

Boxer Pumps > Products > Peristaltic Pump

15KS peristaltic pump with DC / Gear Motor.



Technical Data

Flow per Revolution

ID Ø 1.6 mm tube	210 / 190 / 170 µl per revolution (3 / 4 / 6 Rollers)
ID Ø 2.4 mm tube	435 / 390 / 320 µl per revolution (3 / 4 / 6 Rollers)
ID Ø 3.2 mm tube	730 / 660 / 495 µl per revolution (3 / 4 / 6 Rollers)
ID Ø 4.8 mm tube	1340 / 250 / 830 µl per revolution (3 / 4 / 6 Rollers)

Available RPM

12 V	40 / 312 / 437 rpm
24 V	80 / 298 / 420 rpm

Electrical Data

Power Consumption	6.5 to 10.5 W
Terminal Resistance	
12 V	9.5 / 4.9 / 4.9 Ω (40 / 312 / 437 rpm)
24 V	9.5 / 14.8 / 9.5 Ω (80 / 298 / 420 rpm)
Motor Termination	Solder/ Crimp Tags
Motor Insulation Class	B

Tube Materials

Pharm-a-line / Silicone / Norprene G / ED-Plex

General Data

Max pressure	2.0 bar
Max suction height (dry)	9.5 m H ₂ O
DC motor life	>1000 hours
Weight	405 g

All data measured with 'run-in' Pharm-a-line tubing and H₂O.

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Flow Data

Flow Range (ml/min) with 12 V / 40 rpm Motor:

Tube ID	3 Roller		4 Roller		6 Roller	
	Min	Max	Min	Max	Min	Max
1.6 mm	4.2	8.4	3.8	7.6	3.4	6.8
2.4 mm	8.7	17.4	7.8	15.6	6.4	12.8
3.2 mm	14.6	29.2	13.2	26.4	9.9	19.8
4.8 mm	26.8	53.6	25.0	50.0	16.6	33.2

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

Flow Range (ml/min) with 12 V / 312 rpm Motor:

Tube ID	3 Roller		4 Roller		6 Roller	
	Min	Max	Min	Max	Min	Max
1.6 mm	32.8	65.5	29.6	59.3	26.5	53.0
2.4 mm	67.9	135.7	60.8	121.7	49.9	99.8
3.2 mm	113.9	227.8	103.0	205.9	77.2	154.4
4.8 mm	209.0	418.1	195.0	390.0	129.5	259.0

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

Flow Range (ml/min) with 12 V / 437 rpm Motor:

Tube ID	3 Roller		4 Roller		6 Roller	
	Min	Max	Min	Max	Min	Max
1.6 mm	45.9	91.8	41.5	83.0	37.1	74.3
2.4 mm	95.0	190.1	85.2	170.4	69.9	139.8
3.2 mm	159.5	319.0	144.2	288.4	108.2	216.3
4.8 mm	292.8	585.6	273.1	546.3	181.4	362.7

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

Flow Range (ml/min) with 24 V / 80 rpm Motor:

Tube ID	3 Roller		4 Roller		6 Roller	
	Min	Max	Min	Max	Min	Max
1.6 mm	8.4	16.8	7.6	15.2	6.8	13.6
2.4 mm	17.4	34.8	15.6	31.2	12.8	25.6
3.2 mm	29.2	58.4	26.4	52.8	19.8	39.6
4.8 mm	53.6	107.2	50.0	100.0	33.2	66.4

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

Flow Data (continued)

Flow Range (ml/min) with 24 V / 298 rpm Motor:

Tube ID	3 Roller		4 Roller		6 Roller	
	Min	Max	Min	Max	Min	Max
1.6 mm	31.3	62.6	28.3	56.6	25.3	50.7
2.4 mm	64.8	129.6	58.1	116.2	47.7	95.4
3.2 mm	108.8	217.5	98.3	196.7	73.8	147.5
4.8 mm	199.7	399.3	186.3	372.5	123.7	247.3

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

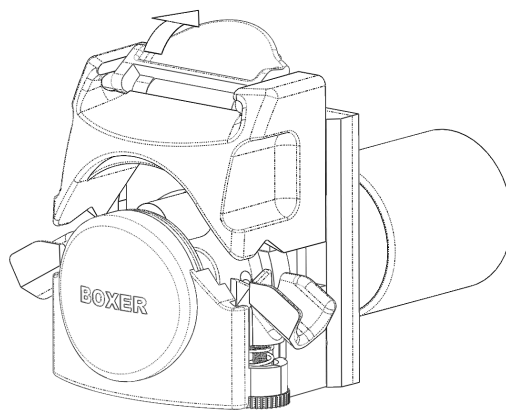
Flow Range (ml/min) with 24 V / 420 rpm Motor:

