

BIOSTAT® PBR 2S



Hardware Description

The BIOSTAT® PBR 2S is a small scale photo bioreactor, for up to 3 L culture volume.

The Control system presents an "easy-to-use" touch screen control system with integrated measurement and control hardware, pumps, temperature and four gas mixing systems, for excellent process control. Incorporated in a single "tower" housing this design concept saves valuable laboratory bench space.

The powerful peristaltic recirculation pump provide high flow rates and low shear. The pump is connected and controlled via the control system.

The photosynthesis module has been designed utilizing helix based geometry to produce optimum illumination efficiency per unit surface area. The recirculation vessel is provided with a range of measuring probes as temperature, pH, DO and turbidity probe and serves as a base unit for additional functions such as gassing | degassing and media conditioning. Both components are designed for high recirculation rates in order to prevent fouling.

Applications

The BIOSTAT PBR 2S incorporates a number of features enabling even the most shear sensitive cell types to be cultivated under optimum conditions. Easy to use it is applicable for micro algae, moss, bacteria and plant cells. It is the ideal platform for academic and industrial research.

Illumination control

Optimum illumination levels utilizing fluorescent lamps can be manually controlled or automatically via cell density turbidity measurement device.

MFCS/DA

For further enhancement of system performance a powerful supervisory process control software MFCS/DA for extended visualization, data acquisition and trend display is

Technical Specification

	Dimensions
Basic housing W × H × D	320 × 735 × 565 mm
Photosynthesis device Ø × H	390 × 500 mm
Recirculation pump W × H × D	169 × 138 × 256 mm
Space requirement autoclave Ø × H (mm)	390 × 500 *340 mm
Total volume	3,7 L
Working volume	3 L
Lenght photosynthesis module	6 m
Illuminated area	5350 cm ²
Fluorescent lamp Quantity Wattage	8 18 W
Luminous flux per lamp	1200 lm
Light impact Photosynthetic active radiation (PHAR) @ 400–700 nm	5–480 µE/m ² s
Recirculation flow rate	50–5000 mL/min
Flow velocity photosynthesis module	16 m/min
Rotameter gas flow range "Sparger"	16–166 mL/min
Rotameter gas flow range "Overlay"	16–166 mL/min
Temperature	8 °C above cooling water –80 °C
pH	2–12
pO ₂	0–100%, Air saturation
Turbidity	0–6 AU

Utilities

Power supply	120 VAC or 230 VAC
Gasses	Controlled @ 1.5 barg dry, particle and oil free
Water	Controlled @ 2 barg
Drain	gravity drain with zero backpressure required

* with optional flexible adaptor for the exhaust cooler (8844593)

Photo-bioreactor

Ordering Information

Description	BIOSTAT® PBR 2S
Cat. No. 120 VAC	RPBRP02LECR-H1
Cat. No. 230 VAC	RPBRP02LECR-H2
Sterilization	autoclave

Photosynthesis device

Illumination unit	•
Single wall glass pipe	•
Helix design	•

Recirculation Vessel Includes

Stainless steel head plate	•
Jacketed glass vessel	•
Recirculation fitting	•
Air Inlet and Exhaust filter	•
Aeration tube with μ -sparger	•
Exhaust Cooler	•
4-Way addition fitting	•
Sample- Harvest pipe	•
Manual sampler	•
pH Electrode, cable	•
DO Electrode, cable	•
Turbidity Electrode, cable	•
Temperature sensor Pt 100	•
Tubing, O-Ring spare set	•

Recirculation Pump

Peristaltic pump	•
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Basic unit

Digital controller color display with touch screen	•
Control capabilities	
Temperature, pH, DO	•
Recirculation rate	•
Illumination	•
Illumination via Turbidity	•
Substrate pump	•
Turbidity measurement	•
Redox measurement	◦ 8843469
Gasmixing	Exclusive Flow
Gasmixing of Air, O ₂ ; N ₂ ; CO ₂	•
Rotameter Sparger	•
Rotameter for Overlay	•
MFC (Sparger)	◦ 0,02 – 1 (l/min) BB-8847754
MFC (Overlay)	◦ 0,02 – 1 (l/min) BB-8847754
Peristaltic pumps (integrated)	2
Thermostat system (integrated)	•
Balance for culture vessel	◦ 8843475

Supervisor Process Control Software

MFCS/DA	•
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• = included, ◦ = option

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