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Каталог продукции на биореакторы, принадлежности компании **2mag**

2mag bioREACTOR

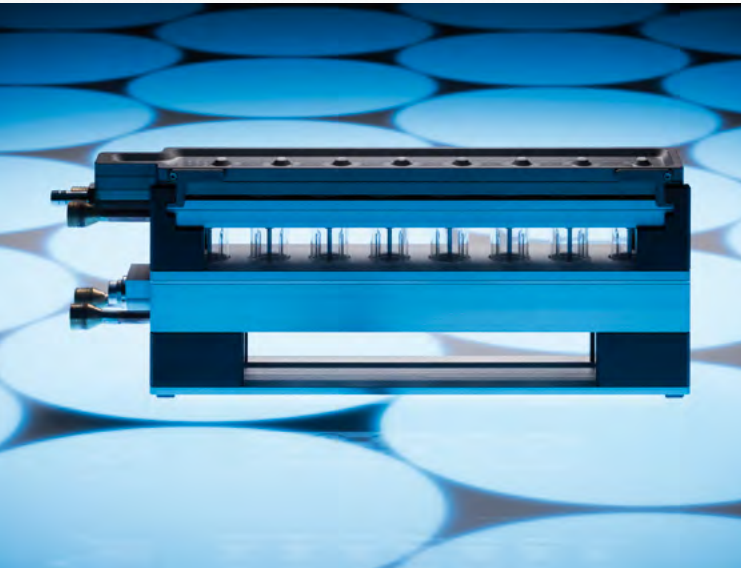
High-throughput bioprocess development in the millilitre scale



bioREACTOR

The 2mag bioREACTOR is a space-saving and user-friendly bioreaction block with up to 48 parallelised mini reactors.

magnetic motion



Advantages

- High parallelisation
- Optimal working volume (8-15 ml)
- Temperature (10-50 °C with sensors/0-65 °C without sensors)
- Easy handling through disposables
- Non-invasive real time measurement of pH and DO
- High oxygen transfer rates
- Automated stirrer monitoring
- Intelligent software for parallel operation of several bioREACTOR units
- Automation
- High parallel and sequential reproducibility
- Easy upscaling

The 2mag bioREACTOR is characterised by an exactly controllable stirring speed with automatic stirrer monitoring as well as a precise non-invasive real time measurement of pH and dissolved oxygen (DO).

Gassing and mixing of the culture vessels is provided by the gas inducing, inductive stirring elements.

The sterile headspace aeration prevents cross and external contaminations and allows cultivation of aerobic and anaerobic microorganisms.

An easy and secure scaling-up of the results into the production scale can be ensured by precisely defined engineering parameters and the comparable power and oxygen input ($k_L a > 0,4 \text{ s}^{-1}$) to well-established stirred tank reactors.

The bioREACTOR can be operated as standalone or fully automated by integration into a pipetting robot.

The high parallelisation allows an easy realisation of high-throughput fermentations in the biotechnological, chemical or pharmaceutical research. This strongly reduces development time and costs for new production processes.

Miniaturisation into the low millilitre scale (8-15 ml) provides a significant saving of material and process costs.

