

BOXER 9QX Series Peristaltic Pumps

DC Gear or Stepper Motor, Liquid Flow to 200 ml/min

DESCRIPTION

The 9QX is the smallest flip-top peristaltic pump available. With an elegant body design of just 40 x 62 mm (width x height) it stands just 21.5mm (depth) off a panel mount. The flip-top design allows tube loading and unloading with ultimate ease.

This series is the 3rd generation of the highly successful 9K miniature peristaltic pump from Boxer and is designed for accurate dispensing of liquids.

DC / Gear motor versions offer a range of 33 to 520 rpm with optional shaft encoder providing accurate feedback of rotor speed.

Stepper motors versions offer the versatility of finite speed / flow control with supporting drivers and optional rotor encoder.

SPECIFICATIONS

MOTOR

DC Gear Motor: 12 VDC or 24 VDC

DC Gear Motor RPM: 12 V- 116, 315 or 520

24 V- 33/107, 315 or 520

DC Motor Life: >2000 hours

DC Motor Power Consumption: 3.5 to 5 Watts

Stepper Motor RPM: to 500 rpm dependent on tube size and number of rollers

Stepper Motor: NEMA 17, 24 VDC

Stepper Motor Power Consumption: 8 Watts (2 A driver recommended, current limiter should be used for low speed operation.

Stepper Motor Life: >10,000 hours

GENERAL

Max. Pressure: 1 bar (14.7 PSI)

Max. Vacuum: -950 mbar (28.1 inches Hg)

Max Ambient Temp: 60°C

Flow Data:

0.5 mm ID Tube- 16/15/13 µl per rev. (3/4/6 rollers)

1 mm ID Tube- 55/50/42 µl per rev. (3/4/6 rollers)

2 mm ID Tube- 190/160/120 µl per rev. (3/4/6 rollers)

3 mm ID Tube- 340/290/200 µl per rev. (3/4/6 rollers)

3.5 mm ID Tube 400/340/230 µl per rev. (3/4/6 rollers)

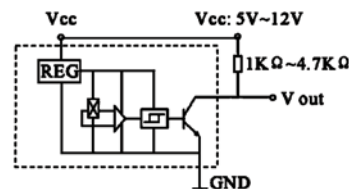
Tube Materials: Silicone, Lagoprene, Pharm-a-line, ED-Plex

Weight: DC Motor, 130g; Stepper Motor, 245 g

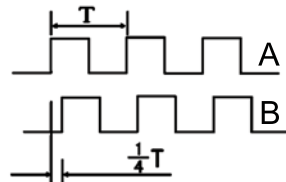
Options: Back shaft motor encoder, 10 pulses per motor revolution (consider gearbox ratio for pulses per pump rotor revolution)

BACK SHAFT ENCODER

Output Circuit



Output Wave



Shaft Encoder Pin Assignments

| | | | |
|-------------|-----|---------------|-------|
| Motor | - | Hall Sensor | Gnd |
| Motor | + | Hall Sensor A | V out |
| Hall Sensor | Vcc | Hall Sensor B | V out |



