Thermo Scientific HERAcell® CO$_2$ Incubators – The New Dimension

Contamination prevention without compromise

Part of Thermo Fisher Scientific

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Thermo Scientific HERAcell – The ideal CO_2 incubator for cell and tissue culture

The Thermo Scientific HERAcell is the ideal CO_2 incubator for cell and tissue culture. It provides everything you need to protect and grow valuable samples – including the development of ova or embryos.

- **ContraCon 90°C** decontamination routine decontaminates the entire interior of the chamber and is proven to eliminate contaminating organisms including mycoplasma

- **Patented humidity system** with rapid recovery times provides optimal growth conditions and protects cultures from drying out

- **Available in solid copper** or stainless steel

- **Optional Trigas-O_2-control** for hypoxic and hyperoxic applications

2 year warranty

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Solid copper interior known to effectively prevent bacterial and fungal growth.

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◄ 2 convenient sizes:
150 l (5.3 cu. ft.) and 240 l (8.5 cu. ft.)

Humidity system –
protects cultures from drying out

The HERAcell uses a new type of water reservoir that replaces standard water trays. This new system provides a high relative humidity (rH) and, most importantly, allows rapid recovery of optimal humidity. Recovery times with the HERAcell are up five times faster than standard water tray-humidified CO_2 incubators.
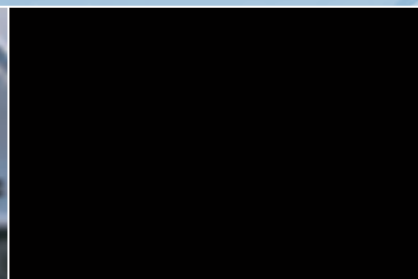
Maintaining humidity
Short-humidity recovery times are important – especially when the incubator door is opened frequently or when low volumes of media are used. With water tray incubators, a layer of air between the chamber bottom and tray slows humidity recovery and results in high rates of culture media evaporation.

In contrast, the HERAcell provides very rapid humidity recovery (up to five times faster) thanks to:

- A large water surface area (provided by a water reservoir with inclined and rounded corners)
- Direct heat-transfer from heated floor to water
- A patented floor heating system that operates after door opening and during O_2 gassing
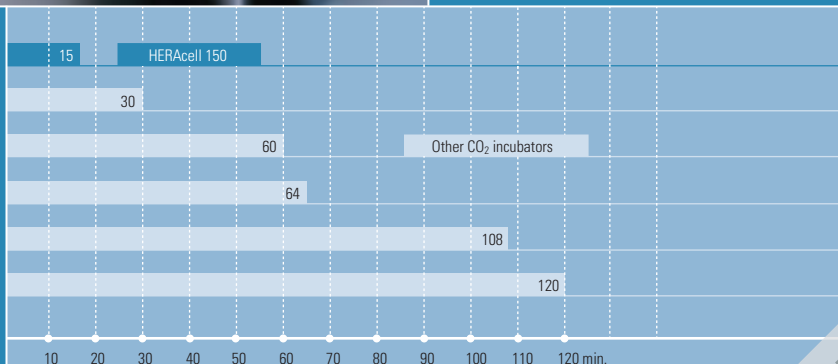
Early warning system
The water level alarm monitors the water level continuously and provides early warning (audible and visible alarm) if the water reservoir needs refilling.

Fast humidity recovery times prevent cultures from drying out – vital when the door is opened frequently or low media volumes are used.

◄

**Humidity recovery time (min) – HERAcell
compared with common CO_2 incubators** ▶

	HERAcell 150
15	
30	
60	Other CO_2 incubators
64	
108	
120	

10 20 30 40 50 60 70 80 90 100 110 120 min.

Contamination prevention – safety through design

Reduced contamination-prone surfaces inside the chamber combined with the ContraCon decontamination routine, is the most efficient method of ensuring contamination-free culture conditions

ContraCon – 90°C moist heat decontamination

A patented feature, exclusive to HERAcell incubators, ContraCon is an automatic decontamination routine at 90°C and high humidity. In independent tests, the ContraCon routine was proven to completely eliminate a variety of contaminants including mycoplasma.

