



Biomaster[®] 4830

Operating manual

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1 Operating instructions





1.1 Using this manual

- ▶ Read this operating manual completely before using the device for the first time. Also observe the instructions for use of the accessories.
- ▶ This operating manual is part of the product. Thus, it must always be easily accessible.
- ▶ Enclose this operating manual when transferring the device to third parties.
- ▶ You will find the current version of the operating manual for all available languages on our webpage under www.eppendorf.com.

1.2 Danger symbols and danger levels

The safety instructions of this operating manual indicate the following danger symbols and danger levels:


1.2.1 Danger symbol

	Biohazard		Toxic substances
	Hazard point		Material damage

1.2.2 Danger levels

DANGER	<i>Will</i> lead to severe injuries or death.
WARNING	<i>May</i> lead to severe injuries or death.
CAUTION	May lead to light to moderate injuries.
Notice	May lead to material damage.

1.3 Symbols used

Depiction	Meaning
1.	Actions in the specified order
2.	
▶	Actions without a specified order
•	List
Text	Display text or software text
	Additional information

2 Product description

2.1 Operating principle

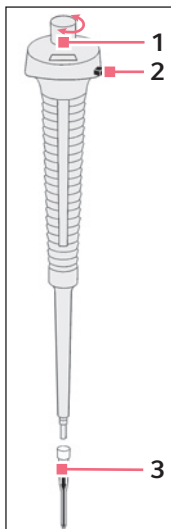
The Biomaster is a pipette designed for very sensitive testing in the volume range of 1 µL – 20 µL. It can be used with variable settings and without entrainment of residues.

Its tip, the Mastertip, can be mounted with one hand and disposes of an integrated piston. By inhibiting the formation of aerosols, the Mastertip excludes sample contamination.

The Biomaster is UV-resistant and autoclavable. Mastertips are autoclavable.

- i** Please refer to the section on sterilization before autoclaving the Biomaster or the Mastertip (121 °C, 20 min).

2.2 Main illustration



- | | |
|---|-----------------------|
| 1 | Control button |
| 2 | Volume locking button |
| 3 | Mastertip |

3 Safety

3.1 Intended use

The Biomaster is a lab device which, in combination with a Mastertip, is intended for dispensing aqueous solutions in the volume range of 1 µL – 20 µL. In vivo applications (applications in or on the human body) are not permitted.

The Biomaster may only be operated by trained specialists. All users must have read the operating manual carefully and familiarized themselves with the device's mode of operation.

3.2 Warnings for intended use



WARNING! Damages to health due to infectious liquids and pathogenic germs.

- ▶ When handling infectious liquids and pathogenic germs, observe the national regulations, the biological security level of your laboratory, the material safety data sheets, and the manufacturer's application notes.
- ▶ Wear personal protective equipment.
- ▶ For full instructions regarding the handling of germs or biological material of risk group II or higher, please refer to the "Laboratory Biosafety Manual" (Source: World Health Organization, current edition of the Laboratory Biosafety Manual).



WARNING! Damage to health due to toxic, radioactive or aggressive chemicals.

- ▶ Wear personal protective equipment.
- ▶ Observe the national regulations for handling these substances.
- ▶ Observe the material safety data sheets and manufacturer's application notes.



CAUTION! Danger to individuals due to careless use

- ▶ Never point the opening of the device towards yourself or other people.
 - ▶ Only initiate liquid dispensing if it is safe to do so.
 - ▶ With any dispensing task please ensure that you do not endanger yourself and other persons.
-

3.3 Information on product liability

In the following cases, the designated protection of the device may be compromised. Liability for any resulting property damage or personal injury is then transferred to the operator:

- The device is not used in accordance with the operating manual.
- The device is used outside of its intended use.
- The device is used with accessories or consumables which are not recommended by Eppendorf.
- The device is maintained or repaired by people not authorized by Eppendorf.
- The user makes unauthorized changes to the device.

4 Operation

4.1 Setting the volume

1. Press and hold the volume catch.
2. Turn the control button to set the volume.
3. Release the volume catch.
The set volume is now secured against unintentional readjustment.

4.2 Tip take-up

Prerequisites

The Mastertip is placed in a tip box.

1. Attach the Biomaster to one Mastertip.
You will feel the Biomaster locking in place in the Mastertip.
Keep the Mastertip in the tip box after attaching it to the Biomaster.
2. Firmly press the control button down to the second stop.
The piston is now fixed to the Biomaster.
3. Release the control button.
The piston will slide back up inside the tip until it reaches its final position.
The system is now ready for operation.

4.3 Aspirating liquid

1. Press down the control button to the first stop.
2. Immerse the Mastertip vertically approx. 3 mm into the liquid.
3. Let the control button slide back slowly.
4. Hold the Mastertip against the inner wall of the vessel while pulling it out of the liquid.

Wipe off any drops on the outside with a lint-free cellulose tissue. Make sure not to aspirate any liquid from the Mastertip when wiping off the drops.

4.4 Dispensing liquid

1. Hold the Mastertip against the inner wall of the vessel at an angle.
2. Press down the control button to the first stop.
3. Hold down the control button and hold the Mastertip against the vessel wall while pulling it up.

