

# Single-Use Technologies

The biotherapeutic market has been rapidly adopting single-use technologies to reduce risk and improve operational efficiencies. For more than 20 years, Thermo Fisher Scientific has pioneered single-use technologies for this industry. Our products have been proven to be robust and scalable from lab/scale-up to cGMP production applications including, single-use bioprocessing equipment, flexible containment, and rigid containment product portfolios.

Our products have been specially designed to enable proven performance through innovative, efficient, and highly effective upstream and downstream applications. By using our economic catalog product solutions, or our custom designed systems, you can optimize production, improve process efficiency, add flexibility, and fast-track product development by partnering with us as your single supplier.

We offer one of the largest component libraries in the industry, which allows us to integrate connectors, tubing, and sensors to design a custom BPC or tubing assembly to fit your specific needs. Our services organization will assist you with drawings, implementation, and technical support to help ensure optimum production performance.

## Global single-use manufacturing footprint

We are committed to high quality standards and risk mitigation strategies, like redundant manufacturing, at all of our manufacturing sites within the single-use network to meet your specific requirements for confidence in your manufacturing processes.

- Logan, UT, US
- Millersburg, PA, US
- Cramlington, UK
- Matamoros, MX
- Santa Clara, CA, US
- Rochester and Fairport, NY, US
- Roskilde, DK
- Miami, OK, US
- Suzhou, CN

We first launched Thermo Scientific™ single-use BioProcess Containers (BPCs) in 1997 and our first single-use bioreactor (S.U.B.) in 2006. Over the years, we helped drive the advancement of single-use technologies by developing new single-use bioprocess applications like the Thermo Scientific™ Harvestainer™ BPC for microcarrier bead separation applications and helium integrity testing services.

In 2014, we were the first to launch a system specifically designed for microbial fermentation—the Thermo Scientific™ HyPerforma™ Single-Use Fermentor (S.U.F.). In 2015, we expanded our portfolio to include bottom-drive mixing technologies with the Thermo Scientific™ imPULSE Mixer, and continue to expand our portfolio with rigid containment products and other single-use technologies. As part of the full Thermo Fisher Scientific Bioprocessing portfolio, our single-use systems have been tested and validated for easy integration with our Gibco™ cell culture products.



# Single-use BioProcess Containers (BPCs)

## What is a single-use BPC?

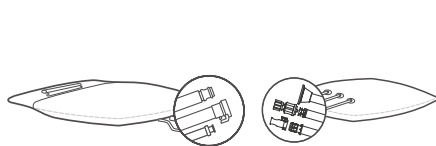
Thermo Scientific BPCs are single-use flexible container systems commonly used for critical liquid-handling applications in the biopharmaceutical industry. BPC systems are cost-effective alternatives to conventional stainless steel systems. They employ a novel design approach and are highly valued for their versatility and utility. BPC components readily integrate into a variety of high-performance systems for all steps in the production of biologics, vaccines, cell therapies, and gene therapies.

## Key features

- All BPCs are produced in state-of-the-art facilities with current good manufacturing practices (cGMPs) and common processes for manufacturing redundancy
- Production of chambers from 50 mL to 10,000 L capacity
- Automated lines for producing BPC chambers
- Strong engineering support to design and maintain products and processes

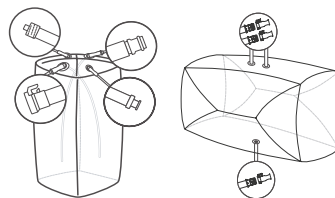
## Main types of BPC chambers

The 3 main types of BPCs are the Thermo Scientific™ 2D Labtainer™ BPC, 3D Productainer™ BPC, and tank liner BPC. Specialty BPCs are also available for specific applications and use in bioprocess equipment.



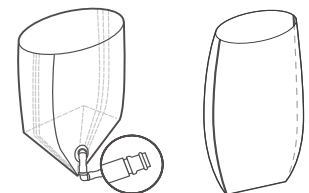
### 2D Labtainer BPC systems

This design is used for small, simple BPCs and is produced from two sheets of film that are heat-sealed around the perimeter to form a pillow-shaped chamber. The ports are heat-sealed into the end seal or onto one of the panels of the chamber.



### 3D Productainer BPC systems

This design is used for larger and more complicated BPCs. A square tube is formed by heat-sealing sheets of film together. Top- and bottom-porting options are available, and a greater range of size and complexity of chamber designs is possible.



### Tank liner BPC systems

This design is used with commercially available overhead mixers. Tank liners remove the need for tank cleaning and help reduce cycle times. Tank liners are optimized for use with Thermo Scientific™ drums and commonly used industry-standard cylindrical tanks.

# BPC application solutions

Support operations	Applications	BPC product
Media or buffer preparation	<ul style="list-style-type: none"> <li>• Powder delivery</li> <li>• Hydration in open-top vessel</li> <li>• Hydration in closed system</li> </ul>	<ul style="list-style-type: none"> <li>• Thermo Scientific Powdertainer BPC systems</li> <li>• Tank liners with outer support containers</li> <li>• Thermo Scientific HyPerforma and imPULSE Single-Use Mixers (S.U.M.s)</li> </ul>
Filtration	<ul style="list-style-type: none"> <li>• Filtration of media and buffers</li> </ul>	<ul style="list-style-type: none"> <li>• BPC assembly or manifold/transfer assembly including a filter option</li> </ul>
Mixing	<ul style="list-style-type: none"> <li>• Mixing of media or buffers, bulk drug substances, and bulk drug products</li> </ul>	<ul style="list-style-type: none"> <li>• HyPerforma and imPULSE S.U.M.s</li> </ul>
Harvest	<ul style="list-style-type: none"> <li>• Collection and storage of harvest from a bioreactor or fermentor</li> </ul>	<ul style="list-style-type: none"> <li>• Catalog top- and bottom-drain BPCs from 50 L to 2,000 L with outer support containers</li> <li>• Custom BPCs</li> <li>• Fluid transfer assemblies (standard and custom)</li> <li>• Harvest BPCs for adherent cell lines</li> </ul>
Bulk storage	<ul style="list-style-type: none"> <li>• Storage of media, buffers, and intermediates</li> </ul>	<ul style="list-style-type: none"> <li>• Catalog BPCs from 50 mL to 3,000 L and outer support containers (custom BPCs also available)</li> </ul>
Waste collection	<ul style="list-style-type: none"> <li>• Non-aseptic collection of waste liquid</li> </ul>	<ul style="list-style-type: none"> <li>• Tank liners, catalog BPCs, or custom BPCs</li> </ul>
Sampling	<ul style="list-style-type: none"> <li>• Collection of sample volumes from bioreactors, mixers, and storage containers</li> </ul>	<ul style="list-style-type: none"> <li>• Labtainer BPCs from 50 mL to 50 L</li> <li>• Custom manifolds and transfer assemblies</li> <li>• Thermo Scientific™ Three60™ Sampling System</li> </ul>
Shipping	<ul style="list-style-type: none"> <li>• Shipping of bulk liquids, buffers, process liquids, and intermediates between facilities</li> <li>• Bulk solutions or suspensions requiring mixing after shipping</li> </ul>	<ul style="list-style-type: none"> <li>• Top- and bottom-drain BPCs up to 3,000 L with shipping configurations up to 1,000 L</li> </ul>
Separation	<ul style="list-style-type: none"> <li>• Feeding and receiving liquid from the separation system</li> </ul>	<ul style="list-style-type: none"> <li>• Catalog top- and bottom-drain BPCs from 50 L to 2,000 L with outer support containers</li> <li>• Custom BPCs with and without transfer assemblies</li> </ul>
Purification	<ul style="list-style-type: none"> <li>• Feeding buffers to the purification system</li> <li>• Fraction collection and storage</li> </ul>	<ul style="list-style-type: none"> <li>• Catalog top- and bottom-drain BPCs from 50 L to 2,000 L with outer support containers</li> <li>• Catalog Labtainer systems from 50 mL to 50 L</li> <li>• Custom BPCs with and without transfer assemblies and/or manifolds</li> </ul>
Filling	<ul style="list-style-type: none"> <li>• Bulk reservoir for filling systems</li> </ul>	<ul style="list-style-type: none"> <li>• Catalog top- and bottom-drain BPCs from 50 L to 2,000 L with outer support containers</li> <li>• Transfer assemblies to transfer liquid from reservoir to filling system</li> </ul>

# Quality control and assurance

To help ensure that BPC systems conform to the quality standards expected in the bioprocess industry, BPC systems are in compliance with cGMP (21 CFR Part 820) and ISO 9001:2000 from the receipt of components to the release of the final product.

Our production control processes help ensure complete lot traceability for each batch. The process control document becomes the stepwise manufacturing record that physically accompanies the lot through every step of the manufacturing process. At the end of the process, the production record is reviewed by the quality assurance team for completeness, and correctness prior to the release of the lot and issuance of the certificate of analysis (CoA).



## Component incoming inspection

Component type	Inspection
<b>Film</b>	<ul style="list-style-type: none"> <li>• Contamination</li> <li>• Gels or carbons</li> <li>• Width and gusset dimensions</li> <li>• Film thickness</li> <li>• Tensile strength and elongation—to ASTM D882</li> <li>• Chemical—using FTIR spectroscopy to ensure consistency and reliability</li> </ul>
<b>Ports, fittings, and tubing</b>	<ul style="list-style-type: none"> <li>• Appearance and visual inspection</li> <li>• Dimensions</li> </ul>
<b>Chambers</b>	<ul style="list-style-type: none"> <li>• Appearance</li> <li>• Seam and port seal strength</li> <li>• Dimensions</li> <li>• Leak and burst testing</li> </ul>

## Final BPC product inspection

Test	Details
<b>100% visual inspection on a light table</b>	<ul style="list-style-type: none"> <li>• Correctness</li> <li>• Completeness</li> <li>• Particulate dust cover polyethylene bags</li> <li>• Defects and damage</li> <li>• Correct packaging</li> </ul>
<b>Hydro-burst test</b>	Performed according to a statistical process control plan. The container is steadily inflated until there is a breach of integrity.

## Lot release and Certificates of Analysis

Lot release	Certificates of Analysis
<ul style="list-style-type: none"> <li>• Bill of materials</li> <li>• Certificate of irradiation</li> <li>• Production quality inspections</li> <li>• Production integrity testing</li> <li>• Labels</li> <li>• Deviations</li> <li>• CoA</li> </ul>	<ul style="list-style-type: none"> <li>• Product name</li> <li>• Part number</li> <li>• Lot number</li> <li>• Expiration date</li> <li>• Irradiation dose</li> <li>• Confirmation USP and EP testing of film</li> <li>• Product integrity testing when applicable</li> <li>• Statements on endotoxin content, particles, and sterility when possible</li> </ul>

# Quality control and assurance

## Validation

A BPC Validation Master Plan has been developed for all Thermo Scientific BPC products in compliance with the concepts of cGMP for medical devices. Product validations are designed to demonstrate compliance with release criteria and product claims.

Process validation evaluates manufacturing conditions as well as product cleanliness and consistency. Process qualification is performed when a new product or change in a manufacturing process is introduced. This consists of a production build and validation testing to verify that the product meets the specification acceptance criteria.

## Endotoxin and particulates

Process validations and monitoring have been established for endotoxin and particulates for the manufacture of BPC systems. Particulate samples from the fluid path of a worst-case BPC assembly are tested according to USP 788: Light Obscuration Particle Count Test, and endotoxin testing is performed to USP 85 in conjunction with bioburden testing.

## EMA/410/01 rev. 3 compliance

Compile vendor certificates of origin on each catalog component.

These certifications not only provide information as to whether a given component is of animal origin, and may certify whether the component is derived from animals. Supplier statements may contain information on the species, tissue, and country of origin of any animal-derived substance along with supplier information on purification or manufacturing steps that would help reduce risk of adventitious animal-origin agents.

Thermo Scientific™ single-use products for bioproduction have BSE-TSE and EMA/410 information available for each product contact material in our catalog component library. Statements can be made available for each assembly upon request.

## Film and BPC validation documentation

Complex BPCs forming the single-use part of systems such as the Thermo Scientific S.U.B.s, S.U.F.s, and S.U.M.s as well as the plastic films used to construct our BPCs are supported by a Validation Guide covering important information regarding their testing and design. The document is product-specific rather than lot-specific and is supplied in electronic format. It is organized into two sections:

- **Materials guide**—details of testing protocols and results obtained
- **Performance and functional testing**—an overview of engineering design, testing, and test results of individual components as well as of the complete assembly

## BPC system hardware documentation

The hardware systems of the S.U.B., S.U.F., and S.U.M. are supplied with an equipment turnover package (ETP) in electronic format with key supporting information including: top-level hardware drawings, component or instrument manuals, utility requirements, recommended maintenance, torque wrench operating instructions, warranty statement, detailed electrical panel drawings, and electrical schematics. A premium ETP is also available on request for an additional fee and includes: factory acceptance test (FAT) checklist, site acceptance test (SAT) protocol, and weld and passivation certificates.

# BPC manufacturing

## BPC manufacturing process

- **Chamber manufacture**—The main components of a BPC chamber are a plastic film and ports that enable tubing to be attached to the chamber. There are a number of different port designs depending on the type of chamber.
- **Final assembly**—Additional components are attached to the BPC chamber to produce a complete BPC. This is done to either a catalog or custom specification in an ISO 7 clean room in one of our 4 manufacturing facilities. BPC assembly is a manual process, which provides the required flexibility in BPC configuration. Thermo Scientific™ fluid transfer assemblies are also produced to complement BPC systems. Final assembly is done in the same controlled environment and to the same level of quality.
- **Final inspection and packaging**—All BPCs are visually inspected against product specifications, and packaged and sealed in two independent outer dust-cover polyethylene bags while still in the ISO 7–certified area. They are then placed in cardboard cartons labeled with product and lot identification.
- **Sterility assurance level**—BPCs are gamma-irradiated in their outer packaging by a dose of 25–40 kGy for BPCs and fluid transfer assemblies produced in Logan, Utah, US, and Cramlington, UK, and 27.5–45 kGy in Millersburg, Pennsylvania, US and Matamoros, Mexico, by external contractors in the US and Europe.



# Single-use manufacturing sites



## Logan, UT—BioCenter and Assembly Center

- Chamber manufacturing—2D and 3D BioProcess Containers (BPCs)
- Fluid transfer assembly—Standard and custom fluid transfer assemblies and manifolds



## Cramlington, UK

- Chamber manufacturing—2D and 3D BPCs
- Fluid transfer assembly—Standard and custom fluid transfer assemblies and manifolds



## Millersburg, PA—Main and East Campus

- Chamber manufacturing—2D and 3D BPCs
- Fluid transfer assembly—Standard and custom fluid transfer assemblies and manifolds
- Injection molding clean room—Engineering and commodity resins, full validation services, injection and insert and multi-shot molding, complete part design with flow simulation analysis, manual and automated assembly



## Santa Clara, CA and Leicester, UK

- Assembly and integration of the glass and rocker bioreactors
- Highly configurable G3 bioprocess controllers
- Single-use sensors and the integration of sterilizable sensors



## Matamoros, Mexico

- Chamber manufacturing—2D and 3D BPCs
- Fluid transfer assembly—Standard and custom fluid transfer assemblies and manifolds



### Roskilde, Denmark

- Cell Factory systems and accessories, cell culture dishes, multidishes, flasks, multilayer flasks, and tissue culture inserts
- 2D and 3D coded biobanking and cell culture cryogenic tubes, and cryogenic racks and boxes
- Immuno plates, multiwell plates, microwell plates, and BreakApart and strip modules



### Suzhou, China—Manufacturing Center

- Two automated production lines manufacture Cell Factory systems and Carboys



### Rochester, NY—Fairport, Penfield, and Lexington

- **Life science research:** cell culture flasks, dishes, plates, laboratory bottles, cryopreservation vial systems, assay plates, storage plates, and matrix 2D barcodes
- **Bioprocessing:** Nunc Cell Factory systems, bottles, and carboys
- **Packaging, diagnostics, and OEM packaging:** PETG, HDPE, PP, LDPE, and OEM bottles
- **General labware:** flasks, centrifuge tubes, petri dishes, and lab bottles/containers
- **Consumer hydration:** water bottles, accessories, and storage containers



### Miami, OK

- Critical environment products
  - Clean room processed containers—pharmaceutical, biotech, microelectronics
  - Containers to exceed USP <788> and USP <85> requirements
  - 1 mL glass vials to 50 L HDPE carboys
  - Autoclave sterilization
  - Depyrogenation-dry heat sterilization
  - Platinum clean biotainers
  - Total Organic Carbon (TOC) certified containers
  - Chemical filtration—semiconductor products



# Thermo Scientific films

Thermo Scientific BPCs are built to meet your single-use bioprocessing needs, whether upstream for cell culture and fermentation, or downstream for sophisticated applications, or simply as holding and transfer systems in your cGMP bioprocessing facilities.

## Films engineered for the full range of bioprocessing applications

The Thermo Scientific™ films are engineered to meet the most demanding requirements of your processes.

- Thermo Scientific™ Aegis™ 5-14 film is our newest and best polyethylene (PE) film. This film is a single-web, five-layer film produced in a cGMP facility—the outer layer is a polyester elastomer coextruded with an EVOH barrier layer and a low-density polyethylene product contact layer with greatly reduced additive levels
- Thermo Scientific™ CX5-14 film has the same construction as Aegis5-14 film, and is one of the most widely used PE films in the industry, proven over 10 years
- Thermo Scientific™ ASI™ 26/77 polyethylene (PE) is a dual-web, multi-layer film that is produced in a cGMP facility and used for general applications
- Thermo Scientific™ ASI™ 28 film is robust, four-layer, ethylene vinyl acetate (EVA) coextruded film produced in a cGMP facility—this film provides an excellent, highly durable moisture and oxygen barrier
- Thermo Scientific™ CX3-9 film is a three-layer, 9 mil cast film, which is used primarily for open-top tank liners, Powdertainers, and S.U.F. condenser BPCs
- Thermo Scientific™ ASI™ 26 film is a single-web, 5 mil cast film, which is also used primarily for open-top tank liners

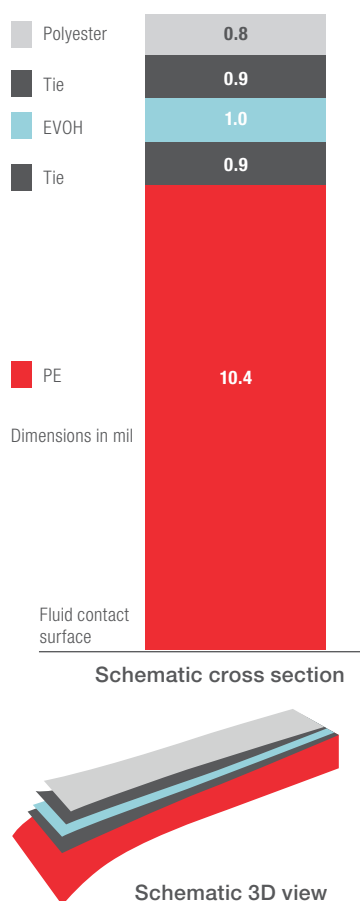
Find out more at

[thermofisher.com/bioprocessingfilms](https://thermofisher.com/bioprocessingfilms)



# CX5-14 film

CX5-14 film is a five-layer, 14 mil cast film produced in a cGMP facility. The outer layer is a polyester elastomer coextruded with an ethylene vinyl alcohol barrier layer and a low-density polyethylene product-contact layer. CX5-14 film is manufactured using no animal-derived components.

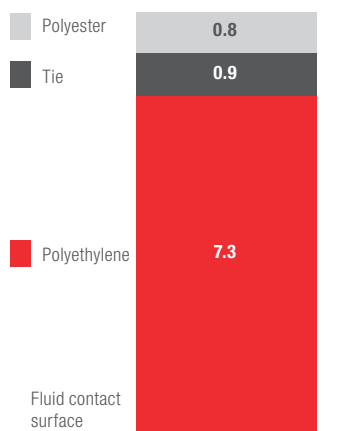


Property	Test protocol	Average values	
<b>Physical data (post-gamma irradiation, 25–40 kGy)</b>			
Tensile strength	ASTM D882	2,316 psi	16 MPa
Elongation	ASTM D882	476%	
Yield strength	ASTM D882	1,238 psi	8.5 MPa
2% secant modulus	ASTM D882	37,898 psi	261.3 MPa
Tensile toughness	ASTM D882	235 lbf-in.	2.7 kN-cm
Puncture resistance	ASTM F1306	26 lbf	116 N
Seam strength	ASTM F88	31 lbf/in.	54 N/cm
O <sub>2</sub> transmission rate	ASTM D3985, 0% relative humidity (RH) outside, 90% RH inside, 23°C	0.024 cc/100 in. <sup>2</sup> /day	0.37 cc/m <sup>2</sup> /day
CO <sub>2</sub> transmission rate	MOCON™ method, 0% RH outside, 100% RH inside, 23°C	0.089 cc/100 in. <sup>2</sup> /day	1.38 cc/m <sup>2</sup> /day
Water vapor transmission rate	ASTM F1249, 0% RH outside, 100% RH inside, 23°C	0.023 g/100 in. <sup>2</sup> /day	0.35 g/m <sup>2</sup> /day
Haze	ASTM D1003 (outside dry/inside dry)	70%	
Glass transition temperature	ASTM E1640	–19°F	–28°C
Film gauge		0.014 in.	0.356 mm
Film contact material		Polyethylene	
Temperature range*		–112°F to 140°F	–80°C to 60°C
10 <sup>-6</sup> sterility assurance level	ANSI/AAMI/ISO 11137:2006	2.5–4 Mrad	25–40 kGy
<b>Biocompatibility data (post-gamma irradiation, &gt;50 kGy)</b>			
USP Class VI	USP <88>	Pass	
Cytotoxicity	USP <87>	Pass	
Bacterial endotoxin	USP <85>	0.006 EU/mL	
Heavy metals	USP <661>	<1 ppm	
Buffering capacity	USP <661>	<1 mL	
Nonvolatile residue	USP <661>	<1 mg	
Residue on ignition	USP <661>	<1 mg	
Hemolysis	ISO 10993-4	Nonhemolytic	
Appearance	EP <3.2.2.1>	Pass	
Acidity and alkalinity	EP <3.2.2.1>	Pass	
Absorbance	EP <3.2.2.1>	Pass	
Reducing substances	EP <3.2.2.1>	Pass	
Transparency	EP <3.2.2.1>	Pass	

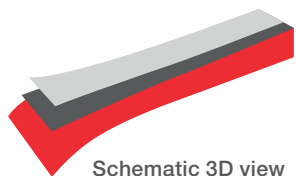
All tests are run post-gamma irradiation unless otherwise noted. \* Subzero conditions require proper support and handling.

# CX3-9 film

CX3-9 film is a three-layer, 9 mil cast film produced in a cGMP facility. The outer layer is a polyester elastomer coextruded with a low-density polyethylene product contact layer. CX3-9 film is manufactured using animal origin-free components.



Schematic cross section



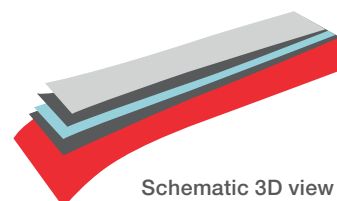
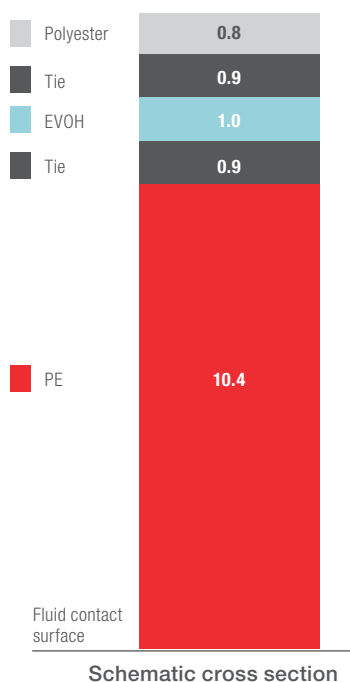
Schematic 3D view

Property	Test protocol	Average values	
<b>Physical data (post-gamma irradiation, 25–40 kGy)</b>			
Tensile strength	ASTM D882	4,996 psi	34.4 MPa
Elongation	ASTM D882	1,026%	
Yield strength	ASTM D882	820 psi	5.7 MPa
2% secant modulus	ASTM D882	11,459 psi	79 MPa
Tensile toughness	ASTM D882	439 lbf-in.	5.0 kN-cm
Puncture resistance	ASTM F1306	28 lbf	125 N
Seam strength	ASTM F88	18 lbf/in.	31.5 N/cm
O <sub>2</sub> transmission rate	ASTM D3985, 0% relative humidity (RH) outside, 90% RH inside, 23°C	93.4 cc/100 in. <sup>2</sup> /day	1,448 cc/m <sup>2</sup> /day
CO <sub>2</sub> transmission rate	MOCON method, 0% RH outside, 100% RH inside, 23°C	450 cc/100 in. <sup>2</sup> /day	6,968 cc/m <sup>2</sup> /day
Water vapor transmission rate	ASTM F1249, 0% RH outside, 100% RH inside, 23°C	0.061 g/100 in. <sup>2</sup> /day	0.95 g/m <sup>2</sup> /day
Haze	ASTM D1003 (outside dry/inside dry)	63%	
Glass transition temperature	ASTM E1640	-17°F	-27°C
Film gauge		9 mil	0.229 mm
Film contact material		Polyethylene	
Temperature range*		-112°F to 140°F	-80°C to 60°C
10 <sup>-6</sup> sterility assurance level	ANSI/AAMI/ISO 11137:2006	2.5–4.0 Mrad	25–40 kGy
<b>Biocompatibility data (post-gamma irradiation, &gt;50 kGy)</b>			
USP Class VI	USP <88>	Pass	
Cytotoxicity	USP <87>	Pass	
Bacterial endotoxin	USP <85>	0.006 EU/mL	
Heavy metals	USP <661>	<1 ppm	
Buffering capacity	USP <661>	<1 mL	
Nonvolatile residue	USP <661>	<1 mg	
Residue on ignition	USP <661>	<1 mg	
Hemolysis	ISO 10993-4	Pass	
Appearance	EP <3.2.2.1>	Pass	
Acidity and alkalinity	EP <3.2.2.1>	Pass	
Absorbance	EP <3.2.2.1>	0.0055 units	
Reducing substances	EP <3.2.2.1>	<1 mL	
Transparency	EP <3.2.2.1>	Pass	

All tests are run post-gamma irradiation unless otherwise noted. \* Subzero conditions require proper support and handling.

# Aegis5-14 film

Aegis5-14 film is a five-layer, 14 mil cast film produced in a cGMP facility. The outer layer is a polyester elastomer coextruded with an ethylene vinyl alcohol barrier layer and a low-density polyethylene product contact layer. Aegis5-14 film is manufactured using no animal-derived components and has reduced number of concentration of anti-oxidant additives.

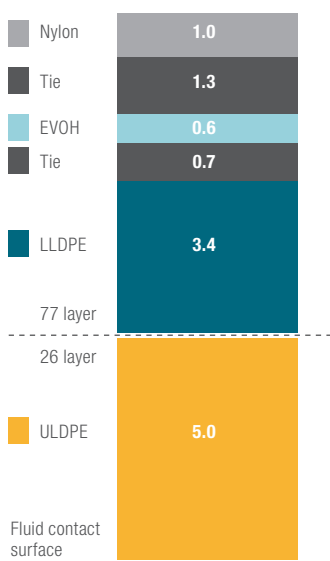


Property	Test protocol	Average values	
<b>Physical data (post-gamma irradiation, 25–40 kGy)</b>			
Tensile strength	ASTM D882	2,392 psi	16.5 MPa
Elongation	ASTM D882	487%	
Yield strength	ASTM D882	1,362 psi	9.4 MPa
2% secant modulus	ASTM D882	43,389 psi	299 MPa
Tensile toughness	ASTM D882	243 lbf-in.	2.7 kN-cm
Puncture resistance	ASTM F1306	25 lbf	111 N
Seam strength	ASTM F88	31 lbf/in.	54 N/cm
O <sub>2</sub> transmission rate	ASTM D3985, 0% relative humidity (RH) outside, 90% RH inside, 23°C	0.023 cc/100 in. <sup>2</sup> /day	0.36 cc/m <sup>2</sup> /day
CO <sub>2</sub> transmission rate	MOCON method, 0% RH outside, 100% RH inside, 23°C	0.087 cc/100 in. <sup>2</sup> /day	1.35 cc/m <sup>2</sup> /day
Water vapor transmission rate	ASTM F1249, 0% RH outside, 100% RH inside, 23°C	0.023 g/100 in. <sup>2</sup> /day	0.35 g/m <sup>2</sup> /day
Haze	ASTM D1003 (outside dry/inside dry)	68%	
Glass transition temperature	ASTM E1640	–24°F	–31°C
Film gauge		0.014 in.	0.356 mm
Film contact material		Polyethylene	
Temperature range*		–112°F to 140°F	–80°C to 60°C
10 <sup>-6</sup> sterility assurance level	ANSI/AAMI/ISO 11137:2006	2.5–4 Mrad	25–40 kGy
<b>Biocompatibility data (post-gamma irradiation, &gt;50 kGy)</b>			
USP Class VI	USP <88>	Pass	
Cytotoxicity	USP <87>	Pass	
Bacterial endotoxin	USP <85>	0.005 EU/mL	
Heavy metals	USP <661>	<1 ppm	
Buffering capacity	USP <661>	<1 mL	
Nonvolatile residue	USP <661>	<1 mg	
Residue on ignition	USP <661>	<1 mg	
Hemolysis	ISO 10993-4	Nonhemolytic	
Appearance	EP <3.2.2.1>	Pass	
Acidity and alkalinity	EP <3.2.2.1>	Pass	
Absorbance	EP <3.2.2.1>	Pass	
Reducing substances	EP <3.2.2.1>	Pass	
Transparency	EP <3.2.2.1>	Pass	

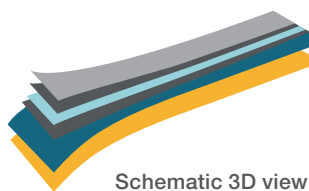
All tests are run post-gamma irradiation unless otherwise noted. \* Subzero conditions require proper support and handling.

# ASI 26/77 film

ASI 26/77 polyethylene film is comprised of two web-layers. The product contact web is made from ultra low density polyethylene (ULDPE) and has a thickness of 5 mil. The non-product contact 5-layer, 7 mil web is constructed of nylon with an ethylene vinyl alcohol barrier layer and a linear low density polyethylene (LLDPE) layer.



Schematic cross section

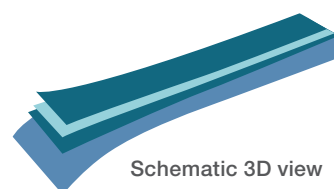
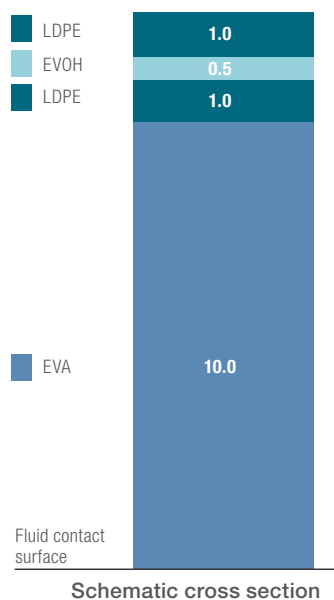


Schematic 3D view

Property	Test protocol	Average values	
<b>Physical data (post-gamma irradiation, 25–40 kGy)</b>			
Tensile strength	ASTM D882	3,015 psi	20.8 MPa
Elongation	ASTM D882	486%	
Yield strength	ASTM D882	1,973 psi	13.6 MPa
2% secant modulus	ASTM D882	57,350 psi	395 MPa
Tensile toughness	ASTM D1004	262 lbf-in.	3 kN-cm
Puncture resistance	ASTM F1306	11 lbf	49 N
Seam strength	ASTM F88	28 lbf/in.	49.1 N/cm
O <sub>2</sub> transmission rate	ASTM D3985, 0% relative humidity (RH) outside, 90% RH inside, 23°C	0.041 cc/100 in. <sup>2</sup> /day	0.64 cc/m <sup>2</sup> /day
CO <sub>2</sub> transmission rate	MOCON method, 0% RH outside, 100% RH inside, 23°C	0.110 cc/100 in. <sup>2</sup> /day	1.71 cc/m <sup>2</sup> /day
Water vapor transmission rate	ASTM F1249, 0% RH outside, 100% RH inside, 23°C	0.022 g/100 in. <sup>2</sup> /day	0.34 g/m <sup>2</sup> /day
Haze	ASTM D1003 (outside dry/inside dry)	60%	
Glass transition temperature	ASTM E1640	-16.6°F	-27°C
Film gauge		12 mil	0.305 mm
Film contact material		Polyethylene	
10 <sup>-6</sup> sterility assurance level	ANSI/AAMI/ISO 11137:2006	2.75–4.5 Mrad	27.5–45 kGy
<b>Biocompatibility data (post-gamma irradiation, &gt;45 kGy)</b>			
USP Class VI	USP <88>	Pass	
Cytotoxicity	USP <87>	Pass	
Bacterial endotoxin	USP <85>	≤0.5 EU/mL	
Heavy metals	USP <661>	<1 ppm	
Buffering capacity	USP <661>	0.10 mL	
Nonvolatile residue	USP <661>	1.6 mg	
Residue on ignition	USP <661>	<5 mg	
Appearance	EP <3.2.2.1>	Pass	
Acidity and alkalinity	EP <3.2.2.1>	Pass	
Absorbance	EP <3.2.2.1>	Pass	
Reducing substances	EP <3.2.2.1>	Pass	
Transparency	EP <3.2.2.1>	Pass	

# ASI 28 film

ASI 28 film is a four-layer, 12.5 mil, coextruded film that provides an excellent moisture and oxygen barrier and high durability.



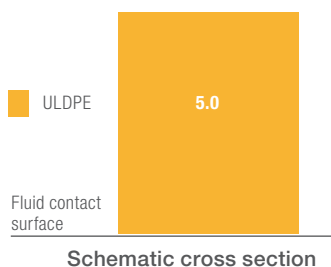
Property	Test protocol	Average values	
<b>Physical data (post-gamma irradiation, 25–40 kGy)</b>			
Tensile strength	ASTM D882	2,118 psi	14.6 MPa
Elongation	ASTM D882	639%	
Yield strength	ASTM D882	828 psi	5.7 MPa
2% secant modulus	ASTM D882	11,574 psi	79.8 MPa
Tensile toughness	ASTM D882	215 lbf-in.	2.4 kN-cm
Puncture resistance	ASTM F1306	11 lbf-in.	0.12 kN-cm
Seam strength	ASTM F88	20 lbf/in.	35.0 N/cm
O <sub>2</sub> transmission rate	ASTM D3985, 0% relative humidity (RH) outside, 90% RH inside, 23°C	0.28 cc/100 in. <sup>2</sup> /day	4.34 cc/m <sup>2</sup> /day
CO <sub>2</sub> transmission rate	MOCON method, 0% RH outside, 100% RH inside, 23°C	0.58 cc/100 in. <sup>2</sup> /day	8.99 cc/m <sup>2</sup> /day
Water vapor transmission rate	ASTM F1249, 0% RH outside, 100% RH inside, 23°C	0.11 g/100 in. <sup>2</sup> /day	1.70 g/m <sup>2</sup> /day
Haze	ASTM D1003 (outside dry/inside dry)	87%	
Glass transition temperature	ASTM E1640	-19°F	-28°C
Film gauge		12.5 mil	0.318 mm
Film contact material		Ethyl vinyl acetate	
10 <sup>-6</sup> sterility assurance level	ANSI/AAMI/ISO 11137:2006	2.75–4.5 Mrad	27.5–45 kGy
<b>Biocompatibility data (post-gamma irradiation, &gt;45 kGy)</b>			
USP Class VI	USP <88>	Pass	
Bacterial endotoxin	USP <85>	≤0.5 EU/mL	
Heavy metals	USP <661>	<1 ppm	
Buffering capacity	USP <661>	Pass	
Nonvolatile residue	USP <661>	<1 mg	
Residue on ignition	USP <661>	Pass	
Hemolysis	ISO10993-4	Nonhemolytic	
Cytotoxicity	ISO10993-5	Pass	
Appearance	EP <3.2.2.1>	Pass	
Acidity and alkalinity	EP <3.2.2.1>	Pass	
Absorbance	EP <3.2.2.1>	Pass	
Reducing substances	EP <3.2.2.1>	Pass	
Transparency	EP <3.2.2.1>	Pass	

# ASI 26 film

The ASI 26 film is a single-web, 5 mil cast film, which is engineered to meet the most demanding requirements of your bioproduction processes.

## Key benefits

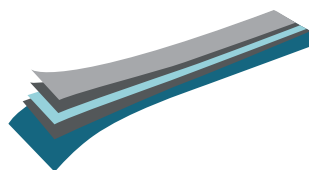
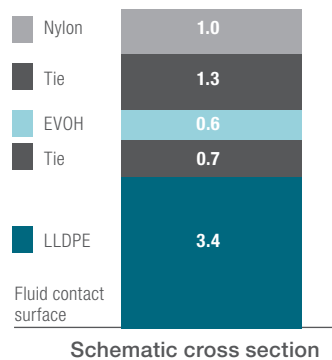
- Good toughness and puncture resistance
- Highly flexible and stretchable material
- Free of animal-derived components
- Available in open-top tank liners



Property	Test protocol	Average values	
<b>Physical data (post-gamma irradiation, 25–40 kGy)</b>			
Tensile strength	ASTM D882	3,628 psi	25 MPa
Elongation	ASTM D882	833%	
Yield strength	ASTM D882	1,198 psi	8.3 MPa
2% secant modulus	ASTM D882	19,961 psi	138 MPa
Tensile toughness	ASTM D1004	163 lbf-in.	1.8 kN-cm
Puncture resistance	ASTM F1306	6.5 lbf	29 N
Seam strength	ASTM F88	10 lbf/in.	17.5 N/cm
O <sub>2</sub> transmission rate	ASTM D3985, 0% relative humidity (RH) outside, 90% RH inside, 23°C	129 cc/100 in. <sup>2</sup> /day	2,000 cc/m <sup>2</sup> /day
CO <sub>2</sub> transmission rate	MOCON method, 0% RH outside, 100% RH inside, 23°C	621 cc/100 in. <sup>2</sup> /day	9,617.5 cc/m <sup>2</sup> /day
Water vapor transmission rate	ASTM F1249, 0% RH outside, 100% RH inside, 23°C	0.073 g/100 in. <sup>2</sup> /day	1.13 g/m <sup>2</sup> /day
Glass transition temperature	ASTM E1640	-21°F	-29.5°C
Film gauge		5 mil	0.127 mm
Film contact material		Polyethylene	
10 <sup>-6</sup> sterility assurance level	ANSI/AAMI/ISO 11137:2006	2.75–4.5 Mrad	27.5–45 kGy
<b>Biocompatibility data</b>			
USP acute systemic injection test	USP <88>	Pass	
USP intracutaneous injection test	USP <88>	Pass	
USP intramuscular implantation test	USP <88>	Pass	
USP MEM elution method	USP <87>	Non-cytotoxic	
Physiochemical test for plastics	USP <661>	Pass	

# ASI 77 film

The ASI 77 film is a five-layer, 7 mil web that is constructed of nylon with an ethylene vinyl alcohol (EVOH) barrier layer and a linear low density polyethylene (LLDPE) layer.



Property	Test protocol	Average values	
<b>Physical data (post-gamma irradiation, 25–40 kGy)</b>			
Tensile strength	ASTM D882	4,060 psi	28.0 MPa
Elongation	ASTM D882	447%	
Yield strength	ASTM D882	2,321 psi	16 MPa
2% secant modulus	ASTM D882	69,658 psi	480 MPa
Tensile toughness	ASTM D1004	183.7 lbf-in	2.1 kN-cm
Puncture resistance	ASTM F1306	8.4 lbf	37.4 N
Seam strength	ASTM F88	24.2 lbf/in	42.4 N/cm
O <sub>2</sub> transmission rate	ASTM D3985, 0% relative humidity (RH) outside, 90% RH inside, 23°C	0.041 cc/100 in <sup>2</sup> /day	0.64 cc/m <sup>2</sup> /day
CO <sub>2</sub> transmission rate	MOCON method, 0% RH outside, 100% RH inside, 23°C	0.110 cc/100 in <sup>2</sup> /day	1.71 cc/m <sup>2</sup> /day
Water vapor transmission rate	ASTM F1249, 0% RH outside, 100% RH inside, 23°C	0.031 g/100 in <sup>2</sup> /day	0.477 g/m <sup>2</sup> /day
Glass transition temperature	ASTM E1640	-16.2°F	-26.8°C
Film gauge		7 mil	0.178 mm
Film contact material		Polyethylene	
10 <sup>-6</sup> Sterility assurance level	ANSI/AAMI/ISO 11137:2006	2.75–4.5 Mrad	27.5–45 kGy
<b>Biocompatibility data</b>			
USP acute systemic injection test	USP <88>	Pass	
USP intracutaneous injection test	USP <88>	Pass	
USP intramuscular implantation test	USP <88>	Pass	
USP MEM elution method	USP <87>	Noncytotoxic	
Physicochemical test for plastics	USP <661>	Pass	



# Labtainer Pro BioProcess Containers (BPCs)

As technology and innovation advances within the bioproduction industry, single-use technologies have also made considerable progress in the drug and vaccine manufacturing space. Some of the well-established and known advantages of single-use technologies are lowered costs, reduced contamination risks, decreased facility footprint, increased flexibility, and production throughput efficiency with less clean-up, all resulting in quicker turnaround and increased production capabilities. The innovative concept of the new Thermo Scientific™ Labtainer™ Pro BioProcess Container (BPC) provides improved flexibility and assurance—without compromise.

## Key advantages

Bioproduction requirements differ depending on the applications and processes used within a workflow. Products selected should complement workflow requirements. The Labtainer Pro BPC was developed in response to a variety of bioproduction workflow needs. The 2D style of the Labtainer Pro BPC provides improved ease of use, high reliability, and assured quality in sizes ranging from 50 mL to 20 L.

## Applications

- Bioreactor feed and harvest
- Buffer and media storage; intermediate product hold and storage
- Bulk product storage prior to filling
- Chromatography feed
- Fraction collection
- Product sampling and transport



## Key benefits

- Consistent contact materials in all BPCs of sizes from 50 mL to 2,000 L
- Film robustness for a reliable and durable product
- Improved handling for better ergonomics
- Optimized drainage
- Wider range of port sizing: 1/8–1/2 in. to eliminate the need for setup and step-down connections, resulting in fewer connections and better, less turbulent flow
- High level of assurance with 100% helium testing, automated manufacturing, and lot-based endotoxin and particulate testing
- No sharps or tools required for packaging removal, eliminating the risk of damage from unpacking tools.
- Reduction in packaging material, creating a more environmentally friendly product

## Product features

### Reliability

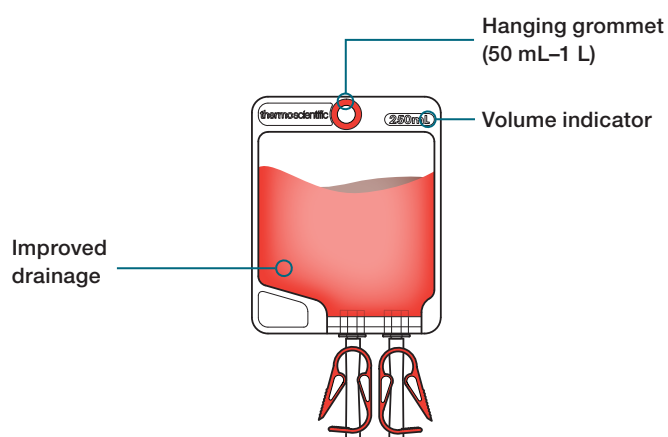
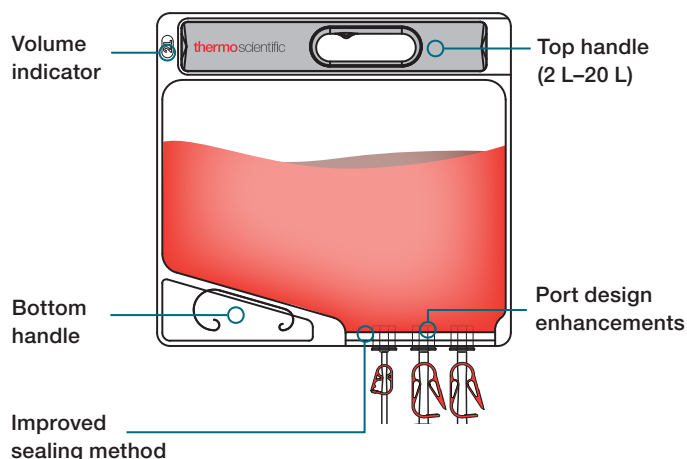
- **Enhanced port design and customization**—2-, 3-, and 4-port configurations available without the need for excess ports in the chamber
- **Improved sealing method**—impulse heat sealing for port insertion utilizing Labtainer Automated Manufacturing (LAM) technology
- **100% helium integrity testing**—helps ensure that our best product is delivered to the customer

### Quality

- **Upgraded packaging**—easy-peel tape on the shipping box and an easy-open polyethylene (PE) outer bag
- **Waste management**—cardboard reduction up to 25%
- **Improved outer polyethylene bag**—manufactured in a controlled environment, resulting in cleaner packaging with less risk of particulates
- **Lot-based testing**—implementation of lot-based bacterial endotoxin (BET) testing and particulate testing of Labtainer Pro BPC products to USP <788> and USP <85> standards

### Easy of use

- **Enhanced ergonomics**—improved handle features with the addition of a lower handle on the 2, 5, 10, and 20 L BPCs
- **Optimized drainage**—chamber design, port location, and low-profile port design minimizes liquid holdup

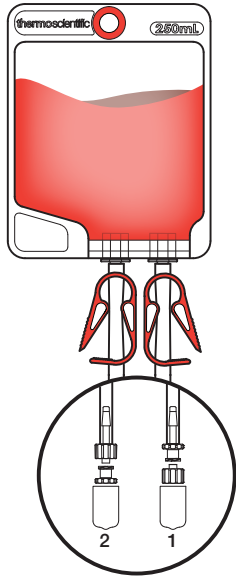


### Labtainer Pro BPC chamber specifications and options.

Chamber size	Chamber dimensions (W x L)	Total surface area	Porting range options	Handling options
50 mL	15.0 x 11.7 cm (5.9 x 4.6 in.)	28.6 sq. in.	2-port	Hanging grommet
100 mL	15.0 x 14.2 cm (5.9 x 5.6 in.)	40.1 sq. in.	2-port	Hanging grommet
250 mL	15.0 x 18.8 cm (5.9 x 7.4 in.)	59.9 sq. in.	2-port	Hanging grommet
500 mL	18.5 x 23.6 cm (7.3 x 9.3 in.)	102.3 sq. in.	2- or 3-port	Hanging grommet
1,000 mL	18.5 x 30.0 cm (7.3 x 11.8 in.)	136.8 sq. in.	2- or 3-port	Hanging grommet
2 L	34.3 x 32.5 cm (13.5 x 12.8 in.)	232.2 sq. in.	2-, 3-, or 4-port	Upper reinforced hanging handle
5 L	34.3 x 40.9 cm (13.5 x 16.1 in.)	318.7 sq. in.	2-, 3-, or 4-port	Upper reinforced hanging handle
10 L	34.3 x 64.3 cm (13.5 x 25.3 in.)	550.5 sq. in.	2-, 3-, or 4-port	Upper and lower reinforced hanging handles
20 L	45.0 x 69.3 cm (17.7 x 27.3 in.)	777.4 sq. in.	2-, 3-, or 4-port	Upper and lower reinforced hanging handles

# Labtainer Pro BPCs

## 2 ports



### Line 1

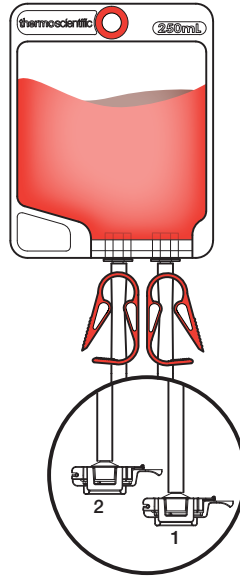
Luer lock body with plug  
 Tubing: C-Flex™, length: 30.5 cm (12 in.)  
 ID x wall x OD: 0.32 x 0.16 x 0.64 cm  
 (1/8 x 1/16 x 1/4 in.)

### Line 2

Luer lock insert with cap  
 Tubing: C-Flex, length: 30.5 cm (12 in.)  
 ID x wall x OD: 0.32 x 0.16 x 0.64 cm  
 (1/8 x 1/16 x 1/4 in.)

Size	Cat. No.	
	Aegis5-14	CX5-14
50 mL	PL30014.01	PL30001.01
100 mL	PL30014.02	PL30001.02
250 mL	PL30014.03	PL30001.03

## 2 ports



### Line 1

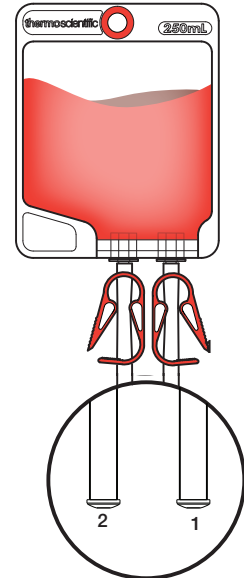
CPC™ AseptiQuik™ Connector G  
 Tubing: C-Flex, length: 30.5 cm (12 in.)  
 ID x wall x OD: 0.64 x 0.24 x 1.12 cm  
 (1/4 x 3/32 x 7/16 in.)

### Line 2

AseptiQuik Connector G  
 Tubing: C-Flex, length: 30.5 cm (12 in.)  
 ID x wall x OD: 0.64 x 0.24 x 1.12 cm  
 (1/4 x 3/32 x 7/16 in.)

Size	Cat. No.	
	Aegis5-14	CX5-14
50 mL	PL30015.01	PL30002.01
100 mL	PL30015.02	PL30002.02
250 mL	PL30015.03	PL30002.03

## 2 ports



### Line 1

Plug  
 Tubing: C-Flex, length: 30.5 cm (12 in.)  
 ID x wall x OD: 0.32 x 0.16 x 0.64 cm  
 (1/8 x 1/16 x 1/4 in.)

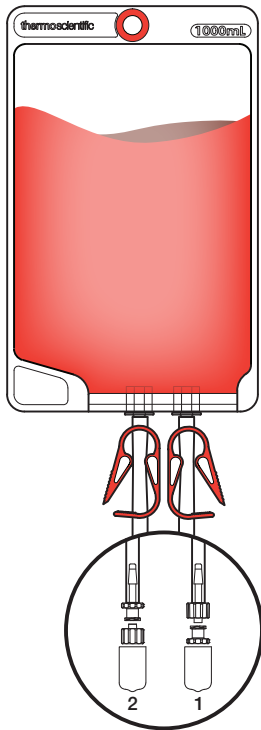
### Line 2

Plug  
 Tubing: C-Flex, length: 30.5 cm (12 in.)  
 ID x wall x OD: 0.32 x 0.16 x 0.64 cm  
 (1/8 x 1/16 x 1/4 in.)

Size	Cat. No.	
	Aegis5-14	CX5-14
50 mL	PL30016.01	PL30003.01
100 mL	PL30016.02	PL30003.02
250 mL	PL30016.03	PL30003.03

## Labtainer Pro BPCs

## 2 ports

**Line 1**

Luer lock insert with cap

Tubing: C-Flex, length: 30.5 cm (12 in.)

ID x wall x OD: 0.64 x 0.24 x 1.12 cm

(1/4 x 3/32 x 7/16 in.)

**Line 2**

Luer lock body with plug

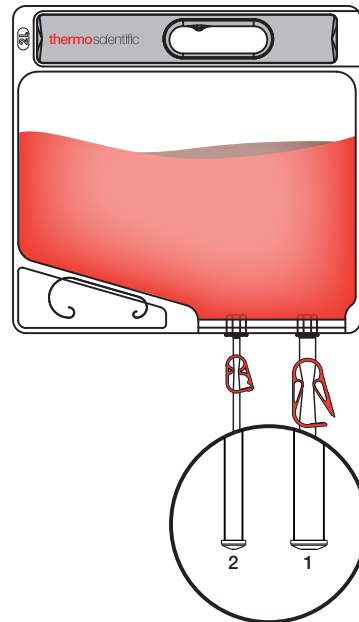
Tubing: C-Flex, length: 30.5 cm (12 in.)

ID x wall x OD: 0.64 x 0.24 x 1.12 cm

(1/4 x 3/32 x 7/16 in.)

Size	Cat. No.	
	Aegis5-14	CX5-14
500 mL	PL30018.01	PL30005.01
1 L	PL30018.02	PL30005.02

## 2 ports

**Line 1**

Plug

Tubing: C-Flex, length: 45.7 cm (18 in.)

ID x wall x OD: 0.95 x 0.32 x 1.59 cm

(3/8 x 1/8 x 5/8 in.)

**Line 2**

Plug

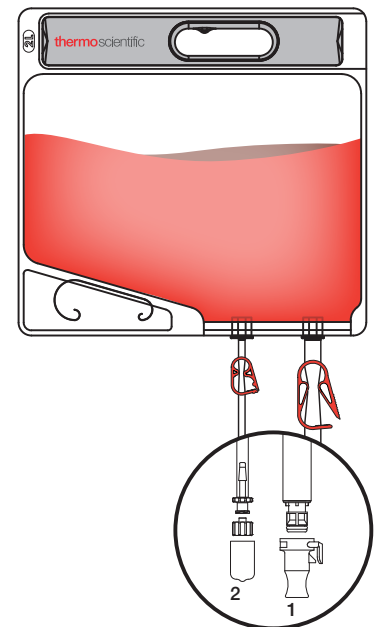
Tubing: C-Flex, length: 45.7 cm (18 in.)

ID x wall x OD: 0.32 x 0.16 x 0.64 cm

(1/8 x 1/16 x 1/4 in.)

Size	Cat. No.	
	Aegis5-14	CX5-14
500 mL	PL30017.01	PL30004.01
1 L	PL30017.02	PL30004.02
2 L	PL30021.01	PL30008.01
5 L	PL30021.02	PL30008.02
10 L	PL30021.03	PL30008.03
20 L	PL30021.04	PL30008.04

## 2 ports

**Line 1**

MPC insert

Tubing: C-Flex, length: 45.7 cm (18 in.)

ID x wall x OD: 0.95 x 0.32 x 1.59 cm

(3/8 x 1/8 x 5/8 in.)

**Line 2**

Luer lock insert with cap

Tubing: C-Flex, length: 45.7 cm (18 in.)

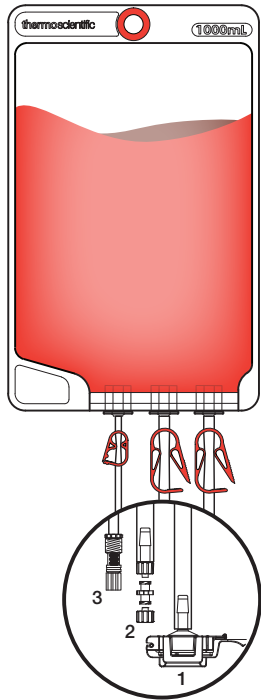
ID x wall x OD: 0.32 x 0.16 x 0.64 cm

(1/8 x 1/16 x 1/4 in.)

