

# Amplify

Eppendorf Mastercycler®—best conditions for PCR





Mastering PCR is easy—if you have the right equipment.

# »Eppendorf—designing instruments that fit the needs of today’s scientist.«

Do not let poor instruments compromise your PCR results. Eppendorf blocks show excellent homogeneity and accuracy. Fast ramp rates are precisely controlled allowing fast and reproducible PCR runs. Programming is easy and protocols can be password protected. All this supports your constant strive for reproducible and meaningful results.

## Reproducibility

- > In PCR, precise and accurate block control is paramount
- > The Eppendorf blocks feature SteadySlope® gradient technology to ensure that ramp rates are identical in both gradient and normal mode.



## Intuitivity

- > The graphic programming is quick, easy and intuitive.
- > Find all your protocols in your individual folder and protect them with a password.
- > Pause function, variable ramp rates and block modes and a lot more is at your disposal.



## Reliability

- > Specially designed lids reduce the evaporation during PCR and help to accommodate a wide variety of PCR consumables.
- > The solid handles allow one hand operation of the instrument. No turning knobs are needed to lower the heated lid.





# The Mastercycler® nexus X2

The Mastercycler nexus X2 gives you the ability to run two totally independent protocols at the same time. Smaller assays fit nicely on the 32-well-block—larger assays can exceed 48 samples and run on the 64-well-block. The larger block is available with a gradient function.

As every member of the Mastercycler nexus family, the Mastercycler nexus X2 can be combined with all other family members in a network of up to 3 units. That allows you to install the best solution for your needs and benefit from the same intuitive software on all your PCR devices.

In combination with Eppendorf's PCR Tubes, PCR Strips or divisible plates, the Mastercycler nexus X2 will give you consistent and publishable results—every day!

## Product features

- > Large block for large assays—small block for small assays.
- > Universal block for strips, 0.2 mL and 0.5 mL PCR tubes
- > Intuitive graphic programming (optional mouse use)
- > Optional gradient for PCR optimization
- > E-mail notification
- > Combine up to 3 units for maximum throughput!







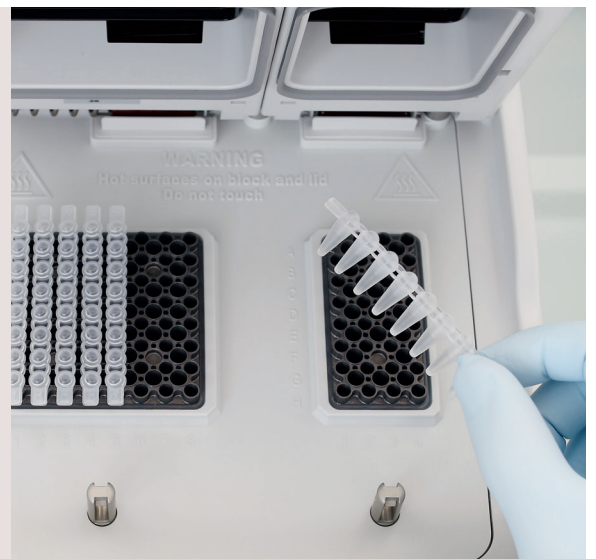
## Benefits at your fingertips:

Two independent blocks of different sizes provide a lot of flexibility.  
 Combine up to 3 units for higher throughput.  
 Low noise, low power consumption, intuitive software.

### Technical Specifications

Block homogeneity:	
20 °C–72 °C	≤ ±0.3 °C
95 °C	≤ ±0.4 °C
Heating rate*	ca. 3 °C/s
Cooling rate*	ca. 2 °C/s
Max. power consumption	700 W
Block temperature accuracy	± 0.2 °C
Sound power levels	< 40 dB[A]
Temperature control range of the block	4–99 °C
Temperature control mode	Fast, Standard, Safe
Gradient range	12 °C
Gradient temperature range	30–99 °C
Lid temperature range	37–110 °C
Dimensions (W × D × H)	25 × 41.2 × 33 cm
Weight	11 kg (24.2 lbs)

