



Lifecask™ RW Single-use Bioreactor Bags

a Flexible, Reliable, and Diversified Upstream Process Solution for Bio-Pharmaceuticals





Lifecask™ RW Single-use Bioreactor Bags

Lifecask™ RW Single-Use Bioreactor Bags are specially designed for a rocking mode bioreactor. It is sterilized by gamma irradiation and packaged in double PE bag to avoid cross-contamination. The bioreactor bags are manufactured with our self-produced Lifemeta™ KA film to ensure a good mechanical performance as well as biocompatibility.

Lifecask™ RW Single-use Bioreactor bags can be widely applied to multiple upstream process of bio-pharmaceuticals such as antibody, vaccine and CGT. Apart from the basic bag configuration, we launched RW PRO features integrated pH and DO optical sensors, and RW Perfusion with an integrated retention membrane to satisfy multiple culture modes such as seed train expansion, fed-batch or perfusion processes. What's more, fabric carriers or microcarriers can also be applied to the bags for adherent cell culture.

Quality Assurance

- ISO 9001:2015 quality management system
- ISO7 class 7 manufacturing site
- 100% bag integrity test
- ADCF raw material, meets the requirement of FDA 21CFR177-182 indirect food additives
- Meets the requirement of ISO 11137 sterilization validation
- Meets the requirement of USP <87> in Vitro Biological Reactivity Test
- Meets the requirement of USP <88> Biological Reactivity Test, in Vivo for Class VI plastics
- Aqueous extraction contains < 0.25 EU/mL as determined by Limulus Amebocyte Lysate (LAL), USP <85>
- Particulate matter in the product eluent meets the requirement in USP <788> for large volume parenterals
- Product validation guide and CoA available

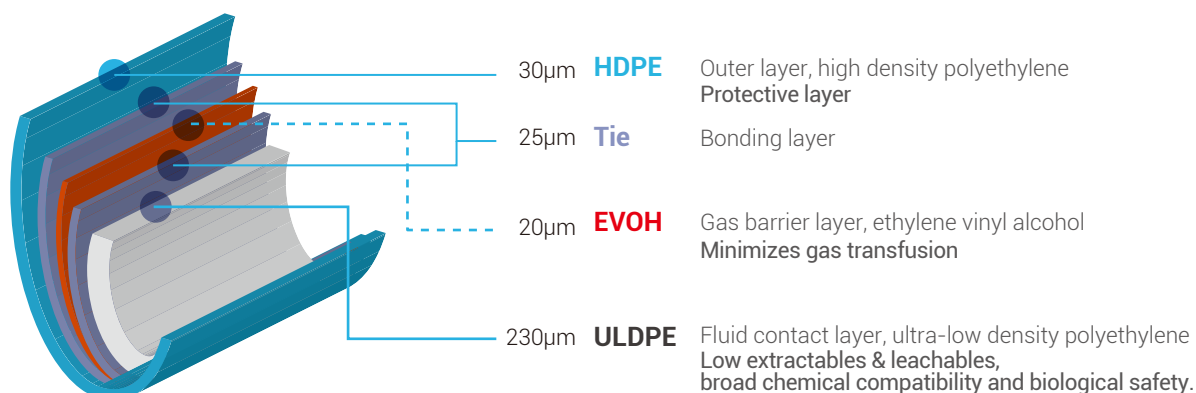
Application

- Suspension Cell Culture: CHO, HEK293, BHK21, Hybridoma, SF9
- Suspension cell perfusion culture (Cell Retention Membrane/ Hollow Fiber)
- Adherent cell culture: HEK 293, Vero, etc.

Excellent Biocompatibility

Lifecask™ RW Single-use Bioreactor bags use our self-produced Lifemeta™ KA film for the bag body. Lifemeta™ KA film is a five layer co-extruded film manufactured to meet the high mechanical strength required by a rocking mode bioreactor. Lifemeta™ KA film is manufactured by a blowing film technology and has a clean inner layer made by ULDPE. The outer layer is made by HDPE, which allows the film to have good environmental stress resistance, tensile strength and chemical tolerance.

