

Thank you for choosing the U.S. Solid Single-Channel Pipette. This manual provides quick-start instructions, maintenance tips, and technical specifications to help you get the best performance from your new pipette. For your convenience, all essential information is clearly organized in the following pages.

Manual Pipette

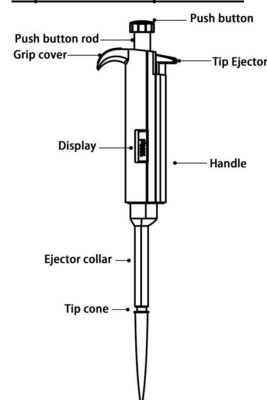
This mechanical pipette is a general purpose pipette for the accurate and precise sampling and dispensing of liquid volumes. The pipettes operate on the air displacement principle and disposable tips.

All pipettes have passed quality control testing in compliance with ISO 8655/DIN 12650 standards. The testing involves gravimetric measurement using distilled water (DIN ISO 3696 Grade 3) at 22°C with the manufacturer's original tips.

Unpacking

- Pipette
- User manual
- Silicone grease
- Pipette holder
- Pipette tip
- Plastic tool
- Calibration Certificate

Pipette Components



Installing the Pipette Holder

For convenience and safety, always store the pipette vertically in its dedicated holder when not in use. To install the holder, follow the instructions below:

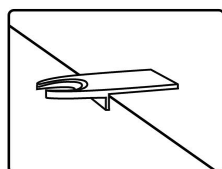


Fig.2A

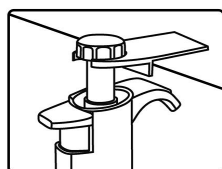


Fig.2B

- Clean the shelf surface with 70% ethanol.
- Peel off the adhesive backing.
- Press the holder onto the surface (Fig. 2A).
- Mount the pipette on the holder (Fig. 2B).

Volume Setting

The pipette's current volume is clearly displayed in the handle grip window. To adjust the delivery volume (variable volume pipettes only), turn the push button clockwise or counterclockwise to set the desired value (Fig. 3), while ensuring that:

- Rotate until volume clicks into place with clear window display.
- Keep within specified range.

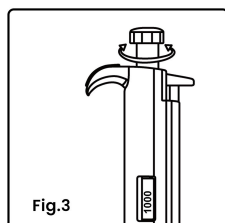


Fig.3

Sealing and Ejecting Tips

Before fitting a tip, ensure the pipette tip cone is clean. Firmly press the tip onto the pipette cone to create an airtight seal. A properly sealed tip will show a visible ring between the tip and the black cone (Fig.4).

Each pipette includes a tip ejector to prevent potential contamination risks. Press the ejector firmly downward to release the tip (Fig.5). Dispose of used tips in a designated waste container.

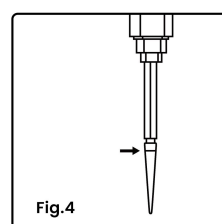


Fig.4

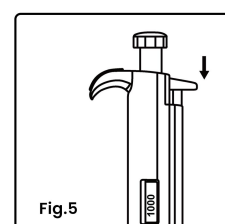


Fig.5

Performance Test

For accurate pipette verification, conduct testing at 20–25°C ($\pm 0.5^\circ\text{C}$) in a draft-free environment. Set the target volume, attach a tip, and pre-rinse it by pipetting distilled water 5 times. While holding the pipette vertically, aspirate and dispense water into a tared container on a analytical balance (please select the balance according to the actual pipette range). Repeat this process five times, recording each weight. Calculate volumes by dividing weights by water density (0.9982 g/mL at 20°C), per ISO 8655/DIN 12650 standards.

If the weighing result differs from the set value, refer to the "Recalibration Procedure" for calibration.

Recalibration Procedure

Place the calibration tool into the holes of the calibration adjustment lock (under the push button) (Fig.7).

Rotate anticlockwise to decrease delivery volume or clockwise to increase. Recalibrate and repeat performance test until achieving compliant results.