Tube ID	3 Roller		4 Roller		6 Roller	
	Min	Max	Min	Max	Min	Max
1.6 mm	44.1	88.2	39.9	79.8	35.7	71.4
2.4 mm	91.4	182.7	81.9	163.8	67.2	134.4
3.2 mm	153.3	306.6	138.6	277.2	104.0	207.9
4.8 mm	281.4	562.8	262.5	525.0	174.3	348.6

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

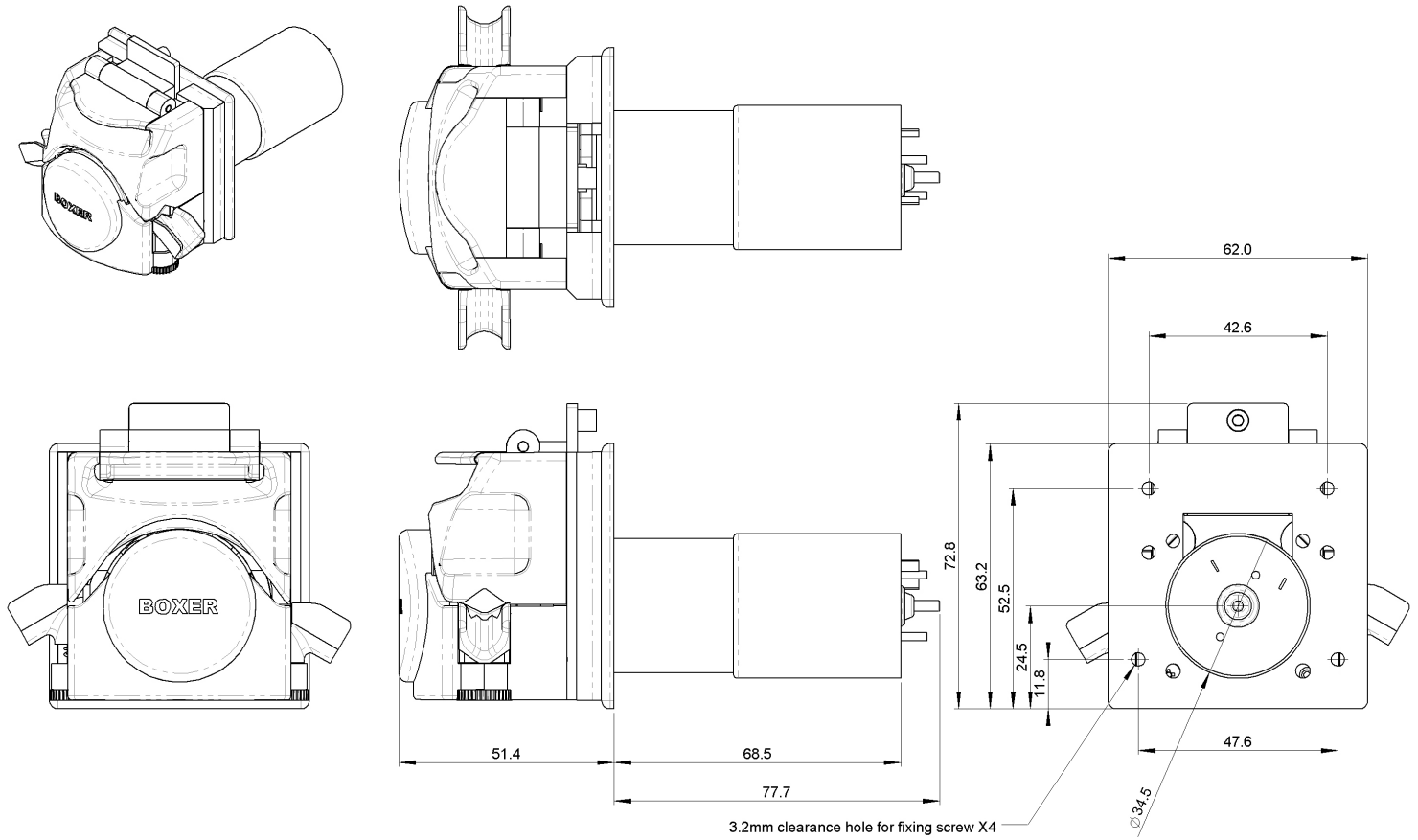
Tube Loading / Unloading

The 15KS 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 to the OD of the tube. The 15KS is designed for 1.6 mm wall tubing from ID of 1.6 to 4.8 mm. Only tubing suitable for peristaltic pumps should be used.

