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Laborgeräte zu fairen Preisen.

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Pump heads KZ25 Technical data and operating notes

KZ25 and KZ25HJ extension for higher flow rates. Quick-change pump heads with a removable pressure block; technical data, mounting and tubing replacement in one document.

Features

- Tubing changes using the locking lever
- Three 304 stainless steel rollers
- Fixed occlusion gap; manual tubing clamping
- Several heads can be stacked



Models and our product codes

Model	Product code	Version
KZ25	1701_B2	Single head
KZ25HJ	1701_B8	Extension for KZ25

The illustration shows the standard head in PPS. KZ25HJ extends an existing KZ25; the dimensions and weight in the technical overview refer to the standard head.

Technical overview

Property	Specification
Tubing sizes / wall thickness	#15, #24, #35, #36 / 2.4mm
Tubing ID	4.8 / 6.4 / 7.9 / 9.6mm
Maximum head speed / flow	600rpm / 6'000mL/min; also observe the drive limit
On WT300F	Maximum 350rpm; up to 3'850mL/min per channel
Our KZ25 / pressure block	Black PPS / PPS
Standard KZ25 head W × D × H / weight	114 × 73 × 107mm / 0.72kg
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.

⚠ Disconnect the mains before mounting or removing the pump head and before maintenance or repairs.

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

1.2 Warning

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 compatible with the pump head. Observe the tubing selection and flow values in 6 Tubing sizes and flow values.

⚠ 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 Description and structure

KZ25 pump heads allow quick tubing changes using a removable pressure block. Three 304 stainless steel rollers compress the tubing. Several heads can be stacked. The actual usable flow depends on the tubing, drive and operating conditions.

These instructions describe KZ25 with a PC or PPS housing. The aluminium KZ25-L version is covered in a separate section. KZ25HJ is our extension for KZ25. Our product codes are listed in 8.1 Our product codes.

Version	Housing and pressure block	Special feature
KZ25-PC	Transparent PC housing; upper pressure block in PPS	Internal components are visible through the housing.
KZ25-PPS	Housing and upper pressure block in PPS	Black plastic version. Check material compatibility for the specific application.
KZ25-L	Housing and pressure block in aluminium alloy	Different locking mechanism with two levers; see 4.1 Tubing replacement on KZ25-L.

Table 2 Housing versions of the KZ25 family

The version must suit the application. The material name alone does not constitute general approval for particular chemicals or temperatures.

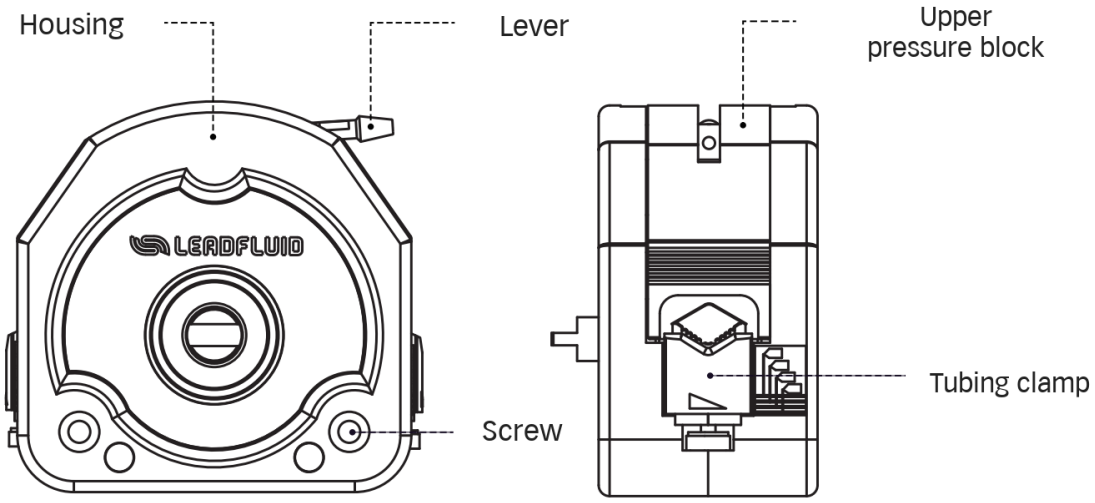


Figure 1 Structure of KZ25 with PC or PPS housing

2.1 Components and functions

1. **Housing:** Supports the rollers and pressure block.
2. **Lever and upper pressure block:** Turning clockwise presses the pressure block against the tubing. Turning counterclockwise releases it for removal.
3. **Tubing clamp:** Adjusted to the tubing diameter to prevent the tubing from moving.
4. **Screws:** Secure the pump head to the mounting plate or drive.

