



Hands-Free Sampling

Delegate bioprocess sampling



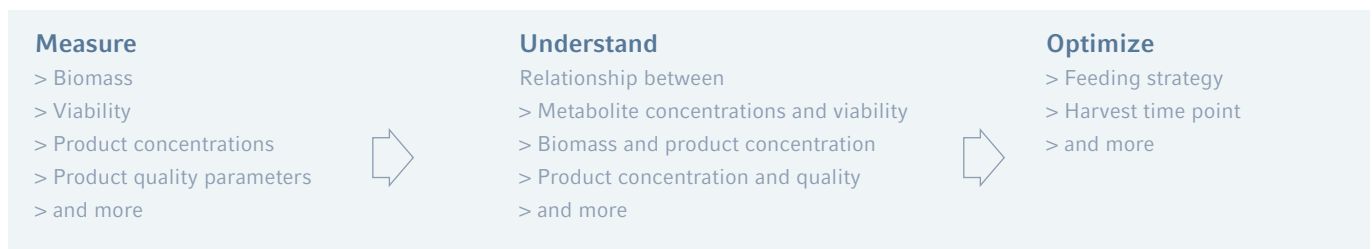
Gain Better Bioprocess Data with Less Effort

The Bioprocess Autosampler takes manual work off your hands

You often need to sample your culture during the bioprocess, not just at the end. These samples help you monitor growth, product formation, and nutrient consumption. This way, you can identify interdependencies and take action at predefined times or specific events, like DO rising after carbon source depletion. The Bioprocess Autosampler from Eppendorf provides this solution to you. Whether you are working in cell culture or fermentation, in early R&D or process development, and using single-use or glass bioreactors, this system covers it all. The Bioprocess Autosampler can handle sampling and bolus addition at short, regular intervals, helping you gain complete datasets and automate bioprocess control.

Bioprocess data is a prerequisite for process optimization

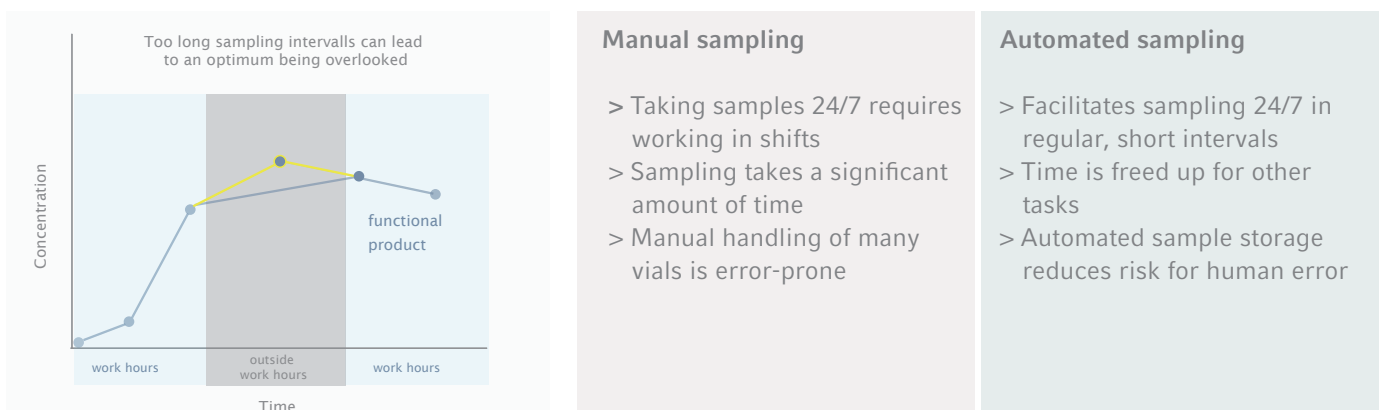
Obtaining bioprocess data is the first step towards discovering interdependencies between process parameters and using this knowledge to optimize the outcome of your process.



The advantages of automated sampling

Short and regular sampling intervals help obtaining strong datasets

Regular measurement of process parameters, the cells' status, and the concentration and quality of the product is the basis for a comprehensive view on the process. Such information is indispensable for process optimization.





