

Finnpipette®

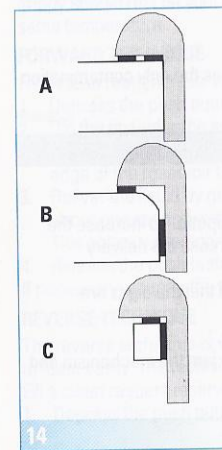
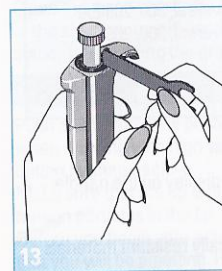
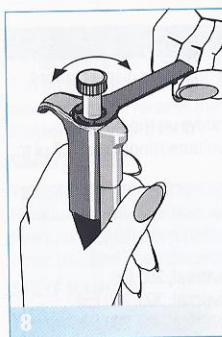
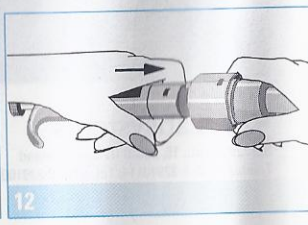
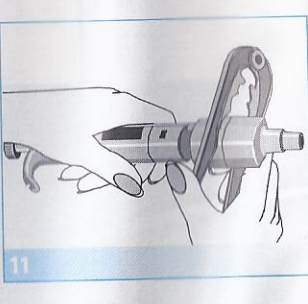
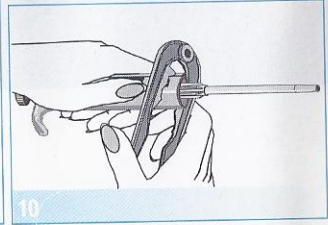
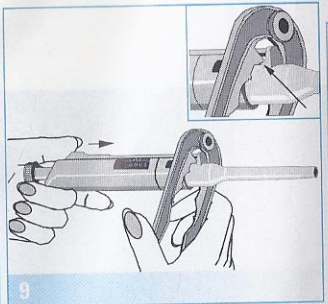
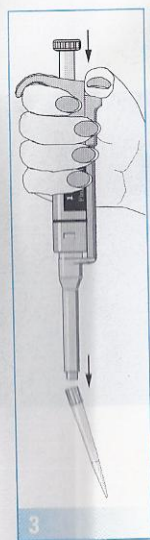
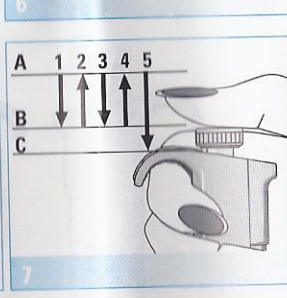
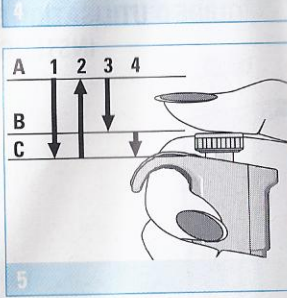
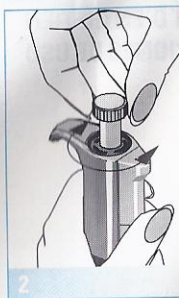
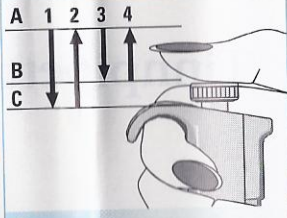
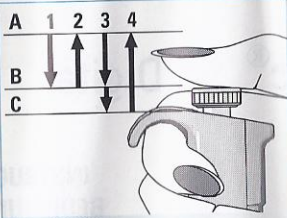
Digital

**INSTRUCTIONS FOR USE
BEDIENUNGSANLEITUNG
GUIDE D'UTILISATION ET D'ENTRETIEN
INSTRUCCIONES DE USO**



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PRODUCT DESCRIPTION

The Finn timer Digital is an autoclavable digital pipette. It operates on the air displacement principle (i.e. an air interface) and uses detachable, disposable tips.

The adjusted delivery volume is displayed digitally on a readout window on the handle.

