



BIOSTAT® Aplus

The compact, autoclavable fermentor | bioreactor



The BIOSTAT® Aplus is a compact, autoclavable fermentor | bioreactor system specially designed for educational use and preliminary or investigational R&D applications. The single-housing design concept with integrated measurement and control hardware, pumps, temperature, gassing and motor system, saves valuable laboratory bench space.

The application-driven, configured packages for microbial and cell culture include everything needed for to get started immediately. The BIOSTAT® Aplus is available with interchangeable 1 L, 2 L, or 5 L working volume single-wall culture vessels. Select the size that meets your needs today! Each system also includes a powerful Notebook PC with local control software, as well as our BioPAT® MFCS/DA software package for simultaneous control and data collection.

The BIOSTAT® Aplus is ideal for:

- Microbial culture – growth of bacteria, yeast and fungi
- Cell culture – growth of animal, insect and plant cells
- Transition from shake or tissue culture flasks
- Small-scale protein expression
- Education and research

Features

- Ready-to-use packages for microbial or cell culture applications
- Inclusive Notebook PC for operation
- Control of temperature, pH, DO, stirrer speed, gas mixing, Foam | Level and substrate
- 2-stage DO controller configurable via stirrer speed, gas mixing or substrate
- In-line pH calibration
- Trend display
- Flexible 4-gas mixing system with individual gas flow path for cell culture packages
- Oxygen enrichment capability for microbial packages
- Interchangeable culture vessels with 1 L, 2 L or 5 L working volume
- Industry proven hardware
- Powerful PC operating software – capable of handling up to four units
- BioPAT® MFCS/DA data storage and plotting software package
- Easy-to-follow step-by-step installation and user guide

Technical Specifications

Space requirements	Dimensions
Bench space requirement 1 L 2 L 5 L [W×H×D]	840 870 900×580 640 750×425 [mm]
Space requirement autoclave Ø×H per culture vessel 1 L 2 L 5 L	220×500* 250×550* 280×700* [mm]
Ambient temperature relative humidity (non condensating)	5–40°C 85%
Operating PC	Detailed specification on request
Basic unit	
Housing material	Coated sheet metal aluminum acrylic glass
Host communication	Ethernet
Measurement ranges	
Agitation motor speed 1 L 2 L 5 L	20–1200 20–1200 20–800 rpm
Temperature	0–150°C
pH	2–12
pO ₂	0–100%
Gassing System	
Microbial version	Air aeration with O ₂ Supplementation via Sparger outlet
Cell culture version	4-gas mixing system with 4 gas outlets
Outlet design	Hose tube OD 6 mm
Flowmeter	Air calibrated @ 1.21 bara 20°C
Gas flow range Microbial Version 1 L 2 L 5 L	0.16–1.6 0.42–4.2 1.3–13 [l/min]
Gas flow range Cell culture Version 1 L 2 L 5 L	Air, N ₂ : 16–166 33–333 50–500 [ml/min] O ₂ , CO ₂ : 3.3–33 16–166 33–333 [ml/min]
Accuracy	+/- 5% FS
Agitation motor	Maintenance free drive
Performance	150 W
Integrated pumps	Digital pulse width modulated controlled
Pump head	Watson Marlow 102R
Rotation speed speed	20 rpm
Flow rate integrated pumps	0.04–33 [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	100 170 400 [W]
Connections to culture vessel	Quick couplings for exhaust cooler and cooling finger (CC packages optional)
External connections/per vessel	
Balance connection	RS232
Feed pump connection	0–10 V unused integrated pump can be configured to substrate controller
2× External inputs	0–10 V
Culture vessel	1 L 2 L 5 L
Total volume	1.6 3 6.6 [L]
Working volume	0.4–1 0.6–2 0.6–5 [L]
Headplate ports 19 mm 12 mm 6 mm	3 2 6 6 2 3 8 3 3
Volume storage bottles	3×250 3×250 250 Et 2×500 [mL]
Design	Single-wall glass vessel with stainless steel head and vertical lifting handles
pO ₂ electrode	Polarographic
pH electrode	Gel filled
Temperature probe	Pt100
Material (product wetted parts)	Borosilicat 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 6 mm
Drain	Gravity drain with zero backpressure required hose connector OD 6 mm

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

Ordering information

Description	BIOSTAT® Aplus Microbial packages			BIOSTAT® Aplus Cell culture packages		
	1 L	2 L	5 L	1 L	2 L	5 L
Culture vessel						
Cat. No. 120 VAC	RAP-M01L OTRDM1	RAP-M02L OTRDM1	RAP-M05L OTRDM1	RAP-C01L FTSDM1	RAP-C02L FTSDM1	RAP-C05L FTSDM1
Cat. No. 230 VAC	RAP-M01L OTRDM2	RAP-M02L OTRDM2	RAP-M05L OTRDM2	RAP-C01L FTSDM2	RAP-C02L FTSDM2	RAP-C05L FTSDM2

Basic unit

Digital controller	•	•
Control capabilities for temperature, pH, DO (2 stage cascade), agitation speed, combined Level Foam controller, substrate	•	•
Air aeration with O ₂ -supplementation capability	•	•
4-Gas mixing with individual gas flow path	–	•
Peristaltic pumps (integrated)	3	3

Control PC and Software

Notebook PC for operation	•	•
PC operation software package	•	•
SCADA Software MFCS/DA	•	•

Culture Vessel

Single wall UniVessel®

Culture vessel tripod	•	•
Stirrer shaft with Single Mechanical Seal	•	•
6-blade disk impeller	2	–
3-blade segment impeller	–	1
150 Watt agitation motor	•	•
Storage bottle	3	3
Air inlet and exhaust filter	2	3
Aeration tube with ring-sparger	•	–
Aeration tube with μ-sparger	–	•
Inoculation port	•	•
Exhaust cooler	•	•
4-Way addition fitting	•	•
Fitting for overlay aeration	–	•
Sample Harvest pipe	•	•
Manual sampler	•	•
Cooling finger	•	BB-8846456 BB-8847819 BB-8847827
Heating blanket	•	•
pH Electrode, cable	•	•
DO Electrode, cable	•	•
Temperature sensor with sleeve	•	•
Foam Level probe, cable	•	•
Tubing, O-Ring spare set	•	•

Options

Baffle cage	○ BB-8846375	BB-8846812	BB-8846820	○ BB-8846375	BB-8846812	BB-8846820
Bottle holder	○ BB-8846464	BB-8847428	BB-8847436	○ BB-8846464	BB-8847428	BB-8847436
Balance for weight measurement of culture vessel	○ BB-8843513	BB-8843513	BB-8843513	○ BB-8843513	BB-8843513	BB-8843513

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

• = included, – = not included, Cat. No. = option

Sales and Service Contacts

For further contacts, visit www.sartorius-stedim.com

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