

ahn *myPette*[®]pro

Manual Pipettes
Instruction Manual

Manuelle Pipetten
Bedienungsanleitung

INDEX

1	Introduction	3
1.1	Operating instructions for using this manual	3
1.2	Danger symbols and danger levels	3
2	Intended use	3
3	Package contents	3
4	Product description	3
4.1	Variable volume pipette range	6
4.2	Fixed volume pipette range	6
4.3	Multi channel pipette range	7
4.4	Setting the volume	7
4.5	Volume indicator display example	7
4.6	Materials	7
5	Pipette operation	8
5.1	Pipetting guidelines	8
5.2	Setting the volume	8
5.3	Loading tips	9
5.4	Optimum immersion depths	9
5.5	Forward pipetting	10
5.6	Reverse pipetting	10
5.7	Aspiration of sample	10
5.8	Dispensing sample	10
5.9	Ejection of tips	11
6	Calibration and adjustment	11
6.1	Device requirements and test conditions	11
6.2	Calibration adjustment	11
6.3	Procedure fo check calibration	12
6.3.1	Conversion of weight readings to volume	12
6.3.2	Calculation for inaccuracy (systematic error)	12
6.3.3	Calculation for imprecision (random error)	12
7	Maintenance and servicing	12
7.1	Disassembly	12
7.2	Disassembling the lower part	12
7.2.1	Disassembling the single channel pipette up to 1mL	13
7.2.2	Disassembling the single channel pipette 5-10mL	13
7.3	Assembling the pipette	13
7.3.1	Assembling the single channel pipette up to 1mL	13
7.3.2	Assembling the single channel pipette 5-10mL	14
7.4	Checking the function	14
7.5	Disassembling the multi channel pipette	14
7.5.1	Removing the lower assembly	14
7.5.2	Opening the lower assembly	14
7.5.3	Removing the channel	14
7.5.4	Fitting the channel	14
7.5.5	Assembling the lower assembly	15
7.5.6	Checking the function	15
7.6	Disassembling the multi channel 1200 μ L pipette	15
7.6.1	Removing the lower assembly	15
7.6.2	Opening the lower assembly	16
7.6.3	Removing the channel	17
7.6.4	Removing the seal holder assembly	17
7.6.5	Re-assembly	18
7.6.6	Attaching lower assembly	18
7.7	Autoclaving	19
8	Troubleshooting guide	20

1. INTRODUCTION

You are now the proud owner of one of the most precise mechanical pipettes, designed for effortless operation with minimal plunging force. This manual will guide you through how to properly care for your pipette and get the most out of its advanced features, including:

- Magnet-assisted piston - ensures precise, consistent results
- Innovative spring and seal design - requires minimal force for smooth plunging
- Corrosion-resistant plastic tip ejector mechanism - featuring a unique shock-absorbing design for durability
- Volume lock - prevents accidental adjustments
- Fully autoclavable
- Ergonomic design - provides comfort during extended use
- Easy in-house calibration
- Highly durable universal tip cone - ensures maximum compatibility

1.1 Operating Instructions for Using this Manual

- Please read this manual completely before using the device for the first time.
- This manual is an important part of the product. Please keep it in an easily accessible place.
- Always include this manual with the pipette when transferring it to a third party

1.2 Danger Symbols

The safety instructions in this manual have the following danger symbols and danger levels:

 Hazard point	 Material damage
---	---

2. INTENDED USE

This pipette is designed and manufactured for dispensing liquids in a measured way and should be used in combination with tips of the same brand for general laboratory use only.

It is intended exclusively for indoor usage, and for operation by trained and skilled personnel.

3. PACKAGE CONTENTS

Description	Quantity
Pipette	1
Certificate of conformity, including calibration certificate	1
Warranty card	1
Product manual	1
Shelf-mounting stand	1
Calibration tool	1
Silicone grease	1

4. PRODUCT DESCRIPTION

This pipette works on the air-displacement principle, with the help of a magnet-assisted piston for aspirating and dispensing measured volumes of liquid. It must be used with disposable tips, which are expelled with the ejector.

