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Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70 **Казахстан** +7(7172)727-132 **Киргизия** +996(312)96-26-47

www.getinge.nt-rt.ru | | gtw@nt-rt.ru

Технические характеристики на биореакаторы малого масштаба, мешалки, мини-биореакторы, биорекаторные системы Applikon Bio, Applikon MiniBio, Applikon AppliFlex ST, BioBundles компании GETINGE

Applikon AppliFlex ST

Optimized performance and fast bioreactor setup

Single-use bioreactors provide higher throughput thanks to easy setup and operation. Plus minimal operator handling reduces the ever-present risk of contamination. The Applikon AppliFlex ST has been designed to make your life in the lab easy.

Box-to-Bench solution for lab-scale cultivation

- No more preparing bioreactors
- Eliminate the risk of cross-contamination
- Perform more experiments in a shorter time with less work
- Improve reproducibility and outcomes of your experiments

Easily scale-up your bioprocess with single-use bioreactors in 500 mL, 3 L and 15 L.

Easily configure your bioreactor to match your application

The Applikon AppliFlex ST is different from other single-use bioreactors. It is a fully customizable stirred tank bioreactor. We use 3D printing technology to create any head plate configuration that is optimal for your bioprocess.

These single-use bioreactors are modeled directly on our world standard autoclavable bioreactors and you can be assured each bioreactor meets similar high standards and quality that you enjoy with our glass bioreactors.

Watch the video to view how the AppliFlex offers the flexibility that you need.

This Applikon bioreactor straight to your lab

Are you interested in the single-use Applikon bioreactor, and would you like to get a virtual sample right now? Try these bioreactors in Augmented Reality*.

Scan the QR code on your desktop with your mobile device or click on the link directly on the mobile device and discover how the AppliFlex would be on your bench.

*View this page on an Augmented Reality (AR) compatible device. Augmented Reality (AR) adds digital elements to the camera of your smartphone, creating the illusion that holographic content is a part of a physical world around you.

From Box-to-Bench

Your bioreactor is ready for operation straight from the box. Take your pre-assembled bioreactor from the box, and get started right away. No laminar flowhood, water supply or drain needed, enabling a smooth and fast workflow.

Save time and costs, execute more runs, and reduce your time-to-market.

Full customizable design

Using 3D printing technology allows for easy optimization of the bioreactor to match your process and application. The headplate can be configured to your unique needs from special ports, sampling lines, connectors, and spargers to addition bottles.

Bring your design to life with a custom Applikon AppliFlex ST.

No cross-contamination

The pre-sterilized bioreactor makes your life in the lab easy. No more assembling and sterilizing before you can start your culture. No more cleaning after the culture is finished. Minimal operator handling reduces the ever-present risk of contamination.

Using single-use sensors allows for a fully closed operation, ensuring sterility in your bioprocess.

Specifications

Physical characteristics	**500 mL**	**3 L**	**15 L**
Dimensions (h x Ø)	236 mm x 75 mm	340 mm x 130 mm	500 mm x 223 mm

Physical characteristics	**500 mL**	**3 L**	**15 L**
Weight	0.2 kg (1 bioreactor)	0.7 kg (1 bioreactor)	1,7 kg (1 bioreactor)
Bottom	Dished bottom		
Total volume	575 ml	3 L	15 L
Working volume	100 – 400 ml	0.65 – 2.4L	3 - 12 L
H/D ratio total volume	2.0		
H/D ratio working volume	1.33		
Impeller type	Marine / Rushton / Anchor / None / Hydrofoil / Helical and more...		
Impeller diameter	28 mm	52 mm	89 mm
Sparger type	Pipe with Ø2mm hole / Open pipe / Sparger stone / Jet sparger / Porous sparger and more...		
Operating conditions			
Working temperature	5 – 45 °C		
Storage temperature	-80 – 45 °C		
Design pressure	0 – 0.5 barg	0 – 0.1 barg	
Mixing time	~3 seconds		
Sterilization	>25 kGy Gamma irradiation		
Sensors options	Single-use sensors or traditional multi-use sensors		

Applikon Bio

High quality multi-use bioreactor for lab-scale applications

The stirred tank Applikon Bio excels in quality and modularity. This glass autoclavable bioreactor supports you in your research and development applications and smoothly optimizes your process while scaling up to higher volumes.

