eppendorf

Eppendorf SmartBlock™

Instructions for use

1 Operating instructions
1.1 Using this manual

These instructions for use are a supplement to the operating manual of the Eppendorf ThermoMixer C and Eppendorf ThermoStat C devices. These instructions for use do not replace the operating manual.

Read the operating manual of the corresponding device before using the thermoblock for the first time. The current version of the operating manual can be found on our website at www.eppendorf.com.

2 Safety
2.1 Intended use

Thermoblocks for the Eppendorf ThermoMixer C and Eppendorf ThermoStat C devices (SmartBlocks) are used to hold tubes and plates during sample preparation and during temperature control and mixing of samples.

The thermoblocks are intended exclusively for indoor use. All country-specific safety requirements for operating electrical equipment in the laboratory must be observed. Only use Eppendorf accessories or accessories recommended by Eppendorf.

The thermoblocks must only be operated by appropriately qualified and instructed personnel.

The product can be used for training, routine and research laboratories in the areas of life sciences, industry or chemistry. This product is intended to be used for research purposes only. Eppendorf does not provide a warranty for other applications. The product is not suitable for use in diagnostic or therapeutic applications. The product may only be used by skilled personnel who have been trained in the areas mentioned above.

2.2 Danger symbols on the device

Representation	Meaning	Location
	Risk of burns from hot surfaces.	On the thermoblock
	Hazard point Risk of injury from moving parts. ▸ Observe the operating manual.	On the thermoblock

3 Product description

3.1 Features

The thermoblocks (SmartBlocks) for the Eppendorf ThermoMixer C and Eppendorf ThermoStat C devices enable comfortable tempering and mixing of samples in lab vessels for the microliter and milliliter range.

Thermoblock	Tubes/Plates	Maximum mixing frequency	Maximum temperature
SmartBlock *0.5 mL*	Tube volume 0.5 mL	2 000 rpm	100 °C
SmartBlock *1.5 mL*	Tube volume 1.5 mL	2 000 rpm	100 °C
SmartBlock *2.0 mL*	Tube volume 2.0 mL	2 000 rpm	100 °C
SmartBlock *5.0 mL*	Tube volume 5.0 mL	1 000 rpm	100 °C
SmartBlock *12 mm*	Tubes with a diameter of 11 mm to 11.9 mm	2 000 rpm	110 °C*
SmartBlock *cryo*	Cryotubes	2 000 rpm	110 °C*
SmartBlock *15 mL*	Conical tubes volume 15 mL	1 000 rpm	100 °C
SmartBlock *50 mL*	Conical tubes volume 50 mL	1 000 rpm	100 °C
SmartBlock *plates***	Microplates Deepwell plates	3 000 rpm 2 000 rpm 1 000 rpm	100 °C < 80 °C > 80 °C
SmartBlock *PCR 96*	96-well PCR plates, PCR tubes 0.2 mL	2 000 rpm	100 °C
SmartBlock *PCR 384*	384-well PCR plates	3 000 rpm	100 °C

* Only in combination with Eppendorf ThermoStat C.

** The height sensor of the SmartBlock *plates* automatically differentiates between deepwell plates and microplates.

4 Installation and operation
4.1 Installing the thermoblock

⚠ **WARNING! Personal injury or material damage due to chemically or mechanically damaged thermoblocks.**

▸ Do not use thermoblocks that show signs of corrosion or mechanical damage.
▸ Regularly check the condition of the thermoblocks.

⚠ **WARNING! Contamination due to opening seals of consumables.**
In the following cases, the seals of tubes can spring open. Sample material can escape.
• high vapor pressure of the content
• improperly sealed cover
• damaged sealing lip
• improperly fastened foil

▸ Always check that consumables have been sealed tightly before use.

When you attach the thermoblock, the device automatically recognizes the mounted thermoblock. The Eppendorf ThermoMixer C limits the mixing frequency to the maximum value for the used thermoblock. The Eppendorf ThermoStat C limits the temperature to the maximum value for the used thermoblock.

