х         | X             | /       |
| Oils, vegetable                                  | F                        | E      | F         | F             | /       |
| Oleic acid                                       | F                        | G      | F         | F             | X       |
| Oxalic acid, cold                                | G                        | E      | G         | G             | /       |
| Oxygen, gas                                      | E                        | G      | E         | E             | /       |
| Palmitic acid, 100% in ether                     | F                        | E      | F         | F             | /       |
| Perchloric acid                                  | E                        | E      | E         | E             | X       |
| Perchloroethylene                                | F                        | E      | F         | F             | X       |
| Phenol (carbolic acid)                           | E                        | E      | E         | E             | X X     |
| Phosphoric acid, 50%                             | E                        | E      | E         | E             | /       |
| Phthalic acid                                    | E                        | G      | E         | E             | G       |
| Plating solutions                                | E                        | E      | E         | E             | /       |
| Polyglycol                                       | G                        | E      | G         | G             | /       |
| Potassium carbonate                              | E                        | E      | E         | E             | / /     |
| Potassium chlorate                               | G                        | E      | G         | G             | G       |
| Potassium chiorate<br>Potassium hydroxide (conc) | E                        | Е<br>Х | E         | E             | G/      |
| Potassium hydroxide (med)                        | E                        | X X    | E         | E             | / /     |
| Potassium iodide                                 |                          |        |           |               | /       |
| Propanol (propyl alcohol)                        | E                        | E      | E         | E             | /       |
| Water, salt                                      | F                        | E      | F         | F             | /       |

| Compatibility                   | PharMed <sup>®</sup> BPT | Viton | Norprene® | Norprene®Food | Silicon |
|---------------------------------|--------------------------|-------|-----------|---------------|---------|
| =Excellent                      |                          |       |           |               |         |
| G=Good                          |                          |       |           |               |         |
| =Not bad                        |                          |       |           |               |         |
| K=Incompatible                  |                          |       |           |               |         |
| /=No info                       |                          |       |           |               |         |
| Pyridine                        | F                        | Х     | F         | F             | Х       |
| Xylene                          | E                        | E     | E         | E             | /       |
| Silicone oils                   | F                        | E     | F         | F             | /       |
| Silver nitrate                  | E                        | E     | E         | E             | E       |
| Soap solutions                  | G                        | E     | G         | G             | E       |
| Sodium bicarbonate              | E                        | E     | E         | E             | E       |
| Sodium bisulfate                | E                        | E     | E         | E             | E       |
| Sodium bisulfite                | E                        | E     | E         | E             | E       |
| Sodium borate                   | E                        | E     | E         | E             | E       |
| Sodium carbonate                | E                        | E     | E         | E             | E       |
| Sodium chlorate                 | E                        | E     | E         | E             | F       |
| Sodium chloride                 | E                        | E     | E         | E             | Е       |
| Sodium ferrocyanide             | E                        | E     | E         | E             | /       |
| Sodium hydrosulfite             | G                        | /     | G         | G             | F       |
| Sodium hydroxide (conc)         | /                        | E     | /         | /             | /       |
| Sodium hydroxide (di <b>l</b> ) | E                        | E     | E         | E             | /       |
| Sodium hydroxide, 25%           | E                        | E     | E         | E             | /       |
| Sodium hypochlorite, <5%        | E                        | E     | E         | E             | /       |
| Sodium hypochlorite, >5%        | E                        | E     | E         | E             | /       |
| Sodium nitrate                  | E                        | E     | E         | E             | Х       |
| Sodium silicate                 | E                        | E     | E         | E             | E       |
| Sodium sulfide                  | E                        | E     | E         | E             | E       |
| Sodium sulfite                  | E                        | E     | E         | E             | E       |
| Steam, up to 40 psi             | F                        | G     | F         | F             | /       |
| Stearic acid                    | F                        | E     | F         | F             | G       |
| Styrene                         | X                        | E     | Х         | Х             | Х       |
| Sulfuric acid (conc)            | Х                        | E     | Х         | Х             | /       |
| Sulfuric acid (dil)             | E                        | E     | E         | E             | /       |
| Sulfuric acid (med)             | E                        | E     | E         | E             | /       |
| Sulfurous acid                  | E                        | G     | E         | E             | Х       |
| Tannic acid                     | G                        | E     | G         | G             | G       |
| Tanning liquors                 | E                        | /     | E         | E             | G       |
| Tartaric acid                   | E                        | E     | E         | E             | E       |
| Tin salts                       | E                        | /     | E         | E             | G       |
| Toluene (toluol)                | Х                        | E     | Х         | Х             | Х       |
| Trichloroacetic acid            | G                        | F     | G         | G             | Х       |
| Trichloroethylene               | Х                        | E     | Х         | Х             | Х       |
| Trisodium phosphate             | E                        | E     | E         | E             | E       |
| Turpentine                      | Х                        | E     | Х         | Х             | Х       |
| Urea                            | E                        | /     | E         | E             | G       |
| Xylene                          | X                        | E     | Х         | Х             | Х       |

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