9QX DC Gear Motor

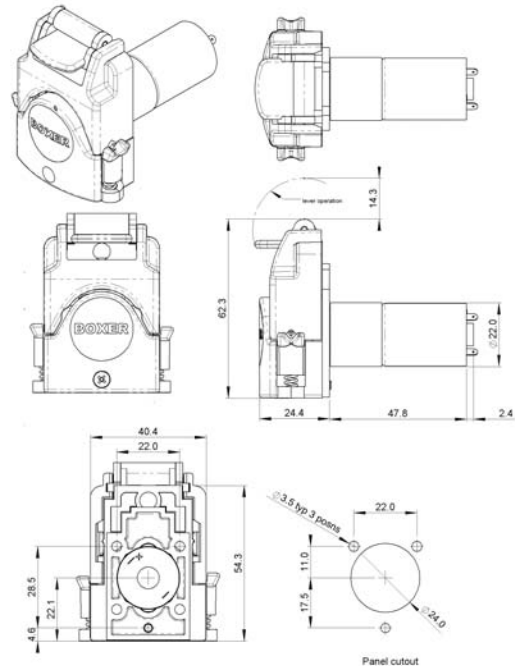


9QX Stepper Motor

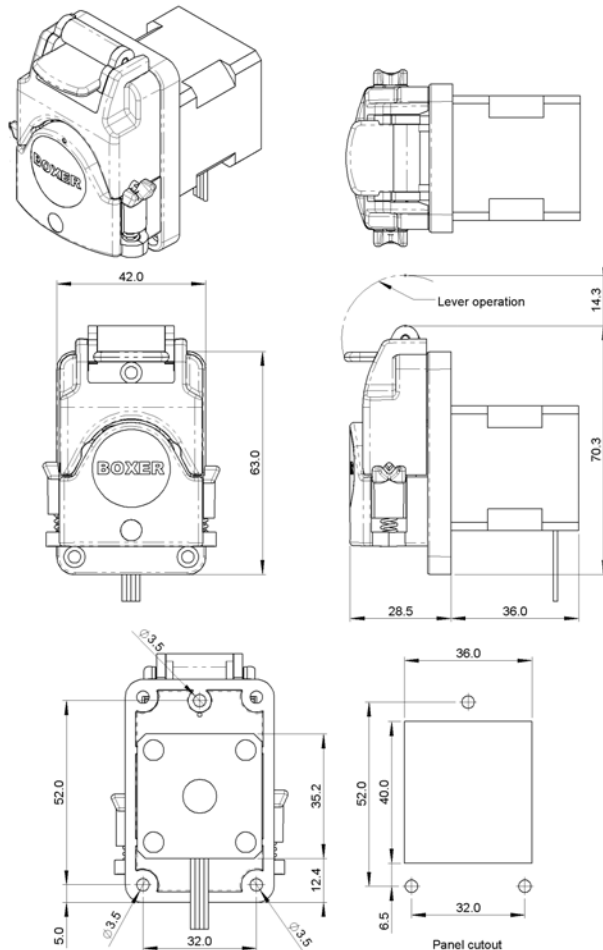


9QX Flip Top Tube Loading

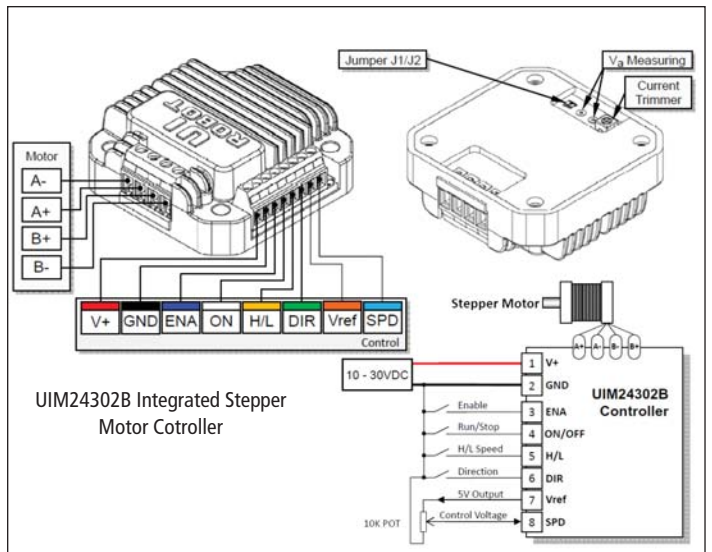
DIMENSIONS (MM) WITH DC MOTOR



DIMENSIONS (MM) WITH STEPPER MOTOR



NEMA 17 STEPPER MOTOR CONTROLLERS ROTATIONAL SPEEDS TO 780 RPM



UIM24302B stepper motor controller is a microprocessor embedded, voltage control, miniature stepper motor controller. With the UIM24302B, the motor speed can be controlled by an analog voltage via an external potentiometer or an external voltage. Run/stop, direction, high/low speed range and, enable/disable can be controlled simply by shorting the corresponding terminal to the ground.

UIM24302B can provide 0 - 2A adjustable phase current. Their mixed-decay current control reduces the back-EMF effect under high motor speed and improves the performance.

UIM24302B is mounted remote to the NEMA 17 series stepper motor. The enclosure is made of die-cast aluminum which provides a rugged durable protection and improves the heat dissipation.

