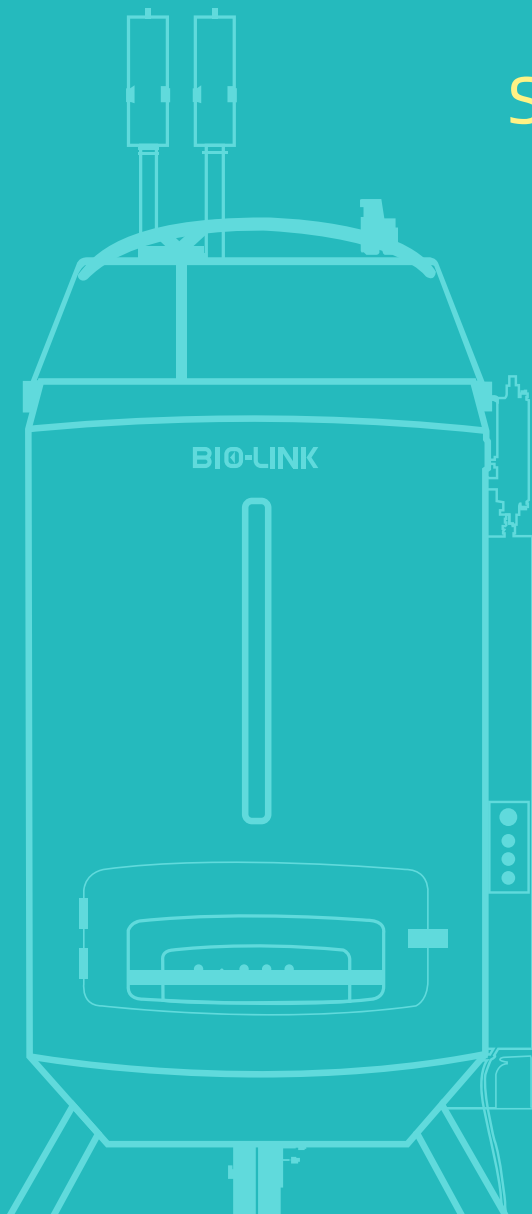




CytoLinX[®] BR

50-2000 L
Single-Use Bioreactors



CytolinX® BR 50-2000 L Single-Use Bioreactors

CytolinX® BR Single-Use Bioreactors come standard with working volumes of 50 L, 200 L, 500 L, 1000 L, and 2000 L. Including a vessel, a controller and a temperature control unit (TCU), they are used for culturing mammalian cells, insect cells, and other low shear-rate needed cells.



Figure 1. CytolinX® BR 50-2000 L Single-Use Bioreactors

CytoLinX® BR Controller — The Controller of Single-Use Bioreactors

CytoLinX® BR controller consists of control hardware and underlying hardware modules. CytoLinX® BR's controller is built with SIEMENS PCS 7 which meets the automation requirements from research to production, as well as from single system to enterprise-wide solution. The software fits ISA 88 control standard and 21 CFR Part 11.

Hardware control units are all built with international famous brands to ensure robust and reliable performance. Also, a choice of PAT tools can be configured flexibly to meet different customer needs and applications.

One CytoLinX® BR controller can control different types of BioLink single-use bioreactor vessels at the same time. We can also use CytoLinX® BR controller as an integrated control center to realize upstream centralized control by controlling several single-use bioreactors vessels simultaneously.

CytoLinX® BR Vessel — The Vessel of Single-Use Bioreactors

CytoLinX® BR vessel operates with bottom-drive agitators. It has a patented sparge design that supports flexible combinations of micro, medium and macro sparge sizes, helping to optimize the culture process, enhance the cell density, and maintain cell viability.

For the operation of CytoLinX® BR, two types (air-cooled and water-cooled) of temperature control units (TCU) are available to meet customers' specific needs in different applications.

