

BR500-M1-150L Microbial Fermentation System

Technical Specifications

Prepared by Labfirst Scientific, October 2023
 Email: sales@lab1st.com; Tel: +86-13524020331



1. General Information

Items Included	Control Console	BR500-M1
	Culture Vessel	150L 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	Heating by steam combined with plate heat exchanger; 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

Trust us with your projects!

Lab1st has produced and sold more than 11,000 bioreactors, including 4,500+ Benchtop bioreactors and 6,000+ stainless steel fermenters since 1998. [3 production centers, 20+ years experience]

2. Specific Information

Functions Included	Temperature	<ul style="list-style-type: none"> · Robust PID algorithm; · Heating by steam combined with plate heat exchanger; · 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, single phase / 353V-406V, 3 phase; 50-60Hz

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

Trust us with your projects!

Lab1st has produced and sold more than 11,000 bioreactors, including 4,500+ Benchtop bioreactors and 6,000+ stainless steel fermenters since 1998. [3 production centers, 20+ years experience]

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 (O2, CO2), glucose, ect.
	Pressure Control	Automatically control pressure
	Automatic CIP	CIP with pre-set automatic sequence
	Gas Inlet	Up to 4 channels (O2, CO2, N2 & 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	150L 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	1000×928×1790mm
	Net Weight	300Kg
	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)

Trust us with your projects!

Lab1st has produced and sold more than 11,000 bioreactors, including 4,500+ Benchtop bioreactors and 6,000+ stainless steel fermenters since 1998. [3 production centers, 20+ years experience]