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Eppendorf ThermoMixer® C

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 website under www.eppendorf.com/manuals.

1.2 Danger symbols and danger levels

1.2.1 Danger symbols

The safety instructions in this manual appear with the following danger symbols and danger levels:

	Biohazard		Explosive substances
	Electric shock		Hot surface
	Hazard point		Highly flammable substances
	Risk of crushing		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. 2.	Actions in the specified order
▶	Actions without a specified order
•	List
<i>Text</i>	Display text or software text
	Additional information

1.4 Abbreviations used

PCR

Polymerase chain reaction

rpm

Revolutions per minute – Revolutions per minute

1.5 Glossary

Deepwell plate Plate with 48, 96 or 384 wells with a larger volume than microplates. Suitable for the preparation, mixing, centrifuging, transporting and storing of solid and liquid samples.



Lid Lid for the thermoblock. Ensures uniform temperature control and protects samples from unwanted exposure to light.

Microplate Plate with 24, 48, 96 or 384 wells for the preparation, mixing, centrifuging, transporting and storing of solid and liquid samples.



PCR plate Plate with 96 or 384 wells for PCR applications.

ThermoTop Heated cover for the thermoblock. Prevents the formation of condensation on the inner wall or the lid of the tube thanks to the *condens.protect* technology.

Well Concave vessel of a microplate, PCR plate or deepwell plate.

2 Safety

2.1 Intended use

The Eppendorf ThermoMixer C is designed for the temperature control and mixing of liquids in closed tubes and closed plates for the preparation and processing of samples.

The Eppendorf ThermoMixer C is exclusively intended 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 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 User profile

The device and accessories may only be operated by trained and skilled personnel.

Before using the device, read the operating manual carefully and familiarize yourself with the device's mode of operation.

2.3 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.

2.4 Warnings for intended use

Read the operating instructions and observe the following general safety information before using the Eppendorf ThermoMixer C.



DANGER! Risk of explosion.

- ▶ Do not operate the device in areas where work is completed with explosive substances.
- ▶ Do not use this device to process any explosive or highly reactive substances.
- ▶ Do not use this device to process any substances which could create an explosive atmosphere.



DANGER! Electric shock as a result of penetration of liquid.

- ▶ Switch off the device and disconnect the mains/power plug before starting cleaning or disinfection work.
- ▶ Do not allow any liquids to penetrate the inside of the housing.
- ▶ Use closed tubes and closed plates.
- ▶ Do not spray clean/spray disinfect the housing.
- ▶ Only plug the device back in if it is completely dry, both inside and outside.



WARNING! Electric shock due to damage to device or mains cable.

- ▶ Only switch on the device if the device and mains cable are undamaged.
- ▶ Only use devices that have been properly installed or repaired.
- ▶ In case of danger, disconnect the device from the mains supply. Disconnect the mains/power plug from the device or the earth/grounded socket. Use the designated isolating device (e.g., emergency switch in the lab).



WARNING! Lethal voltages inside the device.

Touching parts which are under high voltage may cause an electric shock. An electric shock injures the heart and causes respiratory paralysis.

- ▶ Ensure that the housing is closed and undamaged.
 - ▶ Do not remove the housing.
 - ▶ Ensure that no liquid can penetrate into the device.
- Only authorized service staff may open the device.



WARNING! Risk from incorrect supply voltage

- ▶ Only connect the device to voltage sources which correspond to the electrical requirements on the name plate.
- ▶ Only use sockets with a protective earth (PE) conductor and suitable mains/power cord.



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.



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! Damage 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 your personal protective equipment.
- ▶ For comprehensive regulations about handling germs or biological material of risk group II or higher, please refer to the "Laboratory Biosafety Manual" (source: World Health Organization, Laboratory Biosafety Manual, in its respectively current valid version).



WARNING! Risk of fire.

- ▶ Do not use this device to process any highly flammable liquids.



WARNING! Damage to health due to contaminated device and accessories.

- ▶ Decontaminate the device and the accessories before storage and dispatch.

**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.

**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 lid
- damaged sealing lip
- improperly fastened foil
 - ▶ Always check that consumables have been sealed tightly before use.

**WARNING! Injury from sample material being thrown out.**

Sample material can be thrown out of open, improperly sealed or unstable tubes and plates.

- ▶ Only mix in closed tubes and closed plates.
- ▶ Observe the nationally prescribed safety environment when working with hazardous, toxic and pathogenic samples. Pay particular attention to personal protective equipment (gloves, clothing, goggles etc.), extraction, and the safety class of the lab.

**CAUTION! Poor safety due to incorrect accessories and spare parts.**

The use of accessories and spare parts other than those recommended by Eppendorf may impair the safety, functioning and precision of the device. Eppendorf cannot be held liable or accept any liability for damage resulting from the use of incorrect or non-recommended accessories and spare parts, or from the improper use of such equipment.

- ▶ Only use accessories and original spare parts recommended by Eppendorf.



CAUTION! Crush hazard due to moving parts.

- ▶ Do not replace any consumables during the mixing process.
- ▶ Do not remove the Transfer Rack during the mixing process.
- ▶ Do not remove the thermoblock during the mixing process.
- ▶ Attach the ThermoTop or Lid before the mixing process.
- ▶ Do not remove the ThermoTop or Lid during the mixing process.



NOTICE! Caution! Strong vibration.

When mixing at high speeds, items located near the device may be moved by the vibrations of the work surface and, e.g., fall off the work table.

- ▶ Do not place easily movable items near the device or secure them adequately.



NOTICE! Damage to the display due to mechanical pressure.

- ▶ Do not apply mechanical pressure to the display.



NOTICE! Damage from overheating.

- ▶ Do not place the device near heat sources (e.g., heating, drying cabinet).
- ▶ Do not expose the device to direct sunlight.
- ▶ Ensure unobstructed air circulation. Maintain a clearance of at least 10 cm (3.9 in) around all ventilation slits.



NOTICE! Damage to electronic components due to condensation.

Condensate can form in the device after it has been moved 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.



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 becomes contaminated with aggressive chemicals, clean it immediately using a mild cleaning agent.

