

Cell therapy

CultiMaxx Shelving Systems

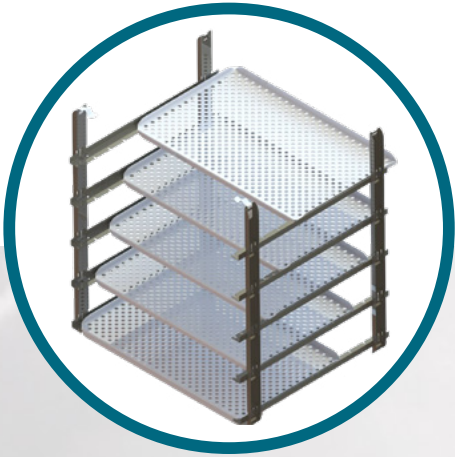
Shelving systems for Forma Steri-Cycle i250 CO₂ Incubators and
Forma Steri-Cycle i250 CR CO₂ Incubators CTS Series

Contents

Shelving system for
Wilson Wolf G-Rex Bioreactors 3

Shelving system for
Thermo Scientific Nunc Cell Factory systems
with 4 layers 7

Shelving system for
Thermo Scientific Nunc Cell Factory systems
with 10 or 13 layers 11



CultiMaxx shelving system for Wilson Wolf G-Rex bioreactors

Increases incubator capacity by up to 150%¹

Life-changing cell therapies can't wait. With a focus on increasing production yield for cell therapies, we redesigned the interior components for our popular Thermo Scientific™ Forma™ Steri-Cycle™ i250 CO₂ Incubator and Thermo Scientific™ Forma™ Steri-Cycle™ i250 CR CO₂ Incubator CTS™ Series. The result is the Thermo Scientific™ CultiMaxx™ Shelving System optimized to incubate up to 150% more Wilson Wolf G-Rex® 500M-CS bioreactors in the same footprint.¹

With the standard incubator interior configuration, the Steri-Cycle i250/Steri-Cycle i250 CR CO₂ incubators (255 L/9.0 cu.ft.) could accommodate up to four G-Rex® 500M-CS units. The CultiMaxx shelving system for G-Rex® 500M-CS increases usable space in the incubator chamber to accommodate up to ten G-Rex® 500M-CS bioreactors simultaneously.

The CultiMaxx shelving system is also suitable for G-Rex® bioreactors in other sizes, e.g. G-Rex® 100M-CS and G-Rex® 10M-CS.

¹ Compared to the standard shelving system provided with every Forma Steri-Cycle i250 and Forma Steri-Cycle CR i250 CO₂ Incubator.



Features:

- 1 Holds up to 10x G-Rex® 500M-CS
- 2 Increases production per footprint
- 3 Stainless steel reinforced shelves
- 4 Retrofittable in the field
- 5 Available as accessory

Standard system: 4x G-Rex® bioreactors

CultiMaxx system: 10x G-Rex® bioreactors

BEFORE



AFTER



Benefits

CultiMaxx shelving system for G-Rex bioreactors



150% more capacity



Redesigned for greater load bearing



Space efficient

Capacity

When the G-Rex® shelving is used in a stack of two Steri-Cycle i250/ Steri-Cycle i250 CR CO₂ incubators, the number of G-Rex® 500M-CS bioreactors per footprint increases from eight to twenty.

Load bearing

CultiMaxx shelving system is an innovative design featuring reinforced stainless steel shelving which provides a maximum weight capacity of 65 kg/144 lbs.

Space efficient

More production capacity and culture throughput in the footprint of a single CO₂ incubator.



Wilson Wolf G-Rex bioreactors

Production of suspension cells

Wilson Wolf G-Rex® bioreactors

G-Rex® bioreactors were designed by Wilson Wolf Corporation for predictable, efficient, and scalable cell expansion. They enable parallel patient processing and can produce the large numbers of cells needed for cell-based therapeutics, from preclinical through commercial scale manufacturing. By giving cells unlimited and undisturbed access to nutrients and oxygen, G-Rex® bioreactors help eliminate media exchanges and the complex and expensive hardware required in integrated systems which makes them an ideal cell therapy production platform for immune cells such as T cells, natural killer cells, and hematopoietic cells.



G-Rex 500M-CS is equal to 10 sets of small single-use bioreactors, each is holding 5 L culture media.

