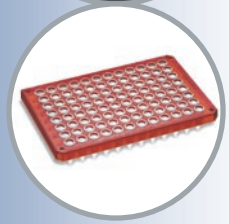
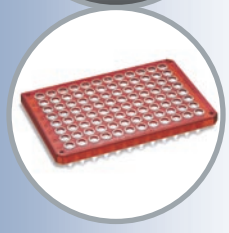


NEW!



NEW!

There’s no way out!

Mastercycler® pro with *vapo.protect*™

eppendorf

Reproducibility, ...

Mastercycler pro, Mastercycler pro S, Mastercycler pro 384

Reproducibility, specificity and speed – these are the requirements for PCR in any application. The Mastercycler pro is unparalleled in its ability to fulfill these requirements:

The proprietary ***vapo**.protect*™ technology* reduces evaporation to a minimum. Therefore, concentrations in your PCR master mix remain consistent leading to stable and reproducible specificity. Non-specific binding is minimized beyond importance.

The extremely high heating and cooling rates of the Mastercycler pro S give you the speed you need. Unsurpassed speed can be achieved with Eppendorf's Impulse PCR, a device driven hot-start function that increases heating rates to 8 °C/s.

Flexibility at its best
Today's requirements for PCR in your lab are defined by today's research project. Tomorrow, new questions arise and new experiments must provide answers. That is why only an open and flexible system fits into today's lab.

Eppendorf's Mastercycler pro offers ultimate flexibility:

- choose from three block formats
- operate the Mastercycler pro in three different configurations
- use any plate, tube or strip you want

Fastest speeds, highest precision, easy usage and absolute reliability united in a flexible concept – that is the Mastercycler pro.

Product Features Mastercycler pro

- Ultimate reduction of evaporation
- Extremely fast heating and cooling rates
- Gradient blocks with SteadySlope technology
- Intuitive graphic programming
- Display to indicate cycler number in a network
- Upgradable to real-time PCR
- 2 year warranty
- Optional self-test of peltier elements

* Patents pending.

… specificity and speed

vapo.protect™ technology

Keep the concentration
Evaporation in a PCR reaction vessel not only limits the ability to work with low reaction volumes but also makes it difficult to obtain reproducible results.
For the Mastercycler pro it has been Eppendorf's aim to protect the PCR reaction from evaporation. While common PCR instruments press a metal plate onto the PCR consumable, the ***vapo****.protect*™ lid covers the PCR consumable with a cushion that conforms to the shape of the consumable – no matter which consumable you use. The snug fit of the cushion in combination with the high pressure and excellent heating capabilities of the lid reduce evaporation to a minimum.

Evaporation leads to increasing concentrations of the PCR master mix components, especially primers. This, in turn, leads to non-specific binding.

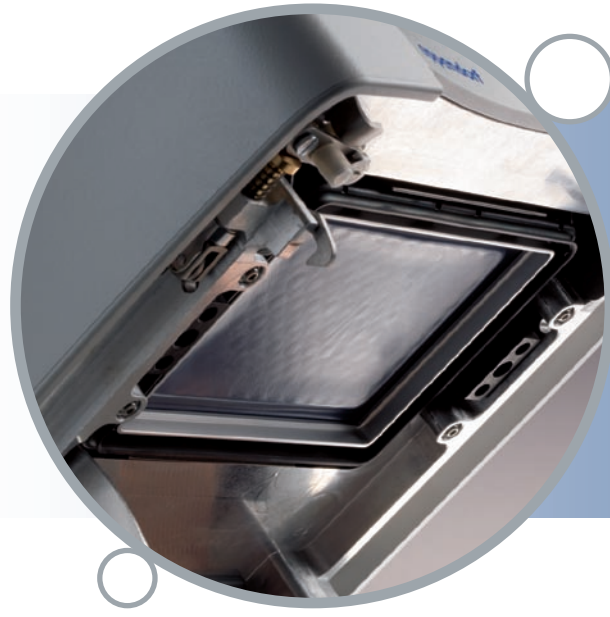
The changes in concentrations due to evaporation both during the experiment and between experiments can be a cause for great concern for any scientist who tries to keep variables to a minimum.

Stop evaporation effectively!
The flexible fit of the fluid cushion minimizes evaporation of your reaction considerably. Only 0–3 % of the reaction volume evaporates using the new ***vapo****.protect*™ technology. Thermocyclers of other suppliers show evaporation of up to 10 % in the center and up to >50 % at the corner positions of the block.

