


PLP 380 Peristaltic Pump


Pump head interchangeable

User's Manual

Please read these operating instructions carefully before starting up your new peristaltic pump!

The operating manual gives clear and simple instructions for use of the apparatus.

In the interests of eliminating risk please observe the safety instructions given in this manual! They are marked with a  symbol.

 Additional useful and important information on the functioning of the apparatus is marked by a stripe in the margin.

We wish you every success in your work with the

behr PLP 380
Peristaltic Pump

Safety Advice



Danger of electric shock! Make sure that no liquids get into the cable connections or the inside of the equipment. Disconnect the device if the mains plug or cable are damaged.



Caution: rotating parts can squeeze your fingers or pull your hair in! During operation, do not grab in the hub or under the pump head. Pull the mains plug before changing the pump head or the hoses. Only operate the pump with the hose correctly inserted; then all rotating parts are covered.



Caution: hoses can burst and spurt out the liquids! Take appropriate measures to protect yourself and your lab equipment. Check the pump hoses regularly and replace them if they are damaged.

Contents

Scope of supply	5
Overview of the Device.....	6
Front Side with PPH5062 Pump Head	6
Top Side with Control Panel.....	6
Rear Side	6
Installing the Pump Head	7
Inserting the Pump Hose.....	8
Operation	10
Connecting and Switching On.....	10
Starting the Pump	10
Changing Rotation Sense	10
Adjusting the Rotation Speed	10
Filling or Emptying the Hose	10
Stopping the Pump.....	10
The Pump Won't Deliver - What Do I Do?	11
Has the proper hose been inserted?	11
Hose got clogged?	11
Proper hose pressure?	11
Hose dry?	11
Care and Maintenance	12
When Finishing Work: Release the Hose	12
Cleaning	12
Customer Service	12
Spare Parts and Accessories	13
Pump Heads.....	13
Hoses suitable for pump head PPH 103:	13
Hoses suitable for pump head PPH 303:	13
Hoses suitable for pump heads PPH5061 and PPH5062:	14
Technical Data	14

Scope of supply

Please check the contents of the pack for completeness and freedom from damage immediately upon receipt.

Claims resulting from damage during transportation which is externally apparent must be lodged immediately with the carrier (i.e., the post/mail service, the railway administration, the freight organization, etc.) - see the label on the packaging.

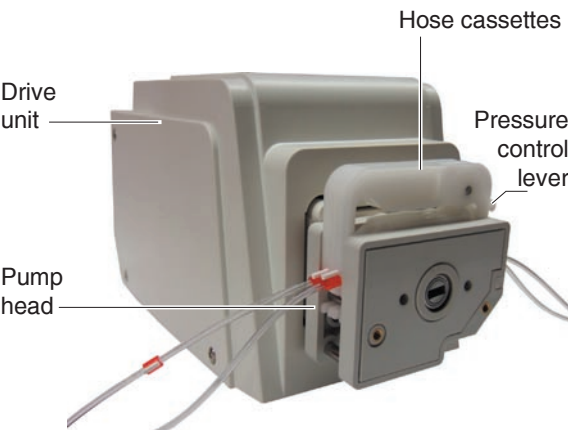
In case of damage which is not apparent from outside („concealed transportation damage“), please contact the behr after-sales service immediately upon discovery of the damage. The same applies in the case of any other complaints.

Address:

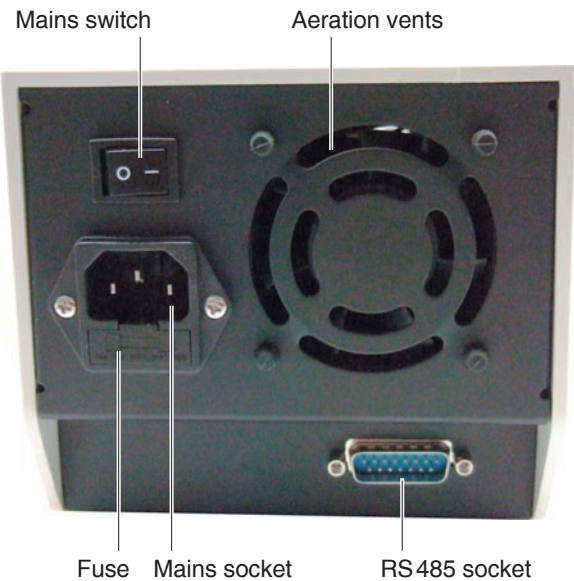
behr Labor-Technik GmbH
Spangerstrasse 8
D-40599 Düsseldorf, Germany
Telephone: (+49 211) 7 48 47 17
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Overview of the Device

