



# Precision Single Channel Pipettes

Codes 665-251, 665-252, 665-254, 665-255, 665-256, 665-257, 665-258

PLEASE READ THESE INSTRUCTIONS BEFORE USE.

# 1. Product Description

## 1.1 Introduction

Westlab's Precision Single Channel Pipettes are designed to meet the liquid-transfer requirements of the modern laboratory and to withstand chemical exposure.

With excellent calibration retention and a precise volume adjustment mechanism, the pipettes ensure accurate volume dispensing. Coupled with the lockable counter mechanism, the high precision volume adjustment of the pipettes commoditises accurate and repeatable liquid dispensing.

Tailored to reduce the negative effects from repetitive strain injury, the well-balanced and sturdy chassis reduces unnecessary weight without compromising the overall quality of the pipette. Furthermore, the pipettes are manufactured from a heat-resistant material allowing them to be safely autoclaved multiple times without a loss of quality. With a fully autoclavable body, the transfer of contaminants during pipetting is reduced.

The pipettes are provided with exchangeable colour inserts for easy visual identification of pipettes by user-defined or volume-defined categories. Each pipette can be individually colour coded, using the included tool for drop removing.

The pipettes operate according to the air displacement principle and are produced and tested according to EN ISO 8655.

## 1.2 Features

- Fully Autoclavable Pipette Body
- Soft Grip & Light Pipette Chassis
- Exchangeable Colour Inserts for Visual Identification
- Serial Number & Declaration of Conformity Supplied
- Counter-Mechanism Prevents Accidental Turning
- Compatible With All Major Pipette Tip Brands
- Manufactured In Germany

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## PRODUCT CODE

665-251  
665-252  
665-254  
665-255  
665-256  
665-257  
665-258



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## 1.3 Accessories

- Single channel pipette
- Silicone grease
- Calibration/assembling tool
- Tool to remove colour coding drop
- Bag of drops for colour coding
- Bag of sample tips
- Instruction manual
- Calibration report

## 2. Technical Specifications

Code	Variable Volume	Increments	Test Volume	Inaccuracy	Imprecision
665-251	0.5 - 10µl	0.1µl	1µl	2.5%	1.50%
			5µl	2.0%	1.00%
			10µl	1.0%	0.80%
665-252	2 - 20µl	0.1µl	2µl	3.0%	2.00%
			10µl	1.5%	1.00%
			20µl	0.9%	0.40%
665-254	10 - 100µl	0.5µl	10µl	3.0%	1.50%
			50µl	1.0%	0.50%
			100µl	0.8%	0.15%
665-255	20 - 200µl	1µl	20µl	2.0%	0.80%
			100µl	0.7%	0.30%
			200µl	0.6%	0.15%
665-256	100 - 1000µl	5µl	100µl	2.0%	0.70%
			500µl	1.0%	0.40%
			1000µl	0.6%	0.20%
665-257	0.5 - 5ml	50µl	500µl	2.0%	0.60%
			2500µl	0.6%	0.30%
			5000µl	0.5%	0.15%
665-258	1 - 10ml	-	-	3.0%	0.60%

### 3. Safety Precautions

Read the following safety precautions prior to using the single channel pipette. Never use the unit in any manner not specified in this manual.

- Wear personal protective equipment during the operation of the unit.
- Do not use the pipette if it shows signs of electrical or mechanical damage. If any damage is found, contact your supplier immediately.
- Do not use without appropriate training. Always follow the installation instructions.

The safety of the user cannot be guaranteed if the unit:

- Is operated with accessories that are not supplied with the unit
- Is operated with accessories that are not supplied or recommended by the manufacturer
- Is operated improperly or contrary to the manufacturer's specifications

### 4. Maintenance & Cleaning

- Wear protective gloves and safety glasses while cleaning the unit.
- After cleaning, ensure that all the parts are dried.
- If repairs are performed by unauthorised personnel, the product warranty may become void.
- It is recommended to use normal cleaning agents such as water with mild detergents, antiseptic agents or 60-70% ethanol.
- Recommended to check the pipette's performance every three months. Pay attention to the tip cone.

