3D Productainer BPC systems

Large-volume liquid handling applications in bioresearch and biopharma production

Thermo Scientific™ 3D Productainer™ BioProcess Container (BPC) systems are useful 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 ALLpaQ™ bins

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

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Customize Productainer BPC systems for optimized single-use technology

Choose from the industry's largest component library—with over 2,000 unique components that include:

- **Films**—Thermo Scientific™ Aegis™ 5-14, CX5-14, and ASI™ 26/77 film

- **Fittings**—straight, reducing, elbow, T-style, X-style, and cross-style fittings

- **Connectors**—quick connectors and disconnectors, aseptic connectors and disconnectors, steam-to and steam-through connectors

- **Filters**—used for bioburden reduction; sterilization-grade filters and vent filters are available

- **Tubing**—thermoplastic elastomers and platinum-cured silicone tubing

- **Sample ports**—septum-style and needle-free ports

- **Clamps**—sliders, pinch clamps, and crimp bands

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.

Chamber specifications and associated support containers

Volume	Dimensions (W x D x H)	Bottom ports (quantity x size)	Top ports (quantity x size)	Support container
50 L	36.8 x 33 x 41.9 cm (14.5 x 13 x 16.5 in.)	NA	2 x 2.5 cm (1 in.) 2 x 1.25 cm (0.5 in.) 2 x 2.5 cm (1 in.)	SV50076.02, cylindrical drum
	48.2 x 44.4 x 29.2 cm (19 x 17.5 x 11.5 in.)	1 x 2.5 cm (1 in.)	2 x 2.5 cm (1 in.) 2 x 1.25 cm (0.5 in.)	SV50517.04 or SV50517.08, drum with conical insert and bottom access panel
			2 x 2.5 cm (1 in.)	SV50517.04 or SV50517.08, drum with conical insert
100 L	36.8 x 33 x 76.2 cm (14.5 x 13 x 30 in.)	NA	2 x 2.5 cm (1 in.) 2 x 1.25 cm (0.5 in.) 2 x 2.5 cm (1 in.)	SV50076.03, drum
	48.2 x 44.4 x 48.2 cm (19 x 17.5 x 19 in.)	1 x 2.5 cm (1 in.)	2 x 2.5 cm (1 in.) 2 x 1.25 cm (0.5 in.)	SV50517.05 or SV50517.09, drum with conical insert
			2 x 2.5 cm (1 in.)	SV50517.05 or SV50517.09, drum with conical insert
	74.3 x 54 x 24.1 cm (29.25 x 21.25 x 9.5 in.)	1 x 1.2 cm (0.5 in.)	2 x 1.25 cm (0.5 in.)	Alternative tote sizes
200 L	48.2 x 44.4 x 88.3 cm (19 x 17.5 x 34.8 in.)	NA	2 x 2.5 cm (1 in.) 2 x 1.25 cm (0.5 in.) 2 x 2.5 cm (1 in.)	SV50076.04, drum
	48.2 x 44.4 x 91.4 cm (19 x 17.5 x 36 in.)	1 x 2.5 cm (1 in.)	2 x 2.5 cm (1 in.) 2 x 1.25 cm (0.5 in.)	SV50517.06 or SV50517.10, drum with conical insert
			2 x 2.5 cm (1 in.)	SV50517.06 or SV50517.10, drum with conical insert
	74.3 x 54 x 48.9 cm (29.25 x 21.25 x 19.25 in.)	1 x 1.2 cm (0.5 in.)	2 x 1.25 cm (0.5 in.) 2 x 2.5 cm (1 in.)	SV50160.01, Smartainer II BPCs
			3 x 1.2 cm (0.5 in.)	SV50139.10, ALLpaQ tote 200 L bottom drain
			2 x 1.25 cm (0.5 in.)	Alternative bin sizes
		NA	3 x 1.25 cm (0.5 in.)	SV50139.01, ALLpaQ tote 200 L
500 L	119.4 x 78.7 x 66.7 cm (47 x 31 x 26.5 in.)	1 x 2.5 cm (1 in.)	2 x 1.25 cm (0.5 in.) 2 x 2.5 cm (1 in.)	SV50160.02, Smartainer II BPCs
				Alternative bin sizes
	109.4 x 105.4 x 50.8 cm (43 x 41.5 x 20 in.)		2 x 2.5 cm (1 in.)	SV50139.11, ALLpaQ tote 500 L bottom drain
1,000 L	119 x 99 x 105 cm (47 x 39 x 41.5 in.)	1 x 2.5 cm (1 in.)	2 x 1.25 cm (0.5 in.) 2 x 2.5 cm (1 in.)	SV50160.03, Smartainer II BPCs
				Alternative bin sizes
	109 x 105 x 97 cm (43 x 41.5 x 38 in.)	1 x 2.5 cm (1 in.)	2 x 2.5 cm (1 in.)	SV50139.06, ALLpaQ tote 1,000 L bottom drain
		NA	3 x 1.25 cm (0.5 in.)	SV50139.02, ALLpaQ tote 1,000 L
			2 x 2.5 cm (1 in.)	SV50139.04, ALLpaQ tote 1,000 L
1,500 L	119.4 x 99.1 x 158.4 cm (47 x 39 x 62 in.)	1 x 2.5 cm (1 in.)	2 x 1.25 cm (0.5 in.) 2 x 2.5 cm (1 in.)	SV50160.04, Smartainer II BPCs
		2 x 1.2 cm (0.5 in.)	N/A	Alternative tote sizes
2,000 L	119.4 x 99.1 x 210.8 cm (47 x 39 x 83 in.)	1 x 2.5 cm (1 in.)	2 x 1.25 cm (0.5 in.) 2 x 2.5 cm (1 in.)	SV50160.05, Smartainer II BPCs
2,000 L	119.4 x 99.1 x 205.7 cm (47 x 39 x 81 in.)	2 x 1.2 cm (0.5 in.)	NA	Alternative tote sizes