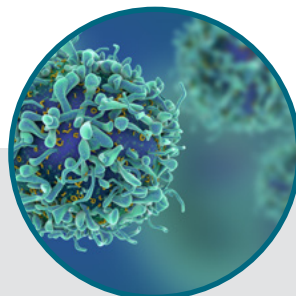
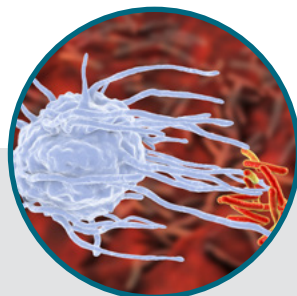
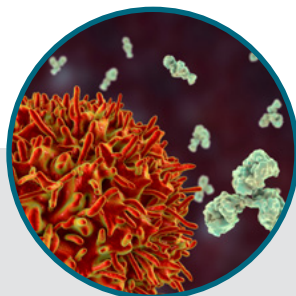
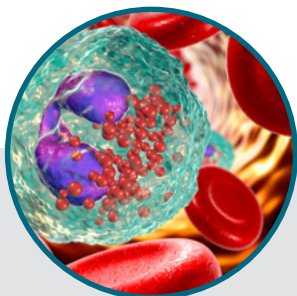
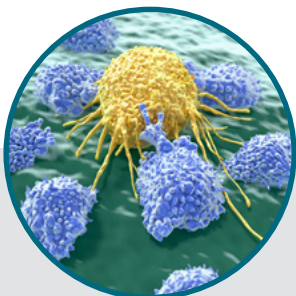


G-Rex® 500M-CS (closed system)

500 cm² gas permeable membrane surface area with 5000 mL media capacity. Closed system with semi-automated liquid handling. Expand 250 million cells into between 10 to 20 billion cells in about 10 days with NO medium exchange.

- Research Use Only – P/N RUO5500-CS [Gamma Irradiated. For non-clinical, non-therapeutic, research use only.]
- Sterile Fluid Path – P/N G285500-CS [Validated Sterile Fluid Path]

Learn more at scaleready.com/g-rex



Specifications and order information

CultiMaxx system for G-Rex bioreactors

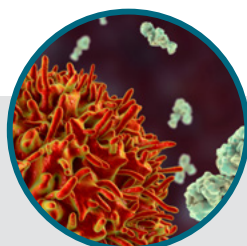
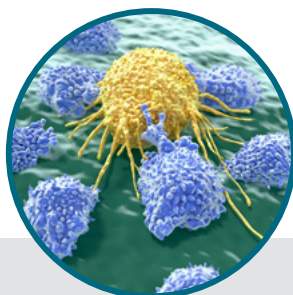
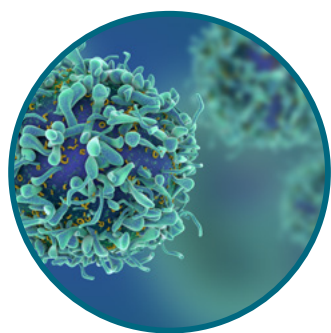
Specifications

Description		Maximum number of G-Rex® bioreactors	Maximum weight capacity
G-Rex® 500M-CS bioreactors		10	65 kg/ 144 lbs
500M-CS	Top level	4	26 kg/ 57.4 lbs
	Mid level	4	26 kg/ 57.4 lbs
	Bottom level	2	13 kg/ 28.7 lbs
G-Rex® 100M-CS bioreactors		45	65 kg/ 144 lbs
100M-CS	Top level	18	26 kg/ 57.4 lbs
	Mid level	18	26 kg/ 57.4 lbs
	Bottom level	9	13 kg/ 28.7 lbs
G-Rex® 10M-CS bioreactors		123	65 kg/ 144 lbs
10M-CS	Top level	42	26 kg/ 57.4 lbs
	Mid level	42	26 kg/ 57.4 lbs
	Bottom level	39	13 kg/ 28.7 lbs

Ordering information

Description	Cat. No.
Shelving System optimized for G-Rex® 500M-CS*	
CultiMaxx Shelving System to support up to 10 G-Rex 500M-CS bioreactors for Forma Steri-Cycle i250 (CR) CO ₂ incubator	50164781

* Only the shelving system, customer-installation (no technician needed). G-Rex® bioreactors must be ordered from Wilson Wolf Corporation.



