

OPTIMUM GROWTH™ TRANSFER CAPS

GENERAL INFORMATION



Thomson Transfer Caps

Thomson Instrument Company was founded in 1970 to service the needs of the growing life sciences industry. It remains a family run business with a long history of product innovation making its products in the USA. Thomson has worked with its customers to design products that outperform the competition by introducing unique design features that add functionality to an otherwise static product market. In particular, Thomson has reinvented shake flasks that are used for culturing *E.coli* and mammalian cells for recombinant DNA and protein production. These changes are reviewed in Dr. Bruecher's article, "Evolution of Shake Flask Technology.



Novel product Introductions Offer Advantages By Increasing DNA and Protein Production."¹

The advantages of Thomson Optimum Growth™ Flasks (patented) can be attributed to a fairly simple principal of good mixing and high oxygen transfer rate helping cells grow to higher densities. Increased aeration is achieved through a patented baffle design along with a large diameter neck and gas permeable cap.

The innovation in Thomson's Optimum Growth™ product line does not end with a single flask. Thomson has worked with its customers to reduce the footprint of its flasks in such a way to

maximize space in the most commonly used cell culture incubators.

In the tradition of evolving to fit customer needs, Thomson has introduced a line of companion products that work along with the Optimum Growth™ Flasks. These include caps, lids & ports that allow the sterile transfer of fluid into and out of the flasks. Current cell culture processes often involve longer culture durations that require both sampling over time and batch feeds. Thomson products support these existing workflows and help to streamline the process wherever possible.

Page Number	Product	Cell Growth	Aseptic Gravity Transfer	Aseptic Pump Transfer	Sampling	Feeding	0.2µm PTFE Vent Cap	Sterile
4	 Inversion Transfer Caps Gravity transfer from 1.6L, 2.8L & 5L Optimum Growth™ Flasks to flasks, bags or bioreactors. Removing the peristaltic pump from the process reduces stress on cells during transfer.		✓				✓	✓
7	 Bidirectional Transfer Caps Sterile bidirectional transfer utilizing a peristaltic pump from 1.6L, 2.8L & 5 L Optimum Growth™ Flasks to flasks, bags or bioreactors or to feed/seed flasks during cultivation.			✓		✓	✓	✓

Inversion Transfer Cap For 1.6L – 5L

The Sterile Inversion Transfer Caps (patented), allow for the efficient aseptic transfer of media or cells to cell bags, bioreactors, or flasks (from all manufacturers).

The Inversion Transfer Cap works with the 1.6L, 2.8L and 5L Thomson Optimum Growth™ Flasks (patented). Simply, replace the culture cap with the Transfer Cap and connect to your vessel of choice.

How to Transfer?

To transfer, invert the Optimum Growth™ Flask and let gravity do the rest. The Optimum Growth™ Flask and Transfer Cap System eliminates the need to transfer cells to an intermediate flask for scale up. Inversion or gravity feed has the lowest shear force of any transfer method available.

The Inversion Transfer Cap in conjunction with the 1.6L, 2.8L and 5L Thomson Optimum Growth™ Flasks (patented) product line can be used for reagent addition/seeding of larger bioreactors cell bags, or other liquid media transfers.



