

Boxer Pumps > Products > Peristaltic Pump

9QX miniature flip-top peristaltic pump with DC / Gear Motor.



## Technical Data

### Flow per Revolution

ID Ø 0.5 mm tube	16 / 15 / 13 µl per revolution (3 / 4 / 6 Rollers)
ID Ø 1.0 mm tube	55 / 50 / 42 µl per revolution (3 / 4 / 6 Rollers)
ID Ø 2.0 mm tube	190 / 160 / 120 µl per revolution (3 / 4 / 6 Rollers)
ID Ø 3.0 mm tube	340 / 290 / 200 µl per revolution (3 / 4 / 6 Rollers)
ID Ø 3.5 mm tube	400 / 340 / 230 µl per revolution (3 / 4 / 6 Rollers)

### Available RPM

12 v	116 / 315 / 520 rpm
24 v	33 / 107 / 315 / 520 rpm

### Power Consumption

3.5 to 5.0 W

### Tube Materials

Pharm-a-line / Silicone / Lagoprene / ED-Plex

Max pressure	1 bar
Max suction height (dry)	9.5 m H <sub>2</sub> O
DC motor life	>2000 hours
Weight	135 g

All data measured with 'run-in' Pharm-a-line tubing and H<sub>2</sub>O.

## Flow Data

Flow Range (ml/min) with 33 rpm Motor:

Tube ID	3 Roller		4 Roller		6 Roller	
	Min	Max	Min	Max	Min	Max
0.5 mm	0.3	0.5	0.2	0.5	0.2	0.4
1.0 mm	0.9	1.8	0.8	1.7	0.7	1.4
2.0 mm	3.1	6.3	2.6	5.3	2.0	4.0
3.0 mm	5.6	11.2	4.8	9.6	3.3	6.6
3.5 mm	6.6	13.2	5.6	11.2	3.8	7.6

Min at approx. 50% nominal motor voltage, Max at nominal voltage

Boxer Pumps > Products > Peristaltic Pump

## Flow Data (continued)

Flow Range (ml/min) with 107 rpm Motor:

Tube ID	3 Roller		4 Roller		6 Roller	
	Min	Max	Min	Max	Min	Max
0.5 mm	0.9	1.7	0.8	1.6	0.7	1.4
1.0 mm	2.9	5.9	2.7	5.4	2.2	4.5
2.0 mm	10.2	20.3	8.6	17.1	6.4	12.8
3.0 mm	18.2	36.4	15.5	31.0	10.7	21.4
3.5 mm	21.4	42.8	18.2	36.4	12.3	24.6

Min at approx. 50% nominal motor volatge, Max at nominal voltage

Flow Range (ml/min) with 116 rpm Motor:

Tube ID	3 Roller		4 Roller		6 Roller	
	Min	Max	Min	Max	Min	Max
0.5 mm	0.9	1.9	0.9	1.7	0.8	1.5
1.0 mm	3.2	6.4	2.9	5.8	2.4	4.9
2.0 mm	11.0	22.0	9.3	18.6	7.0	13.9
3.0 mm	19.7	39.4	16.8	33.6	11.6	23.2
3.5 mm	23.2	46.4	19.7	39.4	13.3	26.7

Min at approx. 50% nominal motor volatge, Max at nominal voltage

Flow Range (ml/min) with 315 rpm Motor:

Tube ID	3 Roller		4 Roller		6 Roller	
	Min	Max	Min	Max	Min	Max
0.5 mm	2.5	5.0	2.4	4.7	2.0	4.1
1.0 mm	8.7	17.3	7.0	15.8	6.6	13.2
2.0 mm	29.9	59.9	25.3	50.5	18.9	37.2
3.0 mm	53.6	107.1	45.7	91.4	31.5	63.0
3.5 mm	60.0	126.0	53.6	107.1	36.5	72.5