Lifemeta™ KA film has been tested and validated to have the features of low E&L profile and good biocompatibility. It has no potential risk of introduction of impurities, and could be applied throughout the whole process of bio-pharmaceuticals. Till now, it has been used for media or buffer preparation and storage bags, cell culture bioreactor bags and filling bags.



Item	Results (After Gamma irradiation>25kGy)	Procedure
Haze	21.2%	ASTM D1003
Specular Gloss	118 GU	ASTM D2457
Color	SCI: L 94.06, a -0.27, b 2.89 SCE: L 90.50, a -0.43, b 2.33	ASTM D6290
Transmittance	90.2%	ASTM D1003
Tensile Strength at Break	Transverse 219 Lengthways 267, bar	ASTM D882
Elongation at Break	Transverse 380 Lengthways 420, %	ASTM D882
Elastic Modulus	Transverse 2770 Lengthways 2890, bar	ASTM D882
Brittleness Temperature by Impact	Below -70°C	ASTM D1790
Density	0.941 g/cm ³	ASTM D792
Dart Impact	1398 g	ASTM D1709 Method B
Dart Impact	Peak Load 178 N Deflection at Peak Load 13.6 mm	ASTM D3763
Tear Strength	Transverse 37.5 Lengthways 34.7, N	ASTM D1004
Puncture Resistance	52.2 N	ASTM F1306
Water Vapor Transmission Rate	0.593 g/(m ² ·day) (23°C, 100% RH)	ASTM F1249
Oxygen Permeability	1.024 cm ³ /(m ² ·day·bar)	ASTM D1434
Carbon Dioxide Permeability	1.455 cm ³ /(m ² ·day·bar)	ASTM D1434
Particulate Matter	Particulate matter in the product eluent meets the requirements in USO<788> for larger volume parenterals.	
USP<87> Cytotoxicity	Meet the requirement of USP<87> in Vitro Biological Reactivity Test.	
USP<88>Biological Reactivity	Meet the criteria of USP<88>Biological Reactivity Test for Class VI plastics.	
Indirect Food Additive	The fluid contact component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.	
Animal Derivative Content	Products do not contain animal derived components and are free from TSE risk.	
Quality Assurance	These products are manufactured in a facility which adheres to ISO® 9001:2015 Practices.	

Over 90% Self-Produced Components & Corollary Equipment

Over 90% of components of Lifecask™ RW single-use bioreactor bag are self-produced by Cobetter including bag body, bag ports, tubings and tubing connectors. Cobetter can also provide relevant devices and equipment such as pH and DO optical cables, tubing welder or sealer, and bag integrity tester.



pH sensor spots



Oxygen sensor spots

pH, DO Sensor Parameter

Module	Range of control	Range of measurement
pH	6.0-8.0	4.5-8.5
DO	0-100%	0-250%

Systematic Product Validation

Cobetter Application & Validation Laboratory (AVL) center has been accredited by China National Accreditation Service for Conformity Assessment (CNAS). Cobetter Lifecask™ RW single-use bioreactor bag has been fully validated and well tested. The associated documents such as validation guide, E&L report and application notes are available.

