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Mixers and Temperature Control Systems

Eppendorf ThermoMixer® C

Operating Manual

5382 900 016-08/2026-03

Table of contents

1 About this manual

1.1 Notes on this manual

The current version of this manual can be found on the website www.eppendorf.com/manuals. To obtain a different version of the manual, contact Eppendorf SE.

1. Read this manual completely before using the product.
2. Ensure that you have the manual available while using the product.

The dates in this manual correspond to the international date format as specified in the ISO 8601 standard. All dates are shown in the format YYYY-MM-DD or YYYY-MM.

This manual uses units of measurement and unit symbols in accordance with the International System of Units (SI) (see ISO 80000) and its derived and legally permissible units. For example, times are specified in hours [h], minutes [min], and seconds [s].

1.2 Warning notice structure

HAZARD LEVEL! Type of danger

Source of danger
Consequences of disregarding the danger

– Measures to avoid the danger

Symbol	Hazard level	Type of danger	Meaning
	DANGER	Personal injury	Will lead to severe injuries or death.
	WARNING	Personal injury	May lead to severe injuries or death.
	CAUTION	Personal injury	May lead to minor or moderate injuries.
	NOTICE	Material damage	May lead to material damage.

1.3 Graphics

Depiction	Meaning
1. 2.	Work steps
•	Bullet point
Text	Display text
Key	Name for port, button, status lamp, or key
	Important information
	Tip

1.4 Other applicable documents

The following documents supplement this manual:

- Manuals for accessories and consumables

1.5 Certificates

Declarations of conformity, certificates, Safety Data Sheets, etc. for the product can be found on the respective product page at www.eppendorf.com. This also applies to the China RoHS (Restriction of Hazardous Substances) regulation.

2 Safety

2.1 Intended use

The Eppendorf ThermoMixer C is used for tempering and mixing liquids in sealed reaction vessels or plates for sample preparation and processing.

This device is intended for general laboratory use and may only be operated by persons trained in laboratory techniques and procedures.

2.2 Residual risks when used as intended

If the product is not used as intended, the installed safety devices may not function correctly. To reduce the risk of personal injury and material damage and to avoid dangerous situations, please observe the general safety instructions.

2.2.1 Personal injury

2.2.1.1 General hazards

When mixing at high mixing frequencies, plates can become loose and be ejected from the thermo mixing device. The plates can injure people.

- Ensure that the plates are suitable for the desired mixing frequency.
- Before the mixing process, check the mixing speed using a water-filled plate.
- If the plates become loose, reduce the mixing frequency.

When mixing at high mixing frequencies, the device can vibrate strongly. The device or objects near the device may move and fall off the work tray. People standing nearby could be injured as a result.

- If you notice unusually strong vibrations or movement of the device, reduce the mixing frequency or stop the mixing process.
- Do not place easily movable objects near the device or secure them adequately.
- Contact your Eppendorf partner if necessary.

2.2.1.2 Biological hazards

Pathogenic biological agents can harm your health and the environment.

- Observe national regulations and the biosafety level of your laboratory.
- Wear your personal protective equipment.
- Observe the Safety Data Sheets and instructions for use for the accessories.
- For information on handling germs or biological material of risk group II or higher, read the "Laboratory Biosafety Manual" (source: World Health Organization, Laboratory Biosafety Manual, in the current version).

When mixing at excessively high mixing speeds, the plates can become loose from the device. Substances released from the plates can be harmful to your health.

- Use only plates that are sealed and stable.
- Before the mixing process, check the mixing speed using a water-filled plate.
- When working with hazardous, toxic, and pathogenic samples, maintain the nationally prescribed safety environment. Observe the laboratory's biosafety level.
- Use your personal protective equipment, such as gloves, clothing, and goggles.
- Use a workstation with air extraction if necessary.

2.2.1.3 Explosion hazards

The use of explosive substances or substances with violent reactions may cause explosions. Do not operate the device under the following conditions:

- In an explosive atmosphere
- In areas where work with explosive substances is carried out
- With explosive substances or substances with violent reactions
- With substances that may, combined with a reactant or without such reactant, form an explosive atmosphere

2.2.1.4 Electrical hazards

If liquids get inside the device, users may suffer an electric shock. A potentially fatal electric shock causes arrhythmia and respiratory paralysis or severe burns.

- Switch off the device and disconnect it from the mains before starting any cleaning or disinfection work.
- Do not connect the device to the mains/power line unless both the inside and outside of the device are completely dry.

Touching parts that carry high voltage can cause an electric shock. A life-threatening electric shock can cause cardiac arrhythmia, burns and respiratory paralysis.

- Only use earth/grounded sockets with a protective earth (PE) conductor.
- Ensure that a residual current circuit breaker is present and accessible.
- Ensure that the housing and mains/power cord are not damaged.
- In case of danger, disconnect the device from the mains/power line.
- Do not open or remove the housing.
- Compare the technical data of the mains/power cord and the mains/power plug with the technical data on the name plate, taking into account national laws and regulations. This also includes legally required test seals. Use only approved mains/power cords with plugs.
- Make sure that the mains/power plug and earth/grounded socket match and that the electrical PE conductors of the device and the building installation are securely connected to each other.

- Only clean and maintain the device when it is disconnected from the mains/power line.
- Have the device regularly checked for electrical safety in accordance with national requirements.

2.2.1.5 Thermal hazards

The thermoblock can be very hot after heating and cause burns.

- Avoid direct contact with a heated thermoblock.

2.2.1.6 Mechanical hazards

Crushing hazard from moving parts

- Do not change consumables during the mixing process.
- Do not remove the Transfer Rack during the mixing process.
- Attach the Eppendorf ThermoTop or the Lid before the mixing process.
- Do not remove the Eppendorf ThermoTop or the Lid during the mixing process.

2.2.2 Material damage

2.2.2.1 Sample loss

In the following cases, the closures of reaction vessels or plates may open and sample material may escape:

- High vapor pressure of the contents
- Inadequately sealed lid
- Damaged sealing lip
- Inadequately secured film

Always check that consumables are securely sealed before use.

2.2.2.2 General hazards

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

- Only use the accessories and spare parts recommended by Eppendorf SE.
- Only use accessories and spare parts that are in perfect technical condition.

At high mixing frequencies, the work tray can vibrate. Objects on the work tray may move and fall off the work tray. The objects may be damaged as a result.

- Do not place easily movable objects on the work tray or secure them adequately.

2.2.2.3 Electrical hazards

Transporting the device from a cool to a warmer environment can result in condensate forming inside the device and cause a short circuit.

- Wait for at least 3 h after setting up the device. Only then connect the device to the power line.

2.2.2.4 Thermal hazards

The device can be damaged by overheating.

- Do not place the device near heat sources (e.g., heaters, drying cabinets).
- Do not expose the device to direct sunlight.
- Ensure unobstructed air circulation. Maintain a clearance of at least 10 cm around all ventilation gaps.

Deepwell plates made of polypropylene can deform at temperatures above 80 °C. Deformed plates can become loose from the thermoblock or be difficult to remove from the device. This can cause damage to the device and result in sample loss.

- When tempering deepwell plates at temperatures above 80 °C, make sure not to exceed a mixing frequency of 1000 rpm.

Microplates made of polystyrene melt at temperatures above 70 °C. Deformed plates can become loose from the thermoblock or be difficult to remove from the device. This can cause damage to the device and result in sample loss.

