



# Bacteria Welcome

BioBLU® f Single-Use Bioreactors for microbial cultures

# »Defining single-use fermentation«

## **Simplifying fermentation**

Combine the benefits of single-use bioreactor technology with the reliable performance of conventional glass or stainless steel bioreactors – Discover the Eppendorf BioBLU product line.

BioBLU f Single-Use Bioreactors for microbial applications were developed as true replacements for existing fermentation bioreactors. Utilizing an industrial standard, rigid-wall design, BioBLU f Single-Use Bioreactors allow microbial process development at the highest level. Covering working volumes from 65 mL to 3.75 L the BioBLU f portfolio supports you in process development and scale-up.

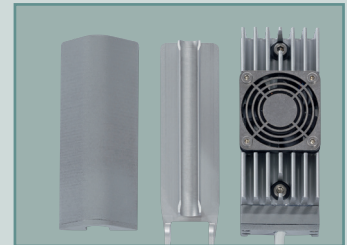
## **How BioBLU® single-use fermentation technology benefits you:**

- > Reduced costs for cleaning and sterilization qualification
- > Reduce capital investment by using your existing equipment
- > Increased productivity with reduced turnaround time between runs
- > Simplified handling reduces cross contamination
- > Reliable scalability through industrial design
- > Simplify installation with rigid-wall design, reduced potential for bioreactor damage
- > Bioreactor body and head plate comprised of single layer injection molded plastic not containing softeners

# Scalable single-use design: The Eppendorf BioBLU® f bioreactors.



**Innovative accessories**  
Tri-port, septum, and compression fitting adaptors for Pg 13.5 ports



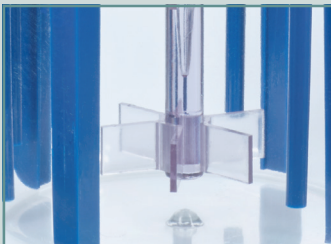
**Effective exhaust treatment**  
Water-cooled or liquid-free (Peltier) exhaust condensation



**Industrial head plate**  
Multiple Pg 13.5 ports for sensor flexibility, integrated liquid addition and sampling ports. Enclosed magnetic drive reduces contamination risk. (BioBLU 0.3f shown)



**Baffles**  
Interior baffles aid mixing and mass transfer. The baffles of the BioBLU 1f additionally provide efficient heat removal through active cooling. (BioBLU 3f shown)



**Industry standard design**  
Standard impeller size and bioreactor dimensions for efficient mixing and mass transfer with scalable results



**High-performance impellers**  
Powerful magnetic overhead drives featuring Rushton-type impellers for optimum mass transfer (BioBLU 0.3f shown)



### Suitable for high cell density

Compared to cell culture applications, fermentation processes have much higher mass transfer and heat removal requirements. Proven stirred-tank design, powerful overhead drives featuring Rushton-type impellers, and smart solutions for cooling make it possible for the BioBLU f bioreactors to achieve these demands.

	BioBLU® 0.3f	BioBLU® 1f	BioBLU® 3f
Stirring	up to 2,000 rpm	up to 1,500 rpm	up to 1,200 rpm
Heat transfer	> 50 W/L	> 50 W/L	> 50 W/L
Gassing	up to 2 vvm	up to 2 vvm	up to 1.5 vvm

### Premium solutions for microbiology

The Eppendorf BioBLU f Single-Use Bioreactors fully address the specific needs of fermentation.

- > Sealed magnetic overhead drives with Rushton-type impellers for excellent mixing
- > High-performance mass and heat transfer suitable for high-cell density fermentation
- > Minimal set-up times and simplified handling
- > Water-cooled or liquid-free (Peltier) exhaust condensation available



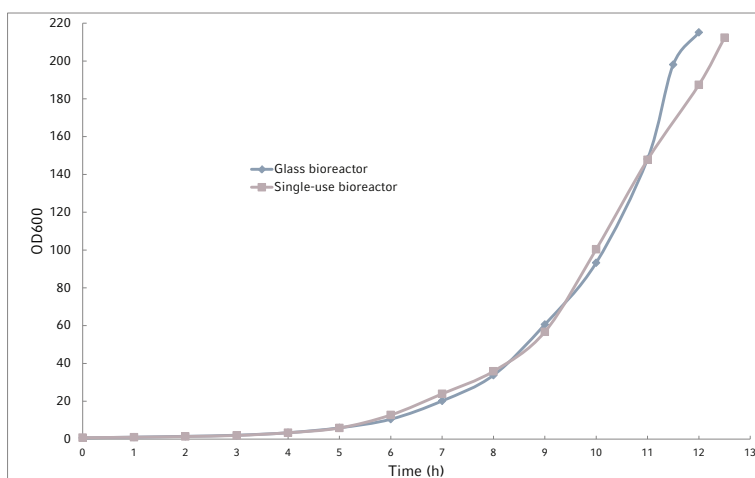
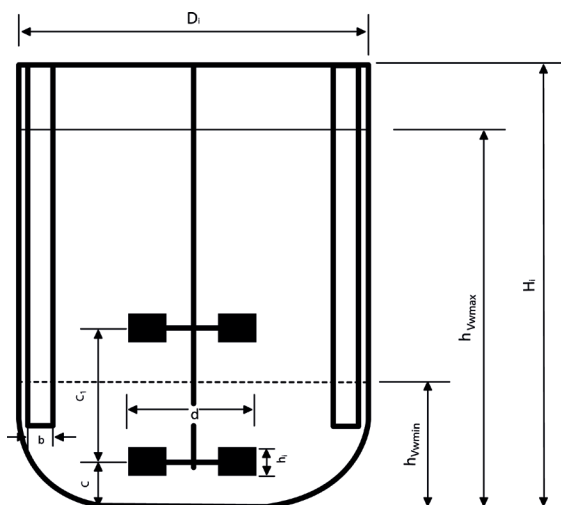
> Are you looking for more information, including application data? Visit our website by scanning the QR code or going to [www.eppendorf.group/biobluf](http://www.eppendorf.group/biobluf)

# As Good as Glass

When making the decision to move to a single-use process, the bioreactor should fit your process, not the other way around. BioBLU bioreactors for microbial applications are designed as drop-in replacements for your existing autoclavable bioreactors. From bioreactor geometries to process capabilities, BioBLU bioreactors make the switch to single-use easy.

