

Liquid Handling · Easy Handling!



macro

F I R S T C L A S S · B R A N D

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Safety Instructions

This instrument may sometimes be used with hazardous materials, operations, and equipment. It is beyond the scope of this manual to address all of the potential safety risks associated with its use in such applications. It is the responsibility of the user of this instrument to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.



Please read the following carefully!

1. Every user must read and understand this operating manual before operation.
2. Follow general instructions for hazard prevention and safety instructions; e.g., wear protective clothing, eye protection and gloves.
3. Observe all specifications provided by reagent manufacturers.
4. Use the instrument only for pipetting liquids, with strict regard to the defined limitations of use. Observe operating exclusions (s. page 19)! If in doubt, contact the manufacturer or supplier.
5. Always use the instrument in such a way that neither the user nor any other person is endangered. Avoid splashes. Only use suitable vessels.
6. Never use force on the instrument!
7. Use only original manufacturer's accessories and spare parts. Do not attempt to make any technical alterations. Do not dismantle the instrument any further than is described in the operating manual!
8. Always check the instrument for visible damage before use. If there is a sign of a potential malfunction, immediately stop pipetting. Consult the 'Troubleshooting' section of this manual (see page 29), and contact the manufacturer if needed.

The instrument is designed to assist the filling and dispensing of graduated and volumetric pipettes of glass or plastic in the volume range of 0.1 ml to 200 ml with a suction tube outer diameter < 9.2 mm for measuring liquids. If the instrument is used correctly, the pipetted liquid will only contact the pipette.

Limitations of Use

The instrument is designed for pipetting liquids, observing the following physical limits:

- +10 °C to +40 °C (50 °F to 104 °F)
(of instrument and reagent)
- Vapor pressure up to max. 500 mbar.
Aspirate slowly above 300 mbar, in order to prevent the liquid from boiling.
- Density up to 2.4 g/cm³

Operating Exclusions

Never use the instrument with liquids whose vapors attack the materials silicone or PP.

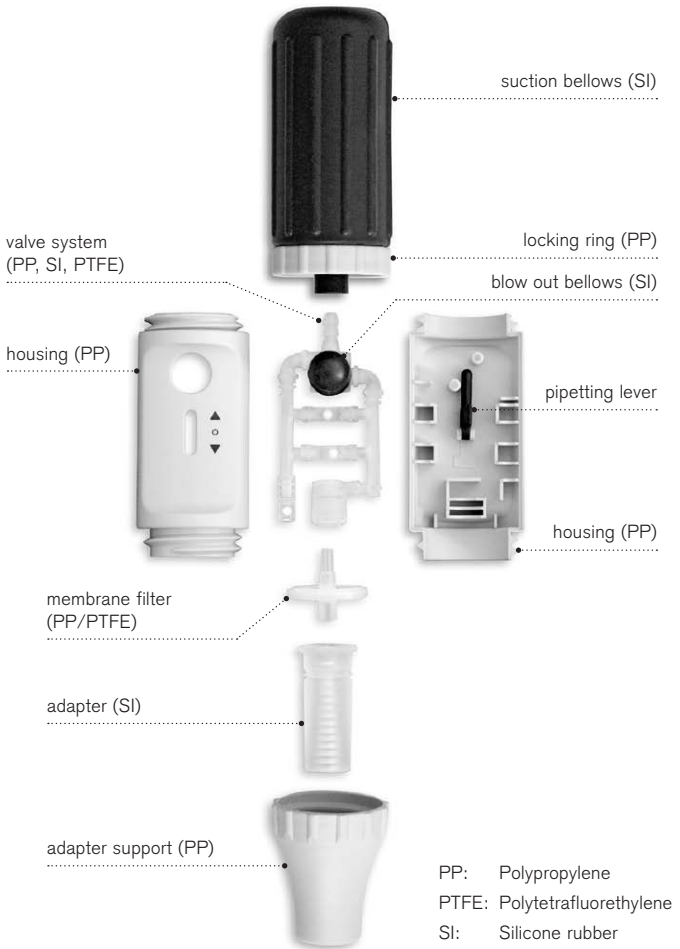
The instrument is not designed for Pasteur pipettes.

Storage Conditions

Store the instrument and accessories only in cleaned condition in a cool and dry place.

Storage temperature: -20 °C to +50 °C (-4 °F to +122 °F).

Operating Elements



1. Compress the suction bellows

Before attaching the pipette, squeeze the suction bellows.

2. Attach the pipette

Hold the pipette as near to its upper end as possible, and carefully insert it into the adapter until it fits tightly.

Once the pipette has been securely attached, always hold the instrument in a vertical position, tip down.

Warning!

Be sure that the pipette fits tightly into the adapter. Never use force. Thin pipets are particularly liable to break. Avoid the risk of injury!

3. Fill the pipette

Immerse the pipette tip into the liquid. Press the pipetting lever slowly upwards. Fill the pipette so that the level of liquid is slightly above the required mark.

Attention!

Please take care that no liquid enters into the instrument. This would impair the filtering function and reduce the suction capacity. If liquid does enter the instrument, exchange the filter (see pages 24 - 25).



Note:

The further up the lever is pressed, the stronger the suction becomes and the quicker the meniscus rises.

In the case of large pipettes > 50 ml the vacuum contained in the suction bellows is not sufficient to draw in all the liquid at once. Therefore, squeeze the suction bellows again and continue drawing up liquid.

4. Adjust the volume

Use suitable lint-free tissue to wipe the pipette tip, if necessary. Press the pipetting lever down slowly, until precise adjustment of the meniscus has been achieved.

5. Dispense the pipette

Hold the collecting vessel in an inclined position. Place the pipette tip against the inner vessel wall and press the pipetting lever down to dispense.

