Instrumental Technique Presentation

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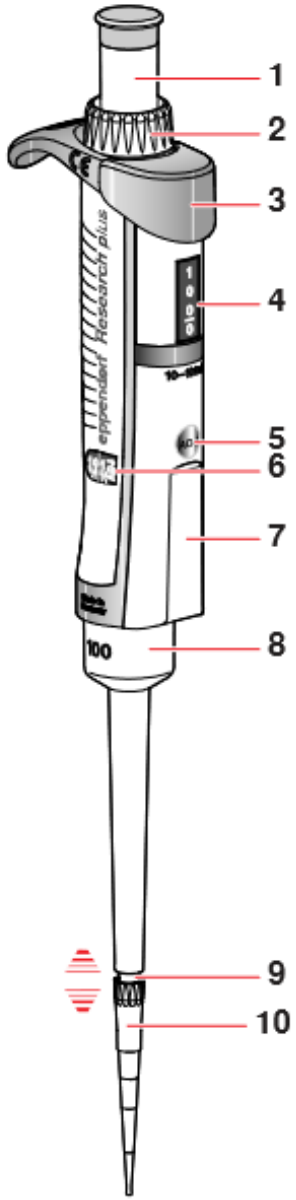
Pipettes

Pipettes

Pipette is a laboratory tool commonly used in chemistry, biology and medicine to transport a measured volume of liquid, often as a media dispenser.



1 Control button

The control button and the trays of the matching epT.I.P.S. pipette tips have the same color.

2 Volume adjustment ring

To set the volume for the variable pipettes.

3 Ejector

The ejector moves the ejector sleeve and ejects the pipette tip.

4 Volume display (only variable pipettes)

The set volume is read from top to bottom.

5 Adjustment opening

The adjustment opening is fitted with the gray adjustment seal before delivery.

6 Adjustment display

Set to "0" before delivery.

7 Labeling field

Space for labels containing internal lab information. The serial number appears at the bottom.

8 Ejector sleeve

Eject the pipette tips after use.

9 Spring-loaded tip cone

The spring loading action optimizes the force required for attaching and ejecting tips (no spring-loaded action with 5 mL and 10 mL pipettes). The 5 mL and 10 mL pipettes have an easily replaceable protection filter in the tip cone.

10 Pipette tip

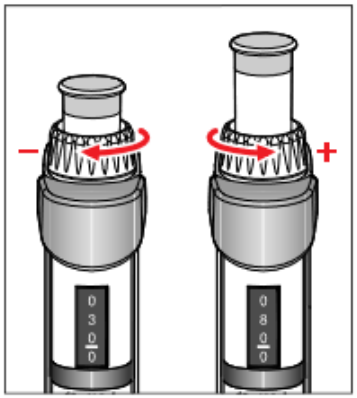
The Research plus pipettes can only be used in combination with matching pipette tips. It is recommended to use epT.I.P.S.

Materials

- Check the chemical resistance before using organic solvents or aggressive chemicals.
- Only use liquid whose vapours do not attack the materials used.

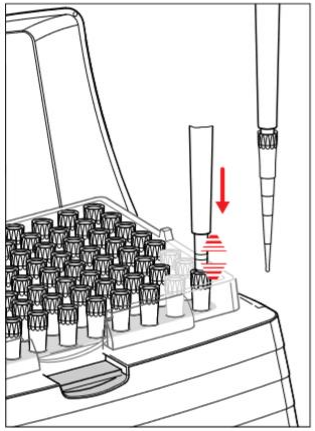
Assembly	Material
External surfaces of the upper part	• Improved polypropylene (PP) • Polycarbonate (PC) • Polyetherimide (PEI) • Foil
Viewing window	• Polycarbonate (PC)
Exterior and interior of lower parts	• Improved polypropylene (PP) • Polyvinylidene fluoride (PVDF) • Polyetherimide (PEI) • Polyphenylene sulfide (PPS) • Polyetheretherketone (PEEK) • Polytetrafluoroethylene (PTFE) • Ethylene propylene diene rubber (EPDM) • Silicone • Steel (stainless steel and spring steel)

Setting the volume



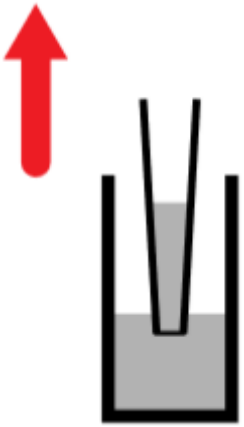
- Turn the volume setting ring as depicted to adjust the volume.
- Adjust the volume setting from a higher value to a lower value.

Using pipette tips



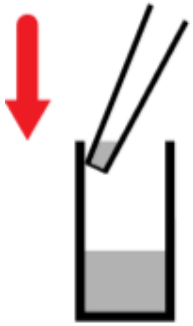
- You can either attach the pipette tip by hand or directly insert the end of the pipette into a tip held in the tip storage box.
- If attaching a pipette tip by hand, it must be handled in such a way to avoid contamination of the pipette tip.