CultiMaxx shelving system for Nunc Cell Factory systems with 4 layers

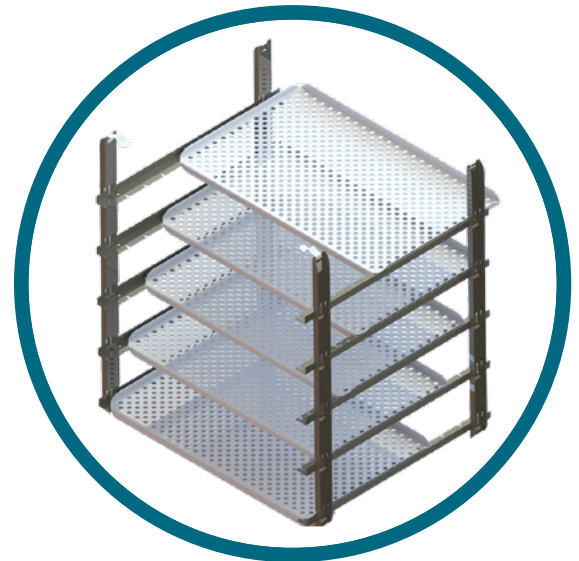
Better access and filter clearance

The Thermo Scientific CultiMaxx Shelving System is designed to support scale-out of Thermo Scientific™ Nunc™ Cell Factory™ systems in cell therapy production and is ideal to use for either the standard Nunc Cell Factory system or the Thermo Scientific™ Nunc™ EasyFill™ Cell Factory™ system, both with 4 layers.

The CultiMaxx shelving system increases usable space in the incubator chamber to accommodate up to ten Nunc Cell Factory 4 vessels simultaneously.

With the standard incubator interior configuration, the Forma Steri-Cycle i250 and Forma Steri-Cycle CR i250 CO₂ Incubator CTS Series can accommodate up to nine Nunc Cell Factory four-layer units. However, not every vessel can be accessed easily since some would be positioned behind others.

With a complete redesign of the shelving, the CultiMaxx system provides less than 0.5 mm of deflection per vessel under maximum load, maintaining proper medium coverage for maximum cell yield. Individual access to each vessel minimizes handling and cell culture disturbance when removing vessels from the incubator. The unique staggered shelving design offers further flexibility by providing improved clearance for filters and connections when loading the vessels into the incubator.



Features:

- 1 Up to 10x Nunc Cell Factory systems with 4 layers
- 2 Stainless-steel reinforced shelves
- 3 Retrofittable in the field
- 4 Easy to install
- 5 Increases production per footprint

Standard system: 9x Nunc Cell Factory 4 units

CultiMaxx system: 10x Nunc Cell Factory 4 units

BEFORE



AFTER



Benefits

CultiMaxx shelving system for Nunc Cell Factory systems



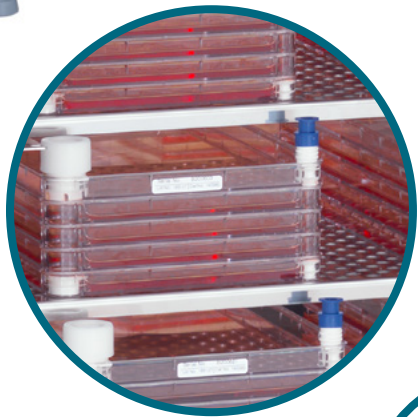
Better filter clearance



Improved vessel access



<0.5 mm deflection per vessel



Better filter clearance

The shelves were designed to provide further flexibility. The unique staggered shelving provides improved clearance for the vessel filters and connections.

Improved vessel access

The CultiMaxx shelving system for Nunc Cell Factory 4-layer systems allows individual access to each vessel due to the cascading shelf design. You can minimize cell disturbance when handling the vessels.

<0.5 mm deflection per vessel under maximum load

The reinforced shelving design maintains proper cell culture media coverage for optimal cell growth even when the incubator is fully loaded.

