



LAB1ST

VesoFlex 2D/3D Storage Solution

— Single-use Bioprocessing System

Labfirst Scientific Instruments (Shanghai) Co., Ltd.

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— Single-use Bioprocessing System

Overview

Single-use systems feature core advantages including sterility, operational flexibility, no need for cleaning validation. They effectively help minimize cross-contamination risks, simplify bioprocess workflows, and lower overall production costs. By enabling standardized and scalable implementation of biomanufacturing processes, single-use systems are widely adopted across biopharmaceutical industry, vaccine manufacturing, cell therapy and related fields.

Quick Facts

LAB1ST's VesoFlex 2D/3D storage solution comprises single-use storage bags ranging from **5 mL to 3000 L** and complete supporting storage systems. Flexible customization options are available to meet customer requirements to accommodate the storage and transfer of various bioprocess fluids.

Production Capacity

The total production facility spans **6,000 m²**, consisting of **800 m²** Class C (ISO 7) cleanroom and **2,700 m²** Class D (ISO 8) cleanroom. Regular monitoring is conducted on airborne particle count and environmental microbial levels. **Our products maintain stable quality and fully meet customer requirements for pyrogen-free, endotoxin-free and sterile specifications.**

Quality Control

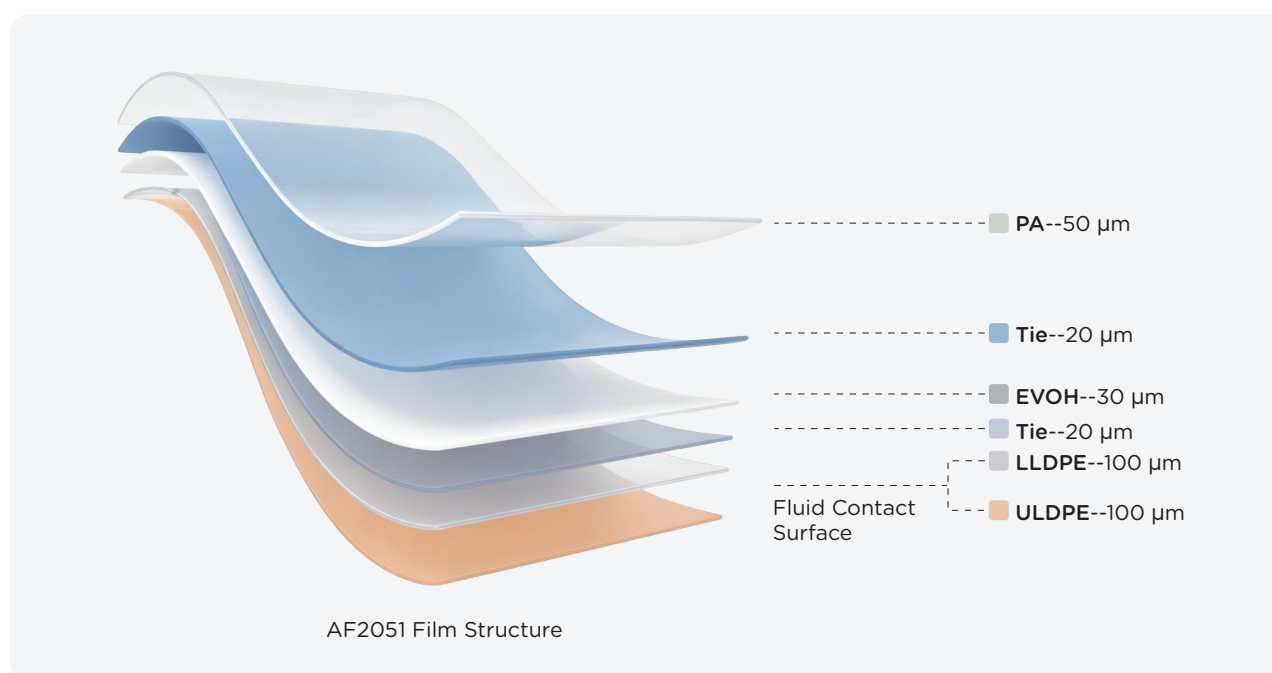
All operations are fully implemented in compliance with cGMP and ISO 9001 requirements. All critical manufacturing procedures are completed within Class C cleanrooms. We conduct full-process quality control spanning raw material inspection, in-process monitoring, and final finished product release.

Film Structure

VesoFlex 2D/3D bags are constructed with AF2051 five-layer co-extrusion film specially developed for bioprocess applications. Composed primarily of PE and EVOH materials, the film has an overall thickness of 0.320 mm.

