

Biostat® RM Rocking Motion Bioreactor Powered by Biobrain®

Product Information

The Biostat® RM rocking motion bioreactor system consists of a new, first-in-class control tower built on the commercial manufacturing (CM)-ready Biobrain® automation platform. It also comprises a bioreactor family that includes the Biostat® RM 20|50 and Biostat® RM 200, offering a unique solution for CM.



Features and Benefits

- Accelerate Go-to-Market timelines
- Simplify process transfer from PD to CM
- Flexibility for different production scenarios and testing multiple setups
- Precise process control for better parameter definition
- Excellent global application support

Relevant Applications

- Proteins
- Vaccines
- Cell and Gene Therapy

Relevant Process Steps

- Seed Expansion

Technical Specifications

Biostat® RM



Biostat® RM Control Tower

Control Tower Weight	Tower: 44 kg Display: 11 kg
Control Tower Dimensions (H×W×D)	Tower: 440×355×660 mm Display: 450×394×200 mm

Utility Connections

Power Supply	<ul style="list-style-type: none">▪ 220–240 V, 50/60 Hz, 2.33 A max. power consumption▪ 100–120 V, 50/60 Hz, 4.64 A max. power consumption▪ Potential equalization
Ingress Protection Rating	IP 54
Gasses	<ul style="list-style-type: none">▪ Gas supply pressure: min. 1.5 barg – max. 2.0 barg▪ Dry, grease-free, oil-free, particle-free▪ Hose barb for tubing, external diameter = 6 mm
Housing	<ul style="list-style-type: none">▪ Stainless steel, AISI 304▪ Surface brushed with grain 240, surface roughness Ra 1.2
Display	Touch screen, 17.3", tempered glass, IP 54, inclinable, detachable, capacitive
Resolution	127 dpi
SCADA Communication	Industrial Ethernet

Utility Connections

Potential-Free (common) Alarm Contact	Opens and closes normally
Safety Valve Gas Pressure	100 mbar
Particle Emission Results	ISO Class 5 US FED Class 100 GMP Grade B
VHP Cleanability	Confirmed

Process Control | Sensors

Temperature	Pt100 0 – 150 °C Temperature control: 0 – 40 °C 0.1 °C
Dissolved Oxygen, Single-Use	0 – 110% 0.1%
pH, Single-Use	▪ Measurement range: 6.0 – 8.0 pH 0.1 pH
Balance Substrate	▪ 7 kg max. 1 g ▪ 60 kg max. 10 g ▪ Cubis® balance from 320 g 0.01 g up to 70.2 kg 1 g

Aeration Module

Outlet to Bag	Hose coupling Ø external = 6 mm
Gassing	▪ Four-gas mixing with headspace outlet ▪ Additive flow, four-gas (Air, O ₂ , N ₂ , CO ₂) mixture
Mass Flow Controllers	4 Flow rate (various models available): ▪ 3 ccm – 10 lpm (headspace) ▪ Accuracy: ± 1% full scale

Pump Module

Built-In Variable Speed Pumps	0.15- 200 rpm
Flow Rates for Built-In Variable Speed Pumps	Speed range 0.15 – 200 rpm: ▪ ID: 0.5 mm: 0.00 – 4.0 mL/min ▪ ID: 0.8 mm: 0.01 – 8.0 mL/min ▪ ID: 1.6 mm: 0.02 – 28.0 mL/min ▪ ID: 2.4 mm: 0.04 – 60.0 mL/min ▪ ID: 3.2 mm: 0.07 – 96.0 mL/min ▪ ID: 4.8 mm: 0.13 – 172.0 mL/min

External Pumps

Speed-Controlled	▪ Watson Marlow 120, fast-load pump head, up to 200 rpm ▪ Watson Marlow 323, fast-load pump head, up to 400 rpm ▪ Watson Marlow 530, fast-load pump head, up to 220 rpm or 265 rpm
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Biostat® RM Rocker