4.5 Ejecting the Mastertip

- ▶ Press down the control button completely to eject the Mastertip.

i Small amounts of residual liquid at the tip of the Mastertip are not part of the dispensing volume and do not have any effect on precision and accuracy.

5 Maintenance

5.1 Testing the volume

You can test the volume of the Biomaster by weighing the pipetted, demineralized water with a sufficiently sensitive analytical balance:

The following components must have the same temperature:

- demineralized water
- weighing vessel
- pipette
- pipette tips

Weighings should be conducted at 20 °C – 27 °C.

During the measurement the temperature may not fluctuate by more than ± 0.5 °C.

Divide the weight of the water by its density (0.9982 mg/ μ L at 20 °C) to calculate the volume. This procedure is based on ISO 8655.

Regularly test the precision and accuracy of the Biomaster to avoid dispensing errors. You will find an SOP (Standard Operation Procedure) for testing pipettes on our website at www.eppendorf.com.

5.2 Sterilization



NOTICE! Damage to device from incorrect handling.

- ▶ Do not use any additional disinfectants, decontamination agents or sodium hypochlorite during autoclaving or UV exposure.
 - ▶ When autoclaving, please ensure that the temperature does not exceed 121 °C.
 - ▶ Check the suitability of an agent and the manufacturer information about resistance to chemicals before using a disinfectant or decontamination agents. Also observe the material of the pipette.
-

You can fully autoclave the Biomaster (at 121 °C, for 20 min). Before doing so, unscrew and loosen the upper part of the device from its lower part by 2 turns. Make sure that the Biomaster has completely dried and cooled down before reassembling the device after autoclaving. The special plastic material of the housing allows a UV light treatment (up to 254 nm).

The Mastertips can also be autoclaved at 121 °C, 20 min. The temperature and time for autoclaving must be strictly observed. Otherwise, the proper functioning of the device cannot be guaranteed.

5.3 Cleaning and decontamination



NOTICE! Damage to device from unsuitable cleaning fluids or sharp or pointed objects.

Unsuitable cleaning fluids can damage the device.

- ▶ Never use corrosive cleaning fluids, strong solvents or abrasive polishes.
 - ▶ Check the compatibility with the materials used.
 - ▶ Do **not** clean the device with acetone or organic solvents with a similar effect.
 - ▶ Do **not** clean the device with sharp objects.
-

Proceed as follows:

- ▶ To remove any contamination on the outside, dampen a soft cloth with a mild detergent and wipe the housing.
- ▶ To disinfect the device, wipe the housing with isopropanol (70%).

No further maintenance work is required.

5.4 Decontamination before shipment

If you wish to return the device to Eppendorf AG or an Eppendorf AG service partner to be checked or repaired, please note the following:



CAUTION! Use of a contaminated device may result in personal injuries and damage to the device.

- ▶ Clean and decontaminate the device in accordance with the cleaning instructions before shipping or storage.
-

Hazardous substances are:

- solutions presenting a hazard to health
- potentially infectious agents
- organic solvents and reagents
- radioactive substances
- proteins presenting a hazard to health
- DNA

1. Please note the information in the document "Decontamination certificate for product returns".
 You can find it as a PDF file on our webpage www.eppendorf.com.
2. Enter the serial number of the Pipette in the decontamination certificate.
3. With the shipment please include the completed decontamination certificate for product returns with the Pipette.
4. Send the pipette to Eppendorf AG or an Eppendorf AG service partner. The address details of Eppendorf AG can be found on the last page of this operating manual. The list of service partners can be found at www.eppendorf.com/worldwide.

6 Technical data

6.1 Test conditions

Volume	Systematic error	Random error
2 µL	±6.0%	≤4.0%
3 µL	±5.0%	≤3.0%
5 µL	±4.0%	≤2.0%
10 µL	±3.0%	≤1.5%
20 µL	±2.0%	≤0.8%

Test conditions and test evaluation in accordance with ISO 8655, part 6. Test with analytical balance with evaporation protection, approved by the board of weights and measures.

Measurement errors do not apply to autoclaved Mastertips.

When using less than 2 µL for the test, the sample liquid and the experience of the user have a critical influence on accuracy and precision. Therefore no limits are set for this range.

- Number of determinations: 10
- Use of water in accordance with ISO 3696
- Test with a Mastertip
- Test at 20 °C – 27 °C ±0.5 °C
- Dispensing on the inner wall of the vessel

Technical specifications are subject to change.

7 Ordering Information

Order no. (International)	Order no. (North America)	Description
4830 000.017	022440501	Biomaster Kit consisting of: 1 Biomaster pipette and 1 box of 96 Mastertips
0030 001.320	022354159	Mastertips tips plus piston, ready-for-use 5 boxes of 96 = 480 pieces
3115 000.003	022444905	Pipette carousel 3115 with 6 pipette holder for Research and Reference Pipettes
3115 600.019	022260588	Pipette holder For carousel (replacement)
3115 000.020	022444913	Pipette mount For wall mounting (with adhesive backing) for Research and Reference pipettes

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