Easily configure your glass autoclavable bioreactor to changing process demands

- Simple set-up and easy handling
- Wide range of volumes to fit many applications
- Easy cleanability by electropolished finish of the product
- Interchangeable modules to tailor the systems to research demands

The Applikon Bio is easy to upgrade if a change in research activities occurs, whether it involves cell culture applications or microbial culture applications. Because of the modularity and flexibility, you can always adapt the system to changing process demands. This results in l i iti l i t t d l i t widely used bioreactor type. Getinge

fermenters are available in 2 / 3 / 5 / 7 / 15 / 20 liter total volume.

Advances in bioreactor washing

The programmable Getinge Ultima Lancer labware washer with specialty washer rack for the multi-use 1-3 L bioreactors assures thorough cleaning, better reproducibility and reduced labor.

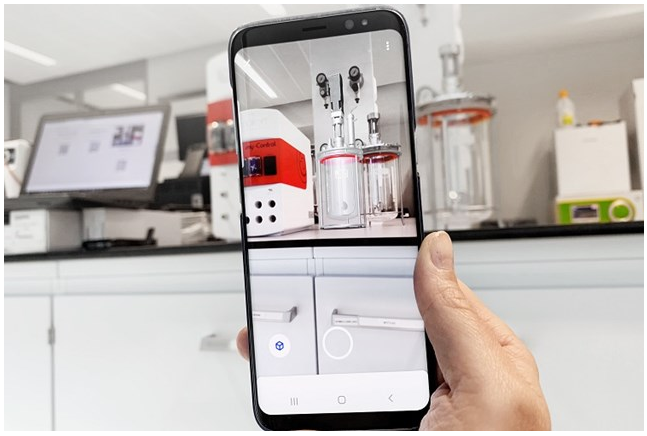
Watch the video to view how the Getinge Applikon bioreactors and Getinge Lancer washers bring you a holistic solution for lab applications.

This Applikon bioreactor straight in your lab

Are you interested in the multi-use Applikon bioreactor, and would you like to get a virtual sample right now? Try this bioreactor in Augmented Reality*.

Scan the QR code on your desktop with your mobile device or click on the link directly on the mobile device and discover how the Applikon Bio would be on your bench.

*View this page on an Augmented Reality (AR) compatible device. Augmented Reality (AR) adds digital elements to the camera of your smartphone, creating the illusion that holographic content is a part of a physical world around you



Applikon Bio 3 L

Does a multi-use bioreactor better match your application?
Experience the multi-use Bio 3 L in your lab.

Borosilicate glass

The glass bottom ves made of bo glass to gu

- resistan thermal
- excelle corrosio resistan
- smooth, porous surface for easy cleaning
- optimal transparency for visual inspection of the culture

High quality

The Applikon following appl

- Microbial cultures
- Cell cultures
- Batch
- Fed-Batch
- Perfusion
- Continous cultivation

16L. lded

bioreactor topplate, which simplifies the sterilization of the bioreactor after each run.

Up to 0.5 barg

The glass bioreactor vessels can be used up to 0.5 barg (7.5 psig) of overpressure.

The Applikon Bio is ideal for the following applications:

- Microbial cultures
- Cell cultures
- Batch
- Fed-Batch
- Perfusion
- Continous cultivation

Specifications

	Total volume (L)	Working volume (L)	Minimum working volume (L)	Aspect ratio total volume (L)	Aspect ratio working volume (L)