Connection Options



Transfection/Scale-Up from Optimum Growth™ 5L Flask to Bag



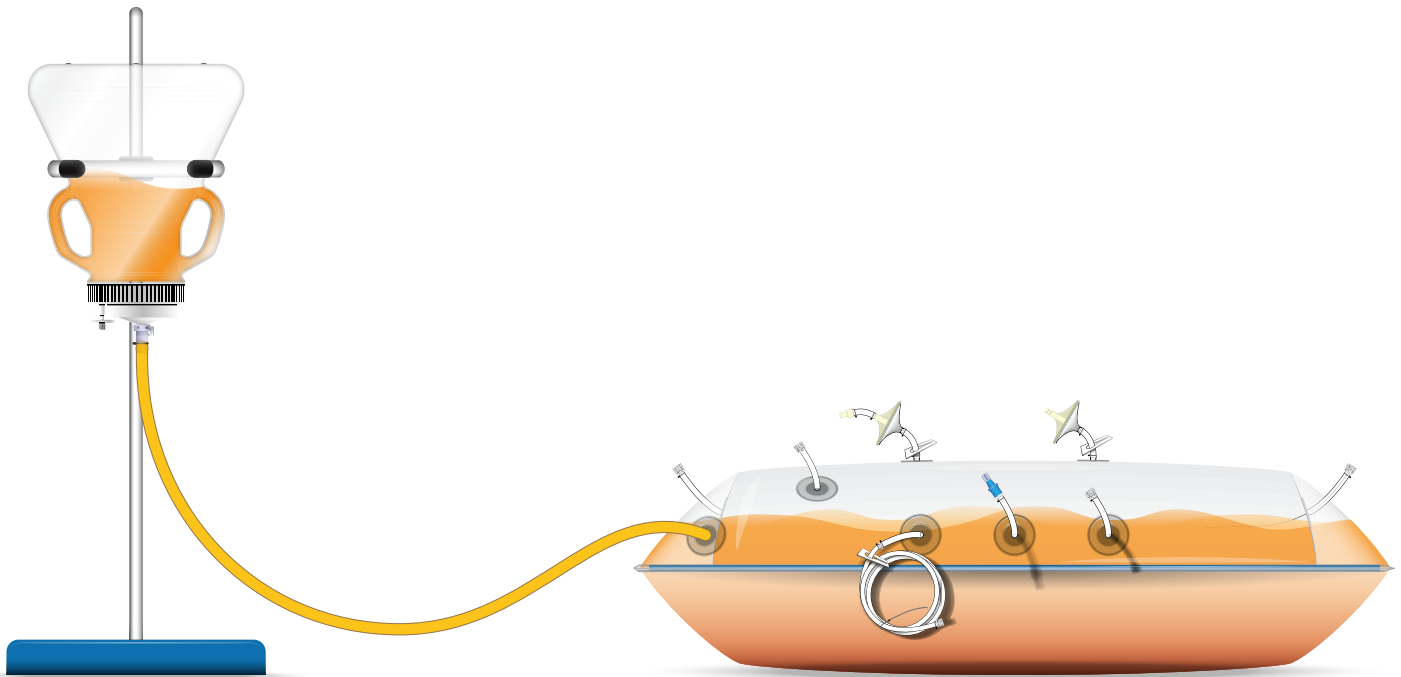
Transfer from Flask to Bag







Completed Aseptic Transfer outside of hood







Stand with Ring are available for hands free transfer.




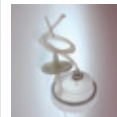
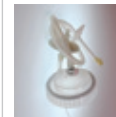


Inversion Transfer Cap Accessories				
Flask Size	1.6L	1.6L	5L	5L
Part #	931609	931700	931606	931607
Image				
Description	Stand with Ring for Inverting Optimum Growth™ 1.6L Flask to use w/1.6L Inversion Transfer Caps	Ring Only for Inverting Optimum Growth™ 1.6L Flask requires a 22" stand	Stand with Ring for Inverting Optimum Growth™ 5L Flask to use w/5L Inversion Transfer Caps	Ring Only for Inverting Optimum Growth™ 5L Flask requires a 22" stand
Stand Height	22"	n/a	22"	n/a
Ring Diameter	5"	5"	7"	7"
Qty/Case	1	1	1	1

Inversion Transfer Cap Specifications

Flask Size	1.6L & 2.8L	1.6L & 2.8L	1.6L & 2.8L	1.6L & 2.8L
Part #	931706	931710	931705	931708
Image				
Description	Inversion Transfer Cap for Optimum Growth™ 1.6L & 2.8L Flask, 7/16" Male Connection - Sterile	Inversion Transfer Cap for Optimum Growth™ 1.6L & 2.8L Flask, with 2' C-Flex 16 Tubing with Luer Lock - Sterile	Inversion Transfer Cap for Optimum Growth™ 1.6L & 2.8L Flask, 2' C-Flex 16 (1/4") Tubing - Sterile	Inversion Transfer Cap for Optimum Growth™ 1.6L & 2.8L Flask, 2' C-Flex 24 Tubing - Sterile
Tubing Connection	7/16" (11.1mm) Barb	Tube Fuse/Female Luer Lock	Tube Fuse	Tube Fuse
Tubing Diameter	n/a	C-Flex 16 ID: 1/8" (3.1mm), OD: 1/4" (6.35mm)	C-Flex 16 ID: 1/8" (3.1mm), OD: 1/4" (6.35mm)	C-Flex 24 ID: 3/16" (4.76mm), OD: 7/16" (11.1mm)
Tubing	n/a	Chemically resistant, heat sealable, flexible	Chemically resistant, heat sealable, flexible	Chemically resistant, heat sealable, flexible
Tubing Length	n/a	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)
Top Style	Threaded	Threaded	Threaded	Threaded
Cap Material	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)
Sterility	10 ⁻⁶	10 ⁻⁶	10 ⁻⁶	10 ⁻⁶
Air Filter Ventilation	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter
Qty/Case	4 or 20	4 or 20	4 or 20	4 or 20

