

Nunc Automated Cell Factory Manipulator

Increase processing speed

The Thermo Scientific™ Nunc™ Automated Cell Factory Manipulator is a high-quality, fully programmable system that automates the handling of Thermo Scientific™ Nunc™ Cell Factory™ systems. Keep your proven adherent cell culture practices and simplify your scale-up to achieve constant and reliable results. Designed for use in clean room environments, and compatible with closed-system workflows, all functions can be activated by the touch of a button.

Features and benefits

- Can handle twelve 10-layer or four 40-layer standard Nunc Cell Factory systems (twelve 13-layer or four 52-layer Nunc High Density Cell Factory systems)*
- Standard safety light curtain
- All visible components made of 316L stainless steel for easy cleaning
- Comes with a total of 29 programs; 11 fixed basic programs and 18 preinstalled modifiable wash programs
- Programs to help automate filling, washing, emptying, trypsinizing, and harvesting steps of Nunc Cell Factory systems
- Optional Process Field Bus (PROFIBUS) data interface
- GMP and 21 CFR compliant
- Can be part of a closed-system workflow
- Compatible with many “sensitive” cell lines



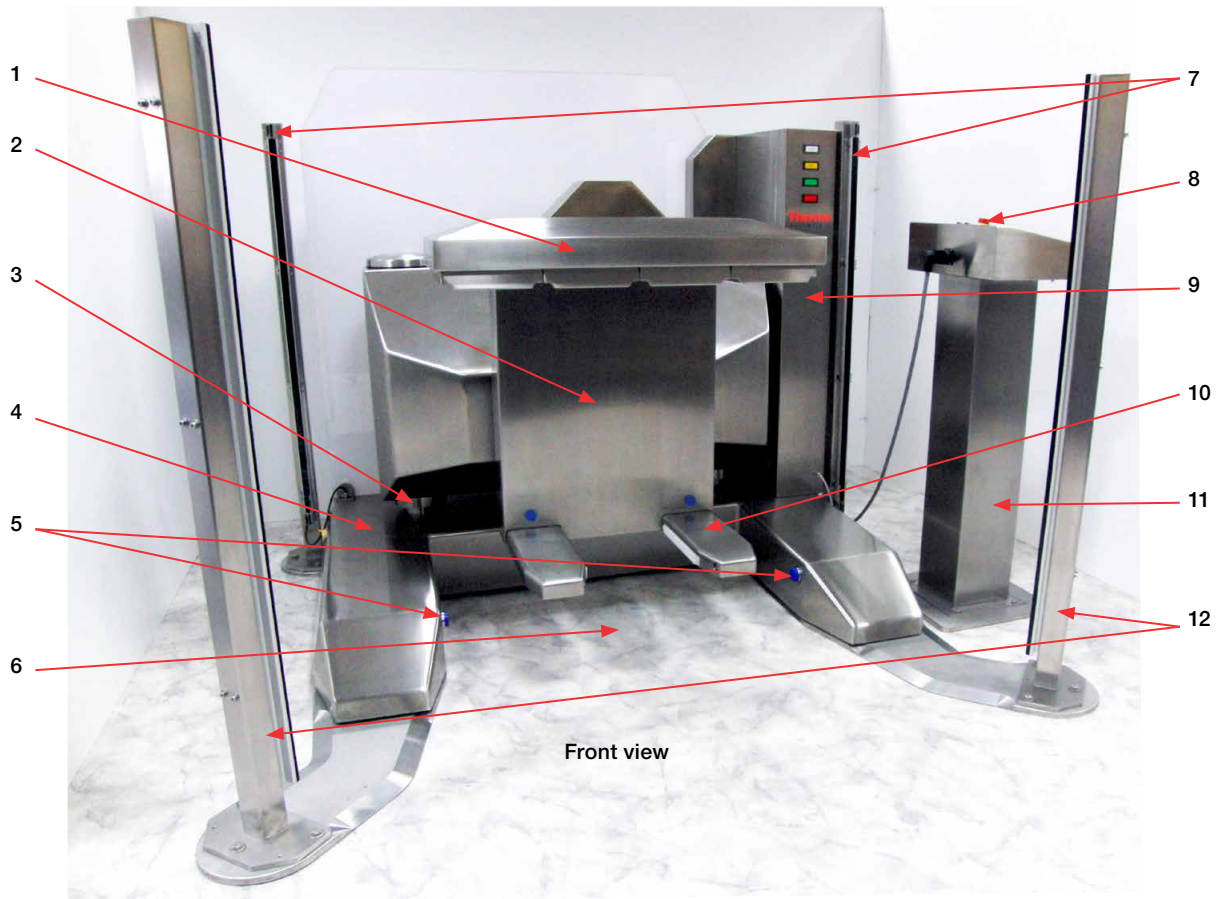
Designed to work seamlessly with:

