ThermoFisher SCIENTIFIC

Cell culture

Contamination protection that's in a class of its own

Cytoperm 2 CO_2 Incubator

thermo scientific

Simple handling and safe operation

With high protection against contamination

Our Thermo Scientific™ Cytoperm™ 2 CO_2 Incubator meets stringent requirements, essential for demanding research in pharmaceutical, cancer, AIDS, vaccine production and IVF fields and other applications involving sensitive or infectious samples.

The high performance Cytoperm 2 CO_2 incubator controls temperature, CO_2 content and even relative humidity levels with exceptional precision to simulate the natural environment of cells. Models with oxygen (O_2) control are also available for those seeking to establish hypoxic or hyperoxic culture conditions.

Cytoperm 2 CO_2 incubator offer safety and reliability for cell and tissue culture applications

- Convenient hot air disinfection at 180 °C without the need for removing fittings or sensors
- Humidity water safely located outside the culture chamber
- Unique pyrolytic germ barrier sterilizes external humidity water prior to introduction into the culture chamber
- Full humidity control and display
- Reliable air jacketed heating system

Protection for high demands

Features for contamination prevention

Contamination prevention

Contamination by bacteria, viruses, fungal spores and mycoplasmas can destroy valuable cultures or distort test results, causing more work. The Cytoperm 2 CO_2 incubators advanced design incorporates measures which avoid or efficiently eliminate contamination.

180 °C high temperature sterilization

An on-demand heating system operating independently of the incubation system raises the temperature of the work space to 180 °C for sterilization. The automatic routine is initiated by a simple key switch and can be repeated as often as required. All fittings and sensors remain inside the incubator during disinfection. A GLP tested laboratory, accredited in accordance with DIN EN 45001, confirms the 180 °C high temperature sterilization cycle's efficacy.

Test germs to verify the efficacy:

- *Bacillus subtilis*
- *Bacillus stearothermophilus (USP 23)*
- *Enterococcus faecalis*
- *Escherichia coli*
- *Pseudomonas aeruginosa*
- *Aspergillus niger*

Pyrolytic germ barrier

Humidifying vapor is produced by passing water over a 500 °C pyrolytic barrier, ensuring that it is completely sterile on entering the chamber. This system reliably prevents spread of contamination.

External water reservoir

The water reservoir of the Cytoperm 2 CO_2 incubator is located outside the incubation chamber, thus there are no open water surface areas inside the incubator. Combined with the pyrolytic germ barrier, contamination is effectively counter-acted.

Gas-tight screen

Six individually sealed glass doors which allow segmented access to individual sections of the incubator are provided as standard. This minimizes any changes to the atmosphere during opening, shortens recovery times significantly and also further reduces the risk of contamination.

Air jacket heating system

The air jacket heating system maintains constant and stable temperatures on all interior surfaces.

Ideal culture conditions

Accurate parameter control

Reliable sensors with automatic calibration ensure the long-term stability of incubation parameters.

Constant environmental parameters

The cell's environmental conditions change, for example, when the gassed incubator is opened. Permanent control and regulation of the parameters ensure that such changes are detected and the required *in vitro* conditions are reestablished in the shortest possible time. This feature ensures the high degree of stability in environmental conditions required for both long and short-term cultures.

Temperature control

Temperature is microprocessor controlled with a Pt 100 sensor.

Humidity control

The relative humidity (RH) is controlled with a microprocessor. The maintenance-free sensor operates in accordance with the capacitive humidity measuring principle. The water reservoir for humidification is located outside the work space and is easy to fill, empty and monitor.

CO_2 control using auto-zero

CO_2 levels are microprocessorcontrolled using a thermal conductivity sensor with excellent long-term stability and reliability with built-in humidity compensation. A fully automated calibration (auto-zero) is carried out periodically to ensure CO_2 longterm stability and thus stable CO_2 levels and a constant pH level in culture media with bicarbonate buffers.

The clear operating panel ensures simple handling

High safety standards

Features for convenience and sample protection

Our Cytoperm 2 CO_2 incubator offers a number of safety features:

Auto-start function

The auto-start function, which considerably simplifies the equipment's operation, contains the incubator's automatic start-up and the measuring system's calibration. The incubator can be loaded immediately after the start-up routine is completed.

Locking of set values

By locking the set values, unauthorized alterations of the incubation conditions are prevented. Switching the Cytoperm 2 on and off, and activating the disinfection routine is done via a key switch.