2 liter jacketed	2.2	1.7	0.5	2.2	1.9
3 liter single wall	3.1	2.7	0.5	1.9	1.5
3 liter jacketed	3.1	2.7	0.5	1.9	1.5
5 liter single wall	4.8	3.4	0.9	1.6	1.1
5 liter jacketed	4.8	3.4	0.9	1.6	1.1
7 liter single wall	6.8	5.4	1.5	2.2	1.8
7 liter jacketed	6.8	5.4	1.5	2.2	1.8
15 liter single wall	16.5	12	3.0	1.7	1.5
15 liter jacketed	18.2	12	3.0	1.5	1.2
20 liter single wall	23.4	16	3.0	2.4	2.0

	Internal Diameter (mm)	**Internal Height (mm)**	**Autoclave dimensions (WxH mm)**
2 liter single wall	105	240	ø190 x 436
2 liter jacketed	105	240	ø219 x 486
3 liter single wall	130	240	ø190 x 436
3 liter jacketed	130	240	ø235 x 436
5 liter single wall	160	250	ø260 x 436
5 liter jacketed	160	250	ø260 x 480
7 liter single wall	160	350	ø260 x 600
7 liter jacketed	160	350	ø264 x 645

15 liter single wall	222	440	ø381 x 710
15 liter jacketed	240	440	ø391 x 740
20 liter single wall	222	620	ø381 x 900
Stirrer system	Direct drive, lipsealed or magnetically coupled		
Stirrer speed (rpm)	Standard range is 50 - 1250 2 and 3 liter systems can be supplied with 2000 rpm motor		
Impellers	Rushton and marine with outside diameters 45 mm, 60 mm 75 mm or 85 mm		
Gas sparger	Porous sparger or L-type sparger		
Gas overlay	Yes		
Exhaust gas	Water cooled exhaust gas condenser		
Sampling	Fixed height or height adjustable sample pipe with optional sampling system Sample pipe internal diameters choices are: 1.7 mm, 4 mm, 6 mm or 10 mm		
Draining	Drain pipe		
Additions	Triple or single inlet ports and optional micro liquid injectors		
pH	Measurement: 12 mm classic pH sensor		
	Control: via acid pump or CO_2 gas (rotameter or MFC) in combination with alkali pump		
DO_2	Measurement: 12 mm classic polarographic DO_2 sensor or LumiSens for 2-5 L Control: via a combination of N_2, Air, O_2 (Rotameter or MFC) and agitation		
Temperature	Measurement: Pt-100 sensor in thermowell in topplate Control: cooling and/or heating jacket via bioreactor wall or via internal heat exchanger		
Foam	Measurement: Height adjustable conductivity based foam sensor Control: anti-foam addition pump		
Level	Measurement: Height adjustable conductivity based level sensor Control: pump for liquid addition or removal		
Optional inlets	Septum, chemostat tube, liquid entry system		

Applikon BioBundles

The turnkey bioreactor solution

The Applikon BioBundle is a complete bioreactor system, equipped with all necessary components and is ready to use “out-of-the-box”. The system is complete with silicone tubing, sample bottles and a “starter kit” including spare parts. The BioBundle is easy to set-up, easy to learn and easy to operate.

Complete cultivation systems

Turnkey solution

- Lower costs due to standardization and assembly in series
- Modular and configurable bioreactor system for multiple applications

The BioBundle provides a unique combination of ease of use and sophistication, reducing the time to start-up a process. The system is equipped with an intelligent and powerful process controller: easy and intuitive to operate, such that the

The selection of BioBundles

Whether you prefer using single-use or multi-use bioreactors, we have the right solution for your application.

MiniBio **For cell culture**	MiniBio 250 mL / 500 mL / 1000 mL	my-Control
MiniBio **For microbial culture**	MiniBio 250 mL / 500 mL / 1000 mL	my-Control
Bio **For cell culture**	Bio 2 L / 3 L / 5 L / 7 L/ 15 L / 20 L	ez2-Control
Bio **For microbial culture**	Bio 2 L / 3 L / 5 L / 7 L/ 15 L / 20 L	ez2-Control
AppliFlex ST **For cell culture**	AppliFlex ST 500 mL / 3L	my-Control
AppliFlex ST **For microbial culture**	AppliFlex ST 500 mL / 3L	my-Control
AppliFlex ST **For cell culture**	AppliFlex ST 3 L / 15 L	ez2-Control
AppliFlex ST **For microbial culture**	AppliFlex ST 3 L	ez2-Control

Standard package

Standardization of these turnkey systems results in shorter lead times and attractive prices. The Applikon BioBundle has a compact design as accessories are integrated in a compact console. Software for data acquisition is included as well.