2.5 Danger symbols on the device

Depiction	Meaning	Location
	Risk of burns from hot surfaces.	• Upper side of the device • On the thermoblock
	Hazard point ► Observe the operating manual.	Rear of the device

3 Product description

3.1 Product overview

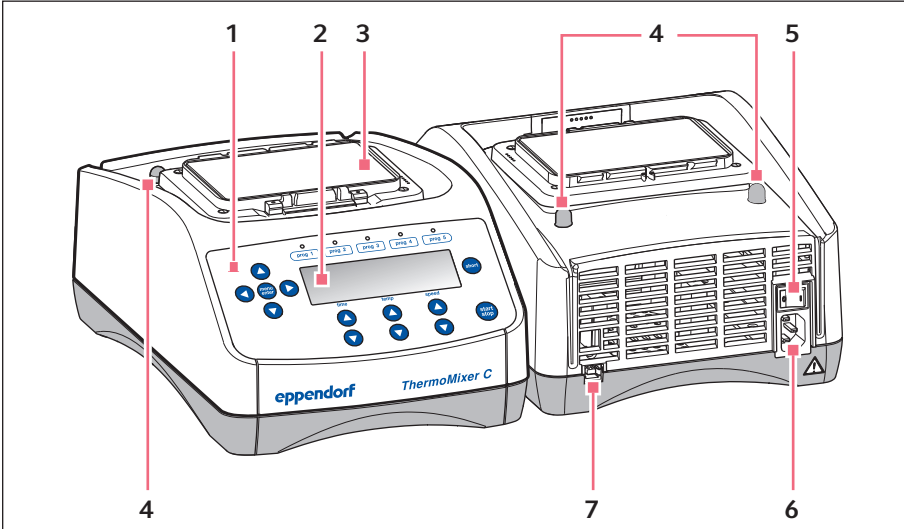


Fig. 3-1: Eppendorf ThermoMixer C

- | | |
|-------------------------|--|
| 1 Operating controls | 5 Power switch |
| 2 Display | 6 Power connection socket |
| 3 Heating/cooling plate | 7 USB interface (for Eppendorf Service only) |
| 4 Centering pins | |

3.2 Delivery package

Quantity	Order no. (International)	Order no. (North America)	Description
1	5382 000.015	5382000023	Eppendorf ThermoMixer C basic device without thermoblock
1	—	—	Mains/power cord
1	5382 900.016		Operating Manual Eppendorf ThermoMixer C
1	5382 900.024		Short Instructions Eppendorf ThermoMixer C



- ▶ Check the delivery for completeness.
- ▶ Check all parts for damage in transit.
- ▶ To safely transport and store the device, keep the transport box and packing material.

3.3 Features

You can use the Eppendorf ThermoMixer C for performing two basic applications of the sample preparation in one convenient workstep: the simultaneous mixing and tempering of the sample material.

The thermoblocks can be exchanged quickly and easily, without the use of tools. The thermoblocks allow the use of lab tubes in the microliter and milliliter ranges:

- Tubes (e.g., Eppendorf Safe-Lock Tubes with volumes of 0.2 mL to 5.0 mL)
- Conical tubes with volumes of 15 mL and 50 mL
- Microplates and deepwell plates with any kind of bottom shape
- PCR plates (e.g., Eppendorf twin.tec PCR Plate 96, Eppendorf twin.tec PCR Plate 384)
- Tubes with a diameter of 11 mm to 11.9 mm
- Cryotubes

Temperature control

- Peltier cooling allows samples to be cooled to 15 °C below ambient temperature.
- The temperature range can be set from 1 °C to 100 °C.

Mix

- Depending on the utilized thermoblock, you can select mixing frequencies between 300 rpm and 3 000 rpm.
- Anti-spill technology prevents lid wetting and cross contamination.
- The controlled and efficient mixing movement of the ^{2D}Mix-Control technology provides for a fast and complete mixing even of minimum volumes.
- Short Mix: Short, uncomplicated mixing of sample material. The mixing process is performed at the selected speed as long as you press the **short** key.

- Interval Mix: Continuous switching between mixing phases and pauses. The mixing frequency and the duration are freely selectable.
- **Interrupt time counting:** If you want to add reagents or exchange tubes while mixing, you can interrupt time counting and the mixing process.

Multi-level mixing/temperature control

- In addition to a normal mixing/temperature control run, you can freely define programs with up to four successive levels ("steps"). The program levels automatically run one after the other.
- A total of 20 program slots is available.
- Program keys: The 5 most common mixing and temperature control parameters are already stored as programs and can be selected directly with the program keys. The programs can be overwritten.

Lid and ThermoTop

- The Lid ensures uniform temperature control and protects samples from unwanted exposure to light.
- The ThermoTop prevents the formation of condensation on the inner wall or the lid of the tube thanks to the ***condens.protect*** technology.

4 Installation

4.1 Selecting the location

Select the device location according to the following criteria:

- Mains/power connection in accordance with the name plate
- Minimum distance to other devices and walls: 10 cm (3.9 in)
- Resonance free table with horizontal even work surface
- The design of table is suitable for operating the device.
- The design of table is suitable for operating the device.
- Surrounding area must be well ventilated.
- The location must be protected against direct sunlight.



The mains/power switch and cutting unit of the mains/power line must be easily accessible during operation (e.g. residual current circuit breaker).

4.2 Installing the instrument



WARNING! Risk from incorrect supply voltage

- ▶ Only connect the device to voltage sources which correspond to the electrical requirements on the name plate.
 - ▶ Only use sockets with a protective earth (PE) conductor and suitable mains/power cord.
-

1. Place the Eppendorf ThermoMixer C on a suitable work surface.
Position the device in such a way that the ventilation slots of the device are not obstructed.
2. Connect the power cable to the power connection socket of the device and the power supply.