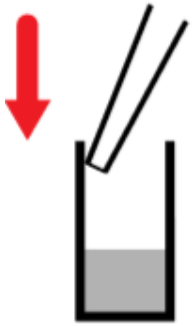
Aspirating liquid



- The liquid to be aspirated must be taken from a suitable vessel. Press down the control button to the first stop.
- Immerse the pipette tip vertically approx. 4 mm into the liquid.
- To aspirate liquid, allow the control button to slide back slowly. Maintain the immersion depth, so that no air is aspirated accidentally.
- In the case of large volumes, before removing the pipette tip from the liquid wait for approx.. 3 sec.
- To ensure maximum precision and accuracy, wet each new tip initially by aspirating and dispensing the liquid one to three times. Remove the tip slowly from the liquid.

Dispensing liquid





- Place the tip on the wall at an angle.
- Press the control button slowly until the first stop and wait until the flow of liquid stops.
- To empty the tip completely, press down the control button until the second stop.
- Hold down the control button and wipe the tip against the tube inner wall.
- Let the control button slide back slowly outside of the tube.
- To eject the tips, press the ejector.

Troubleshooting

Symptom	Possible cause	Solution
Liquid is dripping from the tip and/or the dispensed volume is incorrect.	• The tip is loose or the pipette tip is poorly fitted.	▸ Press the tip on firmly, use epT.I.P.S. If using 5 mL and 10 mL epDualfilter T.I.P.S., do not use protection filters in the pipette.
	• Liquid with high vapor pressure and/or different density.	▸ Wet the tip several times and adjust the pipette for the liquid used.
	• Pipetted too quickly.	▸ Move the control button slowly.
	• The tip is withdrawn from the liquid too quickly.	▸ Slowly remove the tip with a time delay (approx. 3 seconds) from the liquid.
	• Liquid aspirated with blow-out and dispensed with blow-out.	▸ Repeat dispensing correctly.
	• The piston is soiled or damaged.	▸ Clean the piston, relubricate slightly and/or replace.
	• The tip cone is damaged.	▸ Replace the lower part or channel.
	• The O-rings of the tip cones are damaged.	▸ Replace the O-rings (only 100 µL, 300 µL multi-channel).
The control button jams and does not move smoothly.	• The piston is soiled. • The seal is soiled. • The pipette is blocked.	▸ Clean the lower part. ▸ 5 mL and 10 mL sizes: replace the protection filter.
The adjustment seal has been removed; the adjustment display has been changed.	• The pipette has been adjusted for another liquid.	▸ Adjust the pipette for the liquid used (see *Adjusting pipettes* on p. 22).
No spring-loading action of the tip cone when taking up pipette tips.	• Spring-loading action is blocked by a locking ring.	▸ Remove the locking ring again.
	• The use of a 5 mL or 10 mL pipette.	No remedy. The tip cone does not respond with spring-loaded action in combination with these sizes.

