

New !!

Aquatech

Ultra-low power pinch valve & dedicated controller

We have developed our first pinch valve which is quite unique and innovative, based on our accumulated tubing pump technology. Its dedicated motor controller is also available.

RV-001 series Pinch valve



Features

- Ultra-low power consumption
- Since power is supplied only at the timing of opening and closing, there is almost no heat generation.
 - Since the configuration is so simple, using a DC geared motor, a dedicated drive circuit is unnecessary.

- The main unit is small and lightweight
- Dimensions (W x D x H) 30 x 23 x 41.4 mm
 - Weight: 33 g. (excluding wiring and tubing)

- Replacing of the tubing is simple and easy.
- The cover is attached with a magnet.

We sell an optional tubing with joiners on both ends that can be easily attached to the valve. The optional dedicated motor controller is available, which allows you to individually program the operation sequences of the three valves. Product name is **RE-V100**.

Common Specifications

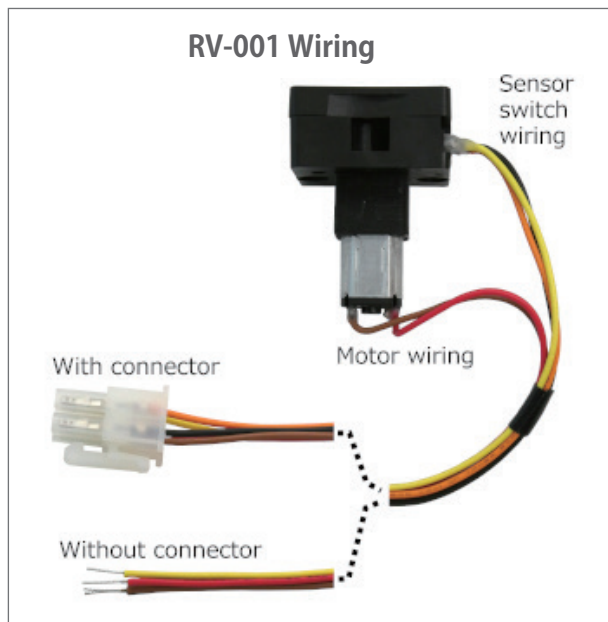
Rated voltage	DC 3 V
Fluid pressure	0 ~ 150 kPa
Valve opening/closing time	0.3 sec or less
Pumping volume	5 μ L or less
Durability of tubing	Ove 150,000 cycles
Durability of system	Over 500,000 cycles

Examples of application

Analytical instruments, medical devices, cell culturing experiments and many other usage where micro-fluidic control is needed.

Model Lineup

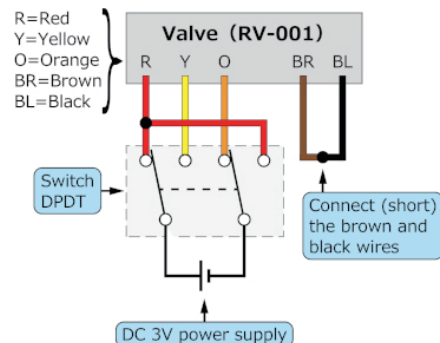
Model No.	Wiring length	Connector	
RV-001ZA	50 cm	without	Tubes are not included. Use tubes with the following dimensions as listed in the "Suitable Tubes" table below. - TM-15 : ID 1.6 mm x OD 3.2 mm - Others : ID 1/16 inch (1.59 mm) x OD 1/8 inch (3.18 mm) When using the motor controller RE-V100, it is necessary to use the valve indicated "With connector".
RV-001ZB	2 m	with	
RV-001ZC	50 cm	with	



- There are five wires coming out of the valve, as shown in the photo above. There are two types of wire end process:
 - With connector
 - Only the insulation is stripped. (Without connector)
- The length of the wiring is as shown in the "Model Lineup" table.
- The connector is for connecting to the motor controller RE-V100.
- The valve without connector can be operated by wiring as shown in the illustration above right.

Wiring diagram for valve without connector

- [Wiring]
Use a switch DPDT and wire as shown in the diagram below.
- [Operation]
• The valve opens when the switch is in the position shown in the diagram below.
• When the switch is flipped to the other side, the valve closes.



{ Wiring }

- Prepare a switch DPDT and a 3V DC power supply (DC power supply, dry cell, etc.).
- Connect the five wires coming out of the valve (red, orange, yellow, brown, and black) as shown in the diagram above.