### 5. Installation

1. Open the packaging and gently remove the single channel pipette from the box.
2. Unpack every individual component.
3. Assemble the components as instructed in this manual for optimal performance.

**ATTENTION:** The manual should be kept with the device and all the packaging should be kept in safe storage for at least two years for warranty purposes.

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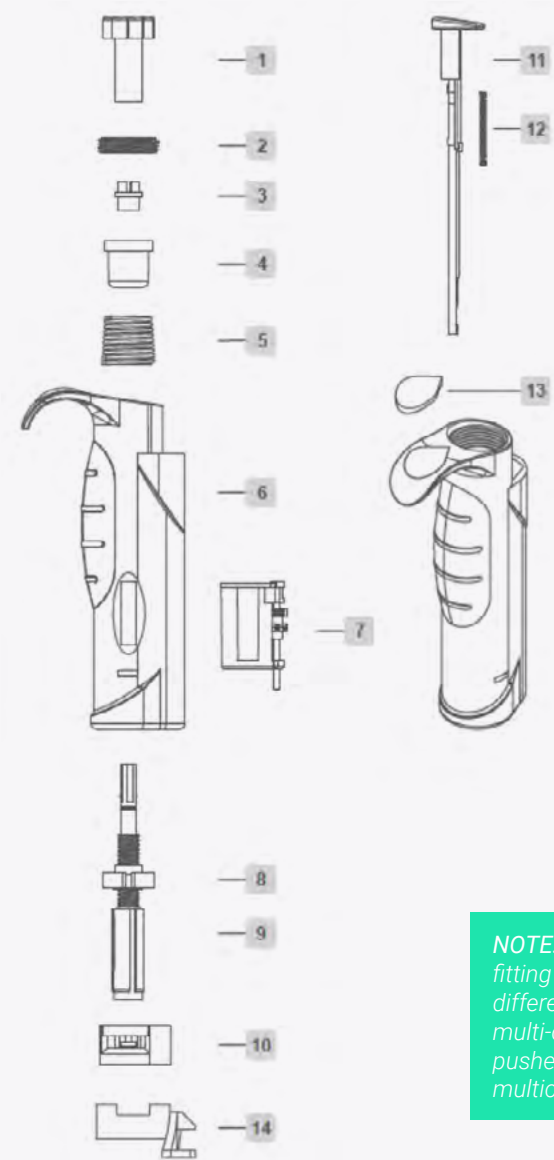
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Top assembly parts



*NOTE: The bottom closure snap fitting and the tip ejector pusher are different sizes for the single and multi-channel pipettes. The tip ejector pusher support is only available in the multichannel pipette.*

Number	Name
1	Push button
2	Top closure
3	Spring stopper
4	Primary spring support
5	Primary spring
6	Main body
7	Counter

Number	Name
8	Washer
9	Shaft
10	Bottom closure snap fitting
11	Tip ejector
12	Tip ejector spring
13	Drop
14	Tip ejector pusher support

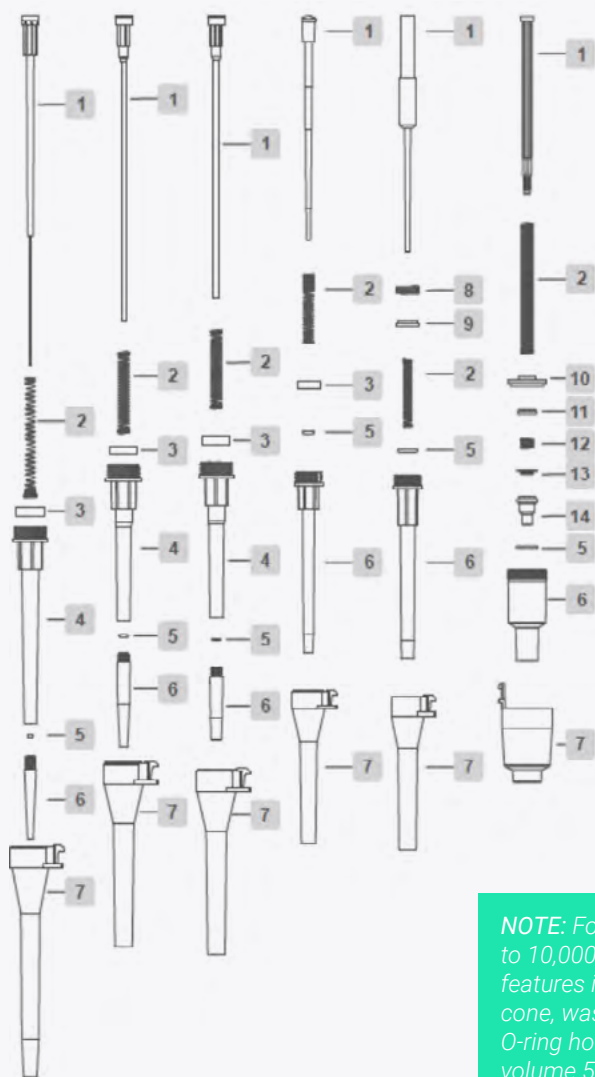
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## Bottom assembly parts



