eppendorf

Culture of Tomorrow

CellXpert® – the new family of Eppendorf CO_2 Incubators


C170i
37.0 °C
5.0 %
eppendorf
CellXpert

»What will your cell culture require over the next 10 years?«

Take a look into the future of your cell culture lab
> Which cell types will you be working with and under which atmospheric conditions?
> What regulatory and documentation requirements will you have to fulfill?
> Will it become necessary to rearrange your lab or move it altogether?
> How many people will be working in your lab sharing the same incubator?
> Would additional requirements emerge regarding sustainability, gas consumption, or general operating costs?

The CellXpert CO_2 incubator family will support you for the culture of tomorrow.
The CellXpert C170i provides you with the following benefits:

Easy cleaning and efficient contamination protection
> 180 °C High Temperature Disinfection (HTD)
> Fanless design
> Seamless chamber and minimal internal parts
> No non-sterilizable fan-associated HEPA filters
> Options for copper interior and segmented inner doors

Optimized growth conditions for sensitive cells
> Precise temperature uniformity throughout the chamber
> Fast gas and temperature recovery without overshooting
> Protection from vibrations and turbulence with fanless design
> Dedicated IQ/OQ and service contracts

Save Money
> Up to 25 % more usable space in a small footprint
> No internal spare parts (e.g. fan-associated HEPA filters or UV lamps)
> Low gas consumption
> Future flexibility for lab changes with upgradeable options
> Quality Made in Germany

CellXpert® CO_2 Incubators

Quality Made in Germany

VisioNize® touch interface
for fast and continuous navigation*

Easy access USB ports
for fast data export and documentation*

Robust new handle design
for comfortable, low stress door opening*

Changeable door hinge position
for high flexibility

Ethernet connectivity
for easy connectivity and networking

Smart gas control
for fast recovery and cost savings

Fast feedback CO_2 sensor (NDIR)
for reliable atmosphere control

Seamless chamber
for easy cleaning and reduced contamination risk

High precision O_2 sensor (ZrO_2)
for long-lasting performance*

Magnetic latches
for easy, ergonomic operation

High quality shelves
for increased stability and optimized air flow

Multiple temperature sensors
for homogeneous conditions

*Available on C170i models.

The VisioNize touch interface of our CellXpert C170i contains smart features that help establish specific cell-conserving user habits in your lab and relieve the burdens of daily routines. More information on page 8.

Prepared for the Future

Will it become necessary to rearrange your cell culture lab or move it to a new location altogether? How important is saving space for you? CellXpert CO_2 Incubators give you the option to change the door handle position whenever necessary. With the CellXpert CO_2 Incubators, our skilled service technicians can modify your device on-site – directly in your lab, if needed. Stay flexible for the future!

> Customize your device to meet your future needs
> Reduce costs by getting the features you need at the time you need them
> Enjoy peace of mind knowing that your investment can be adapted to your changing needs and requirements

Stay flexible for the future and change the door handle position when you need it all

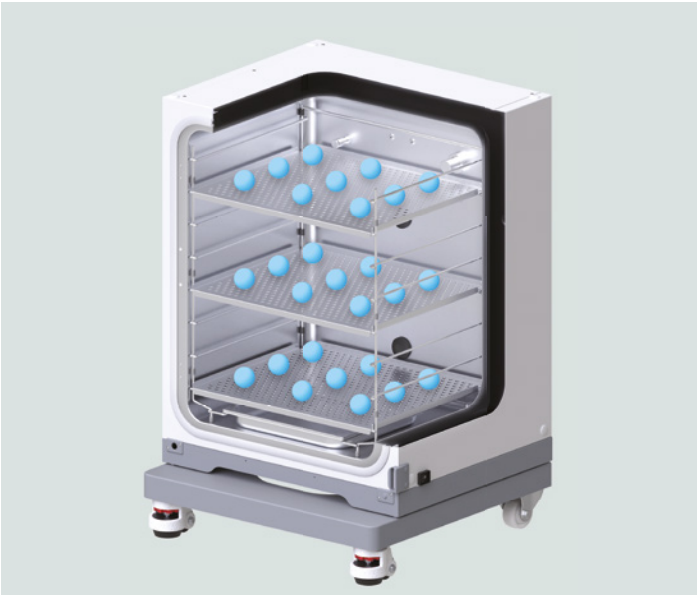
Optimized Growth Conditions

A CO_2 incubator is the save haven for your cells providing optimal atmospheric conditions. Especially sensitive primary or stem cells are susceptible to temperature increases and will react in adverse ways. When you are planning a complex experiment, or use the cells for a certain application, you want to be sure that the location of the culture vessel inside the incubator has no impact on the cells and experimental result.