4.1.1 Attaching the thermoblock
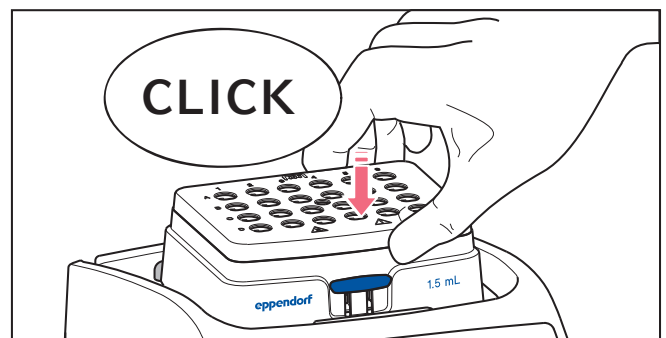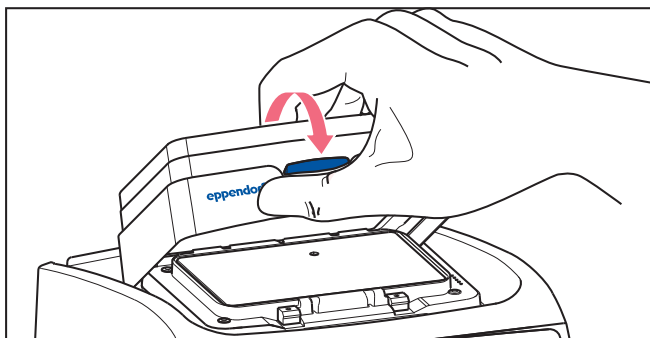
1. First only attach the rear edge of the thermoblock. The writing must face to the front.
2. Push the front edge of the thermoblock down.
   • The thermoblock audibly engages.
   • The display shows the name of the thermoblock.

4.1.2 Removing the thermoblock

> ⚠ **WARNING! Risk of burns from hot surfaces.**
> The thermoblock and the heating/cooling plate can be very hot after heating and cause burns.
>
> ▸ Allow the thermoblock and heating/cooling plate to cool down completely before removing the thermoblock.
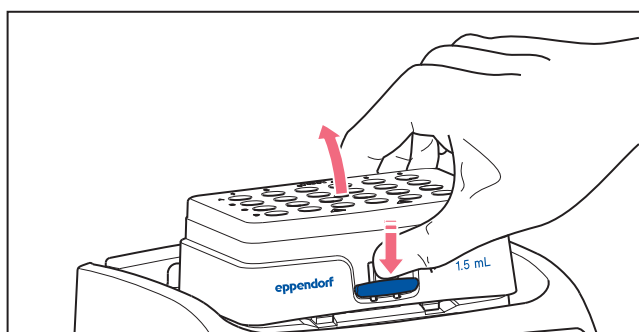
1. To unlock the thermoblock, press the lever at the front of the thermoblock down.
2. Lift the front edge so that the thermoblock is tilted backwards.
3. Remove the thermoblock upwards.

4.2 Inserting tubes and plates

> ⚠ **WARNING! Risk of injury due to incorrect consumables.**
> • Poorly fitting tubes or plates can become detached from the thermoblock.
> • Glass tubes can smash.
>
> ▸ Only use the thermoblocks with the consumables designed for them.
> ▸ Never use tubes made of glass or other fragile material.

> ❄ **NOTICE! Damage to plates due to too high temperatures.**
> Polystyrene microplates melt at temperatures above 70 °C.
> Polypropylene deepwell plates deform at temperatures above 80 °C. Deformed plates can become detached from the thermoblock.
>
> ▸ Only heat microplates up to 70 °C.

> ❄ **NOTICE! Material change of consumables due to extreme temperatures.**
> Extreme temperatures (e.g., during refrigeration or autoclaving) affect consumables material. The mechanical strength, dimensions and shape of the consumable will change.
>
> ▸ Use consumables that are suitable for the selected temperature range or selected procedure.

ℹ️   ▸ When inserting microplates, make sure that the height sensor is not covered.
    ▸ Take care that the height sensor does not get contaminated.

▸ Place the suitable thermoblock on the device (see *Attaching the thermoblock on p. 5)*.
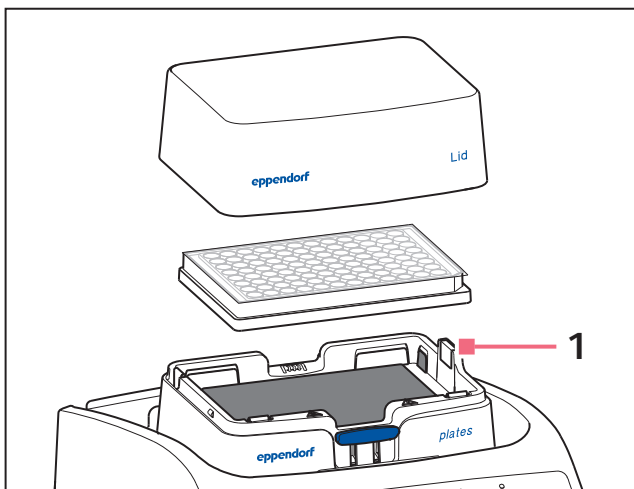
Inserting the plate
▸ Insert the plate with the back edge first. Then press it down at the front.