Size	Cat. No.	
	Aegis5-14	CX5-14
2 L	PL30022.01	PL30009.01
5 L	PL30022.02	PL30009.02
10 L	PL30022.03	PL30009.03
20 L	PL30022.04	PL30009.04

# Labtainer Pro BPCs

## 3 ports



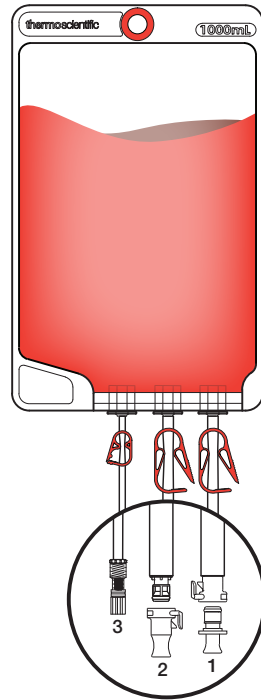
**Line 1**  
AseptiQuik Connector G  
Tubing: C-Flex, length: 30.5 cm (12 in.)  
ID x wall x OD: 0.64 x 0.24 x 1.12 cm  
(1/4 x 3/32 x 7/16 in.)

**Line 2**  
Luer lock body and insert  
Tubing: C-Flex, length: 30.5 cm (12 in.)  
ID x wall x OD: 0.64 x 0.24 x 1.12 cm  
(1/4 x 3/32 x 7/16 in.)

**Line 3**  
Luer lock body with needleless Luer insert  
Tubing: C-Flex, length: 10.2 cm (4 in.)  
ID x wall x OD: 0.32 x 0.16 x 0.64 cm  
(1/8 x 1/16 x 1/4 in.)

Size	Cat. No.	
	Aegis5-14	CX5-14
500 mL	PL30019.01	PL30006.01
1 L	PL30019.02	PL30006.02

## 3 ports



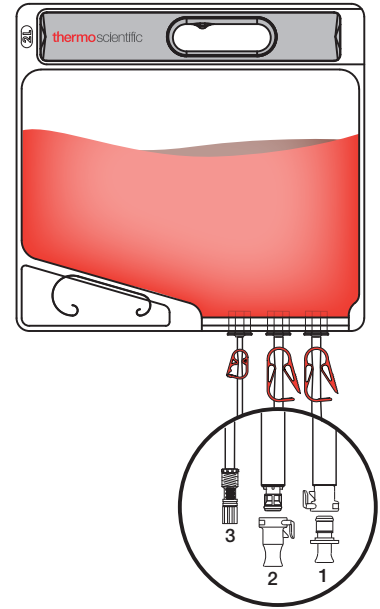
**Line 1**  
MPC body  
Tubing: C-Flex, length: 45.7 cm (18 in.)  
ID x wall x OD: 0.95 x 0.32 x 1.59 cm  
(3/8 x 1/8 x 5/8 in.)

**Line 2**  
MPC insert  
Tubing: C-Flex, length: 45.7 cm (18 in.)  
ID x wall x OD: 0.95 x 0.32 x 1.59 cm  
(3/8 x 1/8 x 5/8 in.)

**Line 3**  
Luer lock body with needleless Luer insert  
Tubing: C-Flex, length: 10.2 cm (4 in.)  
ID x wall x OD: 0.32 x 0.16 x 0.64 cm  
(1/8 x 1/16 x 1/4 in.)

Size	Cat. No.	
	Aegis5-14	CX5-14
500 mL	PL30020.01	PL30007.01
1 L	PL30020.02	PL30007.02

## 3 ports



**Line 1**  
MPC body  
Tubing: C-Flex, length: 30.5 cm (12 in.)  
ID x wall x OD: 0.95 x 0.32 x 1.59 cm  
(3/8 x 1/8 x 5/8 in.)

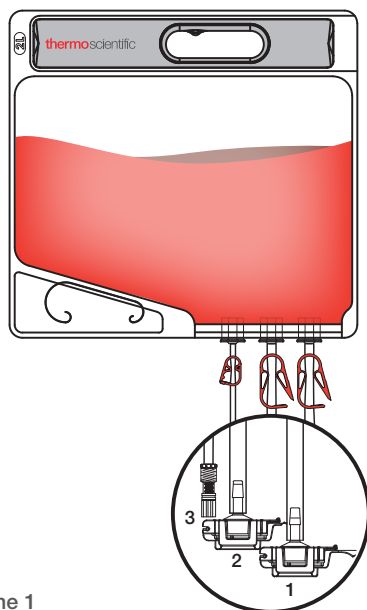
**Line 2**  
MPC insert  
Tubing: C-Flex, length: 30.5 cm (12 in.)  
ID x wall x OD: 0.95 x 0.32 x 1.59 cm  
(3/8 x 1/8 x 5/8 in.)

**Line 3**  
Luer lock body with needleless Luer insert  
Tubing: C-Flex, length: 10.2 cm (4 in.)  
ID x wall x OD: 0.32 x 0.16 x 0.64 cm  
(1/8 x 1/16 x 1/4 in.)

Size	Cat. No.	
	Aegis5-14	CX5-14
2 L	PL30023.01	PL30010.01
5 L	PL30023.02	PL30010.02
10 L	PL30023.03	PL30010.03
20 L	PL30023.04	PL30010.04

## Labtainer Pro BPCs

## 3 ports

**Line 1**

AseptiQuik Connector G

Tubing: C-Flex, length: 61 cm (24 in.)

ID x wall x OD: 0.95 x 0.32 x 1.59 cm  
(3/8 x 1/8 x 5/8 in.)**Line 2**

AseptiQuik Connector G

Tubing: C-Flex, length: 61 cm (24 in.)

ID x wall x OD: 0.95 x 0.32 x 1.59 cm  
(3/8 x 1/8 x 5/8 in.)**Line 3**

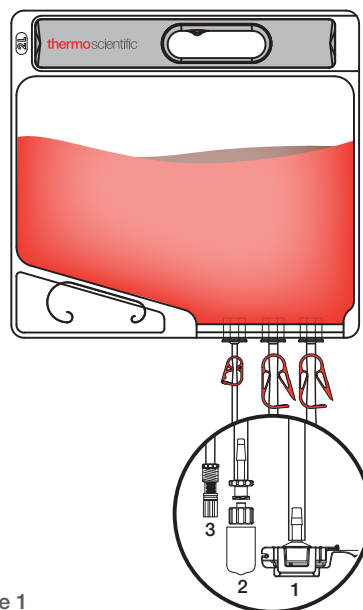
Luer lock body with needleless Luer insert

Tubing: C-Flex, length: 10.2 cm (4 in.)

ID x wall x OD: 0.32 x 0.16 x 0.64 cm  
(1/8 x 1/16 x 1/4 in.)

Size	Cat. No.	
	Aegis5-14	CX5-14
2 L	PL30024.01	PL30011.01
5 L	PL30024.02	PL30011.02
10 L	PL30024.03	PL30011.03
20 L	PL30024.04	PL30011.04

## 3 ports

**Line 1**

AseptiQuik Connector G

Tubing: C-Flex, length: 30.5 cm (12 in.)

ID x wall x OD: 0.64 x 0.24 x 1.12 cm  
(1/4 x 3/32 x 7/16 in.)**Line 2**

Luer lock body with plug

Tubing: C-Flex, length: 30.5 cm (12 in.)

ID x wall x OD: 0.64 x 0.24 x 1.12 cm  
(1/4 x 3/32 x 7/16 in.)**Line 3**

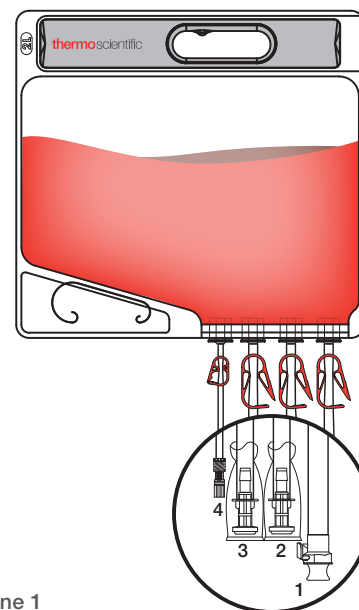
Luer lock body with needleless Luer insert

Tubing: C-Flex, length: 10.2 cm (4 in.)

ID x wall x OD: 0.32 x 0.16 x 0.64 cm  
(1/8 x 1/16 x 1/4 in.)

Size	Cat. No.	
	Aegis5-14	CX5-14
2 L	PL30025.01	PL30012.01
5 L	PL30025.02	PL30012.02
10 L	PL30025.03	PL30012.03
20 L	PL30025.04	PL30012.04

## 4 ports

**Line 1**

MPX body

Tubing: C-Flex, length: 61 cm (24 in.)

ID x wall x OD: 1.27 x 0.32 x 1.91 cm  
(1/2 x 1/8 x 3/4 in.)**Line 2**

3/4 in. tri-clamp with gasket, sterilized

Tubing: C-Flex, length: 61 cm (24 in.)

ID x wall x OD: 0.95 x 0.32 x 1.59 cm  
(3/8 x 1/8 x 5/8 in.)**Line 3**

3/4 in. tri-clamp with gasket, sterilized

Tubing: C-Flex, length: 61 cm (24 in.)

ID x wall x OD: 0.95 x 0.32 x 1.59 cm  
(3/8 x 1/8 x 5/8 in.)**Line 4**

Luer lock body with needleless Luer insert

Tubing: C-Flex, length: 46 cm (18 in.)

ID x wall x OD: 0.32 x 0.16 x 0.64 cm  
(1/8 x 1/16 x 1/4 in.)

Size	Cat. No.	
	Aegis5-14	CX5-14
2 L	PL30026.01	PL30013.01
5 L	PL30026.02	PL30013.02
10 L	PL30026.03	PL30013.03
20 L	PL30026.04	PL30013.04

## 2D Labtainer BPC systems

Thermo Scientific™ Labtainer™ BioProcess Containers (BPCs) effectively address small-volume liquid handling needs. They range in size from 50 mL to 50 L, with a variety of standard configurations to meet most application needs. These Labtainer BPCs are space-saving, ergonomic, and constructed of Aegis5-14, CX5-14, ASI 26/77 and ASI 28 films. Product configurations cover a range of industry-standard connection systems; handling systems are available for transport and storage.

### Standard products

Standard Labtainer BPCs are stocked for immediate delivery and are fully supported by our process and product validation program. (For more information on our validation program, please refer to our film validation guides. Additionally, standard Labtainer BPCs have validated liquid shipping configurations.)

Standard configurations can be customized for optimal fit, form, and function using the one of the industry's largest libraries of qualified components to address process-specific applications.

Whether in a standard or customized configuration, Labtainer BPCs are ideal for:

- Dispensing, packaging, and storing cell culture media, buffers, and process liquids
- Delivery of cell culture media or process liquids to small-scale bioproduction systems
- Bioreactor and fermentation feed, sampling, and harvest
- Chromatography feed and fraction collection
- Storage and transport of bulk intermediate products, process intermediates, vaccine conjugates, and other biological products



## 2D Labtainer BPCs constructed with Aegis5-14 and CX5-14 films

**2 ports**

Pack of 10

**Line 1**

Luer lock body connection, polypropylene  
No tubing

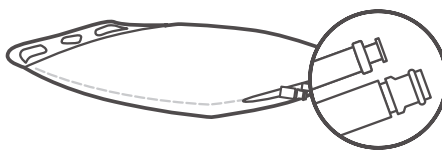
**Line 2**

Luer lock insert connection, polypropylene  
No tubing

Size	Dimensions (L x W)	Cat. No.
50 mL	11.7 x 13.7 cm (4.6 x 5.4 in.)	Aegis5-14 SH31050.11
		CX5-14 SH30657.11
100 mL	14.7 x 14.2 cm (5.8 x 5.6 in.)	Aegis5-14 SH31050.12
		CX5-14 SH30657.12
250 mL	19.1 x 15 cm (7.5 x 5.9 in.)	Aegis5-14 SH31050.13
		CX5-14 SH30657.13
500 mL	26.4 x 17.3 cm (10.4 x 6.8 in.)	Aegis5-14 SH31050.14
		CX5-14 SH30657.14
1 L	29.7 x 20.1 cm (11.7 x 7.9 in.)	Aegis5-14 SH31050.15
		CX5-14 SH30657.15
2 L	34.8 x 24.4 cm (13.7 x 9.6 in.)	Aegis5-14 SH31050.16
		CX5-14 SH30657.16

**2 ports**

Pack of 10

**Line 1**

Luer lock body connection, polypropylene  
Tubing: C-Flex, length: 30 cm (12 in.)  
ID x OD: 3.2 x 6.4 mm (0.13 x 0.25 in.)

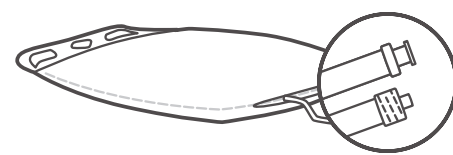
**Line 2**

MPC insert, polycarbonate  
No tubing

Size	Dimensions (L x W)	Cat. No.
50 mL	11.7 x 13.7 cm (4.6 x 5.4 in.)	Aegis5-14 SH31048.11
		CX5-14 SH30662.11
100 mL	14.7 x 14.2 cm (5.8 x 5.6 in.)	Aegis5-14 SH31048.12
		CX5-14 SH30662.12
250 mL	19.1 x 15 cm (7.5 x 5.9 in.)	Aegis5-14 SH31048.13
		CX5-14 SH30662.13
500 mL	26.4 x 17.3 cm (10.4 x 6.8 in.)	Aegis5-14 SH31048.14
		CX5-14 SH30662.14
1 L	29.7 x 20.1 cm (11.7 x 7.9 in.)	Aegis5-14 SH31048.15
		CX5-14 SH30662.15
2 L	34.8 x 24.4 cm (13.7 x 9.6 in.)	Aegis5-14 SH31048.16
		CX5-14 SH30662.16

**2 ports**

Pack of 10

**Line 1**

Luer lock body connection, polypropylene  
Tubing: C-Flex, length: 30 cm (12 in.)  
ID x OD: 3.2 x 6.4 mm (0.13 x 0.25 in.)

**Line 2**

Luer lock insert connection, polypropylene  
Tubing: C-Flex, length: 30 cm (12 in.)  
ID x OD: 3.2 x 6.4 mm (0.13 x 0.25 in.)

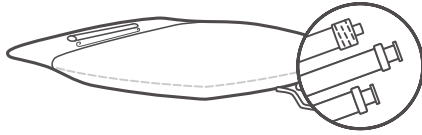
Size	Dimensions (L x W)	Cat. No.
50 mL	11.7 x 13.7 cm (4.6 x 5.4 in.)	Aegis5-14 SH30961.11
		CX5-14 SH30658.11
100 mL	14.7 x 14.2 cm (5.8 x 5.6 in.)	Aegis5-14 SH30961.12
		CX5-14 SH30658.12
250 mL	19.1 x 15 cm (7.5 x 5.9 in.)	Aegis5-14 SH30961.13
		CX5-14 SH30658.13
500 mL	26.4 x 17.3 cm (10.4 x 6.8 in.)	Aegis5-14 SH30961.14
		CX5-14 SH30658.14
1 L	29.7 x 20.1 cm (11.7 x 7.9 in.)	Aegis5-14 SH30961.15
		CX5-14 SH30658.15
2 L	34.8 x 24.4 cm (13.7 x 9.6 in.)	Aegis5-14 SH30961.16
		CX5-14 SH30658.16



# 2D Labtainer BPCs constructed with Aegis5-14 and CX5-14 films

## 3 ports

Single pack



### Line 1

Luer lock insert connection, polypropylene  
Tubing: C-Flex, length: 30 cm (12 in.)  
ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

### Line 2

Luer lock body connection, polypropylene  
Tubing: C-Flex, length: 30 cm (12 in.)  
ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

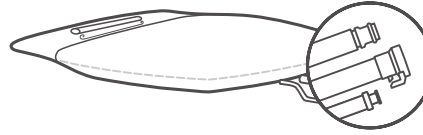
### Line 3

Luer lock body connection, polypropylene  
Tubing: C-Flex, length: 30 cm (12 in.)  
ID x OD: 3.2 x 6.4 mm (0.13 x 0.25 in.)

Size	Dimensions (L x W)	Cat. No.
2 L	29.5 x 31 cm (11.6 x 12.2 in.)	Aegis5-14 SH31049.05
		CX5-14 SH30713.05
5 L	37.6 x 33.3 cm (14.8 x 13.1 in.)	Aegis5-14 SH31049.01
		CX5-14 SH30713.01
10 L	62.2 x 30 cm (24.5 x 11.8 in.)	Aegis5-14 SH31049.02
		CX5-14 SH30713.02
20 L	65.5 x 43.2 cm (25.8 x 17 in.)	Aegis5-14 SH31049.03
		CX5-14 SH30713.03
50 L	82.6 x 58.4 cm (32.5 x 23 in.)	Aegis5-14 SH31049.04
		CX5-14 SH30713.04

## 3 ports

Single pack



### Line 1

MPC insert, polycarbonate  
Tubing: C-Flex, length: 61 cm (24 in.)  
ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.)

### Line 2

MPC body, polycarbonate  
Tubing: C-Flex, length: 61 cm (24 in.)  
ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.)

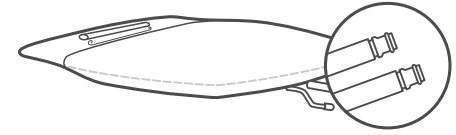
### Line 3

Luer lock body connection, polypropylene  
Tubing: C-Flex, length: 61 cm (24 in.)  
ID x OD: 3.2 x 6.4 mm (0.13 x 0.25 in.)

Size	Dimensions (L x W)	Cat. No.
2 L	29.5 x 31 cm (11.6 x 12.2 in.)	Aegis5-14 SH30963.05
		CX5-14 SH30712.05
5 L	37.6 x 33.3 cm (14.8 x 13.1 in.)	Aegis5-14 SH30963.01
		CX5-14 SH30712.01
10 L	62.2 x 30 cm (24.5 x 11.8 in.)	Aegis5-14 SH30963.02
		CX5-14 SH30712.02
20 L	65.5 x 43.2 cm (25.8 x 17 in.)	Aegis5-14 SH30963.03
		CX5-14 SH30712.03
50 L	82.6 x 58.4 cm (32.5 x 23 in.)	Aegis5-14 SH30963.04
		CX5-14 SH30712.04

## 3 ports

Single pack



### Line 1

MPC insert, polycarbonate  
Tubing: C-Flex, length: 30 cm (12 in.)  
ID x OD: 9.7 x 12.7 mm (0.38 x 0.5 in.)

### Line 2

MPC insert, polycarbonate  
Tubing: C-Flex, length: 30 cm (12 in.)  
ID x OD: 9.7 x 12.7 mm (0.38 x 0.5 in.)

### Line 3

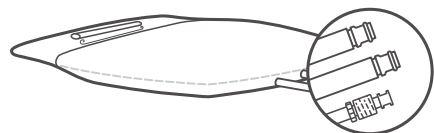
Plugged; no tubing

Size	Dimensions (L x W)	Cat. No.
2 L	29.5 x 31 cm (11.6 x 12.2 in.)	Aegis5-14 SH30965.05
		CX5-14 SH30714.05
5 L	37.6 x 33.3 cm (14.8 x 13.1 in.)	Aegis5-14 SH30965.01
		CX5-14 SH30714.01
10 L	62.2 x 30 cm (24.5 x 11.8 in.)	Aegis5-14 SH30965.02
		CX5-14 SH30714.02
20 L	65.5 x 43.2 cm (25.8 x 17 in.)	Aegis5-14 SH30965.03
		CX5-14 SH30714.03
50 L	82.6 x 58.4 cm (32.5 x 23 in.)	Aegis5-14 SH30965.04
		CX5-14 SH30714.04

## 2D Labyrinth BPCs constructed with Aegis5-14 and CX5-14 films

**3 ports**

Single pack—edge ports

**Line 1**

MPC insert, polycarbonate

No tubing

**Line 2**

MPC insert, polycarbonate

No tubing

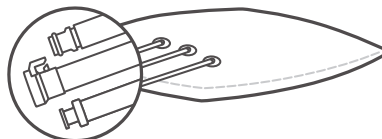
**Line 3**

Injection port

No tubing

**3 ports**

Single pack—pillow design with panel ports

**Line 1**

MPC insert, polycarbonate

Tubing: C-Flex, length: 61 cm (24 in.)

ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.)

**Line 2**

MPC body, polypropylene

Tubing: C-Flex, length: 61 cm (24 in.)

ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.)

**Line 3**

Luer lock body connection, polypropylene

Tubing: C-Flex, length: 66 cm (26 in.)

ID x OD: 3.2 x 6.4 mm (0.13 x 0.25 in.)

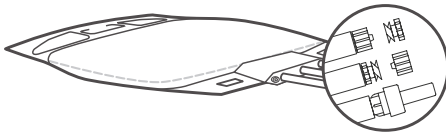
Size	Dimensions (L x W)	Cat. No.
2 L	29.5 x 31 cm (11.6 x 12.2 in.)	<b>Aegis5-14</b> SH31005.05
		<b>CX5-14</b> SH30709.05
5 L	37.6 x 33.3 cm (14.8 x 13.1 in.)	<b>Aegis5-14</b> SH31005.01
		<b>CX5-14</b> SH30709.01
10 L	62.2 x 30 cm (24.5 x 11.8 in.)	<b>Aegis5-14</b> SH31005.02
		<b>CX5-14</b> SH30709.02
20 L	65.5 x 43.2 cm (25.8 x 17 in.)	<b>Aegis5-14</b> SH31005.03
		<b>CX5-14</b> SH30709.03
50 L	82.6 x 58.4 cm (32.5 x 23 in.)	<b>Aegis5-14</b> SH31005.04
		<b>CX5-14</b> SH30709.04

Size	Outer container Cat. No.	Cat. No.
50 L	SV50076.02	<b>CX5-14</b> SH30667.01
100 L	SV50076.03	<b>CX5-14</b> SH30667.02
200 L	SV50076.04	<b>CX5-14</b> SH30667.03

Note: Aegis5-14 film equivalents for this product are available as custom configurations.

# 2D Labtainer BPCs constructed with ASI 26/77 film

## 3 ports



### Line 1

Luer lock insert connection with 4.8 mm (3/16 in.) barb, cap, and slide clamp  
Tubing: EVA + C-Flex 374

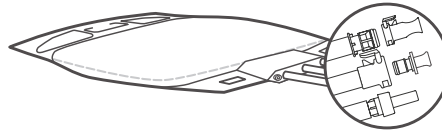
### Line 2

Luer lock body connection with 4.8 mm (3/16 in.) barb, cap, and slide clamp  
Tubing: EVA + C-Flex 374

### Line 3

Tubing: EVA, injection port

## 3 ports



### Line 1

MPC insert with 6.4 mm (1/4 in.) barb, cap, and slide clamp  
Tubing: EVA + C-Flex 374

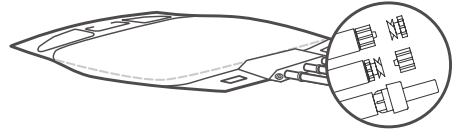
### Line 2

MPC body with 6.4 mm (1/4 in.) barb, plug, and slide clamp  
Tubing: EVA + C-Flex 374

### Line 3

Tubing: EVA, injection port

## 3 ports



### Line 1

Luer lock insert connection with 4.1 mm (5/32 in.) barb, cap, slide clamp, and 4.8 x 4.1 mm (3/16 x 5/32 in.) reducer  
Tubing: C-Flex 374, length: 30 cm (12 in.)  
ID x OD: 3.2 x 6.4 mm (0.13 x 0.25 in.)

### Line 2

Luer lock body connection with 4.1 mm (5/32 in.) barb, plug, slide clamp, and 4.8 x 4.1 mm (3/16 x 5/32 in.) reducer  
Tubing: C-Flex 374, length: 30 cm (12 in.)  
ID x OD: 3.2 x 6.4 mm (0.13 x 0.25 in.)

### Line 3

Tubing: EVA, injection port

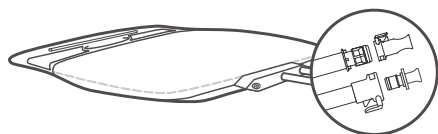
Size	Dimensions (L x W)	Cat. No.
100 mL	16 x 10 cm (6.3 x 3.9 in.)	ASI 26/77 SS00024-I
250 mL	16 x 13.5 cm (6.3 x 5.3 in.)	ASI 26/77 SS00025-I
500 mL	25.8 x 13.7 cm (10.2 x 5.4 in.)	ASI 26/77 SS00026-I
1 L	32 x 14.7 cm (12.6 x 5.77 in.)	ASI 26/77 SS00027-I
2 L	30.5 x 15.2 cm (12 x 6 in.)	ASI 26/77 SS00028-I

Size	Dimensions (L x W)	Cat. No.
100 mL	16 x 10 cm (6.3 x 3.9 in.)	ASI 26/77 SS00034-I
250 mL	16 x 13.5 cm (6.3 x 5.3 in.)	ASI 26/77 SS00035-I
500 mL	25.8 x 13.7 cm (10.2 x 5.4 in.)	ASI 26/77 SS00036-I
1 L	32 x 14.7 cm (12.6 x 5.77 in.)	ASI 26/77 SS00037-I
2 L	30.5 x 15.2 cm (12 x 6 in.)	ASI 26/77 SS00038-I

Size	Dimensions (L x W)	Cat. No.
100 mL	16 x 10 cm (6.3 x 3.9 in.)	ASI 26/77 SS00029-I
250 mL	16 x 13.5 cm (6.3 x 5.3 in.)	ASI 26/77 SS00030-I
500 mL	25.8 x 13.7 cm (10.2 x 5.4 in.)	ASI 26/77 SS00031-I
1 L	32 x 14.7 cm (12.6 x 5.77 in.)	ASI 26/77 SS00032-I
2 L	30.5 x 15.2 cm (12 x 6 in.)	ASI 26/77 SS00033-I

## 2D Labtainer BPCs constructed with ASI 26/77 film

## 3 ports

**Line 1**

MPC insert with 9.7 mm (3/8 in.) barb, cap, and pinch clamp  
 Tubing: C-Flex 374, length: 30 cm (12 in.)  
 ID x OD: 9.7 x 16 mm (0.38 x 0.63 in.)

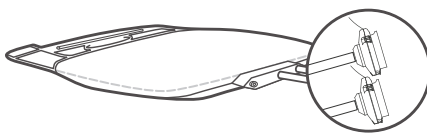
**Line 2**

MPC body with 9.7 mm (3/8 in.) barb, plug, and pinch clamp  
 Tubing: C-Flex 374, length: 30 cm (12 in.)  
 ID x OD: 9.7 x 16 mm (0.38 x 0.63 in.)

**Line 3**

Injection port

## 3 ports

**Line 1**

ReadyMate connector and pinch clamp  
 Tubing: C-Flex 374, length: 30 cm (12 in.)  
 ID x OD: 9.7 x 16 mm (0.38 x 0.63 in.)

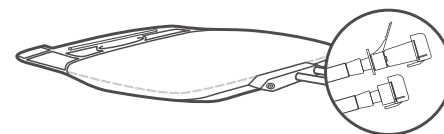
**Line 2**

ReadyMate connector and pinch clamp  
 Tubing: C-Flex 374, length: 30 cm (12 in.)  
 ID x OD: 9.7 x 16 mm (0.38 x 0.63 in.)

**Line 3**

Injection port

## 3 ports

**Line 1**

Kleenpak insert and pinch clamp  
 Tubing: C-Flex 374, length: 30 cm (12 in.)  
 ID x OD: 9.7 x 16 mm (0.38 x 0.63 in.)

**Line 2**

Kleenpak body and pinch clamp  
 Tubing: C-Flex 374, length: 30 cm (12 in.)  
 ID x OD: 9.7 x 16 mm (0.38 x 0.63 in.)

**Line 3**

Injection port

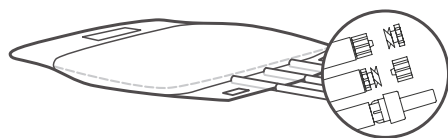
Size	Dimensions (L x W)	Cat. No.
5 L	32 x 31.6 cm (12.6 x 12.4 in.)	ASI 26/77 SS00039-I
10 L	32 x 56.5 cm (12.6 x 22.3 in.)	ASI 26/77 SS00040-I
20 L	42.6 x 63.5 cm (16.8 x 25 in.)	ASI 26/77 SS00041-I

Size	Dimensions (L x W)	Cat. No.
5 L	32 x 31.6 cm (12.6 x 12.4 in.)	ASI 26/77 SS00106-I
10 L	32 x 56.5 cm (12.6 x 22.3 in.)	ASI 26/77 SS00107-I
20 L	42.6 x 63.5 cm (16.8 x 25 in.)	ASI 26/77 SS00108-I

Size	Dimensions (L x W)	Cat. No.
5 L	32 x 31.6 cm (12.6 x 12.4 in.)	ASI 26/77 SS00112-I
10 L	32 x 56.5 cm (12.6 x 22.3 in.)	ASI 26/77 SS00113-I
20 L	42.6 x 63.5 cm (16.8 x 25 in.)	ASI 26/77 SS00114-I

## 2D Labtainer BPCs constructed with ASI 28 film

### 3 ports



#### Line 1

Luer lock insert connection with 4.8 mm (3/16 in.) barb and cap

Tubing: EVA

ID x OD: 6.0 x 7.9 mm (0.24 x 0.31 in.)

#### Line 2

Luer lock body connection with 4.8 mm (3/16 in.) barb and plug

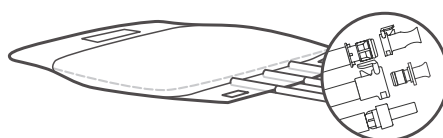
Tubing: EVA

ID x OD: 6.0 x 7.9 mm (0.24 x 0.31 in.)

#### Line 3

Tubing: EVA, injection port

### 3 ports



#### Line 1

MPC insert with 6.4 mm (1/4 in.) barb and cap

Tubing: EVA + C-Flex 374

ID x OD: 6.0 x 7.9 mm (0.24 x 0.31 in.)

#### Line 2

MPC body with 6.4 mm (1/4 in.) barb and plug

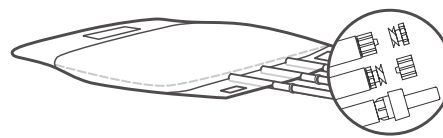
Tubing: EVA

ID x OD: 6.0 x 7.9 mm (0.24 x 0.31 in.)

#### Line 3

Tubing: EVA, injection port

### 3 ports



#### Line 1

Luer lock insert connection with 4.1 mm (5/32 in.) barb, cap, slide clamp, and

4.8 x 4.1 mm (3/16 x 5/32 in.) reducer

Tubing: EVA + C-Flex 374,

length: 30 cm (12 in.)

ID x OD: 3.2 x 6.4 mm (0.13 x 0.25 in.)

#### Line 2

Luer lock body connection with 4.1 mm

(5/32 in.) barb, plug, slide clamp, and

4.8 x 4.1 mm (3/16 x 5/32 in.) reducer

Tubing: EVA + C-Flex 374,

length: 30 cm (12 in.)

ID x OD: 3.2 x 6.4 mm (0.13 x 0.25 in.)

#### Line 3

Tubing: EVA, injection port

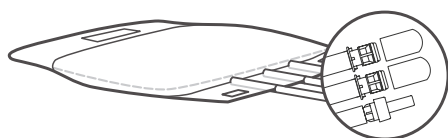
Size	Dimensions (L x W)	Cat. No.
100 mL	12.7 x 9.1 cm (5 x 3.6 in.)	ASI 28 SS00001-I
250 mL	16.5 x 12.5 cm (6.5 x 4.9 in.)	ASI 28 SS00002-I
500 mL	20.3 x 16.5 cm (8 x 6.5 in.)	ASI 28 SS00003-I
1 L	24.9 x 19.8 cm (9.8 x 7.8 in.)	ASI 28 SS00004-I
2 L	33.3 x 20.3 cm (13.1 x 8 in.)	ASI 28 SS00005-I

Size	Dimensions (L x W)	Cat. No.
100 mL	12.7 x 9.1 cm (5 x 3.6 in.)	ASI 28 SS00011-I
250 mL	16.5 x 12.5 cm (6.5 x 4.9 in.)	ASI 28 SS00012-I
500 mL	20.3 x 16.5 cm (8 x 6.5 in.)	ASI 28 SS00013-I
1 L	24.9 x 19.8 cm (9.8 x 7.8 in.)	ASI 28 SS00014-I
2 L	33.3 x 20.3 cm (13.1 x 8 in.)	ASI 28 SS00015-I

Size	Dimensions (L x W)	Cat. No.
100 mL	12.7 x 9.1 cm (5 x 3.6 in.)	ASI 28 SS00006-I
250 mL	16.5 x 12.5 cm (6.5 x 4.9 in.)	ASI 28 SS00007-I
500 mL	20.3 x 16.5 cm (8 x 6.5 in.)	ASI 28 SS00008-I
1 L	24.9 x 19.8 cm (9.8 x 7.8 in.)	ASI 28 SS00009-I
2 L	33.3 x 20.3 cm (13.1 x 8 in.)	ASI 28 SS00010-I

## 2D Labtainer BPCs constructed with ASI 28 film

## 3 ports

**Line 1**

MPC Insert with 6.4 mm (1/4 in.) barb and cap  
Tubing: EVA  
ID x OD: 6.0 x 7.9 mm (0.24 x 0.31 in.)

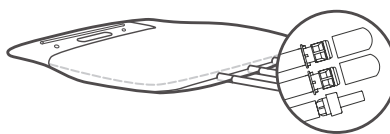
**Line 2**

MPC Insert with 6.4 mm (1/4 in.) barb and cap  
Tubing: EVA  
ID x OD: 6.0 x 7.9 mm (0.24 x 0.31 in.)

**Line 3**

Tubing: EVA, injection port

## 3 ports

**Line 1**

MPC insert with 9.7 mm (3/8 in.) barb, cap,  
and pinch clamp  
Tubing: EVA  
ID x OD: 9.7 x 12.1 mm (0.38 x 0.48 in.)

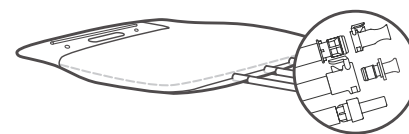
**Line 2**

MPC insert with 9.7 mm (3/8 in.) barb, cap,  
and pinch clamp  
Tubing: EVA  
ID x OD: 9.7 x 12.1 mm (0.38 x 0.48 in.)

**Line 3**

Tubing: EVA, injection port  
ID x OD: 6.1 x 8.1 mm (0.24 x 0.32 in.)

## 3 ports

**Line 1**

MPC insert with 9.7 mm (3/8 in.) barb, cap,  
and pinch clamp  
Tubing: EVA  
ID x OD: 9.7 x 12.1 mm (0.38 x 0.48 in.)

**Line 2**

MPC body with 9.7 mm (3/8 in.) barb, plug,  
and pinch clamp  
Tubing: EVA  
ID x OD: 9.7 x 12.1 mm (0.38 x 0.48 in.)

**Line 3**

Tubing: EVA, injection port  
ID x OD: 6.1 x 8.1 mm (0.24 x 0.32 in.)

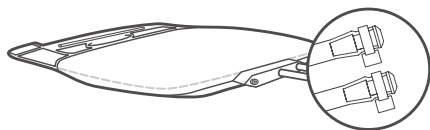
Size	Dimensions (L x W)	Cat. No.
100 mL	12.7 x 9.1 cm (5 x 3.6 in.)	ASI 28 SS00066-I
250 mL	16.5 x 12.5 cm (6.5 x 4.9 in.)	ASI 28 SS00067-I
500 mL	20.3 x 16.5 cm (8 x 6.5 in.)	ASI 28 SS00068-I
1 L	24.9 x 19.8 cm (9.8 x 7.8 in.)	ASI 28 SS00069-I
2 L	33.3 x 20.3 cm (13.1 x 8 in.)	ASI 28 SS00070-I

Size	Dimensions (L x W)	Cat. No.
5 L	31.5 x 32.0 cm (12.4 x 12.6 in.)	ASI 28 SS00071-I
10 L	56.6 x 32.5 cm (22.3 x 12.8 in.)	ASI 28 SS00072-I
20 L	63.3 x 42.7 cm (24.9 x 16.8 in.)	ASI 28 SS00073-I
50 L	69.3 x 58.4 cm (27.3 x 23 in.)	ASI 28 SS00074-I

Size	Dimensions (L x W)	Cat. No.
5 L	31.5 x 32.0 cm (12.4 x 12.6 in.)	ASI 28 SS00016-I
10 L	56.6 x 32.5 cm (22.3 x 12.8 in.)	ASI 28 SS00017-I
20 L	63.3 x 42.7 cm (24.9 x 16.8 in.)	ASI 28 SS00018-I
50 L	69.3 x 58.4 cm (27.3 x 23 in.)	ASI 28 SS00019-I

## 2D Labtainer BPCs constructed with ASI 26/77 and ASI 28 films

### 3 ports



#### Line 1

Plug 6.4 mm (1/4 in.) and pinch clamp  
Tubing: C-Flex 374, length: 30 cm (12 in.)  
ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

#### Line 2

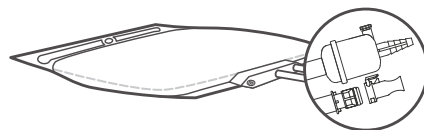
Plug 6.4 mm (1/4 in.) and pinch clamp  
Tubing: C-Flex 374, length: 30 cm (12 in.)  
ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

#### Line 3

Injection port

Size	Dimensions (L x W)	Cat. No.
5 L	32 x 31.6 cm (12.6 x 12.4 in.)	ASI 26/77 SS00118-I
10 L	32 x 56.5 cm (12.6 x 22.3 in.)	ASI 26/77 SS00119-I
20 L	42.6 x 63.5 cm (16.8 x 25 in.)	ASI 26/77 SS00120-I

### 3 ports



#### Line 1

0.2 µm PES membrane capsule filter and pinch clamp  
Tubing: C-Flex 374, length: 30 cm (12 in.)  
ID x OD: 9.7 x 16 mm (0.38 x 0.63 in.)

#### Line 2

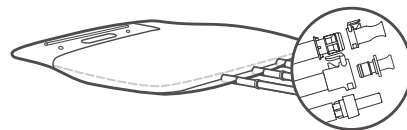
MPC insert with cap and pinch clamp  
Tubing: C-Flex 374, length: 91.4 cm (36 in.)  
ID x OD: 9.7 x 16 mm (0.38 x 0.63 in.)

#### Line 3

Injection port

Size	Dimensions (L x W)	Cat. No.
1 L	24.9 x 19.8 cm (9.8 x 7.8 in.)	ASI 26/77 SS00158-I
5 L	32 x 31.6 cm (12.6 x 12.4 in.)	ASI 26/77 SS00159-I
10 L	32 x 56.5 cm (12.6 x 22.3 in.)	ASI 26/77 SS00160-I
20 L	42.6 x 63.5 cm (16.8 x 25 in.)	ASI 26/77 SS00161-I

### 3 ports



#### Line 1

MPC insert with 9.7 mm (3/8 in.) barb, cap, pinch clamp, and 9.7 mm (3/8 in.) connector  
Tubing: EVA + C-Flex 374, length: 30 cm (12 in.)  
ID x OD: 9.7 x 16 mm (0.38 x 0.63 in.)

#### Line 2

MPC body with 9.7 mm (3/8 in.) barb, cap, pinch clamp, and 9.7 mm (3/8 in.) connector  
Tubing: EVA, length: 30 cm (12 in.)  
ID x OD: 9.7 x 16 mm (0.38 x 0.63 in.)

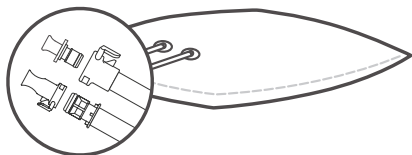
#### Line 3

Tubing: EVA, injection port

Size	Dimensions (L x W)	Cat. No.
5 L	31.5 x 32.0 cm (12.4 x 12.6 in.)	ASI 28 SS00020-I
10 L	56.6 x 32.5 cm (22.3 x 12.8 in.)	ASI 28 SS00021-I
20 L	63.3 x 42.7 cm (24.9 x 16.8 in.)	ASI 28 SS00022-I
50 L	69.3 x 58.4 cm (27.3 x 23 in.)	ASI 28 SS00023-I

## 2D Labtainer BPCs configured for Accent plastic drums

## 2 ports

**Line 1**

MPC insert with 9.7 mm (3/8 in.) barb, cap, and pinch clamp

Tubing: silicone, length: 51 cm (20 in.)

ID x OD: 9.5 x 15.9 mm (0.38 x 0.63 in.)

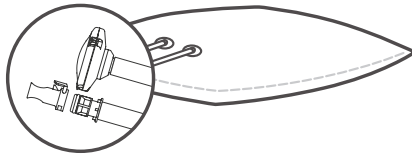
**Line 2**

MPC body with 9.7 mm (3/8 in.) barb, plug, and pinch clamp

Tubing: silicone, length: 51 cm (20 in.)

ID x OD: 9.5 x 15.9 mm (0.38 x 0.63 in.)

## 2 ports

**Line 1**

MPX insert with 12.7 mm (1/2 in.) barb, cap, and pinch clamp

Tubing: silicone, length: 51 cm (20 in.)

ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

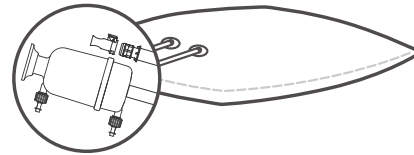
**Line 2**

ReadyMate connector with 12.7 mm (1/2 in.) barb and pinch clamp

Tubing: silicone, length: 91.4 cm (36 in.)

ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

## 2 ports

**Line 1**

0.2 µm PES membrane capsule filter and pinch clamp

Tubing: C-Flex 374, length: 91.4 cm (36 in.)

ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

**Line 2**

MPC insert with cap and pinch clamp

Tubing: C-Flex 374, length: 91.4 cm (36 in.)

ID x OD: 9.5 x 16 mm (0.38 x 0.63 in.)

Size	Outer container Cat. No.	Cat. No.
50 L	TK-0050-05	ASI 26/77 SS00103-I
100 L	TK-0100-05	ASI 26/77 SS00104-I
200 L	TK-0200-05	ASI 26/77 SS00105-I

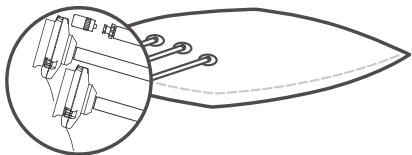
Size	Outer container Cat. No.	Cat. No.
50 L	TK-0050-05	ASI 26/77 SS00155-I
100 L	TK-0100-05	ASI 26/77 SS00156-I
200 L	TK-0200-05	ASI 26/77 SS00157-I

Size	Outer container Cat. No.	Cat. No.
50 L	TK-0050-05	ASI 26/77 SS00162-I
100 L	TK-0100-05	ASI 26/77 SS00163-I
200 L	TK-0200-05	ASI 26/77 SS00164-I



## 2D Labtainer BPCs configured for Accent plastic drums

### 3 ports



#### Line 1

ReadyMate connector and pinch clamp  
 Tubing: C-Flex, length: 51 cm (20 in.)  
 ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.)

#### Line 2

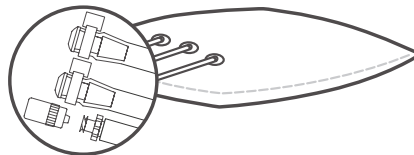
ReadyMate connector and pinch clamp  
 Tubing: C-Flex, length: 51 cm (20 in.)  
 ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.)

#### Line 3

Tubing: C-Flex, length 7.6 cm (3 in.),  
 6.4 mm (0.25 in.) Luer injection port

Size	Outer container Cat. No.	Cat. No.
50 L	TK-0050-05	ASI 26/77 SS00109-I
100 L	TK-0100-05	ASI 26/77 SS00110-I
200 L	TK-0200-05	ASI 26/77 SS00111-I

### 3 ports



#### Line 1

Plug 6.4 mm (0.25 in.) and pinch clamp  
 Tubing: C-Flex 374, length: 51 cm (20 in.)  
 ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

#### Line 2

Plug 6.4 mm (0.25 in.) and pinch clamp  
 Tubing: C-Flex 374, length: 51 cm (20 in.)  
 ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

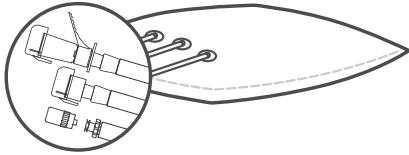
#### Line 3

Luer injection port  
 Tubing: C-Flex, length: 7.6 cm (3 in.)

Size	Outer container Cat. No.	Cat. No.
50 L	TK-0050-05	ASI 26/77 SS00121-I
100 L	TK-0100-05	ASI 26/77 SS00122-I
200 L	TK-0200-05	ASI 26/77 SS00123-I

## 2D Labtainer BPCs configured for Accent plastic drums

### 3 ports



#### Line 1

Kleenpak insert and pinch clamp  
 Tubing: C-Flex, length: 51 cm (20 in.)  
 ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.)

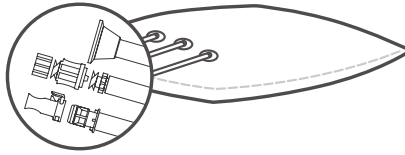
#### Line 2

Kleenpak body and pinch clamp  
 Tubing: C-Flex, length: 51 cm (20 in.)  
 ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.)

#### Line 3

Tubing: C-Flex, length: 7.6 cm (3 in.),  
 6.4 mm (0.25 in.) Luer injection port

### 3 ports



#### Line 1

MPX insert with 12.7 mm (1/2 in.) barb, cap,  
 and pinch clamp  
 Tubing: C-Flex 374, length: 152.4 cm (60 in.)  
 ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

#### Line 2

Luer lock body connection with 4.1 mm  
 (5/32 in.)  
 barb, cap, and pinch clamp  
 Tubing: C-Flex 374, length: 101.6 cm (40 in.)  
 ID x OD: 3.2 x 19.1 mm (0.13 x 0.75 in.)

#### Line 3

Ladish tri-clover with 12.7 mm (1/2 in.) barb  
 and pinch clamp  
 Tubing: C-Flex 374, length: 152.4 cm (60 in.)  
 ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

Size	Outer container Cat. No.	Cat. No.
50 L	TK-0050-05	ASI 26/77 SS00115-I
100 L	TK-0100-05	ASI 26/77 SS00116-I
200 L	TK-0200-05	ASI 26/77 SS00117-I

Size	Outer container Cat. No.	Cat. No.
50 L	TK-0050-05	ASI 26/77 SS00152-I
100 L	TK-0100-05	ASI 26/77 SS00153-I
200 L	TK-0200-05	ASI 26/77 SS00154-I

# Labtainer BPC tote

Storage and handling is simplified with the Labtainer Pro tote. Designed to protect single-use BPCs, the tote can be used in a wide range of applications. The tote was designed with a sloped bottom for improved draining, and for the larger scale, a kickstand is included to aid in draining. There is also a tubing access window, allowing for access while stacked or in light sensitive applications the lid can remain on. The tote can be used with both the Labtainer Pro and Labtainer BPCs.

- Compatible with 2D BPCs up to 20 L in volume
- Made of durable high-grade HDPE material
- Nesting capability for easy storage
- Stackable for better utilization of space
- Provides UV protection to BPCs



## Labtainer BPC tote specifications

Description	Cat. No.
Small tote with lid (5 L and smaller)	SV30200.01
Large tote with lid and kickstand (10 L and 20 L)	SV30200.02



# Three60 Single-Use Sampling System

The simple design behind the Thermo Scientific™ Three60™ Sampling System provides the ability to take a representative product sample with minimal effort. For a small volume liquid transfer, CIP or SIP process is utilized to prepare the tank. The pre-irradiated BPCs and assemblies help ensure an integral fluid path while the quick-turn valve and pinch-and-cut disconnectors maintain liquid transfer and removal from BPCs.



With the Three60 Single-Use Sampling System, there are no parts to be assembled, disassembled, or cleaned, and unlike other single-use sampling systems, no additional tools are needed. The entire set can be easily applied to any fluid holding vessel or transfer line and four samples can be removed in only a few minutes.

The Three60 system is compatible with a variety of vessels through a sanitary connector; no expensive hardware is needed. Each Three60 system package contains a valve and four assemblies with pinch-and-cut disconnectors.

## Kit to tank

The Three60 system is pre-irradiated and assembled into a one-piece kit. Simply remove the device from the kit and apply to the vessel.

- **Quick-turn Three60™ valve**—the face of the Three60 valve can be sterilized with the tank through traditional CIP/SIP processes. The valve has four assemblies. This helps keep the product and technician contamination-free.
- **Pinch-and-cut disconnectors**—allow the technician to quickly separate the sample and eliminate the need for tools or tube sealing.
- **Injection ports**—Luer lock injection site; extract through either the septum or twist-off Luer lock to pour.
- **Pre-irradiated BPC assemblies**—provided with pre-irradiated BPC assemblies in sizes ranging from 50 mL to 2 L produced using the ASI 77 film.

## Ordering information

Description	Cat. No.
<b>Three60 sampling BPCs</b>	
50 mL, 2-port sampling BPC	B100563-I
100 mL, 2-port sampling BPC	B100564-I
250 mL, 2-port sampling BPC	B100565-I
500 mL, 2-port sampling BPC	B100566-I
1 L, 2-port sampling BPC	B100567-I
<b>Three60 sampling systems</b>	
50 mL Three60 sampling system with 4 x 2-port sampling BPCs	4MP0034
100 mL Three60 sampling system with 4 x 2-port sampling BPCs	4MP0035
250 mL Three60 sampling system with 4 x 2-port sampling BPCs	4MP0036
500 mL Three60 sampling system with 4 x 2-port sampling BPCs	4MP0037
1 L Three60 sampling system with 4 x 2-port sampling BPCs	4MP0038
2 L Three60 sampling system with 4 x 2-port sampling BPCs	4MP0039

# Harvestainer Microcarrier Separation System

The Thermo Scientific™ Harvestainer™ BPC System is a closed, single-use microcarrier separation system that is designed to enable separation of microcarrier beads from cell culture supernatant in a single-step.

## Unique design features

The Harvestainer system helps to increase product yields compared to traditional methods, while reducing clean-in-place and steam-in-place requirements.

The Harvestainer system is designed for both small- and large-scale microcarrier separation applications. The 3 L and 12 L Harvestainer systems are ideal for separating small volumes (12 L or less) of cell culture supernatant and microcarrier beads. These systems are designed around our 2D pillow-style BPC in a preassembled tray, designed for secondary containment and optimal supernatant recovery.



The large-scale Harvestainer system features a dual-chamber system that comprises a 200 L 3D Productainer BPC with either one or two interior 25 L microbarrier 2D Labtainer BPCs. These unique design features help enable the separation of cell culture supernatant and microcarrier beads.

## Harvestainer BPCs

Description	Size	Inner BPC	Cat. No.
Harvestainer system	3 L	NA	SH31078.01
Harvestainer system	12 L	NA	SH31078.02
Top-drain Harvestainer system with single 25 L microbarrier BPC	25 L	1 x 25 L	SH31071.01
Top-drain Harvestainer system with dual 25 L microbarrier BPCs	50 L	2 x 25 L	SH31071.02

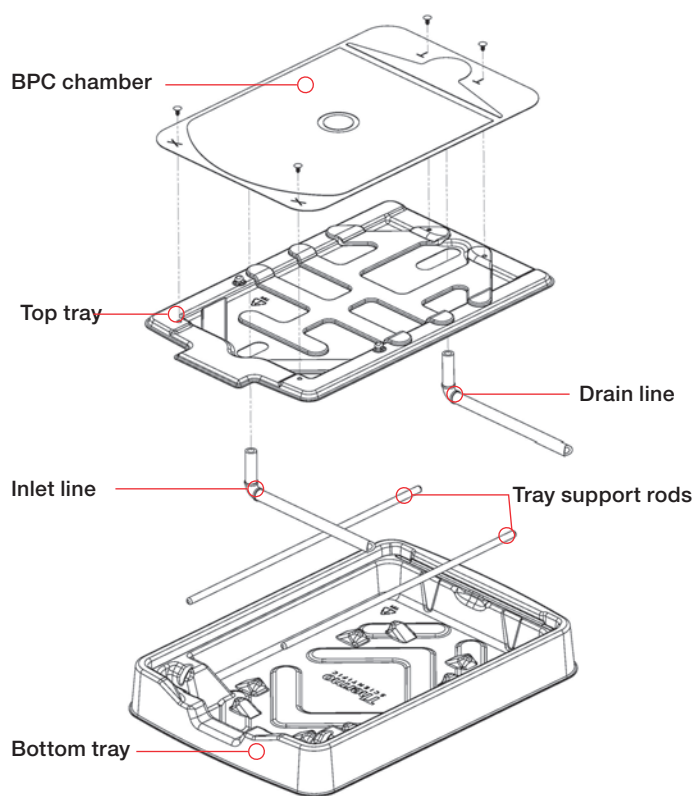
## Accessories

Description	Cat. No.
Polyethylene drum, bottom-drain, with lid, latches, and cap plug	SV50517.07
Drum dolly, 61.91 x 18.09 cm (24.38 x 7.13 in.) (D x H)	SV50029.03

## 2D Harvestainer design features

Use the 3 L or 12 L Harvestainer system when separating small volumes of cell culture supernatant and microcarrier beads (12 L or less). This system consists of a preassembled 2D BPC and tray, which acts as a secondary containment device. The Harvestainer system consists of four parts:

- **Bioprocess Container (BPC)**—composed of three layers; the outer two layers are constructed of Thermo Scientific™ CX5-14 film with the inner layer constructed of the polyester mesh
- **Inlet and drain lines**—for easy system connection, these lines are made of weldable 3/8 x 5/8 in. C-Flex tubing with a 3/8 in. quick-connect body on the inlet line and a 3/8 in. quick-connect insert on the drain line
- **Support rods**—the Harvestainer system support rods are designed to angle the Harvestainer BPC for optimal drainage and improve recovery rates
- **Top support tray and bottom containment tray**—the support trays are made of polyethylene terephthalate (PETG) material; the top tray is designed to support the Harvestainer BPC while the bottom tray acts as a storage tray, bottom support, and secondary containment



12 L Harvestainer tray and BPC system

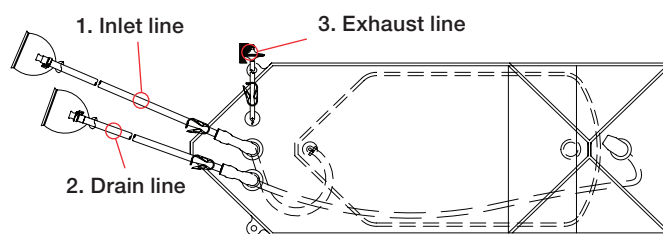
## 3 L and 12 L Harvestainer BPC specifications

Description	3 L	12 L
Tray dimensions (H x W x D)	7.11 x 36.6 x 55.25 cm (2.8 x 15.2 x 21.75 in.)	7.59 x 57.09 x 81.28 cm (2.99 x 22.48 x 32.0 in.)
Chamber dimensions (H x W)	46.94 x 28.96 cm (18.5 x 11.4 in.)	70.36 x 50.04 cm (27.7 x 19.7 in.)
Chamber weight	0.11 kg (0.25 lb)	0.25 kg (0.56 lb)
Chamber surface area	2,303 cm <sup>2</sup> (357 in <sup>2</sup> )	5,909 cm <sup>2</sup> (916 in <sup>2</sup> )
Mesh surface area	1,000 cm <sup>2</sup> (155 in <sup>2</sup> )	2,710 cm <sup>2</sup> (420 in <sup>2</sup> )
Tray material thickness	0.18 cm (0.050 in.)	0.18 cm (0.050 in.)
Tray material type	PETG	
BPC inlet line	C-Flex tubing; ID x OD: 9.53 x 16.0 mm (3/8 x 5/8 in.) Polycarbonate quick connect 9.53 mm (3/8 in.) MPC body and MPC cap	
BPC drain line	C-Flex tubing; ID x OD: 9.53 x 16.0 mm (3/8 x 5/8 in.) Polycarbonate quick connect 9.53 mm (3/8 in.) MPC insert and MPC plug	

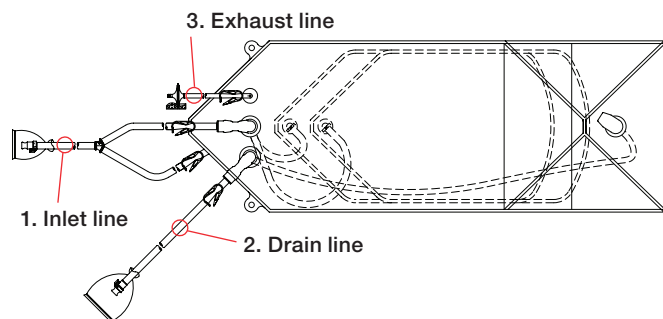
### 3D Harvestainer design features

For large-scale applications, when more than 12 L of microcarrier beads require separation, the 25 L or 50 L Harvestainer system is recommended for in-process microcarrier separation workflows. This system consists of a 200 L 3D BPC with inner 25 L microbarrier 2D BPCs that fits into a conical bottom drum as the secondary containment device. The BPC features a dip tube design for better drainage and minimal manipulation.

