

 **Ovation**  
BioNatural Pipette

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# Operator's Guide for Fixed Volume Pipettes

(Ovation F1 and Ovation F2)



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# OVATION FIXED VOLUME PIPETTES

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## Product Description

Ovation® BioNatural™ pipettes is intended for use as a liquid transfer device, capable of aspirating and dispensing precise fluid volumes. As you can see from its appearance, it is different from every pipette that you have used before, therefore please read the instructions carefully.

This manual describes how to use and care for Ovation F1 and F2 fixed-volume pipettes. Single stroke and two stroke (with overblow) models are available to cover liquid dispensing needs ranging from 1µL to 1000µL. The model is indicated on a label on the front of the pipette.

Please activate the pipette's warranty on the VistaLab Technologies web site – [www.vistalab.com](http://www.vistalab.com). The required on-line form can be found in the “service” menu. Retain all packing materials in the event that the pipette is to be sent back to VistaLab Technologies for calibration verification or service.

## Specifications

Model	Accuracy*	Precision*
Ovation 1µL†	±2.7%	1.80%
Ovation 2µL†	±1.5%	0.90%
Ovation 5µL	±1.5%	0.60%
Ovation 10µL	±1.5%	0.50%
Ovation 20µL	±1.0%	0.30%
Ovation 25µL	±1.4%	0.60%
Ovation 50µL	±0.8%	0.24%
Ovation 100µL	±0.8%	0.15%
Ovation 200µL	±0.8%	0.15%
Ovation 250µL	±1.2%	0.30%
Ovation 300µL	±1.0%	0.25
Ovation 500µL†	±0.8%	0.20%
Ovation 1000µL	±0.8%	0.15%

† Available in two stroke models only.

Note: Performance data is based on the use of Ovation tips from VistaLab Technologies. If using tips from another manufacturer, the above performance claims may not be achieved. Specifications subject to change. See [www.vistalab.com](http://www.vistalab.com) for current information.

# Pipette Components



<b>Description</b>	<b>Function</b>
Plunger	Initiates pipetting action
Tip Eject Button	Ejects disposable pipette tips with minimal thumb force
Adjustable Hook	Accommodates left and right handed users
Ejector Sleeve	Stored energy from tip installation releases tips
Nozzle	Tapered, chemically resistant coupling that secure pipette tips
Body	Contoured grip surface for comfort, eliminating tight hand grip
Model Information	Indicates one stroke or two stroke model
Volume Indicator	Indicates the fixed volume that the pipette aspirates and dispenses

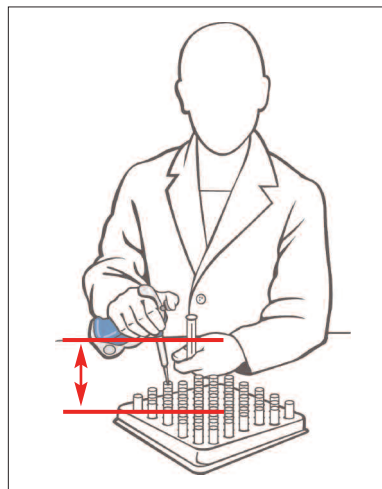
## Introduction

Studies have shown that pipetting is the #1 cause of musculoskeletal disorders in the laboratory – it is, by nature, a repetitive process that puts strain on the body. While we can't change how repetitive pipetting is, we can and did change how comfortable you are while doing it.

The Ovation BioNatural Pipette is the only pipette designed to keep your hand in the neutral position recommended by ergonomics experts. We call this BioNatural™ pipetting – it allows a lower hand location to ease stress in the shoulder, and a relaxed wrist angle eliminates uncomfortable extension and radial deviation movements in the arm. Force, velocity and exertion from repetition or duration have also been neutralized because of the Ovation pipette's unique working position and reduced forces required during operation.

Some practice may be required to change years of posture and habits developed using standard axial pipettes; the physical benefits of BioNatural pipetting are worth the practice! When using the Ovation pipette, arm/hand elevation should remain low to the work surface, wrist rotation should not exceed 90°, and hand posture should remain relaxed with the wrist and back of hand slightly flexed.