ContraCon's decontamination efficacy was tested by a GLP-approved laboratory and CAMR, Porton Down, UK. A third independent laboratory confirmed ContraCon's complete elimination of mycoplasma.

Contaminants tested:
- Bacillus subtilis
- Bacillus stearothermophilus (USP 23)
- Enterococcus faecalis
- Escherichia coli
- Pseudomonas aeruginosa
- Staphylococcus epidermidis
- Corynebacterium xerosis
- Aspergillus niger

The entire interior of the HERAcell, including all sensors, shelves, fan and the critical water reservoir, can be decontaminated within a day. You save time by not having to remove, re-fit or decontaminate fixtures separately. And, there is no limit to the number of times that the ContraCon decontamination routine can be used. The homogenous heat distribution on all surfaces also promotes effective decontamination.

Completely visible and accessible throughout
In contrast to other CO_2 incubators, all HERAcell surfaces are easily visible and accessible. Potential sources of contamination, such as plastic fans, sensors or filter casings hidden behind ceiling panels are not used in the HERAcell.

Flexible set up
Doors can be set up for left- or right-handed use to optimize the work space in your laboratory. All door gaskets can be removed by hand and have smooth surfaces for easy cleaning.

Less means more
HERAcell components have up to 50% fewer contamination-prone surfaces. This means less time-consuming cleaning and greater contamination protection.

Easy cleaning
HERAcell has a completely smooth inner casing with rounded corners. The stainless steel interior has an electropolish finish to achieve the highest possible quality surface.

Easy stackable
HERAcells are lightweight direct heat incubators that can easily be stacked on each other. Either without adapter (HERAcell 150) or with a simple adapter plate (HERcell 240).

Reduced internal surface areas

The reduced total surface area, and minimal inaccessible corners, cavities, tubing and pipes, simplifies cleaning. HERAcell has up to 2.5 m^2 less contaminable surface area than other CO_2 incubators. Without hidden and inaccessible surfaces, the possibility of hidden contamination is greatly reduced.

O_2 control with auto-cal

Our HERAcell now offers two optional O_2 control ranges. Choose between 1 to 21% O_2 or a wide range setting from 5 to 90% O_2. The maintenance-free zirconium oxide sensor is calibrated automatically (auto-cal) and stays in the incubator during the 90°C ContraCon decontamination routine.

Integrated gas guard

There is an optional integrated gas tank switcher for CO_2 and O_2/N_2 the connection of two gas supplies. As soon as the first supply is empty, the controller switches automatically to the second supply – and sounds an alarm to alert users that the gas supply needs changing. The units are equipped with gas-tight inner doors as standard, reducing gas consumption and therefore operating costs.

IR CO_2 sensor with auto-zero

Choose between the well-established TC or the new, unique IR CO_2 sensor, which responds extremely fast to gas concentration changes. An auto-zero function ensures long-term stability of CO_2 concentrations. The sensors are thermostable and stay in the incubator during the ContraCon decontamination routine.

Stainless steel or solid copper interior

The stainless steel interior has an electropolish finish giving the highest possible quality surface. If you choose the copper interior, the chamber, fan and complete shelfing system are made of solid copper with the advantage of inherent fungicidal and bactericidal activity.

Access port

HERAcell incubators are supplied with a 42 mm (1.6 in) access port as standard. This allows cables, plugs and tubing to be easily inserted into the chamber.

Reliable controls

Two large illuminated displays provide instant status of incubator parameters. With a single glance you can check temperature and CO_2 concentration at the same time – even in passing.

