



Mastercycler® ep
Combine – recombine – expand

eppendorf

Mastercycler ep:

Mastercycler ep gradient, Mastercycler ep gradient S and Mastercycler ep 384

Faster speeds, highest precision, more user-friendliness and absolute reliability united within a flexible concept – this is the definition of the **Mastercycler ep** system. Nucleic acid research has been developing dynamically in the past few years. The same applies to the required capabilities of PCR-Systems.

In order to stay abreast of these technological advances, the challenges of tomorrow must be considered today. The Mastercycler ep system is today's answer for the future.

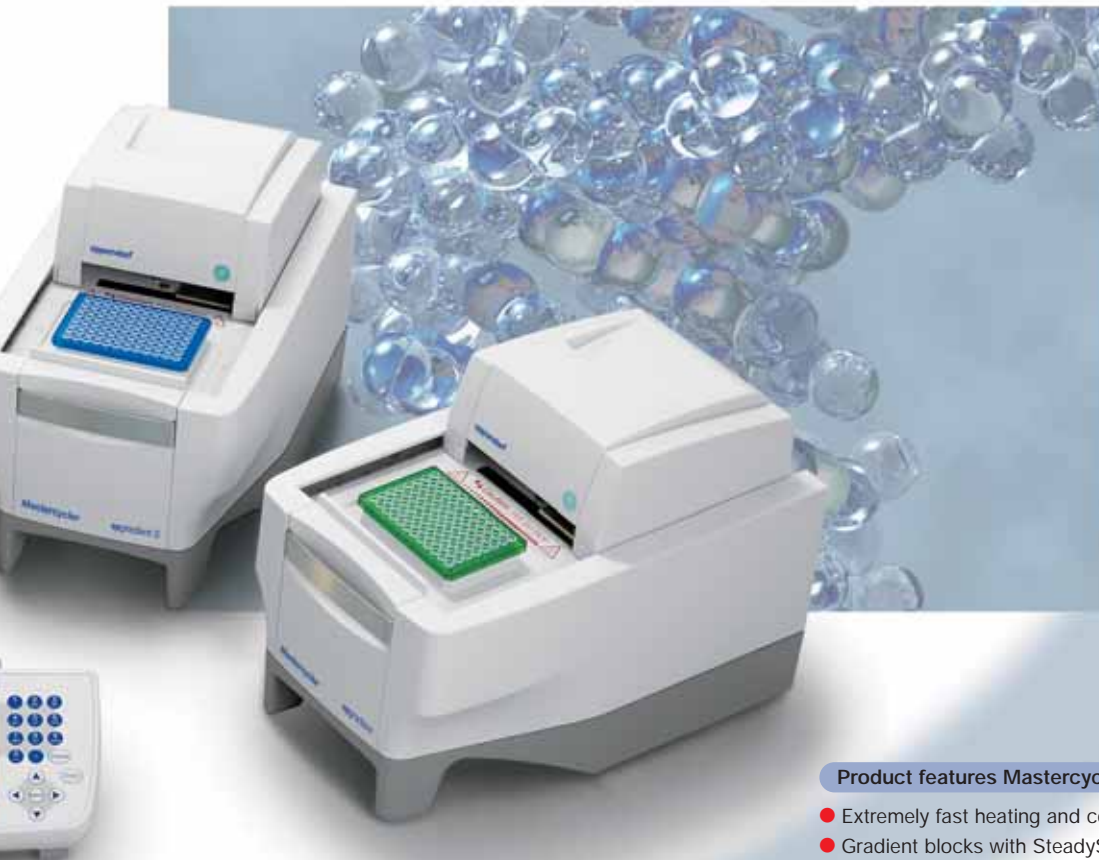


Practice of the patented polymerase chain reaction (PCR) process requires a license. The Mastercycler ep is an Authorized Thermal Cycler and may be used with PCR licenses available from Applied Biosystems. Its use with Authorized Reagents also provides a limited PCR license in accordance with the label rights accompanying such reagents.

a system that goes farther

With the Mastercycler ep system eppendorf wishes to support all who wish to work in a technologically far-sighted fashion, with experience and a clear commitment to innovation.

