cobetter®
filtration

Lifecask™ RT
Single Use Bioreactor Bag

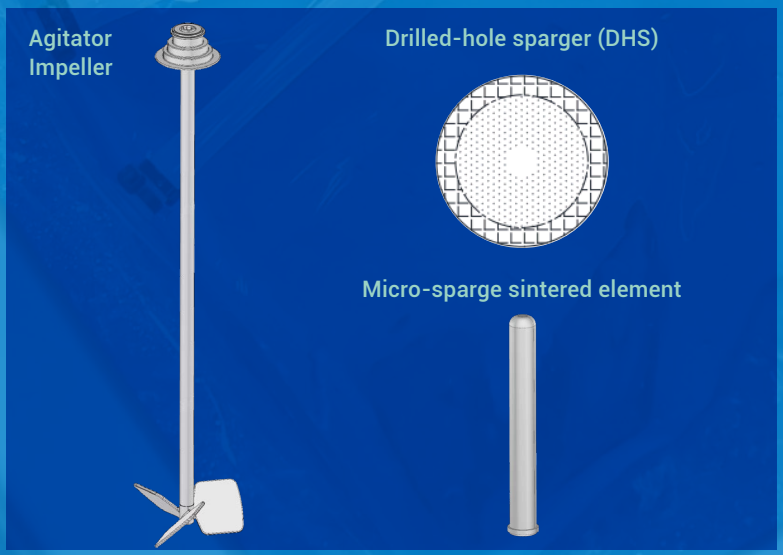


Lifecask™ RT Single Use Bioreactor Bag

The Cobetter Lifecask™ RT single-use bioreactor bag is designed to provide biopharmaceutical manufacturers with mature upstream bioprocess solutions. It is available in sizes ranging from 50 L to 2000 L to meet requirements from R&D through commercial production.

The Cobetter Lifecask™ RT single-use bioreactor bag features two primary series with turn-down ratios of 2:1 and 5:1. It adopts top-mounted mechanical angled agitation, equipped with frit sparger and drilled-hole sparger (DHS). Rigorous testing has been performed on the product to support cell culture at various scales.

The Cobetter Lifecask™ RT single-use bioreactor bag eliminates the labor-intensive validation and cleaning procedures required for stainless steel systems, drastically reducing equipment validation and production preparation time. Manufactured with Cobetter's in-house Lifemeta™ KA membrane / Topene™ RB membrane, the bioreactor bag delivers outstanding particle control, low extractables, non-cytotoxicity, high tensile strength, low analyte adsorption and superior barrier properties, making it suitable for a wide range of cell culture applications. The bag can be flexibly fitted with various ports and tubing to accommodate electrode installation, inoculation, sampling, feeding and harvest operations. Integrated with single-use pressure sensors and spare filter port, the bag mitigates pressure load and rupture risks from multiple aspects to ensure safe cell culture runs

