SARTORIUS

Product Datasheet

Biostat STR® Microbial and Flexsafe STR® Microbial Bags

Engineered for High Demanding Microbial Processes

Benefits

- Designed for all types of high demanding microbial processes
- Suited for pDNA production
- Qualified Flexsafe microbial bag for GMP processes
- Improve productivity and ease of use
- Achieve superior process control

Product Information

Biostat STR® Microbial is a high performing single-use fermenter in Sartorius's classical stirred-tank design. The system includes the bag holder hardware, the control tower featuring Biobrain® for industrial GMP processes and advanced automation, and the Flexsafe STR® bag designed specifically for microbial processes. The unique control tower concept allows highest flexibility, easy configuration switch-over and stand-alone GMP process supervision. With 40 L working volume the system allows easy transfer from stainless steel processes to single-use fermentation equipment or scaling from Ambr® 250 microbial processes.

Technical Specifications

Bag Holder with TCU

	Biostat STR® Microbial
Material	AISI 304L stainless steel
Dimensions W × D × H	815 × 1,175 × 1,951 mm 32.1 × 46.3 × 76,8 in
Footprint	0.86 m² 9.26 ft²
Weight	335 kg 738.5 lb
Packaging Dimensions	1,450 × 1,150 × 2,200 mm 57.1 × 45.3 × 82.7 in
Installed on Skid	■
Double Wall	■
Electro-Polished	■
Single Front Door	■
Holder for Gas Filters	■
Viewing Window	1
Lateral Window for Sensors and Ports	2
Top Drive Motor	■

■ Available — Not available ☐ Optional

Biostat STR® 50 Microbial

Control Tower

Specifications for All Biostat STR® Models and Sizes	
Material	AISI 304 stainless steel
Dimensions (W × D × H)	800 × 850 × 1,820 mm | 31.5 × 33.5 × 71.7 in
Footprint	0.68 m^2 | 7.32 ft^2
Weight	240 kg | 529 lb
Packaging Dimension	1,000 × 1,050 × 2,100 mm | 39.4 × 41.3 × 82.7 in
Single Version	■
Installed on Skid	■
Color Touch Screen	22"
Safety Measurement and Shut-Off	■
Different User Level Login	□
Standalone GMP Functionality	■

Facility and Utility Requirements

	Biostat STR® Microbial
Power Supply Power | Frequency | Consumption	
208 VAC | 60 Hz | 19 A	■
400 VAC | 50 Hz | 13 A	■
Gas Supply	Gas specification according to ISO 8573-1: dry, free of oil and dust
Compressed Air (bar)	4
Gas Pressure O_2, N_2 (bar)	4
Water Supply	
Cooling Water – Supply Pressure (bar)	1.5 bar/15 Lpm (recommended)
Drain for Water	25 Lpm
Temperature	min. 8 °C min. 46°F
Degree of Hardness	0.7 – 1.5 mmol/L alkaline earth ions
Environmental Requirements	
Ambient Temperature	5 – 40 °C 41 – 104°F
Relative Humidity Range	< 80% till 31 °C < 50% linear decreasing for temperature of 31 – 40 °C

■ Available — Not available □ Optional

Process Control

	Biostat STR® Microbial
Agitation Module	
Max. Stirrer Speed	500 rpm
Temperature Control Unit	
Type	Heating | Cooling
Heating kW | Cooling HP	
Temperature control, double wall	8 °C (46°F) above cooling water up to 40 °C (104°F)
Over-Temperature Protection	■
Connection to Pressure-Rated Cooling Water up to 6 bar	■
Aeration Module	3-gas mix (O_2, N_2, air) with 1 outlet
Mass Flow Controllers (MFC)	
■ Number of MFCs	3
■ Accuracy of MFC	±1% full-scale
For Sparger Line	Ring sparger (O_2, N_2, air)
■ Flow Rates (Lpm)	(0.38 – 60)
Advanced DO Controller	■
Max. Total Gassing Rate	1.5 vvm
Pump Module	
Three Internal Pumps Installed	
WM314 Speed-Controlled	1
WM314 Fixed-Speed	2
External Pumps	
At the Tower Speed-Controlled	up to 8

■ Available — Not available □ Optional

Process Control (continued)

	Biostat STR® Microbial
Sensors and Measurement	
Temperature Probe Pt100	■
■ Measurement Range	0 – 150 °C 32 – 302°F
pH, Electro-Chemical, Multiuse and Single-Use	■
■ Measurement Range	4 – 10
DO, Single-Use	■
■ Measurement Range	0 – 110%
■ Recalibration Function	■
DO Optical or Polarographic, Reusable	■
■ Measurement Range	0 – 100%
Load Cells	■
Balance Substrate	(up to 4)
Accessories	
Filter Line IN	■
Filter Line OUT	■
SU Exhaust Cooler	■ (required)
Holder for Conventional Probes	□
Trace (MFCS)	
Transfer Set	■ (required to connect two exhaust filters)