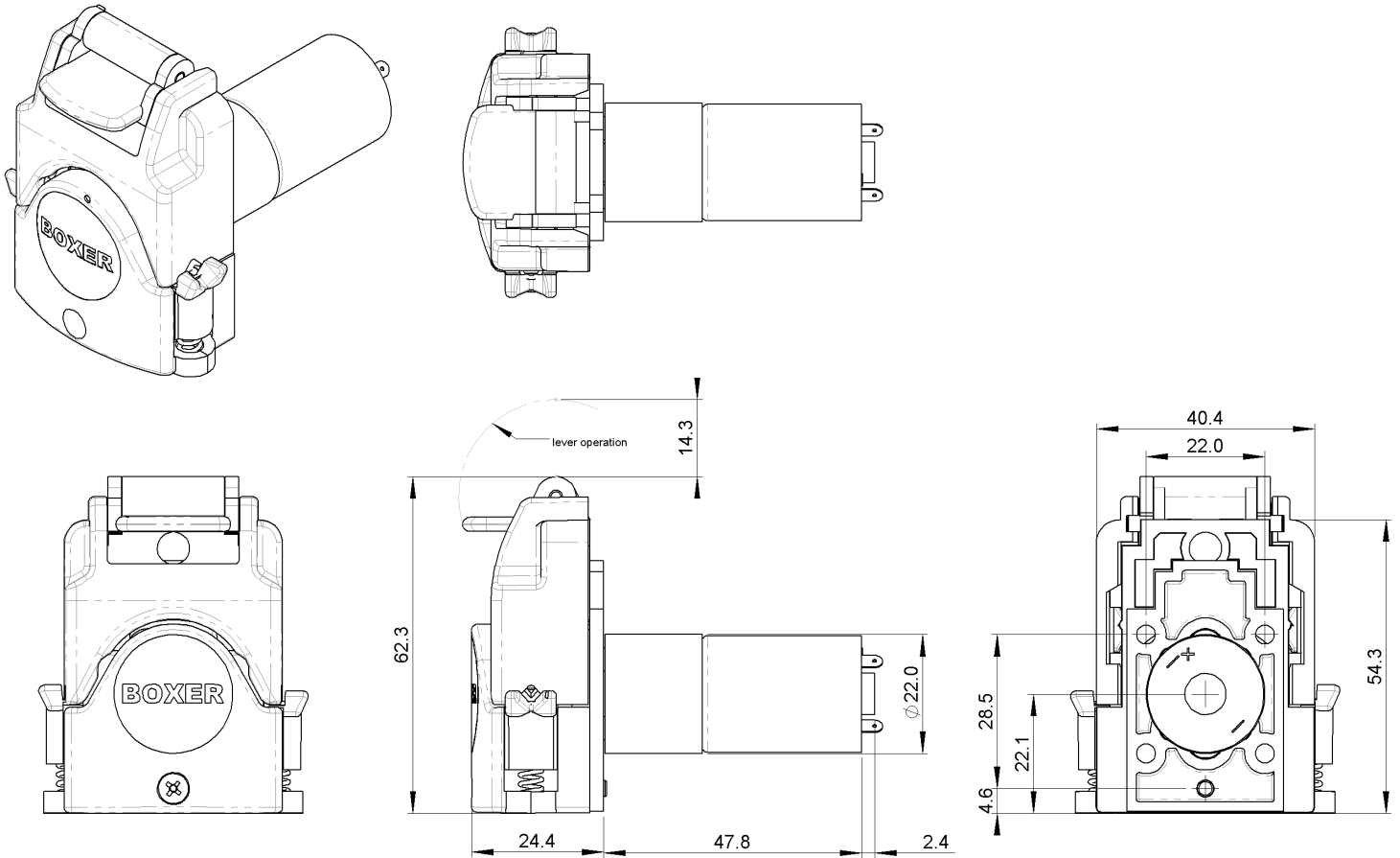
Min at approx. 50% nominal motor volatge, Max at nominal voltage

Flow Range (ml/min) with 520 rpm Motor:

Tube ID	3 Roller		4 Roller		6 Roller	
	Min	Max	Min	Max	Min	Max
0.5 mm	4.2	8.3	3.9	7.8	3.4	6.8
1.0 mm	14.3	28.6	13.0	26.0	10.9	21.8
2.0 mm	49.4	98.8	41.6	83.2	31.2	62.4
3.0 mm	88.4	176.8	75.4	150.8	52.0	107.0
3.5 mm	104.0	208.0	88.4	176.8	59.8	119.6

