



Growth
戈洛思



LABORATORY BIOREACTOR

PRODUCT BROCHURE

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Key Features of Our Glass Bioreactor

We specialize in full-process design and manufacturing of bioreactors, from lab-scale R&D to large-scale production. Our R&D-made bioreactors integrate cutting-edge technologies, ideal for culturing mammalian cells, stem cells, plant cells and microorganisms.

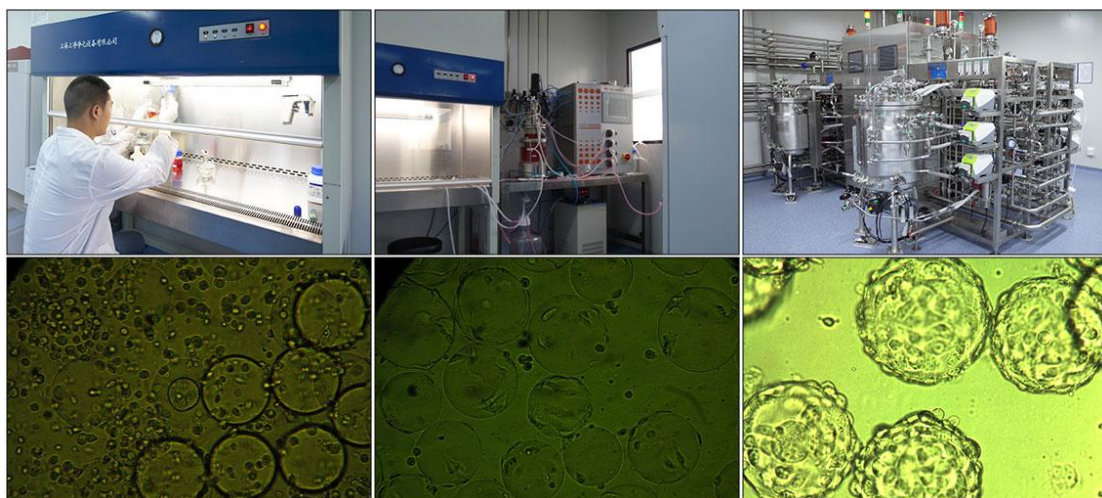
The equipment enables precise control of key parameters including temperature, pH, dissolved oxygen (DO), surface/submerged aeration and agitation speed. It supports auto/manual addition of glucose solution, alkaline solution, feeding materials and antifoaming agents as per process requirements, with online monitoring & control of core parameters and a safe, user-friendly sampling device. The monitoring system records real-time operational data, dynamically adjusts process parameters, and is compatible with external data analysis.

We offer pilot and production-scale bioreactors (tanks, process skids, control cabinets) plus associated upstream & downstream equipment, with all components available for separate purchase.

Our bioreactors target the biopharmaceutical sector, enabling viral propagation and metabolite collection via cell/microbial culture to support production of recombinant proteins, antibody drugs, human/veterinary vaccines, gene & cell therapies and cultured meat. They also apply to non-biopharmaceutical fields like industrial enzymes, bio-agriculture, lactic acid and probiotics.

Equipped with SCADA software and fully compliant with GMP standards, each device comes with complete validation documentation (DQ, IQ, OQ, PQ, FAT, SAT) to ensure superior performance.

Choose Shanghai Ritian for innovative bioreactor technologies—where quality and performance always meet the highest industry standards.