Communication | Control Tower Interface

	Biostat STR® Microbial
OPC UA	■
OPC DA (convertor)	□
RS232	up to 4
Industrial Ethernet	■
Analog IN	4
Analog OUT	4

■ Available — Not available □ Optional

Flexsafe STR® Bags

Geometrical Data of Flexsafe STR® Bags

Flexsafe STR®	Microbial
Total Volume [L]	68
Max. Working Volume [L]	40
Min. Working Volume [L]	11
Turndown Ratio	1:3.6
Bag Diameter, d_1 [mm]	370
Bag Height, h_1 [mm]	666
Ratio, h_1/d_1	1.8
Liquid Height, h_2 [mm]	428
Ratio, h_2/d_1	1.2
Impeller Diameter, d_2 [mm]	143
Ratio, d_2/d_1	0.38
Distance Between Impellers [mm]	186
Volume Bottom Impeller Fully Immersed V_1 [L]	10
Volume Top Impeller Does Not Touch Surface V_2 [L]	25
Volume Top Impeller, Fully Immersed V_3 [L]*	28
Bag Packaging Dimensions W × D × H (mm | in)	395 × 395 × 1,170 | 15.5 × 15.5 × 46

Example of Flexsafe STR® Microbial Configuration

Position	Designation	Tubing Material	Tubing Termination	Remarks
A	Pressure	Si(Pt)	Opta connector	Without spare port
B	Substrate line 1	Si(Pt), TPE (C-Flex®)*	Clave connector	
C	Substrate line 2	Si(Pt), TPE (C-Flex®)*	MPC quick coupling	
D	Sparger aeration	Si(Pt)	Opta connector	Without spare port
E	Substrate 3 – 4	Si(Pt), TPE (C-Flex®)*	MPC quick coupling	Two lines via Y, dip tube
F	Base addition	Si(Pt), TPE (C-Flex®)*	Clave connector	
G	Antifoam addition	Si(Pt), TPE (C-Flex®)*	Clave connector	
H	Gas out (exhaust)	Si(Pt)	Opta connector	
X	Condensate return	Si(Pt)	Opta connector	For exhaust cooler
I	Temperature sensor	Si(Pt)	N/A	Reusable sensor (Pt100)
L	DO sensor	N/A	N/A	Optical single-use sensor
J | U	pH sensor	N/A	N/A	Electrochemical single-use sensor
O | T	Multi-use sensors	Si(Pt)	KPC female	
N	Small-volume sampling	Si(Pt), TPE (C-Flex®)*	Clave connector	
M	Bottom-drain harvest	Si(Pt), TPE (C-Flex®)*	MPC quick coupling	

* C-Flex® is a registered trademark of Saint-Gobain Performance Plastics Corporation.

Ordering Information

Description	Order No.

Biostat STR® Bioreactor System

System will be configured according to process requirements based on broad choice of configuration options.
Please contact your sales representative.

Flexsafe STR® Single-Use Bioreactor Bag

Standard Design

Bag reference	Impeller configuration	Sparger	Sampling line	Temp.	Optical DO (single-use)	pH electrode (single-use)	KPC port (for multi-use electrodes)	Sterile connector
FRS313532	2x Rushton	Ring	1x	1x	2x	1x	–	Opta®
FRS313533	2x Rushton	Ring	1x	1x	2x	–	4x	Opta®
FRS313534	2x Rushton	Ring	1x	1x	2x	2x	2x	Opta®
FRS313536	2x Rushton	Ring	1x	1x	2x	1x	–	AseptiQuik®
FRS313537	2x Rushton	Ring	1x	1x	2x	–	4x	AseptiQuik®
FRS313538	2x Rushton	Ring	1x	1x	2x	2x	2x	AseptiQuik®

Customer-specific designs: please contact your sales representative.

Bag Tester Fleece

Biostat STR® 50 L	DZ050L-S2SIT

Description	Order No.
Accessories	
Filter Line IN 500 | 1,000 L | Microbial	DS001K-SBFLI
Filter Line OUT 500 | 1,000 L | Microbial	DS001K-SBFLO
Lab Cart	1ZG---0032
Autoclave Tray for Reusable Probes	1ZG---0034

Single-Use Exhaust Cooler		Additional information
SU Exhaust Cooler STR® 500 | 1,000 L | Microbial	DS001K---EC	For use with Biostat STR® Microbial, with OPTA® connectors
Transfer Set OPTA® | OPTA® Exhaust	FBT312258	
SU Exhaust Cooler STR® 500 | 1,000 L | Microbial ASQ	DS001K---ECA	For use with Biostat STR® Microbial, with AseptiQuik® connectors
Transfer Set AseptiQuik® | AseptiQuik® Exhaust	FBT312260	

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