



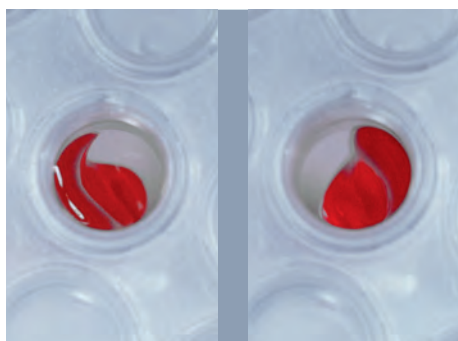
The Value of Mixing

Eppendorf Temperature Control and Mixing Instruments



»Beyond your expectations: Eppendorf temperature control and mixing instruments.«

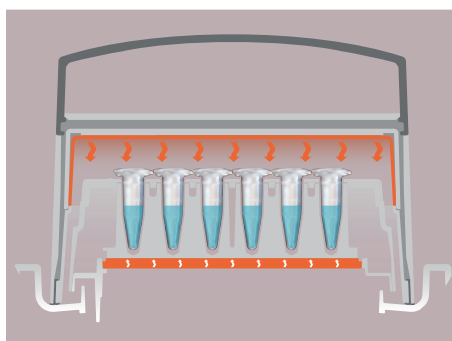
Eppendorf offers a wide range of high-quality, user-oriented and smart mixing and temperature control instruments. 50 years of experience in the field of mixing and temperature control enabled us to create another benchmark instrument – fitting to your needs.



Still unmixed results?

- > Outstanding ^{2D}Mix-Control technology mixes liquids in a controlled, circular movement for fast and reliable mixing in tubes and plates
- > Anti-spill technology reliably prevents lid wetting and cross-contamination

> More information: page 4



Worried about temperature management?

- > Eppendorf ThermoTop® prevents condensation for improved assay performance
- > Individually sensor-controlled Eppendorf SmartBlock provides maximum temperature accuracy and block homogeneity
- > Dry incubation technology reduces contamination risk and increase lab hygiene

> More information: page 6



Suffering from non-ergonomic design?

- > Eppendorf QuickRelease technology for easy exchange of thermoblocks
- > Low noise level for stress-free work
- > Predefined program or temperature keys for easy operation

> More information: page 7

Sample Mixing – Eppendorf ^{2D}Mix-Control

Facing irregular mixing results?

Reliable sample mixing is far beyond simple mixing, especially when talking about microliter volumes. After decades of offering mixing devices, we found a way to expand reliable mixing performance to the microliter scale:

The Eppendorf ^{2D}Mix-Control. Orbital circular paths with a diameter of 3 mm and up to 3,000 rpm. Generates excellent mixing performance, even for challenging samples.



Topview of timelapse photography of controlled mixing by Eppendorf ^{2D}Mix-Control

(one well of a skirted Eppendorf twin.tec® PCR Plate 96, filled with 75 µL water with dye Ponceau 4R). Sample without mixing (left photo) and at 1,650 rpm mixing speed (4 time-lapse photos). The ^{2D}Mix-Control technology enables liquid mixing in a very controlled, circular movement. The lack of chaotic splashing enables mixing without lid wetting or cross-contamination.



Mixing Comparison

50 µL sample mixing with 1,800 rpm

Competitor 1 min



Suboptimal
sample mixing

Eppendorf ^{2D}Mix-Control 1 min
(MixMate®)



Reliable
sample mixing

Eppendorf ^{2D}Mix-Control 1 min
(Eppendorf ThermoMixer®)



Reliable
sample mixing



> Video clip about Eppendorf ^{2D}Mix-Control
> Further information available at: www.eppendorf.com/thermomixer

Flexibility for Your Vessels – Eppendorf SmartBlock



SmartBlock removal from Eppendorf ThermoMixer® C



condens.protect®

Compatible Eppendorf SmartBlocks feature the condens.protect® symbol.

Using different vessel sizes within your lab workflow?

