

Pericyclic Pump – Roth Cyclo II

Y374., EP74.1, EP75.1 and EP76.1

Congratulations!

You've made an excellent choice. We at Carl Roth GmbH & Co. KG thank you for your confidence. This instruction manual will familiarize you on how to operate and use our pericyclic pump, Roth Cyclo II. Please read it thoroughly before operating the unit.

Operating Instructions

	Page
1. Delivery includes	2
2. Safety instructions	2
3. Areas of Application	2
4. Initial operation	3
5. Tube cartridges and Tubes	3
5.1 Selection of the correct tube cartridge	3
5.2 Inserting and replacing Tube	4
6. Setting the optimum Tube Pressure	4
7. Changing the Operating Conditions	4
8. Service and Cleaning	4
8.1 Outside Cleaning	4
8.2 Disinfection	5
9. Dismantling the pump head	5
9.1 Turning the pump head	5
10. Malfunctions	5
11. Technical Data	6
12. Accessories	6

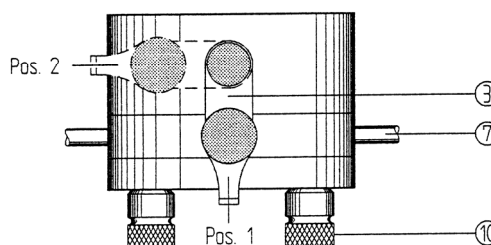
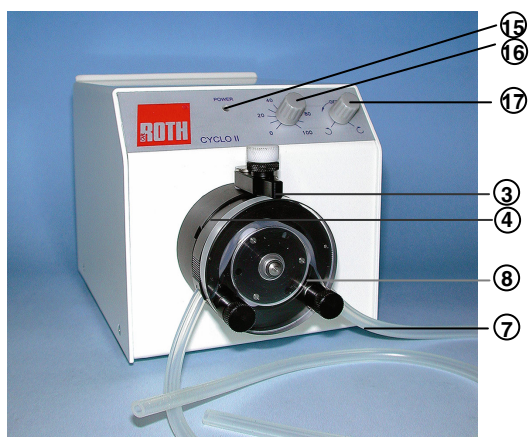


Fig 1:

Operating elements of pump

- 3 Pivoted lever
- Pos 1 Pivoted lever closed - operating state
- Pos 2 Pivoted lever open - for tube change
- 4 Cartridge – remove for tube change
- 7 Feed tube
- 8 Tube clamp
- 10 Manual nuts for dismantling the pump head
- 15 Operation LED
- 16 Speed control
- 17 Direction Switch



Technical **INFO**

1. Delivery includes:

- Pericyclic Pump Roth Cyclo II
- Tube cartridge for tubes ID 4,8 x Thickness 1,6 mm
- Mains cable for 220 V connection
- Instruction manual

2. Safety instructions

For these appliances, the safety of machines with respect to people, the environment and the processed material is mainly dependent on the behaviour of the persons operating the appliances. Before starting up the appliance, carefully read the operating instructions, and note the information given to prevent errors and any resulting damage, especially injury to health.

The appliance may only be operated by instructed personnel. Mains connection cables and plugs must be checked for damage before using. If they are damaged, the device must not be connected to the mains. The voltage given must match the available rated mains voltage. Work on the electrical equipment may only be carried out by skilled electricians in a safe condition (current switched off, mains plug removed).

Only authorised original spare parts/accessories may be used. The use of other parts conceals unknown risks and must be refrained from in every case.

Any necessary checks, service or repair work may only be carried out by Carl Roth GmbH & Co.KG, otherwise we are unable to guarantee the operability and safety of the unit.

Carl Roth GmbH & Co KG is not liable for damage to the machine caused by repairs or parts replacement which were carried out without using original spares/accessories. Liability is also excluded in the case of improper use.

3. Areas of Application

The special properties of the hose pump allow its universal use in the laboratory for general research tasks, in technical laboratories and in many branches of industry such as e.g. the chemical industry, the food sector, for environmental protection and many more.

Due to the simple sterilisation – only the hose comes into contact with the pumped medium – the pumps are eminently suitable for use in microbiology, biotechnology, medical engineering and many other applications.

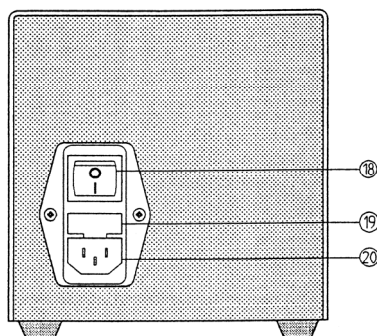


Fig. 2:
Electrical connections
18 Mains switch
19 Fuse
20 Mains connection



Technical **INFO**

4. Initial operation

Before use, it must be checked whether the available mains voltage corresponds with the voltage given on the rating plate.