- Temper microplates made of polystyrene only up to 70 °C.

2.2.2.5 Mechanical hazards

The display can be damaged by mechanical pressure.

- Do not apply any mechanical pressure to the display.

2.3 Application limits

Due to its design, the product is not suitable for use in a potentially explosive atmosphere.

The product may only be used in a safe environment, such as a ventilated laboratory or under a fume hood. Substances which may potentially contribute to an explosive atmosphere may not be used.

2.4 Target groups

This manual is intended for the following target groups, who have different qualifications and levels of knowledge.

Owner

The owner is any natural or legal person who operates or owns the device.

The owner provides the product and the necessary infrastructure. The owner has a special responsibility to ensure the safety of all persons working on the product.

User

The user operates the product and works with it. The user must be instructed in the use of the product. The user must have read and fully understood the manual.

Any tasks that go beyond operation may only be performed by the user if this is specified in this manual. The owner must explicitly assign these tasks to the user.

Technical personnel

The technical personnel supervises the building services and ensures the technical prerequisites for the operation of the product.

Authorized service technician

The authorized service technician is trained and certified by Eppendorf SE to service, maintain and repair the product.

2.5 Information for the owner

The owner must ensure the following:

- The product is in a safe operating condition.
- The safety devices are all available and functional.
- The product is serviced and cleaned according to the information in this manual.
- The product is disposed of in accordance with local regulations.
- All work on the product is carried out by users, technical personnel, or authorized service technicians who are suitably qualified.
- Personal protective equipment is available and is worn.
- The manual is available during the use of the product.
- The manual is part of the product. Use the following link to download the current version of the manual: https://www.eppendorf.link/documents. For a printed or older version of the manual for your product, please contact your Eppendorf partner.

2.6 Personal protective equipment

Personal protective equipment serves to ensure the safety and protection of the user when working with the product.

Personal protective equipment must comply with country-specific regulations and the regulations of the laboratory.

2.7 Information on product liability

The owner of the device will be held liable for personal and material damage in the following cases:

- The device is used outside of its intended use
- The device is not used in accordance with the operating manual
- Manipulation of safety devices
- The device has spare parts installed that are not authorized by Eppendorf SE
- The device is used with accessories or consumables that are not recommended by Eppendorf SE
- Cleaning agents are used that are not recommended by Eppendorf SE
- Chemicals are used that are not recommended by Eppendorf SE
- Shipment not in original packing or in improper substitute packing
- The device is maintained or repaired by persons not authorized by Eppendorf SE
- Unauthorized modifications

2.8 Information on the device

Information	Meaning	Location
	WARNING Observe the safety-relevant information in the operating manual.	Rear of the device On the thermoblock
	WARNING Risk of burns on hot surfaces after heating the thermoblock	On the heating/cooling plate

3 Product description

3.1 Features

The device has the following features:

- Simultaneous mixing and tempering of sample material
- Tool-free thermoblock exchange
- Multi-step mixing/tempering

The following consumables can be used with the device:

- Reaction vessels in sizes from 0.2 mL to 5.0 mL
- Conical vessels in sizes from 15 mL to 50 mL
- Microplates and deepwell plates with any bottom contour
- PCR plates in 96-well and 384-well formats
- Vessels with diameters from 11.0 mm to 11.9 mm
- Cryogenic vessels with volumes of 2.0 mL

3.2 Product overview

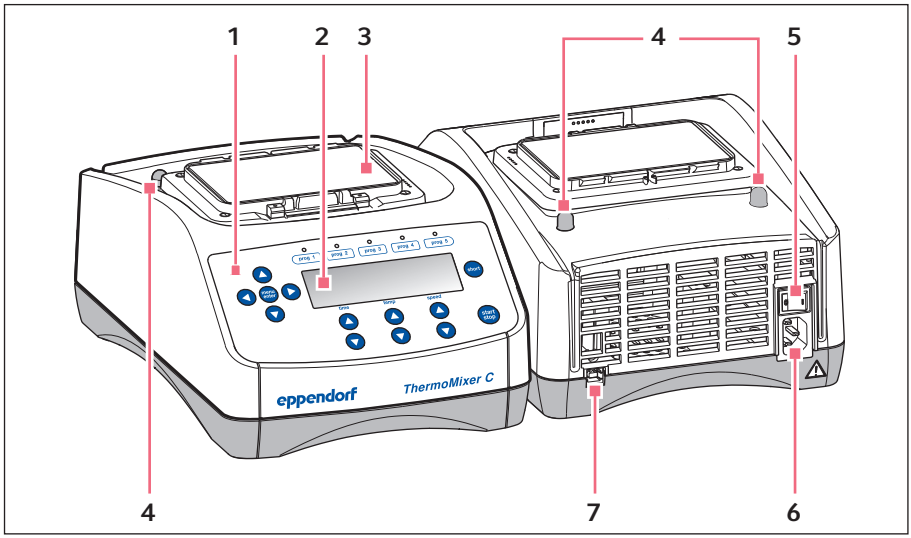


Fig. 3-1: Front and rear of the Eppendorf ThermoMixer C

1	Control panel	5	Power switch
2	Display	6	Power cord socket
3	Heating/cooling plate	7	USB interface
4	Spigots		

3.3 Control panel

3.3.1 Overview

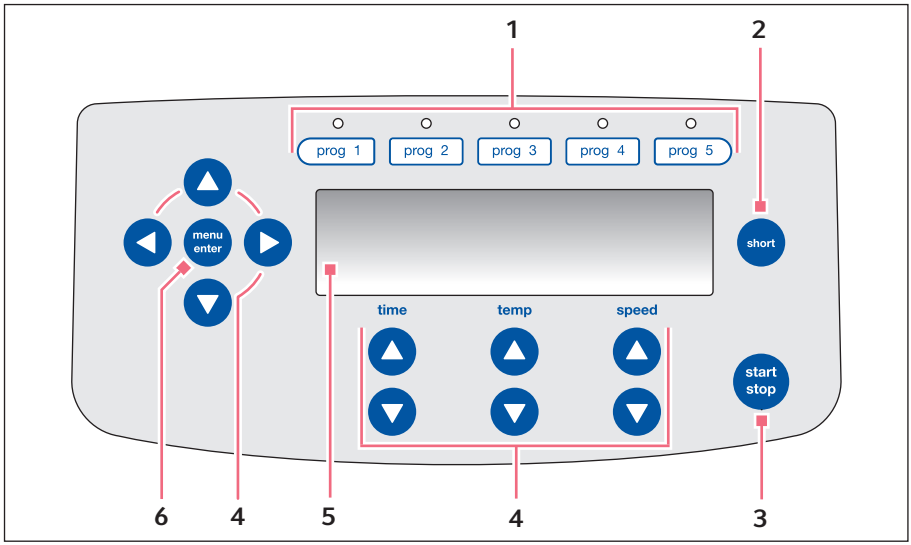


Fig. 3-2: Control panel

1 Program keys with control LEDs

2 **short** softkey (Short Mix)

3 **start stop** softkey (start or stop mixing/tempering)

4 Navigation keys and setting keys

5 Display

6 **menu enter** softkey (call up functions)

3.3.2 Operating controls

Operating control	Function
menu enter	Call up functions Execute the displayed function Navigate to the higher menu level by confirming the *Back* function
prog 1	Select a program directly