SINGLE CHANNEL PIPETTE
VARIABLE VOLUME



- 1 Volume adjustment knob
- 2 Volume lock
- 3 Tip ejector pusher
- 4 Volume range
- 5 Coupler
- 6 Tip ejector
- 7 Tip cone

MULTI CHANNEL PIPETTE
VARIABLE VOLUME



- 1 Volume adjustment knob
- 2 Volume lock
- 3 Tip ejector pusher
- 4 Volume range
- 5 Coupler
- 6 Manifold
- 7 Tip cone

4.1 Variable Volume Pipette Range

Cat. No.	Colour	Vol. range (µL)	Increment (µL)	Test vol. (µL)	Inaccuracy (±) %	Imprecision (±) %
8-100-31-9	●	0.1-2.5	0.002	0.25	12.00	6.00
				1.25	2.50	1.50
				2.5	2.50	0.70
8-101-31-9	●	0.5-10	0.02	1	2.50	1.50
				5	1.50	0.80
				10	1.00	0.40
8-102-31-9	●	2-20	0.02	2	3.00	1.50
				10	1.20	0.60
				20	0.90	0.30
8-103-31-9	●	5-50	0.1	5	2.00	2.00
				25	0.80	0.40
				50	0.60	0.30
8-104-31-9	●	10-100	0.1	10	3.00	1.00
				50	1.00	0.30
				100	0.80	0.20
8-105-31-9	●	20-200	0.2	20	2.50	0.70
				100	0.70	0.30
				200	0.60	0.20
8-106-31-9	●	100-1000	1	100	3.00	0.60
				500	1.00	0.20
				1000	0.60	0.20
8-107-31-9	●	500-5000	10	500	2.40	0.60
				2500	1.20	0.25
				5000	0.60	0.20
8-108-31-9	●	1000-10000	20	1000	3.00	0.60
				5000	0.80	0.20
				10000	0.60	0.15

4.2 Fixed Volume Pipette Range

Cat. No.	Colour	Vol. range (µL)	Test vol. (µL)	Inaccuracy (±) %	Imprecision (±) %
8-000-31-9	●	2.5	2.5	2.00	1.60
8-001-31-9	●	5	5	1.30	1.20
8-002-31-9	●	10	10	1.20	0.60
8-003-31-9	●	20	20	1.00	0.30
8-004-31-9	●	25	25	1.00	0.30
8-007-31-9	●	50	50	0.70	0.30
8-008-31-9	●	100	100	0.60	0.20
8-009-31-9	●	200	200	0.60	0.20
8-010-31-9	●	250	250	0.60	0.30
8-011-31-9	●	500	500	0.60	0.20
8-012-31-9	●	1000	1000	0.60	0.20
8-013-31-9	●	2000	2000	0.30	0.15
8-015-31-9	●	5000	5000	0.30	0.15
8-016-31-9	●	10000	10000	0.60	0.20

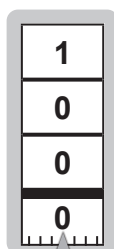
4.3 Multi Channel Pipette Range

Cat. No.	Colour	Vol. range (µL)	Increment (µL)	Test vol. (µL)	Inaccuracy (±) %	Imprecision (±) %
8-201-31-9	●	0.5-10	0.02	1	8.00	5.00
8-401-31-9				5	4.00	2.00
8-205-31-9				10	2.00	1.00
8-405-31-9	●	2-20	0.02	2	7.00	3.00
8-202-31-9				10	3.00	2.00
8-402-31-9				20	2.00	1.60
8-204-31-9	●	5-50	0.1	5	3.00	2.00
8-404-31-9				25	1.50	1.00
8-206-31-9				50	1.00	0.70
8-406-31-9	●	10-100	0.1	10	3.00	2.00
8-203-31-9				50	1.00	0.80
8-403-31-9				100	0.80	0.30
8-207-31-9	●	20-200	0.2	20	5.00	1.40
8-407-31-9				100	1.00	0.40
8-208-31-9				200	0.70	0.25
8-209-31-9	●	30-300	0.2	30	3.00	1.00
8-409-31-9				150	1.00	0.50
8-210-31-9				300	0.60	0.30
8-211-31-9	●	120-1200	1.0	120	4.00	0.90
8-411-31-9				600	2.00	0.40
8-212-31-9				1200	1.00	0.30

4.4 Setting the Volume

Delivery volume is indicated in the volume display found on the main body of the pipette. In variable volume models, the bottom volume wheel includes a small increment scale for precise set-point and delivery capabilities.

Some variable volume pipettes include one or two decimal places in the set-point volume wheels. This is indicated by the use of a black horizontal line, as seen right and in the following examples:



4.5 Volume Indicator Display Example

8-100-31-9	8-101-31-9	8-103-31-9	8-104-31-9	8-106-31-9
2.25µL	10µL	18.3µL	100µL	1µL
8-107-31-9	8-108-31-9	8-203-31-9	8-207-31-9	
4.85µL	9.3µL	300µL	1200µL	

4.6 Materials

⚠ NOTICE! Aggressive substances may damage components, consumables and accessories.

- Check the chemical resistance before using organic solvents or aggressive chemicals.
- Only use liquids whose vapours do not attack the materials used.