Newly developed water level alarm

A new water level alarm (audible and visible) alerts users when the water reservoir needs to be refilled. This ensures a constant high level of humidity to prevent cultures from drying out. The sensor is decontaminated during the 90°C ContraCon decontamination routine.
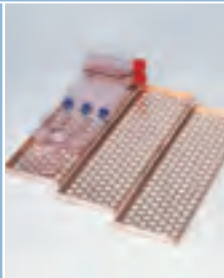
Convenient operation

The pull-out tray underneath the incubator provides a useful space for storage of supplies and operating instructions, as well as providing a place for research notes. It also serves as a convenient shelf during loading and unloading.

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Options and Accessories

Thermo Scientific HERAtrays
HERAtrays are shelves for the convenient transportation of your cultures and can be used to divide incubator shelves up to four sections. They work well with a three or six inner glass door configuration. HERAtrays are available in stainless steel and copper.

Thermo Scientific IR-CO$_2$ gas tester
The handheld IR-CO$_2$ gas tester is equipped with a maintenance-free infrared cell to monitor CO$_2$ concentration inside the chamber. Data download and calibration functions are possible by using optional PM-COM software. The IR-CO$_2$ gas tester performs to GMP/GLP standards.

Support frames
The carts provide protection against floor contamination. Choose between a height of 200 mm (8 in) or 780 mm (31 in). The support frames can also be castor-mounted for easy maneuverability.

Gas-tight inner glass doors
All HERAcell incubators now offer an optional three door (HERAcell 150) or six door (HERAcell 240) inner glass door, which allow access to defined sections of the incubator without disturbing the inner atmosphere. This minimizes recovery times and the risk of contamination.

Unique new roller bottle system
The HERAcell 240 can be equipped with up to four bottle-turning devices for roller bottles between 58 to 186 mm in diameter. The rotational speed of each device is set independently.

Half-width shelves
These can be used to subdivide the HERAcell 240's interior to reduce the possibility of mixing up samples, especially when there are multiple users.

Extremely economical

Standard features
HERAcell incubators include a wide range of standard features that optimize the safety of your cultures.

Save valuable time
HERAcell incubators require less time and effort for cleaning and decontamination than competitive models. There are considerably fewer surfaces to clean, and "normal cleaning" will suffice as decontamination is carried out automatically in the incubator – autoclaving is no longer necessary.

Unlike water-jacket incubators that require more than a day to heat the water and become operational, the HERAcell's fully automatic auto-start routine gets you up and running within a few hours.

With the HERAcell, you will have more time for your valuable research projects and a reduced likelihood of contamination – a problem that can seriously delay project completion.

All Thermo Scientific HERAcell CO$_2$ incubator glass doors have a safety catch to reliably prevent the inner door from being accidentally left open. This ensures that culture conditions remain stable and your cultures are protected from external contaminants.