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3 Mounting and tubing changes for PC and PPS

3.1 Mounting the pump head

1. Secure the mounting plate to the drive's pump head bracket using four M4 × 10 cross-recessed countersunk screws.
2. Align the flat shaft end of the pump head with the drive and slide it into the coupling slot.
3. Align the head with the two locating pins on the bracket and seat its rear fully against the bracket.
4. After the coupling has engaged correctly, secure the head to the mounting plate using the pump head screws.

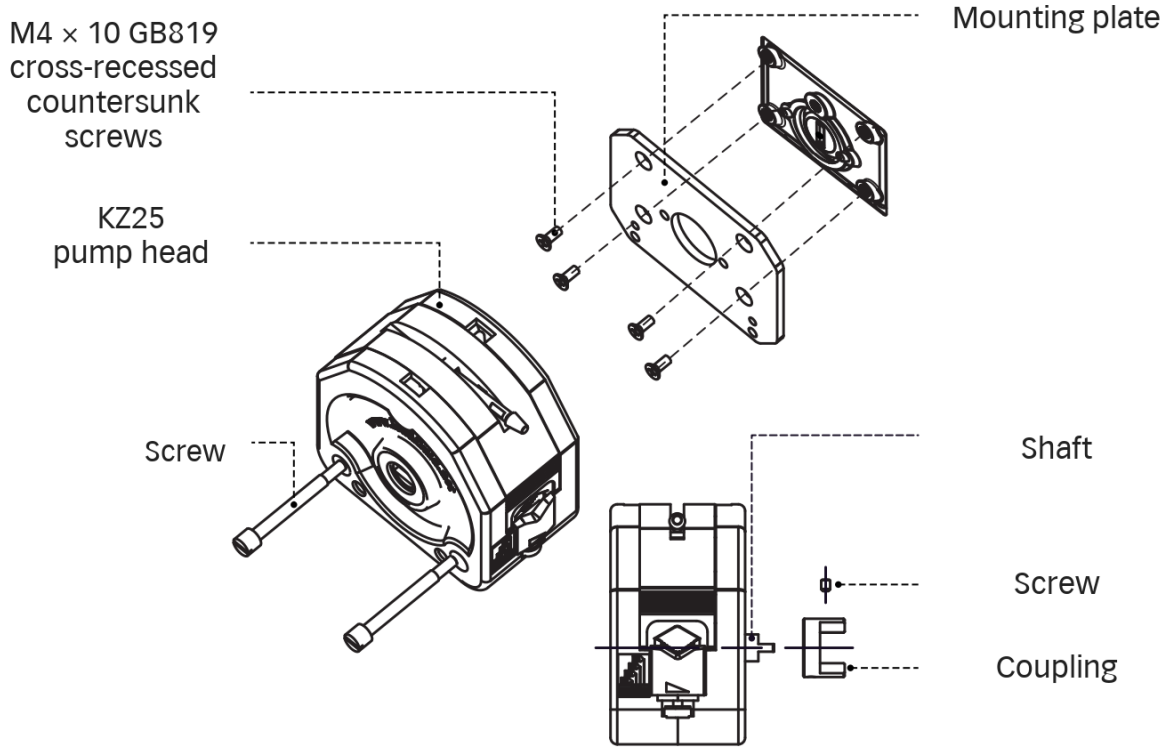


Figure 2 KZ25 mounting plate, shaft and coupling

⚠ **Note:** Tighten both pump head screws to the same torque. Do not overtighten.

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3.2 Selecting and inserting tubing

Tubing sizes #15, #24, #35 and #36 with a nominal wall thickness of 2.4mm are suitable. The dimensional accuracy of the wall thickness and inner diameter affects flow accuracy.

1. Turn the pressure block lever 180° counterclockwise. Lift out the pressure block.
2. Place tubing with a suitable wall thickness on the rollers and in the V-shaped grooves of the left and right tubing clamps.
3. Straighten the tubing inside the pump head. Hold both ends so that they leave the head naturally, without twisting or sideways displacement.

