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Laborgeräte zu fairen Preisen.

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Pump head YZ35 Technical data and operating notes

Pump head for high flow rates with an adjustable occlusion gap and spring-loaded tubing clamps. The drive, tubing size and operating conditions determine the usable flow performance.

Features

- Quick tubing changes using the locking lever
- Manually adjustable occlusion gap
- Three rollers and roller shafts made of 304 stainless steel
- Stacking of several heads



Models and our product codes

Model	Product code	Version
YZ35	1703_K1	Standard head, black PPS

Our product code applies to the standard YZ35 head. YZ35-E and YZ35-L are separate versions and are not covered by this document.

Technical overview

Property	Specification
Product code	1703_K1
Tubing sizes	#73, #82
Tubing wall thickness	3.3mm
Tubing inner diameter	9.6 or 12.7mm
Maximum head speed	600rpm; also observe the drive limit
Reference flow at 600rpm	8'000mL/min (#73), 13'200mL/min (#82)
Rollers / roller shafts	3 / 304 stainless steel
Housing	PPS, black
Occlusion gap	Adjustable
Channels	1 per head; stacking possible
Dimensions H × W × D	203 × 140 × 90mm
Head weight	1.725kg
Environment	0–40°C; relative humidity<80%

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1 Safety instructions

⚠ **Important information: Read the operating instructions carefully before operation.**

Symbol	Meaning
	Warning: Keep fingers away from moving parts.
	Warning: Caution.
	Warning: Caution, hot surface.
	Warning: Caution, electric shock hazard.
	Note: Recycle this product.
	Warning: Wear personal protective equipment.

Table 1 Safety symbols

1.1 Danger

⚠ Operate the pump drive only with the power supply stated on its nameplate. Otherwise, the device may be damaged.

⚠ Do not open the drive housing or modify the inside of the device yourself. This may cause malfunctions or electric shock.

Switch off the power before inserting or removing the pump tubing. Keep away from the rotating rollers so that fingers and clothing cannot become caught in the mechanism.

For hazardous liquids, establish a procedure appropriate to the liquid concerned and protect people from injury during use.

1.2 Safety during operation

Before use, check that the liquid does not react chemically with the tubing or pump head. Otherwise, the tubing or head may be damaged. If in doubt, contact Labmaterial GmbH.

Tubing is a wear part and must be checked regularly. To the extent permitted by law, Leadfluid and Labmaterial GmbH accept no responsibility for losses resulting from tubing damage, particularly leaks of toxic, harmful or valuable liquids.

⚠ Only use tubing suitable for the pump head. Observe the compatibility and flow data in 8 Tubing and flow performance.

⚠ During long idle periods, raise the pressure block to prevent the inner tubing walls from sticking together under prolonged compression.

⚠ If actual environmental conditions, such as temperature, humidity or supply voltage, exceed the technical specifications and the device is damaged as a result, this is not covered by the standard manufacturer's warranty. Repair costs will be charged; further consequential damage is not covered by this manufacturer's warranty.

⚠ Protection against injury from moving pump parts is primarily provided by the pump head's safety device. Its design may differ between head models. Follow the instructions for the head actually installed.

⚠ If the pump was running before a power failure, it may restart automatically when power returns. Check the restart setting of the drive being used and prevent unintended restarting.

