

Fermentor SDP 50L~100L

The Fermentor **SDP** (50L~100L) is the pilot-scale fermentation system and which can be used for microbial, insect and mammalian cell culture procedures. The stainless steel (SUS 316L) vessel and the whole attachments can be sterilized automatically or manually in this pilot scale fermentation system and the whole fermentation process can be also performed automatically. Fermentor SDP (50L~100L) is able to install head lifting system. The head plate is lifted by air cylinder and guided by the two sets of linear motion guide.



The integrated control board measures the whole sensor values and control the fermentor system based on the measured values. The whole procedures and monitored data are graphically displayed in the 8.5" color LCD screen and all the control parameters can be modified in the graphic mode. This system can be designed for the individual process requirements to apply the system from lab scale for the basic research, up to pilot scale for test production in the mass production company.

- Head-lifting system
- Fed-batch culture support pH Stat, DO Stat
- Color LCD Integrated Microprocessor Controller system
- Validation support documentation available(IQ,OQ)
- Data Saving
- Fermentor system represents the ideal intermediate step for scaling up.
- Automatic control of DO, pH, temperature, agitation, and nutrient feed for fermentation process.
- All processing parameter are controlled by integrated microprocessor controller.
- Automate or Manual sterilization in place by external steam supply or optional steam generator.
- The modular design consists of the supply unit the culture vessel and the control cabinet.
- The open frame design of the supply unit provides ready access and ease of maintenance and operation.
- The sterilization procedures are programmable and can be modified by users
- Accessories for cell culture applications are available upon request.
- The stainless steel control cabinet of the fermentor system includes all electrical components, pilot valves and the powerful digital measurement and control system.

Control System

- The integrated controller board is adopted to measure, control and display the fermentation system.
- Color LCD displays the whole status of the system in graphic mode.



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- Digital PID control algorithm makes fast approach to the target temperature and maintains the vessel temperature very stably.
- The measured data and control parameters can be not only saved and transmitted to the computer in Excel format but also printed out by thermal printer in real time state.
- The Li-ion battery is used to backup the data in the memory.
- Easy to connect with the various systems such as memory stick, printer, computer with the RS-232C communication protocol.

Vessel

- Stainless steel (SUS 316L) is used to prevent contamination and rust.
- Water jacket system is adopted for precise temperature control.
- 6~8 toggle bolts make it easy to assemble and disassemble the head plate.
- Sight glass makes to monitor the status of the media.
- Spare ports are installed on the head plate that the auxiliary sensor can be installed.
- Sensor ports are installed in the circumferential direction on the lower side of the vessel

Specification

Agitation	Drive	DC motor, AC Gear motor, Top drive (mechanical seal driving)
	Range	50~1000 rpm ± 1 rpm
	Impellers	Turbine impeller (SUS316L) Foam breaker (SUS316L)
	Sensor	Magnetic Hall sensor
	Control	Microprocessor based PID
Materials & Finish	Vessel	Using 316L stainless steel it is polished mechanically or electrically
	Piping	316L stainless steel prevent contamination and is polished by electrically
	O-rings/Gaskets	Viton or silicon material is used for the O-ring and the EPDM is used for gasket
Sterilization		Built-in heater makes the in-situ sterilization for the vessel, head plate, filter, aeration pipe lines in 105 $^{\circ}$ C~130 $^{\circ}$ C temperature range automatically
Temperature	Range($^{\circ}$ C)	From 3 $^{\circ}$ C above the cooling water temperature to 80 $^{\circ}$ C (accuracy $\pm 0.1^{\circ}$ C)



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	Sensor	RTD(Pt-100)
	Control	The built-in heater cartridge raises and cooling water pulling downs the water temperature and water pump circulates the water inside of the jacket
Aeration	Sparger	Ring sparger (SUS 316L)
	Intel Filter	The cartridge type sterilizable pleated type 0.2μm absolute filter specifications(option item)
	Out Filter	The same as internal filter specification(option item)
	Control Range	Different vessel size and/or ordered specifications
Pressure Control		The back pressure is controlled manually or automatically
Control Unit	Panel	8.5" Graphic Color LCD, Membrane keypad
	Communications	Memory stick, printer, computer with the RS-232C communications protocol.
	Controller Board	MC68EC020 microprocessor based integrated controller board is adopted to measure, control and display the fermentation system
Power Supply		220V 50/60Hz, Single phase
Data Storage		pH, DO, Pressure, Temperature and Agitation speed

Vessel Selection

Catalog Number	Total Vol. (working Vol.)	Inner Dia. (mm)	Inner Height (mm)	Impeller Diameter (mm)	D/P (%)	H: D
		D	H	P		
SD050	50L (35L)	315	650	130	40	2 :1
SD070	70L (50L)	350	785	140	40	2.2 :1
SD100	100L (70L)	410	950	155	40	2.2:1



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