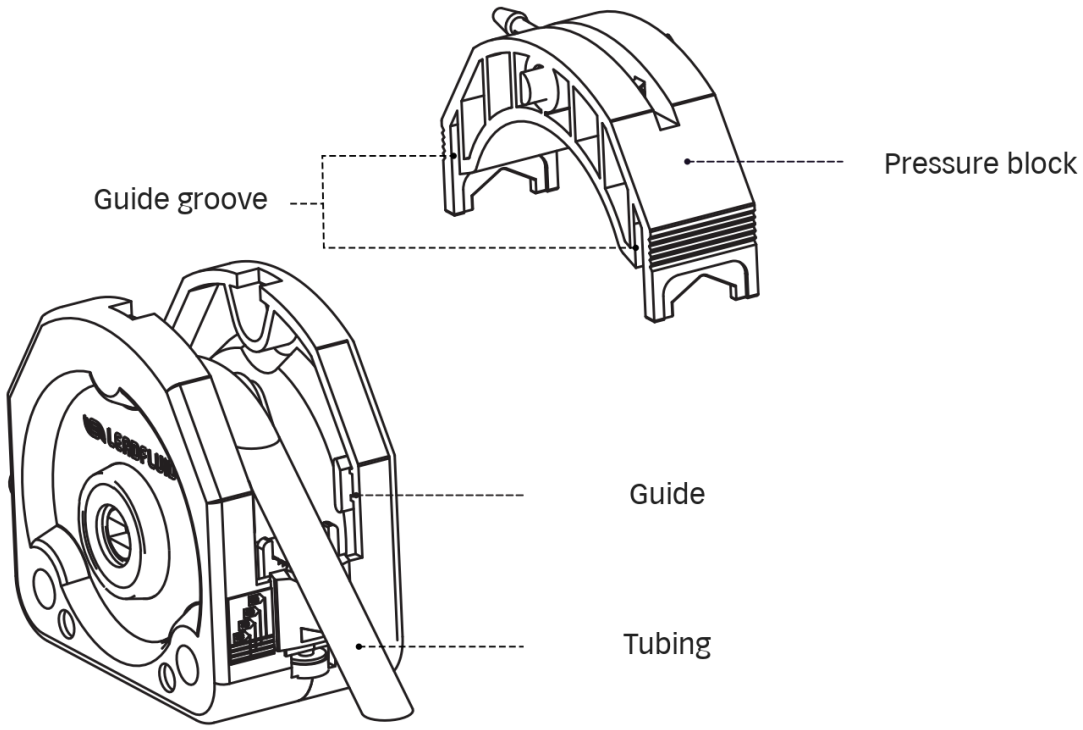


Figure 3 Removing the pressure block and inserting tubing

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3.3 Inserting the pressure block and securing tubing

1. Align the pressure block pivot with the recesses at the top of the front and rear housing halves.
2. Insert the pressure block guide grooves along the guides on the front and rear housing halves.
3. Press down the pressure block with one hand. With the other hand, turn the lever 180° clockwise to lock the pressure block.
4. Turn the screw underneath the tubing clamp according to the tubing size to secure the tubing. The triangle on the clamp indicates the direction. Observe the #15, #24, #35 and #36 markings in Figure 4.

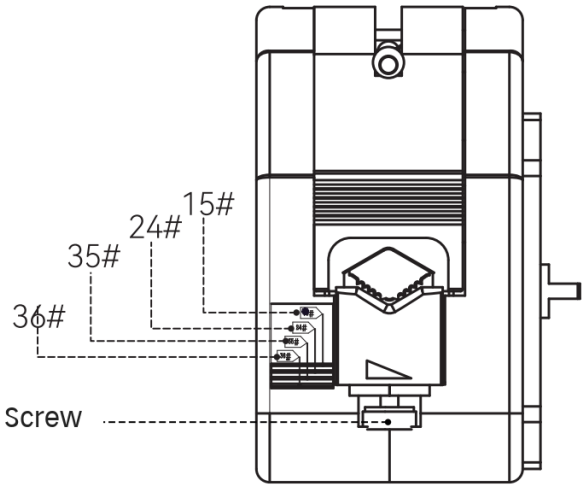


Figure 4 Adjusting the tubing clamp to the tubing size

⚠ **Note:** Do not change the occlusion gap to regulate flow. KZ25 has a fixed occlusion gap; the tubing clamp screw is used to secure the tubing.