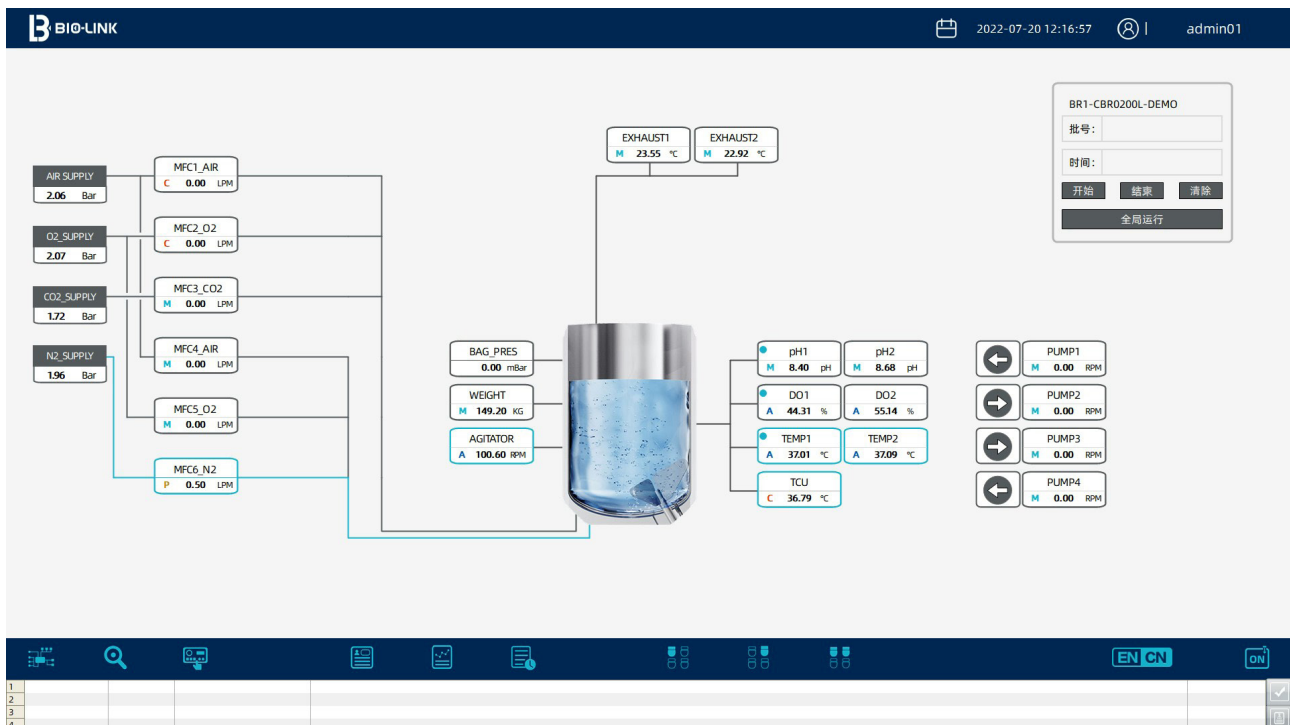
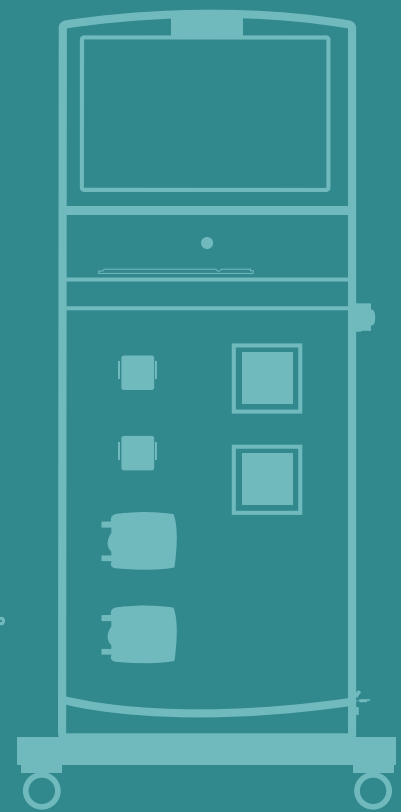
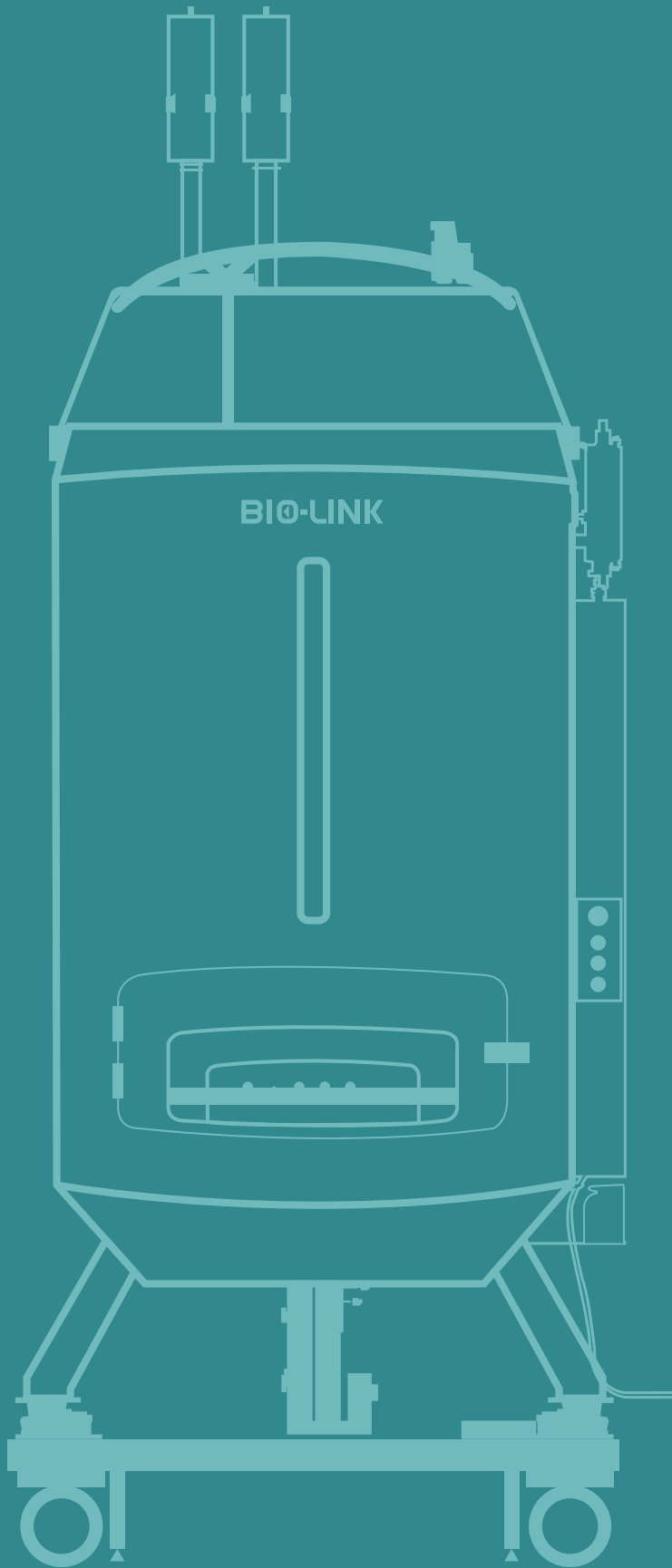


Figure 2. Main operating interface of CytoLinX® BR Controller

Features of CytoLinX® BR Single-Use Bioreactors

- A single controller supports the control of multiple vessels by plugging and unplugging, which contributes to significant cost reduction;
- Reliable PCS 7 system that meets ISA 88 standard, applicable for whole-plant control;
- The software is designed with user-friendly interface in compliance with 21 CFR Part 11;
- Flexible configurations, partly customizable upon customer requirements;
- The main parts are all high-end brands and passed the inspection before leaving the factory to ensure normal operation;
- The sparge provides micro, medium, and macro sparge size options to meet various processing needs;
- Complete FAT, SAT, and IQOQ documents/services are available;
- Rich application and operation support, and high-speed response speed.