Technical Specifications			
Type	**Unit**	**HERAcell® 150**	**HERAcell® 240**
Dimensions			
Internal Volume:	l	150 (5.3 cu.ft.)	240 (8.4 cu.ft.)
External (w x h x d)	mm	637 x 867 x 766	780 x 934 x 834
	inch	25.1 x 34.1 x 30.2	30.7 x 36.8 x 32.8
Internal (w x h x d)	mm	470 x 607 x 530	607 x 670 x 583
	inch	18.5 x 23.9 x 20.9	23.9 x 26.4 x 23.0
Total volume	l	approx. 151	approx. 238
	cu.ft.	5.3	8.4
Shelves full width (w x d)	mm	423 x 445	560 x 500
	inch	16.7 x 17.5	22.0 x 19.7
No. of shelves standard/maximum	no.	3/10	3/12
Max. load per shelf/total load	kg	10/30	10/30
	lbs.	22/66	22/66
Shelves half width (w x d)	mm	–	260 x 500
	inch	–	10.2 x 19.7
No. of shelves standard/maximum	no.	–	6/16
Max. load per shelf/total load	kg	–	5/30
	lbs.	–	11/66
Material			
Interior chamber		stainless steel/solid copper [4]	stainless steel/solid copper [4]
Shelves, fan impeller		stainless steel/solid copper [4]	stainless steel/solid copper [4]
ContraCon decontamination routine		verified by accredited laboratories	verified by accredited laboratories
Decontamination phase, on all sufaces	°C/hrs	90/9	90/9
Period (ambient temperature 20°C)	hrs	25	25
Efficiency spectrum		bacteria, fungi, spores (USP 23), mycoplasma	bacteria, fungi, spores (USP 23), mycoplasma
Temperature		air jacket temperature control	air jacket temperature control
Temperature control range	°C	TA +3 … 55	TA +3 … 55
Temperature deviation, time[1]/spatial[1]	K	± 0.1/± 0.5	± 0.1/± 0.5
Ambient temperature range	°C	+18 … 33	+18 … 33
Recovery time at 37°C [2]	min	≤10	≤10
Humidity			
Constant humidity[3]	%rH	≥95	≥95
Fill amount/water quality	l	max. 3 distilled/autoclaved and mineralized	max. 4.5 distilled/autoclaved and mineralized
Recovery time at 95% rH [3,5,6]	min	≤20	≤20
CO_2			
Measure and control range	Vol – %	0 … 20	0 … 20
Control accuracy	Vol – %	± 0.1	± 0.1
Inlet pressure	bar	min. 0.8 … max. 1	min. 0.8 … max. 1
Gas purity	%	min. 99.5, medical quality	min. 99.5, medical quality
Recovery time, 5% CO_2 [2]	min	≤5	≤10
O_2			
Measure and control range	Vol – %	1..21 / 5..90	1..21 / 5..90
Control accuracy	Vol – %	± 0.1	± 0.1
Inlet pressure	bar	min. 0.8… max. 1	min. 0.8… max. 1
Gas purity	%	min. 99.5; medical quality	min. 99.5; medical quality
Recovery time[2] ≤ 21% O_2	% O_2 / min	0.5	0.5
> 21% O_2	% O_2 / min	1.0	1.0
Electrical Data			
Rated voltage	V	1/N/PE AC; 230 (120)	1/N/PE AC; 230 (120)
Rated output	kW	0.60 (0.64)	0.61 (0.64)
Rated frequency	Hz	50/60	50/60
Heat emission to environment			
at 37°C	kWh/h	0.08	0.08
with ContraCon	kWh/h	0.12	0.25
Weight (excl. accessories)	kg	70	85
	lbs.	165	200

1) DIN 12 880, part 2 2) 30 sec. door open, to 98% of initial value 3) the relative humidity inside the incubator may increase during incubation of open culture vessels
4) optional 5) 30 sec. door open, to 96% of initial value 6) only CO_2 Incubators
TA ambient temperature
1) Plus 62 mm for door handle and 50 mm wall clearance.   2) TA = Ambient temperature   3) The values indicated are typical values of series models.