Operating control	Function
short	Perform a Short Mix
start stop	Start and stop mixing/tempering
	Navigate the software Change values

3.3.3 Display

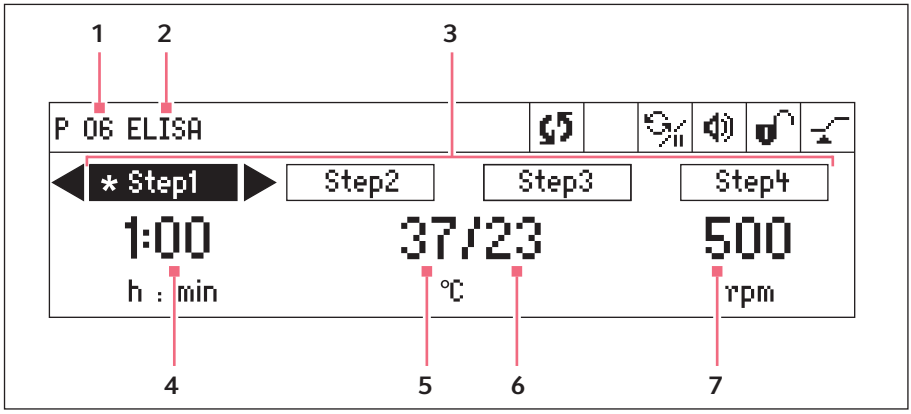


Fig. 3-3: Display of parameters

1 Program number
2 Program name
3 Program steps
4 Mixing time
5 Set temperature
6 Actual temperature
7 Mixing frequency

3.3.4 Symbols

Symbol	Description
	The key lock is activated.
	The key lock is deactivated.
	The Eppendorf ThermoTop is attached.
	The SmartExtender is attached.
	The device tempers and mixes
	The device tempers, but does not mix.
	The signal tone is activated.
	The signal tone is deactivated.
	*Time Control*: time counting starts immediately.
	*Temp Control*: time counting starts when the set temperature is reached.
	*Interval Mix* is activated for the current *Step*.
*	The asterisk marks the current *Step*.

3.3.5 Menu structure

Menu level 1	Menu level 2	Menu level 3	Menu level 4
Back			
Exit program (if loaded)			
Eppendorf SmartBlock			
	Back		
	Programs		
		Back	
		P 01 --	
			Back

Menu level 1	Menu level 2	Menu level 3	Menu level 4
			Load
			Edit
			Delete
		...	
		P 20--	
	Time Mode		
		Back	
		Time Control	
		Temp Control	
SmartExtender (if attached)			
Key lock			
	Back		
	Key lock on		
	Key lock off		
Settings			
	Back		
	Signal tones		
		Back	
		Volume	*0%*
			20%
			40%
			60%
			80%
			100%

Menu level 1	Menu level 2	Menu level 3	Menu level 4
		Repetitions	*1 x*
			5 x
			10 x
			Unlimited
	Contrast		
		Back	
		Contrast	
			0 %
			25 %
			50 %
			75 %
			100 %
	Language		
		Back	
		English	
		German	
		French	
		Italian	
		Spanish	
	Service		
		Back	
		No notification	
		After 500 operating hours	
		After 1000 operating hours	
		After 2000 operating hours	

3.4 Required accessories

- Thermoblock

For more information on compatible thermoblocks, see *"Mixing frequency" on page 59*.

4 Functions

Anti-Spill

Anti-spill technology prevents wetting of the vessel lids and cross-contamination.

Interval Mix

Interval Mix is a continuous alternation between mixing phases and pauses. Mixing frequency and duration can be freely selected.

Short Mix

The Short Mix function mixes sample material without temperature control at the selected speed as long as you keep the **short** key pressed.

Height sensor

The Eppendorf ThermoMixer C's height sensor automatically distinguishes between deepwell plates and microplates when the Eppendorf SmartBlock plates is attached.

^{2D}Mix-Control

The ^{2D}Mix-Control ensures controlled and complete mixing of even the smallest volumes of sample material.

Pausing time counting

If you want to add reagents or replace vessels during mixing, you can pause time counting and the mixing process.

condens.protect technology

This process prevents the formation of condensate on the vessel inner wall or vessel lid when using the ThermoTop.

Multi-step mixing/tempering

- In addition to a standard mixing/tempering run, you can freely program programs with up to 4 consecutive steps (*Steps*). The program steps run automatically one after the other.
- A total of 20 program slots are available.
- Program keys: The 5 most common mixing parameters and temperature parameters are already saved as programs and can be selected directly using the program keys. These programs can be overwritten.

Peltier cooling

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

Mixing

- Depending on the thermoblock used, you can select mixing frequencies between 300 rpm and 3000 rpm.

5 Installation

5.1 Preparing installation

5.1.1 Checking connection requirements

All prerequisites must be met before the device can be installed and put into operation.

Checking the electrical connections

DANGER! Electric shock

If the protective conductor connection is missing, you can receive an electric shock. An electric shock can cause heart injuries and respiratory paralysis.

– Ensure that the power plug and power socket are compatible and that the electrical PE conductors of the device and the building wiring are securely connected.

Do **not** use multiple power sockets.

1. Check that the electrical connection meets the following conditions:
   - The power connection meets the requirements on the name plate.
   - A power socket with a PE conductor is available.
   - The power socket can be reached with the power cord. Junction boxes or extension cables must not be used.
   - The power socket is always freely accessible.
   - A residual current circuit breaker is installed and accessible.
   - The power plug on the device or the power socket is accessible at all times during operation so that the device can be properly disconnected from the power line.
2. Connect the power cord of each device directly to a power socket.

5.1.2 Checking the location

All requirements must be met before the device can be installed and put into operation.

1. Check that the location meets the following conditions:
   - Ambient conditions as specified in *Chapter 12 "Technical data" on page 55*
   - Resonance-free bench with a horizontal, level, and non-slip work surface
   - Footprint designed to support the weight of the device
   - Good ventilation, no obstructions within 30 cm of the ventilation gaps
   - The power switch and disconnecting device of the power system circuit are accessible
   - Ergonomic height of the footprint
   - The room has access control according to the biosafety level of the device.
2. Check that the location is protected from the following influences:
   - Heat sources
   - Sparks
   - Open flames
   - Direct sunlight
   - UV radiation
   - Strong electromagnetic radiation
   - Humidity

5.1.3 Checking the delivery and packing

1. Check whether the packages indicated on the delivery note match the packages actually delivered.
2. Check the packing for transport damage.
3. Report any visible damage to your Eppendorf partner.

5.1.4 Unpacking the device

1. Transport the device to its designated location.
2. Open the packing.
3. Remove the transport pads.
4. Remove the accessories from the packing.
5. Lift the device out of the packing.
6. Remove the plastic wrapping from the device.

5.1.5 Checking the delivery condition

1. Check the device and accessories for visible damage.
2. Report any damage to your Eppendorf partner.

5.1.6 Checking the delivery package

1. Check that the supplied components match the specifications of the delivery package.
2. If any parts are missing, contact your Eppendorf partner.

Quantity	Description
1	Eppendorf ThermoMixer C (without thermoblock)
1	Power cord
1	Short instructions

Keep the original packing for shipping and storing the device.

5.2 Performing the installation

5.2.1 Setting up the device

Prerequisites:

- The location meets the requirements.