- **BioProcess Container (BPC)**—a dual-chamber system composed of a 200 L 3D BPC with either one or two interior 25 L microbarrier 2D Labtainer BPCs
- **Microcarrier inlet line**—for easy system connection, the inlet line is made of weldable 1/2 x 5/8 in. C-Flex tubing with a 1/2 in. quick-connect insert on the inlet line
- **Drain line**—for easy system connection, the drain line is made of weldable 1/2 x 5/8 in. C-Flex tubing with a 1/2 in. quick-connect body; the dip tube drain line is connected to a dipwell and placed in a conical bottom drum to allow for optimal drainage and secondary containment with the top drain feature
- **Exhaust line**—exhaust line to be used for inflation of the Harvestainer BPC for setup and allows for air displacement during the separation process



25 L Harvestainer system (1 x 25 L microbarrier BPC)



50 L Harvestainer system (2 x 25 L microbarrier BPCs)

### 25 L and 50 L Harvestainer BPC specifications

Description	25 L	50 L
Chamber dimensions (H x W x D)	137.16 x 48.26 x 48.26 cm (54 x 19 x 19 in.)	137.16 x 48.26 x 48.26 cm (54 x 19 x 19 in.)
Chamber weight	2.36 kg (5.2 lb)	2.90 kg (6.4 lb)
Chamber surface area	20,923 cm <sup>2</sup> (3,243 in <sup>2</sup> )	20,923 cm <sup>2</sup> (3,243 in <sup>2</sup> )
Mesh surface area	30,000 cm <sup>2</sup> (465 in <sup>2</sup> )	60,000 cm <sup>2</sup> (930 in <sup>2</sup> )
Line descriptions	Line set	End treatment
<b>1. Inlet line</b>	C-Flex tubing ID x OD: 12.7 x 16.0 mm (1/2 x 5/8 in.)	Polycarbonate quick connect 12.7 mm (1/2 in.) MPX insert Polycarbonate quick connect MPX cap
<b>2. Drain line</b>	C-Flex tubing ID x OD: 12.7 x 16.0 mm (1/2 x 5/8 in.)	Polycarbonate quick connect 12.7 mm (1/2 in.) MPX body Polycarbonate quick connect MPX plug
<b>3. Exhaust line</b>	C-Flex tubing ID x OD: 6.35 x 9.7 mm (1/4 x 3/8 in.)	Pall™ gas filter

# Powdertainer BPC systems

Thermo Scientific™ Powdertainer™ BPCs are specifically designed for powder containment and discharge applications, and maintain a closed system for maximum recovery of powder while minimizing the risk of cross-contamination.

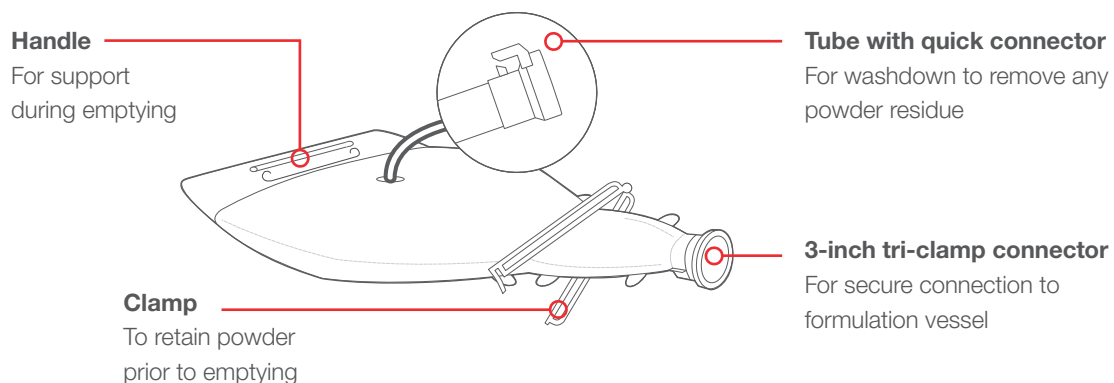
## Key features

- Designed for powder containment and powder hydration applications
- Employ a closed system to help minimize dust contaminant and cross-contamination risk
- Three-inch tri-clamp port designed for secure connection to, and easy integration with, hydration vessels
- Suspensor handle for support during discharge and neck clamp to retain powder prior to discharge
- Two models, including one with a washdown line to remove residual powder, enabling maximal recovery
- Three sizes for process flexibility: 1, 5, and 25 kg
- Constructed from CX3-9 film
- Stainless steel filling stand to facilitate the powder discharge process



## Applications

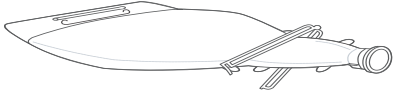
- Storage and delivery of powder culture media and buffers
- Storage and dispensing of preweighed chemicals or other process powders





# Powdertainer BPC system specifications and accessories

## Powdertainer II BPC, 1 port



### Washdown line

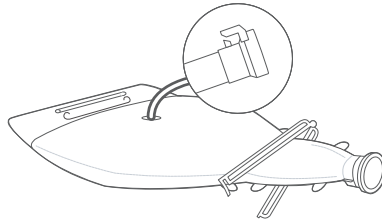
NA

### Powder port

7.6 cm (3 in.) tri-clamp with integrated seal

Size	Dimensions (L x W)	Cat. No.
1 kg	42.7 x 31.8 cm (16.8 x 12.5 in.)	<b>CX3-9</b> SH30864.01
5 kg	56.1 x 36.3 cm (22.1 x 14.3 in.)	<b>CX3-9</b> SH30864.02
25 kg	83.3 x 59.2 cm (32.8 x 23.3 in.)	<b>CX3-9</b> SH30864.03

## Powdertainer II BPC, 2 ports



### Washdown line

MPX insert, polycarbonate

Tubing: silicone, length: 20.3 cm (8 in.)

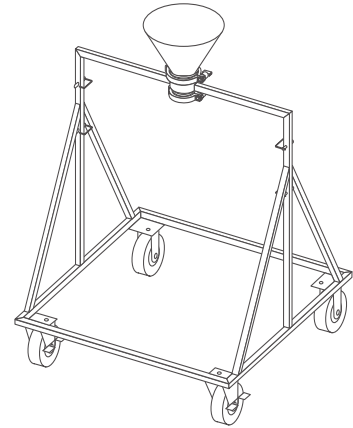
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

### Powder port

7.6 cm (3 in.) tri-clamp with integrated seal

Size	Dimensions (L x W)	Cat. No.
1 kg	42.7 x 31.8 cm (16.8 x 12.5 in.)	<b>CX3-9</b> SH30737.01
5 kg	56.1 x 36.3 cm (22.1 x 14.3 in.)	<b>CX3-9</b> SH30737.02
25 kg	83.3 x 59.2 cm (32.8 x 23.3 in.)	<b>CX3-9</b> SH30737.03

## Filling stand



### Materials

Stainless steel with casters

Dimensions (L x W)	Cat. No.
91.4 x 91.4 x 34.6 cm (36 x 36 x 53 in.)	SV50143.01
91.4 x 91.4 x 114.3 cm (36 x 36 x 45 in.)	SV50143.02



# 3D Productainer BPC systems

Thermo Scientific™ 3D Productainer™ BioProcess Container (BPC) systems are used for harvesting, handling, and storing large volumes of sterile process liquids such as buffers, culture media, and bulk drug precursors and substances. These Productainer systems are available in a range of sizes and configurations and can also be customized for optimal performance.

Our process capabilities enable many choices for the number, size, and location of ports. Chambers are available with options for both top and bottom drains.

## Key features

- Use these systems to eliminate post-use cleaning steps required with reusable containers, and to reduce cross-contamination risks
- All Productainer BPC systems are constructed in ISO 7–certified clean rooms under cGMP conditions
- All 3D Productainer BPCs are designed to fit the full range of support containers—both square and cylindrical, from 50 L to 3,000 L, which includes Thermo Scientific™ high-density polyethylene drums, Smartainer™ stainless steel systems, and square plastic totes

## Applications

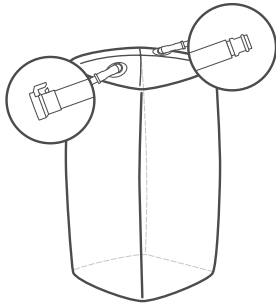
Whether you choose a standard or customized configuration, Productainer BPC systems are ideal for:

- Hydration and filtration of process buffers, liquids, and culture media
- Chromatography feed and fraction collection
- Storage and transport of bulk drug products and bulk drug precursors
- Harvesting from and feeding into bioreactors and fermentors
- Dispensing, packaging, and storage of cell culture media, buffers, and process liquids



# 3D Productainer BPCs—square tube with top port dispense

## 2 ports



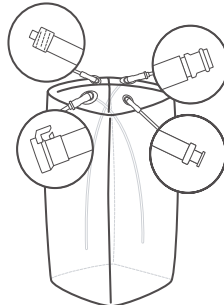
### Line 1

MPC insert, polycarbonate  
Tubing: C-Flex, length: 45.7 cm (18 in.)  
ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.)

### Line 2

MPC body, polycarbonate  
Tubing: C-Flex, length: 45.7 cm (18 in.)  
ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.)

## 4 ports



### Line 1

MPC insert, polycarbonate  
Tubing: C-Flex, length: 121.9 cm (48 in.)  
ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.),  
with dip tube length dependent on BPC size

### Line 2

Luer lock insert connection, polypropylene  
Tubing: C-Flex, length: 121.9 cm (48 in.)  
ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

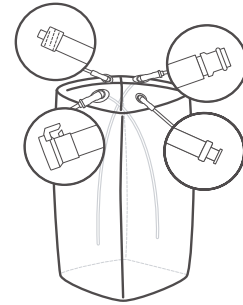
### Line 3

Luer lock body connection, polypropylene  
Tubing: C-Flex, length: 121.9 cm (48 in.)  
ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

### Line 4

MPC body, polycarbonate  
Tubing: C-Flex, length: 121.9 cm (48 in.)  
ID x OD: 9.7 x 15.9 mm (0.38 in. x 0.63 in.),  
dip tube length: 30.5 cm (12 in.)

## 4 ports



### Line 1

MPX insert, polycarbonate  
Tubing: C-Flex, length: 121.9 cm (48 in.)  
ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.),  
with dip tube length dependent on BPC size

### Line 2

Luer lock insert connection, polypropylene  
Tubing: C-Flex, length: 121.9 cm (48 in.)  
ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.)

### Line 3

Luer lock body connection, polypropylene  
Tubing: C-Flex, length: 121.9 cm (48 in.)  
ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

### Line 4

MPX body, polycarbonate  
Tubing: C-Flex, length: 121.9 cm (48 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.),  
dip tube length: 30.5 cm (12 in.)

Size	Outer container Cat. No.	Cat. No.
50 L	SV50076.02	Aegis5-14 SH30964.01
		CX5-14 SH30649.01
100 L	SV50076.03	Aegis5-14 SH30964.02
		CX5-14 SH30649.02
200 L	SV50076.04	Aegis5-14 SH30964.03
		CX5-14 SH30649.03

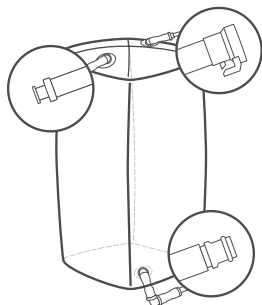
Size	Outer container Cat. No.	Cat. No.
50 L Dip tube: 38 cm (15 in.)	SV50076.02	Aegis5-14 SH30966.01
		CX5-14 SH30651.01
100 L Dip tube: 71 cm (28 in.)	SV50076.03	Aegis5-14 SH30966.02
		CX5-14 SH30651.02
200 L Dip tube: 81 cm (32 in.)	SV50076.04	Aegis5-14 SH30966.03
		CX5-14 SH30651.03

Size	Outer container Cat. No.	Cat. No.
50 L Dip tube: 38 cm (15 in.)	SV50076.02	Aegis5-14 SH30977.01
		CX5-14 SH30653.01
100 L Dip tube: 71 cm (28 in.)	SV50076.03	Aegis5-14 SH30977.02
		CX5-14 SH30653.02
200 L Dip tube: 81 cm (32 in.)	SV50076.04	Aegis5-14 SH30977.03
		CX5-14 SH30653.03

All dip tube lengths for the SKUs above are 9 cm (3.5 in.) or shorter.

# 3D Productainer BPCs—square tube with top and bottom port dispense

## 3 ports



### Line 1

MPX body, polycarbonate

Tubing: C-Flex, length: 45.7 cm (18 in.)

ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

### Line 2

Luer lock body connection, polypropylene

Tubing: C-Flex, length: 30.5 cm (12 in.)

ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

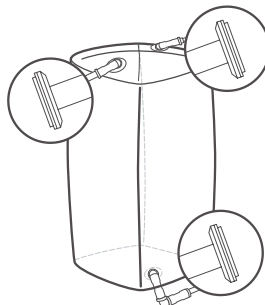
### Line 3

MPX insert, polycarbonate

Tubing: C-Flex, length: 121.9 cm (48 in.)

ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.),  
bottom port

## 3 ports



### Line 1

19.1 mm (0.75 in.) tri-clamp, polyethylene

Tubing: C-Flex, length: 45.7 cm (18 in.)

ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

### Line 2

19.1 mm (0.75 in.) tri-clamp, polyethylene

Tubing: C-Flex, length: 45.7 cm (18 in.)

ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

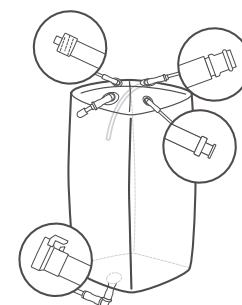
### Line 3

19.1 mm (0.75 in.) tri-clamp, polyethylene

Tubing: C-Flex, length: 121.9 cm (48 in.)

ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

## 5 ports



### Line 1

MPC insert, polycarbonate

Tubing: C-Flex, length: 121.9 cm (48 in.) dip tube

ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.),  
with dip tube length dependent on BPC size

### Line 2

Luer lock insert connection, polypropylene

Tubing: C-Flex, length: 121.9 cm (48 in.)

ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

### Line 3

Luer lock body connection, polypropylene

Tubing: C-Flex, length: 121.9 cm (48 in.)

ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

### Line 4

Plugged, no tubing

### Line 5

MPC body, polycarbonate

Tubing: silicone, length: 121.9 cm (48 in.)

ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.),  
bottom port

Size	Outer container Cat. No.	Cat. No.
50 L	SV50517.04	Aegis5-14 SH30967.01
		CX5-14 SH30650.01
100 L	SV50517.05	Aegis5-14 SH30967.02
		CX5-14 SH30650.02
200 L	SV50517.06	Aegis5-14 SH30967.03
		CX5-14 SH30650.03

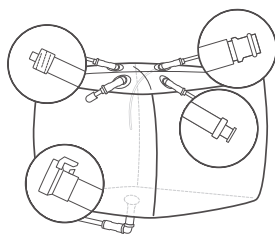
Size	Outer container Cat. No.	Cat. No.
50 L	SV50517.04	Aegis5-14 SH30968.01
		CX5-14 SH30672.01
100 L	SV50517.05	Aegis5-14 SH30968.02
		CX5-14 SH30672.02
200 L	SV50517.06	Aegis5-14 SH30968.03
		CX5-14 SH30672.03

Size	Outer container Cat. No.	Cat. No.
50 L Dip tube: 30.5 cm (12.5 in.)	SV50517.04	Aegis5-14 SH30969.01
		CX5-14 SH30652.01
100 L Dip tube: 30.5 cm (12.5 in.)	SV50517.05	Aegis5-14 SH30969.02
		CX5-14 SH30652.02
200 L Dip tube: 81 cm (32 in.)	SV50517.06	Aegis5-14 SH30969.03
		CX5-14 SH30652.03

# 3D Productainer BPCs—square tube with top and bottom port dispense

## 4–5 ports

Single pack



### Line 1

MPC insert, polycarbonate  
Tubing: C-Flex, length: 121.9 cm (48 in.)  
ID x OD: 9.7 x 15.9 mm (0.38 x 0.63 in.),  
dip tube length: 30.5 cm (12 in.)

### Line 2 & 3

Luer lock insert connection, polypropylene  
Tubing: C-Flex, length: 121.9 cm (48 in.)  
ID x OD: 6.4 x 9.7 mm (0.25 x 0.38 in.)

### Line 4

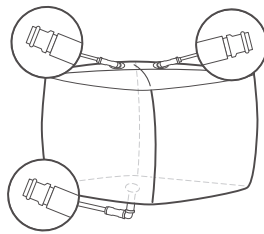
Plugged, no tubing

### Line 5

MPC body, polycarbonate  
Tubing: platinum-cured silicone,  
length: 121.9 cm (48 in.), ID x OD:  
9.7 x 15.9 mm (0.38 x 0.63 in.), bottom port

## 3 ports

Single pack



### Line 1

MPX insert, polycarbonate  
Tubing: platinum-cured silicone,  
length: 51 cm (20 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

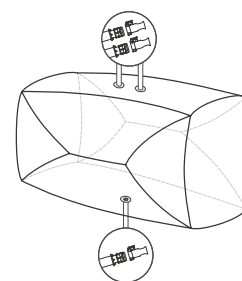
### Line 2

MPX insert, polycarbonate  
Tubing: platinum-cured silicone,  
length: 51 cm (20 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

### Line 3

MPX insert, polycarbonate  
Tubing: platinum-cured silicone,  
length: 51 cm (20 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.),  
bottom port

## 3 ports



### Line 1

MPX insert with cap and pinch clamp  
Tubing: silicone, length: 51 cm (20 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

### Line 2

MPX insert with cap and pinch clamp  
Tubing: silicone, length: 51 cm (20 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

### Line 3

MPX insert with cap and pinch clamp  
Tubing: silicone, length: 51 cm (20 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

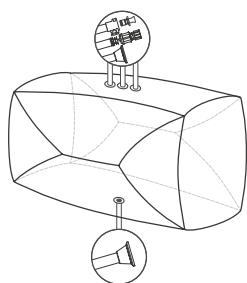
Size	Outer container Cat. No.	Cat. No.
500 L	SV50160.02	Aegis5-14 SH30969.04
		CX5-14 SH30652.04
1,000 L	SV50160.03	Aegis5-14 SH30969.05
		CX5-14 SH30652.05
1,500 L	SV50160.04	Aegis5-14 SH30969.06
		CX5-14 SH30652.06
2,000 L	SV50160.05	Aegis5-14 SH30969.08
		CX5-14 SH30652.08

Size	Outer container Cat. No.	Cat. No.
100 L	SV50160.01	Aegis5-14 SH31047.01
		CX5-14 SH30717.01
200 L	SV50160.01	Aegis5-14 SH31047.02
		CX5-14 SH30717.02
500 L	SV50160.02	Aegis5-14 SH31047.03
		CX5-14 SH30717.03

Size	Outer container Cat. No.	Cat. No.
100 L	TK10001	ASI 26/77 SS00165-I
200 L	TK10002	ASI 26/77 SS00166-I
500 L	TK10003	ASI 26/77 SS00167-I
1,000 L	TK10004	ASI 26/77 SS00168-I
1,000 L (wide)	TK10005	ASI 26/77 SS00181-I

# 3D Productainer BPCs—square tube with top and bottom port dispense

## 4 ports



### Line 1

MPX insert with cap and pinch clamp  
Tubing: C-Flex, length: 152.4 cm (60 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

### Line 2

Luer lock body connection with valve, cap, and pinch clamp  
Tubing: C-Flex, length: 101.6 cm (40 in.)  
ID x OD: 3.16 x 6.4 mm (0.125 x 0.25 in.)

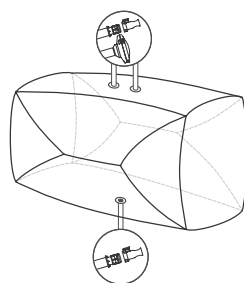
### Line 3

Ladish tri-clover and pinch clamp  
Tubing: C-Flex, length: 152.4 cm (60 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

### Line 4

Ladish tri-clover and pinch clamp  
Tubing: C-Flex, length: 152.4 cm (60 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

## 3 ports



### Line 1

MPX insert with cap and pinch clamp  
Tubing: silicone, length: 50.8 cm (20 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

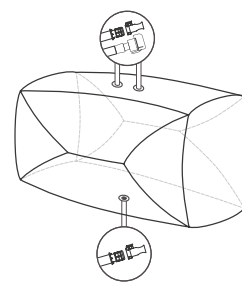
### Line 2

ReadyMate connector with 12.7 cm (0.5 in.) barb, and pinch clamp  
Tubing: silicone, length: 91.4 cm (36 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

### Line 3

MPX insert with cap and pinch clamp  
Tubing: silicone, length: 50.8 cm (20 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

## 3 ports



### Line 1

MPX insert with cap and pinch clamp  
Tubing: silicone, length: 50.8 cm (20 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

### Line 2

Kleenpak body connector with 12.7 cm (0.5 in.) barb and pinch clamp  
Tubing: silicone, length: 91.4 cm (36 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

### Line 3

MPX insert with cap and pinch clamp  
Tubing: silicone, length: 50.8 cm (20 in.)  
ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)

Size	Outer container Cat. No.	Cat. No.
100 L	TK10001	ASI 26/77 SS00169-I
200 L	TK10002	ASI 26/77 SS00170-I
500 L	TK10003	ASI 26/77 SS00171-I
1,000 L	TK10004	ASI 26/77 SS00172-I
1,000 L (wide)	TK10005	ASI 26/77 SS00182-I

Size	Outer container Cat. No.	Cat. No.
100 L	TK10001	ASI 26/77 SS00173-I
200 L	TK10002	ASI 26/77 SS00174-I
500 L	TK10003	ASI 26/77 SS00175-I
1,000 L	TK10004	ASI 26/77 SS00176-I
1,000 L (wide)	TK10005	ASI 26/77 SS00183-I

Size	Outer container Cat. No.	Cat. No.
100 L	TK10001	ASI 26/77 SS00177-I
200 L	TK10002	ASI 26/77 SS00178-I
500 L	TK10003	ASI 26/77 SS00179-I
1,000 L	TK10004	ASI 26/77 SS00180-I
1,000 L (wide)	TK10005	ASI 26/77 SS00184-I

# Storage and transport solutions

## Durable and built for performance

Our rigid support containers hold Thermo Scientific™ BioProcess Containers (BPCs) and tank liners for in-house harvest and storage, or transportation needs.

Our reusable support containers accommodate a range of functionalities and chamber dimensions

- **Plastic**—Useful for in-house and transportation applications.
  - Top-drain only and top- and bottom-drain, high-density polyethylene (HDPE) cylindrical drums
  - Square or rectangular polypropylene (PP) containers
  - Regular and cylindrical HDPE, PP, linear low-density polyethylene (LLPDE) tanks
- **Stainless steel**—Thermo Scientific™ HyPerforma™ Smartainer™ 3.0 systems are used for in-house, large-volume liquid-handling operations and range from 200 to 3,000 L.

### Outer support containers fulfill two primary needs

- **In-process/internal unit operations**—We offer a range of products such as HyPerforma Smartainer 3.0 systems, Thermo Scientific™ plastic rigid outer support containers, drums, and industry-standard cylindrical tanks to take care of your storage and collection, process liquid preparation and storage, and waste collection needs
- **Transport**—Large-volume liquid shipping including Thermo Scientific plastic outer support containers and drums

### Selecting BPCs and the correct support containers

These multiple design considerations can help determine your ideal container solution for your process needs:

- **Application**—Storage, mixing, waste collection, or shipping
- **Batch size, filling, and emptying**—Determines the volume and port size
- **Number of process steps**—Determines the number of ports and their location
- **Location of process step**—Clean room-ready containers for clean room operations



# Nalgene PP Cylindrical Tank with Cover

Thermo Scientific™ Nalgene™ PP Cylindrical Tanks are autoclavable and available in a variety of sizes to meet application needs.

## Key features

- Seamless construction for easy cleaning
- Offers excellent stress-crack resistance
- Economical alternative to stainless steel tanks
- Includes matching cover that significantly reduces evaporation and contamination

Note: All Nalgene tanks used at elevated temperatures or with liquids of high specific gravity should be externally supported.

Caution: Plastic tanks are generally subject to more severe conditions than plastic labware; exposure is constant, stresses are greater, and different classes and concentrations of chemicals are involved. Please pay special attention to chemical compatibility.



## Nalgene Cylindrical PP Tank with Cover

Capacity, gal (L)	Nominal OD x H, in. (cm)	No. per case	Cat. No.
5 (19)	11 x 15 (28 x 38)	1	11200-0005
7.5 (28)	12 x 18 (30 x 46)	1	11200-0007
10 (38)	13 x 20 (33 x 51)	1	11200-0010
15 (57)	14 x 28 (36 x 71)	1	11200-0015
30 (113)	18 x 30 (46 x 76)	1	11200-0030
55 (208)	22 x 36 (56 x 91)	1	11200-0055
100 (378)	28 x 44 (71 x 112)	1	11200-0100



# Nalgene PP Rectangular Tank with Cover

Thermo Scientific™ Nalgene™ PP Rectangular Tanks are autoclavable and available in a variety of sizes to meet your application needs.

## Key features

- Seamless construction for easy cleaning
- Suitable for use with many organic chemicals
- Offers excellent stress-crack resistance
- Includes matching cover that significantly reduces evaporation and contamination



## Nalgene PP Rectangular Tank with Cover

Capacity, gal (L)	Nominal OD x H, in. (cm)	No. per case	Cat. No.
2 (8)	8 x 8 x 9 (20 x 20 x 23)	1	14200-0002
5 (20)	10 x 10 x 14 (25 x 25 x 36)	1	14200-0005
8 (30)	12 x 12 x 14 (30 x 30 x 36)	1	14200-0010
10 (38)	18 x 13 x 14 (46 x 33 x 36)	1	14200-0015
13 (50)	24 x 12 x 13 (61 x 30 x 33)	1	14200-0020
32 (120)	24 x 18 x 20 (61 x 45 x 51)	1	14200-0045

# Nalgene PP Closed-Dome Tanks

Thermo Scientific™ Nalgene™ PP Closed-Dome Tanks with white PP closure are an excellent choice for reagent storage, aseptic mixing, and dispensing.

Autoclavable and offered in a variety of sizes to meet application needs.

## Key features

- Designed for use as a closed-containment system
- Includes 150 mm gasketed screw closure, greatly reducing evaporation and contamination
- Domed bottoms offer good drainage
- Mounting flats accept bulkhead fittings up to 2 in.
- Graduated in liters and gallons

**Compliance:** Comply with FDA Reg. 177.1520 and USP Class VI.



## Nalgene PP Closed-Dome Tanks

Capacity, gal (L)	Nominal OD x H, in. (cm)*	No. per case	Cat. No.
20 (76)	17 x 32 (42 x 79)	1	2650-0020
30 (114)	18 x 39 (47 x 99)	1	2650-0030
55 (210)	22 x 44 (57 x 112)	1	2650-0055
100 (380)	29 x 52 (72 x 132)	1	2650-0100

\* Height measurement includes closure.

# Nalgene LLDPE Lightweight Graduated Cylindrical Tank with Cover

Thermo Scientific™ Nalgene™ LLDPE Lightweight tanks are an economical solution for less rigorous applications.

## Key features

Seamless construction for easy cleaning

- Offers excellent stress-crack resistance
- Economical alternative to stainless steel tanks
- Includes matching cover that significantly reduces evaporation and contamination

Note: All Nalgene tanks used at elevated temperatures or with liquids of high specific gravity should be externally supported.

Caution: Plastic tanks are generally subject to more severe conditions than plastic labware; exposure is constant, stresses are greater, and different classes and concentrations of chemicals are involved. Please pay special attention to chemical compatibility.



## Nalgene LLDPE Lightweight Graduated Cylindrical Tank with Cover

Capacity, gal (L)	Nominal OD x H, in. (cm)	No. per case	Cat. No.
5 (19)	11 x 15 (28 x 38)	1	54100-0005
7.5 (28)	12 x 18 (30 x 46)	1	54100-0007
10 (38)	13 x 20 (33 x 51)	1	54100-0010
15 (57)	14 x 28 (36 x 71)	1	54100-0015
30 (113)	18 x 30 (46 x 76)	1	54100-0030
55 (208)	22 x 36 (56 x 91)	1	54100-0055

# Nalgene LLDPE Lightweight Cylindrical Tank with Cover and Spigot

Thermo Scientific™ Nalgene™ LLDPE Lightweight Cylindrical tanks with installed spigots are an economical solution for less rigorous applications.

These tanks offer the same characteristics as the Nalgene 54100 tank series with a spigot installed for dispensing.

## Key features

- Seamless construction for easy cleaning
- Offers excellent stress-crack resistance
- Economical alternative to stainless steel tanks
- Includes matching cover that significantly reduces evaporation and contamination
- Equipped with Thermo Scientific™ Nalgene™ Needle Spigot (Cat. No. 96423) for dispensing

**Compatible products:** Thermo Scientific™ Nalgene™ Spigots for Storage Tanks (Cat. No. 6421-0010).

Note: All Nalgene tanks used at elevated temperatures or with liquids of high specific gravity should be externally supported.

Caution: Plastic tanks are generally subject to more severe conditions than plastic labware; exposure is constant, stresses are greater, and different classes and concentrations of chemicals are involved. Please pay special attention to chemical compatibility.



## Nalgene LLDPE Lightweight Cylindrical Tank with Cover and Spigot

Capacity, gal (L)	Nominal OD x H, in. (cm)	No. per case	Cat. No.
5 (19)	11 x 15 (28 x 38)	1	54102-0005
7.5 (28)	12 x 18 (30 x 46)	1	54102-0007
10 (38)	13 x 20 (33 x 51)	1	54102-0010
15 (57)	14 x 28 (36 x 71)	1	54102-0015
30 (113)	18 x 30 (46 x 76)	1	54102-0030
55 (208)	22 x 36 (56 x 91)	1	54102-0055

# Nalgene LLDPE Heavy-Duty Cylindrical Tank with Cover

Thermo Scientific™ Nalgene™ LLDPE Heavy-Duty Cylindrical tanks are rigid, seamless tanks offered in a variety of sizes to meet your application needs.

## Key features

- Features rigid walls for maximum strength and durability
- Molded of LLDPE offering increased chemical and temperature resistance
- Includes matching cover that significantly reduces evaporation and contamination

**Compatible products:** Nalgene Tank Liners (Cat. No. 343050 series)

Note: All Nalgene tanks used at elevated temperatures or with liquids of high specific gravity should be externally supported.

Caution: Plastic tanks are generally subject to more severe conditions than plastic labware; exposure is constant, stresses are greater, and different classes and concentrations of chemicals are involved. Please pay special attention to chemical compatibility.



## Nalgene LLDPE Heavy-Duty Cylindrical Tank with Cover

Capacity, gal (L)	Nominal OD x H, in. (cm)	No. per case	Cat. No.
5 (19)	11 x 15 (28 x 38)	1	11100-0005
7.5 (28)	12 x 18 (32 x 46)	1	11100-0007
10 (38)	13 x 20 (33 x 51)	1	11100-0010
15 (57)	14 x 28 (36 x 71)	1	11100-0015
30 (113)	19 x 30 (48 x 76)	1	11100-0030
55 (208)	22 x 36 (56 x 91)	1	11100-0055
80 (303)	24 x 48 (61 x 122)	1	11100-0080
100 (378)	28 x 44 (71 x 112)	1	11100-0100
150 (568)	32 x 49 (81 x 124)	1	11100-0150
200 (757)	37 x 51 (94 x 130)	1	11100-0200

# Nalgene LLDPE Heavy-Duty Cylindrical Tank with Spigot

Thermo Scientific™ Nalgene™ LLDPE Heavy-Duty Cylindrical Tanks are offered with a needle-type spigot for easy dispensing.

## Key features

- Factory-installed spigot accepts 5/8 in. ID tubing
- Features rigid walls for maximum strength and durability
- Seamless construction for easy cleaning
- Molded of LLDPE offering increased chemical and temperature resistance
- Includes matching cover that significantly reduces evaporation and contamination

**Compatible products:** Nalgene Spigot for Storage Tanks (Cat. No. 6421-0010).

Note: All Nalgene tanks used at elevated temperatures or with liquids of high specific gravity should be externally supported.

Caution: Plastic tanks are generally subject to more severe conditions than plastic labware; exposure is constant, stresses are greater, and different classes and concentrations of chemicals are involved. Please pay special attention to chemical compatibility.



## Nalgene LLDPE Heavy-Duty Cylindrical Tank with Spigot

Capacity, gal (L)	Nominal OD x H, in. (cm)	No. per case	Cat. No.
5 (19)	11 x 15 (28 x 38)	1	11102-0005
7.5 (28)	12 x 18 (30 x 46)	1	11102-0007
10 (38)	13 x 20 (33 x 51)	1	11102-0010
15 (57)	14 x 28 (36 x 71)	1	11102-0015
30 (113)	19 x 30 (48 x 76)	1	11102-0030
55 (208)	22 x 36 (56 x 91)	1	11102-0055

# Nalgene LLDPE Heavy-Duty Rectangular Tank with Cover

Thermo Scientific™ Nalgene™ LLDPE Heavy-Duty Rectangular Tanks are versatile, economical alternatives to stainless steel tanks.

## Key features

- Seamless construction for easy cleaning
- Stepped flange provides drip containment and grip for lifting
- Includes matching cover that significantly reduces evaporation and contamination
- Molded of LLDPE offering increased chemical and temperature resistance



Note: All Nalgene tanks used at elevated temperatures or with liquids of high specific gravity should be externally supported.

Caution: Plastic tanks are generally subject to more severe conditions than plastic labware; exposure is constant, stresses are greater, and different classes and concentrations of chemicals are involved. Please pay special attention to chemical compatibility.

## Nalgene LLDPE Heavy-Duty Rectangular Tank with Cover

Capacity, gal (L)	Nominal OD x H, in. (cm)	No. per case	Cat. No.
2 (8)	8 x 8 x 9 (20 x 20 x 23)	1	14100-0002
5 (20)	15 x 10 x 11 (38 x 25 x 28)	1	14100-0005
8 (30)	12 x 12 x 14 (30 x 30 x 36)	1	14100-0010
10 (38)	18 x 13 x 14 (46 x 33 x 36)	1	14100-0015
13 (50)	18 x 13 x 20 (46 x 33 x 51)	1	14100-0020
16 (60)	24 x 13 x 13 (61 x 33 x 33)	1	14100-0040
32 (120)	24 x 18 x 20 (61 x 46 x 51)	1	14100-0045
40 (160)	24 x 18 x 25 (61 x 46 x 64)	1	14100-0065

# Nalgene Closed-Dome Bio Tank Closure with Mixer Support Assembly

Thermo Scientific™ Nalgene™ Closed-Dome Bio Tank Closure with Mixer Support Assembly is for use with all sizes of Nalgene closed-dome tanks.

Unique sanitary flange assembly allows overhead mixing in a closed system.

## Key features

- 6 in. (15.2 cm) PP screw closure with a 2 in. (5.1 cm) sanitary ferrule welded in the center
- 2 in. (5.1 cm) silicone gasket and a PVDF true-union clamp
- Autoclavable
- Mixer not included



## Compatible products:

Nalgene Closed-Dome Tanks  
(Cat. No. 2650 series).

## Nalgene Closed-Dome Bio Tank Closure with Mixer Support Assembly

Closure size, mm (in.)	Material	No. per pack	No. per case	Cat. No.
15.2 (6)	Polypropylene, PVDF, silicone	1	1	2651-0200

# Nalgene Spigots for Storage Tanks

Thermo Scientific™ Nalgene™ Spigots for Storage Tanks are used for safe and efficient liquid dispensing. For use only with Nalgene tanks up to 100 gallons with factory-installed threaded boss.

## Key features

- Includes two PTFE O-rings that provide positive seal

Note: Make sure container and spigot have compatible chemical resistance before installing.

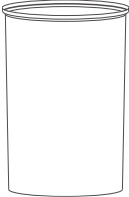





## Nalgene Spigots for Storage Tanks

Fitting	No. per pack	No. per case	Cat. No.
<b>Polypropylene</b>			
1 1/2 in. x 12 female screw thread	12	12	6421-0010
<b>Low-density polyethylene</b>			
19 mm NPT male thread	6	6	6420-0750
12.7 mm NPT male thread	6	6	6420-0500



# Plastic tanks, drums and accessories

	Description	Size	Dimensions (D x H)	Cat. No.
	<b>Cylindrical, flat-bottom high-density polyethylene (HDPE) tank with lid; top dispense</b>	19 L	27.9 x 38.4 cm (11 x 15 in.)	SV30133
		57 L	34.6 x 70.1 cm (13 x 27 in.)	SV30111
		114 L	49.7 x 75.9 cm (18 x 30 in.)	SV30112
		208 L	55.9 x 91.8 cm (22 x 36 in.)	SV30113
		303 L	60.8 x 122.1 cm (24 x 48 in.)	SV30114
		378 L	72.1 x 112.4 cm (28 x 44 in.)	SV30115
		568 L	80.3 x 125.3 cm (31 x 49 in.)	SV30116
	<b>Flat-bottom linear low-density polyethylene (LLDPE) drum; top dispense with clamps</b>	50 L	45 x 53 cm (19.25 x 21.75 in.)	SV50076.02
		100 L	45 x 79 cm (19.25 x 35 in.)	SV50076.03
		200 L	59 x 93 cm (23.5 x 36.75 in.)	SV50076.04
	<b>Conical LLDPE drum; 1 port, 4.5 cm (1.75 in.) size with clamps</b>	50 L	60 x 58 cm (23.5 x 23 in.)	SV50517.04
		100 L	60 x 76 cm (23.5 x 29.75 in.)	SV50517.05
		200 L	60 x 114 cm (23.5 x 44.75 in.)	SV50517.06
	<b>Conical LLDPE drum; 1 port, 10.2 cm (4 in.) size with clamps; use support plate</b>	50 L	60 x 58 cm (23.5 x 23 in.)	SV50517.08
		100 L	60 x 76 cm (23.5 x 29.75 in.)	SV50517.09
		200 L	60 x 114 cm (23.5 x 44.75 in.)	SV50517.10
	<b>Plastic drum dolly</b>	50, 100, 200 L	62 x 18 cm (23.38 x 7.13 in.)	SV50029.03

# Large-volume rigid plastic outer support containers

Thermo Scientific™ rigid plastic support containers to support BPCs in helping meet your needs for large-volume liquid storage, handling, and transportation.

## Key features

- Robust design and sturdy HDPE/acrylonitrile butadiene styrene (ABS), and PP construction permits multiple uses
- Collapsible walls fold down for easy storage when bins are not in use
- Stackable—enables extra storage when empty or full
- Bottom- and top-drain options are available
- Clean room units designed with smoother surfaces to help simplify clean-in-place operations
- Qualified for transportation

## BPC options

- Standard BPCs available in CX5-14 and Aegis5-14 films
- Custom BPCs available in ASI 26/77 film



## Rigid plastic outer support containers

Size	Outer dimensions (W x D x H)	Dispensing and material	Cat. No.
250 L	80.9 x 60.9 x 96.5 cm (31.8 x 23.9 x 38 in.)	Top and bottom, polypropylene	SV50139.15
500 L	120 x 80 x 104 cm (47.2 x 31.5 x 41 in.)	Top and bottom, ABS/HDPE	SV50139.12
600 L	115.5 x 115.5 x 98 cm (45.5 x 45.5 x 38.6 in.)	Top and bottom, polypropylene	SV50139.11
1,000 L	115.5 x 115.5 x 129.4 cm (45.5 x 45.5 x 50.9 in.)	Top and bottom, polypropylene	SV50139.06

## Stainless steel carts

Size	Support bin Cat. No.	Cat. No.
250 L	SV50139.15	SV50139.17
500 L	SV50139.12	SV50139.13
600 L	SV50139.11	SV50139.16
1,000 L	SV50139.06	SV50139.16

## BPCs

Size	Container Cat. No.	Cat. No.
200 L	SV50139.15	Aegis5-14 SH30976.01
		CX5-14 SH31060.01
250 L	SV50139.15	Aegis5-14 SH30976.02
		CX5-14 SH31060.02
500 L	SV50139.12	Aegis5-14 SH30976.03
		CX5-14 SH31060.03
600 L	SV50139.11	Aegis5-14 SH30976.04
		CX5-14 SH31060.04
1,000 L	SV50139.06	Aegis5-14 SH30976.05
		CX5-14 SH31060.05

# HyPerforma Smartainer 3.0 systems

## Large-volume rigid stainless steel outer support containers

The Thermo Scientific™ HyPerforma™ Smartainer™ 3.0 systems are stainless steel support containers used for in-house, large-volume, liquid-handling operations. These systems have an updated design and offer multiple sizes up to 3,000 L.

### Key features

- Available in 100, 200, 500, 1,000, 1,500, 2,000, 2,500, and 3,000 L
- Containers constructed with 304 stainless steel
- Available in non-jacketed or jacketed options for applications requiring heating and cooling
- Designed to allow bottom draining from BPCs
- Modular system with optional accessories for increased mobility and BPC handling
- Smooth surface for easy cleaning



### HyPerforma Smartainer 3.0 system specifications

Size	Inner dimensions (L x W x H)	Outer dimensions (L x W x H)	HyPerforma Smartainer 3.0 system Cat. No.	
200 L	73.02 x 53.34 x 58.67 cm (28.75 x 21.0 x 23.1 in.)	83.18 x 63.5 x 106.04 cm (32.75 x 25.0 x 41.75 in.)	Non-jacketed	SBN0200.7001
		83.82 x 64.01 x 106.04 cm (33.0 x 25.2 x 41.75 in.)	Jacketed	SBN0200.7002
500 L	114.3 x 73.66 x 88.64 cm (45.0 x 29.0 x 34.9 in.)	124.46 x 83.82 x 125.73 cm (49 x 33.0 x 49.5 in.)	Non-jacketed	SBN0500.7001
		125.22 x 84.07 x 125.73 cm (49.3 x 33.1 x 49.5 in.)	Jacketed	SBN0500.7002
1,000 L	114.3 x 91.44 x 126.74 cm (45.0 x 36.0 x 49.9 in.)	124.46 x 101.6 x 163.83 cm (49.0 x 40.0 x 64.5 in.)	Non-jacketed	SBN1000.7001
		125.22 x 101.85 x 163.83 cm (49.3 x 40.1 x 64.5 in.)	Jacketed	SBN1000.7002
1,500 L	114.3 x 91.44 x 179.83 cm (45.0 x 36.0 x 70.8 in.)	124.46 x 101.6 x 214.63 cm (49.0 x 40.0 x 84.5 in.)	Non-jacketed	SBN1500.7001
		125.22 x 101.85 x 214.63 cm (49.3 x 40.1 x 84.5 in.)	Jacketed	SBN1500.7002
2,000 L	114.3 x 119.44 x 233.42 cm (45.0 x 36.0 x 91.9 in.)	124.46 x 101.6 x 267.33 cm (49.0 x 40.0 x 105.25 in.)	Non-jacketed	SBN2000.7001
		125.22 x 101.85 x 267.33 cm (49.3 x 40.1 x 105.25 in.)	Jacketed	SBN2000.7002
2,500 L	129.54 x 120.65 x 212.59 cm (51.0 x 47.5 x 83.7 in.)	139.7 x 130.81 x 247.01 cm (55.0 x 51.5 x 97.25 in.)	Non-jacketed	SBN2500.7001
		140.46 x 131.06 x 247.01 cm (55.3 x 51.6 x 97.25 in.)	Jacketed	SBN2500.7002
3,000 L	129.54 x 120.65 x 212.59 cm (51 x 47.5 x 97.7 in.)	139.7 x 130.81 x 282.57 cm (55.0 x 51.5 x 111.25 in.)	Non-jacketed	SBN3000.7001
		140.46 x 131.06 x 282.57 cm (55.3 x 51.6 x 111.25 in.)	Jacketed	SBN3000.7002

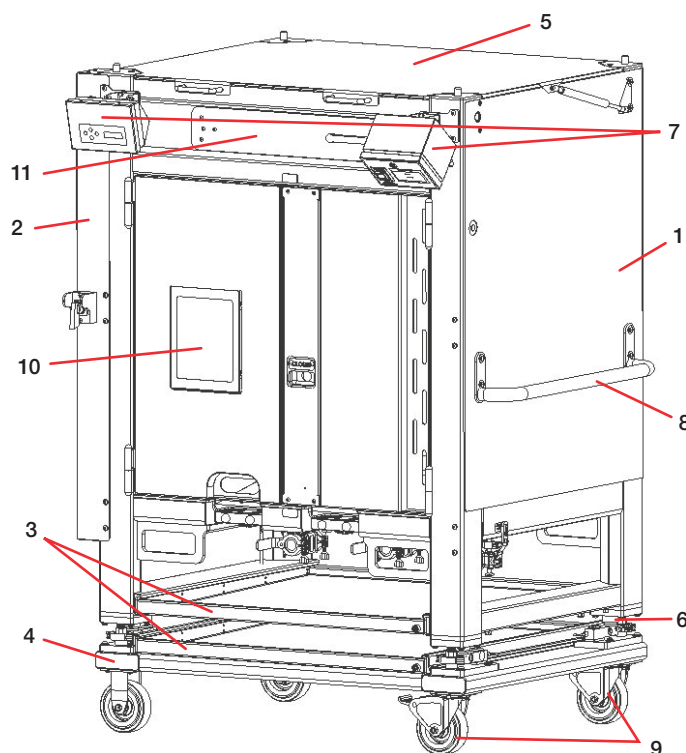
Note: Dimensions are provided for estimates only. Actual outer dimensions will vary depending on configuration selected.

# HyPerforma Smartainer 3.0 system components and BPCs

## HyPerforma Smartainer 3.0 system components

1. **Jacketed or non-jacketed HyPerforma Smartainer 3.0 system**—supports BPCs by design.
2. **BPC hoist**—for handling and loading BPCs. Optional for the 500 L system, available options include a manual or pneumatic hoist (shown below) for the 1,000 L system, and pneumatic hoist only for larger sizes.
3. **Tray assembly**—holds dispense pumps, tube welders, and other items for convenient storage and access. It can be located on the cart or at the base of the HyPerforma Smartainer 3.0 system.
4. **Cart**—for moving empty HyPerforma Smartainer 3.0 systems over smooth and level surfaces within or between in-house storage or clean room areas. Available for vessels up to 1,000 L.
5. **Lid**—stainless steel lid, which help ensure protection of the BPC against light and physical damage. Options include insulated lid with pneumatic lift assist and noninsulated lid.
6. **Load cells**—integrated load cells on all sizes, which provide weight measurements for liquid inside the container.
7. **Display location**—load cell and temperature transmitters can be mounted on the left or right side of the HyPerforma Smartainer 3.0 system.
8. **Handle**—available on either the left or right side for vessels with a cart or casters, up to 1,000 L. Recommended for mobile units.
9. **Casters**—option available to mount units up to 1,000 L directly onto casters.
10. **Document holder**—for easy access to process control or production documents.
11. **Top port access cover**—helps ensure light protection and access to ports.

Note: Components above vary based on selected configuration.



1,000 L HyPerforma Smartainer 3.0 system

## HyPerforma Smartainer 3.0 system BPCs

- Catalog BPC configurations are available in unit volumes of 200, 500, 1,000, 1,500, 2,000, 2,500, and 3,000 L
- BPCs are constructed from Aegis5-14, CX5-14, and ASI 26/77 film with dimensions optimized for HyPerforma Smartainer systems

## HyPerforma Smartainer BPC ordering information

Size	Cat. No.		
	Aegis5-14	CX5-14	ASI 26/77
200 L (horizontal gusseted)	SH31188.01	SH31058.01	SS00195-I
500 L (horizontal gusseted)	SH31188.02	SH31058.02	SS00196-I
500 L (vertical gusseted)	SH31188.03	SH31058.03	SS00197-I
1,000 L	SH31188.04	SH31058.04	SS00198-I
1,500 L	SH31188.05	SH31058.05	SS00199-I
2,000 L	SH31188.06	SH31058.06	SS00200-I
2,500 L	SH31188.07	SH31058.07	SS00201-I
3,000 L	SH31188.08	SH31058.08	SS00202-I

# Open-top tank liners

## Key features

- Thermo Scientific™ tank liners are designed for use with commercially available overhead mixers (not supplied)
- Chambers are constructed from a variety of Thermo Scientific™ films, manufactured using animal origin-free components and optimized for Thermo Scientific™ catalog drums and Thermo Scientific™ Nalgene™ cylindrical tanks
  - CX3-9 film is a three-layer, 9 mil cast film with an outer layer constructed of polyester elastomer coextruded with a low-density polyethylene (LDPE) product contact layer
  - ASI 26 film is a single-web, 5 mil cast film made of highly flexible and stretchable material
  - 343050 series film is a 5 mil blend of LDPE and linear low-density polyethylene (LLDPE)
- Removes the need for tank cleaning and helps reduce cycle times
- Top access only in unit volumes of 50, 100, 200, 300, and 500 L; top and bottom access in unit volumes of 50, 100, and 200 L for maximum functionality
- Supplied gamma-irradiated to minimize bioburden

## Selecting tank liners and the correct outer support containers

There are multiple design considerations, depending on your needs:

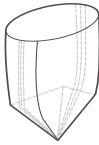
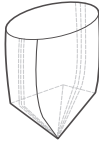
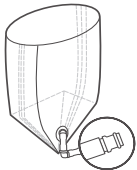
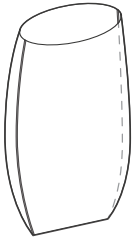
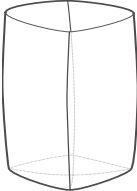
- Application—storage, mixing, or waste collection
- Batch size, filling, and emptying—determines the volume and need for bottom access port
- Characteristics of the process liquid



## Associated applications

- Hydration of powdered media and buffers
- Pooling of nonsterile solutions and fluids

## Open-top tank liner specifications

Description		Size	Outer containers Cat. No.	Tank liner Cat. No.
<b>Top-drain, for use with Thermo Scientific drums</b>				
	0 ports	50 L	SV50076.02	<b>CX3-9</b> SH30647.01
		100 L	SV50076.03	<b>CX3-9</b> SH30647.02
		200 L	SV50076.04	<b>CX3-9</b> SH30647.03
<b>Top-drain, for use with cylindrical tanks</b>				
	0 ports	50 L	SV30111 11100-0015	<b>CX3-9</b> SH30647.04
		100 L	SV30112 11100-0030	<b>CX3-9</b> SH30647.05
		300 L	SV30114 11100-0080	<b>CX3-9</b> SH30647.06
		560 L	SV30116 11100-0150	<b>CX3-9</b> SH30647.07
<b>Top- and bottom-drain</b>				
	Line 1: MPX insert, polycarbonate C-Flex™ tubing, length: 182.9 cm (72 in.) ID x OD: 12.7 x 19.1 mm (0.5 x 0.75 in.)	50 L	SV50517.04	<b>Aegis5-14</b> SH30988.01 <b>CX3-9</b> SH30646.01
		100 L	SV50517.05	<b>Aegis5-14</b> SH30988.02 <b>CX3-9</b> SH30646.02
		200 L	SV50517.06	<b>Aegis5-14</b> SH30988.03 <b>CX3-9</b> SH30646.03
<b>2D pillow-style</b>				
	These 2D (pillow-style) tank liners are available as a simple and low-cost solution. A single BPC will accommodate a variety of tank sizes.	50 L	SV30111 11100-0015	<b>ASI 26</b> B100048-I
		130 L	SV30112 11100-0030	<b>ASI 26</b> B100038-I
		200 L	SV30113 11100-0055	<b>ASI 26</b> B100037-I
		340 L	SV30114 11100-0080	<b>ASI 26</b> B100049-I
		400 L	SV30115 11100-0100	<b>ASI 26</b> B100050-I
		560 L	SV30116 11100-0150	<b>ASI 26</b> B100051-I
<b>3D pillow-style</b>				
	The 3D liners are available and sized for specific totes. This seamless design offers a more streamlined fit, eliminating pooling areas or “pleats”.	50 L	SV30111 11100-0015	<b>ASI 26</b> B100364-I
		100 L	SV30112 11100-0030	<b>ASI 26</b> B100373-I
		200 L	SV30113 11100-0055	<b>ASI 26</b> B100363-I
		300 L	SV30114 11100-0080	<b>ASI 26</b> B101459-I
		560 L	SV30116 11100-0150	<b>ASI 26</b> B101460-I

# Nalgene tank liners

Thermo Scientific™ Nalgene™ tank liners feature an open-bag, flat-bottom design to enhance your mixing capabilities. They are ideal for single-use, biopharmaceutical, and diagnostic reagent fluid processing using Nalgene plastic rigid cylindrical tanks, and are available in sizes ranging from 19 L to 757 L.