Flexibility has never been this easy. Eppendorf offers a broad range of SmartBlocks for tubes from 0.2 mL to 50 mL as well as plates (MTP, DWP, and PCR plates 96/384). All SmartBlocks are equipped with the outstanding Eppendorf QuickRelease system that makes the block exchange super fast and easy. Just press the lever on the front of the block and the block can be removed – no tools are needed, done in seconds.

Benefits

- > Optimized block design supports optimal temperature transfer within your sample to receive excellent results
- > Eppendorf SmartBlock-specific calibration by integrated sensor technology maximizes temperature accuracy and homogeneity
- > Every SmartBlock is individually inspected in production for temperature accuracy and is delivered incl. a serial-number specific certificate for documentation purpose
- > Insulated SmartBlocks for ergonomic operation – you won't burn your fingers
- > Automatic block recognition for safe handling

Connect your ThermoMixer to VisioNize® Lab Suite



Real-Time Monitoring

Monitor all device-related parameters like temperature and agitation, device interactions like set-point changes, and check the current status of your experiment



Instant Notifications

Receive alarm and event notifications via email and SMS and always stay informed



Easy Data Access

Export parameter, event data, and any user interactions

"VisioNize Lab Suite helps us automatically log device data and use it for further purposes. This makes our evaluations extremely robust and our protocolling complete."

Process Development Drug Substance,
CureVac AG, Tübingen, Germany



VisioNize Lab Suite

Sign up for free!

Book your non-binding virtual demo slot with one of our experts:
www.eppendorf.com/visionize-demo

Gain free, hands-on experience by connecting 3 devices for free.
Contact us for more information: www.eppendorf.com/visionize



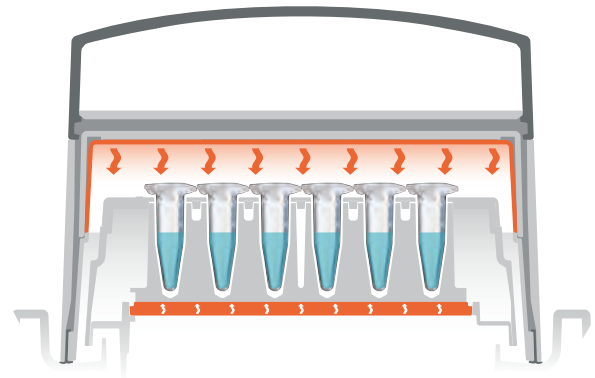


Sample Temperature – Eppendorf ThermoTop®

Tired of condensation in your tubes?

We combined the Eppendorf ThermoMixer with the PCR cyclor approach of a heated lid and generated the Eppendorf ThermoTop.

The outstanding Eppendorf condens.protect technology reliably prevents condensation within the tube lid – sample concentrations are consistent for the incubation time. In addition, the temperature homogeneity is further improved. Get optimal sample reaction conditions to produce optimal results.



Benefits

- > Efficient and reliable condensation prevention on tube lids for safe sample heating
- > Get constant reaction conditions for optimal enzymatic performance within your sample
- > Wireless connection with automatic recognition and operation for user-friendly handling
- > Ideal also for incubating light sensitive samples with or without heating function

Principle:

As soon as the Eppendorf ThermoTop is placed on the device, heating starts. The heating temperature is optimally adapted to the test temperature ensuring optimal sample safety: No way for condensation to form in your sample tube lids.