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3.4 Tubing changes in pictures

The image sequence shows opening, pressure block removal, tubing insertion and closing on the PC version. The PPS version uses the same basic procedure. Open means opening, Close means closing.



Figure 5 Tubing replacement on KZ25-PC and KZ25-PPS

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4 Aluminium version and extension

4.1 Tubing replacement on KZ25-L

On KZ25-L, lift both locking levers and remove the pressure block. Insert suitable tubing, align it with the guides and secure it using the tubing clamps adjusted to its size. Refit the pressure block and close both levers.



Figure 6 Tubing replacement on the aluminium KZ25-L version

Do not confuse the different locking design of KZ25-L with the single 180° lever on the PC and PPS versions.

4.2 KZ25HJ extension

KZ25HJ is an extension for KZ25. The same tubing sizes and flow values apply as for KZ25. Several stacked heads form separate flow channels. The extension must fit the existing head and drive coupling. Contact Labmaterial GmbH with questions about the specific mounting arrangement.

KZ25HJ is not another name for the aluminium KZ25-L version. The dimensional drawings in 7 Dimensions show the identified individual standard heads, not a complete multi-head assembly.

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5 Operation care and troubleshooting

5.1 Operating notes

• Only use tubing compatible with the head model.

• Flow may change with tubing service life. Adjust the speed accordingly; on flow-controlled pumps, recalibrate the flow.

• When several heads run simultaneously, flow may differ between channels. Contact Labmaterial GmbH if high uniformity is required.

• Tubing wears during operation. Inspect and replace it regularly.

5.2 Daily care

• Inspect tubing regularly for damage and reduced elasticity.

• Silicone oil on the inner pressure block surface can reduce tubing wear and extend tubing life. Check compatibility with the tubing used.

• Do not wash the pump head with water. If tubing breaks during operation, immediately wipe up or dry any fluid that has leaked inside the head.

• Do not use chemical reagents to clean the pump head.

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5.3 Troubleshooting

Fault / check	Action
No liquid is drawn in; high viscosity	Check whether the liquid is too viscous. High viscosity can greatly reduce or prevent flow.
No liquid is drawn in; inlet line	Check for excessive vacuum or a blockage in the inlet line.
No liquid is drawn in; tubing position	Reinsert the tubing according to these instructions.
No liquid is drawn in; tubing selection	Use a tubing specification compatible with the head.
Tubing life is much shorter; solids	Check for solid particles in the liquid. Many particles may greatly shorten tubing life or prevent flow. Select tubing suitable for the application.
Tubing life is much shorter; tubing position	Reinsert the tubing according to these instructions.
Tubing life is much shorter; rollers	Check that the rollers turn freely.

Table 3 Pump head troubleshooting

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

5.4 Manufacturer's warranty and consumables

For the KZ25 pump head, the manufacturer specifies a one-year warranty from the purchase date evidenced by a valid proof of purchase. Tubing and other consumables are excluded. For quality defects within this period, the manufacturer provides repair or replacement. Under the manufacturer's terms, material costs are charged for damage caused by leakage, dropping or improper use; labour costs are waived. Claims are handled through Labmaterial GmbH. Mandatory statutory rights remain unaffected.

Before using tubing and other consumables, check the model and specification. Once opened for use, the manufacturer allows returns or exchanges only for quality defects. Mandatory statutory rights remain unaffected.

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6 Tubing sizes and flow values

The following values refer to water at normal temperature and pressure. Inlet and outlet lines are each 500mm long; inlet and outlet are at the same height. Changes in fluid, viscosity, line length and pressure difference affect the flow. Calibrate for the specific application.

Tubing size	Inner diameter	Nominal wall thickness	Delivery volume per revolution
#15	4.8mm	2.4mm	3.1mL/rev
#24	6.4mm	2.4mm	5.3mL/rev
#35	7.9mm	2.4mm	7.7mL/rev
#36	9.6mm	2.4mm	11mL/rev

Table 4 Compatible tubing sizes

Speed rpm	#15	#24	#35	#36
0.1	0.31	0.53	0.77	1.10
30	93	159	231	330
150	465	795	1'155	1'650
350	1'085	1'855	2'695	3'850
600	1'860	3'180	4'620	6'000

Table 5 Reference flow values per channel in mL/min

⚠ **Note:** The table contains technical reference values for the head. Also observe the permitted drive speed. WT300F is intended for a maximum of 350rpm; its reference flow range with KZ25 reaches 3'850mL/min per channel. Values in the 600rpm row do not approve operating WT300F at a higher speed.

