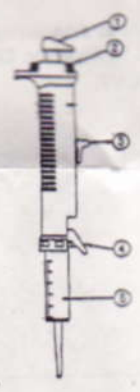


High Level

1. Components and functions

- (1) **Plunger**
Depressing the plunger dispenses the set volume of liquid
- (2) **Volume adjustment dial**
Select position 1 to 5 to set desired volume (see table 1)
- (3) **Fill lever**
Fills tip with liquid when pushed upwards
- (4) **Locking lever**
Secures reservoir tip in place
- (5) **Reservoir tip**
Reservoir for holding liquid to be dispensed. For best results use VWR Combi-Syringes.



Instruction Manual

2. Selecting the volume

- Locate the volume to be dispensed in table 1
- Set the volume adjustment dial to the position indicated at the top of the column.
- Choose the appropriate reservoir tip from the left hand column of the chart.
- The maximum number of dispensing steps for the selected tip and volume is located at the bottom of the column.

Table 1

Dial position	1	2	3	4	5
using 0.05 ml tip	1 μ l	2 μ l	3 μ l	4 μ l	5 μ l
using 0.50 ml tip	10 μ l	20 μ l	30 μ l	40 μ l	50 μ l
using 1.25 ml tip	25 μ l	50 μ l	75 μ l	100 μ l	125 μ l
using 2.50 ml tip	50 μ l	100 μ l	150 μ l	200 μ l	250 μ l
using 5.00 ml tip	100 μ l	200 μ l	300 μ l	400 μ l	500 μ l
using 12.50 ml tip	250 μ l	500 μ l	750 μ l	1000 μ l	1250 μ l
using 25.00 ml tip	500 μ l	1000 μ l	1500 μ l	2000 μ l	2500 μ l
using 50.00 ml tip	1000 μ l	2000 μ l	3000 μ l	4000 μ l	5000 μ l
Steps	48	23	15	11	8

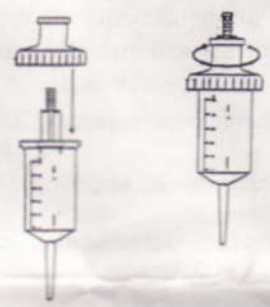
3. Inserting reservoir tip

- Push the fill lever down until it stops.
- Push the locking lever upwards.
- Insert a reservoir tip with slight pressure to lock it in place.
- Push the fill lever down slightly and press down on the locking lever to secure the tip in place.
- Use the volume adjustment dial to set the required volume.

Please note :

25 ml and 50 ml tips require the use of an adapter (adapters are supplied free with each VWR Repeating Pipette). Attach the adapter by placing it on the tip as shown in the illustration and turning clockwise. After the tip has been used, the adapter may be removed and reused.

0,05 ml tips should be used with a 10 μ l pipette tip on the liquid end.



4. Filling the reservoir tip

- Immerse the end of the reservoir tip into the liquid to be drawn up.
- Slowly raise the fill lever upwards to draw liquid into the tip.
- Dispense the first step with the plunger.

The fill lever must be raised slowly to prevent negative pressure and air bubbles in the liquid.

A small air bubble in the upper part of the reservoir will not affect the accuracy as the last step is not carried out.

The reservoir tip does not need to be filled completely.

The 0.5 ml, 1, 1.25 ml and 2.5 ml tips may be used with a 100 μ l pipette tip affixed to the end. This facilitates filling from vessels with narrow necks and provides better accuracy with small volumes.

5. Dispensing

- Check that the volume setting is correct.
- Wipe the end of the tip with a lint free wipe or other appropriate material.
- Place the tip at an angle to the wall of the vessel.
- Press the plunger down to the stop to dispense.

After using the 25 ml and 50 ml tips, the adapter can be removed by turning it counter-clockwise and reused with another tip.

Avoid touching the end of the tip when removing it from the pipette. When using viscous solutions, the fit of the tip may loosen after several pipettings.

6. Removing the tip

- Empty the tip completely.
- Push the locking lever upwards.
- Remove the tip from the dispenser.

Do not attempt to disassemble the VWR Repeating Pipettor. Doing so will void the warranty.

7. Maintenance

The VWR Repeating Pipettor requires no maintenance. Potential clogs are best removed with warm water or isopropanol.

8. Troubleshooting

Problem	Possible cause	Remedy
Tips will not fit in pipette	Fill lever has not been pushed down completely	Push fill lever down to the stop
Locking lever cannot be pushed down	Tip has not been inserted Properly	Remove the tip and push tip piston in. Be sure the filling lever is in the down position, replace tip and press locking lever down again
Fill lever cannot be moved upwards	Locking lever has not been pushed down completely	Push the locking lever down to the stop
Dispensed volume is not correct	Volume adjustment wheel is not locked in place	Lock adjustment wheel in place

9. Technical data

Weight : Approx. 100 grams

Accuracy and precision : see Table 2

Liquid : bidistilled water

Reference temperature : 20° - 25° C
± 0.5° C constant

Measurement : according to DIN 12650

Subject to technical modifications
Made in Germany

Table 2

Dial position	1	2	3	4	5	Inpre- cision (%)	Inaccur- acy (%)
Steps	48	23	15	11	8		
using 0.05 ml tip	1 µl	2 µl	3 µl	4 µl	5 µl	< 5	< ± 2,5
using 0.50 ml tip	10 µl	20 µl	30 µl	40 µl	50 µl	< 0,7	< ± 0,8
using 1.25 ml tip	25 µl	50 µl	75 µl	100 µl	125 µl	< 0,5	< ± 0,8
using 2.50 ml tip	50 µl	100 µl	150 µl	200 µl	250 µl	< 0,4	< ± 0,8
using 5.00 ml tip	100 µl	200 µl	300 µl	400 µl	500 µl	< 0,3	< ± 0,4
using 12.50 ml tip	250 µl	500 µl	750 µl	1000 µl	1250 µl	< 0,3	< ± 0,3
using 25.00 ml tip	500 µl	1000 µl	1500 µl	2000 µl	2500 µl	< 0,3	< ± 0,2
using 50.00 ml tip	1000 µl	2000 µl	3000 µl	4000 µl	5000 µl	< 0,2	< ± 0,2

10. Ordering information

VWR Combi-Syringe tips may be ordered from your VWR dealer. All sizes are supplied in stackable dispenser boxes and are available in sterile or non-sterile packaging.

11. Warranty

VWR Repeating Pipettors are guaranteed against defects in materials and workmanship for a period of 6 months from the date of purchase. This warranty is valid only if the dispenser has been used in compliance with these instructions. If a failure cannot be remedied using the troubleshooting guide above, contact VWR for further assistance.