Over-temperature protection

A second, totally independent control system with an additional Pt 100 temperature sensor protects samples from over-temperature.

Alarm and error diagnosis

Alarm functions are provided for all control parameters, giving acoustic or visual signals when errors occur. The error diagnosis system identifies malfunctions, which can be queried using the "i" (information) key on the operating panel.

Lockable door

Unauthorized access to samples can be prevented through the lockable door. This feature is particularly important when dealing with hazardous samples or during long-term experiments.

Safety during power failure

All operating parameters remain stored in the event of a power failure. When power is restored, the unit automatically returns to standard operation and immediately reinstates the set parameters.

Technical specifications

Type	Unit	Value/description
Dimensions		
External dimensions (w x h x d)	mm inch	920 x 855 x 775 36.22 x 33.66 x 30.51
Internal dimensions (w x h x d)	mm inch	607 x 669 x 585 23.09 x 26.34 x 23.03
Total volume	l cu.ft.	220 7.77
Shelves, two pieces		
Dimensions (w x d)	mm	260 x 500
No. standard / maximum		6 /16
Max. load per shelf / total load per unit	kg	5 /30
Access port		
Access port rear wall bottom left	ø 20 mm	0.79 inch
Material		
Inner chamber and fittings		stainless steel
Start-up with auto-start routine		
Start-up time at 37 °C set temp.	h	ca. 4.5
Sterilization cycle (efficiency proven by accredited laboratory)		
Sterilization temperature on all surface areas	°C / h	180 / 3
Total time	h	~12
Efficiency spectrum		bacteria, fungi, spores (USP 23)
Temperature control		
Measurement and control range CO_2 unit	°C	T_A[1)] + 5 … 50
CO_2/O_2 unit	°C	T_A[1)] + 7 … 50
spatial[2)] / temporal[2)3)] temperature deviations	K	≤± 0.1 / ≤± 0.5
Heating up time to 37 °C with auto-start[4)]	h	approx. 5
Ambient temperature range	°C	18 … 30
Recovery time[5)]	min	≤ 3
Humidity control (with external water reservoir)		
Controlled, measuring principle	RH	capacitive humidity measurement
Control range	% RH	60 … 95
Control accuracy	% RH	± 1
Recovery time at 95% rH[2)]	min	≤ 9
CO_2 control		
Controlled, measuring principle		thermal conductivity (TC) with auto-start and auto-zero functions, 180 °C high temperature sterilization
Measurement and control range	vol %	0 … 20
Control accuracy	vol %	0.1
Recovery time at 5% CO_2[2)]	min	≤ 2

Technical specifications continued

Type	Unit	Value/ description
O_2 control (option)		
Controlled, measuring principle		Zirconium oxide sensor with auto-cal function
Control range	% O_2	3 … 90
Supply of O_2 for the range	% O_2	> 21 … 90
Supply of N_2 for the range	% O_2	3 … < 21
Control accuracy	% O_2	± 0.5
Recovery time at 7% O_2[2)]	min	≤ 15
Electrical data		
Rated voltage	V~	230
Rated power incubation operation at 37° C	kW	1.2
Rated power disinfection operation at 180° C	kW	1.2
Rated frequency	Hz	50/60
Weight (excluding accessories)		
	kg	107
	lbs.	235.89

[1] T_A = ambient temperature
[2] DIN 12880, part 2/11.78
[3] at 37°C
[4] T_A = 22 °C, incubator empty
[5] at 37°C, after 30 sec open door, to 98% of the initial value

Ordering information

Description	Cat. No.
Cytoperm 2 CO_2, 230 V/50 Hz	**51011659**
Cytoperm 2, CO_2/O_2, 230 V/50 Hz	**51011660**
Accessories	
Support frame, height 300 mm	50031348
Support frame, height 780 mm	50029597
Rack to stack two Cytoperm 2 incubators	50053628
Additional stainless steel shelf, half width including 2 shelf supports	50029943
Gas cylinder monitor with acoustic signal, 120/230 V~, 50/60 Hz	50046033
CO_2 cylinder pressure regulator	03429937
N_2 cylinder pressure regulator	03429942
O_2 cylinder pressure regulator	03429943

Learn more at **thermofisher.com/co2**

For Laboratory Use. It is the customer's responsibility to ensure that the performance of the product is suitable for customers' specific uses or applications © 2023 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified. **EXT5597 0823**