

IKA

designed for scientists

PETTE

ENGLISH

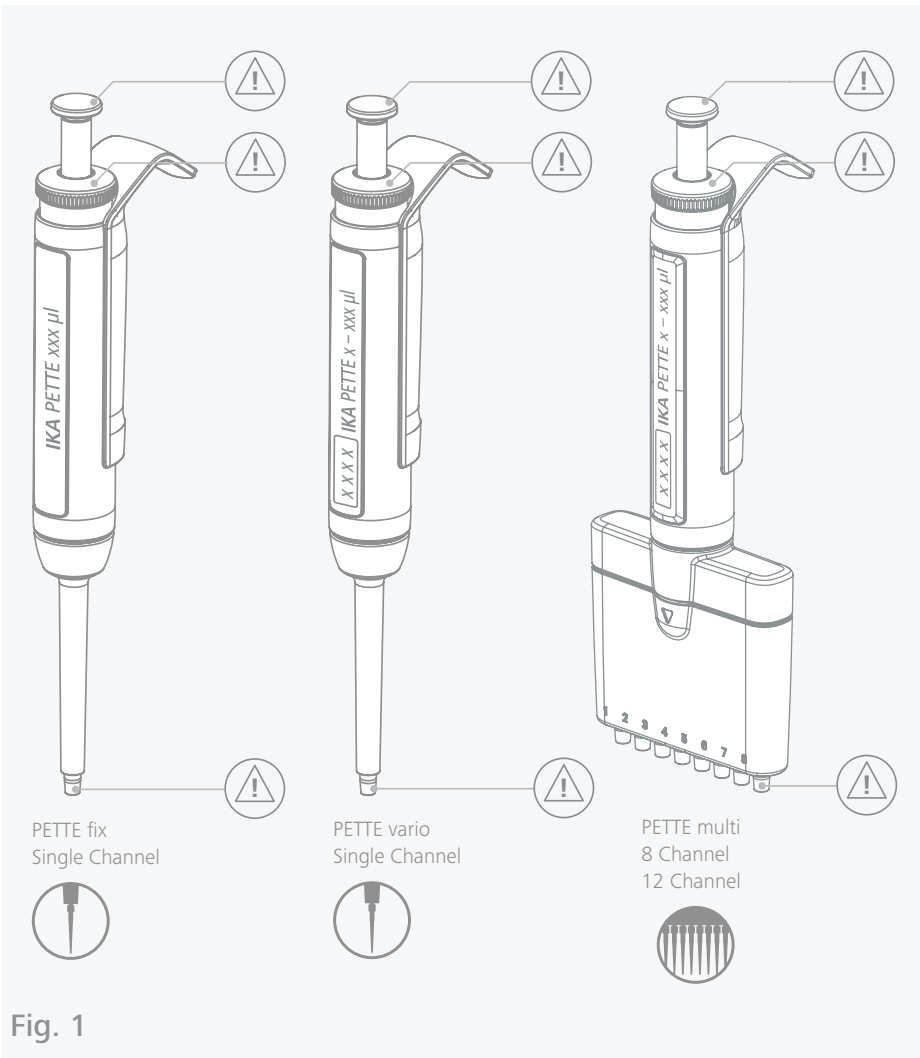










Fig. 1

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Declaration of conformity








We declare under our sole responsibility that this product conforms with the following standards or other normative documents: EN ISO 12100, EN ISO 8655-6.

A copy of the complete Declaration of Conformity can be requested at sales@ika.com.









Explication of warning symbols

/// Warning symbols

-  **DANGER** Indicates an (extremely) hazardous situation, which, if not avoided, will result in death, serious injury.
-  **WARNING** Indicates a hazardous situation, which, if not avoided, can result in death, serious injury.
-  **CAUTION** Indicates a potentially hazardous situation, which, if not avoided, can result in injury.
-  **NOTICE** Indicates practices which, if not avoided, can result in equipment damage.
-  **WARNING** Biohazards, harm to health when handling infectious fluids and pathogenic bacteria.
-  **WARNING** Toxic substances, harm to health through toxic, radioactive or aggressive chemicals.
-  **WARNING** Explosive substances, harm to health when handling explosive fluids.

/// General Symbols

- A** — Position number
Indicates device components relevant to actions.
-  Correct / result
Indicates the correct execution or the result of an action step.
-  Wrong
Indicates the incorrect execution of an action step.
-  Note
Indicates steps of actions that require particular attention.
-  Lock symbol
Indicates the status of "locked".
-  Unlock symbol
Indicates the status of "unlocked".
-  Single Channel
-  Multi Channel

Safety instructions



/// General information

- › Read the operating instructions in its entirety before using the device and follow the safety instructions.
- › Keep the operating instructions in a place where it can be accessed by everyone.
- › Follow the safety instructions, guidelines, occupational health and safety and accident prevention regulations.

Notice!

- › Pay attention to the marked sites in **Fig. 1**.

/// Device setup

Notice!

- › Aggressive media can damage the pipette, pipette tips, filters and other accessories. When using organic solvents and aggressive chemicals, check for material compatibility.

/// Work with the device

Warning!

- › Wear your personal protective equipment in accordance with the hazard category of the media to be processed.

Warning!

- › Never point the tip cone or tip at yourself or other persons to avoid any risk to persons through fluids squirting out and puncture injuries.

Caution!

- › Note the possibility of medical problems resulting when pipetting over long periods [WRULD – (work-related neck and upper limb disorders) or RSI (repetitive strain injury) syndrome].
- › Check the device and accessories for damage before each use. Do not use damaged components.
- › Always hold the pipette upright.

/// Pipetting recommendation

- › Observe EN ISO 8655-2.

/// Maintenance

- › Follow the cleaning instructions.
- › Check the nominal volume after replacing parts that might affect it.

/// Accessories

- › Safe operation is guaranteed only with the use of original IKA accessories.
- › Only use IKA original spare parts!

/// Disposal instructions

- › The device, packaging and accessories must be disposed of in accordance with national regulations.



Intended use

/// Use

- › IKA pipettes are designed for collecting and dispensing defined volumes of liquids using removable single-use pipette tips.

/// Area of use

- › The device is suitable for use in all areas if the operating conditions are observed, IKA accessories are used and the safety regulations and information are followed.
- › Any use of this device in a medical environment or in the context of IVD is the sole responsibility of the user.

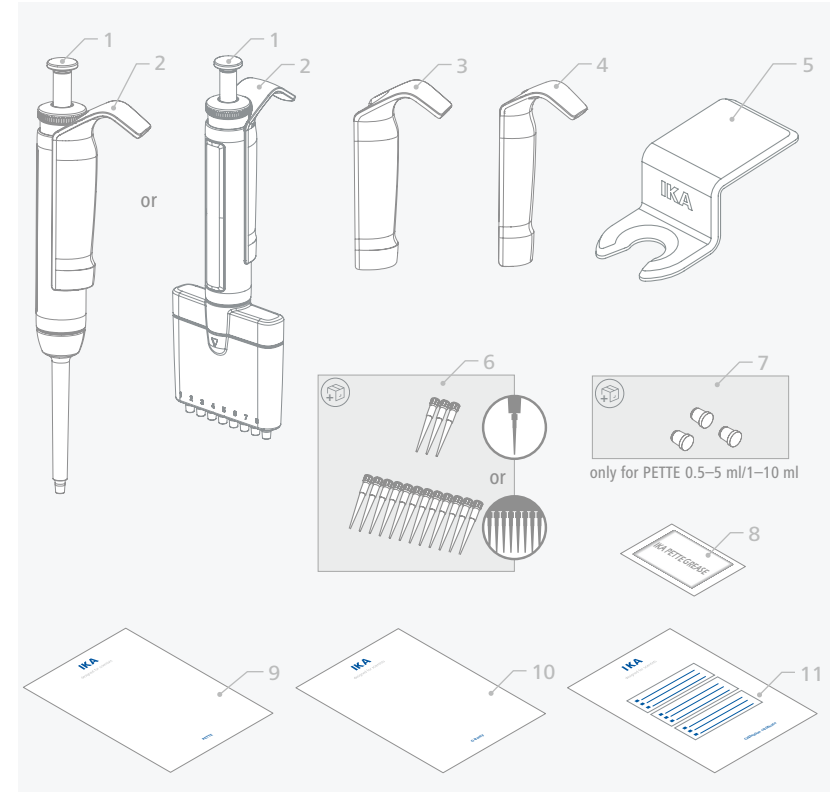
Unpacking



/// Unpacking

- › Unpack the device carefully. Any damage should immediately be reported to the carrier (mail, rail or freight forwarding company).

/// Scope of delivery



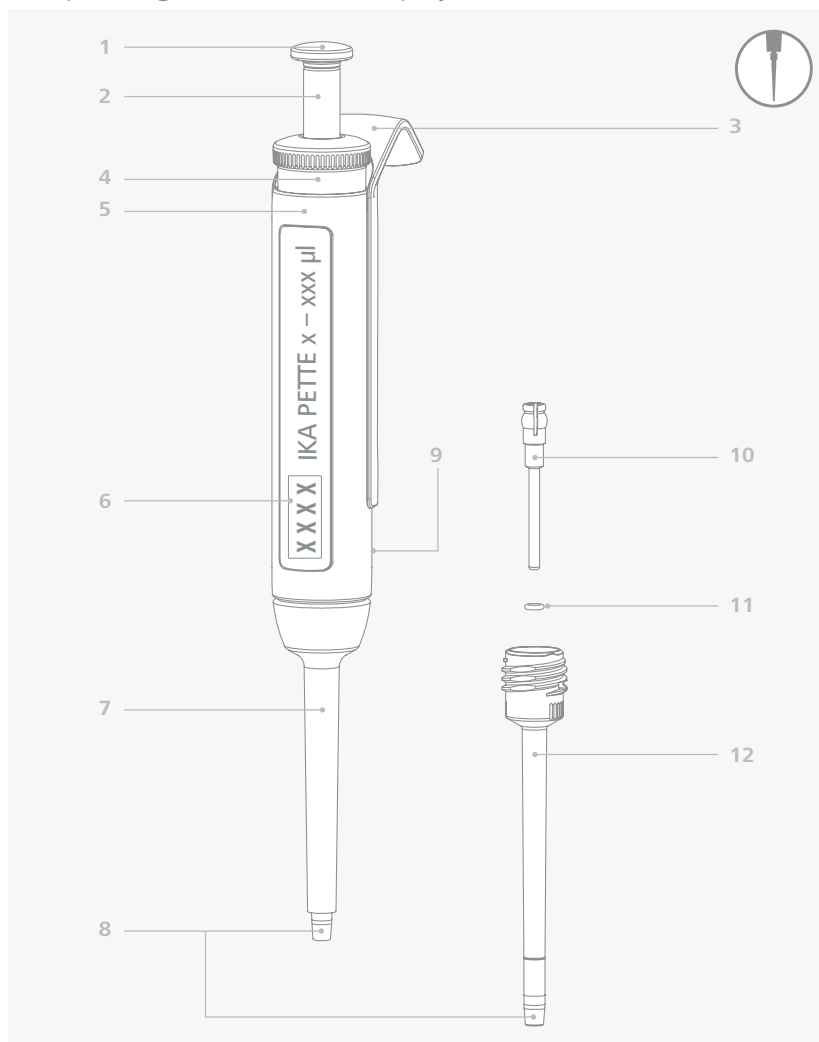
1	IKA PETTE
2	Large handle (hard material)
3	Large handle (soft material)
4	Small handle (hard material)
5	Holding bracket
6	Pipette tips