Compatible to SmartBlock of volume of up to 2.0 mL*

Eppendorf ThermoMixer® C	■
Eppendorf ThermoMixer® F	■
Eppendorf ThermoStat C	■

*not compatible with cryo tube 12.5 mm



> Video clip about condensation prevention by using the Eppendorf ThermoTop

Advantages of condensation prevention during incubation

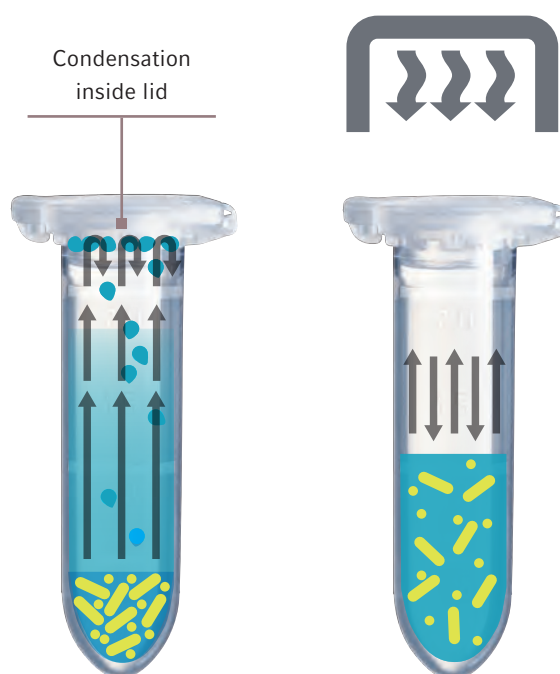
Evaporation of H₂O and condensation within the tube lid changes the buffer concentration in reactions. Suboptimal concentrations in enzymatic reactions can result in lower enzymatic performance.

Using the Eppendorf ThermoTop effectively prevents the condensation within the tube lid, resulting in optimal reaction conditions. Besides, you save time as condensation-free tubes can skip the post-heating spinning step.



condens.protect®

Compatible Eppendorf
SmartBlocks feature the
condens.protect symbol.



Ergonomics – Eppendorf PhysioCare Concept®

Annoyed by uncomfortable handling?

Ergonomics is far beyond the »ergonomically designed chair«. Eppendorf started to optimize the laboratory devices regarding ergonomics already in the early 1970s.

In 2003, we started the PhysioCare Concept, focusing on ergonomic liquid handling devices like our pipettes.

Nowadays, the Eppendorf PhysioCare Concept is broadened up to include further laboratory products as a holistic solution to harmonize the workflow in your laboratory with your health and well-being, e.g. for the Eppendorf ThermoMixer:

- > Eppendorf QuickRelease for easy and fast block exchange
- > Insulated SmartBlock for safe gripping/ no burning of fingers
- > Direct keys for convenient handling
- > Small footprint to enable position in direct arm reach at your bench
- > Standardized »user-interface concept« for intuitive handling of devices



> Video clip about ergonomic aspects of the Eppendorf ThermoMixer
> www.eppendorf.com/physiocare



Eppendorf ThermoMixer® C – Heating/Mixing/Cooling

You need everything?

The Eppendorf ThermoMixer C combines excellent mixing performance with excellent temperature control to guarantee complete, dependable, and reproducible results.

Improve your assay results by mixing and incubating your samples at the same time – with highest vessel flexibility.

Eppendorf QuickRelease

- > Ergonomic and simple exchange of SmartBlocks

Easy display reading

- > Clearly arranged display for easy reading and precise parameter selection

Block recognition

- > Automatic SmartBlock recognition for automatic adaption of settings

Program keys

- > Fast and simple access to the most frequently used mixing/temperature parameters
- > Freely programmable (Eppendorf ThermoMixer C only)