2mag bioREACTOR

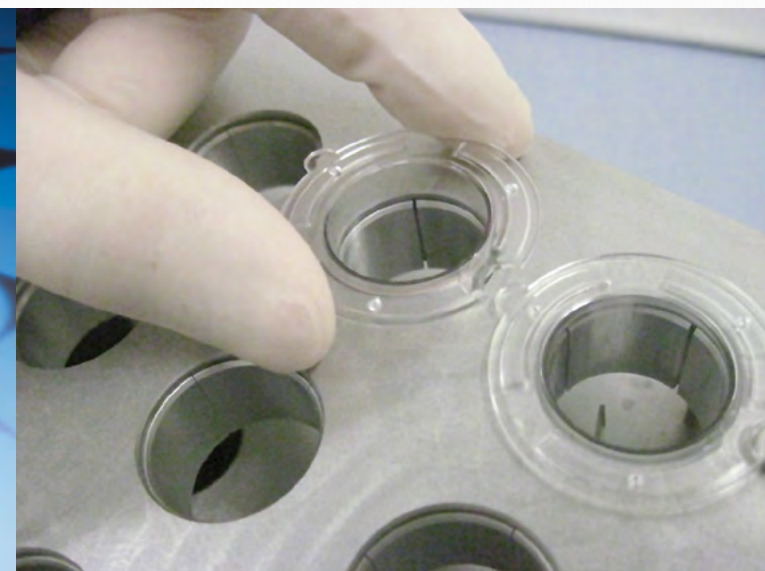
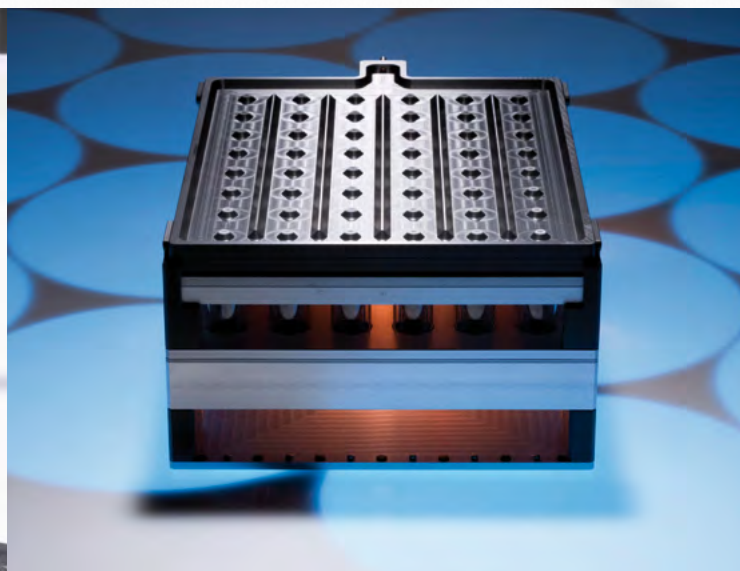
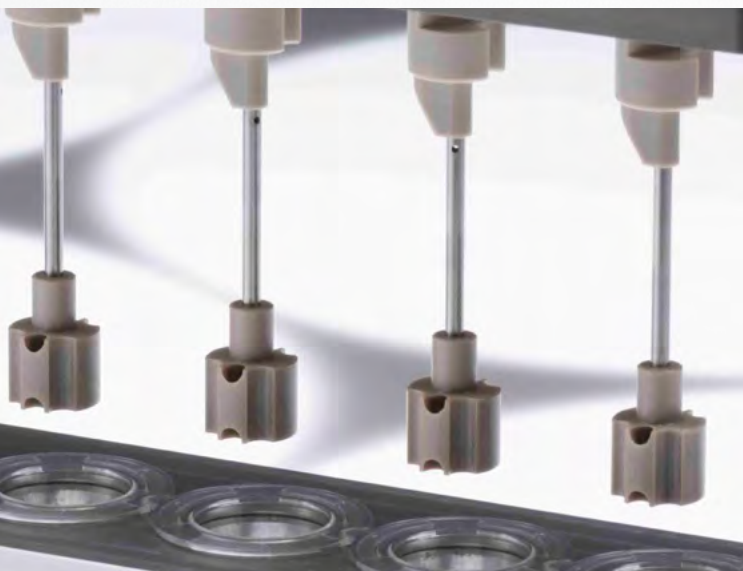
High-throughput bioprocess development in the millilitre scale



bioREACTOR

The 2mag bioREACTOR is featured by a high parallelisation, an easy handling and an optimal working volume.

magnetic motion



Parallelisation

The 2mag bioREACTOR is available in two model variants with 8 or 48 parallel culture vessels. A still higher parallelisation can be achieved by simultaneous use of several bioREACTOR units. These can be controlled via an intelligent stand alone software and important process parameters (pH and DO) can be monitored in real time.

In addition, the simultaneous use of several bioREACTOR units allows the variation of other parameters e.g. the temperature or the stirring speed.

Temperature range

The temperature of the bioreactor block is measured by an internal Pt100 sensor and can be controlled externally by a thermostat.

To avoid evaporation loss, the headspace of the culture vessels can be cooled down with a reflux cooler. The evaporated water condenses and rests in the vessels.

The bioREACTOR with pH and DO sensors can be used at temperatures from 10 up to 50 °C. Temperatures from 0 up to 65 °C are possible without sensors.