- Thermo Scientific™ Nunc™ Cell Factory Incubator
- Thermo Scientific™ Nunc™ Cell Factory Shaker System
- Thermo Scientific™ Nunc™ Cell Factory racks and carts
- PROFIBUS data interface
 - Record and store all activity of Nunc Automated Cell Factory Manipulator during operation
 - Simply connect the Nunc Automated Cell Factory Manipulator to an external programmable logic controller (PLC) with a PROFIBUS data interface (standard for fieldbus communication in automation technology)
 - No additional programming of the Nunc Automated Cell Factory Manipulator required; all activity data are available in a preconfigured format for transfer to your PLC

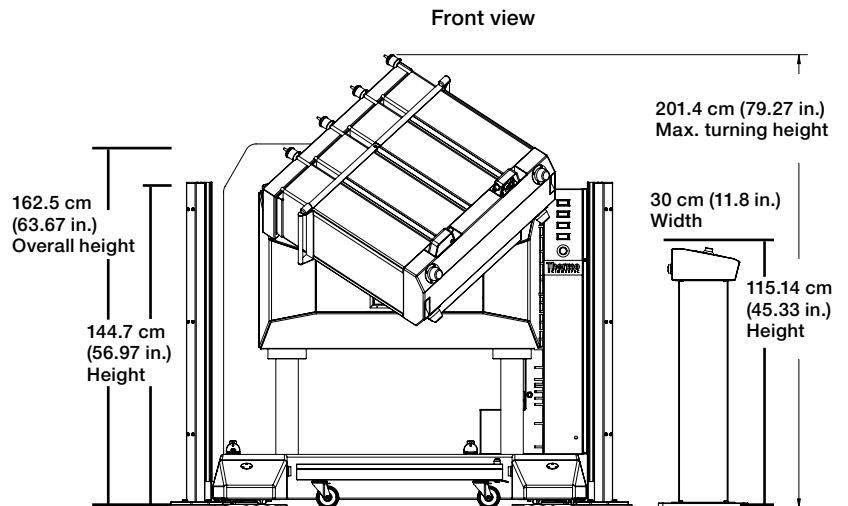
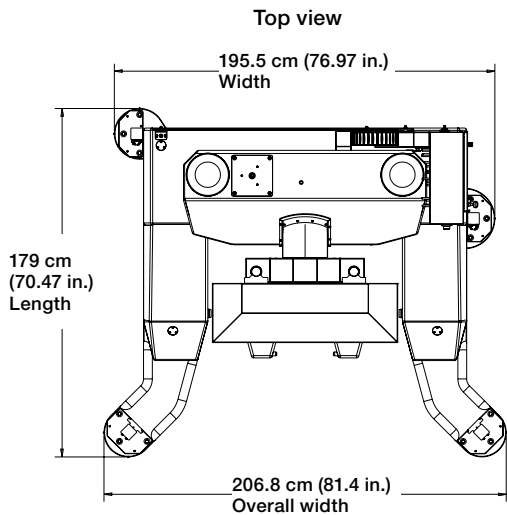
* A simple component adjustment is needed for use with Nunc High Density Cell Factory systems.

Nunc Automated Cell Factory Manipulator design features

1. Clamping system for rack with cell factory
2. Tilt-and-swivel support system for rack with cell factory
3. Guide columns
4. Machine frame
5. Retention bolts for cart
6. Insertion point for cart with rack and cell factory
7. Safety light curtain with transmitter and receiver
8. Emergency stop button
9. Control cabinet
10. Forks
11. Operating panel with console
12. Deflection mirror for light curtain



Design specifications



Nunc Automated Cell Factory Manipulator (ACFM)

Specifications

Construction	1.4404 (AISI 316L) stainless steel
Dimensions (W x D x H)	206.8 x 179 x 201.4 cm (max) (81.4 x 70.47 x 79.27 in. (max))
Unit weight	1,050 kg (2,314.9 lb)
Load capacity	>200 kg (>440.9 lb)
Rotation of axis 1 (programmable)	Positive direction: ~183° Negative direction: ~27°
Tilt angle of axis 2 (programmable)	Positive direction: ~38° Negative direction: ~20°
Working height of axis 3	310 to ~765 mm