1. Place the device in its intended location.

5.2.2 Connecting the device to the power supply

DANGER! Electric shock

If the protective conductor connection is missing, you can receive an electric shock. An electric shock can cause heart injuries and respiratory paralysis.

– Ensure that the power plug and power socket are compatible and that the electrical PE conductors of the device and the building wiring are securely connected.

Prerequisites:

- The device has been set up according to this manual.
- The device has been unpacked and left at its location for at least 3 h.

1. Connect the power cord to the device.
2. Plug the power plug into the power socket.

6 Operation

6.1 Preparing the device for the application

6.1.1 Switching on the device

Prerequisites:

- The device is set up and connected according to this operating manual.

1. Switch on the power switch.

6.1.2 Setting the language

The device is shipped with the language setting *English*. To set a different language, proceed as follows:

1. Press the **menu/enter** key, select *Settings* > *Language*, and confirm with **menu/enter**.
2. Select a language and confirm with **menu/enter**.
   A check mark appears in front of the selected language.

6.1.3 Replacing the thermoblock

When you attach the thermoblock, the device automatically detects the attached thermoblock. The temperature is automatically limited to the maximum value for the thermoblock used.

Attaching the thermoblock

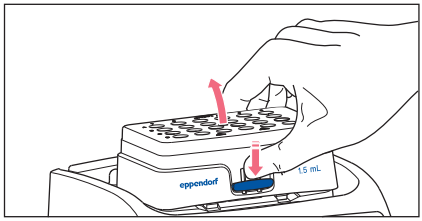
1. First, place only the rear edge of the thermoblock in place. The labeling should face forward.
2. Press down the front edge of the thermoblock.
   The thermoblock will audibly click into place.
   The display shows the name of the thermoblock.

Removing the thermoblock

CAUTION! Burns

The thermoblock and the heating/cooling plate can quickly reach high temperatures when heated. You may burn yourself if you touch them.

– Before removing the thermoblock, allow the thermoblock to cool down completely.
– Before removing the heating/cooling plate, allow the heating/cooling plate to cool down completely.



1. To unlock the thermoblock, press down the lever on the front of the thermoblock.
2. Lift the front edge so that the thermoblock tilts backward.
3. Lift the thermoblock up and off.

6.2 Applications

6.2.1 Loading the device

Inserting vessels

CAUTION! Glass splinters

Poorly fitting glass vessels may become detached from the thermoblock. Breakage of glass vessels can lead to sharp glass splinters that can cause personal injury.

– Only place recommended vessels and plates in the thermoblock.

CAUTION! Burns

The adapter for conical vessels quickly reaches high temperatures. You may burn yourself on the hot adapter.

– Do not touch the hot adapter.
– Before removing the adapter, allow the adapter to cool down completely.

Prerequisites:

- The vessels are sealed.
- The plates are sealed.

1. To ensure optimal temperature transfer, insert the vessels firmly into the holes.

Inserting the plate

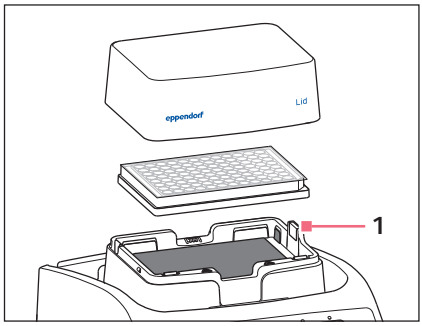
WARNING! Personal injury

When mixing at high speeds, plates can become loose and be thrown out of the thermomixer. The plates can cause injury.

– Make sure the plates are suitable for the desired speed.
– If the plates become loose, reduce the speed.

Prerequisites:

- The plate is sealed.



1. Place the rear edge of the plate against the thermoblock.
2. Press the front edge of the plate down onto the thermoblock.
3. To ensure uniform temperature control in all wells, place the Lid on the thermoblock.

6.2.2 Inserting the adapter for conical vessels

CAUTION! Glass splinters

Poorly fitting glass vessels may become detached from the thermoblock. Breakage of glass vessels can lead to sharp glass splinters that can cause personal injury.

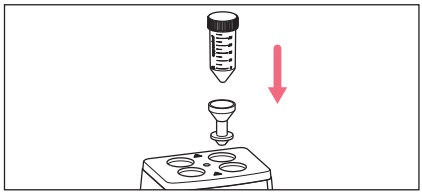
– Only place recommended vessels and plates in the thermoblock.

CAUTION! Burns

The adapter for conical vessels quickly reaches high temperatures. You may burn yourself on the hot adapter.

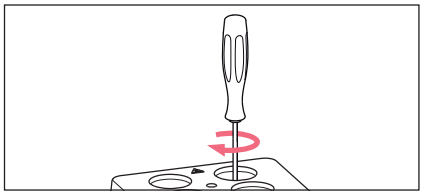
– Do not touch the hot adapter.
– Before removing the adapter, allow the adapter to cool down completely.

Use the conical vessels (25 mL) together with an adapter.

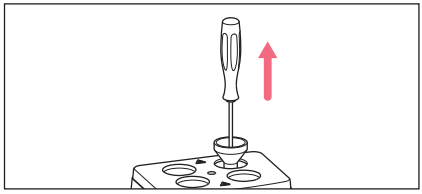


1. Insert the adapter into the hole in the thermoblock.
2. Press the adapter down to the bottom of the thermoblock.

6.2.3 Removing the adapter for conical vessels



1. Screw the removal tool into the thread of the thermoadapter.



2. Use the removal tool to completely remove the adapter from the hole in the thermoblock.

6.2.4 Tempering

NOTICE! Damage to plate

Polystyrene microplates melt at temperatures above 70 °C. Polypropylene deepwell plates can deform at temperatures above 80 °C. Deformed plates may detach from the thermoblock or be more difficult to remove.

- Only temper polystyrene microplates up to 70 °C.
- When tempering deepwell plates above 80 °C, do not exceed a mixing frequency of 1000 rpm.

1. Use the **temp** arrow keys to set the set temperature.
2. Use the **speed** arrow keys to set the nominal speed to 0.
3. Start the process with the **start/stop** key.

6.2.5 Tempering with a time setting

Prerequisites:

- The time mode is set to *Time Control* .

1. Use the **speed** arrow keys to set the settings to 0 rpm.
2. Use the **time** arrow keys to set the temperature control duration.
3. Use the **temp** arrow keys to set the temperature.
4. To start tempering, 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/set temperature.
   A signal sounds when the temperature control duration has elapsed.

6.2.6 Mixing without temperature control

1. To switch off temperature control, use the **temp** arrow keys to select the *off* setting.
2. Use the **time** arrow keys to set the mixing time.
3. Use the **speed** arrow keys to set the mixing frequency.
4. 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, *off*, and the mixing frequency.
   A signal sounds when the temperature control duration has elapsed.
5. After the set mixing time has elapsed, the device stops automatically.
   A signal sounds.
   The display shows the last used parameters.

6.2.7 Mixing and tempering

1. Use the **time** arrow keys to set the mixing time.
2. Use the **temp** arrow keys to set the temperature.
   Temperature control starts immediately.
3. Use the **speed** arrow keys to set the mixing frequency.

4. 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 sounds.
   The display shows the last used parameters.
   Temperature control continues.

6.2.8 Mixing/tempering in continuous run mode

Prolonged tempering at low temperatures can cause ice to form on the thermoblock.