5.1 In the case of pipettes with a waiting time

(Imprint e.g., 'Ex + 5 s'):

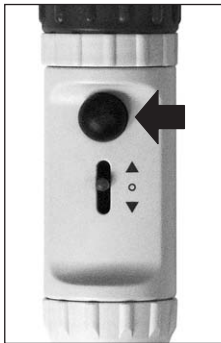
- As soon as the meniscus in the pipette comes to a standstill, start waiting time as is indicated on the pipette (here: 5 s).
- Wipe the pipette tip a few millimeters upward along the wall of the vessel.



5.2 In the case of blow-out pipettes

(Imprint 'ausblasen – blow out'):

- As soon as the meniscus in the pipette tip comes to a standstill, press the small blow-out bellows once.
- Wipe the pipette tip a few millimeters upward along the wall of the vessel.



6. After pipetting

Hold the pipette as its extreme upper end, and gently twist and pull it out of the adapter.



Cleaning · Autoclaving

When properly used, the instrument is maintenance-free. Before autoclaving, the instrument must be cleaned carefully. Wipe the housing with a damp cloth. The instrument is autoclavable at 121 °C (250 °F), 2 bar absolute (30 psi) with a holding time of at least 15 minutes according to DIN EN 285.

Replacing the Filter and Cleaning the Adapter

Only necessary if a pipette has been overfilled or the suction capacity is impaired.

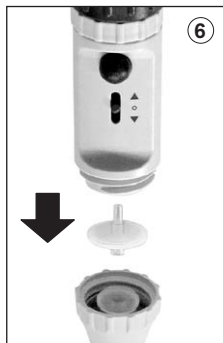
Warning!

Wear protective gloves and eye protection.
Avoid the risk of contamination!

1. Pull out the pipette.
2. Unscrew the adapter support.
3. Pull out the membrane filter.
4. Remove the adapter from the adapter support by pushing it upwards.
5. To clean adapter, carefully rinse it by using an appropriate compatible solvent (e.g., water) in a wash bottle. Blow out the liquid and allow to dry completely.



6. Place the new membrane filter with the thicker end facing downwards into the adapter (with the smaller conical side up).



7. Screw in the adapter support hand tight.

8. The entire instrument incl. membrane filter is autoclavable at 121 °C (2 bar) according to DIN EN 285.
For autoclaving remove suction bellow.



Note:

Not every membrane filter is suitable. Only use genuine manufacturer's recommended accessories. Filters of a pore size of 3 µm are a standard equipment of the instrument. The membrane filter is autoclavable up to 5 times at 121 °C. It is the user's responsibility to ensure effective autoclaving.

Replace the Valve System

1. Unscrew the suction bellows and the adapter support.



2. Take off the upper part of the housing. Carefully pull out the valve system and replace it.



3. Reassemble the instrument in reverse order and carry out leak test.

Leak Test

When the meniscus has been set, liquid should not drip out of the pipette until the valves are activated.

Should the pipette drip, see chapter 'Troubleshooting' (see page 29).



macro pipette controller,

with spare membrane filter 3 µm and operating manual.

Color*	Cat. No.
grey	20260 02
blue	20260 03
magenta	20260 04
green	20260 06

* Colors refer to accent colors on instrument adapter support and locking ring.

Spare membrane filter 3 µm, non-sterile, 1 pc. in blister pack

Cat. No. 260 52

Spare membrane filter 3 µm, non-sterile, 10 pcs., in PE-bag

Cat. No. 260 56

Adapter support, PP, grey, length 49 mm

Cat. No. 261 48

Silicone adapter, length 44 mm

Cat. No. 261 46

Suction bellows with locking ring, grey

Cat. No. 260 37

Valve system

Cat. No. 261 28

Trouble	Possible Cause	Action to be taken
Suction capacity impaired	Filter dirty or valve system damaged	Replace filter, see pages 24-25
Pipette drips	Filter not properly positioned or valve system damaged	Insert filter properly or replace valve system, see page 26
Pipette not held properly	Silicone adapter damaged	Unscrew the adapter support of the instrument, replace silicone adapter
Compressed suction bellows take in air automatically	Suction bellows or valve system damaged	Replace the locking ring with the suction bellows or the valve system

Note:

Often visual control of the instrument is sufficient to discover a faulty device which can easily be replaced by a spare part. The advantages of do-it-yourself repair are obvious: It saves time and money.

Repairs and Warranty

If a problem cannot be fixed by following the troubleshooting guide, or by replacing spare parts, then the instrument must be sent in for repair.

Please note: for the safety of couriers and our employees, and to avoid violation of federal and local laws, only clean instruments free of any chemical, biological or radioactive hazards can be inspected and repaired!

Return for Repair

Important! Transporting of hazardous materials without a permit is a violation of federal law.

BrandTech Scientific, Inc. will not accept instruments that are not appropriately cleaned and decontaminated.

Therefore contact BrandTech Scientific, Inc. and obtain return authorization **before** sending your instrument for service.

Return the instrument, with the Return Authorization Number prominently displayed on the outside of the package to the address provided with the Return Authorization Number. Include an exact description of the type of malfunction and the media used.

Warranty

We shall not be liable for the consequences of improper handling, use, servicing, operation or unauthorized repairs of the instrument or the consequences of normal wear and tear especially of wearing parts such as pistons, seals, valves and the breakage of glass as well as the failure to follow the instructions of the operating manual. We are not liable for damage resulting from any actions not described in the operating manual or if non-original parts have been used. For length of warranty period please see our warranty card enclosed with the product.

Subject to technical modification without notice. Errors excepted.