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2 Structure and components

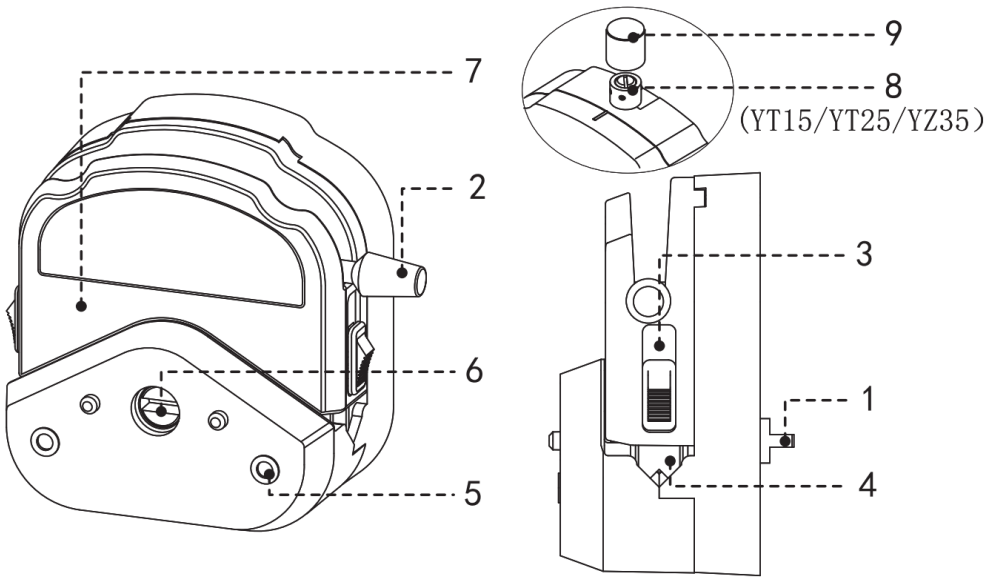


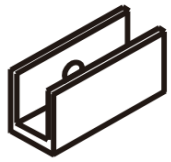
Figure 1 Head family structure with fine adjustment; parts numbered 1 to 9

1. **Flat shaft end**: Connects to the drive coupling and allows pump heads to be stacked.
2. **Lever**: Operated when inserting the tubing.
3. **Slider**: When pressed down, it compresses the tubing together with the roller assembly.
4. **Tubing clamp**: Prevents the tubing from moving after the slider is pressed down.
5. **Mounting hole**: Receives the screw securing the pump head to the drive.
6. **Coupling**: Connection for stacking pump heads.
7. **Upper pressure block**: Raised or lowered with the lever to release or compress the tubing.
8. **Fine-adjustment knob on YZ35**: Fine adjustment of the occlusion gap.
9. **Dust cap**: Covers the fine adjustment knob on YT heads equipped with one. Open the cap for fine adjustment.

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3 Mounting on the drive

1. Slide the shaft protection sleeve onto the flat shaft end of YZ35.



Shaft protection sleeve

Figure 2 Shaft protection sleeve for YZ35

2. Align the flat shaft end with the drive, insert it into the coupling slot and seat the rear of the pump head fully against the mounting plate.
3. Insert and tighten the two supplied screws and the three pump head screws in the corresponding holes.

