BIOSPECTRIX

ADVANCED LABORATORY SOLUTIONS

GLASS BIOREACTOR



GLASS BIOREACTOR

- Borosilicate Glass Vessel
  High transparency & corrosion resistance
- Precise Control System
  Temperature, pH, DO, Agitation, Feeding
- Modular Design
  Compact structure, easy to operate
- Wide Application
  Research, development & small scale production



DUAL-GLASS BIOREACTOR

- Dual Vessels, Independent Control
  High efficiency & flexibility
- Consistent & Reliable Performance
  Precise monitoring & control
- Space-Saving Design
  Compact footprint, easy integration
- Ideal for Parallel Experiments
  Improve productivity & efficiency



MULTIPLE-GLASS BIOREACTOR

- Multi-Unit Parallel Operation
  Higher throughput, greater efficiency
- Individual Control & Monitoring
  Each unit runs independently
- Scalable Solution
  Suitable for various research needs
- Smart & Efficient
  Advanced control system, accurate data

HIGH QUALITY
Reliable & Durable

PRECISE CONTROL
Advanced Technology

EASY OPERATION
User-Friendly Interface

WIDE APPLICATION
Research to Production

Biospectrix Bioreactor Tank

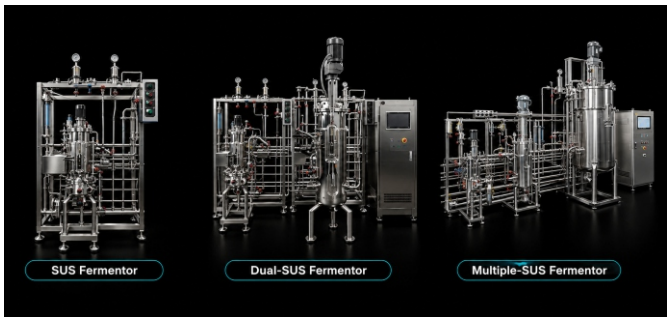


WORKING PRINCIPLE OF THE BIOREACTOR TANK

The core principle of the fermentation tank is to provide a suitable growth environment for microorganisms, enabling them to carry out specific metabolic activities and produce the substances we need. Its main principles are based on the following aspects:

- **Aseptic Environment Maintenance:** The Bioreactor tank is designed with a sealed structure and sterilized by steam or other methods before Bioreactor to thoroughly eliminate microorganisms in the tank, pipelines, and internal components, ensuring a pure Bioreactor environment. Temperature Control: The tank is equipped with a temperature control system, which adjusts the temperature by circulating heat media (such as hot water) or cold media (such as chilled water) through a jacket or coil to maintain the temperature within the optimal range for microbial growth.
- **Aeration and Agitation:** Sterile air is introduced into the tank, and an agitator disperses it into fine bubbles to increase the gas-liquid contact area, thereby satisfying the microorganisms' oxygen demand.
- **pH Value Adjustment:** The fermentation tank is equipped with a pH detection and control system. When the pH value deviates from the set range, acid or alkaline solution can be automatically added for adjustment.

PRINCIPLE OF THE BIOREACTOR TANK



The principle of the Bioreactor tank is to provide a suitable growth environment for microorganisms so that they can carry out specific metabolic activities and produce the substances we need. Its main principles are based on the following aspects:

- **Maintaining a Sterile Environment:** The Bioreactor tank adopts a sealed design, and the tank body, pipes and internal accessories are thoroughly sterilized by steam sterilization and other methods before fermentation to ensure the purity of the fermentation environment.
- **Temperature Control:** The Bioreactor tank is equipped with a temperature control system. Through structures such as jackets or coils, the temperature in the tank is adjusted by circulating heat media (such as hot water) or cold media (such as cold water) to keep it in the optimal temperature range for microbial growth.
- **Ventilation and Stirring:** By introducing sterile air into the Bioreactor tank and using a stirring device to disperse the air into tiny bubbles, the gas-liquid contact area is increased, thereby meeting the oxygen needs of microorganisms.
- **pH Value Adjustment:** The Bioreactor tank is usually equipped with a pH detection and control system. When the pH value deviates from the set range, acid or alkaline solution can be automatically added for adjustment.

TECHNICAL PARAMETERS

Model	Volume	Load Rate	Vessel Material	Gas Control	Sterilization	Basic Control	Sensors	Stirring Mode	Controlling System	Heating Source
Glass Fermentor	5/10 L	30%–70%	Borosilicate glass	Standard: Rotor flowmeter (manual) Optional: Mass flowmeter (automatic)	Off-site	Temperature, rotating speed, pH, DO, antifoam, feeding	pH electrode, DO electrode, Temperature electrode, Foaming electrode	Standard: Mechanical stirring Optional: Magnetic stirring	1. 10-inch LCD touch-sensitive screen 2. Software: Siemens S7+ FORCE CONTROL 3. Data collection and control module: Siemens S200 PLC controller	Electric heating blanket
SUS Fermentor	1–500 L	30%–70%	SUS 316	Standard: Rotor flowmeter (manual) Optional: Mass flowmeter (automatic)	In-site	Temperature, rotating speed, pH, DO, antifoam, feeding	pH electrode, DO electrode, Temperature electrode, Foaming electrode	Standard: Mechanical stirring Optional: Magnetic stirring	1. 10-inch LCD touch-sensitive screen 2. Software: Siemens S7+ FORCE CONTROL 3. Data collection and control module: Siemens S200 PLC controller	Steam