\* Heating and cooling rates measured at block



# Mastercycler<sup>®</sup> nexus



## Individual features:

### Mastercycler nexus

- > Universal block for plates, 0.1 mL, 0.2 mL and 0.5 mL PCR tubes

### Mastercycler nexus X1

- > 96 well silver block for increased speed with 0.1 mL and 0.2 mL tubes and plates

### Mastercycler nexus flat

- > Special consumables like slides can be heated and cooled without an adapter

## PCR next to me

In the age of networking, the new Mastercycler nexus with its four different block versions is your reliable companion when it comes to the daily routine of PCR. Depending on the block, it can accommodate 96-well PCR plates, 0.2 mL and 0.1 mL PCR tubes and strips, 0.5 mL PCR tubes and even slides.

It is easy to use, does not need much space or energy and sends you an e-mail when it is done.

## Combine, Connect, Control

- > Combine up to 3 units for maximum throughput!
- > Connect your Mastercycler nexus to your computer network and get a status e-mail to your desk!
- > Control all the relevant parameters of your PCR through the intuitive software

## Product features

- > Extreme consumables flexibility
- > Small footprint
- > Intuitive graphic programming (optional mouse use)
- > Optional gradient for PCR optimization
- > Up to two other units can be connected to a central unit
- > E-mail notification
- > flexlid<sup>®</sup> concept: automatic height adjustment of the lid allows you to use all types of consumables
- > 2-year warranty
- > Optional self-test functionality