The complete tubing list is not a list of items supplied or of our sales range.

The maximum head flow is limited to 6'000mL/min. Values in mL/rev are indicative; do not derive a higher maximum flow from them.

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7 Dimensions

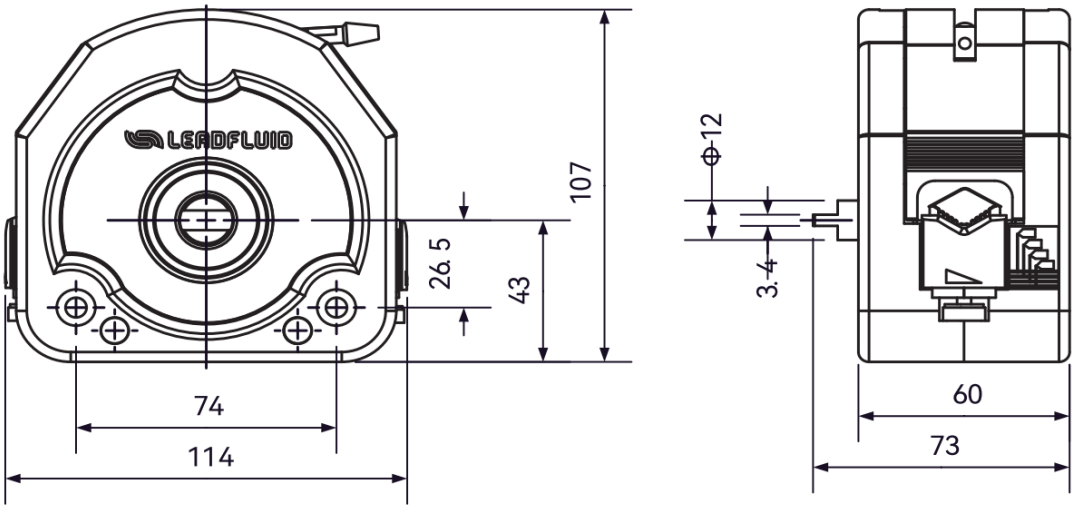


Figure 7 Dimensions of KZ25 with PC or PPS housing in mm

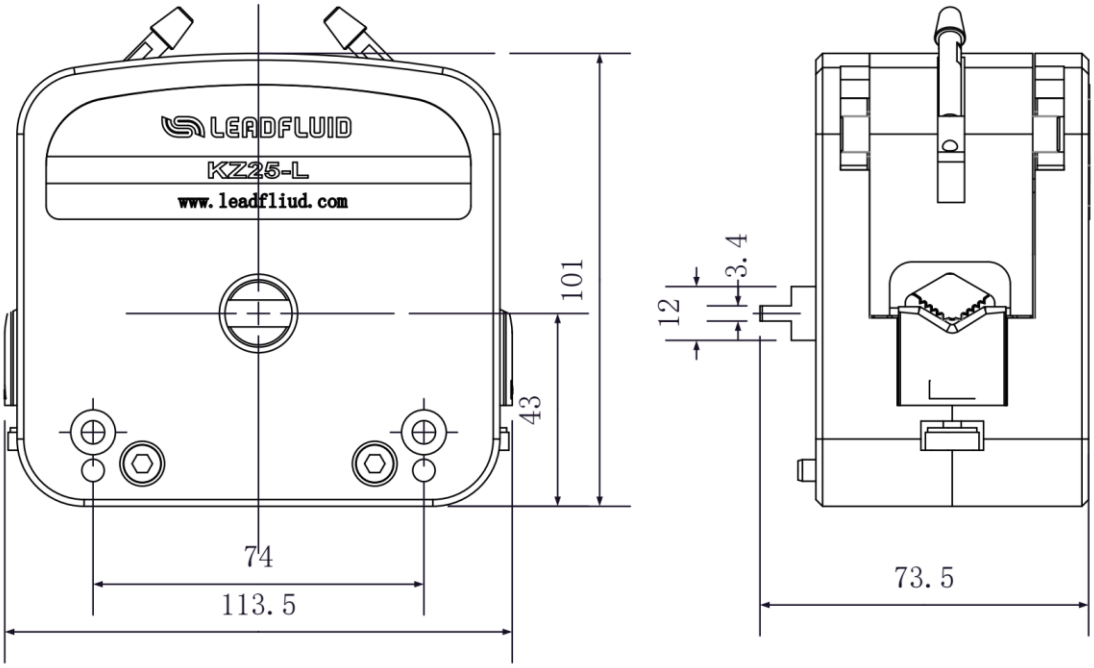


Figure 8 Dimensions of the aluminium KZ25-L version in mm

The drawings show the individual head versions. Do not use these dimensions as the overall dimensions of a drive with heads fitted.

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8 Technical data and ordering information

Property	Specification
Tubing sizes	#15, #24, #35, #36
Tubing wall thickness	2.4mm
Tubing materials	Silicone, Pharmed; other materials only if suitable for the specific version and application
Maximum head speed	600rpm; also observe the drive limit
Maximum flow	6'000mL/min; depending on drive and tubing
Flow values	Depends on tubing and speed; see 6 Tubing sizes and flow values
Rollers	3 × 304 stainless steel
Housing	PPS or PC, depending on version
Upper pressure block	PPS
Occlusion gap	Fixed