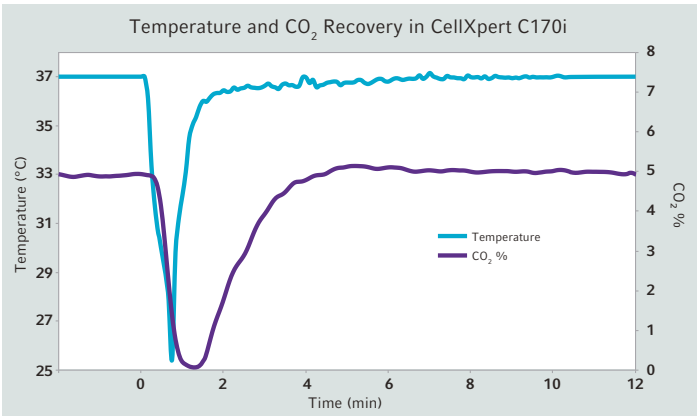
Uniform temperature verified at 27 spots inside the incubator (German DIN 12880)
To accurately compare cell growth in vessels at different locations inside the incubator, the temperature needs to be highly uniform. Together with advanced microprocessor control, this is achieved in CellXpert incubators by replacing the traditional configuration of one or two temperature sensors with multiple, independent sensors in different locations. The effectivity of this novel approach has been verified by measuring the temperature deviation among 27 spots inside the incubator based on the German DIN 12880 norm – and far exceeding the requisite specification.

Fast recovery without regulation overshoot — Temperature and CO_2 recovery in less than 5 min*
A main factor to ensure the reproducibility of experiments is to minimize atmospheric fluctuations inside the incubator. It is crucial that drastic changes be avoided (e.g. by reducing total door-opening time). Also, the atmosphere should recover rapidly while avoiding significant overshoot (e.g. temperature exceeding the setpoint). CellXpert incubators achieve this with fast feedback sensors, advanced microprocessor control of gas inlet valves, and individually-controlled heating circuits in every wall (6-sided direct heating). Fast circulation and mixture of the atmosphere is ensured by powerful natural convection caused by temperature gradients in the heating circuits.

* To 98% of initial value after 30 s single door opening in less than 5 min. Measured with external sensors.



Position of the 27 sensors to verify equal temperatures at different locations.



Temperature and CO_2-recovery following 30 s door-opening. Notice the typical regulative oscillations before the initial value is reached.

Vibration and turbulence protection by fanless design
Have you ever experienced variations between cells grown in vessels on different shelves, especially between the top shelf and others? These differences can be caused by air turbulences that disrupt the protective micro-atmosphere above the medium. Air turbulence can be generated by fans used to circulate the atmosphere inside of standard incubators. Additionally, uneven cell growth occurs as a result of vibration to the vessels from the fan – especially in the case of sensitive cells. These effects can be avoided with fanless incubators like the CellXpert. Air circulation via convection provides uniform temperatures and conditions without the risks due to a fan. Enjoy piece of mind using the top shelf and use more valuable space. Without a fan, there is no need for intrusive parts into your seamless growing environment.

The fanless design supports a turbulence-free atmosphere and comparable growth conditions between different shelves.

Working under hypoxic conditions (tri-gas control)?
The CellXpert C170i variant with O_2 regulation provides O_2 control in the range of 1 – 20%. Supported by advanced microprocessor control, the CellXpert ensures conditions with high accuracy (±0.25%) and stability over time (±0.1%). This provides reliable hypoxic conditions for e.g. stem cells, cancer, or tumor cells.

Would you like to learn more about how powerful convection is achieved?

Visit or scan to watch video:
www.eppendorf.com/CellXpert

The Future of Smart Cultivation

Pre-installed, customer-programmed tasks and alarms can be easily set directly at the VisioNize touch interface

Stay connected to critical information about the CellXpert C170i even when you are not in the lab with remote monitoring and notifications enabled by VisioNize

