

- Before replacing tip cone it is recommended to grease the piston slightly using the silicone grease provided.
- After reassembling, use the pipettor (without liquid) several times to make sure that the grease is spread evenly.
- Check the pipettor calibration.

Note: Never disassemble the upper part of the pipette. To avoid losing or damaging fragile parts, reassemble the pipette immediately

Calibration

Each pipette has been checked & calibrated at factory with procedure conforming to DIN 12650 standards. It is recommended to check the calibration atleast once a year, for regularly used pipette.

Checking calibration

- Set the desired testing volume of your pipettor.
- Carefully fit tip on to the tip cone.
- Pipette distilled water in to a pre-weighed beaker atleast five times & record the weight each time.
- Compare the results with the permitted variation chart given below. The calibration of the pipette must be set even if only one of the results falls outside the permitted range.

Volume	Variation permitted	Volume	Variation permitted
1 μl	$\pm 0.15 \mu\text{l}$	50 μl	$\pm 0.80 \mu\text{l}$
2 μl	$\pm 0.20 \mu\text{l}$	100 μl	$\pm 1.50 \mu\text{l}$
5 μl	$\pm 0.30 \mu\text{l}$	200 μl	$\pm 2.00 \mu\text{l}$
10 μl	$\pm 0.30 \mu\text{l}$	500 μl	$\pm 5.00 \mu\text{l}$
20 μl	$\pm 0.40 \mu\text{l}$	1000 μl	$\pm 10.00 \mu\text{l}$

For user in a normal lab environment, the limits may be doubled.

Important Notes

- Procedure should take place at 20°C ($\pm 0.5^\circ\text{C}$.) constant temperature.
- The weighing beaker, distilled water, pipettor & tips must be at the same temperature.
- Use an analytical balance with 0.01 mgs readability.
- Prerinse the tip 3 to 5 times before pipetting.
- Divide the weight of the water by its density (at 20°C, 0.9982) to get the volume.

Recalibration

- Place the service tool in to the holes at the base of the thumb button as shown below. Turn it clockwise to increase & anticlockwise to decrease the volume.
- Repeat the checking calibration procedure.



Storage

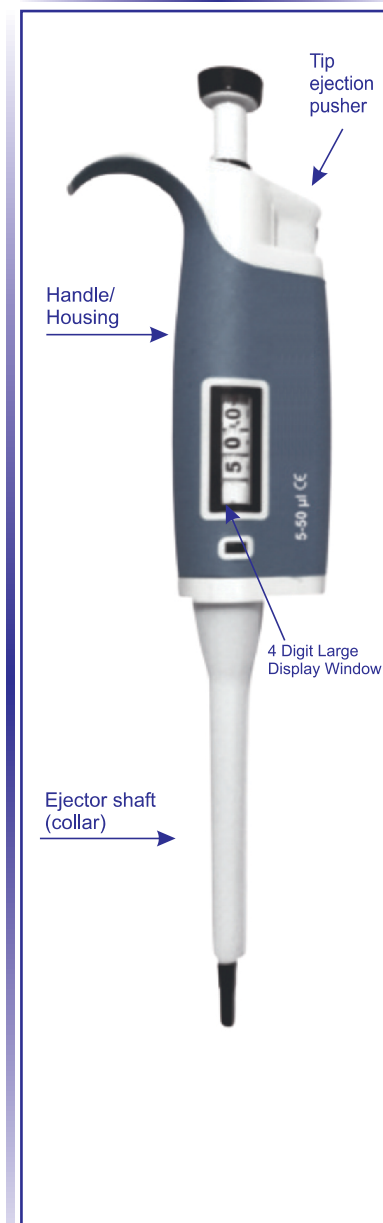
When not in use it is recommended that your pipettor is stored in a vertical position.

leaving a pipette on its side can cause liquids to leak in to the body of the pipette and cause corrosion.

Trouble Shooting

Trouble	Possible Reason	Correction
Droplets left inside the tip.	Unsuitable tip. Non-Uniform wetting of the plastic.	Use new better Quality tip.
Leakage or Pipetted Volume too small	Tip holder (cone) scratched or damaged.	Change the tip cone.
	Organic Solvent as liquid.	Aspirate & discard the organic solvent several times before actual pipetting by the same tip.
	Tip incorrectly attached.	Attached firmly.
	Unsuitable tip.	Use better quality tip.
	Foreign particles between tip and tip cone.	Clean the tip cone.
	Insufficient amount of grease on piston and O-ring.	Clean & grease o-ring and piston.
Inaccuracies	O-ring not correctly positioned or damaged.	Change the O-ring.
	Incorrect operation.	Follow instruction carefully.
	Calibration altered.	Recalibrate according to instruction.
	Unsuitable for the particular liquid pipetting technique.	Use correct pipetting technique.
Push button jammed or move erratically	Instrument damaged.	Send for repair.
	Piston contaminated. Penetration of solvent vapours.	Clean & grease O-ring and piston.
Tip Ejector jammed or move erratically	Tip cone contaminated from outside.	Remove ejector collar and clean tip cone's outer surface with ethanol.
Volume setting is not properly	Click stop mechanism damaged.	Send for repair.
Push button does not turn for volume setting	Use of excessive force beyond the range of pipette.	Send for repair.

HIGH PERFORMANCE MICROPIPETTE FULLY ATOCALABLE Instruction Manual



Micropipette manual single channel pipette blends cutting-edge engineering and innovation to deliver highly reproducible results with exceptional comfort. New elastomeric seals deliver smoothness and control. Four digit large display for easy readout.