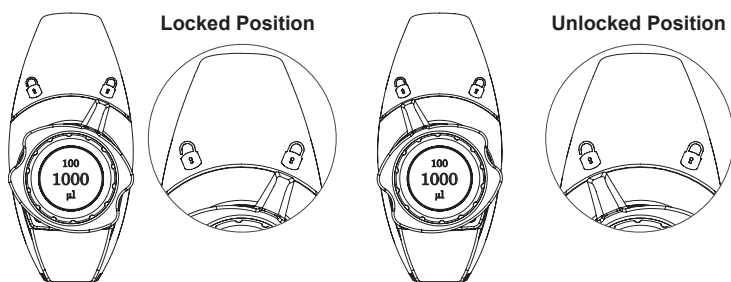
5. PIPETTE OPERATION

5.1 Pipetting Guidelines

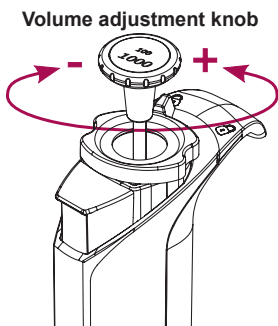
- Check the tip cone to make sure it is clean.
- While using the pipette, make sure that the operating plunger is handled slowly and smoothly.
- Ensure that the top is firmly attached onto the tip cone. Please check for foreign particles and remove any from around the tip cone.
- Make sure that the temperature of the tip, pipette and liquid are all at equilibrium.
- While aspirating, hold the pipette in an upright position and keep the tips at a constant depth below the surface of the liquid.
- Pre-rinse the pipette tip, before aspirating the sample, by filling and emptying the pipette tip 5 times. This is important when dispensing samples that have a viscosity and density different from water, and for volatile solvents.
- Do not pre-rinse the tip when pipetting samples with temperatures that are different from the current ambient temperature. Be sure to change the pipette tip after each pipetting.
- For volatile solvents you should saturate the air-cushion of your pipette by aspirating and dispensing the solvent repeatedly before aspirating the sample.
- When pipetting liquids with temperatures that are different to the ambient temperature, pre-rinse tips several times before use.
- After pipetting acids or other corrosive liquids that emit vapors, remove the tip cone and rinse the piston, O-ring and seal with distilled water.
- Do not pipette liquids having temperatures above 70°C. (Not recommended).
- Make sure that liquids never enter the tip-cone. To prevent this:
 - Avoid laying the pipette horizontally when tip is filled with sample. As liquid may enter in and contaminate the sample during next pipetting cycle.
 - When there is liquid in the tip, press and release the volume adjustment knob slowly and smoothly.
 - Never turn the pipette upside down.
- Always store the pipette without tip on a shelf mounting stand supplied with or a pipette carousel stand.
- Highly recommended to calibrate the pipette once in every 3-6 months (depending on the sensitivity of usage) for better performance. The calibration must be carried by gravimetric method in accordance of DIN ISO 8655-6.

5.2 Setting the Volume

- To set the volume, turn the volume lock lever to the 'unlock' position so that the volume can be adjusted to the desired set-point within the permitted volume range.



- To decrease the volume, turn the volume setting knob clockwise.
- To increase the volume, turn the volume setting knob anticlockwise.
- Make sure that the desired delivery volume is set in line with the pointer.
- Turn the volume lock to 'lock' to lock the volume setting, preventing any accidental change in the volume during pipetting.
- For this pipette the delivery volume of liquid is set using the digital display. A pointer is used to set exact or intermediate volumes using the scale on the last wheel of the digital display (see point 4.6)



⚠ The locking mechanism ensures that the volume adjustment knob remains at the set-point while aspirating or dispensing sample liquids. Any effort to rotate the volume adjustment knob with the locking mechanism engaged will damage the locking mechanism and void the warranty.

⚠ Setting the volume beyond the allowable volume range is not permitted. Using excessive force to turn the volume adjustment knob outside the permitted range will jam the mechanism, damage the pipette and void the warranty.

5.3 Loading Tips

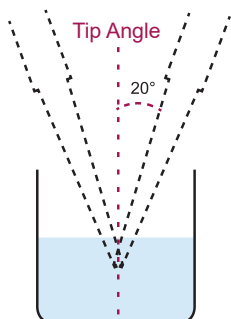
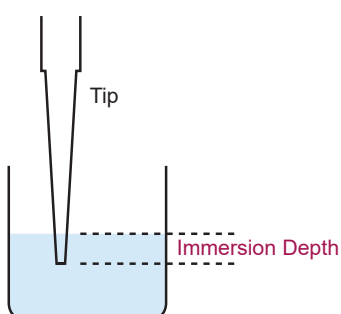
We recommend that you use the correct pipette tip according to the pipette volume range. Check that the tip cone is clean before fitting a tip. Firmly press the tip on the cone of the pipette, to ensure an air-tight seal. Always ensure that the tip is correctly sealed to avoid any leakage during pipetting.