Single-use Bioreactor Bag

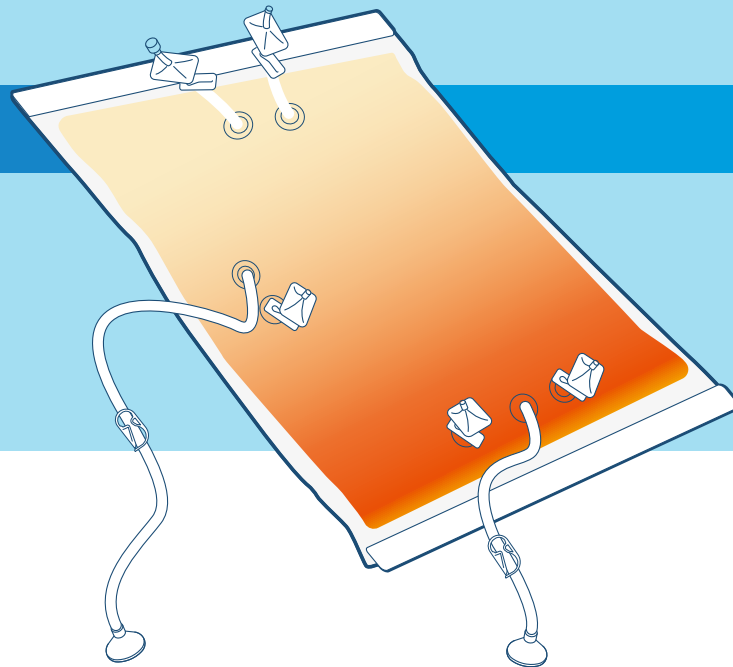
- | | | | | |
|--|--|---|--|---|
| <ul style="list-style-type: none"> • Freeze Test • Water Test • Heat Sealing Performance • Drop Test | <ul style="list-style-type: none"> • Sterilization Validation • Sterility • Leak Test • Chemical Compatibility | <ul style="list-style-type: none"> • Particulate Matter • Endotoxin • E&L (NVR) • FDA 21 CFR Indirect Food Additive | <ul style="list-style-type: none"> • TOC/ Conductivity/ pH • High temperature test • USP<87> In vitro biosafety • USP<88> Class VI In vivo biosafety | <ul style="list-style-type: none"> • Mixing Characterization • Film E&L • Packaging Test • Cell Culture |
|--|--|---|--|---|

Silicone Tubing

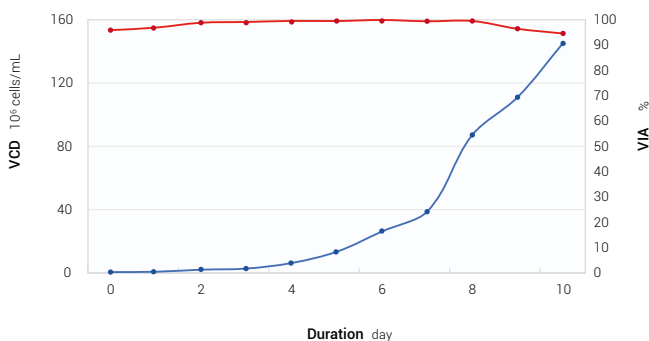
- Bursting Strength
- Vacuum Resistance
- E&L
- Pump Life

TPE Tubing

- Spallation
- Heat Sealing Performance
- Welding Performance
- Thermal Resistance



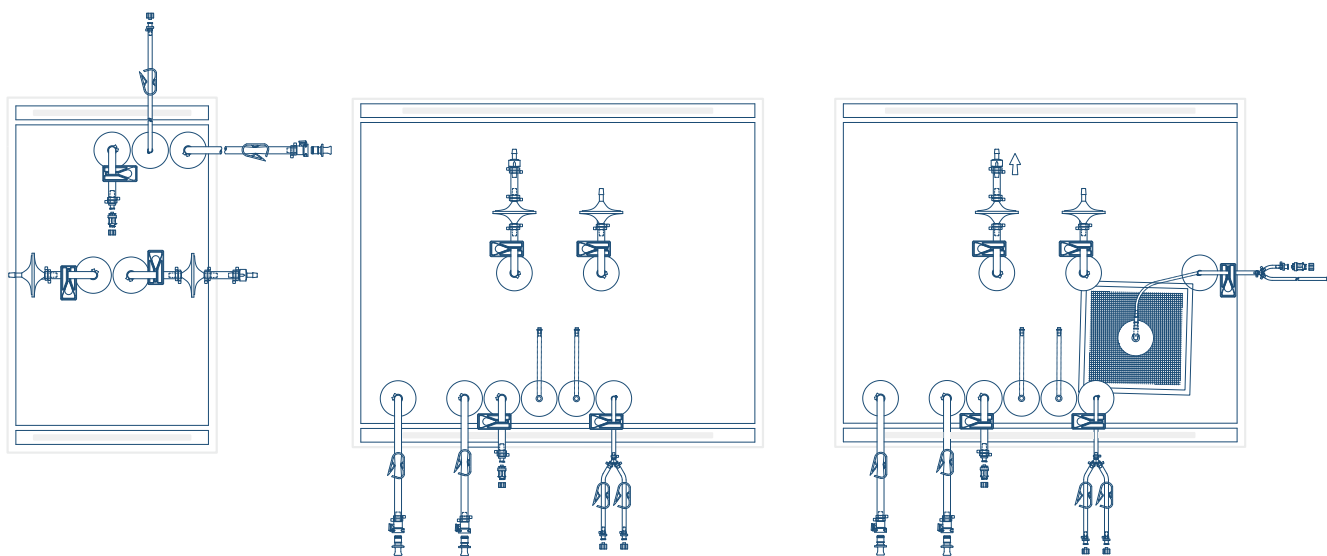
N-1 perfusion with 20L Lifecask™ RW single-use bioreactor bag



