

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.

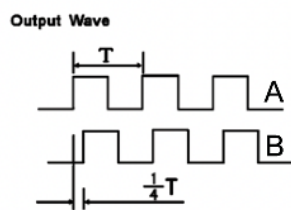
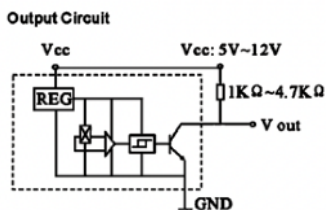
This series is the 3rd generation of the highly successful 9K miniature peristaltic pump from Boxer and is designed for accurate dispensing of liquids.

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.

FEATURES

- Smallest Flip-Top Available
- Flow Rates 10 µl to 200 ml/min
- DC Gear & Stepper Motors
- 3, 4 or 6 Roller Configurations
- Encoders Options for rpm Feedback

BACK SHAFT ENCODER



Shaft Encoder Pin Assignments			
Motor	-	Hall Sensor	Ground
Motor	+	Hall Sensor A	V out
Hall Sensor	Vcc	Hall Sensor B	V out



9QX Flip Top Tube Loading

SPECIFICATIONS

MOTOR

DC Gear Motor	12 VDC or 24 VDC
DC Gear Motor RPM	12 V- 116, 260 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	Max. Pressure: 1 bar (14.7 PSI)
Max. Vacuum	-950 mbar (28.1 inches Hg)
Max Ambient Temp	60°C

FLOWDATA

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)

ORDERING INFORMATION

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

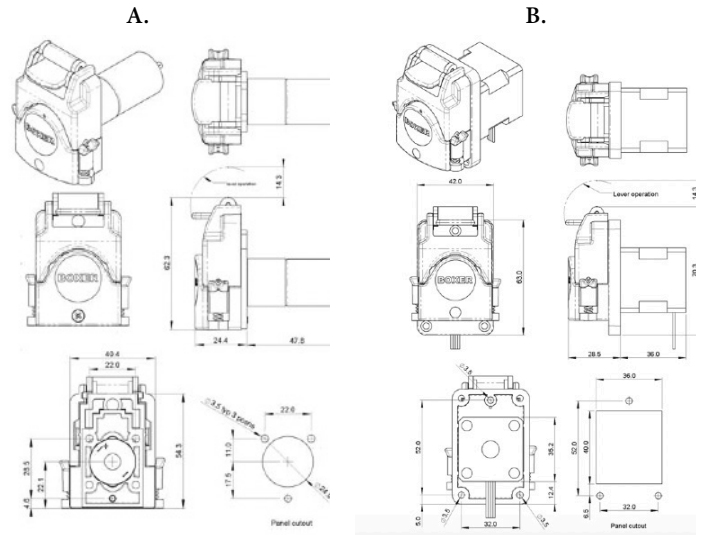
9QX Models	Number of Rollers	Nom. Voltage (VDC)	RPM
Pump Head, DC Motor & Gearbox			
9007.730	3	12	520
9016.730	3	24	33
9012.730	3	24	107
9008.730	3	24	315
9015.730	3	24	520
Pump Head & Stepper Motor			
9600.730	3	24	Max. 500
9600.740	4	24	Max. 500
9600.760	6	24	Max. 500

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 Coil
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 Cotroller

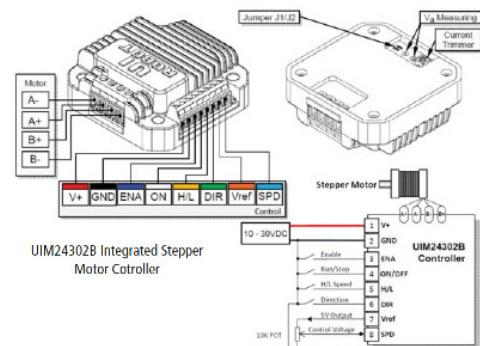
A. DIMENSIONS (MM) WITH DC MOTOR

B. 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.

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.

Langoprene : 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