{ Operation }

- When the switch is in the position shown in the diagram (red is positive, orange is negative), the valve opens.
- When the switch is in the opposite position to that shown in the diagram (yellow is positive, red is negative), the valve is closed.

Suitable tubings

Name of tubing	Manufacturer	Remarks
Single-use silicone tubing Type V : High durability grade	Shin-Etsu Polymer Co., Ltd.	Silicone rubber, USP Class VI
PharMed BPT	Saint-Gobain	Thermoplastic elastomer, USP Class VI
Versilon F-5500-A	Saint-Gobain	Fluoro-elastomer
Transmaster TM-15	Mitsuboshi Co. Ltd.	Olefine-based
Tygon LMT-55	Saint-Gobain	Polyvinyl chloride resin, DEHP free

Sterilization of tubings

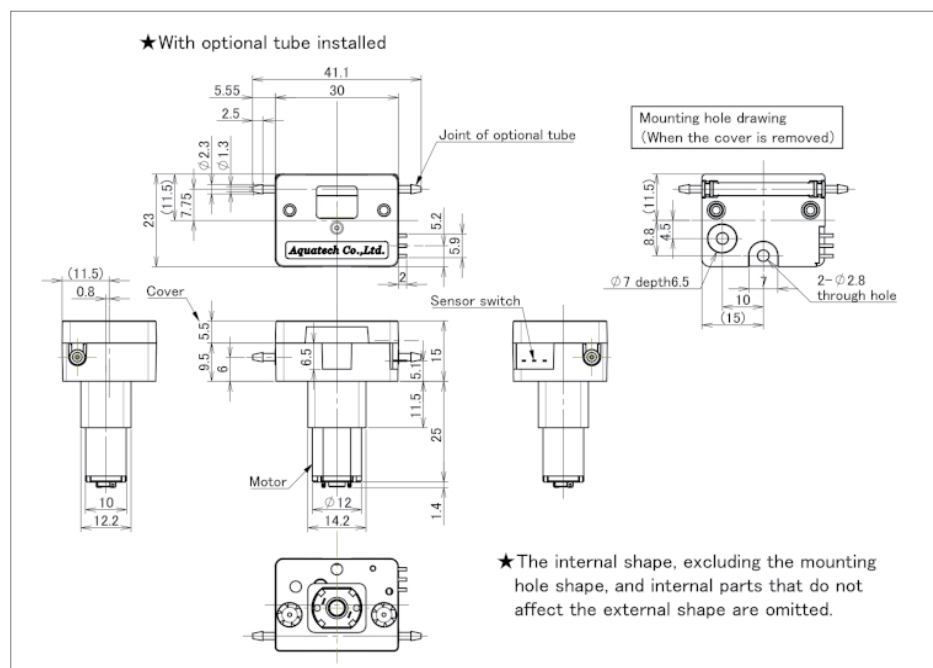
Name of tubing	Sterilization method ○ = Good × = NG — = NA		
	Autoclave 121°C 25 min	EOG	Gamma ray 25 kGy or less
Single-use silicone tubing Type V : High durability grade	○	○	○
PharMed BPT	○	○	○
Versilon F-5500-A	—	—	—
Transmaster TM-15	×	○	○
Tygon LMT-55	×	○	○

Optional tubings

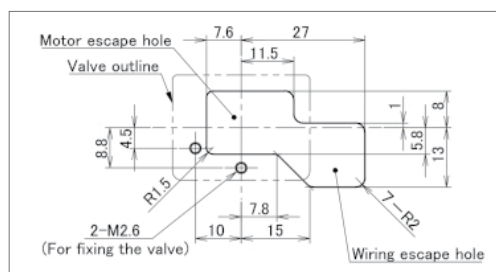
Tubing model No.	Tubings used	Remarks
AR-TBS1.6X3.2-K	Single-use silicone tubing Type V : High durability grade	Silicone rubber, USP Class VI
AR-TBF1.6X3.2-K	PharMed BPT	Thermoplastic elastomer, USP Class VI
AR-TBR1.6X3.2-K	Versilon F-5500-A	Fluoro-elastomer
AR-TBW1.6X3.2-K	Transmaster TM-15	Olefine-based
AR-TBD1.6X3.2-K	Tygon LMT-55	Polyvinyl chloride resin, DEHP free

- The optional tube is a 24.5mm long suitable tube with special joints attached to both ends. And it can be easily attached to the valve.
- Optional tubes are sold in units of 10. The above model numbers are for a set of 10.