Flexible Customization & Reliable Supply Chain

Cobetter offers custom solutions including customized bag dimensions or customized tubings & assemblies configuration according to customers' bioreactor and up-stream cell culture process.

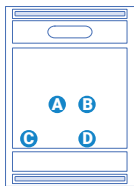
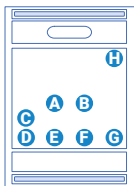
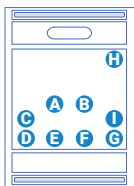
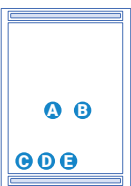
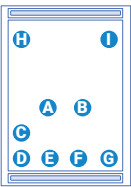
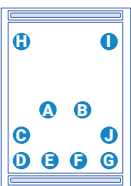
Cobetter takes full risk assessment on raw material including inventory management and key suppliers management. So far, Cobetter has 11 production lines for bags, tubings and assemblies in ISO Class 7 cleanroom, ensuring a stable product supply and a competitive lead time of our products.



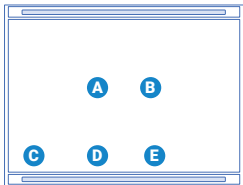
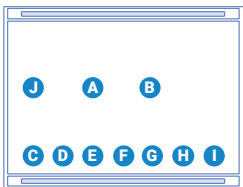
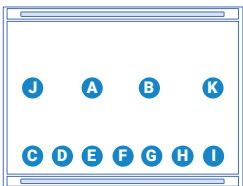
Product Information

Bag Size	2 L	10 L	20 L	50 L
Film	Lifemeta™ KA			
Length × Width	296×570 mm	330×570 mm	660×570 mm	754×723 mm
Optical pH Sensor (optional)	1	1	1	1
Optical DO Sensor (optional)	1	1	1	1
Max. Working Volume	1 L	5 L	10 L	25 L
Min. Working Volume	0.2 L	1 L	2 L	5 L
Perfusion Membrane (optional)	160×160 mm	160×160 mm	350×350 mm	350×350 mm

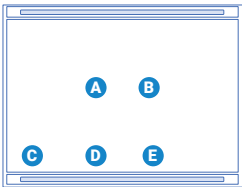
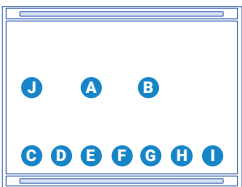
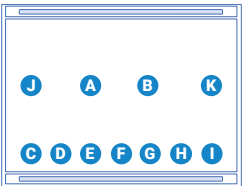
Bag Specifications 2L & 10L

