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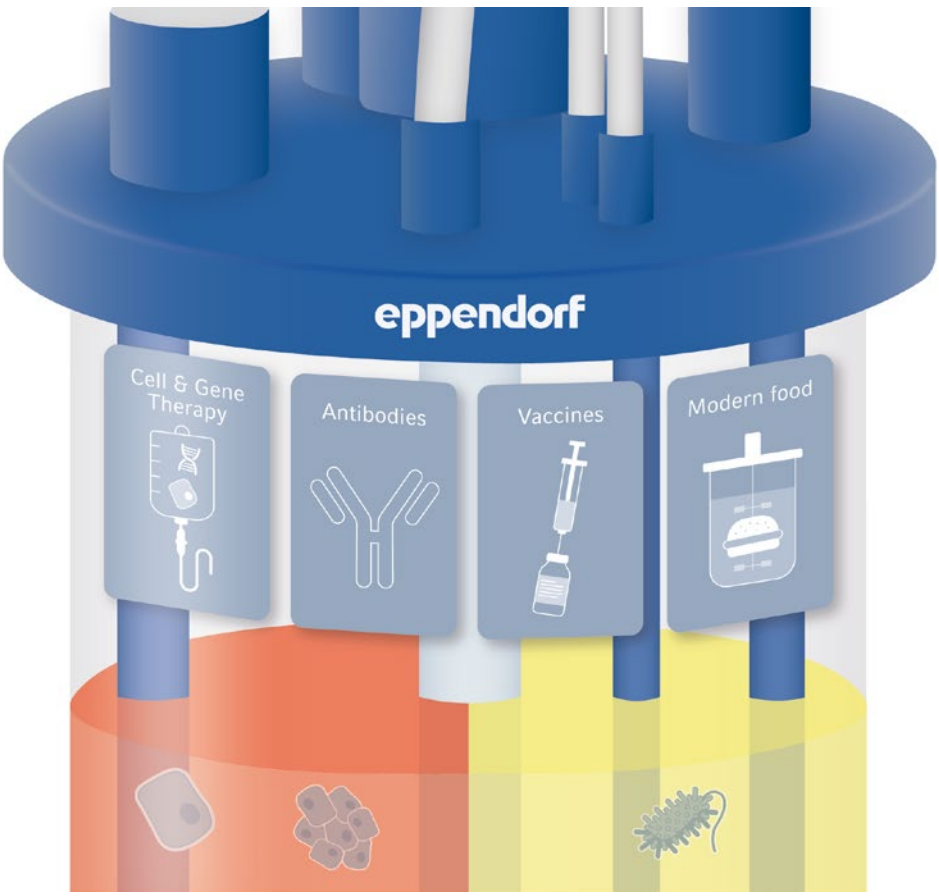
Bioprocess Catalog

Eppendorf Bioprocess Products

»We help bring life-saving treatments to the world.«

Lina Tao - Head of Bioprocess Unit, Eppendorf SE

Bioprocess engineers develop and produce a multitude of products and ingredients available today. Their applications are diverse and the products can be found in the pharmaceutical, chemical, and nutritional industry. Within those branches, promising new bioprocess approaches, such as cell and gene therapies (CGT) or stem cell-derived novel food, start gaining momentum and open the door towards a new tomorrow. The progresses in the CGT field hold great potential to revolutionize how we will live in the future, but theses progresses will only be possible with the help of the bioprocessing industry.
With our Eppendorf Bioprocess solutions, we are committed to help bring life-saving treatments to the world. Our bioprocess solutions are successfully used in the development of cell and gene therapies for more than a decade and with our single-use stirred-tank bioreactor technology, we are aiming to provide the new gold-standard for this growing industry. By exploiting the strong synergies in bioreactor technology and polymer manufacturing, Eppendorf bioprocess has emerged as a global player and valuable resource to its customers. With our equipment, training programs, and application services, we support scientists in resolving cultivation bottlenecks from bioprocess development through production. In that way and in line with our corporate mission, we contribute to the efforts of our customers worldwide to improve human living conditions by bringing life-saving treatments to the world.



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Are you looking for more Details?

Do you miss further information or simply wish additional details?

On our catalog pages you will find QR codes with icons showing you what kind of materials (brochure, website, 360 degree views and much more) we offer for viewing or downloading.

Simply scan the QR Code on the corresponding pages and make use of our online offers.

Eppendorf Services

At Eppendorf Services, we are committed to providing sincere, reliable services and tools to help you maintain premium performance, and maximum safety of your Eppendorf instruments and your workflows. This includes a comprehensive range of carefully designed service solutions performed by our dedicated bioprocess service teams worldwide.

With our services, we complement our bioprocess portfolio with Technical and Application Support, Training, and Maintenance Services.

Supporting You

Application Support

Seminars and Training

Technical Support

Maintenance and Certification

Knowledge Base
A comprehensive collection of bioprocess-related application notes, FAQs, and videos can be found on our website under Knowledge Base and Applications.

Bioprocess Performance Plans
Technologically demanding products require first-class service to ensure that the results they produce are optimized. Customers can rely on Eppendorf Service for superior support for their bioprocess products, beginning with startup of the system. The services range from technical support and troubleshooting to delivery of replacement parts on short notice and customer-specific maintenance programs.

Preventive Maintenance
As with all complex technical systems, Eppendorf bioprocess equipment should be maintained regularly to keep all parts in good working order. This maintenance avoids cost-intensive down times and contributes to preservation of value. We recommend a complete preventive maintenance once a year. Additionally, we encourage users to execute certain maintenance actions prior to every run or in regular cycles (e.g. every month). We will be happy to advice.

Technical and Application Support
You can expect very high standards of support for your products and applications from Eppendorf. Our team of specialists is pleased to help you with advice and assistance for all kinds of questions regarding our bioprocess products and their applications.

Eppendorf Training Center
In addition to support during installation, we highly recommend training for all new bioprocess customers. Furthermore Eppendorf also offers individual training adapted to the user's requirements like training of new employees or advanced/refresher training for employees already having experience with the bioprocess systems in place. The structure and methods of the training can be tailored to the customer's requirements from a general overview to a very detailed session on specific products or issues. Training in small groups makes it possible to provide individual guidance.

www.eppendorf.link/epServices

www

Our Bioprocessing Solutions for Your Applications: Discover our Website

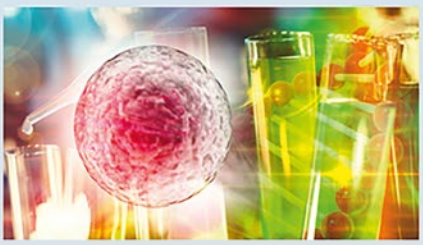
www.eppendorf.link/bioprocess

Information on bioprocessing is now available in a central location: Find research examples, application notes, and white papers on topics like bioprocess development, stem cell cultivation, scale-up, and many more. Get to know our customers working in biopharmaceutical, biochemical, and food/feed laboratories. Get engaged in webinars, see our training offerings and do not miss any news and events related to bioprocessing.

Addressing Customer Challenges

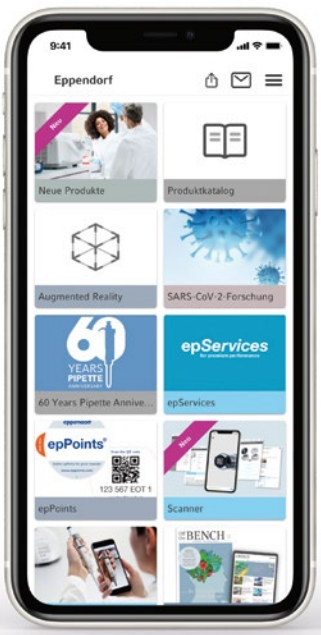
Vaccines
There is a rising demand for development of new vaccines. Eppendorf bioprocess equipment helps companies in setting up flexible processes, optimized to balance costs and time-to-market.

Antibodies/hormones
Improved cultivation techniques such as perfusion and new possibilities in data handling and automation enhance development of antibodies, therapeutic proteins, and active ingredients.



Stem cells
Stem cell-based technologies are promising approaches for therapy and drug discovery. For commercialization, researchers are evaluating standardization of their cultures and efficient scale-up.

Eppendorf Digital



Do you already know our app?

The Eppendorf App with its new splendid design is based on the latest technology to provide better usability. Have more fun browsing through the product catalog to find the right product for you. Start with the many possibilities to get information about our products and to compare them. Thanks to the improved Augmented Reality (AR) function, it is now even easier to place products virtually in your lab. Experience the diversity of Eppendorf on a 1:1 scale. Plan space requirements and configure accessories comfortably from your tablet or smartphone.

Here are some more highlights you will find in our app:
> Register all your Eppendorf devices easily
> Scan your epPoints quickly and easily
> Calculate the amount of crude oil/polypropylene that has been saved through the innovative design of your new epT.I.P.S.® or ep Dualfilter T.I.P.S.® disposable racks.

Download the Eppendorf App! We wish you a lot of fun!

* To use the AR function, your device needs the operating system IOS 13.0 or higher.

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Download on the App Store

GET IT ON Google Play

Bioprocess Knowledge Hub

Whether you are just starting in bioprocessing or have numerous years of experience in the field, it can be a vast area with many aspects to consider. Find information on general bioprocessing topics like bioprocess monitoring and control and scale-up, as well as expert advice on how to optimize bioprocessing for specific applications, including cell culture and microbial fermentation.

Become an expert in bioprocessing.
Join us at www.eppendorf.link/bioprocess-basics

www

www.eppendorf.link/bioprocess-basics

Recent Application Notes

Resolving Cultivation Bottlenecks: The Bioprocessing Journey

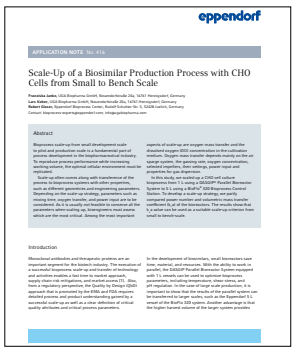
Bioprocessing relies on living cells or their components to create pharmaceutical, biofuel, or nutrition products. Whether bacterial, fungal, plant or mammalian, cells used for these processes need unique conditions for optimal growth and product formation. This eBook describes the advantages of using bioreactors and highlights different aspects that need to be considered when working with a bioreactor.

www.eppendorf.link/publicationBP2020

From Shaker to Pilot/Production Bioreactor: How Scale Up Assist Using the BioFlo® 720 Bioreactor Control System Can Help Your Antibody Production Workflow.

This study details the use of this new Scale Up Assist feature of the BioFlo 720 Bioreactor Control System to scale CHO batch cultures from 3 L to 10 L BioBLU® Single-Use Bioreactors and from the 10 L to Thermo Scientific™ HyPerforma™ 50 L single use bioreactor. Our results demonstrated that the parameters provided by the new Scale Up Assist software resulted in similar cell growth and monoclonal antibody (mAb) production yields for all three vessel sizes. Adoption of the controller's Scale Up Assist function can decrease process development time while also helping to ensure consistent mAb yields across vessel sizes and bioreactor platforms.

www.eppendorf.link/appnote436



Scale-Up of a Biosimilar Production Process with CHO Cells from Small to Bench Scale

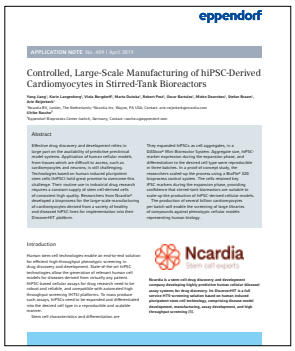
Bioprocess scale-up from small development scale to pilot and production scale is a fundamental part of process development in the biopharmaceutical industry. To reproduce process performance while increasing working volume, the optimal cellular environment must be replicated. In this study, we scaled up a CHO cell culture bioprocess from 1 L using a DASGIP® Parallel Bioreactor System to 5 L using a BioFlo® 320 Bioprocess Control Station. To develop a scale-up strategy, we partly compared power number and volumetric mass transfer coefficient (kLa) of the bioreactors. The results show that kLa value can be used as a suitable scale-up criterion from small to bench-scale.

www.eppendorf.link/appnote416

Parallel Escherichia coli fermentation in the SciVario® twin, the Flexible Controller for All Your Bioprocess Needs

We performed parallel batch and fed-batch fermentations of Escherichia coli (E. coli) with the SciVario twin using Eppendorf 1 L and 3 L glass vessels. These experiments highlighted SciVario twin's capabilities to control complex processes using various vessel sizes. In this application note, we describe major steps of a typical E. coli fermentation, starting from the preparation of the inoculum to the setup of process parameters and control strategies and operation of the vessels. The application note can serve as a starting point for further optimization.

www.eppendorf.link/appnote433



Controlled, Large-Scale Manufacturing of hiPSC-Derived Cardiomyocytes in Stirred-Tank Bioreactors

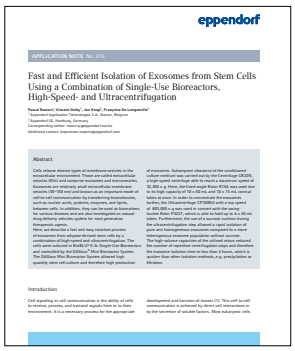
Effective drug discovery and development relies in large part on the availability of predictive preclinical model systems. Application of human cellular models from tissues which are difficult to access, such as cardiomyocytes and neurons, is still challenging. Technologies based on human induced pluripotent stem cells (hiPSC) hold great promise to overcome this challenge. This application note describes how researchers from Ncardia® expanded hiPSCs as cell aggregates ina a DASbox® Mini Bioreactor System. In a proof-of-concept study, the researchers scaled-up the process using a BioFlo 320 bioprocess controller.

www.eppendorf.link/appnote409

Optimizing CD4+ T Cells Long-term Expansion Process in the DASbox® Mini Bioreactor System

T cell lymphocytes play a central role in the adaptive immune response. They are an essential tool of adoptive cell therapy for the treatment of chronic viral infections and malignant diseases. However, the development of cell-based therapy products generally requires the production of a large quantity of high-quality viable T cells in a controlled environment. In this study, we tested the suitability of BioBLU® 0.3c Single-Use Bioreactors controlled by a DASbox Mini Bioreactor System in the long-term expansion of CD4+ T cells as well as the impact of different oxygen tensions on cell proliferation.

www.eppendorf.link/appnote453



Isolation of Exosomes from Stem Cells Using Single-Use Bioreactors, High-Speed- and Ultracentrifugation

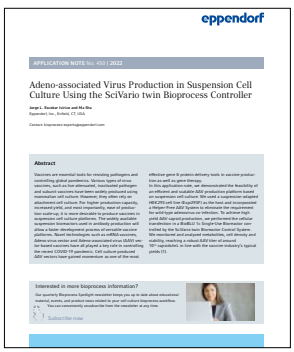
Cells release diverse types of membrane vesicles in the extracellular environment. Exosomes are relatively small extracellular membrane vesicles (30–150 nm) and known as an important mode of cell-to-cell communication by transferring biomolecules, such as nucleic acids, proteins, enzymes, and lipids, between cells. Here, we describe a fast and easy isolation process of exosomes from adipose-derived stem cells by a combination of high-speed and ultracentrifugation. Stem cells were cultured in BioBLU® 0.3c Single-Use Bioreactors and controlled by the DASbox® Mini Bioreactor System.

www.eppendorf.link/appnote476

Adeno-associated Virus Production in Suspension Cell Culture Using the SciVario® twin Bioprocess Controller

Cell culture produced adeno-associated virus (AAV) vectors have gained momentum as one of the most effective gene & protein delivery tools in vaccine production as well as gene therapy. In this application note, we demonstrated the feasibility of an efficient and scalable AAV production platform based on suspension cell culture. We used a suspension-adapted HEK293 cell line as the host and incorporated a Helper-Free AAV System to eliminate the requirement for wild-type adenovirus co-infection.

www.eppendorf.link/appnote450



Systems

Solutions that grow with you

From the parallel mini bioreactor system for early stage bioprocess development, the benchtop and parallel bioreactor systems for the laboratory scale to the sterilize-in-place solutions for production: Eppendorf offers users from industry and research extensive bioprocess solutions from a single source and meets the highest quality demands.

i For more information go to www.eppendorf.link/bioprocess

Our Portfolio – Your Choice

Model	DASbox® Mini Bioreactor System	DASGIP® Parallel Bioreactor Systems
Page	**18**	**22**
Working volume ranges[1)]	60 – 250 mL	0.2 – 1.8 L
Single-use vessels	■	■
Glass vessels, autoclavable	■	■
Stainless-steel vessels, SIP		
Interchangeable vessels	■	■
Bacteria/yeasts/fungi	■	■
Mammalian/animal cells	■	■
Stem cells	■	■
Insect cells	■	■
Number of parallel units	Up to 24	Up to 16
Controller[2)]	DASware control	DASware control
BioCommand®		
DASware®	■	■
Gas mixing options	4-gas (air, N_2, O_2, CO_2)	4-gas (air, N_2, O_2, CO_2)
Gas flow control[2)]	TMFC	R or TMFC
Exhaust analysis	■	■
Optical density measurement	■	■
Validation		
Remote Device Monitoring and Notifications (VisioNize®)	-	-

[1)] Realized using multiple vessels [2)] R = Rotameter, TMFC = Thermal Mass Flow Controller [3)] OD measurement possible via third-party equipment