The eleven different models of Finn timer Digital pipettes cover a volume range from 0.2 μ l to 10 ml.

Order No.	Volume Range	Finn tip
4500000	0.2 μ l to 2 μ l	10
4500010	0.5 μ l to 10 μ l	10
4500020	0.5 μ l to 10 μ l	250 Universal, 200 Ext
4500080	2 μ l to 20 μ l	250 Universal, 300, 200 Ext
4500030	5 μ l to 40 μ l	250 Universal, 300, 200 Ext
4500110	10 μ l to 100 μ l	250 Universal, 300, 200 Ext
4500090	20 μ l to 200 μ l	250 Universal, 300, 200 Ext
4500120	100 μ l to 1000 μ l	250 Universal, 300, 200 Ext
4500050	200 μ l to 1000 μ l	1000
4500060	1 ml to 5 ml	5 ml
4500070	2 ml to 10 ml	10 ml

1 DIGITAL DISPLAY

The adjusted delivery volume is clearly indicated in the large digital display on the handle.

RAW MATERIALS

The Finn timer Digital is made of mechanically durable and chemically resistant materials which allow repeated autoclaving of the complete pipette at 121°C.

DESCRIPTION OF TIPS

Finn tips are recommended for use with the Finn timer Digital.

They are made of natural colour polypropylene, generally regarded as the only contamination free material suitable for tips. Finn tips are also autoclavable (121°C).

PIPETTE OPERATION

SETTING THE DELIVERY VOLUME

1. Set the delivery volume using the push button on the top of the pipette. To increase the delivery volume, turn the push button counterclockwise. To decrease the delivery volume, turn it clockwise.
2. Make sure that the desired delivery volume clicks into place and that the digits are completely visible in the display window.
3. Do not set volumes outside the pipette's specified volume range. Using excessive force to turn the push button outside the range may jam the mechanism and eventually damage the pipette.

TIP EJECTION

To help eliminate the risk of contamination, each pipette is fitted with a tip ejector system. The tip ejector system consists of a soft-touch tip ejector and specially designed gearing mechanism. To release the tip, point the pipette at suitable waste receptacle and press the tip ejector with your thumb.

SAFETY LABEL

You can mark the pipette application your initials the calibration date, etc. on the safety label. Remove the clear plastic window on the edge closest to the push button (use the service tool that comes with the pipette, or a screwdriver). Mark the adhesive label with a felt-tipped or other pen and snap the window back in place.

SHELF HANGER

You can attach the pipette shelf hanger on a counter, pipette stand or anywhere where you want to hang your pipette. Clean the area where you plan to attach the shelf hanger. Apply two stickers to the underside of the shelf hanger. Press the shelf hanger firmly into place -- on a shelf, countertop or pipette stand. To use, hang the grippy finger rest on the shelf hanger.

PIPETTING TECHNIQUES

Push and release the push button slowly at all times, particularly when working with high viscosity liquids. Never allow the push button to snap back.

Make sure that the tip is firmly attached to the tip cone. Check for foreign particles in the tip.

Before you begin your actual pipetting work, fill and empty the tip 2-3 times with the solution that you will be pipetting. Hold the pipette in an upright position while aspirating liquid. The grippy should rest on your index finger. Make sure that the tips, pipette and solution are at the same temperature.

Figures 4-7:

- A = Ready position**
- B = First stop**
- C = Second stop**

FORWARD TECHNIQUE

Fill a clean reagent reservoir with the liquid to be dispensed.

1. Depress the push button to the first stop.
2. Dip the tip under the surface of the liquid in the reservoir to a depth of about 1 cm and slowly release the push button. Withdraw the tip from the liquid touching it against the edge of the reservoir to remove excess liquid.
3. Deliver the liquid by gently depressing the push button to the first stop. After a delay of about one second, continue to depress the push button all the way to the second stop. This action will empty the tip.
4. Release the push button to the ready position.

If necessary, change the tip and continue pipetting.

REVERSE TECHNIQUE

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

Fill a clean reagent reservoir with the liquid to be dispensed.