Smart Cultivation with CellXpert & VisioNize®

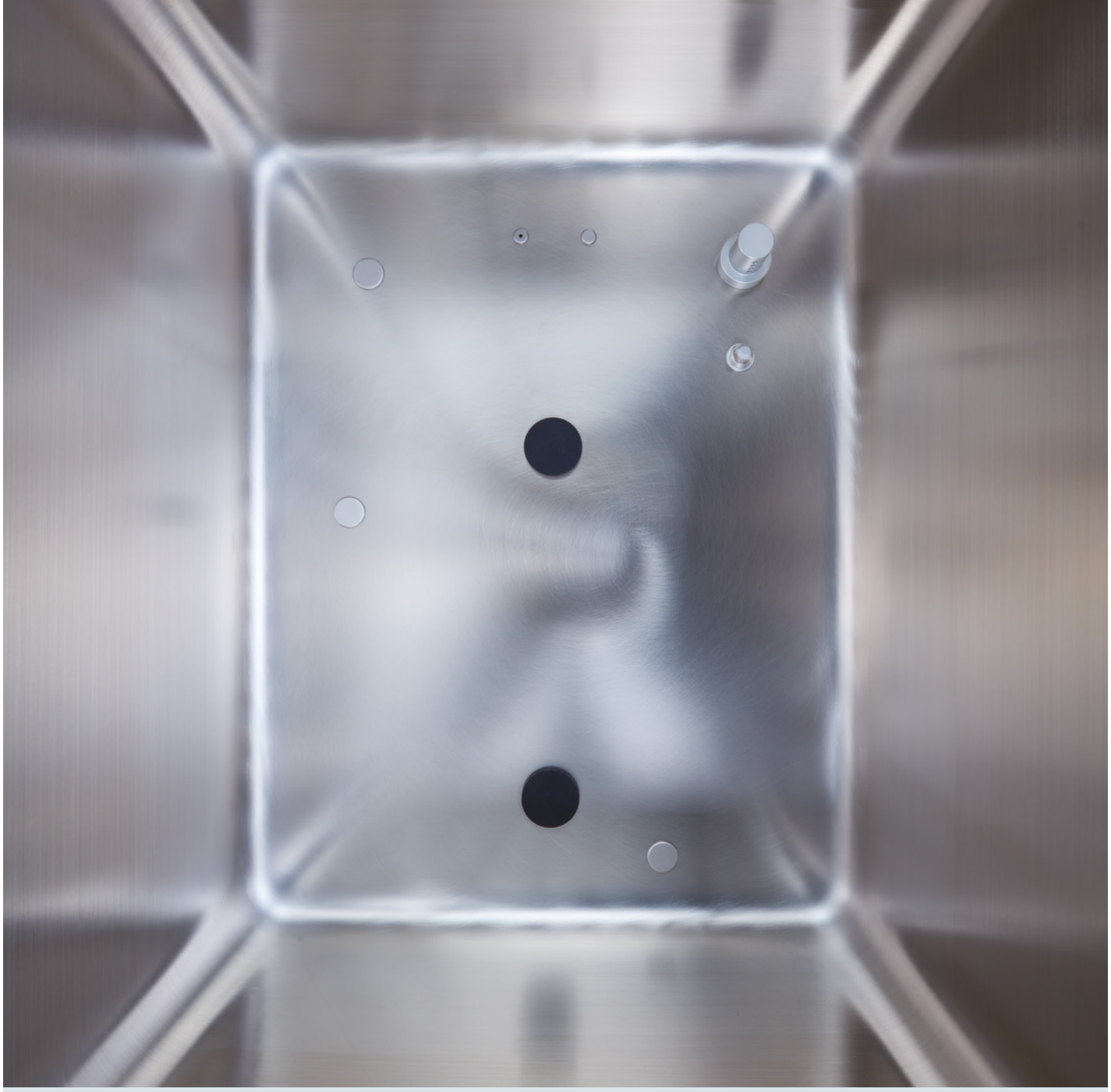
Establish specific cell-conserving user habits in your lab and relieve you off the burdens of daily routines.

Easy and Comprehensive Documentation
Filter and export performance charts, events, or HTD-protocols within seconds to fulfill ever-increasing demands for documentation of cell culture conditions, e.g. for regulated environments. You can track back with only one click what happened during incubation with VisioNize monitoring.

Standard and Customized Tasks
Pre-installed and customer-programmed tasks can be set with the VisioNize touch interface to remind you of regular tasks, e.g. performance of a disinfection cycle, cleaning, splitting cells, refilling the water reservoir, or performance checks with external sensors.

Evolved integrated alarm system
Define critical values e.g. door-opening time or gas concentration that trigger a highly visible on screen and audible alarm. In addition, you can receive SMS or email notifications by VisioNize notifications. This way, you can ensure a stable environment for your cultured cells and establish cell-conserving user habits in your lab.

Learn more at:
www.eppendorf.com/Smart-CellXpert



Nowhere to hide for contaminants and cleaned fast: The smooth, seamless surface of the CellXpert chamber with fanless design.

Convenience by Design

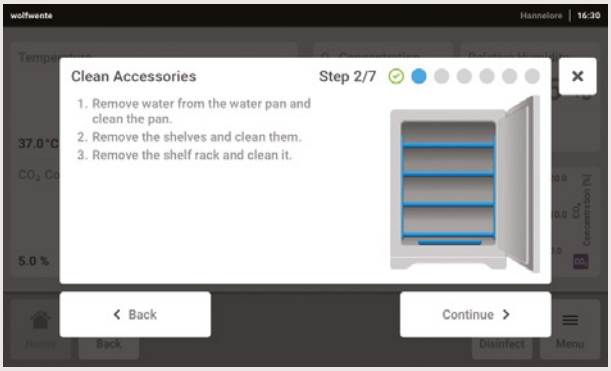
If it´s easy to do, it's more likely to get done – seamless chamber & minimized internal parts

Do you remember the last time you cleaned your incubator? How much time did you spend to disassemble and remove internal chamber parts? How much time did it take to wipe down every little corner of the chamber and shelf supports? Did you have to remove internal HEPA filters before starting an HTD, just to put these non-sterile potential sources of contamination back in after the HTD procedure? Make your life easier and gain precious time for other things with CellXpert incubators. The seamless, stainless steel chambers reduce areas prone to contamination and can be cleaned and reassembled within a few minutes

Easy Cleaning and Reliable Contamination Protection

Easy and effective 180 °C High Temperature Disinfection (HTD)
The 180 °C HTD that comes standard on the CellXpert C170i ensures a high level of contamination protection. There is no need to store or handle toxic reagents to effectively disinfect the CellXpert incubator.