5 Operation

5.1 Operating controls

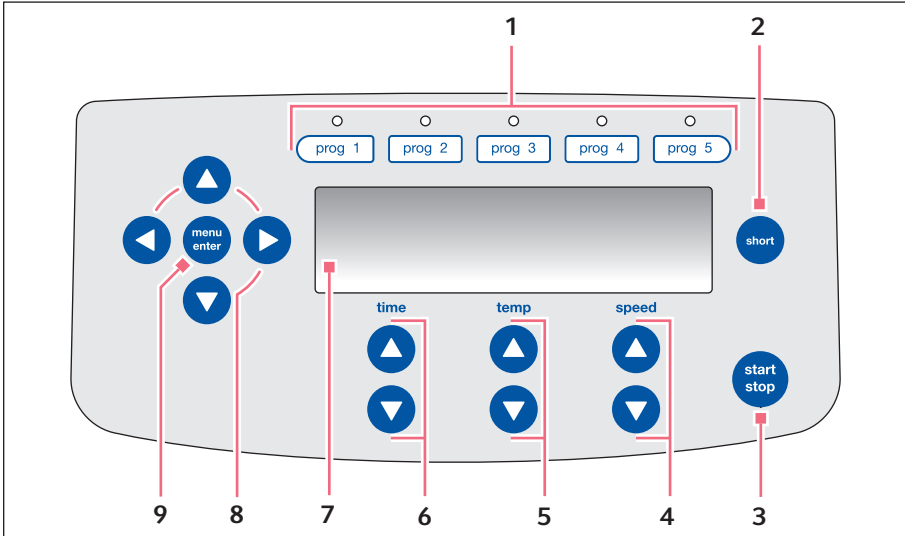


Fig. 5-1: Operating controls Eppendorf ThermoMixer C

- | | |
|--|---|
| <p>1 Program keys with control LEDs
Press the program key: Load program
Keep the program key pressed for 2 s:
Save current parameters</p> <p>2 short key
Short Mix runs while the short key is being pressed (see p. 31).</p> <p>3 start/stop key
Press the start/stop key: Start or stop mixing/temperature control
Press and hold the start/stop key for 2 s:
Pause (interrupt mixing process and time counting)</p> <p>4 Arrow keys speed
Setting the mixing frequency
Keep the arrow key pressed: Quick setting</p> | <p>5 Arrow keys temp
Set temperature
Keep the arrow key pressed: Quick setting
As soon as the target temperature is modified, the device begins to perform temperature control.</p> <p>6 Arrow keys time
Setting the mixing time
Keep the arrow key pressed: Quick setting</p> <p>7 Display</p> <p>8 Menu arrow keys
Navigating the menu: Load or edit programs, set key lock, set the time mode, edit the settings.</p> <p>9 menu/enter key
Open the menu.
Confirm your selection</p> |
|--|---|

Operation

Eppendorf ThermoMixer® C

English (EN)

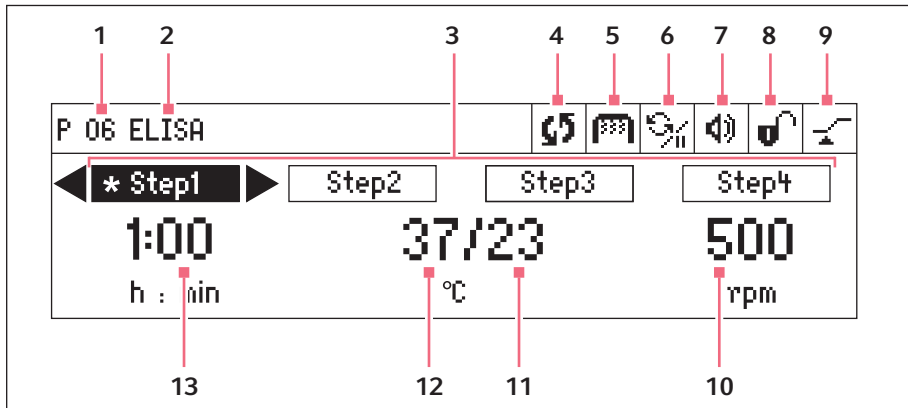


Fig. 5-2: Display Eppendorf ThermoMixer C

- | | |
|--|--|
| <p>1 Program number</p> <p>2 Program name</p> <p>3 Program levels (step 1 to step 4)
*: current step</p> <p>4 Device status
 Device is performing mixing/temperature control.
 Mixing process interrupted, temperature control to be continued.</p> <p>5 ThermoTop
 ThermoTop has been attached. To prevent the formation of condensate, the device heats up the ThermoTop, before the temperature of the thermoblock is controlled.</p> <p>6 Interval Mix
 Interval Mix has been activated for the current step.</p> <p>7 Speaker
 Speaker switched on.
 Speaker switched off.</p> | <p>8 Key lock
 Key lock activated: parameters cannot be changed.
 No key lock.</p> <p>9 Time mode
 <i>Time Control</i> Time counting begins immediately.
 <i>Temp Control</i> Time counting begins when the set temperature has been reached.</p> <p>10 Mixing frequency</p> <p>11 Actual temperature
When the actual temperature flashes on the display, the device is not in temperature control mode operation.</p> <p>12 Set temperature
When the set temperature has been reached, only one value is displayed.</p> <p>13 Mixing time</p> |
|--|--|

5.2 Setting the language

The device is delivered with *English* as the default language. To set another language, proceed as follows:

1.		Switch on the device with the power switch at the rear of the device.
2.		To open the menu, press the menu/enter key.
3.		Select the <i>Settings</i> menu item with the menu arrow keys.
4.		To confirm your selection, press the menu/enter key.
5.		Select the <i>Language</i> menu item with the menu arrow keys. Confirm with the menu/enter key.
6.	  	Select the language with the menu arrow keys and press the menu/enter key. A tick appears in front of the selected language.
7.		To exit the menu, press the left menu arrow key several times.

5.3 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 lid
 - 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 mixing frequency is automatically limited to the maximum value for the thermoblock being used.

Only the following thermoblocks can be used with the Eppendorf ThermoMixer C. Exchangeable thermoblocks for the Eppendorf Thermomixer comfort/Eppendorf Thermomixer R are not compatible.

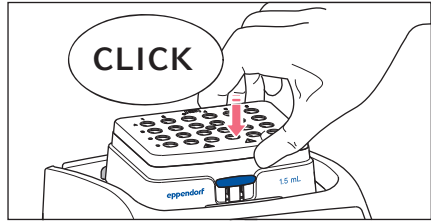
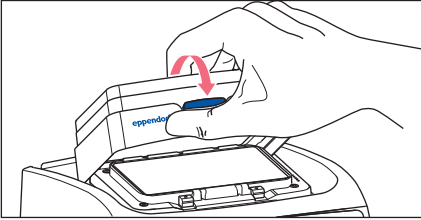
Thermoblock	Tubes/plates	Maximum mixing frequency	Accessories
SmartBlock 0.5 mL	Tube volume 0.5 mL	2 000 rpm	ThermoTop or Lid**
SmartBlock 1.5 mL	Tube volume 1.5 mL	2 000 rpm	ThermoTop or Lid**
SmartBlock 2.0 mL	Tube volume 2.0 mL	2 000 rpm	ThermoTop or Lid**
SmartBlock 5.0 mL	Tube volume 5.0 mL	1 000 rpm	–
SmartBlock 12 mm	Tubes with a diameter of 11 mm to 11.9 mm	2 000 rpm	–
SmartBlock cryo	Cryotubes	2 000 rpm	–
SmartBlock 15 mL	Conical tubes volume 15 mL	1 000 rpm	–
SmartBlock 50 mL	Conical tubes volume 50 mL	1 000 rpm	–

Thermoblock	Tubes/plates	Maximum mixing frequency	Accessories
SmartBlock <i>plates</i>	Microplates with various bottom contours	3 000 rpm*	ThermoTop or Lid**
	Deepwell plates with various bottom contours up to 80 °C	2 000 rpm	
	Deepwell plates with various bottom contours from 80 °C	1 000 rpm	
SmartBlock <i>PCR 96</i>	96-well PCR plates 0.2 mL PCR tubes	2 000 rpm	ThermoTop or Lid**
SmartBlock <i>PCR 384</i>	384-well PCR plates	3 000 rpm	ThermoTop or Lid**
SmartBlock <i>DWP 500***</i>	Eppendorf Deepwell Plates 96/500 µL	1 600 rpm	ThermoTop or Lid**
SmartBlock <i>DWP 1000***</i>	Eppendorf Deepwell Plates 96/1000 µL	1 600 rpm	ThermoTop or Lid**

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

** If you are using the Lid, select a mixing frequency of max. 2 000 rpm.

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

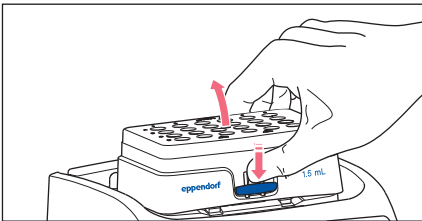
5.3.1 Attaching the thermoblock

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.