5.4 Optimum Immersion Depths

Tip immersion is critical and should not be exceeded, as the volume measured may then be inaccurate, possibly out of specification.

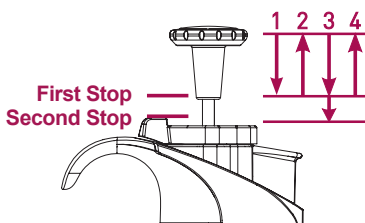
The tip angle is also important. The tip should always be used within a 20° angle of vertical.

Volume	Immersion Depth
0.1-1 μ L	1mm
1-100 μ L	2-3mm
100-1000 μ L	2-4mm
1-10mL	3-5mm



5.5 Forward Pipetting

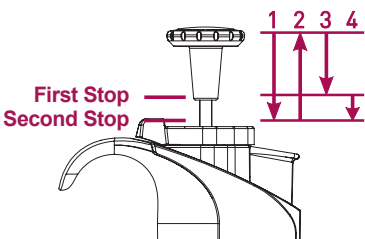
1. Press the operating knob until the first stop.
2. Dip the tip under the surface of the liquid in the reservoir and slowly release the operating knob. Withdraw the tip from the liquid, touching it against the edge of the reservoir to remove excess liquid.
3. Dispense the liquid by gently pressing the operating knob to the first stop. After a delay of about one second, continue to press the operating knob all the way to the second stop. This action will then empty the tip.
4. Release the operating button to the ready position. Change the tip and continue pipetting.



5.6 Reverse Pipetting

The reverse pipetting technique is suitable for dispensing liquids that have high viscosity or a tendency to foam easily. This technique is also recommended for dispensing very small volumes.

1. Press the operating knob until the second stop.
2. Dip the tip under the surface of the liquid in the reservoir and slowly release the operating knob. This action will fill the tip. Withdraw the tip from the liquid, touching it against the edge of the reservoir to remove excess liquid.
3. Dispense the preset volume of liquid by gently pressing the operating knob to the first stop. Hold the operating knob at the first stop. Some liquid will remain in the tip and it should not be dispensed.
4. The remaining liquid should either be discarded with the tip or should be dispensed back into the reagent reservoir.



5.7 Aspiration of Sample

1. Hold the pipette vertically; press the volume adjustment knob to its first stop. Place the tip into the sample at proper depth (refer to point 5.4) and relax your thumb pressure on the plunger. The light piston spring will move the piston upward, aspirating the sample.
2. Pause for about 1 second (longer for macro-volume pipettes) to ensure that the full volume of sample is drawn into the tip.
3. Withdraw the tip from the sample. If any liquid remains on the outer surface of the tip, touch it off carefully onto a lint-free tissue, taking care not to touch the tip orifice.

5.8 Dispensing Sample

1. Place the pipette tip against the reservoir wall to avoid any bubbles or splashing of sample out of the reservoir.
2. Press the plunger slowly past the first stroke and second stroke for a complete blow out of liquid sample. For viscous samples, it is recommended to wait for few seconds till the fluid passes out to the reservoir.
3. Pull the tip gently along the wall of the reservoir and release the plunger slowly.
4. Discard the tip to avoid any carry-over sample or cross-contamination. It is highly recommended to change the tip and then repeat the pipetting cycle.

5.9 Ejection of Tips

The tip ejector needs to be pressed firmly downwards with the thumb to ensure proper ejection of the tip.

Once the process is complete, make sure all tips are disposed of into a suitable waste container.

6. CALIBRATION AND ADJUSTMENT

All pipettes are been quality tested according to ISO8655-6.

The quality control process, according to ISO 8655-6, involves the gravimetric testing of each pipette with double distilled water.

Each pipette is calibrated, inspected and validated by qualified technicians according to defined quality system.

6.1 Devise Requirements and Test Conditions

An analytical balance must be used. The balance selection depends upon the selected model of the pipette and sensitivity of the balance reading.

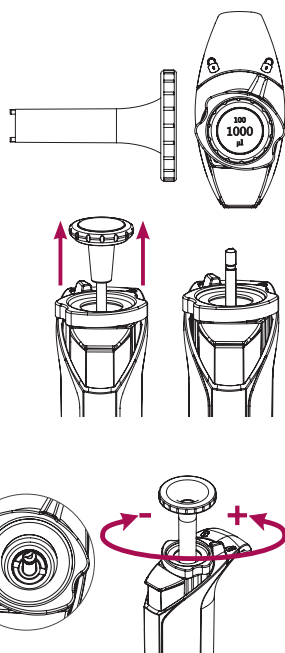
Test liquid: Water, distilled or de-ionized, grade 3 water conforming to ISO3696. Calibration should be carried out in a draft-free room at a constant $\{\pm 0.5^{\circ}\text{C}\}$ temperature of water, pipette and air between 15°C to 30°C .