Biostat® RM Rocker	20 50 L	200 L
Weight	<ul style="list-style-type: none"> ▪ RM 20 without Load Cell - 31 kg ▪ RM 20 with Load Cell - 41 kg ▪ RM 50 without Load Cell - 33 kg ▪ RM 50 with Load Cell - 43 kg 	197 kg
Dimensions (H×W×D)	<ul style="list-style-type: none"> ▪ Biostat® RM 20 with bag holder 20, hood: 774×654×500 mm ▪ Biostat® RM 20 with bag holder 20, hood, Load Cell: 744×654×560 mm ▪ Biostat® RM 50 with bag holder 50, hood: 1,085×654×500 mm ▪ Biostat® RM 50 with bag holder 50, hood, Load Cell: 1,085×654×560 mm 	1155×1940×1080 mm
Construction Material of Culture Bag Holder and Hood	ABS	ABS
Power Supply	<ul style="list-style-type: none"> ▪ 240 V, 50 Hz, power consumption 10 A ▪ 100 V, 60 Hz, power consumption 12 A 	<ul style="list-style-type: none"> ▪ 230 V, 50 Hz, power consumption 5.2 A ▪ 120 V, 60 Hz, power consumption 10 A
Power Consumption	600 W	1,200 W
Ingress Protection Rating	IP 23	IP 21
Rocking Speed	8 - 42 ± 1 (r/min)	2 - 20 ± 1 (r/min)
Rocking Angle	4 - 10°, ± 0.3°	2 - 10°, ± 0.3°
Max Gas Supply Rate	<ul style="list-style-type: none"> ▪ Aeration rate: 50 - 1,000 mL/min ▪ Permitted bulk flow for stable CO₂ control within CO₂ ratio controller: 100 - 1,000 mL/min 	7 L/min for all gasses
Load Cells	100 - 240 V 15 W 100 kg 10 g	100 - 240 V 15 W 400 kg 10 g
Acoustic Emissions	<ul style="list-style-type: none"> ▪ Device switched on, idle, aeration off: 39 dB(A) ▪ Device switched on, 42 RPM, aeration off: 62 dB(A) ▪ Device switched on, idle, aeration on: 54 dB(A) ▪ Device switched on, 42 RPM, aeration on: 63 dB(A) 	<ul style="list-style-type: none"> ▪ Device switched on, idle: 56 - 61 dB(A) ▪ During operation: > 65 dB(A)
Temperature Control Module		
Heating	2 × 140 W	2 × 410 W

Control System General Information

- Advanced DO Controller
- Level Control via Sensor
- Gravimetric Feed | Level Control
- Substrate Addition via Time Profile
- System IQ | OQ
- Biobrain® Supervise SCADA Connection

Ordering Information

Item	Description	Order Number
Biostat® RM	Configurable rocking motion bioreactor available with 20 L, 50 L or 200 L rocker.	Configurable product based on the needs of the customer. Generate quote in the configurator.

Peripherals and Accessories

Product Name	Description	Order Number
7 kg Balance	<ul style="list-style-type: none">▪ Weight indication via bioreactor control system▪ Max. load: 7 kg▪ Resolution: 0.1 g▪ Stainless steel platform▪ Platform diameter: 233 mm▪ Connection cable included	EVO1S1-WV4
60 kg Balance	<ul style="list-style-type: none">▪ Weight indicated on balance display and control tower display▪ Taring via bioreactor control system (taring via balance deactivated)▪ Max. load: 60 kg▪ Resolution: 10 g▪ Stainless steel platform▪ Platform dimensions: 400 × 300 mm▪ Connection cable included	BB-8843513
Cubis® II MCA Balance	<ul style="list-style-type: none">▪ Laboratory balance with fully customizable hardware, software, and connectivity▪ Available types: Cubis® II Precision and Cubis® II High-Capacity▪ Available with configurable weighing modules	
Signal Lamp	<ul style="list-style-type: none">▪ Predefined signal lamp with integrated LED light source▪ Additional tool for customer notification in case of emergency or process discrepancies	ZB-RM-OT-0001
BioPAT® Trace	Inline measurement of glucose and lactate	Quote via configurator
BioPAT® Viamass	Inline biomass measurement for process control	Quote via configurator
Simulator Kit for BioPAT® Viamass	<ul style="list-style-type: none">▪ Accessories for checking the functionality of the electronic assembly▪ Two values: 0 pF/0 mS/cm and 100 pF/40 mS/cm	BPV0011
Advanced Order Execution (AOE)	Service to increase visibility and improve customer interaction. AOE provide a dedicated project coordinator (remotely) for order of standard instruments including scheduling and monitoring of order progress, communication with customer and early access to all available documentation via sharepoint.	ZB-MB-HA-0045
Interface Consulting (IC)	<ul style="list-style-type: none">▪ Consulting service decrease effort and risk on customer side▪ IC provide support to optimize integration effort for our customers, directly available from configurator▪ Includes all available documentation and consulting from Sartorius Engineering	ZB-MB-HA-0044

