



# Scale Up!

BioFlo® 720 - Expand your process with ease



# Seamless Scalability – 50 L and Beyond

Efficient and reliable scale-up is one of the major hurdles in modern biotechnology. Engineering parameters such as impeller tip speed, oxygen transfer rate, impeller power number (Np) and the impeller power consumption per volume (P/V) are just a few of the parameters that need to be considered to ensure a successful tech transfer from bench to pilot and production scale.

The BioFlo® 720 bioreactor control system was designed to save time and to mitigate risks. The well-known BioFlo software has been enriched with a variety of new features to automate your workflow.

To ensure maximum flexibility and scalability, the new BioFlo 720 bioreactor controller is compatible with the Thermo Scientific™ HyPerforma™ 5:1 Single-Use Bioreactors (SUBs). The combined solutions offer paramount scalability from 50 L to 2000 L with single-use technology.

## Scalability

- > Compatible with the Thermo Scientific HyPerforma 5:1 Single-Use Bioreactors from 50 L to 2000 L
- > Experience reliable tech transfer from 0.3 L to 2000 L with our controller offering

## Efficiency

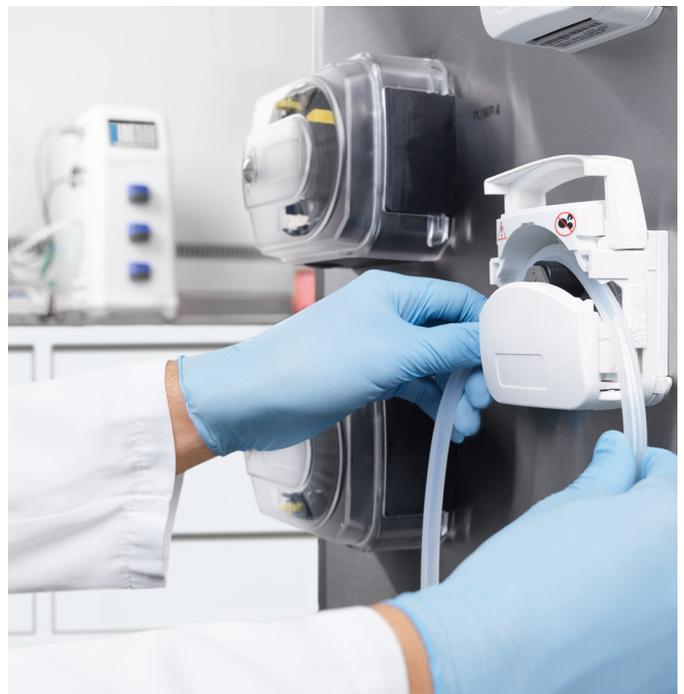
- > Intuitive software tools such as *Auto Calibrate* and *Auto Inflate* reduce preparation time and maximize system efficiency
- > Integrated *Scale Up Assist* software simplifies the workflow and takes care of the calculations necessary to scale up and scale down your process

## Flexibility

- > High performance mass flow controllers capable of up to 500:1 turndown ratio allowing multiple vessel sizes to be run from the same controller
- > Analog & Digital sensors (ISM and ARC)
- > Dual sparge, overlay and CO<sub>2</sub> stripping
- > Flexible choices for vessels/SUBs

## Application driven

- > Stainless steel enclosure with mobile base
- > Integrated cable management system
- > IQ/OQ and instrument documentation
- > Documentation packages available to help assist qualification into cGMP\* biomanufacturing environments





# Scalability

From R&D to production with ease.

Reliable tech transfer from the small scale research and development to larger volumes is an essential step in the production of antibodies, vaccines, and other therapeutic treatments.

Scaling-up a process is demanding and often one of the limiting steps affecting the planned time-to-market schedule. A new manufacturing site should always be designed with scale-up in mind, however, expanding existing facilities can be challenging. The new BioFlo 720 bioprocess controller was designed to perfectly fit into new and existing manufacturing sites. With its compact dimensions and low weight, it fits through standard lab doors and can be moved easily from one location to another.