7	Filters (3x)
8	IKA PETTEGREASE
9	User guide
10	Warranty card
11	Calibration certificate

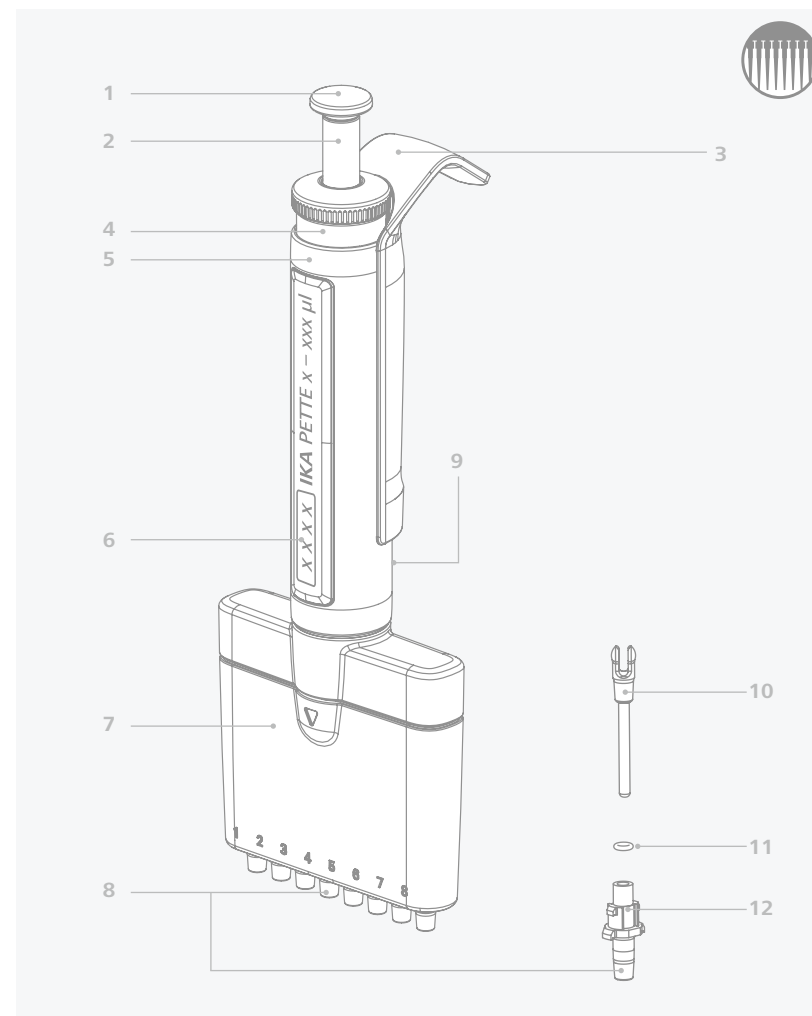


Assembly

/// Operating elements and display

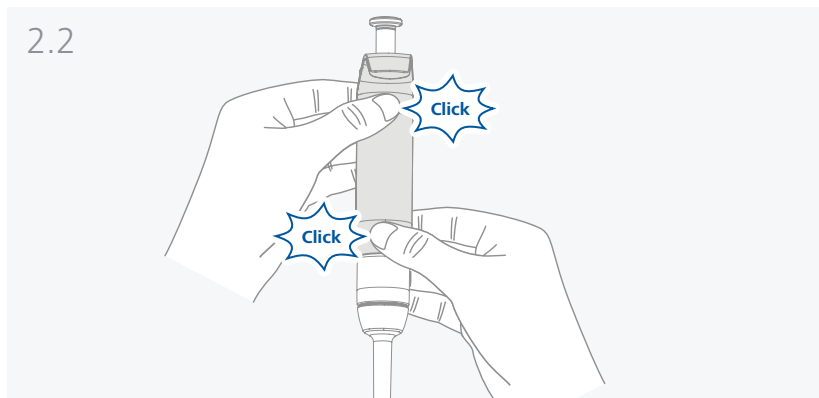
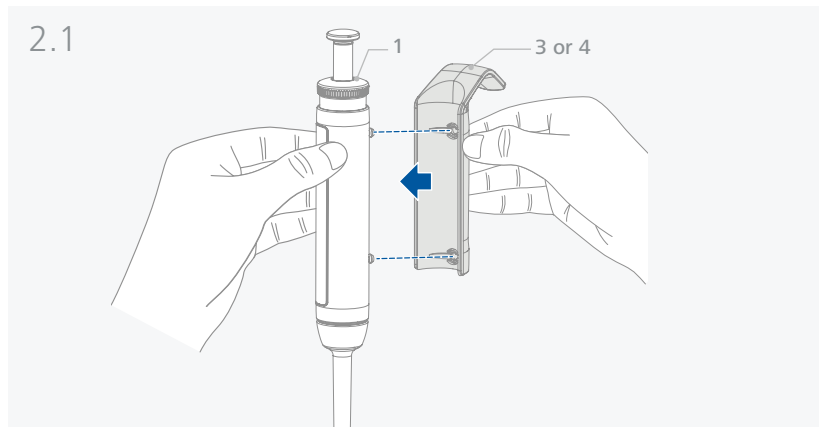
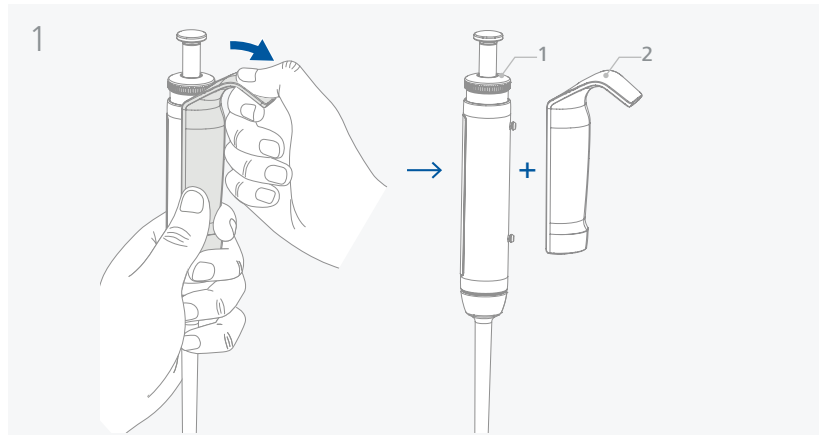


1	Cap	7	Ejector
2	Pipetting button	8	Tip cone
3	Handle	9	Serial number
4	Multi-function button	10	Piston
5	Housing	11	Seal
6	Display	12	Shaft



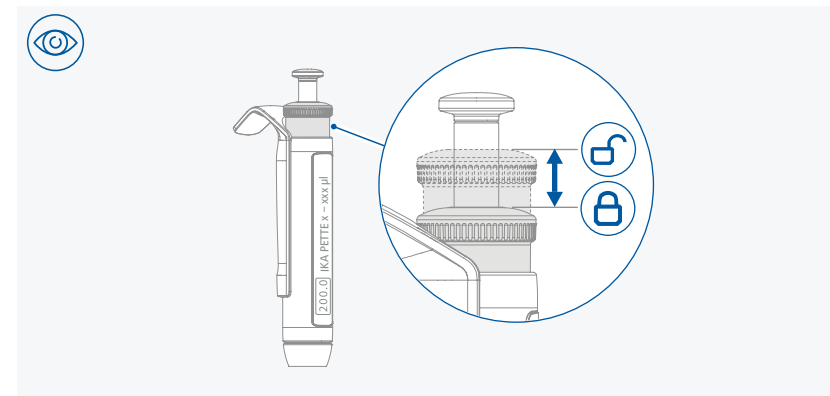
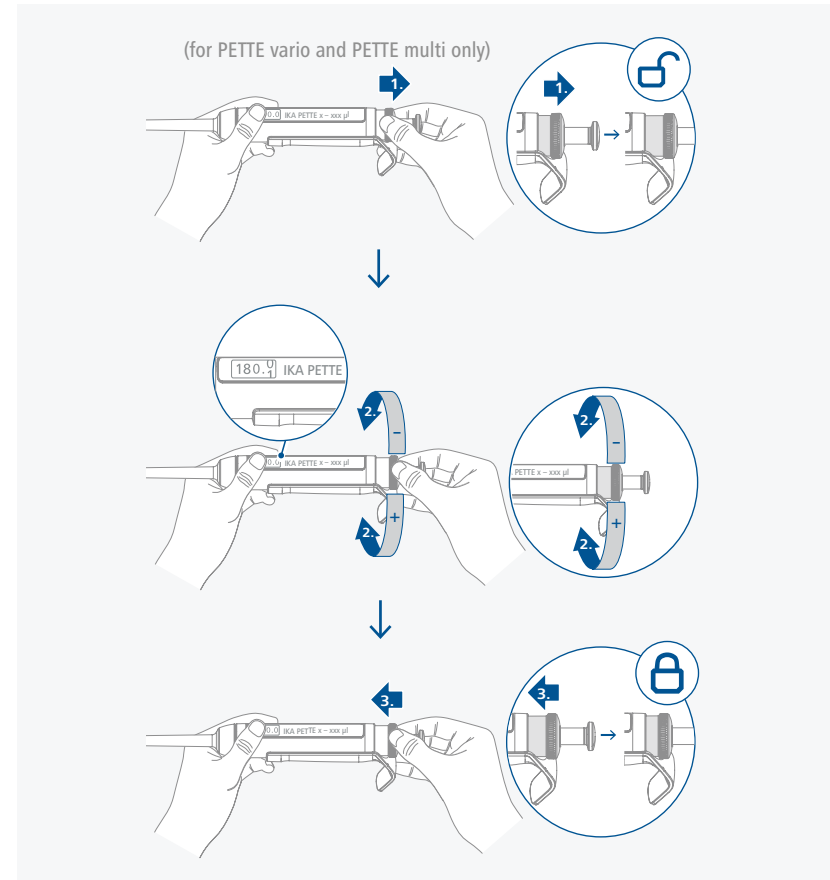
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2	Pipetting button	8	Tip cone
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/// Changing the handle

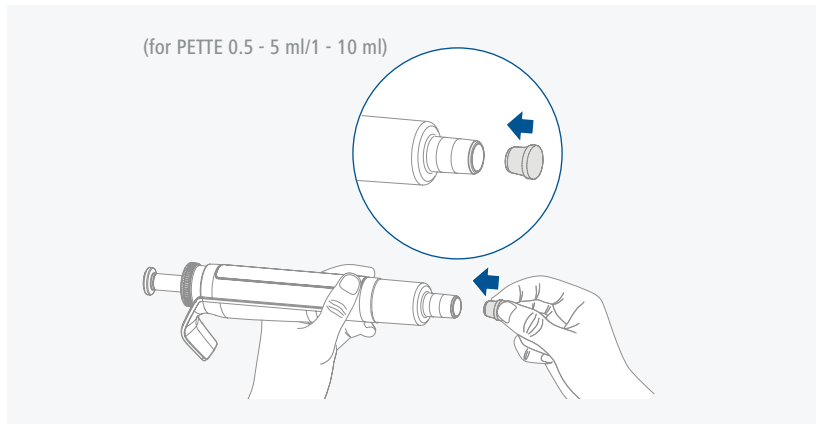


Operation

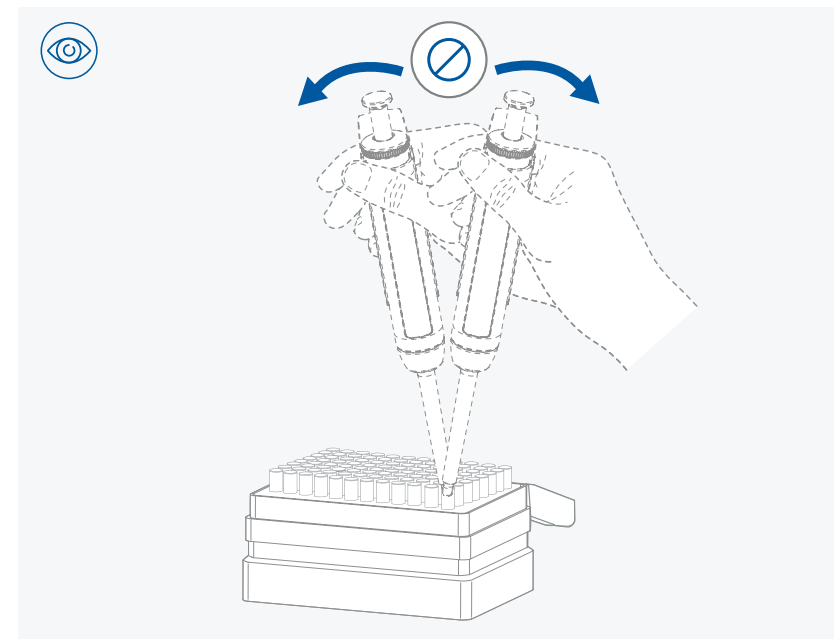
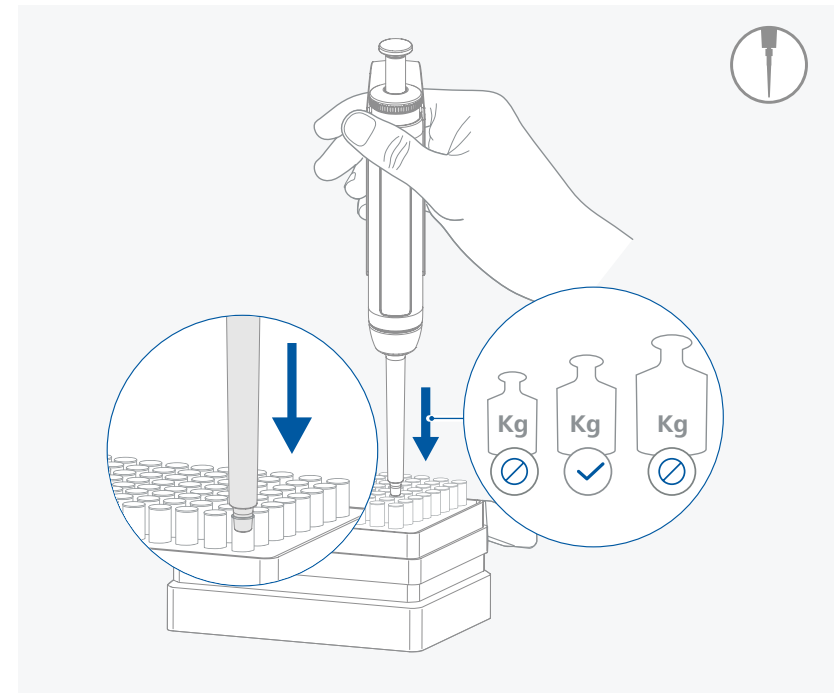
/// Setting the volume