1. To temper for an unlimited period of time, use the **time** arrow keys to select the ∞ setting.
2. Use the **temp** arrow keys to set the temperature.
   The device starts tempering immediately.
3. Use the **speed** arrow keys to set the mixing frequency.
4. To start the mixing process, press the **start/stop** key.
   The ⟳ symbol flashes on the display.
   The display alternately shows the mixing time, the ∞ symbol, the actual temperature/set temperature, and the mixing frequency.
   The mixing time is counted up.
5. To end the mixing process, press the **start/stop** key.
   A signal sounds.
   The display shows the last used parameters.
   Temperature control continues.

In continuous run mode, a temperature control duration of more than 99:30 h is possible. After 99:30 h has elapsed, the display shows only the ∞ symbol.

6.2.9 Pausing the mixing process

1. To pause the mixing process, press and hold the **start/stop** key for 2 s.
   The display shows *Pause*.
   The mixing process is paused.
   Time counting is stopped.
   Temperature control continues.
2. To resume the mixing process, press the **start/stop** key.

If you want to add reagents or change vessels during mixing, you can pause the mixing process. Temperature control continues during the pause.

6.2.10 Mixing with Short Mix

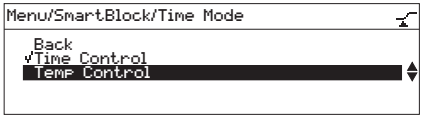
The Short Mix function enables short mixing without temperature control.

1. Use the **speed** arrow keys to set the nominal speed.
2. Press and hold the **Short Mix** key for the desired duration.
3. To end the mixing process, release the **Short Mix** key.

6.2.11 Tempering with *Temp Control* or *Time Control*

You can specify when time counting starts:

- Time counting starts immediately: *Time Control*.
- Time counting starts when the set temperature is reached: *Temp Control*.



1. To open the menu, press the **menu/enter** key.
2. Use the menu arrow keys to select the *SmartBlock* > *Time Mode* menu item.
3. Use the menu arrow keys to select *Time Control* or *Temp Control*.
4. Confirm with the **menu/enter** key.
   A check mark indicates the selected setting.
5. To exit the menu, press the left menu arrow key 3 times.

6.2.12 Programs

A program consists of up to 4 program steps *Step*. The program steps run automatically one after the other. You can save the following settings for each program step:

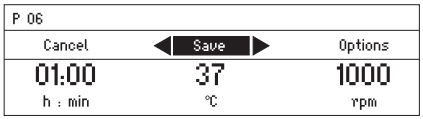
- Mixing time/temperature control duration
- Mixing frequency
- Temperature
- Program steps with pause intervals (Interval Mix)
- Program steps with reduced ramp rates

The program ends automatically.

The device has 20 program slots.

6.2.13 Creating a program

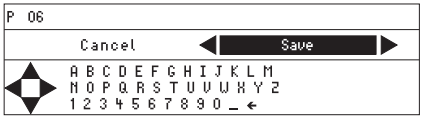
1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Programs* and confirm with **menu/enter**.
4. Use the arrow keys to select an empty program slot and confirm with **menu/enter**.



Creating a single-step program

1. Set the mixing time, temperature, and mixing frequency using the **time**, **temp**, and **speed** arrow keys.
2. Select *Save* and confirm with **menu/enter**.
3. Select letters or numbers using the menu arrow keys and confirm with **menu/enter**.

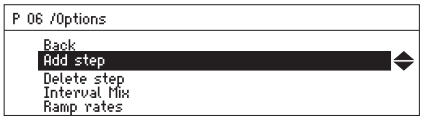
   The program name can contain a maximum of 15 characters.



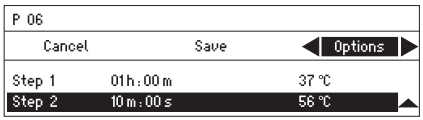
4. To save the program with the program name, select *Save*.
5. Select the program slot using the menu arrow keys and confirm with **menu/enter**.

Creating a multi-step program

1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Programs* and confirm with **menu/enter**.
4. Use the arrow keys to select an empty program slot and confirm with **menu/enter**.
5. Set the mixing time, temperature, and mixing frequency using the **time**, **temp**, and **speed** arrow keys.



6. Select *Options* and confirm with **menu/enter**.



7. Select *Add step* and confirm with **menu/enter**.

   The set parameters are applied to step 1.
8. Set the parameters for the 2nd program step.
9. You have several options for the next step:
   - To save the program with 2 program steps, select *Save*.
   - To program a 3rd and 4th program step, go to *Options* and select the option *Add step*.
   - To delete a step from a program, go to Options and select the option *Delete step*.

6.2.14 *Interval Mix*: Creating a program step with pause intervals

The *Interval Mix* function allows you to specify that the mixing process within a program step should be interrupted by one or more pauses. *Interval Mix* can only be set in programs. For program steps with *Interval Mix*, the symbol appears on the display.

1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Programs* and confirm with **menu/enter**.
4. Use the arrow keys to select an empty program slot.
5. Set the mixing time, temperature, and mixing frequency using the **time**, **temp**, and **speed** arrow keys.

   Select the mixing time so that it covers the entire duration, including mixing processes and pauses.
6. Under *Options*, select *Interval Mix*.
7. Set the mixing time (before the pause) in the *Mixing time* line using the **time** arrow keys.
8. Set the duration of the pause in the *Pause* line using the **time** arrow keys.
9. Select *Save* and confirm with **menu/enter**.

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

Change between mixing process and pause:

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

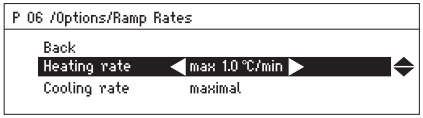
In the program step, the device alternates four times between 1 min of mixing and a 0:30 min pause.

6.2.15 Reducing ramp rates

The device allows you to reduce both the heating and cooling rates. Reduced ramp rates can only be set for programs.

1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Programs* and confirm with **menu/enter**.

4. Use the arrow keys to select an empty program slot.
5. Set the mixing time, temperature, and mixing frequency using the **time**, **temp**, and **speed** arrow keys.
6. Select the *Options* menu item and confirm with **menu/enter**.



7. Select the ramp rates and confirm with **menu/enter**.
8. Select and change the heating or cooling rate using the menu arrow keys.
9. Select the *Back* menu item and confirm with the **menu/enter** key to exit the *Ramp rates* menu.

If you start a program that runs with reduced heating or cooling rates, a message will appear: *The program's ramp rates are restricted.*

6.2.16 Quick save with program keys

To quickly save a single-step program without a program name, you can use the program keys.

1. Set the mixing time, temperature, and mixing frequency using the **time**, **temp**, and **speed** arrow keys.
2. Press a **prog 1** to **prog 5** program key for 2 seconds.
   A signal tone sounds.
   The LED above the program key lights up blue.
   The program parameters are saved.

6.2.17 Loading a saved program

Loading the prog 1 to prog 5 programs

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

	Program name	Temperature	Mixing time/ temperature control duration	Mixing frequency
prog 1	Cooling	8 °C	∞	0 rpm
prog 2	Ligation	16 °C	16:00 h	0 rpm
prog 3	Rest. Digest	37 °C	1:00 h	1000 rpm
prog 4	Prot. K Digest	56 °C	10:00 min	1000 rpm
prog 5	Denaturation	95 °C	30:00 min	0 rpm

1. To call up a saved program, press a key (**prog 1** to **prog 5**).
   The LED above the key lights up blue.
   The display shows the stored parameters.
2. To start the program, press the **start/stop** key.