Ordering Information

Standard equipment[1]	Description	Cat. no. HERAcell® 150	Cat. no. HERAcell® 240
HERAcell®	stainless steel inner chamber, 230 V, 50/60 Hz	51022391	51019557
HERAcell®	stainless steel inner chamber, 120 V, 50/60 Hz	51022393	51019559
HERAcell®	solid copper inner chamber, 230 V, 50/60 Hz	51022392	51019558
HERAcell®	solid copper inner chamber, 120 V, 50/60 Hz	51022394	51019560
HERAcell®	twin chamber incubator, stainless steel inner chamber, 230 V, 50/60 Hz, complete with support frame	50077950	–
HERAcell®	twin chamber incubator, stainless steel inner chamber, 120 V, 50/60 Hz, complete with support frame	50077952	–
HERAcell®	twin chamber incubator, solid copper inner chamber, 230 V, 50/60 Hz, complete with support frame	50077951	–
HERAcell®	twin chamber incubator, solid copper inner chamber, 120 V, 50/60 Hz, complete with support frame	50077953	–
Options			
Door hinged	left (field reversible)	51900293	51900293
IR-CO_2 Sensor		51900733	51900571
O_2 control	Vol-% 1..21 incl. 3 gas tight inner doors	51900739	–
O_2 control	Vol-% 5..90 incl. 3 gas tight inner doors	51900740	–
O_2 control	Vol-% 1..21 incl. 6 gas tight inner doors and half-width shelves	–	51900702
O_2 control	Vol-% 5..90 incl. 6 gas tight inner doors and half-width shelves	–	51900703
3 inner doors[2]	three inner doors for segmented access	51900734	–
6 inner doors[2]	six inner doors for segmented access	–	51900387
Half-width shelves, stainless steel	instead of full-width shelves	–	51900358
Half-width shelves, solid copper	instead of full-width shelves	–	51900357
Full-width shelves, stainless steel	reinforced for increased mechanical demands	–	51900753
Full-width shelves, solid copper	reinforced for increased mechanical demands	–	51900754
Gas guard CO_2		51900735	–
Gas guard O_2/N_2		51900736	–
Roller bottle system	1 Level (replacing 1 shelf)	–	51900572
	2 Levels (replacing 2 shelves)	–	51900573
	3 Levels (replacing 3 shelves)	–	51900574
	4 Levels (replacing 3 shelves)	–	51900614
	Factory installed outlet option for field retrofit of up to 4 levels (comes with 3 shelves)	–	51900732
Accessories			
Security door lock		50072430	50072430
Support frame	200 mm / 7.9 in (without castors)	50051376	50065754
Support frame	200 mm / 7.9 in (with castors, height incl. castors)	50057161	50067224
Support frame	780 mm / 30.7 in (without castors)	50051436	50065753
Support cart with drawers/castors	780 mm / 30.7 in, 3 drawers, with 4 castors	50056459	–
Castor set	100 mm / 3.9 in, 4 castors for support frames no. 50051376, 50051436, 50065753 and 50065754	50052528	50052528
Stack adapter	for 150 l unit: to stack up with BB16	50051938	–
	for 240 l unit: to stack up with BB 6220 and B 5060/B 5061	–	50066094
	for 240 l unit: to stack up with two HERAcell® 240	–	50068677
HERAtray, stainless steel	Shelf tray 1/3 width; 3 pcs.	50051913	50065805
HERAtray, stainless steel	Shelf tray 1/4 width, 4 pcs.	–	50065807
HERAtray, stainless steel	Shelf tray 1/2 width for half-width shelf, 4 pcs.	–	50065809
HERAtray, all copper	Shelf tray 1/3 width; 3 pcs.	50051914	50065806
HERAtray, all copper	Shelf tray 1/4 width, 4 pcs.	–	50065808
HERAtray, all copper	Shelf tray 1/2 width for half-width shelf, 4 pcs.	–	50065810
Additional shelf, full-width	stainless steel, incl. 2 support bars	50051909	50065793
Additional shelf, full-width	stainless steel, reinforced, incl. 2 support bars	–	50077367
Additional shelf, half-width	stainless steel, incl. 2 support bars	–	50065795
Additional shelf, full-width	copper, incl. 2 support bars	50051910	50065794
Additional shelf, full-width	copper, reinforced, incl. 2 support bars	–	50077365
Additional shelf, half-width	copper, incl. 2 support bars	–	50065796
IR-CO_2 gas tester	200–230 V	50060283	50060283
	5 spare inlet port filters	50060287	50060287
	IrDa computer interface and cable (incl. PM-COM Software)	50060289	50060289
Upgrade kit			
3 inner doors[2]	for segmented access for stainless steel/copper incubator	50077587	–
6 gas tight inner doors[2]	for segmented access for stainless steel/copper incubator	–	50067225
Shelves, half-width, stainless steel	instead of full-width shelves	–	50067226
Shelves, half-width, copper	instead of full-width shelves	–	50067227

1) Standard equipment includes air-jacket heating, ContraCon decontamination routine, right hinged door. 2) Without inner glass door. Thermo recommendation: apply 6 gas tight inner doors only in combination with half-width shelves or HERAtrays.

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