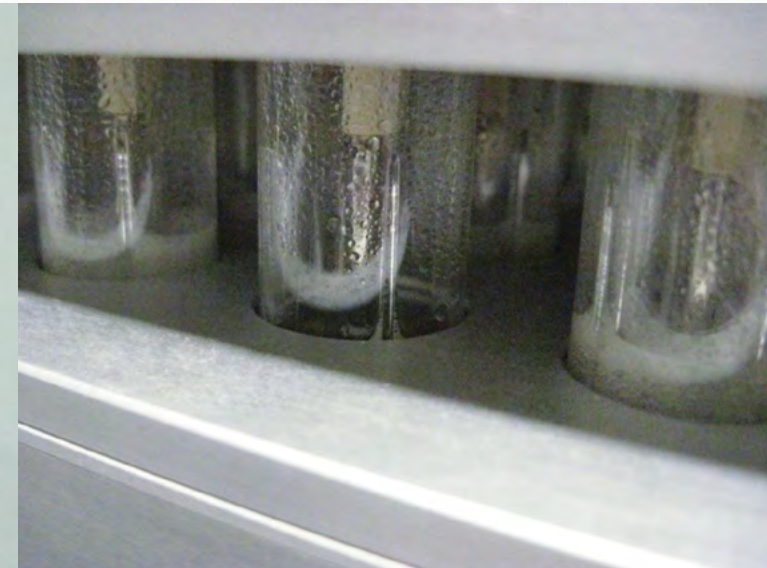
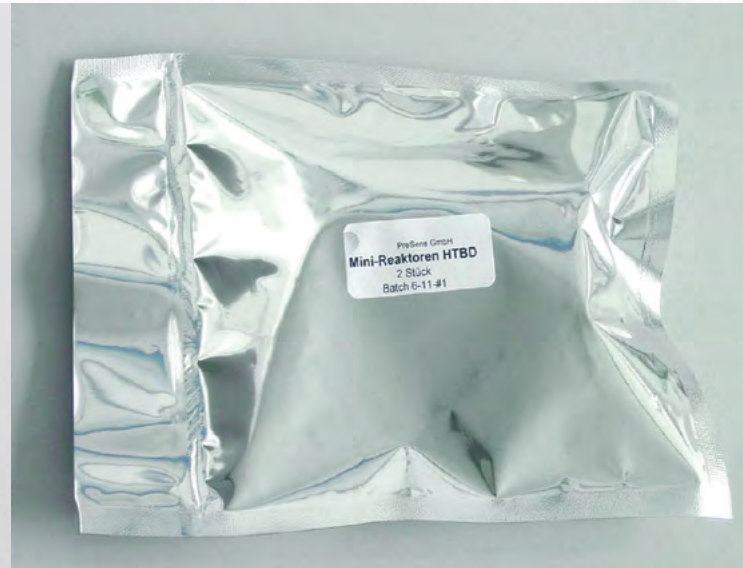
Working volume

The working volume of the culture vessels ranges between 8 and 15 millilitres. This allows repeated sampling without strong reduction of the fermentation volume but also enough capacity for adding pH correction agents or substrates.

bioREACTOR

pH and dissolved oxygen can be measured over the whole process time with the sensor spot equipped disposable culture vessels.

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Real time measurement of pH and DO

pH and dissolved oxygen can be measured in real time with a non-invasive optical sensor system over the whole process time. For this, the bottom of the culture vessels are equipped with small sensor spots (pH and O₂ sensitive luminescent dyes). The fluorometric measurement is provided by stimulation with light and measurement of the decay time (DLR = Dual Lifetime Referencing Principle, PreSens GmbH). The measuring range lies between 4.0 and 7.5 for the pH and between 0 and 50 % for the dissolved oxygen.

Culture vessels (Disposables)

The spotted disposable culture vessels are made of polystyrene and sterile packed in a set of two. This allows a time saving and easy equipping of the bioREACTOR.

The special geometry of the culture vessels with baffles in combination with the used stirring elements lead to a very good mixing of the medium and to high oxygen transfer rates.

Gassing

The continuous gassing of the bioREACTOR can be realised with a gas mixing station. Depending on the used gases (O₂, N₂, air) aerobic and anaerobic cultivations are possible.

The gas transfer into the medium of the culture vessels is done passively through the gas inducing, inductive driven magnetic stirring elements. The gas transfer rate can be adjusted via the stirring speed.

2mag bioREACTOR

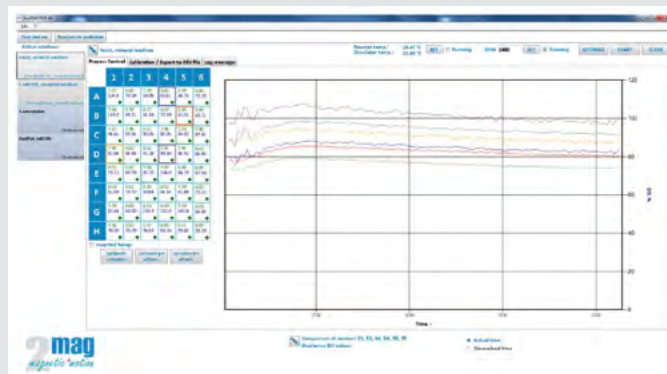
High-throughput bioprocess development in the millilitre scale



bioREACTOR

The integrated stirrer monitoring and the intelligent software allow a secure and simple operation of the 2mag bioREACTOR.

