

Automation of bioreactors for algae, bacteria and yeasts

BioTech Automation: Festo presents three bioreactors at Analytica - from the laboratory to production

Bioprocesses are becoming increasingly important for industry, as they represent sustainable alternatives to conventional production processes and enable the manufacture of new products. With BioTech Automation, Festo is presenting an overview of already available components and solutions at Analytica based on selected cultivation processes, which will be demonstrated in three bioreactors: a loop bioreactor, a stainless steel reactor and a benchtop laboratory reactor.

In order for microorganisms such as bacteria, algae and yeasts to grow ideally and to produce a lot of biomass, environmental conditions must be created in the reactor that are precisely tailored to their needs. This requires the measurement, recording and control of many process variables.

The constant supply of nutrients (liquid media), but also of air, oxygen or other gases and their even distribution in the reactor play a decisive role. For this purpose, Festo provides actuator and sensor components and solutions from the fields of gas handling, liquid handling, motion and control technology - right through to the ready-to-install control cabinet.

Bioreactor

The stainless steel bioreactor with components from the Festo product portfolio, which is frequently used in industrial biotechnology, is suitable for cultivating microorganisms such as E. coli. More about the bioreactor: [BioTech Automation | Festo EN](#)

Algae reactor

Photosynthesis is a central metabolic pathway for the growth of algae. During this process, CO₂ is converted into sugar and oxygen is released. The two flat-panel airlift photobioreactors (FPA) from Subitec, each with a capacity of six liters, enable the productive cultivation of microalgae through the optimal use of light, CO₂ and nutrients. More about the algae reactor: [BioTech Automation | Festo EN](#)

Learning reactor

Festo is not only meeting the new challenges in the field of biologization from a technical perspective, but as a market leader in technical training and further education, it is also keeping an eye on the qualifications required in the future.

The learning reactor demonstrates a modular concept with learning software and hardware for the technical basics of biomechatronics. More about the learning reactor: [BioTech Automation | Festo EN](#)

Customized solutions

24. February 2026

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In addition to individual components, Festo also offers customized system solutions for bioreactors. Customized automation solutions are developed from selected components, for example in the form of complete control cabinets. In addition, customer-specific software can be created, from the controller to the cloud. Seamless integration of the systems and the ability to analyze data in real time enable efficient and transparent process control.

Press Images



Learning reactor

The learning reactor shows a modular concept with learning software and learning hardware for the technical basics in biomechatronics.



Algae reactor

Products from the areas of gas handling, liquid handling and control technology are used in the algae reactor.



Stainless steel reactor

The stainless steel reactor is an example of the cultivation of microorganisms such as E. coli with components from the Festo product portfolio.



BioTech Automation

BioTech Automation: Festo presents an overview of available components and solutions for the automation of bioreactors based on selected cultivation processes.