**NOTE:** For the 10,000µl and the 2000 to 10,000µl pipettes, the tip ejection features is not available. The tip cone, washer [500 - 5,000µl] and the O-ring holder are of different sizes for volume 500 to 5,000µl and 200 to 10,000µl.

Number	Name
1	Piston
2	Piston spring
3	Piston support
4	Tip cone tip
5	O-ring
6	Tip cone
7	Ejector collar

Number	Name
8	Secondary spring [100 - 1000µl]
9	Secondary spring support
10	Washer [500 - 5000µl]
11	Washer [500 - 5000µl]
12	Spring [500 - 5000µl]
13	Washer [500 - 5000µl]
14	O-ring holder

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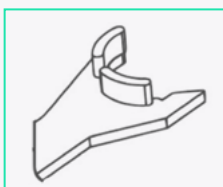
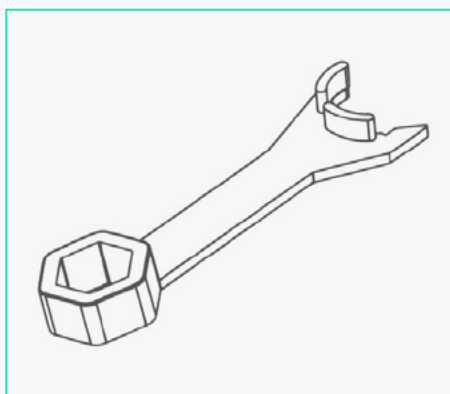
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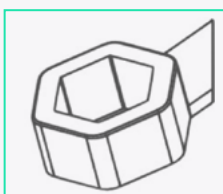
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## Calibration/disassembling tool

The calibration/disassembling tool is supplied for maintenance and calibration of the pipette.



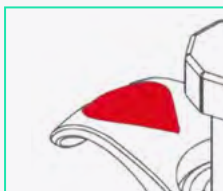
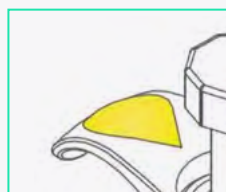
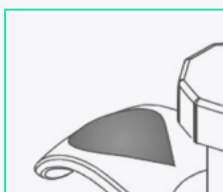
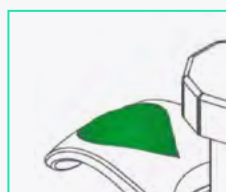
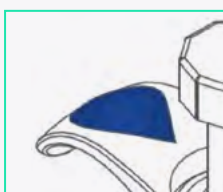
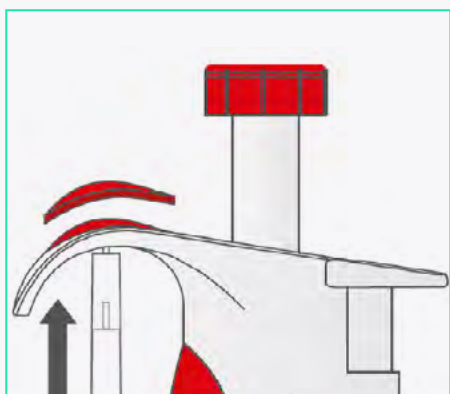
Disassembling of the tip ejector or ejector collar. Used for calibration.



