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Find the *VistaLab / MLA Micro D-Tipper* at our website: ***Click HERE***

DESCRIPTION

The Micro D-Tipper™ Fixed Volume Pipettes are general purpose pipettes for sampling and dispensing liquids when accuracy, precision and convenience are required. The Micro D-Tipper pipettes are available in nine volumes ranging from 2µL to 10µL and use a standard MLA small tip.

Micro D-Tipper pipettes are piston stroke, air displacement instruments with tip ejection. The Micro D-Tipper is a two stroke pipette with overblow, enhancing the accuracy and precision at volumes below 10µL. The first stop is the measuring stroke. The second stop is the dispense and blow-out stroke.

The Micro D-Tipper is factory calibrated to dispense the volume engraved on the pipette. Calibration can be verified and easy in- lab adjustment is possible. This feature is useful for compensation when samples with viscosity or specific gravity significantly different from distilled water are measured.

The standard MLA small tip is recommended for use with the Micro D-Tipper. These are available in stacked, bulk or EconoPak. Trace metal, individually wrapped sterile and pyrogen- free sterile tips are also available for special applications. Like all MLA mechanical pipettes, the Micro D-Tipper has a Lifetime Warranty.

PERFORMANCE SPECIFICATIONS

Cat. No.	Volume	Color	Accuracy	Precision
1802	2µL	Red	2.0%	2.5%
1803	3µL	Gray	1.5%	2.0%
1804	4µL	White	1.5%	2.0%
1805	5µL	Silver	1.0%	1.5%
1806	6µL	Green	1.0%	1.5%
1807	7µL	Purple	1.0%	1.5%
1808	8µL	Black	1.0%	1.5%
1809	9µL	Blue	1.0%	1.5%
1810	10µL	Orange	1.0%	1.0%

Specifications are subject to change without notice.

Pipettes are factory calibrated and verified gravimetrically using distilled water and analytical balance. Water temperature and ambient conditions are stabilized and controlled in accordance with documented procedures. Statistical process control is used to ensure consistent lot to lot quality.



Figure 1 :
Automatic De-Tipping

CALIBRATION ADJUSTMENT

In the event that adjustment of the calibration is required, we recommend the gravimetric method under controlled environment, or an authorized calibration service. Pipettes can be returned to VistaLab Technologies for recalibration and repair as part of the Lifetime Warranty. It is highly recommended that the pipettes be returned to the manufacter for recalibration using controlled conditions and procedures consistent with ISO and NCCLS standards which are important to achieve accuracy at microvolume ranges.

Adjustment Procedure

Determine the pipette delivered volume by gravimetric test procedure. A minimum of five weighings are required. If out of specification, allow pipette and materials to equilibrate to ambient temperature, and retest. If still out of range, proceed to adjust volume. The range of adjustment is ±10%.

1. Insert the provided allen key into the push button end of the pipette. (See Figure 4)

2. While holding the plunger steady, turn the key clockwise to increase volume, or counter-clockwise to decrease volume. Hold the plunger button while turning the key. See table for volume change per turn of allen key.

For Micro D-Tipper Volume	Change in Volume per Turn
2µL	0.15µL per turn
3 - 4µL	0.28µL per turn
5 - 10µL	1.25µL per turn

3. Retest pipette by same method to determine volume.

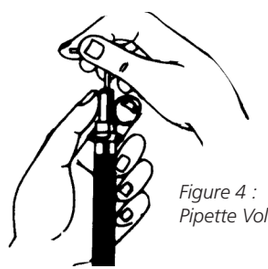


Figure 4 :
Pipette Volume Adjustment

WARRANTY

Your new Micro D-Tipper pipette is the only pipette available with a Lifetime Warranty. Complete the registration card enclosed or go to www.vistalab.com to activate your new pipette warranty. Once the pipette has been registered, the lifetime warranty becomes effective.

VistaLab Technologies, Inc. guarantees that your new pipette will be free from defects in materials and workmanship. Should the pipette be received in any other condition, please contact VistaLab Technical Services at 1-888-652-6520 immediately for Return Authorization. Should the pipette fail to operate or require repair, go to www.vistalab.com for details on returning your pipette to the VistaLab Technologies.