Thus, the ***vapo****.protect*™ technology leads to improved reproducibility and specificity at the rim and in the corners of the block.

Thermocycler	PCR plate: mean evaporation [%]		
	Corner (4 wells)	Edge (32 wells)	Center (60 wells)
Mastercycler pro S	3	2	0
Competitor model A	45	32	10
Competitor model B	30	5	1
Competitor model C	4	3	6
Competitor model D	49	5	0
Competitor model E	>50	30	0

● Table: Comparison of evaporation between the Mastercycler pro and competitor instruments



You can always get what you want

Mastercycler pro, Mastercycler pro S, Mastercycler pro 384

Block formats:

- **Mastercycler pro S**
  - Highest temperature control speed due to silver block: up to 6 °C/s
  - Impulse PCR with initial heating of 8 °C/s
  - Versatile temperature gradient over 12 rows
  - Gradient range of up to 24 °C
  - ***vapo**.protect*™ technology
- **Mastercycler pro**
  - Robust aluminum block
  - Versatile temperature gradient over 12 rows
  - Gradient range of up to 20 °C
  - ***vapo**.protect*™ technology
- **Mastercycler pro 384**
  - High throughput
  - Versatile temperature gradient over 24 rows
  - Gradient range of up to 20 °C
  - ***vapo**.protect*™ technology

Configurations:

- **Stand alone system**
  - Fits in every lab
  - Operated by Control Panel
  - Upgradeable to real-time PCR
  - Expandable to a Mini Satellite System or network
- **Mini Satellite System**
  - Operated by Control Panel
  - Control up to 5 units with one Control Panel
  - Combine any block format
  - Expandable to a network
- **Computer Network**
  - Combine up to 30 units for ultimate throughput
  - Operated by a computer and the CycleManager pro software
  - Benefit from a client/server architecture and full software functionality

Details can make a difference

Eppendorf quality – for optimal performance

Gradient with SteadySlope® Technology
The gradient option of the Mastercycler pro features the SteadySlope® technology to ensure that the heating and cooling ramp rates are identical in both gradient and normal operation. Thus, you can expect identical temperature control characteristics in both optimization and routine experiments. Programming the gradient with the Control Panel and the CycleManager pro is easy and intuitive – so that novice users can get started quickly and safely.

Easy testing …
The self test function of the Mastercycler pro provides the ability to check the peltier elements of the thermal block easily. This feature tests the functionality of all six peltier elements and provides a corresponding certificate.

This way, the user can document the homogeneity of the instrument between regular testing intervals.
In addition, Eppendorf offers a Temperature Validation System as an external testing device.

High quality consumables
Consumables of high quality, e.g. Eppendorf twin.tec® PCR plates*, help to further reduce evaporation. The raised rims of the Eppendorf twin.tec® PCR plates are optimized to guarantee a tight sealing in all wells.

For further information, please visit
www.eppendorf.de/pcr

* European Patent EP 1 161 994 and US patent US 7,324,977

UKAS CALIBRATION

DKD

NIST

Certified Quality

- Individual, documented quality control certificate
- Calibration accordingly to national and international standards: NIST (USA), DKD/PTB (Germany), UKAS/NPL (UK)
- UL listed

Successful networking

Mastercycler pro, Mastercycler pro S, Mastercycler pro 384

PCR in a computer network
The Mastercycler pro is optimized for high throughput capabilities. Up to 30 units of any block format combination can be controlled with one computer.
The advanced CycleManager pro software offers a client/server architecture, that enables one to check the status of the PCR from any computer in your local network.

Administrator functions, password protection, individual user folders, intuitive software including the running information of the cyclers and an import/export functionality complete the set of convenient features. All collected data is archived in a database.

If you are working in a GLP environment, your documentation needs will be strongly supported by the software.

All 30 units can run different protocols at the same time – extreme flexibility!

