

Maximizing Cell Line Development Time: Minimizing FTE Time with Optimum **Growth™** Flasks & Additions

Thomson's advancements of unique solutions help scientists achieve **higher protein yields in less time**. Thomson's Transfer Caps (patented), Sampling Ports, Transfer and Feed Ports, 30mL Optimum **Growth™ Tube (coming soon)**, and other products help increase cellular growth efficiency and save time. Thomson takes a systematic approach to cell culture as a whole. The Bidirectional Transfer Cap **allows liquid to be pumped both in and out of the Optimum Growth™ Flasks** to another vessel. The Inversion Transfer Cap enables the sterile transfer of cells to a scale up vessel (Optimum **Growth™ Flask, cell bag** or bioreactor) inside or outside of the hood by allowing precise control of the volume transferred to one or many vessels for inoculation from a single seed culture. Optimum **Growth™ Tubes** represent a quantum leap from spin tubes and other older technology.

Bidirectional Transfer Cap for 1.6L-5L **Optimum Growth™ Flasks**

The Sterile Optimum Growth™ Flasks and 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 Caps with downstem works with the Thomson Optimum **Growth™ Flask product line**. Simply, **replace the culture cap with the Bidirectional Transfer Cap** and connect to your vessel of choice and place peristaltic pump between.

- Sterile transfer of cells from an Optimum **Growth™ Flask to a larger Optimum Growth™** Flask, wave bag or bioreactor
- Sterile reagent additions.
- Seeding of larger bioreactors or cell bags.
- Pumping of media into flasks from large drums or bags of media into and out of bioreactors.



How to Transfer or Feed

1. Replace Vent Cap 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 or connect the Luer Lock fittings.
4. Liquid can then be pumped either into or out of the flask.



Tube fuses with C-16 C-Flex or 1/4" OD Tubing



Connects to 5L bioreactor



Connects to cell culture bag



Connects to 14L bioreactor

Sampling Cap

The Sampling Cap is ventilated for cultivation and has a one way valve allowing for aseptic sampling of cells while the flasks remain in the shaker. This minimizes sampling time to a 1 minute operation. The Sampling Cap will also eliminate the need for flask removal from the shaker and into the hood; reducing the risk of contamination, mix up or other error from additional steps. Interruption of the culturing process is minimized.

The Sampling Cap option is available for the 125mL, 250mL and 500mL Optimum Growth™ Flasks.



OLD Sampling Method:

1. Remove flask from shaker.
2. Spray down flask before putting in the hood.
3. Place flask in the hood.
4. Remove Cap.
5. Take sample.
6. Replace cap.
7. Put back in shaker.

Thomson Sampling Method:

1. Sample flask while in the shaker.

The Sampling Cap is ventilated and stays on during cultivation.



Sampling 16 Flasks = 16 Min./per day



Thomson Method 16 flasks in 16 minutes

Multiported Optimum Growth™ Transfer & Feed Flask

The Multiported Flask is completely aseptic, making it the perfect start for initial seed cultures that seed bioreactors in multiple stages of clinical drug production. Other uses for the Multiported Optimum Growth™ Transfer & Feed Flask include keeping cell lines alive and other manufacturing functions.

The Multiported Optimum Growth™ Transfer & Feed Flask was born out of necessity from biopharmaceutical companies requiring a completely aseptic process. Benefits of these Multiported Flasks have replaced the process from starting point:

- Sterile tube fuse inoculation.
- Eliminates the need for cell bags 20L or less.
- Replaces current process requiring tube fusing for inoculation.
- Allows for multiple day additions.
- Aseptic 1-way sampling valve.
- Allows for simple use within a shaker.
- Great for aseptic manufacturing; never any opening needed preventing potential contamination.