The user interface provides short, clear, and illustrated step-by-step instructions, to ensure a standardized and complete pre-HTD cleaning. This procedure is sensor-supported for a high protection in case of user errors. High quality and durable CO_2 sensors remain in the chamber during the HTD.



Simply follow the step-by-step instructions on the screen to easily disinfect your incubator.

Performance protocol and access restriction
After the HTD procedure, a performance protocol including date, time, temperature reached, and a signature field can be created. This is especially important for customers in regulated fields and can be easily downloaded within a few seconds via the USB port. Because it is easy to start the HTD with a few taps of the screen, it might also be necessary to restrict the access. With the on-board user management, permissions and restrictions can be set to prevent any unauthorized start of the HTD. Set permissions and restrictions via the on-board VisioNize user management to prevent any unauthorized start of the HTD. Only authorized users defined by the administrator will have access to the procedure.

Upgrade Your Contamination Protection

Choose the options and features to meet your needs and maintain your sample safety.

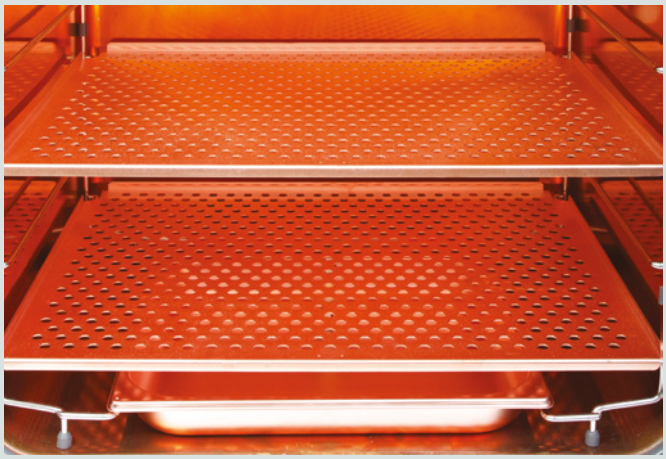
4- or 8-segmented inner doors help to reduce exchange of the atmosphere during door openings. Thus, recovery times and the risk of contamination can be effectively reduced, ensuring consistent culture conditions.

Fan-less design = No costly, fan-associated internal HEPA filters

The CellXpert CO_2 Incubators provide a powerful anti-contamination concept that includes an easy-to-clean, seamless chamber, high temperature disinfection (HTD), easy-to-remove single-piece water tray, and options like antimicrobial copper surfaces and segmented doors. One of the strongest contamination protectors in the CellXpert is the fan-less design. It effectively reduces the spread of airborne contaminants and therefore eliminates the need for fan-associated internal HEPA filters.

Generally, HEPA filter cartridges are heat-sensitive and need to be removed before starting an HTD. For reinstallation of the HEPA filter (that traps particles, but does not destroy them), extended door opening and reaching inside the clean chamber a full arm´s length is necessary. These factors pose a high risk of introducing new contaminants into the incubator.

The CellXpert reduces significant recurring costs for fan-associated HEPA filters that must be replaced regularly – while offering strong contamination protection.



Additional effective contamination protection can be achieved with additional copper options (see page 18).

The single piece water tray can be removed easily for emptying, visual inspection, cleaning, and refilling. No hard to access additional drain valves need to be cleaned.

Enhanced Ergonomics

Reduce stress and speed up your workflow
Working in a cell culture lab is often associated with physical and psychological stress (e.g. working under time constraints, high noise and poor ergonomics; constant disinfection and care to avoid contamination; processing of many samples per day; and handling of various vessel types). This stress not only reduces your well-being and can lead to errors in the workflow, but could also contribute to illness in the long term.

For the development of CellXpert incubators, Eppendorf rethought some major construction concepts of other CO_2 incubators in order to create more ergonomic solutions. The comfort and convenience for the everyday user were always foremost in our mind.

The outer door comes with a unique magnetic closure concept that requires significantly less force to open. An audible alert during closing tells you that the door is securely locked. The novel, robust, and ergonomic handle provides a solid and comfortable grip.

The tightly closing inner door latches also utilize the new magnetic closure concept. The dual direction latch on the inner door of the C170i can be simply pulled or turned to open, then pushed or turned to close. This way, the CellXpert C170i CO_2 Incubator can provide both advanced vibration protection for sensitive cells and adjust to differing user habits.