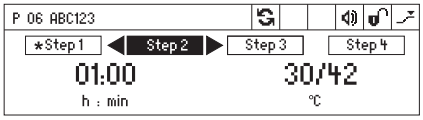
Loading a program from the program list

1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Programs* and confirm with **menu/enter**.

4. Use the arrow keys to select the *Load* menu item and confirm with **menu/enter**.

   The display shows the program parameters.

   For programs with multiple program steps, the display shows the parameters of the first program step. To display the parameters of the other program steps, use the menu arrow keys to select the corresponding Step.



5. To start the program, press the **start/stop** key.

   The asterisk indicates the active program step *Step 1*.
   The display shows the parameters of *Step 2*.

The order of the steps cannot be changed.

6.2.18 Editing a program

There are two ways to change a saved program:

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

Changing a program via the *Bearbeiten* menu item in the program list

1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Programs* and confirm with **menu/enter**.
4. Use the arrow keys to select the *Edit* menu item and confirm with **menu/enter**.
   The display shows the saved parameters.

Changing a program during operation

1. Load the program from the program list.
2. Change the parameters.

   For programs with program steps, use the menu arrow keys to select a step and change the parameters of that step.
3. Start the program.

   After the program has finished, a message appears stating that the program has been changed. You can confirm or discard the changes.

6.2.19 Deleting/resetting a program

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

1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Edit* and confirm with **menu/enter**.
4. Use the arrow keys to select the *Delete* or *Cancel* menu item and confirm with **menu/enter**.

   The display shows the message *Confirm delete*.
5. Confirm with **menu/enter**.

6.2.20 Special programs

Thawing cells

If an Eppendorf SmartBlock cryo thaw is installed, the device can be used to thaw frozen samples in 2 mL cryogenic vessels.

The Eppendorf SmartBlock cryo thaw is not included in the scope of delivery of the device.

Thawing of eukaryotic cells at ambient temperature has been optimized for:
- Filling the 2 mL cryogenic vessel with a 1 mL sample
- Storing the cells in the vapor phase of liquid nitrogen
- 1 to 5 cryogenic vessels

Deviations from these points may result in a change in the optimized thawing time. Test the required time and speed for your setup beforehand.

A connected SmartExtender cannot be operated during the thawing process.

Putting the Eppendorf SmartBlock cryo thaw into operation

Prerequisites:

- Software version 3.5.0 or higher

1. Install the Eppendorf SmartBlock cryo thaw.

   In addition to the Eppendorf SmartBlock detection information window, an information window appears indicating that a special program for thawing cells is available.

Calling up the thawing program directly using the operating controls

1. To call up the thawing program directly using the operating controls, press the upper menu arrow key.

Calling up the thawing program via the menu

1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Thawing cells* and confirm with **menu/enter**.

Running the program

The temperature is not shown on the display during the program run.

If the ambient temperature is above 30 °C, remove the samples from the thermoblock immediately after thawing.

Prerequisites:

- The *Continue* menu item is highlighted in black on the display.

1. Press the **menu/enter** or **start/stop** key.

   The ⟳ symbol flashes on the display.

   The thermoblock is heating up.

   After the heating phase has ended, a melody sounds, all program LEDs flash, and the pause symbol appears on the display.

2. Place the samples in the thermoblock.

3. To start the thawing process, press the **start/stop** key twice.

   The ⟳ symbol flashes on the display.

   The mixing time is counted down.

   The display shows the remaining mixing time, a thawing symbol (snowflake with drops), and the mixing frequency.

   After the set mixing time has elapsed, the device continues to run.

   All program LEDs flash and a melody sounds.

   The display alternates between showing the elapsed time and a sample symbol.

4. To end the thawing process, press the **start/stop** key twice.

   The device stops.

5. Remove the samples from the thermoblock.

Changing a program before it starts

You can change the parameters before starting the thawing process. An overview of the program parameters can be found in the technical data.

The temperature cannot be changed. For this reason, a lock symbol is shown on the display instead of the temperature.

1. Set the mixing time and mixing frequency using the **time** and **speed** arrow keys.

Saving a program

If the settings of a program have been changed, a dialog box prompting you to save the program will appear after the end of the program.

1. If you do not want to save the program, use the menu arrow keys to select the **No** button and confirm with the **menu/enter** key.
2. If you want to save the program, use the menu arrow keys to select the **Yes** button and confirm with the **menu/enter** key.
3. Use the menu arrow keys to select the program slot and confirm with the **menu/enter** key.

   If an existing program has been selected, a dialog box asking if you want to overwrite the program will appear.
4. To overwrite the program, use the menu arrow keys to select the **Yes** button and confirm with the **menu/enter** key.

6.2.21 Switching off the device

1. Switch off the power switch.

6.3 Advanced settings

6.3.1 Adjusting the contrast

1. Press the **menu/enter** key.
2. Select *Settings* > *Contrast* and confirm with **menu/enter**
3. Select a contrast level and confirm with **menu/enter**.

6.3.2 Adjusting the volume

1. Press the **menu/enter** key.
2. Select *Settings* and confirm with **menu/enter**.
3. Select *Signal tones* and confirm with **menu/enter**.
4. Select a volume level and confirm with **menu/enter**.

6.3.3 Activating the key lock

1. Press the **menu/enter** key.
2. Select *Key lock* and confirm with **menu/enter**.
3. Select *Key lock on*.
   The display shows the 🔒 symbol.

6.3.4 Deactivating the key lock

1. Press the **menu/enter** key.
2. Select *Key lock* and confirm with **menu/enter**.
3. Select *Key lock off*.
   The display shows the 🔓 symbol.

7 Maintenance

7.1 Maintenance plan

Interval	Maintenance work
As required	↳ *Chapter 7.3.1 "Cleaning the device" on page 46*
	↳ *Chapter 7.3.2 "Disinfecting the device" on page 46*

7.2 Maintenance

Eppendorf SE recommends having your device inspected and maintained at regular intervals by trained and skilled personnel.

Eppendorf SE offers customized service solutions for preventive maintenance, qualification and calibration of your device. For information, offers and contact options, visit our website www.eppendorf.com/epservices.

7.2.1 Setting the service interval

You can set a service reminder. When the service interval has expired, a message will appear on the display.

1. Press the **menu/enter** key.
2. Select *Settings* and confirm with **menu/enter**.
3. Select *Service* and confirm with **menu/enter**.
4. Select a service interval and confirm with **menu/enter**.
5. If you do no want a notification, select *No notification* and confirm with **menu/enter**.

7.2.2 Updating the software

Do not cancel the software update. If you cancel the software update, data will be lost and you will need to reset the device to its factory settings. Contact your local Eppendorf partner.

Install a software update only if it provides new functions. This applies, for example, if you want to use a SmartExtender. To do so, download the automatic update from the Eppendorf website.

1. Download the automatic update from the Eppendorf website www.eppendorf.com/software-downloads.
2. Unzip the ZIP file on your computer.
3. Connect the device to the computer using a suitable USB cable.
4. Start the installation wizard and follow the instructions on the screen.