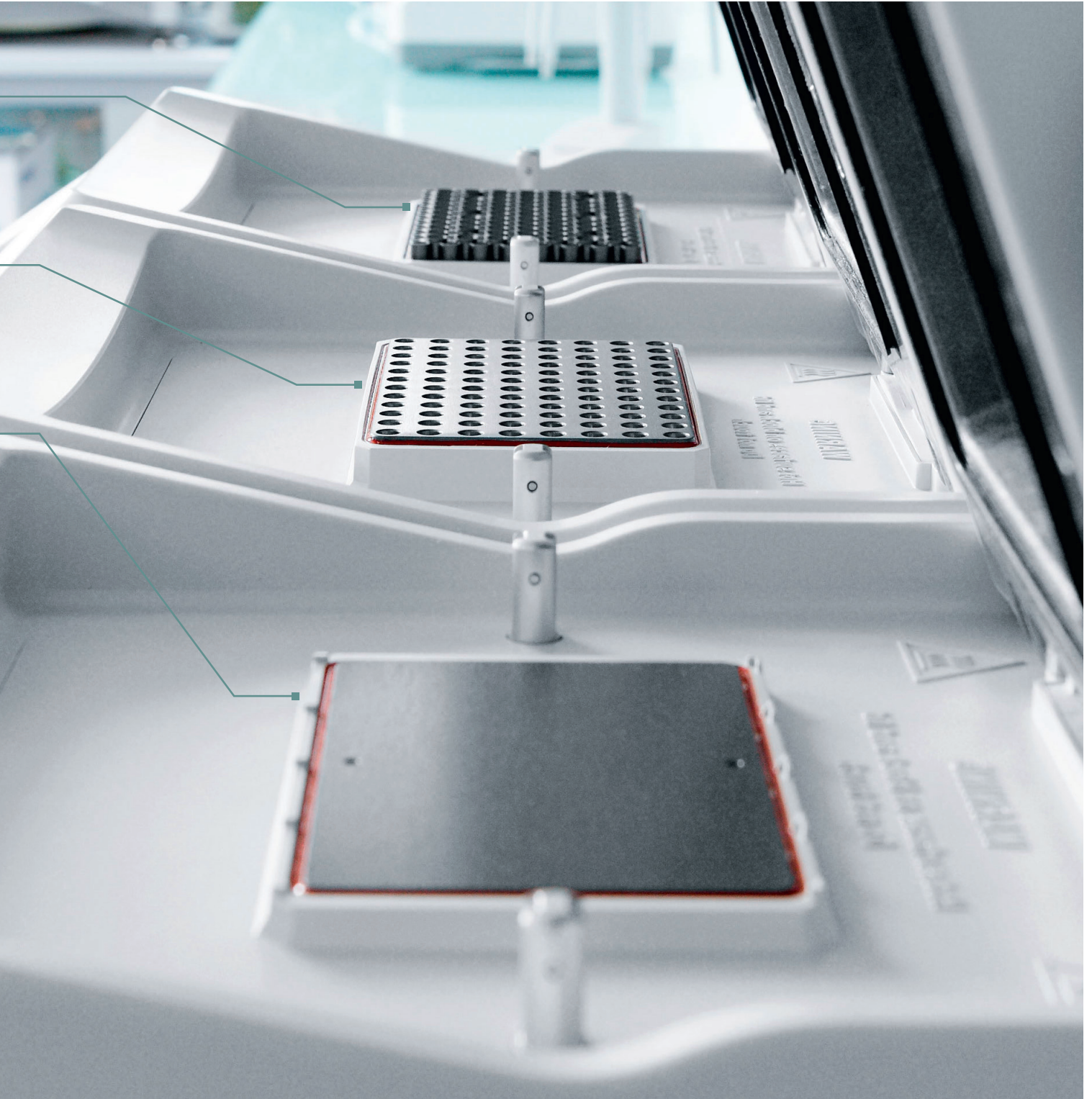
## Applications

- > Standard PCR
- > Cycle sequencing
- > *In situ* PCR



**Mastercycler nexus X2**

- > Run two independent protocols on the two blocks
- > Large block for large assays—  
small block for small assays



# Mastercycler® nexus

»To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science.«

Albert Einstein



## Certified Quality

All Eppendorf cyclers follow these quality guidelines:

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



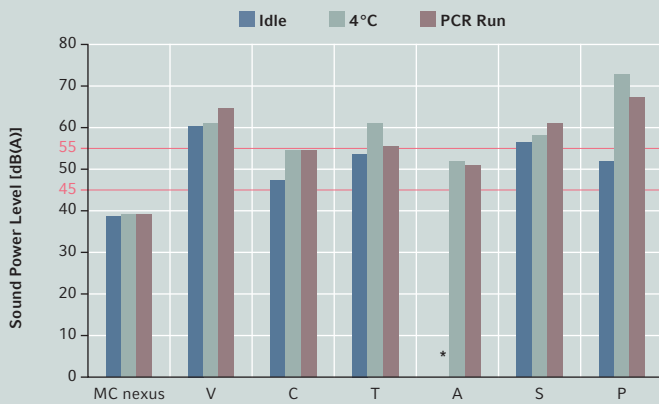
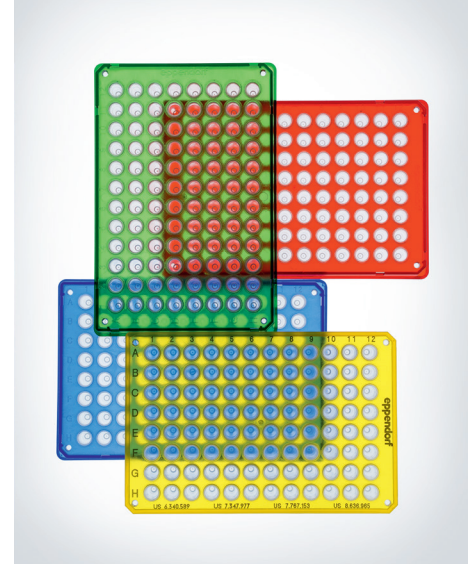
# PCR Consumables

## In good company—high quality consumables

Every researcher doing PCR always wonders about the best instrument, the best master mix, the best polymerase. Also when it comes to choosing the plastic consumables that build the connection between PCR instruments and your precious sample, the same rationality and prudence should be applied.

Different consumables can make a huge difference in the quality and reproducibility of your PCR results. Wall thickness, thermal conductivity of the material, mechanical stability and many other technical characteristics will have a direct impact on your experiment and subsequently the results. Make sure you use the best fitting PCR consumables for your application!