Comfortable, Ergonomic Pipette

Lightweight and designed for use with either hand, the durable and the most ergonomic manual pipettes available. The comfort design handle, light springs ensure smooth, light operation and significantly reduce the risk of repetitive strain injuries. The carefully shaped finger hook enables a relaxed grip.

Micropipette manual single channel pipette is available in universal-tip models

Smooth Operation Pipette

The sealing system on Micropipette delivers a plunger stroke that is smooth, precise and requires less force than ever. Perfect for pipetting applications that require delicate control!

Variable Volume Micropipette

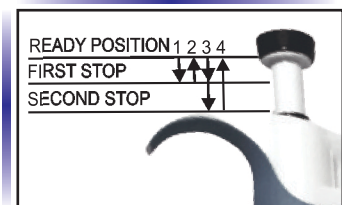
Cat No.	Volume Range	Increment
AC-400002	0.2 - 2 µl	0.02 µl
AC-400010	0.5 - 10 µl	0.02 µl
AC-400020	2 - 20 µl	0.02 µl
AC-400050	5 - 50 µl	0.02 µl
AC-400100	10 - 100 µl	0.01 µl
AC-400200	20 - 200 µl	0.02 µl
AC-401000	100 - 1000 µl	1.00 µl
AC-405000	500-5000 µl	1.00 µl

Fix volume pipettors

Cat No.	Volume Range
RVP-ACF1	1 µl
RVP-ACF2	2 µl
RVP-ACF5	5 µl
RVP-ACF10	10 µl
RVP-ACF20	20 µl
RVP-ACF25	25 µl
RVP-ACF50	50 µl
RVP-ACF100	100 µl
RVP-ACF200	200 µl
RVP-ACF250	250 µl
RVP-ACF500	500 µl
RVP-ACF1000	1000 µl
RVP-ACF5000	5000 µl

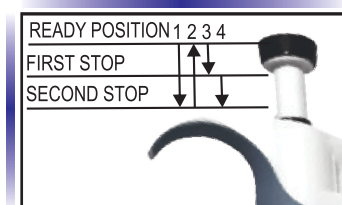
Pipetting Technique

A. Forward Pipetting



- Press the operating button to the first Stop.
- Dip the tip attached to the pipette into the solution to a depth of about 1 cm, and slowly release the operating button. Wait for a while then withdraw it from the liquid touching it against the edge of the reservoir to remove excess liquid adhering to Outer surface of the tip.
- Dispense the liquid into the receiving vessel by gently pressing the operating button to the first stop. After a second, press the operating button to the second stop. This will empty the tip completely. Remove the tip from the vessel sliding it up the wall of the vessel.
- Release the operating button to the ready position.

B. Reverse Pipetting



- Press the operating button to the second stop.
- Dip the tip attached to the pipette into the solution to a depth of about 1 cm, and slowly release the operating button. This action will fill the tip with a volume that is larger than the set volume. Wait 1-2 seconds and withdraw the tip from the liquid touching it against the edge of the reservoir to remove excess liquid.
- Dispense the liquid into the receiving vessel by pressing the operating button gently and steadily to the first stop. This volume is equal to the set volume. Hold button in this position. Some liquid will remain in the tip, which should not be dispensed.
- The liquid remaining in the tip can be pipetted back into the original solution or disposed together with the tip.
- Release the operating button to the ready position.

Note: Reverse pipetting technique is recommended for viscous solutions having tendency to foam or dispensing very small volumes.

Unpackaging

- ✓Pipettor
- ✓Recalibration tool
- ✓Grease
- ✓Tip
- ✓Instruction Manual
- ✓Calibration Report
- ✓O-ring

Pipetting Recommendations

- Aspirate liquid into the pipette only when a tip is attached to its cone.

While pipetting, the pipettor should be vertically straight and tip should be dipped only a few millimeters into the liquid.

- Pre-rinsing of tip 5 times with the liquid to be dispensed is recommended. This is important especially when dispensing liquids which have a viscosity and density different from water.

- Always control the push button movements with the thumb to ensure consistency.

- Allow liquids, Tips and pipettes to equilibrate to the ambient temperature.

Wipe the tip only if there is liquid on the outside of the tip, being careful to avoid touching tip's orifice.

- Don't keep pipette in your hand while not working to avoid transferring body heat.

- Use the correct pipette tip designed for use with the particular pipette.

- Select the correct pipetting technique (e.g. Reverse, Forward etc.) depending on the nature of the liquid.

- Using excessive force to turn the push button outside the range specified for it may jam the mechanism and damage the pipettor.

Maintenance

To maintain the best results from your Micropipette, each unit should be checked every day for cleanliness. Particular attention should be paid to the tip cone(s).

Micropipette has been designed for easy in-house service. However, Micropipette also provides complete repair and calibration service. Please return your pipettor to your local distributor for repair or calibration. Before returning please make sure that it is free from all contamination.

Check the performance of your Micropipette regularly e.g every 3 months and always after in-house service or maintenance.

Cleaning Your Pipettor

To clean your pipettor use ethanol and soft cloth or lint -free tissue, It is recommended to clean the tip cone regularly.

In-House Maintenance



- Pull down the tip ejector.
- Carefully release the tip ejector and remove the ejector collar.
- Place the wrench end of the opening tool over the tip cone and turn it anticlockwise.
- After removing the tip cone, wipe the piston, the O-ring and the tip cone with ethanol and a lint-free cloth.

Note: Models up to 10µl have a fixed O-ring located inside the tip cone, so do not remove or maintain it.