Eppendorf PhysioCare Concept®
The development of each Eppendorf product is based on three spheres that support the health of their customers. These encompass the whole spectrum of ergonomics, not just a single element – a PhysioCare labelled product offers a holistic solution. It starts with the product itself: the shape, the weight, the forces, the concept of operation from which emerges support that can enhance and improve lab processes.

Sphere 1 – The User
The PhysioCare Concept guarantees an ergonomic design and an optimized product performance according to the needs of the individual.

Sphere 2 - The Lab
The PhysioCare Concept allows the uncomplicated integration of instruments in the lab as well as adhering to its specific requirements.

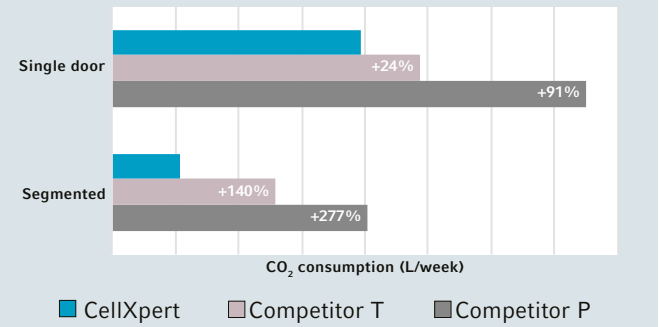
Sphere 3 - The Laboratory Workflow
The PhysioCare Concept ensures general support to enhance processes around the lab and improve the results of the whole organization.

Learn more at:
www.eppendorf.com/PhysioCare

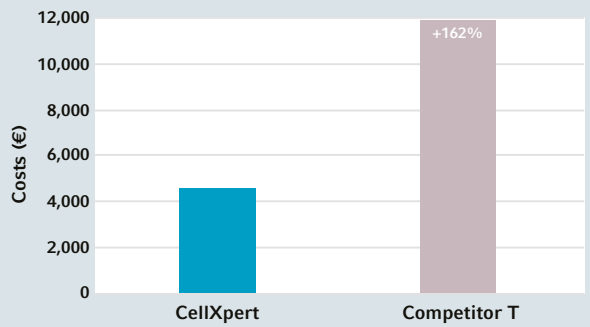
Save Money and Lab Space

Save money: Low gas consumption, no internal replacement parts and recurring costs
The cost of gas and the effort to exchange gas cylinders can produce significant running costs. Depending on the type of gas, the local gas prices, and the net door opening time of the incubator during the day, these costs can easily exceed the initial costs for the incubator itself after only a few years. Therefore, it is worth taking a closer look into the gas consumption of different incubator models. CellXpert CO_2 incubators are designed for optimal gas consumption and to help you keep these costs at bay.

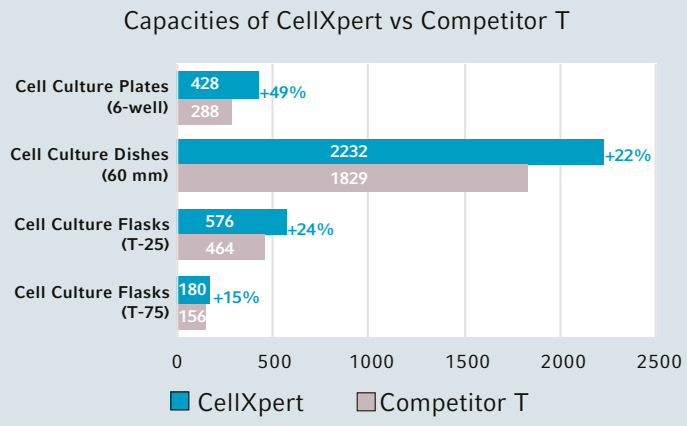
In addition to running costs for gas, CellXpert incubators save on significant recurring costs, labor, and incubator downtime because they do not utilize expensive internal replaceable parts like HEPA filters or UV-lamps. Take a look at a cost estimate for these additional parts used by other incubators. They all add up to a much larger sum than you might imagine.



Representative comparison of gas consumption (setpoints 5 % CO_2 & 37 °C 3 door openings per day at 5 days a week)



Representative comparison of cost (setpoints 5% CO_2 / 5% O_2, 37°C, 3 door openings per day at 5 days a week , 4-segmented inner doors)



Save precious lab space: up to 25% more usable space within a small footprint
CellXpert incubators are constructed with a fanless design and come without any fan-related internal parts (e.g. fan, various duct parts), providing significantly more space for samples. Furthermore, the smart racking system and the innovative, patented insulation ensure higher capacity with a minimal footprint to save precious lab space.

Would you like to know more about how the CellXpert CO_2 Incubator can save money?
Want to compare CellXpert CO_2 Incubators to other devices on the market?
Contact your Eppendorf representative.

