

BioBench and BioPilot

Multi-use bioreactors for pilot
and production-scale

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

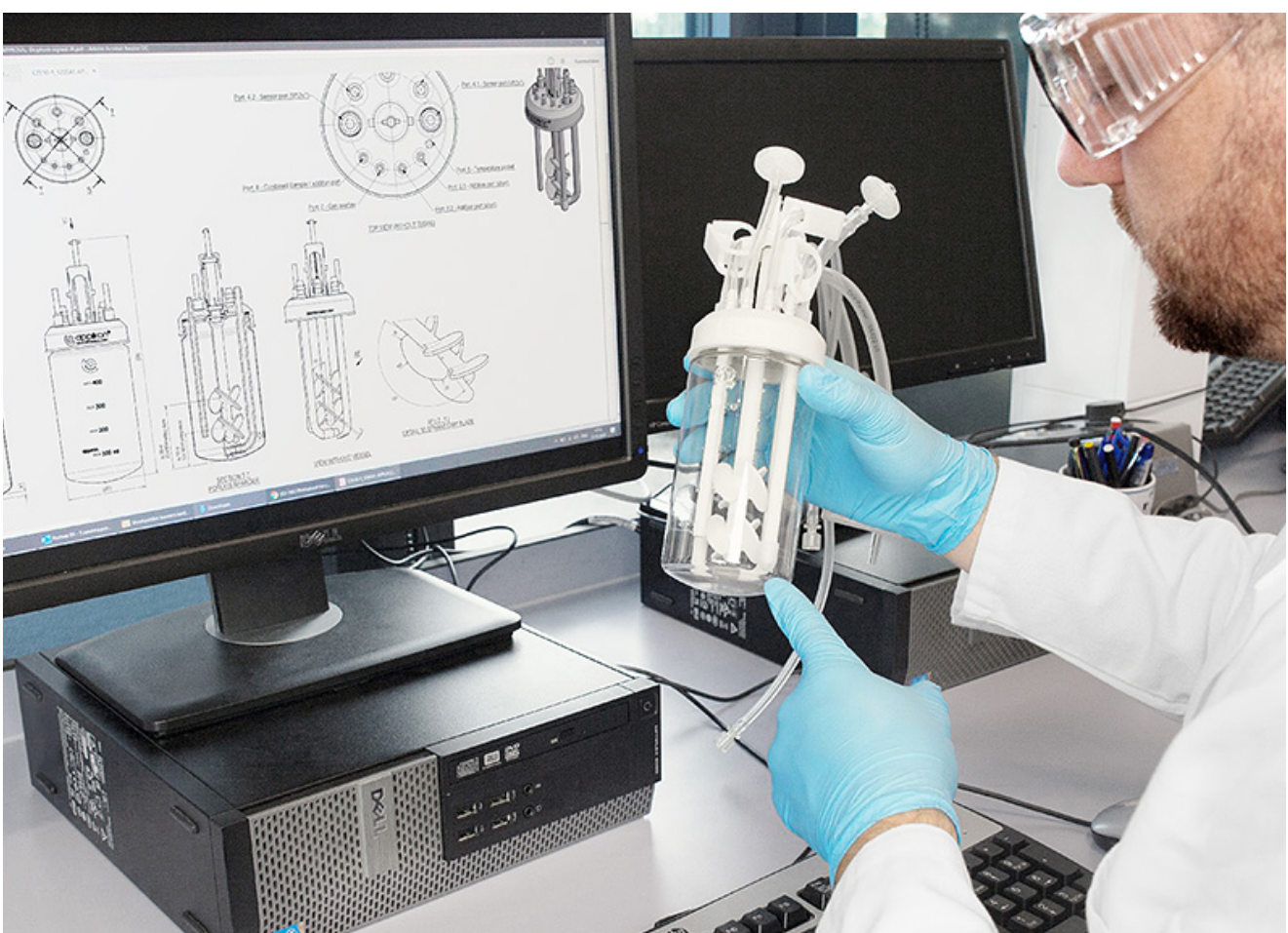


SUSTAINABLE DEVELOPMENT GOALS



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-Pharmaceuticals



Regenerative Medicine



Food and Beverages



Bio-Chemicals



Bio-Fuels

BioBench and BioPilot

– Multi-use Bioreactors for Pilot and Production-scale

Getinge's concept of modularity (using standard modules to customize the functions of the bioreactor) is extended to the stainless steel pilot plant bioreactors as well. For scale up purposes the range of the BioBench and BioPilot systems, designed and built to the latest standards on hygienic processing and cGMP and GAMP validation requirements, complements the laboratory scale bioreactor systems. Scale-up from laboratory scale to pilot plant and small scale production is simplified by the consistent bioreactor design and the scalable control solutions. All systems are designed to be cleaned-in-place. Getinge offers fully automated CIP systems compatible with our bioreactor systems. Standardized bioreactor systems are available up to 270 liter total volume and custom built units can be supplied up to 5,000 liter total volume. Designed according to ASME BPE guidelines.



Applications:

- Scale-up studies
- Medium optimization
- Process optimization
- Small scale production
- Microbial and Cell culture
- Batch, Fed-Batch, Perfusion and Continuous cultivation

Features:

- Easy to clean mirror polished external finish
- Electropolished finish of all parts in contact with the culture ($R_a < 0.4 \mu\text{m}$) to allow efficient Clean-in-place
- Modular design allows easy adaptation to changing process demands
- Magnetically coupled agitator for peace of mind
- cGMP compliant design simplifies validation
- Compact design reduces floor space needed
- Open frame construction gives easy access for maintenance and operation

Specifications:

	Total volume (liter)	Working volume (liter)	Minimum working volume (liter)	Aspect ratio total volume	Aspect ratio working volume
20 liter BioBench	20	15	4	3.0	2.2
30 liter BioBench	30	22.5	7	2.0	1.6
