

Change diaphragm

**WARNING**

- **Always take suitable precautions when using hazardous chemicals!**
- **Ensure that the equipment is de-pressurised!**

- ▶ Empty the liquid end (turn the unit upside down and let the feed chemical run out, rinse with a suitable material: rinse the liquid end thoroughly after use with hazardous materials!).
- ▶ When gamma/ L is running set the stroke length to 0 % (the drive axis is then set).
- ▶ Switch off the gamma/ L.
- ▶ Unscrew the hydraulic connectors from the discharge and suction side.
- ▶ For versions with coarse/fine bleed function: firstly pull out the coarse/fine bleed (knob), then lift off the cover from the liquid end using a screwdriver.
- ▶ Remove the screws (1).

For pump types 0220, 0232 and 0420 see the following page (4 holes on the diaphragm rim)!

Standard types

- ▶ Loosen the liquid end (2) and the top plate (4) from the pump housing (6) (loosen only!).
- ▶ Hold the housing (6) in one hand and with the other, clamp the diaphragm (3) between the liquid end (2) and the top plate (4); release the diaphragm (3) from the drive spindle with a light anticlockwise turn of the liquid end (2) and top plate (4).
- ▶ Unscrew the diaphragm (3) completely from the drive spindle.
- ▶ Remove the top plate (4) from the housing (6).
- ▶ Check the condition of the safety diaphragm (5) and replace if necessary.
- ▶ Push the safety diaphragm (5) only as far onto the drive axis until it lies flat on the pump housing (6) – no further!
- ▶ Screw the new diaphragm (3) carefully up to the stop on the drive axis – this must be exact to ensure correct metering!
- ▶ Screw the diaphragm (3) tight once more.
- ▶ Position the top plate (4) on the pump housing (6).

**TAKE CARE**

- **The leakage hole must point downwards when the pump is fully assembled (see fig. 23).**
- **Position the top plate (4) correctly on the pump housing (6). Do not distort the top plate on the pump housing, otherwise the safety diaphragm (5) will not fit.**

- ▶ Lay the diaphragm (3) into the top plate (4).
- ▶ Hold the top plate (4) and screw the diaphragm (3) in a clockwise direction until it is firmly in position (you will feel the resistance of the return spring).

**TAKE CARE**

- **Do not overtighten the diaphragm (3) (particularly on type 1601).**
- **The top plate (4) must remain in position to prevent the safety diaphragm (5) from distorting.**

- ▶ Place the liquid end (2) with the screws (1) on the diaphragm (3) and the top plate (4) (the priming connector must point downwards once the pump is fully assembled).
- ▶ Screw on screws (1) lightly and tighten (starting torque, see below).
- ▶ For versions with coarse/fine bleed function, ensure that the liquid end cover engages in the liquid end, then push the coarse/fine bleed vent (knob) into the liquid end.

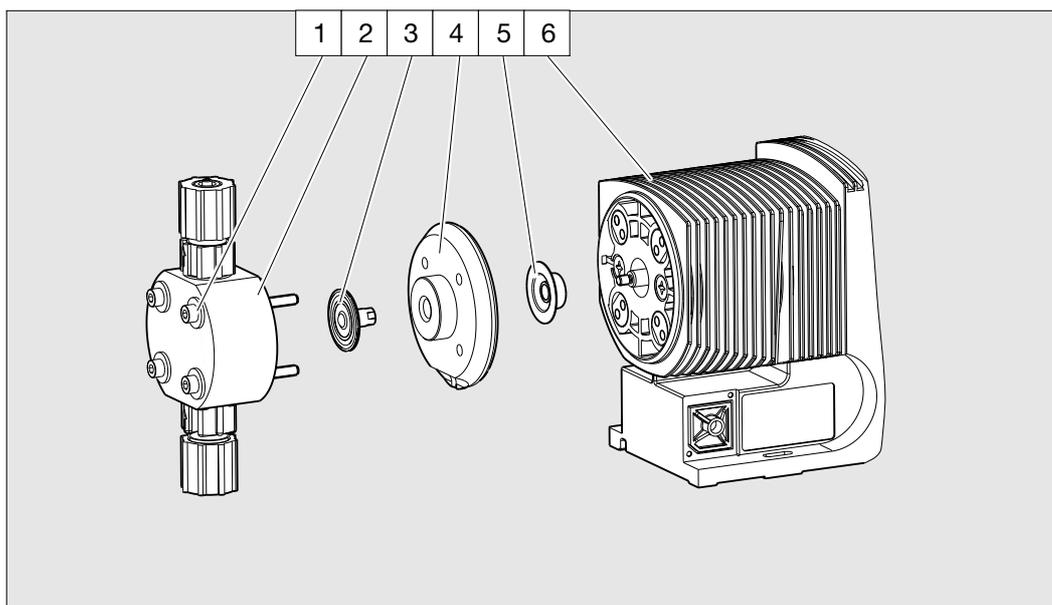


Fig. 29

- | | |
|--------------|--------------------|
| 1 Screws | 4 Top plate |
| 2 Liquid end | 5 Safety diaphragm |
| 3 Diaphragm | 6 Pump housing |

GUIDELINE

- Check the screw torques after 24 hours in operation
- For PP liquid ends check the screw torques again after three months.

