Applikon

Multi-use bioreactors for lab-scale

GETINGE

Sustainable Life Science

Passion for all dimensions of Life

Together with our partners and customers, we do everything we can to improve on dimensions of life: Planetary Life, Human Life, Patient Life, Professional Life, Business Life and Societal Life.

To improve on Planetary Life for example, and to give us all a healthier and better future, we aim to do all we can to minimize our impact on the environment. We channel our efforts into a set of initiatives, carried out in collaboration with stakeholders across our value chain.

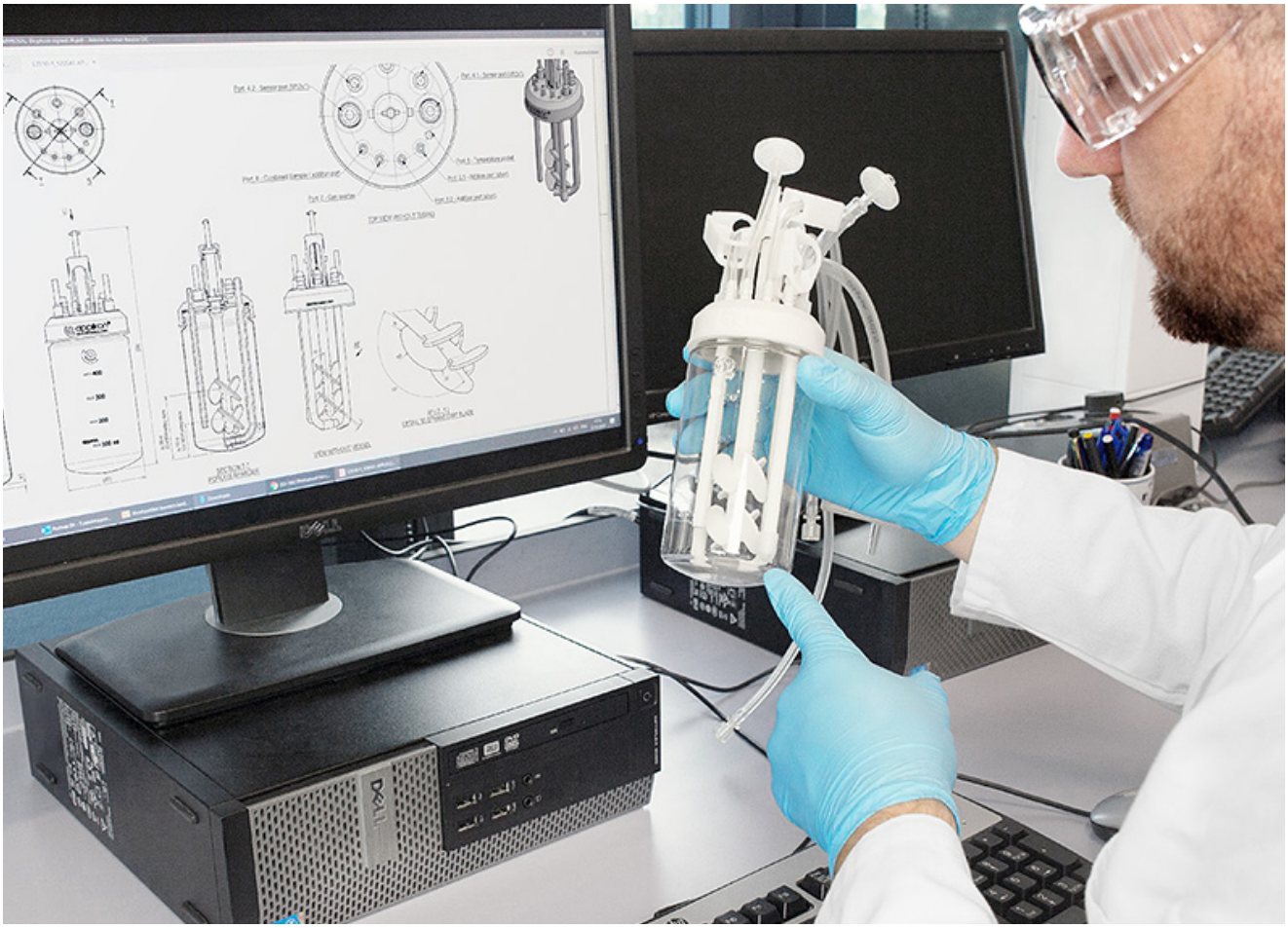
Getinge is committed to becoming a net-zero company by 2050 across the full value chain and our targets have been approved by the Science Based Targets initiative. Getinge has signed the UN Global Compact and we support its ten principles on human rights, labor, environment and anti-corruption. Our sustainability work is governed by our Code of Conduct and a number of policies such as human rights, anti-corruption and the environment.