Standard Configuration of CytoLinX® BR Bioreactors

Volume	Options	CLX BR-50	CLX BR-200	CLX BR-500	CLX BR-1000	CLX BR-2000
System parameters						
Working volume (L)		20 - 50	40 - 200	100 - 500	200 - 1000	400 - 2000
Height to diameter ratio (H/D)		2.5:1 or 1.5:1	1.5:1	1.5:1	1.5:1	1.5:1
Bag lifting device and installation ladder					√	√
Accessory parameters						
pH traditional electrodes	Single-use/ Arc electrodes	1-3	2-3	2-3	2-3	2-3
DO optical traditional electrodes		1-3	2-3	2-3	2-3	2-3
PAT tools	pCO ₂ , cell density, conductivity	0-2	0-2	0-2	0-2	0-2
Gas mass flow controller (MFC)	Optional gas and range	4-6	4-6	4-6	4-6	4-6
Integrated pump unit	Series 1, 3, and 5	2-4	2-4	2-4	2-4	2-4
Reserved port for external pump unit	Series 5, 6, and 7	0-4	0-4	0-4	0-4	0-4
Weighing module		1	1	1	1	1
Vent filter heating jacket	Optional size	2-4	2-4	2-4	2-4	2-4
Reserved port for external weighing						
Temperature control unit (TCU)	Air-cooled or water-cooled	5 KW	5 KW	5 KW	10 KW	10 KW
Control unit						
Hardware		SIEMENS PCS 7 (DCS, compliant with ISA 88)				
Display		19" touch screen display, mouse and keyboard conforming to appropriate protection class, and built-in UPS				
Compliance		Compliant with 21 CFR PART 11				
Consumables						
Sparger	Micro, medium, and macro sparge size options available	Micro +, macro, or medium + macro sparge size design in the standard product				
Tubing	Customizable tubing length	The tubing length in the standard product is sufficient for post-installation welding requirements				
Vent filter	Optional size	5 inch	7 inch	7 inch	10 inch	10 inch

CytoLinX® BR 50 L Single-Use Microbial Bioreactors

CytoLinX® BR 50 L Microbial Bioreactor is a fermenter system specially designed for microbial culture. It consists of a vessel, a controller, and a temperature control unit (TCU). With disposable matching consumables, this Microbial Bioreactor is a cost-effective industrial tool with no risk of cross-contamination. It is easy to operate with minimal water consumption and short batch-to-batch turnover time. The Bioreactors can be used for both microbial culture and cell culture. The culture of CHO cells, Vero cells, and MDCK cells is supported.

CytoLinX® BR Controller - The Controller of Single-Use Microbial Bioreactors

CytoLinX® BR controller consists of control hardware and underlying hardware modules. CytoLinX® BR's controller is built with the control hardware of SIEMENS PCS 7 which meets the automation requirements from research to production, as well as from single system to enterprise-wide solution. The software fits ISA 88 control standard and 21 CFR Part 11 requirements.

Hardware control units are all built with international famous brands to ensure robust and reliable performance. Also, a choice of PAT tools can be configured flexibly to meet different customer needs and applications.

CytoLinX® BR Vessel - The Vessel of Single-Use Microbial Bioreactors

CytoLinX® BR vessel operates with bottom-driven agitators. It has a patented sparge design that supports flexible combinations of micro, medium and macro sparge sizes, helping to optimize the culture process and increase the yield.

The vessel is designed with 3 removable vortex plates, 1 degassing condenser, and 2 vent filter heating jackets. The vortex plates can enhance mixing for better mixing results. The degassing condenser returns the water that may be entrained in the vent gas due to the rapid gas flow.

Features of CytoLinX® BR Single-Use Microbial Bioreactors:

- A single controller supports the control of multiple vessels by plugging and unplugging, which contributes to significant cost reduction
- Reliable PCS 7 system that meets ISA 88 standard, applicable for whole-plant control
- User-friendly interface in compliance with 21 CFR Part 11
- Powerful magnetic bottom-driven device for effective mixing to realize a uniform mixing result
- Two-stage impellers for high oxygen transfer speed
- Micro, medium, and macro sparge size options for various processing needs
- Dimple jackets for heat transfer to support efficient cooling and heating
- Flexible configurations, partly customizable upon customer requirements



Standard Configuration of CytoLinX® MBR Single-Use Microbial Bioreactors

Item	Options	CLX MBR-50
System parameters		
Working volume (L)		15 - 50
Height to diameter ratio (H/D)		2.5:1
Accessory parameters		
pH traditional electrodes	Single-use / Arc electrodes	1-3
DO optical traditional electrodes		1-3
PAT toolsp	CO ₂ , cell density, conductivity	0-2
Gas mass flow controller (MFC)	Optional gas and range	2-3
Integrated pump unit	Series 1, 3, and 5	2-4
Reserved port for external pump unit	Series 5, 6, and 7	0-4
Weighing module		1
Vent filter heating jacket	Optional size	2-4
Vortex plate		3
Degassing condenser		1
Temperature control unit (TCU)	Air-cooled or water-cooled	5 KW
Control unit		
Hardware		SIEMENS PCS 7 (DCS, compliant with ISA 88)
Display		19" touch screen display, mouse and keyboard conforming to appropriate protection class, and built-in UPS
Compliance		Compliant with 21 CFR PART 11
Consumables		
Sparger	Medium, and macro sparge available	Medium sparge in the standard product
Tubing	Customizable tubing length	The tubing length in the standard product is sufficient for post-installation welding requirements
Vent filter	Optional	5inch, 7inch, 10inch