To overcome the hurdles during scale-up development, we designed a new bioreactor control system that combines hardware and software needed for a successful technology transfer from 50 L through 2000 L.

The new release of the BioFlo software ensures a consistent user experience across all BioFlo control systems and comes with new features to improve your process.



50 L

100 L

250 L

500 L

1000 L

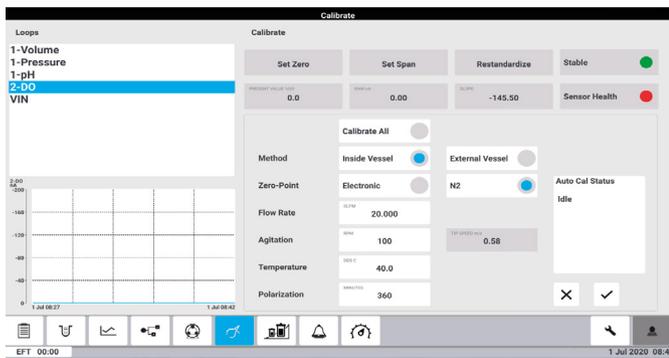
2000 L



# Efficiency

Designed to increase your productivity and to save time.

Process automation already starts with the first set-up steps of a new process. The BioFlo control software provides an easy to use, yet powerful software solution for the efficient set-up and monitoring of a bioprocess. Designed to save time and to increase your productivity, discover how the advanced BioFlo 720 software with the Eppendorf *Auto Inflate* function improves your productivity. Easily set up your process, while all connected DO sensors are automatically calibrated at once and the SUB inflates.



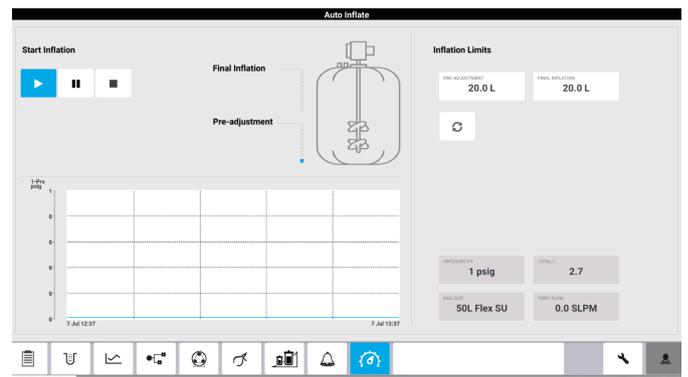
## Auto Calibrate

Saves time and resources: Continue working on other tasks while the new advanced software automatically calibrates all attached DO sensors at once. The system automatically polarizes and runs through your preferred calibration methodology providing reliable and producible results every time.

## Auto Inflate

Don't lose time while waiting for your SUB to inflate. The innovative *Auto Inflate* function automatically controls the inflation process for flexible SUBs. All limits are user-modifiable. The inflation occurs in three phases:

1. Pre-adjustment phase initially adds a set amount of air
2. The system pauses to allow for bag adjustments
3. Final inflation phase



## Scale Up Assist

The *Scale Up Assist* calculates all parameters based on either constant P/V or constant tip speed. Vessel specific data is auto-populated and critical process parameters, such as gas flow rates or agitation, are automatically calculated.



# Application Driven

Designed with your success in mind.

Benefit from the advantage of single-use technology to speed up your process. Don't lose precious time: The BioBLU® vessels and the Thermo Scientific HyPerforma 5:1 SUBs arrive pre-sterilized, reducing contamination risks, and can be used immediately after unpacking.

Easily select the vessel connected to the controller, and the controller automatically sets controlling parameters such as for temperature and pH control. Just start the *Auto inflate* mode and continue preparations for your process while the system automatically controls and monitors the inflation of single-use bags.