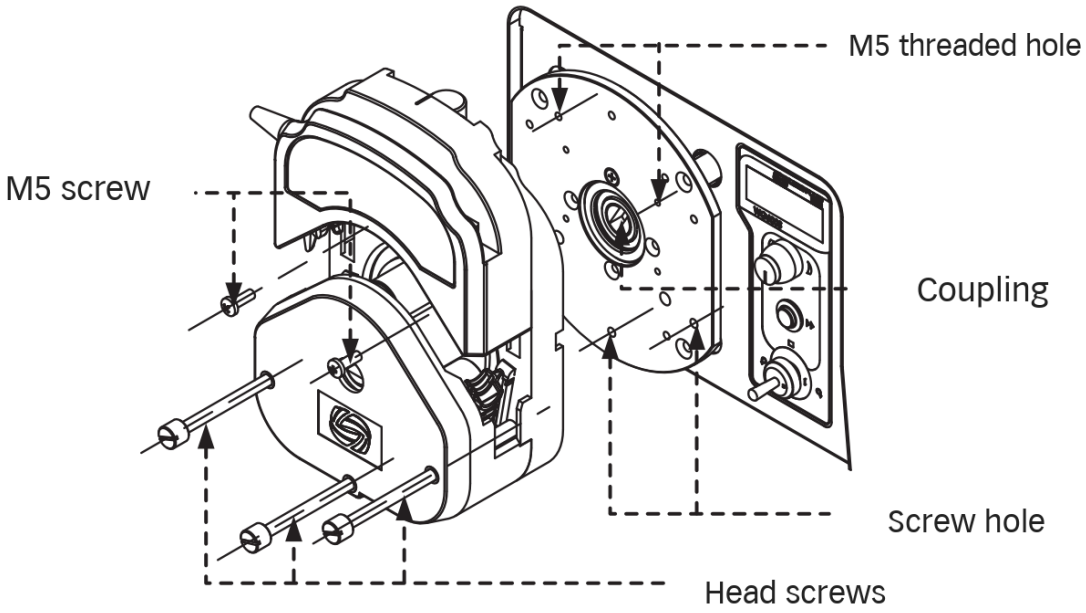


Figure 3 Mounting YZ35 with coupling and fastening screws

⚠ **Note**: Tighten both mounting screws to the same torque and do not overtighten them.

Selecting tubing

Tubing from different manufacturers is available for YT/YZ heads. Wall thickness and inner diameter tolerances affect flow accuracy. Only use the tubing dimensions specified for the particular head.

The nominal wall thickness compatible with YZ35 is 3.3mm. All compatible tubing sizes and flow values are given in 8 Tubing and flow performance.

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4 Inserting and removing tubing

Switch off the power before inserting or removing tubing. Keep fingers and clothing away from the rollers.

Inserting tubing

1. Move the lever to the left into the horizontal position and raise the upper pressure block.
2. Select tubing with the wall thickness specified for the pump head.
3. Press down the spring-loaded tubing clamp on one side and insert the tubing. Then press down the clamp on the other side and insert the other tubing end.

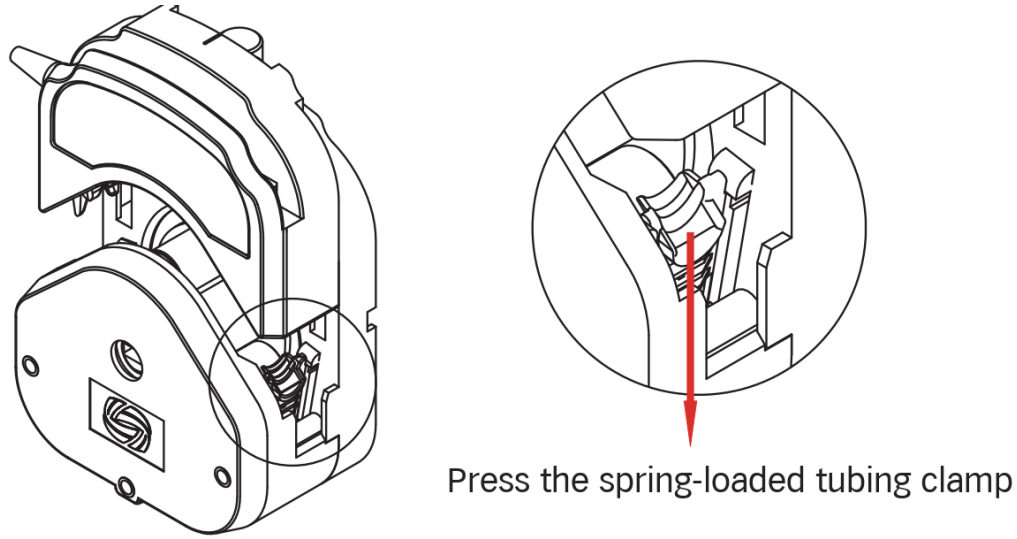


Figure 4 Pressing down the spring-loaded tubing clamp on YZ35

4. Straighten the tubing inside the head. Hold both ends so that it lies naturally straight, without twisting or sideways displacement.
5. Move the lever to the right into the horizontal position and lower the upper pressure block completely.

Removing tubing

1. Move the lever to the left into the horizontal position and raise the upper pressure block.
2. Press down the spring-loaded tubing clamps on both sides as shown in the insertion drawing and remove the tubing.