Ordering Information

Cat. No.	Name	Configuration						Culture Volume (L)
		Tank	Controller	CPU	TCU	Ladder	Auxiliary packing device	
CBR0050LA-001	CytoLinX® BR 50 L Bioreactor	√	√	√	√			15-50 L
CBR0200LA-001	CytoLinX® BR 200 L Bioreactor	√	√	√	√			40-200 L
CBR0500LA-001	CytoLinX® BR 500 L Bioreactor	√	√	√	√			100-500 L
CBR1000LB-001	CytoLinX® BR 1000 L Bioreactor	√	√	√	√	√	√	200-1000 L
CBR2000LB-001	CytoLinX® BR 2000 L Bioreactor	√	√	√	√	√	√	400-2000 L
MBR0050LA-001	CytoLinX® MO 50 L Bioreactor	√	√	√	√			15-40 L
CBR0050LC-001	CytoLinX® BR 50 L Bioreactor	√	√	√				15-50 L
CBR0200LC-001	CytoLinX® BR 200 L Bioreactor	√	√	√				40-200 L
CBR0500LC-001	CytoLinX® BR 500 L Bioreactor	√	√	√				100-500 L
CBR1000LC-001	CytoLinX® BR 1000 L Bioreactor	√	√	√				200-1000 L
CBR2000LC-001	CytoLinX® BR 2000 L Bioreactor	√	√	√				400-2000 L
MBR0050LA-001	CytoLinX® MO 50 L Bioreactor	√	√	√				15-50 L

- Product sequence: 001 is the standard configuration, while other numbers are customized

CytoLinX® BRCF Single-Use Bottom-Driven Microbial Bioreactor Bag

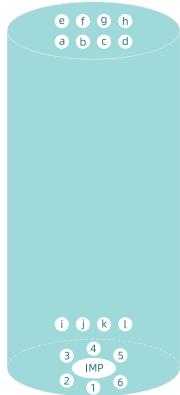
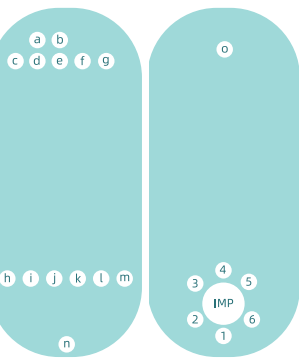
CytoLinX® BRCF Single-Use Bottom-Driven Mixing Bioreactor Bag is designed to match single-use bottom-driven magnetic coupling bioreactor used in biopharmaceuticals. The product can be used for scientific research, process development and commercial production of CHO, Vero, and MDCK cells.

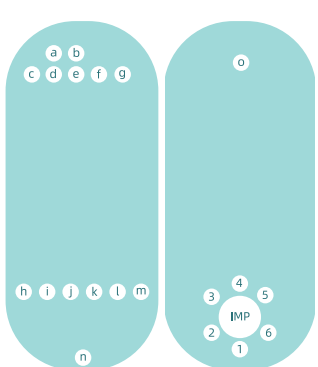
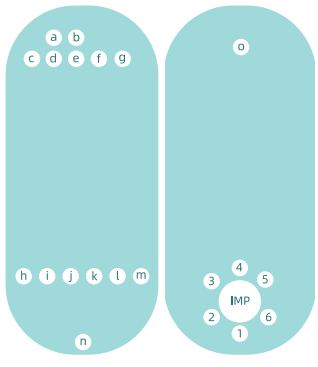
- With RENOLIT 9101 multi-layer co-extrusion films, the fluid contact layer is ultra-low density polyethylene (ULDPE), which has good biocompatibility and chemical compatibility and contributes to a low level of extractable
- The ventilation tray contains 6 ventilation dial components, and the ventilation aperture is available in 20 µm, 300 µm, 0.5 mm, and 1 mm, with good aperture uniformity. Free combinations of micro, medium, and macro spargers are supported to meet different process requirements
- The impeller of 2000 L Bioreactor bags are made of engineering-grade plastic Peek for high hardness. The M40E design has a lower shear force and a shorter mixing time
- Standard imported filters to ensure the integrity of bags
- Customized tubings
- Comprehensive validations with completed validation reports



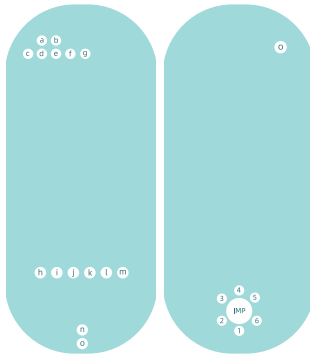
Figure 6. CytoLinX® BR Single-Use Bioreactors (2000 L) and Controller

