TEB500 series bioreactor

Description

The TEB500 bioreactor series has been designed to facilitate the construction and manipulation of flow circuits. Thanks to its **top double door closing system**, the TEB500 allows accessing to the whole volume of the inner chamber, improving the access to the peristaltic pumping systems located at the rear wall of the chamber.

It counts on two independent peristaltic pumping systems, which are equipped with multichannel eight-roller four cassettes pumpheads for multiple simultaneous pumping (eight channels in total).

The TEB500 series is equipped with CO_2 and O_2 controls in its standard version and allows the user to:

- Control the culture media flow rate
- Regulate the inner temperature
- Regulate CO_2 and O_2 concentrations

The TEB500 has network capabilities which allow checking the status of the equipment remotely, as well as to access the data logging system of the most relevant culture data.

Applications

The fully integrated configuration of the TEB500 is able to substitute a large number of equipment frequently used for cell culture in Tissue Engineering, like a CO_2 incubators, peristaltic pumps and heaters, since it integrates all their capabilities, allowing a wide variety of experimental set-ups including:

- Multiple simultaneous experiments,
- Controlled flow profiles for cell stimulation experiments or
- Experiments under hypoxic conditions.

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TEB500 flow bioreactor (1/2)	
Temperature control	
Temperature range	Room temperatura +5 to +50 ºC
Control	± 0.1 ºC
Stability	± 0.1 ºC
Uniformity	≤ ± 0.35 ºC
CO_2 control	
Range	0.2-15%
Stability	± 0.1 ºC
Service pressure	0.35 bar
Recuperation (up to 90% of preset value)	0.7 %/min
O_2 control (optional)	
Range	1-19%
Service pressure	1 bar
Pumping system	
Number of pumps	Two independent subsystems with electric engines and electronics located outside the internal chamber of the Master Unit, to avoid overheating, reduce the risk of contamination and increase useful volume.
Number of pumpheads	1 multichannel pumphead per subsystem (2 pumpheads in total)
Channels per pumphead	4
Flow rate	0. 0002-49 ml/min per channel
Front display control	
Controlled variables	Temperature, CO_2, and O_2
PC-based interface control	
Controlled variables	Temperature, CO_2, O_2 and flow conditions
Flow control	• Independent control of each subsystem • Three modes of operation: manual, automatic (program) and seeding (alternative dynamic perfusion) • Possibility of introducing user-defined complex flow protocols (pulsatility, alternative flow direction, ramps, regulation of frequency and amplitude…) • Up to 10 programs can be recorded
Graphical visualization	Yes
Datalogging	Yes
Interface compatibility	Windows and Linux environments

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TEB500 flow bioreactor (2/2)	
Windows system requirements	• Windows Server 2008, 2012 (64-bit), XP SP3 (32-bit, XP SP2 (64-bit), Vista SP2, 7 or 8 (Desktop) • Java Platform Standard Edition 7 • RAM: 256 MB; 186 MB for Windows XP (32-bit) • Disk space: 250 MB • Graphics card: 64 MB • Browsers: Internet Explorer 7.0 and above, Firefox 3.6 and above, Chrome Screen resolution: at least 1024 x 768
Linux system requirements	• Oracle Linux 5.5+, Oracle Linux 6.x (32-bit), 6.x (64-bit) • Red Hat Enterprise Linux 5.5+, 6.x (32-bit), 6.x (64-bit) • Ubuntu Linux 10.04 and above • Suse Linux Enterprise Server 10 SP2, 11.x • Java Platform Standard Edition 7 • RAM: 256 MB • Disk space: 100 MB • Graphics card: 64 MB • Browsers: All OS that support versions Firefox 3.6 and above • Screen resolution: at least 1024 x 768
Power supply and consumption	
Power supply	110-220 V, 50-60 Hz, IEC 14 power cord
Nominal power	650 W
Dimensions and geometry	
External dimensions [W x D x H]	750 x 741 x 360 mm
Internal dimensions [W x D x H]	650 x 530 x 200 mm
Internal volume (l)	60
Opening system	Double top door construction
Weight	
Weight	60 kg

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