



sartorius stedim
biotech

BIOSTAT[®] RM Culturing Convenience



turning science into solutions

Culturing Convenience

The BIOSTAT® RM is the new generation of single-use bioreactors utilizing rocking motion for mixing with low shear. In 2011, Sartorius Stedim Biotech introduced a new 20 | 50 L rocker system with sophisticated, advanced features. This enhances the portfolio of BIOSTAT® RM instruments, offering solutions for every application, from simple uncontrolled batch to highly sophisticated perfusion applications with fully automated process control.

The single-use cultivation chamber CultiBag RM is specially designed for shear sensitive cells, as well as any kind of mammalian, insect, plant cells. It is frequently used for stem cell cultivation. Even growth of microorganisms is possible. A comprehensive validation and extractables report is available for the bags.

Maintenance and overhead expenses are reduced, eliminating the need for:

- Sterilization in Place (SIP)
- Cleaning In Place (CIP)
- Reduction in WFI
- Reduction in user time | effort
- Reduction in validation requirements

The measurement and control capabilities supplied by Sartorius Stedim Biotech are second to none. Utilizing proven technology and expert engineering, we have developed our existing in-house systems to bring powerful control capabilities to the single-use market. The BIOSTAT® RM Control Tower presents an easy-to-use touch screen control with integrated measurement and control hardware, pumps, temperature and gassing systems, for excellent process control.

The application-driven, configured packages for basic, optical and perfusion provide everything needed to get started immediately. The BIOSTAT® RM is available in scalable working volumes from 0.1 L to 300 L. Just select the size that meets your needs today. Each basic, optical and perfusion package also includes our BioPAT® MFCS/DA data logging software. A large variety of operation modes facilitates a batch-oriented bioprocessing.



The BIOSTAT® RM Packages are Specially Configured to Meet your Single-Use Needs

Technical Specifications

	Dimensions W × H × D (mm)	Weight (kg)
BIOSTAT® RM Control Tower	320 × 735 × 565 mm	50 kg
BIOSTAT® RM 20 basic	765 × 600 × 400 mm	30 kg
BIOSTAT® RM 50 basic	1085 × 600 × 450 mm	32,2 kg
BIOSTAT® RM 200	1998 × 1241 × 830 mm	272 kg
BIOSTAT® RM 600	1790 × 1330 × 1470 mm	340 kg

Utilities

Power supply	120 VAC and 230 VAC 208 VAC and 400 VAC
--------------	--

The BIOSTAT® RM is Ideal for

- Cell culture, growth of animal, insect and plant cells
- Expansion and differentiation of stem cells
- Shear sensitive cells
- Microorganisms for low to medium density cultivation
- Transition from shake or tissue culture flasks
- Seed Cultivation for large scale Bioreactors
- Production scale up to 300 L
- For all your single-use applications



Basic Packages –

Used for simple and easy cultivations. The rocker is used as a stand-alone unit and can independently control the temperature and gassing of two bags, which are mounted on the same platform. The systems features an optional integrated air | CO₂ gassing module. Gas flow rates can be set individually for 2 bags. Furthermore, the machine is equipped with an advanced color touch screen for easy operation. Different user levels prevent unauthorized manipulations in GMP environments. Many safety features such as pressure measurement and shut off ensure safe operation. Rocking rate and rocking angle can be adjusted individually.

Optical Packages –

Designed for batch and fed-batch processes. Process control is achieved through single-use optical chemical pH and DO sensors. Feedback control of both values is available for your process. Two integrated pumps are included.

Perfusion Packages –

Designed for continuous cultivation. Two additional integrated pumps are supplied for feed | harvest control by weight. Balances are included for excellent perfusion control.

BioPAT® MFCS/DA

All packages are equipped with BioPAT® MFCS/DA software for external data logging. All batch related data can be stored in an individual folder allowing batch-oriented bioprocessing. Its plotting module together with the integrated export function to MS Excel is both user friendly and highly flexible.

Packages



Single-use optical chemical pH and DO sensors assure total process control in your application.



An easy to use touch screen interface makes the operation of your BIOSTAT® RM system very convenient and keeps training to a minimum.