Flexsafe® RM Bags

Product Name	Quantity	Order Number
Flexsafe® RM Basic Culture Bags		
Flexsafe® RM 1 L Basic	5	DFB001L
Flexsafe® RM 2 L Basic	5	DFB002L
Flexsafe® RM 2 L Basic Screw Cap	5	DFB002L---01SC
Flexsafe® RM 10 L Basic	5	DFB010L
Flexsafe® RM 10 L Basic Screw Cap	5	DFB010L---01SC
Flexsafe® RM 20 L Basic	5	DFB020L
Flexsafe® RM 20 L Basic Screw Cap	5	DFB020L---01SC
Flexsafe® RM 50 L Basic	5	DFB050L
Flexsafe® RM 50 L Basic Screw Cap	5	DFB050L---01SC
Flexsafe® RM 50 L Basic (US)	5	DFB050L---01US
Flexsafe® RM 100 L Basic	2	DFB100L
Flexsafe® RM 200 L Basic	2	DFB200L
Flexsafe® RM Optical Culture Bags		
Flexsafe® RM 2 L Optical	5	DFO002L
Flexsafe® RM 2 L Optical Screw Cap	5	DFO002L---01SC
Flexsafe® RM 10 L Optical	5	DFO010L
Flexsafe® RM 10 L Optical Screw Cap	5	DFO010L---01SC
Flexsafe® RM 20 L Optical	5	DFO020L
Flexsafe® RM 20 L Optical Screw Cap	5	DFO020L---01SC
Flexsafe® RM 50 L Optical	5	DFO050L
Flexsafe® RM 50 L Optical Screw Cap	5	DFO050L---01SC
Flexsafe® RM 100 L Optical	2	DFO100L
Flexsafe® RM 200 L Optical	2	DFO200L
Flexsafe® RM Perfusion Culture Bags		
Flexsafe® RM 2 L Perfusion	3	DFP002L-SM
Flexsafe® RM 10 L Perfusion	3	DFP010L-SM
Flexsafe® RM 20 L Perfusion	3	DFP020L-SM
Flexsafe® RM 50 L Perfusion	3	DFP050L-SM
Flexsafe® RM 2 L Perfusion ATF	3	DFP002L-AT
Flexsafe® RM 10 L Perfusion ATF	3	DFP010L-AT
Flexsafe® RM 20 L Perfusion ATF	3	DFP020L-AT
Flexsafe® RM 50 L Perfusion ATF	3	DFP050L-AT
Flexsafe® RM 100 L Perfusion ATF	2	DFP100L-AT
Flexsafe® RM 200 L Perfusion ATF	2	DFP200L-AT

Product Name	Quantity	Order Number
Flexsafe® RM Viamass Culture Bags		
Flexsafe® RM 10 L Basic Viamass	5	DFB010L---VM
Flexsafe® RM 20 L Basic Viamass	5	DFB020L---VM
Flexsafe® RM 50 L Basic Viamass	5	DFB050L---VM
Flexsafe® RM 2 L Optical Viamass	3	DFO002L-VM
Flexsafe® RM 10 L Optical Viamass	5	DFO010L---VM
Flexsafe® RM 20 L Optical Viamass	5	DFO020L---VM
Flexsafe® RM 50 L Optical Viamass	5	DFO050L---VM
Flexsafe® RM 100 L Optical Viamass	2	DFO100L---VM
Flexsafe® RM 200 L Optical Viamass	2	DFO200L---VM
Flexsafe® RM 2 L Perfusion Viamass	3	DFP002L-SMVM
Flexsafe® RM 10 L Perfusion Viamass	3	DFP010L-SMVM
Flexsafe® RM 20 L Perfusion Viamass	3	DFP020L-SMVM
Flexsafe® RM 50 L Perfusion Viamass	3	DFP050L-SMVM
Flexsafe® RM 100 L Perfusion Viamass	2	DFP100L-SMVM
Flexsafe® RM 200 L Perfusion Viamass	2	DFP200L-SMVM
Flexsafe® RM 10 L ATF Viamass	3	DFP010L-ATVM
Flexsafe® RM 20 L ATF Viamass	3	DFP020L-ATVM
Flexsafe® RM 50 L ATF Viamass	3	DFP050L-ATVM
Flexsafe® RM 100 L ATF Viamass	2	DFP100L-ATVM
Flexsafe® RM 200 L ATF Viamass	2	DFP200L-ATVM

Schematic drawings can be found in Datasheet for Flexsafe® RM Bags.

Customized bag designs can be requested via engineered to order (ETO) process.

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