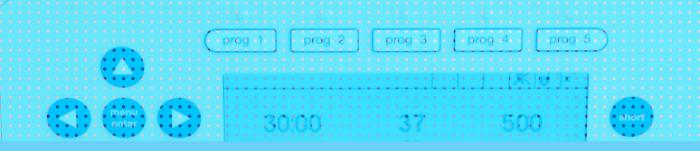
eppendorf





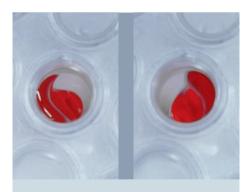
The Value of Mixing

Eppendorf Temperature Control and Mixing Instruments



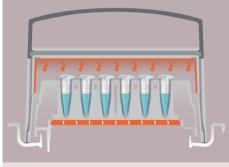
»Beyond your expectations: Eppendorf temperature control and mixing instruments.«

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



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

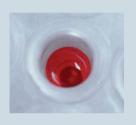
> More information: page 4

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 $^{2D}\text{Mix-Control}$ (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 $^{2D}\text{Mix-Control}$ 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

$50 \mu L$ 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



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.

- > 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 serialnumber specific certificate for documentation purpose
- > Insulated SmartBlocks for ergonomic operation—you won't burn your fingers
- > Automatic block recognition for safe handling



> Video clip about Eppendorf QuickRelease of Eppendorf SmartBlocks > Further information available at: www.eppendorf.com/smartblocks





Sample Temperature—Eppendorf ThermoTop®

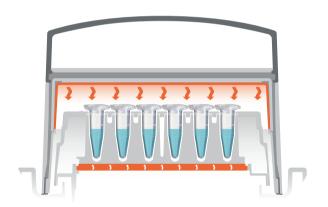
Tired of condensation in your tubes?

We combined the Eppendorf ThermoMixer with the PCR cycler 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



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.

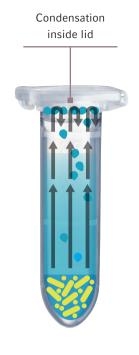
ppendorf ThermoMixer® C	
Eppendorf ThermoMixer® F	
Eppendorf ThermoStat™ C	



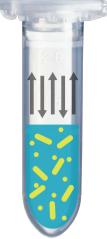
Advantages of condensation prevention during incubation

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.









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 broaden 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

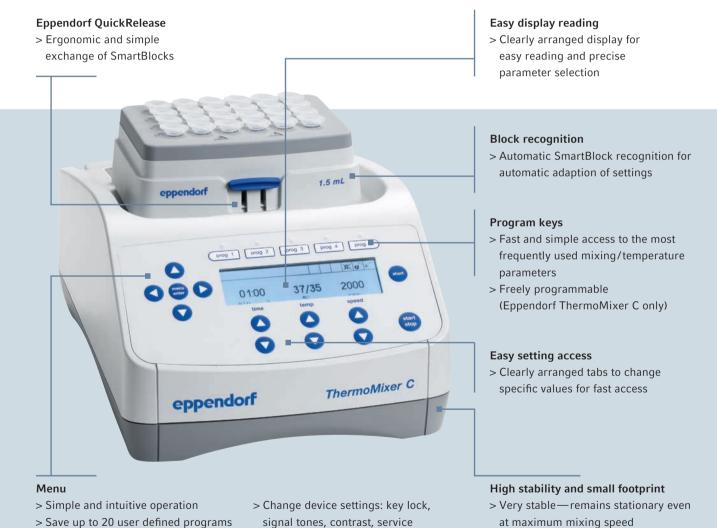




Eppendorf ThermoMixer® C—Heating/Mixing/Cooling

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.





> Set heating and cooling rates, select

desired time mode

interval, and menu language



Benefits

- > Mixing, heating, and cooling in one instrument for high flexibility
- > All common vessels and plate formats from 5 μL 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

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

- A. 24× lab vessels, 12 mm in diameter
- B. 8×15 mL conical tubes
- C. 4×50 mL conical tubes
- D. Eppendorf Deepwell Plates 96/500 μL
- E. Eppendorf Deepwell Plates 96/1,000 μL
- F. 24× cryotubes
- G. 8 × 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. 24×0.5 mL vessels
- L. 24×1.5 mL vessels
- M. 24×2.0 mL vessels
- N. MTPs and deepwell plates

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.

- > 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.