Easy setting access

- > Clearly arranged tabs to change specific values for fast access

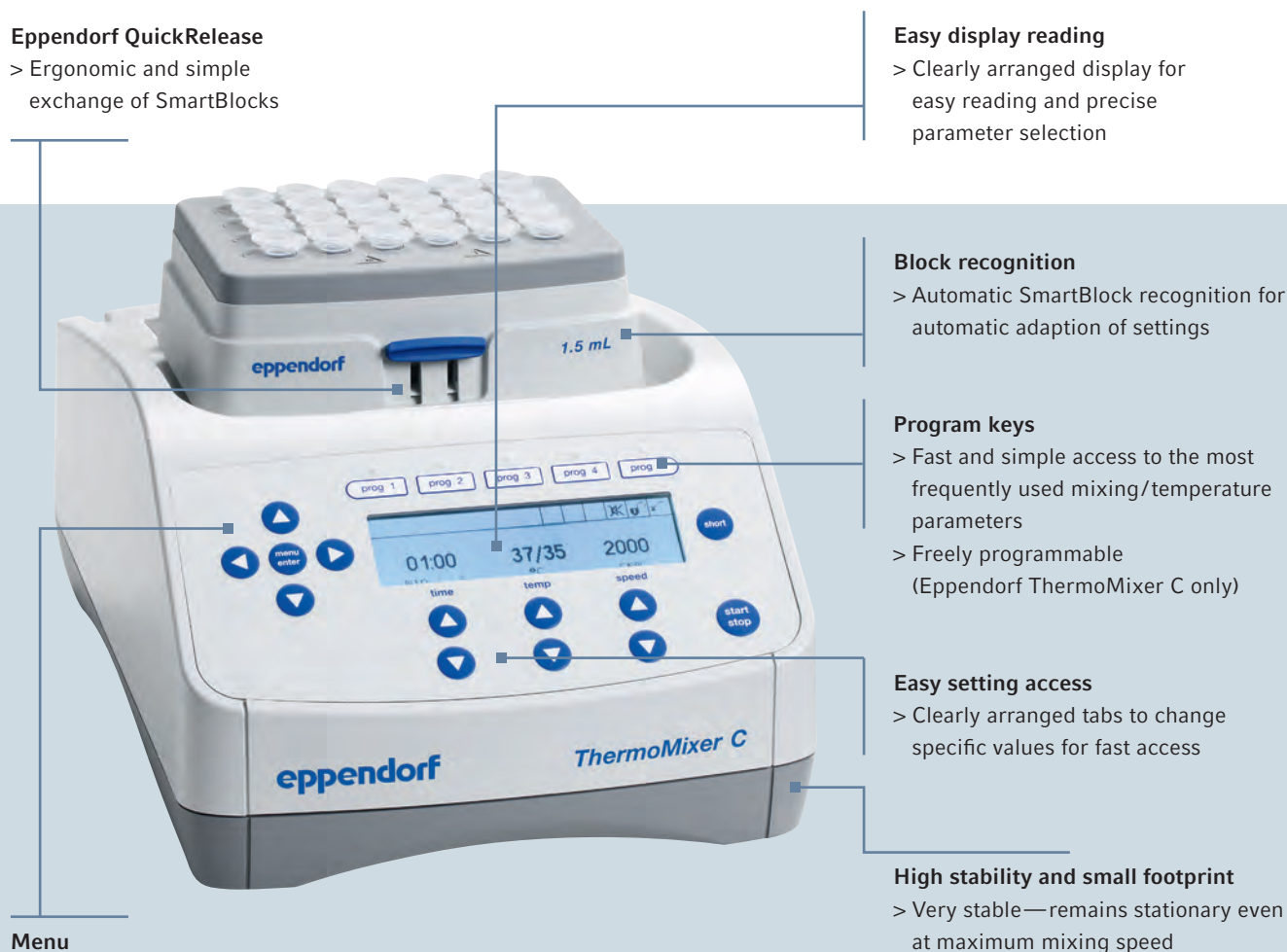
High stability and small footprint

- > Very stable—remains stationary even at maximum mixing speed

Menu

- > Simple and intuitive operation
- > Save up to 20 user defined programs
- > Set heating and cooling rates, select desired time mode

- > Change device settings: key lock, signal tones, contrast, service interval, and menu language



> Video clip about Eppendorf ThermoMixer – then and now



Benefits

- > Mixing, heating, and cooling in one instrument for high flexibility
- > All common vessels and plate formats from 5 μ L to 50 mL by different Eppendorf SmartBlocks for standard applications
- > Outstanding ^{2D}Mix-Control technology results in excellent mixing performance
- > Increased mixing frequency of up to 3,000 rpm for effective sample mixing
- > Anti-spill technology prevents lid wetting and cross-contamination
- > Excellent temperature management for maximum temperature accuracy, resulting in safe sample handling
- > Compatible with Eppendorf ThermoTop (condens.protect) for condensation-free sample handling (for Eppendorf SmartBlocks up to 2.0 mL)
- > Predefined program keys and clearly arranged menu guides enables simple and intuitive operations
- > Freely programmable program keys for individual optimization
- > Eppendorf PhysioCare Concept provides ergonomic design and operation
- > Sustainability score provided by NGO My Green Lab® and certified with ACT®-label