- > 96-well and 384-well PCR plates for high and medium throughput
- > Divisible plates, PCR tubes and tube strips for lower throughput
- > Sealing options, racks and other accessories for an optimized workflow



\* The fan is switched off in idle state of A. Thus, a relevant differentiation of the operating noise to the surrounding sound level (ca. 32 dB(A)) was not possible.

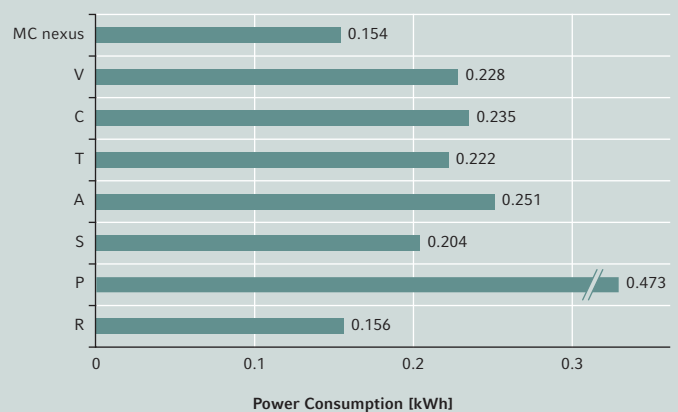
## Low Noise Emission

The Mastercycler nexus is a whisper quiet PCR machine. Low noise levels make working in your lab more pleasant and enjoyable, particularly when you are thinking about your next big breakthrough findings....

With its ultra quiet ventilation, noise levels of < 40 dB[A] are achieved. Enjoy it!

Source: Eppendorf Application Note 243, December 2011, »The Mastercycler® nexus combines high energy efficiency with very low noise generation«

Power Consumption of a Typical PCR Run



## Low Energy Consumption

Do you pay for electricity or is your lab held accountable for the electricity bill? Eppendorf's Mastercycler nexus is optimized for low power consumption—regardless if the PCR is running, idle or in standby mode.

> For more information, visit [www.eppendorf.com/pcr](http://www.eppendorf.com/pcr)

# Quality is timeless



The Mastercycler gradient was Eppendorf's first gradient cycler. Today the gradient function remains critical for many PCR labs.

The next generation Mastercycler pro is still one of the fastest cyclers around. Its **vapo.protect** concept is the latest in evaporation reduction technology.

Lately, Eppendorf has introduced the Mastercycler nexus, Mastercycler nexus X1 and Mastercycler nexus X2. E-mail notification, booking schedule, low noise levels and low energy consumption are only a few of the features ...



## 1990

Microcycler: Eppendorf introduces its first thermal cycler using water to heat and cool.



## 1993

Mastercycler 5330: Eppendorf introduces the first Mastercycler based on peltier technology.



## 1997

Mastercycler gradient: the first gradient thermal cycler on the market.



## 2003

Mastercycler ep: Fast heating/cooling rates and ultra quiet operation—in a compact design.



## 2008

Mastercycler pro: New **vapo.protect** technology reduces evaporation.



## 2012

Mastercycler nexus: Low noise, low energy consumption, e-mail notification



## 2013

Mastercycler nexus X1: Speed, low energy consumption, low noise and e-mail notification









## 2014

Mastercycler nexus X2: Two blocks, low energy consumption, low noise and e-mail notification








> to be continued ...



Technical Specifications	Mastercycler® pro	Mastercycler® pro S	Mastercycler® pro 384	Mastercycler® nexus gradient	Mastercycler® nexus	Mastercycler® nexus eco**
						
