

# Corning® Step-R™ Repeating Pipettor

Instruction Manual

CORNING



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## 1. Introduction

The Corning® Step-R™ Repeating Pipettor is a dosing device which provides long hours of comfortable use during serial dispensing. It is perfect for use with viscous, dense, volatile, or corrosive samples. Using Corning Syringe Tips (referred to further as "tips"), volumes from 1 µL to 5000 µL can be dispensed repeatedly with a high degree of accuracy.

### Technical Data

Tip Size	Dispensed Volume [µL]		Inaccuracy [%]		Imprecision [%]	
	3% $V_{nom}$	10% $V_{nom}$	3% $V_{nom}$	10% $V_{nom}$	3% $V_{nom}$	10% $V_{nom}$
0.05 mL	5	5	±8.0	±4.0	±4.0	≤4.0
0.5 mL	15	50	±1.0	±0.8	±1.3	≤0.8
1.25 mL	37.5	125	±0.4	±0.4	±0.5	≤0.6
2.5 mL	75	250	±0.8	±0.7	±0.8	≤0.5
5 mL	150	500	±0.6	±0.5	±0.6	≤0.3
12.5 mL	300	1000	±0.5	±0.5	±0.3	≤0.3
25 mL	750	2500	±0.5	±0.6	±0.4	±0.4
50 mL	1500	5000	±0.5	±0.3	±0.4	±0.3

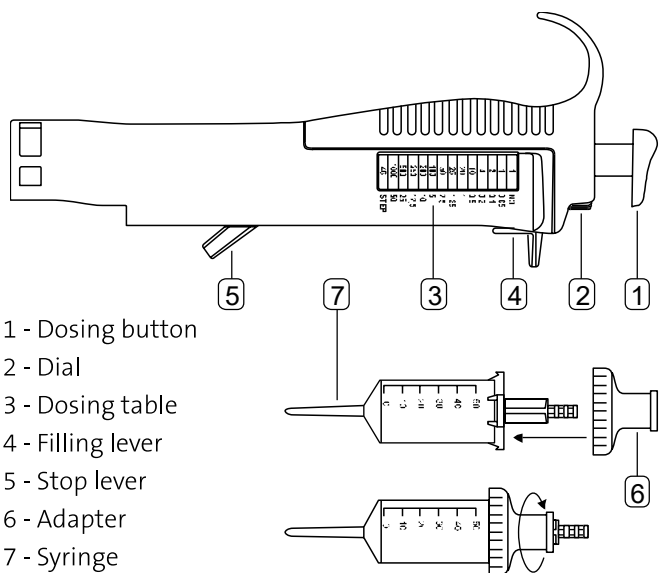
Subject to technical modifications.

### Note:

The data for 0.05 mL tips are based on a measurement with a 10 µL pipet tip attached. Measurement according to EN ISO 8655. Liquid: bidistilled water. Reference temperature: approx. 20°C. The repeating pipettor is suited for a temperature range from +15°C to 40°C. The steam pressure should be max. 500 mbar.

## 2. Using the Step-R Repeating Pipettor

The Corning Step-R is a simple to use device — simply select the appropriate syringe tip and lock it into place. A chart showing the volume dispensed for each tip size and dial position is located on the body of the pipettor. Detailed information on how to use the pipettor is provided below.



- 1 - Dosing button
- 2 - Dial
- 3 - Dosing table
- 4 - Filling lever
- 5 - Stop lever
- 6 - Adapter
- 7 - Syringe

### I. Operating Elements

**Dosing button (1):** Pressing the dosing button all the way down, dispenses the set dosing volume.

**Dial (2):** Turning the dial in positions 1 to 10 sets the desired dosing volume according to the volume table.

**Dosing table (3)**

**Filling lever (4):** The inserted tip is filled by pushing up the filling lever.

**Stop lever (5):** Used to securely stop the inserted tip.

### II. Dosing Table and Volume Selection

- The upper row of the dosing table in the viewing window of the Corning Step-R™ Repeating Pipettor corresponds to the position of the dial and the program number (NO).
- Using the dial, select your desired dosing volume from the dosing table (indicated in  $\mu\text{L}$ ).
- The numbers in the right-hand column on the device represent the tip sizes to be selected (indicated in mL).
- The bottom row in the viewing window represents the dispensing steps (STEP).

**Note:**

- The dosing table of the Corning Step-R Repeating Pipettor conveniently displays the total dispensing volume proportional to the dispensing step and tip sizes.
- Example: Program number 9 (NO) dispenses exactly 250  $\mu\text{L}$  in 8 dosing steps (STEP) when a 2.5 mL tip is used. NO 1 corresponds to 50  $\mu\text{L}$  in 48 steps with the same tip size or 200  $\mu\text{L}$  when a 10 mL tip is used.

1	2	3	4	5	6	7	8	9	10	← NO
1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	0.05
2	3	4	5	6	7	8	9	10	11	0.1
4	6	8	10	12	14	16	18	20	22	0.2
10	15	20	25	30	35	40	45	50	55	0.5
20	30	40	50	60	70	80	90	100	110	1
25	37.5	50	62.5	75	87.5	100	112.5	125	137.5	1.25
50	75	100	125	150	175	200	225	250	275	2.5
100	150	200	250	300	350	400	450	500	550	5
200	300	400	500	600	700	800	900	1000	1100	10
250	375	500	625	750	875	1000	1125	1250	1375	12.5
500	750	1000	1250	1500	1750	2000	2250	2500	2750	25
1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	50
48	31	22	18	14	12	10	9	8	7	← STEP

### III. Inserting the Tip

- Push the filling lever (4) down until it stops.
- Tilt up the stop lever (5).
- Insert the tip and click into place with gentle pressure.
- Gently push filling lever down once more and press the stop lever so that it clicks into the tip.
- Adjust desired dosing volume on the dial (2).