## Key features

- Designed specifically to fit Nalgene cylindrical tanks from 19 L to 757 L
- 343050 series film tank liners are supplied gamma-irradiated



## Nalgene Tank Liners

Capacity, gal (L)	Fits Nalgene Tank Cat. No.	No. per pack	No. per case	Cat. No.
5 (19)	11100-0005 11200-0005 54100-0005	1	10	343050-0005
7.5 (28)	11100-0007 11200-0007 54100-0007	1	10	343050-0007
10 (38)	11100-0010 11200-0010 54100-0010	1	10	343050-0010
15 (57)	11100-0015 11200-0015 54100-0015	1	10	343050-0015
30 (113)	11100-0030 11200-0030 54100-0030	1	10	343050-0030
55 (208)	11100-0055 11200-0055 54100-0055	1	10	343050-0055
80 (303)	11100-0080	1	10	343050-0080
100 (378)	11100-0100	1	10	343050-0100
150 (568)	11100-0150	1	10	343050-0150
200 (757)	11100-0200	1	10	343050-0200

# Fluid transfer solutions

## Design a system to meet your unique requirements

You've been here before. Another process, another set of challenges. You need to move media, biologics, or drug substances between process steps safely, efficiently, and aseptically. And the solution will involve multiple sizes and types of tubing connectors, containers, and devices, possibly from different suppliers.

We are committed to partnering with our customers to help perfect their processes. Our engineers and sales professionals will gather your input and design systems to meet your specific needs.

### From concept to reality

We make it—from a simple hand sketch, a fully detailed drawing, or anything in between. Whether you know every detail of your system or want us to design it for you, we will help ensure your system is reliable, safe, and effective.

### Risk mitigation

- Reduce risk of economic loss of sterility failure
- Save sterilization costs
- Reduce cost and effort to maintain sterility validation
- Reduce risk of operator-induced variation

### “Lean” solutions

- Reduce inventory carrying costs
- Reduce handling
- Improve process flow
- Optimize valuable clean room space usage
- Save on labor by allowing your operators to focus on your critical processes instead of tubing
- Simplify the supply chain by purchasing from one supplier

Contact your sales representative, explain your basic need, and we will begin designing your custom solution



Find out more at [thermofisher.com/fluidtransfer](https://www.thermofisher.com/fluidtransfer)



# Fluid transfer assemblies

We are a premier supplier of single-use technologies, including catalog and custom single-use fluid transfer assemblies.

## Fluid transfer assemblies that are unique to your process

We offer a multitude of tubing sizes and types combined with an expansive portfolio of one of the industry's largest component library to provide optimal performance for your unique process.

## Assurance of supply

Our transfer assemblies are manufactured in three efficient, cGMP-compliant manufacturing sites: two in North America—Logan, UT, and Millersburg, PA—and one in Cramlington, UK.

## Open architecture

Choose from an assortment of catalog tubing options in a wide variety of inside and outside diameters (ID and OD). We also maintain a leading catalog component library including steam valves, aseptic connectors, manifolds, and filter assemblies ensuring your transfer assembly can be specially configured to your unique process and requirements.

## Applications



- Media and buffer transfer
- Product sampling
- Bioreactor feed transfer
- Harvest collection
- Filtration and purification process connection
- Bulk product and final fill
- Dispensing and aliquoting

## Key benefits

- Compatibility with any hardware system
- Design systems to integrate within your processes
- Helps save time and money through partnering
- No need for cleaning and gamma-irradiation
- Helps reduce cross-contamination

## Criteria to consider when selecting transfer assemblies

<b>Pumping characteristics</b>	Peristaltic pumping is the most common method so the flow rate and pump life of tubing in a system are important.
<b>Clarity</b>	Most but not all of the tubing types are clear. The ability to see tubing contents is normally important.
<b>Method of connection</b>	Most connection systems involve attaching the tubing to a hose barb in a standard size. Tubing welders and sealers require specific types of tubing.
<b>Supporting data</b>	Regulatory compliance, NOA status, and extractables studies are often required. A database of information on all standard tubing is available.
<b>Economics</b>	Different tubing types, bore sizes, and wall thicknesses can vary widely in cost. In general, the larger the bore size and wall thickness, the more expensive the tubing.

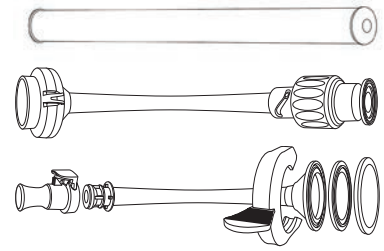
## Extension sets

- Single length of tubing to connect separate vessels, BPCs, or other single-use accessories
- Available in multiple lengths
- Can be combined to bridge additional distances



Tubing size	Tubing length	End connections	Cat. No.
3.2 mm (1/8 in.) ID, 1.6 mm (1/16 in.) wall, C-Flex 374	1 m (39.4 in.)	Capped—for welders	SH31079.01
	2.5 m (98.4 in.)	Capped—for welders	SH31079.02
	5 m (196.9 in.)	Capped—for welders	SH31079.03
6.35 mm (1/4 in.) ID, 1.6 mm (1/16 in.) wall, C-Flex 374	1 m (39.4 in.)	Capped—for welders	SH31080.01
	2.5 m (98.4 in.)	Capped—for welders	SH31080.02
	5 m (196.9 in.)	Capped—for welders	SH31080.03
6.35 mm (1/4 in.) ID, 2.4 mm (3/32 in.) wall, C-Flex 374	1 m (39.4 in.)	Capped—for welders	SH31081.01
	2.5 m (98.4 in.)	Capped—for welders	SH31081.02
	5 m (196.9 in.)	Capped—for welders	SH31081.03
9.52 mm (3/8 in.) ID, 3.2 mm (1/8 in.) wall, C-Flex 374	1 m (39.4 in.)	Capped—for welders	SH31082.01
	2.5 m (98.4 in.)	Capped—for welders	SH31082.02
	5 m (196.9 in.)	Capped—for welders	SH31082.03
12.7 mm (1/2 in.) ID, 3.2 mm (1/8 in.) wall, C-Flex 374	1 m (39.4 in.)	Capped—for welders	SH31083.01
	2.5 m (98.4 in.)	Capped—for welders	SH31083.02
	5 m (196.9 in.)	Capped—for welders	SH31083.03
6.35 mm (1/4 in.) ID, 11.11 mm (7/16 in.) wall, C-Flex 374	1 m (39.4 in.)	Luer	SH31117.01
	1 m (39.4 in.)	MPC	SH31118.01
	2.5 m (98.4 in.)	Luer	SH31117.02
	2.5 m (98.4 in.)	MPC	SH31118.02
	5 m (196.9 in.)	Luer	SH31117.03
	5 m (196.9 in.)	MPC	SH31118.03

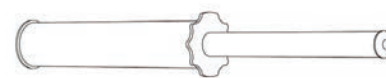
## Extension sets—continued



Tube size	Tube length	End connections	Cat. No.
3.2 mm (1/8 in.) ID, 6.3 mm (1/4 in.) wall, C-Flex 374	1 m (39.4 in.)		SH31119.01
	2.5 m (98.4 in.)	Luer	SH31119.02
	5 m (196.9 in.)		SH31119.03
9.52 mm (3/8 in.) ID, 15.88 mm (5/8 in.) wall, C-Flex 374	1 m (39.4 in.)		SH31116.01
	2.5 m (98.4 in.)	MPC	SH31116.02
	5 m (196.9 in.)		SH31116.03
12.7 mm (1/2 in.) ID, 19.05 mm (3/4 in.) wall, C-Flex 374	1 m (39.4 in.)		SH31120.01
	2.5 m (98.4 in.)	MPX	SH31120.02
	5 m (196.9 in.)		SH31120.03
12.7 mm (1/2 in.) ID, 19.1 mm (3/4 in.) wall, silicone tubing	91.4 cm (36 in.)	Steam-Thru II connection 19.1 x 38.1 mm (3/4 x 1 1/2 in.) sanitary x 12.7 mm (1/2 in.) barb; ReadyMate DAC with 12.7 mm (1/2 in.) barb	SS00042-I
		Steam-Thru II connection 19.1 x 38.1 mm (3/4 x 1 1/2 in.) sanitary x 12.7 mm (1/2 in.) barb; Kleenpak insert connection with 12.7 mm (1/2 in.) barb	SS00043-I
		Lynx ST connection 19.1 x 38.1 mm (3/4 x 1 1/2 in.) sanitary x 12.7 mm (1/2 in.) barb; ReadyMate DAC with 12.7 mm (1/2 in.) barb	SS00044-I
		Lynx ST connection 38.1 mm (1 1/2 in.) sanitary x 12.7 mm (1/2 in.) barb; Kleenpak insert connection with 12.7 mm (1/2 in.) barb	SS00045-I
		38.1 mm (1 1/2 in.) sanitary x 12.7 mm (1/2 in.) barb with gasket, end cap, and push/pull clip; MPX body + cap	SS00062-I
		19.1 mm (3/4 in.) sanitary x 12.7 mm (1/2 in.) barb with gasket, end cap, and push/pull clip; MPX body + cap	SS00063-I
9.5 mm (3/8 in.) ID, 16 mm (5/8 in.) wall, silicone tubing	91.4 cm (36 in.)	38.1 mm (1 1/2 in.) sanitary x 9.5 mm (3/8 in.) barb with gasket, end cap, and push/pull clip; MPC insert + cap	SS00064-I
		38.1 mm (1 1/2 in.) sanitary x 12.7 mm (1/2 in.) barb with gasket, end cap, and push/pull clip; MPC insert + cap	SS00065-I

## Adaptor sets

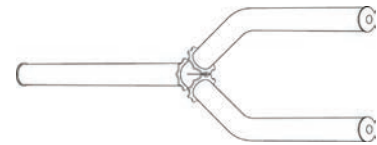
- Two lengths of C-Flex tubing differing in size joined in a single length
- Useful for connecting tubing or porting of differing sizes



Tubing size	Tubing length	End connections	Cat. No.
3.2 mm (1/8 in.) ID x 1.6 mm (1/16 in.) wall to 6.35 mm (1/4 in.) ID x 1.6 mm (1/16 in.) wall, C-Flex 374	0.5 m (19.7 in.)	Capped—for welders	SH31084.01
3.2 mm (1/8 in.) ID x 1.6 mm (1/16 in.) wall to 6.35 mm (1/4 in.) ID x 2.4 mm (3/32 in.) wall, C-Flex 374	0.5 m (19.7 in.)	Capped—for welders	SH31085.01
3.2 mm (1/8 in.) ID x 1.6 mm (1/16 in.) wall to 9.52 mm (3/8 in.) ID x 3.2 mm (1/8 in.) wall, C-Flex 374	0.5 m (19.7 in.)	Capped—for welders	SH31086.01
6.35 mm (1/4 in.) ID x 1.6 mm (1/16 in.) wall to 9.52 mm (3/8 in.) ID x 3.2 mm (1/8 in.) wall, C-Flex 374	0.5 m (19.7 in.)	Capped—for welders	SH31087.01
6.35 mm (1/4 in.) ID x 1.6 mm (1/16 in.) wall to 12.7 mm (1/2 in.) ID x 3.2 mm (1/8 in.) wall, C-Flex 374	2 m (78.7 in.)	Capped—for welders	SH31088.01
6.35 mm (1/4 in.) ID x 2.4 mm (3/32 in.) wall to 9.52 mm (3/8 in.) ID x 3.2 mm (1/8 in.) wall, C-Flex 374	0.5 m (19.7 in.)	Capped—for welders	SH31089.01
6.35 mm (1/4 in.) ID x 2.4 mm (3/32 in.) wall to 12.7 mm (1/2 in.) ID x 3.2 mm (1/8 in.) wall, C-Flex 374	0.5 m (19.7 in.)	Capped—for welders	SH31090.01
9.52 mm (3/8 in.) ID x 3.2 mm (1/8 in.) wall to 12.7 mm (1/2 in.) ID x 3.2 mm (1/8 in.) wall, C-Flex 374	0.5 m (19.7 in.)	Capped—for welders	SH31091.01
3.22 mm (1/8 in.) ID x 6.35 mm (1/4 in.) OD to 9.52 mm (3/8 in.) ID x 15.88 mm (5/8 in.) wall, C-Flex 374	2 m (78.7 in.)	Luer to MPC	SH31121.01
3.22 mm (1/8 in.) ID x 6.35 mm (1/4 in.) OD to 9.52 mm (3/8 in.) ID x 15.88 mm (5/8 in.) wall, C-Flex 374	2 m (78.7 in.)	Luer to MPC	SH31122.01
6.35 mm (1/4 in.) ID x 11.11 mm (7/16 in.) OD to 12.7 mm (1/2 in.) ID x 19.05 mm (3/4 in.) wall, C-Flex 374	2 m (78.7 in.)	MPX to MPC	SH31123.01
6.35 mm (1/4 in.) ID x 11.11 mm (7/16 in.) OD to 12.7 mm (1/2 in.) ID x 19.05 mm (3/4 in.) wall, C-Flex 374	2 m (78.7 in.)	MPX to MPC	SH31124.01
6.35 mm (1/4 in.) ID x 11.11 mm (7/16 in.) OD to 12.7 mm (1/2 in.) ID x 19.05 mm (3/4 in.) wall, C-Flex 374	2 m (78.7 in.)	MPX to MPC	SH31125.01
6.35 mm (1/4 in.) ID x 11.11 mm (7/16 in.) OD to 12.7 mm (1/2 in.) ID x 19.05 mm (3/4 in.) wall, C-Flex 374	2 m (78.7 in.)	MPX to MPC	SH31126.01
9.52 mm (3/8 in.) ID x 15.88 mm (5/8 in.) OD to 12.7 mm (1/2 in.) ID x 19.05 mm (3/4 in.) wall, C-Flex 374	2 m (78.7 in.)	MPX to MPC	SH31127.01
9.52 mm (3/8 in.) ID x 15.88 mm (5/8 in.) OD to 12.7 mm (1/2 in.) ID x 19.05 mm (3/4 in.) wall, C-Flex 374	2 m (78.7 in.)	MPX to MPC	SH31128.01
9.52 mm (3/8 in.) ID x 15.88 mm (5/8 in.) OD to 12.7 mm (1/2 in.) ID x 19.05 mm (3/4 in.) wall, C-Flex 374	2 m (78.7 in.)	MPX to MPC	SH31129.01
9.52 mm (3/8 in.) ID x 15.88 mm (5/8 in.) OD to 12.7 mm (1/2 in.) ID x 19.05 mm (3/4 in.) wall, C-Flex 374	2 m (78.7 in.)	MPX to MPC	SH31130.01

## Y sets

- Three lengths of C-Flex tubing joined by a Y-connector
- Enables user to split one connection into two or combine two connections into one
- Join multiple Y sets to create a branching assembly



Tube size	Tube length	End connections	Cat. No.
3 x 3.2 mm (1/8 in.) ID x 1.6 mm (1/16 in.) wall, C-Flex 374	2 x 0.51 m (20 in.) to 0.51 m (20 in.)	Capped—for welders	SH31092.01
3 x 6.35 mm (1/4 in.) ID x 1.6 mm (1/16 in.) wall, C-Flex 374	2 x 0.51 m (20 in.) to 0.51 m (20 in.)	Capped—for welders	SH31093.01
3 x 6.35 mm (1/4 in.) ID x 2.4 mm (3/32 in.) wall, C-Flex 374	2 x 0.51 m (20 in.) to 0.51 m (20 in.)	Capped—for welders	SH31094.01
3 x 9.52 mm (3/8 in.) ID x 3.2 mm (1/8 in.) wall, C-Flex 374	2 x 0.51 m (20 in.) to 0.51 m (20 in.)	Capped—for welders	SH31095.01
3 x 12.7 mm (1/2 in.) ID x 3.2 mm (1/8 in.) wall, C-Flex 374	2 x 0.51 m (20 in.) to 0.51 m (20 in.)	Capped—for welders	SH31096.01
3 x 12.7 mm (1/2 in.) ID x 19.05 mm (3/4 in.) wall, C-Flex 374	2 x 0.51 m (20 in.) to 0.51 m (20 in.)	MPX body-insert	SH31104.01
3 x 12.7 mm (1/2 in.) ID x 19.05 mm (3/4 in.) wall, C-Flex 374	2 x 0.51 m (20 in.) to 0.51 m (20 in.)	MPX insert-body	SH31105.01
3 x 9.52 mm (3/8 in.) ID x 15.88 mm (5/8 in.) wall, C-Flex 374	2 x 0.51 m (20 in.) to 0.51 m (20 in.)	MPX body-insert	SH31106.01
3 x 9.52 mm (3/8 in.) ID x 15.88 mm (5/8 in.) wall, C-Flex 374	2 x 0.51 m (20 in.) to 0.51 m (20 in.)	MPX insert-body	SH31107.01
3 x 6.35 mm (1/4 in.) ID x 11.11 mm (7/16 in.) wall, C-Flex 374	2 x 0.51 m (20 in.) to 0.51 m (20 in.)	MPX body-insert	SH31108.01
3 x 6.35 mm (1/4 in.) ID x 11.11 mm (7/16 in.) wall, C-Flex 374	2 x 0.51 m (20 in.) to 0.51 m (20 in.)	MPX insert-body	SH31109.01
3 x 3.22 mm (1/8 in.) ID x 6.35 mm (1/4 in.) wall, C-Flex 374	2 x 0.51 m (20 in.) to 0.51 m (20 in.)	Luer	SH31110.01

## Pump sets

- Two lengths of C-Flex tubing joined by a section of Pharmed BPT
- Designed to deliver extended performance when used with a peristaltic pump



Tubing size	Tubing length	End connections	Cat. No.
3.2 mm (1/8 in.) ID x 1.6 mm (1/16 in.) wall	0.25 m (10 in.) C-Flex 374 to 0.5 m (19.7 in.) Pharmed BPT to 0.25 m (10 in.) C-Flex 374	Capped— for welders	SH31097.01
6.35 mm (1/4 in.) ID x 1.6 mm (1/16 in.) wall	0.25 m (10 in.) C-Flex 374 to 0.5 m (19.7 in.) Pharmed BPT to 0.25 m (10 in.) C-Flex 374	Capped— for welders	SH31098.01
6.35 mm (1/4 in.) ID x 2.4 mm (3/32 in.) wall	0.25 m (10 in.) C-Flex 374 to 0.5 m (19.7 in.) Pharmed BPT to 0.25 m (10 in.) C-Flex 374	Capped— for welders	SH31099.01
9.52 mm (3/8 in.) ID x 3.2 mm (1/8 in.) wall	0.25 m (10 in.) C-Flex 374 to 0.5 m (19.7 in.) Pharmed BPT to 0.25 m (10 in.) C-Flex 374	Capped— for welders	SH31100.01
12.7 mm (1/2 in.) ID, 3.2 mm (1/8 in.) wall	0.25 m (10 in.) C-Flex 374 to 0.5 m (19.7 in.) Pharmed BPT to 0.25 m (10 in.) C-Flex 374	Capped— for welders	SH31101.01
3.22 mm (1/8 in.) ID x 6.35 mm (1/4 in.) wall	0.25 m (10 in.) C-Flex 374 to 0.5 m (19.7 in.) Pharmed BPT to 0.25 m (10 in.), C-Flex 374	Luer	SH31111.01
0.52 mm (3/8 in.) ID x 15.88 mm (5/8 in.) wall	0.25 m (10 in.) C-Flex 374 to 0.5 m (19.7 in.) Pharmed BPT to 0.25 m (10 in.), C-Flex 374	MPC	SH31112.01
12.7 mm (1/2 in.) ID x 19.05 mm (3/4 in.) wall	0.25 m (10 in.) C-Flex 374 to 0.5 m (19.7 in.) Pharmed BPT to 0.25 m (10 in.), C-Flex 374	MPX	SH31113.01
6.35 mm (1/4 in.) ID x 9.52 mm (3/8 in.) wall	0.25 m (10 in.) C-Flex 374 to 0.5 m (19.7 in.) Pharmed BPT to 0.25 m (10 in.), C-Flex 374	MPC	SH31114.01
6.35 mm (1/4 in.) ID x 11.11 mm (7/16 in.) wall	0.25 m (10 in.) C-Flex 374 to 0.5 m (19.7 in.) Pharmed BPT to 0.25 m (10 in.), C-Flex 374	MPC	SH31115.01

# Standard Single-Use Bottle Assembly Systems

Fluid transfer systems can easily consist of multiple components that all need to be sourced, purchased, inventoried, and assembled. With the Thermo Scientific™ Standard Single-Use Bottle Assembly Systems, we can relieve you of the burden of managing individual components and validating the systems in-house. Realize labor savings and mitigate risk by leaving the assembly and processing to us. These easy-to-order configured solutions include rigid support containers with preconfigured cap sets, and are delivered gamma-irradiated for use right out of the package.



## Applications

- Media and buffer transfer
- Product sampling
- Harvest collection and bulk storage
- Filtration and purification process connection

## Key benefits

- Designed for a broad range of applications, including bioproduction, life science, and general lab use.
- Helps eliminate setup and post-use cleaning steps required for reusable containers
- Helps reduce cross-contamination risks
- Allows process-specific flexibility with multiple bottle sizes

## Assembly details

- Each bottle is topped with an assembly including a cap, puck, and tubing
- Most assemblies contain two ports with C-Flex™ tubing; the 2 L size includes a third port, also with C-Flex tubing
- One line on each assembly is dedicated to venting.
- The second and third lines are for liquid transfer and include 1/8 in. plug fittings, to be used with your preferred welding or sealing equipment
- Fluid path of the finished product has been validated according to AAMI TIR33 with a 10<sup>-6</sup> sterility assurance level (SAL)

Closure	Tubing connection	Tubing length, in. (cm)	Fluid path ID x OD, in. (mm)	Size	Cat. No.
<b>PC Standard Single-Use Bottle Assembly Systems</b>					
38–430 mm	Port 1: PP tube plug port Port 2: Vent filter	Port 1: 24 (60.96) Port 2: 2 (5.08)	Port 1: 1/8 x 1/4 (3.2 x 6.4) Port 2: 1/8 x 1/4 (3.2 x 6.4)	125 mL	SB00001-I
				250 mL	SB00002-I
				500 mL	SB00003-I
				1 L	SB00004-I
53 B	Port 1: PP tube plug port Port 2: Vent filter port Port 3: PP tube plug	Port 1: 12 (30.48) Port 2: 3 (7.62) Port 3: 12 (30.48)	Port 1: 1/4 x 3/8 (6.4 x 9.6) Port 2: 1/4 x 3/8 (6.4 x 9.6) Port 3: 1/4 x 3/8 (6.4 x 9.6)	2 L	SB00005-I
<b>PETG Standard Single-Use Bottle Assembly Systems</b>					
38–430 mm	Port 1: PP tube plug port Port 2: Vent filter	Port 1: 24 (60.96) Port 2: 2 (5.08)	Port 1: 1/8 x 1/4 (3.2 x 6.4) Port 2: 1/8 x 1/4 (3.2 x 6.4)	125 mL	SB00006-I
				250 mL	SB00007-I
				500 mL	SB00008-I
				1 L	SB00009-I
53 B	Port 1: PP tube plug port Port 2: Vent filter port Port 3: PP tube plug	Port 1: 12 (30.48) Port 2: 3 (7.62) Port 3: 12 (30.48)	Port 1: 1/4 x 3/8 (6.4 x 9.6) Port 2: 1/4 x 3/8 (6.4 x 9.6) Port 3: 1/4 x 3/8 (6.4 x 9.6)	2 L	SB00010-I

# Nalgene Top Works Fluid Transfer Systems

Thermo Scientific™ Nalgene™ Top Works™ Fluid Transfer Systems are aseptic handling solutions for pharmaceutical, biotechnology, and laboratory liquid transfer applications.

Customize Nalgene bottles and carboys with closures, including platinum-cured silicone stopper inserts and tubing. Available with various ports, tubing lengths, and closure sizes.

## Key features

- Closures are specifically designed to mate with most Nalgene bottles and carboys
- Autoclavable and leakproof\* systems for secure, aseptic handling of valued products compared to pouring
- Includes long tubing lengths, both inside and outside the container, to support integration with most Nalgene bottles and carboys
- Ready to accept additional fluid transfer components such as aseptic connectors and air vent filters



**Ordering information:** One system per case.  
**Compliance:** USP Class VI.

## Nalgene Top Works Fluid Transfer Systems

Closure size, mm	Closure material	No. of ports	Port ID size, in. (mm)	No. per case	Cat. No.
38-430	PP	3	1 x 1/4 (6.35), 2 x 1/8 (3.18)	1	2135-3803
53B	PP	None (solid insert)	–	1	2135-5300
53B	PP	2	2 x 1/4 (6.35)	1	2135-5302
53B	PP	3	1 x 1/8 (3.18), 2 x 1/4 (6.35)	1	2135-5303
83B	PP	None (solid insert)	–	1	2135-8300
83B	PP	2	2 x 1/4 (6.35)	1	2135-8302
83B	PP	3	1 x 3/8 (9.52), 2 x 1/4 (6.35)	1	2135-8303
GL45	PSF	3	1 x 1/8 (3.18), 2 x 1/4 (6.35)	1	2132-1003**

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

\*\* GL45 closure system for Schott™, Corning™, and Wheaton™ media bottles.



# Tubing selection guide






Although it is not practical to include the complete range of commercially available tubing in the Thermo Scientific™ catalog component library, a list of sizes for the key types used in the biopharmaceutical industry are represented.



## Key features in selecting tubing for inclusion in a BPC system

- **Pumping characteristics**—peristaltic pumping is the most common method so the flow rate and pump life of tubing in this system are important.
- **Clarity**—most but not all of the tubing types are clear. The ability to see tubing contents is normally important.
- **Method of connection**—most connection systems involve attaching the tubing to a hose barb in a catalog size. Tubing welders and sealers require specific types of tubing.
- **Supporting data**—regulatory compliance, non-animal origin (NAO) status, and extractables studies are often required. A database of information on all catalog tubing is available.
- **Economics**—different tubing types, bore sizes, and wall thicknesses can vary widely in cost. In general, the larger the bore size and wall thickness, the more expensive the tubing.

## Tubing for BPC systems

Type	Description	When to use
<b>C-Flex™</b> 	This is a common choice of tubing for use in catalog and custom BPC systems due to its overall suitability. Three formulations are included: clear, opaque, and ADCF*. Its main advantages over silicone are increased chemical resistance and thermoplastic characteristics.	General-purpose liquid handling is required. With tubing welding and sealing equipment.
<b>Platinum-cured silicone</b> 	Silicone-based tubing is recommended to maximize range of sizes, availability, and cost. Silicone tubing in a range of sizes from suppliers such as Cole-Parmer™, Saint-Gobain™, and Watson-Marlow™ is also available.	General-purpose liquid handling is required.
<b>PVC</b> 	Medical-grade PVC tubing is included in the catalog component library for historical reasons and was widely used before other alternatives like C-Flex tubing became available.	Heat/radio frequency sealing or very high clarity are required.
<b>PharMed™</b> 	This tubing has a longer pump life than C-Flex or silicone tubing. Due to its cost and opacity it is normally used only in small sections of tubing intended to be loaded into a peristaltic pump. The remaining tube length on the BPC would be C-Flex or silicone tubing.	Long pump life is required.
<b>PharmaPure™</b> 	This is supplied by Saint-Gobain as an alternative to PharMed™ tubing with ultra-low particulate spallation.	Long pump life is required.

\* Non-Animal Origin (NAO)

The tables below are intended to outline major features, types, and sizes of tubing available. The tables below also include references to Masterflex™ tubing size numbers. Catalog BPC systems are normally supplied with C-Flex™ or platinum-cured silicone tubing because of their suitable technical and economic characteristics.

### Available tubing specification details

Product description	Weld and seal capabilities	Animal-derived components	Extractable profile	Gas permeation	Autoclave tolerance	Peristaltic pump life	Binding	Clarity
C-Flex 374 NAO	Yes	No	Good	Very low	Fair	Good	Low	Clear
C-Flex clear formulation 082	Yes	No	Good	Very low	Fair	Good	Low	Clear
C-Flex opaque formulation 072	Yes	No	Good	Very low	Fair	Very good	Low	Opaque
Silicone, Tygon 3350	No	No	Excellent	Moderate	Excellent	Fair	Low	Clear
Silicone, SPT-50	No	No	Very good	Moderate	Excellent	Fair	Low	Clear
PharMed BPT	No	Yes	Good	Very low	Good	Excellent	Low	Opaque

Inner diameter x outer diameter size available	Pump size*	Default silicone	Clear C-Flex	Opaque C-Flex	NAO C-Flex	PVC	PharMed	PharmaPure
3.2 x 6.4 mm (0.13 x 0.25 in.)	16	X	X	X	X	X	X	X
3.2 x 4.8 mm (0.13 x 0.19 in.)						X		
4.8 x 7.9 mm (0.19 x 0.31 in.)	25	X	X	X	X	X	X	X
4.8 x 9.5 mm (0.19 x 0.38 in.)	15	X	X	X	X	X	X	
6.4 x 9.5 mm (0.25 x 0.38 in.)	17	X	X		X	X	X	X
6.4 x 11.1 mm (0.25 x 0.44 in.)	24	X	X	X	X	X	X	
6.4 x 12.7 mm (0.25 x 0.5 in.)	26	X	X	X	X	X	X	X
7.9 x 11.1 mm (0.31 x 0.44 in.)	18	X	X	X	X	X	X	X
7.9 x 12.7 mm (0.31 x 0.5 in.)		X						X
9.5 x 12.7 mm (0.38 x 0.5 in.)		X	X	X	X	X		X
9.5 x 15.9 mm (0.38 x 0.63 in.)	73	X	X	X	X	X	X	X
9.5 x 14.3 mm (0.38 x 0.56 in.)		X						
12.7 x 15.9 mm (0.5 x 0.63 in.)				X		X		
12.7 x 19 mm (0.5 x 0.75 in.)	82	X	X		X	X	X	X
12.7 x 17.5 mm (0.5 x 0.69 in.)	19	X	X	X	X	X		X
12.7 x 22.2 mm (0.5 x 0.88 in.)		X						
15.9 x 22.2 mm (0.63 x 0.88 in.)			X		X	X		X
19 x 25.4 mm (0.75 x 1 in.)	90	X	X		X	X	X	X
19 x 28.6 mm (0.75 x 1.13 in.)		X	X		X			
19 x 31.8 mm (0.75 x 1.25 in.)			X	X	X			
22.2 x 28.6 mm (0.88 x 1.13 in.)		X	X		X			
22.2 x 31.8 mm (0.88 x 1.25 in.)		X						
25.4 x 31.8 mm (1 x 1.25 in.)		X	X		X	X		
25.4 x 34.9 mm (1 x 1.38 in.)	92	X					X	

\* Pump sizes listed are for Masterflex™ tubing pump systems. Internal and outer dimensions may vary from Masterflex brand tubing. Users should test product to determine suitability for specific use.

# Nalgene Pharma-Grade Platinum-Cured Silicone Tubing

Thermo Scientific™ Nalgene™ Pharma-Grade Platinum-Cured Silicone Tubing is flexible, durable, and translucent. This high-purity tubing is designed for a variety of pumps and transfer applications, including pharmaceutical, laboratory, and bioprocess manufacturing.

## Key features

- Tasteless, odorless, noncytotoxic and nonhemolytic
- Contains no phthalate plasticizers or peroxides that can leach out into transported fluid
- Low-binding surface minimizes absorption of proteins and food products
- Autoclavable; also can be sterilized by gamma radiation, EtO, and chemical procedures
- Durometer hardness: Shore A, 50

**Ordering information:** Double bagged in case of 50 ft (15.2 m).



**Compliance:** Meets USP <87> Cytotoxicity (Agar Diffusion and MEM Elution methods), USP <88> Class VI, USP <661> Physicochemical Tests, ISO10993-3 Bacterial Mutagenicity—Ames Assay, ISO10993-4 Hemolysis Direct Contact, EP 3.1.9 Silicone Elastomer for Closures and Tubing, and FDA CFR 177.2600 Rubber Articles Intended for Repeated Use.

Note: Not intended for invasive use.

## Nalgene Pharma-Grade Platinum-Cured Silicone Tubing

ID x OD x wall, in. (mm)	Critical dimensions, in.				Concentricity TIR max, in.	Working PSI	Tubing length, ft (m)	Cat. No.
	ID	Tolerance	Wall	Tolerance				
1/16 x 1/8 x 1/32 (1.59 x 3.18 x 0.79)	0.062	±0.005	0.032	±0.002	0.002	18	50 (15.2)	8600-0020
1/8 x 1/4 x 1/16 (3.18 x 6.35 x 1.59)	0.125	±0.005	0.063	±0.005	0.005	18	50 (15.2)	8600-0030
3/16 x 5/16 x 1/16 (4.76 x 7.94 x 1.59)	0.188	±0.005	0.063	±0.005	0.005	14	50 (15.2)	8600-0040
3/16 x 3/8 x 3/32 (4.76 x 9.53 x 2.38)	0.188	±0.005	0.094	±0.003	0.003	18	50 (15.2)	8600-0050
1/4 x 3/8 x 1/16 (6.35 x 9.53 x 1.59)	0.250	±0.010	0.063	±0.003	0.003	12	50 (15.2)	8600-0060
1/4 x 7/16 x 3/32 (6.35 x 11.11 x 2.38)	0.250	±0.010	0.094	±0.003	0.003	15	50 (15.2)	8600-0070
1/4 x 1/2 x 1/8 (6.35 x 12.7 x 3.18)	0.250	±0.010	0.125	±0.005	0.005	18	50 (15.2)	8600-0080
5/16 x 1/2 x 3/32 (7.94 x 12.7 x 2.38)	0.312	±0.010	0.094	±0.003	0.003	13	50 (15.2)	8600-0100
3/8 x 1/2 x 1/16 (9.53 x 12.7 x 1.59)	0.375	±0.015	0.063	±0.002	0.002	9	50 (15.2)	8600-0120
3/8 x 9/16 x 3/32 (9.53 x 14.29 x 2.38)	0.375	±0.015	0.094	±0.003	0.003	12	50 (15.2)	8600-0130
3/8 x 5/8 x 1/8 (9.53 x 15.88 x 3.18)	0.375	±0.015	0.125	±0.005	0.005	14	50 (15.2)	8600-0140
1/2 x 11/16 x 3/32 (12.7 x 17.46 x 2.38)	0.500	±0.015	0.094	±0.005	0.005	10	50 (15.2)	8600-0190
1/2 x 3/4 x 1/8 (12.7 x 19.05 x 3.18)	0.500	±0.015	0.125	±0.005	0.005	12	50 (15.2)	8600-0200
5/8 x 7/8 x 1/8 (15.88 x 22.23 x 3.18)	0.625	±0.015	0.125	±0.005	0.005	10	50 (15.2)	8600-0260
3/4 x 1 x 1/8 (19.05 x 25.4 x 3.18)	0.750	±0.020	0.125	±0.005	0.005	10	50 (15.2)	8600-0310

# Nalgene Pharma-Grade Platinum-Cured Silicone Tubing for Peristaltic Pumps

Thermo Scientific™ Nalgene™ Pharma-Grade Platinum-Cured Silicone Tubing for Peristaltic Pumps is flexible, durable, and translucent. This high-purity tubing is designed for a variety of pumps and transfer applications, including pharmaceutical, laboratory, and bioprocess manufacturing.

## Key features

- Tasteless, odorless, noncytotoxic and nonhemolytic
- Contains no phthalate plasticizers or peroxides that can leach out into transported fluid
- Low-binding surface minimizes absorption of proteins and food products
- Autoclavable; also can be sterilized by gamma radiation, EtO, and chemical procedures
- Durometer hardness: Shore A, 50

**Ordering information:** Double bagged in case of 25 ft (7.6 m).



**Compliance:** Meets USP <87> Cytotoxicity (Agar Diffusion and MEM Elution methods), USP <88> Class VI, USP <661> Physicochemical Tests, ISO10993-3 Bacterial Mutagenicity—Ames Assay, ISO10993-4 Hemolysis Direct Contact, EP 3.1.9 Silicone Elastomer for Closures and Tubing, and FDA CFR 177.2600 Rubber Articles Intended for Repeated Use.

## Nalgene Pharma-Grade Platinum-Cured Silicone Tubing for Peristaltic Pumps

Description	ID x OD x wall, in. (mm)	Critical dimensions, in.				Concentricity TIR max, in.	Working PSI	Tubing length, ft (m)	Cat. No.
		ID	Tolerance	Wall	Tolerance				
Silicone pump tubing; pump size #15	1/16 x 1/8 x 1/32 (1.59 x 3.18 x 0.79)	0.188	±0.008	0.100	±0.005	0.005	11	25 (7.6)	8600-3015
Silicone pump tubing; pump size #17	3/16 x 5/16 x 1/16 (4.76 x 7.94 x 1.59)	0.250	±0.005	0.063	±0.005	0.005	7	25 (7.6)	8600-3017
Silicone pump tubing; pump size #18	3/16 x 3/8 x 3/32 (4.76 x 9.53 x 2.38)	0.313	±0.005	0.063	±0.005	0.005	6	25 (7.6)	8600-3018
Silicone pump tubing; pump size #24	1/4 x 3/8 x 1/16 (6.35 x 9.53 x 1.59)	0.250	±0.005	0.100	±0.005	0.005	9	25 (7.6)	8600-3024
Silicone pump tubing; pump size #25	1/4 x 7/16 x 3/32 (6.35 x 11.11 x 2.38)	0.188	±0.005	0.063	±0.003	0.003	9	25 (7.6)	8600-3025
Silicone pump tubing; pump size #73	1/4 x 1/2 x 1/8 (6.35 x 12.7 x 3.18)	0.375	±0.015	0.135	±0.010	0.010	8	25 (7.6)	8600-3173
Silicone pump tubing; pump size #82	5/16 x 1/2 x 3/32 (7.94 x 12.7 x 2.38)	0.500	±0.015	0.135	±0.010	0.010	8	25 (7.6)	8600-3182

Note: Not intended for invasive use.

# Nalgene Braided Platinum-Cured Silicone Tubing

Thermo Scientific™ Nalgene™ Braided Platinum-Cured Silicone Tubing is durable, high-purity tubing designed for a variety of pump and transfer applications including pharmaceutical, laboratory, bioprocess manufacturing, and food and beverage applications.

Manufactured with interwoven polyester braid for added safety, pressure, and kink resistance.

## Key features

- Contains no phthalate plasticizers or peroxides that can leach out into transported fluid
- Low-binding surface minimizes absorption of proteins and food products
- Tasteless, odorless, noncytotoxic, nonpyrogenic, and nonhemolytic
- Autoclavable; also can be sterilized by gamma radiation, EtO, and chemical procedures
- Durometer hardness: Shore A, 65



**Ordering information:** Double bagged in 25 ft (7.6 m) cases.

**Compliance:** Meets FDA, USDA, and US Pharmacopeia Class VI, 24th Edition requirements for plastic materials, and 3A sanitary standards.

## Nalgene Braided Platinum-Cured Silicone Tubing

ID x OD x wall, in. (mm)	Max pressure, psig		Length per case, ft (m)	Cat. No.
	at 73°F (23°C)	at 320°F (160°C)		
1/4 x 9/16 x 5/32 (6.35 x 14.29 x 3.97)	156	78	25 (7.6)	8061-3070
3/8 x 21/32 x 5/32 (9.52 x 16.67 x 3.97)	136	68	25 (7.6)	8061-3130
1/2 x 13/16 x 5/32 (12.7 x 20.64 x 3.97)	126	63	25 (7.6)	8061-3190

# Nalgene 50 Platinum-Cured Silicone Tubing

Minimize absorption of proteins and food products. Flexible and durable, Thermo Scientific™ Nalgene™ 50 Platinum-Cured Silicone Tubing features a low-binding surface, making it ideal for a variety of pump and transfer applications in pharmaceutical, laboratory, bioprocess manufacturing, and food and beverage industries.

## Key features

- High-purity, translucent tubing contains no phthalate plasticizers or peroxides to leach out into transported fluid
- Tasteless, odorless, noncytotoxic, nonpyrogenic, and nonhemolytic
- Autoclavable; also can be sterilized by gamma radiation, EtO, and chemical procedures
- Durometer hardness: Shore A, 50

Note: Not intended for invasive use.



**Ordering information:** Double bagged in case of 50 ft (15.2 m).

**Compliance:** Meets FDA, USDA, and US Pharmacopeia Class VI, 24th Edition requirements for plastic materials, and 3A sanitary standards.

## Nalgene 50 Platinum-Cured Silicone Tubing

ID x OD x wall, in. (mm)	Critical dimensions, in.				Concentricity TIR max, in.	Working PSI	Tubing length, ft (m)	Cat. No.
	ID	Tolerance	Wall	Tolerance				
1/16 x 1/8 x 1/32 (1.59 x 3.18 x 0.79)	0.062	±0.005	0.062	±0.005	0.002	18	50 (15.2)	8060-0020
1/8 x 1/4 x 1/16 (3.18 x 6.35 x 1.59)	0.125	±0.005	0.125	±0.005	0.005	18	50 (15.2)	8060-0030
3/16 x 5/16 x 1/16 (4.76 x 7.94 x 1.59)	0.188	±0.005	0.188	±0.005	0.005	14	50 (15.2)	8060-0040
3/16 x 3/8 x 3/32 (4.76 x 9.53 x 2.38)	0.188	±0.005	0.188	±0.005	0.003	18	50 (15.2)	8060-0050
1/4 x 3/8 x 1/16 (6.35 x 9.53 x 1.59)	0.250	±0.010	0.250	±0.010	0.003	15	50 (15.2)	8060-0060
1/4 x 7/16 x 3/32 (6.35 x 11.11 x 2.38)	0.250	±0.010	0.250	±0.010	0.003	15	50 (15.2)	8060-0070
1/4 x 1/2 x 1/8 (6.35 x 12.7 x 3.18)	0.250	±0.010	0.250	±0.010	0.005	18	50 (15.2)	8060-0080
5/16 x 1/2 x 3/32 (7.94 x 12.7 x 2.38)	0.312	±0.010	0.312	±0.010	0.003	13	50 (15.2)	8060-0100
3/8 x 1/2 x 1/16 (9.53 x 12.7 x 1.59)	0.375	±0.015	0.375	±0.015	0.002	9	50 (15.2)	8060-0120
3/8 x 9/16 x 3/32 (9.53 x 14.29 x 2.38)	0.375	±0.015	0.375	±0.015	0.003	12	50 (15.2)	8060-0130
3/8 x 5/8 x 1/8 (9.53 x 15.88 x 3.18)	0.375	±0.015	0.125	±0.005	0.005	14	50 (15.2)	8060-0140
1/2 x 11/16 x 3/32 (12.7 x 17.46 x 2.38)	0.500	±0.015	0.500	±0.015	0.005	10	50 (15.2)	8060-0190
1/2 x 3/4 x 1/8 (12.7 x 19.05 x 3.18)	0.500	±0.015	0.500	±0.015	0.005	12	50 (15.2)	8060-0200
5/8 x 7/8 x 1/8 (15.88 x 22.23 x 3.18)	0.625	±0.015	0.625	±0.015	0.005	10	50 (15.2)	8060-0260
3/4 x 1 x 1/8 (19.05 x 25.4 x 3.18)	0.750	±0.020	0.750	±0.020	0.005	10	50 (15.2)	8060-0310
3/8 x 5/8 x 1/8 (9.53 x 15.88 x 3.18)	0.375	±0.015	0.125	±0.005	0.005	14	50 (15.2)	8060-0140

# Nalgene 50 Platinum-Cured Silicone Tubing for Peristaltic Pumps

Minimize absorption of proteins and food products with Thermo Scientific™ Nalgene™ 50 Platinum-Cured Silicone Tubing for Peristaltic Pumps. This flexible and durable tubing features a low-binding surface, making it ideal for a variety of pump and transfer applications in pharmaceutical, laboratory, bioprocess manufacturing, and food and beverage industries.

## Key features

- Tasteless, odorless, noncytotoxic, nonpyrogenic, and nonhemolytic
- Contains no phthalate plasticizers or peroxides that can leach out into transported fluid
- Low-binding surface minimizes absorption of proteins and food products
- Autoclavable; also can be sterilized by gamma radiation, EtO, and chemical procedures
- Durometer hardness: Shore A, 50

**Ordering information:** Double bagged in case of 25 ft (7.6 m).



**Compliance:** Meets FDA, USDA, and US Pharmacopeia Class VI, 24th Edition requirements for plastic materials, and 3A sanitary standards.

## Nalgene 50 Platinum-Cured Silicone Tubing for Peristaltic Pumps

Description	Critical dimensions, in.				Concentricity TIR max, in.	Working PSI	Tubing length, ft (m)	Cat. No.
	ID	Tolerance	Wall	Tolerance				
Silicone pump tubing; pump size #15	0.188	±0.008	0.100	±0.005	0.005	11	25 (7.6)	8060-3015
Silicone pump tubing; pump size #16	0.125	±0.008	0.063	±0.005	0.005	11	25 (7.6)	8060-3016
Silicone pump tubing; pump size #17	0.250	±0.005	0.063	±0.005	0.005	7	25 (7.6)	8060-3017
Silicone pump tubing; pump size #18	0.313	±0.005	0.063	±0.005	0.005	6	25 (7.6)	8060-3018
Silicone pump tubing; pump size #24	0.250	±0.005	0.100	±0.005	0.005	9	25 (7.6)	8060-3024
Silicone pump tubing; pump size #25	0.188	±0.005	0.063	±0.003	0.003	9	25 (7.6)	8060-3025
Silicone pump tubing; pump size #73	0.375	±0.015	0.135	±0.010	0.010	8	25 (7.6)	8060-3173
Silicone pump tubing; pump size #82	0.500	±0.015	0.135	±0.010	0.010	7	25 (7.6)	8060-3182

# Nalgene Quick-Filling/Venting Closures

Thermo Scientific™ Nalgene™ Quick-Filling/Venting Closures feature quick-disconnect fittings with tubulation for attachment to the tubing of choice.

Customizable, ported 83B closure features panel-mounted, quick-disconnect fittings and inside/outside barbed fittings. Designed as a ready-made alternative to cumbersome in-house filling and dispensing procedures.

## Key features

- Available in 2- or 3-port styles for 6.35 mm or 9.53 mm (1/4 or 3/8 in.) tubing, offering an ideal platform for customization of your Nalgene bottle or carboy
- Container integrity is assured with internal valve-style quick-disconnect fittings
- Ideal for use in vacuum systems with Thermo Scientific™ Nalgene™ Heavy-Duty Vacuum Carboys and Bottles (Cat. No. 2226 and 2126)
- Use with Thermo Scientific™ Nalgene™ 180 heavy-wall tubing (Cat. No. 8000-0145 or 8000-0065)
- Alternative and replacement fittings are available for further customization options (Cat. No. 2159)

Disclaimer: Use with heavy-wall or vacuum tubing. Not recommended for vacuum use with lighter-weight containers. EPDM gaskets will not hold vacuum after multiple autoclavings.



## Nalgene Quick-Filling/Venting Closures

Hose barb ID, in. (mm)	No. of ports	No. per case	Cat. No.
1/4 (6.35)	2	1	2158-0021
3/8 (9.53)	2	1	2158-0022
1/4 (6.35)	3	1	2158-0031
3/8 (9.53)	3	1	2158-0032



# Nalgene PP Replacement Coupling Inserts for Quick-Filling/Venting Closure

Thermo Scientific™ Nalgene™ PP Replacement Coupling Inserts support one-handed connection and disconnection when applied to mating coupling bodies.

These male, barbed quick-disconnect replacement coupling inserts are for use with Nalgene Quick-Filling/Venting Closures.

## Key features

- For use with Nalgene Quick-Filling/Venting Closures (Cat. No. 2158)
- Promotes fewer leak points and faster installations

Note: 1/4 and 3/8 in. coupling inserts are not interchangeable.



## Nalgene PP Replacement Coupling Inserts for Quick-Filling/Venting Closures

Tubing ID, in. (mm)	No. per case	Cat. No.
<b>Straight</b>		
1/4 (6.35)	6	2159-0001
3/8 (9.53)	6	2159-0002
<b>Elbow</b>		
1/4 (6.35)	6	2159-0011
3/8 (9.53)	6	2159-0012

# Nalgene Filling/Venting PP Closures

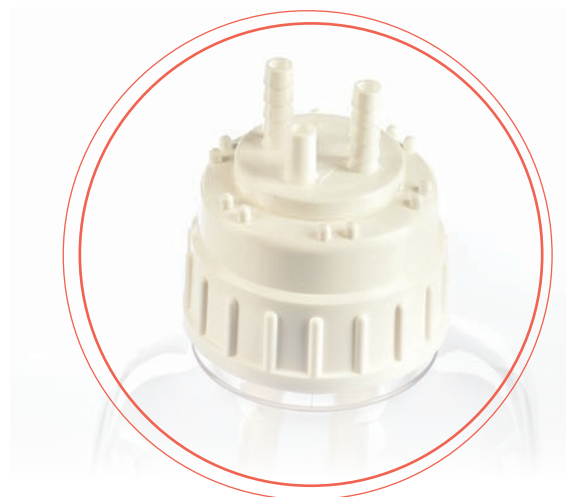
Thermo Scientific™ Nalgene™ Filling/Venting Closures are aseptic handling solutions for pharmaceutical, biotechnology, and laboratory liquid transfer applications.

Available for use with Nalgene bottles and carboys with either 53B or 83B closures, including premounted lengths of platinum-cured silicone tubing for easy customization of bottles and carboys.

## Key features

- White polypropylene closure with thermoplastic elastomer gasket, thermoplastic elastomer port caps, and platinum-cured silicone tubing
- Ready to accept additional fluid transfer components such as aseptic connectors and air vent filters
- Closures are specifically designed to mate with most Nalgene bottles and carboys
- Leakproof systems for secure, aseptic handling of valued products compared to pouring
- Autoclavable

**Includes:** Nalgene platinum-cured silicone tubing and thermoplastic elastomer port caps.



## Nalgene Filling/Venting PP Closures

Tubing ID, in. (mm)	Closure size, mm	No. per case	Cat. No.
1/4 (6.35)	53	6	2162-0531
1/4 (6.35)	83	6	2162-0831
1/2 (12.7)	83	6	2162-0830

# Nalgene Barbed Bulkhead PP Fittings

Thermo Scientific™ Nalgene™ Barbed Bulkhead PP Fittings promote the customization of most Nalgene bottle and carboy closures for aseptic transfer of liquids.

## Key features

- Polypropylene fittings, acetal nuts, silicone gaskets, thermoplastic elastomer port caps
- 53B closures will accept two 1/4-inch fittings
- Fittings are barbed at both ends to accept tubing inside and outside the container
- Autoclavable



Includes: Instructions, drilling template, and a set of two panel-mount barbed fittings, acetal nuts, and silicone gaskets.

## Nalgene Barbed Bulkhead PP Fittings

Tube ID, in. (mm)	Closure size, mm	No. per case	Cat. No.
1/2 (13)	2	24	6149-0001
1/4 (6.35)	2	24	6149-0002

# Nalgene HDPE Vacuum Check Valve and Positive Connector

Thermo Scientific™ Nalgene™ HDPE Vacuum Check Valves prevent back pressure with aspirator-type vacuum pumps.

Works best between 10 in.-Hg and 28 in.-Hg. Designed for use with 1/4. in to 5/16 in. (6.35 mm to 7.94 mm)

## Key features

- 2-piece design, easy to disassemble for cleaning
- Includes silicone diaphragm for prevention of back pressure

Note: Not for use with liquids.



## Nalgene HDPE Vacuum Check Valve and Positive Connector

Description	No. per pack	No. per case	Cat. No.
Vacuum check valve for 1/4 in. to 5/16 in. (6.4 mm to 7.9 mm) ID tubing	6	72	6120-0010

# Nalgene T- and Y-Type Tubing Connectors

Thermo Scientific™ Nalgene™ T-Type and Y-Type Tubing Connectors are molded of polypropylene resin and free of animal-derived components. Non-tapered hose barbs maximize liquid flow.

## Key features

- Double bagged to maintain cleanliness
- Autoclavable



## Nalgene Tubing Connectors

Fits tubing ID, in. (mm)	No. per pack	No. per case	T-Type Cat. No.	Y-Type Cat. No.
1/8 (3.18)	12	72	6151-0125	6152-0125
3/16 (4.76)	12	72	6151-0187	6152-0187
1/4 (6.35)	12	72	6151-0250	6152-0250
5/16 (7.94)	12	72	6151-0312	6152-0312
3/8 (9.53)	12	48	6151-0375	6152-0375
1/2 (12.7)	12	48	6151-0500	6152-0500

# Nalgene PP Pinch Clamp

Thermo Scientific™ Nalgene™ PP Pinch Clamp allows precise, one-handed regulation of fluid flow.

The molded one-piece design is ideal for use with Nalgene tubing.

## Key features

- Polypropylene construction will not corrode or deform like metal clamps
- Pinch clamp for 1/4 in. to 7/16 in. (6.35 mm to 11.11 mm) OD tubing
- One-piece design contains no sharp edges
- Autoclavable



## Nalgene PP Pinch Clamp

Material	Fits tubing ID, in. (mm)	No. per pack	No. per case	Cat. No.
Polypropylene	1/4 to 7/16 (6.35 to 11.11)	12	72	6165-0002

# Nalgene One-Way PP Stopcocks

Thermo Scientific™ Nalgene™ One-Way PP Stopcocks promote accurate liquid flow control in liquid-handling systems.

Ideal for use in developing in-house fluid transfer systems.

## Key features

- Polypropylene stopcock with TFE plug
- Accepts 1/4 in. to 7/16 in. (6.35 mm to 11.11 mm) ID tubing
- One-way fluid path for accurate filling or dispensing
- Autoclavable



## Nalgene One-Way PP Stopcocks

Plug bore, mm	Fits tubing ID, in. (mm)	No. per pack	No. per case	Cat. No.
2	1/4 to 5/16 (6.35 to 7.94)	1	6	6460-0002
4	1/4 to 5/16 (6.35 to 7.94)	1	6	6460-0004

# Nalgene Three-Way PP Stopcocks

Thermo Scientific™ Nalgene™ Three-Way Stopcocks feature three tabulated ports arranged in a T shape.

Ideal for use in developing in-house fluid transfer systems.

## Key features

- Polypropylene stopcock with TFE plug
- Accepts 1/4 in. to 7/16 in. (6.35 mm to 11.11 mm) ID tubing
- Use with any combination of two ports or all three ports
- Autoclavable



## Nalgene Three-Way PP Stopcocks

Plug bore, mm	Fits tubing ID, in. (mm)	No. per pack	No. per case	Cat. No.
2	1/4 to 5/16 (6.35 to 7.94)	1	4	6470-0002
4	1/4 to 5/16 (6.35 to 7.94)	1	4	6470-0004

## Nalgene Quick HDPE Disconnects

Thermo Scientific™ Nalgene™ Quick HDPE Disconnects provide a solution for rapid, smooth connections between two fluid paths. Tubulations slide together snugly with a twist providing a fast, smooth connection.

### Key features

- Two tapered tubulations that fit tightly together with male/female connection, allowing for rapid joining or separation of fluid paths
- Available in sizes ranging from 1/4 in. to 5/16 in. (6.35 mm to 7.94 mm) and 3/8 in. to 7/16 in. (9.53 mm to 11.11 mm) to accommodate many types of fluid transfer needs



### Nalgene Quick HDPE Disconnects

Fits tubing ID, in. (mm)	No. per pack	No. per case	Cat. No.
1/4 to 5/16 (6.35 to 7.94)	12	72	6150-0010
3/8 to 7/16 (9.53 to 11.11)	12	72	6150-0020

## Nalgene Valved Quick PP Disconnects

Thermo Scientific™ Nalgene™ Valved Quick PP Disconnects are ideal for use in developing in-house fluid transfer systems. The couplings feature tubulation for attachment of tubing and an internal valve that seals when the fittings are removed, maintaining the integrity of your transfer liquids.

