

CellMaker REGULAR and PLUS



High Quality Single-Use, Disposable Bioreactor Systems - Simplify Cell Culture and Fermentation Processes and Reduces Protein Production Times



CellMaker REGULAR and PLUS Part Numbers

8 litre CellMaker REGULAR System	CEL5008
50 litre CellMaker REGULAR System	CEL5050
8 litre CellMaker PLUS System	CEL5008SP
CellexusBag R - 8 litre	CEL6001
CellexusBag R - 50 litre	CEL6002
CellexusBag SP - 8 litre	CEL6021

CellMaker REGULAR and PLUS - Proven Technology -

The CellMaker REGULAR and PLUS are state-of-the-art, easy to use, single-use, disposable bioreactor control instruments.

Designed to speed up and simplify cell culture and fermentation bioprocesses, they are fully automated and include a wealth of new technologies for efficient growth of the widest range of cell types. They are innovative, high quality, robust systems which can be used with E. coli, pichia, algae and bacteriophage. Cells are cultured in a unique, single-use, disposable cell culture bag, the CellexusBag™, which expedites set-up times and eliminates cleaning requirements.

Unlike other disposable systems, which need shakers, rockers, rollers or large environmental chambers, the CellMaker REGULAR and PLUS systems eliminate mechanical methods for mixing by employing a proprietary airlift technology for optimal mixing and oxygenation of the cell culture. This is highly efficient, quick, simple, scalable and inexpensive to use. It provides optimal aeration along with precise temperature control enabling production of high cell densities and maximising expression levels of soluble protein.



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Features and Benefits

- Easy to install, programme and use – simple, less labour intensive with fast set up times (< 30 minutes) to reduce development and production times.
- Inexpensive to use – reduces costs.
- Applies single-use, disposable CellexusBag cell culture bags – flexible for use with all cell types, eliminates cross-contamination and minimises system down-time.
- No cleaning or autoclaving needed – enables use straight from the box, no time spent validating or cleaning and reduces down-time.
- Highly accurate temperature control (15°C - 40°C) with built-in chiller – enables heating and cooling of culture media with no external chilling/heating equipment needed giving optimal production of higher ODs of soluble protein.
- Oxygen generation capability (up to 4 litres / minute) - eliminates need, and extra cost, of external gas supply.
- Efficient airlift technology - delivers effective, controllable aeration and mixing, with minimal sheering and eliminating cell settling providing higher performance than shaker flasks and comparable performance to steel/glass stirred systems, optimal protein yields and ease of use.
- Programmable air/enriched airflow rate and high efficiency of oxygen transfer (1-10 litres per minute) – provides very efficient mixing and aeration to improve protein yields.
- Flexible culture/sample ports - easy inoculation and removal of culture samples.
- Single-use CellexusBag manufactured under ISO 10,000 conditions - provides quality assurance.

PLUS System:

- Comes with pH and oxygen sensor reader devices – enables efficient monitoring and control of DO and pH to give optimal growth conditions and production of highest yields of soluble protein in mammalian and insect cells.
- Single-use, disposable, non-penetrative sensor technology - provides speed and simplicity of use.
- Automated delivery of external CO2 supply – provides stringent pH control.

Dimensions and Specifications

Controller:

Dimensions: H 530 mm
W 420 mm
D 630 mm

Dual Input Voltage: AC 110V or AC 230V

Linear oil-free pump delivering 0-20lpm air

User interface via 15" Touchscreen monitor with 1024x768 resolution Incorporates mini-PC loaded with Bespoke Labview software.

PC Connectivity: 6 x USB ports, Ethernet LAN, Mini SD socket Reader device (with PLUS system) for disposable fluorescent DO and pH probes (available integrated within CellexusBag SP).

DO sensitivity: 0-500% Air (temperature compensated); accuracy <0.3% Air sat
pH range: 5.5-10; accuracy 0.02 pH units

Enclosures:

8 litre Enclosure Dimensions:
H 541mm - W 300 mm - D 353 mm

Input Voltage: via Controller connection
Mains Rated Power Supply: N/A (power supplied from Controller)

Mains Input Lead: N/A (power supplied from Controller)
Gas Mixing: Air / Oxygen – (supplied from Controller)



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System Descriptions

The CellMaker REGULAR and PLUS systems include the following components:

1. Enclosure

Holds the CellexusBag and incorporates a Peltier driven thermal plate heater, built in chiller and Pt100 temperature sensor to enable cell culture temperature to be closely monitored and controlled. Enclosures are available in 8 litre and 50 litre sizes, for use with 1-8 litre and 10-50 litre CellexusBags, to provide scale flexibility. A high efficiency condenser system for removal of moisture from an exhaust line, allowing venting of exhaust gas through a microbiological air filter, is included with gamma-irradiated, single-use condenser liners for ease of use and reduced set-up/turn-around times. It also incorporates transparent panels to allow visualisation of culture progress and enhancing performance for light-dependent applications.

2. Controller

The Controller incorporates an air pumping system, temperature regulation as well as process measurement and data acquisition. Crucial user defined parameters can be specified via a 15" Touchscreen monitor. Since control of dissolved oxygen (DO) is essential to achieve optimal cell concentrations and viabilities for mammalian and insect cells, the PLUS unit is available with pH and oxygen sensor readers to measure pH and dissolved oxygen concentration. Automated feedback of data enables pH control as well as regulation and adjustment of air, oxygen and carbon dioxide flow. Too little oxygen and cells may not achieve concentrations required for seeding large-scale bioreactors, too much oxygen and cells may undergo apoptosis.