Ambient temperature range

Lower limit temperature	5°C above ambient
Upper limit temperature	45°C above ambient
Switch panel	Maximum: 40°C
Relative humidity	<80%

System sound pressure level	<60 dB(A)
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Energy supply

Rated voltage and power	• 208–240 V, 60 Hz, triple, 15.5 A (each phase), power: 5.6 kVA
	• 220–380 V, 60 Hz, triple, 11.6 A (each phase), power: 4.8 kVA
	• 380–400 V, 50/60 Hz, triple, 6.5 A (each phase), power: 4.5 kVA
High voltage section	Up to 480 VAC, depending on model
Low voltage section	24 VDC
Load current section	Up to 480 VAC, depending on model

Pneumatics

Burkert	Electromagnetic seat impulse valve for clamping and safety device
Festo	Pressure control for clamping and safety device, present pressure 5 bar
Compressed air supply Staubli™ connector (male)	NW3 according to pipe class MK52H2
Compressed air supply line Festo™ type PLN (PE)	5 meters with Staubli coupling (female, self-locking) NW3
Compressed air supply	6–8 bar (~87–116 psi)
Air consumption	6.5 L; includes clamping function

Hydraulics

Operating pressure	115 bar
<ul style="list-style-type: none"> Hydraulic lift, tilt, and rotary drive actuators Hydraulic pump with bi-metal thermal overload sensor Ventilated hydraulic 3-cylinder disk brake Blocking seat valve for break Blocking seat valve, lift cylinders, axis 3 Shut-off valves for rotary actuator motor, axis 1 Shut-off valves for tilt cylinder, axis 2 Servo valves for axis 1 and 2 	

Accessories

Nunc Standard Cell Factory systems

Obtain faster results and lot-to-lot consistency with Nunc Cell Factory systems. 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; available in 1-, 2-, 4-, 10-, and 40-tray versions.



Standard Cell Factory systems

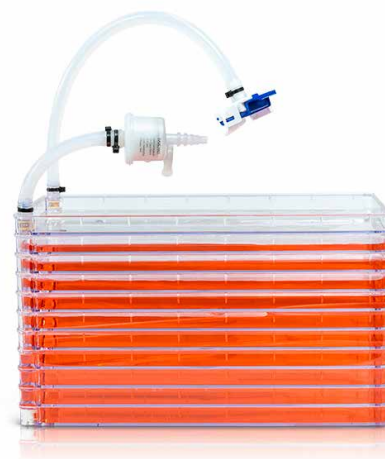
Sterile polystyrene chambers with Thermo Scientific™ Nunclon™ Delta

No. of layers	Cell culture area	Nominal dimensions (L x W x H)	Quantity	Cat. No.
1	632 cm ²	335 x 205 x 35 mm (13.2 x 8.1 x 1.4 in.)	Case of 8	165250
2	1,264 cm ²	335 x 205 x 53 mm (13.2 x 8.1 x 2.1 in.)	Case of 6	167695
4	2,528 cm ²	335 x 205 x 87 mm (13.2 x 8.1 x 3.4 in.)	Case of 10	140004
10	6,320 cm ²	335 x 205 x 190 mm (13.2 x 8.1 x 7.5 in.)	Case of 2	164327
10	6,320 cm ²	335 x 205 x 190 mm (13.2 x 8.1 x 7.5 in.)	Case of 6	170009
40	25,280 cm ²	335 x 205 x 698 mm (13.2 x 8.1 x 27.5 in.)	Case of 2	139446

Nunc Standard Closed Cell Factory systems

Having a clean and closed system that provides consistent and high-quality results should be a standard among your adherent cell culture processes. The closed system Nunc Standard Cell Factory systems are built with standard components to help ensure quality and assurance of supply:

- 10-layer system is compatible with the Nunc Automated Cell Factory Manipulator
- Sartopore™ 0.2 µm filter
- AseptiQuik™ G connector
- Silicone tubing



Standard Closed Cell Factory systems

No. of layers	Cell culture area	Nominal dimensions (L x W x H)	Quantity per pack/case	Cat. No.
10-layer system	6,320 cm ²	335 x 205 x 190 mm (13.2 x 8.1 x 7.5 in.)	1/2	140472

Nunc High Density Cell Factory systems

Thermo Scientific™ Nunc™ High Density Cell Factory systems provide a simple solution for increasing cell culture yields. With their 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 that of the standard Nunc Cell Factory system.



Nunc High Density Cell Factory systems

Sterile polystyrene chambers with Nunclon Delta surface.