Basic Packages

- Autonomous Unit
- Rocker only
- Integrated air | CO₂ gassing module (option) to control gassing of up to two bags independently. Air supply via process air or internal air pump
- Pressure measurement and overpressure prevention
- Rocking angle and rocking rate control
- Temperature control of two bags independently by electrical heating blanket
- BioPAT® MFCS/DA data logging software included

Optical Packages

- Rocker with Optical Control Tower

Optical Control Tower

- Single-use optical chemical pH and DO sensors are included
- Feedback control of pH
- Feedback control of DO
- Temperature control by electrical heating or heating | cooling by thermostat
- Intuitive touch screen
- Trend display
- 2 integrated pumps
- Pressure control for overpressure safety
- Gassing by 4 × rotameters and 2 × mass flow controllers to overlay aeration
- BioPAT® MFCS/DA data logging software included

Perfusion Packages

- Rocker with Perfusion Control Tower

Perfusion Control Tower

- Balances for feed | harvest flow control are included
- Single-use optical chemical pH and DO sensors are included
- Feedback control of pH
- Feedback control of DO
- Temperature control by electrical heating or heating | cooling by thermostat
- Intuitive touch screen
- Trend display
- 4 integrated pumps
- Pressure control for overpressure safety
- Gassing by 4 × rotameters and 2 × mass flow controllers to overlay aeration
- BioPAT® MFCS/DA data logging software included

Bag Designs

Basic Bags

- Air inlet | air outlet filter
- Sample port
- Fill | drain and spare ports
- Female luer, female MPC or male MPC connectors
- Ports with dip tubes
- Bags with screw caps also available up to 20 L size

Optical Bags

- Air inlet | air outlet filter
- Sample port
- Fill | drain and spare ports
- Female luer, female MPC or male MPC connectors
- Ports with dip tubes
- Optical chemical DO sensor
- Optical chemical pH sensor

Perfusion Pro Bags

- Air inlet | air outlet filter
- Sample port
- Fill | drain and spare ports
- Female luer, female MPC or male MPC connectors
- Ports with dip tubes
- Optical chemical DO sensor
- Optical chemical pH sensor
- Feed | harvest ports
- Acid | base port
- Internal fixed perfusion membrane

Customized bags also available.

Technical Specifications



	BIOSTAT® RM 20 50 Basic	BIOSTAT® RM 20 50 Optical & Perfusion	BIOSTAT® RM 200 Optical	BIOSTAT® RM 600 Optical
Volume				
Total volume	up to 20 L (RM50:50 L)	up to 20 L (RM50:50 L)	up to 200 L	600 L
Minimum working volume (bags with sensors may require higher minimum volumes)	0.1 L (RM50:5 L)	0.1 L (RM50:5 L)	10 L	60 L
Maximum working volume	10 L (RM50:25 L)	10 L (RM50:25 L)	100 L	300 L
Bag Holder Rocker				
ABS	×	×		
Stainless steel			×	×
Clamping rails for bag fixation	×	×	×	×
Pressure sensor with gassing safety shut off	× (in combination with gassing module)	×	×	×
Proportional valve to maintain bag pressure at constant level	N/A	N/A	N/A	×
Redundant overpressure relieve valve	–	×	×	×
Sensor clamps for secure fixation of glass fiber cables	N/A	2 (single) 4 (twin)	4	2
Filter heater	2	1 (single) 2 (twin)	2	2
Controller				
Integrated into rocker	×	×		
DCU control tower	N/A	×	×	×
Potential free alarm contact	× [max 0.5 A]	(×)	(×)	(×)
Color touch screen	×	×	×	×
Different user level log in	×	(×)	(×)	(×)
Logbook function	N/A	(×)	(×)	(×)
Temperature Control				
Temperature modes	Heating Only	Only Heating or Heating Cooling	Only Heating or (Heating Cooling)	Only Heating or (Heating Cooling)
Temperature range, heating only	RT –40°C	RT –40°C	RT –40°C	RT –40°C
Temperature range heating cooling	N/A	8°C above cooling water –40°C	8°C above cooling water –40°C	8°C above cooling water –40°C
pT 100 probes and temperature amplifiers	2	1 (single) 2 (twin)	2	1
Heating power, heating only	2 × 140 W (48 VAC)	2 × 140 W (48 VAC)	2 × 650 W	1 × 1500 W
Heating power, heating cooling	N/A	1 × 1000 W	2 × 1000 W	2 × 1000 W
Overtemperature protection	×	×	×	×