The relative humidity must be above 50%, especially with volumes under $50\mu\text{L}$. The air humidity should be as high as possible to reduce the effect of evaporation loss.

Special accessories for analytical balance, such as the evaporation trap, are recommended for the calibration of volumes under $50\mu\text{L}$.

6.2 Calibration Adjustment

1. Calibration adjustment is done with the calibration tool provided with pipette.
2. Rotate the volume locking lever to the "lock" position so that the volume setting mechanism is locked and able to turn the calibration screw.
3. Remove the volume adjustment knob by pulling it upwards.
4. Place the calibration tool into the calibration grooves.
5. Rotate the calibration tool counter clockwise to increase and clockwise to decrease the volume.
6. After adjustment, check the calibration according to the instruction in 6.3.
7. Once within permissible error range, remove the calibration tool from pipette and place volume adjustment knob in its original position.



Depending upon frequency of use, we recommend checking of calibration every six months. However this can be adjusted to individual requirements.

6.3 Procedure to Check Calibration

The pipette is checked at maximum volume, at 50% of maximum volume and at minimum or 10% of maximum volume, whichever is higher.

- A new tip is first pre-wetted 3-5 times and a series of ten pipetting procedures are done at each volume.
- The use of forward pipetting technique is recommended.
- Calculate the inaccuracy and imprecision for all three volumes as per EN ISO 8655-6 standards on the basis of the following calculation

6.3.1 Conversion Of Weight Reading To Volume

$$\text{Mean Volume } \bar{V} = \bar{X} \times Z$$

$$\text{Mean Weight } \bar{X} = \frac{\sum X_i}{n}$$

X_i = balance reading n = number of readings

Z = conversion factor

(e.g. $Z=1.0040\mu\text{L}/\text{mg}$ at 25°C and 1013 hPa)

6.3.2 Calculation for Inaccuracy (Systematic Error)

$$A\% = \frac{\bar{V} - V_o}{V_o} \times 100$$

\bar{V} = mean value

V_o = particular volume at which readings are taken

6.3.3 Calculation for Imprecision (Random Error)

$$S = \sqrt{\frac{\sum_{i=1}^n (V_i - \bar{V})^2}{n - 1}}$$

S = standard deviation

\bar{V} = mean value

n = number of readings

$$CV\% = \frac{100 \times S}{\bar{V}}$$

Compare the results to the limits in the tables [page 6-7](#).

7. MAINTENANCE AND SERVICING

When the pipette is not in use it should be stored in an upright position. The pipette should be inspected prior to use each day for any dust or contamination on outside surfaces.

Special attention should be given to the tip cone.

No solvent other than isopropanol should be used to clean the pipette.

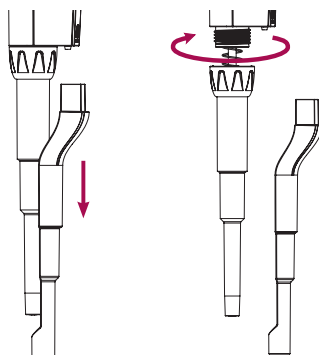
If the pipette is used daily, an internal parts inspection should be performed every 3 months.

7.1 Disassembly

The servicing procedure starts with the disassembly of the pipette.

7.2 Disassembling the Lower Part

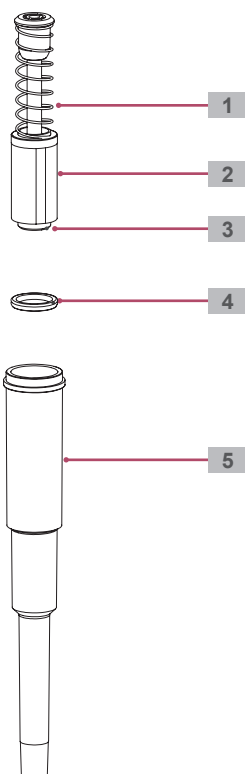
1. Press the tip ejector plunger completely down and hold.
2. Pull down the tip ejector and release the tip ejector plunger.