Eppendorf SmartBlocks for the following reaction vessels (Eppendorf ThermoMixer C and Eppendorf ThermoStat C):

- A. 24x lab vessels, 12 mm in diameter
- B. 8 x 15 mL conical tubes
- C. 4 x 50 mL conical tubes
- D. Eppendorf Deepwell Plates 96/500 μ L
- E. Eppendorf Deepwell Plates 96/1,000 μ L
- F. 24x cryotubes
- G. 8 x 5.0 mL Eppendorf Tubes®
- H. Lid for Eppendorf SmartBlocks plates, PCR 96, PCR 384, 0.5 mL, 1.5 mL, and 2.0 mL
- I. 384-well PCR plates
- J. 96-well PCR plates, 0.2 mL PCR tubes
- K. 24 x 0.5 mL vessels
- L. 24 x 1.5 mL vessels
- M. 24 x 2.0 mL vessels
- N. MTPs and deepwell plates
- O. 4 x 25 mL adapter for SmartBlock 50 mL

Eppendorf ThermoMixer® F Family—Heating/Mixing



Doing quite routine sample prep steps?

Whether you regularly work with 0.5/1.5/2.0 mL vessels or plates (MTP and DWP) – our customized fixed-block Eppendorf ThermoMixer F family offers you the perfect solution for your special application. Just simplify your routine work load.

Benefits

- > Up to 1,500 rpm (F1.5, F2.0) or 2,000 rpm (F0.5, FP) for efficient sample mixing
- > Outstanding ^{2D}Mix-Control technology results in excellent mixing performance
- > Anti-spill technology prevents lid wetting and cross-contamination
- > Compatible with Eppendorf ThermoTop (condens.protect) for condensation-free sample handling
- > Predefined temperature keys (37°C, 42°C, 56°C, and 95°C) for simple and intuitive operation
- > Very fast heat up speed of up to 18°C/min, reducing your waiting time
- > Eppendorf PhysioCare Concept provides ergonomic design and operation

Eppendorf ThermoStat C – Heating/Cooling



Benefits

- > Excellent temperature accuracy for safe sample handling
- > Precise temperature control from -10°C up to 110°C for all major lab applications
- > Temperature keys (4°C, 16°C, 37°C, 56°C, and 95°C) provide quick access to commonly used experimental temperatures
- > Broad range of SmartBlocks enables high vessel flexibility
- > Comprehensive range of program slots (up to 15) for flexible usage of device
- > Eppendorf ThermoTop compatibility prevents condensation and improves temperature homogeneity within sample tubes (up to 2.0 mL)
- > Low temperature (e.g. 4°C or 0°C) even at higher ambient temperatures for safe sample incubation
- > Very fast cooling rates of up to 5°C/min, reducing your waiting time



Need for fast temperature ramps?

Many experiments require fast heating and cooling steps in a very accurate manner. Precise temperature control is achieved for the ThermoStat C by using optimally balanced heating and cooling elements (peltier technology).

Some Eppendorf SmartBlocks for Eppendorf ThermoStat C, further blocks see page 9

Eppendorf MixMate® – Mixing

Straight mixing required?

Mix your samples in seconds, fully and reliably. Whether in plates (96 or 384-wells) or reaction tubes, your samples will be optimally processed. With the integrated ergonomic vortex function, the MixMate is your perfect lab assistant.