Tubing clamping	Manual
Channels	1 per head; stacking possible
Environment	0–40°C; relative humidity <80%
Dimensions W × D × H	114 × 73 × 107mm
Head weight	0.72kg

Table 6 Technical data for KZ25 with PC or PPS housing

8.1 Our product codes

Labmaterial product code	Product name	Version
1701_B2	Pump head – KZ25	Single head
1701_B8	Pump head – KZ25HJ	Extension for KZ25

Table 7 Our regular KZ head products

The ordering overview lists our regular products. Other technical versions described in the instructions do not automatically become orderable products in our range.

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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9 Tubing service life as a laboratory reference

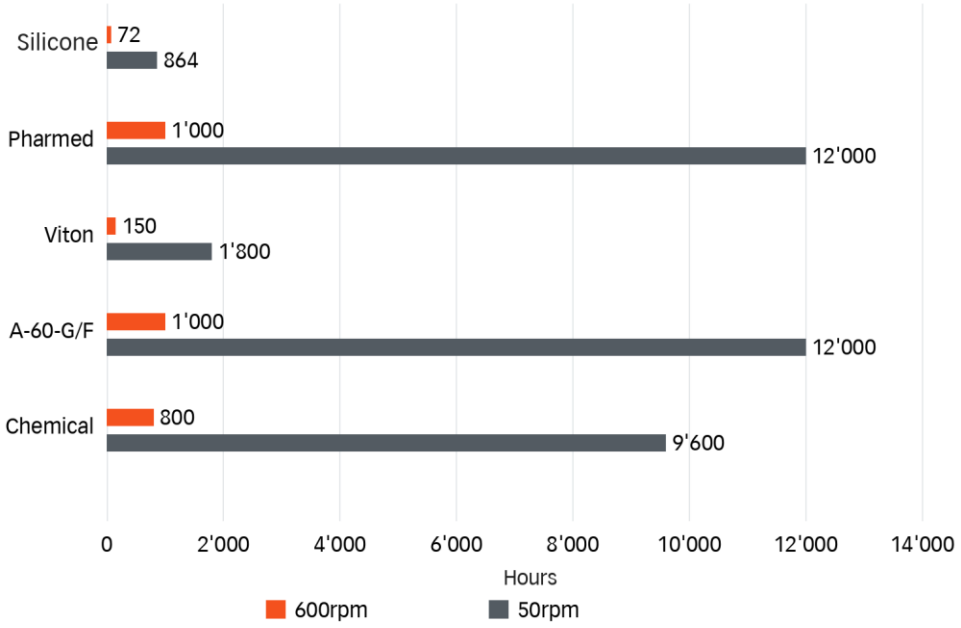


Figure 9 Comparison of tubing service life at 50rpm and 600rpm

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

Table 8 Comparison of tubing service life in hours

These are laboratory reference values using pure water at normal temperature and pressure. Pressure, temperature, fluid, tubing batch and wall thickness may affect actual service life. These values are not guaranteed service lives and do not replace regular tubing inspections.