

Scale Your Bioproduction with Large Format High-Flow Connectors

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Biopharmaceutical engineers are frequently tasked with finding new and improved ways to efficiently manufacture at scale. Historically, implementing and validating new systems and processes proved a considerable challenge, making the prospect of upgrading bioproduction equipment daunting, disruptive, and expensive.

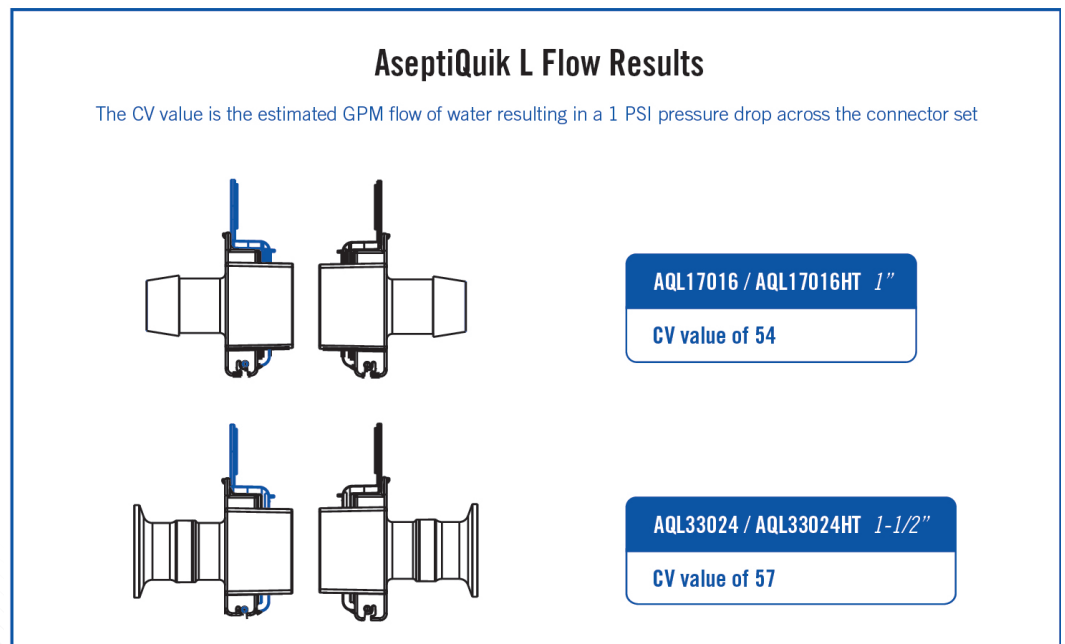
Today, however, demand for more has them researching ways to scale up and transfer larger volumes of product through the bioproduction process as quickly and easily as possible while maintaining a high-quality standard, sterility, and of course no loss of product. High-flow sterile connectors make upgrading or upscaling bioproduction more reliable, efficient, and rewarding than ever. A new generation of large, high-flow, and genderless sterile connectors – the AseptiQuik[®] Large Format (AQL) series from CPC – offers functionality and ease of use

benefits that help engineers derive the most value from their manufacturing process.

In the past the need for larger format connectors was minimized due to the limited number of larger format single-use processing applications. The continuing trend of scaling-up single-use processing systems has increased the demand for larger format connectors to decrease liquid transfer times.

In the biomanufacturing world, time is money and efficiencies are crucial. Transferring larger liquid volumes in less time helps manufacturers improve financial margins on large-scale projects. Companies in the process of scaling up to produce larger batches, benefit immensely by increasing their liquid transfer flow paths.

Figure 1



ACHIEVING FLOW RATES UP TO 3.5X HIGHER

Considered quantitatively, the value realized by making the switch to large format connectors is significant. AseptiQuik® L connectors, specifically, facilitate liquid transfer up to 80 L per minute.

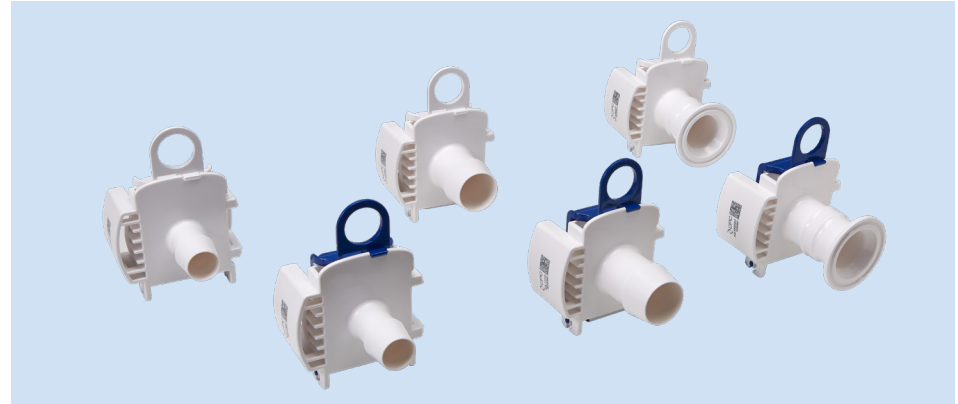
One example application that benefits from large connectors is large single-use bioreactor harvesting. With a single 1/2" harvest line and 20 L per minute flow rate, it takes nearly 60 minutes to harvest a 1,000 L bioreactor. To address this, many manufacturers are utilizing multiple sterile connectors in parallel — however, this incurs additional costs and manual work to effectively reduce the harvest time.