7.2.1 Disassembling the Single Channel Pipette up to 1mL

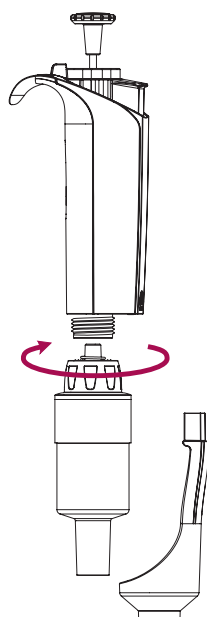
1. Unscrew the coupler and remove the tip cone.
2. Remove the lower part and pull out the piston and other parts from tip cone.
 - Remember to keep all parts in order for reassembly.
 - Clean the piston, the piston spring, seal and the A-ring with isopropanol and a lint-free tissue. Allow them to thoroughly dry.
 - Check the tip cone for foreign articles and remove, if any. Grease the cleaned parts with the approved lubricant provided with each pipette.

- 1 **Piston Spring**
- 2 **Retainer**
- 3 **Piston**
- 4 **Seal**
- 5 **Tip Cone**



7.2.2 Disassembling the Single Channel Pipette: 5-10mL

1. As per the earlier process, remove the ejector by pulling it after pressing the tip ejector plunger completely down.
2. Unscrew the coupler and pull out the piston and other parts from tip cone.
 - Remember to keep all parts in order for reassembly.
 - Clean the piston, the piston spring, seal and the A-ring with isopropanol and lint-free tissue. Allow to thoroughly dry.
 - Check the tip cone for foreign particles and remove, if any. Grease the cleaned parts with the approved lubricant provided with each pipette.



7.3 Assembling the Pipette

7.3.1 Assembling the Single Channel Pipette - up to 1mL

1. Carefully insert the piston into the tip cone.
2. Press on the piston from above and check for free movement. The piston must be able to move freely, without any resistance.
3. Reconnect the tip cone to the main body by screwing it into the threaded section.
4. Reinstall the tip ejection collar.

7.3.2 Assembling the Single Channel Pipette: 5-10mL

1. Insert the seal on position.
2. Keep retainer on the piston and spring. Press the spring to fit with piston.
3. Carefully insert the piston into the tip cone.
4. Press on the piston from above and check for free movement. The piston must be able to move freely, without any resistance.
5. Screw the coupler to the tip cone and screw with body.
6. Fit the ejector collar.

7.4 Checking the Function

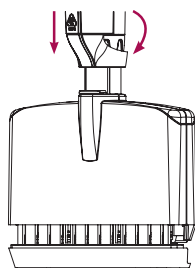
Ensure that the pipette has been assembled correctly.

- Carry out a gravimetric test for systematic and random errors.

7.5 Disassembling the Multi Channel Pipette

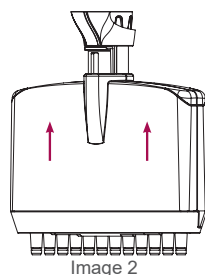
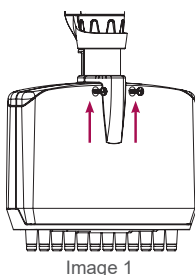
7.5.1 Removing the Lower Assembly

1. Press the tip ejector plunger completely and hold it while unscrewing the coupler from the upper part of pipette.
2. Remove the lower assembly.



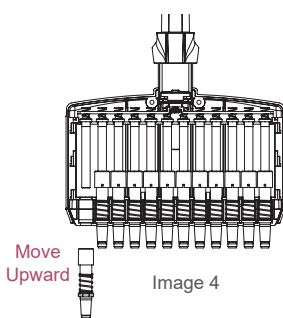
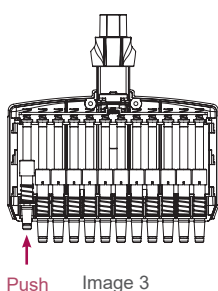
7.5.2 Opening the Lower Assembly

1. Unscrew the two small screws from the back side and safely keep it. (image 1).
2. Press and push up from side to open the front cover. (image 2).



7.5.3 Removing the Channel

1. Slightly push the spring and pull up tip cone to remove it from the lower rail. (image 3).
2. Carefully release the piston from the upper rail and move upward to remove it. (image 4).



7.5.4 Fitting the Channel

1. Insert the spring with the cylinder into the centre rail.
2. Insert the piston into the cylinder and fit into upper rail.
3. Compress the spring with the cylinder and insert the cylinder into the lower rail.

