

VWR[®] Ultra High-Performance

Instruction Manual Pipettors

- VWR UHP Single-channel Variable Volume
- VWR UHP 8-channel Variable Volume
- VWR UHP 12-channel Variable Volume



This manual is available in additional languages at www.vwr.com

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1. Product Description

The VWR® Ultra High-Performance (UHP) single-channel pipettor is a volumetric instrument designed to measure and transfer liquids precisely and safely. It can accommodate volumes from 0.1 µL to 1,000 µL depending on the model.

VWR UHP Pro 8-channel and 12-channel pipettors have been designed for microplate fillin. The pipettors enable precise and simultaneous delivery of 8 or 12 preset volume doses of liquid. These pipettors are available in four volume ranges: 0.5-10 µL, 5-50 µL, 20-200 µL, and 50-300 µL.

Nominal Volume (µL)	Cat. No. (EU)	Range of Pipettor Volumes (µL)	Increment	Color Code
Single-channel Pipettors				
2	613-1488	0.1 - 2	0.002	Red
10	613-1489	0.5 - 10	0.01	Red
20	613-1490	2 - 20	0.02	Yellow
50	613-1628	5 - 50	0.05	Yellow
100	613-1491	10 - 100	0.1	Yellow
200	613-1492	20 - 200	0.2	Yellow
1,000	613-1493	100 - 1,000	1.0	Blue
8-channel and 12-channel Pipettors				
8-10 12-10	613-1494 613-1498	0.5 - 10	0.01	Red
8-50 12-50	613-1495 613-1499	5 - 50	0.05	Yellow
8-200 12-200	613-1496 613-1500	20 - 200	0.2	Yellow
8-300 12-300	613-1497 613-1506	50 - 300	0.5	Yellow

VWR pipettors operate on the air-cushion principle (i.e., the aspirated liquid does not come into contact with the shaft or plunger of the pipettor). The liquid is drawn to the disposable tips that are attached to the pipettor.

2. Packing

The pipettors are delivered with the following:

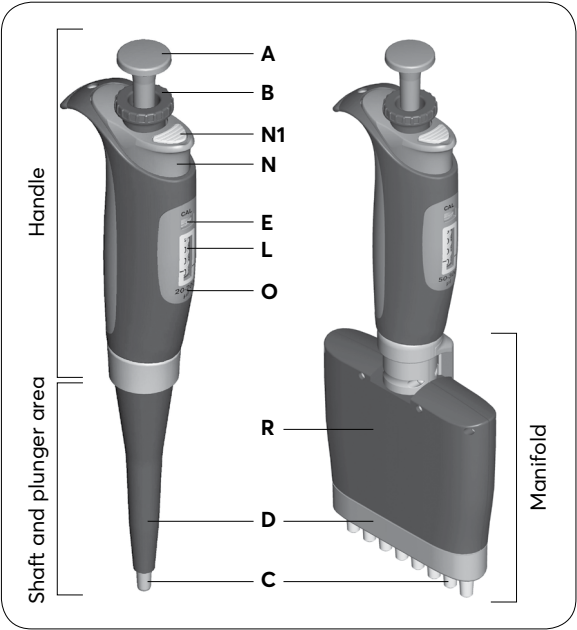
Description	Qty/Pk
Instruction manual	1
Quality control certificate	1
Calibration key	1
Shelf clip	1
Lubricant (for single-channel pipettor)	1
Identification labels	1

3. Pipettor Design

Model Identification

Pipettor model volume range is printed on the counter overlay. Additionally, ejector button cap and counter are color coded for easier pipettor size identification.

Single- and Multi-channel Pipettors



A. Pipetting pushbutton

- B. **Volume adjustment knob:** Used to set and lock the preset volume.
- C. **Shaft:** Made of high quality plastic, ensuring high chemical and mechanical strength.
- D. **Tip ejector:** For multi-channel pipettors, the tips are ejected sequentially, which reduces the required force.
- E. **Calibration switch:** Switches the pipettor from operating mode to calibration mode (CAL).
- L. **Volume counter:** Four-digit volume counter indicates the preset volume.
- N1. **Cap:** Protects the calibration spot.
- N. **Ejector pushbutton**
- O. **Counter overlay:** The overlay is printed with the range of the aspirated volume according to the pipettor model.
- R. **Multi-channel manifold:** Contains a set of plungers and a set of flexible-suspension shafts, reducing the required tip attachment force.

