

► BIOSTAT® Bplus

Exclusive Flow



The BIOSTAT® Bplus Exclusive Flow packages with single-wall culture vessels are specially configured for cell culture. The integrated four gas mixing system provides Overlay and Sparger gassing. Air is routed to Overlay. Air, O₂, N₂ and CO₂ are routed to Sparger. By an easy upgrade of culture vessel components and rotameter flow ranges, the system can be also used for microbial cultures. The system is ideal for beginners in cell culture who need an easy to use system that provides a certain amount of flexibility in gassing options.

Digital Controller

- Graphical user interface with color display and touch-screen operation
- Integrated amplifiers for Temperature, pH, DO, Foam & Level (Twin: combined Foam | Level amplifier)
- Space for Redox and Turbidity amplifier (single only)
- Integrated digital control loops for Temperature, pH, DO, agitation, gas mixing, total Sparger flow, total Overlay flow and 2× substrate
- Level control via Level probe or balance
- Multi-stage DO cascade control
- Totalizers with digital calibration for valves and pumps
- In-process pH-recalibration
- Trend display with up to 6 process values
- Up to 2 direct balance connections

Exclusive Flow Gassing System

- Sparger and Overlay gas outlet
- Gas mixing of Air, O₂, N₂, CO₂ for Sparger gassing
- Air for Overlay gassing
- Easily exchangeable rotameters
- Controlled via pH | DO controller
- Optional mass flow controllers for both total Sparger and Overlay flow

Pumps

- Up to 4 integrated pumps per side
- Configurable to substrate controller
- Up to 2 external feed pumps per side
- Optional integrated speed controlled pump

Temperature System

- Heating blanket
- Integrated controlled cooling water valve
- Temperature range up to 60°C
- Optional cooling finger
- Jacketed Vessels also available

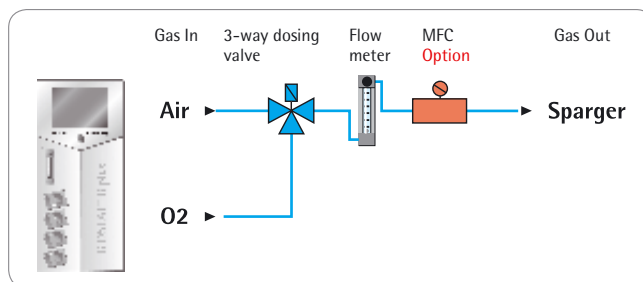
Agitation System

- Speed range from 20 up to 2,000 rpm
- Maintenance-free
- Gear-free for quiet operation

UniVessel® Culture Vessel

Single-wall culture vessel fully equipped with:

- Probes for Temperature, DO, pH, Foam and Level
- Stirrer shaft with single mechanical seal
- 3-blade segment impeller
- Aeration tube with micro Sparger, Overlay aeration fittings, sterile filters and exhaust cooler
- Manual sampler with sampling pipe
- Removable bottle support holder
- Addition bottles with stainless steel head piece and sterile filters
- Inoculation | addition port
- Four-way addition port
- Tubing, O-rings and tool kit



SCADA Software BioPAT® MFCS/DA

- Plug and Play configuration
- Online data acquisition
- Sample Data Management
- Enhanced plotting functions
- Export functions
- Easy-to-use programming interface

The BIOSTAT® Bplus Exclusive Flow Packages are Applicable for:

- Cell culture of insect, mammalian and plant cells
- Culture of microorganisms
- Batch, fed batch and continuous culture
- Perfusion operation (easy to upgrade)
- Small-scale cell mass, protein, MAb & vaccine production
- High-cell density cultures
- Suspension and microcarrier cultures

Key Features

- Single or Twin configuration
- Independent vessel control
- Small footprint
- Automatically controlled gas mixing
- Sparger and Overlay gassing
- Graphical user interface with touch screen operation
- Totalizers with digital calibration for valves and pumps
- One high-performance stirrer motor for all UniVessel® sizes
- Trend display with up to 6 process values
- Direct balance connection
- Pre-configured firmware for system extensions