Faster, more reliable, more flexible – and still capable of adjusting to future developments despite tighter budgets – that's exactly how a thermal cycler should be today!



upgradable
to real time
PCR

Product features Mastercycler ep

- Extremely fast heating and cooling rates
- Gradient blocks with SteadySlope technology
- Intuitive graphic programming
- Can be used as a stand-alone device, a "Mini-Satellite" system or a PC-controlled network
- Heated lid with integrated ESP technology (Electronic Sample Protection)
- Optional motorized lid for integration into fully automated environments
- Licensed for PCR
- 2 year guarantee

When heated lids learn to think

ESP heated lid

eppendorf calls it ESP: Electronic Sample Protection. Users of the Mastercycler ep will learn to value it as the most modern heated lid technology.

With conventional thermal cyclers, the heated lid immediately applies the necessary pressure required to press the PCR tubes into the block when it is closed. With sensitive applications, where it is important to suppress the condensation in the upper tube area from the start, the lid is heated up prior to beginning the actual PCR.

Product features of the ESP heated lid

- Space-saving sliding lid
- No preheating of the sample
- Minimized formation of non-specific primer dimers
- Complete prevention of condensation
- Automatic tube height adjustment
- Simple, energy-saving operation with one hand
- Available with
 - Manual lid
 - Motorized lid for automated use in HTS labs

ESP technology now prevents undesired heating of the sample prior to PCR in this step. The timing of the descent and the closing pressure of the ESP heated lid are controlled electronically.

The lid is first lowered onto the tube when the given lid temperature has been reached. As a result of the controlled descent timing, the samples are optimally protected during the heating process.

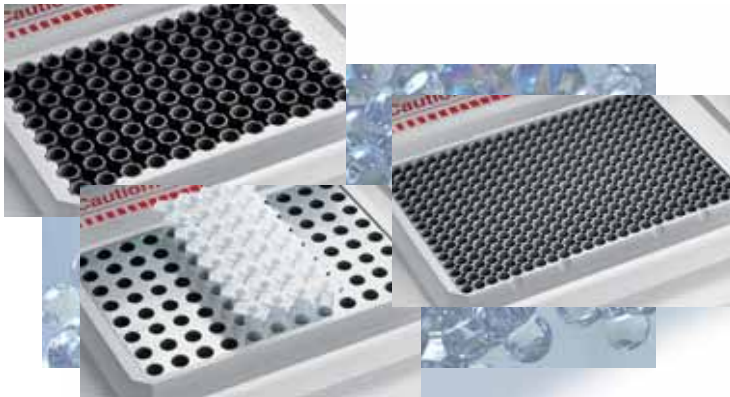
The ESP heated lid performs an automatic tube height adjustment for all sample tubes and PCR plates. The optimal closing pressure is thus independently calculated and selected in such a way that evaporation is effectively minimized.

Briefly said, you close the lid and Mastercycler ep takes care of everything else for you!



Three block formats

Fast like the wind – silent as a whisper!



Mastercycler ep 384

- Freely programmable temperature gradient over 24 rows
- A gradient range of up to 20 °C
- Optimized tube fit for the fastest heat transition: as with the 96-well blocks, the plates rest tightly in the block and come in direct contact with the walls

Mastercycler ep gradient

- Freely programmable temperature gradient over 12 rows
- A gradient range of up to 20 °C
- Robust, specially coated aluminum block

Mastercycler ep gradient S

- Highest temperature control speed due to silver block: up to 6 °C/s
- Freely programmable temperature gradient over 12 rows
- A gradient range of up to 24 °C

NEW! Impulse PCR

More information on the internet

at www.eppendorf.com

or www.mastercycler.com

SteadySlope Technologie

- Identical heating and cooling rates for all wells – even in gradient operation
- Assures reliable protocol transfer from gradient to normal operation



DKD



NIST

Certified quality

- Individual and meaningful quality control certificates
- Calibration according to national and international standards: DKD/PTB (Germany), UKAS/NPL (United Kingdom), NIST (USA)



Three configurations

Operation by control panel or PC software

Control Panel

- 1/4 VGA color display
- Microsoft® Windows Explorer-like user administration
- More than 100 user-defined folders
- 16 MB memory capacity for more than 700 programs
- External memory option via multimedia cards
- Control of up to 5 different thermal modules in the "Mini-Satellite" system: saves time and money



● "Mini-Satellite" system

● Stand-alone system



Mastercycler ep CycleManager

- PC software for control of one or more thermal modules
- Network of up to 30 thermal modules
- Modern satellite concept via CAN-Bus/USB interfaces



● PC controlled network

Equipped for the future from head to toe

One software – many possibilities

Around the world, particularly pharmaceutical and biotechnology communities are becoming increasingly aware of the implications of GMP/GLP or FDA guidelines – also for PCR.