The inner product-contact layer is made of Ultra-Low Density Polyethylene (ULDPE), featuring excellent softness, mechanical toughness, minimal extractables, outstanding biocompatibility and chemical stability for safe contact with diverse bioprocess fluids. The intermediate Ethylene Vinyl Alcohol (EVOH) layers deliver superior gas barrier performance, effectively blocking gas and moisture permeation to maintain the stability of stored media, buffers and other solutions.

The bags are gamma irradiated in accordance with ISO 11137, achieving a Sterility Assurance Level (SAL) of 10^{-6} to meet sterile and pyrogen-free requirements. All products undergo 100% integrity testing to guarantee consistent product quality.



Testing Items for AF2051 Film Materials

Physical properties

- >Tensile strength
- >Elongation at break
- >Heat seal strength
- >Light transmittance
- >Puncture force
- >Bag integrity
- >Drop test
- >Low-temperature freeze storage

Biological tests

- >Bacterial endotoxin
- >Biocompatibility
- >Intramuscular implantation test
- >Acute systemic toxicity test
- >Intradermal irritation test
- >In vitro cytotoxicity test

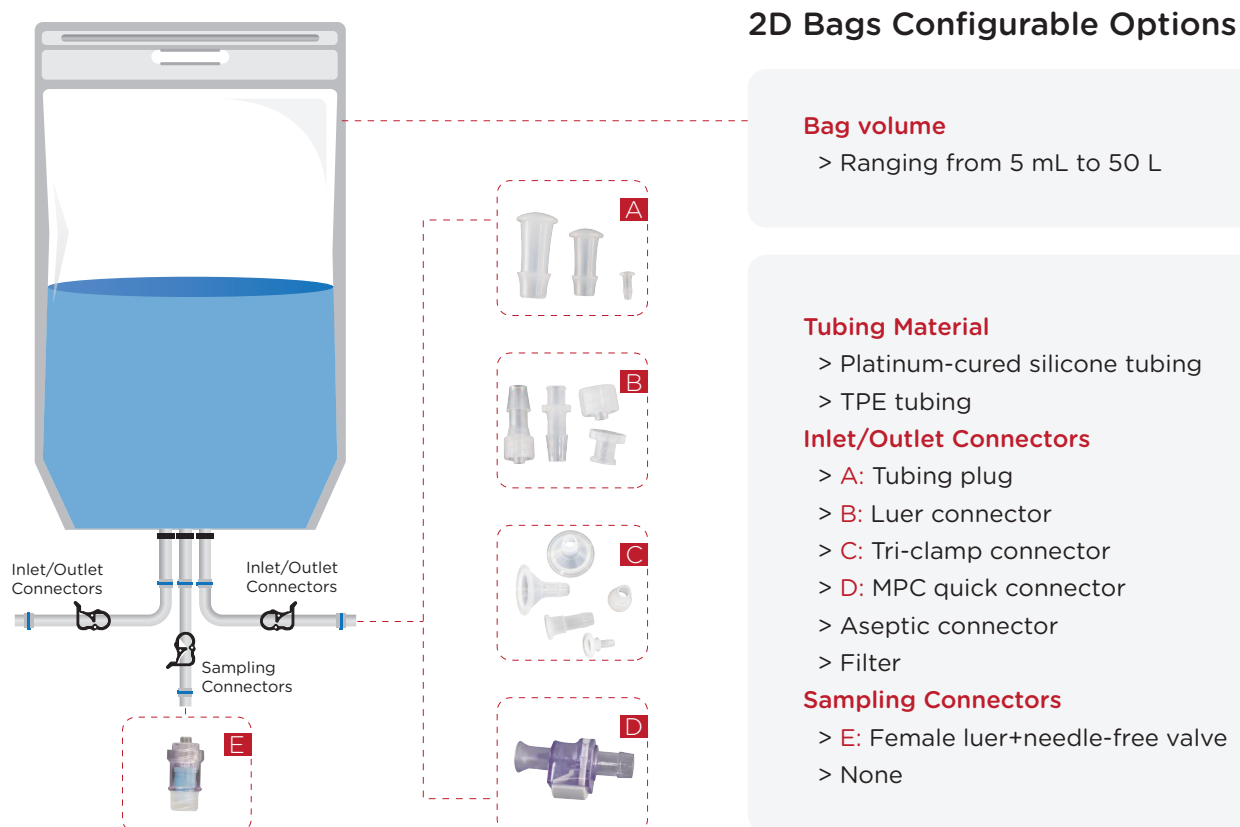
Other tests

- >Extractables study
- >Irradiation sterilization efficacy validation
- >Water vapor transmission rate
- >Oxygen transmission rate
- >Nitrogen transmission rate
- >Particulate matter
- >Product shelf-life study

2D Single-use Bags

The 2D bags feature a flat structure design, with volume ranging from 5 mL to 50 L, suitable for small-to-medium volume sampling, temporary storage and fluid transfer.