Specifications

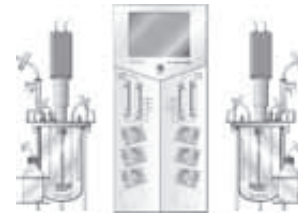
Technical Specifications

Space Requirements	Dimensions
Bench space requirement Single Version 1 L 2 L 5 L 10 L [W × H × D]	560 590 620 × 730 × 565 670 × 820 × 565 [mm]
Bench space requirement Twin Version 1 L 2 L 5 L 10 L [W × H × D]	800 860 920 × 730 × 565 1,040 × 820 × 565 [mm]
Space requirement autoclave × H per culture vessel 1 L 2 L 5 L 10 L	240 × 500* 270 × 550* 300 × 700* 350 × 820* [mm]
Basic Unit	
Housing material	Stainless steel AISI 304
Display	Touch Screen 10.4"
Resolution	800 × 600 dpi
Host communication	Ethernet RS422 RS232
Measurement Ranges	
Agitation motor speed 1 L 2 L 5 L 10 L	20–2,000 20–2,000 20–1,500 20–800 rpm
Temperature	0–150°C
pH	2–12
pO ₂	0–100%
Turbidity (option)	0–6 AU
Redox (optional)	–1,000 – 1,000 mV
Gassing System	Exclusive Flow 4-gas mixing with Sparger and Overlay outlet
Outlet design	Hose tube OD 6 mm
Flowmeter	Air calibrated @ 1.21 bara 20°C
Gas flow range "Sparger" 1 L 2 L 5 L 10 L	0.016–0.166 0.016–0.166 0.05–0.5 0.1–1.0 [l/min]
Gas flow range "Overlay" 1 L 2 L 5 L 10 L	0.016–0.166 0.16–1.6 0.42–4.2 0.83–8.3 [l/min]
Accuracy	+/- 5% FS
Thermal Mass Flow Controller (Option)	Air calibrated
Flow range "Sparger" Total Flow	0.02–1 slpm
Flow range "Overlay"	0.2–10 slpm
Accuracy	+/- 1% FS
Agitation Motor	Maintenance and gear-free servo drive
Performance	200 W

* Optional flexible adapter for the exhaust cooler (BB-8844593) is available to reduce autoclave height requirements.

Integrated Pumps	Digital pulse-width modulated controlled			
Pump head	Watson Marlow 102R			
Rotation speed	20 rpm			
Flow rate integrated pumps	0.04 – 33.2 [ml/min]			
Integrated Feed Pump (Option)	Speed controlled			
Pump head	Watson Marlow 102R			
Rotation speed	5–50 rpm			
Flow rate integrated speed controlled pumps	1–83 [ml/min]			
Temperature Control System	Dry heating system via heating blanket and automatic cooling water control valve			
Temperature control range	8°C above cooling water to 60°C			
Heating blanket performance 1 L 2 L 5 L 10 L	100 170 400 780 [W] culture vessel			
Connections to culture vessel	Quick couplings for exhaust cooler and optional cooling finger			
External Connections per Vessel				
Balance connection	RS232			
2 × Feed pump connection	0–10 V			
2 × External input	0–10 V			
Culture Vessel	1 L	2 L	5 L	10 L
Total volume	1.6	3	6.6	13 [L]
Working volume	0.4–1	0.6–2	0.6–5	1.5 5–10 [L]
Headplate ports 19 mm 12 mm 6 mm	3 2 6	3 2 9	3 3 8	5 2 9
Volume storage bottles	250	250	500	500 [mL]
Design	Single wall glass vessel with stainless steel head and vertical lifting handles			
pO ₂ electrode	Polarographic			
pH electrode	Gel-filled			
Temperature probe	Pt 100			
Redox electrode (option)	Gel-filled			
Turbidity probe (option)	Single Channel NIR Absorption Probe, OPL 20 mm			
Material (product wetted parts)	Borosilicate glass Stainless steel AISI 316L EPDM			
Utilities Requirements Housing Connection				
Power supply	120 VAC or 230 VAC			
Gasses	Controlled @ 1.5 barg dry, particle and oil-free hose connector OD 6 mm			
Water	Controlled @ 2 barg hose connector OD 10 mm			
Drain	Gravity drain with zero backpressure required hose connector OD 10 mm			