Inversion Transfer Cap Specifications

Flask Size	5L	5L	5L	5L	5L
Part #	931594	931596	931616	931595	931598
Image					
Description	Inversion Transfer Cap for Optimum Growth™ 5L Flask, 1/4" Barb Connection - Sterile	Inversion Transfer Cap for Optimum Growth™ 5L Flask, 7/16" Male Connection - Sterile	Inversion Transfer Cap for Optimum Growth™ 5L Flask, with 2' C-Flex 16 Tubing with Luer Lock - Sterile	Inversion Transfer Cap for Optimum Growth™ 5L Flask, 2' C-Flex 16 (1/4") Tubing - Sterile	Inversion Transfer Cap for Optimum Growth™ 5L Flask, 2' C-Flex 24 Tubing - Sterile
Tubing Connection	1/4" (6.35mm) Barb	7/16" (11.1mm) Barb	Tube Fuse/Female Luer Lock	Tube Fuse	Tube Fuse
Tubing Diameter	n/a	n/a	C-Flex 16 ID: 1/8" (3.1mm), OD: 1/4" (6.35mm)	C-Flex 16 ID: 1/8" (3.1mm), OD: 1/4" (6.35mm)	C-Flex 24 ID: 3/16" (4.76mm), OD: 7/16" (11.1mm)
Tubing	n/a	n/a	Chemically resistant, heat sealable, flexible	Chemically resistant, heat sealable, flexible	Chemically resistant, heat sealable, flexible
Tubing Length	n/a	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)
Top Style	Threaded	Threaded	Threaded	Threaded	Threaded
Cap Material	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)
Sterility	10 ⁻⁶	10 ⁻⁶	10 ⁻⁶	10 ⁻⁶	10 ⁻⁶
Air Filter Ventilation	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter
Qty/Case	4 or 20	4 or 20	4 or 20	4 or 20	4 or 20

Bidirectional Transfer Cap For 1.6-L – 5L

The Sterile Optimum Growth™ Bidirectional Transfer Caps (patented) with downstem, allow for easy aseptic transfer of media or cells into and/or out of cell bags, bioreactors, and flasks (from all manufacturers).

The Bidirectional Transfer Cap with downstem works with the 1.6L, 2.8L and 5L Thomson Optimum Growth™ Flasks (patented) and a peristaltic pump. Simply, replace the culture cap with the Transfer Cap and connect to your vessel of choice.

How to Transfer or Feed

1. Replace with Bidirectional Transfer Cap
2. Connect to your receiving vessel by Tube Fusing or using our Luer Lock option
3. Place the silicone tubing in the peristaltic pump head
4. Liquid can then be pumped either into or out of the flask