Standard Configuration of CytoLinX® BRCF Single-Use Bottom-Driven Bioreactor Bag

Volume	Version	Cat. No.	Configuration
50 L 	Medium + Macro sparge	BRCF-0050-P101	<ul style="list-style-type: none"> Min. working volume: 15 L Max. working volume: 50 L Impeller: M40e, 3-blade, diameter: 216 mm, angle: 40°, bottom-driven centric mixing e, c (inlet): 205 cm 3/8" x 5/8" C-Flex™ 374, plug a, g (inlet): 60 cm 3/8" x 5/8" C-Flex™ 374, plug
	Micro + Macro sparge	BRCF-0050-P201 BRCF-0050-P203	<ul style="list-style-type: none"> h, d (small feed port): 205 cm 1/8" x 1/4" C-Flex™ 374, plug f (vent filter): CS2VTV0.2-002 (Meissner), T-connector tube 1: 60 cm 1/2" x 3/4" C-Flex™ 374, plug; tube 2: 28 cm 1/2" x 3/4" C-Flex™ 374
	Macro sparge	BRCF-0050-P301 BRCF-0050-P303	<ul style="list-style-type: none"> b (headspace gas): pressure sensor, CS2VTV0.2-002 (Meissner), 45 cm 1/2" x 3/4" C-Flex™ 374 + 16 cm 1/4" x 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing i (sampling port): 50 cm 1/8" x 1/4" C-Flex™ 374 (x 2), needleless sampling (x 2) j, k (sensor): female Kleenpak™ connector, 1/2" HB l (sensor): thermowell, ID 3.5 mm
	Medium sparge	BRCF-0050-P401	<ul style="list-style-type: none"> 1, 3, 5 (harvest tubing): 128 cm 3/8" x 5/8" C-Flex™ 374, hose plug, OD 1/8"-1" pinch valve 2, 4, 6 (bottom gas): CS2VTV0.2-002 (Meissner), 153 cm 1/4" x 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing (only 1 filter is available for macro sparge and medium sparge)
200 L 	Medium + Macro sparge	BRCF-0200-P101	<ul style="list-style-type: none"> Min. working volume: 40 L Max. working volume: 200 L Impeller: M40e, 3-blade, diameter 216 mm, angle 40°, bottom-driven eccentric mixing a, b (small feed port): 305 cm 1/8" x 1/4" C-Flex™ 374, plug c, g (inlet): 305 cm 3/8" x 5/8" C-Flex™ 374, plug
	Micro + Macro sparge	BRCF-0200-P201 BRCF-0200-P203	<ul style="list-style-type: none"> d, f (inlet): 60 cm 3/8" x 5/8" C-Flex™ 374, plug e (headspace gas): pressure sensor, CF2VTV0.2-33B1 (Meissner), 75 cm 1/2" x 3/4" C-Flex™ 374 + 16 cm 1/4" x 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing
	Macro sparge	BRCF-0200-P301 BRCF-0200-P303	<ul style="list-style-type: none"> o (vent filter): CL2VTV0.2-002 (Meissner), T-connector tube 1: 25 cm 3/4" x 1" C-Flex™ 374, plug; tube 2: 60 cm 1/2" x 3/4" C-Flex™ 374 h (sampling port): 50 cm 1/8" x 1/4" C-Flex™ 374 (x 2), needleless sampling (x 2) i, j, k, l (sensor): female Kleenpak™ connector, 1/2" HB m (sensor): thermowell, ID 3.5 mm
	Medium sparge	BRCF-0200-P401	<ul style="list-style-type: none"> n (harvest tubing): 90 cm 1/2" x 3/4" C-Flex™ 374, plug, OD 1/8"-1" pinch valve 1, 2, 3, 4, 5, 6 (bottom gas): CF2VTV0.2-33B1 (Meissner), 233 cm 1/4" x 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing

Volume	Version	Cat. No.	Configuration	
<p>500 L</p> 	Medium + Macro sparge	BRCF-0500-P101	<ul style="list-style-type: none"> Min. working volume: 100 L Max. working volume: 500 L Impeller: M40e, 3-blade, diameter 266 mm, angle 40°, bottom-driven eccentric mixing 	
	Micro + macro sparge	BRCF-0500-P201 BRCF-0500-P203	<ul style="list-style-type: none"> a, b (small feed port): 320 cm 1/8" x 1/4" C-Flex™ 374, plug c, g (inlet): 320 cm 3/8" x 5/8" C-Flex™ 374, plug d, f (inlet): 60 cm 3/8" x 5/8" C-Flex™ 374, plug e (headspace gas): pressure sensor, CF2VTV0.2-33B1 (Meissner), 85 cm 1/2" x 3/4" C-Flex™ 374 + 16 cm 1/4" x 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing o (vent filter): CL2VTV0.2-002 (Meissner), T-connector tube 1: 30 cm 3/4" x 1" C-Flex™ 374, plug; tube 2: 60 cm 1/2" x 3/4" C-Flex™ 374 	
	Macro sparge	BRCF-0500-P301 BRCF-0500-P303	<ul style="list-style-type: none"> h (sampling port): 50 cm 1/8" x 1/4" C-Flex™ 374 (x 2), needleless sampling (x 2) i, j, k, l (sensor): female Kleenpak™ connector, 1/2" HB m (sensor): thermowell, ID 3.5 mm 	
	Medium sparge	BRCF-0500-P401	<ul style="list-style-type: none"> n (harvest tubing): 90 cm 1/2" x 3/4" C-Flex™ 374, plug, OD 1/8"-1" pinch valve 1, 2, 3, 4, 5, 6 (bottom gas): CF2VTV0.2-33B1 (Meissner), 263 cm 1/4" x 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing 	
	<p>1000 L</p> 	Medium + Macro sparge	BRCF-1000-P101	<ul style="list-style-type: none"> Min. working volume: 200 L Max. working volume: 1000 L Impeller: M40e, 3-blade, diameter 317 mm, angle 40°, bottom-driven eccentric mixing
		Micro + Macro sparge	BRCF-1000-P201 BRCF-1000-P203	<ul style="list-style-type: none"> a, b (small feed port): 340 cm 1/8" x 1/4" C-Flex™ 374, plug c, d, f, g (inlet): 340 cm 1/2" x 3/4" C-Flex™ 374, plug e (headspace gas): pressure sensor, CF2VTV0.2-33B1 (Meissner), 75 cm 1/2" x 3/4" C-Flex™ 374 + 16 cm 1/4" x 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing o (vent filter): CU2VTV0.2-1N002 (Meissner), T-connector, tube 1: 30 cm 3/4" x 1" C-Flex™ 374, plug; tube 2: 60 cm 1/2" x 3/4" C-Flex™ 374
		Macro sparge	BRCF-1000-P301 BRCF-1000-P303	<ul style="list-style-type: none"> h (sampling port): 50 cm 1/8" x 1/4" C-Flex™ 374 (x 2), needleless sampling (x 2) i, j, k, l (sensor): female Kleenpak™ connector, 1/2" HB m (sensor): thermowell, ID 3.5 mm
		Medium sparge	BRCF-1000-P401	<ul style="list-style-type: none"> n (harvest tubing): 90 cm 1" x 1-3/8" C-Flex™ 374, plug, PureFit TCL stop clamp, OD 1-3/8", WALL3/16" 1, 2, 3, 4, 5, 6 (bottom gas): CS2VTV0.2-002 (Meissner), 288 cm 1/4" x 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing

Volume	Version	Cat. No.	Configuration
2000 L	Medium + Macro sparge	BRCF-2000-P101	<ul style="list-style-type: none"> Min. working volume: 400 L Max. working volume: 2000 L Impeller: M40e, 4-blade, diameter 419 mm, angle 40°, bottom-driven eccentric mixing
	Micro + Macro sparge	BRCF-2000-P201 BRCF-2000-P203	<ul style="list-style-type: none"> a, b (small feed port): 380 cm 1/8" x 1/4" C-Flex™ 374, plug c, d, f, g (inlet): 380 cm 1/2" x 3/4" C-Flex™ 374, plug e (headspace gas): pressure sensor, CF2VTV0.2-33B1 (Meissner), 150 cm 1/2" x 3/4" C-Flex™ 374 + 20 cm 1/4" x 7/16" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing
	Macro sparge	BRCF-2000-P301 BRCF-2000-P303	<ul style="list-style-type: none"> o (vent filter): CU2VTV0.2-1N002 (Meissner), Y-connector, tube 1: 35 cm 3/4" x 1" C-Flex™ 374, plug; tube 2: 60 cm 3/4" x 1" C-Flex™ 374 h (sampling port): 50 cm 1/8" x 1/4" C-Flex™ 374 (x 2), needleless sampling (x 2)
	Medium sparge	BRCF-2000-P401	<ul style="list-style-type: none"> i, j, k, l (sensor): female Kleenpak™ connector, 1/2" HB m (sensor): thermowell, ID 3.5 mm n (harvest tubing): 90 cm 1" x 1-3/8" C-Flex™ 374, plug, PureFit TCL stop clamp, OD 1-3/8", WALL3/16" 1, 2, 3, 4, 5, 6 (bottom gas): CS2VTV0.2-002 (Meissner), 318 cm 1/2" x 3/4" C-Flex™ 374, tc 25 + 6# quick plug for gas tubing



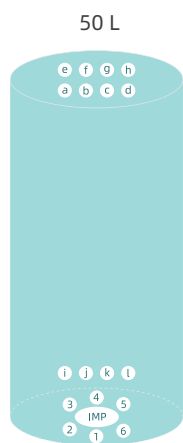
CytoLinX® BRCF Single-Use Top-Driven Bioreactor Bag

The core of the CytoLinX® BRCF 50 L microbial fermentation system is the single-use microbial bioreactor bag designed to meet the stringent requirements of microbial fermentation. It is used for cultivating various organisms, including E-coli, pseudomonas, and yeast. The single-use microbial bioreactor bag is based on the proven design and materials of the CytoLinX® BRCF Single-Use Bioreactor Bag for mammalian cell culture.

- RENOLIT 9101 multilayer co-extruded film, ULDPE liquid contact layer, offering excellent biocompatibility and chemical compatibility while ensuring low levels of extractable content
- The dual impeller design enables vigorous mixing of the culture, and the bottom magnetic coupling eliminates external shafts, minimizing the risk of leakage
- All single-use microbial bioreactor bags are equipped with pressure sensors to maintain bag integrity during demanding fermentation processes
- The vent filter is equipped with a condensation bag at the front end to integrate condensation, returning water vapor from the gas back into the bag, ensuring the ventfilter remains unclogged

Standard Configuration of CytoLinX® BRCF Single-Use Bottom-Driven Microbial Bioreactor Bag

Volume	Version	Cat. No.	Configuration
50 L	Medium sparge	BRCF-0050-P404	<ul style="list-style-type: none"> • Min. working volume: 15 L • Max. working volume: 50 L • Impeller: double-layer, 6 Rushton blades, pitch blade at the top, axial flow impeller, diameter: 195 mm, bottom-driven centric mixing • a, b, e (feeding port): 05 cm 1/8" x 1/4" C-Flex, hose plug • c (pressure monitoring): pressure sensor, 45 cm 1/2" x 3/4" C-Flex, hose plug • d (vent filter + condensation bag):: 37 cm 1" x 1-3/8" C-Flex, condensation bag, 20 cm 1" x 1-3/8" C-Flex, L10SSAPBBG1P, 35 cm 1" x 1-3/8" C-Flex, L05SSAPBBG1P • f (feeding port): 205 cm 1/8" x 1/4" C-Flex (x2), hose plug (x2) • g (spare vent filter inlet) : 30 cm 1" x 1-3/8" C-Flex, AseptiQuik® L sterile connector; • h (inlet): 205 cm 3/8" x 5/8" C-Flex, hose plug • i (sampling port): 50 cm 1/8" x 1/4" C-Flex (x 2), sterile sampling valve (x 2) • j, k (sensor): Kleenpak™ sterile connector female adapter • l (sensor): thermowell, ID3.5 mm • 1, 3, 5 (harvest tubing): 128 cm 3/8" x 5/8" C-Flex, hose plug, OD1/8"-OD1" pinch valve • 2, 4, 6 (bottom gas): CL2VTV0.2-002 (Meissner), 168 cm 1/4" x 7/16" C-Flex, TC 25 + 6 # quick plug for gas tubing (Only one filter for pure medium sparge)



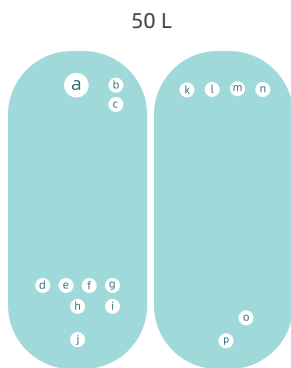
CytoLinX® BRTF Single-Use Top-Driven Bioreactor Bag

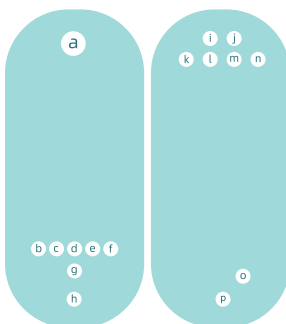
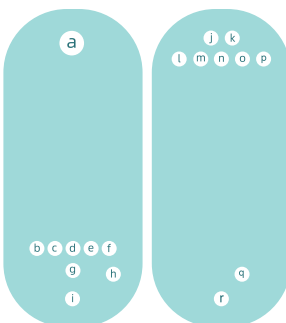
CytoLinX® BRTF Single-Use Top-Driven Bioreactor Bag is designed to match single-use top mechanical coupling bioreactor used in biopharmaceuticals. The product can be used for scientific research, process development and commercial production of CHO, Vero, and MDCK cells, etc.