7.3 Cleaning

7.3.1 Cleaning the device

NOTICE! Component damage

If disinfectant gets inside the device, it can cause electronic components to corrode. This will impair the function of the device.

– Only spray disinfectant onto a cloth.

Material:

- Distilled water
- Soap-based cleaning agent
- Cloth

Prerequisites:

- The device has been disconnected from the power line.
- The device has cooled down.

1. Clean all external parts of the device with a mild soap solution and a lint-free cloth.
2. Wipe off the soap solution with distilled water.
3. Allow all cleaned parts to dry.

7.3.2 Disinfecting the device

Material:

- Disinfectant containing 70 % ethanol
- Cloth

Prerequisites:

- The device has been disconnected from the power line.
- The device has cooled down.

1. Dampen a lint-free cloth with disinfectant.
2. Wipe all parts of the device with the cloth.

8 Troubleshooting

If you cannot rectify the error using the suggested measures, contact your local Eppendorf partner. You can find the address online at www.eppendorf.com.

8.1 General errors

Error description	Cause	Solution
The display remains dark.	There is no network connection.	Check the power connection and the power supply. Switch on the device.
The set temperature is not reached.	The set temperature is more than 15 °C below the ambient temperature.	Place the device in a cooler environment.
The ThermoTop LED is not lit.	No thermoblock is attached.	Use a compatible thermoblock with the ***condens.***protect® symbol:
	The thermoblock is not compatible with Eppendorf ThermoTop.	Use a compatible thermoblock with the ***condens.***protect® symbol:
	The interface between the device and the Eppendorf ThermoTop is contaminated.	Remove any contamination from the front of the Eppendorf ThermoTop. Remove any contamination from the top of the device, especially the viewing window in front of the heating/cooling plate.
The Eppendorf ThermoTop does not fit on the device.	The thermoblock is not compatible with the Eppendorf ThermoTop.	Use a compatible thermoblock with a ***condens.***protect® symbol:
	The Lid is attached to the thermoblock.	If you are using the Eppendorf ThermoTop, do not use the Lid.
	The Transfer Rack is attached to the thermoblock.	If you are using the Eppendorf ThermoTop, do not use a Transfer Rack.
The device does not mix or temper.	Various causes are possible.	Contact your local Eppendorf partner.

8.2 Error messages

Error description	Cause	Solution
The thermoblock is not recognized.	The thermoblock is not compatible with the device.	Use a compatible thermoblock.
	The thermoblock is not attached correctly.	Remove the thermoblock and reattach it.
	The interface between the device and the thermoblock is contaminated.	Clean the bottom of the thermoblock to remove any contamination. Remove any contamination from the top of the device, especially the viewing window on the side of the heating/cooling plate.
Error message preceded by a number code.	Various causes are possible.	Switch off the device and wait for 10 seconds. Switch the device back on. If the error message appears again, contact your local Eppendorf partner.
The SmartExtender is not recognized by the device.	In order to recognize the SmartExtender, the device requires software version 3.0.0 or higher.	Perform the software update. You can download the software from the Eppendorf website.
The special program is not displayed in the menu.	In order to recognize the special program, the device requires a newer software version.	Perform the software update.

9 Shut down

9.1 Disconnecting the device from the mains/power supply

Prerequisites:

- The device is switched off.

1. Unplug the power plug from the earth/grounded socket.
2. Remove the IEC connector at the rear of the device.

10 Transport

10.1 Preparing the device for transport

Prerequisites:

- The device is not in operation.
- The device has been cleaned and decontaminated.

1. Ensure that there is no condensate in the thermoblock.

10.2 Sending the device

Use the original packing to transport the device. If the original packing is no longer available, please ensure that the device is sufficiently protected by replacement packing during storage and further transport. Eppendorf SE is not liable for damage caused by improper replacement packing.

WARNING! Contamination

Shipping or storing a contaminated device or contaminated accessories may lead to contamination of persons or cause damage to health.

– Decontaminate the device and accessories before shipping or putting them into storage.

Material:

- Packing

Prerequisites:

- The device is out of operation.
- The device is decontaminated.

1. Download the decontamination certificate for goods returns from https://www.eppendorf.link/decontamination/.
2. Complete the decontamination certificate.
3. Pack the device.
4. Securely attach the decontamination certificate to the outside of the packing.
5. Ship the device.

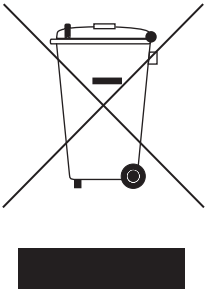
11 Disposal

11.1 Legal regulations

Electrical and electronic equipment in EU countries

Electrical and electronic equipment must be disposed of in EU member states in accordance with Directive 2012/19/EU. This directive has been implemented into national law by all EU member states.

Electrical and electronic equipment placed on the market after August 13, 2005, must be specially marked. According to the European standard EN 50419, the following symbol can be used for this marking:



Non-EU countries

Non-EU countries have country-specific standards for the disposal of waste electrical and electronic equipment and the disposal of batteries and rechargeable batteries.

Batteries and rechargeable batteries in EU countries

Batteries and rechargeable batteries must be disposed of in an environmentally sound manner in EU member states in accordance with Regulation (EU) 2023/1542. They must not be disposed of with household waste.

Consumers are required to dispose of used batteries and rechargeable batteries at an authorized collection point.

Table 1: Marking on batteries

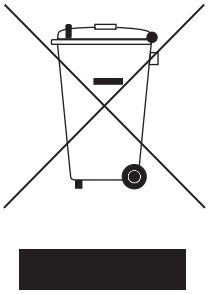
Symbol	Meaning
	Battery must not be disposed of with household waste.

Symbol	Meaning
	Battery contains cadmium. Battery must not be disposed of with household waste.
	Battery contains mercury. Battery must not be disposed of with household waste.
	Battery contains lead. Battery must not be disposed of with household waste.

Notes on disposal of electrical and electronic equipment in the United Kingdom

In the United Kingdom, the disposal of electrical and electronic equipment is governed by national regulations which are based on national legislation from 2013, The Waste Electrical and Electronic Equipment Regulations 2013 (as amended), which apply to these devices.

According to these regulations, any electrical and electronic equipment that was put on the market after August 13, 2005 in the business-to-business sector – which applies to this product – must no longer be disposed of with household waste. They are marked with the following symbol to indicate this:



As the disposal regulations may differ from one country to another, please contact your supplier for more information.

11.2 Preparing for disposal

Preparing disposal according to legal regulations

For information on the legal regulations that apply in your country, contact your local authority and your Eppendorf partner.

Dispose of non-decontaminable devices as hazardous waste.

1. Check which legal regulations apply to disposal in your country.
2. Choose a certified waste disposal company or contact your Eppendorf partner.

Creating a decontamination certificate

Prerequisites:

- The device has been decontaminated.

1. Download the decontamination certificate from the website https://www.eppendorf.link/decontamination/.
2. Complete the decontamination certificate.

11.3 Handing over the device to the disposal company

1. Inform the disposal company of any hazards posed by the device, e.g., locking devices, flammable substances.
2. Hand over the device and the decontamination certificate to the certified disposal company.