Min at approx. 50% nominal motor volatge, Max at nominal voltage

## Drawing



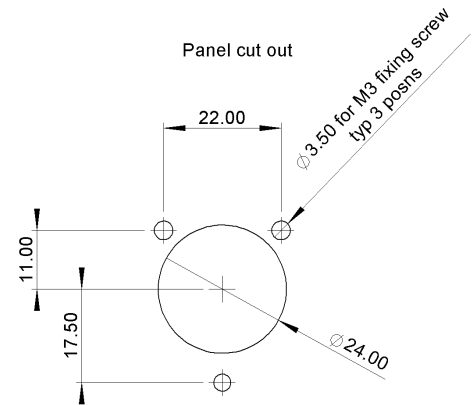
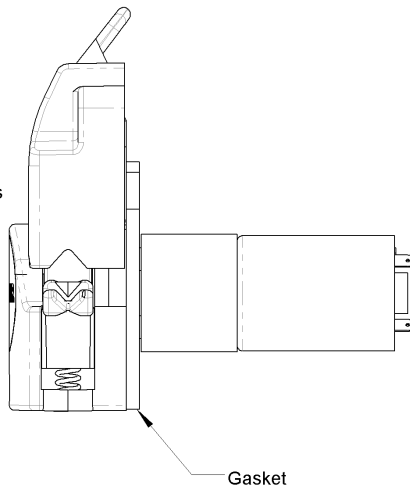
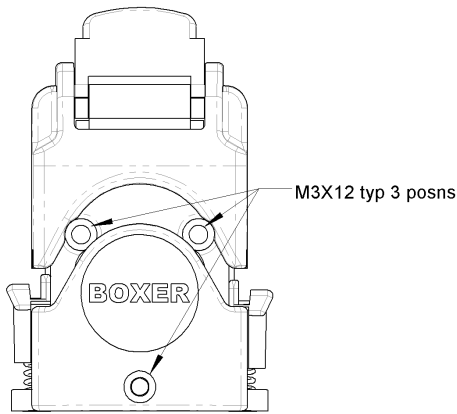
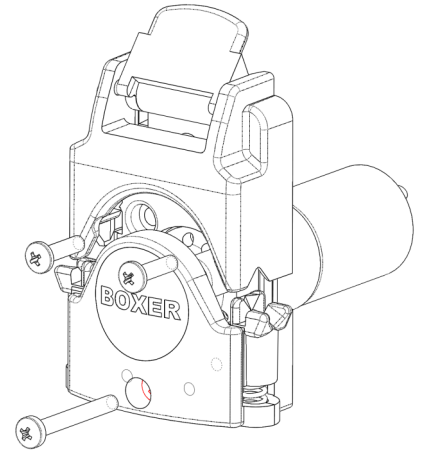
Links to Drawing and STEP file:

→ [Drawing \(.png\)](#)