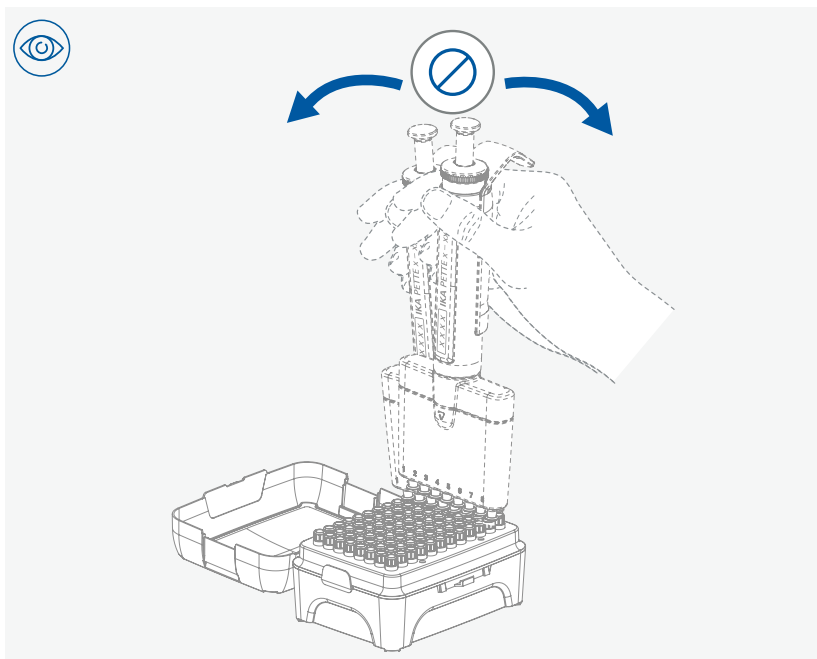
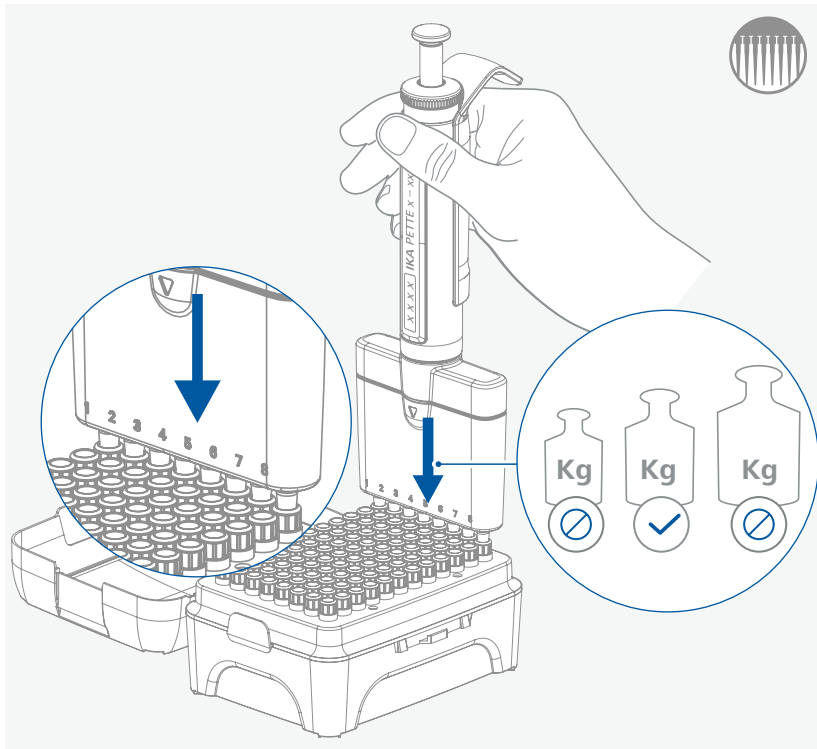


/// Attaching the filter

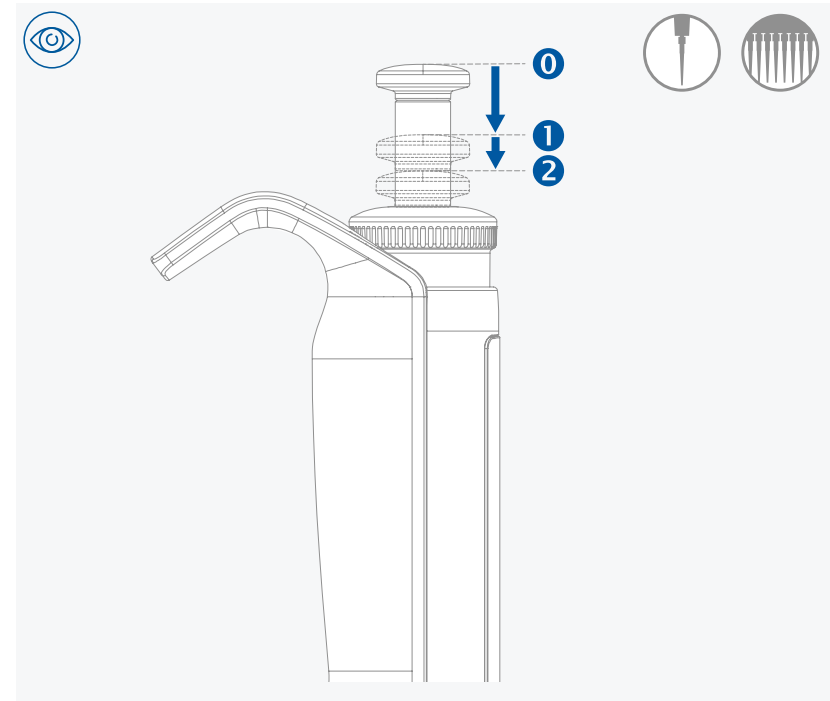


/// Attaching pipette tips





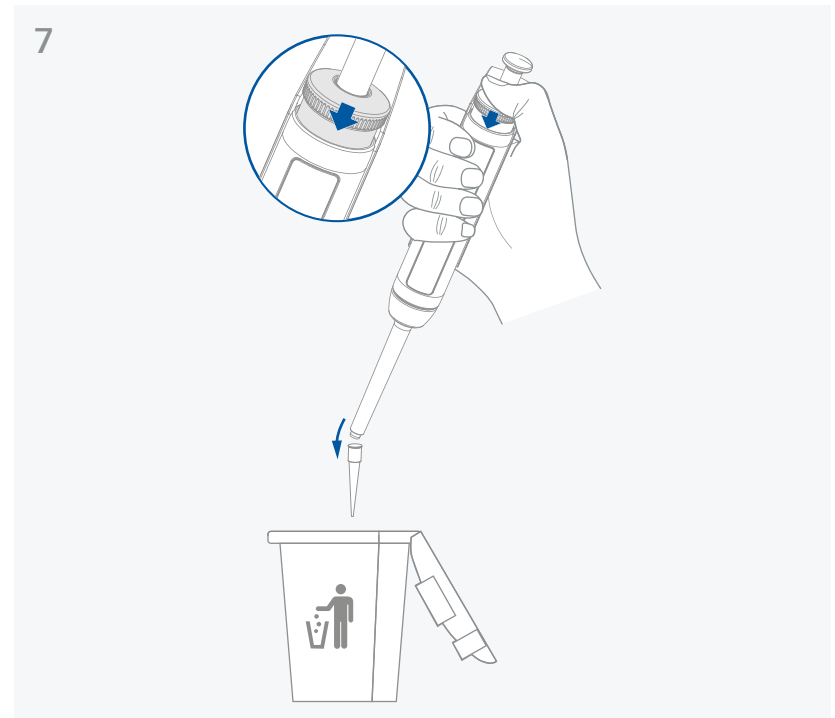
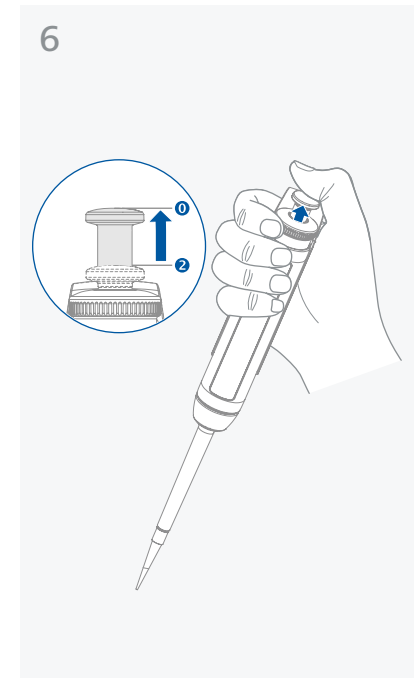
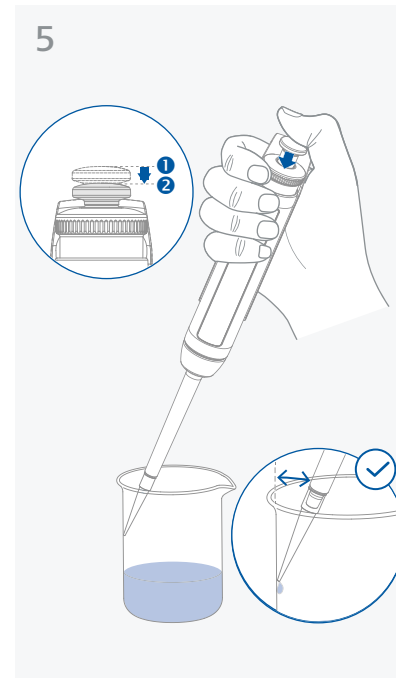
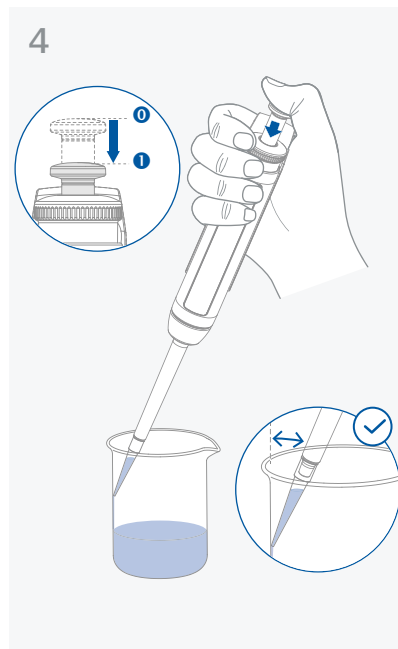
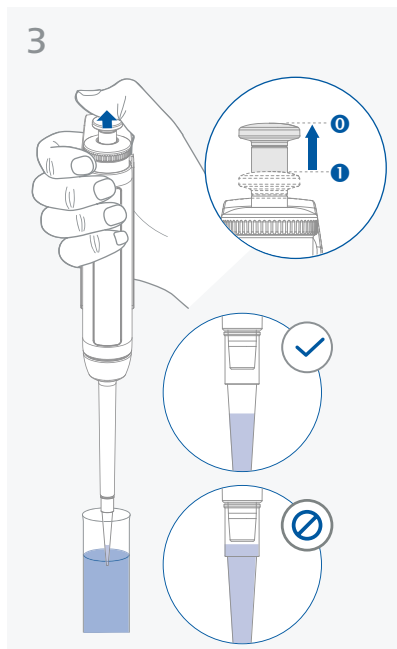
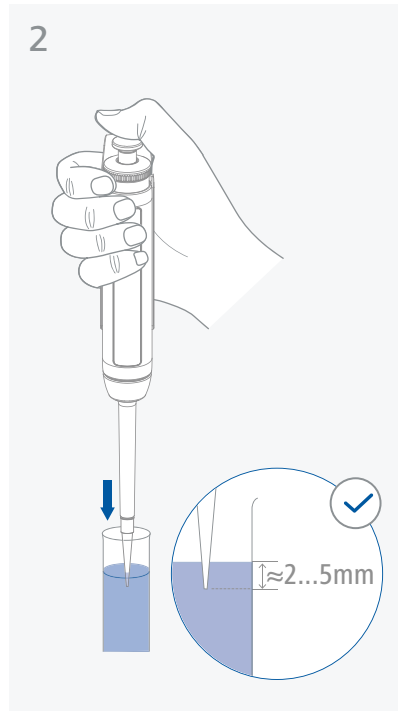
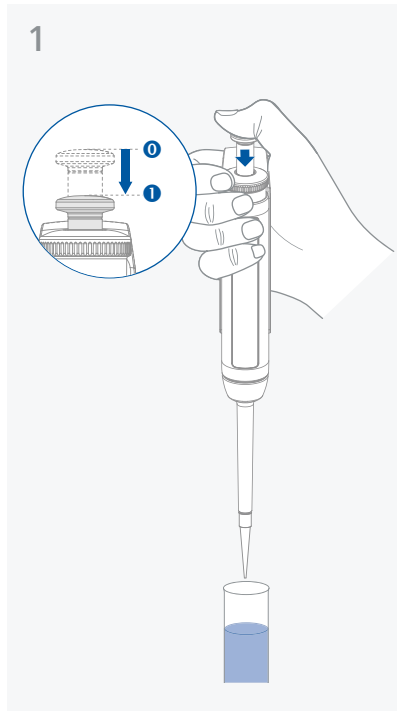
/// Pipetting