Benefits

- > ^{2D}Mix-Control for controlled mixing and reproducible results within seconds
- > Anti-spill technology prevents lid wetting resulting in reduced risk of sample cross-contamination
- > 5 different tube holders (0.5 mL, 1.5 / 2.0 mL, PCR 96 plates, 5 / 15 mL, 25 / 50 mL) for high vessel flexibility
- > Integrated ergonomic vortex function for various vessel formats for distinct sample mixing



> Further information available at: www.eppendorf.com/mixmate

From Mixing to Shaking – Keep the Performance



Mixing versus shaking – the difference is: The volume
Independent from the volume of your sample, the reliable mixing of the liquid is crucial for a successful result of your experiment.

This reliability symbolizes the Eppendorf ThermoMixer family for small volumes whereas the Innova® Shaker family provides you the same reliability for bigger sample volumes. Change the volume – and keep the performance.

Temperature Control and Mixing Performance Plans

epServices
for premium performance



Preventive Maintenance

The temperature control and mixing performance plans offer a choice of preventive maintenance services for consistent instrument performance and confidence in results.



Certification Services

Installation Qualification (IQ) and Operational Qualification (OQ) certification services ensure your quality management requirements are fulfilled. You are provided with qualified assurance that your instrument performs correctly, in accordance with manufacturers specifications.

Eppendorf SmartBlock

Eppendorf SmartBlock™ for	Type of borehole			Limits		Can be used with		
	Ø L x W (in mm)	Depth (in mm)	Bottom shape	Max. temp.	Max. rpm	Lid	ThermoTop	Transfer Rack
Reaction vessels								
0.5 mL (24x)	8.2	26.4	Conical	100 °C	2,000	■	■	■
1.5 mL (24x)	11.0	34.7	Conical	100 °C	2,000	■	■	■
2.0 mL (24x)	11.0	34.6	Round	100 °C	2,000	■	■	■
5.0 mL (8x)	17.0	53.0	Conical	100 °C	1,000			
15 mL (8x)	17.4	106	Conical	100 °C	1,000			
50 mL (4x)	29.8	102	Conical	100 °C	1,000			
12 mm HPLC, FACS (24x)	12.1	34.5	Round	110 °C* ¹	2,000			
Cryo tubes (24x)	12.7	31.7	Flat	110 °C* ¹	2,000			
Plates								
MTP and DWP	130 x 88	–	Flat	100 °C	3,000* ²	■* ³	■	
PCR 96 (0.2 mL PCR tubes and plates)	6.4	14.0	Conical	100 °C	2,000	■	■	
PCR 384	3.8	8.0	Conical	100 °C	3,000	■* ³	■	
Eppendorf DWP 500	–	–	–	100 °C	1,500	■	■	
Eppendorf DWP 1,000	–	–	–	100 °C	1,500	■	■	
SmartExtender	11.0	34.7	Conical	110 °C	–	■		

*¹ Only available with the ThermoStat C

*² For DWP, the maximum mixing frequency is 2,000 rpm (level sensor)

*³ Maximum mixing frequency when using the lid is 2,000 rpm

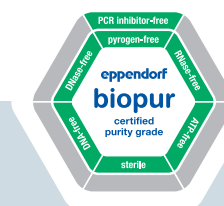
In Good Partnership – Eppendorf Consumables



Benefits of Eppendorf consumables

- > Broad range of tube volumes (0.2 mL, 0.5 mL, 1.5 mL, 2.0 mL, 5.0 mL, 15 mL, 25 mL, 50 mL), the right volume for your needs
- > Different purity grades (Eppendorf Quality™, sterile, PCR clean, Biopur®) – fitting to your requirements
- > DNA LoBind consumables for high recovery rates of DNA samples
- > Protein LoBind consumables for high recovery rates of protein samples
- > Precise lid sealing of tubes for lowest evaporation rates, saving your samples
- > Hinged Safe-Lock mechanism keeps lids closed during incubation, saving your samples
- > Optimized well geometry for maximum recovery of samples
- > OptiTrack® labeling of plates for easy and fast well identification

> Additional information and order numbers available at:
www.eppendorf.com/tubes and www.eppendorf.com/plates



Features	Eppendorf ThermoMixer C	Eppendorf ThermoMixer F0.5	Eppendorf ThermoMixer F1.5
			