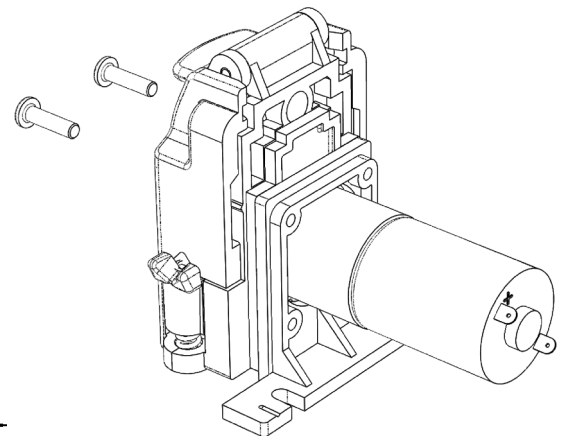
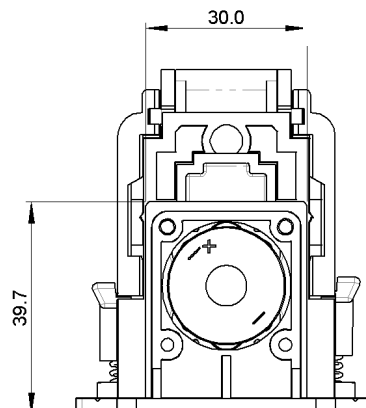
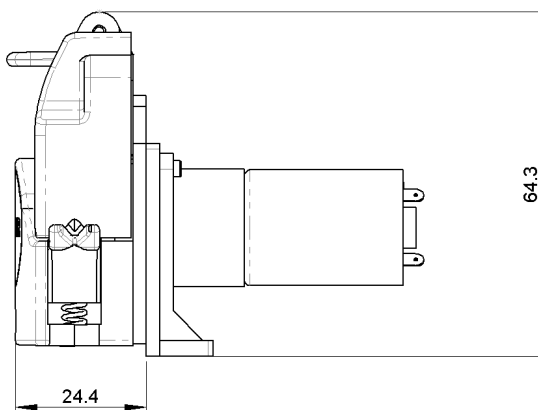
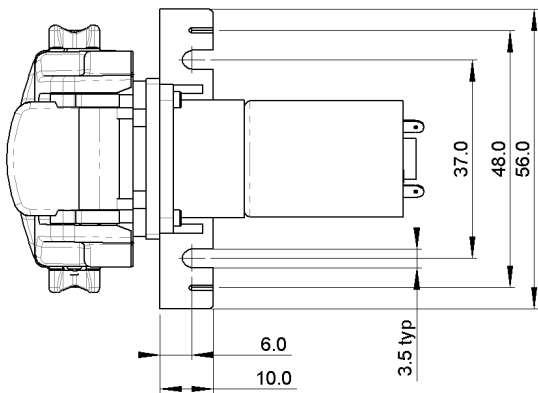
→ [STEP \(.zip\)](#)

## Assembly Information

The 9QX peristaltic pump with DC / Gear is assembled to a panel cut-out using 3 x M3 bolts. The lever must be in the upper position to access the upper 2 mounting holes.

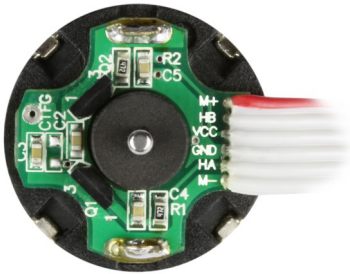


Alternatively a mounting bracket (part number 9000.613) is available for assembly onto a horizontal surface. 2 self tapping screws to secure the bracket to the pump body are with supplied with each bracket. The lever must be in the upper position to access the mounting holes.

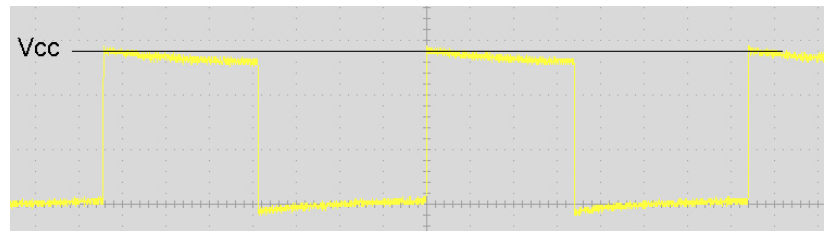


## Encoder

The 9QX peristaltic pump with DC / Gear is available with a dual channel encoder mounted on the rear of the motor. Each channel is switched by a hall effect sensor triggered by a 10 pole rotating magnet.



Output Signal:

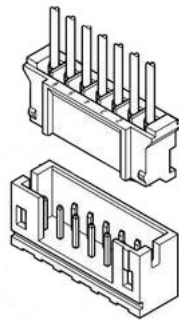


The output is 10 pulses per motor revolution. Since the encoder is placed on the motor shaft, the number of pulses per pump revolution depends on the gear ratio and nominal speed of the motor and so varies according to each motor version:

12V / 116 rpm	840 pulses per revolution	24V / 33 rpm	2700 pulses per revolution
12V / 315 rpm	190 pulses per revolution	24V / 107 rpm	840 pulses per revolution
12V / 520 rpm	190 pulses per revolution	24V / 315 rpm	190 pulses per revolution
		24V / 520 rpm	190 pulses per revolution