- RENOLIT 9101 multilayer co-extruded film, ULDPE fluid contact layer, offering excellent biocompatibility and chemical compatibility while ensuring low levels of extractable content
- The porous-frit microsparge column is designed from ultra-high molecular weight polyethylene (UHMW-PE), with pore sizes ranging from 20-40 μm . The generated bubbles possess a high surface area ratio and good oxygen transfer. UHMW-PE exhibits outstanding impact resistance, wear resistance, chemical corrosion resistance, physiological inertness, adaptability, and hydrophobicity
- The macro-perforated microporous membrane is a dispersed aeration disc based on film. Laser-drilled to maintain uniform pore size, various specifications such as 0.178mm, 0.233mm, 0.368mm, 0.445mm, 0.582mm are available, tailored with specific apertures and quantities for each bag specification
- Equipped with imported filters to ensure bag integrity
- All pipelines can be flexibly customized
- Fully validated, complete validation reports can be provided

Standard Configuration of CytoLinX® BRTF Single-Use Bottom-Driven Bioreactor Bag

Volume	Version	Cat. No.	Configuration
50 L	Micro + Marco sparge 5:1	BRTF- 0050-C201	<ul style="list-style-type: none"> • a (top-driven mixing parts): 3-blade impeller, diameter: 111.1 mm, angle: 45° • b (headspace gas) : pressure sensor, CF2VTV0.2-33B1 (Meissner), 20 cm 1/2" x 3/4" C-Flex + 16 cm 1/4" x 7/16" C-Flex, 6 # quick plug for gas tubing • c (inlet / feeding port) : 150 cm 1/4" x 7/16" C-Flex, 30 cm 1/8" x 1/4" C-Flex plug • k (inlet / feeding port) : 150 cm 3/8" x 5/8" C-Flex, Y connector, tubing 1: 40 cm 3/8" x 5/8" C-Flex, plug; tubing 2: 10 cm 3/8" x 5/8" C-Flex, 30 cm 1/4" x 7/16" C-Flex, plug • l (inlet) : 180 cm 3/8" x 5/8" C-Flex, plug • n (feeding port) : 15 cm 1/4" x 7/16" C-Flex, 150 cm 1/8" x 1/4" C-Flex, plug • m (vent filter) : CS2VTV0.2-002 (Meissner), Y connector, tubing 1: 25 cm 1/2" x 3/4" C-Flex; tubing 2: 15 cm 1/2" x 3/4" C-Flex, AseptiQuik® G sterile connector, 1/2" HB • d,e,f,g(sensor) : AseptiQuik® G sterile connector, 1/2" HB • h (sampling port) : 30 cm 1/8" x 1/4" C-Flex, needless sampling 50 cm 1/8" x 1/4" C-Flex, plug • i (sensor) : thermowell, ID3.5 mm • j (harvest port) : 100 cm 1/2" x 3/4" C-Flex, 30 cm 3/8" x 5/8" C-Flex, plug • o,p(bottom gas): CF2VTV0.2-33B1 (Meissner), 15 cm 1/4" x 7/16" C-Flex, one-way valve, 150 cm 1/4" x 7/16" C-Flex, 6 # quick plug for tubing
	Micro + Marco sparge 2:1	BRTF- 0050-C202	<ul style="list-style-type: none"> • h (sampling port) : 30 cm 1/8" x 1/4" C-Flex, needless sampling 50 cm 1/8" x 1/4" C-Flex, plug • i (sensor) : thermowell, ID3.5 mm • j (harvest port) : 100 cm 1/2" x 3/4" C-Flex, 30 cm 3/8" x 5/8" C-Flex, plug • o,p(bottom gas): CF2VTV0.2-33B1 (Meissner), 15 cm 1/4" x 7/16" C-Flex, one-way valve, 150 cm 1/4" x 7/16" C-Flex, 6 # quick plug for tubing



Volume	Version	Cat. No.	Configuration
<p>250 L</p> 	Micro + Macro sparge 5:1	BRTF-0250-C201	<ul style="list-style-type: none"> • a (top-driven mixing parts): 3-blade impeller, diameter: 251 mm, angle: 45° • i (headspace gas): pressure sensor, CS2VTV0.2-002 (Meissner), 20 cm 1/2" x 3/4" C-Flex + 16 cm 1/4" x 7/16" C-Flex, 6# quick plug for gas tubing • m (feeding port): 15 cm 1/4" x 7/16" C-Flex, 180 cm 1/8" x 1/4" C-Flex, plug • k,l (inlet / feeding port): 150 cm 3/8" x 5/8" C-Flex, Y connector, tubing 1: 30 cm 3/8" x 5/8" C-Flex, plug; tubing 2: 20 cm 3/8" x 5/8" C-Flex, 40 cm 1/8" x 1/4" C-Flex, plug • n (inlet / feeding port): 150 cm 1/4" x 7/16" C-Flex, 50 cm 1/8" x 1/4" C-Flex, plug • j (vent filter): CL2VTV0.2-002 (Meissner), Y connector, tubing 1: 30 cm 1/2" x 3/4" C-Flex; tubing 2: 20 cm 1/2" x 3/4" C-Flex, AseptiQuik® G sterile connector, 1/2" HB
	Micro + Macro sparge 2:1	BRTF-0250-C202	<ul style="list-style-type: none"> • b,c,d,e (sensor): AseptiQuik® G sterile connector, 1/2" HB • g (sampling port): 30 cm 1/8" x 1/4" C-Flex, needless sampling; 50 cm 1/8" x 1/4" C-Flex, plug • f (sensor): thermowell, ID3.5 mm • h (harvest port): 150 cm 1/2" x 3/4" C-Flex, plug • o,p (bottom gas): CF2VTV0.2-33B1 (Meissner), 15 cm 1/4" x 7/16" C-Flex, one-way valve, 150 cm 1/4" x 7/16" C-Flex, 6# quick plug for gas tubing
<p>500 L</p> 	Micro + Macro sparge 5:1	BRTF-0500-C201	<ul style="list-style-type: none"> • a (top-driven mixing parts): 3-blade impeller, diameter: 251 mm, angle: 45° • k (headspace gas): pressure sensor, CS2VTV0.2-002 (Meissner), 25 cm 1/2" x 3/4" C-Flex + 16 cm 1/4" x 7/16" C-Flex, 6# quick plug for gas tubing • l (feeding port): 15 cm 1/4" x 7/16" C-Flex, 230 cm 1/8" x 1/4" C-Flex, plug • m (inlet / feeding port): 250 cm 1/4" x 7/16" C-Flex, plug; • n,o (inlet / feeding port): 180 cm 3/8" x 5/8" C-Flex, connector tubing 1: 30 cm 3/8" x 5/8" C-Flex, plug; tubing 2: 30 cm 3/8" x 5/8" C-Flex, 30 cm 1/8" x 1/4" C-Flex, plug • p (inlet / feeding port): 250 cm 3/8" x 5/8" C-Flex, plug • j (vent filter): CUVTV0.2-1N002 (Meissner), connector, tubing 1: 30 cm 3/4" x 1" C-Flex; tubing 2: 20 cm 3/4" x 1" C-Flex, AseptiQuik® G sterile connector, 1/2" HB • b,c,d,e,f (sensor): AseptiQuik® G sterile connector, 1/2" HB • g (sampling port): 30 cm 1/8" x 1/4" C-Flex, needless sampling; 80 cm 1/8" x 1/4" C-Flex, plug • h (sensor): thermowell, ID3.5 mm • i (harvest port): 150 cm 1/2" x 3/4" C-Flex, plug • q, r (bottom gas): CS2VTV0.2-002 (Meissner), 16 cm 1/4" x 7/16" C-Flex, one-way valve, 185 cm 1/4" x 7/16" C-Flex, 6# quick plug for gas tubing