<b>Thermoblock</b>	Aluminum	Silver	Aluminum	Aluminum	Aluminum	Aluminum
<b>Sample Capacity</b>	96 × 0.2 ml PCR tubes or 1 × 96-well PCR plate		1 × 384-well PCR plate	96 × 0.2 mL PCR tubes or 1 × 96-well PCR plate or up to 71 × 0.5 mL PCR tubes		
<b>Temperature control range of the block</b>	4–99 °C			4–99 °C		
<b>Temperature control mode</b>	Fast, Standard, Safe			Fast, Standard, Safe		
<b>Heating technology of the block</b>	Peltier elements, Triple Circuit Technology			Peltier elements, Triple Circuit Technology		
<b>Gradient block</b>	over 12 columns		over 24 columns	over 12 columns	–	–
<b>Gradient range</b>	1–20 °C	1–24 °C	1–20 °C	1–20 °C	–	–
<b>Gradient temperature range</b>	30–99 °C			30–99 °C	–	–
<b>Lid temperature range</b>	37–110 °C			37–110 °C		
<b>Lid descent and closing pressure</b>	vapo.protect technology with Thermal Sample Protection			flexlid technology with Thermal Sample Protection		
<b>Block homogeneity: 20 °C–72 °C 95 °C</b>	≤ ±0.3 °C ≤ ±0.4 °C			≤ ±0.3 °C ≤ ±0.4 °C		
<b>Block temperature accuracy</b>	± 0.2 °C			± 0.2 °C		
<b>Heating rate*</b>	ca. 4 °C/s	ca. 6 °C/s	ca. 4 °C/s	ca. 3 °C/s		
<b>Cooling rate*</b>	ca. 3 °C/s	ca. 4.5 °C/s	ca. 3 °C/s	ca. 2 °C/s		
<b>Interfaces</b>	Centronics, USB, CAN in, CAN out			USB, Ethernet, CAN in, CAN out	CAN in, CAN out	
<b>Dimensions (W × D × H)</b>	26 × 41.5 × 37 cm			25 × 41.2 × 32.1 cm		
<b>Weight</b>	18.5 kg (40.8 lbs)			11 kg (24.2 lbs)	10.5 kg (23.1 lbs)	
<b>Power supply</b>	230 V, 50–60 Hz			230 V, 50–60 Hz		
<b>Max. power consumption</b>	950 W			700 W	700 W	
<b>Sound power levels</b>	≤ 56 dB[A]			< 40 dB[A]		

\* Heating and cooling rates measured at block





\*\* Unit can only be operated via a Mastercycler nexus unit (including flat, X1 versions) with control and display panel  
Product appearance and/or specifications are subject to change without notice.

Mastercycler® nexus gradient eco**	Mastercycler® nexus flat	Mastercycler® nexus flat eco**	Mastercycler® nexus GSX1	Mastercycler® nexus SX1	Mastercycler® nexus GSX1e**	Mastercycler® nexus SX1e**
						
Aluminum	Aluminum	Aluminum	Silver	Silver	Silver	Silver
96 × 0.2 mL PCR tubes or 1 × 96-well PCR plate or up to 71 × 0.5 mL PCR tubes	4 slides or equivalent		96 × 0.2 ml PCR tubes or 1 × 96-well PCR plate			
	4–99°C		4–99°C			
Fast, Standard, Safe			Fast, Standard, Safe			
Peltier elements, Triple Circuit Technology			Peltier elements, Triple Circuit Technology			
over 12 columns	–	–	over 12 columns	–	over 12 columns	–
1–20 °C	–	–	1–20 °C	–	1–20 °C	–
30–99 °C	–	–	30–99 °C	–	30–99 °C	–
	37–110 °C		37–110 °C			
flexlid technology with Thermal Sample Protection			flexlid technology with Thermal Sample Protection			
	≤ ±0.3 °C		≤ ±0.3 °C			
	≤ ±0.4 °C		≤ ±0.4 °C			
	± 0.2 °C		± 0.2 °C			
	ca. 3 °C/s		ca. 5 °C/s			
	ca. 2 °C/s		ca. 3.5 °C/s			
CAN in, CAN out	USB, Ethernet, CAN in, CAN out	CAN in, CAN out	USB, Ethernet, CAN in, CAN out		CAN in, CAN out	
	25 × 41.2 × 32.1 cm		25 × 41.2 × 32.1 cm			
10.5 kg (23.1 lbs)	11 kg (24.2 lbs)	10.5 kg (23.1 lbs)	11.2 kg (24.7 lbs)		10.7 kg (23.6 lbs)	
	230 V, 50–60 Hz		230 V, 50–60 Hz			
700 W	700 W	700 W	540 W		540 W	
	≤ 40 dB[A]		≤ 40 dB[A]			

