济辰生物
JICHEN BIOTECH

Biopharmaceutical

AUTOMATIC GLASS BIOREACTOR

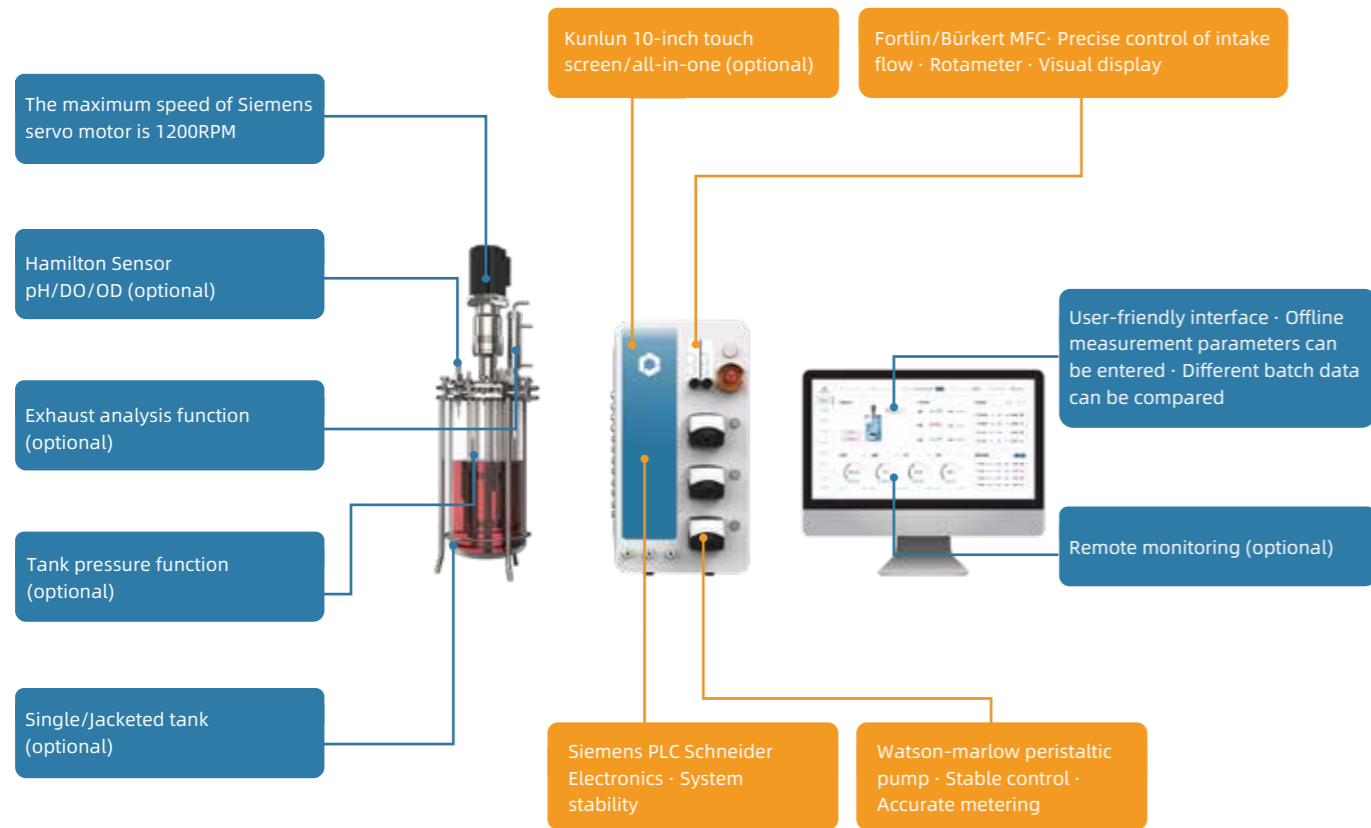Science to Success: Your Premier Bioreactor Partner

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Fully automatic glass bioreactor/fermenter BR series

《《 Fully automatic glass organism 》》

The BR series bioreactor is a flexible, full-featured, and easy-to-operate bioreactor that can be used for batch, fed-batch, and continuous/perfusion culture process. It adopts upper magnetic stirring with servo motor, and the stirrer can be sterilized as a whole with the glass tank to avoid bacterial contamination. This allows it to be suitable for a variety of cell cultures and the software is localized with a user-friendly operation interface. It is widely used in R&D center of monoclonal antibodies/vaccine companies, laboratories of universities/research centers, etc.