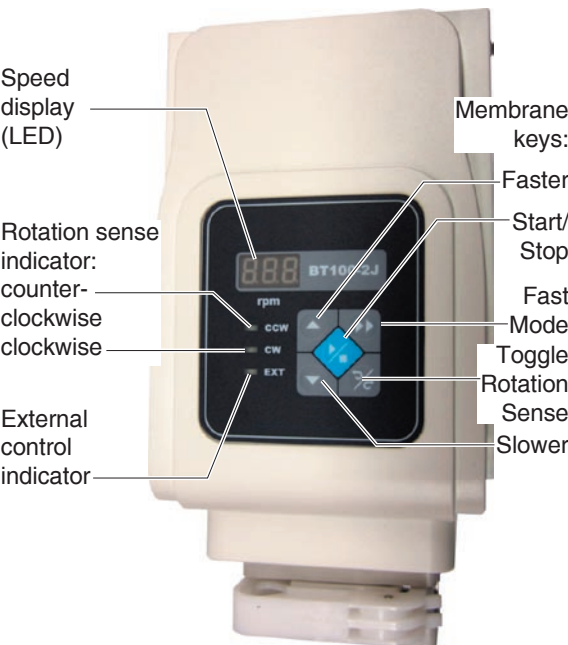
Front Side with PPH5062 Pump Head



Rear Side



Top Side with Control Panel



Function of the Keys

Start / Stop:
start or stop pump operation.
In Fast Mode (see below) this key will be ignored.

Faster,
Slower:
Increase or decrease rotation speed
by steps of 0.1 r/min. In Fast Mode
these keys will be ignored.

Faster,
Slower:
Increase or decrease rotation speed
by steps of 0.1 r/min. In Fast Mode
these keys will be ignored.

Fast Mode:
In Fast Mode the pump will run with
full speed. The speed display will say
“---”. Press the Fast Mode key again to
return to Normal Mode and pump with
the speed you have set.

Toggle rotation sense.

Installing the Pump Head



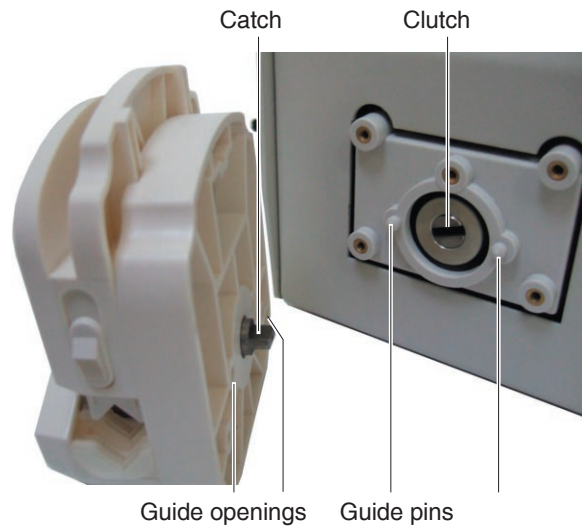
Caution: rotating parts can squeeze your fingers or pull your hair! Pull the mains plug before installing or changing the pump head.

The axis of the pump head has a catch that will engage in a clutch opening of the drive axis. Additionally, the drive unit has two guide pins, on the left and right of the drive axis, that will engage in two openings in the pump head and thus keep the pump head fixed.

On the front side of the pump head the pump head axis has a clutch too. You can use it to turn the axis into a definite position by means of a screwdriver.

- ▶ If the pump has been switched on, switch it off with the power switch and pull the mains plug.
- ▶ Turn the pump head axis in a position where the catch will engage in the clutch of the drive unit.
- ▶ Insert the pump head in such a way that the catch will engage in the clutch of the drive unit and the guide pins of the drive unit will engage in the guide openings of the pump head.
- ▶ Push the pump head on the drive unit in this position.
- ▶ Insert the long mounting screws into the screwholes and tighten them.

Tighten the screws handtight only. By tightening too much you could deform the housing.