### Key features

- Chemically resistant polypropylene and EPDM O-ring can be gamma irradiated
- PP acetal sleeve with stainless steel spring and EPR seal
- Leakproof termination of fluid paths when uncoupled
- Design promotes one-handed operation



### Nalgene Valved Quick PP Disconnects

Fits tubing ID, in. (mm)	No. per pack	No. per case	Cat. No.
1/4 (6.35)	2	12	6177-0250
3/8 (9.53)	2	12	6177-0375

## Nalgene 3/4 in. Mini Hose PP Barb Connectors

Thermo Scientific™ Nalgene™ 3/4 in. Mini Hose PP Barb Connectors allow easy connections of 3/4 in. sanitary fittings to flexible tubing.

Ideal for use in developing in-house fluid transfer systems requiring sanitary-style connections.

### Key features

- May be used in combination with 3/4 in. Nalgene Silicone Sanitary Gaskets and true-union clamps
- Autoclavable



### Nalgene 3/4 in. Mini Hose PP Barb Connectors

Fits tubing ID, in. (mm)	No. per pack	No. per case	Cat. No.
1/2 (12.7)	1	2	7210-0500

## Nalgene 1 in. Sanitary PP Hose Barb Connector

The Thermo Scientific™ Nalgene™ 1 in. Sanitary PP Hose Barb Connector supports connections between 1 in. sanitary fittings to flexible tubing.

Ideal for use in developing in-house fluid transfer systems requiring sanitary-style connections.

### Key features

- May be used in combination with 1 in. Nalgene Silicone Sanitary Gaskets and true-union clamps
- Autoclavable

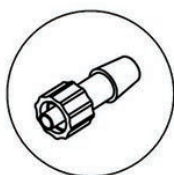


### Nalgene 1 in. Sanitary PP Hose Barb Connector

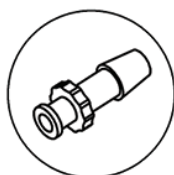
Fits tubing ID, in. (mm)	No. per pack	No. per case	Cat. No.
1/2 (12.7)	1	2	7211-0500

# Connection system selection guide

## Luer connectors



Luer lock insert connection

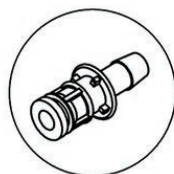


Luer lock body connection

- **Method of connection**—push insert and body connectors together and twist to secure.
- **Options**—luer connectors are available in different materials and barb sizes
- **Advantages**—simple to use
- **Limitations**—limited to 6.4 mm (0.25 in.) barb sizes
- **Use when**—small-volume aseptic connections are required; can be made in a ISO 5 clean area

Type	Material	Hose barb size available
Luer lock	Kynar	3.18 mm (0.13 in.), 6.35 mm (0.25 in.)
Luer lock	Polypropylene	3.18 mm (0.13 in.), 6.35 mm (0.25 in.)

## CPC quick connects



Male (insert)

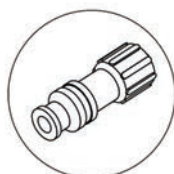


Female (body)

- **Method of connection**—push male (insert) and female (body) connectors together until they click
- **Options**—available in different materials and sizes; includes HFC series with integral shutoff valve
- **Advantages**—quick, easy, and secure to use
- **Limitations**—ISO 5 clean area or better required for an aseptic connection
- **Use when**—secure aseptic connections are required; can be made in an ISO 5 clean area

Type	Material	Hose barb size available
MPC series	Polycarbonate	9.53 mm (0.38 in.), 12.67 mm (0.5 in.)
MPX series	Polysulfone	12.7 mm (0.5 in.)
MPU series	Polysulfone	19 mm (0.75 in.)
HFC39	Polysulfone	6.35 mm (0.25 in.), 9.52 mm (0.38 in.)

## Sample ports



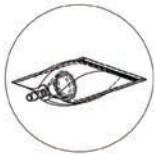
SmartSite connection

- **Method of connection**—inset syringe into port to remove sample
- **Options**—similar devices are available: SmartSite™ and Clave™ connectors
- **Advantages**—no needle required
- **Limitations**—flow rate
- **Use when**—samples of 50 mL or less are required

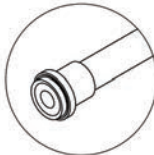
Type	Material	Hose barb size available
SmartSite	Acrylic/polyurethane/silicone	NA
Clave	NA	NA



## Tri-clamps



SterilEnz fitting



Mini tri-clamp

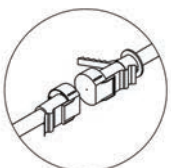


Tri-clamp

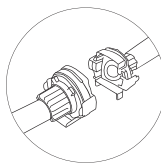
- **Method of connection**—place flanges together with gasket between them; secure using a clamp
- **Options**—available in 12.7 mm (1.5 in.) and 19 mm (0.75 in.) (Also known as mini tri-clamps) tri-clamp (TC) flange sizes in a range of different materials. SterilEnz™ fittings have the advantage that the tri-clamp connection is protected by an integral bag
- **Advantages**—largest barb size of all available connectors on BPCs; very secure connection
- **Limitations**—not suitable for making aseptic connections
- **Use when**—BPC has to be connected to a vessel/equipment with a tri-clamp port and sterility is not required; normally used in downstream applications

Type	Material	Hose barb size available
SterilEnz mini TC	Polyethylene	12.7 mm (0.5 in.)
SterilEnz TC	Polyethylene	12.7 mm (0.5 in.), 19 mm (0.75 in.)
Mini TC	Polypropylene	3.18 mm (0.13 in.), 6.35 mm (0.25 in.), 9.52 mm (0.38 in.), 12.7 mm (0.5 in.)
Mini TC	Kynar	3.18 mm (0.13 in.), 6.35 mm (0.25 in.), 9.52 mm (0.38 in.), 12.7 mm (0.5 in.)
TC	Polypropylene	3.18 mm (0.13 in.), 6.35 mm (0.25 in.), 9.52 mm (0.38 in.), 12.7 mm (0.5 in.), 25.4 mm (1 in.)
TC	Kynar	3.18 mm (0.13 in.), 6.35 mm (0.25 in.), 9.52 mm (0.38 in.), 12.7 mm (0.5 in.), 25.4 mm (1 in.)

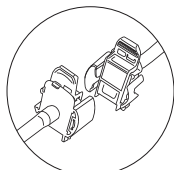
## Aseptic connection devices (ACD)



Pall Kleenpak connection



CPC AseptiQuik connection (X)

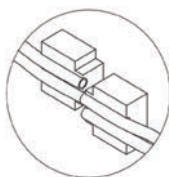


CPC AseptiQuik connection (S)

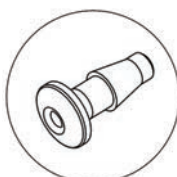
- **Method of connection**—similar to tri-clamp; connection faces vary by model
- **Options**—Pall™ Kleenpak™, GE™ ReadyMate™ Disposable Aseptic Connector (DAC) and Colder Products Company™, AseptiQuik™ connectors
- **Advantages**—allow aseptic connections to be made anywhere without dependence on an instrument
- **Limitations**—not the most economical option
- **Use when**—aseptic connections are required and an ISO 5 clean area is not available

Type	Material	Hose barb size available
Pall Kleenpak	Polycarbonate	6.35 mm (0.25 in.), 9.52 mm (0.38 in.), 12.7 mm (0.5 in.)
ReadyMate DAC	Polycarbonate/ Silicone	6.35 mm (0.25 in.), 9.52 mm (0.38 in.), 12.7 mm (0.5 in.), 19 mm (0.75 in.)
CPC AseptiQuik	Polycarbonate/ Silicone	3.18 mm (0.13 in.), 6.35 mm (0.25 in.), 12.7 mm (0.5 in.), 9.5 mm (0.38 in.), 19 mm (0.75 in.)

## Tubing welder



Tubing in  
welder jaws



End plug

- **Method of connection**—automatic instrument cuts and joins two tubes aseptically
- **Options**—requires either C-Flex or PharMed™ tubing attached to the BPC. Since a terminal connector is not required the normal end treatment is an end plug
- **Advantages**—flexibility
- **Limitations**—requires an instrument to make the connection
- **Use when**—aseptic connections are required and an ISO 5 clean area is not available

Type	Material	Hose barb size available
End plug	Polypropylene	3.18 mm (0.13 in.), 6.35 mm (0.25 in.), 9.52 mm (0.38 in.), 12.7 mm (0.5 in.), 19 mm (0.75 in.)
End plug	Kynar	3.18 mm (0.13 in.), 6.35 mm (0.25 in.), 9.52 mm (0.38 in.), 12.7 mm (0.5 in.)

## Steam in place



CPC Steam-Thru  
connection

- **Method of connection**—same as tri-clamps where the mating flange will be part of the steam-in-place supply assembly
- **Options**—see the Steam in place connectors data sheet for available options
- **Advantages**—validated aseptic connection is possible
- **Limitations**—flow rate
- **Use when**— an aseptic connection of a BPC to a stainless steel vessel with a tri-clamp port is required

Type	Material	Hose barb size available
Unitized mini TC	Silicone	9.52 mm (0.38 in.), 12.7 mm (0.5 in.)
Unitized TC	Silicone	9.52 mm (0.38 in.), 12.7 mm (0.5 in.), 19 mm (0.75 in.)
CPC™ Steam-Thru (TC and mini TC)	Polysulfone	9.52 mm (0.38 in.), 12.7 mm (0.5 in.)
CPC Steam-Thru II	Polysulfone	9.52 mm (0.38 in.), 12.7 mm (0.5 in.)
Millipore Lynx ST connectors (TC and mini TC)	Polyetherimide/ silicone	6.35 mm (0.25 in.), 12.7 mm (0.5 in.)

# Filter selection guide

Filtration is an important step in bioprocessing, and a variety of filters are available through the Thermo Scientific catalog component library to meet your needs. Our open architecture approach enables us to provide customers a broad choice of both filters and manufacturers, including opportunities for dual sourcing.

## Some major characteristics relevant to filter selection:

- **Membrane material**—the major types of filter material used in bioprocessing today are polyethersulfone (PES) and polyvinylidene fluoride (PVDF)
- **Membrane size**—required filter pore size will be influenced by the size of the materials being filtered, as well as the level of filtration the process necessitates
- **Affinity to water**—the presence of aqueous solution impacts the type of filter that may be most advantageous to your process
- **Application**—sequence within your process where filtration takes place and the type of material being filtered have implications for filter selection



## A sample of the filters available through our comprehensive catalog component library include:

Supplier	Type	Material	Final filter pore sizes (µm)
Domnick Hunter	PROPOR™ SG, DEMICAP capsule	PES	0.1, 0.2
	PROPOR™ SG, MURUS capsule	PES	0.1, 0.2
Meissner	SteriLUX™, UltraCap™ capsule	PVDF	0.1, 0.2
	SteriLUX™, capsule	PVDF	0.2
	STyLUX™, UltraCap capsule	PES	0.1, 0.2
	STyLUX, capsule	PES	0.1, 0.2
Pall	Fluorodyne™ II DJL, Kleenpak capsule	PVDF	0.1
	Fluorodyne™ II DFL, Kleenpak capsule	PVDF	0.2
	Supor EKV, Kleenpak capsule	PES	0.2
Millipore	Millipak™ filter unit	PVDF	0.1, 0.2
	Opticap™ XL capsule	PVDF	0.1, 0.2
	Opticap XL capsule	PES	0.1, 0.2
Sartorius	Sartopore™ 2 capsule	PES	0.1, 0.2

A variety of factors unique to your process may influence your choice of filter, in addition to those considerations listed. Contact your Thermo Fisher Scientific BioProduction sales representative to address any questions or for assistance with identifying the best filter for your process needs.

## Rigid containment solutions

Designed specifically for the storage and transport of active pharmaceutical ingredients and bulk intermediates, Thermo Scientific™ Nalgene™ production bottles and carboys offer leakproof\* storage for sensitive liquids, buffers, media, and more. They are available in PC, PETG, PP, LDPE, HDPE, FEP, PFA, and in volumes ranging from 5 mL to 50 L. Extensive regulatory documentation assures that the products meet your demanding biotechnology requirements and reduces the time and cost to implement them in your process.

### Clean containers that meet the demands of your workflow and the regulatory bodies that govern it

Making sure the equipment and materials used in critical environments meet the demanding standards of cleanliness can be a challenging process. Reduce the risk of failing to meet USP <788> requirements by using the cleanest validated containers on the market.

Find out more at

[thermofisher.com/rigidcontainment](https://thermofisher.com/rigidcontainment)

### Packaging in the right configuration

The Thermo Scientific™ Nalgene™ multi-tiered portfolio provides bioproduction facilities with a variety of high-quality, sterile storage and transport solutions. This enables you to choose the appropriate product necessary to suit your application—through the step-down process and into your clean room.

### Key features

- Multiple tiers
  - Platinum Certified Clean containers are certified to contain less than 1/3 of the allowable particulate limits specified in USP <788> (available in PETG, PC, and HDPE)
  - Certified clean containers meet USP <788> low particulate requirements (Available in PETG and PC)
- Ready-to-use products with dual sterile barriers
  - Triple layer packaging (2 heat-sealed bags + 1 carton liner) and double-called cartons
- Produced in clean room (ISO class 7)
- Certified leakproof\* to protect valuable contents



\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene PETG Square Media Bottles

Thermo Scientific™ Nalgene™ PETG Square Media Bottles are heavy-walled and durable, ideal for storage and sampling of active pharmaceutical ingredients and bulk intermediates and well suited for the preparation and containment of buffers, culture media, and general laboratory solutions. PETG features low permeability to CO<sub>2</sub> and O<sub>2</sub> and may provide a longer-term storage solution for pH-sensitive contents.

## Key features

- Made from durable, damage-resistant PETG with white HDPE closures
- Suitable for frozen storage down to –40°C
- Leakproof\* bottles and closures are provided sterile and nonpyrogenic; eliminates costly washing, depyrogenation, and autoclaving steps
- Available in low-particulate format
- Supported by extensive validation documentation



**Ordering information:** Packed in shrink-wrapped trays.

**Compliance:** USP Class VI, noncytotoxic, USP <661>, nonpyrogenic, FDA 21 CFR 177.1315.

## Nalgene PETG Square Media Bottles with Closures

Nominal capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
30 mL (1 oz)	20 mm	38 mm	64 mm	24/96	2019-0030
60 mL (2 oz)	24 mm	41 mm	82 mm	24/96	2019-0060
125 mL (4 oz)	38-430 mm	52 mm	108 mm	24/48	2019-0125
250 mL (8 oz)	38-430 mm	59 mm	144 mm	24/48	2019-0250
500 mL (16 oz)	38-430 mm	73 mm	178 mm	12/24	2019-0500
1,000 mL (32 oz)	38-430 mm	92 mm	219 mm	12/24	2019-1000
2,000 mL (64 oz)	53B	116 mm	271 mm	6/12	2019-2000

## Heat-Shrink Bands for Nalgene PETG Media Bottles

Polyvinyl chloride bands that provide a tamper-resistant seal to ensure the integrity of the bottle contents.

Description	Closure size	No. per pack/case	Cat. No.
Fits 30 mL square PETG media bottles	20-415 mm	500/1,000	312160-0200
Fits 60 mL square PETG media bottles	24-415 mm	500/1,000	312160-0240
Fits 125–1,000 mL square PETG media bottles	38-430 mm	500/1,000	312160-0384
Fits 2,000 mL square PETG media bottles	53B	500/1,000	312160-0530

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene PETG Certified Clean Square Media Bottles

## Key features

- SAL of  $10^{-6}$  inside and outside of the container
- Compliant with USP <788>
- <0.5 EU/mL endotoxin
- Produced in clean room
- Improved labeling
- Ready-to-use products with dual sterile barriers for your step-down process
  - Triple layer packaging (2 heat-sealed bags + 1 carton liner) and double-walled cartons

## Nalgene PETG Certified Clean Square Media Bottles

Nominal capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
30 mL (1 oz)	20 mm	38 mm	64 mm	6/72	382019-0030
60 mL (2 oz)	24 mm	41 mm	82 mm	6/72	382019-0060
125 mL (4 oz)	38-430 mm	52 mm	108 mm	6/48	382019-0125
250 mL (8 oz)	38-430 mm	59 mm	144 mm	6/48	382019-0250
500 mL (16 oz)	38-430 mm	73 mm	178 mm	4/24	382019-0500
1,000 mL (32 oz)	38-430 mm	92 mm	219 mm	4/24	382019-1000
2,000 mL (64 oz)	53B	116 mm	271 mm	1/12	382019-2000

# Nalgene PETG Platinum Certified Clean Square Media Bottles

## Key features

- SAL of  $10^{-6}$  inside and outside of the container
- Below one-third of the allowable USP <788> particulate limits
- <0.25 EU/mL endotoxin
- Improved labeling
- Washed with WFI (water for injection) and inspected, assembled, and packaged in Class 5 (100) clean rooms with Class 4 (10) hoods and full gowning for operators
- Ready-to-use products with dual sterile barriers for your step-down process
  - Triple layer packaging (2 heat-sealed bags + 1 carton liner) and double-walled cartons

## Nalgene PETG Platinum Certified Clean Square Media Bottles

Volume	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
5 mL	20 mm	22 mm	46 mm	52/416	CE-N2035-0005
20 mL	20 mm	30 mm	65 mm	84/504	CE-N2035-0020
30 mL	20 mm	38 mm	64 mm	7/70	CE-N2019-0030
60 mL	24 mm	41 mm	82 mm	6/72	CE-N2019-0060
125 mL	38-430 mm	54 mm	110 mm	5/50	CE-N2019-0125
250 mL	38-430 mm	59 mm	144 mm	12/48	CE-N2019-0250
500 mL	38-430 mm	74 mm	177 mm	5/70	CE-N2019-0500
1,000 mL	38-430 mm	92 mm	219 mm	5/35	CE-N2019-1000
2,000 mL	53B	116 mm	271 mm	5/20	CE-N2019-2000

# Nalgene PETG Biotainer Bottles

Thermo Scientific™ Nalgene™ Biotainer™ Bottles are molded of crystal-clear PETG.

These square bottles are ideal for prolonged storage of pH-sensitive materials such as culture media. Biotainer bottles are supplied sterile and ready to use. They eliminate the cost of cleaning, sterilizing, and associated validations compared to bottles designed for reuse.

## Key features

- Constructed of durable, crystal-clear PETG, ensuring sample integrity
- PP closures feature a PE foam core liner for leakproof\* assurance
- Customization options are available for fluid transfer applications
- Supported by extensive validation documentation
- Suitable for storage in conditions from –40°C to 70°C

**Compliance:** USP Class VI, noncytotoxic, USP <661>, nonpyrogenic, FDA 21 CFR 177.1315.



## Nalgene PETG Biotainer Bottles

Nominal capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
125 mL	38 mm	52 mm	105 mm	5/100	3025-42
500 mL	38 mm	77 mm	176 mm	5/70	3005-42
500 mL	38 mm	77 mm	176 mm	35/70	3005-70
1,000 mL	48 mm	98 mm	201 mm	5/35	3110-42 <sup>1</sup>
1,000 mL	48 mm	98 mm	201 mm	35/35	3110-35 <sup>1</sup>
2,000 mL	48 mm	116 mm	265 mm	20/20	3230-20
2,000 mL	48 mm	116 mm	265 mm	5/20	3230-42
5,000 mL	48 mm	166 mm	299 mm	1/6	3415-16 <sup>2</sup>
5,000 mL	48 mm	166 mm	299 mm	6/6	3415-42 <sup>2</sup>

1. Fits 3-ported 48 mm closure for attachment of tubing.

2. With polyethylene handle.

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene PETG Certified Clean Biotainer Bottles

## Key features

- SAL of  $10^{-6}$  inside and outside of the container
- Compliant with USP <788>
- <0.5 EU/mL endotoxin
- Produced in clean room
- Improved labeling
- Ready-to-use products with dual sterile barriers for your step-down process
  - Triple layer packaging (2 heat-sealed bags + 1 carton liner) and double-walled cartons

## Nalgene PETG Certified Clean Biotainer Bottles

Volume	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
125 mL	38 mm	52 mm	105 mm	5/100	383025-42
500 mL	38 mm	77 mm	176 mm	5/70	383005-42
1,000 mL	48 mm	98 mm	201 mm	5/35	383110-42
2,000 mL	48 mm	116 mm	265 mm	20/20	383230-20
2,000 mL	48 mm	116 mm	265 mm	5/20	383230-42
5,000 mL	48 mm	166 mm	299 mm	1/6	383415-16*
5,000 mL	48 mm	166 mm	299 mm	1/6	383415-42

\* With polyethylene handle.

# Nalgene PETG Platinum Certified Clean Biotainer Bottles

## Key features

- SAL of  $10^{-6}$  inside and outside of the container
- Below one-third of the allowable USP <788> particulate limits
- <0.25 EU/mL endotoxin
- Improved labeling
- Washed with WFI (water for injection) and inspected, assembled, and packaged in Class 5 (100) clean rooms with Class 4 (10) hoods and full gowning for operators
- Ready-to-use products with dual sterile barriers for your step-down process
  - Triple layer packaging (2 heat-sealed bags + 1 carton liner) and double-walled cartons

## Nalgene PETG Platinum Certified Clean Biotainer Bottles

Volume	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
125 mL	38 mm	52 mm	105 mm	100	CE-N3025-42
500 mL	38 mm	77 mm	176 mm	70	CE-N3005-42
1,000 mL	48 mm	98 mm	201 mm	35	CE-N3110-42
2,000 mL	48 mm	116 mm	265 mm	20	CE-N3230-42



# Nalgene HDPE Biotainer Bottles

Thermo Scientific™ Nalgene™ HDPE Biotainer™ Bottles are well suited for storage and transport of biological solutions.

These square bottles offer excellent chemical resistance and are supplied certified sterile and ready to use. They eliminate the cost of cleaning, sterilizing, and associated validations compared to bottles designed for reuse.

## Key features

- PP closures feature a silicone liner for leakproof\* assurance
- Supported by extensive validation documentation
- Suitable for storage in conditions from -100°C to 120°C

**Compliance:** USP Class VI, noncytotoxic, USP <661>, nonpyrogenic, FDA 21 CFR 177.1520.



## Nalgene HDPE Biotainer Bottles

Nominal capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
4 L	38 mm	143 mm	299 mm	8/24	3750-24
4 L	38 mm	143 mm	299 mm	24/24	3751-24
4 L	38 mm	143 mm	299 mm	8/24	3751-42

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

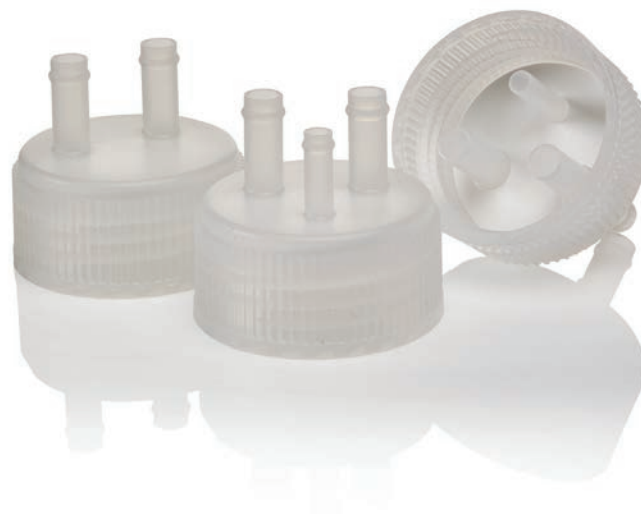
# Nalgene 2- and 3-Ported Closures for Biotainer Bottles

Thermo Scientific™ Nalgene™ 48 mm filling/venting closures are designed for aseptic handling in pharmaceutical, biotechnology, and laboratory liquid transfer applications.

Specifically designed to mate with Nalgene Biotainer bottles with 48 mm closure.

## Key features

- Ready to accept additional fluid transfer components such as aseptic connectors and vent filters
- PP closures with silicone liners are available in 2- and 3-ported versions
- Stable to gamma irradiation
- Ports have tubulations on inside and outside of the closure for attachment of tubing



## Nalgene Closures for Biotainer Bottles

Description	Neck finish	Port ID	No. per case	Cat. No.
3-ported closure	48 mm	6.35 mm 2.25 in., 4.76 mm (1.19 in.)	4	2560-0489
2-ported closure	48 mm	6.35 mm 2.25 in.	4	2560-0490

# Nalgene Biotainer Replacement Closures

Thermo Scientific™ Nalgene™ Biotainer™ Replacement Closures for 1, 2, 5, 10, and 20 L PC Biotainer bottles and carboys.

## Key features

- PP with silicone liner
- Closure size: 48 mm
- Sterile



## Nalgene Biotainer Replacement Closures

Description	Closure size	No. per pack/case	Cat. No.
Polypropylene, silicone-lined replacement closures, sterile	48 mm	1/300	362515-0480

# Nalgene HDPE Fluorinated Carboys

Thermo Scientific™ Nalgene™ HDPE Fluorinated Carboys enhance long-term container performance, prevent permeation loss, and yield lower extractables. Fluorination improves barrier properties and reduces solvent absorption and penetration.

## Key features

- Heavy-duty walls are safe, durable, and resistant to splitting and punctures
- Fluorocarbon surfaces inside and out
- White polypropylene closure
- Graduated and leakproof\*



## Nalgene HDPE Fluorinated Carboys

Nominal capacity	Nominal brim capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
10 L (2.5 gal)	12 L (3 gal)	83B	250 mm	389 mm	1/6	2097-0020
20 L (5 gal)	22.5 L (5.5 gal)	83B	282 mm	526 mm	1/4	2097-0050

# Nalgene HDPE Amber Carboy

Thermo Scientific™ Nalgene™ HDPE Amber Carboys are an ideal choice for storing and mixing photosensitive chemicals, reagents, buffers, and standards. Meets requirements of the US Pharmacopoeia Light Transmission Test (USP latest edition) for storage of light-sensitive materials.

## Key features

- Molded of opaque amber HDPE, offering excellent chemical resistance
- Amber polypropylene closure
- Convenient wide shoulder handles
- Leakproof\*



## Nalgene HDPE Amber Carboy

Nominal capacity	Nominal brim capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
10 L (2.5 gal)	12 L (3 gal)	83B	250 mm	389 mm	1/6	2256-7020

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene HDPE Single-Use Carboy

Thermo Scientific™ Nalgene™ HDPE Single-Use Carboys are safer than glass and are the ideal containers to economically maintain and transfer sterile fluids and reagents.

Sterile and ready for one-time use.

## Key features

- Wide-mouth design for easy filling and dispensing of liquids
- Suitable for use in storage conditions of –100°C to 120°C
- Molded of HDPE, offering excellent chemical resistance and impact resistance
- White polypropylene closure
- Customization options available for fluid transfer applications
- Supported by extensive validation documentation
- Leakproof\*



**Ordering information:** Optional stainless steel handle available (Cat. No. 2229-0001).

**Compliance:** USP Class VI, noncytotoxic.

## Nalgene HDPE Single-Use Carboy

Nominal capacity	Nominal brim capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
20 L (5 gal)	23 L (6 gal)	83B	284 mm	502 mm	1/6	342289-0050
33 L (9 gal)	41 L (11 gal)	83B	381 mm	546 mm	1/1	342289-0075

# Nalgene Handle for Single-Use Carboy

Thermo Scientific™ Nalgene™ Handle for Single-Use Carboy is made of stainless steel and attaches to 20 L carboys for easy handling.

## Key features

- For use with Nalgene Single-Use HDPE Carboy (Cat. No. 342889-0050)



## Nalgene Handle for Single-Use Carboy

Description	Material	No. per case	Cat. No.
Handle for 20 L single-use carboy	Stainless steel	1	2229-0001

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene HDPE Platinum Certified Clean Bottles and Carboys

## Low particulates, sterility, and low endotoxins help maintain product integrity.

Thermo Scientific™ Nalgene™ Certified Platinum Clean HDPE containers are certified to contain less than one-third of the allowable particulate limits specified in USP <788>. The bottles and carboys are washed in specially designed automated washers using only water purified to USP standards, including USP WFI for the final rinse, so there are no added detergents or chemicals. Class 100 (ISO Class 5) clean room handling follows washing and drying, including Class 10 (ISO Class 4) hoods for packaging.

All container-closure systems are guaranteed leakproof\* to protect precious contents.

### Key features

- Sterile products are ready to use with robust triple-layer packaging for clean room use
- Robust HDPE can be used from –100°C to 120°C, allowing for both heated mixing and frozen storage or shipment; it is recommended to always test in conditions of actual use, as results may vary depending upon application



- Certified low endotoxin (0.25 EU/mL) according to USP <85> to limit pyrogens
- Products can be supplied with forced extraction studies\*\*, validation binders\*\*, and certificates

**Compliance:** USP Class VI, noncytotoxic, USP <661>, nonpyrogenic, FDA 21 CFR 177.1520.

### Nalgene HDPE Platinum Certified Clean Bottles and Carboys

Description	Volume	Closure size	Optical density (OD)	Height with closure	No. per pack/case	Cat. No.
Narrow-mouth bottle	30 mL	20-415 mm	34.3 mm	61 mm	12/72	CE-E2099-0001
	250 mL	24-415 mm	61 mm	133 mm	12/72	CE-N2099-0008
	500 mL	28-415 mm	72.6 mm	170.4 mm	12/48	CE-N2099-0016
	1 L	38-430 mm	91.4 mm	215.9 mm	6/24	CE-N2099-0032
Wide-mouth bottle	250 mL	43-415 mm	61 mm	99.3 mm	12/72	CE-N2199-0008
	500 mL	53-415 mm	72.6 mm	168.2 mm	12/48	CE-N2199-0016
	1 L	63-415 mm	91.44 mm	199.2 mm	6/24	CE-N2199-0032
Carboy with integrated handles	10 L	83B	250.2 mm	389 mm	1/6	CE-N2289-0020
	20 L		284.2 mm	501.7 mm	1/4	CE-N2289-0050
	33 L		381 mm	546 mm	1/1	CE-N2289-0075

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

## Nalgene HDPE Rectangular Carboys

Thermo Scientific™ Nalgene™ HDPE Rectangular Carboys have a sturdy, space-saving design. These carboys are ideal for storing solutions and handling large volumes of powders and other solid samples.

### Key features

- Graduated in liters and gallons
- Wide-mouth opening permits easy filling, transferring, and cleaning
- White polypropylene closure
- Includes sturdy stainless steel handle attached to molded-in shoulder loops
- Autoclavable and leakproof\*



### Nalgene HDPE Rectangular Carboys without Spigots

Capacity	Nominal brim capacity	Closure size, mm	Dimensions (L x W x H)	No. per pack/case	Cat. No.
9 L (2 gal)	9 L (2 gal)	100-415	220 x 153 x 360 mm (9 x 6 x 14 in.)	1/6	2211-0020
20 L (5 gal)	21 L (5.5 gal)	100-415	320 x 229 x 399 mm (13 x 9 x 16 in.)	1/4	2211-0050

## Nalgene HDPE Heavy-Duty Rectangular Carboys

Thermo Scientific™ Nalgene™ HDPE Heavy-Duty Rectangular Carboys provide a space-saving option for storing and transporting reagents and other liquids.

### Key features

- Heavy-walled construction for durability and chemical resistance
- Graduated in liters and gallons
- Design includes integral handle for easy transport and pouring
- White polypropylene closure
- Leakproof\*



### Nalgene HDPE Heavy-Duty Rectangular Carboys

Capacity	Nominal brim capacity	Closure size, mm	Dimensions (L x W x H)	No. per pack/case	Cat. No.
20 L (5 gal)	20 L (5 gal)	70 mm	330 x 228 x 406 mm (13 x 9 x 16 in.)	1/4	2214-0050

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene HDPE Heavy-Duty Wide-Mouth Jug

Thermo Scientific™ Nalgene™ HDPE Heavy-Duty Wide-Mouth Jug features a large 120 mm opening. Molded-in handle and recessed bottom provide a sturdy grip when lifting and pouring. Wide stance and low center of gravity assure stability.

## Key features

- Wide-mouth 120 mm opening permits easy filling, transferring, and cleaning of jugs
- Ideal for storing powders
- Graduated in liters and gallons as a convenient guide
- White polypropylene closure
- Space-saving rectangular shape



## Nalgene HDPE Heavy-Duty Wide-Mouth Jug

Nominal capacity	Nominal brim capacity	Closure size	Dimensions (L x W x H)	No. per pack/case	Cat. No.
20 L (5 gal)	25 L (6.6 gal)	120 mm	305 x 203 x 457 mm (12 x 8 x 18 in.)	1/4	2241-0050

# Nalgene HDPE Jerricans

## Key features

- Integral spout is angled for easy, accurate pouring
- Includes white, tethered polypropylene closure to prevent loss
- Graduated in liters and gallons as a convenient guide
- Molded-in handle and recessed bottom provides a sturdy grip when lifting and pouring
- Space-saving rectangular shape optimizes limited storage space
- Leakproof\*



## Nalgene HDPE Jerricans

Nominal capacity	Nominal brim capacity	Closure size	Dimensions (L x W x H)	No. per pack/case	Cat. No.
6 L (1.5 gal)	8 L (2 gal)	53B	213 x 176 x 335 mm (8 x 7 x 13 in.)	1/6	2240-0015
10 L (2.5 gal)	12 L (3 gal)	53B	246 x 199 x 376 mm (10 x 8 x 15 in.)	1/6	2240-0025
20 L (5 gal)	24 L (6 gal)	53B	320 x 245 x 452 mm (13 x 10 x 18 in.)	1/4	2240-0050

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene HDPE 13 L Jerricans

Thermo Scientific™ Nalgene™ HDPE 13 L Jerricans have a unique double-spout design, ideal as a reservoir in automated systems.

The rugged design with wide stance and low center of gravity provides stability.

## Key features

- 53B white polypropylene closure can be customized with input or output tubing, while the 38 mm closure can be used for refilling and emptying
- Molded-in handle provides a sturdy grip when carrying heavy contents
- Integral shoulder handle and molded bottom grip offers added assistance with lifting
- Molded of HDPE, offering good chemical resistance for a wide variety of solutions
- Rectangular shape optimizes limited storage space

**Compliance:** USP Class VI, FDA 21 CFR 177.1520.



## Nalgene HDPE 13 L Jerricans

Nominal capacity	Nominal brim capacity	Closure size	Dimensions (L x W x H)	No. per pack/case	Cat. No.
13 L (3.5 gal)	14 L (3.7 gal)	53B	290 x 189 x 378 mm (11 x 7 x 15 in.)	1/4	2243-0013
13 L (3.5 gal)	14 L (3.7 gal)	53B; 38-430 mm	290 x 189 x 378 mm (11 x 7 x 15 in. )	1/4	2243-9013



# Nalgene HDPE Fluorinated Jerricans

Thermo Scientific™ Nalgene™ HDPE Fluorinated Jerricans have a rugged design with wide stance and low center of gravity that provide greater stability.

Fluorinated surface inside and out improves barrier properties and reduces solvent absorption while enhancing long-term container performance and preventing loss due to permeation.

## Key features

- Includes tethered white polypropylene closure to prevent loss
- Graduated in liters and gallons as a convenient guide
- Molded-in handle and recessed bottom provides a sturdy grip when carrying heavy contents
- Space-saving rectangular shape
- Leakproof\*



## Nalgene HDPE Fluorinated Jerricans

Nominal capacity	Nominal brim capacity	Closure size	Dimensions (L x W x H)	No. per pack/case	Cat. No.
10 L (2.5 gal)	14 L (3.7 gal)	53B	246 x 199 x 376 mm (10 x 8 x 15 in.)	1/6	2242-0025
20 L (5 gal)	24 L (6 gal)	53B	320 x 245 x 452 mm (13 x 10 x 18 in.)	1/4	2242-0050

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene PC Biotainer Bottles and Carboys

Thermo Scientific™ Nalgene™ PC Biotainer™ Bottles and Carboys are excellent for freezing applications.

Nalgene PC Biotainer Bottles and Carboys are designed specifically for pharmaceutical and biological manufacturers. Supplied sterile and ready to use, they reduce the risk of carryover contamination and eliminate the cost of cleaning, sterilization, and associated validations.

## Key features

- Constructed of durable, translucent PC, ensuring the integrity of your sample
- PP closures feature a silicone liner for leakproof\* assurance
- Customization options available for fluid transfer applications
- Supported by extensive validation documentation
- Suitable for use in storage conditions of –100°C to 100°C



**Compliance:** USP Class VI, noncytotoxic, USP <661>, nonpyrogenic, FDA 21 CFR 177.1315 for 5 to 5,000 mL, and FDA 21 CFR 177.1520 for 10 to 20 L.

## Nalgene PC Biotainer Bottles and Carboys

Nominal capacity	Closure size	Outer diameter (OD)/shape	Height with closure	No. per pack/case	Cat. No.
5 mL	20 mm	22.4 mm/round	46.7 mm	100/500	3500-05 <sup>1</sup>
20 mL	20 mm	29.7 mm/round	65.3 mm	500/500	3500-20 <sup>1</sup>
125 mL	38 mm	52.1 mm/square	104.6 mm	5/50	3030-42
1,000 mL	48 mm	98 mm/square	201 mm	5/35	3120-42 <sup>2</sup>
2,000 mL	48 mm	116 mm/square	265 mm	5/20	3233-42 <sup>2</sup>
5,000 mL	48 mm	166 mm/square	299 mm	1/6	3405-16 <sup>2,3</sup>
5,000 mL	48 mm	166 mm/square	299 mm	6/6	3405-42 <sup>2</sup>
10 L	48 mm	255 mm/square	337 mm	1/2	3410-42 <sup>2</sup>
10 L	48 mm	255 mm/square	337 mm	1/2	3410-08 <sup>2,3</sup>
20 L	48 mm	255 mm/square	493 mm	1/3	3423-42 <sup>2</sup>

1. Validation vial.

2. Fits 3-ported 48 mm closure for attachment of tubing.

3. With polyethylene handle.

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene PC Certified Clean Biotainer Bottles and Carboys

Sterile containers, free from added interfering chemicals and low in particulates, are required to maintain both clean room as well as product integrity. Thermo Scientific™ Nalgene™ PC Certified Clean Biotainer™ Bottles and Carboys reduce the risk of carryover contamination. These square containers are certified and lot-to-lot tested to meet USP <788> low-particulate requirements to limit potential particulate contamination.

Inspection procedures throughout manufacturing include leak testing, dimensional testing, visual inspection for particulates, and release testing to ensure the carboy meets all specifications. The leakproof\* containers are free from added interfering chemicals and low in particulates to maintain both clean room as well as product integrity. The square carboys are available in three different sizes with volumes of 5, 10, or 20 L either with or without attached handle.



## Key features

- Constructed of light blue, durable, translucent PC with silicone-lined polypropylene closures
- Produced in ISO Class 7 clean room to limit particulates during molding
- Certified low endotoxin (0.50 EU/mL) according to USP <85> to reduce pyrogens
- Sterile, ready-to-use products with robust triple-layer packaging for clean room use
- Products can be supplied with forced extraction studies\*\*, validation binders\*\*, and certificates

## Nalgene PC Certified Clean Biotainer Containers

Nominal capacity	Closure size	Outer diameter (OD)/shape	Height with closure	No. per pack/case	Cat. No.
125 mL	38 mm	52.1 mm/square	104.6 mm	5/50	383030-42
1,000 mL	48 mm	98 mm/square	201 mm	5/35	383120-42 <sup>1</sup>
2,000 mL	48 mm	116 mm/square	265 mm	5/20	383233-42 <sup>1</sup>
5,000 mL	48 mm	166 mm/square	299 mm	1/6	383405-16 <sup>1,2</sup>
5,000 mL	48 mm	166 mm/square	299 mm	6/6	383405-42 <sup>1</sup>
10 L	48 mm	255 mm/square	337 mm	1/2	383410-42 <sup>1</sup>
10 L	48 mm	255 mm/square	337 mm	1/2	383410-08 <sup>1,2</sup>
20 L	48 mm	255 mm/square	495 mm	1/3	383423-42 <sup>1</sup>

1. Fits 3-ported 48 mm closure for attachment of tubing.

2. With polyethylene handle.

\*\* Forced extraction studies and validation binders from Thermo Fisher Scientific, where available, are provided under a confidentiality agreement to assist customers in product selection. Customers are responsible for determining what studies are recommended for their specific applications. Forced extraction studies and validation binders may be requested by contacting us at [R0CregSupport@thermofisher.com](mailto:R0CregSupport@thermofisher.com)

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene PC Platinum Certified Clean Biotainer Bottles and Carboys

## Key features

- SAL of  $10^{-6}$  inside and outside of the container
- Below one-third of the allowable USP <788> particulate limits
- <0.25 EU/mL endotoxin
- Washed with WFI (water for injection) and inspected, assembled, and packaged in Class 5 (100) clean rooms with Class 4 (10) hoods and full gowning for operators
- Ready-to-use products with dual sterile barriers for your step-down process
  - Triple layer packaging (2 heat-sealed bags + 1 carton liner)
  - Double-walled cartons



## Nalgene PC Platinum Certified Clean Biotainer Bottles and Carboys

Volume	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
5 mL	20 mm	22 mm	46 mm	52/416	CE-N3500-05
20 mL	20 mm	30 mm	69 mm	84/504	CE-N3500-20
125 mL	38 mm	52 mm	105 mm	5/50	CE-N3030-42
1,000 mL	48 mm	98 mm	201 mm	5/35	CE-N3120-42
2,000 mL	38 mm	116 mm	265 mm	5/20	CE-N3233-42
5,000 mL	48 mm	166 mm	299 mm	6	CE-N3405-42
10,000 mL	48 mm	255 mm	337 mm	1/2	CE-N3410-42

\* With attached handle.

# Nalgene PC Round Clearboy Carboys

Thermo Scientific™ Nalgene™ PC Round Clearboy™ Carboys offer durability and are lighter and safer than glass. These transparent carboys are useful for large-volume media and culture preparation, especially where visual inspection of contents for quality is important. Ideal for refrigerated or frozen storage of aqueous solutions such as sterile water, reagents, and media.

## Key features

- Available in 10 L and 20 L sizes
- Graduated in liters and gallons
- Molded of transparent, durable polycarbonate with white polypropylene closure and thermoplastic elastomer gasket
- Customization options available for fluid transfer applications
- Autoclavable and leakproof\*



## Nalgene PC Round Clearboy Carboys

Capacity	Nominal brim capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
10 L (2.5 gal)	12.5 L (3.3 gal)	83B	253 mm	394 mm	1/4	2251-0020
20 L (5 gal)	24 L (6 gal)	83B	287 mm	536 mm	1/4	2251-0050

# Nalgene PC Rectangular Clearboy Carboys

## Key features

- Wide-mouth opening permits easy filling, transferring, and cleaning
- Graduated in liters and gallons as a convenient guide
- Stainless steel handle for ease of use
- Molded of transparent PC, making this carboy ideal when visual inspection of contents is required
- White polypropylene closure
- Autoclavable and leakproof\*



## Nalgene PC Rectangular Clearboy Carboys

Capacity	Nominal brim capacity	Closure size	Dimensions (L x W x H)	No. per pack/case	Cat. No.
9 L (2 gal)	9 L (2 gal)	100-415 mm	220 x 153 x 360 mm (9 x 6 x 14 in.)	1/1	DS2213-0020
20 L (5 gal)	21 L (5.5 gal)	100-415 mm	320 x 229 x 399 mm (13 x 9 x 16 in.)	1/1	DS2213-0050

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene PC and PETG Validation Bottles

Thermo Scientific™ Nalgene™ PC Validation Bottles are the ideal size to perform material compatibility validation studies for Nalgene PC carboys.

## Key features

- Molded of durable translucent polycarbonate, ensuring the integrity of your samples
- White polypropylene closure includes thermoplastic elastomer gasket
- Manufactured with the same materials and molding processes as Nalgene PC carboys (Cat. No. 2251)
- Accommodates convenient material compatibility validation, requiring lower amounts of expensive reagents
- Autoclavable



## Nalgene PC Validation Bottles

Nominal capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
30 mL (1 oz)	20-415 mm	32 mm	75 mm	1/30	DS2127-0030
250 mL (8 oz)	53B	74 mm	135 mm	1/6	DS2127-0250
2,000 mL (64 oz)	53B	123 mm	296 mm	1/12	DS2127-2000

## Nalgene PC Certified Clean Validation Bottles

Nominal capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
5 mL (0.2 oz)	20-400 mm	22.4 mm	46.7 mm	52/416	383500-05
20 mL (0.7 oz)	20-400 mm	29.7 mm	65.3 mm	84/504	383500-20

## Nalgene PETG Certified Clean Validation Bottles

Nominal capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
5 mL (0.2 oz)	20-415 mm	22.25 mm	45.9 mm	52/416	382035-0005
20 mL (0.7 oz)	20-415 mm	29.72 mm	64.5 mm	84/504	382035-0020

# Nalgene PP Autoclavable Carboys with Handles

Thermo Scientific™ Nalgene™ PP Autoclavable Carboys with Handles are ideal for the containment of media, bulk pharmaceutical ingredients, and other solutions.

## Key features

- Constructed of polypropylene with white polypropylene closure and thermoplastic elastomer gasket
- Convenient shoulder handles allow easy carrying and pouring
- Available in 10, 20, and 50 L sizes for a variety of biopharmaceutical applications
- Graduated in liters and gallons
- Autoclavable and leakproof\*



## Nalgene PP Autoclavable Carboys with Handles

Capacity	Nominal brim capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
10 L (2.5 gal)	12 L (3 gal)	83B	250 mm	389 mm	1/6	2250-0020
20 L (5 gal)	22.5 L (5.5 gal)	83B	282 mm	526 mm	1/4	2250-0050
50 L (13 gal)	54 L (14 gal)	83B	379 mm	678 mm	1/1	2250-0130

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene PP Heavy-Duty Vacuum Carboys

Thermo Scientific™ Nalgene™ PP Heavy-Duty Vacuum Carboys are ideal when service conditions are most extreme. Useful as a vacuum trap; will hold a vacuum for 8 hours.

## Key features

- Constructed of polypropylene with white polypropylene closure and thermoplastic elastomer gasket
- Customization options are available for fluid transfer applications
- Autoclavable and leakproof\*

**Ordering information:** For 1–5 L sizes, please refer to Nalgene Heavy-Duty Vacuum Bottles (Cat. No. 2126).

Disclaimer: Not rated for pressure use.



## Nalgene PP Heavy-Duty Vacuum Carboys

Nominal capacity	Nominal brim capacity	Closure size	Outer diameter (OD)	No. per pack/case	Cat. No.
10 L (2.5 gal)	12 L (3 gal)	83B	250 mm	1/6	2226-0020
20 L (5 gal)	22.5 L (5.5 gal)	83B	282 mm	1/4	2226-0050

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.



# Nalgene PP Autoclavable Wide-Mouth Carboys with Handles

Thermo Scientific™ Nalgene™ PP Autoclavable Wide-Mouth Carboys with Handles have a convenient, large opening for storage and transport of solids and powders.

## Key features

- Convenient, wide shoulder handles; allows easy carrying and pouring, even with gloved hands
- Graduated in liters and gallons
- White polypropylene closure
- Wide-mouth opening promotes ease of cleaning and dispensing
- Autoclavable and leakproof\*



## Nalgene PP Autoclavable Wide-Mouth Carboys with Handles

Nominal capacity	Nominal brim capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
10 L (2.5 gal)	12 L (3 gal)	100-415 mm	250 mm	343 mm	1/6	2235-0020
20 L (5 gal)	22.5 L (5.5gal)	100-415 mm	282 mm	483 mm	1/4	2235-0050

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

## Nalgene PP Sanitary Carboys

The Thermo Scientific™ Nalgene™ PP Sanitary Carboys with 3-inch. sanitary neck have a nonthreaded design. The 3-inch. flange accepts standard tri-clover fittings. A clamping-closure system securely seals the carboy, requiring no torque while eliminating back-off issues.

### Key features

- Sanitary design is easier to clean than threaded alternatives
- To seal closure, use a combination of gasket, end cap, and sealing clamp
- Available in 10, 20, and 50 L sizes, supporting a variety of containment needs



### Nalgene PP Sanitary Carboys

Nominal capacity	Nominal brim capacity	Neck finish	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
10 L (2.5 gal)	12 L (3 gal)	3-in. tri-clover	250 mm	353 mm	1/1	2630-0010
20 L (5 gal)	22.5 L (5.5 gal)	3-in. tri-clover	282 mm	353 mm	1/1	2630-0020
50 L (13 gal)	50 L (13 gal)	3-in. tri-clover	379 mm	545 mm	1/1	2630-0050

## Nalgene PC Sanitary Carboy

The Thermo Scientific™ Nalgene™ Sanitary PC Carboy has a one-piece molded, nonthreaded design for use as a receiver or dispensing vessel in biopharmaceutical applications. The 3-inch flange accepts standard tri-clover fittings. A clamping-closure system securely seals the carboy, requiring no torque while eliminating back-off issues.

### Key features

- Sanitary design is easier to clean than threaded alternatives
- Molded of the same PC resin as Nalgene PC Clearboy carboys and bottles, supporting a switch to sanitary PC carboys without material validation issues
- To seal closure, use a combination of gasket, end cap, and sealing clamp
- Sanitary carboy also available in PP (Cat. No. 2630)
- Graduated and autoclavable



### Nalgene PC Sanitary Carboy

Nominal capacity	Neck finish	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
20 L (5 gal)	3 in. tri-clover	287 mm	498 mm	1/4	2261-0050

# Nalgene PP Autoclavable Carboys with Sanitary Flange

Thermo Scientific™ Nalgene™ PP Autoclavable Carboys feature a 1.5-inch, secure, nonthreaded sanitary dispensing port. They are ideal for use as a supply reservoir.

## Key features

- Convenient molded-in handles for easy handling
- Graduated in liters and gallons as a convenient guide
- White polypropylene closure with thermoplastic elastomer gasket
- Dispensing port used in combination with 1.5-inch, gasket and true-union clamp
- Autoclavable and leakproof\*

**Compliance:** USP Class VI, noncytotoxic.



## Nalgene PP Autoclavable Carboys with Sanitary Flange

Nominal capacity	Approximate brim capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
10 L (2.5 gal)	12 L (3 gal)	83B, 1.5-in. tri-clover	250 mm	353 mm	1/1	2640-0020
20 L (5 gal)	22.5 L (5.5 gal)	83B, 1.5-in. tri-clover	282 mm	353 mm	1/1	2640-0050
50 L (13 gal)	54 L (14 gal)	83B, 1.5-in. tri-clover	379 mm	678 mm	1/1	2640-0130

Related products	Cat. No.
True-union clamps	2670-0300
Gaskets	2672-0300

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

## Nalgene PP End Caps

Thermo Scientific™ Nalgene™ PP End Caps are used to securely close off 3/4-inch mini and 3-inch sanitary ports on Nalgene Sanitary Carboys.

Groove on underside of the end cap accepts standard sanitary gasket for sealing the systems.

### Key features

- Offers reliable, repeatable seals when used in combination with silicone gasket (Cat. No. 2672) and true-union clamp (Cat. No. 2670)
- Autoclavable

**Compliance:** USP Class VI.

### Nalgene PP End Caps

Description	No. per case	Cat. No.
End cap for 3/4-in. mini	1	2665-0075
End cap for 3-in. tri-clover	1	2665-0300



Related products	Cat. No.
PP sanitary carboy	2630
PC sanitary carboy	2261
Silicone gaskets	2672
True-union clamp	2670
Heavy-duty clamp	2685

## Nalgene Ported End Caps

Thermo Scientific™ Nalgene™ Ported End Caps in PC or PP provide sanitary ports, which offer easy filling and dispensing. Securely mounts to 3-inch sanitary flange for applications used with Nalgene Sanitary Carboys.

### Key features

- Available in PC and PP
- Autoclavable
- Offers a reliable, reproducible seal when used in combination with silicone gasket and true-union clamps
- Customized options available when used with 3/4 in. mini hose barb fitting

### Nalgene Ported End Caps

Description	Port size	No. per pack/case	Cat. No.
PC ported end cap for 3 in. tri-clover	3/4-in. mini x 2	1/4	2688-2075
PP ported end cap for 3 in. tri-clover	3/4-in. mini x 2	1/4	2689-2075



Related products	Cat. No.
PP sanitary carboy	2630
PC sanitary carboy	2261
Silicone gaskets	2672
True-union clamp	2670
Heavy-duty clamp	2685
3/4 in. mini hose barb fitting	7210

# Nalgene Silicone Sanitary Gaskets for Nalgene Carboys

Thermo Scientific™ Nalgene™ Silicone Sanitary Gaskets offer a reliable, leakproof seal when used with Nalgene end caps and true-union clamps.

Constructed of platinum-cured silicone, the gaskets ensure the highest degree of purity for biopharmaceutical applications.

## Key features

- For use with Nalgene carboys (Cat. No. 2261, 2630, and 2640)
- Autoclavable

**Compliance:** Meets USP Class VI requirements.



## Nalgene Silicone Sanitary Gaskets for Nalgene Carboys

Description	No. per pack/case	Cat. No.
Gasket for 3/4-in. mini	1/6	2672-0075
Gasket for 1 1/4 in. tri-clover	1/6	2672-0150
Gasket for 3-in. tri-clover	1/6	2672-0300

Related products	Cat. No.
PP sanitary carboy	2630
PC sanitary carboy	2261
Silicone gaskets	2672
True-union clamp	2670
Heavy-duty clamp	2685

# Nalgene True-Union Clamps

Thermo Scientific™ Nalgene™ True-Union Clamps offer reliable, repeatable seals when used in combination with silicone gaskets and end caps.

## Key features

- Constructed of PVDF
- Autoclavable



## Nalgene True-Union Clamps

Description	No. per case	Cat. No.
True-union clamp for 3/4 in. mini	1	2670-0075
True-union clamp for 1 1/2 in. tri-clover	1	2670-0150
True-union clamp for 3 in. tri-clover	1	2670-0300

Related products	Cat. No.
PP end caps	2630
Ported end caps	2688-2075
	2689-2075
Gaskets	2672-0300

# Nalgene Heavy-Duty Clamps

Thermo Scientific™ Nalgene™ Heavy-Duty Stainless Steel Clamps assure leakproof fluid seals when used with Nalgene Sanitary Carboys.

## Key features

- Strong, spring-loaded clamp
- For use with Nalgene Sanitary PC Carboy (Cat. No. 2261)
- Autoclavable

## Nalgene Heavy-Duty Stainless Steel Clamps

Description	No. per case	Cat. No.
Stainless steel clamp for 3-in. tri-clover	1	2685-0300



Related products	Cat. No.
PP end caps	2665-0300
Ported end caps	2688-2075
	2689-2075
Gaskets	2672-0300

# Nalgene PP Rectangular Carboys

Thermo Scientific™ Nalgene™ PP Rectangular Carboys are molded of tough, translucent, and autoclavable polypropylene. Ideal for storing solutions and handling large volumes of powders and other solid samples.