G: Gradient block

S: Silver block

e: Eco version, needs to be connected to a Mastercycler nexus with control and display panel

Mastercycler® nexus GX2	Mastercycler® nexus X2	Mastercycler® nexus GX2e**	Mastercycler® nexus X2e**
			
Aluminum	Aluminum	Aluminum	Aluminum
64/32 × 0.2 mL PCR tubes or up to 64 × 0.5 mL PCR tubes			
4–99 °C			
Fast, Standard, Safe			
Peltier elements, Triple Circuit Technology			
over 8 columns	–	over 8 columns	–
1–20 °C	–	1–20 °C	–
30–99 °C	–	30–99 °C	–
37–110 °C			
flexlid technology with Thermal Sample Protection			
≤ ±0.3 °C			
≤ ±0.4 °C			
± 0.2 °C			
ca. 3 °C/s			
ca. 2 °C/s			
USB, Ethernet, CAN in, CAN out		CAN in, CAN out	
25 × 41.2 × 33 cm			
11 kg (24.2 lbs)		10.7 kg (23.6 lbs)	
230 V, 50–60 Hz			
700 W		700 W	
< 40 dB[A]			



### Frost & Sullivan® European PCR Instrumentation Green Excellence Award 2012

»Based on its recent analysis of the PCR instrumentation market, Frost & Sullivan recognizes Eppendorf with the 2012 European Green Excellence Award for its Mastercycler nexus. This eco-friendly instrument offers exceptional power-saving capability, e.g. by a standby feature and the amount of power consumed overall.«



<b>Ordering information</b>	<b>International Order no.</b>	<b>North America Order no.</b>
<b>Mastercycler® nexus 2</b>		
Mastercycler® nexus GX2	6336 000.015	6336000023
Mastercycler® nexus X2	6337 000.019	6337000027
Mastercycler® nexus GX2e*	6338 000.012	6338000020
Mastercycler® nexus X2e*	6339 000.016	6339000024
<b>Mastercycler® nexus with silver block</b>		
Mastercycler® nexus GSX1	6345 000.010	6345000028
Mastercycler® nexus SX1	6346 000.013	6346000021
Mastercycler® nexus GSX1e*	6347 000.017	6347000025
Mastercycler® nexus SX1e*	6348 000.010	6348000029
<b>Mastercycler® nexus with universal block</b>		
Mastercycler® nexus gradient	6331 000.017	6331000025
Mastercycler® nexus	6333 000.014	6333000022
Mastercycler® nexus gradient eco*	6334 000.018	6334000026
Mastercycler® nexus eco*	6332 000.010	6332000029
<b>Mastercycler® nexus with flat block</b>		
Mastercycler® nexus flat	6335 000.011	6335000020
Mastercycler® nexus flat eco*	6330 000.013	6330000021
<b>Complete Mastercycler® pro packages</b>		
Mastercycler® pro and Control Panel	6321 000.515	950040015
Mastercycler® pro S and Control Panel	6325 000.510	950040025
Mastercycler® pro 384 and Control Panel	6324 000.516	950040035
<b>Individual Mastercycler® pro modules</b>		
Control Panel, incl. connection cable	6320 000.007	950030050
Mastercycler® pro**	6321 000.019	950030010
Mastercycler® pro S**	6325 000.013	950030020
Mastercycler® pro 384**	6324 000.010	950030030
<b>Accessories</b>		
CAN_BUS connection cable, 50 cm	5341 612.006	950014008
CAN_BUS connection cable, 150 cm	5341 611.000	950014016
Self test dongle	6320 071.001	950030040
Temperature Verification System with 96 well sensor plate	6328 000.006	6328000006
Temperature Verification System with 384 well sensor plate	6328 000.014	6328000014
CycleManager pro, incl. installation manual, online help, and connection cable	5349 810.001	950017007
CycleManager pro, incl. installation manual, online help	5349 820.007	950017202

\* To run a Mastercycler® nexus with the suffix »eco« or »e«, a Mastercycler® nexus model without such a suffix is needed. Up to 2 units with the suffix »eco« or »e« can be connected to a Mastercycler® nexus without such a suffix.  
\*\* A Control Panel or CycleManager pro software (both sold separately) is required for operation. CAN\_Bus connection cables are required to link cyclers together as a network.