After switching on the voltage supply, the operation control **15** shines.

By turning the speed control **16**, the speed can be adjusted from 0 - max .

Turn the direction switch **17** left = anticlockwise rotation, right = clockwise rotation or middle = stop.

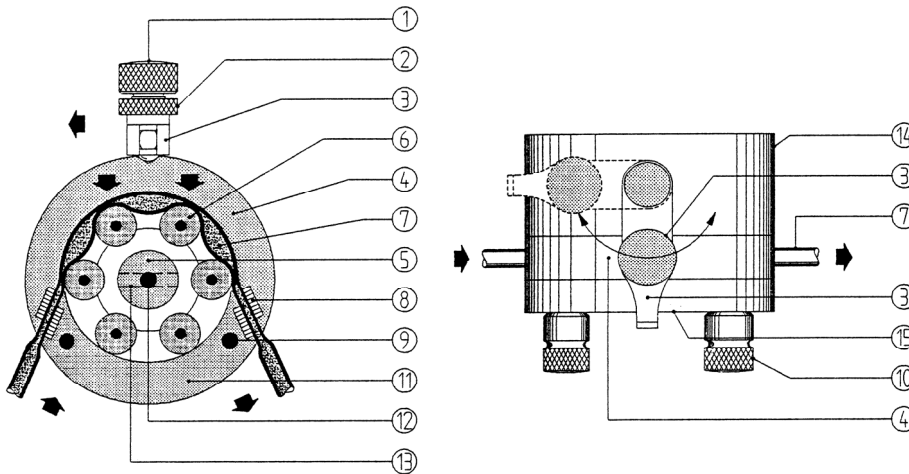


Fig. 3:
Individual parts of the pump head

- 1 Pressure screw
- 2 Lock nut
- 3 Pivot lever
- 4 Tube cartridge
- 5 Roller rotor
- 6 Transport rollers
- 7 Feed tube
- 8 Tube clamping
- 9 Stud bolts
- 10 Manual nut for dismantling
- 11 Thrust bearing
- 12 Drive shaft
- 13 Driving pin
- 14 Main body
- 15 Front plate with bearings

5. Tube cartridges and Tubes

5.1 Selection of the correct tube cartridge

Each time a tube is inserted and the tube changed, it must be ensured that the cartridge is designed for the tube used. Only pump hoses with a wall thickness of 1.6 mm are suitable for use.

Hose ID (mm)/ hose cassette	1.6 / 1.6 (Y375.1)	3.2 / 3.2 (Y376.1)	4.8 / 4.8 (included in delivery)
3-roll head: Pumping capacity (ml/min)	1.5 - 30	6 - 110	12 - 240
6-roll head: Pumping capacity (ml/min)	1.2 - 24	4.4 - 88	9.6 - 192



Technical **INFO**

5.2 Inserting and replacing Tube

Insert or change the tube by:

1. Stop pump and switch off.
2. Turn pivoted lever **3** laterally to the left or right in position **2** and remove the cartridge **4**.
3. Insert tube **7** in the gap formed and pull a bit tight at the ends.
4. Insert cartridge **4**, press downward and turn pivot lever **3** back into position **1** swinging to the resting position.



6. Setting the optimum Tube Pressure

1. To check the pressure at the discharge side, insert the end of the tube in a water bottle.
2. Start pump.
3. Loosen lock nut **2** by turning to the left. Unscrew set screw **1** by turning left until pumping ceases (no bubbles).
4. Carefully increase the pressure on the cartridge **4** by turning set screw **1** to the right until air bubbles are pumped from the discharge side.
5. Turn another $\frac{1}{4}$ turn to right to ensure pumping reliability.
6. Secure lock nuts **2** by turning to the right.

Important:

If counter pressure exists, the pressure setting must be carried out under operating pressure.

This aforementioned setting can now be retained unchanged for the same operating conditions, i.e. for the same counter pressure and the same pumping tube

Changing the tube is therefore significantly simplified as only the pivot lever **3** must be swung out and in (Pos 2 and Pos 1).

7. Changing the Operating Conditions

Renewed setting of the pressure is only required if the operating conditions, tube size or counter pressure are changed.

Important!

When changing the tube size, it must be ensured that the used cartridge **4** is properly matched to suit the selected tube size. This can be checked against the lettering on the cartridge.