Inserting the Pump Hose

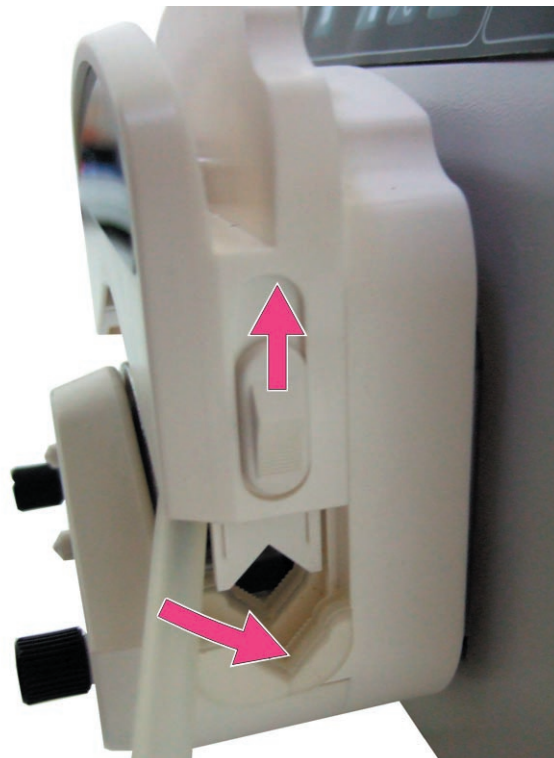


Caution: rotating parts can squeeze your fingers or pull your hair! Pull the mains plug before installing or changing the pump head.

Pump heads of types PPH 103, PPH303

- ▶ If the pump has been switched on, switch it off with the power switch and pull the mains plug.
- ▶ Turn the lock lever to the left.
- ▶ Lay the hose out in front of the hose bed of the pump head.
- ▶ Pull the downholder knob upwards and, while holding it in this position, push the hose in the hose bed.
- ▶ Release the downholder knob. The downholder will come down and fix the hose in the hose bed.
- ▶ In the same way, push the hose into the hose bed on the other side too.
- ▶ Turn the lock lever to the right side. Now the hose is fixed and tightened.

Release the hose if you are not going to use the pump for a longer time. To do this, just turn the lock lever to the left. If the hose is left tightened for a long time without being moved, it might get clogged.



Pump heads of types PPH5061, PPH5062:

- ▶ Switch the pump off by the main switch and pull the mains plug.

Taking the hose cassette out

- ▶ Press the release lever. The cassette will come out of the fixture; take it out of the pump head.

Inserting the new pump hose

- ▶ Hook the pump hose into the hose cassette as shown in the picture.

Inserting the cassette into the pump head

- ▶ Introduce the cassette into the pump head left side first, hooking it to the pump head by the gap.
- ▶ Now press the right side of the cassette down until you hear it catch.

With multi-channel pump heads, always have all cassettes inserted.

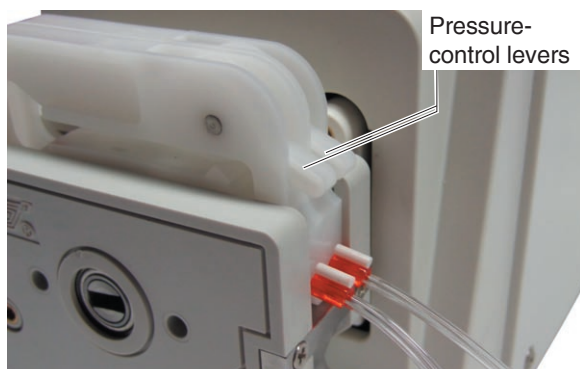
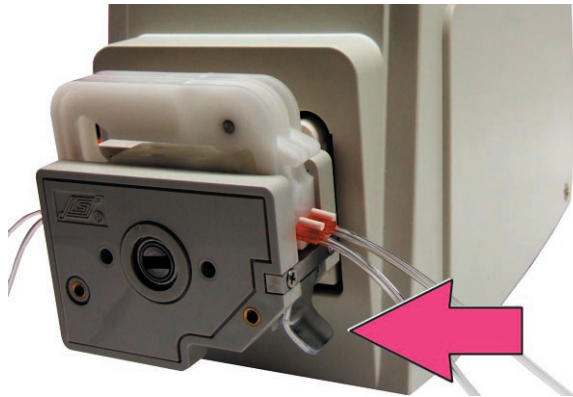
Adjusting the pressing force

- ▶ Connect the pump to mains power again and switch the mains switch on.
- ▶ Let the pump draw water and check if it delivers properly.

If need be, adjust the pressing force with the pressure-control lever.

Make sure the hose is delivering water without producing bubbles. If it produces bubbles, wall thickness may be insufficient. Use a hose with thicker walls.

Release the hose if you are not going to use the pump for a longer time. To do this, just turn the lock lever to the left. If the hose is left tightened for a long time without being moved, it might get clogged.