Volume	Version	Cat. No.	Configuration
1000 L	Micro + Macro sparge 5:1	BRTF- 1000-C201	<ul style="list-style-type: none"> a (top-driven mixing parts) : 3-blade impeller, diameter: 321 mm, angle :45° k (headspace gas) : pressure sensor , CS2VTV0.2-002 (Meissner), 50 cm 1/2" x 3/4" C-Flex + 20 cm 1/4" x 7/16"C-Flex, 6# quick plug for gas tubing l (feeding port) : 15 cm 1/4" x 7/16" C-Flex, 250 cm 1/8" x 1/4" C-Flex, plug m (intlet / feeding port) : 250 cm 1/4" x 7/16" C-Flex, 30 cm 1/8" x 1/4" C-Flex, plug n,o (intlet / feeding port) : 250 cm 3/8" x 5/8" C-Flex, connector, tubing 1: 30 cm 3/8" x 5/8" C-Flex, plug; tubing 2: 20 cm 3/8" x 5/8" C-Flex, 35 cm 1/8" x 1/4" C-Flex, plug j (vent filter) : CUVTV0.2-1N002 (Meissner)×2, connector, tubing 1: 25 cm 3/4" x 1" C-Flex; tubing 2: 25 cm 3/4" x 1" C-Flex b,c,d,e,f (sensor) : AseptiQuik® G sterile connector, 1/2"HB g (sampling port) : 30 cm 1/8" x 1/4" C-Flex, needless sampling; 80 cm 1/8" x 1/4" C-Flex, plug h (sensor) : thermowell, ID3.5 mm i (harvest port) : 160 cm 1/2" x 3/4" C-Flex, 30 cm 3/8" x 5/8" C-Flex, connector tubing 1: 30 cm 3/8" x 5/8" C-Flex, plug; tubing 2: 20 cm 3/8" x 5/8" C-Flex, 35 cm 1/8" x 1/4" C-Flex, plug p, q (bottom gas) : CS2VTV0.2-002 (Meissner), 16 cm 1/4" x 7/16"C-Flex, one-way valve, 185 cm 1/4" x 7/16" C-Flex, 6# quick plug for gas tubing
2000 L	Micro + Macro sparge 5:1	BRTF- 2000-C201	<ul style="list-style-type: none"> a (top-driven mixing parts) : 3-blade impeller, diameter: 397 mm, angle: 45° c (headspace gas): pressure sensor , CS2VTV0.2-002 (Meissner), 50 cm 1/2" x 3/4" C-Flex + 30 cm 1/4" x 7/16"C-Flex, 6# quick plug for gas tubing d,g (ifeeding port): 50 cm 1/4" x 7/16" C-Flex,220 cm 1/8" x 1/4" C-Flex, plug e (intlet / feeding port): 220 cm 1/2" x 3/4" C-Flex,50 cm 3/8" x 5/8" C-Flex, plug f (intlet / feeding port): 220 cm 1/4" x 7/16" C-Flex,50 cm 1/8" x 1/4" C-Flex, plug h (intlet): 15 cm 1" x 1 - 3/8" C-Flex,connector (internal extended tube), tubing 1: 15 cm 3/4" x 1" C-Flex, 250 cm 1/2" x 3/4" C-Flex, plug; tubing 2: 15 cm 3/4" x 1" C-Flex, 250 cm 1/2" x 3/4" C-Flex, plug b (vent filter) : CUVTV0.2-1N002 (Meissner)×2, Y connector, tubing 1: 30 cm 3/4" x 1" C-Flex; tubing 2: 30 cm 3/4" x 1" C-Flex i,j,k,l,m (sensor) : AseptiQuik® G sterile connector, 1/2"HB n (sampling port) : 30 cm 1/8" x 1/4" C-Flex, needless sampling; 80 cm 1/8" x 1/4" C-Flex, plug o (sensor) : thermowell, ID3.5 mm p (harvest port) : 200 cm 3/4" x 1" C-Flex, TC 50 q, r, s, t (bottom gas) : CS2VTV0.2-002 (Meissner), 8 cm 1/4" x7/16" C-Flex, one-way valve, 200 cm 1/4" x 7/16" C-Flex, 6# quick plug for gas tubing

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Document no.: BLK-BR-20240412-01-EN