1. Depress the push button all the way to the second stop.

2. Dip the tip under the surface of the liquid in the reservoir to a depth of about 1 cm, and slowly release the push button. 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. Deliver the preset volume by gently depressing the push button to the first stop. Hold the push button at the first stop. Some liquid will remain in the tip and this should not be included in the delivery.
4. The remaining liquid should either be discarded with the tip or pipetted back into the container.

6 REPETITIVE TECHNIQUE

The repetitive technique offers a rapid and simple procedure for repeated delivery of the same volume. Fill a clean reagent reservoir with the liquid to be dispensed.

1. Depress the push button all the way to the second stop.
2. Dip the tip under the surface of the liquid in the reservoir to a depth of about 1 cm, and slowly release the push button. This action will fill the tip. Withdraw the tip from the liquid touching against the edge of the reservoir to remove excess liquid.
3. Deliver the preset volume by gently depressing the push button to the first stop. Hold the push button at the first stop. Some liquid will remain in the tip and this should not be included in the delivery.
4. Continue pipetting by repeating steps 2 and 3.

7 PIPETTING WHOLE BLOOD

(deproteinization in blood glucose determination, for example)

Use steps 1 and 2 of the forward technique to fill the tip with blood.

Wipe the tip carefully with a dry clean tissue.

1. Immerse the tip into the reagent and depress the push button to the first stop, making sure the tip is well below the surface.
2. Release the push button slowly to the ready position. This will fill the tip. Keep the tip in the solution.
3. Depress the push button to the first stop and release slowly. Keep repeating this procedure until the interior wall of the tip is clear.
4. Finally, depress the push button all the way to the second stop to completely empty the tip.

CALIBRATION

The pipette has been calibrated at the factory with distilled water at +22°C. Ordinarily the pipettes do not need to be recalibrated, but they are constructed to permit recalibration at different temperatures and with different viscosity liquids if necessary. An analytical balance, a small beaker and distilled water are needed for this procedure. Please note: If the piston and/or cylinder have been changed the pipette must be recalibrated.

CHECKING CALIBRATION

1. Set the volume of the pipette as instructed in the table below:

Pipette Model	Set Volume	Permitted Value (μl)
0.2-2 μl	0.8	0.55-1.05
0.5-10 μl	2	1.75-2.25
2-20 μl	4	3.9-4.1
5-40 μl	10	9.8-10.2
10-100 μl	20	19.7-20.3
20-200 μl	40	39.6-40.4
100-1000 μl	200	198.7-201.3
200-1000 μl	300	298.0-302.0
1-5 ml	2	1990.0-2010.0
2-10 ml	3.5	3485.0-3515.0

2. Place a tip firmly onto the tip cone.
3. Pipette distilled water into a preweighed beaker and record the volume. Repeat at least five times. The weight is related to volume through a correction factor which depends on the temperature and pressure.

The pipette must be recalibrated if just one of the results is outside the permitted range.

RECALIBRATION

Recalibration is done with the service tool.

1. Place the service tool into the openings of the calibration nut at the top of the handle.
2. Turn the service tool clockwise to increase, or counterclockwise to decrease the volume.
3. After the adjustment has been made, check the calibration according to the instructions above.

MAINTENANCE

When the Finnpiptette Digital is not in use, make sure it is stored in an upright position. We recommend a Finnpiptette stand for this purpose.

SHORT-TERM CHECKING

The pipette should be checked at the beginning of each day for dust and dirt on the outside surfaces of the pipette.

Particular attention should be paid to the tip cone. No other solvents except 70 % ethanol should be used to clean the pipette.

LONG-TERM MAINTENANCE

If the pipette is used daily it should be checked every three months. The servicing procedure starts with the disassembly of the pipette.

DISASSEMBLING 0.2-40 μ l PIPETTES

1. Press the tip ejector.
2. Insert the maintenance pliers under the ejector bar to release the tip ejector.
3. Remove the tip cone by pressing with maintenance pliers.
4. Pull out the piston and the spring.
5. Keep the tip cone vertically and push out with piston the rest of the piston assembly. Then keep the tip cone upside down and tap all parts from tip cone. Remember keep all parts in order on table for reassembly.
6. Clean the piston, the piston spring and the O-rings with a dry napless cloth.
7. Check the tip cone for foreign particles.
8. Grease the cleaned parts with the lubricant that comes with the pipette.
9. Reassemble the pipette components.