Operation

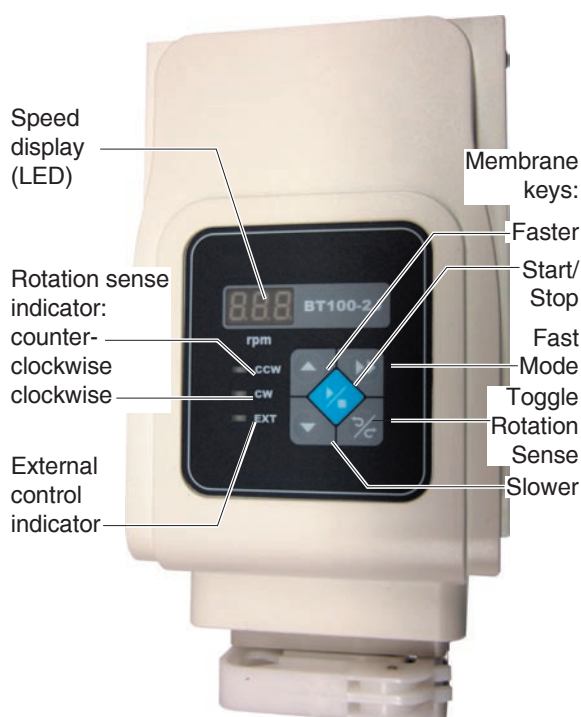
Connecting and Switching On

- ▶ Using the mains cable, connect the pump to a grounded mains receptacle.
- ▶ Switch the pump on with the mains switch on the rear side of the drive unit.
- ▶ If it has not yet been done, make the pump hose ready. With pump heads PPH 103, PPH303: turn the lock lever to the right. With pump heads PPH5061, PPH5062: press the hose cassette down until it will catch.

Starting the Pump



Press the Start / Stop key.
The pump will start running with the speed that has recently been set.
The rotation speed, in rotations per minute, is displayed in the LED display.
In order to stop the pump, press Start / Stop again.



Changing Rotation Sense



Press the "Toggle rotation sense" key.
Rotation sense is reversed. Rotation sense is signalled by the LED lights on the left of the control panel:

CW = Clockwise

CCW = Counterclockwise.

Adjusting the Rotation Speed



Use the arrow keys to adjust the rotation speed. Pressing the key once will increase or decrease the speed by 0.1 rpm. Keeping the key pressed for a longer time will change rotation speed more rapidly. The speed that has been set is displayed in the LED display.
In Fast Mode these keys will be ignored.

Filling or Emptying the Hose



In order to fill, to flush or to empty the pump hose rapidly, you can use the Fast Mode key. On pressing this key, the pump will run with maximum speed (100 rpm). In order to return to the rotation speed you have set, press the Fast Mode key again.

Stopping the Pump



Press the Start / Stop key again to stop the pump.
While the pump is in Fast Mode the Start / Stop key will be ignored. In this case, first press the Fast Mode key again to return to normal speed.

- ▶ **When finishing work:** press the lock lever so the cassette will come out (pump heads PPH5061, PPH5062), or turn the lock lever left to release the hose (pump heads PPH 103, PPH303). Now the hoses are released of pressure so they won't get clogged.

The Pump Won't Deliver - What Do I Do?

Has the proper hose been inserted?

If the hose material, hose inner diameter or wall thickness are not suitable for the pump head, it won't get squeezed properly - the pump won't deliver. Even worse, an inadequate hose may soon become leaky.

Only use pump hoses that are suitable for the pump head you are using. You find them listed on pages 19 ff.

Regularly check if the hose is still intact, and change it if necessary. With multi-channel pump heads, always change all hoses at a time.

Proper hose pressure?

In order for the pump to deliver, the rollers of the pump head must shut off the inner width of the hose completely.

With pump heads of types PPH 103, PPH 303, PPH 603, and PPH 8062, the hose is properly pressed as soon as you turn the lock lever to the right.

With pump heads of types PPH 5061 - PPH 5068 there is a lever on the hose cassette that allows you to adjust hose pressure.

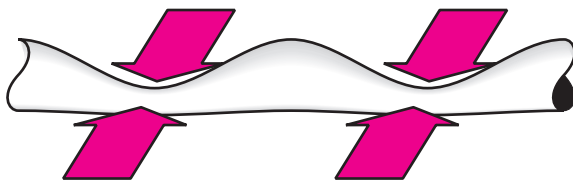
Slowly increase hose pressure until the pump is delivering properly.