Inserting tubes
▸ Insert the tubes completely into the bores of the thermoblock.

SmartBlock *plates*, SmartBlock *PCR 96* or SmartBlock *PCR 384*:

1 Height sensor

▸ To ensure uniform temperature control, place the lid on the thermoblock.

5 Maintenance
5.1 Cleaning

NOTICE! Damage from the use of aggressive chemicals.
▸ Do not use any aggressive chemicals on the device or its accessories, such as strong and weak bases, strong acids, acetone, formaldehyde, halogenated hydrocarbons or phenol.
▸ If the device has been contaminated by aggressive chemicals, immediately clean it by means of a mild cleaning agent.

NOTICE! Corrosion due to aggressive cleaning agents and disinfectants.
▸ Do not use corrosive cleaning agents, aggressive solvents or abrasive polishes.

Auxiliary equipment
- Lint-free cloth
- Mild, soap-based lab cleaner
- Dist. water

Clean the thermoblock immediately if sample fluid enters the bore holes or comes into contact with the surfaces.

1. Clean with a mild soap solution.
2. Wipe off the soap solution with dist. water.
3. Dry the cleaned thermoblock.

5.2 Disinfection/decontamination

WARNING! Risk to health from contaminated accessories.
1. Follow the instructions in the decontamination certificate. You can find it as a PDF file on our website (www.eppendorf.com/decontamination).
2. Decontaminate all the parts you want to dispatch.
3. Include the fully completed decontamination certificate for returned goods in the packing.

▸ Select a disinfection method complying with the statutory rules and regulations for your area of application. Use e.g. alcohol (ethanol, isopropanol) or alcohol-containing disinfectants.

6 Transport, storage and disposal

6.1 Disposal

In case the product is to be disposed of, the relevant legal regulations are to be observed.

Information on the disposal of electrical and electronic devices in the European Community:

Within the European Community, the disposal of electrical devices is regulated by national regulations based on EU Directive 2012/19/EU pertaining to waste electrical and electronic equipment (WEEE).

According to these regulations, any devices supplied after August 13, 2005, in the business-to-business sphere, to which this product is assigned, may no longer be disposed of in municipal or domestic waste. To document this, they have been marked with the following identification:

Because disposal regulations may differ from one country to another within the EU, please contact your supplier if necessary.

7 Ordering information

7.1 Device and accessories

Order no. (International)	Order no. (North America)	Description
5382 000.015 –	– 5382000023	**Eppendorf ThermoMixer C** basic device without thermoblock 220 V – 240 V 100 V – 130 V
5383 000.019 –	– 5383000027	**Eppendorf ThermoStat C** basic device without thermoblock 220 V – 240 V 100 V – 130 V
5308 000.003	5308000003	**Eppendorf ThermoTop** with condens.protect technology

Order no. (International)	Order no. (North America)	Description
5363 000.233	5363000233	**Lid** for SmartBlocks 0.5 mL, 1.5 mL, 2.0 mL, plates, PCR 96, PCR 384
5361 000.031	5361000031	**SmartBlock 0.5 mL** Thermoblock for 24 tubes 0.5 mL
5360 000.038	5360000038	**SmartBlock 1.5 mL** Thermoblock for 24 tubes 1.5 mL
5362 000.035	5362000035	**SmartBlock 2.0 mL** Thermoblock for 24 tubes 2.0 mL
5309 000.007	5309000007	**SmartBlock 5.0 mL** Thermoblock for 8 tubes 5.0 mL
5366 000.021	5366000021	**SmartBlock 15 mL** Thermoblock for 8 conical tubes 15 mL
5365 000.028	5365000028	**SmartBlock 50 mL** Thermoblock for 4 conical tubes 50 mL
5364 000.024	5364000024	**SmartBlock 12 mm** Thermoblock for 24 tubes diameter 11 mm – 11.9 mm, height 34 mm – 76 mm
5367 000.025	5367000025	**SmartBlock cryo** Thermoblock for 24 Cryo tubes 1.5 mL – 2 mL, diameter max. 12,5 mm, all base shapes
5363 000.039	5363000039	**SmartBlock plates** Thermoblock for microplates and deepwell plates incl. Lid
5306 000.006	5306000006	**SmartBlock PCR 96** Thermoblock for PCR plates 96 incl. Lid
5307 000.000	5307000000	**SmartBlock PCR 384** Thermoblock for PCR plates 384 incl. Lid

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