All 0.2-40 μ l: First, slide the spring 14, spring support 15 and tube 16 back on the piston. Compress the spring with fingers by pressing piston and spring support 15 against each other.

5-40 μ l: Slide bigger O-ring 17, smaller O-ring 18, spring support 19 (sharp edges against spring) and small spring 20 on the piston.

0.5-10 µl: First slide O-ring tube 17 (larger hole first), bigger O-ring 18, smaller O-ring 19 and O-ring support 20 on the piston. Then slide small spring 21, spring support 22 (sharp edges against spring) and O-ring 22 on the O-ring support 20.

0.2-2 µl: First slide O-ring tube 17 (larger hole first) and sealing combination 18 on the piston. Then slide small spring 19, spring support 20 (sharp edges against spring) and O-ring 21 on the sealing combination 18.

ALL 0.2-40 µl: Carefully slide the entire assembly into the tip cone and release your fingers.

10. With the push button depressed all the way carefully attach the tip cone to the handle so that the adapter opening is on the tip ejector side. Do not bend the thin piston wire when assembling. Press in the snap joints.
11. Assemble the tip ejector and check the calibration according to the instructions.

DISASSEMBLING 40-1000 µl PIPETTES

- 9 1. Press the tip ejector.
2. Insert the pliers under the ejector bar to release the tip ejector.
- 10 3. Remove the tip cone using the maintenance pliers.
4. Pull out the piston.
5. Remove the O-ring, O-ring support and spring from the tip cone.
6. Clean the piston, the piston spring and the O-ring with a dry napless cloth.
7. Check the cylinder for foreign particles.
8. Grease the cleaned parts with the lubricant that comes with the pipette.
9. Slide parts over the piston pressing down the large spring. Attach the tip cone to the handle so that the adapter opening is on the tip ejector side, and press in the snap joints.
10. Check the calibration according to the instructions.

DISASSEMBLING 1-10 ml PIPETTES

- 9 1. Press the tip ejector.
2. Insert the pliers under the ejector bar to release the tip ejector.
- 11 3. Remove the part 2 from part 1 of the tip ejector using the maintenance pliers to release the snap joint.
- 12 4. Remove the cylinder by pressing part 1 of the tip ejector firmly towards the cylinder. This action releases the snap joint so you can remove the cylinder.
5. Clean the O-ring and cylinder. Regrease the O-ring. Do not apply grease inside the cylinder.
6. Assemble the parts in the opposite order of disassembly. All joints are snap fit and can be pushed together by hand. Be careful not to bend the pipette during assembly because this could damage the snap joints or the piston.
7. Check the calibration according to the instructions.

STERILIZATION

The entire pipette can be sterilized by autoclaving it at 121°C (252°F) (minimum 20 minutes). No special preparations are needed for autoclaving. You can use steam sterilization bags if needed.

After autoclaving the pipette must be cooled to room temperature for at least two hours. Before pipetting, make sure that the pipette is dry. We recommend that you check the calibration of 0.5-1000 µl pipettes after every 25th sterilization cycle and of 1-10 ml pipettes after every 10th sterilization cycle.

CAUTION!

The Finnpiquette is designed to allow easy in-lab service. If you would prefer to have us or your local representative service your pipette, please make sure that the pipette has been decontaminated before you send it to us.

Please note that the postal authorities in your country may prohibit or restrict the shipment of contaminated material by mail

TROUBLE SHOOTING

The table below lists possible problems and their solutions.