No. of layers	Cell culture area	Nominal dimensions (L x W x H)	Quantity	Cat. No.
3	1,896 cm ²	333 x 204 x 54 mm (13.1 x 8.0 x 2.1 in.)	Case of 4	169160
13	8,216 cm ²	333 x 204 x 186 mm (13.1 x 8.0 x 7.3 in.)	Case of 3	169118
52	32,864 cm ²	333 x 204 x 698 mm (13.1 x 8.0 x 27.5 in.)	Case of 1	169102

Nunc EasyFill Cell Factory systems

Thermo Scientific™ Nunc™ EasyFill™ Cell Factory™ systems are an out-of-the-box, multilayer solution, 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 assure consistent performance from lot to lot and from format to format.



Nunc EasyFill Cell Factory systems

Sterile polystyrene chambers with Nunclon Delta surface.

No. of trays	Cell culture area	Nominal dimensions (L x W x H)	Quantity	Cat. No.
1	632 cm ²	335 x 205 x 35 mm (13.2 x 8.1 x 1.4 in.)	Case of 6	140000
2	1,264 cm ²	335 x 205 x 53 mm (13.2 x 8.1 x 2.1 in.)	Case of 6	140250
4	2,528 cm ²	335 x 205 x 87 mm (13.2 x 8.1 x 3.4 in.)	Case of 4	140360
10	6,320 cm ²	335 x 205 x 190 mm (13.2 x 8.1 x 7.5 in.)	Case of 2	140400
10	6,320 cm ²	335 x 205 x 190 mm (13.2 x 8.1 x 7.5 in.)	Case of 6	140410
40	25,280 cm ²	335 x 205 x 698 mm (13.2 x 8.1 x 27.5 in.)	Case of 2	140440

Nunc Cell Factory system accessories

Nunc Cell Factory accessories support the use of aseptic methods for fluid handling relating to filling, inoculation, feeding, and harvesting procedures of the Nunc Cell Factory system. These accessories enable the further development of applications requiring a more closed cell culture system, reducing the number of open interventions.

Key features

- Connect media bag or tubing set to any Nunc Cell Factory system for enhanced aseptic connectivity for filling and harvesting
- Prevent buildup of back pressure during filling
- Venting options provide additional air venting when filling and harvesting by gravity or with a peristaltic pump



Cat. No.	146008	147074	140067	140080	140815	140817
Description	Nunc EasyFill replacement vent caps	Nunc EasyFill vent/close cap	1.0 µm air vent filter assembly	0.22 µm air vent filter assembly	Tubing set with female MPC connector	Feed tubing set with male MPC connector
Material	HDPE	HDPE	HDPE closure	HDPE closure	–	–
Gamma irradiated	Yes	Yes	Yes	Yes	Yes	Yes
Quantity	Case of 10	Case of 100	Case of 2	Case of 2	Case of 2	Case of 2



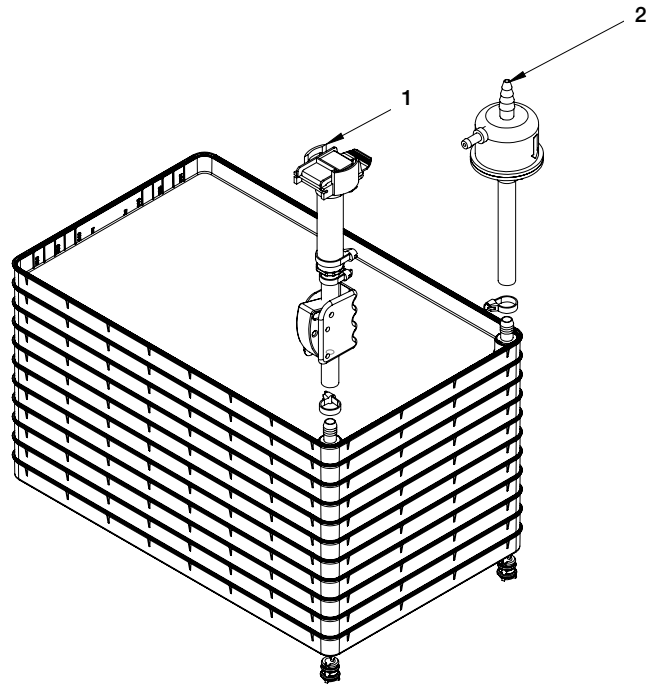
Cat. No.	140099	173250	167525	170615	179553
Description	Nunc Cell Factory connector	Nunc Cell Factory connector (autoclavable)	White Tyvek filter adaptor cap	Port cover cap, blue	Individual 1.0 µm air vent filter
Material	PC	FEP	HDPE	HDPE	–
Gamma irradiated	No	No	Yes	Yes	Yes
Quantity	10 Cases of 10	2 Cases of 2	Case of 20	2 Cases of 40	Case of 10

Tubing configuration services

Nunc Cell Factory systems can be configured with tube sets to enable a closed system workflow. These tubing sets are customized to your specific needs through our configuration service. Below is a sample aseptic tubing configuration for a Nunc Cell Factory system in a Nunc Automated Cell Factory Manipulator.