Basic application	Heating/mixing/cooling	Heating/mixing	Heating/mixing
Temperature control range	min: 15 °C* ² below RT, max: 100 °C	min: 4 °C above RT, max: 100 °C	min: 4 °C above RT, max: 100 °C
Lowest and highest settings	1 °C/100 °C	1 °C/100 °C	1 °C/100 °C
Maximum temperature accuracy	± 0.5 °C at 20–45 °C	± 0.5 °C at 20–45 °C	± 0.5 °C at 20–45 °C
Temperature homogeneity	Max. ± 0.5 °C at 20–45 °C (all SmartBlock positions)	Max. ± 0.5 °C at 20–45 °C (all SmartBlock positions)	Max. ± 0.5 °C at 20–45 °C (all SmartBlock positions)
Maximum heating rate	7 °C/min	15 °C/min	11 °C/min
Maximum cooling rate	2.5 °C/min between 100 °C and RT	–	–
Mixing frequency	300–3,000 rpm (depends on SmartBlock used)	300–2,000 rpm	300–1,500 rpm
Mixing orbit in Ø (orbit)	3 mm	3 mm	3 mm
Timer	15 sec to 99:30 h, continuous	–	–
Accessories	> Exchangeable SmartBlocks (automatic block recognition) > ThermoTop with condens.protect® technology	> ThermoTop with condens.protect® technology	> ThermoTop with condens.protect® technology
Programs	> 20 program slots available > 5 program keys (pre-defined, rewritable) > Programmable: up to 4 program levels	> 5 temperature keys (pre-defined at 37 °C, 42 °C, 56 °C, 95 °C and temp off)	> 5 temperature keys (pre-defined at 37 °C, 42 °C, 56 °C, 95 °C and temp off)
Additional functions	> ^{2D} Mix-Control > Anti-spill technology > Short Mix > Intervall Mix > Time/temp mode > Pause function > USB interface* ¹	> ^{2D} Mix-Control > Anti-spill technology > USB interface* ¹ > Short Mix	> ^{2D} Mix-Control > Anti-spill technology > USB interface* ¹ > Short Mix
Mains/power connection	100 V–130 V ±10 %, 50 Hz–60 Hz 220 V–240 V ±10 %, 50 Hz–60 Hz	100 V–130 V ±10 %, 50 Hz–60 Hz 220 V–240 V ±10 %, 50 Hz–60 Hz	100 V–130 V ±10 %, 50 Hz–60 Hz 220 V–240 V ±10 %, 50 Hz–60 Hz
Output	200 W (max.)	200 W (max.)	200 W (max.)
Dimensions (W × D × H)	20.6 × 30.4 × 13.6 cm	20.6 × 30.4 × 16.3 cm	20.6 × 30.4 × 17.0 cm
Weight	6.3 kg	6.2 kg	6.3 kg

*¹ Only for Eppendorf Service*² ± 2 °C

Technical specifications subject to change.

Eppendorf ThermoMixer F2.0**Eppendorf ThermoMixer FP****Eppendorf ThermoStat C****Eppendorf MixMate®**

Heating/mixing

min: 4 °C above RT, max: 100 °C

1 °C/100 °C

± 0.5 °C at 20–45 °C

Max. ± 0.5 °C at 20–45 °C
(all SmartBlock positions)

13 °C/min

–

300–1,500 rpm

3 mm

–

> ThermoTop with
condens.protect® technology> 5 temperature keys
(pre-defined at 37 °C, 42 °C,
56 °C, 95 °C and temp off)> ^{2D}Mix-Control
> Anti-spill technology
> USB interface*1
> Short Mix100 V–130 V ±10 %, 50 Hz–60 Hz
220 V–240 V ±10 %, 50 Hz–60 Hz

200 W (max.)

20.6 × 30.4 × 17.0 cm

6.3 kg

Heating/mixing

min: 4 °C above RT, max: 100 °C

1 °C/100 °C

± 1 °C at 20–45 °C

Max. ± 0.5 °C at 20–45 °C
(all SmartBlock positions)