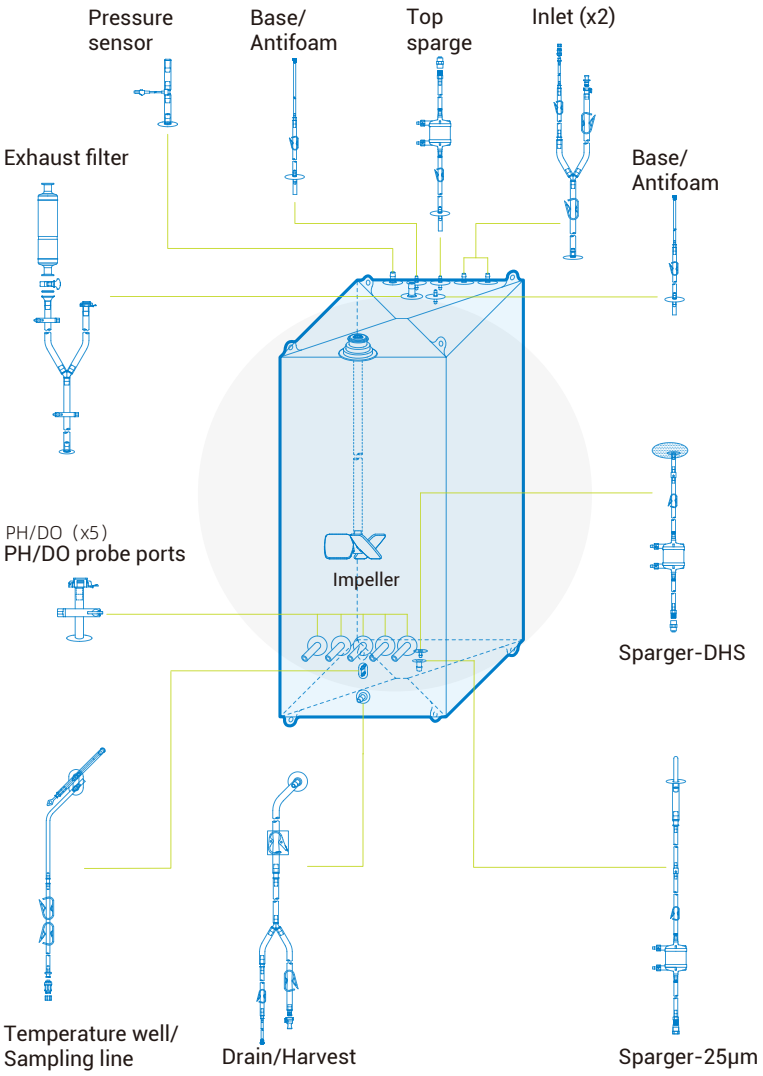


Versatile for Multiple Culture Scenarios

The Cobetter Lifecask™ RT single-use bioreactor bag is suitable for upstream cell culture in antibody, vaccine and CGT applications. It supports suspension culture of various cell lines including CHO, HEK293, BHK21, Hybridoma and SF9, as well as adherent culture of VERO, HEK293T, hMSC and other cells. Furthermore, Cobetter can provide a variety of bioreactor bag configurations tailored to customer requirements, to meet the demands of complex processes such as high-density culture and perfusion processes for high mass transfer, high mixing capacity and high aeration rates.

Fully Domestic Production of Components

The bag body of the Cobetter Lifecask™ RT single-use bioreactor bag is fabricated from self-produced Lifemeta™ KA membrane / Topene™ RB membrane. The feeding tubing assembly connected to the bag consists of Cobetter Lifemeta™ STT platinum-cured silicone tubing and Cobetter Lifemeta™ STF thermoplastic tubing. Inlet and vent gas filters adopt Cobetter's self-developed Bricap™ series gas filters. Meanwhile, Cobetter can supply self-produced accessories including Lifemeta™ AC sterile connectors and Cobetter Lifecube™ AS sample bags, to guarantee favorable performance and reliable quality.

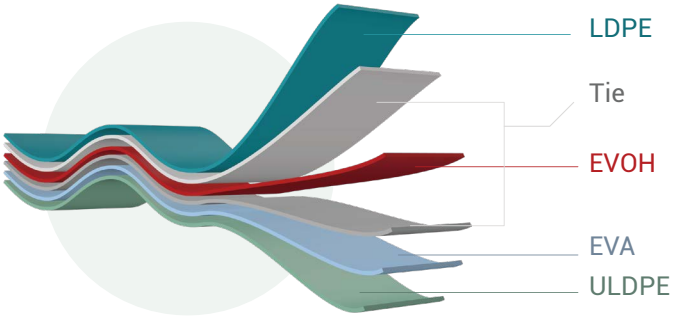




High-Performance Bioprocess Film

RB Film

Cobetter Topene™ RB blown film uses ultra-low density polyethylene (ULDPE) as the liquid contact layer, featuring low extractables, low leachables, favorable chemical compatibility and biosafety. Its outermost protective layer is low-density polyethylene (LDPE) with good mechanical properties. The intermediate layers consist of an EVA filler layer with excellent flex resistance and an EVOH layer offering superior gas barrier performance. Overall, Topene™ RB film has a highly clean inner surface and delivers good environmental stress cracking resistance, tear resistance, flex resistance, tensile resistance and chemical stability.