Defect	Possible reason	Solution
Leakage	Tip incorrectly attached	Attach firmly
	Foreign particles between tip and tip cone	Clean tip cones attach new tips
	Foreign particles between the piston, the O-ring and the cylinder	Clean and grease O-ring and cylinder.
	Insufficient amount of grease on cylinder and O-ring	Grease accordingly
	O-ring damaged	Change the O-ring
Inaccurate dispensing	Incorrect operation	Follow instructions carefully
	Tip incorrectly attached	Attach firmly
	Calibration altered: caused by misuse, for example	Recalibrate according to instructions
Inaccurate dispensing with certain liquids	Unsuitable calibration. High viscosity liquids may require recalibration.	Recalibrate with the liquids in question.

PACKAGE

The Finnpiquette Digital is shipped in a specially designed package containing the following items:

- | | | |
|-----------------------|-----------------------|----------------------------|
| 1. The Finnpiquette | 4. Finntip sample | 7. Calibration certificate |
| 2. Service tool | 5. Tube of grease | 8. Shelf hanger |
| 3. Maintenance pliers | 6. Instruction manual | 9. Two stickers |

SPARE PARTS / ERSATZTEILE PIECES DETACHEES / PIEZAS DE RECAMBIO

Figure 15 lists spare parts and reorder numbers
Abbildung 15 zeigt ersatzteile und bestellungsnummer
Voir sur figure N° 15 la liste des pièces détachées et leurs références
La Figura 15 muestra una lista de piezas de recambio

All	100-1000 µl / 200-1000 µl	10-100µl	2-20 µl	0.5-10 µl	0.2-2 µl
1. 10593480		5. 1057500	5. 1057490	5. 1057480	5. 10589810
2. 2900510	5. 1057510	6. 2206630	6. 2206610	6. 2205750	6. 2205740
3. 10593050	6. 2206640/100	10. 10593620	10. 10593090	10. 10593090	10. 10593090
4. 1527200	6. 2205780/200	11. 10593080	11. 10593080	11. 10593080	11. 10593080
2-10 ml	10. 10593410	12. 10593110	12. 10593110	12.a 10593110	12. 10593120
5. 1058260	11. 10593080	13. 2206600	13. 2206440	12.b 10593120	13. 2205700
6. 2205800	12. 10593100	14. 1131810	14. 1131810	13. 2205710	14. 1131810
10. 10593190	13. 10589450	15. 10593340	15. 10593340	14. 1131810	15. 10593340
11. 2205850	14. 1130560	16. 1030510	16. 10593330	15. 10593340	16. 10593330
12. 1033050	15. 1130550	5-40 µl	17. 10593320	16. 10593330	17. 10593300
13. 10593440	16. 1054260	5. 1057490	18. 1033110	17. 10593310	18. 2205730
14. 10593200	17. 1030020	6. 2205760	19. 10593360	18. 1030170	19. 1131800
1-5 ml	20-200µl	10. 10593430	20. 1132120	19. 1030060	20. 10593360
5. 1057520	5. 1057500	11. 10593080		20. 10593290	21. 1030170
6. 2205790	6. 2206620	12. 10593110		21. 1131800	
10. 10593150	10. 10593420	13. 2205720		22. 10593360	
11. 2205840	11. 10593080	14. 1131810		23. 1030170	
12. 1030230	12. 10593110	15. 10593340			
13. 10593130	13. 1053840	16. 10593330			
14. 10593160	14. 1130510	17. 1030380			
	15. 1053860	18. 1030170			
	16. 1030160	19. 10593360			
		20. 1131880			

Shelf hanger

Pipetten-Aufhänger

Support-Pipette pour étagère

Soporte colgador

2206040

TIP ORDERING INFORMATION

BESTELLUNG VON FINNTIPS

POUR COMMANDER LES CONES FINNTIPS

INFORMACION PARA PEDIDOS DE PUNTAS

Code	Finntip	Volume	Qty
9400310	10	0.2-10µl	1000/bag
9400300	10	0.2-10µl	10x96/tray
9400130	200 Ext	5-200µl	10x96/tray
9400260	250 Univ.	0.5-300µl	10x96/tray
9401250	300	5-300µl	10x96/tray
9401070	1000	100-1000µl	200/box
9401200	1000	100-1000µl	10x108/tray
9402060	5 ml	1-5ml	5x24/tray
9402160	10 ml	2-10ml	5x24/tray