Nunc Cell Factory systems with 4 layers

Production of adherent cells

Be a champion of productivity at any scale with a proven system that provides consistent quality

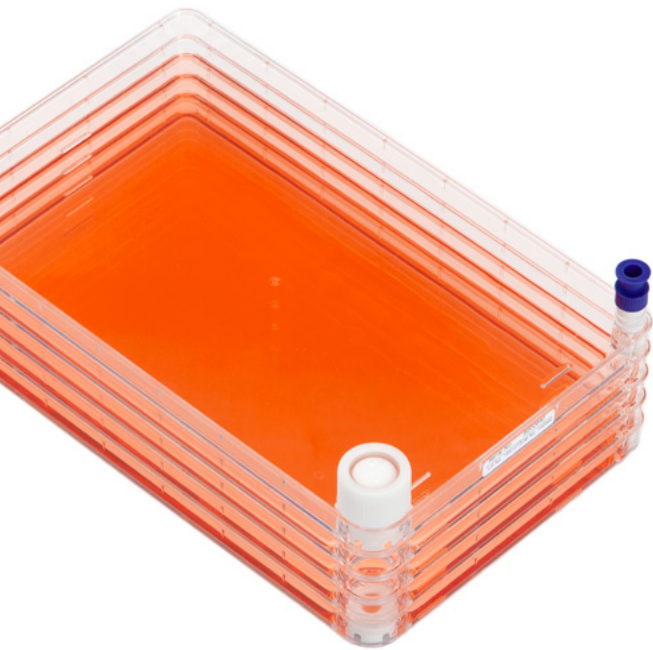
Nunc Standard Cell Factory systems

Nunc Cell Factory systems enable faster results and lot-to-lot consistency. A proven solution for large scale production of cells, vaccines, and therapeutic proteins, these systems have the same growth kinetics as laboratory-scale cell culture products.

The ports of the system make it easy to customize and close, with custom tubing assemblies that facilitate venting, filling, and harvesting.



Nunc EasyFill Cell Factory 4-layer system with a cell culture area of 2,528 cm²

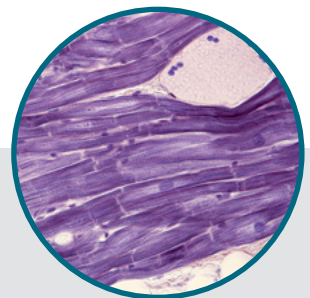
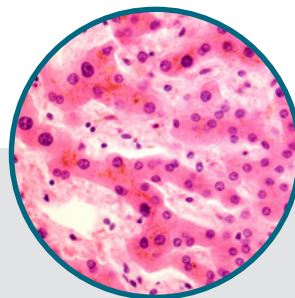
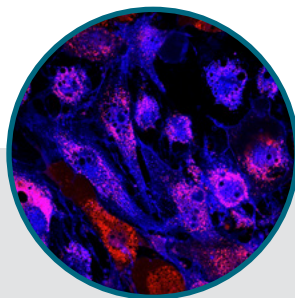
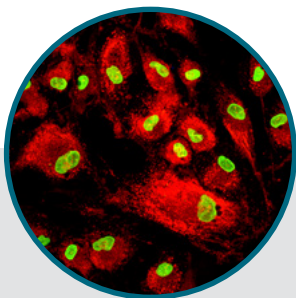
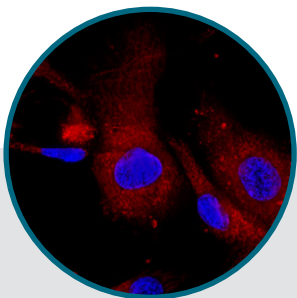


Nunc EasyFill Cell Factory systems

Nunc EasyFill Cell Factory systems are an out-of-the-box, multilayer solution and as easy to use as a T-flask. Scale up with confidence. These systems feature our certified Thermo Scientific™ Nunclon™ Delta cell culture surface, which is available on most Nunc cell culture products to enable consistent performance from lot to lot and format to format.