Disassembling of the tip cone.

## Pipette identification

The pipettes are provided with exchangeable colour inserts for easy visual identification of pipettes by user-defined or volume-defined categories.



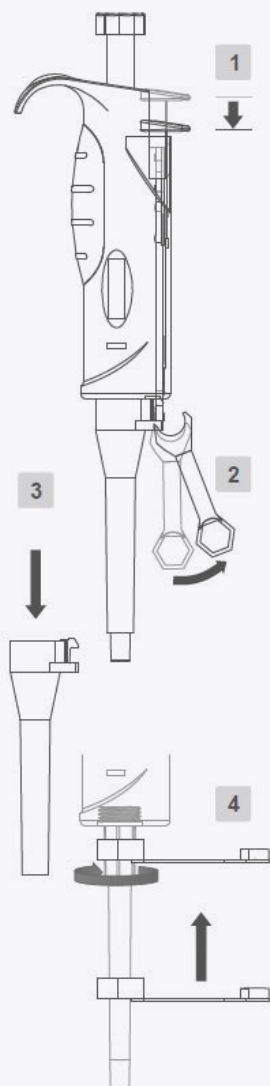
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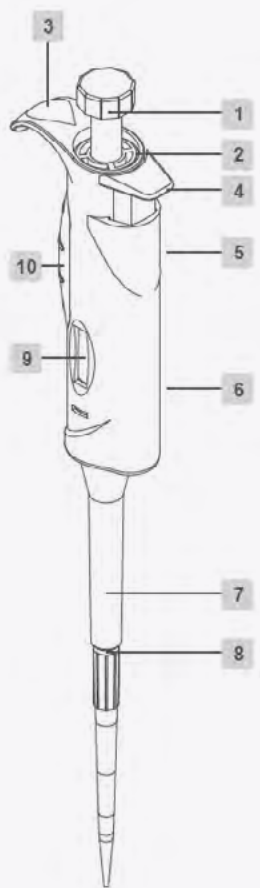
## Disassembling and reassembling



1. Hold down the tip ejector.
2. Place the tooth of the opening tool between the tip ejector and the tip ejector collar to release the locking mechanism.
3. Carefully release the tip ejector and remove the ejector collar.
4. Place the wrench end of the opening tool over the tip cone and turn clockwise.
5. After removing the tip cone, wipe the piston and the tip cone with ethanol and a lint free cloth.
6. Before replacing the tip cone, grease the piston slightly using the supplied silicon grease.
7. After reassembling, use the pipette several times to ensure that the grease is spread evenly.
8. Check the calibration of the pipette.



## 6. Operation



Number	Name	
1	Push button	Used to aspirate and dispense the liquid. To set the volume.
2	Top closure	Used to adjust the calibration with the help of the calibration tool.
3	Drop	The drop is colour coded for easy identification.
4	Tip ejector	The tip ejector moves the ejector collar and ejects the pipette tip.
5	Volume printed	Indicates the volume of the pipette.
6	Main body	
7	Ejector collar	Used to eject the pipette tip.
8	Tip cone	Where the pipette tip is fitted.
9	Volume display	Shows the set volume.
10	Body grip	Prevents the transfer of body heat to internal components.

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## Pipetting recommendations

- Aspirate liquid into the pipette only when a tip is attached. Hold the pipette vertically when aspirating and dip the tip only 2-3mm into the liquid.
- Pre-rinse the tip five times before aspiration by filling and emptying the tip.
- Always control the push button movements with the thumb for consistency. Allow the liquid, tip and pipette to equilibrate to the ambient temperature before use.
- When not in use, place the pipette on a bench to avoid transferring body heat resulting in incorrect dispensing volume
- Use the correct pipette tip designed for the use with the particular pipette.
- Select the correct pipetting technique (e.g. reverse, forward pipetting) depending on the nature of the liquid.
- Don't lay down the pipette with the filled tip, otherwise the liquid can flow into the pipette and contaminate it

