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QUALITEST™

Multi Parallel Bioreactor



STANDARDS

ASTM E2500

IEC 61010-1

ISO 12100

ISO 13408-1

ISO 14644-1

Multi Parallel Bioreactor - QualiBio™ MP

Multi Parallel Bioreactor - QualiBio™ MP is a multi-parallel fermentation platform built to compare strains and process conditions side-by-side, then lock in the best settings before scale-up.

It uses multiple identical 500 mL reactors under the same control architecture, so temperature, pH, dissolved oxygen, agitation, aeration, and feeding can be evaluated with strong run-to-run consistency. The system also supports software-based parallel control, time-scheduled parameter steps, and video monitoring for real-time observation.

Multi Parallel Bioreactor - QualiBio™ MP is designed for process development teams that need faster learning loops than single-vessel fermentation. Each reactor runs the same workflow logic while allowing controlled variations in setpoints, making it practical for fermentation optimization and screening work.

A modular architecture supports expansion from a single unit to a high-throughput platform, and one PC can control up to 24 units for parallel experiments at scale. Built-in sampling and monitoring functions support data-driven decisions during runs and improve correlation between bench studies and future pilot batches.

APPLICATIONS

Multi Parallel Bioreactor - QualiBio™ MP Applications

Fermentation process optimization

Run structured experiments to identify how agitation, temperature, pH, DO, and feeding strategy affect growth and productivity. Parallel operation shortens the time needed to isolate the few parameters that move results the most.

High-throughput strain screening under a fixed process

Screen many engineered strains under the same established process recipe, then select the top performers for scale-up. This fits workflows where raw materials and core conditions are already defined and the strain is the main variable.

Media screening and batch consistency evaluation

Compare media recipes, suppliers, or raw-material lots under matched control conditions. The goal is to find a formulation that supports stable performance and reduces variability before moving into larger production volumes.



Standards

- IEC 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use.
- ISO 12100: Machinery safety principles, risk assessment, and risk reduction methodology.
- ISO 14644-1: Cleanroom and controlled environment air cleanliness classification (use when the bioprocess is operated in classified areas).
- ASTM International E2500: Risk-based specification, design, and verification guide for pharmaceutical and biopharmaceutical manufacturing systems and equipment.
- ISO 13408-1: General requirements and guidance for aseptic processing programs and procedures (use when aseptic processing is part of your operation).

FEATURES

Multi Parallel Bioreactor - QualiBio™ MP Key Features

- Parallel process development format for fast comparison of strains and operating conditions before scale-up work begins.
- High-throughput scalability that can expand from one system to multiple systems, with one computer supporting up to 24 units.
- Time-scheduled control to set process steps by time for structured fermentation recipes.
- One-click setup and calibration workflows for faster routine preparation of pH, DO, temperature, and feed control functions.
- Integrated sampling support with a one-key sampling function designed for parallel runs and automation-ready workflows.
- Video and remote monitoring capability using an HD camera on the reactor for real-time observation and remote checks.

- Automation and LIMS readiness through software and hardware interfaces intended to support lab digitalization and workflow integration.

THEORY & METHOD

Theory and Method

A multi-parallel bioreactor runs multiple small-scale stirred reactors under matched control logic, so you can change one variable while holding the rest constant. Each vessel uses sensors and control loops to maintain temperature, pH, and dissolved oxygen targets while agitation and aeration manage mixing and oxygen transfer. Feeding and sampling functions support time-based strategies, including scheduled process steps for process characterization. Results across reactors help you identify the most repeatable operating window before scale-up.

TECHNICAL SPECIFICATIONS

Multi Parallel Bioreactor - QualiBio™ MP Technical Specification

Parameter	QualiBio™ MP
Bioreactor working volume	500 mL
Vessel pressure rating	0.5 bar
Temperature control range	4 to 60°C (±0.2°C)
Agitation	Top stirring, 0 to 2000 rpm; DO linkage supported
pH range (electrode)	2 to 12 pH

Parameter	QualiBio™ MP
Dissolved oxygen (DO) range	0 to 300%
Feeding function	0 to 300 mL/h; accuracy $\pm 5\%$ or $\pm 30 \mu\text{L}$
Aeration function	0 to 2 L/min; accuracy ± 0.01 L/min
One-key sampling	0 to 300 mL/h; accuracy $\pm 5\%$ or $\pm 30 \mu\text{L}$
Video monitoring	4 megapixel HD camera
Parallel control capacity	One PC supports up to 24 units
Time-sharing control	Time-based control supported
Dimensions	250 × 560 × 465 mm
Weight	18 kg



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