8. Service and Cleaning

8.1 Outside cleaning

In case of soiling by liquids or after a longer period of use, simply clean with a cloth dampened with household washing up liquid dissolved in water or alcohol.



Technical **INFO**

Do not wet clean, only use a damp cloth. For stubborn soiling with chemicals, nutrient solution, etc. immediate cleaning is necessary so that no difficult to remove encrustations form. Regular lubrication of the transport roller bearings with silicon oil increases the service life of the rotor and tube significantly!

8.2 Disinfection

In case of biological contaminations, the outer surfaces of the pump and the individual parts of the pumping head can be decontaminated by wiping down with a mild disinfectant.

Contact manufacturer to clarify whether the intended method causes damage or not before using a cleaning agent or disinfectant other than those named.

9. Dismantling the pump head

To dismantle, proceed as follows:

1. Remove tube cartridge **4** and tube **7**
2. Undo manual nuts **10**
3. Pull off front plate **15**
4. Pull off roller rotor **5** and thrust bearings **11** from the stud bolts **9**.

Now only the main body of the pump **14** remains with the bearings and drive shaft **12** on the housing and can be cleaned as described above under „outside cleaning“. If this is not sufficient, the main body can be removed by loosening the 3-crosshead screws and then cleaned.

Rinse off all removable parts with tap water, if necessary with cleaning additives, dry off and reassemble in the reverse order.

Attention!

Place the roller rotor 5 on the drive shaft so that the driving pin 13 sits in the groove on the rear of the roller rotor 5.

Occasional cleaning as described above is urgently recommended after extended use. Adhesion of talcum residue caused by abrasion of the feed tube and other contamination of the pump head parts, especially on the transport rollers should be removed regularly.

The tube clamping jaws **8** for holding the tube in the inlet and outlet of the pump head should occasionally be cleaned with alcohol before starting to remove grease, splashed medium or other residues as required, to ensure secure, slip free tube clamping.

9.1 Turning the pump head

After loosening the 3-crosshead screws of the pump head attachment (see above), the pump head, rotated by 90°, can be affixed.

10. Malfunctions

The most frequent cause of malfunctions is setting the tube pressure too high. This results in

- Jumping of the tube in front of the discharge side clamping jaws,
- Reduction or blocking of flow,
- Premature wear of the tube and in the worst case tube break,
- Overloading of the drive motor,



Technical **INFO**

- In exceptional cases, too loose insertion of the tube – see paragraph 5. (Insert and replace tube) on changing tube – can also lead to slight jumping at the discharge side clamping jaws. In this case, it is sufficient to straighten the tube by pulling slightly and increase the pressure somewhat.

Malfunction	Possible cause	Remedy
Pump not running	<ul style="list-style-type: none"> • Pump not plugged into mains • Fuse defective • Rotor stuck because wrongly assembled 	<ul style="list-style-type: none"> • Insert plug • Change fuse 19 • Assemble pumping head according to instructions in 9.
Reduced pumped quantities, tube is crushed	<ul style="list-style-type: none"> • Wrong tube size 	<ul style="list-style-type: none"> • Use tube suitable for tube cartridge
Pump does not pump evenly	<ul style="list-style-type: none"> • Tube material used unsuitable for the medium • Rollers soiled • Wrong tube size 	<ul style="list-style-type: none"> • Use suitable tube (see list) • Dismantle head, clean thoroughly • Use tube suitable for tube cartridge

If the pump is shut down, especially for several hours or days, the tube should be relieved of the pressure, otherwise a permanent deformation of the tube can be induced and the pump will no longer work perfectly.

11. Technical Data

Dimensions [WxHxD]	134 x 131 x 190 mm
Weight	1.700 g
Voltage	230 VAC
Fuse	T 0.2 A / 250V
Drive	DC-Motor with planetary gears
Power delivery	10 W

Flow rate

Tube ID x Thickness	ml/min (3-roll head)	ml/min (6-roll head)
1.6 x 1.6	1.5 - 30	1.2 - 24
3.2 x 1.6	6 - 110	4.4 - 88
4.8 x 1.6	12 - 240	9.6 - 192

Permissible pressure 1 bar ! In special cases (only after release) max. 3 bar. The tube manufacturer's directions must be observed.

We retain the right to make technical amendments!

In case of unauthorised opening, repair or alteration to the appliance, all guarantee and liability claims are lost

12. Accessories:

Tube cartridges:

For tube inner Ø x thickness mm	Tube cartridges Art. No.
1.6 x 1.6	Y375.1
3.2 x 1.6	Y376.1



Technical **INFO**