Drawing

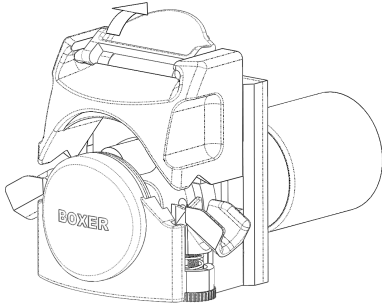


Links to Drawing and STEP file:
→ [Drawing \(.png\)](#)
→ [STEP \(.zip\)](#)

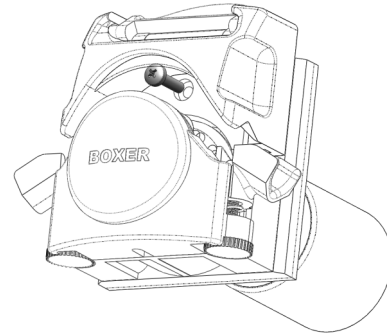
Removal / Assembly of Pump Head

The 15KS peristaltic pump is designed with a bayonet style head assembly onto the motor plate.

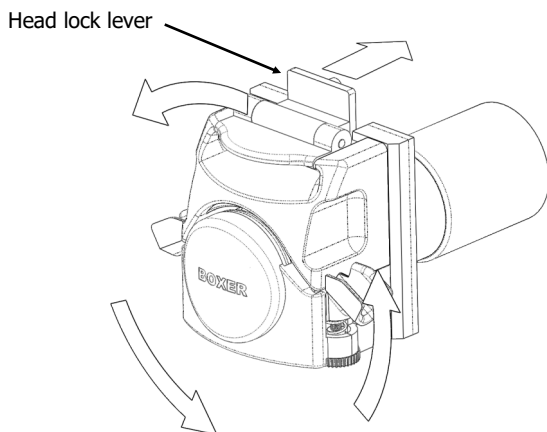
- 1 Open the tube clamp lever completely.



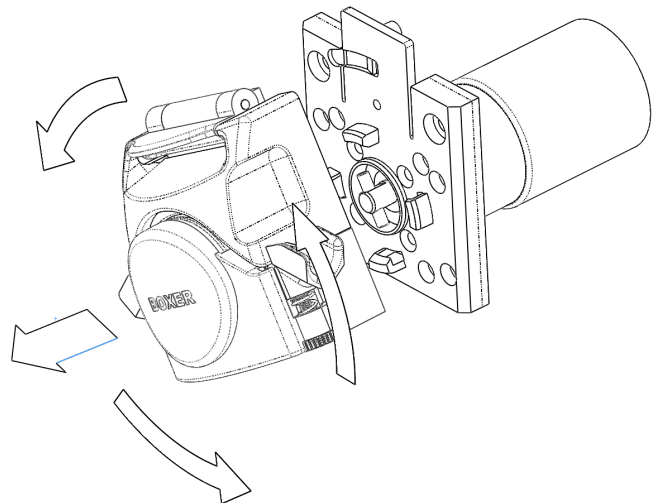
- 2 Remove the M3x12mm screw. Close clamp lever.



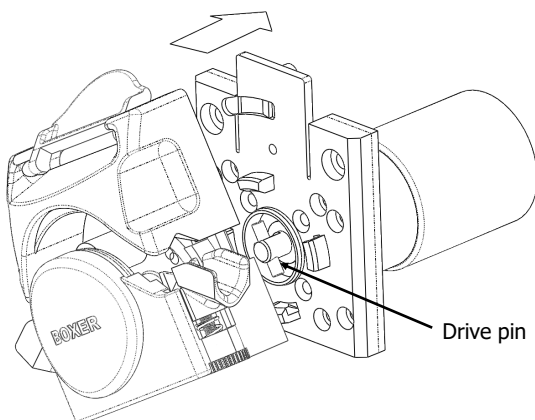
- 3 Push head lock lever in direction on the motor. Rotate the head anti clockwise.