Ordering Information



Description	BIOSTAT® Bplus-CC Exclusive Flow with Single Wall UniVessel®				BIOSTAT® Bplus-TWIN Exclusive Flow with 2x Single Wall UniVessel®			
	1 L	2 L	5 L	10 1.5 L 10 5 L	1 L	2 L	5 L	10 1.5 L 10 5 L
Cat. No. 120 VAC	BB-8843721	BB-8843723	BB-8843725	BB-8843729, BB-8843727	BB-8843783	BB-8843785	BB-8843787	BB-8843791, BB-8843789
Cat. No. 230 VAC	BB-8843720	BB-8843722	BB-8843724	BB-8843728, BB-8843726	BB-8843782	BB-8843784	BB-8843786	BB-8843790, BB-8843788

Basic Unit

Digital controller color display with touch screen	•	•
Control capabilities listing per vessel		
Temperature, pH, DO (2 stage cascade), Stirrer speed	•	•
Level and Foam via probe	•	Combined Level Foam controller
Level via balance	•	•
Substrate A and Substrate B	•	•
200-watt servo motor	•	•
Gasmixing	Exclusive Flow	
Rotameter Sparger	•	•
Rotameter for Overlay	• Air	• Air
Automatic gasmixing of Air, O ₂ , N ₂ , CO ₂ ; Sparger	•	•
Peristaltic pumps (integrated)	4	3 per side
Temperature system with heating blanket	•	•

Supervisory Process Control Software

BioPAT® MFCS/DA for data storage	•	•
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Culture Vessel Listing per Vessel

	Single Wall UniVessel®							
Culture vessel tripod	•	•	•	•	•	•	•	•
Stirrer shaft with Single Mechanical Seal	•	•	•	•	•	•	•	•
3-blade segment impeller	1				1			
Storage bottle	3	3	3	3	3	3	3	3
Aeration tube with µ-sparger	•	•	•	•	•	•	•	•
Air Inlet and Exhaust filter	3				3			
Inoculation port	•	•	•	•	•	•	•	•
Exhaust Cooler	•	•	•	•	•	•	•	•
4-Way addition fitting	•	•	•	•	•	•	•	•
Universal Adaptor 3.2 mm for overlay aeration	•	•	•	•	•	•	•	•
Sample- Harvest pipe	•	•	•	•	•	•	•	•
Manual sampler	•	•	•	•	•	•	•	•
pH Electrode, cable	•	•	•	•	•	•	•	•
DO Electrode, cable	•	•	•	•	•	•	•	•
Level sensor, cable	•	•	•	•	•	•	•	•
Foam sensor, cable	•	•	•	•	•	•	•	•
Temperature sensor Pt 100	•	•	•	•	•	•	•	•
Tubing, O-Ring spare set	•	•	•	•	•	•	•	•

Options

Magnetic coupling	○ BB-8847339	○ BB-8847339
Cooling finger	○ BB-8846456 BB-8847819 BB-8847827 BB-8847835	○ BB-8846456 BB-8847819 BB-8847827 BB-8847835
MFC (Sparger total flow)	○ 0.02–1 [l/min] BB-8847754	○ 0.02–1 [l/min] BB-8847754
MFC (Overlay flow)	○ 0.2–10 [l/min] BB-8847789	○ 0.2–10 [l/min] BB-8847789
Feed pump (integrated) speed controlled	–	○ BB-8843468
Balance for culture vessel	○ BB-8843513	○ BB-8843513
Turbidity measurement	○ BB-8843510 BB-8843511 BB-8843512 BB-8843512	on request
Redox measurement	○ BB-8843469 BB-8843470 BB-8803471 BB-8843471	on request

Broad range of accessories available, please contact us for further information.

• = included, – = not included, – – = unavailable, ○ = option