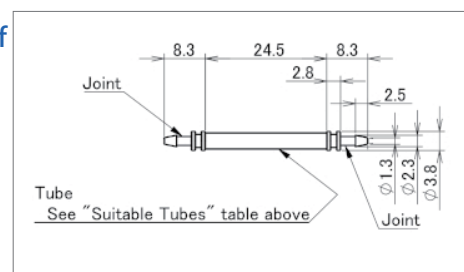
Outline drawing



Mounting holes



Outline of optional tubings



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RE-V100

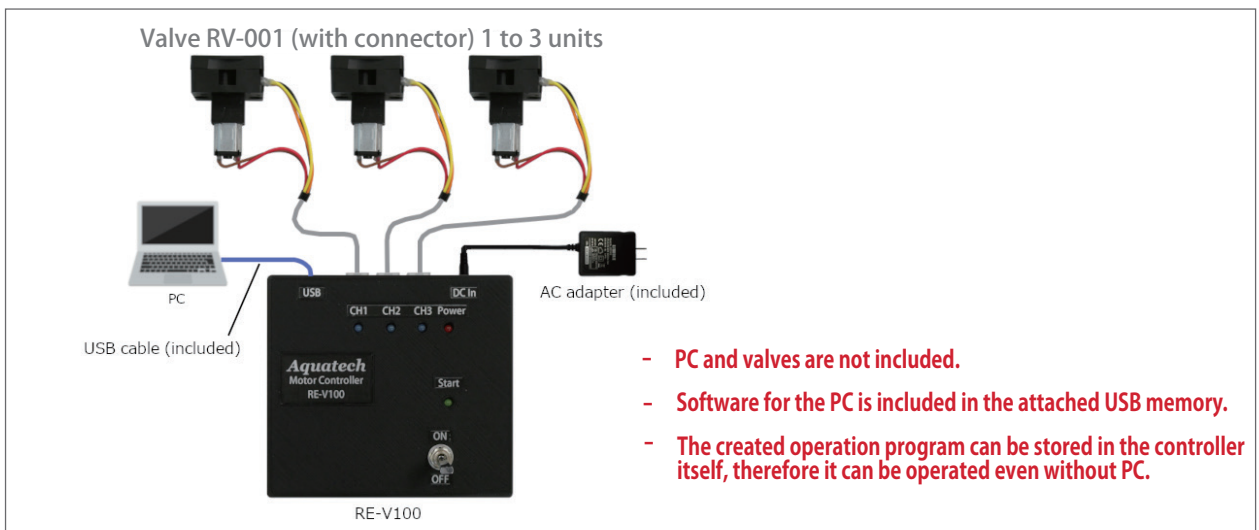
Dedicated programmable motor controller for RV-001 series Pinch valve



Features

- Dedicated motor controller for RV-001 series pinch valve.
- Up to three valves can be connected and each valve can be programmed to open and close at separate times.
- Connect to a Windows PC and input the operating program.
- The created operation program can be stored in the controller itself, therefore it can be operated without PC.
- The created operation programs can be saved on your PC and reused.
- The valve and controller are connected with a connector. To use the controller, a valve with connector is required.

Connection



Main specifications

Commodity	Dedicated motor controller for RV-001 pinch valve
Model No.	RE-V100
Applicable model	RV-001 series (strictly with connector)
Connection to valve	Connection by connector
Power source	DC 5V 1A (AC adapter included)
Dimensions (W x D x H)	100 x 93 x 49 mm
Accessories	AC adapter (Input : AC100-240V 50/60Hz Output: DC5V 1A) USB memory stick (PC software), USB cable (for PC connection)

Explanation of indications



- ① USB connection terminal (USB A - micro B ; bundled)
- ② Valve connection terminals (Ch. ① - ③)
- ③ DC - In connection terminal (AC - DC adaptor ; bundled)
- ④ Valve Indicator - Ch.① - ③ (LED turns blue when open)
- ⑤ Power - LED (Red)
- ⑥ Start Indicator - LED (Green)
- ⑦ Start switch - On / Off