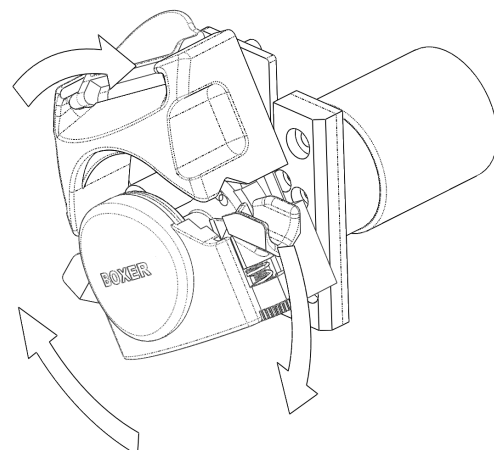
- 4 Pull the head assembly away from the motor plate.



- 5 To re-assemble: open tube clamp lever. Align head with motor plate at the angle shown below. Rotate pump rotor until the rotor is aligned with drive pin. Push head into bayonet.



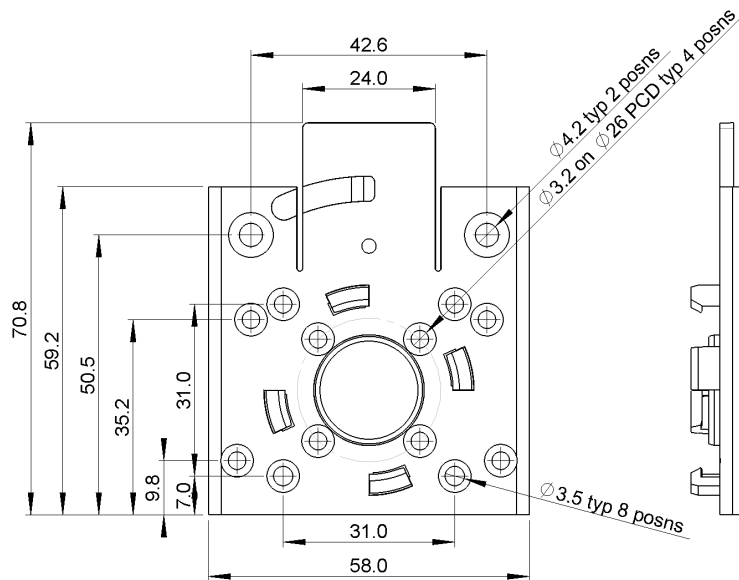
- 5 Rotate head assembly clockwise until 'clicks' into position. Replace M3x12mm screw. Close tube clamp lever.



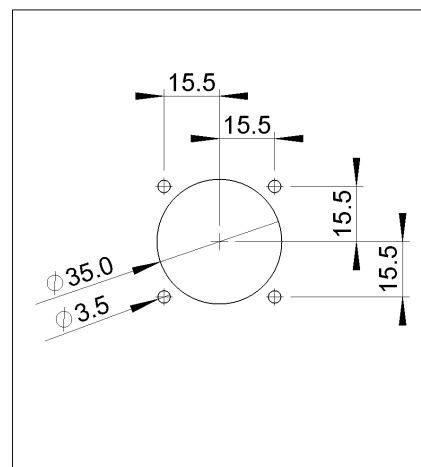
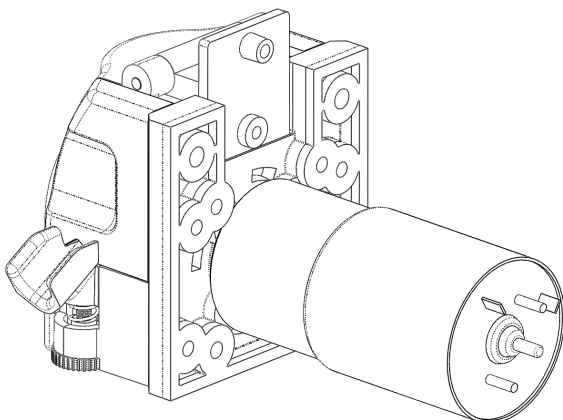
Assembly Information

The 15KS peristaltic pump with DC / Gear is assembled to a panel cut-out using 4 x M3 bolts. To access the mounting holes the head assembly should be removed following the instructions on the previous page.

The mounting plate is designed for several different motors. The 4 x 3.2 mm mounting holes are recommended for the DC / Gear version. The mounting gasket should be placed between the motor plate and panel.