Efficiency

Automated bioprocess sampling made easy

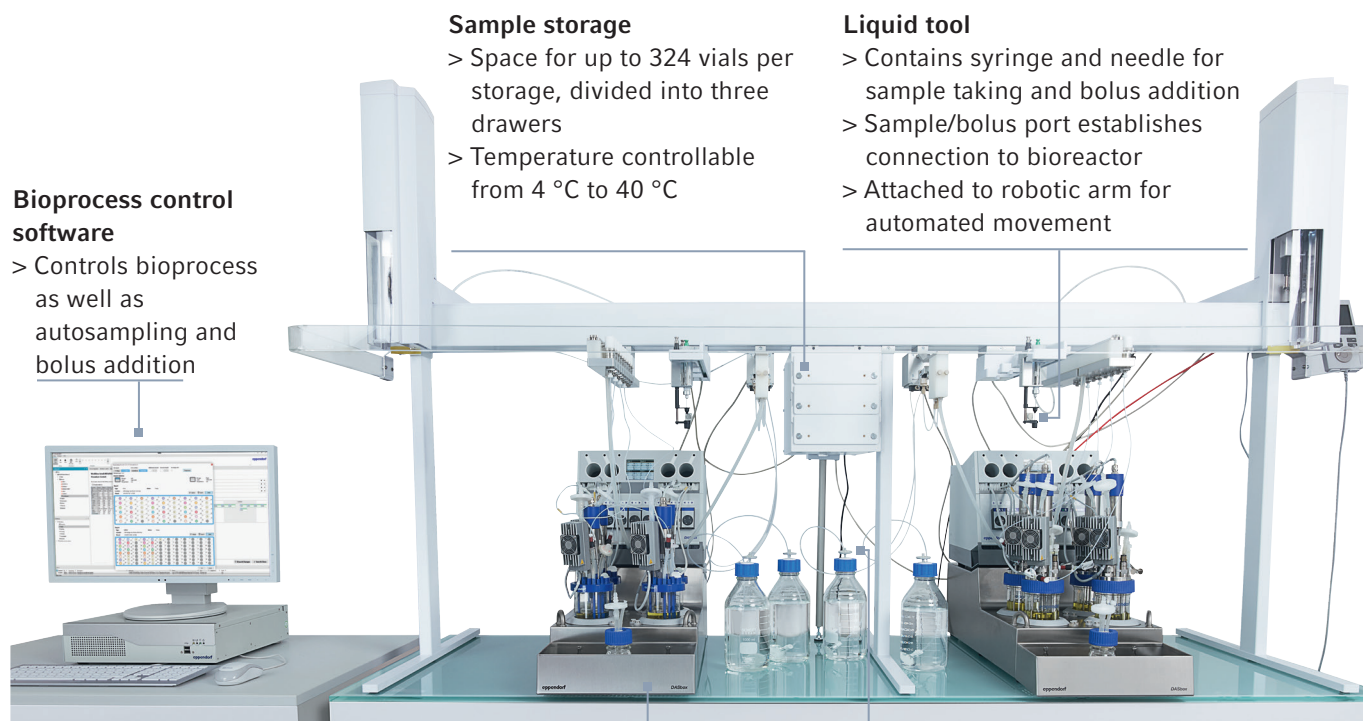
The Bioprocess Autosampler from Eppendorf takes samples from multiple bioreactors and stores them tempered for later analysis. It is compatible with glass and single-use bioreactors operated with a DASbox® Mini Bioreactor System, DASGIP® Parallel Bioreactor System, SciVario® twin or BioFlo® 320 bioreactor control system.

Autosampling at a glance

The Bioprocess Autosampler draws a sample from a bioreactor and transfers it to a predefined sample vial, which is stored in a tempered environment. The sampling device is automatically cleaned, so that the Bioprocess Autosampler is ready for the next sampling step.

