

# Maintenance of Research plus

All single and multi-channel lower parts are wear parts. Heavy contamination caused by ingress of liquid must be removed by cleaning the disassembled lower part as described below.

## Pipette Cleaning Procedures

1. Disassemble lower part (Step A)
2. Rinse / immerse with suitable cleaning fluid (Step B, Table 1)
3. Rinse thoroughly with demineralized water
4. Let all parts dry (max. 60 °C or air dry)
5. Lubricate piston or cylinder if necessary<sup>1</sup>
6. Assemble pipette (Step C)<sup>2</sup>

Table 1: Suitable cleaning fluids for different types of contaminants<sup>3</sup>

Contaminant	Cleaning fluid
Aqueous solutions	Demineralized water
Organic solvents	Mild lab detergent
Infectious liquids and cell cultures	*70% ethanol/isopropanol
Nucleic acids	*DNA / RNA decontamination agent (follow manufacturer's instruction)
Proteins	Mild lab detergent
Radioactive substances	Radioactive cleaning fluid

<sup>1</sup> Piston/cylinder has to be lubricated after pipette lower part was cleaned with a grease-dissolving fluid. For further information please refer to instructions for use "Grease for pipettes" on the website.

<sup>2</sup> After all cleaning procedures, the pipette can be autoclaved as a whole unit at 121 °C, 1 bar overpressure, 20 min. Let all parts dry and cool to room temperature before use.

<sup>3</sup> For further information on chemical compatibility please refer to Chemical Resistance Guide found on the website.

<sup>4</sup> Ultra-violet (UV) irradiation is a general surface decontamination and does not remove the contaminant.

**Note:** Do not use any additional disinfectants, decontamination agents or sodium hypochlorite during autoclaving or UV irradiation.

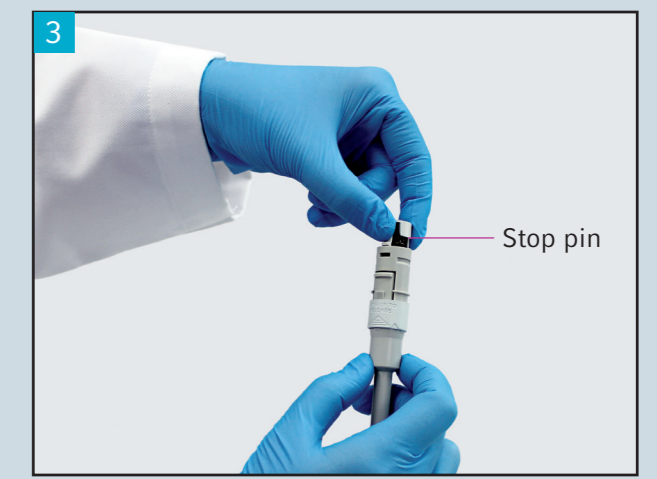
## Step A: Pipette Disassembly\*



- > Press the ejector completely down and hold.
- > Remove the ejector sleeve and release the ejector.



- > To remove the lower part, push the ring "PUSH UP TO RELEASE" upward until the lower part is detached.
- > Take out the lower part.



- > To further disassemble the lower part, slightly squeeze the stop pins at the piston mount.
- > Remove the piston mount.
- > Remove the piston spring and the piston.
- > Remove the piston from the piston spring (Not possible for pipettes with blue control button).

\*For single-channel pipettes up to 1,000 µL. For larger volume single-channel and all multi-channel pipettes please refer to the operating manual found on the website.

**Note:** Pistons and piston springs will look different for individual volume versions.

## Step B: Lower Part Cleaning



- > Rinse the lower part with suitable cleaning fluid or let it soak (see Table 1)\*.
- > Thoroughly rinse the lower part with demineralized water.
- > Let it dry (max. 60 °C or air dry).
- > Lubricate the piston or cylinder if necessary.

\*Observe the contact time recommended by the manufacturer.

## Step C: Pipette Reassembly\*



- > Insert the piston spring. If using piston springs with double coil, this must point down.
- > Carefully insert the piston into the cylinder from the top.



- > Compress the piston spring with piston and hold.
- > Squeeze the stop pins at the piston mount and attach them.
- > Press the piston from above by using a pipette tip and check for free movement. The piston must be able to move freely without resistance.



- > Insert the lower part into the upper part until it engages.

**Tip:** Operate the control button several times to spread the grease and check of functionality. It must run smoothly and resistance-free.