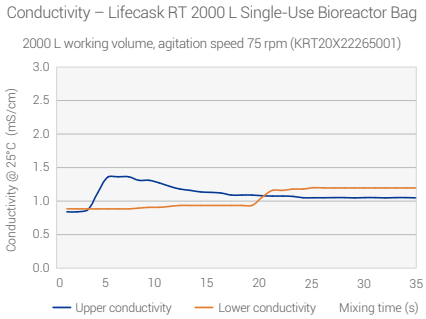
Accelerate R&D-to-Commercialization -- Backed by Robust Scalability Data

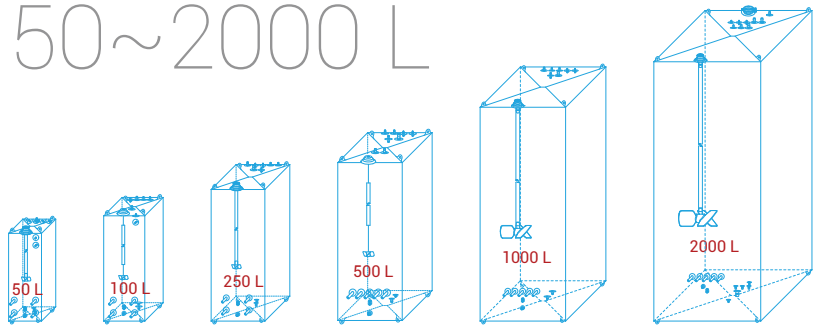
The Cobetter Lifecask™ RT single-use bioreactor bag adopts a series of design considerations to enable seamless process scaling from R&D to commercial production for this product series. Its key features are as follows:

1.Geometric similarity design concept.
All bioreactor bags in the series are designed with a height-to-diameter ratio of 1.9 and equipped with top-mounted mechanical angled agitation at a 45° impeller angle to ensure consistent fluid flow patterns. Component optimization and similarity design deliver comparable gas exchange and mass transfer efficiency across all bag sizes.

2.Comprehensive performance validation facilitates process scaling.
The Cobetter Lifecask™ RT single-use bioreactor bag has undergone full performance characterization, including mixing time, kLa measurement and modeling, Newton Power number and other parameter tests. It provides reliable performance data to support customers' process scaling and improves the success rate of scale-up.

3.Safety considerations improve technology transfer success rate.
Standard products of the entire Cobetter Lifecask™ RT single-use bioreactor bag series are equipped with single-use pressure sensors to enable real-time monitoring of internal bag pressure during cell culture. A spare vent filter port is provided as standard to meet gas exchange requirements for high-aeration processes and reduce risks of bag leakage and contamination. Single-use conventional or optical electrodes are available as options to eliminate on-site electrode installation and lower operational risks. Both the bag and filters undergo rigorous factory integrity testing (pressure drop ≤0.5 kPa at 5 kPa), fundamentally ensuring the safety of cell culture scale-up from small to large bioreactor bag sizes.



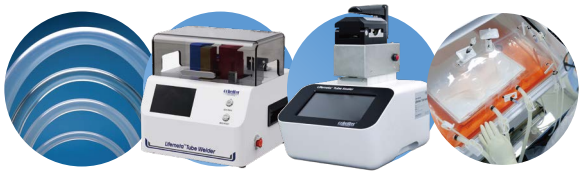


Comprehensive and Well-Designed Configurations to Cover Full Upstream Processes

Flexible Bag Configuration: The standard bag of Cobetter Lifecask™ RT single-use bioreactor bag is equipped with Lifemeta™ KA film / Topene™ RB film, as well as self-produced Lifemeta™ STT silicone tubing and Lifemeta™ STF thermoplastic tubing. Sampling ports support simple sampling solutions such as needleless samplers or multi-compartment sample bags. Meanwhile, Cobetter accepts customized requirements and can supply tubing and connectors of alternative sizes and types. For perfusion culture processes, for instance, the bag can be fitted with single-use sterile connectors for easy connection to hollow-fiber perfusion products.

Easy Bag Installation: The Cobetter Lifecask™ RT single-use bioreactor bag adopts double-layer sterile packaging for ready-to-use application. It features simple operation and short installation time. The aeration filter is pre-connected to the bag prior to irradiation, eliminating the need for on-site sterile connection in the process and reducing complicated operational steps.

Complete Supporting Equipment: Cobetter can offer customers solutions for sterile connection and disconnection. Customers may use Cobetter's self-developed sterile tube welder, sterile tube sealer and sterile connectors to achieve sterile transfer of cells, culture media or nutrient solutions throughout the process. In addition, Cobetter provides bag integrity testers to ensure safety for cell culture bags and single-use mixing/storage bags before use (please contact Cobetter sales or technical specialists for more details). For high-density perfusion culture, Cobetter can provide customers with single-use and reusable/sterilizable hollow fiber products and related supporting equipment. For intensified processes, Cobetter offers the Lifecask™ RW single-use wave-mixing bioreactor bag with integrated retention membrane as the preferred choice, enabling direct seed transfer from 10 L culture scale up to 2000 L single-use systems.