* Available from Q2 | 2013
(×) optional, needs to be ordered separately



**BIOSTAT® RM 20 | 50
Basic**

**BIOSTAT® RM 20 | 50
Optical & Perfusion**

**BIOSTAT® RM 200
Optical**

**BIOSTAT® RM 600
Optical**

Gassing Module Basic Rocker

	BIOSTAT® RM 20 50 Basic	BIOSTAT® RM 20 50 Optical & Perfusion	BIOSTAT® RM 200 Optical	BIOSTAT® RM 600 Optical
Maximum total flow (ml/min), controlled by mass flow controller	(0–1000, or 2 × 0–500), ± 5%	N/A	N/A	N/A
Fixed CO ₂ gassing (%), measured by IR sensor	(0–15)	N/A	N/A	N/A
Internal air pump	(x)	N/A	N/A	N/A

Gassing Module Optical Systems

	BIOSTAT® RM 20 50 Basic	BIOSTAT® RM 20 50 Optical & Perfusion	BIOSTAT® RM 200 Optical	BIOSTAT® RM 600 Optical
Rotameter				
– O ₂	N/A	x	x	x
– N ₂	N/A	x	x	x
– CO ₂	N/A	x	x	x
– Air	N/A	x	x	x
Mass flow controllers for:				
– CO ₂	N/A	0–500 mL/min	x	x
– total flow (Air, O ₂ , N ₂)	N/A	RM20: 0.02–1 L/min RM50: 0.2–10 L/min	x	x
Multi-channel DO cascade control	N/A	x	x	x

Agitation

	BIOSTAT® RM 20 50 Basic	BIOSTAT® RM 20 50 Optical & Perfusion	BIOSTAT® RM 200 Optical	BIOSTAT® RM 600 Optical
Rocker speed (rpm), electronic adjustment	8–42 ± 1	8–42 ± 1	6–20 ± 1	2–16 ± 1
Rocker angle (°), electronic adjustment	4–10°, ± 0.3°	4–10°, ± 0.3°	4–10° ± 0.3°	4–10° ± 0.3°

DO and pH Measurement

	BIOSTAT® RM 20 50 Basic	BIOSTAT® RM 20 50 Optical & Perfusion	BIOSTAT® RM 200 Optical	BIOSTAT® RM 600 Optical
pH range	N/A	6.5–8.5	6.5–8.5	6.5–8.5
DO range	N/A	0–100%	0–100%	0–100%
Amplifier for optical single-use DO sensor	N/A	1 (single) 2 (twin)	2	2
Amplifier for optical single-use pH sensor	N/A	1 (single) 2 (twin)	2	2

Recalibration Function for

	BIOSTAT® RM 20 50 Basic	BIOSTAT® RM 20 50 Optical & Perfusion	BIOSTAT® RM 200 Optical	BIOSTAT® RM 600 Optical
– Disposable DO sensor	N/A	x	x	x
– Disposable pH sensor	N/A	x	x	x

Interface

	BIOSTAT® RM 20 50 Basic	BIOSTAT® RM 20 50 Optical & Perfusion	BIOSTAT® RM 200 Optical	BIOSTAT® RM 600 Optical
– RS232	1	2	2	2
– Ethernet	(1)	1	1	1
– Profibus DB	(1)	N/A	N/A	N/A
– Analogue IN	N/A	2	2	2
– Analogue OUT	N/A	2	2	2
BioPAT® MFCS/DA	x	x	x	x

* Available from Q2 | 2013

(x) optional, needs to be ordered separately



**BIOSTAT® RM 20 | 50
Basic**

**BIOSTAT® RM 20 | 50
Optical & Perfusion**

**BIOSTAT® RM 200
Optical**

**BIOSTAT® RM 600
Optical**

Pumps & Balances

	BIOSTAT® RM 20 50 Basic	BIOSTAT® RM 20 50 Optical & Perfusion	BIOSTAT® RM 200 Optical	BIOSTAT® RM 600 Optical
Digital pumps WM102, internal	N/A	2 per side	2	2
Analogue pumps WM102, internal	N/A	(2) per side	(2)	(2)
Analogue pumps (via analogue OUT)	N/A	(up to 2), if no internal analogue pumps selected, per side	(up to 2)	(up to 2)
External balances	N/A	(up to 2), per side	(up to 2)	(up to 2)
Measurement of media weight (integrated load cells)	(x)*	(x)*	(x)*	