**Note:**

- 25 mL and 50 mL tips can only be inserted/locked into place in the Corning Step-R™ Repeating Pipettor using the corresponding adapter (6).
- The adapter is placed on the tip and twisted on to secure it (bayonet closure). After using the tip, the adapter can be twisted off and reused as often as desired.

### IV. Filling the Tip

1. Immerse the end of the tip into the liquid.
2. Slowly push filling lever (4) up to fill the tip.

**Note:**

- To prevent a vacuum and the formation of small air bubbles in the liquid when filling the tip, the filling lever must be slowly pushed upwards.
- The filling speed must be adjusted according to the viscosity of the liquid.
- The tip does not need to be filled completely.
- Air bubbles in the upper part of the cylinder do not affect accuracy.

- For physical reasons, the contents of the first dosing step and the last dispensing step must be discarded.

## V. Dispensing

- Check volume setting on the dial (2).
- Discard the initial dispensing step.
- Wipe the end of the tip with lint-free tissue paper.
- Place the end of the tip at an angle on the wall of the container.
- Press the dosing button (1) all the way down for each dosing step.

### Note:

- 0.05 mL tips must be used with an attached 10 µL pipet tip. This facilitates filling from containers with narrow necks and makes the dosing of smaller volumes more accurate.
- When changing reagents, the tip must be replaced.
- Return any remaining liquid to the container from which it was removed by slowly pushing the filling lever (4) all the way down.

## 3. Corning® Syringe Tips

Corning Syringe Tips are available in 8 different dosage volume sizes and work with many repeating pipettors. The Syringe Tips are available in sterile and standard, non-sterile versions:

Corning Syringe Tip	Cat. No. Non-sterile	Cat. No. Sterile	Qty/Cs
0.05 mL	6620	6628	100
0.5 mL	6621	6629	100
1.25 mL	6622	6630	100
2.5 mL	6623	6631	100
5 mL	6624	6632	100
12.5 mL	6625	6633	100
25 mL	6626	6634	25
50 mL	6627	6635	25
Adapter for size 25 mL	4218	Autoclavable	1
Adapter for size 50 mL	4219	Autoclavable	1

The Corning Step-R™ Repeating Pipettor is intended for use with Corning Syringe Tips.

When using compatible syringe tips from other manufacturers, the user must check its compatibility before use and perform function and volume testing.

## 4. Recommendations

- Observing the following recommendations will ensure maximum possible accuracy and precision of liquid sampling.
- Check the condition of the repeating pipettor before use. In the event of any problems, follow the instructions in the "Troubleshooting" section first.
- The repeating pipettor is used exclusively for dosing liquids into suitable containers.
- As a basic principle, work should be performed such that the device is held pointing down, in order to not endanger neither the user nor other persons.
- Avoid contact with the opening of the tip while working with aggressive media – reagent manufacturer's information should be observed.
- General warnings and safety instructions (e.g., wearing protective clothing) should be followed. When working with infectious or hazardous samples, Good Laboratory Practice (GLP) must be maintained.
- When working with viscous solutions, the leak tightness of the tip can no longer be guaranteed following repeated use.

## 5. Recalibration

To calibrate the Corning® Step-R™ Repeating Pipettor in accordance with EN ISO 8655, three different volumes with ten measured values each have to be checked. These three volumes are the nominal volume (= the maximum volume to be dispensed), 50% of the nominal volume and 10% of the nominal volume of the Corning Syringe Tips used. The checking procedure, the test conditions, and the permissible errors should be in accordance with EN ISO 8655. In the event that the Corning Step-R needs recalibration, contact your local Corning representative. Before returning the pipettor for recalibration, ensure that it is completely free of any chemical, radioactive, or microbiological contamination which could pose a threat during transport and service.

## 6. Troubleshooting

If you notice an improper pipettor operation, identify the cause and resolve the issue by following the instructions below.

Problem	Cause	Solution
The tip cannot be inserted.	The filling lever (4) is not pushed all the way down.	Push the filling lever until it stops.

Problem	Cause	Solution
The stop lever (5) cannot be pushed down.	The tip has not been properly inserted.	Remove the tip. Push the piston of the tip all the way in. Push the filling lever down.
The filling lever cannot be pushed up.	The stop lever has not clicked into place in the tip.	Press the stop lever until it stops.
The dosing volume is indeterminate.	The dial (2) has not clicked into place.	Click dial into place.
An air bubble in the tip is becoming larger.	The tip is leaky.	Replace the tip.
25 mL and 50 mL tips cannot be inserted.	The corresponding adapter (6) is not mounted on the tip.	Put the appropriate adapter on the respective tip.

If the problem continues after carrying out the above steps, contact your Corning representative.

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

## 7. Cleaning and Sterilization

The Corning Step-R™ Repeating Pipettor is factory-calibrated and operates maintenance-free.

- It is recommended that warm water or isopropyl alcohol are used for cleaning.
- To disinfect the pipettor, conventional disinfectants suitable for polycarbonate can be used.
- The device should not be autoclaved.
- The device should not be disassembled.
- No technical modifications should be made.

## 8. Components

The following components are supplied with the Corning Step-R Repeating Pipettor:

- Adapter for 25 mL tips
- Adapter for 50 mL tips
- Instruction manual

## 9. Warranty Statement

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