

# Maintenance of Reference 2

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>

<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.

**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	<sup>4</sup> 70% ethanol/isopropanol
Nucleic acids	<sup>4</sup> DNA / RNA decontamination agent (follow manufacturer's instruction)
Proteins	Mild lab detergent
Radioactive substances	Radioactive cleaning fluid


### Step A: Pipette Disassembly\*

1



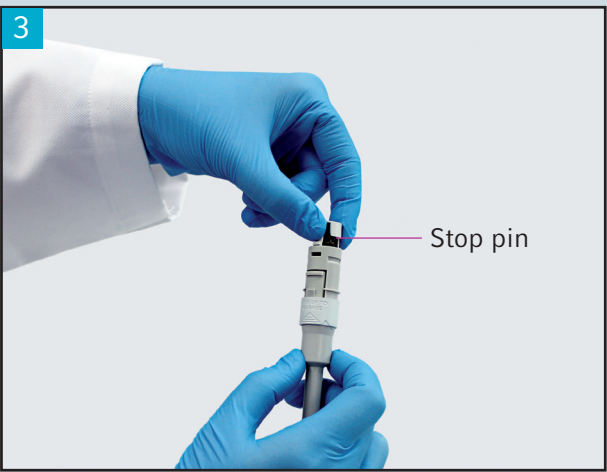
> Press the control button completely down and hold.  
> Remove the ejector sleeve and release the control button.

2



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

3




> 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\*

1




> 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.

2




> 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.

3



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

4



> Fit the ejector sleeve.

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

\*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

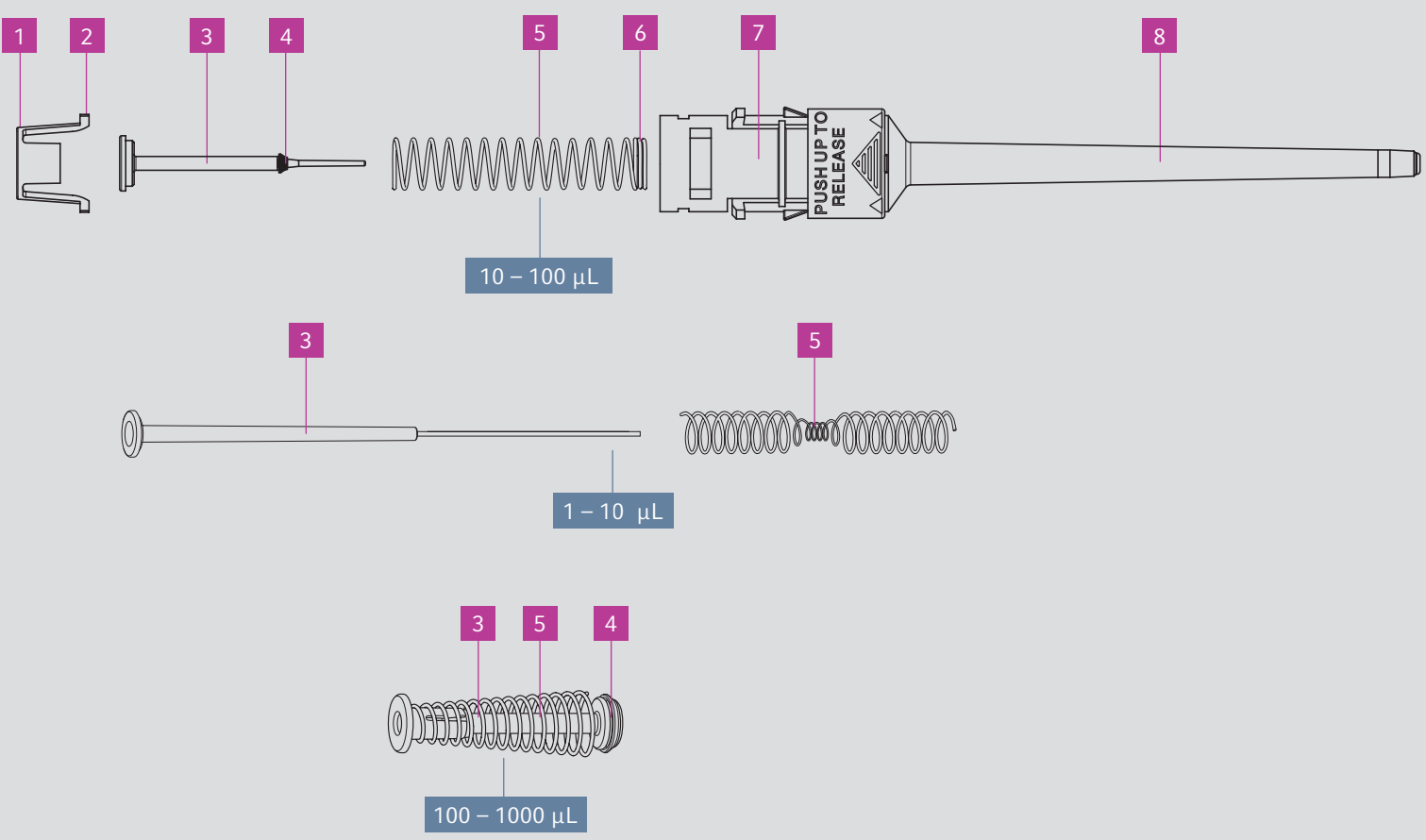
4 Piston seal\*\*

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.

1




> Set the pipette to the nominal volume.  
> Attach an original Eppendorf pipette 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.

2



> 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.

3



> 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"