Materials Used

Handle parts:

- Polypropylene (PP)
- Polycarbonate (PC)
- Polyacetal (POM)
- Stainless steel

Shaft and plunger area parts:

- Polypropylene (PP)
- Polyvinylidene fluoride (PVDF)
- Polyphenylene sulfide (PPS)
- Polyamide (PA)
- Fluoropolymer elastomer
- Stainless steel

4. Safety Recommendations

Long-term use of the pipettor relies on correct method of use. Please read and follow the instructions for use carefully.

Symbols used:

	Danger, risk of injury.
NOTE	Risk of damage to the pipettor or errors in pipetting.

NOTE:

- The pipettor is designed for the transfer of liquids only using the tip. Do not aspirate liquids without the tip attached. The aspirated liquid should not enter the pipettor, as it may cause damage.
- Single-use tips reduce the risk of contamination of samples.
- Keep the pipettor clean, avoiding the use of abrasive or corrosive cleaning agents (e.g., acetone).
- Keep the pipettor upright when there is liquid in the tip.
- Only using the pipettor in accordance with the manufacturer’s instructions ensures the correct pipettor parameters are maintained.
- After replacing the plunger or the shaft, the pipettor should be calibrated.
- In the case of incorrect operation, the device should be cleaned in accordance with the Instructions for Use or transferred to a service point.
- Ambient operating temperature is +5°C to 45°C.
- Ambient storage conditions (in the original packaging during transport and short storage) is -25°C to 55°C.

 When working with the pipettor:

- Follow general work safety regulations regarding hazards related to work in the laboratory.
- Take special care when pipetting aggressive substances.
- Use appropriate protective attire (e.g., clothing, goggles, and gloves).
- Avoid pointing the pipettor at yourself or others during use.
- Only use parts and accessories recommended by the manufacturer.

5. Specifications

The pipettor is a high quality instrument which offers excellent accuracy and precision. The accuracy and precision (repeatability) of the liquid volume depends on the quality of pipet tips used. The values for accuracy, and precision shown in the table below were obtained using manufacturer non-filter pipet tips. Those tips are recommended for use to ensure compatibility, accuracy, and precision when pipetting.

The accuracy and precision were obtained gravimetrically using manufacturer tips performing at least 10 measurements of distilled water at a temperature of 20°C ± 1°C according to EN ISO 8655 standards.

The use of tips from other manufacturers or filter tips may result in incorrect liquid aspiration and require pipettor recalibration.

Nominal Volume (µL)	Volume (µL)	Accuracy (%)	Permissible Volumes (µL)	Precision (%)	Non-filter Tips (µL)
Single-channel Pipettors					
2	Min.	0.1	±40.0	0.06-0.14	≤12.0
		0.2	±12.0	0.176-0.224	≤6.0
		1	±2.7	0.973-1.027	≤1.3
	Max.	2	±1.5	1.97-2.03	≤0.7
10	Min.	0.5	±4.0	0.48-0.52	≤2.8
		1	±2.5	0.975-1.025	≤1.8
		5	±1.5	4.925-5.075	≤0.7
	Max.	10	±0.5	9.9-10.1	≤0.4
20	Min.	2	±3.0	1.93-2.07	≤1.5
		10	±1.0	9.9-10.1	≤0.5
	Max.	20	±0.8	19.84-20.16	≤0.3
50	Min.	5	±2.5	4.875-5.125	≤2.0
		25	±1.0	24.75-25.25	≤0.6
	Max.	50	±0.8	49.6-50.4	≤0.4
100	Min.	10	±1.6	9.7-10.3	≤0.8
		50	±1.0	99.5-50.5	≤0.3
	Max.	100	±0.8	99.2-100.8	≤0.2

Nominal Volume (μL)	Volume (μL)	Accuracy (%)	Permissible Volumes (μL)	Precision (%)	Non-filter Tips (μL)
200	Min. 20	±1.2	19.6-20.4	≤0.6	200
	100	±1.0	99.0-101.0	≤0.3	
	Max. 200	±0.6	198.8-201.2	≤0.2	
1,000	Min. 100	±1.6	97.5-102.5	≤0.4	1,000
	500	±0.8	496-504	≤0.3	
	Max. 1,000	±0.6	994-1,006	≤0.15	

