Technical data

SB2500-Z (Order number 107095)

General	
Working volume range	500 - 2500 L
Dimensions (width x depth x height)	approx. 220 x 220 x 410 cm
Required footprint bioreactor	5 m^2
Required footprint operation site	12 m^2
Weight (empty)	3200 kg
Power consumption steady state	approx. 1000 Wh
Power consumption max.	approx. 11500 Wh
Mains connection	400 V / 50 Hz
Connection for power supply	Adjusted to power outlet of recipient country
Interface	Ethernet (1x RJ45)
Language of manual and safety instructions	Adjusted to official language of recipient country
Ambient conditions	10 - 35 °C / max. 85% r.h.
Material casing	Stainless steel V2A / 1.4301
IP protection class	IP43
Ambient noise level	approx. 60 dB
Bag nominal value	approx. 3700 L
Bag contact layer	LDPE

User interface	
Touchscreen size	21.5 inches / 54.6 cm
Touchscreen type	10-finger multi-touch, glove-friendly, capacitive
Resolution	1920 x 1080 Pixel (Full-HD)
Material casing	stainless steel & safety glass
IP protection class	IP67
Control software	SB2500-Z SCADA
Operation menu language	English

Shaking control	
Drive concept	Helical-bevel gearmotor
Shaking frequency range	0 - 60 rpm
Setting, digital	1 rpm
Shaking diameter (fix)	100 mm (orbital motion)
Accuracy, absolute	± 1 rpm
Acceleration	adjustable
Active brake	adjustable
Shaking frequency sensor	inductive sensor for additional speed measurement and detection of drivetrain defect

Temperature control	
Cooling	optional
Temperature max. (with 2500 L)	40 °C
Temperature min. (with 2500 L)	slightly above RT (with optional cooling)
Setting, digital	0.1 °C
Temperature control accuracy	± 0.3 °C
Heating rate (with 2500 L)	2 °C / h
Cooling rate (with 2500 L)	1 °C / h (with active coolant supply at 16 °C)
Power of heating	9000 W
Heating concept	resistance (attached to vessel wall)
Power of cooling	7500 W (depending on available coolant supply)
Cooling concept	Cooling coils in vessel bottom (requires an external coolant supply)
Temperature sensors	4 x Pt-100 Class B3 (integrated in vessel bottom)

pH and DO control	
pH measurement	2 x optical sensors (integrated in bag)
Measurement range	pH 5.0 - 9.0
Measurement accuracy	pH ± 0.05 at pH 7 with one point calibration pH ± 0.10 at pH 7 with pre-calibration
Control range	pH 5.5 - 8.5
Control accuracy	pH ± 0.1
Drift per day	pH < 0.005
Setting, digital	pH 0.1
Temperature range	up to 50 °C
Control strategy	variable CO_2 conc. in gas mixture and/or acid/base pumps
DO measurement	2 x optical sensors (integrated in bag)
Measurement range	0% – 130 % DO
Measurement accuracy	+/- 0.4 % O_2 at 20.9 % O_2 in the gas mixture +/- 0.05 % O_2 at 0.2 % O_2 in the gas mixture.
Control range	0% – 100% DO
Control accuracy	± 1 % DO
Drift per day	< 0.015 % DO
Setting, digital	1 % DO
Temperature range	up to 50 °C
Control strategy	variable O_2 conc. in gas mixture

Gas mixing (FlowCon)	
Number of mass flow controllers	5 (1 per gas and 1 for total gas flow)
Mass flow controller concept	thermal
Input	up to 4 gases (air, O_2, N_2 and CO_2)
Input pressure range	2.0 - 2.5 bar
Output flow rate control range air for bag infilling	1.0 - 200 L/min
Output flow rate control range air for process control	1.0 - 70 L/min
Output flow rate control range O_2 for process control	0.8 - 60 L/min
Output flow rate control range N_2 for process control	0.8 - 60 L/min
Output flow rate control range CO_2 for process control	0.1 - 15 L/min
Flow rate accuracy of full scale	± 0.8 %
Setting, digital	0.1 L/min
Pressure safety measurement	in gas output flow and bag headspace

Filter heater control	
Exhaust filter capacity	2 (2 separate filter heaters)
Temperature maximum (at RT with 60 L/min flow rate)	60 °C
Heating concept	resistance
Power of heating per filter heater	55 W
Setting, digital	0.1 °C
Control accuracy	± 2 °C
Temperature sensors	2 x Pt-100 Class B4
Material casing	water repellent polyester fabric

Technical data subject to change.

Pumps		
Peristaltic pumps (up to 3 mobile pumps)	2 small pumps for acid, base, or feed	1 large pump for inoculation and harvest
Type	Watson-Marlow 630PnN/R	Watson-Marlow 730PnN/R
Flow rates	0.010 L/min to 2.400 L/min	1.000 L/min to 33.330 L/min
Tube wall thickness	3.2 mm	4.8 mm
Flow measurement	By internal measurement of pumps and additional up to 3 flow meters (Leviflow®)	