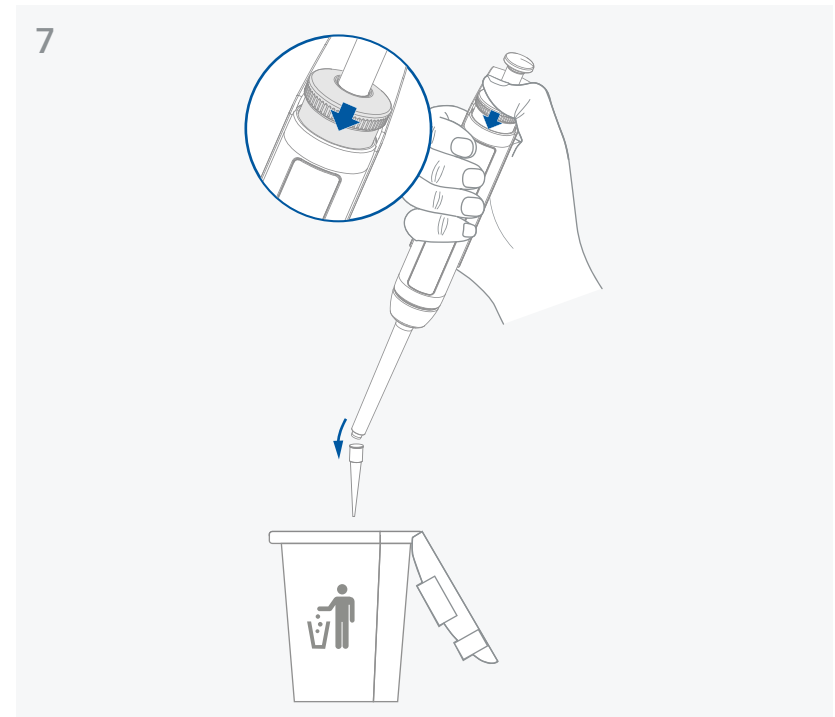
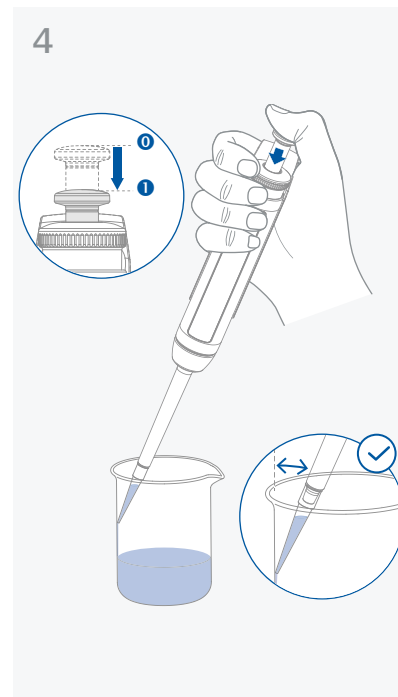
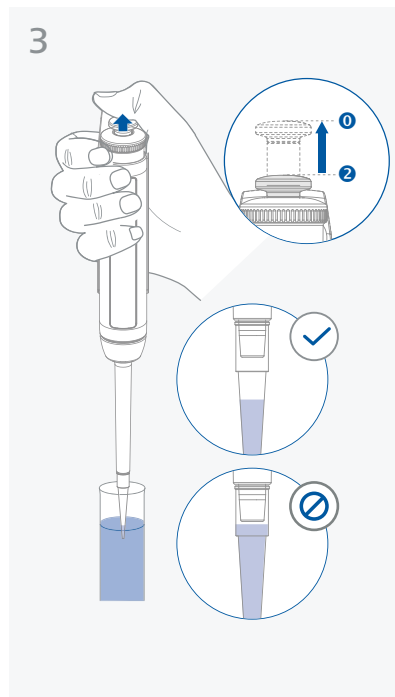
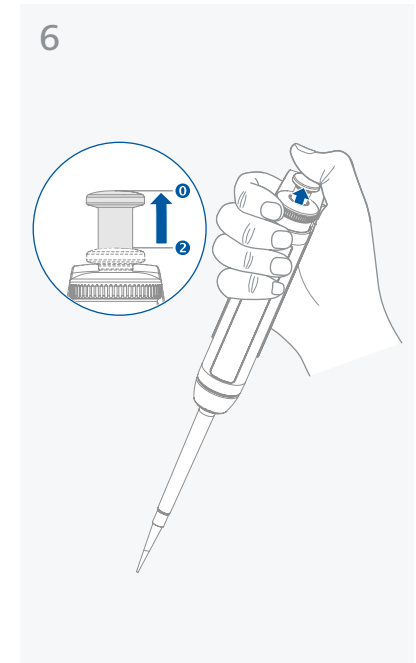
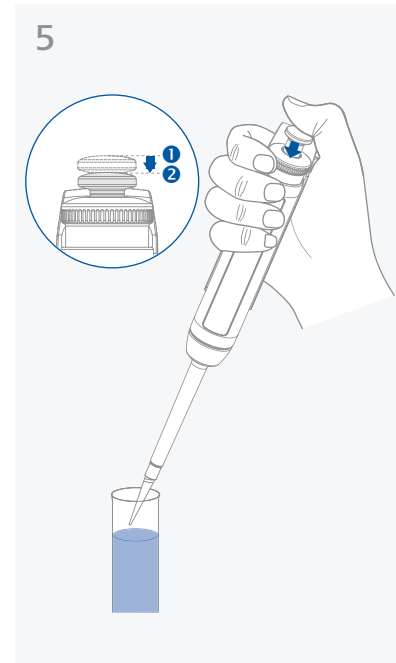
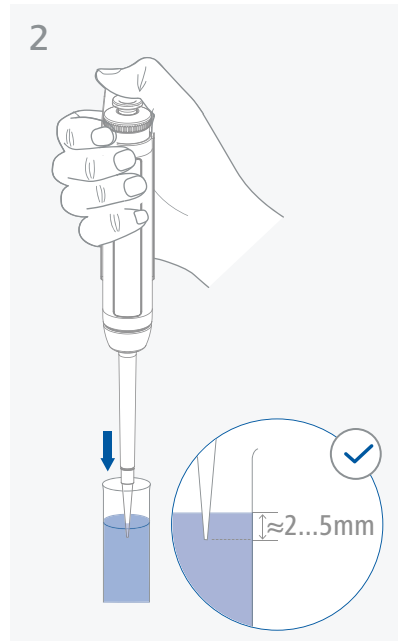
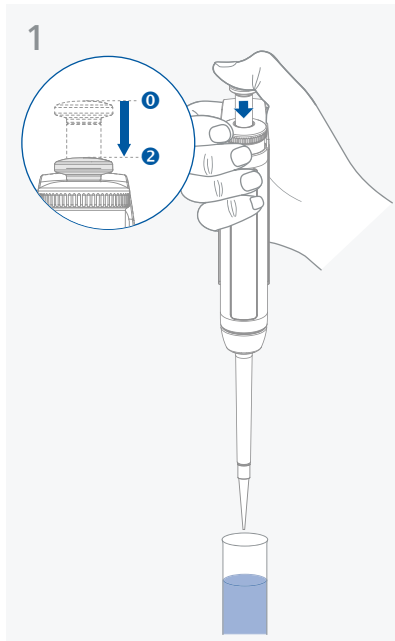
Pipetting recommendations

- > Observe "Technical data".
- > The pipette, pipette tip and liquid to be pipetted must have reached the ambient temperature.
- > Only aspirate liquid if a pipette tip is attached to the tip cone.
- > Do not touch the pipette tip at the tip orifice.
- > Change the pipette tip before aspirating different liquids.
- > Pre-rinse the pipette tip several times before use.
- > Hold the pipette upright when aspirating liquid.
- > Dip the pipette tip only a few millimeters into the liquid.
- > Move the pipetting button slowly and smoothly.
- > After aspiration, wait 1 - 3 seconds to remove the pipette tip from the liquid.
- > Drops outside the pipette tip must be wiped off the vessel wall.
- > Place the pipette tip steeply against the vessel wall while dispensing the liquid and wipe the pipette tip off the vessel wall.
- > Do not hold the pipette in your hand when you do not need it to avoid the transfer of hand heat.
- > Always hold the pipette upright to prevent liquid from entering the pipette body and causing corrosion.
- > Turning the multifunction button outside the specified volume range may destroy the display mechanism and damage the pipette.

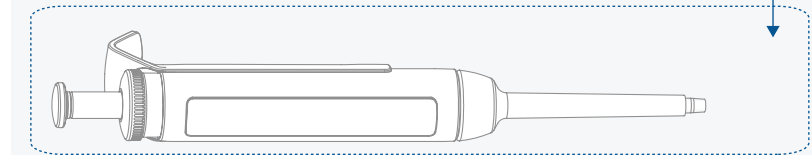
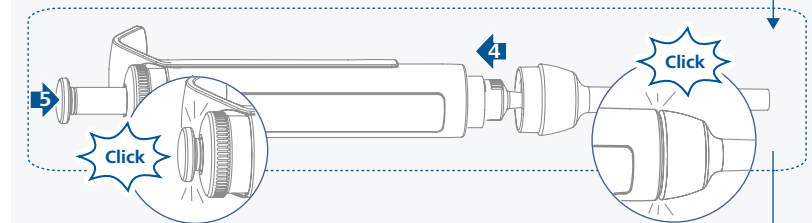
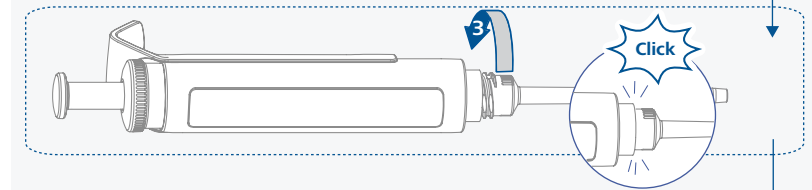
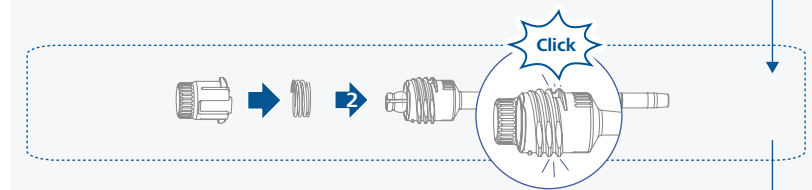
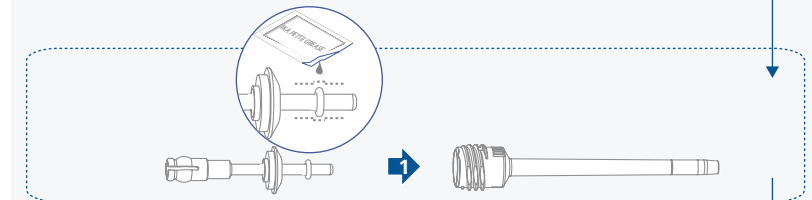
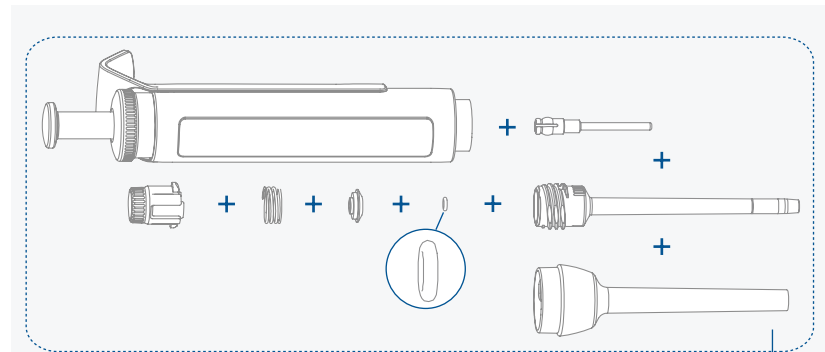
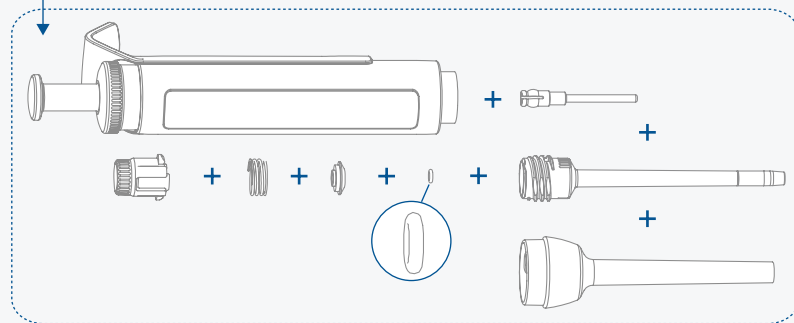
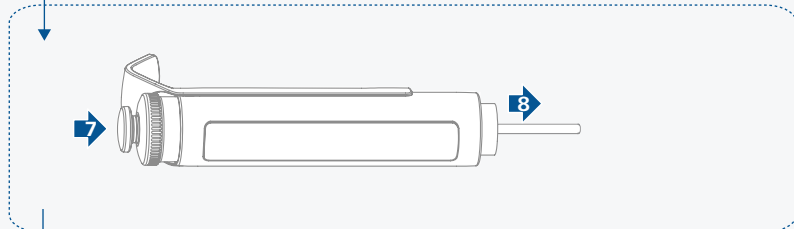
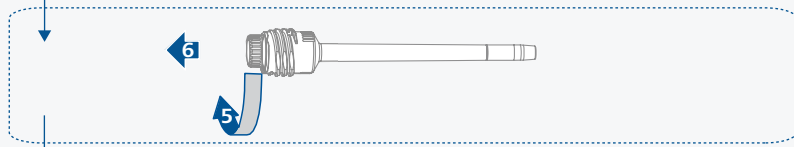
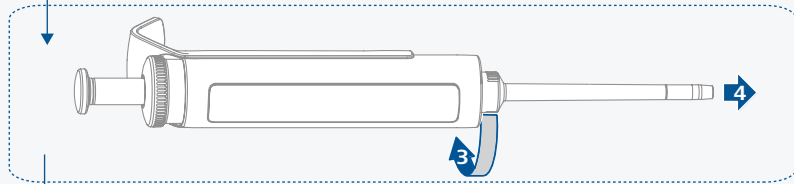
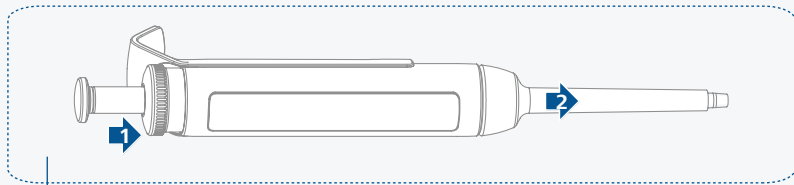
Forward pipetting