Key features

- > Enables regular and process-triggered automated sampling and bolus addition 24/7
- > Saves space, because no sterile hood is necessary for operation
- > Keeps you flexible, because it is compatible with differently sized single-use and glass bioreactors



Sample storage

- > Space for up to 324 vials per storage, divided into three drawers
- > Temperature controllable from 4 °C to 40 °C

Liquid tool

- > Contains syringe and needle for sample taking and bolus addition
- > Sample/bolus port establishes connection to bioreactor
- > Attached to robotic arm for automated movement

Bioprocess control software

- > Controls bioprocess as well as autosampling and bolus addition

Bioreactor control system

- > The Bioprocess Autosampler is compatible with the DASbox Mini Bioreactor System, DASGIP Parallel Bioreactor Systems, SciVario twin and BioFlo 320

Bottle connection

- > Access to cleaning solutions and waste for automated cleaning of needles and syringes



Flexibility

Adapt your sampling strategy to your needs

Save space, save your culture, stay flexible: The Bioprocess Autosampler from Eppendorf was designed to minimize the contamination risk during sampling while eliminating the need for working in a laminar flow cabinet. Sample size and sampling speed are variable to suit your individual needs.

Sampling procedure

- > The Bioprocess Autosampler holds one sampling port per bioreactor
- > Tubing connects the sampling port with a dip tube in the bioreactor
- > Sampling ports harbor a septum, which preserves the sterility of the bioreactor
- > For sampling, a needle connected to a syringe is automatically inserted into the port, pinching through the septum
- > The sample is transferred to a sampling vial by pinching through a septum in the vial lid



Flexible sampling

- > 1.5 mL and 10 mL sample vials can be used
- > Sample volumes of 1.5 mL and 5 mL can be selected
- > Compatible with differently-sized glass and single-use bioreactors with working volumes of 60 mL to 10 L

Aseptic operation

- > Aseptic operation without the use of a laminar flow cabinet
- > Sanitation procedure using ethanol is similar to procedures which are usually applied when sampling manually
- > For additional safety, an air curtain surrounding the needle can be added as an option

Space-saving and easy to install

- > Modular design that facilitates expansion of the number of bioreactors to be sampled and retrofitting of existing bioprocess systems
- > Space-saving design mounted on the lab bench

Efficient sampling

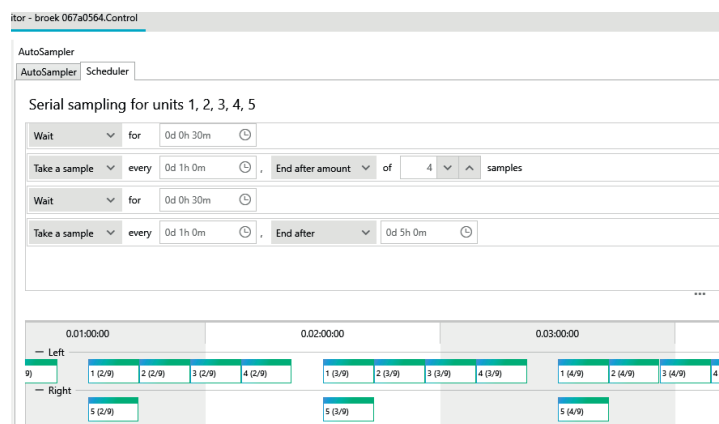
- > Low dead volume minimizes the reduction of culture volume
- > High sampling speed
- > Dual arm option for even higher sampling speed



Ease-of-Use

Autosampling and bioprocess control combined in the same software package

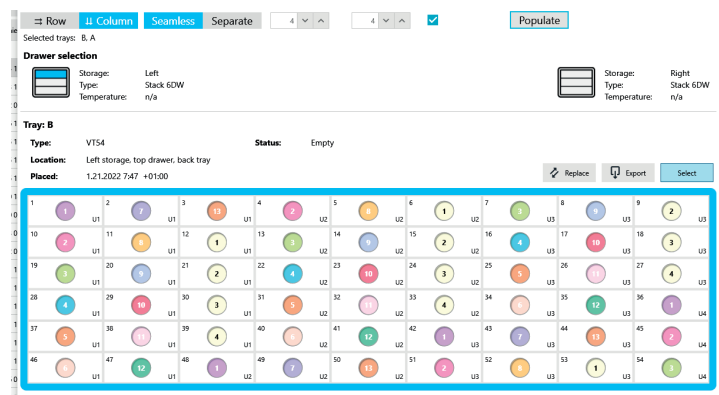
The Bioprocess Autosampler from Eppendorf is seamlessly integrated into DASware® control bioprocess control software. Like this, there is no need to familiarize yourself with an additional software product. Sampling schemes can be adapted easily and the location of the sampling vials in the fraction cooler can be precisely defined.