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Figure 5 Original image sequence for the locking lever, tubing insertion and fine adjustment on YZ35

Open means opening, Close means closing. The fine-adjustment knob is under the dust cap. Press down the spring-loaded clamp to insert the tubing.

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5 Occlusion gap and operation

Adjustable occlusion gap

After inserting the tubing, the gap can be changed using the fine-adjustment knob. Turning clockwise reduces the gap and increases the achievable delivery pressure, but shortens tubing life. Turning counterclockwise increases the gap and reduces delivery pressure, but extends tubing life. YZ35 has this adjustable occlusion gap.

⚠ **Note**: Do not adjust flow using the fine adjustment knob. High-pressure transfer is not permitted without express approval.

Fine adjustment on YZ35

1. Set the drive to 30rpm.
2. Slowly turn the fine adjustment knob clockwise until flow is continuous and no backflow occurs when stopping.
3. If a higher delivery pressure is needed, the knob can be turned further clockwise.
4. After fine adjustment, the pressure block and head housing surfaces should be approximately level; see Figure 6. For longer tubing life, the pressure block surface may be slightly higher than the housing surface.

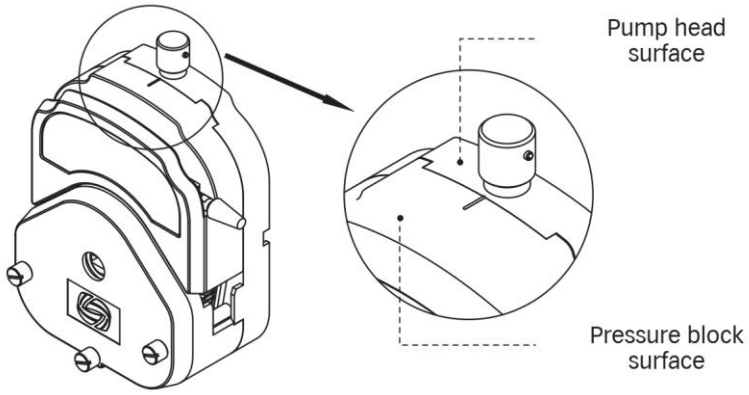


Figure 6 Position of housing and pressure block surfaces after YZ35 fine adjustment

Checking delivery

Flow changes as tubing service time increases. Adjust drive speed in good time; when using flow-controlled operation, recalibrate the flow.

Heads in this family can be stacked. When several heads run simultaneously, flow may differ between channels. Contact Labmaterial GmbH if high uniformity is required.

Daily maintenance

- Check tubing regularly for damage and loss of elasticity.
- Silicone oil on the contact surface of the pressure block can reduce tubing wear and extend tubing life.
- Do not rinse the pump head with water. If tubing breaks during operation, wipe up or dry any escaped liquid immediately.
- Do not use chemical reagents to clean the pump head.

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6 Troubleshooting

No liquid is drawn in

1. Check whether liquid viscosity is too high. Excessive viscosity may greatly reduce or prevent flow.
2. Check the inlet line if vacuum at the tubing inlet is excessive or the inlet is blocked.
3. Reinsert incorrectly fitted tubing according to these instructions.
4. Check that the tubing type is compatible with the head; select a suitable type according to the instructions.
5. On YZ35, turn the fine-adjustment knob clockwise following the corresponding adjustment procedure until sufficient delivery is achieved.

Tubing life has become significantly shorter

1. Check whether the liquid contains solid particles. Match the tubing to the liquid. A high particle content can greatly shorten tubing life or render the tubing unusable.
2. Reinsert incorrectly fitted tubing according to these instructions.
3. Check that the rollers turn freely.
4. On YZ35, turn the fine-adjustment knob counterclockwise following the corresponding adjustment procedure to increase the occlusion gap. Make sure there is no backflow when stopping.

Fine-adjustment speed: On YZ35, set the drive to 30rpm.