■ = standard, o = optional

i For more information go to www.eppendorf.link/bioprocess

SciVario® twin	BioFlo® 120	BioFlo® 320
28	**32**	**38**
0.2 – 40 L	0.4 – 40 L	0.4 – 40 L
■	■	■
■	■	■
■	■	■
■	■	■
o	■	■
o	■	■
o	■	■
2		Up to 8
Touchscreen	Touchscreen	Touchscreen
■	■	■
■	■	■
4-gas (air, N_2, O_2, CO_2)	4-gas (air, N_2, O_2, CO_2)	4-gas (air, N_2, O_2, CO_2)
TMFC	R or TMFC	TMFC
■	■	■
■[3)]	■[3)]	■[3)]
		■
■	-	-

Our Portfolio – Your Choice

Model	BioFlo® 720 Bioreactor	BioFlo®/CelliGen 510 Fermentor/Bioreactor
Page	44	46
Working volume ranges[1]	50 – 250 L	10.75 – 32 L
Single-use vessels	■	
Glass vessels, autoclavable		
Stainless-steel vessels, SIP		■
Interchangeable vessels	■	
Bacteria/yeasts/fungi	■	■
Mammalian/animal cells	■	■
Stem cells	■	■
Insect cells	■	■
Number of parallel units		
Controller[2]	Touchscreen	Touchscreen
Touchscreen controller	■	■
BioCommand®	■	■
DASware®		
Gas mixing options	4-gas (air, N_2, O_2, CO_2)	4-gas (air, N_2, O_2, CO_2)
Gas flow control[2]	TMFC	TMFC
Exhaust analysis	■	■
Optical density measurement	■[3]	■[3]
Validation	■	■

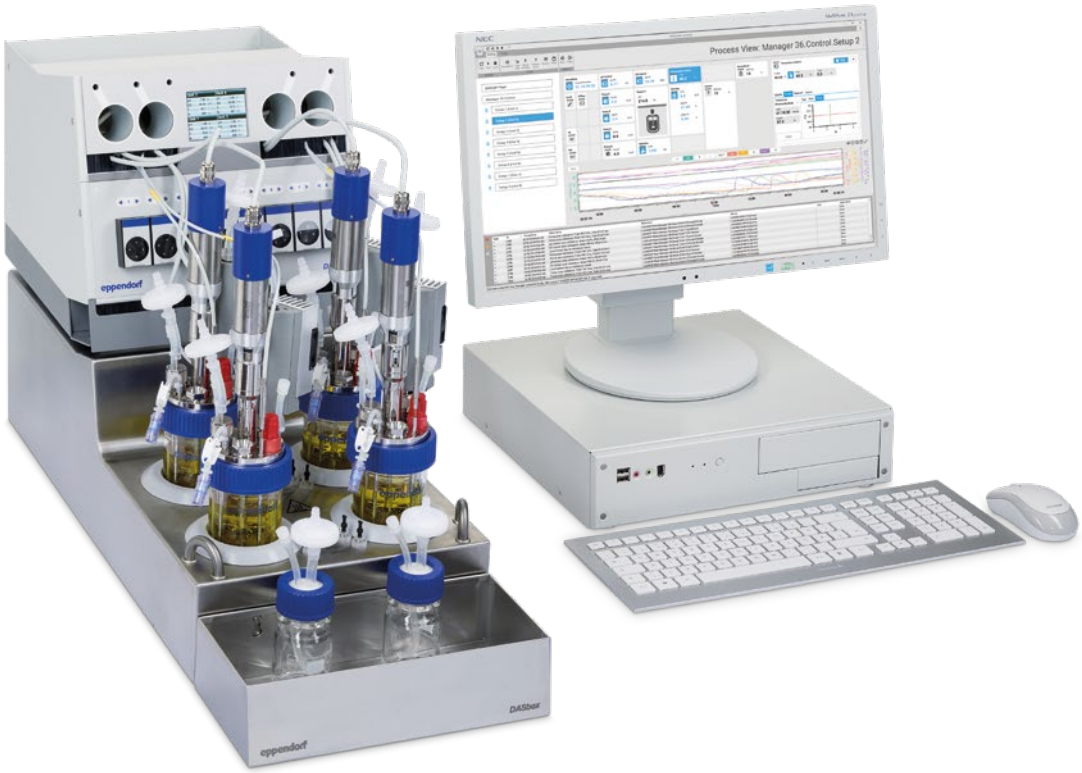
[1] Realized using multiple vessels [2] TMFC = Thermal Mass Flow Controller [3] OD measurement possible via third-party equipment

■ = standard

i For more information go to www.eppendorf.link/bioprocess

BioFlo® 610 Fermentor	BioFlo® Pro Fermentor
48	**50**
16 – 100 L	45 – 2,400 L
■	■
■	■
■	■
Touchscreen	Touchscreen
■	■
■	■
2-gas (air, O_2)	2-gas (air, O_2)
TMFC	TMFC
■	■
■[3)]	■[3)]
■	■

DASbox® Mini Bioreactor System



Description
The DASbox is a unique mini bioreactor system suitable for microbial and cell culture as well as stem cell applications. It is designed as a 4-fold system with up to twenty-four parallel operating bioreactors. With working volumes of 60 – 250 mL the DASbox is the optimal tool for advanced process development and Design of Experiments (DoE) applications. All critical process parameters can be precisely controlled. Liquid-free temperature control and exhaust condensation satisfy users with easy handling.
In addition to using industry standard glass bioreactors, the DASbox can be equipped with Eppendorf BioBLU 0.3 Single-Use Bioreactors, all fully instrumented single-use mini bioreactors.

Applications
> Process development in cell culture and microbiology
> Controlled cultivation of stem cells
> Design of Experiments (DoE)
> Media optimization
> Clone and cell line screening, strain characterization

Product features
> Parallel set-up of up to 24 bioreactors
> Excellent scalability and reproducibility in both microbial and cell culture applications
> Supports industry standard glass bioreactors (DASbox Mini Bioreactor) as well as BioBLU 0.3 Single-Use Bioreactors
> Small working volumes save on the amount of cell material, medium and supplements required
> Extremely compact system with a footprint of only 7.5 cm (3 in) benchspace per vessel
> Individual temperature control with liquid-free heating and cooling (Peltier)
> Liquid-free Peltier exhaust condenser with easy handling by automatic slide in activation and slide out deactivation mode
> LC display with key process parameters and integrated alarm function simplifies monitoring
> Fully mass flow-controlled gas mixing with individual gas mixture from air, N_2, O_2, and CO_2, each directable either to headspace or sparger
> Standard sensors for precise measurement and control of temperature, pH, DO, level and ORP (redox potential); optical pH sensors available
> Precise miniature variable speed pumps, continuous flow rates down to 0.3 mL/h
> Sealed magnetic overhead drives for single-use vessels and direct overhead drives for autoclavable vessels; up- or downflow selectable
> Optional pull-out system for enhanced accessibility of bioreactors and control unit

i For more information go to www.eppendorf.link/bioprocess

Parallel operation of up to 24 bioreactors makes the DASbox a perfect fit for process development.

The DASbox can be operated with BioBLU 0.3c, BioBLU 0.3sc, and 0.3f Single-Use Bioreactors for cell culture and microbial applications.

Ordering information

Description	Order no.
DASbox® Mini Bioreactor System, for cell culture applications, max. 5 sL/h gassing	
4-fold system	76DX04CC
8-fold system	76DX08CC
12-fold system	76DX12CC
16-fold system	76DX16CC
20-fold system	76DX20CC
24-fold system	76DX24CC
4-fold system for single-use vessels	76DX04CCSU
8-fold system for single-use vessels	76DX08CCSU
12-fold system for single-use vessels	76DX12CCSU
16-fold system for single-use vessels	76DX16CCSU
20-fold system for single-use vessels	76DX20CCSU
24-fold system for single-use vessels	76DX24CCSU
DASbox® Mini Bioreactor System, for microbial applications, max. 25 sL/h gassing	
4-fold system	76DX04MB
8-fold system	76DX08MB
12-fold system	76DX12MB
16-fold system	76DX16MB
20-fold system	76DX20MB
24-fold system	76DX24MB
4-fold system for single-use vessels	76DX04MBSU
8-fold system for single-use vessels	76DX08MBSU
12-fold system for single-use vessels	76DX12MBSU
16-fold system for single-use vessels	76DX16MBSU
20-fold system for single-use vessels	76DX20MBSU
24-fold system for single-use vessels	76DX24MBSU

Suitable vessels for the DASbox can be found on pages 66 - 67.

DASbox® Mini Bioreactor System

Technical specifications				
Model	**DASbox® Cell Culture**	**DASbox® Cell Culture Single-Use**	**DASbox® Microbiology**	**DASbox® Microbiology Single-Use**
Application	Cell culture	Cell culture	Microbiology	Microbiology
Number of parallel units	Up to 24	Up to 24	Up to 24	Up to 24
Software	DASware control, other DASware optional	DASware control, other DASware optional	DASware control, other DASware optional	DASware control, other DASware optional
User Interface	Process computer with monitor	Process computer with monitor	Process computer with monitor	Process computer with monitor
Typical power consumption (4-fold system without process computer)	168 W (at 230 V)/ 154 W (at 115 V)	168 W (at 230 V)/ 154 W (at 115 V)	168 W (at 230 V)/ 154 W (at 115 V)	168 W (at 230 V)/ 154 W (at 115 V)
Dimensions (W × D × H, 4-fold system without process computer)	30 x 70 x 49 cm (12 x 28 x 19 in)	30 x 70 x 49 cm (12 x 28 x 19 in)	30 x 70 x 49 cm (12 x 28 x 19 in)	30 x 70 x 49 cm (12 x 28 x 19 in)
Typical weight (4-fold system without accessories)	44 kg	44 kg	44 kg	44 kg
Bioreactors				
Vessels	Glass vessels	Single-use vessels	Glass vessels	Single-use vessels
Sterilization	Autoclavable	Pre-sterilized	Autoclavable	Pre-sterilized
Total volume	350 mL	380 mL	350 mL	380 mL
Agitation				
Drive	Direct overhead drives	Magnetic overhead drives	Direct overhead drives	Magnetic overhead drives
Speed ranges	20 – 2500 rpm	20 – 500 rpm	20 – 2500 rpm	20 – 2000 rpm
Impellers	Marine	Pitched-blade	Rushton-type	Rushton-type
Gassing				
Gas supply	TMFC; overlay and/or sparger	TMFC; overlay and/or sparger	TMFC; sparger	TMFC; sparger
Standard gas flow rates	0.04 – 5 sL/h, 0.04 – 3.5 sL/h CO_2	0.04 – 5 sL/h, 0.04 – 3.5 sL/h CO_2	0.2 – 25 sL/h, 0.2 – 18 sL/h CO_2	0.2 – 25 sL/h, 0.2 – 18 sL/h CO_2
Standard gas mixing	Air, N_2, O_2 and/or CO_2	Air, N_2, O_2 and/or CO_2	Air, N_2, O_2 and/or CO_2	Air, N_2, O_2 and/or CO_2
Feeding				
Feed lines per vessel	2 (standard)/ 4 (optional)	2 (standard)/ 4 (optional)	2 (standard)/ 4 (optional)	2 (standard)/ 4 (optional)
Standard feed rates (depending on tube diameter)	0.3 – 9.5 mL/h to 13 – 420 mL/h	0.3 – 9.5 mL/h to 13 – 420 mL/h	0.3 – 9.5 mL/h to 13 – 420 mL/h	0.3 – 9.5 mL/h to 13 – 420 mL/h
Monitoring and Control				
Temperature control	Liquid-free heating and cooling (Peltier)	Liquid-free heating and cooling (Peltier)	Liquid-free heating and cooling (Peltier)	Liquid-free heating and cooling (Peltier)
Standard temperature range (at 25° C room temp.)	10 – 60°C	10 – 45°C	10 – 60°C	10 – 45°C
pH control	CO_2/base, and other set-ups	CO_2/base, and other set-ups	Acid and/or base, and other set-ups	Acid and/or base, and other set-ups
DO control	Cascade (O_2 concentration, gas flow rate), and other set-ups	Cascade (O_2 concentration, gas flow rate), and other set-ups	Cascade (agitation speed, O_2 concentration, gas flow rate), and other set-ups	Cascade (agitation speed, O_2 concentration, gas flow rate), and other set-ups
ORP (redox) measurement	-	-	Optional (select redox or level)	Optional (select redox or level)
Level/foam	Optional	Optional	Optional (select redox or level)	Optional (select redox or level)
OD measurement	Optional (DASGIP OD4)	Optional (DASGIP OD4)	Optional (DASGIP OD4)	Optional (DASGIP OD4)
Exhaust condensation	Liquid-free (Peltier)	Liquid-free (Peltier)	Liquid-free (Peltier)	Liquid-free (Peltier)
Exhaust analysis	-	-	Optional (DASGIP GA4)	Optional (DASGIP GA4)

i For more information go to www.eppendorf.link/bioprocess

Together with the DASware software solutions, the DASbox supports process development following the Quality by Design (QbD) approach.

Lab space is critical - The DASbox requires only 7.5 cm (3 in) of bench space per bioreactor.

Accessories

Description	Order no.
DASbox® Overhead Drive, 20 – 2500 rpm, with cable L 1.6 m, direct-drive	78525185
DASbox® Overhead Drive, 20 – 2000 rpm, for BioBLU® 0.3, with cable L 1.6 m, magnetic-drive	78525186
DASbox® Autoclavable Carrier, for 4 vessels	76DXBKT4
DASbox® Autoclavable Carrier, stainless steel, labeled, for media bottles	78109113
DASbox® Feeding and Monitoring System MP8, without feed lines and addition bottles	76DXMP8
DASbox® Pull-Out System, for one DASbox® base unit	76DXRAIL
DASbox® GA4 Exhaust Analyzing Module, O_2 0 – 100 %, CO_2 0 – 25 %, including I/O option and accessories for 4 vessels	76DXGA4EX
DASbox® GA4 Exhaust Analyzing Module, O_2 1 – 50 %, CO_2 0 – 25 %, including I/O option and accessories for 4 vessels	76DXGA4X

DASGIP® Parallel Bioreactor Systems

Description
DASGIP Parallel Bioreactor Systems for R&D and process development in both cell culture and microbiology allow for advanced bioprocess control and automation. Parallel processing, precise control of all relevant parameters, user-defined profiles, and innumerable automation features result in accelerated and highly efficient process development. Our DASware software solutions support DoE, process historians and comprehensive data management. Configurable solutions address the unique requirements of microbial, mammalian and human cells, stem cell applications, as well as biofuel and biopolymer processes.

Applications
> Research and development in cell culture and microbiology
> Lab scale fermentation of aerobic and anaerobic bacteria, yeasts and fungi
> Cultivation of mammalian, insect and human cell lines
> Special applications such as stem cell culture or biofuel/biopolymer development

Product features
> Parallel operation of up to 16 glass or single-use bioreactors
> DASGIP Bioblock for advanced and user-friendly temperature control
> Suitable for cell culture and microbial fermentation
> Modular design of control units allows for flexible system configurations that meet the demands of specific applications
> Control of agitation, pH, level, and DO (including customizable cascade modes) in each bioreactor
> Variable speed pumps for accurate liquid addition and operation in batch, fed-batch, continuous, and cyclic perfusion mode
> Optical absorbance measurement for online calculation of e.g. OD_{600} or cell dry weight
> TMFC individual gas mixing of air, N_2, O_2 and CO_2
> Online calculation of OTR, CTR and RQ
> DASware control software for advanced process control
> Compatible with DASware Software Suite for interconnectivity and bioprocess information management

i For more information go to www.eppendorf.link/bioprocess

With DASware control 6, DASGIP Parallel Bioreactor Systems can be operated with up to 16 vessels.

The DASGIP Bioblock can be used in a wide selection of vessels for cell culture and microbiology, both glass and single-use.

Ordering information

Description	Order no.
DASGIP® Parallel Bioreactor System, for cell culture, max. 50 sL/h gassing	
4-fold system with DASGIP® Bioblock	76DG04CCBB
8-fold system with DASGIP® Bioblock	76DG08CCBB
12-fold system with DASGIP® Bioblock	76DG12CCBB
16-fold system with DASGIP® Bioblock	76DG16CCBB
4-fold system with DASGIP® Bioblock, for single-use vessels	76DG04CCSU
8-fold system with DASGIP® Bioblock, for single-use vessels	76DG08CCSU
12-fold system with DASGIP® Bioblock, for single-use vessels	76DG12CCSU
16-fold system with DASGIP® Bioblock, for single-use vessels	76DG16CCSU
DASGIP® Parallel Bioreactor System, for microbial applications, max. 250 sL/h gassing	
4-fold system with DASGIP® Bioblock	76DG04MBBB
8-fold system with DASGIP® Bioblock	76DG08MBBB
12-fold system with DASGIP® Bioblock	76DG12MBBB
16-fold system with DASGIP® Bioblock	76DG16MBBB
4-fold system with DASGIP® Bioblock, for single-use vessels	76DG04MBSU
8-fold system with DASGIP® Bioblock, for single-use vessels	76DG08MBSU
12-fold system with DASGIP® Bioblock, for single-use vessels	76DG12MBSU
16-fold system with DASGIP® Bioblock, for single-use vessels	76DG16MBSU

i DASGIP Parallel Bioreactor Systems are configured to meet individual customer requirements. The systems shown are example configurations. Please contact us for more information.

Suitable vessels for the DASGIP Parallel Bioreactor Systems can be found on pages 68-71.