- Save valuable space
- Enhance productivity—fill and empty 5 times faster compared to T175 flasks
- Achieve fast start-up—to get started, simply pour your media and cells directly into the large opening
- Versatile port—designed to facilitate pouring and aseptic filling techniques

Learn more at [thermofisher.com/cellfactory](https://www.thermofisher.com/cellfactory)



Specifications and order information

CultiMaxx system for Nunc Cell Factory systems with 4 layers

Specifications

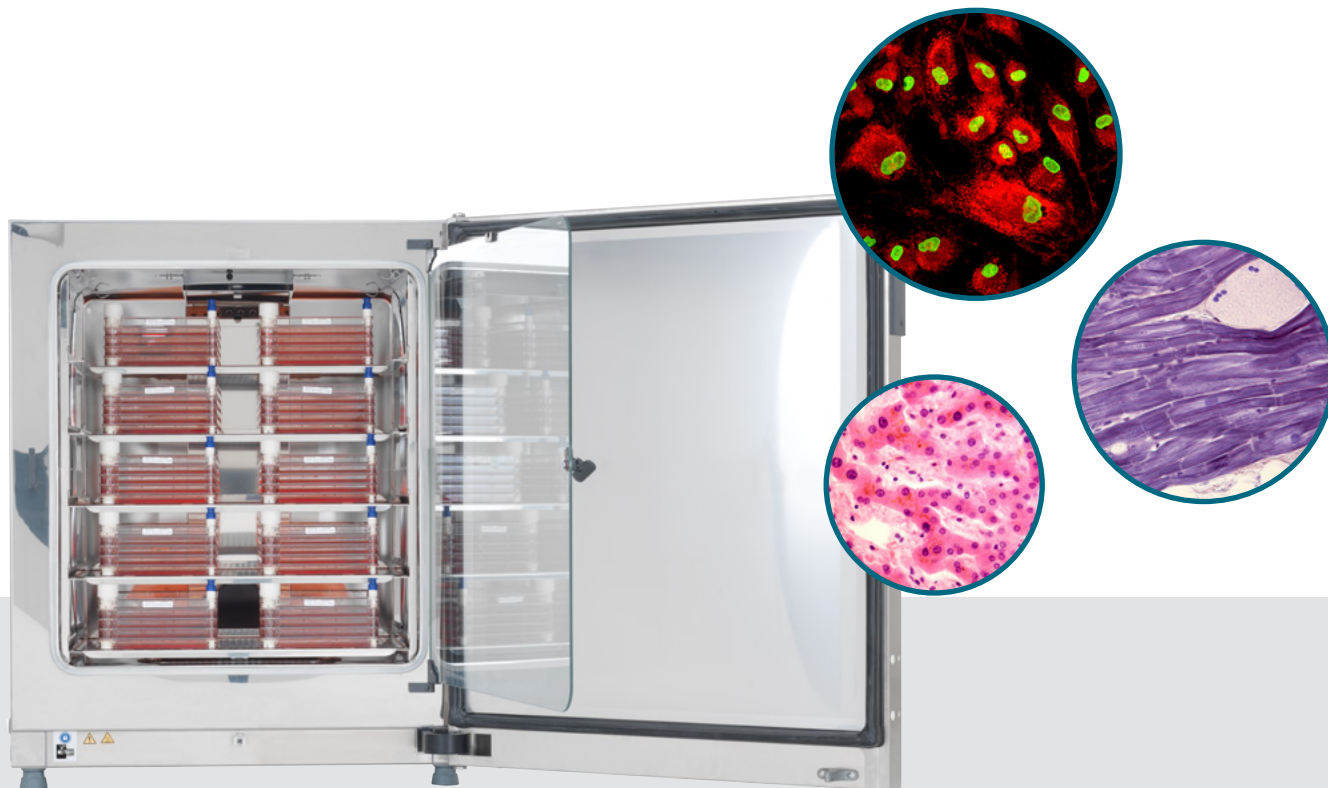
Description	No. of Nunc Cell Factory 4-layer systems*	Max. weight capacity
Complete system	10	22.5 kg / 49.5 lbs
Level 5 (Top shelf)	2	4.5kg / 9.9lbs
Level 4	2	4.5kg / 9.9lbs
Level 3	2	4.5kg / 9.9lbs
Level 2	2	4.5kg / 9.9lbs
Level 1 (Bottom shelf)	2	4.5kg / 9.9lbs

* The maximum number of vessels is based on the dimension and weight of the vessels only, without tubing and filters.

Ordering information

Description	Cat. No.
Shelving System optimized for Nunc Cell Factory 4*	
CultiMaxx Shelving System to support up to 10x Nunc Cell Factory systems with 4 layers for Forma Steri-Cycle i250 (CR) CO ₂ incubator	50166268

* Only the shelving system, customer-installation (no technician needed), Nunc Cell Factory systems to be ordered separately.