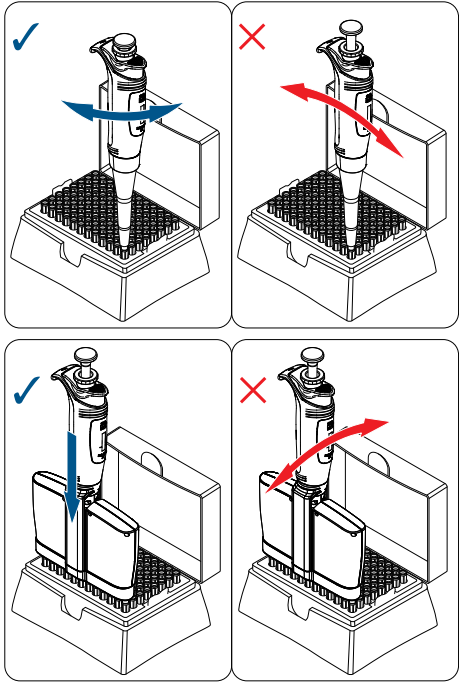
8-channel and 12-channel Pipettors					
8 - 10 12 - 10	Min. 0.5	±10.0	0.45-0.55	≤8.0	10
	1	±8.0	0.92-1.08	≤6.0	
	5	±4.0	4.8-5.2	≤2.0	
	Max. 10	±2.0	9.8-10.2	≤1.2	
8 - 50 12 - 50	Min. 5	±4.0	4.8-5.2	≤2.5	200
	25	±3.0	24.25-25.75	≤1.2	
	Max. 50	±1.6	49.2-50.8	≤0.6	
8 - 200 12 - 200	Min. 20	±3.0	19.4 - 20.6	≤1.5	200
	100	±1.5	98.5-101.5	≤0.8	
	Max. 200	±1.0	198-202	≤0.6	
8 - 300 12 - 300	Min. 50	±1.6	49.2-50.8	≤1.5	300
	150	±1.2	148.2-151.8	≤1.0	
	Max. 300	±1.0	297-303	≤0.6	

The design of the pipettor enables the user to recalibrate it according to the information presented in Section 9.

6. Pipettor Operation

Attaching the Tips

- Attach the tip corresponding to the model on the pipettor on the shaft (Section 5).
- Position the pipettor vertically when putting on the tips.
- Single-channel pipettors, when attaching the tip, press the pipet tip on firmly using a slight twisting motion. This will ensure an airtight seal.
- Multi-channel pipettors, when attaching the tips on the shafts, press the pipettor against the tips in the rack box until the shafts retract approximately 1.5 mm into the manifold. The suspension system of the shafts ensures even and tight sealing of the pipet tips. The rocking movement does not have to be performed to seal the pipet tips tightly.



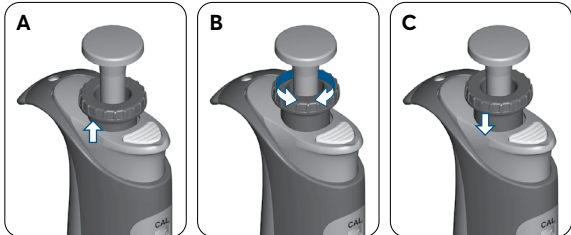
NOTE:

- Do not attach the tips with a rocking movement, as this may damage the shaft or plunger. Observe this rule particularly with single-channel pipettors of low volume range.

- Never draw liquids directly into the pipettor without the tip attached.

Volume Setting

NOTE: The red calibration switch above the counter should remain in the lower position during operation. Otherwise, any change in volume will result in a loss of calibration of the pipettor.



- To enable volume selection, set the adjustment knob to the upper position.
- To set a certain value, turn the knob. The volume is indicated by the counter and its value consists of four digits that should be read from top to bottom. Digits on the bottom drum represent the scale division for the pipettor model. See scale intervals in Section 5. The volume range of the pipettor model is shown on the counter overlay.
- After the desired volume has been set, move the knob down to avoid an inadvertent change of the volume.

