



## Thermo Scientific Heraeus® Cytoperm® 2 CO<sub>2</sub> and CO<sub>2</sub>/O<sub>2</sub> Incubator

Contamination protection  
that's in a class of its own



# Thermo Scientific Heraeus Cytoperm<sup>®</sup> 2

**Our Cytoperm 2 CO<sub>2</sub> incubator offers simple handling, safe operation and high protection against contamination.**

Our Cytoperm 2 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 controls temperature, CO<sub>2</sub> content and even relative humidity levels with exceptional precision to simulate the natural environment of cells. Models with oxygen (O<sub>2</sub>) control area also available for those seeking to establish hypoxic or hyperoxic culture conditions.

Cytoperm 2 represents the synergies of 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

## 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<sub>2</sub> incubators advanced design incorporates measures which avoid or efficiently eliminate contamination.

## 180°C hot air disinfection

An on-demand heating system operating independently of the incubation system raises the temperature of the work space to 180°C for disinfection. 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 hot air disinfection routine'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 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.

## Disinfection routine with temperature and status display

Easy to clean interior



Operating panel with additional O<sub>2</sub>-control.



## Ideal Culture Conditions

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 re-established 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<sub>2</sub> control using auto-zero

CO<sub>2</sub> levels are microprocessor-controlled 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<sub>2</sub> long-term stability and thus stable CO<sub>2</sub> levels and a constant pH level in culture media with bicarbonate buffers.

## High Safety Standards

Our Cytoperm 2 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.

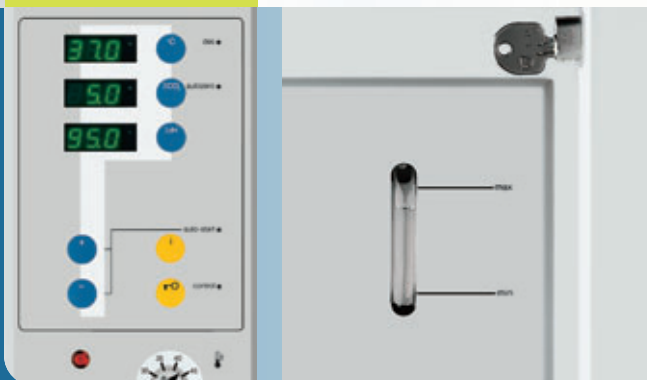
### Safety during power failure

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.

des  
start/  
stop

*Lockable heated door and water level indicator  
for the water reservoir*

*The clear operating  
panel ensures  
simple handling*



### Need Validation?

Validation documentation and services are available from Thermo Fisher Scientific in many areas. Contact your local representative for details.