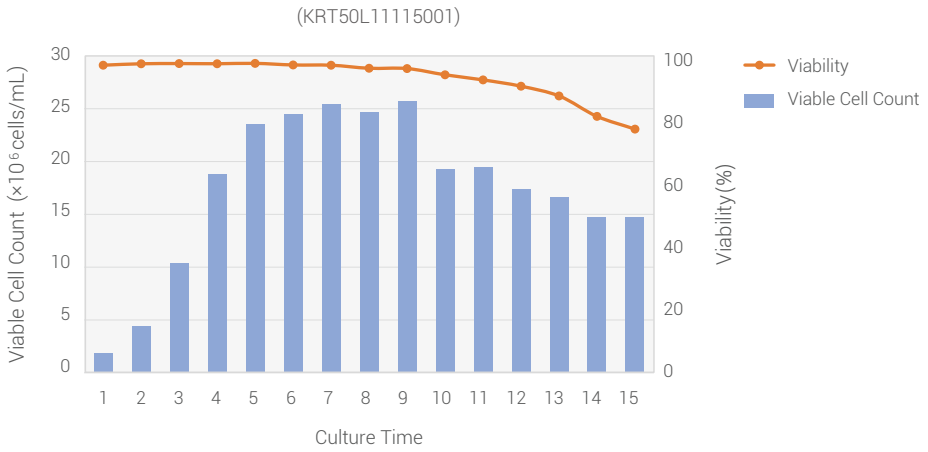


* For more information, please contact a Cobetter sales or technical representative.

Comprehensive and systematic validation ensures a robust manufacturing process

The Cobetter Lifecask™ RT single-use bioreactor bag has undergone extensive studies and validations, including extractables analysis, chemical compatibility assessment, physical performance verification, cytotoxicity testing and product performance qualification. A full suite of validation documentation such as validation guides and extractables reports is available to customers.

Cell Culture Experiment Results of Lifecask™ RT 50L Bioreactor Bag



Burst strength
Vacuum resistance
Particulate shedding
Pump tubing life
Peelables
Heat sealability
Weldability
Steam sterilization stability

Silicone tubing validation
TPE tubing validation

System Validation

Single-use Bioreactor Bag

Freeze-thaw testing	Irradiation validation	Insoluble particulates	TOC/Conductivity/pH	Mixing testing
Fill volume testing	Sterility	Endotoxin testing	High-temperature resistance	Packaging validation
Heat sealstrength	Aging testing	Extractables (NVR)	USP<87> in vitro biocompatibility	Film E&L validation
Drop testing	Leak testing	CFR 21 indirectfood additive	USP<88> Class VI in vivo biocompatibility	Film CHO cell (suspension) co-culture
	Chemical compatibility			

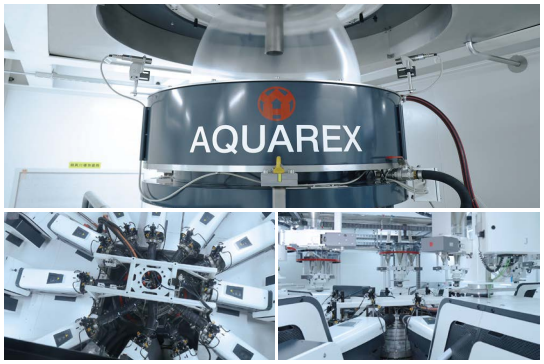
High-standard quality management system and reliable supply assurance

Quality Control & Safety: The Cobetter Lifecask™ RT single-use bioreactor bag adopts rigorous manufacturing processes and complies with stringent quality control standards. Products are manufactured in strict accordance with the ISO 9001:2015 quality management system within ISO Class 7/8 cleanrooms to ensure product cleanliness. Quality documents including MSDS, COA and TSE/BSE-Free statements are available to support biopharmaceutical customers in safe production and audit requirements