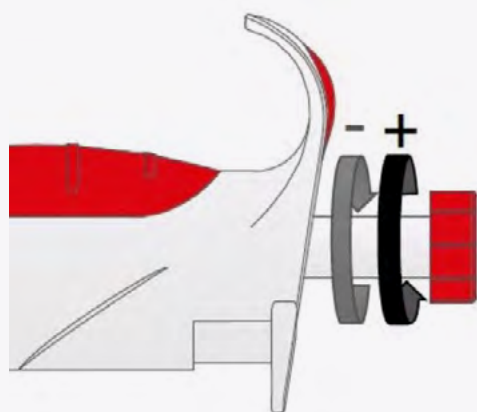
## General operation

### Volume setting

1. The volume is shown in the handgrip display window.



2. The desired volume is set by turning the push button clockwise or anticlockwise.



**ATTENTION!** Using excessive force to turn the push button may jam the mechanism and damage the pipette.

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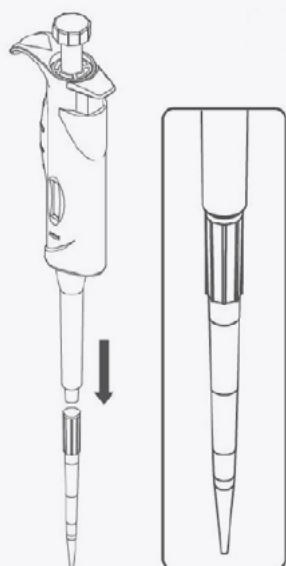
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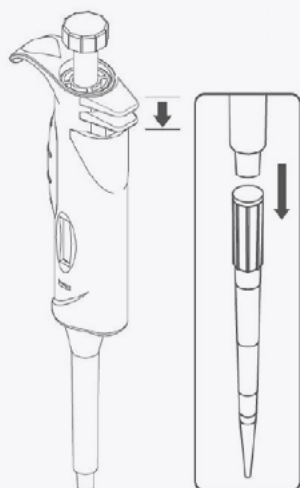
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### Loading and ejecting tips

1. Ensure that the tip cone is clean.
2. Press the tip firmly onto the tip cone to ensure an airtight seal.



3. The pipettes are equipped with a tip ejector to help eliminate the tip and to avoid safety hazards associated with contamination. The tip ejector needs to be pressed downwards to ensure proper tip ejection.



**NOTE:** The tip ejection feature is not available for the 1,000µl to 10,000µl pipette.

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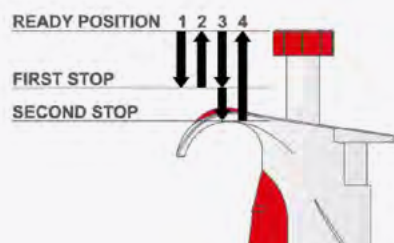
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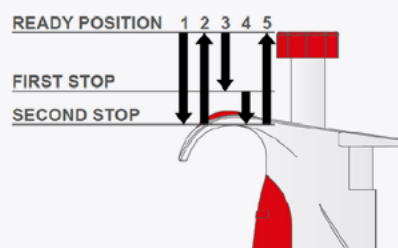
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## Forward pipetting



1. Press the push button to the first stop.
2. Dip the attached tip into the liquid vertically by 2 to 3mm. Smoothly release the push button.
3. Withdraw the tip slowly from the liquid - touching against the wall of the vessel to remove remaining liquid. Place the tip on the wall of the vessel on an angle. Dispense the liquid into the receiving vessel by gently pressing the push button to the first stop.
4. After a short delay, press the push button to the second stop. This will empty the tip completely and ensure accurate pipetting.
5. Release the push button to the ready position.

## Reverse pipetting



Reverse pipetting is recommended for viscous solutions with a tendency to foam or dispense very small volumes.

1. Press the push button to the second stop.
2. Dip the attached tip into the liquid vertically by 2 to 3mm. Smoothly release the push button. This will fill the tip with an additional volume larger than the set volume.
3. Withdraw the tip slowly from liquid - touching against the wall of the vessel to remove remaining liquid. Dispense the liquid into the receiving vessel by gently pressing the push button to the first stop. This volume is equal to the set volume.
4. Hold the push button in this position. The liquid that remains in the tip should not be dispensed. The remained liquid can be discarded with the tip or delivered back into the vessel with the original solution.
5. Release the push button to the ready position.