Available with optional silicone tubing and TPE tubing, they can be integrated with a wide range of single-use tubing assemblies to adapt to diverse bioprocess requirements. High customization is also available upon customer request.



Film materials, connectors, and tubing are sourced from Chinese suppliers by default. For more options (e.g., RENOLIT® 9101 film and C-Flex 374 TPE tubing) or custom requirements, please contact our sales team.

2D Single-use Bags - 1 line

Volume	Tubing Material	Inlet / Outlet Line	Needle-free Sampling Line	Cat. No.	MOQ
5 mL	Silicone Tubing	Inlet: 15 cm 1/8"*1/4" + Luer Male + Sealing Cap Outlet: NA	NA	B2005M21LO	20
		Inlet: NA Outlet: NA	15 cm 1/8"*1/4" + Luer Female + Sampling Valve	B2005M21OI	
	TPE Tubing	Inlet: 15 cm 1/8"*1/4" + Tubing Plug Outlet: NA	NA	B2005M26PO	
		Inlet: NA Outlet: NA	15 cm 1/8"*1/4" + Luer Female + Sampling Valve	B2005M26OI	

For customized requirements such as tubing size and connector configuration, please contact the Lab1st sales team.

2D Single-use Bags - 2 lines

Volume	Tubing Material	Inlet / Outlet Line	Needle-free Sampling Line	Cat. No.	MOQ
20 mL	Silicone Tubing	Inlet: 15 cm 1/8"*1/4" + Luer Female + Sealing Plug Outlet: 15 cm 1/8"*1/4" + Luer Male + Sealing Cap	NA	B2020M2ILO	20
		Inlet: 15 cm 1/8"*1/4" + Luer Male Sealing Cap Outlet: NA	15 cm 1/8"*1/4" + Luer Female + Sampling Valve	B2020M2IL1	
	TPE Tubing	Inlet: 15 cm 1/8"*1/4" + Tubing Plug Outlet: 15 cm 1/8"*1/4" + Tubing Plug	NA	B2020M26PO	
		Inlet: 15 cm 1/8"*1/4" + Tubing Plug Outlet: NA	15 cm 1/8"*1/4" + Luer Female + Sampling Valve	B2020M26P1	
50 mL	Silicone Tubing	Inlet: 15 cm 1/8"*1/4" + Luer Female + Sealing Plug Outlet: 15 cm 1/8"*1/4" + Luer Male + Sealing Cap	NA	B2050M2ILO	10
		Inlet: 15 cm 1/8"*1/4" + Luer Male Sealing Cap Outlet: NA	15 cm 1/8"*1/4" + Luer Female + Sampling Valve	B2050M2IL1	
	TPE Tubing	Inlet: 15 cm 1/8"*1/4" + Tubing Plug Outlet: 15 cm 1/8"*1/4" + Tubing Plug	NA	B2050M26PO	
		Inlet: 15 cm 1/8"*1/4" + Tubing Plug Outlet: NA	15 cm 1/8"*1/4" + Luer Female + Sampling Valve	B2050M26P1	
150 mL	Silicone Tubing	Inlet: 15 cm 1/8"*1/4" + Luer Female + Sealing Plug Outlet: 15 cm 1/8"*1/4" + Luer Male + Sealing Cap	NA	B2150M2ILO	10
		Inlet: 15 cm 1/8"*1/4" + Luer Male Sealing Cap Outlet: NA	15 cm 1/8"*1/4" + Luer Female + Sampling Valve	B2150M2IL1	
		Inlet: 15 cm 1/4"*3/8" + MPC Body + Sealing Plug Outlet: 15 cm 1/4"*3/8" + MPC Insert + Sealing Cap	NA	B2150M21MO	
	TPE Tubing	Inlet: 15 cm 1/8"*1/4" + Tubing Plug Outlet: 15 cm 1/8"*1/4" + Tubing Plug	NA	B2150M26PO	
		Inlet: 15 cm 1/8"*1/4" + Tubing Plug Outlet: NA	15 cm 1/8"*1/4" + Luer Female + Sampling Valve	B2150M26P1	
		Inlet: 15 cm 1/4"*3/8" + Tubing Plug Outlet: 15 cm 1/4"*3/8" + Tubing Plug	NA	B2150M26PO-1	
250 mL	Silicone Tubing	Inlet: 15 cm 1/8"*1/4" + Luer Female + Sealing Plug Outlet: 15 cm 1/8"*1/4" + Luer Male + Sealing Cap	NA	B2250M2ILO	10
		Inlet: 15 cm 1/8"*1/4" + Luer Male + Sealing Cap Outlet: NA	15 cm 1/8"*1/4" + Luer Female + Sampling Valve	B2250M2IL1	
		Inlet: 15 cm 1/4"*3/8" + MPC Body + Sealing Plug Outlet: 15 cm 1/4"*3/8" + MPC Insert + Sealing Cap	NA	B2250M21MO	
	TPE Tubing	Inlet: 15 cm 1/8"*1/4" + Tubing Plug Outlet: 15 cm 1/8"*1/4" + Tubing Plug	NA	B2250M26PO	
		Inlet: 15 cm 1/8"*1/4" + Tubing Plug Outlet: NA	15 cm 1/8"*1/4" + Luer Female + Sampling Valve	B2250M26P1	
		Inlet: 15 cm 1/4"*3/8" + Tubing Plug Outlet: 15 cm 1/4"*3/8" + Tubing Plug	NA	B2250M26PO-1	