7.5.5 Assembling the Lower Assembly

1. Attach the front cover and screw it in.
2. Press plunger completely. Hold while screwing coupler nut to body.

7.5.6 Checking the Function

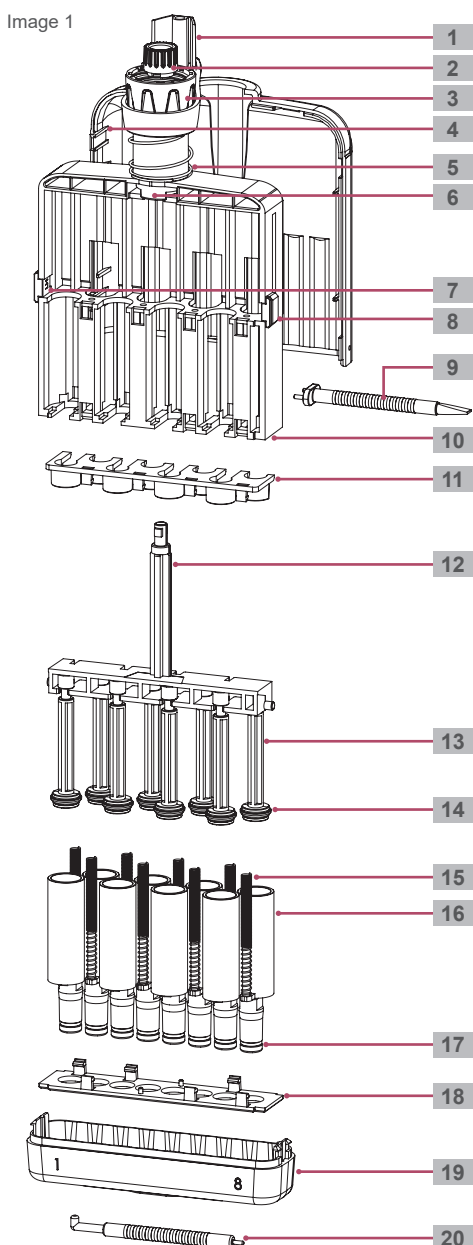
Ensure that the pipette has been assembled correctly.

- Carry out a gravimetric test for systematic and random errors.

7.6 Disassembling the Multi Channel Pipette 1200 μ L pipette

7.6.1 Removing the Lower Assembly

1. Press the tip ejector plunger completely and hold it while unscrewing the coupler from the upper part of pipette.
2. Remove the lower assembly



Removing Multi Channel Lower Parts 1200 μ L

Part No.	Part name
1	Collar holder
2	Piston cap
3	Coupler
4	Collar 8CH/12CH
5	Ejector spring
6	Ratchet clip
7	LH plug
8	RH plug
9	Tool (Flat/Fork-head)
10	Frame 8CH/12CH

Part No.	Part name
11	Upper fixing strip 8CH/12CH
12	Piston housing 8CH/12CH
13	Seal Holder
14	Seal
15	Adjustable spring
16	Tipbase
17	Tipbase O-ring
18	Lower fixing strip 8CH/12CH
19	Collar bottom 8CH/12CH
20	Tool (L type)

7.6.2 Opening the Lower Assembly

1. Use the pronged side of the tool to disassemble the collar bottom from the manifold.
2. Insert the tool into the two holes in the collar to push back the collar bottom snap locks (image 2).
3. Press on the connection side of the collar to release the snap-on connections and open the collar from bottom to top (image 4).
4. Unscrew piston cap by pressing it down and rotating it in any direction.

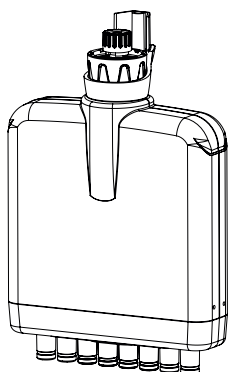


Image 1

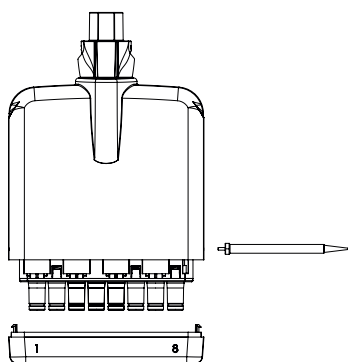


Image 2

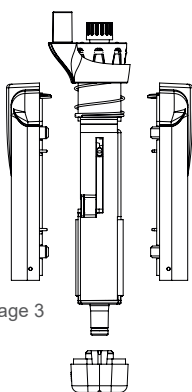


Image 3

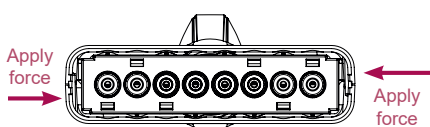


Image 4

7.6.3 Removing the Channel

1. Disassemble to upper strip from the frame
2. To do this, disconnect the upper strip from the back side of the frame with the flat-head side of the tool. Do this at both ends, then the centre, and unlock the front side snap from the frame.
3. Lubricating and Servicing can be done at this point:
 - To lubricate the pipette at this stage, without disassembling the cylinder move the plunger downwards to apply oil to tip base.
 - Using a small brush apply oil to the inner surface of the cylinder in the frame. Check the plunger movement to complete the lubrication process.
 - Close the assembly as per the “Re-assembly” procedure.
4. Use the flat-head side of the tool to snap down the lower strip from the frame.
5. Disengage the snap connector on both the front and back sides.
6. On the open (front) side, move the piston assembly up and slightly push on the spring to pull up the tip base. Remove it from the lower rail.
7. Repeat on the closed (back) side.

