

BIOREACTORS - NEW SOLUTIONS FOR OLD PROBLEMS



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A major effort has been invested to make bioreactors more efficient. To keep the cost of the MINIFOR fermentor low, without compromising quality, new ideas and innovations have been introduced:

NEW STIRRING

Instead of traditional impellers and expensive motors, we introduce a **new vibration mixer**. An electromagnet produces an efficient mixing **without vortex formation**, thus **no baffles** are needed.

At the same time this type of **mixing is more gentle** to cells and produces **less foam**. The oxygen transfer rate (OTR) is similar to traditional systems.

CONTROL

By using modern microprocessors it has been possible to place all the electronics into the front part of the apparatus. This makes the fermentor **unbelievably compact** and eliminates the casing tower commonly used in other products.

Despite its small size, **six parameters** are measured and controlled in the basic configuration of the fermentor-bioreactor. It takes **minimum space** on the bench and provides **excellent access** to all parts.

STERILITY

An inexpensive **elastic membrane** assures **perfect sterility**. It is easy to mount and replaces efficiently the need for mechanical seals or magnetic coupling.

MATERIALS

A **glass vessel with threaded fittings** is used instead of fermentor vessels with an expensive stainless steel cover.

As far as possible, expensive pieces of equipment have been replaced by **new high performance plastics**.



GAS FLOW CONTROL

MASSFLOW is a **new mass flow controller** system specially designed for the use together with laboratory bioreactors and fermentors. It allows the control of the pH of cell cultures by controlled addition of gaseous CO_2 , nitrogen or of any other gas with a suitable controller.

However, it can also be used **independently**, since all functions can be accessed from the front panel of the MASSFLOW.

Massflow allows a **precise, automatic control of the pH** in cell cultures **without the need of any other gas station**.

IR-HEATING

The culture is heated by infrared (IR) radiation produced in a **radiator with a gilded parabolic reflector** placed under the fermentation vessel. The **heat is absorbed gently** by the culture in a similar way to the sun heating water.

There is **no overheating** of the culture **at any volume**, as is usually the case when a heater is placed in the medium. Expensive double wall vessels with thermostatic baths are eliminated. At the same time pipes and cables disappear making the **fermentor less complex**.

PC SOFTWARE

FNet is the easy to use software for the fermentation and cell culture monitoring with the Lambda MINIFOR fermentor.

The software recognises the connected fermentors at startup. **Up to 6 fermentors, 12 integrators and 6 pumps can be connected to one PC.**

There is **no need of programming knowledge**.