2D Single-use Bags - 2 lines

Volume	Tubing Material	Inlet / Outlet Line	Needle-free Sampling Line	Cat. No.	MOQ
500 mL	Silicone Tubing	Inlet: 15 cm 1/8"*1/4" + Luer Female + Sealing Plug Outlet: 15 cm 1/8"*1/4" + Luer Male + Sealing Cap	NA	B2500M21LO	10
		Inlet: 15 cm 1/8"*1/4" + Luer Male + Sealing Cap Outlet: NA	15 cm 1/8"*1/4" + Luer Female + Sampling Valve	B2500M21L1	
		Inlet: 15 cm 1/4"*3/8" + MPC Body + Sealing Plug Outlet: 15 cm 1/4"*3/8" + MPC Insert + Sealing Cap	NA	B2500M21MO	
	TPE Tubing	Inlet: 15 cm 1/8"*1/4" + Tubing Plug Outlet: 15 cm 1/8"*1/4" + Tubing Plug	NA	B2500M26PO	
		Inlet: 15 cm 1/8"*1/4" + Tubing Plug Outlet: NA	15 cm 1/8"*1/4" + Luer Female + Sampling Valve	B2500M26P1	
		Inlet: 15 cm 1/4"*3/8" + Tubing Plug Outlet: 15 cm 1/4"*3/8" + Tubing Plug	NA	B2500M26PO-1	

For customized requirements such as tubing size and connector configuration, please contact the Lab1st sales team.

2D Single-use Bags - 3 lines

Volume	Tubing Material	Inlet / Outlet Line	Needle-free Sampling Line	Cat. No.	MOQ
1 L	Silicone Tubing	Inlet: 30 cm 1/4"*3/8" + MPC Body + Sealing Plug Outlet: 30 cm 1/4"*3/8" + MPC Insert + Sealing Cap		B2001L21M1	10
		Inlet: 30 cm 1/4"*3/8"+3/4" Tri-clamp Fitting (TC25) Outlet: 30 cm 1/4"*3/8"+3/4" Tri-clamp Fitting (TC25)	10 cm 1/4"*3/8" + Luer Female + Sampling Valve	B2001L21C1	
		Inlet: 30 cm 1/4"*3/8" + Luer Female + Sealing Plug Outlet: 30 cm 1/4"*3/8" + Luer Male + Sealing Cap		B2001L21L1	
	TPE Tubing	Inlet: 30 cm 1/4"*3/8" + Tubing Plug Outlet: 30 cm 1/4"*3/8" + Tubing Plug		B2001L26P1	
2 L	Silicone Tubing	Inlet: 30 cm 1/4"*3/8" + MPC Body + Sealing Plug Outlet: 30 cm 1/4"*3/8" + MPC Insert + Sealing Cap		B2002L21M1	10
		Inlet: 30 cm 1/4"*3/8"+3/4" Tri-clamp Fitting (TC25) Outlet: 30 cm 1/4"*3/8"+3/4" Tri-clamp Fitting (TC25)	10 cm 1/4"*3/8" + Luer Female + Sampling Valve	B2002L21C1	
		Inlet: 30 cm 1/4"*3/8" + Luer Female + Sealing Plug Outlet: 30 cm 1/4"*3/8" + Luer Male + Sealing Cap		B2002L21L1	
	TPE Tubing	Inlet: 30 cm 1/4"*3/8" + Tubing Plug Outlet: 30 cm 1/4"*3/8" + Tubing Plug		B2002L26P1	