	BioBLU® 0.3f	BioBLU® 1f	BioBLU® 3f
Ratio $H_i/D_i$ = Bioreactor height : Bioreactor ID	1.8	2.0	2.0
Ratio $h_{v_{wmax}}/D_i$ = Max. liquid height : Bioreactor ID	1.2	1.5	1.5
Number of impellers	2	2 or 3	3
Ratio $d/D_i$ = Impeller OD : Bioreactor ID	0.4	0.4	0.4

ID = inner diameter, OD = outer diameter



A high-cell density fed-batch cultivation of *E. coli* K12 in 3 L glass bioreactor and BioBLU 3f Single-Use Bioreactor, respectively, resulted in outstanding 200 OD<sub>600</sub> and highly similar growth curves—proving the excellent comparability of the bioreactor designs.

# Single-Use Now



## BioBLU® Single-Use Bioreactor Adaptor Kits & Single-Use Bioreactor Bundles

BioBLU bioreactors are designed for use with the Eppendorf DASbox® and DASGIP® Parallel Bioreactor Systems, SciVario® twin, BioFlo® 120, and BioFlo 320. A range of adaptor kits is offered as well, enabling your existing bioreactor system for single-use operation without the expense of replacing the whole system.

BioBLU Single-Use Bioreactor Bundles provide you with highest flexibility. They ease up to switch your bioreactor system from single-use to reusable vessel usage, back and forth.

[www.eppendorf.com/catalog](http://www.eppendorf.com/catalog)



**Technical data\***

	BioBLU® 0.3f	BioBLU® 1f	BioBLU® 3f
<b>Working volume (total)</b>	65 – 250 mL (380 mL)	250 mL – 1.25 L (1.8 L)	1.25 L – 3.75 L (5 L)
<b>Material</b>	Bioreactor: polystyrene (PS), polycarbonate (PC) Tubing: silicone	Bioreactor: polystyrene (PS), polycarbonate (PC) Tubing: silicone	Bioreactor: polycarbonate (PC) Tubing: silicone
<b>Sterilization</b>	Irradiated by > 15 kGy (β) or > 25 kGy (X-ray). SAL-level 10 <sup>-6</sup> for X-ray irradiated BioBLU® Single-Use Bioreactors		Autoclavable, no pre-sterilization
<b>Autoclavable</b>	No	No	Yes
<b>Max. operating temperature</b>	45 °C	45 °C	45 °C
<b>Head plate ports</b>			
Pg 13.5	2x	3x	4x
Liquid addition	1x submerged, 2x overlay	2x submerged, 3x overlay	1x submerged, 3x overlay
DO sensor port	1x (permeable gas membrane)	1x (permeable gas membrane)	1x (Pg 13.5)
Gas sparge	■	■	■
Exhaust	■	■	■
Harvest tube	■	■	■
Thermowell	■	■	■
Baffles	–	4x	4x
<b>Drive</b>	Magnetic overhead drive		
<b>Impellers</b>	2 Rushton-type impellers (6 blades)	2 or 3 Rushton-type impellers (6 blades)	3 Rushton-type impellers (6 blades)
<b>Recommended agitation speed**</b>	20 – 2,000 rpm	100 – 1,500 rpm	25 – 1,200 rpm
<b>Exhaust condensation***</b>	Liquid-free (Peltier)	Liquid-free (Peltier)/water-cooled	Water-cooled
<b>Cooling</b>	Peltier-based	Baffles with integrated cooling	Cooling finger
<b>Sensors***</b>	Dissolved Oxygen: polarographic (DASGIP DO Sensor, 162/4.7 mm) Temperature: Pt100 - RTD pH: standard 120/12 mm glass sensor	Dissolved Oxygen: polarographic (DASGIP DO Sensor, 278/4.7 mm) Temperature: Pt100 - RTD pH: standard 220/12 mm glass sensor	Dissolved Oxygen: polarographic or optical (225/12 mm) Temperature: Pt100 - RTD pH: standard 225/12 mm glass sensor

**Ordering information**

Bioreactor	Impellers	Quantity	Order number (X-ray irradiated)	Order number (β-irradiated)
BioBLU® 0.3f	2 x Rushton-type	4-pack	1386101100	1386100100
BioBLU® 1f	2 x Rushton-type	4-pack	1386113000	1386110200
	3 x Rushton-type	4-pack	1386113100	1386110300
BioBLU® 3f	3 x Rushton-type	1-pack	1386000900 (no pre-sterilization)	

\* Technical specifications are subject to change without notice. \*\* Agitation speed range may be limited by capabilities of controller.

\*\*\* Specifications apply to the operation with DASbox Mini Bioreactor System, DASGIP Parallel Bioreactor Systems, SciVario twin, and BioFlo controllers, respectively. These accessory parts are separate items.

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

Eppendorf SE · Barkhausenweg 1 · 22339 Hamburg · Germany  
[eppendorf@eppendorf.com](mailto:eppendorf@eppendorf.com) · [www.eppendorf.com](http://www.eppendorf.com)

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