CultiMaxx shelving system for Nunc Cell Factory systems with 10 or 13 layers

Shelving system enhances vessel accessibility

The Thermo Scientific CultiMaxx Shelving System accommodates either the standard Thermo Scientific Nunc Cell Factory system or the Nunc EasyFill Cell Factory system, both with 10 layers or the Thermo Scientific™ Nunc™ High Density Cell Factory™ system with 13 layers.

With the standard incubator interior configuration, not every vessel can be accessed easily since some would be positioned behind others.

The CultiMaxx shelving system ensures less than 0.5 mm of deflection per vessel under maximum load, maintaining proper medium coverage for maximum cell yield. Individual access to each vessel minimizes handling and cell culture disturbance when removing vessels from the incubator. The unique staggered shelving design offers further flexibility by providing improved clearance for filters and connections when loading the vessels into the incubator.



Features:

- 1 Up to 6x Cell Factory systems with 10 or 13 layers
- 2 Stainless steel reinforced shelves
- 3 Retrofittable in the field
- 4 Easy to install
- 5 Available as accessory

Standard system: 6x Cell Factory 10 units

CultiMaxx system: 6x Cell Factory 10 units

BEFORE



AFTER



Benefits

CultiMaxx shelving system for Nunc Cell Factory systems



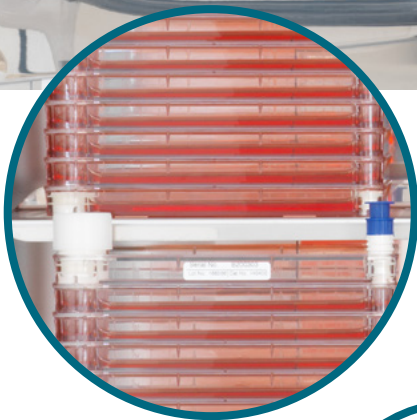
Better filter clearance



Improved vessel access



<0.5 mm deflection per vessel



Better filter clearance

The shelves were designed to provide further flexibility. The unique staggered shelving provides improved clearance for the vessel filters and connections.

Improved vessel access

The CultiMaxx shelving system for Nunc Cell Factory 10-layer/13-layer systems allows individual access to each vessel due to the cascading shelf design. You can minimize cell disturbance when handling the vessels.

<0.5 mm deflection per vessel under maximum load

The reinforced shelving design maintains proper cell culture media coverage for optimal cell growth even when the incubator is fully loaded.



Nunc Cell Factory system with 10 or 13 layers

Production of adherent cells

Be a champion of productivity at any scale with a proven system that provides consistent quality

Standard Nunc Cell Factory system with 10 layers

Nunc Cell Factory systems enable faster results and lot to lot consistency. A proven solution for largescale production of cells, vaccines, and therapeutic proteins, these systems have the same growth kinetics as laboratory-scale cell culture products. The ports of the system make it easy to customize and close, with custom tubing assemblies that facilitate venting, filling, and harvesting.

Nunc EasyFill Cell Factory system with 10 layers

Nunc EasyFill Cell Factory systems are an out-of-the-box, multilayer solution and as easy to use as a T-flask. Scale up with confidence. These systems feature our certified Nunclon Delta cell culture surface, which is available on most Nunc cell culture products to enable consistent performance from lot to lot and format to format.

- Save valuable space—each 10-layer Nunc EasyFill Cell Factory system is equivalent to 36 T-175 flasks
- Enhance productivity—fill and empty 5 times faster compared to T-175 flasks
- Achieve fast start-up—to get started, simply pour your media and cells directly into the large opening
- Versatile port—designed to facilitate pouring and aseptic filling techniques