- > 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
- > 3 different tube holders (0.5 mL, 1.5/2.0 mL, PCR 96 plates) for high vessel flexibility
- > Integrated ergonomic vortex function for various vessel formats for distinct sample mixing









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 Eppendorf New Brunswick® Shaker family provides you the same reliability for bigger sample volumes. Change the volume—and keep the performance.

Temperature Control and Mixing Performance Plans





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 fullfilled. 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 × W (in mm)	Depth (in mm)	Bottom shape	Max. temp.	Max. rpm	Lid	ThermoTop	Transfer Rack
Reaction vessels								
0.5 mL (24×)	8.2	26.4	Conical	100°C	2,000		•	
1.5 mL (24×)	11.0	34.7	Conical	100°C	2,000	•		
2.0 mL (24×)	11.0	34.6	Round	100°C	2,000		•	
5.0 mL (8×)	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 (24×)	12.1	34.5	Round	110°C*1	2,000			
Cryo tubes (24x)	12.5	31.7	Flat	110°C*1	2,000			
Plates								
MTP and DWP	130 × 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			

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, 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
- > OptiTrack® labeling of plates for easy and fast well identification



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

 $^{^{\}star 1}$ Only available with the TheromStat C $^{\star 2}$ For DWP, the maximum mixing frequency is 2,000 rpm (level sensor)

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

Eppendorf ThermoMixer F1.5

Eppendorf ThermoMixer F0.5

	oppendorf Thermother C	eppendorf Thermostrier F0.5	eppendorf Thermodities 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	> 2DMix-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	> 2DMix-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	

Eppendorf ThermoMixer C

Features

 $^{^{*1}}$ Only for Eppendorf Service $^{*2}\pm2\,^{\circ}\text{C}$ Technical specifications subject to change.

Eppendorf ThermoMixer F2.0 Eppendorf ThermoMixer FP Eppendorf ThermoStat C Eppendorf MixMate® Heating/mixing Heating/mixing Heating/cooling Mixing min: 4°C above RT, max: 100°C min: 4°C above RT, max: 100°C min: 30°C*2 below RT, max: 110°C 1°C/100°C 1°C/100°C -10°C/110°C (110°C can be set when using 12 mm and cryo) ± 0.5 °C at 20-45 °C ± 1°C at 20-45°C ± 0.5°C at 20-45°C Max. \pm 0.5 °C at 20-45 °C Max. \pm 0.5 °C at 20-45 °C Max. \pm 0.5 °C at 20-45 °C (all SmartBlock positions) (all SmartBlock positions) (all SmartBlock positions) 18°C/min 13°C/min 5.5°C/min 5°C/min between 110°C and RT 300-1,500 rpm 300-2,000 rpm 300-3,000 rpm 3,500 rpm (vortexing) 3 mm3 mm 3 mm 15 sec to 99:30 h, continuous 15 sec to 99:30 h, continous > ThermoTop with > ThermoTop with > Exchangeable SmartBlocks > 3 tube holders condens.protect® technology condens.protect® technology (automatic block recognition) (0.5 mL, 1.5/2.0 mL) > ThermoTop with condens.protect® technology > 15 program slots available > 5 softkeys (pre-defined, most > 5 temperature keys > 5 temperature keys (pre-defined at 37°C, 42°C, (pre-defined at 37°C, 42°C, common mixing parameters) > 5 temperature keys pre-defined 56°C, 95°C and temp off) at 4°C, 16°C, 37°C, 56°C and 56°C, 95°C and temp off) 95°C) > Programmable: up to 4 program levels > 2D Mix-Control > 2D Mix-Control > Pause function > 2D Mix-Control > Anti-spill technology > Anti-spill technology > USB interface*1 > Anti-spill technology > USB interface*1 > USB interface*1 > Time/temp mode > Touch vortexing > Short Mix > Short Mix 100 V-130 V ±10 %, 50 Hz-60 Hz 220 V-240 V ±10 %, 50 Hz-60 Hz 200 W (max.) 200 W (max.) 200 W (max.) 40 W (max.) $17.0 \times 23.0 \times 13.0$ cm $20.6 \times 30.4 \times 17.0$ cm $20.6 \times 30.4 \times 16.4$ cm $20.6 \times 30.4 \times 13.1$ cm

4.3 kg

4.2 kg

6.3 kg

6.1 kg

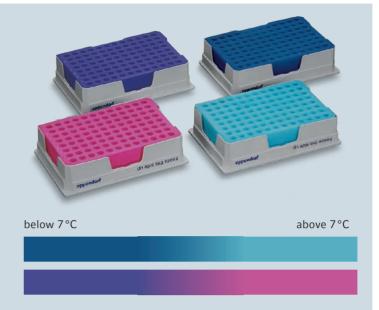
Sample Cooling

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.