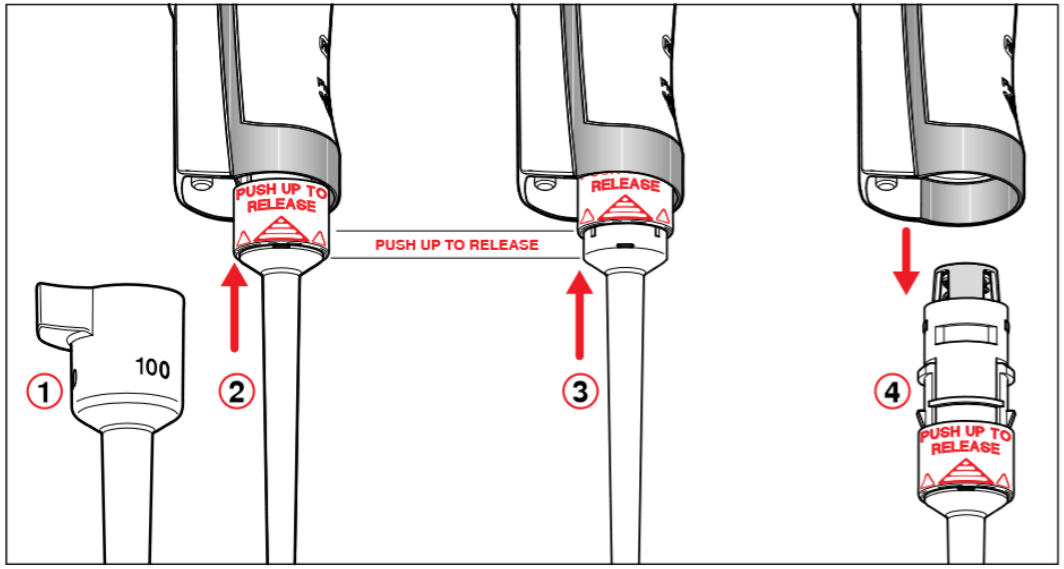
Maintenance

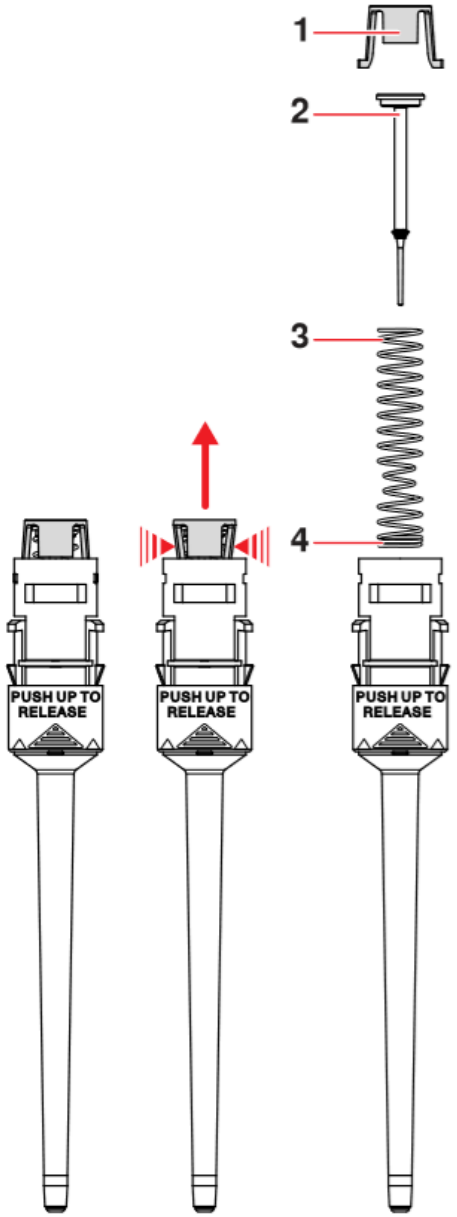
- Check for material compatibility before using organic solvents and aggressive chemicals.
- Follow the cleaning instructions.

Cleaning

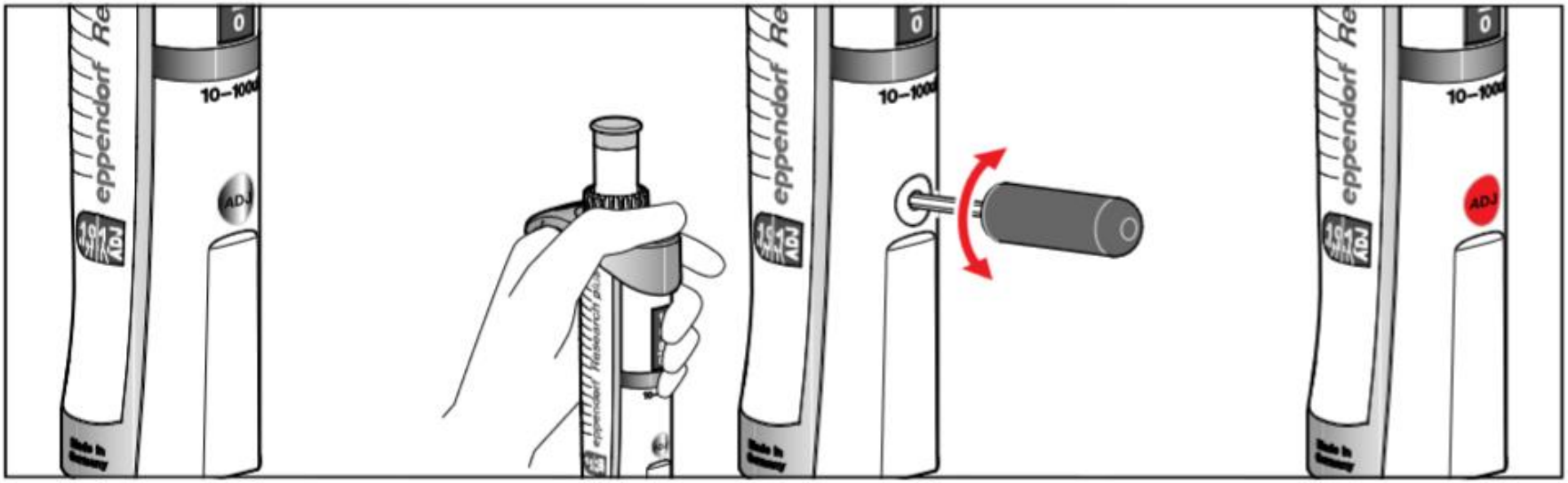
- Wet a cloth with a mild cleaning fluid and water and remove the contamination.
- To remove contamination resulting from liquid penetration, disassemble the lower part of the pipette and clean it with demineralized water.
- Do not use acetone or sharp object to clean the pipette.

Removing the lower part





Adjusting pipettes



Do’s and Don'ts

- Use the pipette with fitted pipette tips only.
- The pipette tips are for single use only. Prolonged use can have a negative impact on dispensing tasks.
- Avoid temperature differences between the pipette, pipette tip and liquid.
- Only immerse the pipette tip in the solution.
- Do not put the pipette down when the pipette tip is filled.
- The pipette itself may not come into contact with the liquid.
- Do not leave pipette in work bench after use.

Cleaning pipettes can protect your sample