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L038-0610- 001 Rev D

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MLA™ pipette

Operator's Manual

MLA Micro D-Tipper Fixed Volume Pipette



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PIPETTE OPERATION

Pipette Tips

The pipette is a precision instrument. System performance depends on the pipette and tip system used. Using tips which were not used to calibrate the pipette may effect accuracy and precision. For best results, use VistaLab recommended tips.

Aspirating/Filling

1. Securely attach the appropriate, unused pipette tip.
2. Press plunger button down to the first stop.
3. Hold pipette vertically and immerse the tip approximately 3 mm into the sample solution.
4. Gently and slowly return the plunger button to up position. Do not let it snap back.
5. Withdraw the tip from the liquid so that no drops remain attached on the outside of the tip. Should any liquid remain, wipe the outside of the tip with a lint-free tissue, taking special care not to touch the tip opening.

Dispensing/Emptying

6. Place the tip against the side wall of the receiving vessel.
7. Depress the plunger slowly to the first stop. Pause.
8. Depress the plunger further to the second stop (blow out) or bottom of stroke, dispensing all liquid from tip.
9. With the plunger still fully depressed, slowly withdraw the tip while sliding along the wall of the vessel. Release plunger to up position.
10. Eject tip by lifting the tip ejector bonnet.

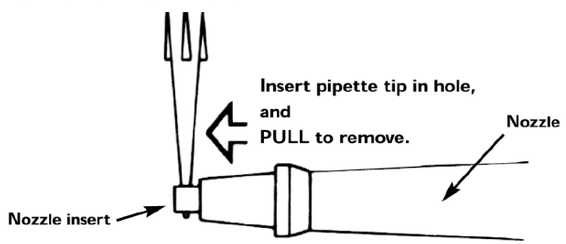


Figure 2 : Nozzle Insert Removal and Replacement

Special Notes

- Do Not pre-wet tips.
- Use a new tip for each aspirate/dispense.
- Dispensing must be performed along the vessel wall or directly into liquid. Perform blow-out stroke, hold plunger down, and withdraw pipette from vessel.
- With small sample volumes, results can be optimized by rinsing the tip after dispensing. After the first dispense is performed, keep the tip in the receiving vessel and aspirate and dispense several times. Perform blow-out and slide tip out along the vessel wall.

Operational Limitations and Precautions

- Consistent technique and smooth, steady movements are key to precision.
- Keep the pipette in a vertical position at all times when in use.
- Always depress the plunger to the proper stop before putting the tip into liquid to avoid air and incorrect volume intake.
- Differences in the temperature of the pipette and solution can result in inaccurate dispensing.

RECOMMENDED VISTALAB TIPS

Cat. #	Description
4060-9025	VistaStak™, 192 tips/layer, 5 layers
9025	Stacked Rack, 200 tips/layer, 5 layers
9022	Stacked Rack, Trace Metal Certified, 200 tips/layer, 5 layers
4058-2000	VistaBulk™, 1000 tips/bag
4025	Protectainer™ Bulk Pack, 1000 tips
4225	Econo-Pak™ Bulk Pack, 1000 tips
2025	VistaTip™ Individually Wrapped, Sterile, 200 tips
2027	VistaTip Individually Wrapped, Sterile, Pyrogen-free, 200 tips
4060-2004	VistaRak™, 192 tips/rack, 5 racks
4060-2132	VistaRak, Sterile, Pyrogen-free, RNase/DNase certified, 192 tips/rack, 5 racks
4060-2332	VistaRak, Filtered, Sterile, Pyrogen-free, RNase/DNase certified, 192 tips/rack, 5 racks

SERVICE AND MAINTENANCE INFORMATION

During factory assembly, the internal parts of the pipette (plunger, seals, etc.) are lubricated with a silicone grease. Normally, cleaning, replacement of seals and nozzle inserts, and lubrication should be necessary only every 6 months. If the pipette is used with corrosive chemicals or solvents, or roughness in the plunger movement is observed, cleaning and lubrication may be necessary more often.