The pump heads that can be used with your pump are listed on pages 13 ff.

Hose got clogged?

If the pump has been idle for a longer time with the hoses under pressure, it may be that the hose has got clogged and won't perform the peristaltic movements any more.

Usually it will still be possible to straighten the hose. Pull the hose out of the pump and knead the dents until the hose is in shape again.



If the hose cannot be straightened you'll need to change it. With multi-channel pump heads, always change all hoses at a time.

Hose dry?

If the hose is still dry it may happen, especially with thick hoses, that no vacuum will build up in the hose.

Have the pump run and introduce some liquid into the hose from suction side, e.g. using a washbottle. As soon as the pump has liquid to work with, it will usually deliver again.

Care and Maintenance

When Finishing Work: Release the Hose

When you are through with your work with the pump, you should release the pump hose(s). Thus you'll avoid the rollers clogging the hose during standstill.

- ▶ Press the lock lever so the cassette will come out (pump heads PPH 5061, PPH 5062), or turn the lock lever left to release the hose (pump heads PPH 103, PPH 303).

Cleaning

Keep the rollers in the pump head clean and dry. Dirty rollers will run poorly and may damage the hose and shorten the lifetime of the roller bearings.

Wipe the housing with a damp cloth only; if need be, use a drop of detergent. Do not use any abrasives or organic solvents.

Customer Service

In the event of a malfunction or defect in your pump, please contact our customer service:

behr Labor-Technik GmbH

Spangerstraße 8

D-40599 Düsseldorf

Phone (0211) 7 48 47 17

Telefax: (0211) 7 48 47 48

E-mail: info@behr-labor.com

Spare Parts and Accessories

Pump Heads

The following **pump heads** may be used with this peristaltic pump:

Pump head	Channels	For hose inner ø mm	Max. delivery ml/min at 100 rpm (depending on hose inner ø)	Article No.
PPH 103	1	0.8 to 8.0	370	B 0045 4745
PPH 303	1	4.8; 6.4	260	B 0045 4746
PPH 5061	1	0.13 to 3.17	48	B 0045 4747
PPH 5062	2	0.13 to 3.17	48 per channel	B 0045 4748

Hoses suitable for pump head **PPH 103**:

Inner ø mm	Wall mm	Tygon R 3606	Pharmed BPT	Viton VITEC 60	Silicone
0.8	1.6		B 0051 5421		B 0051 5440
1.6	1.6	B 0051 5411	B 0051 5422	B 0051 5431	B 0051 5441
2.4	1.6	B 0051 5412			
3.2	1.6	B 0051 5413	B 0051 5423	B 0051 5432	B 0051 5442
4.8	1.6	B 0051 5414	B 0051 5424	B 0051 5433	B 0051 5443
6.4	1.6	B 0051 5415	B 0051 5425	B 0051 5434	B 0051 5444
8.0	1.6	B 0051 5416	B 0051 5426	B 0051 5435	B 0051 5445

Hoses suitable for pump head **PPH 303**:

Inner ø mm	Wall mm	Tygon R 3606	Pharmed BPT	Viton VITEC 60	Silicone
4.8	2.4	B 0051 5417		B 0051 5436	B 0051 5446
6.4	2.4	B 0051 5418		B 0051 5437	B 0051 5447

Hoses suitable for pump heads

PPH5061 and PPH5062:

Inner ø mm	Wall mm	Pharmed BPT	Tygon R 3607	Tygon F 4040 A
0.13	0.9		B 0051 6090	
0.25	0.9	B 0051 6081	B 0051 6091	B 0051 6100
0.51	0.9	B 0051 6082	B 0051 6092	B 0051 6101
0.76	0.85	B 0051 6083	B 0051 6093	B 0051 6102
1.02	0.85	B 0051 6084	B 0051 6094	B 0051 6103
1.52	0.85	B 0051 6085	B 0051 6095	B 0051 6104
1.85	0.85	B 0051 6086	B 0051 6096	B 0051 6105
2.06	0.85	B 0051 6087	B 0051 6097	B 0051 6106
2.54	0.85	B 0051 6088	B 0051 6098	B 0051 6107
3.17	0.85		B 0051 6099	

Technical Data

Nominal voltage	90 - 260 V~, 50 - 60 Hz
Power consumption max.	30 W
Protection class	IP 31
Rotation speed	0.1 – 100 rpm, reversible
Accuracy	0.1 rpm
Dimensions (W x H x D in mm)	232 x 142 x 150
Weight of drive unit	2.3 kg
Weight including pump head	approx. 3 kg