30 liter BioPilot Cell	30	20	7.5	1.5	1.0
60 liter BioPilot Cell	60	40	10	1.5	1.0
130 liter BioPilot Cell	130	100	28	1.5	1.0
20 liter BioPilot Microbial	20	15	4	3.0	2.2
40 liter BioPilot Microbial	40	30	7.5	3.0	2.2
70 liter BioPilot Microbial	70	50	10	3.0	2.2
140 liter BioPilot Microbial	140	100	20	3.0	2.2
270 liter BioPilot Microbial	270	200	50	3.0	2.2

Custom build bioreactor systems are available up to 5,000 liter total volume

Drive system	Magnetically coupled, optional mechanical seal, bottom or top mounted agitator for microbial cultures and top mounted for cell culture systems
Maximum agitator tipspeed (m/s)	5 m/s for microbial cultures and 1 m/s for cell cultures
Impellers	Rushton and marine with outside diameters 0.33 - 0.5 vessel diameter
Gas sparger	Porous sparger, L-Sparger or Ring-type sparger
Gas overlay	Optional gas overlay line
Exhaust gas	Water cooled exhaust gas condenser with internal spiral and/or jacketed
Sampling	Optional re-sterilizable sample system in DN25 port in lower side wall
Draining	Re-sterilizable bottom mounted bellows drain
Additions	Sterilizable additions (push valves) and re-sterilizable addition ports
pH	Measurement: 12 mm classic pH sensor in DN25 port in lower side wall Control: via acid pump or CO ₂ gas (rotameter or MFC) in combination with alkali pump
DO ₂	Measurement: 12 mm polarographic DO ₂ sensor in DN25 port in lower side wall Control: via a combination of N ₂ , Air, O ₂ (Rotameter or MFC) and agitation
Temperature	Measurement: Pt-100 sensor in DN25 port in lower side wall Cultivation control: cooling and heating jacket via bioreactor wall
Foam	Measurement: Height adjustable conductivity based foam sensor Control: anti-foam addition pump
Level	Measurement: Height adjustable conductivity based level sensor or loadcells in bioreactor frame Control: pump for liquid addition or removal



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 you 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 Lucillus® PIMS training
- Advanced Lucillus® PIMS training
- On-Demand Service

Americas

Brasil

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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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