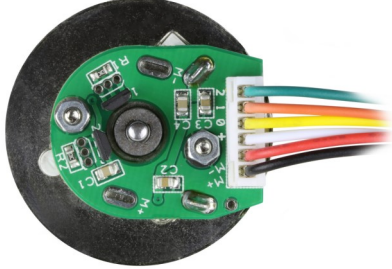


Recommended panel cut-out:

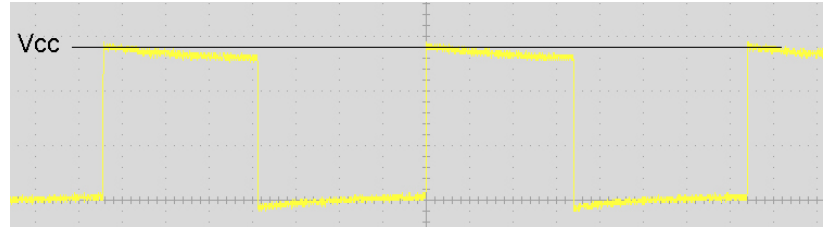


Encoder

The 15KS 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 5 pole rotating magnet.



Output Signal:



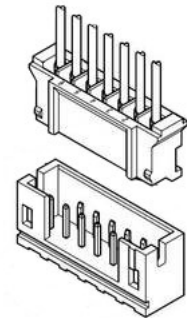
The output is 5 pulses per motor revolution. Since the encoder is placed on the motor shaft, the number of pulses per pump revolution depends on the gear ratio and nominal speed of the motor and so varies according to each motor version:

12V / 40 rpm	500 pulses per revolution	24V / 80 rpm	500 pulses per revolution
12V / 312 rpm	95 pulses per revolution	24V / 298 rpm	95 pulses per revolution
12V / 437 rpm	70 pulses per revolution	24V / 420 rpm	95 pulses per revolution

The encoder is supplied with a PHR-6 2.0 mm pitch JST housing mounted on the pcb. It is supplied with separate 300 mm leads + mating connector (shown in photo above connected to the pcb). The opposite end of the leads are free wires stripped back 7mm. The power supply to the motor is also connected via this cable:

Pin	PCB Marking	Description	Wire
1	2	Output, Channel 1	Green
2	1	Output, Channel 2	Orange
3	0	GND of Encoder	Yellow
4	+	Supply (Vcc) of Encoder (3.5 to 24.0 V DC)	White
5	M-	GND of Motor ¹	Red
6	M+	Supply of Motor ¹	Black

¹Motor polarity depends on required flow direction



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Order Information

Part Number	Description
15008.100	15KS 12 V DC / 40 RPM / 4 Rollers
15011.100	15KS 12 V DC / 312 RPM / 4 Rollers
15012.100	15KS 12 V DC / 437 RPM / 4 Rollers
15009.100	15KS 24 V DC / 80 RPM / 4 Rollers
15013.100	15KS 24 V DC / 298 RPM / 4 Rollers
15014.100	15KS 24 V DC / 420 RPM / 4 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](#)

Tube Sets / Tube Lengths

Tubing should always be ordered separately. Listed here is **Pharm-a-line** (PHI) tubing in 150 mm single lengths, 1m (or multiples of) lengths or 15 m coils:

Part Number	Description
15000.019	Tube length PHI ID Ø 1.6 mm x 150 mm
15000.020	Tube length PHI ID Ø 2.4 mm x 150 mm
15000.021	Tube length PHI ID Ø 3.2 mm x 150 mm
15000.048	Tube length PHI ID Ø 4.8 mm x 150 mm
15000.210	Tube length PHI ID Ø 1.6 mm x 1 m
15000.211	Tube length PHI ID Ø 2.4 mm x 1 m
15000.212	Tube length PHI ID Ø 3.2 mm x 1 m
15000.213	Tube length PHI ID Ø 4.8 mm x 1 m
81616.115	Tube length PHI ID Ø 1.6 mm x 15 m
82416.115	Tube length PHI ID Ø 2.4 mm x 15 m
83216.115	Tube length PHI ID Ø 3.2 mm x 15 m
84816.115	Tube length PHI ID Ø 4.8 mm x 15 m



Technical information including chemical compatibility:

→ [Pharm-a-line](#)

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

→ [15KS Tubing](#)

Additional Information (Links):

→ [15KS 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.