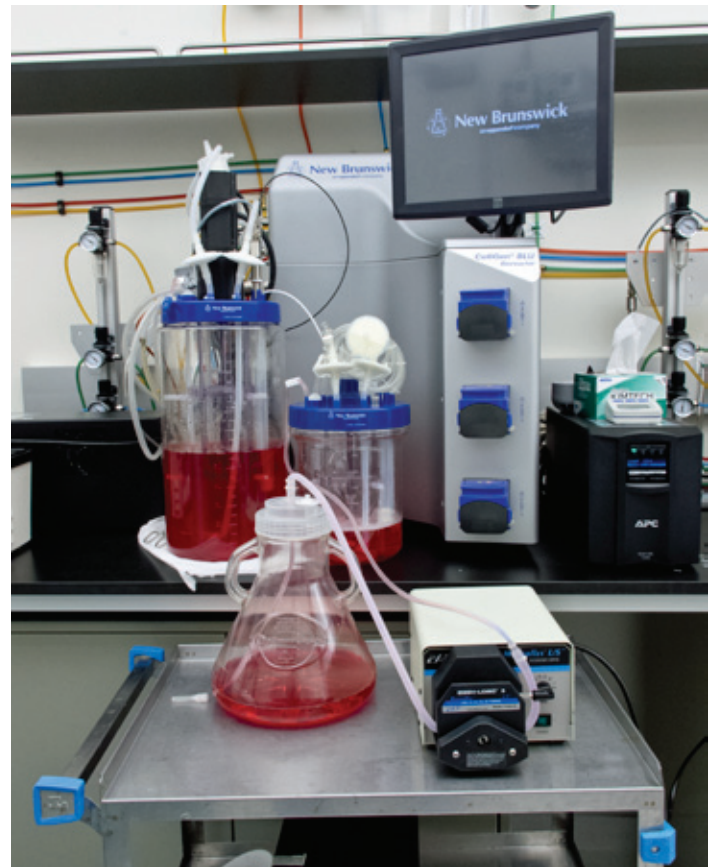


Connection Options



Optimum Growth™ Flasks (patented) in conjunction with the Transfer Cap System eliminates the need to move cells to an intermediate transfer for scale up or seed cultures. The ability to pump into the Optimum Growth™ Flask (patented) makes filling with media from a bulk source a simple aseptic method. The Transfer Cap in conjunction with the Thomson Optimum Growth™ Flask (patented) product line can be used for reagent addition, seeding of larger bioreactors or cell bags, pumping of media into flasks from large drums or bags of media, and other liquid media transfers into and out of bioreactors.

The Optimum Growth™ Flasks come in multiple sizes of 125mL, 250mL, 500mL, 1.6L, 2.8L and our popular 5L.



Transfer from flask to bioreactor with pump

Thomson Instrument Company is not affiliated with New Brunswick

Bidirectional Transfer Cap Specifications

Flask Size	1.6L	1.6L	2.8L	5L	5L
Part #	931702	931704	931804	931618	931614
Image					
Description	Bidirectional Transfer Cap for Optimum Growth™ 1.6L Flask, 2' Tubing with Luer Lock - Sterile	Bidirectional Transfer Cap for Optimum Growth™ 1.6L Flask, 2' C-Flex 16 (1/4") tubing - Sterile	Bidirectional Transfer Cap for Optimum Growth™ 2.8L Flask, 2' C-Flex 16 (1/4") tubing - Sterile	Bidirectional Transfer Cap for Optimum Growth™ 5L Flask, 2' Tubing with Luer Lock - Sterile	Bidirectional Transfer Cap for Optimum Growth™ 5L Flask, 2' C-Flex 16 (1/4") tubing - Sterile
Tubing Connection	Tube Fuse/Luer Lock	Tube Fuse	Tube Fuse	Tube Fuse/Luer Lock	Tube Fuse
Tubing Diameter	C-Flex 16 ID: 1/8" (3.1mm), OD: 1/4" (6.35mm)	C-Flex 16 ID: 1/8" (3.1mm), OD: 1/4" (6.35mm)	C-Flex 16 ID: 1/8" (3.1mm), OD: 1/4" (6.35mm)	C-Flex 16 ID: 1/8" (3.1mm), OD: 1/4" (6.35mm)	C-Flex 16 ID: 1/8" (3.1mm), OD: 1/4" (6.35mm)
Tubing	Chemically resistant, heat sealable, flexible	Chemically resistant, heat sealable, flexible	Chemically resistant, heat sealable, flexible	Chemically resistant, heat sealable, flexible	Chemically resistant, heat sealable, flexible
Tubing Length	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)
Top Style	Threaded	Threaded	Threaded	Threaded	Threaded
Cap Material	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)
Sterility	10 ⁻⁶	10 ⁻⁶	10 ⁻⁶	10 ⁻⁶	10 ⁻⁶
Air Filter Ventilation	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter
Qty/Case	8	8	8	8	8



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