•01
PRODUCT OVERVIEW

Kunlun 10-inch touch screen/all-in-one (optional)

Fortlin/Bürkert MFC· Precise control of intake flow · Rotameter · Visual display

The maximum speed of Siemens servo motor is 1200RPM

Hamilton Sensor pH/DO/OD (optional)

Exhaust analysis function (optional)

Tank pressure function (optional)

Single/Jacketed tank (optional)

User-friendly interface · Offline measurement parameters can be entered · Different batch data can be compared

Remote monitoring (optional)

Siemens PLC Schneider Electronics · System stability

Watson-marlow peristaltic pump · Stable control · Accurate metering

•02
PRODUCT FEATURES

Flexible combination

A standard main console can be connected to multiple tanks with different functions to achieve a variety of culture processes. Standard function tanks are available in 2L/5L/10L specifications and can be customized

Fully functional

Equipped with accurate detection and control of varions parameters, with a variety of control strategies such as association control/cascade control/sequence control

Easy to operate

Modular design, ergonomic requirements; Human-machine interface introduces operation process design, easy to use, clear vision

Multiplex bioreactor/ fermenter-FR P series

《《 concatenate 》》

The FR-P series is a solution that uses a single automatic control system to control multiple reactor systems. The multi-in-one combination design not only saves the space required by the equipment, but also provides flexible experimental design and ensures the parallelism of multiple tanks, providing you with the ideal tool for process development and small-scale sample production.

In the process of use, multiple sets of tanks can be used at the same time or can be separated as independent cultivation equipment. It supports the same volume tank culture, and can also be freely combined with different volume tanks for the simultaneous cultivation of different biological products in multiple devices with completely different sizes and functions.
Expansion function: can increase the seed transfer strategy, with a small volume tank as a seed tank and a large volume tank as a production tank.
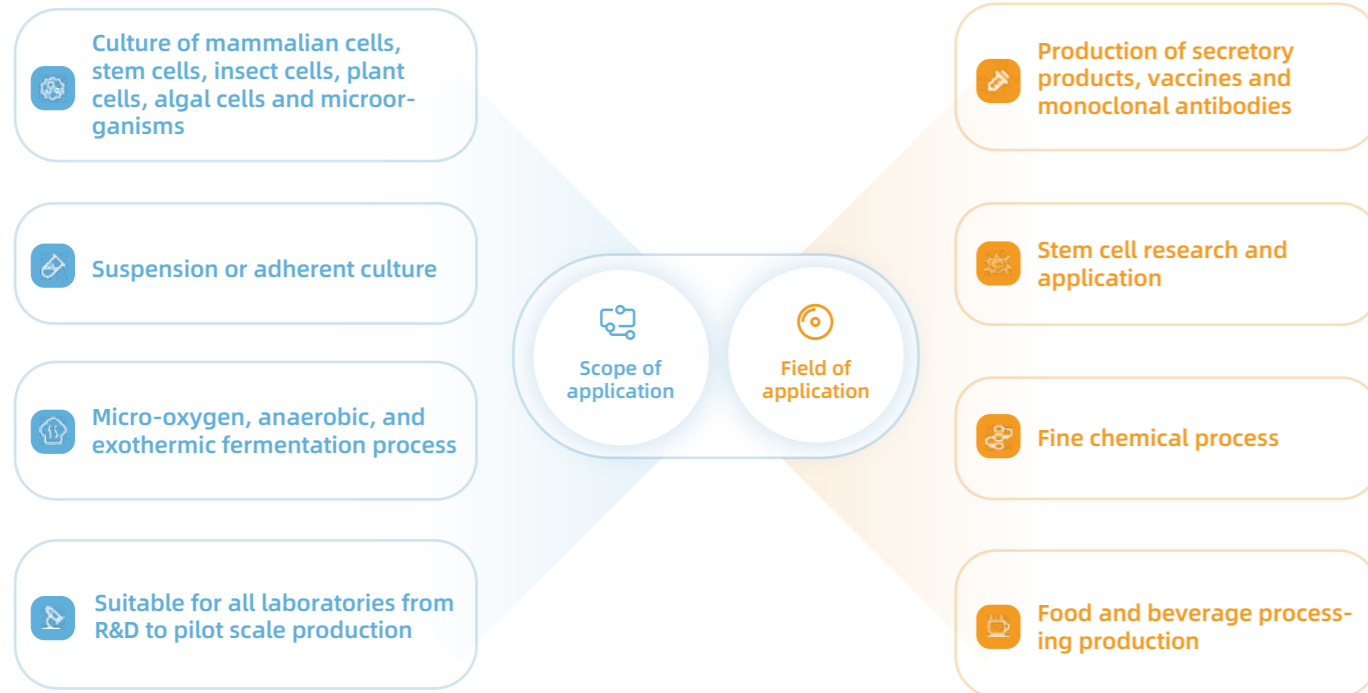
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PRODUCT FEATURES