## Key features

- Large-neck opening for easy filling and cleaning
- Includes sturdy stainless steel handle attached to molded-in shoulder loops
- Graduated in liters and gallons as a convenient guide
- Autoclavable and leakproof\*



## Nalgene PP Rectangular Carboys

Nominal capacity	Nominal brim capacity	Closure size	Dimensions (L x W x H)	No. per pack/case	Cat. No.
9 L (2 gal)	9 L (2 gal)	100-415 mm	220 x 153 x 360 mm (9 x 6 x 14 in.)	1/6	2212-0020
20 L (5 gal)	21 L (5.5 gal)	100-415 mm	320 x 229 x 399 mm (13 x 9 x 16 in.)	1/4	2212-0050

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene Narrow-Mouth and Wide-Mouth Bottle Replacement Closures

Designed to fit Thermo Scientific™ Nalgene™ carboys and bottles to provide a guaranteed leakproof\* system.

## Key features

- Fits Nalgene large carboys and bottles with 53B and 83B neck finishes



## Nalgene replacement closures

Description	No. per pack/case	Cat. No.
<b>Nalgene closures for large carboys and bottles; white, polypropylene, autoclavable</b>		
38-430 replacement closure for large Nalgene bottles	12/12	712160-0384
53B replacement closure for large Nalgene bottles or carboys	12/12	712160-0530
83B replacement closure for large Nalgene bottles or carboys	2/2	712160-0830
83B replacement closure with silicone grommet	1/1	712227-1020
Thermoplastic elastomer gasket for 53B closure	12/12	712160-0053
Thermoplastic elastomer gasket for 83B closure	5/5	712162-1830
<b>Nalgene replacement closure; white high-density polyethylene</b>		
53B replacement cap with thermoplastic elastomer gasket for large Nalgene bottles or carboys	12/12	712151-0053
<b>Nalgene replacement closure with strap; white polypropylene</b>		
53B replacement closure and strap for Nalgene jerricans	10/10	712240-1053
<b>Nalgene replacement closure, high-density polyethylene</b>		
83B replacement cap with thermoplastic elastomer gasket for large Nalgene bottles or carboys	2/2	712151-0083

# Nalgene LDPE Round Carboys

Thermo Scientific™ Nalgene™ Round LDPE Carboys are an ideal choice for storage and transport of reagents.

## Key features

- Wide shoulder handles allow for easy pouring and carrying
- Graduated in liters and gallons
- White polypropylene closure
- Accepts 13.5 rubber stopper for alternative sealing method
- Leakproof\*



## Nalgene LDPE Round Carboys

Nominal capacity	Nominal brim capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
10 L (2.5 gal)	12 L (3 gal)	83B	250 mm	389 mm	1/6	2210-0020
15 L (3.75 gal)	17 L (4.5 gal)	83B	285 mm	429 mm	1/4	2210-0040
20 L (5 gal)	22.5 L (5.5 gal)	83B	282 mm	526 mm	1/4	2210-0050
25 L (6.5 gal)	27.5 L (7.3 gal)	83B	287 mm	594 mm	1/4	2210-0065
50 L (13 gal)	54 L (14 gal)	83B	379 mm	668 mm	1/1	2210-0130

Related products	Cat. No.
Nalgene Quick Filling/Venting Closures	2158
Nalgene Filling/Venting Closures	2162
Nalgene Top Works Fluid Transfer Systems	2135

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.



# Nalgene LDPE Wide-Mouth Carboys with Handles

Thermo Scientific™ Nalgene™ LDPE Wide-Mouth Carboys with Handles have a convenient, large opening for storage and transport of solids and powders.

## Key features

- Convenient, wide shoulder handles allow easy carrying and pouring, even with gloved hands
- Graduated in liters and gallons
- Wide-mouth opening promotes ease of cleaning and dispensing, and can accommodate overhead mixers
- White polypropylene closure
- Leakproof\*, not autoclavable

**Ordering information:** For autoclavable wide-mouth carboys, please refer to Cat. No. 2235.



## Nalgene LDPE Wide-Mouth Carboys with Handles

Nominal capacity	Nominal brim capacity	Closure size	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
10 L (2.5 gal)	12 L (3 gal)	100-415 mm	250 mm	343 mm	1/6	2234-0020
15 L (4 gal)	17 L (4.5 gal)	100-415 mm	286 mm	389 mm	1/6	2234-0030
20 L (5 gal)	22.5 L (5.5 gal)	100-415 mm	282 mm	483 mm	1/4	2234-0050

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene FEP Low Particulate/Low Metals Bottles with Closure

Thermo Scientific™ Nalgene™ Low Particulate/Low Metals Bottles made of Teflon™ FEP with closure feature a narrow mouth and certification to contain less than 20 particles per mL at 0.3 µm and greater.

Each bottle is double bagged under Class 10 laminar flow hoods inside a Class 100 clean room. Composed of FEP, these bottles are excellent for storing high-purity chemicals. Product includes a Certificate of Quality that assures the product has been tested and accepted in accordance with specifications.

## Key features

- Certified to particulate and trace metal levels
- Linerless caps provide the ultimate in leakproof\* protection without the use of liner that can wrinkle, cause leaks, or contaminate your reagents
- Exhibits flexibility, impact resistance, and excellent visibility of contents for a wide variety of uses in the lab or production environment
- Excellent resistance to chemicals found in laboratories and production environments
- Nonsterile
- Metals certified to microliter (ppb) levels of <0.20 Hg, <0.5 Be, <1.0 As, Cd, Pb, <2.0 Sb, Se, <5.0 Ag, Co, Cr, Cu, Mn, Ti, V, <10 Ba, Ni, Zn, <50 Mg, <75 Al, <100 Ca, Fe, K, Na
- Autoclavable and translucent



- Metals certified to microliter (ppb) levels of <0.20 Hg, <0.5 Be, <1.0 As, Cd, Pb, <2.0 Sb, Se, <5.0 Ag, Co, Cr, Cu, Mn, Ti, V, <10 Ba, Ni, Zn, <50 Mg, <75 Al, <100 Ca, Fe, K, Na
- Autoclavable and translucent

**Includes:** ETFE screw closure.

Note: Completely disengage threads or remove cap before autoclaving.

## Nalgene FEP Low Particulate/Low Metals Bottles

Nominal capacity	Closure size	Neck ID	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
125 mL (4 oz)	24 mm	17 mm	46 mm	115 mm	1/6	381600-0004
250 mL (8 oz)	24 mm	17 mm	60 mm	134 mm	1/4	381600-0008
500 mL (16 oz)	28 mm	20 mm	73 mm	166 mm	1/4	381600-0016
1,000 mL (32 oz)	38 mm	26 mm	90 mm	203 mm	1/4	381600-0032

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene FEP Narrow-Mouth Bottles with Closure

Thermo Scientific™ Nalgene™ Narrow-Mouth Bottles made of Teflon™ FEP with closure are among the most inert, chemical-resistant, corrosion-resistant containers available.

With outstanding resistance to extreme temperatures and virtually all chemicals, these bottles are ideal for trace metal analysis and applications involving organic solvents. The bottles can be vigorously cleaned in boiling nitric acid and are guaranteed leakproof\*.

## Key features

- The most inert, chemical-resistant, and corrosion-resistant containers available; ideal for trace metal analysis and applications involving organic solvents
- Withstands rigorous cleaning in boiling nitric acid; temperature range from –105°C to 150°C (–157°F to 302°F) for a wide range of uses including high-purity storage
- Can be autoclaved for sterilization
- Autoclavable, leakproof\*, and transparent



**Includes:** ETFE screw closure.

Note: These bottles cannot withstand gamma irradiation. Completely disengage threads or remove cap before autoclaving.

## Nalgene FEP Narrow-Mouth Bottles

Capacity	Closure size	Neck ID	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
30 mL (1 oz)	20 mm	14 mm	32 mm	75 mm	1/8	1600-0001
60 mL (2 oz)	20 mm	14 mm	39 mm	84 mm	1/8	1600-0002
125 mL (4 oz)	24 mm	17 mm	46 mm	115 mm	1/6	1600-0004
250 mL (8 oz)	24 mm	17 mm	60 mm	134 mm	1/4	1600-0008
500 mL (16 oz)	28 mm	20 mm	73 mm	166 mm	1/4	1600-0016
1,000 mL (32 oz)	38 mm	26 mm	90 mm	203 mm	1/4	1600-0032
2,000 mL (64 oz)	38-430 mm	24 mm	121 mm	245 mm	1/2	1600-0064

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene PFA Narrow-Mouth Bottles with Closure

Thermo Scientific™ Nalgene™ Narrow-Mouth Bottles made of Teflon™ PFA with closure are among the most temperature-resistant, inert, chemical-resistant, corrosion-resistant containers available.

With outstanding resistance to extreme temperatures and virtually all chemicals, these bottles are ideal for trace metal analysis and applications involving organic solvents. The bottles can be rigorously cleaned in boiling nitric acid and are guaranteed leakproof\*.

## Key features

- Withstands  $-270^{\circ}\text{C}$  to  $250^{\circ}\text{C}$  ( $-454^{\circ}\text{F}$  to  $482^{\circ}\text{F}$ )
- Inert to virtually all chemicals except molten alkali metals, fluorine at high temperatures, and complex halogenated compounds at high temperatures and pressures
- Packaged individually
- Autoclavable



**Includes:** Leakproof\*, linerless PFA screw closures.

Note: These bottles cannot withstand gamma irradiation. Completely disengage threads or remove cap before autoclaving.

## Nalgene PFA Narrow-Mouth Bottles

Capacity	Closure size	Neck ID	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
30 mL (1 oz)	20 mm	14 mm	32 mm	75 mm	1/8	DS1630-0001
60 mL (2 oz)	20 mm	14 mm	39 mm	84 mm	1/8	DS1630-0002
125 mL (4 oz)	38-430 mm	24 mm	46 mm	127 mm	1/6	1630-0004
250 mL (8 oz)	38-430 mm	24 mm	59 mm	146 mm	1/4	1630-0008
500 mL (16 oz)	38-430 mm	24 mm	72 mm	181 mm	1/4	1630-0016
1,000 mL (32 oz)	38-430 mm	24 mm	90 mm	216 mm	1/4	1630-0032

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene FEP Wide-Mouth Bottles with Closure

Thermo Scientific™ Nalgene™ Wide-Mouth Bottles made of Teflon™ FEP with ETFE closures provide excellent temperature and chemical resistance.

With outstanding resistance to extreme temperatures and virtually all chemicals, these bottles are ideal for trace metal analysis and applications involving organic solvents. The bottles can be rigorously cleaned in boiling nitric acid and are guaranteed leakproof\*.

## Key features

- The most inert, chemical-resistant, and corrosion-resistant containers available; ideal for trace metal analysis and applications involving organic solvents
- Withstands rigorous cleaning in boiling nitric acid; temperature range from –105°C to 150°C (–157°F to 302°F) for a wide range of uses including high-purity storage
- Can be autoclaved for sterilization
- Wide mouth for easy filling
- Autoclavable, leakproof\*, and transparent



**Includes:** ETFE screw closure.

Note: These bottles cannot withstand gamma irradiation. Completely disengage threads or remove cap before autoclaving.

## Nalgene FEP Wide-Mouth Bottles

Capacity	Closure size	Neck ID	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
125 mL (4 oz)	33 mm	25 mm	46 mm	117 mm	1/6	2100-0004
250 mL (8 oz)	43 mm	33 mm	59 mm	128 mm	1/4	2100-0008
500 mL (16 oz)	48 mm	38 mm	71 mm	165 mm	1/4	2100-0016
1,000 mL (32 oz)	53 mm	43 mm	91 mm	209 mm	1/4	2100-0032

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

# Nalgene Wide-Mouth EP Tox/TCLP Bottle with Closure

Thermo Scientific™ Nalgene™ Wide-Mouth EP Tox/TCLP Bottles made with Teflon™ FEP with PFA-lined closures are ideal to use at high and low temperatures for trace metal analysis and applications with organic solvents.

Offers laboratories a safer alternative to glass.

## Key features

- 2.2 L temperature-resistant FEP bottle has wide mouth for large-sized samples
- PTFE resin-lined polypropylene caps included
- Specially designed for US EPA Method 1311: Toxicity Characteristic Leaching Program (TCLP)
- Autoclavable and leakproof\*

**Includes:** Polypropylene screw closure with PFA lining.

Note: This bottle cannot withstand gamma irradiation. Completely disengage threads before autoclaving.



## Nalgene Wide-Mouth EP Tox/TCLP Bottle

Capacity	Closure size	Neck ID	Outer diameter (OD)	Height with closure	No. per pack/case	Cat. No.
2.2 L	100 mm	89 mm	119 mm	241 mm	1/2	2101-2200

\* Our guarantee for a leakproof seal is subject to our standard product warranty, as set forth in the Thermo Fisher Scientific Terms and Conditions of Sale. Our products are leakproof at ambient temperature and pressure when used with their corresponding closures. However, to ensure safe usage, customers are advised to test our containers and closures under conditions of their planned applications. Please contact [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com) if you need additional information about our products.

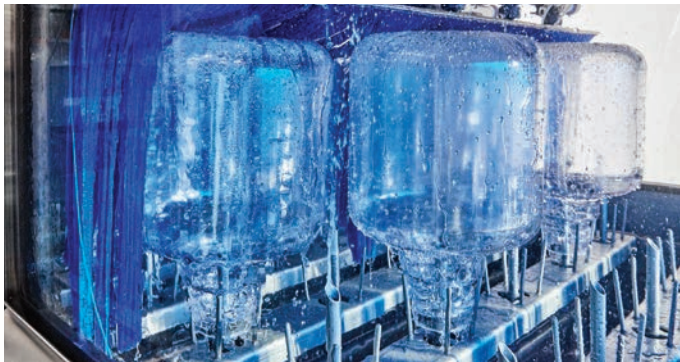
## Critical environment products

Clean process products and services are ideal for critical environments—the only thing in your container is what you add

Working within a critical environment such as a clean room necessitates high-quality materials and equipment since contamination can quickly spell disaster for what are typically exceedingly sensitive applications. It is therefore essential that products used in your critical environments, such as plastic bottles, vials, carboys, caps, and other materials, conform to necessary standards of cleanliness.

### Didn't find an item in our catalog to fit your needs?

Whether your cleaning needs are for high volumes or smaller quantities, Thermo Scientific™ critical container processing and cleaning services have the flexibility to meet your cleaning requirements.



### Recommended for biopharma, vaccine, and quality-control applications

All cleaning services and packaging can be done in our certified class 100/10 clean room with full traceability. Thermo Scientific™ processes available for standard and custom containers include:

- Low particle cleaning
- Depyrogenation
- Chemical cleaning for trace analysis
- Custom sterilization
- Surface modification services
- Custom packaging services
- Class 100/10 cleaning services

To see how easily your custom application can become routine, complete our custom cleaning specification sheet at [thermofisher.com/cleanrequest](https://www.thermofisher.com/cleanrequest) and receive feedback from our customer service specialists.



# Particle-Certified Glass Containers

Containers are assembled to contain as few as 5 particles/mL at  $\geq 0.5$  microns. Assembled with low-shedding polypropylene closures with chemically inert PTFE-faced liners that do not contain adhesives. Both clear and amber glass products are available.

## Key features

- Containers and closures cleaned in proprietary HEPA-filtered washing and drying equipment
- Clean packaged in Class 10 HEPA-filtered workstations inside our Class 100 clean room
- Certified to contain as few as 5 particles/mL at  $\geq 0.5$   $\mu\text{m}$
- Containers and components to meet USP <788> and other container sizes and materials available as custom options by contacting your sales specialist



## Applications

- Sampling for QC
- Pharmaceutical and biotech use

Description	Capacity, oz (mL)	Closure size, mm	Closure liner	OD x H, in.	OD x H, mm	Quantity	Cat. No.
Amber glass wide-mouth bottle with closed-top polypropylene closure ( $\leq 20$ particles/mL at 0.5 $\mu\text{m}$ )	0.5 (15)	28-400	PTFE	1.218 x 1.984	30.93	57	130-005/LP
Clear glass vial with open-top closure, particulate cleaned ( $\leq 10$ particles/mL at 0.5 $\mu\text{m}$ )	1.35 (40)	24-414	PTFE/silicone septa	1.08 x 3.74	27.5 x 95.0	90	140-40C/LP
Amber glass Boston round bottle with open-top closure ( $\leq 10$ particles/mL at 0.5 $\mu\text{m}$ )	2 (60)	20-400	PTFE/silicone septa	1.516 x 3.688	38.50 x 93.66	24	114-060A/LP
Amber glass packer bottle with lined closure ( $\leq 10$ particles/mL at 0.5 $\mu\text{m}$ )	2 (60)	33-400	PTFE	1.75 x 3.00	44.45 x 76.20	24	120-02A/LP
Clear glass Boston round bottle with closed-top closure ( $\leq 5$ particles/mL at 0.5 $\mu\text{m}$ )	4 (125)	24-414	PTFE/silicone	1.875 x 4.375	47.63 x 111.13	12	114-125CT/LP
Amber glass Boston round bottle with closed-top closure ( $\leq 5$ particles/mL at 0.5 $\mu\text{m}$ )	4 (125)	22-400	PTFE/silicone	1.875 x 4.375	47.63 x 111.13	12	114-125A/LP
Amber glass packer bottle with PTFE-lined closure ( $\leq 10$ particles/mL at 0.5 $\mu\text{m}$ )	4 (125)	38-400	PTFE	2.125 x 3.75	53.975 x 95.25	12	120-04A/LP
Clear glass Boston round bottle with closed-top closure ( $\leq 5$ particles/mL at 0.5 $\mu\text{m}$ )	8 (250)	24-414	PTFE/silicone	2.375 x 5.375	60.33 x 136.53	24	114-250C/LP
Amber glass Boston round bottle with closed-top closure ( $\leq 5$ particles/mL at 0.5 $\mu\text{m}$ )	8 (250)	22-400	PTFE/silicone	2.375 x 5.443	60.33 x 138.25	12	114-250A/LP
Amber glass wide-mouth packer bottle with closure ( $\leq 5$ particles/mL at 0.5 $\mu\text{m}$ )	8 (250)	45-400	PTFE	2.563 x 4.688	65.10 x 119.075	12	121-08A/LP
Clear glass jar, wide mouth, with closure ( $\leq 5$ particles/mL at 0.5 $\mu\text{m}$ )	16 (500)	89-400	PTFE	3.578 x 3.781	90.88 x 96.04	12	132-16C/LP
Amber glass Boston round bottle with closure ( $\leq 5$ particles/mL at 0.5 $\mu\text{m}$ )	16 (500)	28-400	PTFE	3.00 x 6.625	76.20 x 168.28	12	113-500A/LP
Amber glass wide-mouth packer bottle with closure ( $\leq 5$ particles/mL at 0.5 $\mu\text{m}$ )	16 (500)	53-400	PTFE	3.172 x 5.75	80.57 x 146.05	12	122-16A/LP
Amber glass Boston round bottle with closure ( $\leq 5$ particles/mL at 0.5 $\mu\text{m}$ )	32 (1,000)	33-430	PTFE/silicone	3.75 x 8.50	95.25 x 215.90	12	112-01A/LP
Clear glass jar, wide mouth, with closure ( $\leq 5$ particles/mL at 0.5 $\mu\text{m}$ )	32 (1,000)	89-400	PTFE	3.75 x 6.69	95.25 x 169.85	12	133-32C/LP
Amber fluorinated glass jug with closure ( $\leq 10$ particles/mL at 0.5 $\mu\text{m}$ )	80 (2,500)	38-430	PTFE/silicone	5.25 x 12.00	133.4 x 305.0	6	110-80A/LP
Amber glass wide-mouth packer bottle with closure ( $\leq 5$ particles/mL at 0.5 $\mu\text{m}$ )	84 (2,500)	70-400	PTFE	5.50 x 9.375	139.70 x 238.13	4	123-80A/LP
Amber glass jug with closure ( $\leq 5$ particles/mL at 0.5 $\mu\text{m}$ )	128 (4,000)	38-430	PTFE/silicone	6.25 x 13.25	158.75 x 336.55	4	111-04A/LP



# Class 100/10 Particle–Certified HDPE Bottles

Thermo Scientific™ Particle–Certified HDPE Bottles protect the quality of products or laboratory samples.

HDPE bottles with polypropylene closures are leakproof and suitable for use in sample packaging and may be used with combination packaging for hazardous shipping. Low-metals bottles are double bagged, and low-metals certification includes aluminum, calcium, copper, iron, potassium, magnesium, manganese, sodium, and zinc at <10 ppb each.

## Key features

- Produced in our Class 10/100 clean room
- Optional QC documentation available for several trace metals
- Certificate of Analysis provided
- Supplied with polypropylene closure

## Applications

- Sampling for stability studies
- Pharmaceutical and biotech use
- Plastic certified to contain as few as 20 particles/mL at  $\geq 0.5 \mu\text{m}$



## Class 100/10 Particle–Certified HDPE Bottles

Description	Capacity, oz (mL)	Closure size, mm	Liner	OD x H, in. (mm)	No. per case	Cat. No.
HDPE narrow-mouth Nalgene bottle with closure	4 (125)	24-415	NA	2.00 x 4.00 (50.80 x 101.60)	24	156-125W/N/LP
HDPE narrow-mouth Nalgene bottle with closure, low metals	4 (125)	24-415	NA	2.00 x 4.00 (50.80 x 101.60)	24	156-125W/N/LPM
HDPE narrow-mouth Nalgene bottle with closure	8 (250)	24-415	NA	2.50 x 5.25 (63.50 x 133.35)	24	157-250W/N/LP
HDPE narrow-mouth Nalgene bottle with closure	32 (1,000)	38-430	NA	3.625 x 8.50 (92.08 x 215.90)	12	150-01W/N/LP
HDPE narrow-mouth Nalgene bottle with closure, low metals	32 (1,000)	38-430	NA	3.625 x 8.50 (92.08 x 215.90)	12	150-01W/N/LPM

# Total Organic Carbon–Certified Vials

These low-level certified vials are intended for total organic carbon (TOC) testing and sampling. Several sizes of containers are available, including the popular 40 mL autosampler vials that are cleaned, certified, and ready to use. Use these vials to simplify and reduce the cost of cleaning validations.

## Key features

- Low background perfect for preparation and storage of standards
- Each lot tested and certified to contribute <10 or <20 ppb TOC background

## Applications

- USP Method <643> testing
- Offline and grab sampling of high-purity water



40 mL vials fit most automated TOC instruments

## Total Organic Carbon–Certified Vials

Description	Capacity, oz (mL)	Closure size, mm	Liner	OD x H, in.	OD x H, mm	Quantity	Cat. No.
Screw thread glass tube (round bottom) silanized 16 x 125 (certified for <20 ppb for TOC)	0.6 (18)	15-425	PTFE/silicone septa	0.563 x 5.00	14.30 x 127.0	255	CT18-TOC
Screw thread glass tube (round bottom) silanized with closure 16 x 125 (certified for <10 ppb for TOC)	0.6 (18)	15-425	PTFE/silicone septa	0.563 x 5.00	14.30 x 127.0	255	CT18-TOC/LL
Clear glass flat-bottom tube with closure 18 x 100 (<20 ppb for TOC)	0.58 (17)	15-425	PTFE/silicone septa	0.699 x 3.937	17.75 x 100.0	200	SCT-18100/TOC
30 mL polysulphone tube with closure, TOC cleaned only, no Certificate of Analysis (COA)	1 (30)	20-400	PTFE/silicone septa	1.02 x 3.74	26 x 95	100	3115-OTWS-2
24-414 polypropylene cap, TOC cleaned only, no COA	NA	24-414	PTFE/silicone septa	NA	NA	72	24-414/TS/WS-2
Clear glass vial with closure, dust covers (certified for <20 ppb for TOC)	1.35 (40)	24-414	PTFE/silicone septa	1.083 x 3.740	27.50 x 95.00	72	40C-TOC
Amber glass vial with closure, dust covers (certified for <10 ppb for TOC)	1.35 (40)	24-414	PTFE/silicone septa	1.083 x 3.740	27.50 x 95.00	144	40A-TOC/DB/LL
Clear glass vial with closure, dust covers (certified for <20 ppb for TOC)	1.35 (40)	24-414	PTFE/silicone septa	1.083 x 3.740	27.50 x 95.00	144	40C-TOC/DB
Clear glass vial with closure, dust covers (certified for <10 ppb for TOC)	1.35 (40)	24-414	PTFE/silicone septa	1.083 x 3.740	27.50 x 95.00	144	40C-TOC/DB/LL
Clear glass vial (certified for <10 ppb for TOC)	1.35 (40)	24-414	PTFE/silicone septa	1.125 x 3.75	28.58 x 95.25	72	40C-TOC/LL
Amber glass Boston round bottle with closed-top closure (certified for <20 ppb TOC)	4 (125)	22-400	PTFE/silicone	1.875 x 4.375	47.63 x 111.13	12	S114-125A/TOC
Amber glass Boston round bottle with open-top polypropylene closure (certified for <20 ppb TOC)	8 (250)	24-414	PTFE/silicone septa	2.359 x 5.368	59.92 x 136.35	12	S114-250A/TOC
Clear glass Boston round bottle with open-top polypropylene closure (certified for <20 ppb TOC)	8 (250)	24-414	PTFE/silicone septa	2.359 x 5.368	59.92 x 136.35	24	S114-250C/TOC
Clear glass Boston round bottle with closed-top closure (certified for <20 ppb TOC)	32 (1,000)	33-400	PTFE	3.797 x 8.531	96.44 x 216.69	12	1000C/TOC
Amber glass Boston round bottle with closed-top closure (certified for <20 ppb TOC)	32 (1,000)	33-430	PTFE	3.797 x 8.531	96.44 x 216.69	12	1000A/TOC

# Total Organic Carbon Water

Thermo Scientific™ high-purity specialty water is low in organic and inorganic impurities at the time of packaging.

Processing includes reverse osmosis, activated carbon, and ultraviolet TOC reduction. Certified to down to 50 ppb. Use for sample and standard dilutions, lab blank determination, and equipment rinsing.

## Key features

- Exceeds 17 megaohm resistivity
- Filtered through 0.1 µm hydrophobic membrane filters

## Applications

- Sample and standards dilution
- Lab blank determination
- Equipment rinsing



## Total Organic Carbon Water

Description	Capacity, oz (mL)	Closure size, mm	Liner	OD x H, in. (mm)	No. per case	Cat. No.
Amber glass bottle with closure (filled)	32 (1,000)	33-430	PTFE/silicone	3.70 x 8.10 (93.98 x 205.74)	12	112-01A/CTOC
Amber jug with closure (filled)	128 (4,000)	38-430	PTFE/silicone	6.25 x 13.25 (158.75 x 336.55)	4	111-04A/C-TOC

# Depyrogenated Glass Containers

Thermo Scientific™ Depyrogenated Glass Containers are specially prepared to meet endotoxin levels of 0.06 EU/mL. Reduce the need to invest in expensive capital equipment with ready-to-use depyrogenated glassware in a wide variety of sizes and configurations.

## Key features

- Cleaning and packaging performed in our Class 100/10 clean room
- Endotoxin levels surpass USP Water for Injection (0.25 EU/mL)
- Certificate of Analysis provided



## Applications

- Packaging and storing articles that will be terminally sterilized
- Storage of laboratory reagents and media
- Sample storage
- Water sampling

## Depyrogenated Glass Containers

Description	Capacity, oz. (mL)	Closure size, mm	Liner	OD x H (in.)	OD x H (mm)	Qty	Cat. No.
Clear glass vial with urea closure	0.12 (4)	13-425	PTFE	0.583 x 1.772	14.8 x 45.00	72	23-CTP4/PF
Clear glass vial with closed-top black polypropylene closure	0.68 (20)	24-400	PTFE/silicone	1.083 x 2.244	27.50 x 57.00	72	139-20C/CT/LP/PF
Clear glass wide-mouth straight-side jar with closure	2 (60)	53-400	PTFE	2.2 x 1.9	55.88 x 48.26	24	130-02C/PF
Amber glass wide-mouth jar with closure	2 (60)	33-400	PTFE	1.75 x 2.968	44.45 x 75.39	24	C20-02A/PF
Amber glass wide-mouth straight-side short jar with closure	4 (125)	58-400	PTFE	2.25 x 2.75	57.15 x 69.85	24	130-04A/PF
Clear glass wide-mouth straight-side short jar with closure	4 (125)	58-400	PTFE	2.359 x 2.702	59.92 x 68.63	24	130-04C/PF
Clear glass wide-mouth tall jar with closure	4 (125)	48-400	PTFE	2.00 x 4.00	50.80 x 101.60	24	130-04C/TL/PF
Amber glass wide-mouth packer bottle with closure	4 (125)	38-400	PTFE	2.125 x 3.75	53.98 x 95.25	24	C20-04A/PF
Amber glass wide-mouth packer bottle with closure	8 (250)	45-400	PTFE	2.563 x 4.688	65.100 x 119.075	12	121-08A/PF
Amber glass wide-mouth straight-side jar	8 (250)	70-400	PTFE	2.875 x 3.5	73.03 x 88.90	24	131-08A/PF
Clear glass wide-mouth straight-side jar	8 (250)	70-400	PTFE	2.875 x 3.5	73.03 x 88.90	24	131-08C/PF
Amber glass wide-mouth packer bottle with closure	16 (500)	53-400	PTFE	3.172 x 5.75	80.57 x 146.05	12	122-16A/PF
Clear glass wide-mouth straight-side jar	16 (500)	89-400	PTFE	3.578 x 3.781	98.87 x 90.88	12	132-16C/PF
Amber glass wide-mouth packer bottle with closure	32 (1,000)	53-400	PTFE	3.89 x 7.00	98.81 x 177.8	12	123-32A/PF
Clear glass wide-mouth bottle with closure	32 (1,000)	89-400	PTFE	3.75 x 6.687	95.25 x 169.85	12	133-32C/PF
Amber glass wide-mouth packer bottle with closure	40 (1,200)	70-400	PTFE	7.500 x 4.125	190.50 x 104.78	24	123-40A/PF
Clear glass wide-mouth bottle	64 (2,000)	83-400	PTFE	5.00 x 8.50	127.00 x 215.90	6	117-2L/PF
Amber glass wide-mouth packer bottle with closure	84 (2,500)	70-400	PTFE	5.50 x 9.375	139.70 x 238.13	4	123-80A/PF
Clear glass wide-mouth bottle	128 (4,000)	110-400	PTFE	6.145 x 9.953	156.08 x 252.81	4	117-4L/PF

# Depyrogenated Sterile Vials

Thermo Scientific™ Depyrogenated Sterile Vials are available in sizes from 1 mL to 100 mL. Sterile vials are Type 1 borosilicate, assembled with butyl stoppers and aluminium seals.

## Key features

- Suitable for the same applications as Depyrogenated Glass Containers, but where an aseptic protocol is required
- Certificate of Sterility and Pyrogen Test included with each lot



## Depyrogenated Sterile Vials

Description	Capacity, oz (mL)	Closure size, mm	Closure liner	OD x H (in.)	OD x H (mm)	Qty	Cat. No.
Clear glass vial preassembled with stopper and aluminum crimp seal	0.068 (2)	13	Butyl rubber stopper	0.63 x 1.378	16 x 35	100	ST2-13
Amber glass vial preassembled with stopper and aluminum crimp seal	0.068 (2)	13	Butyl rubber stopper	0.63 x 1.378	16 x 35	100	ST2-13A
Clear glass vial preassembled with stopper and aluminum crimp seal	0.17 (5)	20	Butyl rubber stopper	0.781 x 1.50	19.84 x 38.10	50	ST5-20
Amber glass vial preassembled with stopper and aluminum crimp seal	0.17 (5)	20	Butyl rubber stopper	0.781 x 1.50	19.84 x 38.10	50	ST5-20A
Clear glass vial preassembled with stopper and aluminum crimp seal	0.34 (10)	20	Butyl rubber stopper	0.813 x 2.00	20.65 x 50.80	50	ST10-20
Amber glass vial preassembled with stopper and aluminum crimp seal	0.34 (10)	20	Butyl rubber stopper	0.813 x 2.00	20.65 x 50.80	50	ST10-20A
Clear glass vial preassembled with stopper and aluminum crimp seal	0.68 (20)	20	Butyl rubber stopper	0.969 x 2.313	24.61 x 58.75	50	ST20-20
Clear glass vial preassembled with stopper and aluminum crimp seal	1.014 (30)	20	Butyl rubber stopper	1.313 x 2.50	33.35 x 63.50	50	ST30-20
Amber glass vial preassembled with stopper and aluminum crimp seal	1.014 (30)	20	Butyl rubber stopper	1.313 x 2.50	33.35 x 63.50	50	ST30-20A
Clear glass vial preassembled with stopper and aluminum crimp seal	1.7 (50)	20	Butyl rubber stopper	1.50 x 2.688	38.1 x 68.28	50	ST50-20
Amber glass vial preassembled with stopper and aluminum crimp seal	1.7 (50)	20	Butyl rubber stopper	1.50 x 2.688	38.1 x 68.28	50	ST50-20A
Clear glass vial preassembled with stopper and aluminum crimp seal	3.4 (100)	20	Butyl rubber stopper	1.75 x 3.75	44.45 x 95.25	50	ST100-20
Amber glass vial preassembled with stopper and aluminum crimp seal	3.4 (100)	20	Butyl rubber stopper	1.75 x 3.75	44.45 x 95.25	50	ST100-20A

# Silanized Glassware Products

Deactivated sites on the surface of the glass allow for maximum recovery of trace analytes. The Thermo Scientific™ line of ready-to-use silanized vials and culture tubes save valuable time and minimize costs when performing quantitative analysis or storing materials. Use for trace organic analysis, processing of materials prone to glass adhesion, or extraction glassware needs.

## Key features

- Barrier coating provides protection against alkalinization of stored materials
- Save valuable personnel time and minimize waste costs
- Certificate of conformance included



## Silanized Glassware Products

Description	Capacity, oz (mL)	Closure size, mm	Liner	OD x H (in.)	OD x H (mm)	Qty	Cat. No.
Amber glass vial with screw-thread closure	0.068 (2)	8-425	PTFE/silicone	0.472 x 1.26	11.99 x 32.00	100	SAA-SV2-2
Clear glass vial with closed-top closure	0.068 (2)	8-425	PTFE	0.472 x 1.26	11.99 x 32.00	100	SCA-SV2-2
Amber glass vial with closed-top closure	0.068 (2)	8-425	PTFE	0.472 x 1.26	11.99 x 32.00	100	SCA-SV2-CT
Amber glass vial with closure	0.12 (4)	13-425	PTFE/foam	0.583 x 1.772	14.80 x 45.00	100	EP608154-S
Amber glass vial with closed-top closure	0.12 (4)	13-425	PTFE	0.583 x 1.772	14.80 x 45.00	100	SAA-SV4-2
Clear glass vial with closed-top closure	0.12 (4)	13-425	PTFE	0.583 x 1.772	14.80 x 45.00	100	SCA-SV4-2
Amber glass vial with closure	0.27 (8)	15-425	PTFE/foam	0.669 x 2.362	16.99 x 59.99	100	EP608158-S
Amber glass vial with solid closed-top septa closure	0.68 (20)	24-414	PTFE/silicone	1.083 x 2.244	27.50 x 57.00	72	C39-20A/CT-S
Clear glass vial with solid closed-top septa closure	0.68 (20)	24-414	PTFE/silicone	1.083 x 2.244	27.50 x 57.00	72	C39-20C/CT-S
Amber glass Boston round bottle with black closure	32 (1,000)	33-430	PTFE	3.797 x 8.531	96.44 x 216.69	12	212-01A-S
Amber vial with closed-top polypropylene closure	0.68 (20)	24-414	PTFE/silicone	1.125 x 2.25	28.60 x 57.15	72	239-20A/CT-S

## Silanized Disposable Culture Tubes, Type 1 borosilicate glass\*

Clear glass culture tubes 12 x 75 (closures are not included)	0.20 (6)	NA	NA	0.47 x 2.95	12 x 75	1,000	CTS-1275
Screw-thread glass tube 13 x 100 (closures are not included)	0.27 (8)	13-415	NA	0.51 x 3.94	13 x 100	1,000	STT-13100-S
Clear glass culture tubes 13 x 100 (closures are not included)	0.34 (10)	NA	NA	0.51 x 3.94	13 x 100	1,000	CTS-13100
Screw-thread glass tube 16 x 100 (closures are not included)	0.41 (12)	15-415	NA	0.63 x 3.94	16 x 100	1,000	STT-16100-S
Clear glass culture tubes 16 x 100 (closures are not included)	0.51 (15)	NA	NA	0.63 x 3.94	16 x 100	1,000	CTS-16100
Screw-thread glass tube 16 x 125 (closures are not included)	0.54 (16)	15-415	NA	0.63 x 4.92	16 x 125	1,000	STT-16125-S
Clear glass culture tubes 16 x 125 (closures are not included)	0.64 (19)	NA	NA	0.63 x 4.92	16 x 125	1,000	CTS-16125-2

\* Type 1 borosilicate glass tubes sold 1,000 per case, 250 per inner pack.

# Adherent cell culture systems

When it comes to producing consistent-quality vaccines and biologics designed to improve and save lives, nobody can do it alone. We have the hands-on expertise to help you accelerate productivity and ease the burden of regulatory compliance. With a comprehensive range of adherent cell production and storage solutions, a global supply chain, and commitment to service and support, we're with you every step of the way.

Perfect your cell culture processes at every stage, from research and process development to large-scale biomanufacturing. The quality of our Thermo Scientific™ Nunc™ production cell culture platforms, including Nunc Cell Factory™ systems and Nunc™ roller bottles, reflects the rigorous standards that have made us the world's leading provider of cell culture products.

## Cell Factory systems and accessories

Scale up production of vaccines, monoclonal antibodies, or pharmaceuticals. Nunc Cell Factory systems are compact, multilayer, single-use adherent cell culture systems designed to meet the needs of scale-up and production of your products.

## Cell Factory automation equipment

Supports the use of aseptic methods for fluid handling relating to filling, inoculation, feeding, and harvesting 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.

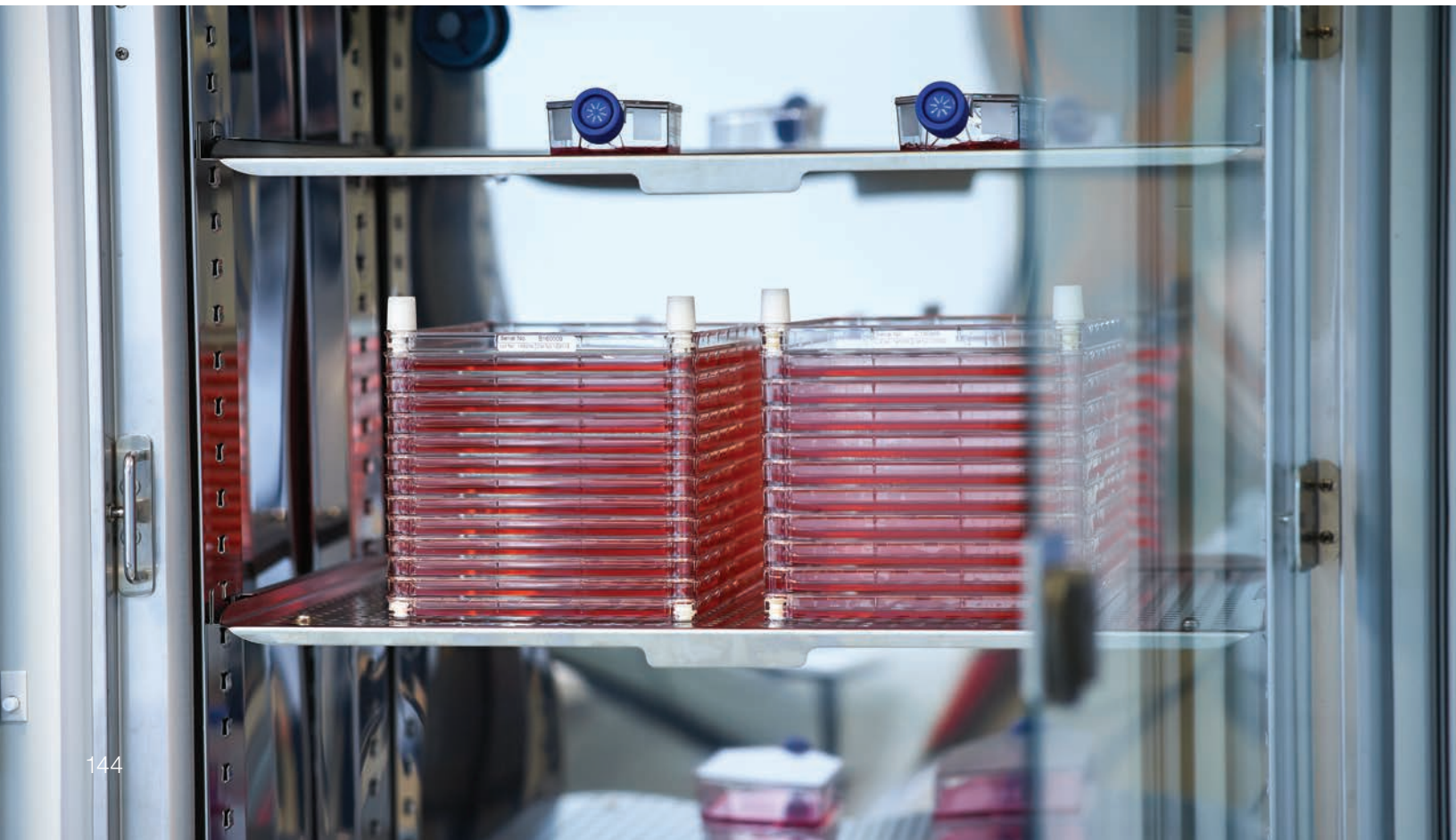
## Roller bottles

Developed for applications such as industrial-scale production of vaccines, monoclonal antibodies, and biotherapeutics, Nunc roller bottles provide the reliability that you demand for all your cell growth needs.

We offer an unmatched portfolio of Nunc roller bottles. The choice is yours with options available in both polystyrene (PS) and polyethylene terephthalate (PETG) with smooth and expanded surface formats, enabling you to find the optimal substrate for your cell culture.

Find out more at

[thermofisher.com/cellfactory](https://thermofisher.com/cellfactory)



# Standard Nunc Cell Factory systems

The standard Thermo Scientific™ Nunc™ Cell Factory™ system is the proven solution for large-scale production of cells, vaccines, and therapeutic proteins—with the same growth kinetics as laboratory-scale cell culture products.

Available in 1-, 2-, 4-, 10-, and 40-tray versions, the ports of the standard Cell Factory system make it easy to customize and create a closed system with the use of custom tubing assemblies that facilitate venting, filling, and harvesting.

## Key features

- Constructed of polystyrene and assembled without use of adhesives or solvents
- Ideal for adherent cells
- Boost production efficiency with more surface area in a small footprint
- Reduce contamination risks with a closed system
- Experience faster results and lot-to-lot consistency
- Certified Thermo Scientific™ Nunc™ Nunclon™ Delta surface ensures consistent growth, layer to layer



## Standard Cell Factory systems

Sterile polystyrene chambers with Thermo Scientific™ Nunclon™ Delta surface.

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

## Each Nunc Cell Factory system includes a set of:

White Tyvek™ filter adaptor caps (Cat. No. 167525)



Port cover caps, blue (Cat. No. 170615)





# Nunc EasyFill Cell Factory systems

The Thermo Scientific™ Nunc™ EasyFill™ Cell Factory™ system is a single-use system with a large, vented screw closure and versatile port design for pouring and aseptic filling.

To get started, simply pour the media directly into the large opening of the EasyFill Cell Factory system. The linear, multilayer format promotes easy scalability and is ideal for both research and commercial-scale cell culture applications.

## Key features

- Constructed of polystyrene and assembled without use of adhesives or solvents
- Save valuable space; each 10-layer system holds the equivalent of 36 T-175 flasks
- Enhance productivity with 5x faster fill and empty times compared to T-175 flasks
- Achieve fast start-up; no accessories required with Nunc EasyFill Cell Factory systems
- Certified Nunc Nunclon Delta surface ensures consistent growth layer to layer, lot to lot



## 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 <sup>2</sup>	335 x 205 x 35 mm (13.2 x 8.1 x 1.4 in.)	Case of 6	140000
2	1,264 cm <sup>2</sup>	335 x 205 x 53 mm (13.2 x 8.1 x 2.1 in.)	Case of 6	140250
4	2,528 cm <sup>2</sup>	335 x 205 x 87 mm (13.2 x 8.1 x 3.4 in.)	Case of 4	140360
10	6,320 cm <sup>2</sup>	335 x 205 x 190 mm (13.2 x 8.1 x 7.5 in.)	Case of 2	140400
10	6,320 cm <sup>2</sup>	335 x 205 x 190 mm (13.2 x 8.1 x 7.5 in.)	Case of 6	140410
40	25,280 cm <sup>2</sup>	335 x 205 x 698 mm (13.2 x 8.1 x 27.5 in.)	Case of 2	140440

# Nunc High-Density Cell Factory systems

Thermo Scientific™ Nunc™ High-Density Cell Factory™ systems offer 30% more surface area and yield\* than the standard Cell Factory system or similar multitray systems for adherent cell culture. The economic benefits of these high-density systems are immediate with impacts across many functions of an organization, as they enable end users to optimize their manufacturing footprint, reduce labor and material usage, and increase cell culture yield.

## Key features

- **Increase yield**—30% more surface area and yield\* all within the standard Cell Factory system footprint
- **Enhance productivity**—increase labor and handling efficiencies by achieving more output in a single process
- **Improve process economics**—increase manufacturing capacity without capital investment
- **Seize environmental opportunities**—consume less and reduce your decontamination and waste disposal costs
- **Maintain current protocols**—constructed of polystyrene chambers and assembled without use of adhesives or solvents

\* The increase in yield may vary depending on the type of cells cultured.



## 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 <sup>2</sup>	333 x 204 x 54 mm (13.1 x 8.0 x 2.1 in.)	Case of 4	169160
13	8,216 cm <sup>2</sup>	333 x 204 x 186 mm (13.1 x 8.0 x 7.3 in.)	Case of 3	169118
52	32,864 cm <sup>2</sup>	333 x 204 x 698 mm (13.1 x 8.0 x 27.5 in.)	Case of 1	169102

# Nunc Cell Factory accessories

Thermo Scientific™ 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

# Nunc Automated Cell Factory Manipulator

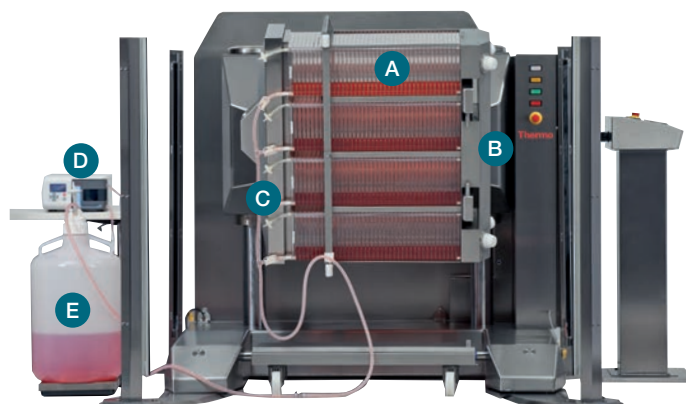
The Nunc Automated Cell Factory Manipulator is a high-quality, fully programmable system that automates the handling of Nunc Cell Factory systems. Keep your proven adherent cell culture practices and simplify your scale-up to achieve consistent and reliable results. Designed for use in clean room environments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

## Features

- 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 29 modifiable preinstalled programs and can store up to 36 different programs
- Programs to help automate filling, washing, emptying, trypsinizing, and harvesting steps of Nunc Cell Factory systems
- Optional Process Field Bus (PROFIBUS) data interface
- Can be part of a closed system workflow
- Compatible with many “sensitive” cell lines

## Consumables customization

Nunc Cell Factory systems can be configured with tubing sets/manifolds to enable a closed system workflow that works seamlessly with the Nunc Automated Cell Factory Manipulator. These tubing sets are customized to your specific needs through our configuration service.



## Required accessories

- A. Nunc Cell Factory systems (CF10/40 or HDCF13/52)
- B. Nunc Cell Factory racks and carts
- C. Tube sets and filter assemblies
- D. Peristaltic pump
- E. Thermo Scientific™ Nalgene™ Carboys, BPEs, or other containers

## Specifications

<b>Footprint (W x D x H)</b>	206.8 x 179 x 194.4 cm (max) 81.4 x 70.47 x 76.54 in. (max)
<b>Construction</b>	1.4404 (AISI 316L) stainless steel
<b>Unit weight</b>	1,050 kg (2,314.9 lb)
<b>Load capacity</b>	>200 kg (>440.9 lb)
<b>Rated voltage</b>	208–400 V, triple phase, 50/60 Hz**
<b>Current draw</b>	6.5–15.5 A (each phase)
<b>Connected load</b>	4.5–5.6 kVA
<b>Declaration of conformity</b>	
<b>Machinery directive</b>	2006/42/EC
<b>Electromagnetic compatibility directive</b>	2014/30/EC

## Nunc Automated Cell Factory Manipulator

Description	Cat. No.
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

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

\*\* Other voltages on request.

# Nunc Cell Factory Shaker System

The Nunc Cell Factory Shaker System offers a high-quality, automated solution for the consistent detachment of especially adherent cells from Nunc Cell Factory systems. It eliminates the need for shaking and pounding, supporting workflow dependability and efficiency.

## 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)
- Performs a continuous, horizontal accelerated and decelerated movement
- Programmable shaking time
- Shaking frequency can be adjusted between 0 and 2 Hz
- All visible components made of 304L stainless steel for easy cleaning
- Standard safety light curtain
- Can be part of a closed system workflow



## Specifications

<b>Footprint (W x D x H)</b>	170.6 x 59 x 128.2 cm 67.2 x 23.2 x 50.5 in.
<b>Construction</b>	1.4301 (AISI 304L) stainless steel
<b>Unit weight</b>	650 kg (1,433.0 lb)
<b>Load capacity</b>	>125 kg (275.6 lb)
<b>Rated voltage</b>	208–240 V, single phase, 50/60 Hz
<b>Rated power</b>	1 kVA
<b>Current draw</b>	4.3 A
<b>Connected load</b>	1.0 kVA

## Declaration of conformity

<b>Machinery directive</b>	2006/42/EC
<b>Electromagnetic compatibility directive</b>	2104/30/EC

## Nunc Cell Factory Shaker System

Description	Cat. No.
Nunc Cell Factory Shaker, Gen 2, 208–240 V, 50/60 Hz, single phase	132849
<b>Nunc Cell Factory racks and carts</b>	
Side Loading Rack with Cart for 40-layer Nunc Cell Factory systems and 52-layer Nunc High Density Cell Factory systems	140503
Side Loading Rack with Cart for 10-layer Nunc Cell Factory systems and 13-layer Nunc High Density Cell Factory systems	140504
Retrofit Clamping Kit for Racks for Use with Shaker	120289

# Nunc Cell Factory Incubator

Achieve process consistency with Nunc Cell Factory Incubators. Mitigate the risk of spillage from moving full cell factories. The convenient floor-level height of the shelves makes it easy to load and unload carts. Designed to seamlessly accommodate four racks of 10-layer or 40-layer Nunc Cell Factory systems.

## Features

- Can handle forty-eight 10-layer or sixteen 40-layer standard Nunc Cell Factory systems (forty-eight 13-layer or sixteen 52-layer Nunc High Density Cell Factory systems)
- Available with and without CO<sub>2</sub> control (0–20% CO<sub>2</sub>)
- Optional CO<sub>2</sub> sensor with infrared technology
- Equipped with warning and alarm systems
- Temperature control from 7°C to 50°C
- Incubator cabinet and interior made of stainless-steel grade 316L for easy cleaning
- Can be part of a closed system workflow



## Specifications

<b>Footprint (W x D x H)</b>	186 x 118.5 x 148.9 cm 73.23 x 46.65 x 58.62 in.
<b>Construction</b>	1.4404 (AISI 316L) stainless steel
<b>Unit weight</b>	600 kg (1,322.8 lb)
<b>Load capacity</b>	600 kg (1,322.8 lb)
<b>Rated voltage</b>	208–240 V, single phase, 50/60 Hz
<b>Rated power</b>	1.25 kVA at 230 V
<b>Current draw</b>	5.4 A at 230 V
<b>Range</b>	7°C above ambient to 50°C
<b>Uniformity</b>	±0.6°C at 37°C
<b>Power consumption</b>	320 Wh/h at 37°C operation

## Declaration of conformity

<b>Machinery directive</b>	2014/35/EC
<b>Electromagnetic compatibility directive</b>	2014/30/EC

## Nunc Cell Factory Incubators

Description	Cat. No.
Nunc Cell Factory Incubator, Gen 5, 208–240 V, 50/60 Hz, single phase	120100
Nunc Cell Factory Incubator, with CO <sub>2</sub> control, Gen 5, 208–240 V, 50/60 Hz, single phase	120300
Related products	
Side Loading Rack with Cart for 40-layer Nunc Cell Factory systems and 52-layer Nunc High Density Cell Factory systems	140503
Side Loading Rack with Cart for 10-layer Nunc Cell Factory systems and 13-layer Nunc High Density Cell Factory systems	140504

# Nunc Cell Factory racks and carts

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
- Nunc Cell Factory 40-layer carts can accommodate other layered adherent cell culture systems
- Nunc Cell Factory 10-layer carts can be customized to accommodate other layered adherent cell culture systems



## Specifications

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

## Integrates with:

- Nunc Cell Factory Incubator
- Nunc Automated Cell Factory Manipulator
- Nunc Cell Factory Shaker System
- Nunc Cell Factory hand manipulators
- Fluid transfer assemblies

## Nunc Cell Factory Racks and Carts

Description	Cat. No.
Side Loading Rack with Cart for 40-layer Nunc Cell Factory systems and 52-layer Nunc High Density Cell Factory systems	140503
Side Loading Rack with Cart for 10-layer Nunc Cell Factory systems and 13-layer Nunc High Density Cell Factory systems	140504
Retrofit Clamping Kit for Racks for Use with Shaker	120289

# Nunc Cell Factory hand manipulator systems

Thermo Scientific™ Nunc™ Cell Factory™ hand manipulators are designed for the safe and efficient handling of individual 10- and 40-layer Cell Factory systems. Constructed of quality stainless steel, they are ideal for clean room environments. The Thermo Scientific™ Nunc™ Cell Factory™ 40 hand manipulator is mobile and includes a foot brake for safe placement. The Thermo Scientific™ Nunc™ Cell Factory™ 10 hand manipulator is compact and ideal for use within in a biosafety cabinet.

## Specifications

### 10-layer

**Footprint (W x D x H)** 30.3 x 55.7 x 36.6 cm  
11.9 x 21.9 x 14.4 in.

**Construction** 1.4301 (AISI 304L) stainless steel

**Unit weight** 9.5 kg (20.9 lb)

### 40-layer

**Footprint (W x D x H)** 76.5 x 67 x 135.2 cm (max)  
30.1 x 26.4 x 53.2 in. (max)

**Construction** 1.4301 (AISI 304L) stainless steel

**Unit weight** 27 kg (59.5 lb)



40-layer Nunc Cell Factory hand manipulator system

## Nunc Cell Factory hand manipulator system

Description	Cat. No.
Nunc 10-layer Cell Factory Hand Manipulator System	132752
Nunc 40-layer Cell Factory Hand Manipulator System	176953



# Nunc PS Roller Bottles

Thermo Scientific™ Nunc™ PS Roller Bottles provide reliability and reproducibility necessary for laboratory- and industrial-scale applications, including vaccines, cell culture expansion, and the production of other biologics. Minimize validation of cell culture scale-up processes from plates to flasks to roller bottles by choosing a family of products that utilize polystyrene materials.

