



Pilot-scale Fermenters

SabaFerm110- P

The pilot-scale fermenter manufactured by ZFSS Co., is known as SabaFerm110-P. This product is used for microbial cultures, including bacteria, yeasts, fungi, and for the production of various biological products, including medicines, vaccines, enzymes, solvents, biofuels, organic acids, amino acids, dairy industry initiators, animal feed and poultry products, etc. in semi-industrial to industrial scale.



Properties of SabaFerm110- P are:

- **Stainless steel bioreactor tank**
- **Mobile**
- **Intermediate-size (20L-Industrial Scale)**
- **Sterilization-in-place fermentation systems for R&D through Production**
- **Cleaning in-place systems based on customers' order**
- **This system has control features such as: Engine speed (RPM), temperature control, pH control, Dissolved Oxygen (DO), foaming control, drainage system and sampling.**
- **Equipped with a PID control processor**
- **Equipped with PC with touch screen panel**
- **Operation parameters and set points are displayed and easily adjusted using flexible software. The Biosab installed on a touch-screen panel PC in the control box.**
- **Display the operating time of each of the pumps (acid, base, antifoam and feed)**
- **store data in each operation and the ability to read and print them easily.**
- **The various stages of the production process of biological products are applicable in accordance with GMP rules.**
- **Ability to perform fermentation process in different forms, such as batch, continuous, fed-batch fermentation.**

Technical Specification of Pilot Fermenter (SabaFerm110-P)

Vessel volume	Total capacity (L)	20 – Industrial Scale	
	Working volume (L)	0.25-0.75 Total volume	
Vessel construction	Aspect ratio (H:D)	≈2.5	
	Fabrication	Stainless steel 316L	
Cleaning and sterilization	Sterilization	Sterilization in place (SIP)	
	Cleaning	Cleaning in place (CIP)-optional	
Controller	Control station	Temperature, pH, DO, antifoam, agitation rate	
	Touch screen interface/ display		
Agitation	Brushless Servo Drive	Based on the working volume (>180 W)	
	Range and control	until 50 L working volume	10- 1000 ± 1rpm
		More than 50 L working volume	10 – 600 ± 1rpm
	Impellers	Two to three Rushton impellers	
	Baffles	Three to four fixed baffles	
Temperature	Range and control	Water temperature until 60°C ± 0.1	
	sensor	Pt100	
pH	Control range	0-14 ±0.02	
	Sensor	Hamilton or Mettler Toledo	
DO	Range and control	4ppb-25ppm or 1-300% sat, PID Control Cascade with agitation and Oxygen	
	Sensor	Hamilton or Mettler Toledo	
Other sensors	Foam/ level	Foam	
	Optional sensors	OD	
Aeration	Gas system	Mass Flow controller and Rotameter for air and O ₂	
	Gas inlet	Air and oxygen	
Exhaust	Condenser and filter	Stainless steel 316 L/0.2µm filter	
Pumps	Standards, Options and Control	4 peristaltic pumps (acid, base, feed, foam)	
	Speed	50 - 100 rpm	
Utility requirements and connections	Process air and oxygen	Air and O ₂ ports	
	Water return	Circulation pump	
	Facility water	Heat and circulation pump and input port	
	Electrical source	220V~5A 50/60Hz	
Communication port	USB		
wifi	optional		
Biosab software	Control	PID for temperature, pH, DO and RPM	
	Data logger	Yes	
	Output data	Graph ,table	
	Flexibility	Yes	
	Pump and valve	Manual and automatic	