DASGIP® Parallel Bioreactor Systems

Technical specifications		
Model	**DASGIP® System for Cell Culture**	**DASGIP® System for Microbiology**
Application	Cell culture	Microbiology
Number of parallel units	Up to 16	Up to 16
Software	DASware control, other DASware optional	DASware control, other DASware optional
User Interface	Process computer with monitor	Process computer with monitor
Typical power consumption (4-fold system without process computer)	480 W (at 230 V)/ 432 W (at 115 V) (595 W/552 W without DASGIP Bioblock)	541 W (at 230 V)/ 467 W (at 115 V) (639 W/584 W without DASGIP Bioblock)
Dimensions (W × D × H, 4-fold system without process computer)	140 x 70 x 53 cm (55 x 28 x 21 in)	140 x 70 x 53 cm (55 x 28 x 21 in)
Typical weight (4-fold system without accessories)	78 kg (60 kg without DASGIP Bioblock)	96 kg (78 kg without DASGIP Bioblock)
Bioreactors		
Vessels	Glass/single-use vessels	Glass/single-use vessels
Sterilization	Autoclavable/ pre-sterilized	Autoclavable/ pre-sterilized
Total volume	1.5 L to 2.3 L	1.3 L to 2.1 L
Agitation		
Drive	Direct/magnetic overhead drive	Direct/magnetic overhead drive
Speed ranges	30 – 1,250 rpm (standard)/ 100 – 1,600 rpm (optional)	100 – 1,600 rpm (standard)/ 30 – 1,250 rpm (optional)
Impellers	Pitched-blade	Rushton-type
Gassing		
Gas supply	TMFC; overlay and/or sparger	TMFC/Rotameter; sparger
Standard gas flow rates	0.1 – 50 sL/h, 0.1 – 40 sL/h CO_2 (DASGIP MX4/4, other modules available)	0.5 – 250 sL/h, 0.5 – 150 sL/h CO_2 (DASGIP MX4/4H, other modules available)
Standard gas mixing	Air, N_2, O_2 and/or CO_2	Air, N_2, O_2 and/or CO_2
Feeding		
Feed lines per vessel	Up to 8	Up to 8
Standard feed rates (depending on tube diameter)	0.3 – 9.5 mL/h to 13 – 420 mL/h (DASGIP MP8) 10 – 70 mL/h to 0.4 – 5 L/h (DASGIP MP4)	0.3 – 9.5 mL/h to 13 – 420 mL/h (DASGIP MP8) 10 – 70 mL/h to 0.4 – 5 L/h (DASGIP MP4)
Monitoring and Control		
Temperature control	Heating and cooling integrated in DASGIP Bioblock (additional cooling fingers optional)	Heating and cooling integrated in DASGIP Bioblock (additional cooling fingers optional)
Standard temperature range (at 25° C room temp.)	5 K above cooling agent temperature – 99°C[1)] (DASGIP Bioblock)	5 K above cooling agent temperature – 99°C[1)] (DASGIP Bioblock)
pH control		Acid and/or base, and other set-ups
DO control	Cascade (O_2 concentration, gas flow rate), and other set-ups	Cascade (agitation speed, optional O_2 concentration, optional gas flow rate), and other set-ups
ORP (redox) measurement	-	Optional
Level/foam	Optional	Optional
OD measurement	Optional (DASGIP OD4)	Optional (DASGIP OD4)
Exhaust condensation	Water-cooled or liquid-free (Peltier with DASGIP EGC4)	Water-cooled or liquid-free (Peltier with DASGIP EGC4)
Exhaust analysis	Optional (DASGIP GA4)	Optional (DASGIP GA4)

[1)] Application-specific operating conditions apply.

i For more information go to www.eppendorf.link/bioprocess

The DASGIP modules enable customized solutions for all requirements. For more information see pages 118 - 133.

With a wide variety of autoclavable and single-use vessels, DASGIP Parallel Bioreactor Systems can be adapted to a huge range of applications.

Accessories

Description	Order no.
Cable, for DASGIP® overhead drive RE30/RE40	
L 1.3 m	78525121
L 3 m	78525112
Overhead Drive	
RE30 (magnetic), 30 – 1250 rpm, for BioBLU® 1, for BioBLU® 1	78525189
RE30, 30 – 1250 rpm, for head plate port with M30 thread	78525187
RE40 (magnetic), 100 – 1600 rpm, for BioBLU® 1	78525198
RE40, 100 – 1600 rpm, for head plate port with M30 thread	78525188
Autoclavable Carrier, for 2 DASGIP® vessels	76DGBKT2

Bioprocess Autosampler

Description
The Bioprocess Autosampler 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 or a DASGIP® Parallel Bioreactor System.

Applications
> Research and development in microbiology
> Small scale bioprocesses for aerobic and anaerobic bacteria and yeasts
> Suitable for batch, fed-batch, and continuous processes

Product features
> Aseptic operation without the use of a laminar flow cabinet
> Compatible with differently-sized glass and BioBLU® Single-Use Bioreactors with working volumes of 60 mL to 1.8 L
> Suitable for 1.5 mL and 10 mL sample vials, up to 648 samples can be stored
> Enables regular sampling 24/7
> Sample storage between 4 and 40 °C.
> Sanitation procedure using ethanol is similar to procedures, usually applied when sampling manually
> Low dead volume minimizes the reduction of culture volume
> Modular design that facilitates expansion of the number of bioreactors to be sampled and retrofitting of existing bioprocess systems
> Control of the Bioprocess Autosampler is integrated in DASware® control bioprocess software

i For more information go to www.eppendorf.link/bioprocess

Efficient sampling from bioreactors of different sizes. Different sample sizes with aseptic operation and low dead volume.

Automating upstream bioprocess: operating 24/7, storing samples for later analysis. All using the same space as your bioreactor system!

Ordering information

Description	Order no.
Bioprocess Autosampler, base unit, single head, with accessories	
for 4 vessels, 1.6 m	7700 200 007
Bioprocess Autosampler, base unit, dual head, with accessories	
for 8 vessels, 2.0 m	7700 200 008

SciVario® twin

Description
The SciVario twin is a next-generation bioreactor control system suitable for microbial and cell culture applications. The system is capable of controlling two vessels at the same time, either glass or single-use. Compact, adaptable for changing requirements in the future, and its intuitive VisioNize® touch user interface make this the ideal controller in R&D and process development. Digital sensor technology, wide range pumps and gassing system, and a guided workflow to guide you step by step are just some of the features that will help you growing your cells. The controller integrates seamlessly into the VisioNize Lab Suite, enabling remote monitoring and notifications for your peace of mind.

Applications
> Research and development in cell culture and microbiology
> Lab scale fermentation of aerobic and anaerobic bacteria, yeasts and other or filamentous fungi
> Cultivation of mammalian and human cell lines
> Media optimization
> Clone and cell line screening, strain characterization

Product features
> Operation of 2 bioreactors (glass and/or BioBLU Single-Use Bioreactors) in any combination of vessel types, independently run or in parallel
> Suitable for cell culture and microbial fermentation
> Temperature control block for advanced and user-friendly temperature control or temperature control via heat blankets and cooling fingers (benchtop bioreactors)
> Future proven bay-drawer concept for further extension and reconfiguration
> VisioNize touch: intuitive and exciting user interface supporting efficient and intelligent process control
> Integrated digital sensor technology (Mettler Toledo ISM® and Hamilton ARC®), supporting analog sensors for pH and DO and optical DO sensors
> Optional PreSens® optical DO sensor technology for BioBLU Single-Use Bioreactors
> Compact design, 16-40 cm of benchspace needed per vessel
> Variable speed pumps for accurate liquid addition and operation in batch and fed-batch mode
> Wide range TMFC to allow for individual mixing of air, N_2, O_2, and CO_2 to headspace and/or submerged aeration
> Compatible with DASware® control software for advanced process control

i For more information go to www.eppendorf.link/bioprocess

With the compact design, you can make the most of precious bench space in the lab.

Ordering information

Description	Order no.
SciVario® twin Fermenter/Bioreactor Control System, base unit	
100 – 240 V/50/60 Hz, for 2 vessels	7600 100 001

SciVario® twin

Technical specifications				
Model	**SciVario twin**	**SciVario twin**	**SciVario twin**	**SciVario twin**
Application	Cell culture	Cell culture	Microbiology	Microbiology
Software	DASware control, VisioNize onboard	DASware control, VisioNize onboard	DASware control, VisioNize onboard	DASware control, VisioNize onboard
User Interface	Touchscreen	Touchscreen	Touchscreen	Touchscreen
Power supply	100 – 240 V, 50/60 Hz	100 – 240 V, 50/60 Hz	100 – 240 V, 50/60 Hz	100 – 240 V, 50/60 Hz
Dimensions (W × D × H)	30.6 × 34 × 75 cm / 12.0 × 13.4 × 29.5 in	30.6 × 34 × 75 cm / 12.0 × 13.4 × 29.5 in	30.6 × 34 × 75 cm / 12.0 × 13.4 × 29.5 in	30.6 × 34 × 75 cm / 12.0 × 13.4 × 29.5 in
Weight w/o accessories	43.1 kg	43.1 kg	43.1 kg	43.1 kg
Bioreactors				
Vessels	Glass vessels	Single-use vessels	Glass vessels	Single-use vessels
Sterilization	Autoclavable	Pre-sterilized	Autoclavable	Pre-sterilized
Total volume	1.5 - 4.3 L	1.8 L - 50 L	1.3 - 4.3 L	1.8 L - 5 L
Agitation				
Drive	Direct overhead drive	Magnetic overhead drive	Direct overhead drive	Magnetic overhead drives
Speed ranges	25 - 1,250/ 60 - 1,600 rpm	25 - 1,250/ 60 - 1,600 rpm	25 - 1,250/ 60 - 1,600 rpm	25 - 1,250/ 60 - 1,600 rpm
Impellers	Pitched-blade	Pitched-blade	Rushton-type	Rushton-type
Gassing				
Gas supply	TMFC; overlay and/or submerged	TMFC; overlay and/or submerged	TMFC; overlay and/or submerged	TMFC; overlay and/or submerged
Standard gas flow rates	0.1 - 1,200 sL/h (Air and O_2) 0.1 - 12 sL/h (N_2 and CO_2)	0.1 - 1,200 sL/h (Air and O_2) 0.1 - 12 sL/h (N_2 and CO_2)	0.1 - 1,200 sL/h (Air and O_2) 0.1 - 12 sL/h (N_2 and CO_2)	0.1 - 1,200 sL/h (Air and O2) 0.1 - 12 sL/h (N_2 and CO_2)
Standard gas mixing	Air, N_2, O_2 and CO_2	Air, N_2, O_2 and CO_2	Air, N_2, O_2 and CO_2	Air, N_2, O_2 and CO_2
Feeding				
Standard feed rates (depending on tube diameter)	4x small pump: 0.005 - 600 mL/h 1x large pump: 4.5 - 5,200 mL/h	4x small pump: 0.005 - 600 mL/h 1x large pump: 4.5 - 5,200 mL/h	4x small pump: 0.005 - 600 mL/h 1x large pump: 4.5 - 5,200 mL/h	4x small pump: 0.005 - 600 mL/h 1x large pump: 4.5 - 5,200 mL/h
Monitoring and Control				
Temperature control	Heat blankets (optional cooling fingers) or temperature control block with integrated heating and cooling	Heat blankets (optional cooling fingers) or temperature control block with integrated heating and cooling	Heat blankets (optional cooling fingers) or temperature control block with integrated heating and cooling	Heat blankets (optional cooling fingers) or temperature control block with integrated heating and cooling
Standard temperature range (at 25° C room temp.)	10 – 70°C	25 – 40°C	10 – 70°C	25 – 40°C
pH control	CO_2 / base	CO_2 / base	Acid and base	Acid and base
DO control	Cascade (O_2 concentration, gas flow rate)	Cascade (O_2 concentration, gas flow rate)	Cascade (agitation speed, O_2 concentration, gas flow rate)	Cascade (agitation speed, O_2 concentration, gas flow rate)
Level/antifoam monitoring and control	yes	yes	yes	yes
Exhaust condensation	Liquid-free (Peltier) or water-based	Liquid-free (Peltier) or water-based	Liquid-free (Peltier) or water-based	Liquid-free (Peltier) or water-based

i For more information go to www.eppendorf.link/bioprocess

Customizable and flexible thanks to the innovative bay-drawer concept

VisioNize® touch software on the 12 in touch display with ultra wide view angle, integrates the SciVario twin into the Eppendorf digital lab

Ordering information

Description	Order no.
Drawer, for SciVario® twin	
blank	7600 110 001
with 2 small peristaltic pumps	7600 110 002
with 1 big peristaltic pump	7600 110 003
optical pH	7600 110 004
Overhead Drive, for SciVario® twin	
direct drive for glass vessel, MD30	7600 211 003
magnetic drive for single-use vessel, MD30	7600 211 004
magnetic drive for single-use vessels, MD30	7600 211 005
direct drive for glass vessel, MD40	7600 211 006
magnetic drive for single-use vessel, MD40	7600 211 007
magnetic drive for single-use vessels, MD40	7600 211 008
magnetic drive for single-use vessels, TB200	7600 211 010
Temperature Block, for SciVario® twin	
for glass and single-use vessels, 0.7 – 1.8 L	7600 230 102
Heat blanket, for SciVario® twin	
for glass and single-use vessels, 2.4 – 3.8 L	7600 230 201
for single-use vessels, 10 L	7600 230 202
for single-use vessels, 50 L	7600 230 203

Suitable vessels for the SciVario twin can be found on pages 68-75.

BioFlo® 120

1. Easy-to-read 7 in integrated touchscreen monitor

2. Three front-mounted pumps with industry-standard easy load pump heads

3. Water recirculation module provides precise temperature control and exhaust condensing

4. High-precision thermal mass flow controller (TMFC) or rotameter for gas flow control with standard 4-gas mixing

5. Three user-defined analog input/output connections on the advanced model

6. Connection for direct-drive and bi-directional magnetic-drive motors

i For more information go to www.eppendorf.link/bioprocess

The BioFlo 120 Auto Culture modes allow 1-touch process control for microbial and cell culture applications.

Besides the BioBLU Single-Use Bioreactors for cell culture and microbial applications, water-jacketed or heat-blanketed autoclavable vessels are available in four sizes.

Description
The BioFlo 120 is a bench-scale bioreactor/fermentor system perfectly suited for all levels of research and development. The system was designed to be flexible to meet the wide-ranging needs of scientists today. 24 interchangeable heat-blanketed and water-jacketed autoclavable vessels are available, along with BioBLU Single-Use Bioreactors ranging from 250 mL to 40 L working volume. Digital Mettler Toledo® ISM sensor technology is fully integrated allowing the user to choose between pH, redox, dissolved oxygen (polarographic and/or optical), and carbon dioxide measurements without the need for additional equipment. A high-precision expanded range thermal mass flow controller is available providing the capability for low flow mammalian cell culture through high-demand microbial processes on a single controller.

Applications
> Cultivation of mammalian, stem, insect, and plant cells
> Bacterial, yeast, and fungal fermentation
> Batch, fed-batch, continuous or perfusion

Product features
> Scale-up from 250 mL to 40 L on a wide variety of autoclavable and Eppendorf BioBLU Single-Use Bioreactors.
> Auto culture modes offer process control for microbial and cell culture applications at the touch of a button.
> Ready for process. Unbox and install in minutes.
> Save critical lab space with a minimal footprint.
> Flexible universal connections for analog sensors or digital Mettler Toledo® ISM sensors offer unsurpassed flexibility.
> User-defined DO cascades offer process flexibility.
> Automatic gas mixing algorithms for simplified control
> View your entire process with expanded trend screen.
> Access your data from anywhere with Eppendorf SCADA, IP network, and remote monitoring capabilities.

BioFlo® 120

BioFlo 120 Specifications			
Control Station			
Dimensions (W × D × H)	24.7 × 55.9 × 62.9 cm (9.7 × 22 × 24.8 in)		
Net weight	14.8 kg (32.7 lb)		
Touchscreen	7 in projected capacitive touchscreen		
Communication	2 x USB (software updates, serial communication)		
Utility	**Connection**	**Requirement**	
Electrical	IEC-C14 (with regional plug types)	100 – 120/208 – 240 (± 10 %) V, 50/60 Hz, 10 A, Single Phase	
Water	Quick-connect	10 psig (0.69 barg)	
Gas supply (air, O_2, N_2, CO_2)	Push-connect fittings accept 1/4 in tubing or hose barb fitting	**Autoclavable**	**Single-use**
		10 psig (0.69 barg)	6 psig (0.44 barg)
Exhaust	0.5 psig (0.035 barg)		
Operating conditions	10 – 30 °C, up to 80 % RH, non-condensing		
Agitation			
Direct drive	1 L: 25 – 1,500 rpm 3 L, 5 L, 10 L: 25 – 1,200 rpm		
Magnetic drive (autoclavable vessels)	1 L, 3 L, or 5 L: 5 – 500 rpm 10 L: 5 – 150 rpm		
Magnetic drive (single-use vessels)	BioBLU 1f & 3f: 5 – 1,200 rpm BioBLU 1c: 5 – 500 rpm BioBLU 3c, 5c, 5p, 10c & 14c: 5 – 200 rpm BioBLU 50c: 5 – 150 rpm		
Temperature			
Autoclavable	1, 2, 5 L: 8 °C above coolant to 45 °C above ambient (0 °C – 70 °C absolute)[1)] 10 L: 8 °C above coolant to 40 °C above ambient (0 °C – 65 °C absolute)[1)]		
BioBLU Single-Use Bioreactors	BioBLU c bioreactors: 5 °C above ambient to 40 °C[1)] BioBLU f bioreactors: 5 °C above coolant to 45 °C[1)]		
Sensor type	Pt100		
Gas supply			
Sparge	1 TMFC (0.04 – 20 SLPM, 0.01 - 5 SLPM or 0.002 - 1 SLPM) or 1 rotameter (multiple options available); ring or microsparger		
Sensors	**Communication**	**Control range**	
pH	Analog or digital Mettler Toledo ISM	2 – 12	
DO	Analog or digital Mettler Toledo ISM	0 – 200 % (air saturation)	
Optical DO	Digital Mettler Toledo ISM	0 – 200 % (air saturation)	
Redox	Analog or digital Mettler Toledo ISM	(-)2,000 mV – (+)2,000 mV	
CO_2	Digital Mettler Toledo ISM	0 – 100 %	
Pumps	Pump head	Fixed speed	
Pumps 1, 2, & 3	Watson-Marlow 114DV	30 rpm (0 – 100 % duty cycle)	

[1)] Requires 115/230 V line voltage. Specifications cannot be guaranteed with operation at alternative line voltages

Specifications subject to change.

i For more information go to www.eppendorf.link/bioprocess

BioFlo 120 Advanced Control Station Bundles
Bundle includes Advanced Control Station with high precision TMFC, automatic four gas mix, 7 in (17.7 cm) integrated touchscreen, intuitive bioprocess control software for control of both microbial fermentation and cell culture processes, three front mounted addition pumps, three analog input/output connections, and region specific power cord.