Optimized control settings

The integrated controller can control various bioprocess parameters and actuators and can apply a combination of digital and analog outputs for advanced process control and increased flexibility. The advanced autotuning adaptive control system is part of every bundle and takes the guessing out of PID controller setting. The system can automatically and continuously calculate the best controller settings for every process.

Connectivity

Multiple bioreactors can be connected to one PC, which eases parallel processing. Simply expand your setup and generate more data.

The Applikon BioBundle is ideal for the following applications:

- Cell cultures
- Microbial cultures
- Batch
- Fed-Batch
- Continuous bioprocessing

Applikon MiniBio

The Applikon MiniBio is a true scale down of the classic laboratory scale bioreactor. It has the same flexibility, which means that the Applikon MiniBio can be customized to fit the demands of any process. The small volume reduces media costs and maximizes usage of bench space.

Real Small... Real Bioreactors

- Easy set up and operation
- Little bench space required
- Less medium used during cultivation Generate more data in less time

The MiniBio is the perfect device for small-scale operations in the lab. It saves time, takes up less bench space, and generates more data while providing fully scalable results. In combination with our highly efficient BioSep cell separation device, you can convert your batch or fed-batch bioreactor into a small scale continuous bioprocessing system.

The configurable head plate of the bioreactor has Luer fittings that free up space for multiple additions, sensors and fittings and ready-to-go tubing assemblies for a quick start.

Small size bioreactors

The compact design of the MiniBio allows the scientist to place multiple systems on the valuable bench space. Parallel processing has never been that easy.

Generate scalable results

Running cultivations at small scale allows for quick access to more data. Scientists will have reliable data that simplifies scale-up to higher volumes.

Specifications

	MiniBio 250	MiniBio 500	MiniBio 1000
Total volume (mL)	290	550	1250
Working volume (mL)	200	400	1000
Minimum working volume (mL)	50	100	200
Aspect ratio total volume	2.3	2.1	2.3
Aspect ratio working volume	1.6	1.5	1.9
Dimensions (dxh)	180 x 400 mm	195 x 400 mm	200 x 550 mm
Dimensions for autoclaving (dxh)	180 x 250 mm	195 x 250 mm	200 x 400 mm
Drive system	Direct drive, lipsealed	Direct drive, lipsealed	Direct drive, lipsealed
Maximum stirrer speed (rpm)	50 - 2000	50 - 2000	50 - 1750
Maximum impeller tip speed (m/s)	2.3	2.9	3.5
Impellers	Choice of Rushton and Marine		
Gas sparger	Porous sparger, open pipe sparger or jet sparger		

Gas overlay	Yes
Exhaust gas	Electrically cooled exhaust gas condenser (evaporation <4% per day at 37°C @ 2vvm)
Sampling	Fixed sample pipe with optional sampling system
Draining	Height adjustable drain pipe
Additions	4 fixed inlet ports and optional micro liquid injectors
pH	Measurement: 8 mm classic pH sensor Control: via acid pump (variable speed pump) or CO2 gas in combination with alkali pump (variable speed pump)
DO2	Measurement: LumiSens Optical DO2 sensor. Control: via a combination of N2, Air, O2 (needle valve standard, MFC optional) and agitation
Temperature	Measurement: Pt-100 sensor in thermowell in topplate Control: electrical cooling and heating jacket via bioreactor wall
Foam	Measurement: Height adjustable conductivity based foam sensor Control: anti-foam addition (variable speed pump)
Level	Measurement: Height adjustable conductivity based level sensor Control: variable speed pump for liquid addition or removal
Optional inlets	Septum, chemostat tube, liquid entry system
Optional sensors	Biomass, Optical Density, O2 and CO2 off gas, weight balance