Power Supply

	BIOSTAT® RM 20 50 Basic	BIOSTAT® RM 20 50 Optical & Perfusion	BIOSTAT® RM 200 Optical	BIOSTAT® RM 600 Optical
Rocker 120 V–230 VAC 1-phase 6.3 A	x	x	N/A	N/A
Control tower: 120 VAC 1-phase 16 A	N/A	country specific	N/A	N/A
Control tower: 230 VAC 1-phase 16 A	N/A	country specific	N/A	N/A
Complete System: 208 VAC 3-phase TN-S 32 A	N/A	N/A	country specific	country specific
Complete system: 400 VAC 3-phase TN-S 32 A	N/A	N/A	country specific	country specific

Laboratory Supply

	BIOSTAT® RM 20 50 Basic	BIOSTAT® RM 20 50 Optical & Perfusion	BIOSTAT® RM 200 Optical	BIOSTAT® RM 600 Optical
Process gasses pressure (barg)	1.0–1–5	1.3–1.5	1.3–1.5	1.3–1.5
Gas specifications according to ISO 8573-1				
– Particle size: < 0.1 mm amount: max. 0.1 mg/m ³ (class 1)	x	x	x	x
– Condensate: dew point < x3°C (Class 4)	x	x	x	x
– Oil: < 0.01 mg/m ³ (Class 1)	x	x	x	x
– Germs Class 0	x	x	x	x
Quick Couling for gas tubes, Festo Type (OD 4 mm)	x			
Hose barb for gas tubing, ID 6 mm	N/A	x	x	x
Cooling water (for heating cooling system only)	N/A	(x)	(x)	(x)

Hardware Dimensions & Weight

	BIOSTAT® RM 20 50 Basic	BIOSTAT® RM 20 50 Optical & Perfusion	BIOSTAT® RM 200 Optical	BIOSTAT® RM 600 Optical
W × H × D (mm)	RM20: 765 × 600 × 400 mm RM50: 1085 × 600 × 450 mm	BIOSTAT® RM Control Tower 320 × 735 × 565 mm plus size of basic rocker	1998 × 1241 × 830 mm	1790 × 1470 × 1330 cm
Weight	RM 20: 30 kg RM 50: 32.2 kg	BIOSTAT® RM Control Tower 50 kg plus weight of basic rocker	272 kg	340 kg

* Available from Q2 | 2013
(x) optional, needs to be ordered separately

Sales and Service Contacts

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

Europe

Germany

Sartorius Stedim Biotech GmbH
August-Spindler-Strasse 11
37079 Goettingen

Phone +49.551.308.0
Fax +49.551.308.3289

www.sartorius-stedim.com

Sartorius Stedim Systems GmbH
Robert-Bosch-Strasse 5-7
34302 Guxhagen

Phone +49.5665.407.0
Fax +49.5665.407.2200

France

Sartorius Stedim Biotech S.A.
ZI Les Paluds
Avenue de Jouques - CS 91051
13781 Aubagne Cedex

Phone +33.442.845600
Fax +33.442.845619

Sartorius Stedim France SAS
ZI Les Paluds
Avenue de Jouques - CS 71058
13781 Aubagne Cedex

Phone +33.442.845600
Fax +33.442.846545

Austria

Sartorius Stedim Austria GmbH
Franzosengraben 12
1030 Vienna

Phone +43.1.7965763.18
Fax +43.1.796576344

Belgium

Sartorius Stedim Belgium N.V.
Leuvensesteenweg, 248/B
1800 Vilvoorde

Phone +32.2.756.06.80
Fax +32.2.756.06.81

Hungary

Sartorius Stedim Hungária Kft.
Kagyló u. 5
2092 Budakeszi

Phone +36.23.457.227
Fax +36.23.457.147

Italy

Sartorius Stedim Italy S.p.A.
Via dell'Antella, 76/A
50012 Antella-Bagno a Ripoli (FI)