Ordering information

Description	Order no.
BioFlo® 120, advanced, plug type B	
TMFC, 20 SLPM	B120ACS000
TMFC, 1 SLPM	B120ACS007
TMFC, 5 SLPM	B120ACS014
BioFlo® 120, advanced, plug type CEE 7/7	
TMFC, 20 SLPM	B120ACS001
TMFC, 1 SLPM	B120ACS008
TMFC, 5 SLPM	B120ACS015
BioFlo® 120, advanced, plug type I	
TMFC, 20 SLPM	B120ACS002
TMFC, 1 SLPM	B120ACS009
TMFC, 5 SLPM	B120ACS016
BioFlo® 120, advanced, plug type J	
TMFC, 20 SLPM	B120ACS003
TMFC, 1 SLPM	B120ACS010
TMFC, 5 SLPM	B120ACS017
BioFlo® 120, advanced, plug type G	
TMFC, 20 SLPM	B120ACS004
TMFC, 1 SLPM	B120ACS011
TMFC, 5 SLPM	B120ACS018
BioFlo® 120, advanced, plug type N	
TMFC, 20 SLPM	B120ACS005
TMFC, 1 SLPM	B120ACS012
TMFC, 5 SLPM	B120ACS019
BioFlo® 120, advanced, plug type D	
TMFC, 20 SLPM	B120ACS006
TMFC, 1 SLPM	B120ACS013
TMFC, 5 SLPM	B120ACS020

Suitable vessels for the BioFlo 120 can be found on pages 88-95.

BioFlo® 120

BioFlo 120 Standard Control Station Bundles
Bundle includes Standard Control Station manual flow control, automatic four gas mix, 7 in (17.7 cm) integrated touchscreen, intuitive bioprocess control software for control of both microbial fermentation and cell culture processes, three front mounted addition pumps, and region specific power cord.

Ordering information

Description	Order no.
BioFlo® 120, standard, plug type B	
Rotameter, 0.5 SLPM	B120SCS000
Rotameter, 1 SLPM	B120SCS010
Rotameter, 2.5 SLPM	B120SCS020
Rotameter, 5 SLPM	B120SCS030
Rotameter, 10 SLPM	B120SCS040
Rotameter, 25 SLPM	B120SCS050
BioFlo® 120, standard, plug type CEE 7/7	
Rotameter, 0.5 SLPM	B120SCS001
Rotameter, 1 SLPM	B120SCS011
Rotameter, 2.5 SLPM	B120SCS021
Rotameter, 5 SLPM	B120SCS031
Rotameter, 10 SLPM	B120SCS041
Rotameter, 25 SLPM	B120SCS051
BioFlo® 120, standard, plug type I	
Rotameter, 0.5 SLPM	B120SCS002
Rotameter, 1 SLPM	B120SCS012
Rotameter, 2.5 SLPM	B120SCS022
Rotameter, 5 SLPM	B120SCS032
Rotameter, 10 SLPM	B120SCS042
Rotameter, 25 SLPM	B120SCS052
BioFlo® 120, standard, plug type J	
Rotameter, 0.5 SLPM	B120SCS003
Rotameter, 1 SLPM	B120SCS013
Rotameter, 2.5 SLPM	B120SCS023
Rotameter, 5 SLPM	B120SCS033
Rotameter, 10 SLPM	B120SCS043
Rotameter, 25 SLPM	B120SCS053
BioFlo® 120, standard, plug type G	
Rotameter, 0.5 SLPM	B120SCS004
Rotameter, 1 SLPM	B120SCS014
Rotameter, 2.5 SLPM	B120SCS024
Rotameter, 5 SLPM	B120SCS034
Rotameter, 10 SLPM	B120SCS044
Rotameter, 25 SLPM	B120SCS054
BioFlo® 120, standard, plug type N	
Rotameter, 0.5 SLPM	B120SCS005
Rotameter, 1 SLPM	B120SCS015
Rotameter, 2.5 SLPM	B120SCS025
Rotameter, 5 SLPM	B120SCS035
Rotameter, 10 SLPM	B120SCS045
Rotameter, 25 SLPM	B120SCS055
BioFlo® 120, standard, plug type D	
Rotameter, 0.5 SLPM	B120SCS006
Rotameter, 1 SLPM	B120SCS016
Rotameter, 2.5 SLPM	B120SCS026
Rotameter, 5 SLPM	B120SCS036
Rotameter, 10 SLPM	B120SCS046
Rotameter, 25 SLPM	B120SCS056

i For more information go to www.eppendorf.link/bioprocess

BioFlo/CelliGen 115 and BioFlo 120 replacement parts

Description	BioFlo/CelliGen 115	BioFlo 120
	Order no.	Order no.
Cables		
pH sensor, analog	P0720-2276	1390810400
DO sensor, analog	P0720-2336	1390810600
Redox sensor, analog	P0720-2763[1)]	1390810400
Sensor cable, ISM	-	M1379-8108
Optical DO sensor, ISM	-	M1379-8107
Foam sensor cable	M1369-8035 (2 connections)	1390811000 (1 connection)/ 1390811100 (3 connections)
Temperature sensor (RTD)	M1369-8019	All vessels except BioBLU 1: 1390810000, BioBLU 1: M1379-8112
Agitation motors		
Autoclavable fermentation vessels (1 L/2 L)	M1369-3120	1390080000
Autoclavable fermentation vessels (5 L/10 L)	M1369-3125	1390080000
Autoclavable cell culture vessels, direct drive	M1369-3135	1390080000
Autoclavable cell culture vessels, magnetic drive	M1369-3130	M1379-9931
BioBLU 1c/1f	-	M1379-0850
BioBLU 3c/5c/5p/10c/14c/50c	M1369-3130	M1379-9931
BioBLU 3f	-	1386080000
Heat blankets		
Autoclavable vessel 1 L	M1369-8021	1390890000
Autoclavable vessel 2 L	M1369-8022	1390890100
Autoclavable vessel 5 L	M1369-8020	1390890200
Autoclavable vessel 10 L	M1369-8023	1390890300
BioBLU 1c/1f	-	M1379-8200
BioBLU 3c/5c/5p/3f	M1379-8116	M1379-8116
BioBLU 14c/10c	M1379-8114	M1379-8114
BioBLU 50c	M1379-8117	M1379-8117
BioBLU exhaust heater	M1379-8115	M1379-8115
Heat blanket adaptor for BioBLU	M1386-8125	1386811900
Base heaters for autoclavable vessels		
1 L/2 L	M1369-3107	1390310700
5 L/10 L	M1369-3108	1390310800

[1)] For BioFlo/CelliGen 115, a redox transmitter is required. See page 166 for details

BioFlo® 320

1. Control up to eight systems from a single user interface

2. Compact design with left- and right-handed orientation for industry-leading minimum footprint

3. Universal control for both microbial and cell culture applications

4. Interchangeable autoclavable and BioBLU® Single-Use Bioreactors

i For more information go to www.eppendorf.link/bioprocess

A compact design, available in left- and right-handed orientation makes the BioFlo 320 the smarter solution for your laboratory.

Easy-load pump heads provide quick installation of the pump tubing.

Description
The BioFlo 320 seamlessly blends beauty and utility in one all-inclusive package. An industrial design, flexibility between interchangeable autoclavable and single-use bioreactors, intelligent sensors, Ethernet connectivity, and a software package are only a few of the features. Extensive options give you the customizable solution your lab requires. Combined with the strict quality standards that all Eppendorf products are held to, the BioFlo 320 truly is the premium choice in benchtop bioprocess systems.

Applications
> Research and development in cell culture and microbiology
> Bench- and pilot-scale fermentation of aerobic and anaerobic bacteria, yeasts, and fungi
> Cultivation of mammalian, insect, and human cell lines
> Specialized applications such as stem cell culture or biofuel/biopolymer development
> Specialized packed-bed impeller for vaccine production in anchorage and non-anchorage dependent cell lines
> Suitable for batch, fed-batch, and continuous/perfusion processes
> Validation packages available for GMP-regulated processes

Product features
> Interchangeable autoclavable and BioBLU Single-Use Bioreactors
> Integrated Mettler Toledo Intelligent Sensor Management (ISM) platform
> Control up to eight systems from a single user interface
> Universal control for both microbial and cell culture applications
> Field-upgradable TMFC drawers for sparge and overlay gas
> Enhanced software package with new cascade and time profile features
> Built-in optical pH sensing technology for use with the BioBLU Single-Use Bioreactors
> DeltaV™ compatibility available through DeltaV Discovery and DeltaV ProPlus PAS
> Up to six integrated pumps capable of operating in variable-speed mode
> Eight independently controlled process gas supplies
> Validation packages available for GMP regulated processes
> Compatible with DASware Software Suite or BioCommand for bioprocess information management

BioFlo® 320

Control station				
Dimensions (W × D × H)	40.6 × 40.6 × 66.0 cm (16 × 16 × 26 in)			
Net weight	32 kg (70 lb)			
Touchscreen	15 in Projected Capacitive Touchscreen			
Communication	2 × USB (software updates, serial communication)			
	Ethernet (SCADA, IP Network)			
	3 × analog input/output (4 - 20 mA/0 - 5 V/0 - 10 V)			
Agitation				
Direct drive	25 - 1,500 rpm (1 L and 3 L)/ 25 - 1,200 rpm (5L and 10 L)			
Magnetic drive (autoclavable vessels)	10 - 500 rpm (1 L, 3 L, and 5 L)/10 – 150 rpm (10 L)			
Magnetic drive	BioBLU 1c: 10 – 500 rpm, BioBLU 1f: 10 – 1,200 rpm, BioBLU 3f: 25 – 1,200 rpm, BioBLU 3c/5c/5p and BioBLU 10c/14c: 10 – 200 rpm, BioBLU 50c: 10 – 150 rpm			
Temperature				
Water jacketed	5 °C above coolant to 55 °C above ambient (80 °C max)			
Stainless-steel dish bottom	5 °C above coolant to 65 °C above ambient (90 °C max; 85 °C max for 10 L)			
Single-use	5 °C above ambient to 40 °C (cell culture)/45 °C (microbiology)			
Sensor type	Pt100			
Gassing				
Sparge	1, 3, or 4 TMFC			
Overlay/headspace	1 TMFC			
Sensors	**Communication**		**Control Range**	
pH	Analog or Digital Mettler Toledo® ISM		2 - 12 pH	
Optical pH	Digital (Presens)		6 - 8 pH	
DO	Analog or Digital Mettler Toledo ISM		0 - 200 % (air saturation)	
Optical DO	Digital Mettler Toledo ISM		0 - 200 % (air saturation)	
Redox	Analog or Digital Mettler Toledo ISM		(-)2,000mV - (+)2,000mV	
CO_2	Digital Mettler Toledo ISM		0 - 100 %	
Pumps	**Pump Head**	**Variable Speed**	**Fixed Speed**	
Pumps 1, 2, and 3	Watson Marlow® 114DV	5 - 25 rpm	25 rpm (0-100 % duty cycle)	
Pump 4	Watson Marlow 314D	20 - 100 rpm	100 rpm (0-100 % duty cycle)	
External pumps 1 and 2	Watson Marlow 120U/DV	0.1-200 rpm	N/A	
Utility	**Connection**		**Requirement**	
Electrical	IEC (with regional plug type)		100-120/208-240 VAC, 50/60Hz, 20 A, single phase	
Water	Stainless-steel quick-connect		10 psig (0.69 barg)	
Gas Supply (Air, O_2, N_2, CO_2)	Push-connect		**Autoclavable**	**Single-use**
			10 psig (0.69 barg)	6 psig (0.44 barg)
Exhaust	0.5 psig (0.035 barg)			
Operating conditions	10 - 30 °C, up to 80 % RH, non-condensing			

i For more information go to www.eppendorf.link/bioprocess

The BioFlo 320 is compatible with 250 mL - 40 L BioBLU Single-Use Bioreactors.

Control up to eight units from a single user interface.

Ordering information

Description	Order no.
Validation, for BioFlo® 320, control station validation	M1379-0102
BioFlo® 320, base control station, with water connection	1379 963 011
BioFlo® 320, base control station, no water connection	1379 962 911
BioFlo® 320, left-handed orientation/four front-mounted peristaltic pumps (3 @ 5 – 25 rpm/1 @ 20 – 100 rpm)	1379 963 211
BioFlo® 320, right-handed orientation/four front-mounted peristaltic pumps (3 @ 5 – 25 rpm/1 @ 20 – 100 rpm)	1379 963 411
BioFlo® 320	
sparge gas option, 1 TMFC (0.002 – 1.0 SLPM)	1379 501 011
sparge gas option, 1 TMFC (0.04 – 20 SLPM)	1379 501 111
sparge gas option, 3 TMFC (0.002 – 1.0 SLPM)	1379 501 211
sparge gas option, 3 TMFC (0.04 – 20 SLPM)	1379 501 311
sparge gas option, 4 TMFC (0.002 – 1.0 SLPM)	1379 501 411
sparge gas option, 4 TMFC (0.04 – 20 SLPM)	1379 501 511
BioFlo® 320, overlay gas option, 1 TMFC (0.05 – 5 SLPM)	1379 502 111
BioFlo® 320, no overlay gas option module	1379 963 511
BioFlo® 320, secondary sensor module	1379 963 611
BioFlo® 320, no secondary sensor module	1379 963 711
BioFlo® 320, optical pH module	1379 963 811
BioFlo® 320, no optical pH module	1379 963 911
BioFlo® 320, equipment connection module	1379 964 011
BioFlo® 320, no equipment connection module	1379 964 111

Suitable vessels for the BioFlo 320 can be found on pages 96 – 103.

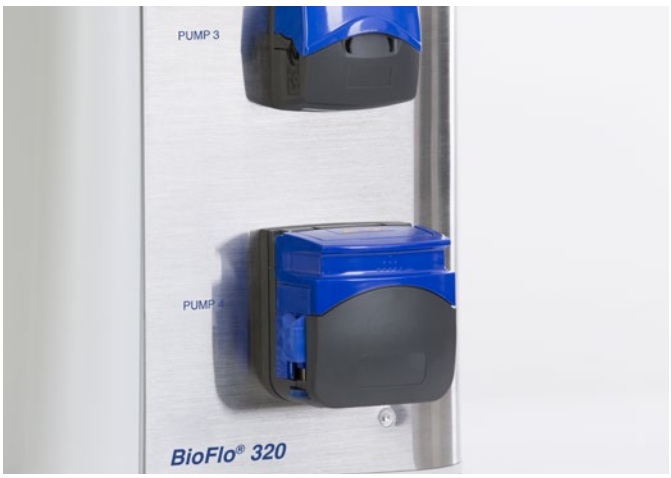
BioFlo® 320

Ordering information

Description	Order no.
Scale, vessel volume, 150 kg	M1379-8188
Tubing, for BioFlo®/CelliGen 310 and BioFlo® 320, all vessel sizes	M1287-9911
Pivot Arm Mount, for BioFlo® 320 touchscreen monitor	M1379-9905
Touchscreen Monitor Bundle, includes desk mount and 1 m cable set, for BioFlo® 320	M1379-9906
Sparge Gas Drawer, field-installed	
1 TMFC (0.002 – 1.0 SLPM)	M1379-5010
1 TMFC (0.04 – 20 SLPM)	M1379-5011
3 TMFC (0.002 – 1.0 SLPM)	M1379-5012
3 TMFC (0.04 – 20 SLPM)	M1379-5013
4 TMFC (0.002 – 1.0 SLPM)	M1379-5014
4 TMFC (0.04 – 20 SLPM)	M1379-5015
Overlay Gas Option Drawer, field-installed	
1 TMFC (0.05 – 5 SLPM)	M1379-5021
Secondary Sensor Module, field-installed	M1379-9636
Optical pH Module, field-installed	M1379-9638
Equipment Connection Module, field-installed	M1379-9640

i For more information go to www.eppendorf.link/bioprocess

Universal connections for four analog or digital Mettler Toledo ISM sensors reduce sensor complexity.



With four pumps of two different sizes, the BioFlo 320 is suitable for a large range of bioreactor sizes.