5.3.2 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.

5.4 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.
 - ▶ If you are heating deepwell plates above 80 °C, do not exceed the mixing frequency of 1000 rpm.
-



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.
-

5.4.1 Inserting tubes

- ▶ Insert the tubes completely into the bores of the thermoblock.

5.4.2 Inserting the plate



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.

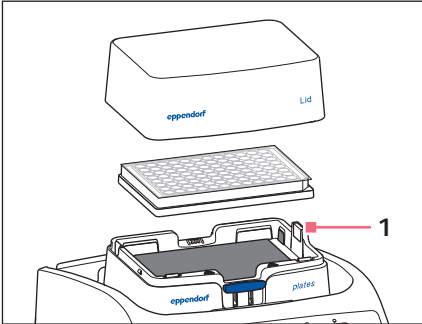


Fig. 5-3: 1 – Height sensor SmartBlock *plates*

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

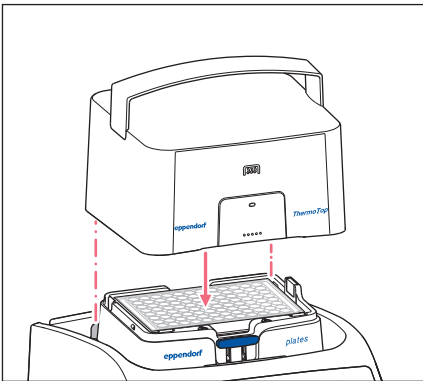
5.5 Installing the ThermoTop

The ThermoTop is compatible with thermoblocks which feature the **condens.protect** symbol: 

The **condens.protect** technology available with ThermoTop prevents the formation of condensation on the inner wall or the lid of the tube.

Prerequisites

- A compatible thermoblock has been attached.
- Tubes or plates have been inserted.



- ▶ Place the ThermoTop on the device vertically from above. The centering pins behind the heating/cooling plate fit into the recesses of the ThermoTop.
- The ThermoTop is correctly positioned if the seal is fully flush with the upper part of the device.
- The blue LED of the ThermoTop lights.
- The  symbol appears in the display.



Functioning principle of the ThermoTop

- In order to prevent the formation of any condensate in a reliable manner, the device first heats the ThermoTop until it reaches the set temperature. The tempering of the thermoblock occurs with a delay.
- The temperature sensor of the thermoblock reacts to the temperature of samples: after inserting samples into a pre-heated thermoblock, the displayed actual temperature may fall temporarily.
- While the device is tempering, the blue LED of the ThermoTop is flashing.

5.6 Temperature control



NOTICE! Damage to electronic components due to condensation.

Condensate can form in the device after it has been moved 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 Eppendorf ThermoMixer C can be used for temperature control in a range of 15 °C below the ambient temperature to 100 °C.



- When the actual temperature flashes on the display, the device is not in temperature control mode operation.
- As soon as the set temperature is changed with the **temp** arrow keys, the device begins to perform temperature control.
- When the set temperature has been reached, the display only shows one value.

5.6.1 Temperature control with time setting

Prerequisites

The time mode is set to *Time Control* (see p. 31)

1. To switch off the mixing function, use the **speed** arrow keys to select the 0 rpm setting (▼ below 300 rpm or ▲ above 3 000 rpm).

10:00	0/37	0				
min : s	°C	rpm				

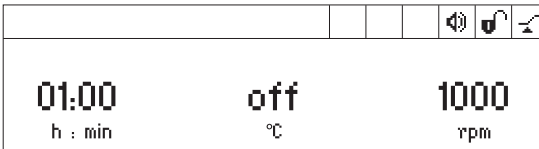
2. Using the **time** arrow keys set the temperature control duration.
3. Using the **temp** arrow keys set the temperature.
4. To start time counting, press the **start/stop** key.
 - The symbol flashes on the display.
 - The temperature control duration is counted down.
 - The display shows the remaining temperature control duration and the actual temperature/set temperature.
 - A signal sounds after the temperature control duration has elapsed.

5.7 Mixing

-  You can select the mixing frequency between 300 rpm and 3 000 rpm. The mixing frequency can be adjusted in steps of 50 rpm.

5.7.1 Mixing without temperature control

1. In order to switch off the temperature control, use the **temp** arrow keys for selecting the *off* setting (▼ below 1 °C or ▲ above 100 °C).



2. Set the mixing time with the **time** arrow keys.
3. Set the mixing frequency with the **speed** arrow keys.
4. In order to start the mixing process, press the **start/stop** key.
 - The  symbol flashes on the display.
 - The mixing time is counted down.
 - The display shows the remaining mixing time, the actual temperature/set temperature and the mixing frequency.
5. After the set mixing time has elapsed, the device stops automatically.
 - A signal tone sounds.
 - The display shows the last used parameters.

5.7.2 Mixing and tempering

1. Set the mixing time with the **time** arrow keys.
2. Set the temperature with the **temp** arrow keys.
The device immediately starts to perform the temperature control.
3. Set the mixing frequency with the **speed** arrow keys.



4. In order to start the mixing process, press the **start/stop** key.
 - The  symbol flashes on the display.
 - The mixing time is counted down.
 - The display shows the remaining mixing time, the actual temperature/set temperature and the mixing frequency.

5. After the set mixing time has elapsed, the device stops automatically.
 - A signal tone sounds.
 - The display shows the last used parameters.
 - Temperature control is continued.

5.7.3 Mixing/temperature control with continuous run



Icing of the thermoblock

Ice may form on the thermoblock if samples are tempered at low temperatures for a long time.

1. In order to mix without any time limits, use the **time** arrow keys to select the ∞ setting (▼ below 15 s or ▲ above 99:30 h).
2. Set the temperature with the **temp** arrow keys.
The device immediately starts to perform the temperature control.
3. Set the mixing frequency with the **speed** arrow keys.