Examples of counter indications

The black mark separates the integer part from the decimal part of the aspirated liquid volume in µL.			
	0.1-2 µL	5-50 µL	100-1000 µL
Volume Ranges	0.1-2 µL	5-50 µL	100-1,000 µL
Set Volume	0.1 µL	5 µL	100 µL

To attain the maximum accuracy, the set volume must be approached from a higher value by diminishing counter readings. Before reaching the desired value, reduce the speed of turning the adjustment knob to not exceed this value.

7. Operating Instructions

Observing the following recommendations will ensure maximum possible accuracy and precision of liquid sampling.

- During operation, hold the adjustment knob to protect it against rotation.
- The pipettor is equipped with a counter operating mode switch, the calibration switch located under the CAL sign on the counter overlay. This switch should only be used when the pipettor is calibrated (upper position marked as CAL on the switch).
- Make sure to operate the pipettor slowly and smoothly.
- The depth of immersion in the sample liquid should be the minimum necessary and should remain constant during aspiration. The recommended immersion depths are given in the table below:

Model	Volume Range [µL]	Immersion Depth [mm]
	0.1-1	≤1
	1-100	2-3
	101-1,000	2-4

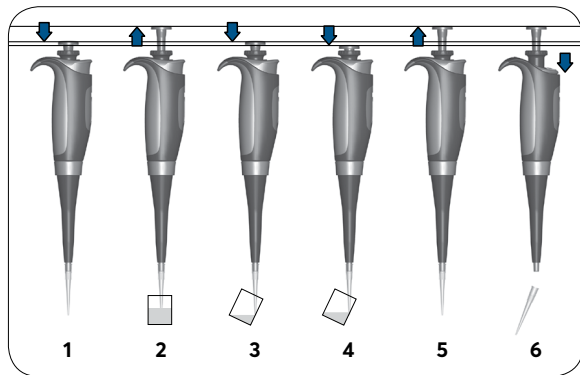
- The pipettor should be held in a vertical position.
- Change the pipet tip when volume setting is changed or when a different liquid is to be aspirated.
- Change the pipet tip if a droplet remains on the end of the tip from the previous pipetting operation.
- Each new pipet tip should be pre-rinsed with the liquid to be pipetted.
- Liquid should never enter the pipettor shaft.
To prevent this:
 - Press and release the pushbutton slowly and smoothly.
 - Never turn the pipettor upside down.
 - Never lay the pipettor on its side when there is liquid in the tip.
- Never force the volume setting beyond its recommended limits.

When pipetting liquids with temperatures different from the ambient temperature, it is recommended to pre-rinse the tip several times before use.

Do not pipette liquids with temperatures above 70°C.

NOTE: When pipetting acids or corrosive solutions which emit vapors, it is recommended to disassemble the shaft and rinse the plunger and seal with distilled water after finishing the pipetting operation.

8. Aspiration and Dispensing Instructions



Aspirating Liquid

1. Press the pushbutton to the first positive stop. Holding the pipettor vertically, immerse the pipet tip into the sample liquid. The depth to which the pipet tip is immersed in the sample liquid depends on the model (for recommended values see Section 7). If the pipet tip is not immersed to the recommended depth or if the pipetting pushbutton is rapidly released, air may enter the disposable pipet tip.
2. Release the pipetting pushbutton slowly and smoothly to aspirate the sample. Wait one second and then withdraw the pipet tip from the liquid.

CAUTION: Do not touch the used tip.

Dispensing Liquid

3. Place the end of the pipet tip against the inside wall of the vessel at an angle of 10° to 40°. Then, press the pushbutton smoothly to the first stop. Wait one second.

4. Press the pushbutton to the second stop to expel any remaining liquid. Keep the pushbutton depressed to the very end, and remove the pipettor by drawing the pipet tip against the inside surface of the receiving vessel.

5. Release the pushbutton to its starting position.

6. Eject the pipet tip by pressing the tip ejector button.



Remember to change the pipet tip whenever a different type of liquid is to be sampled.

Aspirating High-density Liquids

When pipetting liquids of higher viscosity or lower surface tension than water (e.g., sera or organic solvents), a film of liquid is formed on the inside wall of the pipet tip. This film can create an error. As the film remains relatively constant in successive pipetting operations with the same tip, this error can be eliminated by forming the film before transferring the first sample. This is done by aspirating a sample and dispensing it back into the same vessel. Now, as the film is already formed, all of the following samples will have better accuracy and repeatability.