BioFlo/CelliGen 310 and BioFlo 320 replacement parts

Description	BioFlo/CelliGen 310	BioFlo 320
	Order no.	Order no.
Cables		
pH sensor, analog	P0720-2273	M1379-8104
DO sensor, analog	P0720-2333	M1379-8106
Redox sensor, analog	P0720-2275[1)]	M1379-8105
Sensor cable, ISM	-	M1379-8108
Optical DO sensor, ISM	-	M1379-8107
Foam sensor cable	M1297-8032	M1379-8109
Temperature sensor (RTD)	M1294-8013	All vessels except BioBLU 1: M1379-8100, BioBLU 1: M1379-8112
Agitation motors		
Autoclavable fermentation vessels, direct drive	M1287-0800	M1379-0800
Autoclavable cell culture vessels, magnetic drive	M1287-0750	M1379-0750
BioBLU® 1c/1f	-	M1379-0850
BioBLU® 3c/5c/5p/10c/14c/50c	-	M1379-9931
BioBLU® 3f	-	1386080000
Heat blankets		
BioBLU® 1c/1f	-	M1379-8200
BioBLU® 3c/5c/5p	M1379-8116	M1379-8116
BioBLU® 14c/10f/10c	M1379-8114	M1379-8114
BioBLU® 50c	M1379-8117	M1379-8117
BioBLU® Exhaust Heat Blanket	M1379-8115	M1379-8115

[1)] For BioFlo/CelliGen 310, the secondary pH/redox/DO option is required. See page 166 for details

BioFlo® 720

Description
The BioFlo® 720 bioreactor control system was designed to save time and to mitigate risks. The well-known BioFlo software has been enriched with a variety of new features to automate your workflow. To ensure maximum flexibility and scalability, the new BioFlo 720 bioreactor controller is compatible with the Thermo Scientific™ HyPerforma™ 5:1 Single-Use Bioreactors (SUBs). The combined solutions offer paramount scalability from 50 L to 2000 L with single-use technology.

Applications
> Tech transfer from R&D to production
> Pilot and production-scale bioreactor system for mammalian, insect, and human cell lines
> Suitable for batch, fed-batch, and continuous/perfusion processes
> Validation packages available for GMP-regulated processes[1)]

Product features
> Compatible with Thermo Scientific™ HyPerforma™ 5:1 bioreactors from 50 L to 2,000 L
> High performance Mass Flow Controllers capable of up to 500:1 turn-down allowing multiple vessel sizes to be run from the same controller
> Suitable for analog & digital sensors (Mettler-Toledo® ISM and Hamilton® ARC)
> Available with dual sparge, overlay and CO_2 stripping options
> Field-upgradeable options for future expansion of the system
> Documentation packages available to help qualifying the system for use in GMP environments[1)]
> Intuitive software tools such as Auto Calibrate and Auto Inflate reduce preparation time, maximizing system efficiency
> Integrated Scale Up Assist software simplifies the workflow and calculations necessary to scale up and scale down
> Flexible choices for SUBs and Bioprocess Containers (BPCs)
> Mobile enclosure with a small footprint (0.7 m^2/7.55 sq ft) fitting through a standard lab door
> Watson-Marlow peristaltic pumps for flow rates in a range of 1.2 mL/min - 3.3 L/min

[1)] BioFlo 720 is not a medical device as defined by the Food and Drug Administration or other regulatory authorities.

i For more information go to www.eppendorf.link/bioprocess

Easy to reach sensor location suitable for digital ISM and ARC sensors.

Easy-load pump heads for fast and convenient tubing installation.

Ordering information

Description	Order no.
BioFlo® 720, bioreactor/fermenter control system	
200 – 240 V/50/60 Hz, with three integrated Watson-Marlow® 314 peristaltic pumps	1385 200 011
200 – 240 V/50/60 Hz, with three integrated Watson-Marlow® 314 peristaltic pumps and two integrated Watson-Marlow® 520 peristaltic pumps	1385 200 111

BioFlo®/CelliGen 510

Description
The BioFlo 510 Fermentors and CelliGen 510 Bioreactors are intermediate systems ideal for pilot through production applications. These compact systems fit on a benchtop or on an optional mobile table. A modular design and wide variety of standard and optional components provide the flexibility to customize these systems to meet a variety of process requirements.

Applications
> Laboratory- and pilot-scale fermentation of aerobic and anaerobic bacteria, yeasts, and fungi
> Laboratory- and pilot-scale cell culture of mammalian, insect, and human cell lines
> Special applications such as stem cell culture, vaccine, monoclonal antibody or biofuel/biopolymer production
> Suitable for batch, fed-batch, and continuous/perfusion processes

i For more information go to www.eppendorf.link/bioprocess

Working volume
> 10.75 L to 32.0 L

Gas flow
> Various combinations of one, two, three or four TMFCs:
  > 0.06 – 3 SLPM
  > 0.3 – 15 SLPM
  > 0.6 – 32 SLPM
  > 1 – 64 SLPM
> Air Wash System with TMFC (0 – 15 or 0 – 32 SLPM)
> Overlay with TMFC (0 – 15 or 0 – 32 SLPM)
> Overlay (valve only)

> **Exhaust line**
> Exhaust condenser
> Manual or automatic pressure control

Impellers
> Rushton-type – Used commonly for robust cell lines such as bacteria, yeasts, and algae, where maximum OTR is desired. Provided as standard on BioFlo 510 fermentors
> Pitched-blade – Commonly used with mammalian, insect or other shear sensitive cell lines for batch, fed-batch or continuous cultures. Produces axial and radial mixing. Provided as standard with the CelliGen 510 bioreactors.
> Marine – Commonly used with mammalian, insect, or other shear sensitive cell lines for batch, fed-batch or continuous cultures. Produces axial mixing
> Spinfilter – For suspension or microcarrier cultures where a dip tube inside the filter withdraws cell media as harvest or waste
> Cell-Lift – Specially designed to provide uniform circulation for both suspension and microcarrier cultures. Can be used with optional decanting columns for perfusion cultures
> Packed-bed – For secreted products from anchorage-dependent and suspension cells, this impeller immobilizes cells in a bed of Fibra-Cel® Disks to provide extremely high cell densities

Sensors
> Single or redundant pH/DO
> Redox
> Foam/level

Addition and sampling
> Resterilizable sampling valve
> Resterilizable addition valves (4 max)
> Resterilizable addition/harvest valve with dip tube (2 max)
> 1.5 in sanitary fitting 7-port septum
> Addition vessels (glass/stainless steel)
> Decanters
> Sterile sampling assembly

Numerous ports in the vessel head plate and sidewall provide flexibility to position sensors, spray balls, addition valves, pressure transducers, and more.

Validation
> Basic Package
> Basic Plus Package
> Enhanced Package

Utility regulator & pre-filter kits
> Process air pre-filter/regulator kit
> Instrument air pre-filter/regulator kit
> Water pre-filter/regulator kit
> Process steam regulator kit
> Utility steam pre-filter/regulator kit
> Utility connection kit

Additional options
> Sprayballs for clean-in-place of vessel
> External variable-speed pumps
> External scales
> Spare parts kits
> Preventive maintenance kits
> Mobile table
> System passivation
> Glycol/chiller heat exchanger

BioFlo® 610

Description
The BioFlo 610 is a compact, mobile, pilot-plant fermentor for process development and small-scale production. A modular design and wide variety of standard and optional components provide the flexibility to customize the system to meet your process requirements.

Applications
> Pilot-scale fermentation of aerobic and anaerobic bacteria, yeasts, and fungi
> Special applications such as biofuel or biopolymer production
> Suitable for batch, fed-batch, and continuous processes

i For more information go to www.eppendorf.link/bioprocess

Working volumes
> 16.0 L to 50.0 L
> 32.0 L to 100.0 L

Gas flow control
> Single gas
> Two gas
> Overlay (valve only)

Gas flow
> 1 TMFC, 50 L vessels, 1.5 – 75 SLPM
> 1 TMFC, 100 L vessels, 3.0 – 150 SLPM
> 2 TMFC, 50 L vessels, 1.5 – 75/0.6 - 32 SLPM
> 2 TMFC, 100 L vessels, 3.0 – 150/1.0 - 64 SLPM

Exhaust line
> Exhaust condenser
> Automatic pressure control

Impellers
> Rushton-type, standard
> Pitched-blade, optional
> Marine, optional

Sensors
> Single or redundant pH/DO
> Redox
> Foam/level

Addition and sampling
> Resterilizable sampling valve
> Resterilizable addition valves (4 max)
> 1.5 in sanitary fitting 7-port septum
> Addition vessels (glass/stainless steel)
> Sterile sampling assembly

Validation
> Basic Package
> Basic Plus Package
> Enhanced Package

Utility regulator and pre-filter kits
> Process air pre-filter/regulator kit
> Instrument air pre-filter/regulator kit
> Water pre-filter/regulator kit
> Process steam regulator kit
> Utility steam pre-filter/regulator kit
> Utility connection kit

Additional options
> Sprayballs for clean-in-place of vessel
> External variable-speed pumps
> External scales
> Spare parts kits
> Preventive maintenance kits
> System passivation
> Low pressure seal alarm for double mechanical seal
> Glycol/chiller heat exchanger

BioFlo® Pro

Description
BioFlo Pro fermentors are modular systems designed for quick delivery, dependable operation, and system flexibility, all at an affordable price. BioFlo Pro systems utilize industry-standard components for dependable operation, and an Allen Bradley® CompactLogix™ programmable-logic controller (PLC) for easy integration into any production facility. The modular design enables multiple options to be added, removed, or changed at any time to meet your various process requirements. Vessels available in 120, 240, 400, 1,200, and 2,400 liter sizes.

Applications
> Pilot- and large-scale fermentation of aerobic and anaerobic bacteria, yeasts, fungi, and insect cells
> Special applications such as biofuel/biopolymer production
> Suitable for batch, fed-batch, and continuous processes

i For more information go to www.eppendorf.link/bioprocess

Working volumes
> 45 L to 120 L
> 68 L to 240 L
> 103 L to 400 L
> 375 L to 1,200 L
> 750 L to 2,400 L

Impellers
> Rushton-type
> Pitched-blade
> Marine

Air inlet line
> Thermal Mass Flow Controller
> Dual inlet air filters (in series)
> Dual-inlet air flters with test integrity ports
> Gas overlay
> 2-gas mix (O_2 supplementation)

Exhaust line
> Exhaust condenser
> Manual or automatic backpressure control
> Dual exhaust filters (in parallel)
> Single or dual exhaust filters with test integrity ports

Pumps
> Four built-in fixed-speed addition pumps
> External variable-speed pumps

Housings/sensors
> pH/DO analog and digital ISM sensors and transmitters
> Redox sensor and transmitter
> Retractable sensor housings
> Redundant sensor kits

Foam kits
> Foam kit
> High-foam kit
> High-high foam kit

Utility regulator and pre-filter kits
> Instrument air pre-filter/regulator kit
> Water pre-filter/regulator kit
> Process steam regulator kit
> Utility steam pre-filter/regulator kit
> Utility connection kit

Addition and sampling
> Sampling valve (Resterilizable)
> Sterile sampling assembly
> Resterilizable addition valves

Vessel volume/weight
> Vessel volume via differential pressure
> Load cells
> Level sensor

BioFlo Pro fermentors offer working volumes of up to 2,400 L.

Additional otions
> Clean-in-place option (transfer panel/spray balls)
> Glycol/chiller heat exchanger
> Low pressure seal alarm for double-mechanical seal
> Vessel electropolish
> System passivation
> Transfer lines (resterilizable)
> Addition vessel scales
> DeltaV™ connectivity

Validation packages
> Basic Package
> Basic Plus Package
> Enhanced Package

Parts kits
> Spare parts kits
> Preventive maintenance kits

Bioreactors

Dependability through proven design

With renowned polymer expertise, Eppendorf is proud to offer the largest portfolio of rigid-walled stirred-tank single-use vessels – in small, bench and pilot scale. A wide range of industry standard glass bioreactors for the cultivation of microbial, mammalian and human cells as well as phototrophic organisms completes our small and bench scale vessel offering.

i For more information go to www.eppendorf.link/bioprocess

Our Portfolio – Your Choice

Model	BioBLU® Single-Use Bioreactors	DASbox® Mini Bioreactor
Page	**58**	**68**
Working volumes cell culture	100 - 250 mL, 320 mL - 1.25 L, 1.25 - 3.75 L, 3.5 - 10 L, 18.0 - 40.0 L	60 - 250 mL
Working volumes microbiology	65 – 250 mL, 250 mL – 1.25 L, 1.25 – 3.75 L	60 - 250 mL
Standard set-up	DASbox (BioBLU 0.3) DASGIP Bioblock (BioBLU 1) SciVario twin (BioBLU 1, 3, 10, and 50) BioFlo 120/320 (BioBLU 1, 3, 5, 10, 14, and 50)	DASbox
Autoclavable		■
Single-use	■	
Packed-bed impeller	■	
Cell-lift impeller		
Bacteria/yeasts/fungi	■	■
Plant cells/algae		■
Mammalian/animal cells	■	■
Insect cells	■	■
Magnetic overhead drive	■	
Direct overhead drive		■
Exhaust treatment	Peltier-cooled/electric heat band/water-cooled	Peltier-cooled

■ = standard, o = optional

i For more information go to www.eppendorf.link/bioprocess

DASGIP® Bioblock and SciVario twin Bioreactors	SciVario twin Bioreactors	BioFlo® 120 Bioreactors
70	**74**	**90**
250 – 700 mL, 350 mL – 1.0 L, 350 mL – 1.5 L	700 mL – 2.7 L, 800 mL – 3.8 L	0.4 - 10.5 L
200 mL – 1.0 L, 400 mL – 1.5 L, 400 mL – 1.8 L	700 mL – 2.7 L, 800 mL – 3.8 L	0.4 - 10.5 L
DASGIP Bioblock / SciVario twin	SciVario twin	BioFlo 120
■	■	■
■	■	■
■	■	■
■	■	■
■	■	■
		■
■	■	■
Water-cooled	Water-cooled	Water-cooled

Our Portfolio – Your Choice

Model	BioFlo® 320 Bioreactors	BioFlo®/CelliGen 510
Page	**98**	
Working volumes cell culture	0.6 - 10.5 L	10.75 - 32 L
Working volumes microbiology	0.6 - 10.5 L	10.75 - 32 L
Standard set-up	BioFlo 320	Benchtop/mobile table
Autoclavable	■	
Single-use		
Sterilize-in-place		■
Packed-bed impeller	o	o
Cell-lift impeller	o	o
Bacteria/yeasts/fungi	■	■
Plant cells/algae	■	■
Mammalian/animal cells	■	■
Insect cells	■	■
Magnetic overhead drive	■	■
Direct overhead drive	■	■
Exhaust treatment	Water-cooled	Water-cooled/ electric heat band

■ = standard, o = optional

i For more information go to www.eppendorf.link/bioprocess

BioFlo® 610	BioFlo® Pro
-	-
16 - 100 L	45 - 2,400 L
Mobile skid	Skid-mounted
■	■
■	■
■	■
■	■
Bottom drive	Bottom drive
Water-cooled/ electric heat band	Water-cooled/ electric heat band

BioBLU® c Single-Use Bioreactors

Description
Eppendorf BioBLU Single-Use Bioreactors combine all the advantages of single-use technology with the trusted performance and scalability of a stirred-tank design. Single-use bioreactors eliminate autoclaving, improve turn-around time, and reduce overall costs. The BioBLU portfolio has grown to accommodate users from early research and development through process development. BioBLU c and p bioreactors cover a wide variety of processes, including shear-sensitive suspension cell cultures and adherent cell line development.

Applications
> Insect, mammalian, and human suspension cell lines
> Stem cells
> Adherent cells

Product features
> Single-use, stirred-tank, rigid-walled bioreactors available in sizes ranging from 100 mL to 40 L working volume
> All BioBLU c bioreactor sizes available with pitched-blade impellers for cell culture applications
> BioBLU 0.3sc bioreactors are designed for stem cell applications in research and development
> BioBLU 5p bioreactors with Eppendorf-exclusive packed-bed impeller, pre-loaded with Fibra-Cel® Disks
> Unique non-invasive pH and DO sensor technology drastically reduces contamination risks (industry standard autoclavable pH sensors available for pH measurement)
> Sealed magnetic drive with fully enclosed bearings maintain vessel sterility
> Bioreactors are assembled with sparger, overlay, gas filters for inlet and exhaust as well as penetrations for pH, DO, temperature, liquid additions, sampling, and harvest
> For use with Eppendorf benchtop bioreactor systems
> Adaptor kits for legacy bioreactor controllers available

i For more information go to www.eppendorf.link/bioprocess

The BioBLU 0.3sc Single-Use Bioreactor is equipped with an 8-blade impeller ensuring gentle mixing and reduced cell settling for stem cell process development.

BioBLU 5p Single-Use Bioreactors create optimum growth conditions for adherent cells and perfusion culture.