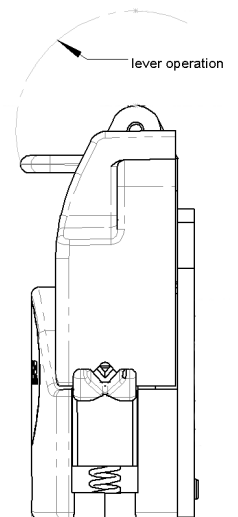
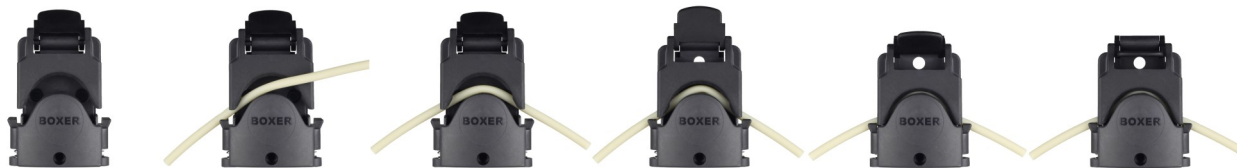
The encoder is supplied with 10 cm of ribbon cable and terminated by a PHR-6 2.0 mm pitch JST connector. The power supply to the motor is also connected via this cable:

- Pin 1 = Motor GND
- Pin 2 = Motor +V (red)
- Pin 3 = Vcc of encoder (5 to 12 V DC)
- Pin 4 = GND of encoder
- Pin 5 = Output 1 (HA)
- Pin 6 = Output 2 (HB)



## Tube Loading / Unloading

The 9QX peristaltic pump is a flip-top design. The loading and unloading of the tube is through operation of the lever:



The tube grips are sprung loaded and adjust automatically the OD of the tube. The 9QX is designed for 1.0 mm wall tubing from ID of 0.5 mm to 3.5 mm. Only tubing suitable for peristaltic pumps should be used.

Boxer Pumps > Products > Peristaltic Pump

## Order Information

Part Number	Description
9010.730	9QX 12 V DC / 116 RPM / 3 Rollers
9022.730	9QX 12 V DC / 315 RPM / 3 Rollers
9007.730	9QX 12 V DC / 520 RPM / 3 Rollers
9016.730	9QX 24 V DC / 33 RPM / 3 Rollers
9012.730	9QX 24 V DC / 107 RPM / 3 Rollers
9008.730	9QX 24 V DC / 315 RPM / 3 Rollers
9015.730	9QX 24 V DC / 520 RPM / 3 Rollers

Please enquire for part numbers of other configurations.

## BOX-it (Webshop for online purchase)

Sample quantities are available for direct online purchase:



→ [BOX-it](#)

## Tubing

Tubing should always be ordered separately. Listed here is **Pharm-a-line** (PHI) tubing in 120 mm single lengths, 1m (or multiples of) lengths or 15 m coils:

Part Number	Description
9000.713	PHI ID Ø 0.5 mm x 120 mm
9000.714	PHI ID Ø 1.0 mm x 120 mm
9000.716	PHI ID Ø 2.0 mm x 120 mm
9000.718	PHI ID Ø 3.0 mm x 120 mm
9000.719	PHI ID Ø 3.5 mm x 120 mm
9000.566	PHI ID Ø 0.5 mm x 1 m
9000.535	PHI ID Ø 0.5 mm x 1 m
9000.536	PHI ID Ø 0.5 mm x 1 m
9000.537	PHI ID Ø 0.5 mm x 1 m
9000.547	PHI ID Ø 0.5 mm x 1 m
80510.115	PHI ID Ø 0.5 mm x 15 m
81010.115	PHI ID Ø 1.0 mm x 15 m
82010.115	PHI ID Ø 2.0 mm x 15 m
83010.115	PHI ID Ø 3.0 mm x 15 m
83510.115	PHI ID Ø 3.5 mm x 15 m

Technical information including chemical compatibility:

→ [Pharm-a-line](#)

Alternative tubing (**Silicone**, **Lagoprene** and **ED-Plex**):

→ [9QX Tubing](#)

## Additional Information (Links):

→ [9QX Webpage](#)

→ [Boxer peristaltic pump overview](#)

All data is representative for initial selection purposes. It is the responsibility of the user to determine suitability for the intended use. Technical changes reserved. These peristaltic pumps are not suitable for in-vivo applications.