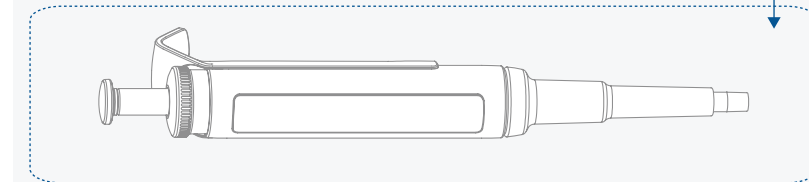
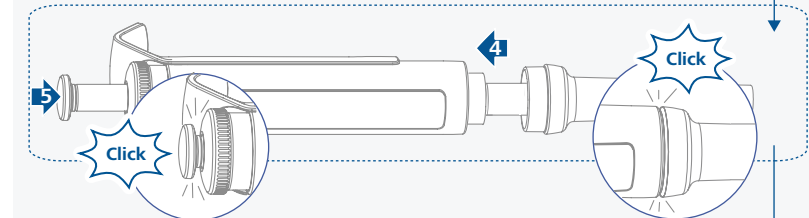
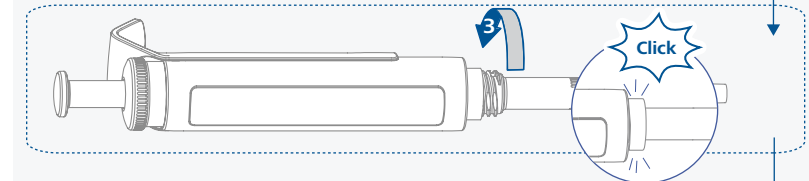
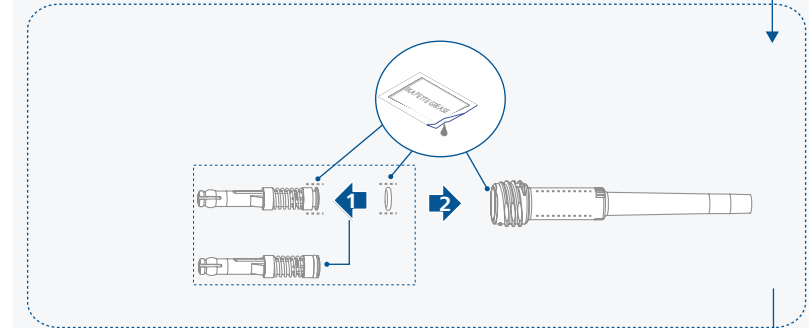
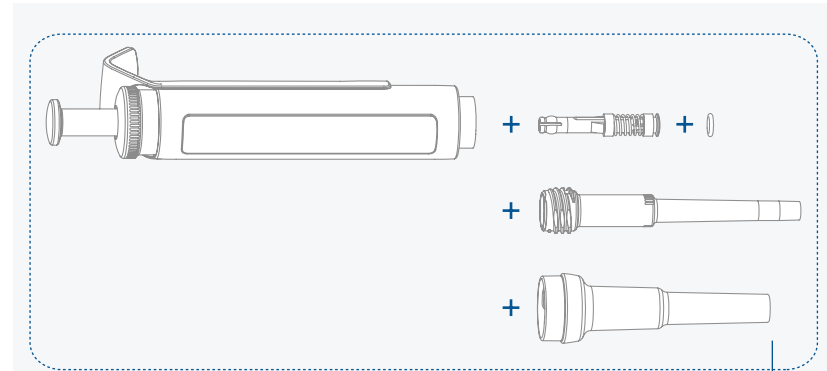
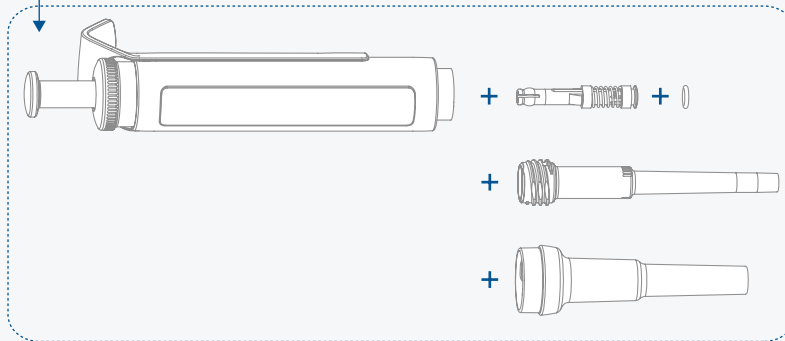
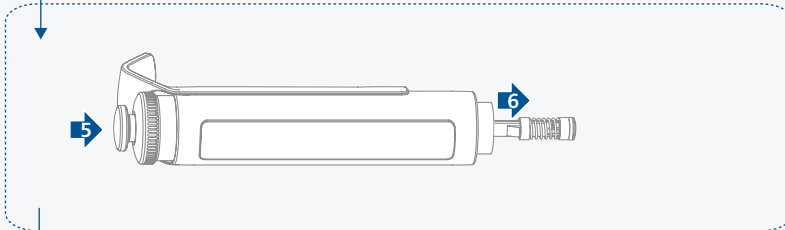
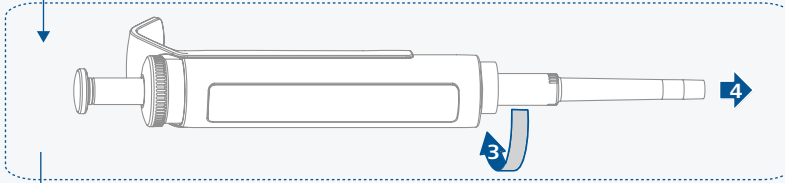
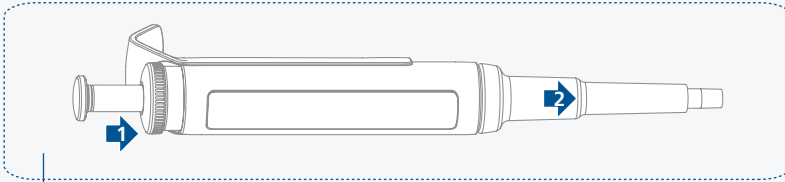
Reverse pipetting



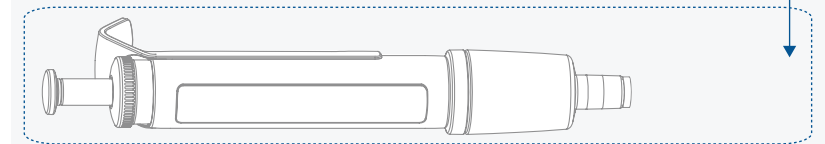
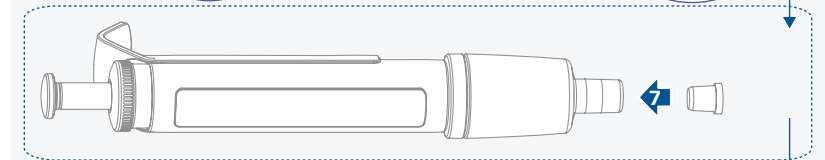
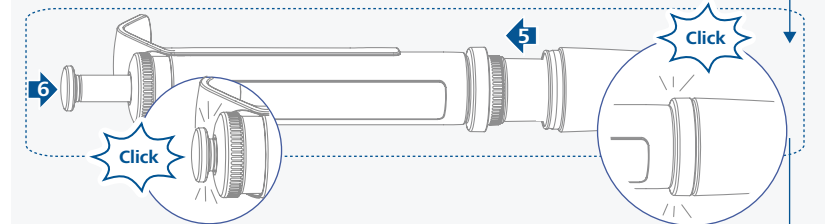
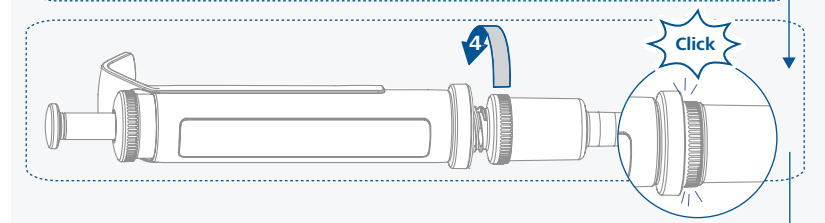
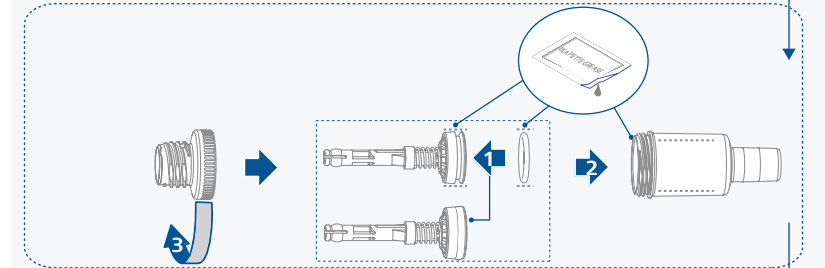
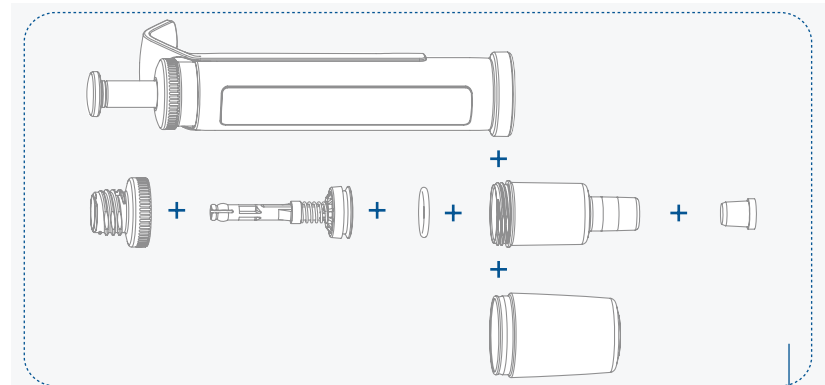
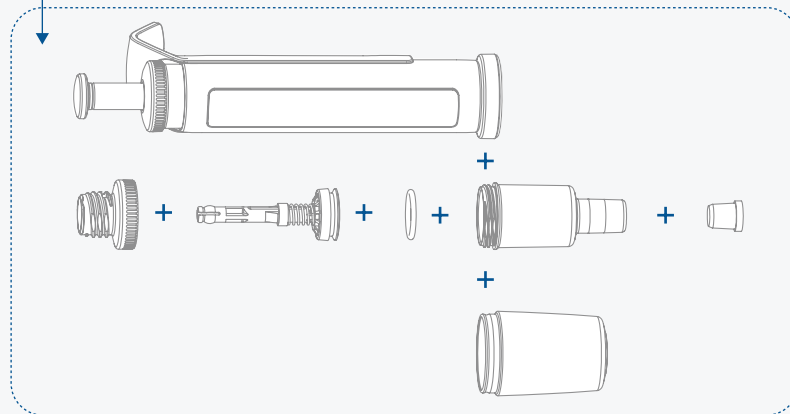
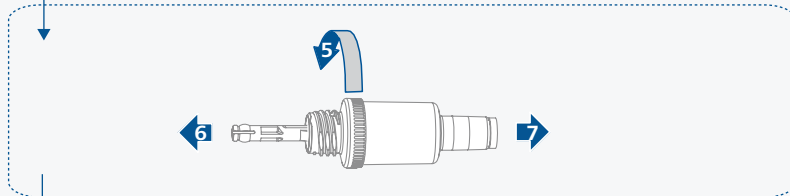
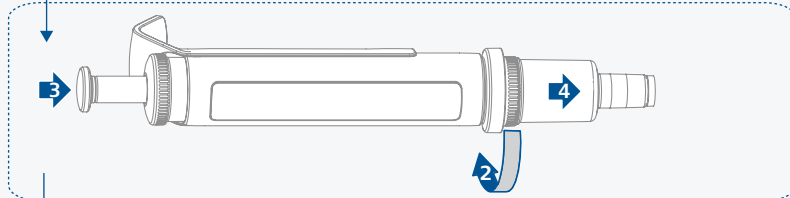
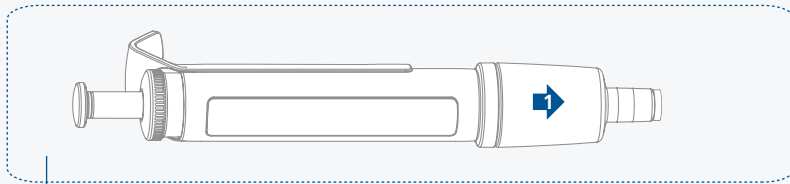
Vario 10 - 100 µl | 20 - 200 µl
 Fix 25 µl | 50 µl | 100 µl | 200 µl