Read more on www.getinge.com

SUSTAINABLE DEVELOPMENT GOALS

UN GLOBAL COMPACT
WE SUPPORT

ecovadis
Business Sustainability Ratings



Partner of Choice

For the life science industry

Our aim is to support scientists, (cell)biologists, lab managers and operators achieve their goals: Improving quality of life.

Our bioreactor system portfolio covers the whole upstream bioprocess, ranging from laboratory scale and pilot plant scale to production scale. Whatever your application is, we have the right products for you to optimize the growth of cells and bacteria that is key to the production of life-saving products.

Vaccines

Bio-Pharma-ceuticals

Regenerative Medicine

Food and Beverages

Bio-Chemicals

Bio-Fuels

Applikon

– Multi-use Bioreactors for Lab-scale

In the laboratory bioreactor and fermentor segment, Getinge is a worldwide market leader because of its flexible and easy-to-use systems. These glass autoclavable bioreactors are suitable for both cell and microbial culture applications and can easily be upgraded if a change in research activities occurs.

Our Applikon range excels in quality and modularity. The systems are built according to the specific demands of a process, using an extensive array of high-quality components. Because of the modularity and flexibility, the user can always adapt the systems to changed process demands. This results in low initial investment and low running costs.
The Applikon stirred tank reactor (STR) is the most widely used bioreactor type. Applikon bioreactors and fermenters are available in a range from 250 mL up to 20 L total volume.

Benefits:

- Save time through simple set-up and easy handling
- Easy cleaning due to electropolished finish of product surfaces
- Widely applicable and easily scalable through broad range of volumes to fit many applications
- Flexibility with interchangeable modules to tailor the systems to research demands

Applications:

- Microbial and cell culture
- Cell and gene therapy
- Cellular agriculture
- Screening studies
- Media optimization
- Process optimization
- Batch, Fed-Batch, Perfusion and Continuous cultivation

Related products:

- AppliSens sensors
- BioSep
- my-Control
- Livit Flex
- V-Control software
- Lucullus software

Features:

- Configurable headplates with interchangeable ports
- All metal parts are constructed of stainless steel 316L
- Optional high torque magnetically coupled agitator for 2 – 20 L range
- External mirror polished finish
- Glass bioreactor vessels can be used up to 0.5 barg (7.5 psig) of overpressure
- Jacketed bioreactor option for 2 – 15 L range
- Glass dished bottom vessels are made of borosilicate glass to guarantee:
- Resistance to thermal shock
  - Excellent corrosion resistance
  - Smooth, non porous surface for easy cleaning
  - Optimal transparency for visual inspection of the culture

Small scale range

The Applikon bioreactor range includes true scale down models of the classic 3 L laboratory scale bioreactor. These devices, ranging from 250 mL up to 1000 mL, are perfect for small-scale operations in the lab. The low volume reduces media costs, and the small size maximizes usage of bench space. 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.

Specifications (Part 1/3):

	250 mL	500 mL	1000 mL
Total volume (L)	0.290	0.550	1.250
Working volume (L)	200	400	1000
Minimum volume (L)	50	100	200
Aspect ratio total volume (L)	2.3	2.1	2.1
Aspect ratio working volume (L)	1.6	1.5	1.5
Autoclave dimensions with condenser (WxH mm)	180 x 240 mm	210 x 280 mm	180 x 380 mm
Drive system	Direct drive, lipsealed		
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 CO_2 gas in combination with alkali pump (variable speed pump)		
DO_2	Measurement: LumiSens Optical DO_2 sensor Control: via a combination of N_2, Air, O_2 (needle valve standard		
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	Control: variable speed pump for liquid addition or removal		
Optional inlets	Septum, chemostat tube, liquid entry system		

Specifications (Part 2/3):