The CellXpert C170 comes with the same footprint and similar easy-to-open magnetic latching system (turning function exclued)

Quality Meets Simplicity: C170

Are you looking for a more economical version of the C170i with the same level of reliability, quality, and capacity?

Meet the CellXpert C170.

The CO_2 solution that fits your lab

CellXpert C170 incubators are constructed in the same facility as the CellXpert C170i. But these »little brothers« to the 'i' versions are made with simplified operation in mind. You get most of the same enhanced benefits of the C170i, but without some of the more complex and specialized features demanded by C170i users. Eppendorf has designed the C170 model to deliver high-quality, reliable results within a simplified user experience.

> Fan-less design for increased capacity, lower operating costs, and less opportunity for contamination
> 140 °C High Temperature Disinfection (HTD)
> Seamless, stainless-steel interior to minimize possible points of contamination
> Perforated and reinforced 1.5 mm stainless steel shelves
> Ethernet port for data export
> Dual-channel Infrared (IR) CO_2-sensor
> Intuitive user interface
> Easy-to-open magnetic latches on inner door

Top: Intuitive, familiar, and easy-to-use push-button interface makes setting your temperature and CO_2 concentration fast and simple.

Left: Get all the same quality and capacity as the C170i models, but at a more economical price.

	CellXpert C170i	CellXpert C170
Display	VisioNize touch interface	standard LED display
High temperature disinfection (HTD)	180 °C standard	140 °C standard
Water/Humidity monitoring	optional	–
In-field upgradeable options	> door handle position > O_2 control > water level sensor/monitoring > relative humidity sensor/monitoring	> door handle position
Capacity	170 L (6.0 ft³)	
Dimensions external (W × D × H)	71.8 × 71.5 × 90.0 cm (28.3 × 28.1 × 35.4 in)	
Dimensions internal (W × D × H)	53.9 × 44.5 × 69.2 cm (21.2 × 17.5 × 27.2 in)	
Weight w/o accessories	107 – 113 kg (236 – 249 lb)	
Benchtop (B), Under Bench (U), Floor (F) or Stackable (S)	B, U, F, S (x2)	
Inner door segment options	> unsegmented > 4 segments > 8 segments	> unsegmented
Temperature range	ambient +4 °C to 50 °C	
Temperature control increment	0.1 °C	
Temperature stability at 37 °C	±0.1 °C	
Temperature accuracy	±0.4 °C	
Temperature sensors	independent, various locations	
CO_2 range	0.1 – 20 %	
CO_2 control increment	0.1 %	
CO_2 stability at 5 % CO_2	±0.1 %	
CO_2 accuracy at 5 % CO_2	±0.3 %	
CO_2 sensor	dual-channel infrared (IR) sensor (high temperature resistant)	
O_2 range (tri-gas control)	1 – 20 %	–
O_2 control increment	0.1 %	–
O_2 stability	±0.1 %	–
O_2 accuracy	±0.25 %	–
O_2 sensor	platinum-coated ZrO_2 (high temperature resistant)	–
Access ports	2	
Pore size in-line gas filter	0.2 µm	
BMS relay	standard	
Number of shelves (included/max)	4/8	3/8
Copper options	chamber, water tray, shelves	water tray, shelves
On-board data logging	standard	–
Data export interface	USB, Ethernet, VisioNize onboard	Ethernet, VisioNize ready (requires VisioNize box)
Produced in	Hamburg, Germany	

Our Service Culture

For peace of mind

CO_2 incubators feature complex, dynamic control systems to maintain user-defined culturing parameters. Accurate measurement and control feedback of multiple environmental variables is necessary in order to optimize cell growth and proliferation, while also minimizing intercellular variation in physiology, metabolic function, and expression.

We offer service programs to meet your needs and to ensure your instrument is operating at peak performance over its full lifetime.

CO_2 Incubator Performance Plans include a choice of preventive maintenance programs covering cleaning, inspection and maintenance work, as well as the validation and adjustment of operating parameters (such as temperature, humidity, CO_2) in accordance to Eppendorf specifications.

> Minimizes risk of failure in your process
> Long-lifetime of your instrument
> Improves reliability and consistency of culturing

Learn more at www.eppendorf.com/epServices

Ordering Information

Description	Order no.
ESSENTIAL CHECK: Check of all fundamental functions of the product	0082 060.003
ADVANCED MAINTENANCE: Preventive maintenance service to meet manufacturer specifications	0082 060.004
PREMIUM SERVICE: Complete maintenance and repair service agreement	0082 060.005
IQ/OQ SERVICES: Verification services to assure that instrumentation is installed and running according to manufacturer specifications including documentation for quality and regulatory audits	
Installation Qualification (IQ)	0082 060.007
Operational Qualification (OQ)	0082 060.008
IQ/OQ	0082 060.009