Ordering information

Description						Order no. (β-irradiated)	Order no. (X-ray irradiated)
Vessel	**Working Volume**	**Sparger**	**Impeller**	**pH**	**Quantity**		
BioBLU® 0.3c	100 mL - 250 mL	Open pipe	1x pitched-blade	Standard	4-pack	1386100000	1386101000
BioBLU® 0.3c	100 mL - 250 mL	Open pipe	1x pitched-blade	Optical	4-pack	1386100200	1386101500
BioBLU® 0.3sc	100 mL - 250 mL	Open pipe	1x 8-blade	Optical	4-pack	1386100600	1386102000
BioBLU® 1c	320 mL - 1.25 L	Open pipe	1x pitched-blade	Standard	4-pack	1386110000	1386111000
BioBLU® 1c	320 mL - 1.25 L	Open pipe	1x pitched-blade	Optical	4-pack	1386110400	1386112000
BioBLU® 1c	320 mL - 1.25 L	Open pipe	2x pitched-blade	Standard	4-pack	1386110100	1386111100
BioBLU® 1c	320 mL - 1.25 L	Open pipe	2x pitched-blade	Optical	4-pack	1386110500	1386112100
BioBLU® 3c	1.25 L - 3.75 L	Microsparger	1x pitched-blade	Optical	1-pack	1386000100	1386124000
BioBLU® 3c	1.25 L - 3.75 L	Macrosparger	1x pitched-blade	Optical	1-pack	1386000300	1386125000
BioBLU® 3c	1.25 L - 3.75 L	Microsparger	2x pitched-blade	Optical	1-pack	1386120000	1386126000
BioBLU® 3c	1.25 L - 3.75 L	Macrosparger	2x pitched-blade	Optical	1-pack	1386121000	1386127000
BioBLU® 5p	3.75 L	Microsparger	Packed bed	Optical	1-pack	M1363-0119	–
BioBLU® 5p	3.75 L	Macrosparger	Packed bed	Optical	1-pack	M1363-0133	–
BioBLU® 10c	3.5 L -10 L	Microsparger	1x pitched-blade	Optical	1-pack	1386140000	1386140300
BioBLU® 10c	3.5 L -10 L	Macrosparger	1x pitched-blade	Optical	1-pack	1386141000	1386141300
BioBLU® 50c	18 L - 40 L	Microsparger	1x pitched-blade	Optical	1-pack	M1363-0131	1386162000
BioBLU® 50c	18 L - 40 L	Macrosparger	1x pitched-blade	Optical	1-pack	M1363-0129	1386163000

BioBLU® c Single-Use Bioreactors

Technical specifications			
Model	**BioBLU® 0.3c**	**BioBLU® 0.3sc**	**BioBLU® 1c**
Bioreactors			
Sterilization	Irradiated by > 15 kGy (β) or > 25 kGy (X-ray). SAL-level 10^{-6} for X-ray irradiated BioBLU® Single-Use Bioreactors		
Working volume (total)	100 – 250 mL (380 mL)	100 – 250 mL (380 mL)	320 mL – 1.25 L (1.8 L)[3]
Material vessel[1]	PS, PC (USP Class VI)	PS, PC (USP Class VI)	PS, PC (USP Class VI)
Material tubing	Silicone, C-Flex[2]	Silicone, C-Flex[2]	Silicone, C-Flex[2]
Head plate ports	2x Pg 13.5, 1x harvest tube, 1x thermowell, 1x sample port, 1x liquid addition overlay, 1x liquid addition submerged, 1x DO sensor port with permeable membrane, 1x gas sparge, 1x gas overlay, 1x exhaust	1x Pg 13.5, 1x harvest tube, 1x thermowell, 1x sample port, 1x liquid addition overlay, 1x liquid addition submerged, 1x DO sensor port with permeable membrane, 1x optical pH option, 1x gas sparge, 1x gas overlay, 1x exhaust	3x Pg 13.5, 1x harvest tube, 1x thermowell, 1x sample port, 2x liquid addition overlay, 2x liquid addition submerged, 1x DO sensor port with permeable membrane, 1x gas sparge, 1x gas overlay, 1x exhaust
Agitation			
Drive	Magnetic overhead drives	Magnetic overhead drives	Magnetic overhead drives
Impellers	Pitched-blade	1x 8-blade	Pitched-blade
Recommended agitation speed	20 – 500 rpm	20 – 200 rpm	30 – 600 rpm
Gassing			
Gas supply	Sparger and/or overlay	Sparger and/or overlay	Sparger and/or overlay
Monitoring and Control			
Sensor length	120 mm	120 mm	220 mm
Temperature sensor	Pt100 RTD (not included)	Pt100 RTD (not included)	Pt100 RTD (not included)
Max. operating temperature	40 °C	40 °C	40 °C
pH sensor	Optical pH or standard glass sensor (120 mm)	Optical pH or standard glass sensor (120 mm)	Optical pH or standard glass sensor (220 mm)
DO Sensor	Polarographic DO - 4.7/118 mm	Polarographic DO - 4.7/118 mm	Polarographic DO - 4.7/229 mm
Exhaust condensation	Liquid-free cooling (Peltier)	Liquid-free cooling (Peltier)	Liquid-free cooling (Peltier)/ water-cooled

[1] PC = Polycarbonate, PS = Polystyrene[2] C-Flex is for optical pH version only.[3] 425 mL minimal working volume when used with vessel stand and heating blanket

i For more information go to www.eppendorf.link/bioprocess

BioBLU® 3c	BioBLU® 10c	BioBLU® 50c	BioBLU® 5p
Irradiated by > 15 kGy (β) or > 25 kGy (X-ray). SAL-level 10^{-6} for X-ray irradiated BioBLU® Single-Use Bioreactors			Pre-sterilized (15 kGy β-irradiated)
1.25 – 3.75 L (5 L)	3.3 – 10 L (13.3 L)	18 – 40 L (50 L)	3.75 L (5 L)
PC (USP Class VI)	PC (USP Class VI)	PS, PC (USP Class VI)	PS, PC (USP Class VI)
Silicone, C-Flex	Silicone, C-Flex	Silicone, C-Flex	Silicone, C-Flex
2x Pg 13.5, 1x harvest tube, 1x thermowell, 1x sample port, 3x liquid addition overlay, 1x liquid addition submerged, 1x DO sensor port with permeable membrane, 1x optical pH option, 1x gas sparge, 1x gas overlay, 1x exhaust	2x Pg 13.5 (1x 19 mm to Pg 13.5), 1x harvest tube, 1x thermowell, 1x sample port, 3x liquid addition overlay, 1x liquid addition submerged, 1x DO sensor port with permeable membrane, 1x optical pH option, 1x gas sparge, 1x gas overlay, 1x exhaust	1x Pg 13.5, 1x harvest tube, 1x thermowell, 1x sample port, 3x liquid addition overlay, 1x DO sensor port with permeable membrane, 1x optical pH sensor port, 1x gas sparge, 1x gas overlay, 1x exhaust	1x Pg 13.5, 1x harvest tube, 1x thermowell, 1x sample port, 3x liquid addition overlay, 1x DO sensor port with permeable membrane, 1x optical pH sensor port, 1x gas sparge, 1x gas overlay, 1x exhaust
Magnetic overhead drives	Magnetic overhead drives	Magnetic overhead drives	Magnetic overhead drives
Pitched-blade	Pitched-blade	Pitched-blade	Packed-bed
25 – 200 rpm	25 – 200 rpm	25 – 150 rpm	25 – 200 rpm
Sparger and/or overlay	Sparger and/or overlay	Sparger and/or overlay	Sparger and/or overlay
225 mm	355 mm	526 mm	120 mm
Pt100 RTD (not included)	Pt100 RTD (not included)	Pt100 RTD (not included)	Pt100 RTD (not included)
40 °C	40 °C	40 °C	40 °C
Optical pH or standard glass sensor (220 mm)	Optical pH or standard glass sensor (325 mm)	Optical pH or standard glass sensor (625 mm)	Optical pH or standard glass sensor (120 mm)
Polarographic or optical DO - 12/225 mm	Polarographic or optical DO - 12/355 mm	Polarographic DO - 12/526 mm	Polarographic DO - 12/120 mm
Electric heater band, Peltier or Water-cooled	Electric heater band	Electric heater band	Electric heater band, Peltier or Water-cooled

BioBLU® f Single-Use Bioreactors

Description
Eppendorf BioBLU Single-Use Bioreactors combine all the advantages of single-use technology with the trusted performance and scalability of a stirred-tank design. Single-use bioreactors eliminate labor-intensive cleaning, improve turn-around time, and reduce overall costs. BioBLU f bioreactors are specifically designed for robust microbial applications using bacteria, yeasts, and fungi.

Applications
> Bacteria, yeasts, and fungi
> Suitable for high-cell density fermentation

Product features
> Single-use, stirred-tank, rigid-walled bioreactors available in sizes ranging from 65 mL to 3.75 L working volume
> Designed for high-density fermentation processes
> Multiple Rushton-type impellers for efficient mixing and mass transfer
> Sealed magnetic drive with fully enclosed bearings maintain vessel sterility
> Baffles for excellent mixing and mass transfer
> Bioreactors are assembled with sparger, gas filters for inlet and exhaust as well as penetrations for pH, DO, temperature, liquid additions, sampling, and harvest
> For use with Eppendorf benchtop bioreactor systems
> Adaptor kits for legacy bioreactor controllers available

i For more information go to www.eppendorf.link/bioprocess

Microbiology on the fast track - with the BioBLU f Single-Use Bioreactors.

Ordering information

Description						Order no. (β-irradiated)	Order no. (X-ray irradiated)
Vessel	**Working Volume**	**Sparger**	**Impeller**	**pH**	**Quantity**		
BioBLU® 0.3f	65 mL - 250 mL	Open pipe	2x Rushton-type	Standard	4-pack	1386100100	1386101100
BioBLU® 1f	250 mL - 1.25 L	Open pipe	2x Rushton-type	Standard	4-pack	1386110200	1386113000
BioBLU® 1f	250 mL - 1.25 L	Open pipe	3x Rushton-type	Standard	4-pack	1386110300	1386113100
						Order no. (Autoclavable)	
BioBLU® 3f	1.25 L - 3.75 L	Macrosparger	3x Rushton-type	Standard	1-pack	1386000900	–

BioBLU® f Single-Use Bioreactors

Technical specifications	
Model	**BioBLU® 0.3f**
Application	Microbiology
Bioreactors	
Sterilization	Irradiated by > 15 kGy (β) or > 25 kGy (X-ray). SAL-level 10^{-6} for X-ray irradiated BioBLU® Single-Use Bioreactors
Working volume (total)	65 – 250 mL (380 mL)
Material vessel[1)]	PS, PC (USP Class VI)
Material tubing	Silicone
Head plate ports	2x Pg 13.5, 1x harvest tube, 1x thermowell, 1x sample port, 2x liquid addition overlay, 1x liquid addition submerged, 1x DO sensor port with permeable membrane, 1x gas sparge, 1x exhaust
Agitation	
Drive	Magnetic overhead drives
Impellers	Rushton-type
Recommended agitation speed	20 – 2,000 rpm
Gassing	
Gas supply	Sparger
Monitoring and Control	
Sensor length	120 mm
Temperature sensor	Pt100 RTD (not included)
Max. operating temperature	45 °C
pH sensor	Standard glass sensor (120 mm)
DO Sensor	Polarographic DO - 4.7/118 mm
Exhaust condensation	Liquid-free cooling (Peltier)

[1)] PC = Polycarbonate, PS = Polystyrene

i For more information go to www.eppendorf.link/bioprocess

BioBLU® 1f	**BioBLU® 3f**
Microbiology	Microbiology
Irradiated by > 15 kGy (β) or > 25 kGy (X-ray). SAL-level 10^{-6} for X-ray irradiated BioBLU® Single-Use Bioreactors	Autoclavable, no pre-sterilization
250 mL – 1.25 L (1.8 L)	1.25 L – 3.75 L (5 L)
PS, PC (USP Class VI)	PC (USP Class VI)
Silicone	Silicone
3x Pg 13.5, 1x harvest tube,1x thermowell, 1x sample port, 3x liquid addition overlay, 2x liquid addition submerged, 1x DO sensor port with permeable membrane, 1x gas sparge, 1x exhaust, 4x baffles (incl. cooling water connection)	4x Pg 13.5, 1x harvest tube,1x thermowell, 1x sample port, 3x liquid addition overlay, 1x liquid addition submerged, 1x gas sparge, 1x gas overlay, 1x exhaust, 4x baffles
Magnetic overhead drives	Magnetic overhead drives
Rushton-type	Rushton-type
100 – 1,500 rpm	25 – 1,200 rpm
Sparger	Sparger and/or overlay
220 mm	220 mm
Pt100 RTD (not included)	Pt100 RTD (not included)
45 °C	45 °C
Standard glass sensor (220 mm)	Standard glass sensor (225 mm)
Polarographic DO - 4.7/229 mm	Polarographic DO - 12/220 mm
Liquid-free cooling (Peltier)/water-cooled	Water-cooled

BioBLU® Single-Use Bioreactor Adaptor Kits

Description
Single-use bioreactor adaptor kits convert existing autoclavable bioreactor controllers for use with Eppendorf BioBLU Single-Use Bioreactors. Easy to install kits provide all the necessary equipment for conversion.

Product features
> Adapt your existing Eppendorf DASbox, DASGIP, and BioFlo/CelliGen autoclavable systems for use with Eppendorf BioBLU Single-Use Bioreactors
> Provides all the benefits of single-use technology with minimal upfront investment
> Kits include all parts necessary for conversion of the respective system, such as motor adaptor, exhaust treatment, and more
> BioBLU Single-Use Bioreactors sold separately

Ordering information

Description	Order no.
Adaptor Kit: BioBLU® Single-Use Vessels, for DASbox®	
for 4 BioBLU® 0.3, Peltier condensers	78532298
Adaptor Kit: BioBLU® Single-Use Vessels, for DASGIP® Bioblock	
for 4 BioBLU® 1f, Peltier condensers	78532295
for 4 BioBLU® 1c, Peltier condensers	78532299
for 4 BioBLU® 1f, water-based condensers	78532330
for 4 BioBLU® 1c, water-based condensers	78532329
Adaptor Kit: BioBLU® Single-Use Vessels	
for DASGIP® benchtop system, for 4 BioBLU® 1c, Peltier condensers	78532328
for DASGIP® benchtop system, 115 V, for 4 BioBLU® 3c/5c/5p, Peltier condensers	78532296
for DASGIP® benchtop system, 230 V, for 4 BioBLU® 3c/5c/5p, Peltier condensers	78532297
Adaptor Kit: BioBLU® Single-Use Vessels, for DASGIP® benchtop system	
for 4 BioBLU® 1c, water-based condensers	78532334
115 V, for 4 BioBLU® 3c/5c/5p, water-based condensers	78532331
230 V, for 4 BioBLU® 3c/5c/5p, water-based condensers	78532333
Adaptor Kit: BioBLU® Single-Use Vessel, for BioFlo® 320	
100 – 240 V, BioBLU® 3c/5c/5p	M1386-9943
100 – 240 V, BioBLU® 3f	M1386-9923
100 – 240 V, BioBLU® 10c/14c	M1386-9963
100 – 240 V, BioBLU® 50c	M1386-9983

i For more information go to www.eppendorf.link/bioprocess

Ordering information

Description	Order no.
Adaptor Kit: BioBLU® Single-Use Vessel, for BioFlo®/CelliGen 115	
100 – 240 V, BioBLU® 3c/5c/5p	M1386-9940
100 – 240 V, BioBLU® 3f, for direct-drive motor of 1 L or 2 L vessel	M1386-9920
100 – 240 V, BioBLU® 3f, for direct-drive motor of 5 L or 10 L vessel	M1386-9921
100 – 240 V, BioBLU® 10c/14c	M1386-9960
100 – 240 V, BioBLU® 50c	M1386-9980
Adaptor Kit: BioBLU® Single-Use Vessel, for CelliGen 310	
100 – 120 V, BioBLU® 3c/5c/5p	M1386-9941
100 – 120 V, BioBLU® 10c/14c	M1386-9961
100 – 120 V, BioBLU® 50c	M1386-9981
200 – 240 V, BioBLU® 3c/5c/5p	M1386-9942
200 – 240 V, BioBLU® 10c/14c	M1386-9962
200 – 240 V, BioBLU® 50c	M1386-9982
Adaptor Kit: BioBLU® Single-Use Vessel, for BioFlo® 310, 100 – 240 V, BioBLU® 3f	M1386-9922

Adaptor kits are designed to adapt an existing unit in the field to single-use bioreactors. For information on single-use bioreactor bundles in combination with a new controller, please refer to page 91 and 99.

Accessories

Description	Order no.
Adaptor	
single-use compression fitting, for Pg 13.5 port, pack of 10	1386 010 200
single-use blind plug, for Pg 13.5 port, pack of 10	1386 010 300
single-use septum kit, for Pg 13.5 port, pack of 10	1386 010 100
single-use tri-port, for Pg 13.5 port, pack of 10	1386 010 000
OP-76 Optical pH Module [1]	M1376-1001
DASGIP® EGC4 Exhaust Gas Condenser Controller, for 4 Peltier actuators, 110 – 240 V/50/60 Hz	76DGEGC4
Vessel Stand	
BioBLU® 1	M1379-4000
BioBLU® 3	M1386-0300
BioBLU® 10	M1386-0302
Exhaust Condenser, Peltier	
for 1 BioBLU® 0.3c/f Single-Use Vessel	76DXCONDSU
for 1 BioBLU® 1c Single-Use Vessel	76DGCONDSU1C
for 1 BioBLU® 1f Single-Use Vessel	76DGCONDSU1F
for 1 BioBLU® 3c/5c/5p Single-Use Vessel	76DGCONDSU5C
Y-Connector, with 1/4 in CPC connector	P0620-0947
Vessel Connection Kit, for BioBLU®	M1363-0112
Level/Foam Sensor, for 1 single-use vessel, including triple port, for 1 vessel, Pg 13.5 with two sensors (150 mm, 220 mm) and media addition	76DGLVLSU
Cooling Finger, for BioBLU® 3f [2]	M1386-0555

[1] M1376-1001: For optical pH sensor cables, see page 161, [2] Requires M1287-5030

DASbox® Mini Bioreactor

Description
The DASbox Mini Bioreactor is an industry-standard autoclavable glass vessel featuring a multi port stainless steel head plate and a powerful direct overhead drive. With working volumes of 60 – 250 mL it is perfectly suited for process development in cell culture and microbial applications and ready for use with the Eppendorf DASbox.