Bag Size	2L	Configuration	Part No.
BASIC		A Outlet Air Filter + Check Valve B Inlet Air Filter C 100cm ID ^{1/8} " * OD ^{1/4} " TPE Tubing + Female Luer Fitting D 5cm ID ^{3/16} " * OD ^{5/16} " Platinum Vulcanized Silicone Tubing + Needle-free Sampler	KRW02LVNN1001
Pro		A Outlet Air Filter + Check Valve B Inlet Air Filter C/D 100cm ID ^{1/4} " * OD ^{7/16} " TPE Tubing + Female Easy Connector E pH Sensor F DO Sensor G 5cm ID ^{3/16} " * OD ^{5/16} " Platinum Vulcanized Silicone Tubing + Needle-free Sampler H 2x50cm ID ^{1/8} " * OD ^{1/4} " TPE Tubing + Female Luer Fitting	KRW02LVCN1001
Perfusion		A Outlet Air Filter + Check Valve B Inlet Air Filter C/D 100cm ID ^{1/4} " * OD ^{7/16} " TPE Tubing + Female Easy Connector E pH Sensor F DO Sensor G 5cm ID ^{3/16} " * OD ^{5/16} " Platinum Vulcanized Silicone Tubing + Needle-free Sampler H 2x50cm ID ^{1/8} " * OD ^{1/4} " TPE Tubing + Female Luer Fitting I 100cm ID ^{1/8} " * OD ^{1/4} " TPE Tubing + Y Fitting (Sampling Port) + Cell retention Membrane (in bag, 5 µm)	KRW02LVCA1001
Bag Size	10L	Configuration	Part No.
BASIC		A Outlet Air Filter + Check Valve B Inlet Air Filter C 100cm ID ^{1/4} " * OD ^{7/16} " TPE Tubing + Female Easy Connector D 100cm ID ^{1/8} " * OD ^{1/4} " TPE Tubing + Female Luer Fitting E 5cm ID ^{3/16} " * OD ^{5/16} " Platinum Vulcanized Silicone Tubing + Needle-free Sampler	KRW10LVNN1001
Pro		A Outlet Air Filter + Check Valve B Inlet Air Filter C/D 100cm ID ^{1/4} " * OD ^{7/16} " TPE Tubing + Female Easy Connector E pH Sensor F DO Sensor G 5cm ID ^{3/16} " * OD ^{5/16} " Platinum Vulcanized Silicone Tubing + Needle-free Sampler H 100cm ID ^{1/4} " * OD ^{7/16} " TPE Tubing + 50cm ID ^{1/4} " * OD ^{3/8} " TPE Tubing + Female Easy Connector I 2x100cm ID ^{1/8} " * OD ^{1/4} " TPE Tubing + Female Luer Fitting	KRW10LVCN1001
Perfusion		A Outlet Air Filter + Check Valve B Inlet Air Filter C/D 100cm ID ^{1/4} " * OD ^{7/16} " TPE Tubing + Female Easy Connector E pH Sensor F DO Sensor G 5cm ID ^{3/16} " * OD ^{5/16} " Platinum Vulcanized Silicone Tubing + Needle-free Sampler H 100cm ID ^{1/4} " * OD ^{7/16} " TPE Tubing + 50cm ID ^{1/4} " * OD ^{3/8} " TPE Tubing + Female Easy Connector I 2x100cm ID ^{1/8} " * OD ^{1/4} " TPE Tubing + Female Luer Fitting J 100cm ID ^{1/8} " * OD ^{1/4} " TPE Tubing + Y Fitting (Sampling Port) + Cell retention Membrane (in bag, 5 µm)	KRW10LVCA1001