Main technical parameters

•Model: FR-P series (multiple bioreactor/fermenter)
•Tank volume: 500ml, 1L, 2L, 3L, 5L, 7L, 10L, 15L, 20L optional, configurable multiple groups, can be freely combined
•Heating method: Heating blanket/jacket water circulation temperature control method
•Control system: Siemens 1200/1500 control system

Graphical interface parallel control system

• Comfortable human-machine interface experience, simple and convenient operation, and support for external expansion
• Data visualization and process changes at a glance
• Fine design, bright color partition, and perfect functional details

Bioreactor application « Apply »

- Culture of mammalian cells, stem cells, insect cells, plant cells, algal cells and microorganisms
- Suspension or adherent culture
- Micro-oxygen, anaerobic, and exothermic fermentation process
- Suitable for all laboratories from R&D to pilot scale production

Scope of application **Field of application**

- Production of secretory products, vaccines and monoclonal antibodies
- Stem cell research and application
- Fine chemical process
- Food and beverage processing production

Human-machine interface « Interface »

Simple operation interface

· All required functional units are available on the main interface
· All control strategies are simple and convenient to start with one click
· Production data at a glance
· Remote operation and data monitoring

User interface

Meet GMP requirements

Three-level authority management, electronic signature, audit trail, batch records, operation records and other functions meet the requirements of GMP for the traceability of drug production management data

GMP Validation

Complete data record

Trend charts and reports include real-time and historical data on key parameters such as agitation, temperature, pH, DO, ventilation flow, and peristaltic pumps

Data logging

Cell culture « Table 1 »

Model number		500ml	3L	5L	7L	10L	15L
Tank body	Total volume (ml)	538	3100	4800	6800	10000	16500
	Working volume (ml)	100-400	1000-2700	1500-3400	1500-5000	3000-7000	4500-10000
Gas distributor	aperture	0.5mm	0.8mm				
	Microbubble aperture	Not Have	5μm/20μm Optional				
Agitator paddle	Blade type	Elephant ear					
	Blade diameter (mm)	35	45	60	68	75	88
stir	Speed range	10-400					
Temperature control	Temperature control range (℃)	5-70			5-65		
	Control accuracy (℃)	±0.2					
pH	Control range	0-14					
	Control accuracy	±0.02					
Do	Radius	0-200					
	Control accuracy (%)	±3%	±2%	±2%	±2%	±2%	±1%
MFCS	Air (about 500 sccm)	0-0.1L	0-0.5L	0-1L	0-1L	0-3L	0-3L
	Air (about 100 sccm)	Not Have					
	Oxygen (about 500 sccm)	0-0.1L	0-0.5L	0-1L	0-1L	0-3L	0-3L
	Oxygen (about 100 sccm) microbubbles are optional	0-0.1L	0-0.1L	0-0.25L	0-0.5L	0-0.75	0-1L
	Carbon dioxide (about 100 sccm)	0-0.1L	0-0.1L	0-0.25L	0-0.5L	0-0.75	0-1L
Peristaltic pump	Variable pump speed range (rpm)	0-300rpm					
	Velocity range of variable speed pump (ml/min)	16# tube 0.5-190ml/min					0.2-190ml/min
	Constant speed pump speed range (rpm)	18/20/60 commonly used 1-300rpm optional					
	Constant speed pump flow rate range (ml/min)	Often choose 14#, 16#, 25# tube flow is different, 0.2-230ml/min					
Exhaust	Condensing tube or not	Have					
	Condensing mode	Semiconductor	Water cooled/semiconductor optional				
Reservation function	Number of reserved signal ports	Assorting					
	Weighing module	0/2/4 Optional					
	Whether it comes with DOE software	Assorting					
Parallel control	Maximum number of fermenterscan be controlled	16					