Screw torques:

Liquid end Ø 70 mm: 2,5 to 3 Nm

Liquid end Ø 90 mm and Ø 100 mm: 4,5 to 5 Nm

Liquid ends - types 0220, 0232 and 0420

- ▶ Remove the liquid end (2) with screws from the top plate (4) and pump housing (6) about 5 mm - the screws should still be located in the holes but not in the top plate (4).
- ▶ Hold the housing (6) in one hand and with the other hand, clamp the diaphragm (3) between the liquid end (2) and the top plate (4); release the diaphragm (3) from the drive spindle with a light anti-clockwise turn of the liquid end (2) and top plate (4).
- ▶ Remove the liquid end (2) with screws (1) from of the diaphragm and unscrew completely from the drive spindle.
- ▶ Remove the top plate (4) from the housing (6).
- ▶ Screw the new diaphragm (3) onto the drive spindle gently as far as it will go - otherwise the gamma/ L will not meter correctly!
- ▶ Unscrew the diaphragm (3) again.
- ▶ Replace the top (4) plate onto the housing (6).
- ▶ Check the condition of the safety diaphragm (5) and replace if necessary.
- ▶ Push the safety diaphragm (5) only as far onto the drive axis until it lies flat on the pump housing (6) – no further!
- ▶ Screw the new diaphragm (3) carefully up to the stop on the drive axis – this must be exact to ensure correct metering!
- ▶ If not, start the pump and set the stroke length to 100 %.
- ▶ When the pump is running, turn the diaphragm (3) slowly in a clockwise direction until the four holes in the diaphragm are flush with those on the pump housing (6).
- ▶ Hold the diaphragm (3) in this position, set the stroke length to 0 % and stop the pump.
- ▶ Screw the diaphragm (3) tight once more.
- ▶ Position the top plate (4) on the pump housing (6).

**TAKE CARE**

- The leakage hole must point downwards when the pump is fully assembled (see fig. 23).
 - Position the top plate (4) correctly on the pump housing (6). Do not distort the top plate on the pump housing, otherwise the safety diaphragm (5) will not fit.
- ▶ Lay the diaphragm (3) into the top plate (4).
- ▶ Hold the top plate and screw the diaphragm (3) in a clockwise direction until it is firmly in position (you will feel the resistance of the return spring).

**TAKE CARE**

- Do not overtighten the diaphragm (3).
 - The top plate (4) must remain in position to prevent the safety diaphragm (5) from distorting.
- ▶ The top plate (4) must remain in position to prevent the safety diaphragm (5) from distorting.
- ▶ Position the liquid end (2) with the screws (1) on the diaphragm (3) and the top plate (4) (the priming connector must point downwards once the pump is fully assembled).
- ▶ Screw on screws (1) lightly and tighten (starting torque, see above).
- ▶ For coarse/fine bleed versions: ensure the liquid end cover engages in the liquid end, then push the coarse/fine bleed (knob) into the liquid end.

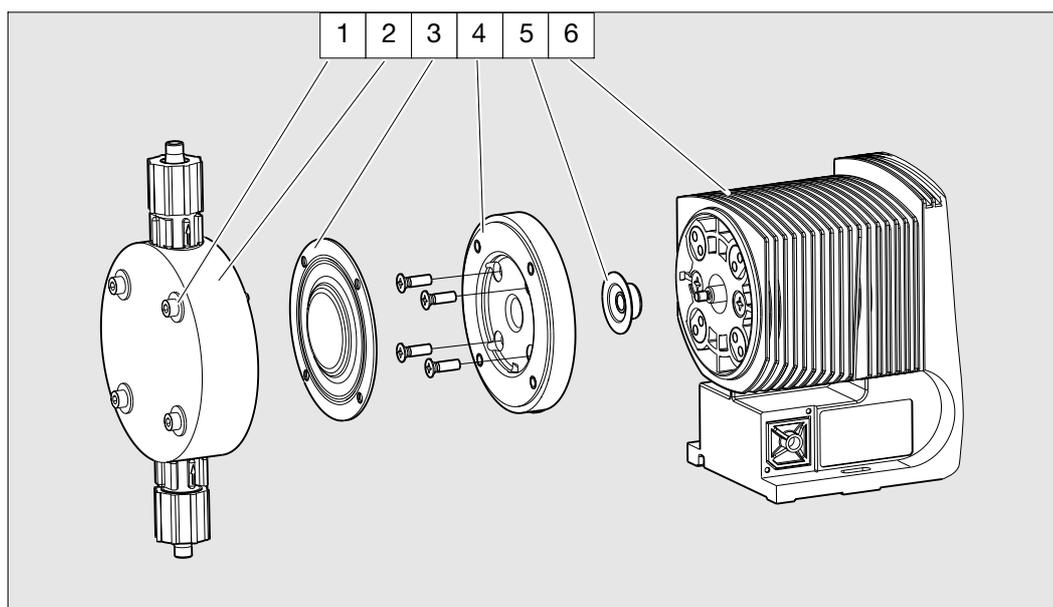


Fig. 30

- | | |
|--------------|--------------------|
| 1 Screws | 4 Top plate |
| 2 Liquid end | 5 Safety diaphragm |
| 3 Diaphragm | 6 Pump housing |

GUIDELINE

- Check the screw torque after 24 hours in operation!
- For PP liquid ends recheck the screw torque after three months!