2D Single-use Bags - 3 lines

Volume	Tubing Material	Inlet / Outlet Line	Needle-free Sampling Line	Cat. No.	MOQ
3 L	Silicone Tubing	Inlet: 30 cm 1/4"*3/8" + MPC Body + Sealing Plug Outlet: 30 cm 1/4"*3/8" + MPC Insert + Sealing Cap	10 cm 1/4"*3/8" + Luer Female + Sampling Valve	B2003L21M1	5
		Inlet: 30 cm 1/4"*3/8"+3/4" Tri-clamp Fitting (TC25) Outlet: 30 cm 1/4"*3/8"+3/4" Tri-clamp Fitting (TC25)		B2003L21C1	
		Inlet: 30 cm 1/4"*3/8" + Luer Female + Sealing Plug Outlet: 30 cm 1/4"*3/8" + Luer Male + Sealing Cap		B2003L21L1	
	TPE Tubing	Inlet: 30 cm 1/4"*3/8" + Tubing Plug Outlet: 30 cm 1/4"*3/8" + Tubing Plug		B2003L26P1	
5 L	Silicone Tubing	Inlet: 30 cm 1/4"*3/8" + MPC Body + Sealing Plug Outlet: 30 cm 1/4"*3/8" + MPC Insert + Sealing Cap	10 cm 1/4"*3/8" + Luer Female + Sampling Valve	B2005L21M1	5
		Inlet: 30 cm 3/8"*5/8" + MPC Body + Sealing Plug Outlet: 30 cm 3/8"*5/8" + MPC Insert + Sealing Cap		B2005L21M1-1	
		Inlet: 30 cm 1/4"*3/8"+3/4" Tri-clamp Fitting (TC25) Outlet: 30 cm 1/4"*3/8"+3/4" Tri-clamp Fitting (TC25)		B2005L21C1	
		Inlet: 30 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50) Outlet: 30 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50)		B2005L21T1	
	TPE Tubing	Inlet: 30 cm 1/4"*3/8" + Luer Female + Sealing Plug Outlet: 30 cm 1/4"*3/8" + Luer Male + Sealing Cap		B2005L21L1	
		Inlet: 30 cm 1/4"*3/8" + Tubing Plug Outlet: 30 cm 1/4"*3/8" + Tubing Plug		B2005L26P1	
10 L	Silicone Tubing	Inlet: 50 cm 3/8"*5/8" + MPC Body + Sealing Plug Outlet: 50 cm 3/8"*5/8" + MPC Insert + Sealing Cap	10 cm 1/4"*3/8" + Luer Female + Sampling Valve	B2010L21M1	5
		Inlet: 50 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50) Outlet: 50 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50)		B2010L21T1	
	TPE Tubing	Inlet: 50 cm 3/8"*5/8" + Tubing Plug Outlet: 50 cm 3/8"*5/8" + Tubing Plug		B2010L26P1	
		Inlet: 50 cm 3/8"*5/8" + Tubing Plug Outlet: 50 cm 3/8"*5/8" + Tubing Plug		B2005L26P1-1	
20 L	Silicone Tubing	Inlet: 50 cm 3/8"*5/8" + MPC Body + Sealing Plug Outlet: 50 cm 3/8"*5/8" + MPC Insert + Sealing Cap	10 cm 1/4"*3/8" + Luer Female + Sampling Valve	B2020L21M1	5
		Inlet: 50 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50) Outlet: 50 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50)		B2020L21T1	
	TPE Tubing	Inlet: 50 cm 3/8"*5/8" + Tubing Plug Outlet: 50 cm 3/8"*5/8" + Tubing Plug		B2020L26P1	
		Inlet: 50 cm 3/8"*5/8" + Tubing Plug Outlet: 50 cm 3/8"*5/8" + Tubing Plug		B2020L26P1	