Custom BPC options

Description	Details
Tubing type	C-Flex™ (ADCF in clear or white), silicone, PharMed™, or AdvantaFlex™
Tubing size	Specific lengths of 3.18–25.4 mm (1/8–1 in.) ID, depending on type of tubing chosen
Connectors	• Luer: 3.18–6.35 mm (1/8–1/4 in.) ID • CPC quick-connect: 6.35–19 mm (1/4–3/4 in.) ID • Steam-in-place connector: 6.35–19 mm (1/4–3/4 in.) ID • Tri-clamp: 3.18–25.4 mm (1/8–1 in.) ID • Mini tri-clamp: 6.4–12.7 mm (1/8–1/2 in.) ID • Aseptic connection and aseptic disconnection devices: all available sizes of Colder AseptiQuik™, Pall™ Kleenpak™, GE ReadyMate™ DAC
Others	• Needle-free sample port (Smartsite™ or Clave™ products) • Filter capsule (Millipore™, Pall™, Sartorius™, Domnick Hunter™, Meissner™)
Dip tubes	None to full length; 6.35–12.7 mm (1/4–1/2 in.) ID

Presentation (as dry BPC systems)

Description	Details
Outer packaging	Supplied "flat-packed"—two polyethylene outer layers
Label	• Description • Product code • Lot number • Expiration date on outer packaging and shipping container
Sterilization	Irradiation inside outer packaging: • 25–40 kGy for BPCs produced in Logan, UT, and Cramlington, UK • 27.5–45 kGy for BPCs produced in Millersburg, PA, and Matamoros, Mexico
Shipping container	Durable cardboard carton
Documentation	• Certificate of Analysis provided with each batch for each delivery • Certificate of Irradiation

Outer support containers (plastic tanks, drums, and accessories)

Description	Size	Dimensions (D x H)	Cat. No.
Cylindrical, flat-bottom high-density polyethylene (HDPE) tank with lid; top dispense	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
Flat-bottom linear low-density polyethylene (LLDPE) drum; top dispense with clamps	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
Conical LLDPE drum; 1 port, 4.5 cm (1.75 in.) size with clamps	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
Conical LLDPE drum; 1 port, 10.2 cm (4 in.) size with clamps; use support plate	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
Plastic drum dolly	50, 100, 200 L	62 x 18 cm (23.38 x 7.13 in.)	SV50029.03
Support plate (round plastic disk needed when using a conical LLDPE drum with 4 in. port)	50, 100, 200 L	NA	SV50102.02

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Accent™ outer support container specifications

Size	Internal dimensions (W x D x H)	Dispensing and material	Cat. No.
100 L	53 x 74 x 33 cm (21 x 29 x 13 in.)	Top and bottom, polypropylene	TK10001
200 L	53 x 74 x 64 cm (21 x 29 x 25 in.)		TK10002
500 L	74 x 114 x 71 cm (29 x 45 x 28 in.)		TK10003
1,000 L	91 x 114 x 117 cm (36 x 45 x 46 in.)		TK10004
1,000 L (wide configuration)	119 x 140 x 74 cm (47 x 55 x 29 in.)		TK10005

ALLpaQ rigid plastic 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

Smartainer stainless steel outer container specifications

Size	Outer dimensions (W x D x H)	Inner dimensions (W x D x H)	Cat. No.
200 L	79.4 x 59.7 x 79.1 cm (31.25 x 23.5 x 31.13 in.)	73 x 53.3 x 58.4 cm (28.75 x 21 x 23 in.)	SV50160.01
500 L	120.7 x 78.7 x 97.2 cm (47.5 x 31 x 38.25 in.)	114.3 x 73.7 x 74.5 cm (45 x 29 x 29.33 in.)	SV50160.02
1,000 L	120.7 x 97.8 x 135 cm (47.5 x 38.5 x 53.13 in.)	114.3 x 91.4 x 114.8 cm (45 x 36 x 45.2 in.)	SV50160.03
1,500 L	120.7 x 97.8 x 175 cm (47.5 x 38.5 x 69 in.)	114.3 x 91.4 x 152.4 cm (45 x 36 x 60 in.)	SV50160.04
2,000 L	120.7 x 97.8 x 224 cm (47.5 x 38.5 x 88 in.)	114.3 x 91.4 x 200.7 cm (45 x 36 x 79 in.)	SV50160.05

Find out more at **thermofisher.com/bpc**

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