Normal tolerances apply to the results. See the 'Technical Data & Tolerances' section for more information.

Forward Pipetting

Ensure the tip is firmly seated on the cone. For best results, always depress the thumb button slowly and smoothly, especially with viscous liquids.

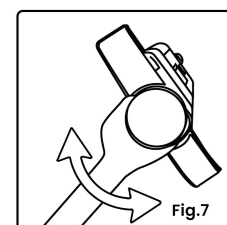
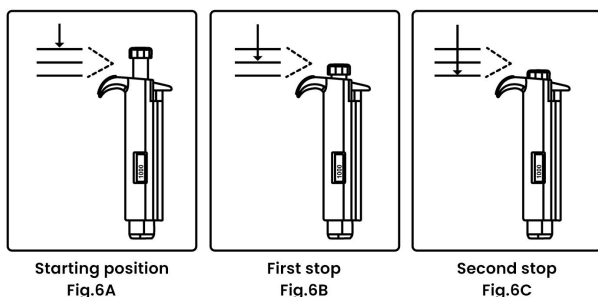


Fig.7

Maintain vertical pipette position during aspiration. Ensure the liquid and vessel are clean, and that the pipette, tips, and liquid are temperature-equilibrated.

- Depress the push button to the first stop (Fig.6B).
- Place the tip just under the surface of the liquid (2-3mm) and smoothly release the push button. Carefully withdraw the tip from the liquid, touching against the edge of the container to remove excess.
- Liquid is dispensed by gently depressing the push button to the first stop (Fig.6B). After a short delay, continue to depress the push button to the second stop (Fig.6C). This procedure will empty the tip and ensure accurate delivery.
- Release the push button to the ready position (Fig.6A). If necessary change the tip and continue with pipetting.



Reverse Pipetting

The reverse technique is suitable for dispensing liquids that tend to foam or have high viscosity. This technique is also used for dispensing very small volumes when it is recommended to first prime the tip with the liquid before pipetting. This is achieved by filling and emptying the tip.

- Depress the push button to the second stop (Fig.6C). Immerse the tip 2-3 mm below the liquid surface, then slowly release the button to return to the ready position (Fig.6A).
- Carefully withdraw the tip while touching the inner wall of the container to remove excess liquid.
- Gently depress the push button to the first stop (Fig.6B) to dispense the preset volume. Keep holding at the first stop - the liquid will remain in the tip without being delivered.
- Either discard the residual liquid with the tip or return it to the source container.

Pipetting Recommendations

- Never pipette without a tip attached to the pipette.
- Ensure the pipette, tips, and liquid are at the same temperature before use, and always press the tip firmly onto the cone for an airtight seal.
- Hold the pipette vertically when aspirating, immersing the tip only 2-3 mm below the liquid surface.

- Before transfer, pre-rinse tips by aspirating and dispensing the liquid 5 times - especially critical for viscous liquids or those with density different from water.
- Always control the push button movements smoothly with your thumb to ensure consistent operation.
- For liquids at non-ambient temperatures, pre-rinse the tip multiple times before pipetting.

Storage

When not in use, the pipette should be stored vertically in its included holder (refer to "Installing the Pipette Holder" for proper setup) or a dedicated laboratory stand for optimal performance preservation.

Maintenance

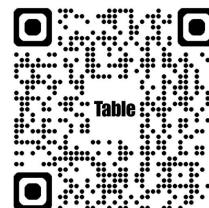
For optimal performance, ensure daily cleaning of your pipette (spray with pipette-safe disinfectant/alcohol and wipe with a soft/lint-free cloth), especially the tip connection. Check performance regularly and after any maintenance or repair.

Disassembly procedures may vary by calibration range: models with a 5ml or higher range differ from those below 5ml. Refer to the instructional video or contact our customer service for detailed steps.

Technical Data & Tolerance

This pipette series offers multiple volume ranges.

Detailed specifications and error tolerance tables can be accessed by scanning the QR code below.



Operation Guide

For visual operation guidance, scan the QR code to watch demonstration videos on:

- Calibration procedures
- Routine Use
- Maintenance