2D Single-use Bags - 3 lines

Volume	Tubing Material	Inlet / Outlet Line	Needle-free Sampling Line	Cat. No.	MOQ
30 L	Silicone Tubing	Inlet: 50 cm 3/8"*5/8" + MPC Body + Sealing Plug Outlet: 50 cm 3/8"*5/8" + MPC Insert + Sealing Cap	10 cm 1/4"*3/8" + Luer Female + Sampling Valve	B2030L21M1	5
		Inlet: 50 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50) Outlet: 50 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50)		B2030L21T1	
	TPE Tubing	Inlet: 50 cm 3/8"*5/8" + Tubing Plug Outlet: 50 cm 3/8"*5/8" + Tubing Plug		B2030L26P1	
50 L	Silicone Tubing	Inlet: 50 cm 3/8"*5/8" + MPC Body + Sealing Plug Outlet: 50 cm 3/8"*5/8" + MPC Insert + Sealing Cap	10 cm 1/4"*3/8" + Luer Female + Sampling Valve	B2050L21M1	5
		Inlet: 50 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50) Outlet: 50 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50)		B2050L21T1	
	TPE Tubing	Inlet: 50 cm 3/8"*5/8" + Tubing Plug Outlet: 50 cm 3/8"*5/8" + Tubing Plug		B2050L26P1	

For customized requirements such as tubing size and connector configuration, please contact the Lab1st sales team.

2D Storage Bag Container

PP Tray



Stainless Steel Trolley



3D Single-use Bags

The 3D bags adopt a three-dimensional structured design, with volume capacities ranging from 100 L to 3000 L, ideal for medium-to-large scale fluid storage. Optional silicone tubing and thermoplastic tubing are available, and the bags can be integrated with various single-use tubing assemblies to accommodate diverse bioprocess applications. Full customization is supported according to individual customer requirements.

3D Bags Configurable Options

Tubing Material

- > Platinum-Cured silicone tubing
- > TPE tubing

Bag volume & ports

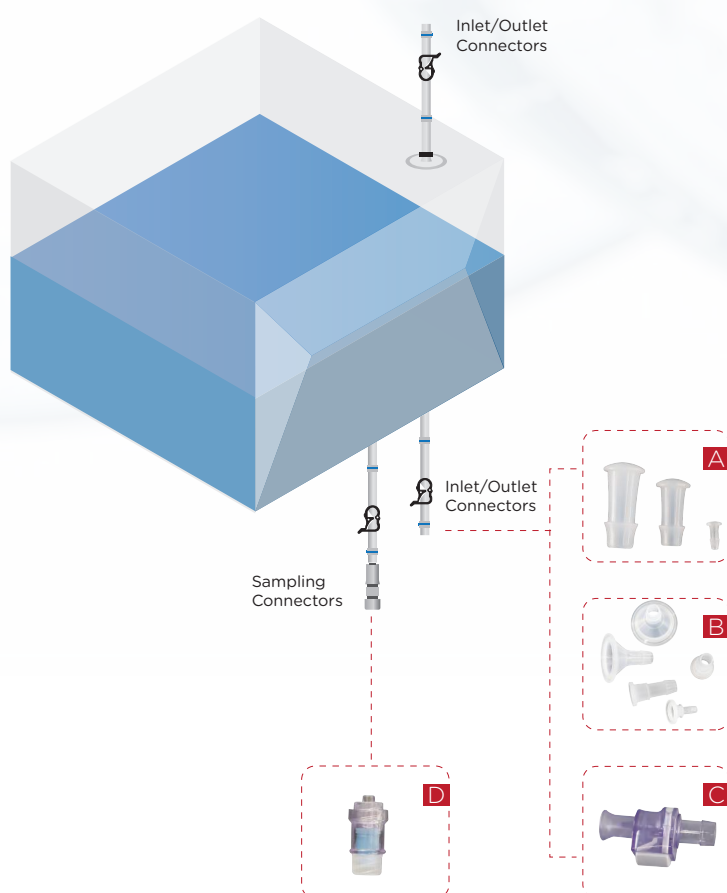
- > Ranging from 100L to 3000 L
- > More ports

Inlet/Outlet Connectors

- > A: Tubing plug
- > B: Tri-clamp connector
- > C: MPC quick connector
- > Aseptic connector
- > Filter

Sampling Connectors

- > D: Female Luer+Needle-free valve



Film materials, connectors, and tubing are sourced from Chinese suppliers by default. For more options (e.g., RENOLIT® 9101 film and C-Flex 374 TPE tubing) or custom requirements, please contact our sales team