Microorganism and algae culture « Table 2 »

Model number		500ml	3L	5L	7L	10L	15L
Tank body	Total volume (ml)	500	3170	5600	7460	10000	16500
	Working volume (ml)	100-400	1000-2100	1500-3500	1500-5000	3000-7000	4500-10000
Gas distributor	aperture	0.5mm	0.8mm/1mm	0.8mm/1mm	0.8mm/1mm	0.8mm/1mm	0.8mm/1mm
Agitator paddle	Blade type	1* six straight leaf 1* defoaming	2* six straight blades +1* six oblique blades +1* defoaming paddle				
	Blade diameter (mm)	35	56	68	77	86	99
stir	Speed range	50-1200					
Temperature control	Temperature control range (℃)	5-70	5-70	5-70	5-65	5-65	5-65
	Control accuracy (℃)	±0.2					
pH	Control range	0-14					
	Control accuracy	±0.02					
Do	Radius	0-200					
	Accuracy (%)	±1%					
MFCS	air	Have					
	Breath	Optional					
Peristaltic pump	Variable pump speed range (rpm)	0-300rpm					
	Velocity range of variable speed pump (ml/min)	16# tube 0.5-190ml/min					0.2-190ml/min
	Constant speed pump speed range (rpm)	18/20/60 commonly used 1-300rpm optional					
	Constant speed pump flow rate range (ml/min)	Often choose 14#, 16#, 25# tube flow is different, 0.2-230ml/min					
Exhaust	Condensing tube or not	Have					
	Condensing mode	Semiconductor	Water cooled/semiconductor optional				
Reservation function	Number of reserved signal ports	0/2/4 Optional					
	Exhaust gas analyzer module	Assorting					
	Weighing module	Assorting					
	Whether it comes with DOE software	Assorting					
Parallel control	Maximum number of fermenters can be controlled	16					

Online glucose/lactic acid sensor « sensor »

The C-CIT Online Glucose/lactic Acid sensor family is a sensor system based on the principle of enzyme electrochemistry for continuous online monitoring of glucose and lactic acid during cell lines, media and process development projects.

The sensor system can display the relevant growth behavior and metabolic state of the cell culture over a certain time range (21 days). Data is generated at a frequency of 20 seconds/time, and your cell culture status is observed throughout the day. It is also possible to connect directly to the OPC server for process feedback control through on-line monitoring of glucose consumption and lactic acid production.

Feedback control system
• Tablet with Receiver (PC)
• Transmitter (Beamer)
• Sensor
• peristaltic pump

Sensor
• Flow cell sensor
(Effectively prevents cells from depositing around the sensor)
• Flow cell sensor with circulating Pump (Micro Pump)
(Recommended)

• 01
PRODUCT FEATURES

CITSens Bio
· Continuous online monitoring of glucose or lactic acid
· Optimized analysis of a single parameter (a parameter sensor)
· RFID communication connectivity

CITSens MeMo
· Continuous online monitoring of glucose and/or lactic acid
· Simultaneous detection and analysis of two parameters (one sensor + one electronic component)
· Bluetooth communication connection

CITSens Bio/MeMo APC
· Continuous online monitoring of glucose and/or lactic acid
· The pump is directly connected to the glucose-based feed system for process control
· No manual sampling and feeding is required during the entire control process
· Connection to third-party systems: 1. EVE® process control software 2. Connection to ODBC and OPC servers for database exchange

• 02
Sensor detection range

	Glucose	Lactate	
High Glucose	0.5 – 5.0 g/L	———	±0.1 g/L
Low Glucose	0.3 – 2.5 g/L	———	±0.1 g/L
Lactate	———	0 – 1.35 g/L	———
Combined (Glu/Lac)	0.5 – 5.0 g/L	0 – 1.35 g/L	±0.1 g/L