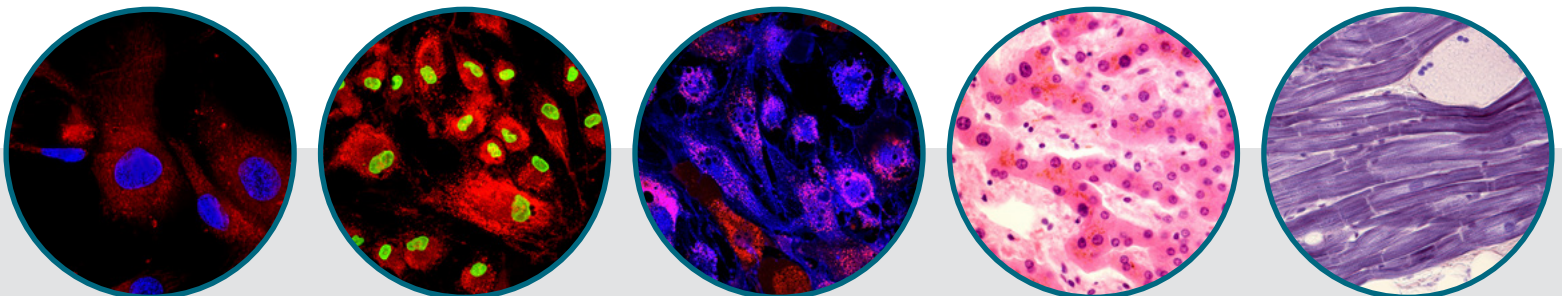
The 10-layer version provides a surface area of 6,320 cm², the high-density 13-layer version offers 8,216 cm²

Nunc High Density Cell Factory system with 13 layers

Nunc High Density Cell Factory systems provide a simple solution for increasing cell culture yields. With its additional layers, the Nunc High Density Cell Factory systems are designed to optimize your process by increasing your output, while maintaining the same manufacturing footprint as with the standard Nunc Cell Factory system.

- Increase your yield—30% more surface area and yield all within the standard Nunc Cell Factory system footprint
- Enhance your productivity—enables increased labor and handling efficiencies by achieving more output in a single process run
- Improve your process economics—helps increase your manufacturing capacity without capital investment
- Seize environmental opportunities—consume less, and reduce your decontamination and waste disposal costs

Learn more at [thermofisher.com/cellfactory](https://www.thermofisher.com/cellfactory)



Specifications and order information

CultiMaxx system for Nunc Cell Factory system with 10 or 13 layers

Specifications

Description	No. of Nunc CF10/CF13 systems*	Max. weight capacity
Complete system	6	33.6 kg / 73.8 lbs
Top level	2	11.2 kg / 24.6 lbs
Mid level	2	11.2 kg / 24.6 lbs
Bottom level	2	11.2 kg / 24.6 lbs

* The maximum number of vessels is based on the dimension and weight of the vessels only, without tubing and filters.

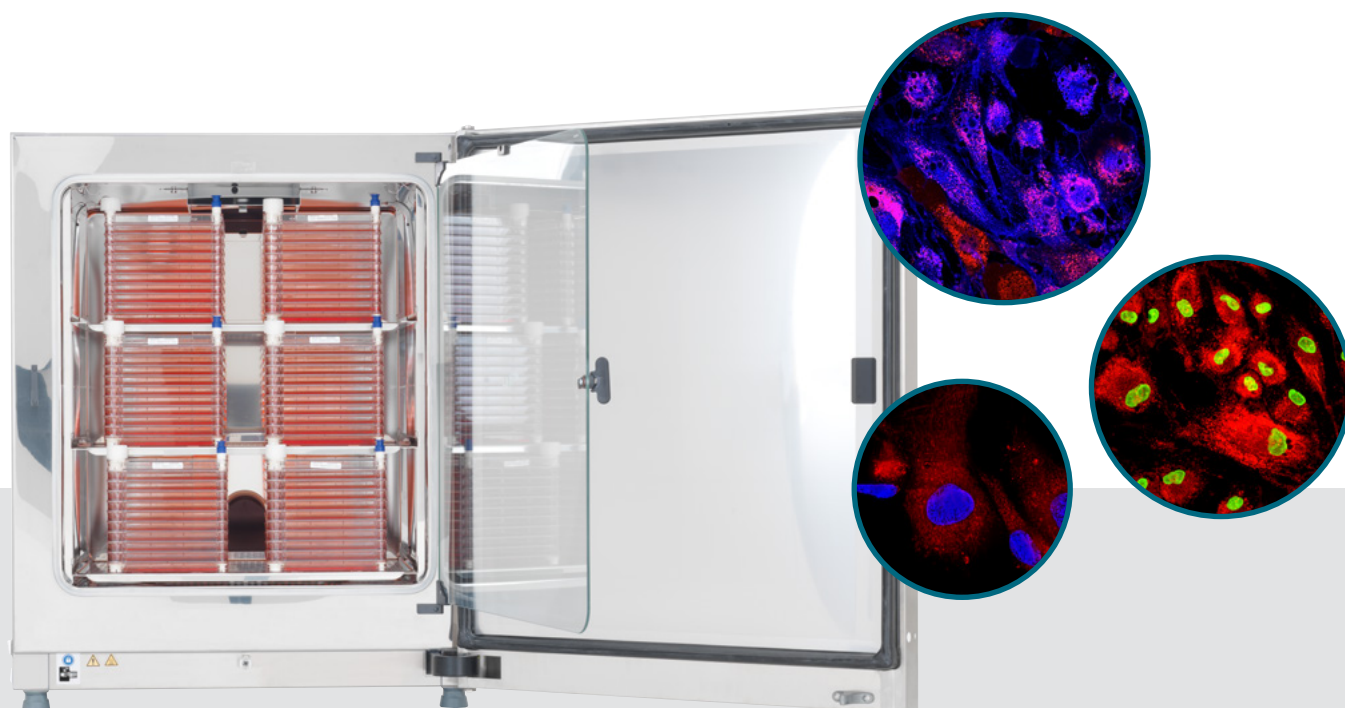
Compare Nunc Cell Factory systems with 10 and 13 layers