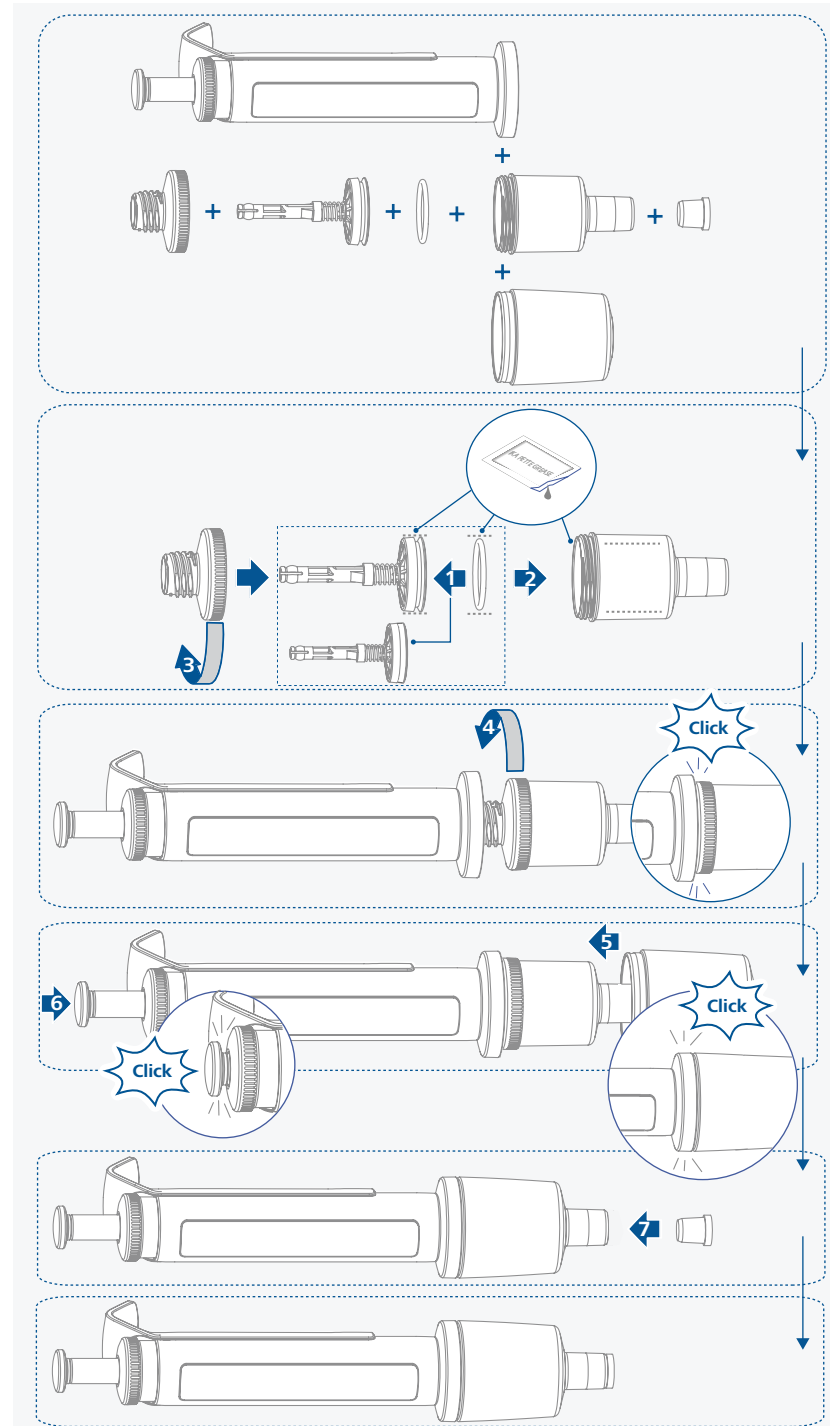
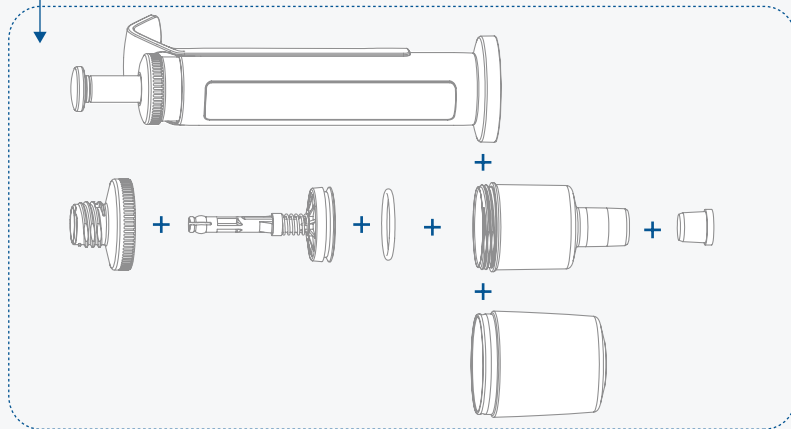
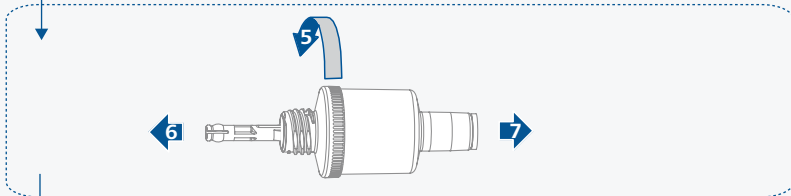
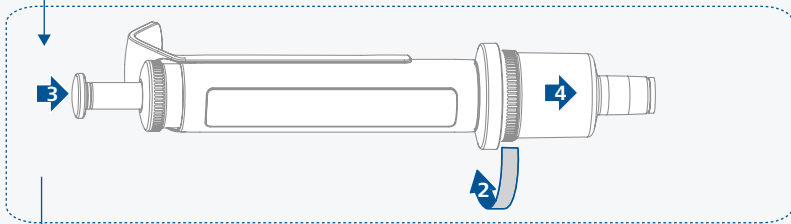
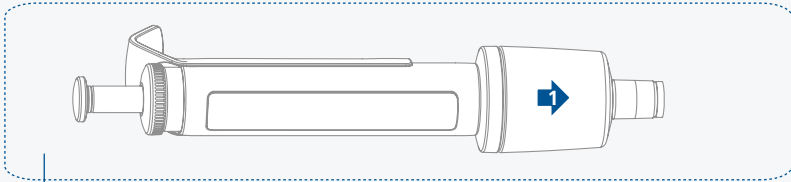
Vario 100 - 1000 µl
Fix 250 µl | 500 µl | 1000 µl



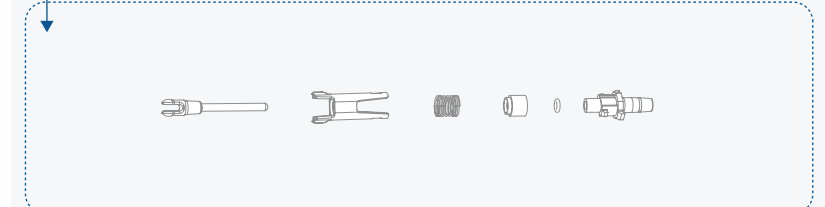
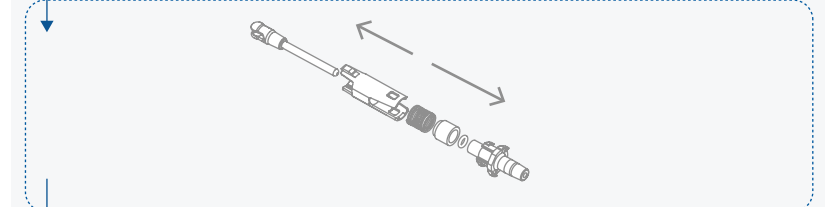
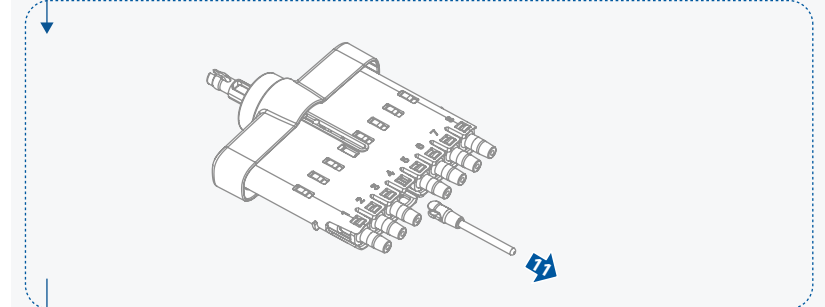
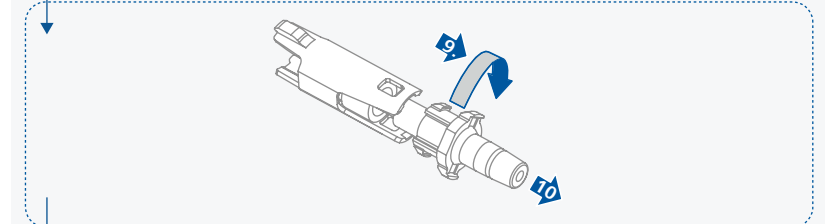
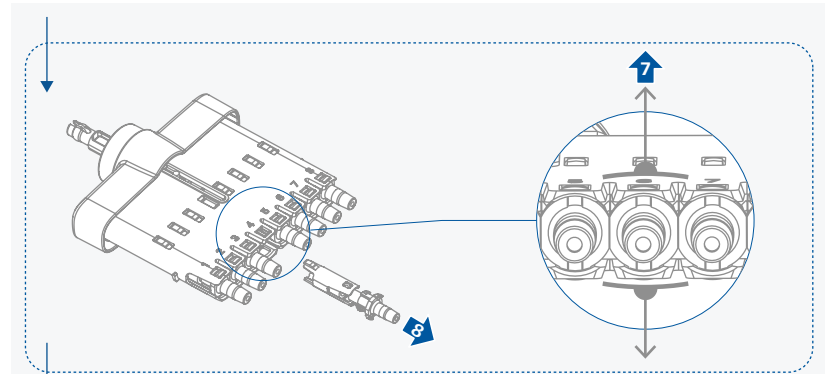
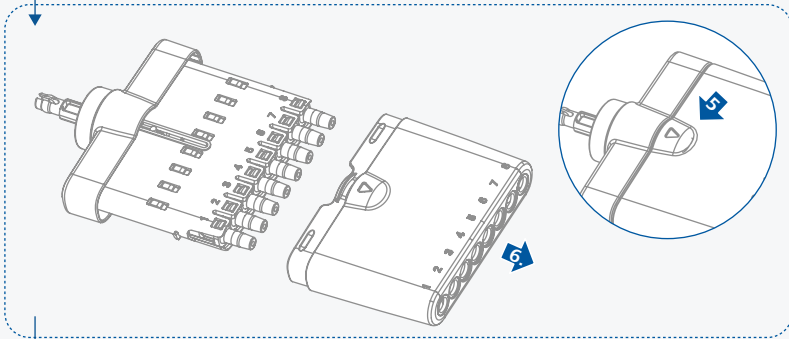
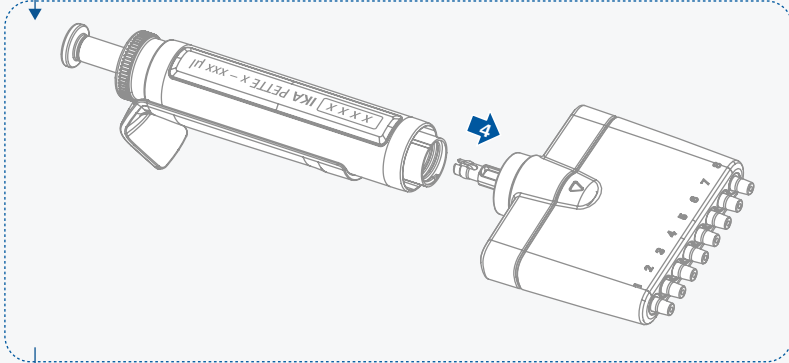
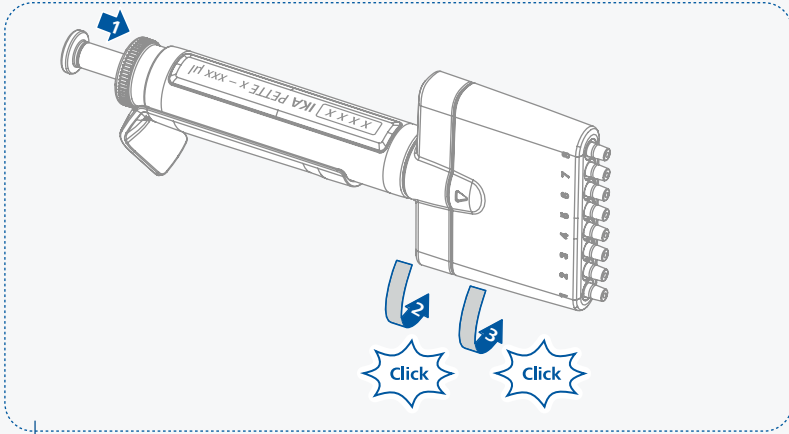
Vario 0,5 - 5 ml