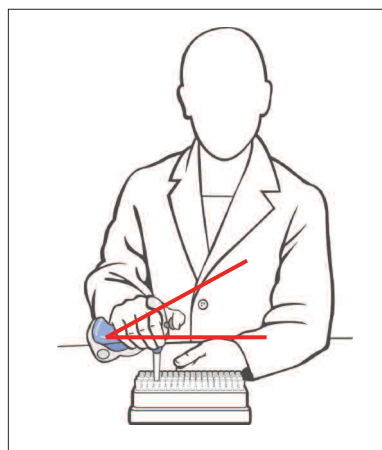
## Posture



*Arm elevation remains low, minimizing stress to elbow, shoulder and neck*

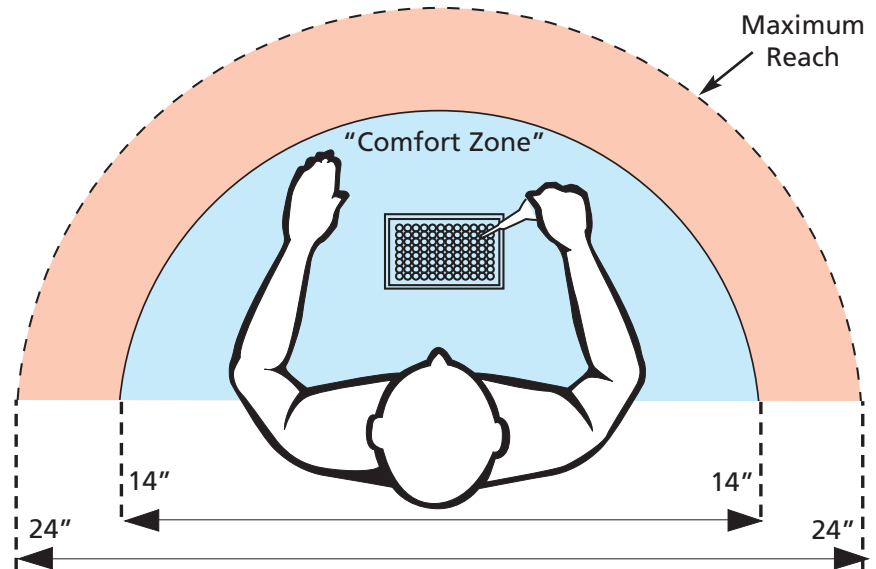


*A loose, relaxed grip increases available strength in the hand, improving endurance and productivity during pipetting*



*Wrist remains in a neutral range of motion throughout all pipetting operations*

**Keep a “comfort zone”  
for pipetting**



Ergonomics experts recommend establishing a “comfort zone” of movement for the task of pipetting. Position your body within 9” of the counter surface, and keep the items needed within easy reach. Ideally this should be 14” or less, and should not exceed 24” of occasional reaching. Wrist rotation should not exceed 90° from the work surface, and arm/hand elevations should remain low to the counter surface.



**Ovation comfort-zone benefits:**

1. Minimized tension and fatigue
2. Minimized exertion and contact stress
3. Low contact pressure
4. Lowest pressure in carpal tunnel and to median nerve
5. Minimized tension to shoulder and elbow

## Picking Up the Pipette



The Ovation F1 and F2 has been designed to allow the body of the pipette to fill your palm. Rotate the adjustable hook to rest comfortably on your forefinger. The texture of the unit's back helps reinforce correct hand positioning.

The unique ergonomic design and adjustable hook is compatible for both right and left-handed use.

Keep hand posture relaxed – there's no need for a "firm grip" when using an Ovation pipette.

## Acquiring Tips



While maintaining a flat wrist-hand posture, insert the Ovation pipette nozzle into a tip. Press down until you hear or feel a "click". This "click" indicates that the tip is properly seated and ready for use.

Disposable pipette tips are to be used once, then discarded. For proper fit and to achieve stated precision and accuracy specifications, use the VistaLab pipette tips recommended in this manual. Use of other manufacturer's tips can cause the pipette performance to differ from stated specifications, can damage the nozzle or ejector sleeve, or impede the performance of the tip ejection system.

## Aspirating and Dispensing



Tip Immersion Depth	
0.2µL to 10µL	1mm
11µL to 100µL	2-3mm
101µL to 1000µL	2-4mm

1. On two stroke models, press the plunger down to the first stop; on single stroke models, fully depress the plunger. Immerse pipette tip in the sample.
2. Smoothly and slowly, release the plunger allowing sample to enter the pipette tip. Wait one second before withdrawing the tip from the sample.
3. Place the pipette tip against the side of the receiving vessel close to the bottom of the vessel, or if it contains liquid, just above the surface of the liquid.
4. On two stroke models, smoothly press the plunger to the first stop, wait one second, then fully depress the plunger to the second stop to dispense all liquid from the tip. On single stroke models, fully depress the plunger.

