

Photo Bioreactor with Accessories (gas cylinders, sensors, and compressor

KS/CHE/PBIOREAC

Bioreactor system

- The system shall be a compact benchtop bioreactor. Capable of batch, fed-batch, continuous and perfusion processes. It shall be possible to use the same system for both fermentation as well as Mammalian cell culture.
- System shall be scalable from 250 mL to 40 L on a wide variety of autoclavable and Single-Use Vessels should have working capacity of minimum 5L to desired but not mandatory maximum 15 L and Double walled Water Jacketed vessel.
- System shall be compatible with twenty-four (24) interchangeable autoclavable vessels, of water jacketed vessel and as well as Single use solid-rigid wall stirred-tank vessels including cell culture, packed bed, and fermentation 1L TO 50L variants.
- Vessel shall have hemispherical vessel nest design for minimum footprint.
- The autoclavable glass vessels shall have atleast 10 headplate ports.
 - System shall be supplied with three front-mounted fixed-speed pumps with industry-standard easy load pump heads for convenient liquid addition/ removal, could be used in fixed speed & % Pulse Width Mode (PWM) mode. (30 RPM).
 - System shall additionally have a provision to accommodate up to 3 more variable speed drive pumps externally.
 - Shall be able to support single use vessel upto 50L total volume for validated sterile operation with all documentation and shall have less turnaround time.



Kalpana Scientific Pvt.Ltd.

Konnagar, West Bengal-712235, India

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Controller and sensors

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- Controller shall be with a minimal footprint, about 10 in (25 cm) wide or less.
- System shall have built in Process modes offer process control for microbial and cell culture applications at the touch of a button.
- The system shall be provided with two flexible universal connections for analog or digital Mettler Toledo sensors of ISM type (Intelligent Sensor Management)
 - System shall be supplied with pH sensor and DO sensor.
 - pH control range shall be from 2 – 12.
 - DO control range shall be from 0 – 200%.
 - Redox sensor with a control range from -2000mV to + 2000mV shall be available as an option.
 - CO₂ sensor with a control range of 0 – 100% shall be available.
- System shall be equipped to view the entire process on system controller screen with expanded trend screen for up to 8 values /parameters.
- System shall have two flexible universal connections for analog or digital Mettler Toledo sensors of ISM type (Intelligent Sensor Management)
- Automatic gas mixing algorithms for simplified control, and User-defined DO cascades shall be there for process flexibility
- High-precision thermal rotameter for gas flow control. The system shall be supplied with 1 Mass Flow Controller (0.1 – 20 SLPM) with 4 gas mix control and sparger with universal gas control strategy for both microbial and cell culture application, without the need for additional equipment.



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Temperature

- It shall be possible to control the temperature from 5°C above coolant temperature to 65°C above ambient (0°C - 80°C maximum).

Mixing

- The system shall be provided with connections for interchangeable direct- and magnetic-drive motors; magnetic drive capable of clockwise and counterclockwise rotation for simplified impeller selection. The motor speed shall be in the range of 20 – 1500 rpm for direct drive.

Light

- System shall be equipped with external light (LED) source worth 1500-2000 lumens and may have at least two color panel (Bi-colour) with controller.

Hardware, Software & Connections

- System shall be built in with three user-defined analog input/output connections to select between 0-5V, 0-10V, and 4-20 mA depending on the device.
- The system shall be supplied with minimum 2 USB ports; 3 Analog Input / Output modules and ethernet connectivity for simultaneous control of up to 8 systems via SCADA software and IP network for remote monitoring
- Every system shall be with it's own Operators' Interface Terminal (OIT) ● Easy-to-read 7" integrated touchscreen monitor should be there.
- System shall come with IP21 rated enclosure for protection of sensitive electronics and cleanability.



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Vertical Fully Automatic Autoclave

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- Sole Locking Device (SLD) very easy to open and close for
- MOC: Inner SS outer MS powder-coated ● Low Water Level Cut-off
- Self-regulating safety for over-temperature
- Easy-going drain from the chamber
- Lid Lock Safety
- Chamber is equipped with safety valves
- Safety valves for pressure over
- Advanced controller for precise control and
- Temperature Range: 125-140 °C, 0.1 Resolution With timer.

Chiller

- Environment-friendly CFC-free hermetically sealed rotary compressor., Fabrication with SS top & SS angle structure.
- Low Temperature coolant circulating pump (Cool Chiller) specially design for Fermenter., Volume: 5 litre or better
- Temp. Range: -10°C to RT, Flow rate: 20 L/min, Coolant Temperature: -10°C
- Temperature Stability: $\pm 0.1^{\circ}\text{C}$
- Environmental Temperature: 25°C
- Coolant Filling Port and Drain Port available.
- Cooling capacity: 0.25 kW to 200 kW
- Microprocessor PID Controller
- On/Off Switch of Ref System and alarm



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Air Compressor

- Capacity: 1 HP
- Reservoir: 20 Lit Tank
- Operation: Oil and noise Free
- Maximum Displacement: 100 Lit/ Min
- Power Supply: As per Indian standard
- Weight range: 20-50 Kg



DELIVERY PERIOD: 16 WEEKS

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