This pre-rinsing operation should be repeated when the volume to be aspirated is changed or when a new pipet tip is used.

NOTE: Normally the degree of error resulting from heavy or viscous liquids is negligible if pipetting is done slowly and carefully. It is most important to give the liquids some time to react to the change of pressure by holding the pipet tip in its position for at least 2 seconds after the aspiration and the blow out stroke.

If in extreme cases, this method of operation does not result in accurate values, recalibrate the pipettor out in accordance with Section 9.

After calibration, it is recommended to record the recalibration and the size of the correction introduced, to facilitate reverse calibration to the standard liquid.

9. Checking Pipetting Accuracy Parameters and Pipettor Recalibration

The pipettors are factory-calibrated using the gravimetric method with manufacturer non-filtered pipet tips and distilled water, in accordance with ISO 8655 guidelines for the maximum (nominal) liquid volume drawn by the pipettor and for 10% of the maximum volume according to the values given (Section 5).

The design of the pipettors enable their recalibration and adaptation to other pipetting techniques or liquid properties (i.e., temperature, density, and viscosity). Use of filter tips may also require for the pipettor to be recalibrated.

It is recommended to carry out periodic checks of the operation of the pipettor at least once a year, the period of operation of the pipettor with no checks depends on the type of workload (liquids collected), and other conditions (load intensity and sterilization in the autoclave, replacement of components) in which the pipettor is used.

If during pipettor operation you find that the accuracy error (the difference between the real aspirated volume and the preset volume) exceeds the permissible value given in the table in Section 5, the pipettor recalibration procedure should be carried out.

Recalibration of the pipettor consists in setting on the counter the value of the liquid volume obtained in weighing. Recalibration of the pipettor is performed only for one liquid volume drawn by the pipettor. The recommended volume for recalibration is 10% of the maximum (nominal) value.

Conditions for Checking the Pipetting Accuracy Parameters

The pipetting accuracy is influenced by such factors as: tips used, characteristics of the pipetted liquid (density, viscosity), or operating conditions (ambient temperature, pressure).

To determine the accuracy error of the pipettor, the following conditions should be met:

- Ambient temperature and the temperature of the pipettor, pipet tips, and liquid should be within the range of 20°C to 25°C and stabilized during weighing within ±0.5°C.
- Measurements should be conducted using distilled water.
- Balance sensitivity should be suitable for the volume "V" to be measured:

Volume Checked (µL)	Balance Sensitivity (mg)
0.1≤V≤10	0.001
10≤V≤100	0.01
V>100	0.1

- When calculating the liquid volume aspirated by the pipettor, the values of conversion factor Z [µL/mg] for distilled water or a liquid with comparable density should be taken into account. Sample values of this conversion factor are given in the following table:

Temperature (°C)	Pressure (kPa)		
	95.0	101.3	105.0
20	1.0028	1.0029	1.0029
21	1.0030	1.0031	1.0031
22	1.0032	1.0033	1.0033
23	1.0034	1.0035	1.0036
24	1.0037	1.0038	1.0038
25	1.0039	1.0040	1.0040

See ISO 8655 for the full table of the value of the conversion factor Z.

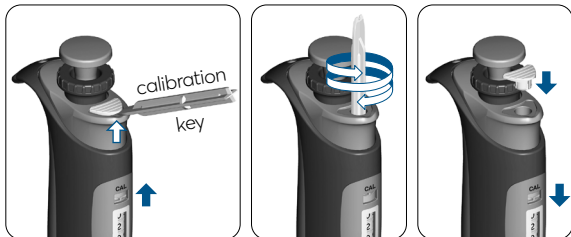
NOTE: Pipetting should be performed in accordance with the rules described in Sections 7 and 8.

Checking the Pipetting Accuracy Parameters

- Set the pipettor to the calibration volume.
- Perform 10 aspirations, and calculate their average value in [mg].
- Calculate the volume in [µL] by multiplying the value in [mg] by the conversion factor Z [µL/mg].
- If the average aspirated volume exceeds the permissible values of the range given in Section 5, the pipettor should be recalibrated.