	2 L		3 L		5 L	
	single wall	jacketed	single wall	jacketed	single wall	jacketed
Total volume (L)	2.2	2.2	3.1	3.1	4.8	4.8
Working volume (L)	1.7	1.7	2.4	2.4	3.4	3.4
Minimum volume (L)	0.3	0.3	0.6	0.6	0.9	0.9
Aspect ratio total volume (L)	2.3	2.3	1.9	1.9	1.6	1.6
Aspect ratio working volume (L)	1.9	1.9	1.5	1.5	1.1	1.1
Autoclave dimensions with condenser (WxH mm)	200 x 460 mm	240 x 500 mm	200 x 460 mm	240 x 460 mm	200 x 520 mm	260 x 570 mm
Drive system	Direct drive, lipsealed or magnetically coupled					
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 N2, Air, O2 (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					

Specifications (Part 3/3):

	7 L		15 L		20 L
	single wall	jacketed	single wall	jacketed	single wall
Total volume (L)	6.8	6.8	16.5	16.5	23
Working volume (L)	5.4	5.4	12	12	16
Minimum volume (L)	1.5	1.5	3.0	3.0	3.0
Aspect ratio total volume (L)	2.5	2.5	1.7	1.7	2.4
Aspect ratio working volume (L)	1.8	1.8	1.5	1.5	2.0
Autoclave dimensions with condenser (WxH mm)	260 x 630 mm	360 x 670 mm	340 x 815 mm	480 x 835 mm	340 x 990 mm
Drive system	Direct drive, lipsealed or magnetically coupled				
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 N2, Air, O2 (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				

Getinge Service

– Total Process Control for You

With Getinge, service goes beyond replacing gaskets. Service is about in depth product knowledge to provide best in class preventive maintenance. Service is an investment in reliable equipment, a reliable process and about providing advice to the to help improve efficiency. In Getinge Service you will find our complete service offer to ease your daily challenges.

Getinge Service for bioreactor systems contains

- Workflow Optimization & Application Support
- Quality & Compliance
- Standard Service
- Extended Warranties
- Installation, Relocation and Retrofitting Services
- On-Demand Service

Quality & Compliance

All Getinge equipment is tested thoroughly throughout the manufacturing process. During our in house verification processes we perform comprehensive tests on all Getinge equipment. All quality documentation is supplied with our systems. The quality documentation is setup in such a way that it is ready to use for your validation and qualification process. Tailored to your requirements we can assist with Factory Acceptance Tests (FAT), commissioning, Site Acceptance Test (SAT) and IV/OV.

We bring over 40 years of experience with cGMP and EUDRALEX in verification, validation and qualification. Our projects department can assist your in defining your requirements right from the start. It will make your life easier knowing that our experts in the bioreactor field have defined your URS so that no detail is overlooked and all specifications are realistic and achievable.

Standard Warranty

All Getinge equipment is guaranteed for one year after delivery against defective materials and workmanship. All component parts of our products are covered by this warranty, except for normal consumable items such as glassware, sensors, O-rings and gaskets etc. Warranties are voided by unauthorized service of equipment.

Getinge Academy
– Be the Expert

Get trained and be ready! Well-trained scientists, operators, and engineers make sure that our systems are fully utilized in your operations. In our vision, training and instruction on how to operate our scientific equipment to make optimal use of its capabilities is not a one-time occurrence, but needs to be repeated on a regular basis.

That's why we created a curriculum to fit your needs. The courses range from educational hands-on and theoretical "Fermentation & Cultivation" sessions, to advanced SCADA/PIMS software training. Our team of bioprocess experts is ready to give you advice on basic or advanced process optimization questions, including process scale-up, aeration, mixing, temperature, pH, and dissolved oxygen control, plus other process controller settings.

Our in-house laboratory is equipped to run cultures and to mimic your process conditions so that recommendations can be drawn up for you based on hands-on experience. Through our Workflow Optimization Assessment we can even design training programs for your employees, as well as put together a curriculum for you. Training can also be held at your facility for a private training session or in a central location near you for general access. Customized training can be organized on demand, focusing on your specific process challenges. You can ask us to come to you to help improve your current workflow and bio-processes or even set-up completely new ones. Please contact us and we will be glad to act as your partner.

Available training courses

- Basic Cultivation course
- Advanced Cultivation course
- Basic Cell Culture course
- Basic Lucullus® PIMS training
- Advanced Lucullus® PIMS training
- On-Demand Service

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GETINGE

Getinge is a global provider of innovative solutions for operating rooms, intensive care units, sterilization departments and for life science companies and institutions. Based on our firsthand experience and close partnerships with clinical experts, healthcare professionals and medtech specialists, we are improving everyday life for people – today and tomorrow.

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