The Mastercycler ep system – whether used with the Control Panel or with the Mastercycler ep Cycle-Manager PC software – enables complete tracking of all processes and provides full audit trails.

With the appropriate SOPs in place, pharmaceutical and biotechnology companies and labs can now run their PCR assays in a GLP compliant environment.

By offering such tools, it will be possible for customers to integrate Mastercycler ep instrumentation into their internal QC systems to ensure that no data will be ruled invalid.

Product features for program and user administration

- One administrator to manage users and service functions
- Report file for each run, incl. total temperature profiling
- Easy addition of new users
- Password protection against unauthorized login
- Ability for Mastercycler ep users to change their password, no administrator access to user passwords
- Development, testing and validation of the software using certified standards

Product features for the generation of programs

- Highest degree of flexibility, intuitive graphic programming
- Variable ramp rates
- Emulation mode for temperature control speed and protocols of the Mastercycler family
- Time and temperature increments
- Pause command
- Programmable alarm sound
- Freely configurable auto-restart dialogue

Ordering information

Description	International order no.
Mastercycler ep gradient, with manual lid	5341 000.019
Mastercycler ep gradient, with motorized lid	5341 000.108
Mastercycler ep gradient S, with manual lid	5345 000.013
Mastercycler ep gradient S, with motorized lid	5345 000.102
Mastercycler ep 384, with manual lid	5344 000.010
Mastercycler ep 384, with motorized lid	5344 000.109
Control Panel, incl. connection cable	5340 002.000
MultiMediaCard™, 16 MB, empty	5075 780.003
CAN-Bus connection cable between 2 thermal modules, 50 cm	5341 612.006
CAN-Bus connection cable between 2 thermal modules, 150 cm	5341 611.000
Mastercycler ep CycleManager, incl. installation instructions, comprehensive online-help, connection cable	5349 810.001

Mastercycler ep

Technical data

	Mastercycler ep gradient	Mastercycler ep gradient S	Mastercycler ep 384
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 Temperature control mode Heating technology of the block	4 °C to 99 °C Block control, (simulated) tube control; both also available in gradient operation mode Peltier elements, Triple Circuit Technology		
Gradient block	Over 12 rows		Over 24 rows
Gradient range	1 °C to 20 °C	1 °C to 24 °C	1 °C to 20 °C
Gradient temperature range Lid temperature range	30 °C to 99 °C 37 °C to 110 °C		
Lid descent and closing pressure	ESP technology, max. of 20 kg / PCR plate		
Block homogeneity 20 °C to 72 °C 95 °C	≤ ±0.3 °C ≤ ±0.4 °C		
Control accuracy	± 0.2 °C		
Heating rate* Cooling rate*	ca. 4 °C/s ca. 3 °C/s	ca. 6 °C/s ca. 4.5 °C/s	ca. 4 °C/s ca. 3 °C/s
Interfaces	1 x Centronics, 1 x RS 232, Control panel, one each of CAN_in/ CAN_out		
Dimensions (W x D x H) Weight	26 cm x 41 cm x 30.5 cm 17 kg		
Power supply, consumption	120 V/ 230 V, 50–60 Hz; 800 W		

*Measurements on the block.

Subject to change

Technical specifications of the Control Panel

Number of controllable Mastercycler ep thermal modules	1–5
Memory capacity	16 MB, > 700 programs
Additional memory option	via integrated multimedia card reader
Number of user-defined folders	> 100
Max. number of cycles	99
Dimensions (W x D x H)	25 cm x 16.5 cm x 11 cm
Interfaces	1 x RS 232, 1 x PS/2 mouse
Weight	1.2 kg
Power supply, consumption	via the connected thermal module

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In touch with life

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