5. With the plunger depressed, slowly withdraw the tip.
6. Release the plunger when the tip is away from the receiving vessel.

See “Pipetting Hints for Optimal Performance” for additional information.

## Ejecting Tips



Ovation pipettes store energy captured during the acquisition of a tip, and use it to discard tip when the tip eject button is pressed. Point pipette tip into a suitable waste container and press the tip eject button to discard the tip.

To minimize forearm elevation and “reaching”, position the waste container below worksurface level or use shallow containers. Raising the arm to discard tips into a tall receptacle on the counter may negate some of the benefits of Ovation’s low-profile design.

## Pipetting Hints for Optimal Performance

- When using viscous or volatile reagents, pre-wetting the pipette tip may be appropriate. To pre-wet, aspirate and dispense the liquid back into the original vessel. Then fill the tip and dispense contents into receiving vessel.
- If an air bubble forms in the tip during aspiration, return the sample, discard the tip, and use a fresh tip.
- Smoothly depress and release the plunger when pipetting, maintaining the same speed of motion for all samples. Do not let the plunger “snap back” to the uppermost position.
- When finished aspirating, touch the pipette tip against the side of the vessel as it is being withdrawn to remove any liquid that may have adhered to the outside of the tip. Wipe the pipette tip ONLY if there is liquid adhering to the outside. Be careful not to “wick out” any of the contents from the pipette tip.
- Dispense against the side of the receiving vessel or above the liquid surface. To remove any of the measured liquid that may have adhered to the pipette tip, touch off the tip against the side of the receiving vessel.
- Optional Type A nozzles for 100–1000 $\mu$ L models are designed to accommodate some non-VistaLab tips.
- If aspirating from 15mL or 50mL centrifuge or other tall tubes, an optional Nozzle Extender accessory is available which lengthens the pipette’s overall reach. If the optional nozzle extender is being used, calibration verification should be checked.



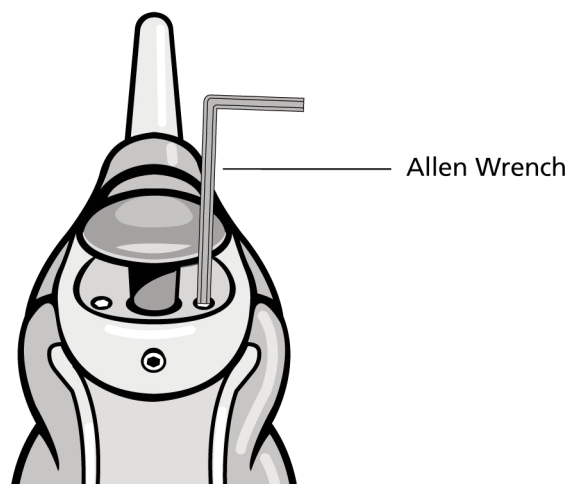
## Introduction

Each Ovation pipette is factory calibrated to manufacturing specifications at 21.5°C ( $\pm 2^\circ$ ) using distilled water. It is recommended that calibration be verified on an as-needed basis, or every six months, whichever is applicable.

The Ovation pipette can be easily in-lab calibrated  $\pm 10\%$  for optimum performance for your operating conditions. To determine volume delivery, VistaLab Technologies recommends following the procedure “Ovation Performance Verification Protocol”. This document is available at [www.vistalab.com](http://www.vistalab.com), or through VistaLab Technical Services.

In-laboratory calibration can be accomplished by inserting an Allen wrench into the hole located on the top of the Ovation pipette (see illustration below). Volume delivery is increased by turning the Allen-head calibration set screw in a clockwise direction. Turning the screw in a counterclockwise direction decreases volume delivery.

It is recommended that whenever calibration is changed, the performance of the pipette be verified.



## MAINTENANCE & TROUBLESHOOTING

## 4

The Ovation pipette requires minimal maintenance. Always store it in its “standing” position or on the Ovation Pipette Stand (Catalog No. 9058-4003) when not in use.