⚠ **Note:** If the fault persists after these checks, contact Labmaterial GmbH.

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7 Manufacturer’s warranty and customer service

One-year manufacturer’s warranty for YZ35 pump heads

1. The warranty covers YZ35 pump heads only. Tubing and other consumables are excluded.
2. The warranty period starts on the purchase date shown on the valid proof of purchase.
3. For quality defects within the warranty period, the manufacturer provides for free repair or replacement.
4. For problems caused by human action, such as leakage, dropping or improper use, the manufacturer describes repair without labour charges; material costs are charged.

Contact Labmaterial GmbH for clarification and processing.

Special notes on consumables

Before using tubing and other consumables, check the model specifications. Once opened and used, returns and exchanges are no longer accepted except for quality defects.

Disclaimer

The suitability of the pump, pump head and tubing for the intended application must be checked before use. To the extent permitted by law, Labmaterial GmbH accepts no liability for damage caused by improper use, failure to follow these instructions, unauthorised modifications or the use of unsuitable media and tubing. Liability for intent and gross negligence and mandatory statutory product liability remain unaffected.

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8 Tubing and flow performance

YZ35 accepts tubing sizes #73 and #82 with a nominal wall thickness of 3.3mm. The dimensional accuracy of the inner diameter and wall thickness affects flow accuracy.

Listed tubing materials and types: silicone, Pharmed, Norprene Chemical, Viton, A-60-G, A-60-F and Tygon E-3603. This list is a technical compatibility overview, not a general chemical-resistance approval or a list of our stocked products.

Tubing	Inner diameter	Nominal wall thickness	Delivery volume per revolution
#73	9.6mm	3.3mm	13mL/rev
#82	12.7mm	3.3mm	22mL/rev

Table 2 Compatible tubing sizes and nominal delivery volume

Speed rpm	#73	#82
30	400	660
60	800	1'300
100	1'300	2'200
300	4'000	6'600
600	8'000	13'200

Table 3 Reference flow values per channel in mL/min

Flow values apply to silicone tubing and purified water at normal temperature and pressure. The manufacturer's manual specifies inlet and outlet lines each 500mm long, with inlet and outlet at the same height. Pressure, temperature, fluid properties, tubing material, line length and other operating conditions affect actual flow performance.

Values in mL/rev are rounded. The published flow points are not recalculated from them: for example, #73 is tabulated at 8'000mL/min at 600rpm. The rounded nominal range of 13L/min is not an additional guarantee of a particular flow performance.

⚠ **Note:** Also observe the permitted drive speed and calibrate the flow for the specific application. The complete tubing list is not a list of items supplied or of our sales range. The values apply to the standard YZ35 head and are not a confirmed flow curve for YZ35-E or YZ35-L.

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9 Dimensions and structure

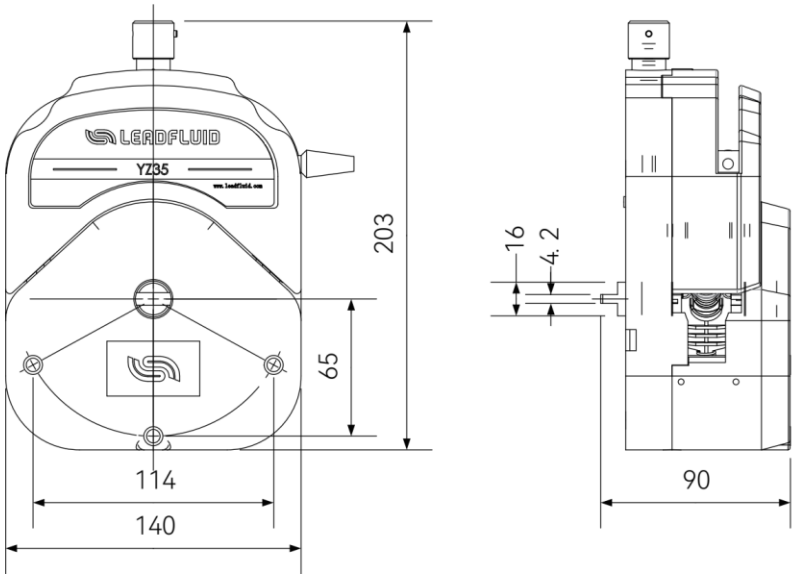


Figure 7 YZ35 mounting and connection dimensions in mm

The drawing shows the single standard head. Height × width × depth: 203 × 140 × 90mm; head weight 1.725kg. Do not use the connection dimensions as the overall dimensions of a complete pump.