## Key features

- Constructed of polystyrene with high-density polyethylene closures
- One-piece seamless design reduces possibility of leaking through a seam
- Shallow and deep indents at bottom make the roller bottle excellent for both manual and automated handling
- Noncytotoxic; USP <87>, USP Class VI, and USP <85> endotoxin compliance
- Vertical pleat orientation facilitates emptying and reduces retention of product
- Roller bottles are cell culture treated for consistent, reliable cell attachment
- Gamma sterilized to 10<sup>-6</sup> SAL



## Nunc PS Roller Bottles

Description	Surface area, cm <sup>2</sup>	No. per pack	No. per case	Cat. No.
Roller bottle, smooth surface, vented	850	2	20	181702
		20	20	182702
Roller bottle, smooth surface	850	20	20	182720
		20	20, double bagged	182744
EZ roller bottle, smooth surface, shallow indent, vented	850	2	20	183302
EZ roller bottle, smooth surface, deep indent, vented	850	2	20	183902
EZ roller bottle, smooth surface, shallow indent	850	2	20	184302
		20	20, double bagged	184344
EZ roller bottle, smooth surface, deep indent	850	2	20, double bagged	184902
		20	20	184920
Roller bottle, pleated surface, vented	1,450	20	20, double bagged	141744
		20	20	142720
Roller bottle, pleated surface	1,450	20	20, double bagged	142744

# Nunc PETG Roller Bottles

Thermo Scientific™ Nunc™ PETG Roller Bottles increase cell expansion and product yield without the need to purchase additional production equipment or increase labor.

For laboratory- and industrial-scale applications including vaccines, cell culture expansion, and the production of other biologics.

## Key features

- Molded of durable, virtually unbreakable PETG, offering the safest roller bottle solution on the market today
- Can be frozen down to  $-40^{\circ}\text{C}$ ; supports freeze/thaw cell release methods, reducing reliance on trypsin
- Gamma sterilized to  $10^{-6}$  SAL
- Quick-action HDPE ergonomic closure reduces wrist strain and increases productivity
- Noncytotoxic; USP <87>, USP Class VI, and USP <85> endotoxin compliance



## Nunc PETG Roller Bottles

Description	Surface area, cm <sup>2</sup>	No. per pack	No. per case	Cat. No.
Roller bottle, smooth surface	1,050	5	20	1060-05
		20	20	1060-20
Roller bottle, smooth surface, vented	1,050	5	20	1060-85
Roller bottle, pleated surface	1,700	20	20	1760-20
Roller bottle, smooth surface	1,800	22	22	1860-22
Roller bottle, pleated surface	2,100	5	20	2160-05
		20	20	2160-20
Roller bottle, pleated surface	4,200	22	22	4260-22

# Nalgene PC Culture Vessel with Ports

Thermo Scientific™ Nalgene™ Culture Vessels feature four ports supporting easy access to your suspension cultures. Economical, lightweight, and break-resistant.

## Key features

- Molded of transparent PC for easy viewing of cultures
- White polypropylene closures
- Graduated in 0.5 L increments from 3 to 12 L
- Use with overhead drive mixers and lower assemblies for top-to-bottom mixing
- Port accessories are available; ports accept any Thermo Scientific™ Nalgene™ 38-430 size closure
- Noncytotoxic, autoclavable, and USP Class VI-compliant



**Nalgene PC Culture Vessel with Ports**

Working capacity	No. of ports	No. per case	Cat. No.
12 L	4 x 38-430	1	2600-0012

# Nalgene PP Probe Adapter Closure

Thermo Scientific™ Nalgene™ Probe Adapter Closures allow for insertion of 7 to 14 mm diameter probes into Nalgene culture vessels and bottles with 38-430 neck finishes.

Provides controlled access to the interior of culture vessels.

## Key features

- Molded of autoclavable PP; ready for in-house sterilization
- Includes a silicone gasket to ensure a leakproof seal
- Allows insertion of 7 mm to 14 mm diameter probes into 1 L and 12 L culture vessels
- Ideal for use with any Nalgene bottle or culture vessel with a 38-430 neck finish



**Nalgene PP Probe Adapter Closure**

Description	No. per case	Cat. No.
38-430 probe adapter closure	2	2145-0384

# Nalgene PP Closures with Barbed Bulkhead Fittings

Thermo Scientific™ Nalgene™ PP Closures with Barbed Bulkhead Fittings support the integration of tubing sets with Nalgene culture vessels. Promotes the customization of Nalgene culture vessels for aseptic transfer of liquids.

## Key features

- Size 38-430 closures are predrilled, allowing for easy, safe in-house assembly
- Barbed bulkhead fittings also sold separately (Cat. No. 6149-0001 and 6149-0002)
- Molded of autoclavable PP, ready for in-house sterilization



## Nalgene PP Closures with Barbed Bulkhead Fittings

Description	No. per case	Cat. No.
38-430 closure with 1/2 in. OD barbed fitting	4	DS2167-0001
38-430 closure with 1/4 in. OD barbed fitting	4	DS2167-0002

# Nalgene Magnetic Carboy Stirrer

Thermo Scientific™ Nalgene™ Magnetic Carboy Stirrer is used with Nalgene 10 L and 20 L carboys for low-speed mixing of high volumes of media and buffer solution.

Adjusts easily to fit either a 10 L or 20 L Nalgene carboy with an 83B closure. Supplied with a closure and two impellers. Eliminates the need to retrieve magnets from your solution.

## Key features

- Polyvinylidene fluoride with stainless steel–reinforced shaft, TFE stir bar, impeller, and polypropylene screw closure
- Provides low-speed mixing of high volumes of media and buffer solution
- Fits 10 L or 20 L Nalgene carboys with 83B closure
- For use with a magnetic stir plate (not included)
- Autoclavable

## Nalgene Magnetic Carboy Stirrer

Length	No. per case	Cat. No.
588 mm	1	DS2227-0020



## Specifications

Closure size, mm	83B
Shaft OD	13 mm
Shaft length	588 mm
Stir bar diameter	13 mm
Stir bar length	75 mm

# Nalgene Autoclavable Septum Closures

Thermo Scientific™ Nalgene™ Autoclavable Septum Closures allow aseptic injection of reagent or sample withdrawal without compromising sterility or integrity of contents. Suitable for use with any bottle or container with 38-430 neck, including Nalgene culture vessels.

## Key features

- Use with 18-gauge or smaller needles for aseptic injection of reagent or sample withdrawal without compromising sterility or integrity of contents
- Thermoplastic elastomer
- Autoclavable

Note: For laboratory use only; not for in vitro diagnosis or parenterals.

## Nalgene Autoclavable Septum Closures

Description	No. per case	Cat. No.
38-430 autoclavable septum closures	12	DS2168-0384



# Single-use bioprocessing equipment and automation

Speed to market and risk mitigation are top customer concerns, and Thermo Fisher Scientific offers expertise and solutions to address these concerns seamlessly. We manufacture single-use equipment to facilitate easy integration and customization across upstream and downstream bioprocessing workflows. Our control and hardware, utilizing Emerson DeltaV data management solutions create flexible operating systems with the integration of modular hardware, novel single-use sensors, and state-of-the-art bioreactors for strategic and streamlined bioprocess control.

Find out more at

[thermofisher.com/sutequipment](https://thermofisher.com/sutequipment)

You can now easily configure and standardize processes that employ Thermo Scientific Single-Use Bioreactors (S.U.B.s), Single-Use Fermentors (S.U.F.s), Single-Use Mixers (S.U.M.s), Integrity Testing Systems, Heat Exchangers, BioProcess Containers (BPCs), automation platforms, and other accessories for rapid scale-up—from process development to commercial manufacturing.

## **Intuitive, customized data management**

The foundation of efficient data management is the usage of a robust platform that is consistent from R&D to production, easy-to-use, intuitive, and configurable. We have developed our TruBio software, G3 bioprocess controllers, and sensing technologies to enable users to optimize data acquisition, while maintaining full compliance with 21 CFR Part 11.



# TruBio automation and control software solutions

The technology and data transfer during the lifecycle of drug development, from bench scale laboratory applications to large-scale production, is often challenging, time consuming, and involves many different user requirements. The Thermo Scientific™ TruBio™ software and automation platform improves tech transfer time and validation costs by running on a consistent data model from R&D to commercial production. With TruBio Bioprocess Control Software being powered by both DeltaV™ Discovery platform at lab scale and DeltaV Distributed Control platform (for pilot, clinical and production scale) both from Emerson, considerable savings have been achieved in risk mitigation including reduced training and validation costs. Standardizing with open architecture controllers simplifies data transfer and storage, resulting in introducing new products faster to market.



## For research and process development solutions

Thermo Scientific™ TruBio™ Discovery software platform provides a simplified solution to meet the needs of research and process development labs. This platform supports research and discovery applications with automation technology that easily translates to commercial operations. A single, workstation-based controller is utilized to execute process control strategies.

- Transferability of software and speed to scale-up conversions when using TruBio software from research to clinical to commercial production processes
- Ability to integrate with most existing vessels (including third-party) currently in place
- Enables easy integration of process measurements and data sources powered by the DeltaV Discovery platform
- Reduced footprint
- Lower cost entry into the DeltaV control platform



## For production scale solutions

TruBio software with the DeltaV platform and the TruLogic controller provides all the capabilities of TruBio Discovery software and adds flexible and reliable state-of-the-art control capability. With multiple sensor loops as well as gas and liquid addition capabilities, this software can be used with both HyPerforma S.U.B.s, S.U.M.s, and other third-party bioreactors to provide a process control platform from research through commercial manufacturing.

- Conforms to regulatory requirements for use in cGMP-compliant processes
- Enables building of sophisticated process control strategies without knowledge of DeltaV platform
- Intelligent alarm management
- Multifeed dosing functionality available to scale from small to large doses with high precision
- Ability to create batch recipes for media mixing and buffer preparation
- Redundant controller configurations can be accommodated

# Bioprocess controllers

## HyPerforma G3Lab Controller

The Thermo Scientific™ HyPerforma™ G3Lab Controller can control most brands of single-use or autoclavable bioreactors or fermentors that are ≤50 L, including stirred-tank and rocking models. The controller operates using TruBio automation platforms, which provide easy process scale-up or scale-down and the configurability to modify your control strategy along with your process. The enclosure contains state-of-the-art transmitters along with power supplies, pumps, input/output (I/O) modules, and the hardware required to connect to the control network, providing maximum control capability.

### Key features

- Open architecture capabilities to integrate with vessels from other suppliers
- When coupled with TruBio software and DeltaV control platform, allows for data transfer and scalability from R&D, to production manufacturing
- Compatible with flexible upstream TruBio software
- The ability to build and manage complex, multifeed dosing strategies
- Allows for third-party peripheral integration as needed

### Ordering information

HyPerforma G3Lab Controller*	Cat. No.
HyPerforma G3Lab Controller for use with DeltaV or DeltaV Discovery and TruBio software licenses with 4 Watson-Marlow series 114 pumps, suitable for glass and benchtop single-use bioreactors	ATO-G3Lab-Std
HyPerforma G3Lab Controller for use with DeltaV or DeltaV Discovery and TruBio software licenses, with 2 Watson-Marlow series 114 pumps, suitable for glass and benchtop single-use bioreactors	ATO-G3Lab-Discovery
HyPerforma G3Lab Controller for use with DeltaV or DeltaV Discovery and TruBio software licenses, with 4 Watson-Marlow series 114 pumps, suitable for glass, benchtop single-use, and rocker bioreactors	G3Lab-Full-Config

Note: All bioreactors listed are manufactured according to GMP. G3Lab controllers are available as a made-to-order (MTO) product.

\* Each HyPerforma G3Lab Controller needs to be operated using the TruFlow Mass Flow Controller and appropriate automation platform.

Please contact your Thermo Fisher Scientific sales representative for more information on standard package options suitable for your requirements.





# Bioprocess controllers

## HyPerforma G3Lite and G3Pro Controllers

The Thermo Scientific™ HyPerforma™ G3Lite Controller is an open architecture control system that can be integrated with most S.U.B.s and S.U.F.s. The system consists of a control tower that leverages intelligent transmitters, mass flow controllers (MFCs), pumps, sensors, and TruBio software that facilitates easy, reliable, and repeatable process development and commercial cell culture processes. HyPerforma G3Lite Controllers are fully self-contained, movable units that can be operated alone (for one vessel) or networked for multiple vessels. They are engineered to optimize capital cost for use in non-GMP and cGMP-certified production facilities.



### Features

- Scalability: transfer any process from 30 L to 2,000 L
- Modularity: predefined configurations available for 50, 100, 250, 500, 1,000, and 2,000 L bioreactors and 30 and 300 L fermentors
- Touchscreen interface for easy data entry and control
- Stand-alone or networked (for multiple vessels)—enabled by distribution control system (DCS)
- Flexible upstream TruBio software powered by the Emerson DeltaV system
- Includes up to six MFCs with air, O<sub>2</sub>, N<sub>2</sub>, CO<sub>2</sub> for drilled-hole spargers (DHS); air for direct sparge, cross flow, and overlay



### HyPerforma G3Pro Controller

The Thermo Scientific™ HyPerforma™ G3Pro controller is a universal controller used to control S.U.B.s (50 L to 2,000 L) and S.U.F.s (30 and 300 L). It is an engineered-to-order product that brings versatility to manage, monitor, and control any third-party vessels. These controllers also allow mobility and flexibility in terms of any reconfiguration and application expansion.

### Key features

- Open-architecture capabilities to integrate with vessels from other suppliers
- Single- or dual-cart mount option for easy mobility and reduced footprint
- Scalability: transfer any process from 30 L to 2,000 L
- Touchscreen interface by NEMA for easy data entry and control
- Probe configuration options—flexible to connect both electrochemical and single-use probes for pH and DO measurements
- Optional redundant sensor control mechanism
- Flexible upstream TruBio software powered by the Emerson DeltaV system
- Can be adapted for multiproduct applications

# TruFlow gas mass flow controller (MFC)

The Thermo Scientific™ TruFlow™ gas MFC is designed to work with all of the HyPerforma Bioreactor control systems. Its compact assembly provides up to six standard mass flow controllers and three associated solenoid valves. When connected, the TruFlow gas MFC is instantly recognized by TruBio software to provide precise control of gas flow, without requiring any configuration, even at extremely low flow rates.

## Key features

- Variety of flow rate options\*
- Flow range configurability
- Plug-and-play connectivity



TruFlow gas MFC specifications	
Enclosure dimensions (H x W x D)	Six mass flow controllers: 9.1 x 7.4 x 6.2 in.
Rating	NEMA 1, IP 51 (liquid wipedown)
Maximum gas flow rate	Configurable up to 30 L/min*
Weight/shipping weight	5.8 kg/9.1 kg (12.8 lb/20 lb)
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	-25°C to 70°C (-15°F to 158°F)
Relative humidity	5% to 95% (noncondensing)
Certifications	CE: EN-61326 and EN-61010
Inlet pressure	1.6 to 2.3 bar/25 to 35 psig
Outlet pressure	0 to 1.38 bar/0 to 20 psig
Accuracy	±0.8% of flow rate and ±0.3% full scale (Burkert)
Repeatability	±0.1% full scale (Burkert)
Cable assembly	2 m (6 ft) standard

Volume	Glass				Rocker		
	1 L	3 L	7 L	15 L	10 L	20 L	50 L
Air-sparge	0.25	0.5	2	5	NA	NA	NA
Air-overlay	0.5	2	5	10	20		
O <sub>2</sub>	0.25	0.5	2	5	NA	NA	NA
CO <sub>2</sub>	0.1	0.25	0.5	2	10		
N <sub>2</sub> -optical	0.1	0.25	0.5	2	NA	NA	NA

Range of operating parameters																		
Volume	50 L			100 L			250 L			500 L			1,000 L			2,000 L		
	DHS	Cross-flow	Overlay	DHS	Cross-flow	Overlay	DHS	Cross-flow	Overlay	DHS	Cross-flow	Overlay	DHS	Cross-flow	Overlay	DHS	Cross-flow	Overlay
Air	5	5	5	10	9	9	25	13	13	50	25	25	100	40	40	200	60	60
O <sub>2</sub>	5	-	-	10	-	-	25	-	-	50	-	-	100	-	-	200	-	-
CO <sub>2</sub>	1	-	-	2	-	-	2	-	-	2	-	-	5	-	-	5	-	-
N <sub>2</sub>	1	-	-	2	-	-	5	-	-	5	-	-	10	-	-	10	-	-
<b>Total</b>	5	5	5	10	9	9	25	13	13	50	25	25	100	40	40	200	60	60
<b>Exhaust load</b>	20			20			90			90			180			360		

MFCs with flow rates higher than 50 L/min are mounted as individual units and are not part of the main MFC block.

\* May require additional configuration for specific flow rate. Please consult with your local Thermo Fisher sales representative for more information.

# Superior pump technology

## Unrivalled precision for dosing, feeding, mixing, transferring or harvesting

Our pumps have been designed to meet high-precision liquid delivery requirements in upstream with controller and downstream (external pumps) for bioprocess applications. The pumps combines industry-known Watson Marlow™ pump heads with electronic boards. This pairing guarantees optimized control of dosing, feeding, product transfer/harvest, buffer mixing (gradient or step) or general liquid management.



## Features

- Ability to switch the pump models (different flow rates)
- Auto-detection for the pump by the TruBio software

## Unleash your controller

These pumps are standard in the G3 controller family and can be swapped out if the process flow rate requirements change or if the controller is used with a different size or type of vessel. In G3 controllers, all pumps communication is aggregated by a master communication board; this board reads process values from and sends instructions to the pumps.

Pump specifications			
Pump series	114	313	520
Power supply	24 V DC	24 V DC	24 V DC
Max current (at 25°C)	0.25 A	0.95 A	1.5 A
Average current (at 25°C)	0.2 A	0.75 A	1 A
Operating temperature	5°C to 50°C (41°F to 122°F)		
Storage temperature	-10°C to 70°C (14°F to 158°F)		
Humidity	10% to 90% (noncondensing)		
Speed	5 to 160 rpm	1 to 300 rpm	1 to 300 rpm
Accuracy	±2 rpm, or ±2% of set point	±1 rpm, or ±2% of set point	±1 rpm, or ±2% of set point
Certifications	CE: EN-60101 and EN-61326	CE: EN-60101 and EN-61326	CE: EN-60101 and EN-61326
Tubing (thickness, ID)	0.8 mm, 4.8 mm	0.8 mm, 8.0 mm	1.6 mm, 9.6 mm
Pump speed	Minimum/maximum flow rates		
1	0.16 mL/3 min (5 rpm)	0.05 mL/3.1 min	0.4 mL/10.6 min
10	0.3 mL/6 min	0.5 mL/31.4 min	4.2 mL/106.8 min
50	1.7 mL/30 min	3.2 mL/179.8 min	21.2 mL/536.9 min
100	3.4 mL/57.5 min	6.3 mL/335.4 min	42.6 mL/1,102.6 min
160	5.5 mL/104 min	NA	NA
250	NA	15 mL/630 min	105.6 mL/2,879.7 min
300	NA	17.7 mL/808.1 min	123.2 mL/3,400.0 min

# HyPerforma Single-Use Bioreactor (S.U.B.)

The Thermo Scientific™ HyPerforma™ 5:1 Single-Use Bioreactor (S.U.B.) and BPC are designed using traditional stainless steel bioreactor principles to ensure optimal cell culture performance. The complete line of HyPerforma S.U.B.s includes 50, 100, 250, 500, 1,000, and 2,000 L sizes with a 5:1 turndown ratio that ensures consistent scalability from pilot-scale studies to preclinical and commercial production.

## Ergonomic and elegant tank design

The S.U.B. is elegant in design while being extremely functional, and it is designed to meet cGMP requirements. The S.U.B. tank provides operator ergonomics, a small footprint, and easy cleaning capabilities associated with an open-cart frame.

- Helps save precious lab space with a minimized vessel footprint
- Easier access to harvest lines with the open-frame design
- Reduced hold-up volumes with the smartly designed tank floor
- Simple bag loading with a vertical access door (available on 500, 1,000, and 2,000 L sizes; electromechanical hoist provided on the 2,000 L S.U.B.)
- Pneumatic motor lift assembly for the 1,000 and 2,000 L sizes is used to lower the impeller for proper mixing when 20% of the fill volume is utilized

## Efficient and fast

The water jacket design allows fast heat-up and cool-down times, reducing process cycle time. The bottom water-jacketed systems increase surface area, improving heat transfer from low-volume cultures.

- Optional precision load cells and standard sight-volume indicators allow you to keep your processes running efficiently.
- Optional brushless DC motor includes encoder feedback for improved rpm accuracy and is compatible with ground-fault circuit interrupters (GFCIs)
- 3/8 in. dimple jacket improves flow rate through the water jacket for higher-performance temperature control
- Graduated sight-volume indicators accommodate visual volume references at a glance



## Applications

- Batch, fed-batch, and perfusion cultures
- Suspension and microcarrier cultures
- Proven for various cell lines such as CHO, Sp2/0 hybridoma, NS0, PER.C6, HEK293, Vero, and MDCK

# HyPerforma 5:1 S.U.B. hardware specifications and options

## 5:1 S.U.B. hardware specifications

	50 L	100 L	250 L	500 L	1,000 L	2,000 L
Liquid working volume	50 L	100 L	250 L	500 L	1,000 L	2,000 L
Minimum liquid working volume	10 L	20 L	50 L	100 L	200 L	400 L
Total reactor volume (not working volume)	65.5 L	120 L	316 L	660 L	1,320 L	2,575 L
Fluid geometry at working volume (height:diameter ratio)	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1
Overall reactor geometry (height:diameter ratio)	1.9:1	1.9:1	1.9:1	1.9:1	1.9:1	1.9:1
Impeller (quantity x blade count)	1 x 3	1 x 3	1 x 3	1 x 3	1 x 3	1 x 3
Mixing rate range (rpm)	30–200	30–200	30–150	30–150	20–110	0–75* rpm, working volumes must stay above 50% during agitation

## 5:1 S.U.B. hardware dimensions and weights

	Tank overall ( W x L x H)	Jacketed tank weight: dry/wet (at full working volume)
50 L	AC motor: 94 x 86 x 199 cm (37.1 x 34.0 x 78.2 in.) DC motor: 56.5 x 77 x 198.6 cm (22.2 x 30.3 x 78.2 in.)	115.7 kg (255 lb) 165.7 kg (365.2 lb)
100 L	AC motor: 100 x 95 x 202 cm (38.8 x 37.6 x 79.3 in.) DC motor: 56.5 x 85.8 x 201.5 cm (22.2 x 33.8 x 79.3 in.)	160.6 kg (354 lb) 260.6 kg (574.5 lb)
250 L	AC motor: 113 x 106 x 215 cm (44.4 x 41.7 x 85.0 in.) DC motor: 68.5 x 96.9 x 215.5 cm (27.0 x 38.1 x 84.8 in.)	223.6 kg (493 lb) 473.6 kg (1,044 lb)
500 L	AC motor: 129 x 126 x 251 cm (50.8 x 49.7 x 98.9 in.) DC motor: 86.4 x 116 x 251 cm (34.0 x 45.7 x 98.9 in.)	353.8 kg (780 lb) 853.8 kg (1,882.3 lb)
1,000 L	AC motor: 149 x 141 x 284 cm (58.7 x 55.5 x 111.5 in.)	655.01 kg (1,444 lb) 1,655.01 kg (3,649 lb)
2,000 L	AC motor: 163 x 157 x 343 cm (52.7 x 61.8 x 135 in.)	962.1 kg (2,121 lb) 2,962.1 kg (6,530 lb)

- Add 29.2 cm (11.5 in.) to overall system width if cable management tree is added.
- Filter bracket extends 56.9 cm (22.4 in.) above top of motor; height to top of filter bracket given.
- Electrical box adds 35 cm (13.8 in.) to system width; dimension with electrical box given in the table.
- All weights and dimensions are approximate measurements. Design request accruals will be presented.

\* WARNING: Mixing speeds must stay within the recommended operating parameters. Higher speed operation compromises system reliability and will void standard Thermo Fisher warranties. Your control strategy should include governors that regulate rpm based on liquid volume as well as safety interlocks that disable mixing when the liquid drops below the recommended volume.

## HyPerforma 5:1 S.U.B. hardware

Description	Size	Cat. No.
<b>HyPerforma S.U.B. products</b>		
Jacketed S.U.B., 5:1, AC motor, no e-box, load cells without display		SUB0050.8100
Jacketed S.U.B., 5:1, AC motor, 120 VAC, e-box, analog load cells	50 L	SUB0050.8101
Jacketed S.U.B., 5:1, AC motor, 240 VAC, e-box, analog load cells		SUB0050.8102
Jacketed S.U.B., 5:1, AC motor, no e-box, load cells without display		SUB0100.8200
Jacketed S.U.B., 5:1, AC motor, 120 VAC, e-box, analog load cells	100 L	SUB0100.8201
Jacketed S.U.B., 5:1, AC motor, 240 VAC, e-box, analog load cells		SUB0100.8202
Jacketed S.U.B., 5:1, AC motor, no e-box, load cells without display		SUB0250.8300
Jacketed S.U.B., 5:1, AC motor, 120 VAC, e-box, analog load cells	250 L	SUB0250.8301
Jacketed S.U.B., 5:1, AC motor, 240 VAC, e-box, analog load cells		SUB0250.8302
Jacketed S.U.B., 5:1, AC motor, no e-box, load cells without display		SUB0500.8400
Jacketed S.U.B., 5:1, AC motor, 240 VAC, e-box, analog load cells	500 L	SUB0500.8401
Jacketed S.U.B., 5:1, AC motor, no e-box, load cells without display		SUB1000.9009
Jacketed S.U.B., 5:1, AC motor, 240 VAC, e-box, analog load cells	1,000 L	SUB1000.9010
Jacketed S.U.B., 5:1, AC motor, no e-box, load cells without display		SUB2000.9009
Jacketed S.U.B., 5:1, AC motor, 240 VAC, e-box, analog load cells	2,000 L	SUB2000.9010
<b>Additional products</b>		
	50 L, 100 L	SV50992.01
	250 L	SV50992.02
Cable Management System	500 L	SV50992.03
	1,000 L	SV50992.04
<b>Load cells</b>		
	50 L	SV50988.01
Load cell with summing box, without display	100 L, 250 L	SV50988.02
	500 L	SV50988.03

## HyPerforma 5:1 S.U.B. hardware accessories

	50 L	100 L	250 L	500 L	1,000 L	2,000 L
Bioreactor probe assembly with Kleenpak connector (nonsterile)	SH30720.01	SH30720.01	SH30720.01	SH30720.01	SH30720.01	SH30720.01
Bioreactor probe assembly with AseptiQuik connector (nonsterile)	SH30720.02	SH30720.02	SH30720.02	SH30720.02	SH30720.02	SH30720.02
Sterile sampling manifold, with Luer lock (individual)	SH30845.01	SH30845.01	SH30845.01	SH30845.01	SH30845.01	SH30845.01
Sterile sampling manifold, with Luer lock (10 count)	SH30845.02	SH30845.02	SH30845.02	SH30845.02	SH30845.02	SH30845.02
Heavy-duty tubing clamp (individual)	SV20664.01	SV20664.01	SV20664.01	SV20664.01	SV20664.01	SV20664.01
Heavy-duty tubing clamp (10 count)	SV20664.04	SV20664.04	SV20664.04	SV20664.04	SV20664.04	SV20664.04
S.U.B. temperature/sample port	SV20750.01	SV20750.01	SV20750.01	SV20750.01	SV20750.01	SV20750.01
Cable management tree	SV50992.01	SV50992.01	SV50992.02	SV50992.03	SV50992.04	NA
Autoclave tray	SV50177.01	SV50177.01	SV50177.01	SV50177.01	SV50177.01	SV50177.01
Sparge line support	SV50177B.19	SV50177B.19	SV50177B.19	SV50177B.19	SV50177.65	SV50177.65
PendoTech pressure sensor	SH31134.01	SH31134.01	SH31134.01	SH31134.01	SH31134.01	SH31134.01
Thermo Scientific pressure sensor	SH31134.02	SH31134.02	SH31134.02	SH31134.02	SH31134.02	SH31134.02
120 V condenser system	NA	NA	NA	NA	NA	SV50232.01
240 V condenser system	NA	NA	NA	NA	NA	SV50232.02

**Note:** All 5:1 S.U.B. BPCs are supplied with AseptiQuik connectors on the probe ports and need bioreactor probe assembly with an AseptiQuik connector, SH30720.02. All S.U.B. BPCs are supplied with AseptiQuik connectors on pressure sensor ports. Select tubing assembly with pressure sensor depending on the transmitter.

## HyPerforma S.U.B. BPCs and accessories

## 5:1 S.U.B. BPCs

	50 L	100 L	250 L	500 L	1,000 L	2,000 L
<b>S.U.B. BPC—CX5-14 Film</b>						
DHS + crossflow sparger	SH31072.01	SH31102.01	SH31074.01	SH31076.01	SH31132.01	SH31138.01
DHS + crossflow sparger, with condenser	NA	NA	NA	NA	NA	SH31137.01
<b>S.U.B. BPC—Aegis5-14 Film</b>						
DHS + crossflow sparger	SH31073.01	SH31103.01	SH31075.01	SH31077.01	SH31133.01	SH31135.01
DHS + crossflow sparger, with condenser	NA	NA	NA	NA	NA	SH31136.01

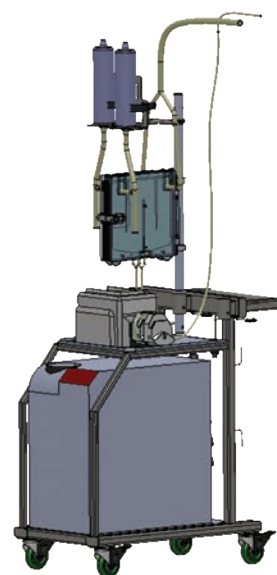
## 2:1 S.U.B. BPCs

	50 L	100 L	250 L	500 L	1,000 L	2,000 L
<b>S.U.B. BPC—CX5-14 Film</b>						
Frit + OP	SH30774.01	SH30774.02	SH30774.03	SH30774.04	SH30774.05	SH30774.08
Frit + OP, with condenser	NA	NA	NA	NA	NA	SH30774.07
Frit + DHS	SH30985.01	SH30985.02	SH30985.03	SH30985.04	SH30985.05	SH30985.08
Frit + DHS, with condenser	NA	NA	NA	NA	NA	SH30985.07
<b>S.U.B. BPC—Aegis5-14 Film</b>						
Frit + OP	SH30972.01	SH30972.02	SH30972.03	SH30972.04	SH30972.05	SH30972.08
Frit + OP, with condenser	NA	NA	NA	NA	NA	SH30972.07
Frit + DHS	SH30999.01	SH30999.02	SH30999.03	SH30999.04	SH30999.05	SH30999.08
Frit + DHS, with condenser	NA	NA	NA	NA	NA	SH30999.07



# HyPerforma S.U.B. condenser system

The Thermo Scientific™ HyPerforma™ Single-Use Bioreactor (S.U.B.) condenser system supports the effective use of the Thermo Scientific™ HyPerforma™ 2,000 L S.U.B. It is also available as an auxiliary product for all other S.U.B. systems. It efficiently condenses exhaust gases and transfers condensate back into the bioreactor, preventing potential vent filter blockage and reducing fluid loss due to evaporation. It is offered in both single and double chill-plate formats.



## Specifications

The condenser system protects against filter blockage by condensing out moisture prior to exhaust gases reaching the vent filters. BPCs are not intended to operate under pressure, and fouled (blocked) exhaust filters lead to bag pressurization. While vent filter heaters may prevent condensate buildup in many instances, with larger bioreactors, such as the 2,000 L S.U.B., this becomes less effective, whereas condensing out the moisture first is a more reliable method for preventing liquid from reaching the filters.

## The S.U.B. condenser system consists of the following components:

- **Cart and brackets**—convenient means of organizing and transporting working elements of the condenser system
- **Condenser (chill) plate**—disposable double chamber condenser bag is secured to the condenser plate to cool exhaust gases. Up to 2 plates can be used per system
- **Peristaltic pump**—returns condensate to bioreactor.
- **Temperature control unit (TCU or chiller)**—circulates water to cool the condenser plate
- **Condenser disposables**—the BPC (double-chambered bag), tubing, and exhaust filters through which the exhaust gases flow and are chilled, and in which the condensate collects and is returned to the bioreactor

## Ordering information

Description	Cat. No.
Complete condenser system (120 V) including cart, chill plate and mounting post with filter brackets, TCU, and pump	SV50232.01
Complete condenser system (240 V) including cart, chill plate and mounting post with filter brackets, TCU, and pump	SV50232.02
Condenser assembly including chill plate and mounting post with filter brackets (option: allowing two chill plates per system)	SV50232.21
ThermoFlex 900 TCU (115 VAC/60 Hz) with necessary plumbing	SV50232.23
ThermoFlex 900 TCU (240 VAC/50 or 60 Hz) with necessary plumbing	SV50232.24
Masterflex™ Pump (115 VAC/50 or 60 Hz or 230 VAC/50 or 60 Hz)	SV50241.01

Disposable BPCs needing two "condenser assemblies" (SV50232.21) for high exhaust capacity will require the purchase of two condenser assembly "connection lines" (SV50177.270).

# HyPerforma Rocker Bioreactor

The Thermo Scientific™ HyPerforma™ Rocker Bioreactor brings control and measurement to rocking bioreactor applications. The rocker is controlled by a HyPerforma G3Lab Controller and TruBio software, providing a complete solution for research, process development, or seed train production applications. The rocker uses BPCs with working volumes of 5, 10, and 25 L are available with or without the novel Thermo Scientific™ pH+dO<sub>2</sub> sensor and reader.



## Key features

- Compatible with most cell culture applications
- Rocking motion is customizable to your specific workflow—from a smooth waveform that minimizes shear forces for sensitive cell lines, through four intermediate steps, to an aggressive motion that maximizes oxygen transfer for robust cells with high oxygen demands
- Quick, simple setup with G3Lab Controller and TruBio Software
- Optional tray adapter allows the use of 10 L and 20 L BPCs
- Each Rocker BPC is available in 10, 20, and 50 L sizes and is delivered with all relevant certificates, gamma-irradiated (25 to 40 kGy) and conforming to USP Class 6 specifications
- Standard service packages
- cGMP-compliant capabilities
- Load cell for weight control
- The pH+dO<sub>2</sub> sensor provides measurement and control of critical process parameters: pH, DO, and temperature

HyPerforma Rocker Bioreactors and BPCs	Cat. No.
HyPerforma Rocker Bioreactor, with load cells	F100-2683-001
HyPerforma Rocker Bioreactor, without load cells	F100-2683-002
10 L Rocker BPC, LDPE film, cGMP	F100-2544-001
20 L Rocker BPC, LDPE film, cGMP	F100-2545-001
50 L Rocker BPC, LDPE film, cGMP	F100-2546-001

# HyPerforma Rocker Bioreactor specifications

HyPerforma Rocker Bioreactor and BPC specifications			
Rocker Bioreactor BPC sizes	10 L	20 L	50 L
Rocker BPC dimensions	549.4 x 330.2 mm (21.6 x 13.0 in.)	549.4 x 660.1 mm (21.6 x 26.0 in.)	711.2 x 723.9 mm (28.0 x 28.5 in.)
Working volume	5 L	10 L	25 L
HyPerforma Rocker	Rocker bioreactor assembly, load cell, GMP, stainless steel (includes rocker base, tray base, 50 L tray)		
Bag adapter	10 L/20 L BPC mounting adapter for 50 L rocker tray		
Heat only	BPC filter heater (quantity: 2)		
Dimensions (H x W x D)	264 x 782 x 701 mm (10.4 x 30.8 x 27.6 in.); 490 x 835 x 712 mm (19.3 x 32.9 x 28.0 in.) with cover		
Weight (base + tray)	38.5 kg (85 lb)		
Rocking angle	2° to 12° per side		
Rocking rate	2 to 40 cycles per minute		
Electrical power	110–120 V, 220–240 V, 50/60 Hz, powered by the G3Lab Controller		
Operating temperature	0°C to 45°C (32°F to 158°F)		
Storage temperature	–40°C to 70°C (–40°F to 158°F)		
Humidity	5% to 95%, noncondensing		
Acoustic noise level	<70 dBA		
pH sensor range	pH 5.5 to 8.5		
pH sensor relative accuracy	±0.1 pH units over calibration range after a 2-point calibration having 0.3 to 0.8 pH units of separation		
DO sensor range (percent saturation)	0% to 250%		
DO sensor limit of detection	0.03% O <sub>2</sub>		
DO accuracy	At 25°C: ±1.1% at 20.95% O <sub>2</sub>		
Temperature	10°C to 45°C (50°F to 113°F)		
Temperature accuracy	±0.15°C at 15°C to 40°C (±0.25°F at 59°F to 104°F)		



# HyPerforma Glass Bioreactors

Thermo Scientific™ HyPerforma™ Glass Bioreactors are available in 1 L, 3 L, 7 L, and 15 L total volume sizes. They offer easy operation and rapid assembly and are manufactured with the highest standards for materials and surface finish. Developed using a computational fluid dynamics (CFD) simulator, the HyPerforma Glass Bioreactor impellers provide maximum mixing with minimum shear force, resulting in a higher average  $k_L a$ .

## HyPerforma Glass Bioreactor key features

- The motor adapter uses coupling windows and an alignment marker for easy assembly
- Ergonomic head plate design provides easy assembly and disassembly of components for rapid reconfiguration

## Accessories

- Kits to help enable the end user to configure the vessel according to the intended use
- Heating blanket: designed for rapid thermal transfer; a bimetallic temperature-limiting switch embedded in the blanket helps protect against overheating or fires
- Common accessories kit: includes blind stoppers for vessel reconfiguration



HyPerforma Glass Bioreactor*			
Size	Voltage	Description	Cat. No.
1 L	120 V	Heat only	F100-2684-002
		Heat and cool	F100-2684-004
	240 V	Heat only	F100-2684-102
		Heat and cool	F100-2684-104
3 L	120 V	Heat only	F100-2680-002
		Heat and cool	F100-2680-004
	240 V	Heat only	F100-2680-102
		Heat and cool	F100-2680-104
7 L	120 V	Heat only	F100-2681-002
		Heat and cool	F100-2681-004
	240 V	Heat only	F100-2681-102
		Heat and cool	F100-2681-104
15 L	120 V	Heat only	F100-2685-002
		Heat and cool	F100-2685-004
	240 V	Heat only	F100-2685-102
		Heat and cool	F100-2685-104

Note: All bioreactors listed are manufacturing according to GMP.

\* Each lab-scale bioreactor needs to be operated using a HyPerforma G3Lab Controller and appropriate automation platform.

Please contact your Thermo Fisher Scientific sales representative for more information on standard package options suitable for your requirements.

# HyPerforma Glass Bioreactor specifications

HyPerforma Glass Bioreactor specifications				
Size	1 L	3 L	7 L	15 L
Inner tank height	200 mm (8.1 in.)	250 mm (9.8 in.)	380 mm (14.9 in.)	455 mm (17.9 in.)
Vessel stand + motor height	412 mm (16.2 in.)	473 mm (18.6 in.)	600 mm (23.6 in.)	720 mm (28.3 in.)
Inner tank diameter	100 mm (3.94 in.)	130 mm (5.1 in.)	160 mm (6.3 in.)	222 mm (8.7 in.)
Vessel stand diameter	160 mm (6.3 in.)	190 mm (7.5 in.)	240 mm (9.5 in.)	340 mm (13.4 in.)
Total volume	1.5 L	3.2 L	7.4 L	17.2 L
Total loaded volume (i.e. available volume = total volume minus installations)	1.3 L	2.9 L	7.2 L	16.8 L
Working volume	1 L	2 L	5 L	10 L
Minimal working volume	~0.3 L	~1.2 L	~2.8 L	~6.0 L
Weight	8.6 lb	11.6 lb	17.4 lb	51.4 lb
Drilled pipe sparger	5 holes (0.8 mm)	7 holes (0.8 mm)	13 holes (0.8 mm)	23 holes (0.8 mm)
Ring sparger	NA	18 holes (0.85 mm)	42 holes (0.85 mm)	90 holes (0.85 mm)
Frit pore sparger	Pore size: 12–15 µm Length: 7 mm Diameter: 7.9 mm	Pore size: 12–15 µm Length: 7 mm Diameter: 7.9 mm	Pore size: 12–15 µm Length: 18 mm Diameter: 7.9 mm	Pore size: 12–15 µm Length: 25.4 mm Diameter: 12.7 mm
Material	Borosilicate glass, 316L stainless steel, silicone			
Voltage	120 V/240 V			
Heat only	NA	110 W	250 W	500 W
Heat and cool	1.32 kW heat + 0.18 kW (at 20°C) water bath cool			1.32 kW heat + 0.3 kW (at 20°C) water bath cool
	Cooling loop solenoid valve cable assembly: 1 m (3 ft)			
Optional scale	Analog™ Benchtop, Combics™ Series, 15 kg x 0.5 g (16 bit) or 15 kg x 8 g (12 bit), 254 x 254 mm, CAPS1U-20CC-LU			Analog™ Benchtop, Combics™ Series, 30 kg x 1 g (16 bit) or x 15 g (12 bit), 457 x 457 mm, CAPS1U-50EE-LU
Indicator with optional scale	Midrics 2, IP65, display, MIS2UR-V2			
Resistance temperature detector (RTD)	Temperature sensor assembly, RTD to 5 pin, 3 ft (G3Lab Controller, glass)			
Foam sensor cable assembly	1 m (3 ft)			
Cable assembly with optional scale	Analog output: 6 m (19.6 ft), 1 cable per scale indicator			
Agitator kit	Triple-stack motor (adapter included)			
	Agitator assembly: Teknic™ NEMA 23 Single to HyPerforma Glass Bioreactor Cable assembly: 2 m (6 ft)			
Agitator speed	1,250 rpm (set as default); can be configured to lower values via TruBio software			

# HyPerforma Single-Use Fermentor (S.U.F.)

The Thermo Scientific™ HyPerforma™ Single-Use Fermentor (S.U.F.) is designed to provide you with enhanced functionality, ease of use, and efficiency. The complete S.U.F. system consists of a fermentor tank and Thermo Scientific™ HyPerforma™ S.U.F. BPC, which is available in 30 L and 300 L sizes with a 5:1 turndown ratio.

The S.U.F. maintains traditional stirred-tank fermentation design principles, including specific height-to-diameter ratios (3:1), top-driven impeller location for optimum cell viability, and performance and scalability from process development through production.



## Key features

- The S.U.F. is a fully functional fermentor vessel including single-use contact surfaces for mixing, venting, sparging, and temperature sensing. Additional ports are included to allow choice of aseptic connections for filling, emptying, and sampling
- Unique proprietary mixing system enables conventional overhead mixing while maintaining sterility and integrity of the S.U.F. BPC
- Minimized vessel footprint and reduced hold-up volumes
- Simplified bag loading with a front access door
- Tank includes baffles that enhance mixing and side and bottom jacket for effective heat transfer
- Cable management system offers greater organization for electrical cables, tubing, and line sets while making the unit easier to clean
- Dedicated adjustable tool holder keeps necessary tools available for convenience
- BPC utilizes three Rushton-style impellers and sparger configuration with a proprietary exhaust management system
- State-of-the-art foam sensor that helps prevent exhaust filter failure

## Catalog S.U.F. Hardware

Size	Description	Cat. No.
30 L	Jacketed, AC motor, with 2-position vent filter bracket, no e-box	SUF0030.9001
30 L	Jacketed, AC motor, with 2-position vent filter bracket and 120 VAC electrical box	SUF0030.9002
30 L	Jacketed, AC motor, with 2-position vent filter bracket and 240 VAC electrical box	SUF0030.9003
300 L	Jacketed, AC motor, with 2-position center filter bracket	SUF0300.9001
300 L	Jacketed, AC motor, with 240 VAC electrical box and 2-position vent filter bracket	SUF0300.9002

# HyPerforma S.U.F. hardware specifications

## System specifications

Specification	30 L	300 L
Rated liquid working volume	30 L	300 L
Total reactor volume (liquid and gas)	43 L	435 L
Fluid geometry at working volume (height:diameter) ratio	~2:1	~2:1
Overall reactor geometry (height:diameter) ratio	3:1	3:1
Impeller (quantity x blade count)	3 x 6	3 x 6
Motor speed	55–598 rpm ± 5 rpm	35–375 rpm ± 5 rpm
Tank dimensions	91.6 x 54.3 x 218.44 cm (36.08 x 21.37 x 86 in.)	130.7 x 89.2 x 280.97 cm (51.44 x 35.11 x 110.62 in.)
Jacketed tank weight, dry/wet (at full working volume)	Dry skid weight: (mass) 524 lb (238 kg) Wet skid weight: (mass) 531 lb (241 kg)	Dry skid weight: (mass) 1,223 lb (555 kg) Wet skid weight: (mass) 1,257 lb (570 kg)
Max gas flow rates	60 slpm	600 slpm
Heating times	Approximate liquid heat-up time (2–37°C), full volume: 1.16 hr, half volume: 1 hr	Approximate liquid heat-up time (2–37°C), full volume: 1.8 hr, half volume: 1.3 hr

## System overview

### S.U.F. hardware unit - available in turnkey format

Complete mixing system with a water jacket for temperature control

Driveshaft inserts into the BPC through the mixing drive motor and locks into the BPC agitator assembly

### S.U.F. BPC - supplied sterile and ready to use

Agitator assembly is a single-use (polyethylene) impeller with a bearing-and-seal assembly linked to an external mixer drive

Gas control with drilled-hole spargers

Exhaust management system with options for multiple vent filters based on gas flow needs

Integrally sealed ports in the S.U.F. BPC allow for sensor probes and addition of line sets

Available in Thermo Scientific CX5-14 and Aegis5-14 film options

### System options - adaptable to your needs

Exhaust condenser unit

Exhaust gas vent filter heater

Integrated foam sensor

Load cells (3)

Cable management tree

Process control system

Optional electrical box for remote agitation control

- S.U.F.s require a separate external temperature control unit

Choose an open-architecture approach or a turnkey, ready-to-use S.U.F. system

## HyPerforma S.U.F. BPCs and accessories

## Catalog S.U.F. BPCs

Product	Film type	Cat. No.
<b>30 L S.U.F. BPCs</b>		
Mettler Toledo single-use pH and DO sensor, foam sensor, Meissner inlet and one 5 in. exhaust filters, condenser	Aegis5-14	SH31010.01
	CX5-14	SH31019.01
Mettler Toledo single-use pH and DO sensor, foam sensor, Meissner inlet and two 5 in. exhaust filters, condenser	Aegis5-14	SH31010.02
	CX5-14	SH31019.02
Traditional ports, foam sensor, ZenPure inlet and one 3 in. exhaust filters, condenser	CX5-14	SH31034.01
Traditional ports, foam sensor, ZenPure inlet and two 5 in. exhaust filters, condenser	CX5-14	SH31035.01
Traditional ports, foam sensor, Meissner inlet and one 5 in. exhaust filters, condenser	CX5-14	SH31036.01
Traditional ports, foam sensor, ZenPure inlet and one 5 in. exhaust filters, condenser	CX5-14	SH31037.01
Traditional ports, foam sensor, Meissner inlet and two 5 in. exhaust filters, condenser	CX5-14	SH31038.01
Traditional ports, ZenPure inlet and one 5 in. exhaust filters	CX5-14	SH31039.01
<b>300 L S.U.F. BPCs</b>		
Mettler Toledo single-use pH and DO sensor, foam sensor, Meissner inlet and two 10 in. exhaust filters, condenser	Aegis5-14	SH31009.02
	CX5-14	SH31017.02
Mettler Toledo single-use pH and DO sensor, foam sensor, Meissner inlet and four 10 in. exhaust filters, condenser	Aegis5-14	SH31009.03
	CX5-14	SH31017.03
Traditional ports, foam sensor, Meissner inlet and two 10 in. exhaust filters, condenser	CX5-14	SH31030.05
Traditional ports, foam sensor, Meissner inlet and four 10 in. exhaust filters, condenser	CX5-14	SH31030.06
Traditional ports, foam sensor, ZenPure inlet and one 10 in. exhaust filters, condenser	CX5-14	SH31030.01
Traditional ports, foam sensor, ZenPure inlet and two 10 in. exhaust filters, condenser	CX5-14	SH31030.02
Traditional ports, ZenPure inlet and one 10 in. exhaust filters	CX5-14	SH31030.04
Traditional ports, ZenPure inlet and two 10 in. exhaust filters	CX5-14	SH31030.03



# HyPerforma S.U.F. accessories and options

## S.U.F. Accessories

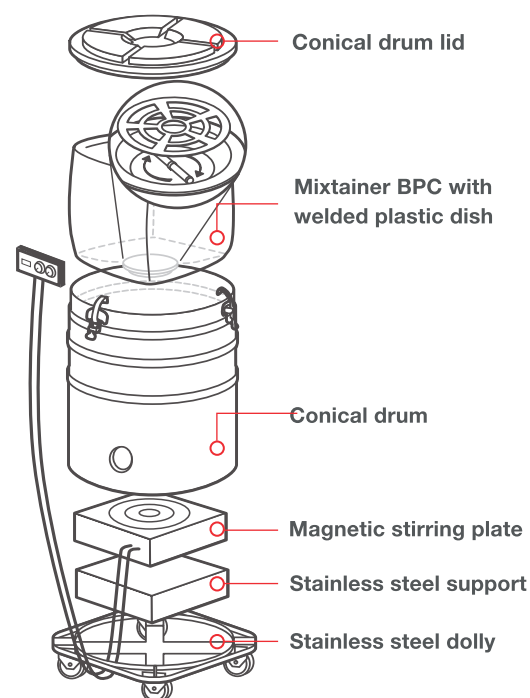
Product	30 L Cat. No.	300 L Cat. No.
<b>Load cells and load cell displays</b>		
3x load cell with summing box without display	SV50988.04	SV50988.03
Mettler Toledo IND331 display, harsh mount style with 120 VAC US line cord/plug Analog (STD) interface	SV50177.306	SV50177.306
Mettler Toledo IND331 display, harsh mount style with 120 VAC US line cord/plug Allen-Bradley™ RIO interface	SV50177.307	SV50177.307
Mettler Toledo IND331 display, harsh mount style with 120 VAC US line cord/plug DeviceNet interface	SV50177.308	SV50177.308
Mettler Toledo IND331 display, harsh mount style with 120 VAC US line cord/plug Ethernet/IP and ModBus TCP interface	SV50177.309	SV50177.309
Mettler Toledo IND331 display, harsh mount style with 120 VAC US line cord/plug Profibus interface	SV50177.310	SV50177.310
<b>Autoclave tray and probe assemblies</b>		
Autoclave tray	SV50177.01	SV50177.01
4 probe clips	SV50177.23	SV50177.23
Heavy-duty tubing clamp (single)	SV20664.01	SV20664.01
Heavy-duty tubing clamp (10-pack)	SV20664.04	SV20664.04
Exhaust filter pinch clamp	SV50177E.16	SV50177E.16
Probe holder, plastic molded	SV50177P.01	SV50177P.01
<b>Condenser systems</b>		
120 VAC complete condenser system (TCU for condenser included)	SV51009.02	NA
240 VAC complete condenser system (TCU for condenser included)	SV51009.03	SV51009.03
<b>Cable management systems</b>		
Cable management tree	SV50992.01	NA
Cable management system, left-hand configuration	NA	SV51006.02
Cable management system, right-hand configuration	NA	SV51006.03
Bottle management system	SV50992.10	SV50992.10
Feed bag management system	SV51006.03	SV51006.03

# HyPerforma Mixtainer systems

Thermo Scientific™ Mixtainer™ system is an integrated, single-use unit designed for optimal mixing of cell culture media, process liquids, buffers, reagents, and bulk product.

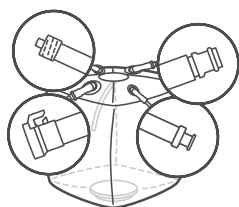
## Key features

- The Mixtainer system utilizes a sophisticated BPC constructed of CX5-14 film with a plastic dish welded into the base.
- The plastic dish contains a magnetic stir bar that is held in the proper operating position using an integrated locking ring.
- Available in 50, 100, and 200 L unit volumes.
- BPCs available for liquid-to-liquid and powder-to-liquid mixing.
- Optimized supporting hardware allows for mixing, storage, transport, and discharge in a closed system to help minimize the risk of cross-contamination.



## Mixtainer BPC

4 ports, top dispense, powder-to-liquid mixing



### Line 1

9.5 mm (0.38 in.) quick-connect body with 16.5 cm (6.5 in.) dip tube  
Tube length: 91 cm (36 in.)

### Line 2 and 3

6.3 mm (0.25 in.) luer lock insert  
Tube length: 91 cm (36 in.)

### Line 4

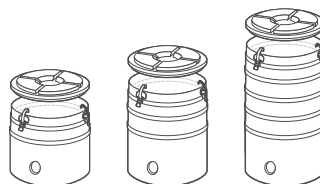
9.53 mm (.38 in.) quick-connect body  
Tube length: 91 cm (36 in.)

**Powder addition port:** 38.1 mm (1.5 in.)  
Tri-clamp port

Size	Cat. No.
50 L	SH30687.04
100 L	SH30687.05
200 L	SH30687.06

## Conical drum

Top dispense, with clamps



Size	Cat. No.
50 L	SV50517.11
100 L	SV50517.12
200 L	SV50517.13

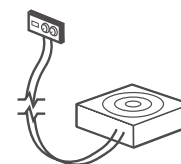
## Stainless steel support



Area	Cat. No.
EU	SV30097.03
US	SV30097.04

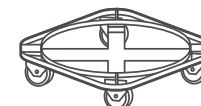
## Magnetic stirring plate

IKAMAG™ motor and support required



Description	Cat. No.
EU, 230 V, 50/60 Hz, 0.5 A	SV30097.01
US, 115 V, 50/60 Hz, 1 A	SV30097.02

## Universal stainless steel dolly



Dimensions (D x H)	Cat. No.
61.6 x 15.2 cm (24.38 x 6 in.)	SV50109.01

# Mixtainer systems specifications and options

## Custom BPC options

	Description
Dip tubes	<ul style="list-style-type: none"> <li>• Specific lengths 6.36–12.7 mm (0.25–0.5 in.) ID</li> </ul>
Tubing type	<ul style="list-style-type: none"> <li>• C-Flex (clear or white)</li> <li>• Silicone</li> <li>• PVC</li> </ul>
Tubing size	<ul style="list-style-type: none"> <li>• Specific lengths of 3.18–19.05 mm (0.25–0.75 in.) ID</li> </ul>
Connectors	<ul style="list-style-type: none"> <li>• Luer ID: 3.18–6.35 mm (0.13–0.25 in.)</li> <li>• CPC ID: 6.35–19.05 mm (0.25–0.75 in.)</li> <li>• SIP tri-clamp ID: 6.35–19.05 mm (0.25–0.75 in.)</li> <li>• Mini tri-clamp ID: 6.35–19.05 mm (0.25–0.75 in.)</li> <li>• Hose barb</li> </ul>
Others	<ul style="list-style-type: none"> <li>• Injection port ID: 6.35–9.53 mm (0.25–0.38 in.)</li> <li>• Filling bell ID: 6.35 mm (0.25 in.)</li> <li>• Filter capsule: Millipore, Pall, Sartorius, Domnick Hunter</li> </ul>



## BPC presentation

	Description
Outer packaging	Supplied flat-packed—two polyethylene outer layers
Label	Description, product code, lot number, and expiry date on outer packaging and shipping container
Shipping container	Durable cardboard carton
Documentation	Certificate of analysis provided

## System options

Thermo Scientific™ Powdertainer™ II powder feed BPC: Connect a Powdertainer II BPC to the Mixtainer system using a concentric reducer 7.6 cm (3 in.) tri-clamp to 3.8 cm (1.5 in.) tri-clamp. Ordering information for the reducer is shown.

