

BR500-M1-50L 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 | 50L 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 |

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; · 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, 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 | 10L 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]