### Cleaning Exterior

Clean outer surfaces as needed with a soft cloth dampened with warm water. To decontaminate outer surfaces, wipe with a 70% aqueous solution of ethanol or isopropanol, or use a 10% bleach solution followed by water.



**WARNING!** Only wipe the volume display with water.

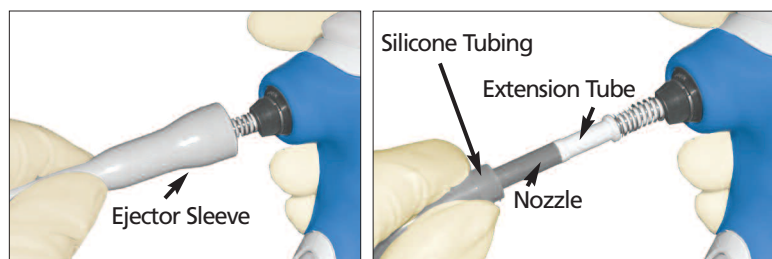
### Disinfecting Nozzles

The replaceable nozzle contains an internal aerosol/liquid barrier filter to prevent liquid from being aspirated into the pipette. Additionally, the nozzle filter offers protection to internal parts from routine exposure to hazardous liquids and vapors. If this filter becomes wet, the pipette will not aspirate fluid until a new nozzle is installed or the nozzle filter is replaced.

Wipe the exterior surface of nozzles with disinfectant or a 10% bleach solution. Care should be taken not to get the barrier filter inside the nozzle wet, as the pipette will not aspirate and dispense properly until corrective action is taken.

### Replacing a Nozzle

If the pipette is not aspirating and dispensing properly, it could be caused by (a) poor fitting alternate source tip, (b) nozzle is loose and needs to be tightened by turning it clockwise, or (c) a nozzle or nozzle filter needs to be replaced as liquid has been aspirated into it.



**NOTE:** Wear gloves when doing this procedure.

1. Remove ejector sleeve by pulling it away from the pipette body to expose the nozzle assembly.
2. Place silicone tubing provided on nozzle, and unscrew nozzle in a counter-clockwise direction. Gently wipe the exposed end of the extension tube with a slightly dampened, lint-free tissue, then dry it off.

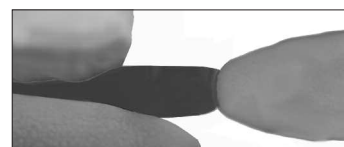
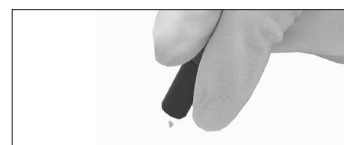
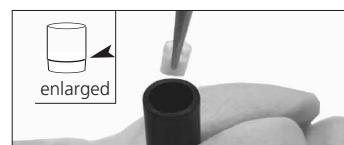
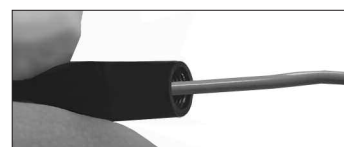
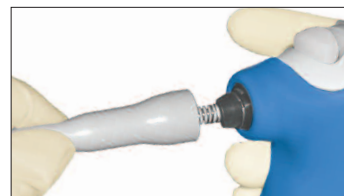
Note: Do not block or dislodge anything at the end of the extension tube.

3. Place silicone tubing on a new nozzle, and screw the nozzle onto the extension tube in a clockwise direction. Firmly tighten and remove silicone tubing.
4. Slide the ejector sleeve over the nozzle assembly.
5. Push the sleeve firmly into place while using a slight rocking or twisting motion.

## Replacing a Nozzle Filter on Ovation F1 & F2 Models

**NOTE:** Wear gloves when doing this procedure.

1. Remove the ejector sleeve.
2. Remove nozzle by placing the rubber tubing provided onto the nozzle, and unscrew it in a counterclockwise direction.
3. Remove the rubber plug at the tip end of the nozzle by inserting a straightened paperclip into the small hole in the plug. Use the inserted end of the paperclip to pry the plug out of the end of the nozzle.
4. Insert the paperclip into the threaded end of the nozzle and push out the old filter.
5. Pick up a new nozzle filter with tweezers and place it into the tip end (non-threaded) of the nozzle. The end of the filter with the visible ridge should be inserted first.
6. Use the filter insertion tool to push the filter into position. Firmly press down until the filter is pushed to the bottom of the nozzle.
7. Tap the nozzle on the counter to remove any loose cellulose material.
8. Re-insert the rubber nozzle plug into the front end of the nozzle. The end of the plug without side ridges is inserted first. Press in until plug is even with surface edge of the nozzle. If filter is not completely seated, the plug will extend beyond the end of the nozzle. Remove plug and firmly seat filter with insertion tool.
9. Place rubber tubing onto the nozzle, and screw the nozzle onto the pipette in a clockwise direction. Firmly tighten and remove tubing from nozzle. Re-install ejector sleeve.