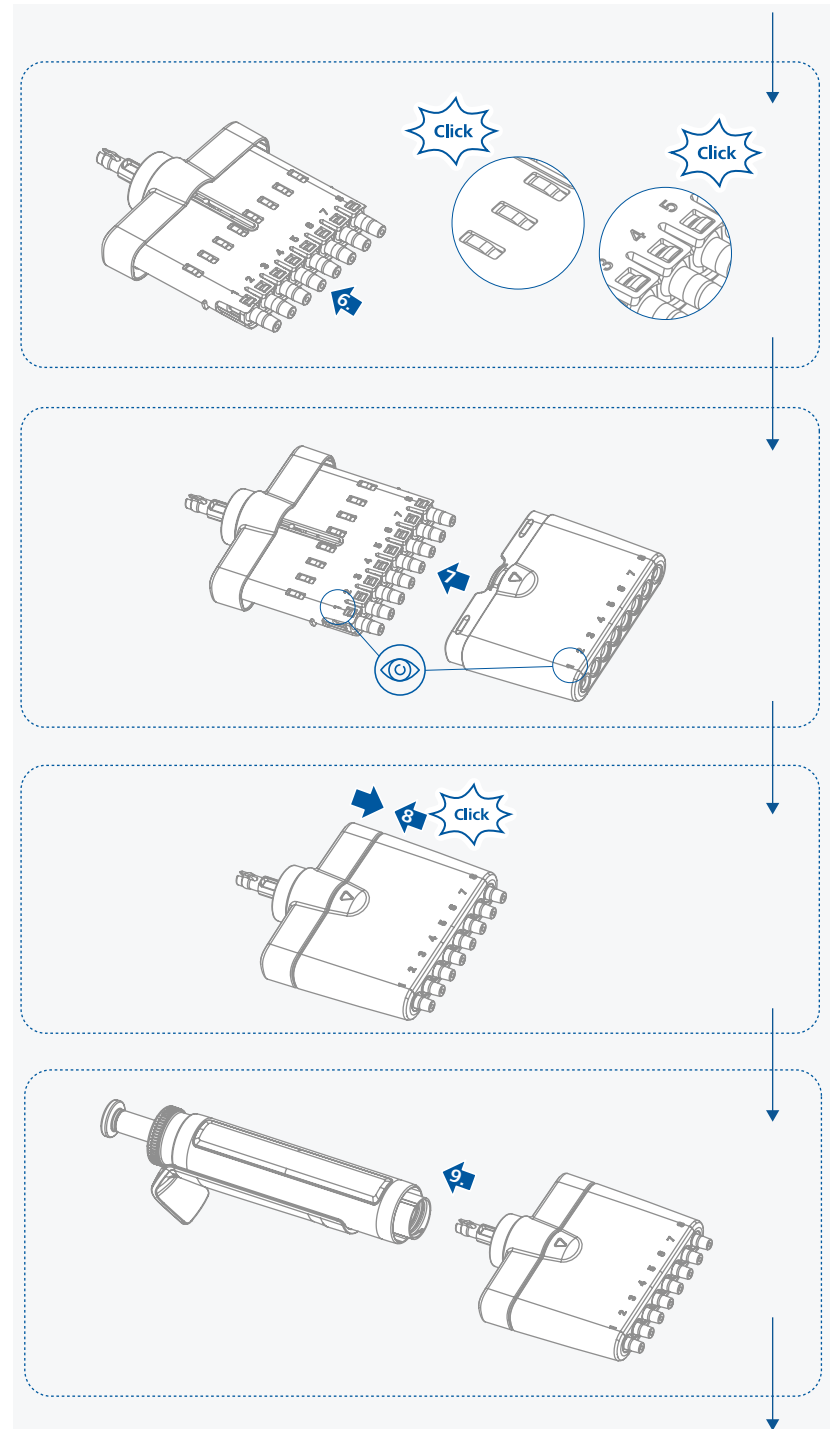
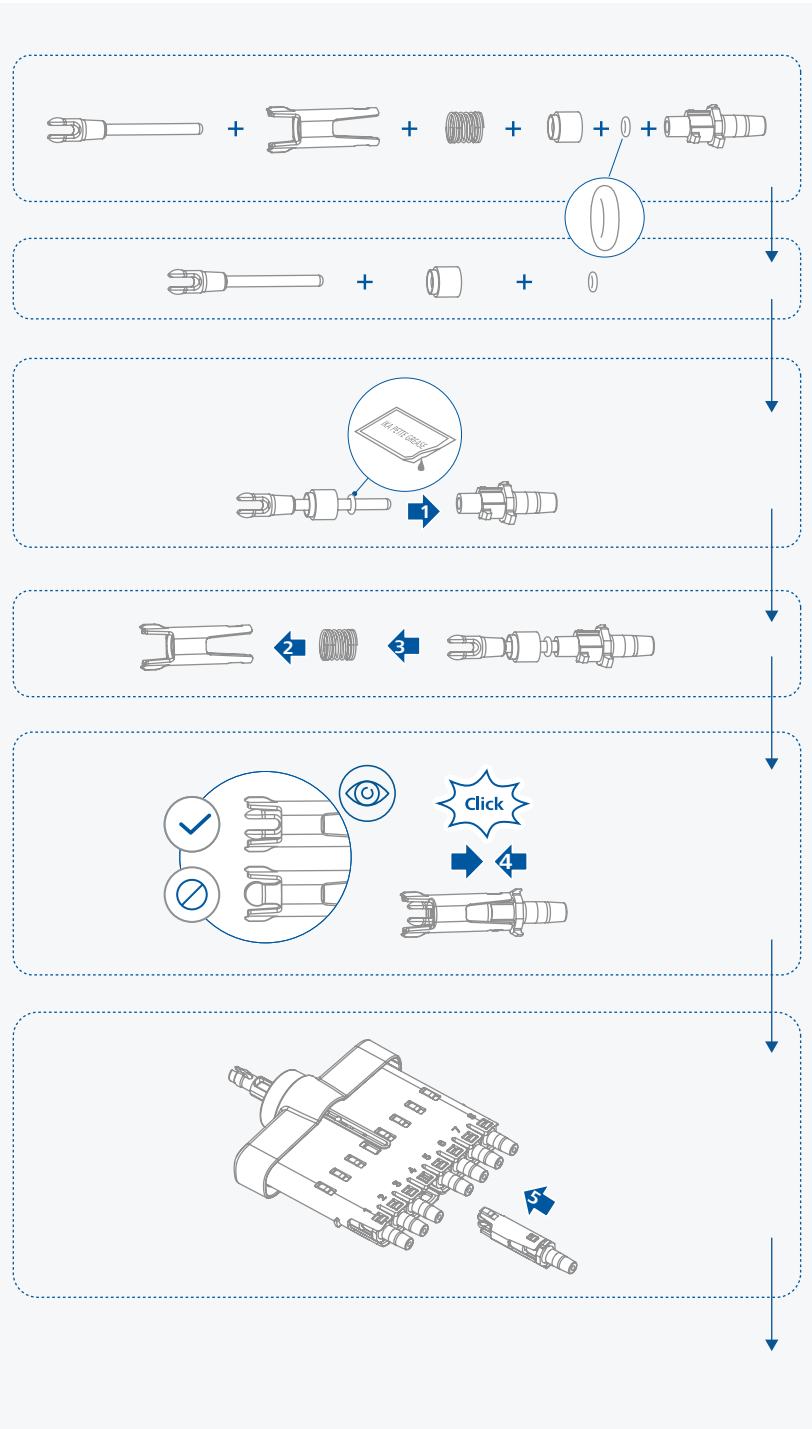


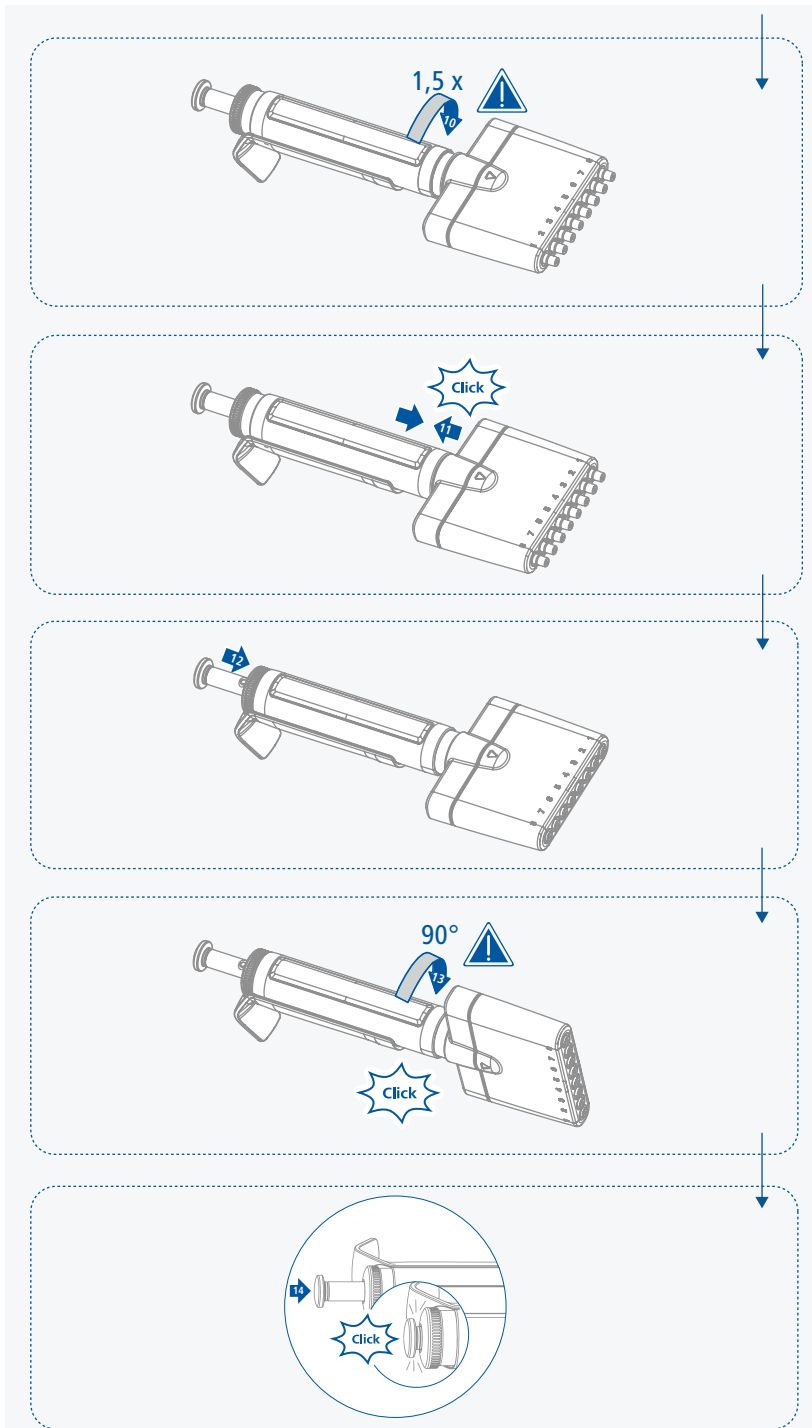
Vario 1 - 10 ml



PETTE multi (8 / 12 Channel)







/// Materials of pipette parts

- › Stainless Steel
- › DLC-coating (diamond-like carbon)
- › PVDF (polyvinylidenfluoride)
- › PTFE (polytetrafluorethylen)
- › PEEK (polyetheretherketone)
- › PEI (polyetherimide)
- › Fluoroprene XP 40
- › PSU (polysulfone)
- › PP (polypropylene)
- › PC (polycarbonate)
- › LSR (liquid silicone rubber)
- › PE (polyethylene) - Filter
- › PPS (Polyphenylsulfid)
- › PPSU (Polyphenylsulfone)

/// Cleaning

⊗ Caution!

- › Wear protective gloves during cleaning the devices.

- › Disassemble the lower part of the pipette as shown.
- › Clean the parts with surfactant-containing water (soap solution) or isopropanol (70%).
- › Rinse the parts with distilled water and let them dry.
- › Before using another than the recommended method for cleaning or decontamination, the user must ascertain with IKA that this method does not destroy the device.

/// Autoclaving

⚠ Notice!

- › Remove the filter before autoclaving and replace it after autoclaving.
(IKA PETTE vario 0,5 - 5 ml / 1 - 10 ml)
- › All pipette parts fully autoclavable at: 121 °C; 20 min; 1 bar overpressure.