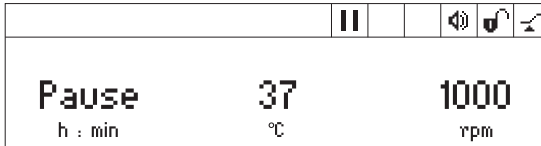


4. In order to start the mixing process, press the **start/stop** key.
 - The symbol flashes on the display.
 - The display alternately shows the mixing time and the ∞ symbol, the actual temperature/set temperature and the mixing frequency.
 - The mixing time is counted up.
 5. In order to end the mixing process, press the **start/stop** key.
 - A signal sounds.
 - The display shows the last used parameters.
 - Temperature control is continued.
- A mixing time of more than 99:30 h is possible. After 99:30 h has passed, the display only will show the ∞ symbol.

5.7.4 Interrupting the mixing process

If you want to add reagents or exchange tubes while mixing, you can interrupt the mixing process. The temperature control continues to run during the pause.

1. In order to interrupt the mixing process, keep the **start/stop** key pressed for 2 s.



- The display shows *Pause*.
- The mixing process is interrupted.
- Time counting is stopped.
- Temperature control is continued.

2. In order to continue the mixing process, press the **start/stop** key.

5.7.5 Short Mix

Use the Short Mix function for mixing for a short while without temperature control.

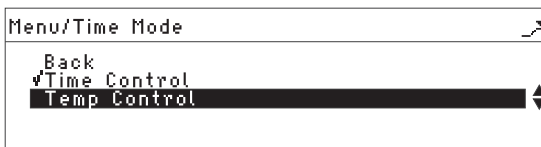
1. Set the mixing frequency with the **speed** arrow keys.
2. Keep the **short** key pressed.
The mixing process continues as long as the **short** key will be pressed.
3. In order to end Short Mix, release the **short** key.

5.7.6 Mixing/tempering with *Time Control* or *Temp Control*

You can specify when time counting should begin:

- Time counting and mixing process begin immediately: *Time Control*
- Time counting and mixing process begin when the set temperature has been reached: *Temp Control*

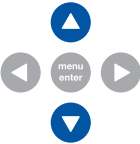
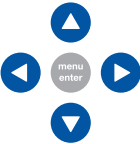
1. Under *Menu*, select the *Time Mode* menu item.



2. Use the menu arrow keys to select *Time Control* or *Temp Control*.
A tick indicates the selected setting.
3. To exit the menu, press the left ◀ menu arrow key twice.

5.8 **Menu**
5.8.1 **Navigating in the menu**

The menu has 3 levels. To change settings, proceed as follows:

1.		In order to open the menu, keep the menu/enter key pressed.
2.		Select the menu item with the menu arrow keys.
3.		To confirm your selection, press the menu/enter key.
4.		Change the settings with the menu arrow keys.
5.		To confirm the changed setting, press the menu/enter key. A tick appears in front of the setting.
6.		To exit the menu level, select <i>Back</i> in the menu and press the menu/enter key.

5.8.2 **Menu structure**

Menu items and options	Description	Symbol on the display
Programs • Loading a saved program • Creating a program • Editing a program	List with 20 program slots • Select a program key (prog 1 to prog 5) or • Select the program from the program list: <i>Menu > Programs > Load</i> • Start the program with the start/stop key • Save the set parameters (mixing time, temperature and mixing frequency) on a free program space. • You can save up to 4 sets of parameters as automatically consecutive program levels ("steps"). • Overwrite saved program or save it to a new program space.	

Menu items and options	Description	Symbol on the display
Deleting programs	- Delete the saved program. - Programs 1 to 5 cannot be deleted. You can edit and overwrite the programs.	
Key lock <i>Key lock on</i> <i>Key lock off</i>	- Parameters cannot be changed. - Parameters can be changed.	 
Time mode <i>Time Control</i> <i>Temp Control</i>	- Time counting and mixing process begin immediately. - Time counting and mixing process only begin when the set temperature has been reached.	 
Settings Signal tones - Volume - Repetitions Language Contrast Service	- The signal tone for error messages is always output at medium volume level regardless of the speaker settings. - Set the volume of the speaker: <i>20 %, 40 %, 60 %, 80 %, 100 %</i> - Switching the speaker off: <i>0 %</i> - Set repetitions of the signal tone. <i>1 x, 5 x, 10 x, 30 x, Unlimited</i> - Set the language: <i>English, German, French, Italian, Spanish</i> - Set the contrast: <i>0 %, 25 %, 50 %, 75 %, 100 %</i> - Set the service interval: <i>After 500 operating hours</i> <i>After 1000 operating hours</i> <i>After 2000 operating hours</i> <i>No notification</i>	 

Go to next higher menu level: *Back*

Exit menu item without saving: *Cancel*

Save set value: *Save*



The program keys and the menu items *Programs* and *Time Mode* are locked while time counting is active.

5.9 Programs

A program consists of up to four program levels ("steps"). The program levels automatically run one after the other. You can save separate settings for each program level:

- Mixing time/temperature control duration
- Mixing frequency
- Temperature
- Program levels with pause interval (Interval Mix) .
- Program levels with restricted ramp rates.

The program ends automatically.

 The Eppendorf ThermoMixer C has 20 program slots.
At the end of this operating manual there is a printed form of a program table.
The program data can be noted there.

5.9.1 Creating a program

1. In order to open the menu, keep the **menu/enter** key pressed.
2. Use the menu arrow keys to select the *Programs* menu item. Confirm with the **menu/enter** key.
3. Use the menu arrow keys to select an empty program space. Confirm with the **menu/enter** key.

P 06		
Cancel	 Save 	Options
01:00 h : min	37 °C	1000 rpm

5.9.1.1 Creating a single-level program

1. Set the mixing time, temperature, and mixing frequency with the **time**, **temp** and **speed** arrow keys.
2. Use the menu arrow keys to select *Save*. Confirm with the **menu/enter** key.

Entering the program name

P 06		
Cancel	 Save 	
	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 1 2 3 4 5 6 7 8 9 0 _ ←	

3. Select letters or numbers with the menu arrow keys and confirm with the **menu/enter** key.
The program name can have a maximum of 15 characters.
In order to delete individual characters, select ← and press the **menu/enter** key.

4. In order to save the program with the program name, use the menu arrow keys to select *Save*.
5. Select the program space with the menu arrow keys. Confirm with the **menu/enter** key.

5.9.1.2 Creating a multi-level program

1. Select an empty program space in the *Menu > Programs* menu item.

Defining step 1

2. Set the mixing time, temperature, and mixing frequency for the first program step with the **time**, **temp** and **speed** arrow keys.

Adding step 2

3. Select *Options*. Confirm with the **menu/enter** key.

P 06 /Options
Back
Add step
Delete step
Interval Mix
Ramp rates

4. Select *Add step*. Confirm with the **menu/enter** key.

P 06			
Cancel	Save	Options	
Step 1	01h:00 m	37 °C	1000 rpm
Step 2	10 m:00 s	56 °C	500 rpm

The set parameters have been adopted in step 1.