Cleaning

The pipette should be checked each day of use for dirt and dried liquids on the outside surfaces of the pipette. Wipe clean with soapy water and lint-free cloth. If stronger cleaning agents are used, rinse well with water and wipe dry. Inspect the nozzle insert for cleanliness. Remove and rinse clean if debris is seen. Dry with jet of air.

Maintenance

Every six months, or as required, replace seals and lubricate. Refer to Maintenance and Repair Kits for proper replacement parts to have on hand.

1. Hold the pipette around the sleeve and pull the nozzle away from the sleeve to expose the spring cap assembly.
2. Grasp the spring cap with your thumb and forefinger and unscrew the nozzle. Remove the nozzle and sleeve.
3. Unscrew and remove the spring cap assembly.
4. Remove and discard old seals. **Note:** The 2µL, 3µL and 4µL pipette models includes a separate part, a metering seal housing, with two small "O" rings. This housing should stay on the plunger when the nozzle assembly is removed. If metering seal housing remains in the spring cap assembly, remove it, the two "O" rings and the quad ring from the spring cap assembly, using a small straight pin. Remove the two "O" rings from the seal housing and discard seals.
5. Depress and hold the button plunger to advance the plunger mechanism. Wipe exposed surface with soft clean cloth. Lubricate with a thin film of lubricant from inside seal bag.
6. Carefully place new pre-lubricated seals on plunger. **Note:** When replacing the "O" rings for 2µL, 3µL and 4µL pipette models assemble both "O" rings, then the metering seal housing and then the quad ring onto plunger.
7. Reassemble pipette being careful while inserting plunger and seals into nozzle assembly.

MAINTENANCE AND REPAIR KITS

Cat. #	Description
9075	Seal Kit for 2µL
9076	Seal Kit for 3µL & 4µL
9077	Seal Kit for 5µL – 10µL
8066	Nozzle Insert
9030	Seal Lubricant

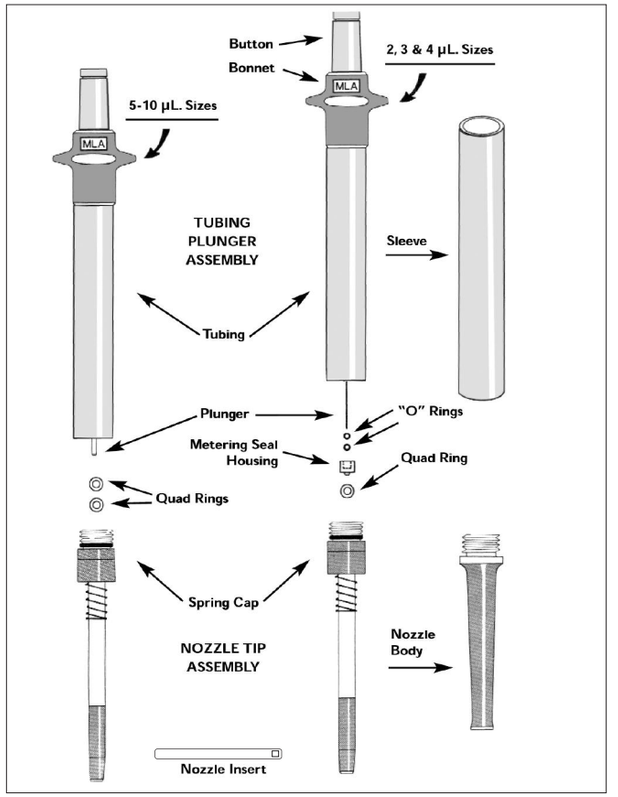


Figure 3 : Pipette Disassembly and Seal Replacement

CALIBRATION

The pipettes have been calibrated at the factory to perform within the specifications in table. Ordinarily the pipettes do not need to be calibrated but they are designed to permit easy in-lab calibration. (**Warning:** Experience and proper training is required to accurately perform calibration using gravimetric method. All procedures are to be performed under controlled environment conditions.)

Calibration Verification

Verification of pipette calibration is recommended every six months. This should be performed after the routine maintenance is completed. Some laboratories may not have access to facilities capable of performing the gravimetric method. In these instances, you may consider using the VistaLab Pipette Verification Calibration Kit or returning the pipettes to VistaLab Technologies for calibration and/or repair.

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