Figure 8 Rear view of YZ35 with drive shaft and fastening



Figure 9 Side view of the spring-loaded tubing clamp

Several YZ35 heads can be stacked. Each head carries its own tube. The specific extension must suit the coupling, fastening and load capacity of the drive used. This does not approve an arbitrary number of heads.

For two stacked heads, the manufacturer describes a roller offset of 60° to reduce pulsation. Flow differences may occur between channels; check individual channels where requirements are high.

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10 Tubing life

The laboratory comparison shows the effect of tubing material and speed on service life in YZ35. The hours serve as a reference for tubing selection, not as guaranteed replacement intervals.

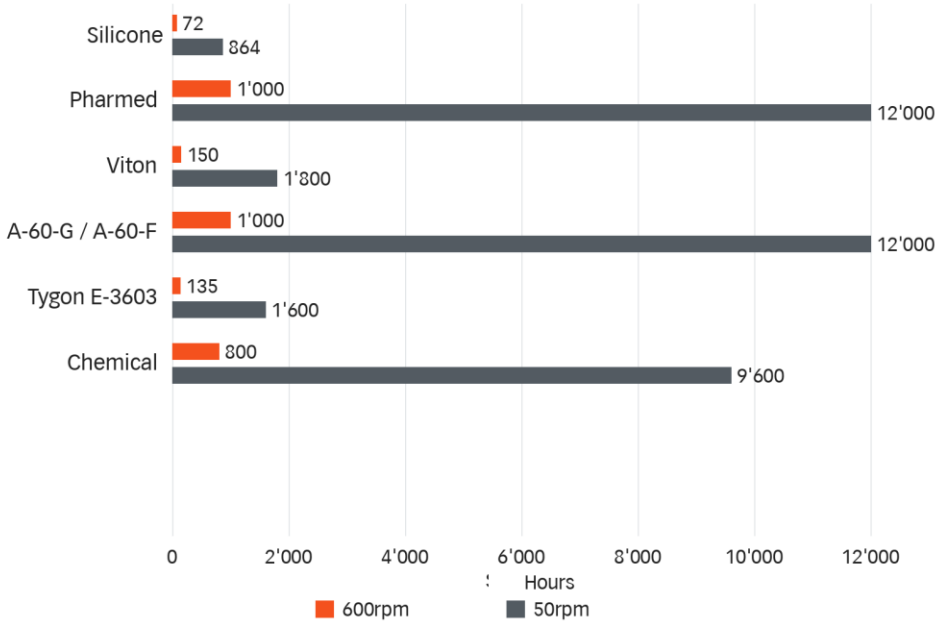


Figure 10 Comparison of tubing service life in YZ35 at 50rpm and 600rpm

Tubing material	At 600rpm	At 50rpm
Silicone	72	864
Pharmed	1'000	12'000
Viton	150	1'800
A-60-G / A-60-F	1'000	12'000
Tygon E-3603	135	1'600
Chemical	800	9'600

Table 4 Laboratory comparison of tubing service life in YZ35 in hours

Test conditions: Pure water at normal temperature and pressure. Pressure, temperature, fluid properties, tubing material, tubing batch and wall thickness may affect actual service life. Material names follow the model-specific manufacturer comparison; do not apply them generally to other head models or tubing types.

Tubing is a wear part. Check regularly for damage and decreasing elasticity and replace it in good time. Laboratory values do not replace application-specific checks.