



Phone: +86 21-60717498(Shanghai) / +86 311-83118162(Shijiazhuang)

Website: [www.jichen-biotech.com](http://www.jichen-biotech.com)

Email: [info@jichen-biotech.com](mailto:info@jichen-biotech.com)

Add.: 4F, Building 6, 160 Basheng Road, Pudong New Area, Shanghai China

## Biopharmaceutical

# STAINLESS STEEL BIOREACTOR

Science to Success: Your Premier Bioreactor Partner

# Stainless steel fermenter and bioreactors

Product Introduction



The stainless steel fermentors and bioreactors produced by Jichen Biotechnology cover the pilot stage to the production stage. And It can be highly customized according to customer process requirements. They are suitable for microbial and mammalian cell culture and use industrial standard components from international first-class brands, making them easy to integrate with any process system.

## PRODUCT OVERVIEW

[1] Customization

[3] Tank with jacket temperature control, mixing, ventilation, and exhaust

[5] Feeding, Alkali addition, inoculation, discharge, sampling system, etc



[2] with CIP / SIP piping and valves The system can perform automatic CIP, SIP other functions with a single button. SIP can be used in two ways to achieve the elimination of air and real elimination

[4] Can realize tank pressure, temperature, pH, dissolved oxygen, stirring speed, ventilation flow rate online detection, and real-time recording. It also offers automatic control and an automatic feeding function

[6] The overall equipment is designed and manufactured in accordance with the requirements of relevant regulations and guidelines



### CFD simulation Determine process requirements

1. Shear - turbulent kinetic energy, shear force simulation, cycle time
2. Mixing - mixing time simulation
3. Precipitation - gas-solid two-phase flow, minimum suspension speed
4. Mass transfer - gas-liquid two-phase flow, mass transfer coefficient

## PRODUCT FEATURES

### Control system

- PLC control system with HMI SCADA
- Meets GAMP 5 guidelines

### Precision Ventilation

- Surface ventilation
- Deep ventilation
- Equipped with Gas Mass Flow meter (MFC)
- Pressure reducing valve
- Purging after SIP is possible

### Sampling and harvesting

#### Aseptic sampling

- Special double port sampling valve
- The sampling device can be used multiple times
- The sampling valve can be steam cleaned and sterilized

### Multiple reeding options

#### Four-valve manifold

- 2 pneumatic diaphragm valves for transmission, steam, CIP/SIP drainage
- 1 manual diaphragm valve and 1 pneumatic diaphragm valve for isolation
- Steam traps are used for the removal of condensed water
- Temperature sensors for sterilization control/monitoring of SIP processes

### Magnetic stirring

#### Magnetic stirring module

- No need for double mechanical seals
- No mechanical seal condensing system required
- Stable seal, easy to clean
- Speed range: TBD**
- Detection accuracy  $\pm 1$ rpm
- Control accuracy 5%

### CIP/SIP and temperature control

#### Other items optional

- Double mechanical seal condensing mounting
- Mechanical defoaming

## PRODUCT PARAMETER

	Pilot scale stainless steel bioreactor/fermenter	Production-scale stainless steel tank bioreactor
Microbial fermenter volume and agitation type	30L-200L Top/bottom magnetic coupling mixing/mechanical mixing	200L-30000L mechanical mixing
Cell Culture Bioreactor Volume Stirring Type	30L-200L Top/bottom magnetic coupling mixing/mechanical mixing	200L-5000L magnetic coupling mixing/mechanical mixing
Specificities	<ul style="list-style-type: none"> <li>• Optional lid lifter</li> <li>• Standard with PLC controller</li> </ul> <p>316L stainless steel tank with sight mirror, stainless steel top, upper side, lower side and bottom of the tank are equipped with corresponding ports for ventilation, feeding, sensor interface, sampling and harvesting/draining, etc. Tank with pressure gauge and pressure safety device (burst disc)</p> <p>Tank surface mirror polishing Ra&lt;0.8μm; tank and pipe surface electrolytic polishing Ra&lt;0.4μm</p> <p>Optional automatic/manual in-place cleaning (CIP)</p> <p>pH, DO, temperature, cell density (optional), mixing, foam and other control loop modular design and system flexibility, convenient for users to add functional modules according to the requirements of the process</p>	<ul style="list-style-type: none"> <li>• DCS control system</li> <li>• PLC controller</li> <li>• Configuration platform</li> </ul>
Appliance	Scale-up study/Small-scale production/Medium optimization/Cell culture and microbial fermentation/Process optimization/Batch, fed-batch, perfusion and continuous culture	
Field of application	Human/veterinary vaccines, monoclonal antibodies, genetically engineered drugs, and synthetic biology R&D, pilot testing, and manufacturing.	