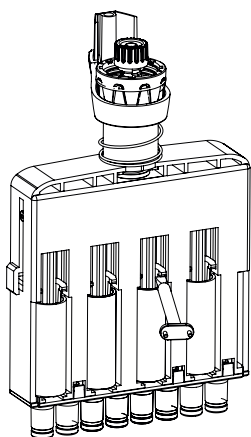


Image 5

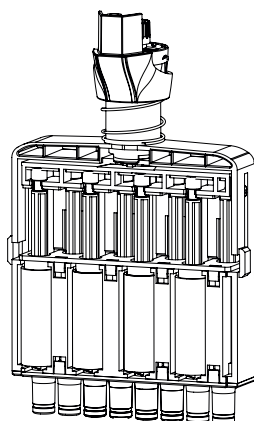
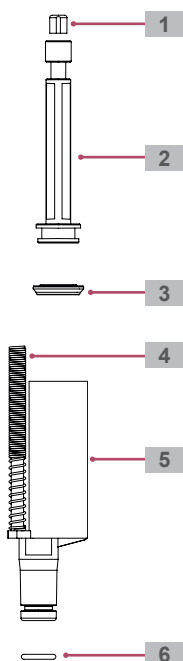


Image 6

7.6.4 Removing the Seal Holder Assembly

1. On the open (front) side, move the piston housing downwards.
2. Lever out the seal holder assembly from the open (front) side by using the flat side of the flat/fork-head tool.
3. Afterwards use the flat side of the tool to push out the seal holder on the other side.



- | | |
|---|-------------------|
| 1 | Seal holder cap |
| 2 | Seal holder |
| 3 | Seal |
| 4 | Adjustable spring |
| 5 | Tip base |
| 6 | Tip base O-ring |

7.6.5 Re-assembly

1. Assemble the pistons by inserting them back into the seal holder:
4 on the front side for 8-channel / 6 for 12-channel, and
4 on the back side for 8-channel / 6 for 12-channel
2. Insert the springs into the tip base assembly and slot the tip base, with the spring side facing, towards the piston housing.
3. Attach the lower and upper fixing strips respectively.
4. Move the piston housing upward, then insert the centre spring's large diameter into the piston housing, and match the small diameter with the piston cap. Lock in the spring by pushing in and twisting the piston cap.
5. Press the tip ejector spring downwards, enclose the collar on the top side, and snap the top side into place.
6. Special care needs to be taken when snapping the bottom side. Push gently down on to the side ridge to lock the lower side of the collar.
7. Snap the bottom collar assembly into place to complete the lower re-assembly.

7.6.6 Attaching the Lower Assembly

1. Hold the ejector down and push it into place, onto the holder of the lower assembly.
2. Screw the coupler into place to complete the assembly.

7.7 Autoclaving

This pipette is completely autoclavable at 1 bar pressure and 121°C temperature for 20 minutes of exposure time.

Autoclaving Instructions

- Keep the digital counter in unlock position.
- Do not disassemble the pipette for autoclaving.
- After autoclaving, allow the pipette to completely cool and fully dry for a minimum of 4 hours.

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

8. TROUBLESHOOTING GUIDE

Problem Area	Problem Cause	Solution
Pipette is leaking	Worn O-ring or seal	Replace worn parts
	Foreign particles between tip and tip cone	Clean tip cone and attach new tip
	Foreign particles between piston and seal	Clean seal and piston
Pipette does not aspirate the solution	Worn O-ring or seal	Replace worn parts
	Tip cone is loose	Tighten tip cone
	Piston is damaged (chemically or mechanically)	Return pipette to the authorised distributor
	Damaged tip cone	Replace the tip cone
Pipette is inaccurate	Improper assembly	See "Maintenance" section
	Tip cone is loose	Tighten the tip cone
	Tip incorrectly attached	Attach firmly
	Calibration altered	Recalibrate according to instructions
Inaccurate dispensing with certain liquids	Calibration not suitable for particular liquid	Recalibrate with the liquid in question

ahn[®]

AHN Biotechnologie GmbH

Uthleber Weg 14
99734 Nordhausen
Germany

P: +49(0)3631/65242-0
F: +49(0)3631/65242-90

E: info@ahn-bio.com

www.ahn-bio.com