18 °C/min

–

300–2,000 rpm

3 mm

–

> ThermoTop with
condens.protect® technology> 5 temperature keys
(pre-defined at 37 °C, 42 °C,
56 °C, 95 °C and temp off)> ^{2D}Mix-Control
> Anti-spill technology
> USB interface*1
> Short Mix100 V–130 V ±10 %, 50 Hz–60 Hz
220 V–240 V ±10 %, 50 Hz–60 Hz

200 W (max.)

20.6 × 30.4 × 16.4 cm

6.1 kg

Heating/cooling

min: 30 °C*2 below RT,
max: 110 °C-10 °C/110 °C (110 °C can be set
when using 12 mm and cryo)

± 0.5 °C at 20–45 °C

Max. ± 0.5 °C at 20–45 °C
(all SmartBlock positions)

5.5 °C/min

5 °C/min between 110 °C and RT

–

–

15 sec to 99:30 h, continuous

> Exchangeable SmartBlocks
(automatic block recognition)
> ThermoTop with
condens.protect® technology> 15 program slots available
> 5 temperature keys pre-defined
at 4 °C, 16 °C, 37 °C, 56 °C and
95 °C)> Programmable:
up to 4 program levels> Pause function
> USB interface*1
> Time/temp mode100 V–130 V ±10 %, 50 Hz–60 Hz
220 V–240 V ±10 %, 50 Hz–60 Hz

200 W (max.)

20.6 × 30.4 × 13.1 cm

4.3 kg

Mixing

–

–

–

–

–

–

300–3,000 rpm
3,500 rpm (vortexing)

3 mm

15 sec to 99:30 h, continuous

> 5 tube holders
(0.5 mL, 1.5/ 2.0 mL, 96 well
PCR, 5/ 15 mL, 25/ 50 mL)> 5 softkeys (pre-defined, most
common mixing parameters)> ^{2D}Mix-Control
> Anti-spill technology
> Touch vortexing100 V–130 V ±10 %, 50 Hz–60 Hz
220 V–240 V ±10 %, 50 Hz–60 Hz

40 W (max.)

17.0 × 23.0 × 13.0 cm

4.2 kg

Sample Handling

Performing a 60-sec-incubation step for 24 samples in parallel?

The Eppendorf Transfer Rack enables a safe and easy transfer of up to 24 samples in parallel to or from the Eppendorf SmartBlock. This provides similar reaction conditions for all samples of your experiment. The Transfer Rack is available for the SmartBlock 0.5 mL as well as the SmartBlock 1.5 and 2.0 mL. These SmartBlocks include a Transfer Rack by standard.

Benefits

- > Holds up to 24 microtubes (i.e. 0.5 mL, 1.5 mL, or 2.0 mL) for easy transfer of multiple vessels in parallel
- > Convenient transfer of up to 24 hot vessels without burning the fingers



Missing a second temperature for an incubation at 95°C?

The Eppendorf SmartExtender offers a comfortable incubation tool which can easily be used as an add-on to your existing SmartBlocks and the Eppendorf ThermoMixer C/ Fx as well as ThermoStat C.

Benefits

- > Up to 12 vessels (1.5 mL) for higher throughput and higher flexibility
- > Independent heating function for second temperature
- > Parallel usage of any SmartBlock and SmartExtender

Sample Cooling

Missing a safe location for your sample?

The Eppendorf PCR-cooler contains a temperature indicator that changes the color when its temperature exceeds 7°C. Ideal for PCR setup of 0.2 mL vessels.

Benefits

- > Handling system for sample set-up, protection, transport, and storage of sensitive samples – keep your samples safe
- > Clear temperature indication: Color of PCR cooler changes when temperature exceeds 7°C
- > Dry incubation technology eliminates contamination risk of samples



below 7°C

above 7°C



Color change

Eppendorf PCR-cooler changes color depending on temperature (up to 1 h at 0°C after precooling at -20°C)