Other applications that benefit from large format connectors include:

- **Supply buffering from large single-use bags to high-capacity purification skids.** As these systems can be as large as 3,000 L, high-speed flow for filling and supply is critical to realizing functional efficiency.
- **Filter applications that require circulation.** Filter applications that require circulation, such as tangential and crossflow filtration systems, benefit from both high flow rates and high-pressure rating.
- **High-speed vial filling lines.** These systems have traditionally relied on reusable hoses to attach formulated product to the filling system. To minimize or eliminate cleaning validation, fill processing engineers can use high-flow sterile connectors and large ID flexible tubing to create single-use replacements for 1" ID reusable hoses.

Mechanically, operationally, and financially, it makes considerable sense to make the switch to large format connectors, where possible. But unfortunately, not all large flow connectors are created equal. Many

Figure 2



FEATURES	BENEFITS
Genderless Design	Eases integration of single-use systems with one part number for both halves
Robust Construction	Repeatable and reliable performance with no additional hardware required
FLIP - CLICK - PULL	Intuitive three-step connection process reduces risk of operator error
Integrated Pull Tab Covers	Pull tabs act as protective cover, reducing cover's part complexity and ensuring simultaneous removal of both membranes
CPC Click	Audible confirmation of assembly

don't integrate easily with existing systems, do little to inherently minimize operator error, and are difficult to validate.

That's where AseptiQuik® enters the equation.

DESIGN, SCALE, AND PREVAIL WITH ASEPTIQUIK® L

To facilitate best-in-class manufacturing and process management, AseptiQuik® L products are easy to use, ensure an aseptic connection and are built to withstand application requirements throughout the upstream and downstream manufacturing process. The AQL series, specifically, is available

with 3/4" and 1" hose barbs, and 1 1/2" sanitary tri-clamp terminations, accommodating a wide range of applications.

The AQL is a genderless sterile connector that improves the flexibility of single-use systems across a wide range of bioprocessing applications. Genderless sterile connectors — with their ability to interconnect without male/female limitations — can enhance the flexibility of single-use systems in a wide range of bioprocessing applications. Genderless connectors also reduce system complexity, lowering inventory management requirements, simplifying operator training, and reducing misconnections in the manufacturing suite.

Like the AseptiQuik® G (AQG) and the AseptiQuik® S (AQS) products, the AQL series utilizes the same a user-friendly “flip, click, pull” assembly process that simplifies component setup:

- **FLIP:** The operator flips down a protective pull tab cover located on each half of the connector.
- **CLICK:** The operator slides both connector halves together and “clicks” each side into place.
- **PULL:** The operator pulls the tabs away from the connector and removes the sterile barrier component from the connector, creating a sterile connection even in a non-sterile environment.

For current AQG or AQS users, adding AQL series is seamless as validation, specification, and implementation are transferable between product lines, given that the same materials of construction are used across product lines. In addition, the AQL series uses the same connection process as these AseptiQuik products, simplifying training and standard operating procedure (SOP) development.

Additionally, a dedicated data code located on the connector offers immediate access to important product information with a quick scan. The data code connects users to product specifications, date of manufacture, validation reports, and training videos.

CPC STANDS FOR RELIABILITY AND QUALITY

CPC products are easy to assemble, robust, and accessible via a global network of system integrators and distributors. CPC products meet stringent safety and performance requirements, including microbial ingress tests, leak and burst tests, strength tests, tensile tests, and sideload tests among others.

Scale up or improve your liquid processing with products that are reliable, robust, and highly efficient. Reach out to the experts at CPC today. cpcworldwide.com/bio



About The Author

Nick Johnson is a senior product manager, bioprocessing at CPC. He has worked for over 12 years with a focus on single-use technology development and supply for the bioprocessing industry. His experiences include sales, business development and product management. He can be reached at nick.johnson@colder.com.

About CPC

Colder Products Company (CPC), a Dover company, the leader in single-use connection technology, offers a wide variety of solutions including sterile connect and sterile disconnect. Our innovative designs offer flexibility to easily combine multiple components and systems including process containers, tubing manifolds, transfer lines, bioreactors and other bioprocess equipment.

Robust single-use connectors maintain media sterility and integrity while improving production yields, decreasing time to market and reducing costs for biopharmaceutical manufacturers. Colder is ISO 13485 certified. We manufacture our products for bioprocessing applications in an ISO Class 7 certified cleanroom.

Founded in St. Paul, MN in 1978, CPC has more than 300 employees, operations in St. Paul, Germany, and China, sales offices in 10 countries, and more than 200 distributor partners around the globe.

For applications where reliability and sterility are a must, connect with Colder at cpcworldwide.com/bio

Confidence at every point of connection.