# TECHNICAL SPECIFICATIONS



## Thermo Scientific Heraeus Cytoperm 2 CO<sub>2</sub> and CO<sub>2</sub>/O<sub>2</sub> Incubators

Type	Unit	Value/Description	Unit	Value/Description
<b>Dimensions</b>				
External casing	(w/h/d)	mm	920 x 855 x 775	inch 36.22 x 33.66 x 30.51
Work space	(w/h/d)	mm	607 x 669 x 585	inch 23.09 x 26.34 x 23.03
Total volume	l	220	cu.ft.	7.77
<b>Shelves, two pieces</b>				
Dimensions	(w/d)	mm	260 x 500	inch 10.24 x 19.69
No. standard/maximum			6/16	
Max. load per shelf/total load per unit		kg	5/30	lbs. 11.02/66.14
<b>Access port</b>				
Access port	ø 20 mm	rear wall bottom left	0.79 inch	
<b>Material</b>				
Work space and fittings		stainless steel		
<b>Start-up</b>				
Start-up time at 37°C set temp.	h	using auto-start routine	ca. 4.5	
<b>Disinfection routine</b>				
Disinfection temperature on all surface areas	°C/h	verified by an accredited laboratory	180/3	
Disinfection routine	h		~12	
Efficiency spectrum			bacteria, fungi, spores (USP 23)	
<b>Temperature</b>				
Measurement and control range	CO <sub>2</sub> unit	°C	T <sub>A</sub> <sup>1)</sup> + 5 ... 50	
	CO <sub>2</sub> /O <sub>2</sub> unit	°C	T <sub>A</sub> <sup>1)</sup> + 7 ... 50	
spatial <sup>2)</sup> /temporal <sup>23)</sup>				
Temperature deviations	K		≤± 0.1/≤± 0.5	
Heating up time to 37°C with auto-start <sup>4)</sup>	h		approx. 5	
Ambient temperature range	°C		18 ... 30	
Recovery time <sup>5)</sup>	min		≤ 3	
<b>Humidity</b>				
Controlled, measuring principle	RH	external water reservoir	capacitive humidity measurement	
Control range	% RH		60 ... 95	
Control accuracy	% RH		± 1	
Recovery time at 95% rH <sup>2)</sup>	min		≤ 9	
<b>CO<sub>2</sub></b>				
Controlled, measuring principle			TCD	
			thermal conductivity measuring cell with auto-start and auto-zero functions, 180°C hot air disinfection	
Measurement and control range	vol %		0 ... 20	
Control accuracy	vol %		0.1	
Recovery time at 5% CO <sub>2</sub> <sup>2)</sup>	min		≤ 2	
<b>O<sub>2</sub> control (option)</b>				
Controlled, measuring principle			zirconium oxide sensor with auto-cal function	
Control range	% O <sub>2</sub>		3 ... 90	
Supply of O <sub>2</sub> for the range	% O <sub>2</sub>		> 21 ... 90	
Supply of N <sub>2</sub> for the range	% O <sub>2</sub>		3 ... < 21	
Control accuracy	% O <sub>2</sub>		± 0.5	
Recovery time at 7% O <sub>2</sub> <sup>2)</sup>	min		≤ 15	
<b>Electrical data</b>				
Rated voltage	V~		230	
Rated power	incubation operation at 37°C	kW	1.2	
	disinfection operation at 180°C	kW	1.2	
Rated frequency	Hz		50/60	
<b>Weight</b> (excluding accessories)	kg		107	lbs. 235.89

<sup>1)</sup> T<sub>A</sub> = ambient temperature

<sup>2)</sup> DIN 12880, part 2/11.78

<sup>3)</sup> at 37°C

<sup>4)</sup> T<sub>A</sub> = 22°C, incubator empty

<sup>5)</sup> at 37°C, after 30 sec open door, to 98% of the initial value

## ORDERING INFORMATION



### Thermo Scientific Heraeus Cytoperm 2 CO<sub>2</sub> and CO<sub>2</sub>/O<sub>2</sub> Incubators

#### Ordering Information

<b>Cytoperm 2, CO<sub>2</sub></b> , 230V/50Hz	<b>51011659</b>
<b>Cytoperm 2, CO<sub>2</sub>/O<sub>2</sub></b> , 230V/50Hz	<b>51011660</b>

#### Accessories

Support frame, height 300 mm	50031348
Support frame, height 780 mm	50029597
Rack to stack two Cytoperm 2	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 <sub>2</sub> cylinder pressure regulator	03429937
N <sub>2</sub> cylinder pressure regulator	03429942
O <sub>2</sub> cylinder pressure regulator	03429943

All units are UL listed to United States and Canadian requirements and bear the CE Mark.



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[www.thermo.com/incubators](http://www.thermo.com/incubators)

**North America:** USA/Canada +1 866 984 3766

**Europe:** Austria +43 1 801 40 0, Belgium +32 2 482 30 30, Finland +358 9 329 100, France +33 2 2803 2000, Germany national toll free 08001-536 376, Germany international +49 6184 90 6940, Italy +39 02 95059 1, Netherlands +31 76 571 4440, Russia/CIS +7 095 225 11 15, Spain/Portugal +34 93 223 09 18, Switzerland +41 44 454 12 12, UK/Ireland +44 870 609 9203

**Asia:** China +86 21 6865 4588 or +86 10 5850 3588, India +91 22 5542 9494, Japan +81 45 453 9220, Other Asian countries +852 2885 4613

**Countries not listed:** +49 6184 90 6940 or +33 2 2803 2000

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