Pipettor Recalibration

Make sure that the pipettor is set to the calibration volume and the volume adjustment knob is locked.



1. Remove the cap from the ejector pushbutton.
2. Set the calibration switch to the upper position (CAL) using the flat end of the calibration key.
3. Insert the calibration key with the cross end vertically into the hole in the ejector pushbutton, placing it in the counter's calibration knob.
4. Turn the key so that the volume indicated by the counter is equal to the volume calculated.
5. Remove the calibration key.
6. Set the calibration switch in the operating position.
7. Fit the ejector pushbutton cap.
8. Repeat the pipetting accuracy check (Section 9: Checking the Pipetting Accuracy Parameter). If the accuracy error value is exceeded, repeat the calibration process.



"Calibration"
position



"Operating"
position

10. Pipettor Maintenance

Depending on the applications and the intensity of use, the pipettor requires periodic maintenance.

The components most exposed to vapors of aggressive solutions, such as shaft elements, should be regularly checked and cleaned.

To properly carry out the maintenance, familiarize yourself with the design of the shaft holder set shown in Figures 10A, 10B, and follow the instructions given in this Section.



Do not use sharp tools for pipettor maintenance. It may cause damage to the device and affect the user's safety.

Cleaning

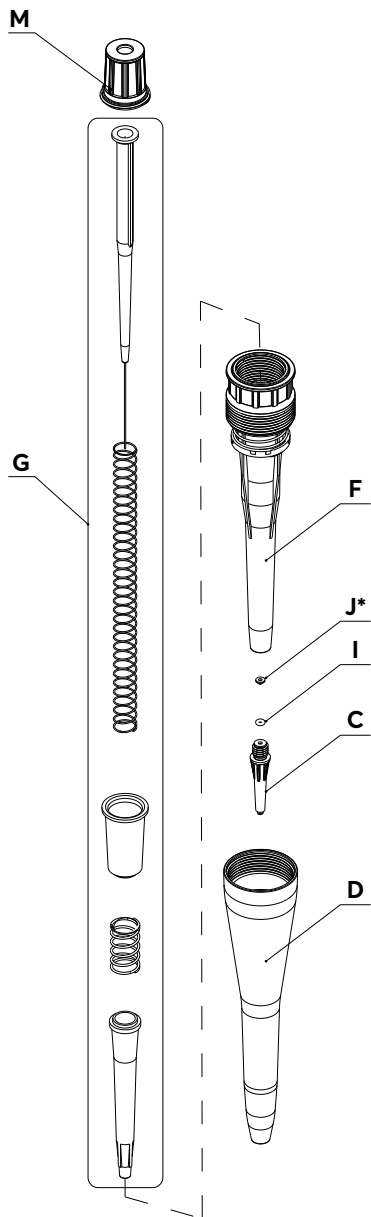
External surfaces of the pipetting pushbutton, the ejector pushbutton, the handgrip, the shaft nut, and the adjustment knob may be cleaned using a cloth dampened in isopropyl alcohol. The remaining parts removed from the pipettor during pipettor disassembly may be washed with distilled water or isopropyl alcohol.

NOTE: Before using cleaning agents other than those recommended by the manufacturer, check the compatibility charts and consider chemical resistance of the following plastics: PP, PC, POM, PA, PPS, PVDF used to produce the pipettor parts.

Dismantling shaft elements of the single-channel pipettor:

- Holding the pipettor handle, unscrew the lower part by turning the tip ejector (D) until released.

Then proceed according to the pipettor models shown below.



Single-channel Pipettors 0.1-2 μL , 0.5-10 μL , 2-20 μL , 10-100 μL (Figure 10A)