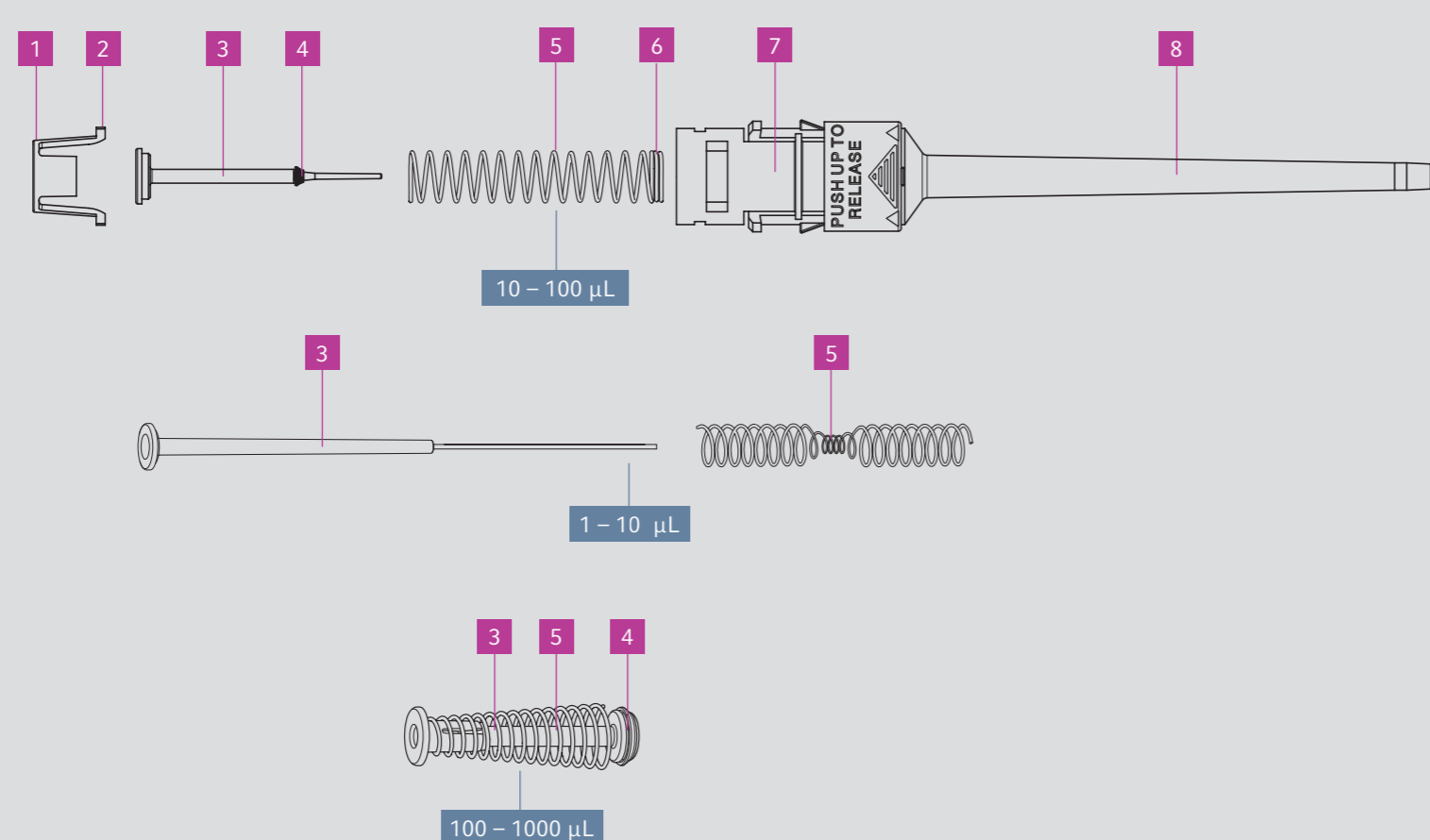


- > Fit the ejector sleeve.

\*For single-channel pipettes up to 1,000 µL. For larger volume single-channel and all multi-channel pipettes please refer to the operating manual found on the website.

## Pipette Lower Part\*

- 1 Piston mount
- 2 Stop pin
- 3 Piston
- 4 Piston seal\*\*
- 5 Piston spring
- 6 Double coil
- 7 Cylinder
- 8 Tip cone



\* For single-channel pipettes up to 1,000 µL. Pistons and piston springs will look different for individual volume versions. For larger volume single-channel and all multi-channel pipettes please refer to the operating manual found on the website.

\*\*Visibly attached on piston of volume ≥ 100 µL

## Leakage Test

Perform leakage test at room temperature within 20 - 25 °C and at a relative humidity above 50 % RH. All components used (pipette, tip, liquid) shall have the same temperature.



- > Set the pipette to the nominal volume.
- > Attach an original Eppendorf tip and wet the tip 5 times with distilled water.
- > Do not change tip after prewetting.
- > Aspirate distilled water into the tip using forward pipetting.



- > Hold the pipette with the filled tip vertically for 15 seconds.
- > Do not swing pipette or bounce against objects.
- > Also do not clasp pipette tightly in order to prevent transfer of handwarming.



- > Watch for any droplet formation at the end of the tip. If there is none, the pipette and tip are a good fit with intact sealing.

## Pipette Calibration



Regular maintenance and calibration of pipettes are fundamental for proper function, precision and accuracy. Our professional pipette maintenance and calibration services from Eppendorf include a variety of service options: from affordable quick checks to GLP/GMP custom-designed calibration services.

## Pipette Service

Find more info in our video on the internet at [www.eppendorf.com/pipette-video](http://www.eppendorf.com/pipette-video). Or scan the QR code to view it on your smartphone or tablet PC.

Video "Eppendorf Pipette Service - Spa and Wellness for Pipettes"