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## Plunger Assembly Seals

VistaLab Technologies suggests that the Ovation F1 & F2 pipette's seals be replaced annually, or if any of the following symptoms are evident:

- Accuracy and precision claims cannot be achieved (*not result of technique or method*)
- The pipette does not aspirate or dispense (*even after nozzle or filter has been replaced*)
- The pipette leaks (*when using the recommended Ovation tips*)

See the Support area of the VistaLab Technologies web site – [www.vistalab.com](http://www.vistalab.com) – for complete instructions about replacing plunger assembly seals, and the purchase of an appropriate seal kit. Information is also available on the web site indicating the procedure for returning the pipette to VistaLab Technologies for in-factory replacement of the plunger assembly seals.

## 5

4060-1002 ..... Example catalog number



VistaRak™



VistaStak™



### Stacked Rack

**Notes:** 1. Not for use with Ovation 1uL and 2uL models

## Warranty

VistaLab Technologies, Inc. warrants the Ovation F1 and F2 BioNatural Pipette against defects in materials and workmanship for one year from the date of purchase. To register your pipette and activate the warranty, register on the VistaLab Technologies web site at [www.vistalab.com](http://www.vistalab.com).

This warranty is void if failure or damage is the result of improper handling, unauthorized modification, or use of ancillary products not supported by VistaLab Technologies. This warranty is exclusive; no other warranty is expressed or implied.

Should the pipette need to be returned for calibration verification or service, go to support area of [www.vistalab.com](http://www.vistalab.com) and follow the instructions for sending the pipette to VistaLab Technologies. Repack the pipette in its original packaging. Customer is responsible for shipping and insurance charges. If original packaging is unavailable, contact VistaLab Technologies for alternative packaging instructions.

Note: Damage to the pipette as a result of improper packaging is the responsibility of the customer.

## Safety Compliance

Ovation pipettes have been tested and approved for safety labels:

EN 61010-1:1992 Safety Requirements CSA C22.2, No. 1010.1-92

EN 61326 EMC Requirements UL 3111-1



Note: Use of the Ovation pipette not specified in this manual may impair protection provided by the equipment.

## Contact Information

To place an order or to send in your pipette for factory maintenance and/or calibration verification, see the service area of [www.vistalab.com](http://www.vistalab.com). Pipettes should be sent to:

**VistaLab Technologies, Inc.**  
**Attn: Pipette Repair Department**  
**2 Geneva Road**  
**Brewster, NY 10509 USA**

For additional assistance with warranty repairs or other technical assistance, contact us at: **1-914-244-6226** (Worldwide) or (888) 652-6520 (North America only), or send an email to [techservice@vistalab.com](mailto:techservice@vistalab.com)

## **Operating Temperature & Environment Conditions**

Indoor use / Pollution Degree 2

Altitude up to 2000m

Temperature Range: 15°–35°C

Relative Humidity Range, non-condensing: 10%–85%

Atmospheric Pressure: 70–106kPa

## **Pipette Body Chemical Compatibility**

Water, diluted ethanol or isopropanol, diluted bleach. For more information about chemical compatibility with internal seals or pipette tips, see the documentation library in the support area of our web site – [www.vistalab.com](http://www.vistalab.com).



**If the pipette is to be used with hazardous fluids, safe laboratory practice is to be followed. Refer to manufacturer's Material Safety Data Sheets for proper handling instructions. Always use VistaLab filtered tips (see tips table for catalog numbers) when pipetting potentially caustic, corrosive or volatile solutions. Failure to do so may result in premature wear and damage to the internal seals and piston, and void the pipette's warranty.**

**When organic or volatile solutions are routinely used, VistaLab Technologies recommends the use of VITON seals. See the chemical compatibility chart in the Ovation documentation library under "Support" at [www.vistalab.com](http://www.vistalab.com) for more information.**