Product features
> Industry-standard design for excellent scalability and reproducibility in both cell culture and microbiology
> Stainless steel head plate, fully instrumented with standard sensors for precise measurement and control of temperature, pH, DO, and level
> Small working volumes of 60 – 250 mL saving valuable resources
> Powerful direct overhead drive with marine impeller (cell culture) or two Rushton-type impellers (microbiology)
> Liquid-free exhaust condenser with easy handling by automatic slide-in activation and slide-out deactivation mode

i For more information go to www.eppendorf.link/bioprocess

Technical specifications		
Model	**Cell culture**	**Microbiology**
Standard set-up	DASbox	DASbox
Dimensions (W × D × H)	90 × 90 × 360 mm	90 × 90 × 360 mm
Bioreactors		
Sterilization	Autoclavable	Autoclavable
Working volume (total)	60 – 250 mL (350 mL)	60 – 250 mL (350 mL)
Material vessel[1)]	Glass	Glass
Head plate	Stainless steel, GLS80 screw cap	Stainless steel, GLS80 screw cap
Head plate ports	6x Pg 13.5, 2x dip tube long, 2x dip tube short, 1x thermowell	6x Pg 13.5, 2x dip tube long, 2x dip tube short, 1x thermowell
Agitation		
Drive	Direct overhead drive	Direct overhead drive
Impellers	1x marine	2x Rushton-type
Recommended agitation speed	20 – 2,500 rpm	20 – 2,500 rpm
Gassing		
Gas supply	Overlay and/or sparger	Sparger
Monitoring and Control		
Sensor length	120 mm	120 mm
Temperature sensor	Pt100 RTD	Pt100 RTD
Exhaust condensation	Liquid-free (Peltier)	Liquid-free (Peltier)

[1)] PC = Polycarbonate, PS = Polystyrene

Contents of vessel kits		
	Cell culture/Stem cell culture	**Microbiology**
Flat-bottom vessel with stainless steel head plate, screw cap and o-ring	■	■
Overhead drive (20 - 2,500 rpm)	Sold separately	Sold separately
Sensors	Sold separately	Sold separately
Impeller	■	■
Sparger assembly (dip tube)	■	
Sparger assembly (L-sparger)		■
Peltier exhaust condenser with filter	Sold separately	Sold separately
Thermowell	■	■
Sampling assembly	■	■
Liquid addition tube (qty. 3)	■	■
Septum kit	■	■
Inlet filter	■	■
Silicone tubing	■	■
Tools (tubing clamp, hex wrench)	■	■

■ = standard

Ordering information

DASbox® Mini Bioreactor

Application	Working volume (total)	Impellers	Order no.
Cell culture	60 – 250 mL (350 mL)	1x marine	76DS0250ODSS
Microbiology	60 – 250 mL (350 mL)	2x Rushton-type	76SR0250ODLS
Stem cell culture	60 – 250 mL (350 mL)	1x 8-blade	76DX0250V01

DASGIP® Bioblock / SciVario® twin Spinner Vessels

Description
Eppendorf offers a line of advanced autoclavable spinner vessels suitable for temperature control with the compact DASGIP Bioblock and SciVario twin temperature control block. These overhead driven spinner vessels feature a stainless steel head plate with standard ports, pitched-blade impellers, and two side arms. Covering a working volume range of 200 mL – 1.6 L they are perfectly suited for cell culture research and process development.

Product features
> Working volumes ranging from 250 mL – 1.5 L
> Direct overhead drives with 30 – 1,250 rpm (100 – 1,600 rpm optional), pitched-blade impellers
> Industry-standard sensors available for accurate monitoring and control of temperature, pH, DO, level, and OD
> Two GL45 side arms

i For more information go to www.eppendorf.link/bioprocess

Technical specifications			
Model	**0.7 L**	**1 L**	**1.5 L**
Application	Cell culture	Cell culture	Cell culture
Standard set-up	DASGIP Bioblock/SciVario twin	DASGIP Bioblock/SciVario twin	DASGIP Bioblock/SciVario twin
Dimensions (W × D × H)	250 × 150 × 510 mm	250 × 150 × 560 mm	250 × 150 × 610 mm
Bioreactors			
Sterilization	Autoclavable	Autoclavable	Autoclavable
Working volume (total)	250 mL – 700 mL (1.5 L)	350 mL – 1.0 L (1.9 L)	350 mL – 1.5 L (2.3 L)
Material vessel[1)]	Glass	Glass	Glass
Head plate	Stainless steel, screw cap	Stainless steel, screw cap	Stainless steel, screw cap
Head plate ports	1x M30, 7x Pg 13.5, 1x thermowell	1x M30, 7x Pg 13.5, 1x thermowell	1x M30, 7x Pg 13.5, 1x thermowell
Agitation			
Drive	Direct overhead drive	Direct overhead drive	Direct overhead drive
Impellers	1x pitched blade	2x pitched-blade	2x pitched-blade
Recommended agitation speed	30 – 1,250 rpm	30 – 1,250 rpm	30 – 1,250 rpm
Gassing			
Gas supply	Overlay and/or sparger	Overlay and/or sparger	Overlay and/or sparger
Monitoring and Control			
Sensor length	220 mm	220 mm	320 mm
Temperature sensor	Pt100 RTD	Pt100 RTD	Pt100 RTD
Exhaust condensation	Water-cooled	Water-cooled	Water-cooled

[1)] PC = Polycarbonate, PS = Polystyrene

Contents of Vessel Kits	
Contents	
Flat-bottom vessel with sidearms, stainless steel head plate and screw caps	■
Overhead drive (30 - 1,250 rpm)	Sold separately
Sensors	Sold separately
Impeller	■
Sparger assembly (dip tube)	■
Exhaust condenser with filter	Sold separately
Thermowell	■
Sampling assembly	■
Triple port with liquid addition tubes	■
Septum kit	■
Inlet filter	■
Silicone tubing	■
Tools (tubing clamp, hex wrench)	■

■ = standard

Ordering information

DASGIP® Bioblock / SciVario® twin Spinner Vessels

Vessel Volume	Working volume (total)	Impellers	Order no.
0.7 L	250 mL – 700 mL (1.5 L)	1x pitched blade	76DS0700ODSS
1 L	350 mL – 1.0 L (1.9 L)	2x pitched-blade	76DS1000ODSS
1.5 L	350 mL – 1.5 L (2.3 L)	2x pitched-blade	76DS1500ODSS

DASGIP® Bioblock / SciVario® twin Stirrer Vessels

Description
Eppendorf offers a line of advanced autoclavable stirrer vessels suitable for temperature control with the compact DASGIP Bioblock and SciVario twin temperature control block. These overhead-driven stirrer vessels feature a stainless steel head plate with standard ports and Rushton-type impellers. Covering a working volume range of 200 mL – 1.8 L they are perfectly suited for microbial research and process development.

Product features
> Working volumes ranging from 200 mL – 1.8 L
> Direct overhead drives with 100 – 1,600 rpm (30 – 1,250 rpm optional), Rushton-type impellers
> Industry-standard sensors available for precise monitoring and control of temperature, pH, DO, redox potential, level, and OD

i For more information go to www.eppendorf.link/bioprocess

Technical specifications			
Model	**1 L**	**1.5 L**	**1.8 L**
Application	Microbiology	Microbiology	Microbiology
Standard set-up	DASGIP Bioblock/SciVario twin	DASGIP Bioblock/SciVario twin	DASGIP Bioblock/SciVario twin
Dimensions (W × D × H)	110 × 150 × 500 mm	110 × 150 × 570 mm	110 × 150 × 610 mm
Bioreactors			
Sterilization	Autoclavable	Autoclavable	Autoclavable
Working volume (total)	200 mL – 1.0 L (1.3 L)	400 mL – 1.5 L (1.8 L)	400 mL – 1.8 L (2.1 L)
Material vessel[1)]	Glass	Glass	Glass
Head plate	Stainless steel, screw cap	Stainless steel, screw cap	Stainless steel, screw cap
Head plate ports	1x M30, 7x Pg 13.5, 1x thermowell	1x M30, 7x Pg 13.5, 1x thermowell	1x M30, 7x Pg 13.5, 1x thermowell
Agitation			
Drive	Direct overhead drive	Direct overhead drive	Direct overhead drive
Impellers	2x Rushton-type	2x Rushton-type	3x Rushton-type
Recommended agitation speed	100 – 1,600 rpm	100 – 1,600 rpm	100 – 1,600 rpm
Gassing			
Gas supply	Sparger	Sparger	Sparger
Monitoring and Control			
Sensor length	220 mm	220 mm	320 mm
Temperature sensor	Pt100 RTD	Pt100 RTD	Pt100 RTD
Exhaust condensation	Water-cooled	Water-cooled	Water-cooled

[1)] PC = Polycarbonate, PS = Polystyrene

Contents of Vessel Kits	
Contents	
Flat-bottom vessel with stainless steel head plate and screw caps	■
Overhead drive (100 - 1,600 rpm)	Sold separately
Baffle assembly	Sold separately (1 L and 1.5 L vessels only)
Sensors	Sold separately
Impellers	■
Sparger assembly (L-sparger)	■
Exhaust condenser with filter	Sold separately
Thermowell	■
Sampling assembly	■
Triple port with liquid addition tubes	■
Septum kit	■
Inlet filter	■
Silicone tubing	■
Tools (tubing clamp, hex wrench)	■

■ = standard

Ordering information

DASGIP® Bioblock / SciVario® twin Stirrer Vessels

Vessel Volume	Working volume (total)	Impellers	Order no.
1 L	200 mL – 1.0 L (1.3 L)	2x Rushton-type	76SR0700ODLS
1.5 L	400 mL – 1.5 L (1.8 L)	2x Rushton-type	76SR1000ODLS
1.8 L	400 mL – 1.8 L (2.1 L)	3x Rushton-type	76SR1500ODLS

SciVario® twin Benchtop Bioreactors for Cell Culture

Description
DASGIP Benchtop Bioreactors feature an autoclavable glass body and a stainless steel head plate. 16 industry-standard ports, direct overhead drives and pitched-blade impellers ensure optimal conditions for advanced cell culture research and process development. All stainless-steel parts are laser-labelled with part numbers and have certificates of origin available.

Product features
> Working volumes of 750 mL – 2.7 L and 850 mL – 3.8 L
> Direct overhead drives with 30 – 1,250 rpm (100 – 1,600 rpm optional), pitched-blade impellers
> Industry-standard sensors available for precise monitoring and control of temperature, pH, DO, level, and OD

i For more information go to www.eppendorf.link/bioprocess

Technical specifications		
Model	**2.5 L**	**3.5 L**
Application	Cell culture	Cell culture
Standard set-up	SciVario twin	SciVario twin
Dimensions (W × D × H)	190 × 190 × 580 mm	190 × 190 × 660 mm
Bioreactors		
Sterilization	Autoclavable	Autoclavable
Working volume (total)	750 mL – 2.7 L (3.1 L)	850 mL – 3.8 L (4.3 L)
Material vessel[1)]	Glass	Glass
Head plate	Stainless steel	Stainless steel
Head plate ports	1x M30, 8x M18x1.5, 8x D6	1x M30, 8x M18x1.5, 8x D6
Agitation		
Drive	Direct overhead drive	Direct overhead drive
Impellers	2x pitched-blade	2x pitched-blade
Recommended agitation speed	30 – 1,250 rpm	30 – 1,250 rpm
Gassing		
Gas supply	Overlay and/or sparger	Overlay and/or sparger
Monitoring and Control		
Sensor length	220 mm	320 mm
Temperature sensor	Pt100 RTD	Pt100 RTD
Exhaust condensation	Water-cooled	Water-cooled

[1)] PC = Polycarbonate, PS = Polystyrene

Contents of Vessel Kits	
Contents	
Dished-bottom vessel with stainless steel head plate	■
Vessel stand	■
Overhead drive (30 - 1,250 rpm)	Sold separately
Sensors	Sold separately
Impeller	■
Sparger assembly L-sparger	■
Exhaust condenser with filter	Sold separately
Thermowell	■
Sampling assembly	■
Triple port with liquid addition tubes	■
Septum kit	■
Inlet filter	■
Silicone tubing	■
Tools (tubing clamp, hex wrench)	■

■ = standard

Ordering information

DASGIP® Benchtop Bioreactors for Cell Culture

Vessel Volume	Working volume (total)	Impellers	Order no.
2.5 L	750 mL – 2.7 L (3.1 L)	2x pitched-blade	76DR03C
3.5 L	850 mL – 3.8 L (4.3 L)	2x pitched-blade	76DR04C

SciVario® twin Benchtop Bioreactors for Microbiology

Description
DASGIP Benchtop Bioreactors feature an autoclavable glass body and a stainless steel head plate. 16 industry-standard ports, direct overhead drives and Rushton-type impellers ensure optimal conditions for advanced microbial research and process development. All stainless-steel parts are laser-labelled with part numbers and have certificates of origin available.

Product features
> Working volumes of 700 mL – 2.7 L and 800 mL – 3.8 L
> Direct overhead drives with 100 – 1,600 rpm (30 – 1,250 rpm optional), Rushton-type impellers
> Industry-standard sensors available for precise monitoring and control of temperature, pH, DO, redox potential, level, and OD

i For more information go to www.eppendorf.link/bioprocess

Technical specifications		
Model	**2.5 L**	**3.5 L**
Application	Microbiology	Microbiology
Standard set-up	SciVario twin	SciVario twin
Dimensions (W × D × H)	190 × 190 × 580 mm	190 × 190 × 660 mm
Bioreactors		
Sterilization	Autoclavable	Autoclavable
Working volume (total)	700 mL – 2.7 L (3.2 L)	800 mL – 3.8 L (4.3 L)
Material vessel[1)]	Glass	Glass
Head plate	Stainless steel	Stainless steel
Head plate ports	1x M30, 8x M18x1.5, 4x D6, 4x baffles	1x M30, 8x M18x1.5, 4x D6, 4x baffles
Agitation		
Drive	Direct overhead drive	Direct overhead drive
Impellers	2x Rushton-type	3x Rushton-type
Recommended agitation speed	100 – 1,600 rpm	100 – 1,600 rpm
Gassing		
Gas supply	Sparger	Sparger
Monitoring and Control		
Sensor length	220 mm	320 mm
Temperature sensor	Pt100 RTD	Pt100 RTD
Exhaust condensation	Water-cooled	Water-cooled

[1)] PC = Polycarbonate, PS = Polystyrene

Contents of Vessel Kits	
Contents	
Dished-bottom vessel with stainless steel head plate	■
Vessel stand	■
Overhead drive (100 - 1,600 rpm)	Sold separately
Baffle assembly	■
Sensors	Sold separately
Impeller	■
Sparger (L-sparger)	■
Exhaust condenser with filter	Sold separately
Thermowell	■
Sampling assembly	■
Triple port with liquid addition tubes	■
Septum kit	■
Inlet filter	■
Silicone tubing	■
Tools (tubing clamp, hex wrench)	■

■ = standard

Ordering information

DASGIP® Benchtop Bioreactors for Microbiology

Vessel Volume	Working volume (total)	Impellers	Order no.
2.5 L	700 mL – 2.7 L (3.2 L)	2x Rushton-type	76DR03F
3.5 L	800 mL – 3.8 L (4.3 L)	3x Rushton-type	76DR04F

DASbox®, DASGIP®, and SciVario twin Bioreactor Accessories

Head Plates

> Stainless steel, electropolished
> All wetted parts laser-labeled with part numbers and material certificates

Model	Stainless Steel Head Plate	Stainless Steel Head Plate	Stainless Steel Head Plate
Order no.	**78107301**	**78107157**	**78107249**
Diameter outer (O.D.)	77 mm	100 mm	190 mm
DASbox® MiniBioreactor	■		
DASGIP® Bioblock/SciVario® twin Spinner 0.7 L/Stirrer 1 L		■	
DASGIP® Bioblock/ SciVario® twin Spinner 1 L/Stirrer 1.5 L		■	
DASGIP® Bioblock/ SciVario® twin Spinner 1.5 L/Stirrer 1.8 L		■	
SciVario® twin Benchtop Bioreactors 2.5 L			■
SciVario® twin Benchtop Bioreactors 3.5 L			■
DASGIP® PhotoBioreactors 1.0 L		■	
DASGIP® PhotoBioreactors 2.5 L			■
D4 ports	4		
D6 ports		1	8
M18 ports			8
M30 ports		1	1
Pg 13.5 ports	6	7	
Thermowell included	1	-	-

■ = standard

i For more information go to www.eppendorf.link/bioprocess

Compression Fittings and Triple Ports

> Available with Pg 13.5 and M18 threads
> Inner Diameter (I.D.) 4 mm, 6 mm or 12 mm

Ordering information

Description	Order no.
Compression Fitting, complete, with Pg 13.5 male thread	
I.D. 4 mm	78532282
I.D. 6 mm	78532283
Compression Fitting, complete, with Pg 13.5 male thread, I.D. 12 mm	78532284
Compression Fitting, complete, with M18x1.5 male thread	
I.D. 4 mm	78532279
I.D. 6 mm	78532280
Compression Fitting, complete, with M18x1.5 male thread, I.D. 12 mm	78532281
Adaptor	
Pg 13.5 female thread to M18x1.5 male thread	77102016

Ordering information

Description	Order no.
Back Ferrule, for compression fitting, PFA	
O.D. 4 mm	78706352
O.D. 6 mm	78706354
O.D. 12 mm	78706356
Front Ferrule, for compression fitting, PFA	
O.D. 4 mm	78706351
O.D. 6 mm	78706353
O.D. 12 mm	78706355

Ordering information

Description	Order no.
Triple Port, Pg 13.5 thread, 3 tubes with O.D. 4 mm x L 85 mm, all parts included	78706414
Triple Port, M18 x 1.5 thread, 3 tubes with O.D. 4 mm x L 85 mm, all parts included	77102018
Triple Port, Pg 13.5 thread, welded, 3 tubes with O.D. 4 x Li 219 mm	78706587
Triple Port, Pg 13.5 thread, welded, 2 tubes with O.D. 4 x Li 219 mm, 1 tube with O.D. 4 x Li 21 mm	78706588
Triple Port, Pg 13.5 thread, welded, 3x O.D. 4 x Li 21 mm	78109071
Triple Port, Pg 13.5 thread, welded, 2 tubes with O.D. 4 x Li 21 mm, 1 tube with O.D. 4 x Li 219 mm	78109075

DASbox®, DASGIP®, and SciVario twin Bioreactor Accessories

Blind Plugs and Septa

> Stainless steel
> Pg 13.5, M18 and M6 threads
> Silicon septa available for addition, inoculation or sampling

Ordering information

Description	Order no.
Blind Plug, stainless steel, all parts included	
Pg 13.5 thread	78532300
M6 male thread	77102020
M18 x 1.5 thread	77102017
Septum Holder, stainless steel, with septum	
M18 x 1.5 male, I.D. 12 mm	77102019
Pg 13.5 male, I.D. 12 mm	77102006
Septum, silicone rubber	
Pg 13.5, O.D. 18 mm/I.D. 12 mm	78106309
GL45	78106305
Septum, silicone rubber, PTFE-coated, GL45	78106306
Adaptor	
Pg 13.5 female thread to M18x1.5 male thread	77102016

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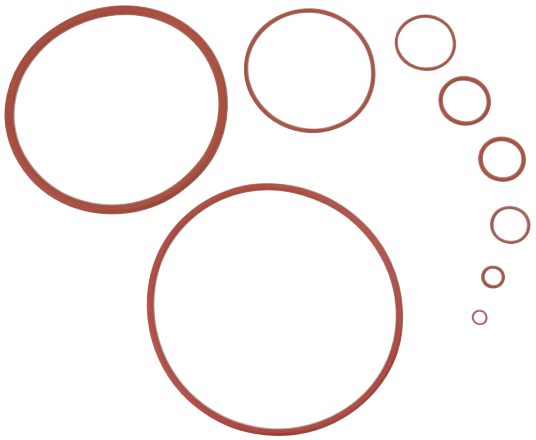

O-Rings

> O-Rings are available in different materials (VMQ silicone, NBR rubber) and sizes.