	Description
304 stainless steel	Saint Patricks of Texas: Concentric reducer (3 x 1.5 in.)
304 stainless steel	RT Process: Cat. No. 31-14MP-3X1.5-304
316 stainless steel	RT Process: Cat. No. 31-14MP-3X1.5-316
Polypropylene	Saint-Gobain (Sani-Tech): Cat. No. TAD300-150
Kynar material (PVDF)	Saint-Gobain (Sani-Tech): Cat. No. KAD300-150

# HyPerforma Single-Use Mixer (S.U.M.) DS 300

The Thermo Scientific™ HyPerforma™ Single-Use Mixer (S.U.M.) DS 300 is a modular mixing system consisting of a mixing station that mates to plastic drums containing single-use BPCs or tank liners, offering the user a cost-effective, docking station–style mixing platform with multiple mixing volume options.



## HyPerforma S.U.M. DS 300 docking station

The docking station consists of a stainless steel base with locking casters, an adjustable handle, a tethered handheld control device, an electronic vertical lift mechanism with integrated height indicator, motor mount and motor, three sizes of driveshafts, and two adjustment tools—a spanner and a torque wrench. An adjustable-angle motor head and drum positioner are available as add-on options.

## Key features

- Top-drain support containers are available in 50, 100, 200, and 300 L sizes; bottom-drain drums are available in 50, 100, and 200 L sizes.
- Top-drain tank liners are available in four sizes from 50 to 300 L.
- Tank liners with bottom access ports are available in three sizes from 50 to 200 L.
- Closed-top 3D BPCs, with both top and bottom drain access ports, are available in sizes 50, 100, and 200 L.
- Optional dollies are available for all drum sizes.

## S.U.M. DS 300 specifications

Power	108–240 VAC, 50–60 Hz
Input amperage	15 A
Operating temperature range	Ambient to 40°C
Motor speed	30–350 RPM
Footprint (W x L)	76.2 x 86.4 cm (30 x 34 in.)
Height (lowest to tallest point)	122.4–162.3 cm (48.2–63.9 in.)
Weight	180 kg (398 lb)
Control box	Built to IP65 standards
Flow type	Radial/axial
Hardware material	304 stainless steel

## S.U.M. DS 300 options

Description	Cat. No.
DS 300 standard unit	SUMDS0300.9000
DS 300 unit with drum positioner	SUMDS0300.9001
DS 300 unit with adjustable motor head	SUMDS0300.9002
DS 300 unit with drum positioner and adjustable motor head	SUMDS0300.9003

# S.U.M. DS 300 hardware and BPC specifications and options

## S.U.M. DS 300 drum options

Description	Volume range	Dimensions	Bottom drain	Cat. No.
50 L plastic drum with conical insert	10 L–50 L	60 x 58 cm (23.5 x 23 in.)	10.2 cm (4 in.)	SH30959.01
100 L plastic drum	20 L–100 L	60 x 76 cm (23.5 x 29.75 in.)	10.2 cm (4 in.)	SH30959.02
200 L plastic drum	40 L–200 L	60 x 114 cm (23.5 x 44.75 in.)	10.2 cm (4 in.)	SH30959.03
300 L plastic drum	60 L–300 L	61 x 122 cm (24 x 48 in.)	NA	SH30959.04
Optional support plate for bottom drain	50 L–200 L	12.7 cm (5 in.) diameter split	NA	SV50102.02

## Typical open-type mixing with catalog impeller sizes

	50 L	100 L	200 L	300 L
Turndown ratio	5:1	5:1	5:1	4:1 <sup>†</sup>
Minimum working liquid volume	10 L	20 L	40 L	79 L
Minimum hold up	100 mL	100 mL	100 mL	500 mL
Maximum liquid fill	50 L	100 L	200 L	300 L
Left-to-right offset*	0	0	0	1.3 cm (0.5 in.) left
Front-to-back position*	2.5 cm (1 in.)	5.1 cm (2 in.)	5.4 cm (2.13 in.)	6.4 cm (2.5 in.)
Lift height*	0.48 cm (0.19 in.)	2.2 cm (0.88 in.)	30.64 cm (12.06 in.)	39.98 cm (15.74 in.)
Motor angle (fixed or adjustable motor head models)	10°	10°	10°	10°
Motor RPM	350	350	350	350

\* All measurements listed in the above table are ±0.16 cm (0.06 in.). <sup>†</sup>For the 300 L drum, a 5:1 turndown ratio can be achieved using the adjustable-angle motor head.

## S.U.M. DS 300 impeller specifications

Impeller material	USP class VI, HDPE
Impeller to BPC system/tank liner location	5:1 off center
Number of impeller blades	3
Closed-top BPC system	Qualified LDPE
Open-top BPC tank liner	Qualified LDPE

## Impeller sleeve options

Drum size	Sleeve length	Description	Cat. No.
50 L	35.3 cm (13.9 in.)	Impeller, sleeve, and connector for 66 cm (26 in.) driveshaft	SH30749.11
100 L	53.1 cm (20.9 in.)	Impeller, sleeve, and connector for 83.8 cm (33 in.) driveshaft	SH30749.12
200 L	77 cm (30.3 in.)	Impeller, sleeve, and connector for 108 cm (42.5 in.) driveshaft	SH30749.13
300 L	96 cm (37.8 in.)	Impeller, sleeve, and connector for 129.5 cm (51 in.) driveshaft	SH30749.08

## S.U.M. DS 300 hardware and BPC specifications and options

## Reusable hub options

Size	Description	Cat. No.
50 L–300 L	Stainless steel bearing hub	SV50177.77

## BPC system specifications

BPC system specifications	
Description	Bottom drain line
Tubing set (ID x OD x L)	1.27 x 1.91 x 122 cm (0.5 x 0.75 x 304.1 in.)
End treatment	Polycarbonate quick-connect 12.7 mm (0.5 in.) insert (MPX) and cap

## Irradiated BPC tank liner options

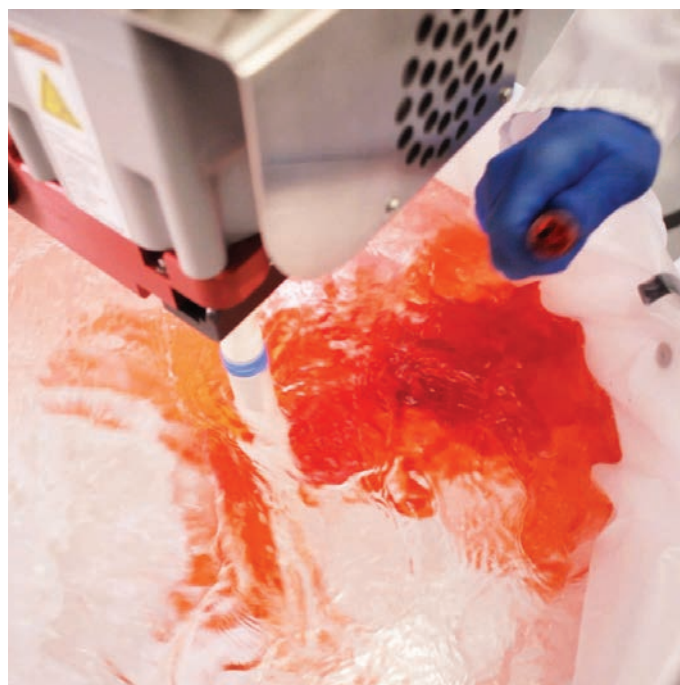
Size	Description	Cat. No.
50 L	Tank liner: Open-top, bottom drain, irradiated CX3-9 film	SH30646.01
50 L	BPC: Closed-top, bottom drain, irradiated CX3-9 film	SH30946.01
100 L	Tank liner: Open-top, bottom drain, irradiated CX3-9 film	SH30646.02
100 L	BPC: Closed-top, bottom drain, irradiated CX3-9 film	SH30946.02
200 L	Tank liner: Open-top, bottom drain, irradiated CX3-9 film	SH30646.03
200 L	BPC: Closed-top, bottom drain, irradiated CX3-9 film	SH30946.03
300 L	Tank liner: Open-top, top drain, irradiated CX3-9 film	SH30647.06

## Dolly options

Description	Material	Quantity	Cat. No.
50–200 L plastic drum	Polyethylene	1	SH30958.01
		2	SH30958.02
Dolly for 300 L plastic drum	Zinc-plated	1	SH30958.03

## Nonirradiated BPC tank liner options

Size	Description	Cat. No.
50 L	Open-top, bottom drain, nonirradiated CX3-9 film	SH30399.01
100 L	Open-top, bottom drain, nonirradiated CX3-9 film	SH30399.02
200 L	Open-top, bottom drain, nonirradiated CX3-9 film	SH30399.03



# HyPerforma Single-Use Mixer (S.U.M.)

The Thermo Scientific™ HyPerforma™ Single-Use Mixer (S.U.M.) with Touchscreen Console provides enhanced functionality, ease of use, and efficiency. The complete HyPerforma S.U.M. system consists of a mixer tank, available in 50, 100, 200, 500, 1,000, and 2,000 L sizes with the Touchscreen Console.

The HyPerforma S.U.M. has a 5:1 turndown mixing ratio, and maintains traditional stirred-tank mixer design principles with a directly coupled motor impeller drive assembly, and a cylindrical tank with a specific height-to-diameter ratio. This allows quick turnaround times for both liquid-to-liquid mixing and powder-to-liquid mixing.

## Features and benefits

- Cable management system for improved ease of use with BPC process lines for system organization
- Access door for convenient BPC loading on the 500 L, 1,000 L, and 2,000 L mixing systems
- Water-jacketed (heating) and non-jacketed (no heat transfer) options; improved high-flow water jacket with side and bottom jacket to improve system heat transfer
- Adjustable powder hanger that fits 1 kg, 5 kg, and 25 kg Thermo Scientific™ Powdertainer™ BPCs
- Two swivel-locking casters and push handles for better maneuverability of the units (except 2,000 L)
- BPC tab holders for easy single-use container setup
- Dual-probe opening for redundancy and low-volume pH and conductivity monitoring
- Open-cart frame for easy cleaning

## Applications

- Media preparation
- Final formulation steps
- Buffer preparation
- Large-volume mixing (up to 2,000 L)
- Pooling and liquid transfer
- Product suspension
- Mixing and storing multiple batches
- Harvest collection and bulk mixing
- Viral inactivation



## Touchscreen Console and controllers

The Touchscreen Console provides state-of-the-art in-process monitoring and automation capability for the HyPerforma S.U.M. Its modular design allows for an easy-to-use custom user interface. Capabilities include: agitation, pumps, pinch valves, and temperature control. Users can easily visualize measurements from load cells, pH sensors, conductivity sensors, RTD, and pressure sensors.

As an engineered-to-order product, the HyPerforma S.U.M. with Touchscreen Console can be fully integrated with either HyPerforma G3 Bioprocess Controllers, or controllers from other manufacturers—providing an open-architecture mixing solution configured to your unique requirements. The Touchscreen Console can integrate TruBio automation software powered by Emerson's DeltaV Distributed Control platform, enabling users to optimize data acquisition while maintaining full compliance with 21 CFR Part 11.

## HyPerforma S.U.M. hardware specifications and options

## HyPerforma S.U.M. specifications

	50 L	100 L	200 L	500 L	1,000 L	2,000 L
Maximum liquid working volume	50 L	100 L	200 L	500 L	1,000 L	2,000 L
Minimum liquid working volume	10 L	20 L	40 L	100 L	200 L	400 L
Fluid geometry at working volume (height: diameter) ratio	1.5:1	1.5:1	1.5:1	1.5:1	1.1:1	1.0:1
Overall reactor geometry (height: diameter) ratio	1.9:1	1.9:1	1.95:1	1.7:1	1.2:1	1.2:1
Impeller (quality x blade count)	1 x 3	1 x 3	1 x 3	1 x 3	1 x 3	1 x 3
Mixing rate range	30–350 rpm	30–350 rpm	30–350 rpm	30–350 rpm	30–350 rpm	30–350 rpm
Overall dimensions (W x L x H)	87 x 86 x 152 cm (34.1 x 33.9 x 59.8 in.)	87 x 92 x 153 cm (34.1 x 36.4 x 60.2 in.)	90 x 107 x 174 cm (35.4 x 42.0 x 68.5 in.)	118 x 132 x 197 cm (46.2 x 51.8 x 77.7 in.)	144 x 158 x 200 cm (56.4 x 62.3 x 76.7 in.)	180 x 171 x 225 cm (70.7 x 67.4 x 88.5 in.)

Note: Overall dimensions include the cable management system and Touchscreen Console. They do not include the pump shelves or Powdertainer arm accessories.

## Ordering information

All SKUs listed below include the Touchscreen Console and load cells

Size	Description	Cat. No.
50 L	Non-jacketed, DC motor	SUM0050.9001
	Jacketed, DC motor	SUM0050.9002
100 L	Non-jacketed, DC motor	SUM0100.9001
	Jacketed, DC motor	SUM0100.9002
200 L	Non-jacketed, DC motor	SUM0200.9001
	Jacketed, DC motor	SUM0200.9002
500 L	Non-jacketed, DC motor	SUM0500.9001
	Jacketed, DC motor	SUM0500.9002
1,000 L	Non-jacketed, DC motor	SUM1000.9001
	Jacketed, DC motor	SUM1000.9002
2,000 L	Non-jacketed, AC motor, 240 V	SUM2000.9003
	Jacketed, AC motor, 240 V	SUM2000.9004





# HyPerforma S.U.M. BPC specifications and options

## HyPerforma S.U.M. catalog BPCs

Size	Probe ports	Film	Cat. No.
<b>Powder-to-liquid BPC</b>			
50 L	0	Aegis5-14	SH30973.01
		CX5-14	SH30768.01
	3	Aegis5-14	SH31051.02
		CX5-14	SH31055.02
100 L	0	Aegis5-14	SH31052.01
		CX5-14	SH31046.01
	3	Aegis5-14	SH31052.02
		CX5-14	SH31046.02
200 L	0	Aegis5-14	SH30973.02
		CX5-14	SH30750.01
	3	Aegis5-14	SH31053.02
		CX5-14	SH31054.02
500 L	0	Aegis5-14	SH30973.03
		CX5-14	SH30751.01
	3	Aegis5-14	SH30974.03
		CX5-14	SH30751.02
1,000 L	0	Aegis5-14	SH30973.04
		CX5-14	SH30752.01
	3	Aegis5-14	SH30974.04
		CX5-14	SH30752.02
2,000 L	0	Aegis5-14	SH30973.05
		CX5-14	SH30770.01
	3	Aegis5-14	SH30974.05
		CX5-14	SH30770.02

Size	Probe ports	Film	Cat. No.
<b>Liquid-to-liquid BPC</b>			
50 L	0	Aegis5-14	SH30983.01
		CX5-14	SH30767.01
	3	Aegis5-14	SH31051.04
		CX5-14	SH31055.04
100 L	0	Aegis5-14	SH31052.03
		CX5-14	SH31046.03
	3	Aegis5-14	SH31052.04
		CX5-14	SH31046.04
200 L	0	Aegis5-14	SH30983.02
		CX5-14	SH30753.01
	3	Aegis5-14	SH31053.04
		CX5-14	SH31054.04
500 L	0	Aegis5-14	SH30983.03
		CX5-14	SH30754.01
	3	Aegis5-14	SH30982.03
		CX5-14	SH30754.02
1,000 L	0	Aegis5-14	SH30983.04
		CX5-14	SH30755.01
	3	Aegis5-14	SH30982.04
		CX5-14	SH30755.02
2,000 L	0	Aegis5-14	SH30983.05
		CX5-14	SH30769.01
	3	Aegis5-14	SH30982.05
		CX5-14	SH30769.02

## HyPerforma S.U.M. hardware and BPC accessories

## Catalog open-top liners

Film	Size	Cat. No.
CX3-9	50 L, no port probes	SH30762.04
	100 L, no port probes	SH30762.06
	200 L, no port probes	SH30762.01
	500 L, no port probes	SH30762.02
	1,000 L, no port probes	SH30762.03
	2,000 L, no port probes	SH30762.05

## Impeller sleeve for open-top mixing

Size	Cat. No.
50 L	SH30749.06
100 L	SH30749.14
200 L	SH30749.08
500 L	SH30749.10
1,000 L	SH30749.10
2,000 L	SH30772.01

## HyPerforma S.U.M. accessories

	50 L	100 L	200 L	500 L	1,000 L	2,000 L
Cable management system	SV50992.12	SV50992.12	SV50992.12	SV50992.12	SV50992.12	SV50992.12
3 load cell with cables	SV51145.01	SV51145.01	SV51145.02	SV51145.03	SV51145.05	SV51145.04
Autoclave tray	SV50177.01	SV50177.01	SV50177.01	SV50177.01	SV50177.01	SV50177.01
Probe assembly (nonsterile for use in autoclave)	SH30720.01	SH30720.01	SH30720.01	SH30720.01	SH30720.01	SH30720.01
Heavy-duty tubing clamp (each)	SV20664.01	SV20664.01	SV20664.01	SV20664.01	SV20664.01	SV20664.01
Sampling manifold with Luer lock (each)	SH30845.01	SH30845.01	SH30845.01	SH30845.01	SH30845.01	SH30845.01
Sampling manifold with Luer lock (10 per pack)	SH30845.02	SH30845.02	SH30845.02	SH30845.02	SH30845.02	SH30845.02
Temperature/sample port	SV20750.01	SV20750.01	SV20750.01	SV20750.01	SV20750.01	SV20750.01
Reusable hub assembly with tri-clamp	NA	NA	NA	NA	NA	SV50177.78
Reusable hub assembly with quick connect	SV50177.77	SV50177.77	SV50177.77	SV50177.77	SV50177.77	NA
Powdertainer arm	SV51002.01	SV51002.01	SV51002.01	SV51002.01	SV51002.01	SV51002.02

# imPULSE Single-Use Mixer (S.U.M.)

The Thermo Scientific™ imPULSE™ Single-Use Mixer (S.U.M.) can be utilized for many bioprocess mixing applications. The imPULSE design features include innovative disc mixing technology, configurable high-end controls, and monitors to fit specific process requirements. These features are designed to provide scalability from 30 L to 5,000 L.

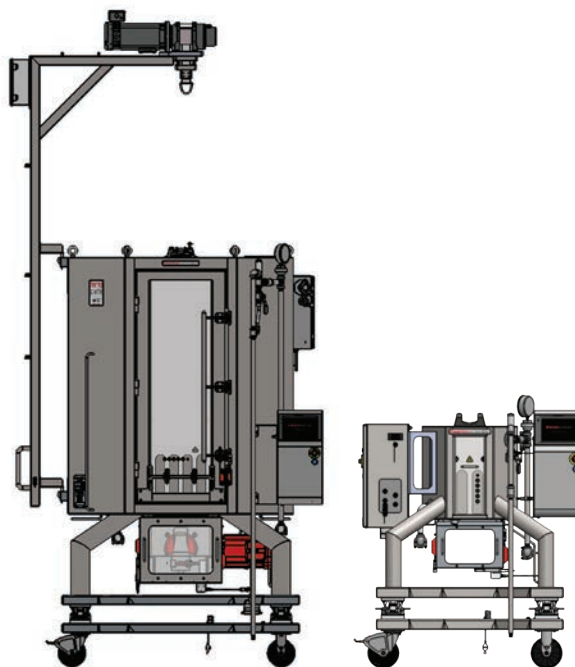
The Touchscreen Console for the imPULSE S.U.M. provides unsurpassed integrated sensor monitoring, and pump control for pH and saline titration and for automatic fill and harvest.

## Efficient and customizable

The standard imPULSE Mixing BPCs are made of ASI 26/77 polyethylene two-layer film. These BPCs are available with four inlet/outlet lines and a powder addition port. The standard tube sets connect to the imPULSE Mixing BPC for liquid addition, powder addition, recirculation, inflation, and vent control. The tube sets are modular and can be customized to best suit your process.

## Key features

- Touchscreen Console provides ease of use with multifunctional capabilities to monitor and control mixing parameters
- Integrated rolling diaphragm that provides the pumping action to the mixing disc; the diaphragm will not abrade the surfaces or produce particulates
- Mixing tank jacket and insulation
- Weighing systems that utilize load cells enable accurate batch weight monitoring
- Auto-inflate and vent control options
- Adjustable powder hanger for 1,000 L and higher mixers that fits 1, 5, and 25 kg Powdertainer BPCs
- Open cart frame for easier cleaning



## Standard features

- 304L stainless steel vessel and sliding window or door and window
- Clean room–grade stainless steel non-marring casters available on 30 L–1,000 L systems
- Rolling diaphragm
- Touchscreen Console: IP 54 enclosure

## Applications

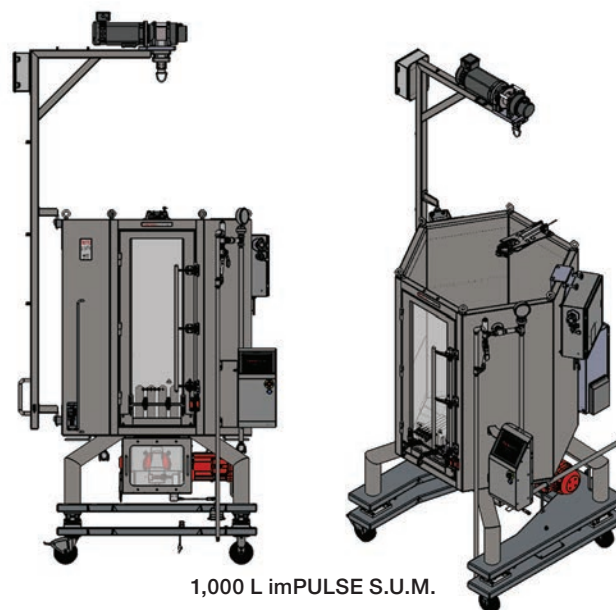
- Buffer and media preparation
- Final formulation
- High-viscosity mixing
- Heavy powder loads
- Suspension or resuspension
- Homogenization or rehomogenization
- Harvesting
- Storage
- Purification

# imPULSE S.U.M. hardware and BPC specifications

## imPULSE hardware

All products listed below are constructed with 304 stainless steel and include the touchscreen console and load cells.

Size	Description	Cat. No.
30 L	Jacketed, AC motor, sliding window	IM00030.9001
100 L	Jacketed, AC motor, sliding window	IM00100.9002
250 L	Jacketed, AC motor, swinging door	IM00250.9003
500 L	Jacketed, AC motor, swinging door	IM00500.9004
1,000 L	Jacketed, AC motor, auto-inflate	IM01000.9005
2,000 L	Jacketed, AC motor, auto-inflate	IM02000.9006
3,000 L	Jacketed, AC motor, auto-inflate	IM03000.9007
5,000 L	Jacketed, AC motor, auto-inflate	IM05000.9008



1,000 L imPULSE S.U.M.

## imPULSE S.U.M. BPC specifications

All imPULSE BPCs are constructed of ASI 26/77 film and silicone tubing.

Description	Size	Cat. No.
<b>1 inlet line:</b> 1.5 in. tri-clover, 0.5 x 0.75 in. ID x OD	30 L	HM00285-I
<b>1 inflate/vent line:</b> 1.5 in. tri-clover, 0.5 x 0.75 in. ID x OD		
<b>1 pressure sensing line:</b> PendoTECH™ Pressure Sensor, 0.75 in. tri-clover, 0.5 x 0.75 in. ID x OD	100 L	HM00287-I
<b>1 powder port:</b> 3 in. tri-clover		
<b>4 side probe ports:</b> 0.5 in. AseptiQuik™ G Connector		
<b>2 outlet/recirculation lines:</b> MPX body with plug, 0.5 x 0.75 in. ID x OD	250 L	HM00288-I
<b>1 inlet line:</b> 1.5 in. tri-clover, 0.5 x 0.75 in. ID x OD		
<b>1 inflate/vent line:</b> 1.5 in. tri-clover, 0.75 x 1.125 in. ID x OD		
<b>1 pressure sensing line:</b> PendoTECH Pressure Sensor, 0.75 in. tri-clover, 0.5 x 0.75 in. ID x OD	500 L	HM00289-I
<b>1 powder port:</b> 3 in. tri-clover		
<b>4 side probe ports:</b> 0.5 in. AseptiQuik G Connector		
<b>2 outlet/recirculation lines:</b> MPX body with plug, 0.5 x 0.75 in. ID x OD		
<b>1 inlet line:</b> 1.5 in. tri-clover, 0.75 x 1.125 in. ID x OD	1,000 L	HM00291-I
<b>1 inflate/vent line:</b> 1.5 in. tri-clover, 0.75 x 1.125 in. ID x OD		
<b>1 pressure sensing line:</b> PendoTECH Pressure Sensor, 0.75 in. tri-clover, 0.5 x 0.75 in. ID x OD	2,000 L	HM00293-I
<b>1 powder port:</b> 3 in. tri-clover	3,000 L	HM00294-I
<b>4 side probe ports:</b> 0.5 in. AseptiQuik G Connector		
<b>2 outlet/recirculation lines:</b> MPU body with plug, 0.75 x 1.125 in. ID x OD	5,000 L	HM00295-I

Note: tubing lengths will vary according to each vessel size.

# imPULSE S.U.M. hardware specifications

## imPULSE S.U.M. hardware specifications

Working volume (L)			Unit dimensions*	Unit weight	
Nominal	Max.	Min.	(D x W x H)	Dry	Wet (Nominal working volume)
30	35	0	88.99 x 112.88 x 133.36 cm (35.04 x 44.44 x 52.50 in.)	245.9 kg (542.25 lb.)	279.62 kg (616.45 lb.)
100	107	0	104.77 x 121.12 x 160.83 cm (41.25 x 47.68 x 63.30 in.)	303.4 kg (668.9 lb.)	410.18 kg (904.29 lb.)
250	266	0	119.84 x 136.25 x 177.20 cm (47.18 x 53.64 x 69.76 in.)	513.8 kg (1,132.87 lb.)	776.77 kg (1,712.49 lb.)
500	549	0	136.26 x 141.03 x 202.30 cm (53.65 x 55.52 x 79.65 in.) With hoist: 136.26 x 150.41 x 327.37 cm (53.65 x 59.22 x 128.89 in.)	733.0 kg (1,616.7 lb.)	1,255.77 kg (2,768.48 lb.)
1,000	1,136	0	158.43 x 153.82 x 234.88 cm (62.37 x 60.56 x 92.47 in.) With hoist: 158.43 x 173.79 x 364.68 cm (62.37 x 68.42 x 143.57 in.)	928 kg (2,047.8 lb.)	1,960.43 kg (4,321.98 lb.)
2,000	2,038	0	189.58 x 162.42 x 259.92 cm (74.64 x 63.94 x 102.33 in.) With hoist: 189.58 x 190.05 x 384.43 cm (74.64 x 74.82 x 151.35 in.)	1,049 kg (2,411.9 lb.)	3,295.24 (7,264.72 lb.)
3,000	3,155	0	207.36 x 180.47 x 282.85 cm (81.64 x 71.05 x 111.36 in.) With hoist: 207.36 x 208.10 x 413.39 cm (81.64 x 81.92 x 162.75 in.)	1,730 kg (3814 lb.)	4,534.89 kg (9,997.75 lb.)
5,000	5,237	0	227.47 x 201.00 x 322.00 cm (89.56 x 79.13 x 126.77 in.) With hoist: 227.47 x 228.63 x 452.94 cm (89.56 x 228.63 x 178.32 in.)	3,251 kg (7167.2 lb.)	7,026.24 kg (15490.10 lb.)

\* The unit dimensions listed are nominal and may vary depending on options selected.

# Touchscreen Console for the HyPerforma and imPULSE S.U.M.s

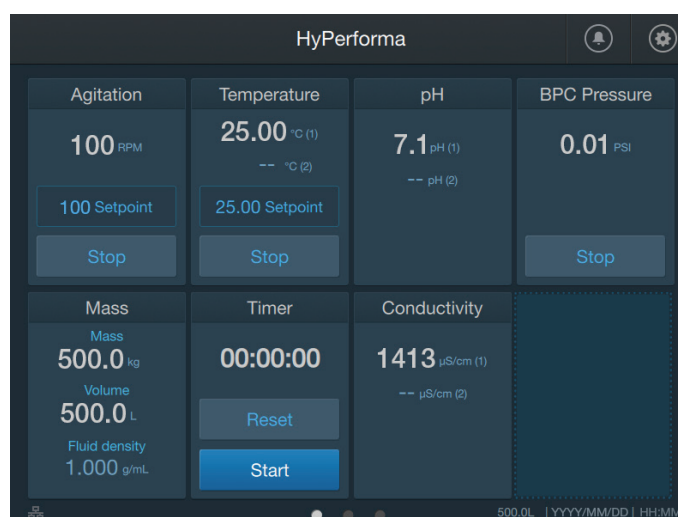
The Touchscreen Console provides state-of-the-art in-process monitoring and automation capability for the HyPerforma and imPULSE S.U.M.s. Its modular design allows for an easy-to-use custom user interface. Capabilities include: agitation, pumps, pinch valves, and temperature control. Users can easily visualize measurements from load cells, pH sensors, conductivity sensors, resistance temperature detectors (RTDs), and pressure sensors.

## Key advantages

To suit various processes, the user is able to semi-automate their formulation, pH or saline titrations, and viral inactivation processes with the Touchscreen Console. Additionally, the system's modular design allows for an ergonomic, custom user interface. Simple, routine processes can be automated by utilizing measurement values to control the pumps, temperature control unit (TCU), and agitation motor. The data measured during a process can be exported remotely via Ethernet, Profibus, Modbus RTU, or using a USB drive.

## Touchscreen Console module functionalities

The main screen is populated with user-selectable modules, which allow for simple screen customization.

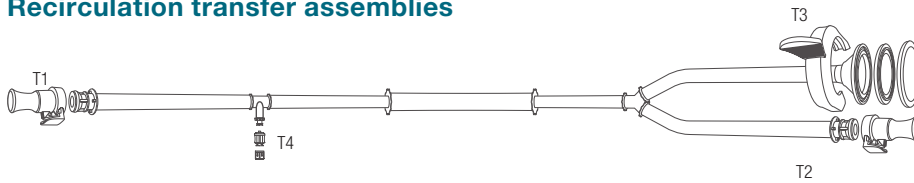


The interface above highlights the module functionalities for the HyPerforma S.U.M.

Modules	HyPerforma S.U.M.	imPULSE S.U.M.
Pump control	✓	✓
BPC pressure	✓	✓
Liquid pressure	✓	✓
Auxiliary output and input	✓	✓
Automated and metered fill and harvest	✓	✓
Agitation	✓	✓
Mass	✓	✓
Temperature	✓	✓
Timer	✓	✓
pH	✓	✓
Conductivity	✓	✓
Recipe function	✓	
PDC pressure		✓

# imPULSE S.U.M. transfer assembly specifications

## Recirculation transfer assemblies



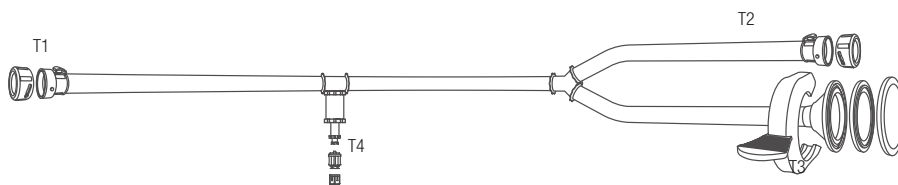
**Tubing:** silicone with size 90 PharMed BPT pump tubing, ID x OD: 1.27 x 1.91 cm (0.5 x 0.75 in.)

**T1, T2:** MPX insert with cap

**T3:** 3.8 cm (1.5 in.) sanitary x 1.27 cm (0.5 in.) barb with gasket, end cap, and push/pull clip

**T4:** Sample port

Description	Cat. No.
For less than 1,000 L 1.27 cm (0.5 in.) recirculation	HM00005-I



**Tubing:** silicone with size 90 PharMed BPT pump tubing, ID x OD: 1.91 x 2.86 cm (0.75 x 1.125 in.)

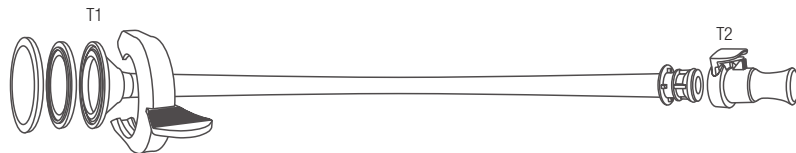
**T1, T2:** MPU insert with cap

**T3:** 3.8 cm (1.5 in.) sanitary x 1.91 cm (0.75 in.) barb with gasket, end cap, and push/pull clip

**T4:** Sample port

Description	Cat. No.
For 1,000 L and larger 1.91 cm (0.75 in.) recirculation	HM00006-I

## Water fill transfer assemblies

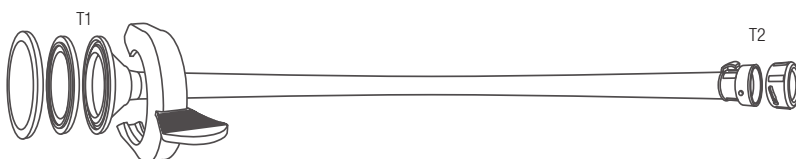


**Tubing:** silicone 182.9 cm (72 in.), ID x OD: 1.27 x 1.91 cm (0.5 x 0.75 in.)

**T1:** 3.8 cm (1.5 in.) sanitary x 1.27 cm (0.5 in.) barb with gasket, end cap, and push/pull clip

**T2:** MPX insert with cap

Description	Cat. No.
For less than 1,000 L 1.27 cm (0.5 in.) water fill	HM00015-I



**Tubing:** silicone 182.9 cm (72 in.), ID x OD: 1.27 x 1.91 cm (0.5 x 0.75 in.)

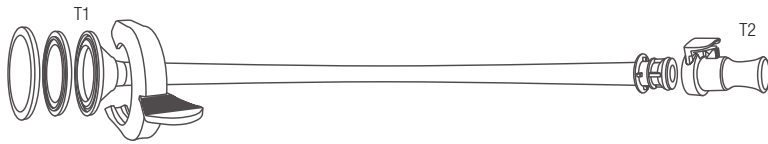
**T1:** 3.8 cm (1.5 in.) sanitary x 1.91 cm (0.75 in.) barb with gasket, end cap, and push/pull clip

**T2:** MPU insert with cap

Description	Cat. No.
For 1,000 L and larger 1.91 cm (0.75 in.) water fill	HM00016-I

## imPULSE S.U.M. transfer assembly specifications

## Inflation transfer assemblies

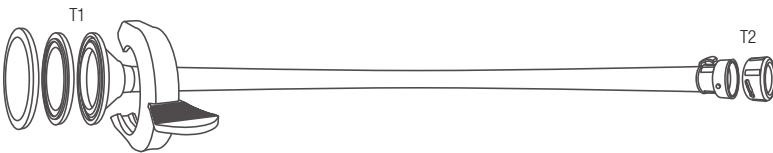


**Tubing:** silicone 365.8 cm (144 in.), ID x OD: 1.27 x 1.91 cm (0.5 x 0.75 in.)

**T1:** 3.8 cm (1.5 in.) sanitary x 1.27 cm (0.5 in.) barb with gasket, end cap, and push/pull clip

**T2:** MPX insert with cap

Description	Cat. No.
For less than 1,000 L 1.27 cm (0.5 in.) air inflate and purge	HM00017-I



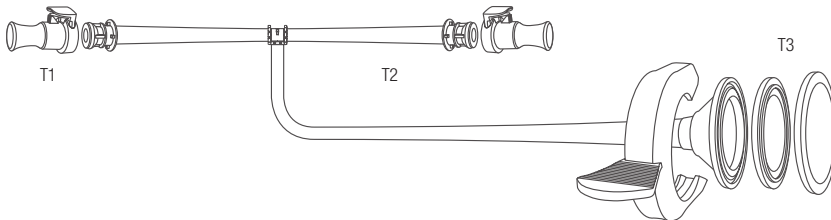
**Tubing:** silicone 396.2 cm (156 in.), ID x OD: 1.91 x 2.86 cm (0.75 x 1.125 in.)

**T1:** 3.8 cm (1.5 in.) sanitary x 1.91 cm (0.75 in.) barb with gasket, end cap, and push/pull clip

**T2:** MPU insert with cap

Description	Cat. No.
For 1,000 L and larger 1.91 cm (0.75 in.) air inflate and purge	HM00018-I

## Vent transfer assemblies

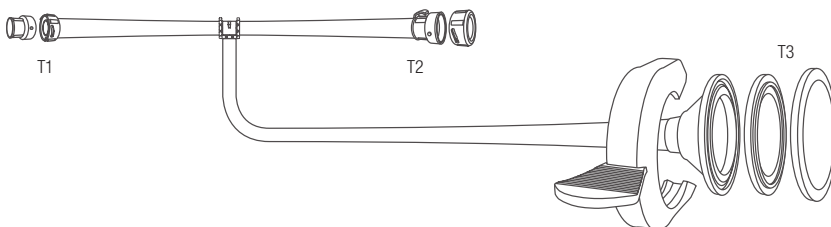


**Tubing:** silicone 15.2 x 15.2 x 152.4 cm (6 x 6 x 60 in.), ID x OD: 1.27 x 1.91 cm (0.5 x 0.75 in.)

**T1:** MPX body with cap      **T2:** MPX insert with cap

**T3:** 3.8 cm (1.5 in.) sanitary x 1.27 cm (0.5 in.) barb with gasket, end cap, and push/pull clip

Description	Cat. No.
For less than 1,000 L 1.27 cm (0.5 in.) vent fill	HM00019-I



**Tubing:** silicone 22.9 x 22.9 x 182.9 cm (9 x 9 x 72 in.), ID x OD: 1.91 x 2.86 cm (0.75 x 1.125 in.)

**T1:** MPU body with cap      **T2:** MPU insert with cap

**T3:** 3.8 cm (1.5 in.) sanitary x 1.91 cm (0.75 in.) barb with gasket, end cap, and push/pull clip

Description	Cat. No.
For 1,000 L and larger 1.91 cm (0.75 in.) vent fill	HM00020-I



# DHX Heat Exchanger

The Thermo Scientific™ DHX™ Heat Exchanger is a modular heat exchanger system that uses single-use BPCs as the fluid path. The BPCs fit tightly between five stainless steel plates, efficiently transferring heat in a countercurrent flow path. The DHX exchanger provides efficient heat transfer that easily integrates into any process.



## Key features

- Completely isolated flow paths for process fluid and heat transfer fluid.
- Counter-current, serpentine flow patterns.
- Dimpled jacketing on the plates to ensure turbulent flow.
- BPCs fill in place with no operator interaction.
- Modular design and small overall footprint allows for changing process needs.
- Helps reduce infrastructure requirements.
- Helps reduce processing time.
- Helps improve product consistency.

## Applications

- cGMP commercial and clinical biotherapeutics, vaccines, and other biologic processes.
- Upstream applications include: media hold, fermentation, cell separation/protein harvest, harvest cooling, and harvest hold.
- Downstream applications include: harvest hold, buffers, protein purification, and bulk drug substance.

## Technical specifications

- **Effective heat transfer area:** up to 27 square feet
- **Overall dimensions (W x D x H):** 50.8 x 73.66 x 68.58 cm (20 x 29 x 27 in.)
- **Number of plates:** 5
- **Number of BPCs:** up to 4
- **Dry weight:** 150 kg (330.7 lb)
- **Full weight (includes four BPCs):** 190 kg (418.9 lb)

## DHX plate system

- **Material of construction:** 316L stainless steel
- **Pressure/temperature rating:** FV/140 psig at 150°F
- **Pressure vessel code:** ASME U-1
- **Connections:** 1/2 in. compression

## Ordering information

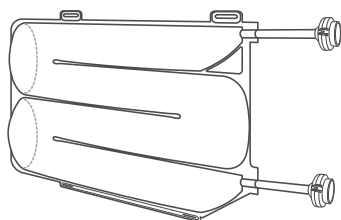
Description	Cat. No.
316 stainless steel DHX unit	DHX1001

# DHX Heat Exchanger BPCs

## Specifications

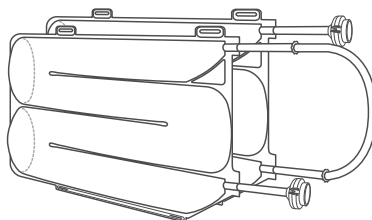
- Single-use BPC material: polyethylene, ASI 26/77 film
- Interconnecting tubing: C-Flex
- Pressure/temperature rating (installed in DHX plate system): 20 psig at 122°F (50°C)
- Connections: GE ReadyMate Disposable Aseptic Connector (DAC) 500 as standard—custom connections upon request
- Single BPC volume: 6 L
- Flow rate capacity: up to 15 liters per minute (LPM)

### Single BPC



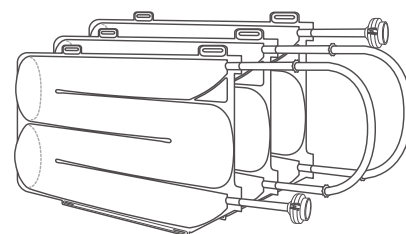
Description	Cat. No.
1 BPC with DAC connections	DX00006-I

### 2 BPCs



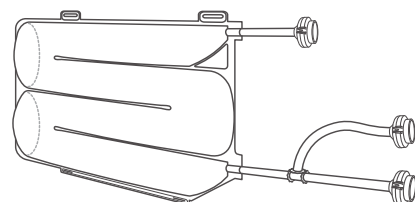
Description	Cat. No.
2 BPCs with DAC connections	DX00007-I

### 3 or 4 BPCs



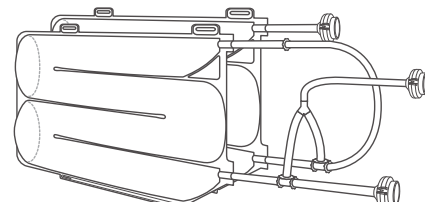
Description	Cat. No.
3 BPCs with DAC connections	DX00008-I
4 BPCs with DAC connections	DX00009-I

### Single BPC



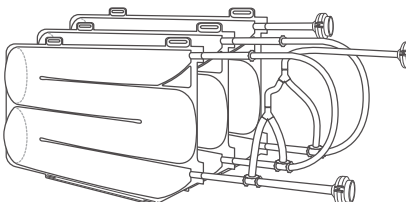
Description	Cat. No.
1 BPC with DAC connections and drain	DX00010-I

### 2 BPCs



Description	Cat. No.
2 BPCs with DAC connections and drain	DX00011-I

### 3 or 4 BPCs



Description	Cat. No.
3 BPCs with DAC connections and drain	DX00012-I
4 BPCs with DAC connections and drain	DX00013-I

# inSITE Integrity Testing System

The Thermo Scientific™ inSITE™ Integrity Testing System helps protect single-use consumables from potential flaws by testing BPCs for damage that can occur during handling. The inSITE system detects leaks that can occur between the end-user's warehouse to the clean room floor, or from improper handling and loading procedures.

In addition to the long-term value that the integrity-testing functions provide, the inSITE system has additional features that ease the operator's tasks and manage the quality of the BPC all the way up to the liquid filling cycle.

## Testing

- **Inflation cycle**—assists the operator in the loading of BPCs with minimal interaction and reduces the risk of flaws from handling
- **Gross leak detection**—quickly finds small leaks (100–1,000  $\mu\text{m}$ ) and confirms connection and setup of the BPC
- **Fine leak detection**—unique for each tank and BPC assembly; it is dependent on time allotment and environment
- **Liquid filling cycle**—moderates the internal pressure within the BPC while fluid is being introduced; the cycle is configured to regulate the open/close position of the coaxial valve mounted on the inSITE system



## Key features

- Point-of-use integrity testing
- Gross and fine leak detection
- Guided validation setup tests BPCs up to 5,000 L
- Inflation procedure improves loading and placement in tanks
- Liquid filling cycle regulates internal pressure while fluid is being introduced
- Permanent and disposable pressure sensors provide comparative pressure data

## Specifications

- **Maximum operating pressure:** Up to 125 mbar
- **Measuring ranges:**
  - **Test Pressure:** Up to 40 mbar
  - **Maximum Measurable Volume:** 5,000 L
  - **Gross Leak Flaw Sizes:** 100–1,000  $\mu\text{m}$
- **Operating conditions:**
  - **Room Temperature:** 18–24°C (65–75°F)
  - **Relative Humidity:** 5–95% Non-condensing

## Ordering information

Description	Dimensions ( W x D x H)	Weight	Electrical requirements	Cat. No.
Single channel	66 x 74 x 147 cm (26 x 29 x 58 in.)	175 kg (386 lb)	110–220 VAC, 50–60Hz	IN1009
Multichannel	66 x 74 x 147 cm (26 x 29 x 58 in.)	200 kg (440 lb)	110–220 VAC, 50–60Hz	IN1010

## TruDO and TrupH sterilizable sensors

We provide reusable sensors with high reliability and superior performance for cell culture and fermentation process monitoring. Thermo Scientific™ TruDO™ and TrupH™ sensors have been specifically designed to minimize drift in bioprocess environments, undergo sterilization cycles, and help ensure measurement consistency from batch to batch. We also provide material certificates and lot traceability for cGMP applications.



Sensor specifications				
	TrupH K8	TrupH VP6	TruDO Optical	TruDO
Measurement	Electrochemical	Electrochemical	Optical phase shift	Polarographic
Range	pH 0–14	pH 0–14	4 ppb to 300% saturation	10 ppb to 200% saturation
Max precision range	pH 2–12	pH 2–12	–	–
Temperature	0°C to 135°C (32°F to 275°F)	0°C to 135°C (32°F to 275°F)	0°C to 130°C (32°F to 266°F)	0°C to 135°C (32°F to 275°F)
Pressure	6 bar (87 psi) max	6 bar (87 psi) max	12 bar (174 psi) max	4 bar (58 psi) max
Connection	PG 13.5	PG 13.5	PG 13.5	PG 13.5
Connector type	K8	VP6	VP8	D4, VP6
Sensor cable length (vessel size: 1 L)	120 mm (4.7 in.)	120 mm (4.7 in.)	120 mm (4.7 in.)	120 mm (4.7 in.)
Sensor cable length (vessel size: 3 L)	225 mm (8.9 in.)	225 mm (8.9 in.)	225 mm (8.9 in.)	225 mm (8.9 in.)
Sensor cable length (vessel size: 7 L)	325 mm (12.8 in.)	325 mm (12.8 in.)	325 mm (12.8 in.)	325 mm (12.8 in.)
Sensor cable length (vessel size: 15 L)	425 mm (16.7 in.)	425 mm (16.7 in.)	425 mm (16.7 in.)	425 mm (16.7 in.)
Wetted material	Glass	Glass	316L stainless steel USP Class VI silicone	316L stainless steel
Temperature compensation	NA	NA	22 Kohm thermistor	22 Kohm thermistor
Surface finish	NA	NA	Electropolish RA12	Electropolish RA12

# TruTorr II single-use pressure sensor

## High-accuracy single-use headspace pressure sensor

The Thermo Scientific™ TruTorr™ II single-use pressure sensor is a single-use solution for measuring headspace pressure and preventing rupture of a bioprocessing container. A TruTorr II loop consists of a disposable pressure sensor, a cable, and a transmitter blade that is seamlessly integrated into a bioreactor controller.



### TruTorr II single-use pressure sensor specifications

#### Environmental

Operating temperature	10°C to 45°C (50°F to 113°F)
Maximum operating pressure	5.0 psi
Storage temperature	0°C to 60°C (32°F to 140°F)
Storage relative humidity	10% to 90% (noncondensing)
Altitude limit	12,192 m (40,000 ft)
Materials	USP Class VI

#### Performance

Measuring range	0 to 0.48 barg (0 to 7 psig)
Relative accuracy	3.5 mbarg (0.05 psig)
Accuracy	±0.1 psig @ 0–1 psi, ±0.2 psig @ 3–7 psi, ±0.35 psig @ 3–5 psi
Response time (T90 agitated)	<1 second
Drift (21 days)	13.6 mbarg
Calibration	Precalibrated (chip) 1-point standardization at gauge required
Gamma irradiation	25–40 kGy is the standard range (for radiation doses outside this range, contact Thermo Fisher Scientific)

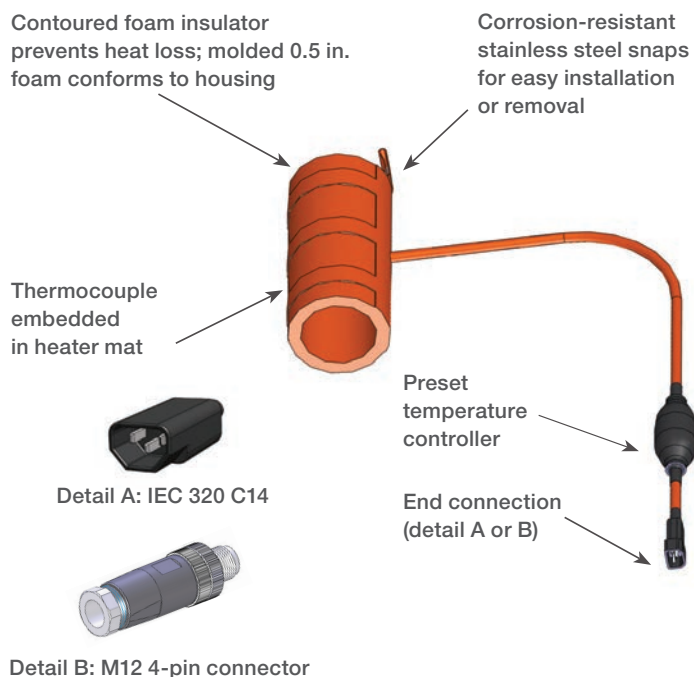
#### Compatibility and manufacturing

Biocompatibility	Materials in contact with process meet USP Class VI ISO 10993-5 standards, animal origin-free and BPA-free
Use case	Warranty valid for one gamma sterilization cycle and use
Manufacturing environment	ISO 14644-1, Class 10,000 clean room (ISO 7)

# Vent filter heaters

## For use with single-use bioreactors and fermentors

The Thermo Scientific™ vent filter heater system consists of a heater, preset temperature controller and a power cord. It also includes a fully insulated resistive heating element with molded silicone foam. It is secured around the filter by use of snap retainers and fully encapsulates the exhaust filters for consistent temperature regulation. The temperature controller is preset at 50°C. Vent filter heaters come standard with or without preset temperature control. Vent filter heaters without preset temperature controllers require integrated controls to operate the heating element. Refer to the vent filter heater user's manual included in the system equipment turnover package for more information. Vent filter heaters should not be operated above 50°C.



### Ordering information

The required parts are sold as a kit that includes a vent filter heater, controller with a watertight closure, quick connects, and installation power cord.

Description	Voltage	Power	Controller	End connection	Manuf. No.	Cat. No.
<b>S.U.F. vent filter heaters</b>						
Suspended series 46	120 VAC	53 W	Preset	IEC 320 C14	9699-1463	SV50191.35
Suspended series 46	240 VAC	53 W	Preset	IEC 320 C14	9699-1464	SV50191.36
Suspended series 46*	120 VAC	53 W	Integrated	Flying lead	9699-0744	SV50191.41
Suspended series 46*	240 VAC	53 W	Integrated	Flying lead	9699-0745	SV50191.42
Suspended series 46	120 VAC	53 W	Integrated	M12 4-pin connector	9599-0764	SV50191.49
Suspended series 46	240 VAC	53 W	Integrated	M12 4-pin connector	9599-0765	SV50191.50
<b>S.U.B. vent filter heaters</b>						
Meissner 10 in. series 46	120 VAC	99.6 W	Preset	IEC 320 C14	9699-1461	SV50191.33
Meissner 10 in. series 46	240 VAC	99.6 W	Preset	IEC 320 C14	9699-1462	SV50191.34
Meissner 10 in. series 46	120 VAC	99.6 W	Integrated	M12 4-pin connector	9699-0762	SV50191.47
Meissner 10 in. series 46	240 VAC	99.6 W	Integrated	M12 4-pin connector	9599-0763	SV50191.48
Pall Kleenpak KA3 series 46	120 VAC	23.8 W	Preset	IEC 320 C14	9699-1459	SV50191.31
Pall Kleenpak KA3 series 46	240 VAC	30.3 W	Preset	IEC 320 C14	9699-1460	SV50191.32
Pall Kleenpak KA3 series 46	120 VAC	23.8 W	Integrated	M12 4-pin connector	9599-0760	SV50191.45
Pall Kleenpak KA3 series 46	240 VAC	30.3 W	Integrated	M12 4-pin connector	9599-0761	SV50191.46

\* Information Not available for NEMA Standards. All other vent filters conform to NEMA standards

# TruService solutions portfolio

## A full range of service solutions for every budget and operating plan

Our modern automation and control equipment is very reliable and requires very little servicing. However, some processes can be quite chemically or biologically aggressive, causing equipment and instruments to need maintenance, calibration, or replacement parts.

Fully qualified field service engineers are available by telephone for remote support. Routine or daily service tasks can be performed by site maintenance personnel; but when specialized help is required, our service team is on call for support. The Thermo Scientific™ TruService™ solution can provide the right balance between the assistance required by your equipment and your budgetary requirements.

- Plans are based on a set number of on-site service hours per year; the more hours purchased, the larger the daily rate discount
- Plans offer special discounts on upgrades, software, customizations, spare parts, and training
- Plans allow same-day or next-business-day telephone and/or remote support
- When required, a service technician can arrive on-site within 2–4 business days depending on the plan



## Service offerings include:

- Preventative maintenance
- Corrective maintenance
- Remote access
- Software installation
- OPC connectivity
- System installation and decommissioning
- Additional hardware integration
- Upgrade support
- cGMP documentation support
- System startup and refresher training
- Loop tuning and system configuration
- Technical support
- Discounts on spare parts and safety stock

## Clear and simple annual plans

### Elite

- 40 hours of on-site services
- On-site response time of 1–4 business days
- 5% discount\*

### Premium Elite

- 80 hours of on-site services
- On-site response time of 1–3 business days
- 10% discount\*

### Super Elite

- 160 hours of on-site services
- On-site response time of 1–2 business days
- 15% discount\*

## Custom service plans

Service plans can be tailored to meet your local or global business needs across single or multiple locations.