

## INSTRUCTION MANUAL

**1. General Information:** This pipette is produced and tested according to EN ISO 8655.

**2. Unpacking:** This pack should contain the following: Digital micropipette, calibration/servicing tool, silicon grease, tips, performance certificate according to ISO 8655.

**3. Volume Setting:** The volume is shown through the handle grip window. On variable pipettes, the delivery volume is set by turning the thumb button clockwise or anticlockwise. Using excessive force to turn the push button outside the range may jam the mechanism and damage the pipette.

**4. Sealing and ejecting tips:** Before fitting a tip make sure that the tip cone is clean. Press the tip firmly onto the cone to ensure an airtight seal. The pipette is fitted with a tip ejector to help eliminate the safety hazards associated with contamination. The tip ejector needs to be pressed downwards to ensure proper ejection.

**5. Forward pipetting for standard Liquids:** Depress the operating button to the first stop. Dip the tip just under the liquid surface (2-3 mm) and smoothly release the operating button. Withdraw the tip from the liquid, touching against the edge of the reservoir to remove excess liquid. Dispense the liquid by gently pressing the operating button to the first stop. After a short delay press the button to the second stop. This blow-out will empty the tip completely and ensure accurate pipetting. Release the button to the ready position.

**6. Reverse pipetting for high viscosity or foaming Liquids:** Depress the operating button to the second stop. Dip the tip just under the liquid surface (2-3mm) and smoothly release the operating button. Withdraw the tip from the liquid, touching against the edge of the reservoir to remove excess liquid. Dispense the liquid by gently pressing the operating button to the first stop. This volume is equal to the set volume. Hold the button in position. The liquid that remains in the tip should not be included in the delivery. The remaining liquid should now be discarded with the tip or delivered back into the reservoir.

**7. Pipetting recommendations:** Use your pipette only when a tip is attached. Hold the

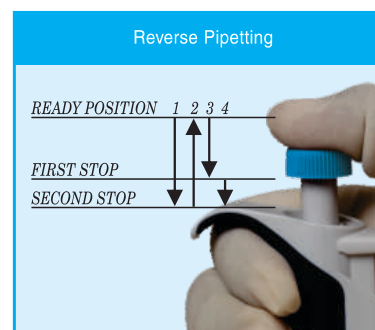
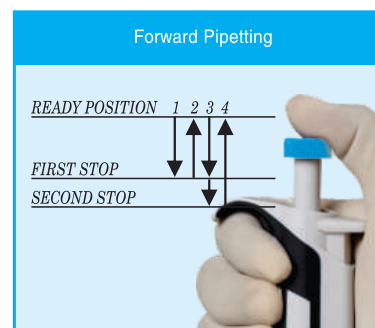
pipettor vertically when aspirating and dip the tip only 2-3 mm into the liquid. Pre-rinse the tip 5 times before aspiration by filling and emptying the tip. Always control the push button movements with the thumb for consistency. Allow liquids, tips and pipettes to equilibrate to the ambient temperature before use.

**8. Checking calibration:** Carefully fit tip onto the tip cone. Pre-rinse tip with distilled water by pipetting the selected volume 5 times. Aspirate the liquid. Pipette liquid into a tared container and read the weight in mgs. Repeat at least 10 times and record each result. Use an analytical balance with a readability of 0.01 mgs. Compare the results with the corresponding calibration volume range. Weighing should take place at 20-25°C. Avoid drafts. Distilled water, weighting vessel, pipettor and tips must be at the same temperature. To calculate the volume. Divide the weight of the water by its density (at 20°C:0.9982). This method is based on DIN12650.

**9. Calibration procedure:** Place the calibration tool into the holes of the calibration adjustment lock (under the thumb button). Turn the adjustment lock anticlockwise to decrease and clockwise to increase the volume. Repeat checking calibration until the pipetting results are correct.

**10. In-House Maintenance:** Hold down the tip ejector. Place the tooth of the opening tool between tip ejector and tip ejector collar to release the locking mechanism. 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. Before replacing the tip cone grease the piston slightly using the silicon grease provided. After reassembling use the pipettor several times to make sure that the grease is spread evenly. Check the pipettor calibration.

**11. Warranty:** 36 months against defects in materials and workmanship. Should it fail to function during that period of time, please contact your local representative immediately. The warranty will not cover defects used by normal wear or by not following the instructions given in this manual.



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Range $\mu\text{l}$	Increments $\mu\text{l}$	Inaccuracy ( $\pm$ ) %	Imprecision ( $\pm$ ) %
0.1-2.5	0.01	12.0-2.5	6.0-1.6
0.5-10	0.1	2.5-1.0	1.5-0.8
2-20	0.1	3.0-0.9	2.0-0.4
5-50	0.5	2.0-0.6	2.0-0.3
10-100	0.5	3.0-0.8	1.5-0.15
20-200	1	2.0-0.6	0.8-0.15
100-1000	5	2.0-0.6	0.7-0.2
500-5000	50	2.0-0.5	0.6-0.15
1000-10000	100	3.0-0.6	0.6-0.2

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