5. Set the parameters for the second program level.
 - In order to save the program with 2 program levels, select *Save*.
 - In order to program a third and a fourth program level, respectively select *Options > Add step*.



In order to delete a step from a program, select *Options > Delete step*.

5.9.2 Interval Mix: Creating a program level with pause interval

By using the Interval Mix function, you can determine the mixing process to be interrupted by one or several pauses **within one program level**. Interval Mix can only be specified in programs. For program levels with Interval Mix, the  symbol will appear in the display

1. Select an empty program space under *Menu > Programs*.
2. Set the mixing time, temperature, and mixing frequency with the **time**, **temp** and **speed** arrow keys.
Select the mixing time so that it covers the entire duration, including mixing processes and pauses.
3. Select *Options*. Confirm with the **menu/enter** key.
4. Select *Interval Mix*. Confirm with the **menu/enter** key.

P 06 /Options/Interval Mix		
Cancel	◀ Save ▶	
10 m:00 s	Mixing time	
01 m:00 s	Pause	 ◀

5. Set the mixing time (before the pause) in the *Mixing time* row using the **time** arrow keys.
6. Set the pause duration in the *Pause* row using the **time** arrow keys.
7. In order to save the program, select *Save*. Confirm with the **menu/enter** key.
The Interval Mix settings are now saved for the program level.



To program a change between several mixing processes and pauses within a program level, select a correspondingly longer mixing time for the program level:

Change between mixing process and pause:

- Mixing time set for program level: 6:00 min
- Interval Mix: *Mixing time*: 1:00 min, *Pause*: 0:30 min

In the program level the device performs the setting 1 min mixing and 0:30 min pause 4 times.

5.9.3 Restricting ramp rates

You can use the Eppendorf ThermoMixer C to choke the heating rate as well as the cooling rate. Restricted ramp rates can only be specified for programs.

Tab. 5-1: Heating rates and cooling rates

<i>Heating rate</i>	max. 3.0 °C/min	max. 2.0 °C/min	max. 1.0 °C/min	max. 0.1 °C/min
<i>Cooling rate</i>	max. 1.0 °C/min	max. 0.5 °C/min	max. 0.1 °C/min	

1. Select an empty program space under *Menu > Programs* .
2. Set the mixing time, temperature, and mixing frequency with the **time**, **temp** and **speed** arrow keys.
3. Select *Options*. Confirm with the **menu/enter** key.
4. Select *Ramp rates*. Confirm with the **menu/enter** key.

P 06 /Options/Ramp Rates	
Back	
Heating rate	◀ max 1.0 °C/min ▶
Cooling rate	maximal

5. Use the menu arrow keys to select and change *Heating rate* or *Cooling rate* .
6. In order to leave the *Ramp rates* menu, select the *Back* menu item. Confirm with the **menu/enter** key.

i When you start a program that runs with restricted heating or cooling rates, a message is displayed: *The program's ramp rates are restricted.*

5.9.4 Quick save with program keys

To quickly save a single-level program, you can use the program keys.

1. Set the mixing time, temperature, and mixing frequency with the **time**, **temp** and **speed** arrow keys.
2. Keep one of the program keys **prog 1** to **prog 5** pressed for 2 seconds.
 - A signal tone sounds.
 - The LED above the program key lights blue.
 - The parameters of the program are saved.

i

- If you want to assign a program name, save the program in the menu: *Menu > Programs*.
- If you want to save a program with multiple levels under the program numbers 1 to 5 , select the program space under *Menu > Programs*.

5.9.5 Loading a saved program

5.9.5.1 Loading program prog 1 to prog 5

On supply, the **prog 1** to **prog 5** program keys are assigned as follows:

	Program name	Temperature	Mixing time/ temperature control duration	Mixing frequency
prog 1 key	Cooling	8°C	∞	0 rpm
prog 2 key	Ligation	16°C	16:00 h	0 rpm
prog 3 key	Restr. Digest	37°C	1:00 h	1 000 rpm
prog 4 key	Prot. K Digest	56°C	10:00 min	1 000 rpm
prog 5 key	Denaturation	95°C	30:00 min	0 rpm

- In order to call up a program on the program spaces 1 to 5, press one of the program keys **prog 1** to **prog 5**.
 - The LED above the program key lights blue.
 - The display shows the parameters of the program.
- In order to start the program, press the **start/stop** key.

5.9.5.2 Loading a program from the program list

- In order to load a program from the program list, select the program under *Menu > Programs*. Confirm with the **menu/enter** key.
- Use the menu arrow keys to select the *Load* menu item. Confirm with the **menu/enter** key.
 - The display shows the parameters of the program.
 - Programs with several program levels:

The display shows the parameters of the first program level. To display the parameters of the other program levels, use the ◀ or ▶ menu arrow keys to select the corresponding step.
- In order to start the program, press the **start/stop** key.

P 06 RT					
*Step1	◀ Step2 ▶	Step3	Step4		
01:00	30/42	800			
h : min	°C	rpm			

The asterisk marks the active program level Step 1. The display shows the parameters of Step 2.

5.9.6 Editing programs

There are two ways to change a saved program:

- Changing the program via the *Edit* menu item in the program list
- Changing the program during operation

5.9.6.1 Changing the program via the *Edit* menu item in the program list

1. In order to change the parameters of a program, select the program under *Menu > Programs*. Confirm with the **menu/enter** key.
2. Use the menu arrow keys to select the *Edit* menu item. Confirm with the **menu/enter** key.
The display shows the saved parameters.

You can change all parameters and save them (see *Creating a program on p. 34*).

5.9.6.2 Changing the program during operation

1. Load the program with the program keys or from the program list.
2. Change the parameters.
For programs with program levels: Use the ◀ or ▶ menu arrow keys to select a step, change the parameters of the step.
3. Start the program.
After completion of the program, a message appears stating that the program has been changed. You can confirm or discard the changes.

5.9.7 Deleting programs

Programs 1 to 5 cannot be deleted. You can change and overwrite the program name and all parameters of these programs.

1. In order to delete a program from the program spaces 6 to 20, select the program under *Menu > Programs*. Confirm with the **menu/enter** key.
2. Use the menu arrow keys to select the *Delete* menu item. Confirm with the **menu/enter** key.
The display shows the message *Confirm delete*. In order to confirm, press the **menu/enter** key.

6 Troubleshooting

If you cannot remedy an error with the recommended measures, please contact your local Eppendorf partner. The contact addresses can be found on the Internet at www.eppendorf.com.