Category	Item	CELLIPOWER01	CELLIPOWER02	CELLIPOWER03	MICROIPOWER07	
Tank	Total Volume	1L	3L	5L	10L	15L
	Working Volume	0.8L	2L	3.5L	7.5L	10.5L
	Aspect Ratio	1:2	1:1.6			
	Overall dimensions	H540xW390xD485mm	ø210xH690mm	ø240xH758mm	ø290xH820mm	ø330xH910 mm
	Sterilization dimensions	ø106xH270mm	ø200xH520mm	ø220xH570mm	ø260xH630mm	ø300xH720 mm
	Material	Borosilicate Glass				
Category	Item	CELLIPOWER01	CELLIPOWER02	CELLIPOWER03	MICROIPOWER07	
Type	Growth	Suspension Cell	Adherent Cell Microcarrier	Adherent Cell Fiber Disk	Microbial Fermentation	
	Ventilation	Micropore-Dispersed Bubbles Burst On Re-Entry	Micropore-Dispersed Bubbles Burst On Re-Entry	Rotary-Dispersed Bubbles Burst On Re-Entry, No Direct Cell Contact.	Bubbles Dispersed By High-Speed Rotating Impellers Burst On Re-Entry	
	Cell Distribution	Fully Suspended: No Attachment, Uniform Distribution.	Microcarriers Suspended, Carrier-Dep Distribution	Cells Mostly Stationary: Higher Density	Fully Suspended: No Attachment, Uniform Distribution.	
Agitation	Method	Top Agitation, Mechanically Driven, AC Stepper Motor, PID Control				
	Display	Digital Display, ±1rpm				
	Speed Range	20~200rpm				50~1000rpm
	Impeller Types	Propeller	Paddle	Paddle	Flat blade turbine	
Sensors	pH	pH Range: 0~14, PID Control, Accuracy: ±0.01, Connected to Alkali and CO2				
	DO	DO Range: 0~200%, PID Control, Accuracy: ±1%, Linked with O2, N2, and Air				
	Liquid Level	Stainless Steel Probes, PID Control, Using 1~2 Probes				
	Temperature	Compact Temperature Transmitter, Digital Display Accuracy: ±0.1°C;				
Gas Control	Flow Measurement	Thermal mass flow controller, flow rate 0.1~5 SLPM				
	Gas Control System	N2, O2, CO2, Air				O2, Air
	Filter	Inlet: 37mm, 0.2µm, PTFE. Outlet: 50mm, 0.2µm, PTFE				
	Exhaust Condenser	316L Stainless Steel				
Liquid Feeding	4 Peristaltic Pumps	Flow Accumulation; Speed: 30rpm; Adjustable Work Time: 0~100%				
Temperature Control	Method	PID Regulation, Cooling Water / Electric Heating Blanket, Control Accuracy: ±0.2°C;				
	Control Range	5°C To 65°C (above cooling water temp)				
Control System	1L	All-In-One PC+ Siemens Small Programmable Logic Controller				
	3L,5L,10L,15L	Industrial-Grade Tablet Touch Computer + Siemens PLC.				
Data Recording	Computer (PC) Configuration SCADA Software					

CELLIPOWER01 SERIES

The CELLIPOWER01 series, developed and produced by our team, is available in three specifications: 1L - 15L, with custom specifications also available. making it ideal for cell suspension culture. This system boasts the following features:

- **Propeller Impeller:** Offers low shear force, short circulation time, and excellent mixing results.
- **Direct Deep Aeration:** Bubbles are dispersed through micropores and burst upon re-entry, ensuring high oxygen concentration in the medium without directly damaging the cells, thus preventing cell damage.
- **Variable Speed Settings During Cultivation:** Enhance nutrient exchange and eliminate dead spots caused by liquid bypassing.
- **Separable Bioreactor and Temperature Jacket:** Reduce sterilization time and extend the lifespan of pH and DO electrodes.
- **Gas Flow Controlled by Thermal Mass Flow Controllers:** Provides automatic closed-loop control of gas mass flow.
- **Equipped with Four Peristaltic Pumps:** Offers flexible and convenient use through dispensing functions.
- **AC Servo Motor:** Ensures high torque, stable, and reliable operation.
- **SIEMENS Programmable Logic Controller:** Features built-in rich integrated functions, strong real-time performance, robust communication capabilities, and a wide range of expansion modules.
- **15-inch Industrial Touchscreen Computer:** Operates on an innovative NetSCADA system, providing a user-friendly interface.
- **Graphic Display of the Control System:** Simple and easy to operate, all parameters and subsystems are clearly visible.
- **Optimized Parameter PID Control:** Allows users to adjust PID control parameters themselves, ensuring reproducibility and precise control of experiments.



CELLIPOWER01

CELLIPOWER02 SERIES

The CELLIPOWER02 series, developed and produced by our team, is available in three specifications: 1L - 15L, with custom specifications also available. making it an ideal choice for the microcarrier-based adherent culture of biological cells. This system boasts the following features:

- **Paddle Impeller:** Provides low shear force, short circulation time, and excellent mixing performance.



