

TEB1000 series bioreactor

Description

The TEB1000 Series of EBERS' bioreactors combine the functionality of a CO₂ incubator with a double peristaltic system fully integrated in the incubator. This unique configuration permits to culture cells on 2D and 3D substrates in a sterile atmosphere under precisely-controlled flow conditions, avoiding all the problems associated to the introduction of a conventional peristaltic or syringe pump inside the incubator (overheating, contamination, loss of useful volume).



The user friendly touchscreen control system permits to develop a wide variety of experimental flow protocols (frequency, application profile, flow rate), giving the possibility of introducing user-defined flow profiles.

Potential applications include tissue engineering and regenerative medicine cell cultures, as well as any experiment requiring the propulsion of a fluid inside an incubator.

Applications

The TEB1000 series allows performing a wide variety of experiments, such as:

- 3D cell cultures for the engineering of tissues under flow conditions
- Cell seeding on 3D substrates and scaffolds
- Testing of biomaterials and cell culture substrates
- Perfusion of 2D cell cultures
- Tissue decellularization/recellularization
- Multiple simultaneous experiments under the same and different flow conditions

Any specific application in which the propulsion of fluid under precise conditions is required in a controlled atmosphere can be developed with the TEB1000.

TEB1000 flow bioreactor	
Temperature control	
Temperature range	Room temperatura +4 to +50 °C
Control	± 0.1 °C
Stability	± 0.1 °C
Uniformity	≤ ± 0.3 °C
CO₂ control	
Range	0.2-20%
Stability	± 0.1 °C
Service pressure	0.35 bar
Recuperation (up to 90% of preset value)	0.7 %/min
O₂ 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	Up to 2 pumpheads can be used with each subsystem (4 pumpheads in total)
Compatibility	High flow (HF) and Low flow (LF) pumpheads
HF Pumphead	<ul style="list-style-type: none"> • 1 channel pumphead • Flow rate: 0.1 to 400 ml/min
LF Pumphead	<ul style="list-style-type: none"> • 5 channel pumphead • Flow rate: 0.003 to 33 ml/min
Channels per pumphead	<ul style="list-style-type: none"> • HF pumphead: 1 channel/pumphead • LF pumphead: 5 channel/pumphead
Digital control of flow conditions by means of touchscreen	<ul style="list-style-type: none"> • Real time electronic flow rate control • Automatic graph of pump rotation speed • Independent control of each subsystem • Pre-configured flow profiles • Possibility of introducing user-defined complex flow protocols • Flow direction can be alternated • Pulsatile flow (regulation of frequency and amplitude) • Easy-to-use intuitive interface • Special flow control module for alternative dynamic perfusion
Power supply and consumption	
Power supply	110-220 V, 50-60 Hz, IEC 14 power cord
Nominal power	1800 W
Dimensions	
External dimensions [W x D x H]	686 x 803 x 848 mm
Internal dimensions [W x D x H]	540 x 451 x 693 mm
Weight	
Weight	120 kg