3D Storage Bag Container

Foldable PP Square Support Tank



3D Single-use Bags - 3 lines

Volume	Tubing Material	Inlet / Outlet Line	Needle-free Sampling Line	Cat. No.	MOQ
100 L	Silicone Tubing	Inlet: 100 cm 3/8"*5/8" + MPC Body + Sealing Plug Outlet: 100 cm 3/8"*5/8" + MPC Insert+Sealing Cap	15 cm 1/4"*3/8" + Luer Female + Sampling Valve	B3100L21M1	2
		Inlet: 100 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50) Outlet: 100 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50)		B3100L21T1	
	TPE Tubing	Inlet: 100 cm 3/8"*5/8" + Tubing Plug Outlet: 100 cm 3/8"*5/8" + Tubing Plug		B3100L26P1	
200 L	Silicone Tubing	Inlet: 100 cm 3/8"*5/8" + MPC Body + Sealing Plug Outlet: 100 cm 3/8"*5/8" + MPC Insert+Sealing Cap	15 cm 1/4"*3/8" + Luer Female + Sampling Valve	B3200L21M1	2
		Inlet: 100 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50) Outlet: 100 cm 3/8"*5/8"+1-1/2" Tri-clamp Fitting (TC50)		B3200L21T1	
	TPE Tubing	Inlet: 100 cm 3/8"*5/8" + Tubing Plug Outlet: 100 cm 3/8"*5/8" + Tubing Plug		B3200L26P1	
500 L	Silicone Tubing	Inlet: 150 cm 1/2"*3/4" + MPC Body + Sealing Plug Outlet: 150 cm 1/2"*3/4" + MPC Insert+Sealing Cap	30 cm 1/4"*3/8" + Luer Female + Sampling Valve	B3500L21M1	1
		Inlet: 150 cm 1/2"*3/4"+1-1/2" Tri-clamp Fitting (TC50) Outlet: 150 cm 1/2"*3/4"+1-1/2" Tri-clamp Fitting (TC50)		B3500L21T1	
	TPE Tubing	Inlet: 150 cm 1/2"*3/4" + Tubing Plug Outlet: 150 cm 1/2"*3/4" + Tubing Plug		B3500L26P1	
1000 L	Silicone Tubing	Inlet: 150 cm 1/2"*3/4" + MPC Body + Sealing Plug Outlet: 150 cm 1/2"*3/4" + MPC Insert+Sealing Cap	30 cm 1/4"*3/8" + Luer Female + Sampling Valve	B3001T21M1	1
		Inlet: 150 cm 1/2"*3/4"+1-1/2" Tri-clamp Fitting (TC50) Outlet: 150 cm 1/2"*3/4"+1-1/2" Tri-clamp Fitting (TC50)		B3001T21T1	
	TPE Tubing	Inlet: 150 cm 1/2"*3/4" + Tubing Plug Outlet: 150 cm 1/2"*3/4" + Tubing Plug		B3001T26P1	

For customized requirements such as bag volume, tubing size and connector configuration, please contact the Lab1st sales team.