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Stirrer monitoring

At very high cell densities or a high percentage of solids in the medium a stop of rare stirrers can occur in less cases. This will be detected in a few seconds and the stirrers will be restarted automatically. Therewith, the stirrer monitoring guarantees a secure experimental run.

Intelligent software

The stand alone software allows the parallel use of several bioREACTOR 8 and/or 48 units. At the same time, already finished runs can be compared with running experiments.

Autoclavability and sterility

All parts which can be in contact with the medium are autoclavable or sterile packed disposables.

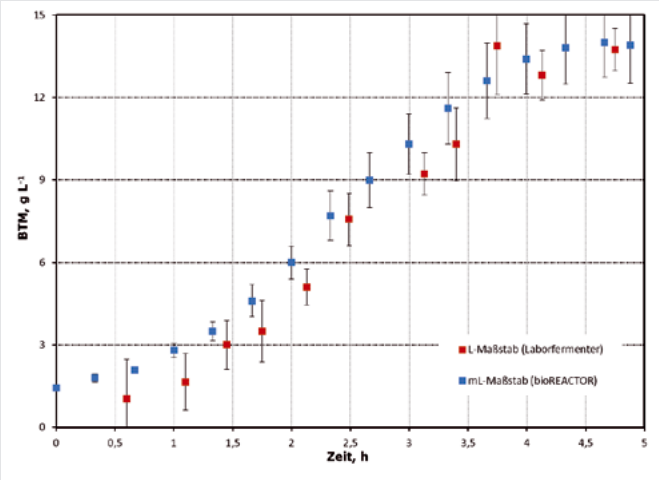
The gassing unit with the fixed stirring elements is completely autoclavable. In addition, the complete bioreactor block is sterilisable with ethanol. The disposable culture vessels are sterile packed and were disposed after the experiment.

During the experiment, the sterile headspace gassing avoids cross and external contaminations.

bioREACTOR

The 2mag bioREACTOR can be used as standalone or fully automated by integration into a pipetting robot. The results are easy scalable into the litre scale.

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Scalability

The exactly defined geometry of the stirring elements, the precisely characterised process parameters as well as the to standard laboratory stirred tank reactors comparable power and oxygen input ($kLa > 0.4 \text{ s}^{-1}$) through the stirring elements allow an easy upscaling of the results into the litre scale.

Automation

The bioREACTOR can be used as stand alone or fully automated by integration into a pipetting robot. The integration allows pH control, adding of substrates and taking samples out of the culture vessels. Therewith feeding strategies can be analysed, an online measurement of the optical density (OD) can be made or samples for additional tests can be taken out of the vessels.

bioREACTOR	bioREACTOR 48	bioREACTOR 8
Stirring points	48	8
Stirring point distance	35 mm	
Material block	aluminium, hard-coated	
Width	240 mm	65 mm
Length (with PreSens sensor bars)	367 mm	
Height	135.5 mm (with feet) / 138.6 mm (without feet)	
Product weight	12.0 kg	3.1 kg
Electrical data	230 V / 60 Hz or 115 V / 50 - 60 Hz	
Protection category	IP31	
Culture vessels		
Working volume	8 - 15 ml	
Material	Polystyrol (PS)	
Temperature		
Operating conditions (with sensors)	+10 °C up to +50 °C (at 60% humidity)	
Operating conditions (without sensors)	0 °C up to +65 °C (at 60% humidity)	
Mixing		
Stirring element	gas inducing stirring elements	
Stirring speed	100 - 4,000 rpm	
Gassing		
Begasungsrate	4,8 l /min	0,8 l/min
Real time measurement		
pH range	4.0 - 7.5	
DO range	0 - 50 % O ₂	
Order no.	100730	101530

1 year warranty on material and manufacturing. We reserve the right to make technical alterations. We do not assume liability for errors in printing or typing.

2mag bioREACTOR

High-throughput bioprocess development in the millilitre scale

bioREACTOR

Due to its versatility, the bioREACTOR was already applied in the development of various biotechnological processes. To realise many more processes the 2mag bioREACTOR is being developed further.

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Applications

- Aerobic and anaerobic cultivation of bacteria, yeasts and fungi
- Evaluation of adequate production strains (strain development)
- Media screening and optimisation
- Cell growth experiments
- Optimisation of the process design (manual batch or automated fed-batch process design with pipetting robots)
- Studies of gene and protein expression
- Viability tests
- Inhibition and toxicity experiments
- Enzyme assays
- Quality control
- Also applicable for chemical and enzymatic reactions

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