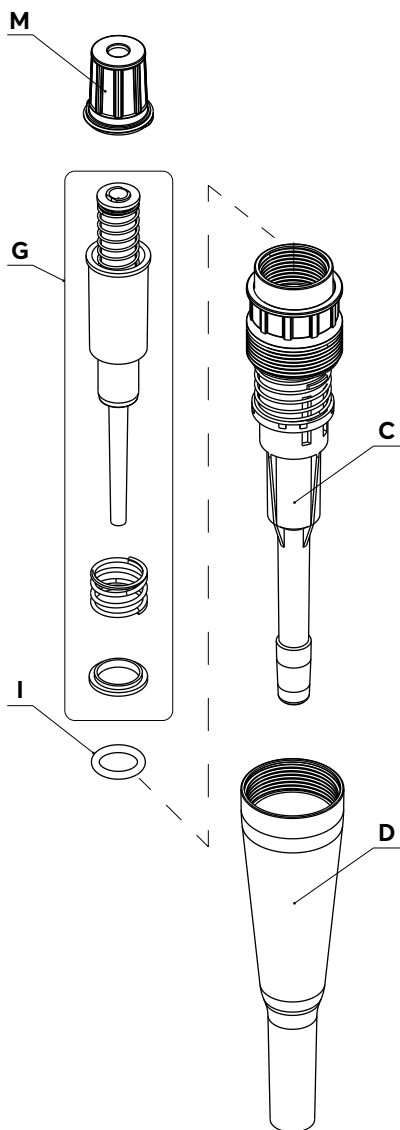
In order to check, clean, or replace the shaft (**C**) or sealing parts (**J**, **I**), it is not necessary to dismantle the entire shaft assembly. To gain access to these parts, hold the nut of the shaft holder (**F**) and unscrew the tip ejector (**D**). Unscrew the shaft (**C**) from the shaft holder (**F**) and remove the O-ring (**I**), and in the case of pipettor 2/10 μL , also the Seal (**J**).

If you need to examine or clean the plunger (**G**):

- Unscrew the Shaft Cap (**M**).
- Remove all the parts from the shaft holder.
- Check the condition of components, and clean as recommended.
- Replace any damaged parts.
- Assemble the components in reverse order.

NOTE: When disassembling, care should be taken so that the plunger does not pop out under the action of the pipetting spring.

*Seal (**J**) used only in models 2 and 10 μL



Single-channel Pipettors 20-200 μ L, 100-1,000 μ L (Figure 10B)

- Unscrew the shaft cap (**M**).
- Remove the plunger elements (**G**) from the shaft.
- Check the condition of components and clean as recommended.
- If necessary to replace shaft (**C**) or tip ejector (**D**), disconnect the two parts by unscrewing the tip ejector from the nut.
- Replace any damaged parts.
- Assemble the components in reverse order.

After cleaning the plunger, apply onto its surface a thin layer of lubricant attached to each pipettor.

NOTE: After replacing the plunger, it is necessary to recalibrate the pipettor. In the case of any signs of incorrect operation of the pipettor, check the correctness of assembly.

Sterilization in an Autoclave

The pipettor can be sterilized in an autoclave at 121°C for 20 minutes. Sterilization under other conditions may cause damage to the pipettor. It is recommended to:

- Unscrew the shaft assembly slightly prior to sterilization and re-tighten after autoclaving.
- Set the volume adjustment knob in upper (unlocked) position prior to sterilization.
- Sterilize the pipettor in autoclave with an initial vacuum and drying cycle.
- After sterilization, the pipettor should be dried and cooled to room temperature.

The precision of the results should not alter if the pipetting process and autoclaving are carried out as described in this manual. Because a slight change in the accuracy of the dosage may occur, it is recommended to:

- Check the calibration of the pipettor after the initial first, third, and fifth autoclaving cycles and then after every 10 autoclaving cycles.

Ultra Violet (UV) Sterilization

The pipettors are UV resistant. However, the recommended distance from the radiation source to the exposed element should be not less than 50 cm. Prolonged and very intense UV exposure can cause discoloration of pipettor parts without effecting their performance.

11.Troubleshooting

If you notice an improper pipettor operation, identify the cause and eliminate the fault. Follow the instructions in the sequence provided. Replacement of parts should be required only occasionally and should not occur under normal pipettor use.