Customized Service

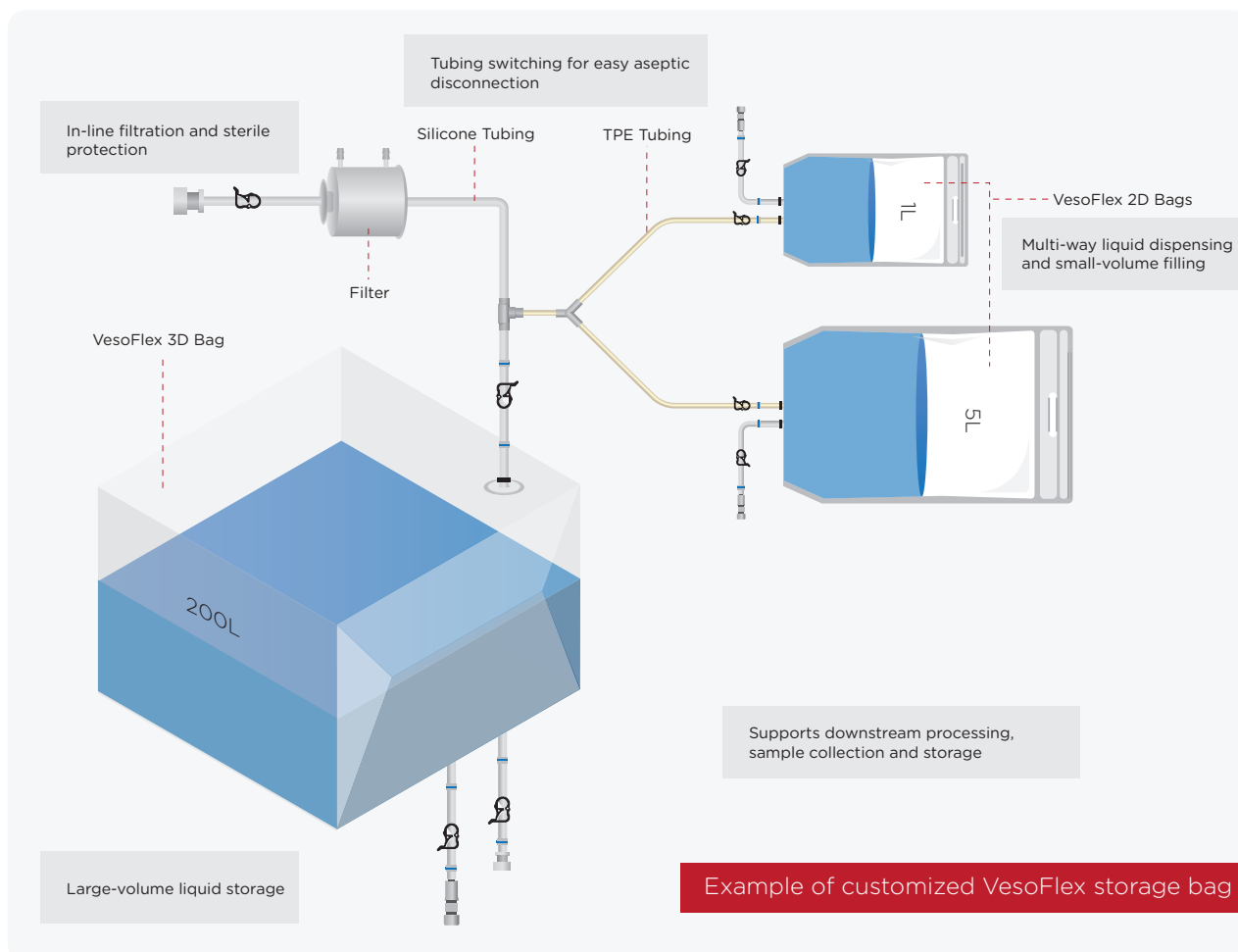
LAB1ST's comprehensive standard designs provide off-the-shelf solutions for many customers. Nevertheless, we recognize that with continuous advancements in bioprocess technologies, the inherent flexibility of single-use systems has driven rising demand for highly customized storage bag solutions.

Catering to your unique biomanufacturing requirements, LAB1ST delivers full-spectrum customization services supported by our extensive portfolio of single-use fluid handling components, robust supply chain, open system architecture, professional technical support team and rigorous quality management system.

Nearly all elements of our bag assemblies, from structural configuration to fitting and component selection, can be tailored to your stringent specifications.



This ensures every customized solution perfectly adapts to your operational scenarios and empowers your business to gain a competitive edge.



**- Full customization scope**

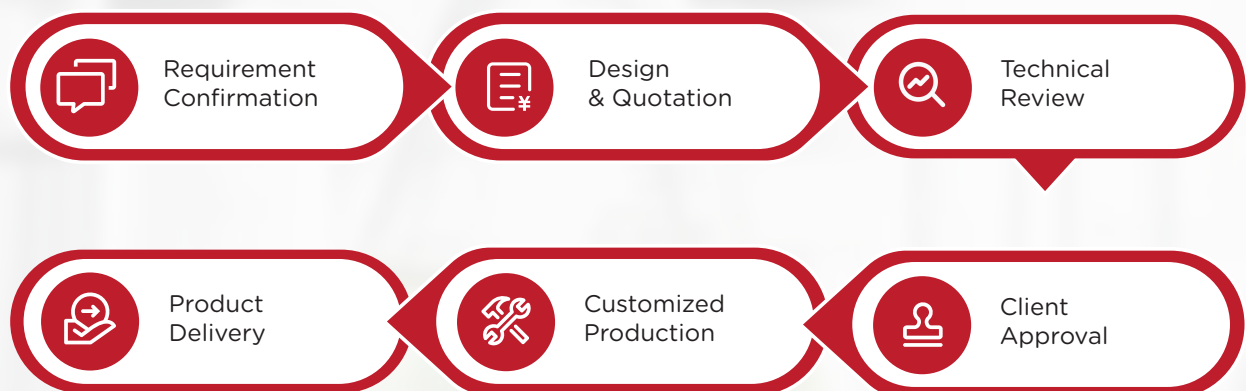
Bag configuration, film material, volume specification, tubing size, port quantity, port layout, fitting type, manifold, brand specification and other parameters can all be fully tailor-made.

- Full-cycle Service

End-to-end technical support is provided from requirement consultation and solution design to after-sales optimization, adapting to customers' iterative bioprocess upgrades.

- Efficient Implementation

Featuring rapid response and controllable lead time, our solutions seamlessly integrate with existing processes and shorten overall project commissioning cycles.





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