CellXpert® C170i Ordering Information

Device Options					Order no.				
Door Segments	Door Handle	O_2 Control	Humidity Monitor/ Water Level Sensor	Copper	230 V, 50/60 Hz European	230 V, 50/60 Hz UK/HKG	230 V, 50/60 Hz Australia	230 V, 50/60 Hz China	100–120 V, 50/60 Hz USA/Japan
1	Right				6731 000.011*	6731 000.012*	6731 000.013*	6731 000.014*	6731 010.015*
1	Right			Yes	6731 000.511	6731 000.512	6731 000.513	6731 000.514	6731 010.515
1	Right		Humidity monitor		6731 000.111*	6731 000.112*	6731 000.113*	6731 000.114*	6731 010.115*
1	Right		Water level sensor		6731 000.211*	6731 000.212*	6731 000.213*	6731 000.214*	6731 010.215*
1	Right		Both		6731 000.311*	6731 000.312*	6731 000.313*	6731 000.314*	6731 010.315*
1	Right	Yes			6731 001.011*	6731 001.012*	6731 001.013*	6731 001.014*	6731 011.015*
1	Right	Yes		Yes	6731 001.511	6731 001.512	6731 001.513	6731 001.514	6731 001.515
1	Right	Yes	Both	Yes	6731 001.811	6731 001.812	6731 001.813	6731 001.814	6731 011.815
1	Left				6731 000.021*	6731 000.022*	6731 000.023*	6731 000.024*	6731 010.025*
1	Left			Yes	6731 000.521	6731 000.522	6731 000.523	6731 000.524	6731 010.525
1	Left		Humidity monitor		6731 000.121	6731 000.122	6731 000.123	6731 000.124	6731 010.125
1	Left		Water level sensor		6731 000.221	6731 000.222	6731 000.223	6731 000.224	6731 010.225
1	Left		Both		6731 000.321	6731 000.322	6731 000.323	6731 000.324	6731 010.325
1	Left	Yes			6731 001.021*	6731 001.022*	6731 001.023*	6731 001.024*	6731 011.025*
1	Left	Yes		Yes	6731 001.521	6731 001.522	6731 001.523	6731 001.524	6731 001.525
1	Left	Yes	Both	Yes	6731 001.821	6731 001.822	6731 001.823	6731 001.824	6731 011.825
4	Right				6731 000.041*	6731 000.042*	6731 000.043*	6731 000.044*	6731 010.045*
4	Right		Both		6731 000.341	6731 000.342	6731 000.343	6731 000.344	6731 010.345
4	Right		Both	Yes	6731 000.841	6731 000.842	6731 000.843	6731 000.844	6731 010.845
4	Right	Yes			6731 001.041*	6731 001.042*	6731 001.043*	6731 001.044*	6731 011.045*
4	Right	Yes	Both		6731 001.341	6731 001.342	6731 001.343	6731 001.344	6731 011.345
4	Left				6731 000.051	6731 000.052	6731 000.053	6731 000.054	6731 010.055
4	Left		Both		6731 000.351	6731 000.352	6731 000.353	6731 000.354	6731 010.355
4	Left		Both	Yes	6731 000.851	6731 000.852	6731 000.853	6731 000.854	6731 010.855
4	Left	Yes	Both		6731 001.351	6731 001.352	6731 001.353	6731 001.354	6731 011.355
4	Left	Yes			6731 001.051	6731 001.052	6731 001.053	6731 001.054	6731 011.055
8	Right	Yes			6731 001.081*	6731 001.082*	6731 001.083*	6731 001.084*	6731 011.085*
8	Left	Yes			6731 001.091	6731 001.092	6731 001.093	6731 001.094	6731 011.095

