

BR500-C1-200L Cell Culture Fermentation System

Technical Specifications

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1. General Information

| | | |
|-----------------------|------------------------------|--|
| Items Included | Control Console | BR500-C1 |
| | Culture Vessel | 200L 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 | · Sparger from the bottom (Air + O ₂ + N ₂ + CO ₂): controlled by rotameter and electromagnetic valve; · Overlay (Air): manually controlled by rotameter; |
| | 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. |

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| 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

| | | |
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| 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 or CO₂; · Manual pH control by peristaltic pump; |
| | DO | · Cascade control, coupled with different parameters (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; |
| | 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 or 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-C1 |
| | Description | Floor stand control console for cell culture 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 + N₂ + CO₂): controlled by rotameter and electromagnetic valve; · Overlay (Air): manually controlled by rotameter; |
| | Flow Rate | 2 vvm |
| | Filtration | 0.2 um |
| | Connection | Pneumatic quick joint |
| Temperature | Range | 8C above coolant to 40C above ambient (0-65C absolute) |
| | Control Accuracy | +/- 0.1C |

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| | | |
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| 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 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 | 200L 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 | |
| | Net Weight | |
| | 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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