

## stainless steel fermenter for microorganisms culture

Stainless steel fermenter has high-precision control and multi-parameter automated monitoring, the main function is to provide a suitable environment for microbial or cell growth and metabolism, to help achieve efficient fermentation process.

### Stainless Steel Fermenter (10L–5000L, Customizable)

The stainless steel fermenter offers precise control, automation, and customizable volumes for laboratory, pilot, or large-scale industrial fermentation. Its advanced mixing, temperature, pH, aeration, foam control, and remote monitoring systems make it a core equipment for modern bioprocessing.

#### Main Features

1. **Wide Volume Options & Customization:** 10L–5000L, custom sizes for lab, pilot, or industrial use.
2. **High-Efficiency Mixing:** Automatic lifting, 316L shaft, 2×6 flat-blade and 1×4 slanted-blade paddles, adjustable defoaming paddle, stable high-speed mixing.
3. **Precise Temperature Control:** Electric heating & circulating water cooling, PID control, 5–65°C range, ±0.2°C precision, energy-saving mode.



4. **Multi-Functional Aeration:** Dual rotor flow meter, air fine filter, 0–2VVM adjustable, auto valve for accurate gas control.
5. **pH Control & Auto Replenishment:** PID-controlled peristaltic pump, online pH electrode, auto-adjusts nutrients based on pH/DO.
6. **Efficient Foam Control:** Automatic foam detection, pneumatic diaphragm valve adds antifoam agent to prevent overflow and stabilize DO.
7. **Automation & Intelligent Control:** PLC and HMI, PID, sequence control, auto sterilization, real-time monitoring, remote control via app.

### **Working Principle**

1. Stirring ensures uniform media/microbe distribution; gas & temp control optimize growth/reaction.
2. Electric heating & water cooling, PID-regulated for stable temperature.
3. Online pH electrode + PID control for stable pH.
4. Precise aeration for optimal oxygen supply and microorganism metabolism.
5. Auto replenishment matches nutrient supply to process needs.
6. Foam detected and controlled automatically for stable fermentation environment.

## Application Areas

1. **Biomedical:** Vaccines, antibiotics, protein drugs.
2. **Food & Beverage:** Dairy, brewing, bread, fermentation quality control.
3. **Environmental Protection:** Wastewater/sewage treatment, pollutant biodegradation.
4. **Chemical Industry:** Bioplastics, amino acids, ethanol, industrial chemicals.
5. **Agriculture & Feed:** Bio-fertilizer, animal feed production.