* Stock article; all others are built-to-order

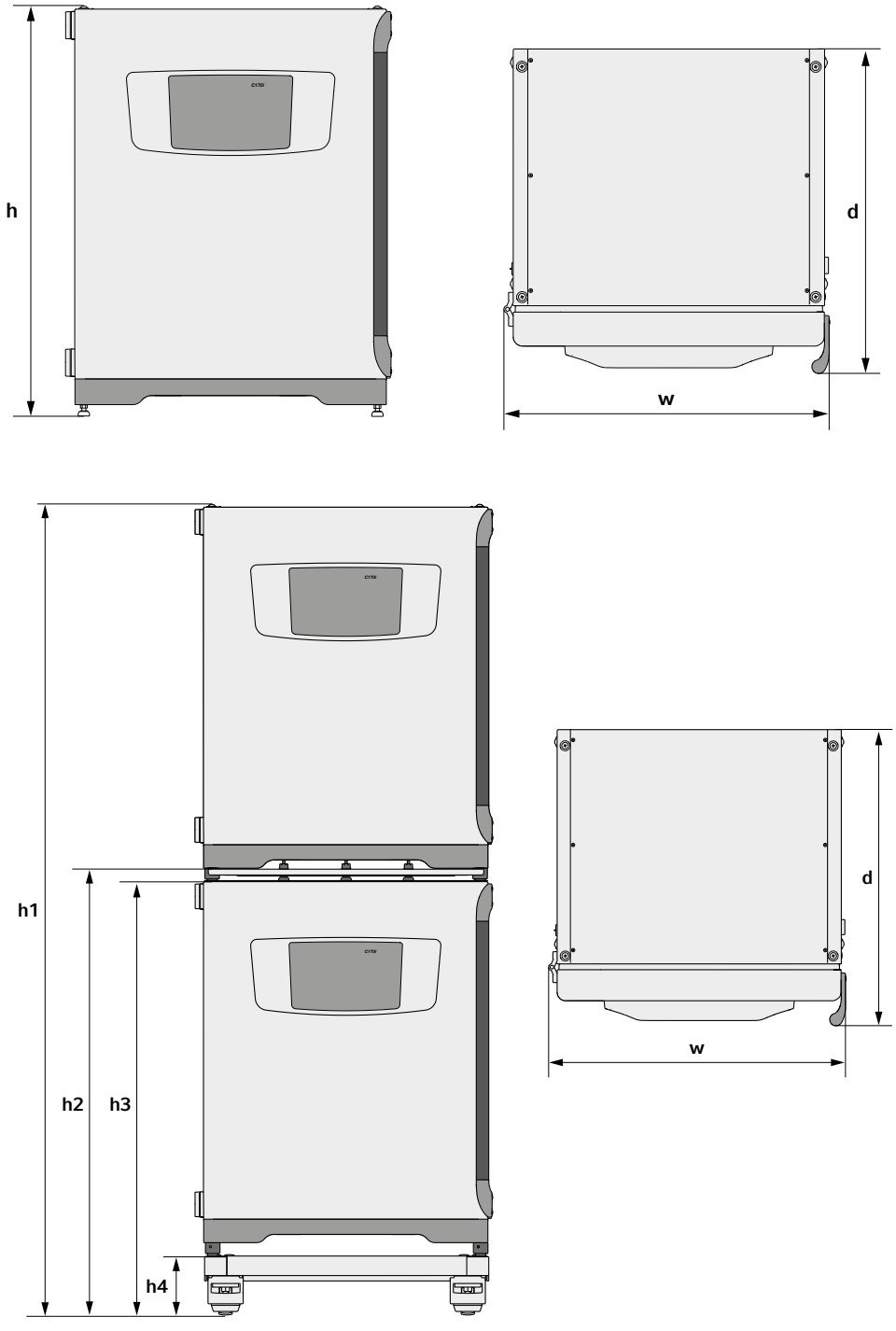
CellXpert® C170 Ordering Information

Device Options	Order no.				
Door Handle	230 V, 50/60 Hz European	230 V, 50/60 Hz UK/HKG	230 V, 50/60 Hz Australia	230 V, 50/60 Hz China	100–120 V, 50/60 Hz USA/Japan
Right	6734 000.011	6734 000.012	6734 000.013	6734 000.014	6734 010.015

Accessories Ordering Information

Description	Order no.
Shelf for 170 L incubators, 1 piece	6731 070.123
Shelves for 170 L incubators, 2 pieces	6710 859.009
Shelf rack for 170 L incubators	P0628-6390
Water tray for 170 L incubators	P0628-6140
Copper package for 170 L incubators, tray and shelves	6731 080.013
Copper shelves for 170 L incubators, 2 pieces	6710 859.106
Copper water tray for 170 L incubators	P0628-6260
Gas tubing 3 m, with in-line gas filter	6731 070.107
In-line gas filter, 2 pieces	6710 070.251
BMS connector	6731 070.069
Plug for access port, 2 pieces	6731 070.034

Description	Order no.
Safety fastening kit	6710 070.235
Automatic gas cylinder change-over unit	P0628-5000
New Brunswick™ Galaxy® Gas Analyzer CO_2	P0628-6150
New Brunswick™ Galaxy® Gas Analyzer CO_2, O_2	P0628-6831
New Brunswick™ Galaxy® Gas Analyzer CO_2, O_2, RH	P0628-7890
Temperature probe 100 mm tip	P0628-7880
Temperature probe 5 mm tip	PO628-7881
Stacking stand, lower frame with castors	6731 070.093
Stacking stand, upper frame	6731 070.085



Dimensions

Width (w)	71.8 cm (28.3 in)
Height (h)	90.0 cm (35.4 in)
Depth (d)	71.5 cm (28.1 in)

Height (h1)	194.6 cm (76.7 in)
Height (h2)	107.3 cm (42.3 in)
Height (h3)	104.5 cm (41.2 in)
Height (h4)	14.2 cm (5.6 in)
Depth (d)	71.5 cm (28.1 in)
Width (w)	71.8 cm (28.3 in)

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»CellXpert® C170i in 360°«

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