Problem	Cause	Solution
Droplets of liquid remain in the pipet tip.	The pipet tip is emptied too fast.	Decrease the speed of pressing the pipettor pushbutton.
	The pipet tip wettability has increased due to extensive use.	Replace the tip with a new one.
	The pipet tip immersion is too shallow.	Immerse the tip deeper according to the instructions.
	The pipet tip is incorrectly pressed onto the pipettor shaft.	Press the pipettor firmly.
	The tip is damaged or worn out due to extensive use.	Replace the tip with a new one.
The pipettor incorrectly aspirates the liquid or the liquid drops out from the tip.	The pipettor tip is incorrectly pressed onto the pipettor shaft.	Press the pipet tip firmly.
	The shaft surface is damaged or contaminated at the sealing site.	Clean the shaft or replace it with a new one.
	The plunger or the O-ring (seal) is damaged due to prolonged aspiration of aggressive liquids.	Disassemble the shaft set; wash the shaft, the plunger and the O-ring (seal) (Section 10: Cleaning). Replace the elements with new ones if necessary.
	The inside of the pipettor is contaminated.	Apply a small amount of lubricant onto the plunger and reassemble the set in the correct order.
	No lubrication on the sealing elements.	

Problem	Cause	Solution
Uneven work of the pipetting set, the pipetting pushbutton gets blocked.	The inside of the pipettor is contaminated due to aspiration of aggressive substances.	Unscrew the shaft set, wash the parts. Replace the elements with new ones if necessary. Apply a small amount of lubricant on the plunger and reassemble the set in the correct order.
	The inside of the pipettor is contaminated due to the liquid entering the pipettor.	
	No lubrication on the sealing elements, (e.g., after repeated autoclaving procedures).	
Incorrect aspiration.	Liquid with properties other than water (density, viscosity).	Calibrate the pipettor using the liquid which is to be pipetted.
	The volume adjustment knob used in the "CAL" mode.	Calibrate the pipettor according to Section 9.
	Tips with a filter with increased flow resistance.	Calibrate the pipettor using the tips which are to be used for pipetting.

If the problem continues after carrying out the above steps, contact our regional representative.

Before returning the pipettor, please ensure the pipettor is completely free of any chemical, radioactive, or microbiological contamination which could pose a threat during transport and repair.

12. Spare Parts

Contact our Customer Service to inquire about availability of spare parts. Pipettor model and name of the part required should be specified.

NOTE: The replacement of the plunger requires conducting the calibration procedure according to Section 9.

Item	Description	Model	Cat. No.	Qty/Pk
A	Pipetting pushbutton	All	SP19643	1
		2	SP19151	1
		10	SP19152	1
C, I, (J)	Shaft with O-ring (and seal*)	20	SP19153	1
		100	SP19154	1
		200	SP19155	1
		1,000	SP19156	1
F	Shaft holder	2/10	SP19671	1
		20/100	SP19673	1
		2	SP19645	1
G	Plunger assembly with spring and bushing	10	SP19646	1
		20	SP19647	1
		100	SP19648	1
		200	SP19649	1
		1,000	SP19650	1
I, (J)	O-ring set (and seal*)	2	SP19611	10
		10	SP19612	10
		20	SP19613	10
		100	SP19614	10
		200	SP19615	10
		1,000	SP19616	10
K	Calibration key	All	SP19674	1
M	Shaft cap	All	SP19644	1
S	Shelf clip	All	SP19483	1

*Seal (J) used only in models 2 and 10 µL

13. Technical Service

Web Resources

Visit the VWR website at www.vwr.com for:

- Complete technical service contact information
- Access to the VWR Online Catalogue, and information about accessories and related products
- Additional product information and special offers

Contact us

For information or technical assistance contact your local VWR representative or visit www.vwr.com

14. Warranty

VWR warrants that this product will be free from defects in material and workmanship for a period of three (3) years from date of delivery. If a defect is present, VWR will, at its option and cost, repair, replace, or refund the purchase price of this product to the customer, provided it is returned during the warranty period. This warranty does not apply if the product has been damaged by accident, abuse, misuse, or misapplication, or from ordinary wear and tear. If the required maintenance and inspection services are not performed according to the manuals and any local regulations, such warranty turns invalid, except to the extent, the defect of the product is not due to such non-performance.

Items being returned must be insured by the customer against possible damage or loss. This warranty shall be limited to the aforementioned remedies.

IT IS EXPRESSLY AGREED THAT THIS WARRANTY WILL BE IN LIEU OF ALL WARRANTIES OF FITNESS AND IN LIEU OF THE WARRANTY OF MERCHANTABILITY.

For additional product or technical information, visit www.vwr.com or contact your local sales office.

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Version 1

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