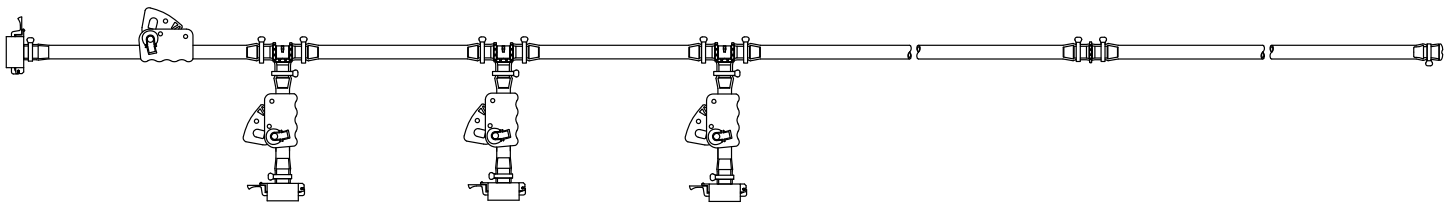
Aseptic connection for Nunc Cell Factory systems

1. AseptiQuik™ G tube set
2. Vent filter tube set



Aseptic connection manifold for Nunc Automated Cell Factory Manipulator

- C-Flex™ 374 tubing
- Silicone tubing
- Barb with plug



Nunc Cell Factory racks and carts

Integration with all Nunc Cell Factory equipment

Easily store and transport Nunc Cell Factory systems safely and efficiently using Nunc Cell Factory Racks and Carts. Each rack can hold up to four Nunc Cell Factory 40-layer systems or twelve Nunc Cell Factory 10-layer systems. Racks and carts are designed to integrate perfectly with all Nunc Cell Factory equipment, adding consistency to and streamlining your process.

Features

- Can handle twelve 10-layer or four 40-layer standard Nunc Cell Factory systems (twelve 13-layer or four 52-layer Nunc High Density Cell Factory systems)
- Optional tubing clamp for 13.5 mm or 16 mm OD tubing
- Designed for use in clean room environments
- Side-loading design for easy loading and unloading
- Made of 316L stainless steel for easy cleaning
- Movable rack designed to come off from cart and interact seamlessly with other Nunc Cell Factory equipment
- Cart for Nunc Cell Factory 40-layer system can accommodate other layered adherent cell culture systems
- Cart for Nunc Cell Factory 10-layer system carts can be customized to accommodate other layered adherent cell culture systems



Nunc Cell Factory Racks and Carts

Specifications

Footprint (W x D x H)	103.5 x 36 x 96.6 cm (40.7 x 14.2 x 38 in.)
Construction	1.4404 (AISI 316L) stainless steel
Unit weight	65 kg (143.3 lb)
Load capacity	60 kg (12 Nunc Cell Factory 10-layer systems) 80 kg (4 Nunc Cell Factory 40-layer systems)

Integrates with:

- Nunc Cell Factory Incubator
- Nunc ACFM
- Nunc Cell Factory Shaker
- Nunc Cell Factory Hand Manipulator Systems
- Fluid transfer assemblies

Ordering information

Description	Cat. No.
Nunc Automated Cell Factory Manipulator	
Nunc Automated Cell Factory Manipulator, Gen 10, with safety light curtain and membrane foil keypad, 3N/PE, 400 V, 50/60 Hz	120288
Nunc Automated Cell Factory Manipulator, Gen 10, with safety light curtain and membrane foil keypad, 3N/PE, 208 V, 50/60 Hz	120405
Nunc Cell Factory racks and carts	
Side Loading Rack with Cart for 40-layer Nunc Cell Factory system and 52-layer Nunc High Density Cell Factory systems	140503
Side Loading Rack with Cart for 10-layer Nunc Cell Factory system and 13-layer Nunc High Density Cell Factory systems	140504
Retrofit Clamping Kit for Racks for Use with Shaker	120289

Find out more at thermofisher.com/cfequipment