6.1 General errors

Problem	Cause	Solution
Display remains dark.	No mains/power connection.	▶ Check the mains connection and the power supply. ▶ Switch on the device.
Set temperature is not reached.	Set temperature is more than 15 °C below ambient temperature.	▶ Set up the device in a cooler environment.
ThermoTop LED does not light.	• No thermoblock has been attached • The thermoblock is not compatible with ThermoTop.	▶ Use a compatible thermoblock with a condens.protect symbol: 
	The interface between the device and the ThermoTop is dirty.	▶ Remove any dirt from the front of the ThermoTop. ▶ Remove any dirt from the top of the device, especially from the viewing window beside the heating/cooling plate.
ThermoTop does not fit on the device.	• The thermoblock is not compatible with ThermoTop. • The lid is attached to the thermoblock.	▶ Use a compatible thermoblock with a condens.protect symbol:  ▶ If using the ThermoTop, do not use the lid.
The device does not mix or control the temperature.	Various causes are possible.	▶ Contact your local Eppendorf partner.

6.2 Error messages

Problem	Cause	Solution
<i>Thermoblock not recognized</i>	• Thermoblock is not compatible with the device. • The thermoblock is not attached properly.	▶ Use a compatible thermoblock. ▶ Remove the thermoblock and then reattach it.
	The interface between the device and the thermoblock is dirty.	▶ Remove any dirt from the underside of the thermoblock. ▶ Remove any dirt from the top of the device, especially from the viewing window beside the heating/cooling plate.
Error message preceded by a number code.	Various causes are possible.	1. Switch off the device and wait 10 seconds. 2. Switch on the device. If the error message appears again, contact your local Eppendorf partner.

7 **Maintenance**

7.1 **Setting service intervals**

The Eppendorf ThermoMixer C offers the option of activating a reminder that the device needs to be serviced. To set a service interval, proceed as follows:

1. Under *Menu > Settings >* select the *Service* menu item. Confirm with the **menu/enter** key.
2. Select a service interval with the menu arrow keys (after 500, 1 000 or 2 000 operating hours).
To switch off the notification, select *No notification*.

When the specified operating hours have been reached, a message appears. Contact your local Eppendorf partner. The contact addresses can be found online at www.eppendorf.com/worldwide.

7.2 **Cleaning**



DANGER! Electric shock as a result of penetration of liquid.

- ▶ Switch off the device and disconnect the mains/power plug before starting cleaning or disinfection work.
- ▶ Do not allow any liquids to penetrate the inside of the housing.
- ▶ Use closed tubes and closed plates.
- ▶ Do not spray clean/spray disinfect the housing.
- ▶ Only plug the device back in if it is completely dry, both inside and outside.



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 becomes contaminated with aggressive chemicals, clean it immediately using a mild cleaning agent.



NOTICE! Corrosion from aggressive cleaning agents and disinfectants.

- ▶ Do not use corrosive cleaning agents, aggressive solvents or abrasive polishes.
- ▶ Do not use laboratory cleaner with sodium hypochlorite.

-
- ▶ Clean the housing of the Eppendorf ThermoMixer C and the thermoblocks regularly.

7.2.1 Cleaning the Eppendorf ThermoMixer C

Auxiliary equipment

- Lint-free cloth
 - Mild, soap-based lab cleaner
 - Dist. water
1. Switch off the Eppendorf ThermoMixer C and disconnect it from the power supply.
 2. Allow the device to cool down.
 3. Clean all external parts of the Eppendorf ThermoMixer C with a mild soap solution and a lint-free cloth.
 4. Wipe off the soap solution with dist. water.
 5. Dry all cleaned parts.

7.2.2 Cleaning 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.

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. Dry the cleaned thermoblock at ambient temperature.
Let the cleaned thermoblock dry with the bores pointing downwards. Do not dry thermoblocks in a drying cabinet.

7.3 Disinfection/Decontamination

**DANGER! Electric shock as a result of penetration of liquid.**

- ▶ Switch off the device and disconnect the mains/power plug before starting cleaning or disinfection work.
 - ▶ Do not allow any liquids to penetrate the inside of the housing.
 - ▶ Use closed tubes and closed plates.
 - ▶ Do not spray clean/spray disinfect the housing.
 - ▶ Only plug the device back in if it is completely dry, both inside and outside.
-

Auxiliary equipment

- Lint-free cloth
 - Disinfectant.
1. Switch the Eppendorf ThermoMixer C off and isolate from the power supply.
 2. Allow the device to cool down.
 3. Clean the device (see *Cleaning on p. 42*).
 4. Select a disinfection method which complies with the legal requirements and regulations applicable to your range of application.
 5. Wipe the surfaces with the lint-free cloth and disinfectant.

7.4 Decontamination before shipment

If you are shipping the device to the authorized Technical Service for repairs or to your authorized dealer for disposal please note the following:

**WARNING! Risk to health from contaminated device**

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 would like to dispatch.
 3. Include the fully completed decontamination certificate in the packing.
-

7.5 Verification of temperature control

To verify the temperature accuracy of the thermoblock, use the Eppendorf Temperature Verification System – Single Channel. In combination with the temperature sensor for the Eppendorf ThermoMixer C the exact temperature in the thermoblock can be measured.

Details on the verification process with the Eppendorf Temperature Verification System – Single Channel can be found in the corresponding operating manual.

8 Transport, storage and disposal

8.1 Transport



CAUTION! Risk of injury when lifting and carrying heavy loads

The device is heavy. Lifting and carrying the device can lead to back injuries.

- ▶ Only lift and transport the device with a sufficient number of helpers.
- ▶ Use a transport aid for transporting the device.

- ▶ Use the original packing for transport.

	Air temperature	Relative humidity	Atmospheric pressure
General transport	-25 °C – 60 °C	10 % – 75 %	30 kPa – 106 kPa
Air freight	-40 °C – 55 °C	10 % – 75 %	30 kPa – 106 kPa

8.2 Storage

	Air temperature	Relative humidity	Atmospheric pressure
In transport packing	-25 °C – 55 °C	10 % – 95 %	70 kPa – 106 kPa
Without transport packing	-5 °C – 45 °C	10 % – 95 %	70 kPa – 106 kPa

8.3 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.