12 Technical data

12.1 Dimensions

Eppendorf ThermoMixer C

Width	20.6 cm
Depth	30.4 cm
Height	13.6 cm

12.2 Weight

Eppendorf ThermoMixer C

Weight	6.3 kg

12.3 Power supply

Power supply voltage	100 V – 130 V ± 10% 220 V – 240 V ± 10%
Power frequency	50 Hz – 60 Hz
Power consumption	Max. 200 W
Overvoltage category	II
Pollution degree	2
Protection class	I
Specifications for power cords in Europe with E/F power plugs	Cable type AC 250 V / 10 A 3G 1 mm^2 with double insulation Power plug according to IECEE CEE-7 / IEC 60884-1 and C13 appliance coupler according to IEC 60320-1
Specifications for power cords in Europe with other power plugs	Use the power cord in accordance with national regulations Cable type AC 250 V / 10 A 3G 1 mm^2 with C13 appliance coupler according to IEC 60320-1 and with power plug according to national regulations and IEC 60884-1

Specifications for power cords in Canada and the USA	Cable type AC 125 V / 10 A SJT 3x18 AWG with double insulation Power plug NEMA 5-15 according to ANSI/NEMA WD-6 and C13 appliance coupler according to UL/IEC 60320-1
Specifications for power cords outside Europe, Canada and the USA	Use the power cord in accordance with national regulations

12.4 Ambient conditions

Operation

Ambience	For indoor use only
Ambient temperature	5 °C – 40 °C
Relative humidity	10% – 90%, non-condensing
Atmospheric pressure	79.5 kPa – 106 kPa
Maximum geographical altitude	2000 m above MSL (approx. 80 kPa)

Transport

Ambient temperature general transport	-25 °C – 60 °C
Ambient temperature air freight	-40 °C – 55 °C
Relative humidity	10% – 95%
Atmospheric pressure	30 kPa – 106 kPa

Storage

Ambient temperature in transport packing	-25 °C – 55 °C
Ambient temperature without transport packing	-5 °C – 45 °C
Relative humidity	10% – 95%
Atmospheric pressure	70 kPa – 106 kPa

12.5 Electromagnetic compatibility

Electromagnetic compatibility	IEC 61326-1, Class B ICES-001, Class B Class B is the basic electromagnetic environment (at locations which are directly supplied with low voltage from the public supply network) FCC Part 15, Class B

12.6 Interfaces

USB interface	For connection to VisioNize and for software updates with the automatic update of Eppendorf ThermoMixer.

12.7 Noise level

Eppendorf ThermoMixer C

The noise level was measured frontally in a sound measuring room with accuracy class 3 (DIN EN ISO 3746) at a distance of 1 m from the device and at lab bench height.

Device	< 50 dB(A)

12.8 Application parameters

Temperature

The heating and cooling rates refer exclusively to the thermoblock and can change with the filling volume in the vessels.

The heating rates and cooling rate only apply if the Eppendorf SmartBlock is operated without Eppendorf ThermoTop or SmartExtender.

Temperature control range	1 °C – 100 °C, adjustable in increments of 1 °C Minimum: 15 °C (±2 °C) below ambient temperature Maximum: 100 °C	
Temperature accuracy Eppendorf SmartBlock 1.5 mL	Set temperature 20 °C – 45 °C ±0.5 °C	Set temperature < 20 °C or > 45 °C ±1.0 °C
Temperature homogeneity Eppendorf SmartBlock 1.5 mL	In the range of 20 °C – 45 °C Max. ± 0.5 °C, for all positions of the thermoblock	
Heating rate * Eppendorf SmartBlock 1.5 mL	6.0 °C/min The change of temperature in filled vessels is slower	
Cooling rate * Eppendorf SmartBlock 1.5 mL	At set temperature above ambient temperature	2.5 °C/min
	At a set temperature between ambient temperature and 15 °C below ambient temperature	0.5 °C/min – 0.8 °C/min

* The heating rate and cooling rate can be restricted.

Thawing

Parameter	Range	Step size
Run time	3 min – 5 min	15 s
Mixing frequency	300 rpm – 800 rpm	50 rpm

Mixing frequency

Thermoblock	Vessels/plates	Mixing frequency	Accessories
Eppendorf SmartBlock 0.5 mL	Reaction vessels Volume 0.5 mL	300 rpm – 2000 rpm Adjustable in increments of 50 rpm	Eppendorf ThermoTop or lid **
Eppendorf SmartBlock 1.5 mL	Reaction vessels Volume 1.5 mL	300 rpm – 2000 rpm Adjustable in increments of 50 rpm	Eppendorf ThermoTop or lid **
Eppendorf SmartBlock 2.0 mL	Reaction vessels Volume 2.0 mL	300 rpm – 2000 rpm Adjustable in increments of 50 rpm	Eppendorf ThermoTop or lid **
Eppendorf SmartBlock 5.0 mL	Reaction vessels Volume 5.0 mL	300 rpm – 1000 rpm Adjustable in increments of 50 rpm	
Eppendorf SmartBlock 12 mm	Vessels with a diameter of 11 mm - 11.9 mm	300 rpm – 2000 rpm Adjustable in increments of 50 rpm	
Eppendorf SmartBlock cryo thaw	Cyrogenic vessels	300 rpm – 2000 rpm Adjustable in increments of 50 rpm	
Eppendorf SmartBlock 15 mL	Conical vessels Volume 15 mL	300 rpm – 1000 rpm Adjustable in increments of 50 rpm	
Eppendorf SmartBlock 50 mL	Conical vessels Volume 50 mL	300 rpm – 1000 rpm Adjustable in increments of 50 rpm	
Eppendorf SmartBlock plates	Microplates with different bottom contours	300 rpm – 3000 rpm Adjustable in increments of 50 rpm	Eppendorf ThermoTop or lid **
	Deepwell plates with different bottom contours up to 79 °C	300 rpm – 2000 rpm Adjustable in increments of 50 rpm	

Thermoblock	Vessels/plates	Mixing frequency	Accessories
	Deepwell plates with different bottom contours from 80 °C	300 rpm – 1000 rpm Adjustable in increments of 50 rpm	
Eppendorf SmartBlock PCR 96	96-well PCR plates PCR vessels 0.2 mL	300 rpm – 2000 rpm Adjustable in increments of 50 rpm	Eppendorf ThermoTop or lid **
Eppendorf SmartBlock PCR 384	384-well PCR plates	300 rpm – 3000 rpm Adjustable in increments of 50 rpm	Eppendorf ThermoTop or lid **
Eppendorf SmartBlock DWP 500***	Deepwell plates 96/500 µL	300 rpm – 1600 rpm Adjustable in increments of 50 rpm	Eppendorf ThermoTop or lid **
Eppendorf SmartBlock DWP 1000***	Deepwell plates 96/1000 µL	300 rpm – 1600 rpm Adjustable in increments of 50 rpm	Eppendorf ThermoTop or lid **

* The height sensor of the Eppendorf SmartBlock plate automatically distinguishes between deepwell plates and microplates.

** When using the lid, select a maximum mixing frequency of 2000 rpm.

*** The Eppendorf SmartBlock DWP 500 and the Eppendorf SmartBlock DWP 1000 can only be used with Eppendorf Deepwell Plates. The fit and temperature transfer have been optimized for this use.

Time

Parameter	Range	Step size
Run time	5 s up to 99:30 unlimited	
Setting range	5 s – 1 min	5 s
	1 min – 20 min	15 s
	20 min – 1 h	1 min
	1 h – 10 h	5 min
	1 h – 99.5 h	30 min

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