Description	Width	Length	Height	Cell culture area	Filled weight
Cell Factory system with 10 layers	205 mm/ 8.1 in.	335 mm/ 13.2 in.	190 mm/7.5 in.	6,320 cm ²	4.7 kg / 10.4 lbs
High Density Cell Factory system with 13 layers	204 mm/ 8.0 in.	333 mm/ 13.1 in.	186 mm/ 7.3 in.	8,216 cm ²	5.6 kg / 12.3 lbs

Ordering information

Description	Cat. No.
Shelving System optimized for Nunc Cell Factory system with 10 or 13 layers*	
CultiMaxx Shelving System to support up to 6 Nunc Cell Factory systems with 10 or 13 layers for Forma Steri-Cycle i250 (CR) CO ₂ incubator	50166285

* Only the shelving system, customer-installation (no technician needed), Nunc Cell Factory systems to be ordered separately.





Forma Steri-Cycle i250 CO₂ incubator

The Forma Steri-Cycle i250 CO₂ incubator is designed to deliver the performance reliability, ease of operation, and value required to support your cell therapy development needs. With its Thermo Scientific™ THRIVE™ Active Airflow Technology, the Steri-Cycle incubator provides fast recovery and outstanding uniformity for reproducible, quality cell growth results. Proven contamination control is provided by in-chamber HEPA filtration with ISO Class 5 cleanroom conditions, covered, protected water reservoir, electropolished interior, and Thermo Scientific™ Steri-Run™ 180° C Sterilization.

Forma Steri-Cycle i250 CR CO₂ incubator CTS series

This third-party certified cleanroom-compatible CO₂ incubator is approved for use in ISO Class 5 and GMP Grade A/B environments. The active particle control system meets the demanding requirements for cell and gene therapy manufacturing. On top of the ideal environment provided by the Forma Steri-Cycle family, the CR series also includes a sealed IP54 rated exterior stainless steel casing, comprehensive documentation package to facilitate on-site qualification, and related cleanroom-compatible accessories.

Ordering information

Description	120 V 50/60Hz	230V 50/60 Hz	100V (Japan only)
Forma Steri-Cycle i250 CO₂ Incubator			
Electropolished stainless steel interior with TC CO ₂ sensor	51033593	51033595	51033591
Electropolished stainless steel interior with IR CO ₂ sensor	51033601	51033603	51033607
Forma Steri-Cycle i250 CR (Cleanroom) CO₂ Incubator CTS Series			
Electropolished stainless steel interior with IR CO ₂ sensor	51033789	51033790	51033788

Other options and configurations are available. Contact your local sales representative to learn more.

Scale out with CO₂ incubators and specialized shelving

Up to 100x G-Rex® 500M-CS bioreactors or
Nunc Cell Factory systems with 4 layers



Learn more at thermofisher.com/co2

thermo scientific