## Efficient:

Save time with the onboard assistants for calibration, inflation, and scale-up

## Connectivity:

Universal sensor connectors ensure full flexibility for the external connection of equipment such as Hamilton ARC® and Mettler Toledo ISM® sensors

## Flexible:

Compatible to our BioBLU 50c Single-Use Vessel and the Thermo Scientific HyPerforma 5:1 SUBs



## Intuitive:

15.6 inch touch display with advanced software based on the well-known BioFlo software

## Wide range:

Watson-Marlow peristaltic pumps for flow rates in a range of 1.2 mL/min - 3.3 L/min

## Industrial design:

Industry power switch and emergency stop button

## Small footprint:

Mobile enclosure with a small footprint (0.7 m<sup>2</sup>/7.55 ft<sup>2</sup>) fitting through a standard lab door



# Flexibility

A system designed for changing needs.

Modern biotechnological laboratories and manufacturing suites require flexible solutions that can perform a wide variety of tasks. Incorporating our expertise in the design philosophy and production of modular and scalable systems, we developed a configurable bioreactor control system for pilot and production scale. The advanced BioFlo 720 bioprocess controller sets new standards and addresses the application needs found in pre-clinical and production scale laboratories.

## Advanced gassing options

It doesn't matter if you are running 50, 250, or 1000 L cultures in batch, fed-batch or perfusion mode. Choose between 1 or 4 Thermal Mass Flow Controllers (TMFCs) with a turndown ratios of 500:1. Display gas flow in SLPM, SLPH or VVM depending on your preference. Increase your process potential using the integrated overlay, secondary sparge, and CO<sub>2</sub> stripping functions.

Forward looking: Other options can be easily exchanged in the field if your requirements change.

You do not like to work with SLPM units? The user-friendly onboard software allows you to choose between SLPM, SLPH, and VVM units with just one touch.

## BioCommand®

Developed for manufacturing with FDA-validated processes, the BioFlo 720 can be used in production environments for pharmaceutical products that follow cGMP or 21 CFR Part 11 guidelines (with BioCommand Batch Control Plus). Enhance your productivity and mitigate risk with the ability to remotely monitor and control your processes from any location. Supervise several bioreactors from a single PC with the BioCommand supervisory control and data acquisition (SCADA) software packages.

For more information visit: <http://eppendorf.com/biocommand>



# Technical Data

## BioFlo 720 Specifications

### Control Station

Dimensions (W x D x H)	806 x 870 x 1603 mm / 31.7 x 34.3 x 63.1 inch
Footprint	0.70 m <sup>2</sup> / 7.55 ft <sup>2</sup>
Net weight	178 kg / 391 lb
Touchscreen diagonal size	15.6 inch
Remote control	Yes, remote VNC

### Utility

Electrical	IEC connection 60309 6H 200-240 VAC, 50/60 Hz, 1200 VA, Single-phase
Gas supply (Air, O <sub>2</sub> , N <sub>2</sub> , CO <sub>2</sub> )	Single-Use Bioreactors (SUBs): 25 psig (1.72 barg) max

### Gas Supply

Sparge	Single and dual sparge options, 0.01 – 5 SLPM, 0.04 – 20 SLPM
Overlay	Sequential mixing, 0.01 – 5 SLPM, 0.04 – 20 SLPM
Exhaust	0.5 psig (0.035 barg) max

### Sensors

pH	analog, digital (ARC®, ISM®)
DO	analog, digital (ARC, ISM)
CO <sub>2</sub>	digital (ISM)
RedOx	analog, digital (ISM)

### Communication

### Pumps

	<b>Variable Speed</b>	
Watson Marlow 314D	± 20 – 100 rpm / 1.2 – 300 mL/min (depending on tubing)	3x
Watson Marlow 520R2	± 2.2 – 220 rpm / 0.92 – 3,300 mL/min (depending on tubing)	2x (optional)
Optional external pumps:	Watson Marlow 120u (0.1 – 200 rpm, 0 – 120 mL/min)	2x

Specifications subject to change.

Your local distributor: [www.eppendorf.com/contact](http://www.eppendorf.com/contact)  
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