Phone +39.055.63.40.41
Fax +39.055.63.40.526

Netherlands

Sartorius Stedim Netherlands B.V.
Edisonbaan 24
3439 MN Nieuwegein

Phone +31.30.6025080
Fax +31.30.6025099

Poland

Sartorius Stedim Poland Sp. z o.o.
ul. Wrzesinska 70
62-025 Kostrzyn

Phone +48.61.647.38.40
Fax +48.61.879.25.04

Russian Federation

LLC "Sartorius ICR"
Uralskaya str. 4, Lit. B
199155, Saint-Petersburg

Phone +7.812.327.5.327
Fax +7.812.327.5.323

Scandinavia

Sartorius Stedim Nordic A/S
Hoerskaetten 6D, 1.
2630 Taastrup, Denmark

Phone +45.7023.4400
Fax +45.4630.4030

Spain

Sartorius Stedim Spain SA
C/Isabel Colbrand 10,
Oficina 70
Polígono Industrial de Fuencarral
28050 Madrid

Phone +34.90.2110935
Fax +34.91.3589623

Switzerland

Sartorius Stedim Switzerland AG
Ringstrasse 24 a
8317 Tagelswangen

Phone +41.52.354.36.36
Fax +41.52.354.36.46

U.K.

Sartorius Stedim UK Ltd.
Longmead Business Centre
Blenheim Road, Epsom
Surrey KT19 9 QQ

Phone +44.1372.737159
Fax +44.1372.726171

America

USA

Sartorius Stedim North America Inc.
5 Orville Drive, Suite 200
Bohemia, NY 11716

Toll-Free +1.800.368.7178
Fax +1.631.254.4253

Argentina

Sartorius Argentina S.A.
Int. A. Ávalos 4251
B1605ECS Munro
Buenos Aires

Phone +54.11.4721.0505
Fax +54.11.4762.2333

Brazil

Sartorius do Brasil Ltda
Av. Dom Pedro I, 241
Bairro Vila Pires
Santo André
São Paulo
Cep 09110-001

Phone +55.11.4451.6226
Fax +55.11.4451.4369

Mexico

Sartorius de México S.A. de C.V.
Circuito Circunvalación Poniente
No. 149
Ciudad Satélite
53100, Estado de México
México

Phone +52.5555.62.1102
Fax +52.5555.62.2942

Asia | Pacific

Australia

Sartorius Stedim Australia Pty. Ltd.
Unit 5, 7-11 Rodeo Drive
Dandenong South Vic 3175

Phone +61.3.8762.1800
Fax +61.3.8762.1828

China

Sartorius Stedim Biotech (Beijing) Co. Ltd.
Airport Industrial Zone B
No. 33 Yu'an Road
Beijing 101300, Shunyi District

Phone +86.10.80426516
Fax +86.10.80426580

Sartorius Stedim Biotech (Beijing) Co. Ltd.
Shanghai Branch office
Room 618, Tower 1, German Centre,
Shanghai, PRC., 201203

Phone +86.21.28986393
Fax +86.21.28986392.11

Sartorius Stedim Biotech (Beijing) Co. Ltd.
Guangzhou representative office
Room 704, Broadway Plaza,
No. 233-234 Dong Feng West Road
Guangzhou 510180

Phone +86.20.8351.7921
Fax +86.20.8351.7931

India

Sartorius Stedim India Pvt. Ltd.
#69/2-69/3, NH 48, Jakkasandra
Nelamangala Tq
562 123 Bangalore, India

Phone +91.80.4350.5250
Fax +91.80.4350.5253

Japan

Sartorius Stedim Japan K.K.
Kiba Park Bldg
5-11-13 Kiba
Koto-ku
Tokyo 135-0042

Phone +81.3.5639.9981
Fax +81.3.5639.9983

Malaysia

Sartorius Stedim Malaysia Sdn. Bhd.
Lot L3-E-3B, Enterprise 4
Technology Park Malaysia
Bukit Jalil
57000 Kuala Lumpur, Malaysia

Phone +60.3.8996.0622
Fax +60.3.8996.0755

Singapore

Sartorius Stedim Singapore Pte. Ltd.
1 Science Park Road,
The Capricorn, #05-08A,
Singapore Science Park II
Singapore 117528

Phone +65.6872.3966
Fax +65.6778.2494

South Korea

Sartorius Korea Biotech Co., Ltd.
8th Floor, Solid Space B/D,
PanGyoYeok-Ro 220, Bundang-Gu
SeongNam-Si, GyeongGi-Do, 463-400

Phone +82.31.622.5700
Fax +82.31.622.5799



◀▶ www.sartorius-stedim.com