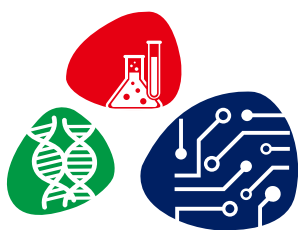
Bag Specifications 20L

Bag Size	20L	Configuration	Part No.
BASIC		A Outlet Air Filter + Check Valve B Inlet Air Filter C 100cm ID¹/₄" * OD⁷/₁₆" TPE Tubing + Female Easy Connector D 100cm ID¹/₈" * OD¹/₄" TPE Tubing + Female Luer Fitting E 5cm ID³/₁₆" * OD⁵/₁₆" Platinum Vulcanized Silicone Tubing + Needle-free Sampler	KRW20LVNN1001
Pro		A Outlet Air Filter + Check Valve B Inlet Air Filter C/D 100cm ID³/₈" * OD⁵/₈" TPE Tubing + Female Easy Connector E 5cm ID³/₁₆" * OD⁵/₁₆" Platinum Vulcanized Silicone Tubing + Needle-free Sampler F pH Sensor G DO Sensor H 2x100cm ID¹/₈" * OD¹/₄" TPE Tubing + Female Luer Fitting I 100cm ID¹/₄" * OD⁷/₁₆" TPE Tubing + 50cm ID¹/₄" * OD³/₈" TPE Tubing + Female Easy Connector J 50cm ID¹/₈" * OD¹/₄" TPE Tubing + Female Luer Fitting	KRW20LVCN1001
Perfusion		A Outlet Air Filter + Check Valve B Inlet Air Filter C/D 100cm ID³/₈" * OD⁵/₈" TPE Tubing + Female Easy Connector E 5cm ID³/₁₆" * OD⁵/₁₆" Platinum Vulcanized Silicone Tubing + Needle-free Sampler F pH Sensor G DO Sensor H 2x100cm ID¹/₈" * OD¹/₄" TPE Tubing + Female Luer Fitting I 100cm ID¹/₄" * OD⁷/₁₆" TPE Tubing + 50cm ID¹/₄" * OD³/₈" TPE Tubing + Female Easy Connector J 50cm ID¹/₈" * OD¹/₄" TPE Tubing + Female Luer Fitting K 100cm ID¹/₈" * OD¹/₄" TPE Tubing + Y Fitting (Sampling Port) + Cell retention Membrane (in bag, 5 µm)	KRW20LVCB1001

Bag Specifications 50L

Bag Size	50L	Configuration	Part No.
BASIC		A Outlet Air Filter + Check Valve B Inlet Air Filter C 100cm ID¹/₄" * OD⁷/₁₆" TPE Tubing + Female Easy Connector D 100cm ID¹/₈" * OD¹/₄" TPE Tubing + Female Luer Fitting E 5cm ID³/₁₆" * OD⁵/₁₆" Platinum Vulcanized Silicone Tubing + Needle-free Sampler	KRW50LVNN1001(C Type) KRW50LSNN1001(S Type)
Pro		A Outlet Air Filter + Check Valve B Inlet Air Filter C/D 100cm ID³/₈" * OD⁵/₈" TPE Tubing + Female Easy Connector E 5cm ID³/₁₆" * OD⁵/₁₆" Platinum Vulcanized Silicone Tubing + Needle-free Sampler F pH Sensor G DO Sensor H 2x100cm ID¹/₈" * OD¹/₄" TPE Tubing + Female Luer Fitting I 100cm ID¹/₄" * OD⁷/₁₆" TPE Tubing + 50cm ID¹/₄" * OD³/₈" TPE Tubing + Female Easy Connector J 50cm ID¹/₈" * OD¹/₄" TPE Tubing + Female Luer Fitting	KRW50LVCN1001(C Type) KRW50LSCN1001(S Type)
Perfusion		A Outlet Air Filter + Check Valve B Inlet Air Filter C/D 100cm ID³/₈" * OD⁵/₈" TPE Tubing + Female Easy Connector E 5cm ID³/₁₆" * OD⁵/₁₆" Platinum Vulcanized Silicone Tubing + Needle-free Sampler F pH Sensor G DO Sensor H 2x100cm ID¹/₈" * OD¹/₄" TPE Tubing + Female Luer Fitting I 100cm ID¹/₄" * OD⁷/₁₆" TPE Tubing + 50cm ID¹/₄" * OD³/₈" TPE Tubing + Female Easy Connector J 50cm ID¹/₈" * OD¹/₄" TPE Tubing + Female Luer Fitting K 100cm ID¹/₈" * OD¹/₄" TPE Tubing + Y Fitting (Sampling Port) + Cell retention Membrane (in bag, 5 µm)	KRW50LVCB1001(C Type) KRW50LSCB1001(S Type)

NOTE: *2-20 L Lifecask™ RW Single-use Bioreactor bags suit both C and S types hardware.



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* Specifications subject to change without notice.