



# Eppendorf SmartBlock™

**Instructions for use**

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## 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 can be found on the Internet at [www.eppendorf.com/manuals](http://www.eppendorf.com/manuals).

## 2 Safety

### 2.1 Intended use



Eppendorf SmartBlocks are thermoblocks for the devices Eppendorf ThermoMixer C and Eppendorf ThermoStat C and 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 laboratories 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.

### 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 allow efficient temperature control and mixing of samples in lab vessels in the microliter and milliliter ranges.

Thermoblock	Vessels/Plates	Maximum mixing frequency	Maximum temperature
SmartBlock <i>0.5 mL</i>	Tube volume 0.5 mL	2 000 rpm	100 °C
SmartBlock <i>1.5 mL</i>	Tube volume 1.5 mL	2 000 rpm	100 °C
SmartBlock <i>2.0 mL</i>	Tube volume 2.0 mL	2 000 rpm	100 °C
SmartBlock <i>5.0 mL</i>	Tube volume 5.0 mL	1 000 rpm	100 °C
SmartBlock <i>12 mm</i>	Tubes with a diameter of 11 mm to 11.9 mm	2 000 rpm	110 °C*
SmartBlock <i>cryo</i>	Cryotubes	2 000 rpm	110 °C*
SmartBlock <i>15 mL</i>	Conical tubes volume 15 mL	1 000 rpm	100 °C
SmartBlock <i>50 mL</i>	Conical tubes volume 50 mL	1 000 rpm	100 °C
SmartBlock <i>plates**</i>	Microplates	3 000 rpm	100 °C
	Deepwell plates	2 000 rpm 1 000 rpm	< 80 °C > 80 °C
SmartBlock <i>PCR 96</i>	96-well PCR plates, PCR tubes 0.2 mL	2 000 rpm	100 °C
SmartBlock <i>PCR 384</i>	384-well PCR plates	3 000 rpm	100 °C
SmartBlock <i>DWP 500***</i>	Eppendorf Deepwell Plates 96/500 µL	1 600 rpm	100 °C
SmartBlock <i>DWP 1000***</i>	Eppendorf Deepwell Plates 96/1000 µL	1 600 rpm	100 °C

\* Only in combination with Eppendorf ThermoStat C.

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

\*\*\* SmartBlock *DWP 500* and SmartBlock *DWP 1000* can only be used with Eppendorf Deepwell Plates (optimal fit and temperature transfer).

## 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.
- ▶ Check the condition of the thermoblocks regularly.



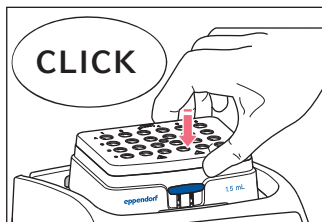
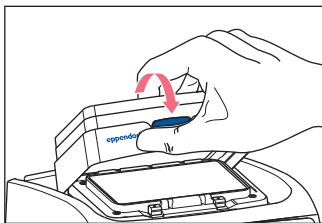
**NOTICE! Damage to electronic components due to condensation.**

Condensate may form in the device when it has been transported from a cool environment to a warmer environment.

- ▶ After installing the device, wait for at least 3 h. Only then connect the device to the mains/power line.

The device automatically detects the mounted thermoblock and adjusts the parameter setting range to the mounted 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.

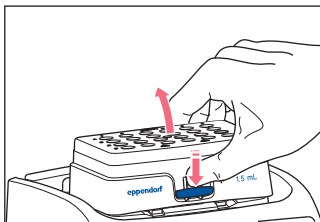
### 4.1.2 Removing the thermoblock



**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 the 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 intended for this purpose.
  - ▶ Never use tubes made of glass or other fragile material.

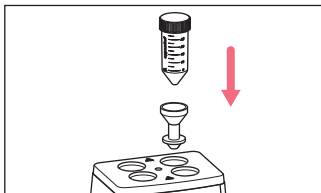


**WARNING! Risk of burns from hot adapter**

- ▶ Do not touch the hot adapter when you remove it from the thermoblock.
- ▶ Place the hot adapter with the extraction tool on a heat-resistant surface.
- ▶ Allow the hot adapter to cool down completely.

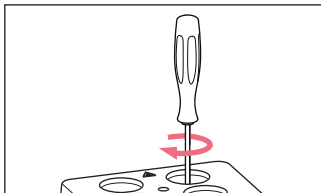
#### 4.2.1 Inserting adapters for Conical Tubes 25 mL

The Conical Tube 25 mL is always used together with an adapter.

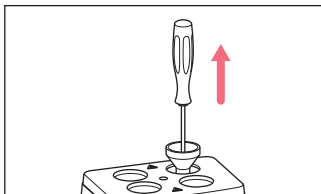


1. Insert the adapter into the bores of the thermoblock and press it down to the base.

#### 4.2.2 Removing adapters for Conical Tubes 25 mL



1. Screw the extraction tool into the adapter's threaded hole.



2. Use the extraction tool to remove the adapter completely from the bore of the thermoblock.

#### 4.2.3 Inserting tubes

- ▶ Only use closed tubes.
- ▶ Insert the tubes completely into the bores of the thermoblock.

#### 4.2.4 Inserting the plate

- i** The height sensor of the SmartBlock *plates* automatically differentiates between deepwell plates and microplates.
  - ▶ When inserting microplates, make sure that the height sensor is not covered.
  - ▶ Take care that the height sensor does not get contaminated.

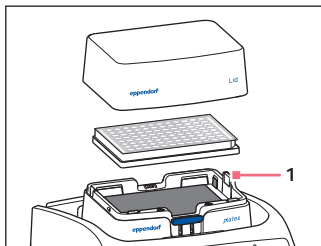


Fig. 4-1: 1 – SmartBlock *plates* height sensor

- ▶ Only use closed plates.
- ▶ Insert the plate with the back edge first. Then press it down at the front.
- ▶ To ensure uniform temperature control in all wells, place the lid on the thermoblock.

### 4.3 Removing deepwell plates (only SmartBlock DWP 500 and SmartBlock DWP 1000)

- i** In some cases, deepwell plates may be more difficult to remove from the thermoblock after heating to  $\geq 80$  °C and then cooling to  $\leq 10$  °C. This is caused by the material properties of the deepwell plates.
  - ▶ Remove the deepwell plate with both hands.

## 5 Maintenance

### 5.1 Cleaning



#### **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 the heating/cooling plate to cool down completely before removing the thermoblock.



**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, clean it immediately using a mild cleaning agent.

**NOTICE! Corrosion due to aggressive cleaning agents and disinfectants.**

- ▶ Do not use any corrosive cleaning agents, aggressive solvents or abrasive polishes.

**Auxiliary equipment**

- Lint-free cloth
- Soft bottle brush or cotton swabs
- Mild soap-based laboratory cleaner
- Dist. water

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

1. Clean the thermoblock with a mild soap solution. Clean the bores with a soft bottle brush or cotton swabs.
2. Rinse off the soap solution with dist. water.
3. Let the cleaned thermoblock dry with the bores pointing downwards. Do not dry thermoblocks in a drying cabinet.

**5.2 Disinfection/decontamination****WARNING! Risk to health due to contaminated accessories.**

1. Observe the information in the decontamination certificate. It is available as a PDF document on our webpage ([www.eppendorf.com/decontamination](http://www.eppendorf.com/decontamination)).
2. Decontaminate all the parts you want to send.
3. Include the fully completed decontamination declaration for product returns in the shipment.

- ▶ 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**

If the product needs to be disposed of, the relevant legal regulations must 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 marking:



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



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