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
- > Accommodates PCR-vessels as tubes, strips, or plates for flexible vessel usage
- > Dry incubation technology eliminates contamination risk of samples



Color change

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

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.

- > 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
- > Temperature range from -96°C to 121°C for broad flexibility





Ordering information

Description	Order no.
Eppendorf ThermoMixer® C, basic device without Eppendorf SmartBlock™, 220 V–240 V	5382 000.015
Eppendorf ThermoMixer® F1.5, with Eppendorf SmartBlock™ for 24 reaction vessels 1.5 mL, incl. Transfer Rack, 220 V–240 V	5384 000.012
Eppendorf ThermoMixer® FP, with Eppendorf SmartBlock™ for microplates and deepwell plates, including lid, 220 V–240 V	5385 000.016
Eppendorf ThermoMixer® F0.5, with Eppendorf SmartBlock™ for 24 reaction vessels 0.5 mL, incl. Transfer Rack, 220 V–240 V	5386 000.010
Eppendorf ThermoMixer® F2.0, with Eppendorf SmartBlock™ for 24 reaction vessels 2.0 mL, incl. Transfer Rack, 220 V–240 V	5387 000.013
Eppendorf ThermoStat™ C, basic device without Eppendorf SmartBlock™, 220 V–240 V	5383 000.019
Eppendorf MixMate®, incl. 3 tube holders: PCR 96, 0.5 mL, 1.5/2.0 mL, 220 V-240 V	5353 000.014
Eppendorf ThermoTop®, with condens.protect® technology	5308 000.003
Lid, for Eppendorf ThermoMixer® F1.5 and FP, for Eppendorf SmartBlock™ 0.5–2.0 mL, plates, PCR 96 and 384	5363 000.233
Eppendorf SmartBlock™ 0.5 mL, thermoblock for 24 × 0.5 mL tubes, incl. Transfer Rack	5361 000.031
Eppendorf SmartBlock™ 1.5 mL, thermoblock for 24 × 1.5 mL tubes, incl. Transfer Rack	5360 000.038
Eppendorf SmartBlock™ 2.0 mL, thermoblock for 24 × 2.0 mL tubes, incl. Transfer Rack	5362 000.035
Eppendorf SmartBlock™ 5.0 mL , thermoblock for 8 × Eppendorf Tubes® 5.0mL	5309 000.007
Eppendorf SmartBlock™ 15 mL, thermoblock for 8 × 15 mL conical tubes	5366 000.021
Eppendorf SmartBlock™ 50 mL, thermoblock for 4 × 50 mL conical tubes	5365 000.028
Eppendorf SmartBlock™ 12 mm, thermoblock for 24 reaction tubes, diameter up to 12 mm	5364 000.024
Eppendorf SmartBlock™ cryo, thermoblock for 24 cryo tubes, 1.5–2.0 mL, all base shapes	5367 000.025
Eppendorf SmartBlock™ plates, thermoblock for microplates and deepwell plates, incl. lid	5363 000.039
Eppendorf SmartBlock™ PCR 96, thermoblock for PCR plates 96, incl. lid	5306 000.006
Eppendorf SmartBlock™ PCR 384, thermoblock for PCR plates 384, incl. lid	5307 000.000
Eppendorf SmartBlock™ DWP 500, thermoblock for Eppendorf Deepwell Plates 96/500 μL, incl. lid*	5316 000.004
Eppendorf SmartBlock™ DWP 1,000, thermoblock for Eppendorf Deepwell Plates 96/1,000 μL, incl. lid*	5310 000.002
Transfer Rack 0.5 mL, rack for Eppendorf SmartBlock™ 0.5 mL	3880 000.305
Transfer Rack 1.5/2.0 mL, rack for Eppendorf SmartBlock™ 1.5/2.0 mL	3880 000.151

^{*} Coming soon.

Your local distributor: www.eppendorf.com/contact Eppendorf AG \cdot 22331 Hamburg \cdot Germany eppendorf@eppendorf.com \cdot www.eppendorf.com

www.eppendorf.com/thermomixer