

14 Technical data

14.1 Dimensions

Width	275 mm
Depth	430 mm
Height with lid closed	330 mm
Height with lid open	439 mm

14.2 Weight

Mastercycler X50	11,5 kg
Mastercycler X50 eco	10,7 kg

14.3 Mains/power supply

Mains/power supply voltage	100 V – 240 V $\pm$ 10 %
Mains/power frequency	50 Hz – 60 Hz
Power consumption	850 W max.
Overvoltage category	II
Pollution degree	2
Protection class	I
Specifications for mains/power cords in Europe with E/F mains/power plugs	Cable type AC 250 V / 10 A 3G 1 mm ² with double insulation Mains/power plug according to IEC 60884-1 and C13 appliance coupler according to IEC 60320-1
Specifications for mains/power cords in Europe with other mains/power plugs	Use the mains/power cord in accordance with national regulations Cable type AC 250 V / 10 A 3G 1 mm ² with C13 appliance coupler according to IEC 60320-1 and with mains/power plug according to national regulations and IEC 60884-1
Specifications for mains/power cords in Canada and the USA	Cable type AC 125 V / 10 A SJT 3x18 AWG with double insulation Mains/power plug NEMA 5-15 according to ANSI/NEMA WD-6 and C13 appliance coupler according to UL/IEC 60320-1
Specifications for mains/power cords outside Europe, Canada and the USA	Use the mains/power cord in accordance with national regulations

14.4 Ambient conditions

Operation

Environment	For indoor use only. Not a wet environment.
Ambient temperature	15 °C – 35 °C
Relative humidity	75 % maximum
Atmospheric pressure	80 kPa max.

Transport

Air temperature	-25 °C – 60 °C
Air temperature for air freight	-40 °C – 55 °C
Relative humidity	10 % – 95 %
Atmospheric pressure	30 kPa – 106 kPa

Storage

Air temperature	-20 °C – 70 °C
Relative humidity	10 % – 95 %

14.5 Electromagnetic compatibility

Electromagnetic compatibility	IEC 61326-1, Class B Class B is the basic electromagnetic environment (environment at locations which are directly supplied with low voltage from the public supply network)
-------------------------------	---

14.6 Interfaces

Interfaces of the Mastercycler X50

USB	1x 2.0 Type A
Ethernet	• 1x RJ-45 plug for connection to the VisioNize Lab Suite (main cycler) • 1x RJ-45 plug for Cycler network • Compatibility with IEEE 802.3 Ethernet switch at a data transfer rate of 10/100 MBit/s or 10/100/1000/... MBit/s

14.7 Noise level

The noise level was measured in a method using an enveloped surface with accuracy class 2 (DIN EN ISO 3744) at a distance of 1 m to the device for a sound field that is substantially free of obstacles above a reflective plane.

Idle: continuous idle state	< 31.2 dB(A)
Default PCR execution (temperature control cycle)	< 33.6 dB(A)
Continuous cooling cycle at 4° C	< 47.2 dB(A)

14.8 Application parameters

Mastercycler X50a, Mastercycler X50l (eco)

Thermoblock	Aluminum 96 wells
Sample capacity	• 96 × 0.1 mL PCR tubes • 96 × 0.2 mL PCR tubes • 1x 96-well PCR plate (unskirted, semi-skirted, skirted and low-profile)
Temperature control range of the thermoblock	4 °C – 99 °C
Ramp rate (heating) (measured on the thermoblock)	max. 5 °C/s
Ramp rate (cooling) (measured on the thermoblock)	max. 2.3 °C/s
Temperature homogeneity of the thermoblock (with gradient function switched off) at 20 °C – 72 °C at 72 °C – 95 °C	±0,2 °C ±0,3 °C
Control accuracy (with gradient function switched off)	±0,15 °C
Gradient spread (horizontal and vertical)	30 °C max.
Gradient temperature control range (horizontal and vertical)	30 °C – 99 °C
Heated lid temperature control range	37 °C – 110 °C

Mastercycler X50h, Mastercycler X50t (eco)

Thermoblock	Aluminum 384 wells
Sample capacity	1x 384-well PCR plate
Temperature control range of the thermoblock	4 °C – 99 °C

Technical data
Mastercycler® X50
 English (EN)

Ramp rate (heating) (measured on the thermoblock)	max. 5 °C/s
Ramp rate (cooling) (measured on the thermoblock)	max. 2.3 °C/s
Temperature homogeneity of the thermoblock (with gradient function switched off) at 20 °C – 72 °C at 72 °C – 95 °C	±0,2 °C ±0,3 °C
Control accuracy (with gradient function switched off)	±0,15 °C
Gradient spread (horizontal and vertical)	30 °C max.
Gradient temperature control range (horizontal and vertical)	30 °C – 99 °C
Heated lid temperature control range	37 °C – 110 °C

Mastercycler X50s, Mastercycler X50i (eco)

Thermoblock	Silver 96 wells
Sample capacity	• 96 × 0.1 mL PCR tubes • 96 × 0.2 mL PCR tubes • 1x 96-well PCR plate (unskirted, semi-skirted, skirted and low-profile)
Temperature control range of the thermoblock	4 °C – 99 °C
Ramp rate (heating) (measured on the thermoblock)	max. 10 °C/s
Ramp rate (cooling) (measured on the thermoblock)	max. 5 °C/s
Temperature homogeneity of the thermoblock (with gradient function switched off) at 20 °C – 72 °C at 72 °C – 95 °C	±0,2 °C ±0,3 °C
Control accuracy (with gradient function switched off)	±0,15 °C
Gradient spread (horizontal and vertical)	30 °C max.
Gradient temperature control range (horizontal and vertical)	30 °C – 99 °C
Heated lid temperature control range	37 °C – 110 °C