

BR500-M1-20L Microbial Fermentation System

Technical Specifications

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1. General Information

Items Included	Control Console	BR500-M1
	Culture Vessel	20L tank SUS316L, 3 layers, with top mechanical stirring (25~70% working volume)
	Sensors	PT100, DO, foam, pH
	Feeding Pumps	4 PreFluid peristaltic pump heads, controlled
	Gas Inlet	<ul style="list-style-type: none"> · Sparger from the bottom (Air +O₂); · Air inlet controlled by rotameter (manually); · O₂ inlet controlled by rotameter and electromagnetic valve
	Heating & Cooling	The jacketed water bath is electrically heated, cooled by stainless steel cooling tube (for chilled water)
	Accessories	4 supplement bottles, SS316L feeding needle, etc.
	Consumables	O-rings, fuses, silicone stoppers, inlet air filter, vent filter, 20m silicone tubing, etc.

Sensors Included	pH	Gel-filled pH electrode by Hamilton / Mettler Brand (steam sterilizable), with 3m cable
	DO	Sterilizable probe by Hamilton / Mettler Brand, with 3m cable
	Temperature	PT100 sensor, sterilizable
	Foam	Foam probe, sterilizable
	Pressure	Huba pressure sensor, sterilizable, Swiss Brand

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2. Specific Information

Functions Included	Temperature	<ul style="list-style-type: none"> · Robust PID algorithm; · The jacketed water bath is electrically heated, chilled by chilled water supply; · Sequential control coupled with fermentation process
	pH	<ul style="list-style-type: none"> · pH control coupled with peristaltic pump; · Manual pH control by peristaltic pump
	DO	<ul style="list-style-type: none"> · Cascade control, coupled with different parameters (agitation, gas inlet and peristaltic pump)
	Agitation	<ul style="list-style-type: none"> · Robust PID algorithm; · Manual speed control or speed control coupled with other parameters; · Agitation speed control coupled with other parameters (like DO)
	Foam	<ul style="list-style-type: none"> · Foam control coupled with peristaltic pump; (anti-foam); · Mechanical defoaming blade;
	Automatic SIP	SIP with pre-set automatic sequence
	Feeding (peristaltic pump)	<ul style="list-style-type: none"> · Accumulation volume control; · Manual control or control by plan (pre-set) curve; · Coupled with other parameters (DO, pH, etc)
	Fermentation Sequence	Pre-set fermentation sequences along with timeline (pH, DO, agitation, temperature, etc)
	Others	<ul style="list-style-type: none"> · Historical data export and curves; · Fermentation/culture batch record; · Calibration of sensors and peristaltic pumps; · 3-level authority setting & control; · Record historical operations

2.1 Control Console

General Info	Model	BR500-M1
	Description	Floor stand control console for microbial fermentation, 1 console for 1 vessel
	Dimension	650×650×1492mm
	Net Weight	110 Kg
	Touch Screen	PLC based 15" touch screen
	Communication	USB (data export), Ethernet interface, RS485
	Electricity	208V-240V, 50-60Hz, single phase

Gas Inlet	Control	<ul style="list-style-type: none"> · Sparger from the bottom (Air +O₂); · Air inlet controlled by rotameter (manually); · O₂ inlet controlled by rotameter and electromagnetic valve
	Flow Rate	2 vvm
	Filtration	0.2 um
	Connection	Pneumatic quick joint

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Temperature	Range	8C above coolant to 40C above ambient (0-65C absolute)
	Control Accuracy	+/- 0.1C
pH	Range	2.00~12.00 (resolution 0.01)
	Control Accuracy	+/- 0.1
DO	Range	0~150% (resolution 0.1%)
	Control Accuracy	+/- 3%
Upgrades	Analysis or Control	OUR, CER, KLa, RQ,ORP, methanol, exhaust gas (O ₂ , CO ₂), glucose, ect.
	Pressure Control	Automatically control pressure
	Automatic CIP	CIP with pre-set automatic sequence
	Gas Inlet	Up to 4 channels (O ₂ , CO ₂ , N ₂ & air)
	Gas Supply Control	TMFC control (flow rate - automatic)
	Peristaltic Pump	More peristaltic pumps for different function; Upgrade to Watson-Marlow peristaltic pump heads;
	Scale	Tank weight / replenishing
	Light	Light source can be selected from red, blue, and white. Its intensity is adjustable [0-100%]

2.2 Vessel Information

General Info	Volume	20L max, with 25-70% working volume
	Material	3 layers, tank SUS316L (polishing better than Ra 0.4 um), jacket SUS304, insulation SUS304 (aluminum silicate filled)
	Ratio	Diameter to height, about 1:2
	Rated Pressure	0.30 Mpa
	Ports	Lid: 1 x fire ring, 1 x foam sensor, 1 x exhaust with condenser, 2 x spray header ports, 1 x illumination, 2 x spares; Body: 1 x pH, 1 x DO, 1 x PT100, 1 x vertical sight glass, 1 x spare
	Sterilization	Autoclavable
	Sparge	SS316L ring sparger in the bottom
	Dimension	900×2000×800mm
	Net Weight	200Kg
	Seal	Top mechanical stirring
	Speed	50 - 1000 rpm
	Agitation	Blades
Baffles		4pcs
Upgrades	Drive	Top Magnetic drive
	Lid	Optional motor lift
	Blades	Customizable blades from different options (Spin filter, Cell-lift impeller, Basket impeller, Pitched Blade Impeller, Marine Blade Impeller)

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