**Ordering information**
**0.1 mL Eppendorf PCR Tubes**

PCR Tube Strips 0.1 mL, without caps (10 × 12 pieces)

PCR Tube Strips 0.1 mL + Cap Strips, domed (10 × 12 pieces each)

PCR Tube Strips 0.1 mL + Cap Strips, flat (10 × 12 pieces each)

**0.2 mL Eppendorf PCR Tubes**

0.2 mL PCR Tubes, thinwalled with hinged lid (1000 tubes)

8tube strip, for 0.2 mL PCR Tubes (10 × 12 pieces)

**0.5 mL Eppendorf PCR Tubes**

0.5 mL PCR Tubes, thinwalled with lid (500 tubes)

**Cap Strips, Racks, Films & Foils**

Cap Strips, domed (10 × 12 pieces)

Cap Strips, flat (10 × 12 pieces)

PCR Rack, 10 pcs.

Heat Sealing Film, 100 pcs.

Heat Sealing Foil, 100 pcs.

PCR Film (adhesive), 100 pcs.

PCR Foil (adhesive), 100 pcs.

**twin.tec PCR Plates**

Eppendorf twin.tec® PCR Plate 96, skirted, clear 25 pcs.

Eppendorf twin.tec® PCR Plate 96, semi-skirted, clear 25 pcs.

Eppendorf twin.tec® PCR Plate 96, unskirted low profile, clear 20 pcs.

Eppendorf twin.tec® PCR Plate 96, unskirted low profile, clear (divisible) 20 pcs.

Eppendorf twin.tec® PCR Plate 96, unskirted low profile, blue (divisible) 20 pcs.

Eppendorf twin.tec® PCR Plate 96, unskirted (250 µL), clear, 20 pcs.

Eppendorf twin.tec® PCR Plate 96, unskirted (250 µL), clear (divisible) 20 pcs.

Eppendorf twin.tec® PCR Plate 96, unskirted (250 µL), blue (divisible) 20 pcs.

Eppendorf twin.tec® PCR Plate 384, clear, 25 pcs.

 Eppendorf twin.tec® *microbiology* PCR Plate 96, skirted, clear, 10 pcs.

 Eppendorf twin.tec® *microbiology* PCR Plate 96, semi-skirted, clear, 10 pcs.

 Eppendorf twin.tec® *microbiology* PCR Plate 384, clear, 10 pcs.

Eppendorf twin.tec® PCR Plates 96 LoBind, semi-skirted, colorless, 25 pcs.

Eppendorf twin.tec® PCR Plates 96 LoBind, skirted, colorless, 25 pcs

**International Order no.**
**North America Order no.**

0030 124.804

0030124804

0030 124.812

0030124812

0030 124.820

0030124820

0030 124.332

951010006

0030 124.359

951010022

0030 124.537

0030124537

0030 124.839

0030124839

0030 124.847

0030124847

0030 124.545

0030124545

0030 127.838

0030127838

0030 127.854

0030127854

0030 127.781

0030127781

0030 127.790

0030127790

0030 128.648

951020401

0030 128.575

951020303

0030 133.307

0030133307

0030 133.358

0030133358

0030 133.382

0030133382

0030 133.366

0030133366

0030 133.374

0030133374

0030 133.404

0030133404

0030 128.508

951020702

0030 129.300

0030129300

0030 129.326

0030129326

0030 129.342

0030129342

0030 129.504

0030129504

0030 129.512

0030129512



# WolfLabs

**Pricing on any accessories shown can be found by keying the part number into the search box on our website.**

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

**[www.wolflabs.co.uk](http://www.wolflabs.co.uk)**

**Tel : 01759 301142**

**Fax : 01759 301143**

**[sales@wolflabs.co.uk](mailto:sales@wolflabs.co.uk)**

Please contact us if this literature doesn't answer all your questions.