9 Technical data
9.1 Power supply

Power connection	100 V – 130 V ±10 %, 50 Hz – 60 Hz 220 V – 240 V ±10 %, 50 Hz – 60 Hz
Power consumption	Maximum 200 W
Overvoltage category	II
Degree of pollution	2
Protection class	I

9.2 Weight/dimensions

Width	20.6 cm (8.1 in)
Depth	30.4 cm (12.0 in)
Height	13.6 cm (5.4 in)
Weight	6.3 kg (13.9 lb)

9.3 Ambient conditions

Ambience	Only for use indoors.
Ambient temperature	5 °C – 40 °C
Relative humidity	10 % – 90 %, non-condensing.
Atmospheric pressure	79.5 kPa – 106 kPa

9.4 Application parameters

9.4.1 Temperature control

Temperature control range	1 °C – 100 °C: can be set in increments of 1 °C Minimum: 15 °C (± 2 °C) below the ambient temperature Maximum: 100 °C	
Temperature accuracy	Set temperature 20 °C – 45 °C	Set temperature < 20 °C or > 45 °C
SmartBlock 1.5 mL	± 0.5 °C	± 1.0 °C
	You can find information on the temperature accuracy of other SmartBlocks on the website www.eppendorf.com .	
Temperature homogeneity	In the range of 20 °C – 45 °C max. ± 0.5 °C for all positions of the thermoblock	
Heating rate*	6.0 °C/min The change of temperature in filled tubes is slower.	
Cooling rate*	If the set temperature is above ambient temperature 2.5 °C/min	if the set temperature is between ambient temperature and 15 °C below ambient temperature 0.5 °C/min – 0.8 °C/min

*Heating rate and cooling rate can be throttled (see *Restricting ramp rates* on p. 37).

9.4.2 Mixing

Thermoblock	Mixing frequency
	can be set in increments of 50 rpm
SmartBlock 0.5 mL	300 rpm – 2 000 rpm
SmartBlock 1.5 mL	300 rpm – 2 000 rpm
SmartBlock 2.0 mL	300 rpm – 2 000 rpm
SmartBlock 5.0 mL	300 rpm – 1 000 rpm
SmartBlock 12 mm	300 rpm – 2 000 rpm
SmartBlock cryo	300 rpm – 2 000 rpm
SmartBlock 15 mL	300 rpm – 1 000 rpm
SmartBlock 50 mL	300 rpm – 1 000 rpm
SmartBlock plates	300 rpm – 3 000 rpm
with deepwell plates and temperature control up to 80 °C	300 rpm – 2 000 rpm
with deepwell plates and temperature control from 80 °C	300 rpm – 1 000 rpm
SmartBlock PCR 96	300 rpm – 2 000 rpm
SmartBlock PCR 384	300 rpm – 3 000 rpm
SmartBlock DWP 500	300 rpm – 1 600 rpm
SmartBlock DWP 1000	300 rpm – 1 600 rpm

9.4.3 Time setting

Cycle time	15 s – 99:30 h, unlimited • In the range of 15 s – 20 min adjustable in steps of 15 s • In the range of 20 min – 1:00 h adjustable in steps of 1 min • In the range of 1:00 h – 10:00 h adjustable in steps of 5 min • In the range of 10:00 h – 99:30 h adjustable in steps of 30 min
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9.5 Interface

USB interface	For Eppendorf service only.
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10 Ordering information



CAUTION! Poor safety due to incorrect accessories and spare parts.

The use of accessories and spare parts other than those recommended by Eppendorf may impair the safety, functioning and precision of the device. Eppendorf cannot be held liable or accept any liability for damage resulting from the use of incorrect or non-recommended accessories and spare parts, or from the improper use of such equipment.

- Only use accessories and original spare parts recommended by Eppendorf.

10.1 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
5308 000.003	5308000003	Eppendorf ThermoTop with condens.protect technology
5363 000.233	5363000233	Lid for Eppendorf ThermoMixer F0.5/F1.5/F2.0/FP for SmartBlocks 0.5 mL, 1.5 mL, 2.0 mL, plates, PCR 96, PCR 384, DWP 500, DWP 1000
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

Order no. (International)	Order no. (North America)	Description
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
5316 000.004	5316000004	SmartBlock DWP 500 Thermoblock for Eppendorf Deepwell Plate 96/500 µL incl. Lid
5310 000.002	5310000002	SmartBlock DWP 1000 Thermoblock for Eppendorf Deepwell Plate 96/ 1000 µL incl. Lid
3880 000.305	3880000305	Transfer Rack 0.5 mL for 0.5 mL tubes
3880 000.151	3880000151	Transfer Rack 1.5/2.0 mL for 1.5/2.0 mL tubes

10.2 Tubes and plates

Order no. (International)	Order no. (North America)	Description
0030 121.023	022363611	Eppendorf Safe-Lock Tubes 0.5 mL 500 pieces clear
0030 120.086	–	Eppendorf Safe-Lock Tubes 1.5 mL 1,000 pieces, clear Eppendorf Quality
0030 120.094	–	Eppendorf Safe-Lock Tubes 2.0 mL 1,000 pieces, clear Eppendorf Quality

Order no. (International)	Order no. (North America)	Description
0030 124.502	951010057	PCR Tubes 0,5 mL 500 pieces colorless, thin-walled, with hinged lid
0030 124.332 0030 124.200	951010006 -	PCR Tubes 0,2 mL 1,000 pieces PCR clean, colorless clear
0030 124.340	951010014	PCR Tube Strips 0,2 mL, five-tube strip pack of 125 (= 625 tubes) clear
0030 124.359	951010022	PCR Tube Strips 0,2 mL 10 × 12 strips clear
0030 128.648	951020401	twin.tec PCR Plate 96, skirted low profile, wells colorless, 25 pieces border colorless
0030 128.575	951020303	twin.tec PCR Plate 96, semi-skirted wells colorless, 25 pieces border colorless
0030 521.102	951031003	Eppendorf Deepwell Plate 384/200 µL 40 plates, wells clear, white border color PCR clean
0030 501.101	951031801	Eppendorf Deepwell Plate 96/500 µL 40 plates, wells clear, white border color PCR clean
0030 501.209	951032603	Eppendorf Deepwell Plate 96/1000 µL 20 plates, wells clear, white border color PCR clean
0030 501.306	951033405	Eppendorf Deepwell Plate 96/2000 µL 20 plates, wells clear, white border color PCR clean

All plates are available with different border colors (red, yellow, green and blue) and purity qualities, in large packs as well as with barcoding on request. You can find further information in our catalog or on our website www.eppendorf.com.

10.3 Temperature Verification System

Order no. (International)	Order no. (North America)	Description
0056 000.003	0056000003	Temperature Verification System USB – Single channel For Mastercycler nexus, Mastercycler pro und Mastercycler ep, Eppendorf ThermoMixer, Eppendorf ThermoStat
0056 002.006	0056002006	Temperature sensor for Temperature Verification System USB – Single channel 384 Well

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Declaration of Conformity

The product named below fulfills the requirements of directives and standards listed. In the case of unauthorized modifications to the product or an unintended use this declaration becomes invalid.

Product name:

Eppendorf ThermoMixer® C

including accessories

Product type:

Thermomixer for test tubes and plates

Relevant directives / standards:

2014/35/EU: EN 61010-1, EN 61010-2-010, EN 61010-2-051

UL 61010-1, CAN/CSA C22.2 No. 61010-1

2014/30/EU: EN 55011, EN 61326-1

2011/65/EU: EN 50581

Date: June 06, 2016



Management Board



Portfolio Management

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