Model 6900.001 Stepper Motor Control Board

The optional CSD board (Controlled Stepper Drive) is a flexible and powerful controller for accurate dispensing. USB interface and intuitive menu driven programming software allow for easy programming of up to 10 operating pump protocols to characterize the movement of a pump.

ORDERING INFORMATION

- 1) Select pump model
- 2) Select tubing model
- 3) Select any additional accessories

| 9QX Models | Number of Rollers | Nom. Voltage (VDC) | RPM |
|-------------------------------|-------------------|--------------------|----------|
| Pump Head, DC Motor & Gearbox | | | |
| 9007.730 | 3 | 12 | 520 |
| 9016.730 | 3 | 24 | 33 |
| 9012.730 | 3 | 24 | 107 |
| 9008.730 | 3 | 24 | 315 |
| 9015.730 | 3 | 24 | 520 |
| Pump Head & Stepper Motor | | | |
| 9600.730 | 3 | 24 | Max. 500 |
| 9600.740 | 4 | 24 | Max. 500 |
| 9600.760 | 6 | 24 | Max. 500 |

Pharm-A-Line™

Premium medical grade thermoplastic elastomer for pharmaceutical, biological and food / beverage applications. Suitable for sterilization via autoclave, ethylene oxide and gamma. FDA registered to 21CFR177.260

Silicone

Premium silicone tube for food and biomedical applications. Suitable for sterilization via autoclave or dry heat. FDA registered.

Lagoprene

Food grade thermoplastic elastomer for food and beverage applications. Complies with NSF 51 (food equipment materials) and NSF / ANSI Standard 61 (drinking water system components)

ED-Plex

Premium industrial grade thermoplastic elastomer for aqueous fluids, acids, bases and some oils / hydrocarbons

| Model | Tubing/Accessories |
|---|------------------------------|
| Silicone Tubing , 1 meter Lengths, 1.0 mm Wall Thickness | |
| 9000.507 | 1.0 x 3.1 mm (ID x OD) x 1 m |
| 9000.509 | 2.0 x 4.1 mm (ID x OD) x 1 m |
| 9000.508 | 3.0 x 5.1 mm (ID x OD) x 1 m |
| Langoprene Tubing , 1 meter Lengths, 1.0 mm Wall Thickness | |
| 9000.521 | 1.0 x 3.1 mm (ID x OD) x 1 m |
| 9000.506 | 2.0 x 4.1 mm (ID x OD) x 1 m |
| 9000.564 | 3.0 x 5.1 mm (ID x OD) x 1 m |
| ED-Plex Tubing , 1 meter Lengths, 1.0 mm Wall Thickness | |
| 9000.522 | 1.0 x 3.1 mm (ID x OD) x 1 m |
| 9000.523 | 2.0 x 4.1 mm (ID x OD) x 1 m |
| 9000.524 | 3.0 x 5.1 mm (ID x OD) x 1 m |

| Model | Tubing/Accessories |
|---|---|
| Pharm-A-Line™ Tubing , 1 meter Lengths, 1.0 mm Wall Thickness | |
| 9000.566 | 0.5 x 2.6 mm (ID x OD) x 1 m |
| 9000.535 | 1.0 x 3.1 mm (ID x OD) x 1 m |
| 9000.536 | 2.0 x 4.1 mm (ID x OD) x 1 m |
| 9000.537 | 3.0 x 5.1 mm (ID x OD) x 1 m |
| 9000.547 | 3.5 x 5.6 mm (ID x OD) x 1 m |
| Pharm-A-Line™ Peristaltic Pump Tubing Coils, 1.0 mm Wall Thickness | |
| 80510.110 | 0.5 x 2.6 mm (ID x OD) x 10 m Coil |
| 81010.115 | 1.0 x 3.1 mm (ID x OD) x 15 m Coil |
| 82010.115 | 2.0 x 4.1 mm (ID x OD) x 15 m Coi |
| 83010.115 | 3.0 x 5.1 mm (ID x OD) x 15 m Coil |
| 83510.115 | 3.5 x 5.6 mm (ID x OD) x 15 m Coil |
| Other Accessories | |
| 9000.613 | 9K Mounting Bracket (DC Gear Motor Only) |
| 6900.001 | Remote Stepper Motor Control Board, USB Interface |
| 6900.003 | UIM24302B Integrated Stepper Motor Controller |