CELLIPOWER02

- **Direct Deep Aeration:** Bubbles are dispersed by rotation and burst upon re-entry, ensuring high oxygen concentration in the medium without directly damaging the cells, thus preventing cell damage.
- **Variable Speed Settings During Cultivation:** Enhances nutrient exchange and eliminates dead spots caused by liquid bypassing.
- **Separable Bioreactor and Temperature Jacket:** Reduces sterilization time and extends the lifespan of pH and DO electrodes.
- **Gas Flow Control by Thermal Mass Flow Controllers:** Offers automatic closed-loop control of gas mass flow.
- **Equipped with Four Peristaltic Pumps:** Provides flexible and convenient use through dispensing functions.
- **AC Servo Motor:** Ensures high torque, stable, and reliable operation.
- **SIEMENS Programmable Logic Controller:** Features rich built-in functions, strong real-time capabilities, robust communication abilities, and a wide range of expansion modules.
- **15-inch Industrial Touchscreen Computer:** Operates on the innovative NetSCADA system, providing a user-friendly interface.
- **Graphical Display of the Control System:** Easy to operate, with all parameters and subsystems clearly visible.
- **Optimized PID Control Parameters:** Allows users to adjust PID control parameters themselves, ensuring reproducibility and precise control of experiments.



CELLIPOWER03 SERIES

The CELLIPOWER03 series, making them an ideal choice for the fixed adherent culture of cells. This system boasts the following features:

- **Paddle Agitator:** Provides low shear force, short circulation time, and excellent mixing performance.
- **Direct Deep Aeration:** Bubbles are dispersed by rotation and burst upon re-entry, ensuring high oxygen concentration in the medium without coming into direct contact with the cells, thus preventing cell damage.
- **Variable Speed Settings During Cultivation:** Enhances nutrient exchange and eliminates dead zones caused by liquid bypassing.
- **Cells Remain Essentially Stationary:** Helps to increase cell density and easily optimize culture conditions.
- **Separable Bioreactor and Temperature Jacket:** Reduces sterilization time and extends the lifespan of pH and DO electrodes.
- **Gas Flow Control by Thermal Mass Flow Controllers:** Offers automatic closed-loop control of gas mass flow.
- **Equipped with Four Peristaltic Pumps:** Provides flexible and convenient use through dispensing functions.



CELLIPOWER03



- **AC Servo Motor:** Ensures high torque, stable, and reliable operation.
- **SIEMENS Programmable Logic Controller:** Features rich built-in functions, strong real-time capabilities, robust communication abilities, and a wide range of expansion modules.
- **15-inch Industrial Touchscreen Computer:** Operates on the innovative NetSCADA system, providing a user-friendly interface.
- **Graphical Display of the Control System:** Easy to operate, with all parameters and subsystems clearly visible.
- **Optimized PID Control Parameters:** Allows users to adjust PID control parameters themselves, ensuring reproducibility and precise control of experiments.

MICROIPOWER07 SERIES

The MICROIPOWER07 series, developed and produced by our team, is available in three specifications: 1L - 15L, with custom specifications also available. making them an ideal choice for the fermentation and cultivation of microorganisms and bacteria. This system boasts the following features:

- **Turbine Agitator:** Provides dispersion, short circulation time, and excellent mixing performance.
- **Direct Deep Aeration:** Bubbles are dispersed by high-speed rotating blades and burst upon re-entry, ensuring oxygen concentration in the medium without coming into direct contact with microorganisms, thus preventing microbial damage.
- **Variable Speed Settings During Cultivation:** Enhances nutrient exchange and eliminates dead zones caused by liquid bypassing.
- **Separable Bioreactor and Temperature Jacket:** Reduces sterilization time and extends the lifespan of pH and DO electrodes.
- **Gas Flow Control by Thermal Mass Flow Controllers:** Offers automatic closed-loop control of gas mass flow.
- **Equipped with Four Peristaltic Pumps:** Provides flexible and convenient use through dispensing functions.
- **AC Servo Motor:** Ensures high torque, stable, and reliable operation.
- **SIEMENS Programmable Logic Controller:** Features rich built-in functions, strong real-time capabilities, robust communication abilities, and a wide range of expansion modules.
- **10-inch Industrial Touchscreen:** Operates on the intelligent McgsWeb system, providing a user-friendly interface.
- **Graphical Display of the Control System:** Easy to operate, with all parameters and subsystems clearly visible.
- **Optimized PID Control Parameters:** Allows users to adjust PID control parameters themselves, ensuring reproducibility and precise control of experiments.



1L Example Image

Multi-Unit Bioreactors

All above glass bioreactor models are customizable into one-to-multiple parallel systems: 2-parallel, 3-parallel, 4-parallel, 6-parallel, 8-parallel, and more.




4-parallel bioreactor Illustration





6-parallel Illustration



Shanghai Ritai Medicine Equipment Project Co., Ltd.

 Phone: +86 13918690987
E-mail: admin@ritaichina.com

 ADD: No.39 Xinjin Road,
Shanghai, China

 www.ritaichina.com
www.bio-reactor.com
www.ritaibioreactor.com



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