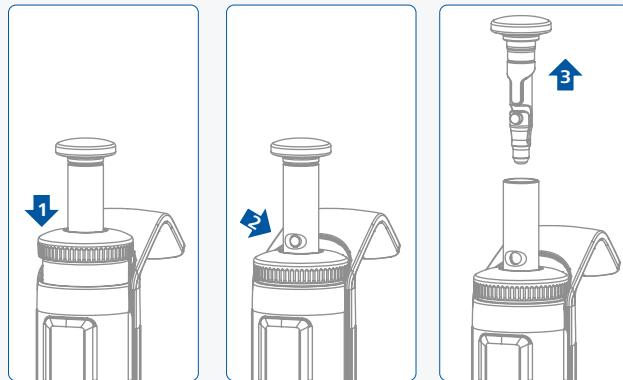
/// Calibration and Adjustment

- › All pipettes are supplied by IKA with a calibration certificate. IKA recommends calibration according to EN ISO 8655 in regular intervals (IKA recommends every 4 months or after every maintenance, cleaning or autoclaving). If adjustment is necessary, please observe the following instructions.

Adjusting the IKA PETTE fix

⚠ Notice!

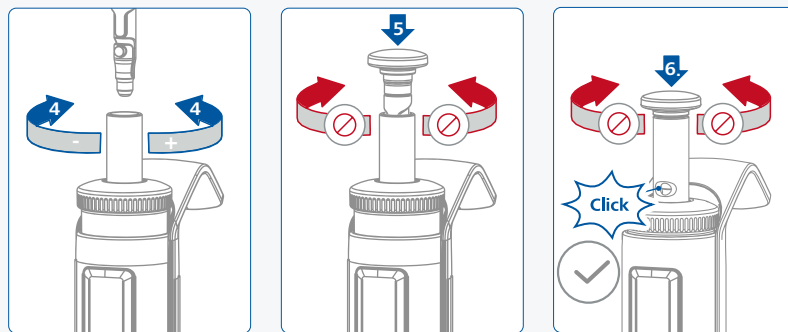
- › The calibration certificate is no longer valid after adjustment.
- › The pipette must be recalibrated after adjustment. Please note ISO 8655-6.
- › The cap must be removed before adjustment.



- › Decrease or increase the volume by turning the pipetting button.

⚠ Notice!

- › Do not twist the pipetting button when putting on the cap.

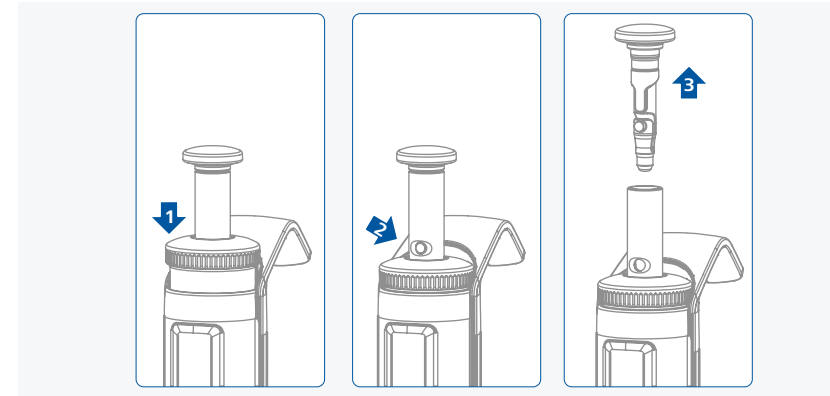


Adjusting the IKA PETTE vario and PETTE multi



⚠ Notice!

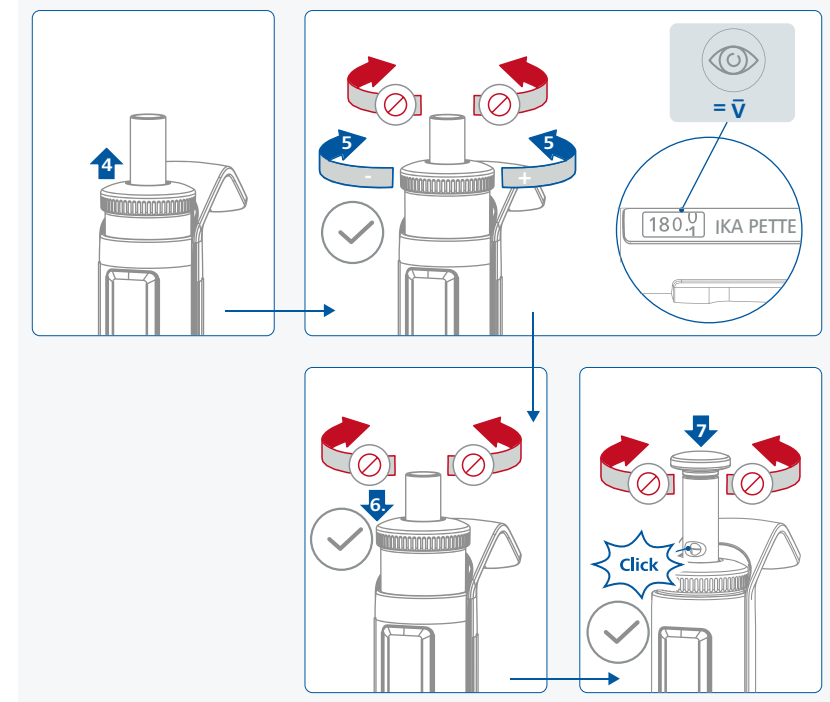
- › The calibration certificate is no longer valid after adjustment.
- › The pipette must be recalibrated after adjustment. Please note ISO 8655-6.
- › The cap must be removed before adjustment.



- › Set the displayed volume to the mean volume measured during calibration by turning the multi-function button.

⚠ Notice!

- › Do not twist the pipetting button during the adjustment process or when putting on the cap.



/// Storage

- › It is recommended to store the pipette in a vertical position when not in use. Placing the pipette on its side can cause liquid to enter the pipette body and cause corrosion. IKA recommends the use of a pipette stand.

/// Spare parts order

- › When ordering spare parts, please give:
 - device type.
 - serial number, lasermarked on the housing.
 - position number and description of spare part, see www.ika.com.

/// Repair

- › Please only send devices in for repair that have been cleaned and are free of materials which might present health hazards.
- › For repair, please request the “**Safety Declaration (Decontamination Certificate)**” from IKA or use the download printout of it from IKA website at www.ika.com.
- › If your appliance requires repair, return it in its original packaging. Storage packaging is not sufficient when sending the device - also use appropriate transport packaging.

Accessories

- › Linea
- › Ronda
- › Tip xs bag
- › Tip xs tray
- › Tip xs box plus
- › Tip s bag
- › Tip s tray
- › Tip s box plus
- › Tip m bag
- › Tip m box
- › Tip m box plus
- › Tip l bag
- › Tip l box
- › Tip xl bag
- › Tip xl box

For further accessories see www.ika.com.

Troubleshooting

Effect | Causes | Solutions

Leakage | Dispensed volume too small

Causes	<ul style="list-style-type: none">› The pipette tip does not sit correctly on the tip cone.› Unsuitable pipette tip.› Tip cone soiled or damaged.› Seal soiled or damaged.› Piston (2 µl - 200 µl) or shaft (250 µl - 10 ml) soiled or damaged.
Solutions	<ul style="list-style-type: none">› Attach the pipette tip correctly.› Use pipette tips suitable for the pipette size.› Clean the tip cone or replace the shaft.› Clean or replace the seal.› Clean or replace the piston (2 µl - 200 µl) or shaft (250 µl - 10 ml).

Dispensed volume outside the specifications

Causes	<ul style="list-style-type: none">› Incorrect operation.› The adjustment of the pipette has been changed.› The characteristics of the liquid (vapour pressure / density / viscosity) differ greatly from those of water.› Shaft is not correctly attached to the upper part of the pipette.
Solutions	<ul style="list-style-type: none">› Follow the pipetting recommendations.› Calibrate and adjust the pipette according to ISO 8655.› Try reverse pipetting with highly viscous or foaming liquids. Adjust the pipette to the liquid used and mark the pipette accordingly.› Screw the shaft onto the upper part of the pipette until you hear a click.

Pipetting button blocked or jerky

Causes	<ul style="list-style-type: none">› Lack of grease.› Seal soiled or damaged.› Piston (2 µl - 200 µl) or shaft (250 µl - 10 ml) soiled or damaged.› Filter (IKA PETTE vario 0,5 - 5 ml; 1 - 10 ml) soiled.
Solutions	<ul style="list-style-type: none">› Clean and slightly grease the seal and the piston (2 µl - 200 µl) or the cylinder (250 µl - 10 ml).› Clean or replace the seal.› Clean or replace the piston (2 µl - 200 µl) or shaft (250 µl - 10 ml).› Replace the filter with a new one.

If the actions described fails to resolve the fault then take one of the following steps:

- › Contact IKA service department.
- › Send the instrument for repair, including a short description of the fault.



Technical data



PETTE fix (µl)											
	5	10	20	25	50	100	200	250	500	1000	
Design	Air displacement piston-operated pipette										
Handling	mechanical										
Volume	fix										
Number of channels	1										
Colour Code	Gray			Yellow				Blue			
Nominal volume	µl	5	10	20	25	50	100	200	250	500	1000
Accuracy with nominal volume	±µl	0.06	0.12	0.2	0.25	0.35	0.6	1.2	1.5	3	6
Precision with nominal volume	±µl	0.03	0.06	0.075	0.15	0.2	0.4	0.5	1	2	
Certificate of conformity according to ISO 8655	yes										
Autoclavable	yes										
Permissible operating conditions	ISO 8655										
Piston material	Stainless steel DLC coated						PEEK				
Dimensions (W x D x H)	mm	30 x 63 x 248						30 x 63 x 247			
Weight	g	84			85			86		83	

PETTE vario (µl)								PETTE vario (ml)	
	0.1 – 2	0.5 – 10	2 – 20	10 – 100	20 – 200	100 – 1000	0.5 – 5	1 – 10	
Design	Air displacement piston-operated pipette								
Handling	mechanical								
Volume	variable								
Number of channels	1								
Colour Code	Gray		Yellow			Blue	Green	Red	
Nominal volume	µl	2	10	20	100	200	1000	5000	10000
Volume min.	µl	0.1	0.5	2	10	20	100	500	1000
Volume max.	µl	2	10	20	100	200	1000	5000	10000
Increments	µl	0.002	0.01	0.02	0.1	0.2	1	5	10
Accuracy with nominal volume	±µl	0.028	0.1	0.2	0.8	1.2	6	30	60
Precision with nominal volume	±µl	0.014	0.04	0.06	0.2	0.4	2	7.5	15
Accuracy with 50% of nominal volume	±µl	0.025	0.075	0.12	0.5	1	5	30	40
Precision with 50% of nominal volume	±µl	0.015	0.04	0.06	0.15	0.3	1	6.25	10
Accuracy with 10% of nominal volume	±µl	0.024	0.025	0.1	0.3	0.5	3	12	30
Precision with 10% of nominal volume	±µl	0.012	0.018	0.03	0.1	0.14	0.6	3	6
Certificate of conformity according to ISO 8655	yes								
Autoclavable	yes								
Permissible operating conditions	ISO 8655								
Piston material	Stainless steel DLC coated				PEEK	PPSU			
Dimensions (W x D x H)	mm	30 x 63 x 254	30 x 63 x 248			30 x 63 x 247	30 x 63 x 219	30 x 63 x 222	
Weight	g	89		90	91	88	99	108	

PETTE multi (µl)							
	8 channel			12 channel			
	0.5 – 10	10 – 100	20 – 200	0.5 – 10	10 – 100	20 – 200	
Design	Air displacement piston-operated pipette						
Handling	mechanical						
Volume	variable						
Number of channels	8			12			
Colour Code	gray	yellow		gray	yellow		
Nominal volume	µl	10	100	200	10	100	200
Volume min.	µl	0.5	10	20	0.5	10	20
Volume max.	µl	10	100	200	10	100	200
Increments	µl	0.01	0.1	0.2	0.01	0.1	0.2
Accuracy with nominal volume	±µl	0.2	0.8	1.6	0.2	0.8	1.6
Precision with nominal volume	±µl	0.1	0.3	0.6	0.1	0.3	0.6
Accuracy with 50% of nominal volume	±µl	0.2	0.5	1	0.2	0.5	1
Precision with 50% of nominal volume	±µl	0.1	0.4	0.65	0.1	0.4	0.65
Accuracy with 10% of nominal volume	±µl	0.08	0.3	0.6	0.08	0.3	0.6
Precision with 10% of nominal volume	±µl	0.05	0.2	0.25	0.05	0.2	0.25
Certificate of conformity according to ISO 8655	yes						
Autoclavable	yes						
Permissible operating conditions	ISO 8655						
Piston material	Stainless steel DLC coated						
Dimensions (W x D x H)	mm	83 x 63 x 236			119 x 63 x 236		
Weight	g	132	146	156	158	180	196

Subject to technical changes!

Warranty

- In accordance with IKA warranty conditions, the warranty period is 12 months. For claims under the warranty please contact your local dealer. You may also send the device direct to our factory, enclosing the delivery invoice and giving reasons for the claim. You will be liable for freight costs.
- The warranty does not cover worn out parts, nor does it apply to faults resulting from improper use, insufficient care or maintenance not carried out in accordance with the instructions in this operating manual.



designed for scientists

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