Control Panel

- USB port
- ¼ VGA color display
- Microsoft® Windows-like user administration
- More than 100 user-defined folders
- 16 MB memory capacity for more than 700 programs
- External memory option
- Control up to 5 Mastercycler pro with one Control Panel

Mastercycler pro

Technical specifications

Description		Mastercycler® pro	Mastercycler® pro S	Mastercycler® pro 384
Thermoblock		Aluminum	Silver	Aluminum
Sample capacity:		96 x 0.2 ml PCR tubes or 1 PCR plate 8 x 12 (unskirted, semi-skirted, skirted – according to SBS standard)		1 PCR plate 384
Temperature control range of the block:		4–99 °C	4–99 °C	4–99 °C
Temperature control mode:		Fast, Standard, Safe; both available in gradient operation mode		
Heating technology of the block:		Peltier elements, Triple Circuit Technology		
Gradient block:		Over 12 rows	Over 12 rows	Over 24 rows
Gradient range:		1–20 °C	1–24 °C	1–20 °C
Gradient temperature range:		30–99 °C	30–99 °C	30–99 °C
Lid temperature range:		37–110 °C	37–110 °C	37–110 °C
Lid descent and closing pressure:		***vapo.****protect*™ technology, with Thermal Sample Protection		
Block homogeneity:	20–72 °C	≤ ±0.3 °C	≤ ±0.3 °C	≤ ±0.3 °C
	95 °C	≤ ±0.4 °C	≤ ±0.4 °C	≤ ±0.4 °C
Block temperature accuracy:		± 0.2 °C	± 0.2 °C	± 0.2 °C
Heating rate*:		approx. 4 °C/s	approx. 6 °C/s	approx. 4 °C/s
Cooling rate*:		approx. 3 °C/s	approx. 4.5 °C/s	approx. 3 °C/s
Interfaces:		1 × Centronics®, 1 × RS-232, Control panel, one each of CAN_in/CAN_out		
Dimensions (W × D × H):		26 × 41.5 × 37 cm	26 × 41.5 × 37 cm	26 × 41.5 × 37 cm
Weight:		18.5 kg (40.8 lbs)	18.5 kg (40.8 lbs)	18.5 kg (40.8 lbs)
Power supply:		115 V or 230 V, 50–60 Hz	115 V or 230 V, 50–60 Hz	115 V or 230 V, 50–60 Hz
Power consumption:		950 W	950 W	950 W

* Heating and cooling rates measured at block

Mastercycler pro

Ordering information

Description	Int. Order no.	North America Order no.
Complete Mastercycler pro packages		
Mastercycler pro and Control Panel, 230 V, 50–60 Hz	6321 000.515	950040015
Mastercycler pro S and Control Panel, 230 V, 50–60 Hz	6325 000.510	950040025
Mastercycler pro 384 and Control Panel, 230 V, 50–60 Hz	6324 000.516	950040035
Individual Mastercycler pro modules		
Control Panel, incl. connection cable	6320 000.007	950030050
Mastercycler pro*, 230 V, 50–60 Hz	6321 000.019	950030010
Mastercycler pro S*, 230 V, 50–60 Hz	6325 000.013	950030020
Mastercycler pro 384*, 230 V, 50–60 Hz	6324 000.010	950030030
Accessories		
CAN_Bus connection cable, 50 cm	5341 612.006	950014008
CAN_Bus connection cable, 150 cm	5341 611.000	950014016
MultiMediaCard, 16 MB	5075 780.003	960002008
Self test dongle	6320 071.001	950030040
Temperature Validation System for Mastercycler and Mastercycler pro	0055 000.298	950008059
CycleManager pro, incl. installation manual, online help, and connection cable	5349 810.001	950017007
CycleManager pro, incl. Installation instructions, online help	5349 820.007	950017202

* A Control Panel or CycleManager pro software (both sold separately) is required for operation.
CAN_Bus connection cables are required to link cyclers in an network.

eppendorf
In touch with life

Your local distributor: www.eppendorf.com/worldwide
Eppendorf AG · 22331 Hamburg · Germany · Tel: +49 40 538 01-0 · Fax: +49 40 538 01-556 · E-mail: eppendorf@eppendorf.com
Eppendorf North America, Inc. · One Cantiague Road · P. O. Box 1019 · Westbury, N.Y. 11590-0207 · USA
Tel: +1 516 334 7500 · Toll free phone: +1 800 645 3050 · Fax: +1 516 334 7506 · E-mail: info@eppendorf.com

Application Support Europe, International: Tel: +49 1803 666 789 · E-mail: support@eppendorf.com
North America: Tel: +1 800 645 3050 ext. 2258 · E-mail: support_na@eppendorf.com
Asia Pacific: Tel: +60 3 8023 6869 · E-mail: support_asiapacific@eppendorf.com

Order-no. A632 x13 020/GB1/15T/0708/FEEL/WEID/Printed in Germany