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## Autoclaving

The pipettes are fully autoclavable by steam at 121°C, 1.05 bar for 15 min. Autoclave the complete pipette without any disassembling.

After autoclaving under the mentioned conditions, allow the pipette to cool and dry for 6 hours before use. It is not required to re-calibrate the pipette after autoclaving.

If the pipette is autoclaved frequently, the piston and springs should be greased with the lubricant supplied with each pipette to maintain smooth movement.

## Calibration

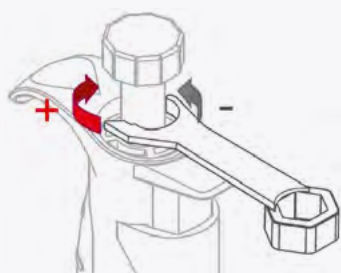
Performance testing should take place in a draught-free, stable environment with a relative humidity above 50% and constant ( $\pm 0,5$  °C) temperature between 15°C and 30°C. The weighing vessel, pipette, tips, and distilled water need to have been in the room for a sufficient time, at least 2 hours, to reach equilibrium with the room conditions.

Use an analytical balance with a readability of 0.01 mgs. 10 measurements for each test volume shall be carried out. For variable volume pipettes, at least three volumes shall be tested (nominal volume, 50% of nominal volume, and 10% of nominal volume).

1. Select the test volume. Do not change the setting during the test cycle of 10 measurements.
2. Fit the selected tip to the pipette cone.
3. Fill the tip with distilled water and condition the pipette before testing by aspirating and dispensing the distilled water in the tip five times. Afterwards discard the tip.
4. Attach a new tip on the pipette cone and pre-wet the tip once.
5. Aspirate the distilled water and pipette it into the weighing vessel (use forward pipetting technique).
6. Weigh the pipetted quantity with an analytical balance and record the weight. Repeat the test cycle until 10 measurements have been recorded.
7. Convert the recorded masses to volumes, calculate the mean volume, systematic error and random error as described in EN ISO 8655-6:2002, part 8.
8. Compare the systematic error (inaccuracy) and the random error (imprecision) with the values in the specification table.

The calibration of the pipette must be set even if only one of the results falls outside the permitted range.

## Recalibration



1. Place the calibration tool into the holes of the calibration adjustment lock (under the push button).
2. Turn the adjustment lock anticlockwise to decrease and clockwise to increase the volume.
3. Repeat checking calibration until the pipetting results are correct.

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## 7. Troubleshooting

Please contact our technical support team on 1800 358 101.

Error	Issue	Solution
Droplets left inside the tip	Unsuitable tip, non-uniform wetting of the plastic	Use a new tip.
	Tip cone is scratched or damaged	Change the tip cone.
Leakage or pipetted volume is too small	Organic solvent as liquid	Aspirate and discard the organic solvent several times before actually pipetting with the same tip.
	Tip incorrectly attached	Attach the tip firmly.
	Unsuitable tip	Use a new tip.
	Foreign particles between the tip and the tip cone	Clean the tip cone.
	Insufficient amount of grease on the piston	Clean and grease the piston.
Inaccuracies	Incorrect operation	Follow instructions carefully.
	Calibration altered	Recalibrate according to the instructions.
	Unsuitable for the particular liquid pipetting technique	Use the correct pipetting technique.
	Pipette damaged	Contact our technical support team on 1800 358 101.
Push button jammed or moves erratically	Piston contaminated	Clean and grease the piston.
	Penetration of solvent vapours	
Tip ejector is jammed or moves erratically	Tip cone is contaminated from the outside	Remove the ejector collar and clean the outer surface of the tip cone with ethanol.
Volume setting isn't 'click-stopping' properly	Click stop mechanism is damaged	Contact our technical support team on 1800 358 101.
Push button doesn't turn for volume setting	Use of excessive force beyond the range of the pipette	Contact our technical support team on 1800 358 101.

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