Quality Assurance

- ISO 9001:2015 Quality Management System
- Complies with non-toxicity requirements of USP <87> in vitro biological safety test
- Manufactured in ISO Class 7 cleanroom
- Complies with USP <88> Class VI plastic in vivo biological safety requirements
- 100% integrity testing
- Bacterial endotoxin meets requirements for Water for Injection (<0.25 EU/mL)
- ADCF raw materials, compliant with FDA 21CFR 177.182 indirect food additive requirements
- Particulate matter meets the requirements for large-volume injections in Chinese Pharmacopoeia 2020 Edition Volume IV (equivalent to USP <788>)
- Complies with ISO 11137 gamma irradiation dose validation requirements
- Product validation guide available; CoA supplied with each shipment

Supply Security: Cobetter delivers robust supply assurance for you. Cobetter currently operates 11 single-use bag production lines and 1 ISO Class 5 single-use filling bag production line, with an annual capacity of nearly one million single-use bags for customers across China and worldwide. In 2022, the company introduced the world's most advanced co-extruder for single-use film processing and established long-term strategic partnerships with raw material suppliers. This enables full process control covering raw material traceability, formulation optimization and finished assembly.



Topene™ RB Blown Film Extrusion Line

Extensive Footprint, Responsive Support

As a supplier actively advancing the global deployment of biopharmaceutical single-use products, Cobetter maintains sales and service presence in 108 countries and regions worldwide. We provide global customers with product introduction, technical training, pre-sales and after-sales support, as well as process equipment solutions. Service and stocking hubs have been established in Hangzhou, Shanghai, Suzhou, Chongqing, Guangzhou and other locations in China to deliver comprehensive and convenient services covering the domestic market. Cobetter's strong team of upstream application engineers and service engineers enables timely product consultation, technical troubleshooting and complaint handling.

Customer-centric philosophy, robust quality control capabilities for single-use products and outstanding design concepts form the cornerstone for the superior performance of our single-use bioreactor bags. This allows Cobetter to better deliver reliable, diverse and flexible upstream process solutions to global users! Please contact your local Cobetter representative for more product information.



Product Information

Specification	50L		100L		250L		500L		1000L		2000L	
Turn-down ratio	2:1	5:1	2:1	5:1	2:1	5:1	2:1	5:1	2:1	5:1	2:1	5:1
Max. Working volum (L)	50L		100L		250L		500L		1000L		2000L	
Min. Working volum (L)	25L	10L	50L	20L	125L	50L	250L	100L	500L	200L	1000L	400L
HD ratio（H/D)	1.9		1.9		1.9		1.9		1.9		1.9	
Blade number	3		3		3		3		3		3	
Blade angle	45°		45°		45°		45°		45°		45°	
Blade diameter	11.11 cm		14.6 cm		20 cm		25.1 cm		32.1 cm		39.8 cm	
NP value	2.1		2.1		2.1		2.1		2.1		2.1	
Tubing	Lifemeta™ STT platinum-cured silicone + Lifemeta™ STF TPE											
Sensor ports	4		4		4		5		5		5	
Aseptic connector	KPC/CPC/AC											

Ordering Information

SKU	Volume	Turn-down Ratio	Sparger			
			DHS		Frit	
			Number*Pore size	Quantity	Pore size	Quantity
KRT50L11115	50L	5:1	360*178μm	1	20-40μm	1
KRT50L12112		2:1	360*178μm	1	20-40μm	1
KRT10011125	100L	5:1	570*178μm	1	20-40μm	1
KRT10012122		2:1	570*178μm	1	20-40μm	1
KRT25011135	250L	5:1	760*233μm	1	20-40μm	1
KRT25012132		2:1	760*233μm	1	20-40μm	1
KRT50012145	500L	5:1	980*368μm	1	20-40μm	1
KRT50012142		2:1	980*368μm	1	20-40μm	1
KRT10X12155	1000L	5:1	1180*445μm	1	20-40μm	1
KRT10X12152		2:1	1180*445μm	1	20-40μm	1
KRT20X32265	2000L	5:1	690*582μm	2	20-40μm	3
KRT20X32262		2:1	690*582μm	2	20-40μm	3

Probe Sleeve SKU	Type	Quantity
SAL31253	KPC	4
SAL31254	KPC	1
SAL31429	AC	4
SAL31430	AC	1
SAL31300	CPC	4
SAL31301	CPC	1

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Factory Add. : Cobetter Park, Heshang New Material Industrial Park, Xiaoshan District, Hangzhou 311265, China

Ver. 01-a

* Specifications subject to change without notice.