Define your sampling scheme in DASware control software

- > Define sample intervals and sampling volume
- > Predefine positions of vials in the sample storage
- > Either serial sampling, where each sample is taken with the same syringe tool. After sampling a wash step is performed to prevent cross-contamination
- > Or clustered sampling, where one syringe tool is used per bioreactor to ensure there is no cross-contamination*

* For cell culture applications, only clustered sampling is available



Flexibility

- > Add samples to the sampling scheme during the run
- > Include offline samples during the planning phase: Predefine storage location of offline samples and use process data obtained from them in addition to data from samples taken by the Bioprocess Autosampler

Example: Sampling from an *E. coli* fermentation process

- > 8 bioreactors
- > 8 sampling time points
- > Each sample split up to 4 vials for further analysis

- > 256 vials to be handled

Pre-defining their storage location and automizing the placement of the vials reduced the risk of mixing up samples.

Learn more in our application note
www.eppendorf.group/autosampler-application





Future-Proof

Autosampling from various bioreactor types and sizes

The Bioprocess Autosampler from Eppendorf is compatible with various glass and single-use bioreactors at small and bench scale and existing bioprocess systems can be retrofitted. Like this, the Bioprocess Autosampler adapts to changing requirements regarding working volume and bioreactor type.

Compatible bioprocess control systems

The Bioprocess Autosampler can be installed with new as well as retrofitted to existing bioreactor control systems.



DASbox® Mini Bioreactor System

- > Compatible with glass and single-use bioreactors
- > Working volume: 60 – 250 mL
- > Autosampling of up to 16 bioreactors
- > Visit www.eppendorf.group/dasbox-system for more information



DASGIP® Parallel Bioreactor System

- > Compatible with glass and single-use bioreactors
- > Working volume: 200 mL – 1.8 L
- > Autosampling of up to 16 bioreactors
- > Visit www.eppendorf.group/dasgip-system for more information



SciVario® twin

- > Compatible with glass and single-use bioreactors
- > Working volume: 200 mL – 10 L
- > Autosampling of up to 8 bioreactors, controlled with up to 4 control stations
- > Visit www.eppendorf.group/scivario-system for more information



BioFlo® 320

- > Compatible with glass and single-use bioreactors
- > Working volume: 320 mL – 10.5 L
- > Autosampling of up to 4 bioreactors, controlled with up to 4 control stations,
- > Visit www.eppendorf.group/bioflo320-system for more information

Technical Data

Bioprocess Autosampler specifications

Bioprocess Autosampler system		Single head	Dual head
Dimensions (W x D x H)		1768 x 795 x 1400 mm	2168 x 795 x 1400 mm
Net weight		45 kg (excluding bioprocess control system and PC)	65 kg (excluding bioprocess control system and PC)
Utility			
Electrical		100–240 VAC, 50/60 Hz	
Bioprocess Autosampler configurations		single or dual head system	
Sample storage		1 or 2 cooled sample storages (3 sample storage drawers per unit)	
Temperature range of sample storage		4–40 °C	
Available sample racks		For 1.5 mL vials (54 vials per rack, 2 racks per drawer) For 10 mL vials (15 vials per rack, 2 racks per drawer)	
Sampling time (per sample) ¹		1.5 mL samples	5.0 mL samples
Microbial applications			
Serial sampling		12.5 min	15 min
Clustered sampling with washing step		19 min	20 min
Clustered sampling without washing step		5 min	7.5 min
Cell culture applications			
Clustered sampling with washing step		25 min	28 min
Clustered sampling without washing step		5 min	7.5 min
Software		Minimal requirement: DASware® control 6.5; includes sampling planning module	

Specifications subject to change.

¹ approximate values at a sample rate of 50 µL/second

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