Ordering information

Description	Order no.
O-Ring, VMQ 70/Si 820, red, 4 x 1.5 (I.D. x d)	78706417
O-Ring, VMQ 70/Si 820, red, 5 x 1.5 (I.D. x d)	78706429
O-Ring, VMQ 70/Si 820, red, 6 x 1.5 (I.D. x d)	78706416
O-Ring, VMQ 70/Si 820, red, 6 x 2 (I.D. x d)	78706407
O-Ring, VMQ 70/Si 820, red, 12 x 1.5 (I.D. x d)	78706419
O-Ring, VMQ 70/Si 820, red, 14 x 2 (I.D. x d)	78706406
O-Ring, VMQ 70/Si 820, red, 20 x 2 (I.D. x d)	78706458
O-Ring, VMQ 70/Si 820, red, 24 x 2 (I.D. x d)	78706440
O-Ring, VMQ 70/Si 820, red, 31 x 2.5 (I.D. x d)	78706439
O-Ring, VMQ 70/Si 820, red, 68 x 3 (I.D. x d)	78201138
O-Ring, VMQ 70/Si 820, red, 88 x 3 (I.D. x d)	78706408
O-Ring, VMQ 70/Si 820, red, 135 x 4 (I.D. x d)	78706460
O-Ring, VMQ 70/Si 820, red, 4 x 1 (I.D. x d)	78706415
O-Ring, VMQ 50/Si 50, blue, 8 x 1.5 (I.D. x d)	78706465
O-Ring, VMQ 65/Si 840, blue, 18 x 2.5 (I.D. x d)	78706447
O-Ring, NBR70/P583, black, 166.75 x 2 (I.D. x d)	78706478

DASbox®, DASGIP®, and SciVario twin Bioreactor Accessories

Valves

> Easy and efficient sampling from any bioreactor
> Self-sealing Luer lock connector

Ordering information

Description	Order no.
Sampling Accessory, with swabable valve	78510145
Sample Valve, autoclavable, male Luer lock and swabable female Luer lock	78200077
Cap for Sampling Valve, autoclavable, male Luer lock	78200087
One Way Valve, with Luer lock female inlet and male outlet	78200078

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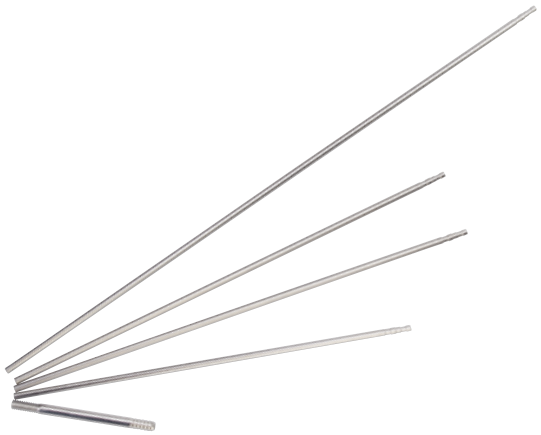


Stainless Steel Pipes

> Stainless steel, electropolished
> Various diameters and lengths available
> For sampling, harvesting, submerged gassing and liquid addition

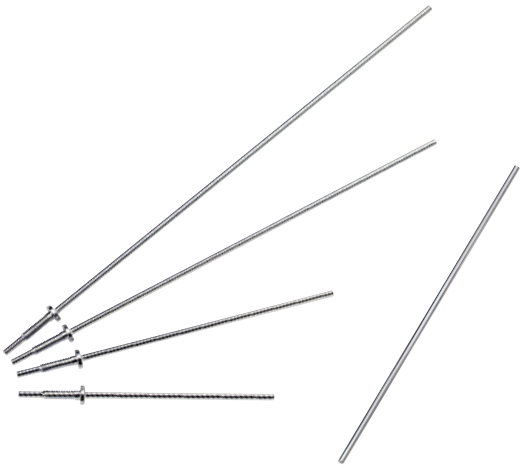
Model	Stainless Steel Pipes, with barb, OD 4mm/ID 2 mm				
Order no.	**78107326**	**78107023**	**78107102**	**78107146**	**78107178**
Length	180 mm	225 mm	270 mm	320 mm	370 mm
DASbox® MiniBioreactor	■				
DASGIP® Bioblock/ SciVario® twin Spinner 0.7 L/Stirrer 1 L		■			
DASGIP® Bioblock/ SciVario® twin Spinner 1 L/Stirrer 1.5 L			■		
DASGIP® Bioblock/ SciVario® twin Spinner 1.5 L/Stirrer 1.8 L					■
SciVario® twin Benchtop Bioreactors 2.5 L				■	
SciVario® twin Benchtop Bioreactors 3.5 L					■
DASGIP® PhotoBioreactors 1.0 L			■		
DASGIP® PhotoBioreactors 2.5 L				■	

■ = standard, o = optional

Model	M6 Port Assembly, OD 6 mm/ID 2 mm		Harvest Tube, OD 6 mm	
Order no.	**77102060**	**77102061**	**78107379**	**78107380**
Length	281 mm	356 mm	320 mm	410 mm
DASbox® MiniBioreactor				
DASGIP® Bioblock/ SciVario® twin Spinner 0.7 L/Stirrer 1 L				
DASGIP® Bioblock/ SciVario® twin Spinner 1 L/Stirrer 1.5 L				
DASGIP® Bioblock/ SciVario® twin Spinner 1.5 L/Stirrer 1.8 L				
SciVario® twin Benchtop Bioreactors 2.5 L	o		o	
SciVario® twin Benchtop Bioreactors 3.5 L		o		o
DASGIP® PhotoBioreactors 1.0 L				
DASGIP® PhotoBioreactors 2.5 L	o			

■ = standard, o = optional

DASbox®, DASGIP®, and SciVario twin Bioreactor Accessories



Thermowells

> Easy and sterile insertion of temperature sensors
> Various lenghts available

Model	Thermowell, M6, stainless steel				
Order no.	**77102027**	**77102003**	**77102029**	**77102030**	**77102031**
Inner diameter (I.D.)	2 mm	2 mm	2 mm	2 mm	2 mm
Inner length	163 mm	188 mm	238 mm	263 mm	313 mm
Length	200 mm	225 mm	275 mm	300 mm	350 mm
DASGIP® Benchtop Spinner 0.5 L	■	■			
DASGIP® Benchtop Spinner 1 L	■				
DASGIP® Bioblock/ SciVario® twin Spinner 1 L/Stirrer 1.5 L			■		
DASGIP® Bioblock Spinner 0.7 L		■			
DASGIP® Bioblock/ SciVario® twin Spinner 1.5 L/Stirrer 1.8 L				■	
SciVario® twin Benchtop Bioreactors 2.5 L			■		
SciVario® twin Benchtop Bioreactors 3.5 L					■
DASGIP® PhotoBioreactors 1.0 L			■		
DASGIP® PhotoBioreactors 2.5 L			■		

■ = standard

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Impellers

> Rushton-type, pitched-blade and marine impellers for microbiology and cell culture
> Various sizes and shaft lengths available

Model	6-Blade Rushton-Type Impeller, stainless-steel		3-Blade Impeller, 30° pitch, stainless steel		8-Blade Impeller, 60° pitch, stainless steel	
Order no.	**78107304**	**78100557**	**78532236**	**78107325**	**78100604**	**78100605**
Inner diameter (I.D.)	5 mm	8 mm	8 mm	5 mm	5 mm	8 mm
Diameter outer (O.D.)	30 mm	46 mm	50 mm	30 mm	34 mm	53 mm
DASbox® MiniBioreactor	■			■	■	
DASGIP® Bioblock/ SciVario® twin Spinner 0.7 L/Stirrer 1 L		■	■			■
DASGIP® Bioblock/ SciVario® twin Spinner 1 L/Stirrer 1.5 L		■	■			■
DASGIP® Bioblock/ SciVario® twin Spinner 1.5 L/Stirrer 1.8 L		■	■			■
SciVario® twin Benchtop Bioreactors 2.5 L		■	■			■
SciVario® twin Benchtop Bioreactors 3.5 L		■	■			■
DASGIP® PhotoBioreactors 1.0 L			■			
DASGIP® PhotoBioreactors 2.5 L			■			

■ = standard

Model	DASGIP® Lipseal Stirrer Assembly				
Order no.	**78525116**	**78525130**	**78525119**	**78525118**	**78525123**
Seat	M30	M30	M30	M30	Pg 13.5
Stirrer shaft diameter	8 mm	8 mm	8 mm	8 mm	5 mm
Stirrer shaft inner length	186 mm	199 mm	245 mm	298 mm	112 mm
DASbox® MiniBioreactor					■
DASGIP® Benchtop Spinner 1 L	■				
DASGIP® Bioblock/ SciVario® twin Spinner 1 L/Stirrer 1.5 L			■		
DASGIP® Bioblock Spinner 0.7 L		■			
DASGIP® Bioblock/ SciVario® twin Spinner 1.5 L/Stirrer 1.8 L				■	
SciVario® twin Benchtop Bioreactors 2.5 L			■		
SciVario® twin Benchtop Bioreactors 3.5 L				■	
DASGIP® PhotoBioreactors 1.0 L			■		
DASGIP® PhotoBioreactors 2.5 L				■	

■ = standard

DASbox®, DASGIP®, and SciVario twin Bioreactor Accessories

Caps for Vessels and Bottles

> Various sizes available, closed or with ports

Ordering information

Description	Order no.
Screw Cap, for O.D. 100 mm neck, PBT, with hole ID 90 mm without gasket	78903225
Screw Cap, for O.D. 80 mm neck, PBT, with hole I.D. 73 mm, without gasket	78903226
Screw Cap, GL45, PBT, with port I.D. 34 mm	78903224
Screw Cap, GL45, PBT, closed, including PTFE-coated silicone washer	78106122

Accessories

Description	Order no.
Washer, silicone, PTFE-coated	
for GL45, I.D. 32 mm, O.D. 42 mm, d 3 mm	78106307

Exhaust Condensers

> Minimized evaporation during cultivation
> DASGIP Cooling Water Distribution Unit allows for individual operation of each exhaust condender

Model	Condenser
Order no.	**77102050**
Diameter outer (O.D.)	30 mm
DASGIP® Bioblock/ SciVario® twin Spinner 0.7 L/Stirrer 1 L	■
DASGIP® Bioblock/ SciVario® twin Spinner 1 L/Stirrer 1.5 L	■
DASGIP® Bioblock/ SciVario® twin Spinner 1.5 L/Stirrer 1.8 L	■
SciVario® twin Benchtop Bioreactors 2.5 L	■
SciVario® twin Benchtop Bioreactors 3.5 L	■
DASGIP® PhotoBioreactors 1.0 L	■
DASGIP® PhotoBioreactors 2.5 L	■

■ = standard

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Cooling Fingers

> Highly efficient cooling even in high cell density applications
> Various lengths available

Model	Cooling Finger	Cooling Finger
Order no.	**77102037**	**77102036**
Inner length	240 mm	325 mm
Length	295 mm	380 mm
Diameter outer (O.D.)	12 mm	12 mm
DASGIP® Bioblock/ SciVario® twin Spinner 0.7 L/Stirrer 1 L	■	
DASGIP® Bioblock/ SciVario® twin Spinner 1 L/Stirrer 1.5 L	■	
DASGIP® Bioblock/ SciVario® twin Spinner 1.5 L/Stirrer 1.8 L		■
SciVario® twin Benchtop Bioreactors 2.5 L	■	
SciVario® twin Benchtop Bioreactors 3.5 L		■
DASGIP® PhotoBioreactors 1.0 L	■	
DASGIP® PhotoBioreactors 2.5 L		■

■ = standard

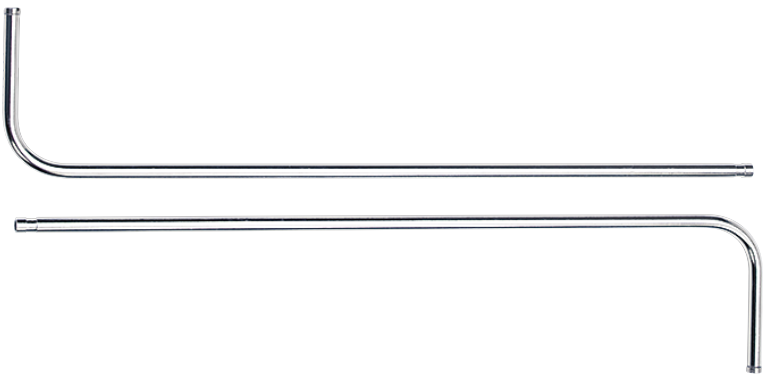
DASGIP® Heat Blankets

> For individual temperature control of DASGIP vessels
> Heating power 100 W
> Power supply 115 or 230 V

Ordering information

Description	Order no.
Heat Blanket, for DASGIP® vessel 0.5 – 3L	
with Pt100, 95 x 260 mm, 100 W, 230 VAC, CE/UL certified	78525275
with Pt100, 95 x 260 mm, 100 W, 115 VAC, CE/UL certified	78525276

DASbox®, DASGIP®, and SciVario twin Bioreactor Accessories



Spargers

> For submerged gassing
> Stainless steel

Model	L-Sparger for DASGIP® Culture Vessel, stainless steel			
Order no.	**77102052**	**77102054**	**77102022**	**77102023**
Length	180 mm	300 mm	300 mm	370 mm
Port	D4	D4	D6	D6
Width	40 mm	42 mm	63 mm	63 mm
DASbox® MiniBioreactor	■			
DASGIP® Bioblock/ SciVario® twin Spinner 0.7 L/Stirrer 1 L		o	■	
DASGIP® Bioblock/ SciVario® twin Spinner 1 L/Stirrer 1.5 L		o	■	
SciVario® twin Benchtop Bioreactors 2.5 L		o	■	
SciVario® twin Benchtop Bioreactors 3.5 L				■
DASGIP® PhotoBioreactors 1.0 L		o	■	
DASGIP® PhotoBioreactors 2.5 L		o	■	

■ = standard, o = optional

Model	Stainless Steel Pipes, with barb, OD 4mm/ID 2 mm				
Order no.	**78107326**	**78107023**	**78107102**	**78107146**	**78107178**
Length	180 mm	225 mm	270 mm	320 mm	370 mm
DASbox® MiniBioreactor	■				
DASGIP® Bioblock/ SciVario® twin Spinner 0.7 L/Stirrer 1 L		■			
DASGIP® Bioblock/ SciVario® twin Spinner 1 L/Stirrer 1.5 L			■		
DASGIP® Bioblock/ SciVario® twin Spinner 1.5 L/Stirrer 1.8 L					■
SciVario® twin Benchtop Bioreactors 2.5 L				■	
SciVario® twin Benchtop Bioreactors 3.5 L					■
DASGIP® PhotoBioreactors 1.0 L			■		
DASGIP® PhotoBioreactors 2.5 L				■	

■ = standard

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Micro Sparger

> For submerged gassing
> Stainless Steel
> Pore size 10 µm

Ordering information

Description	Order no.
Micro Sparger, stainless steel, pore size 10 µm, O.D. 6 mm, with O.D. 4 mm pipe	
L 284 mm, 90° tip	78530205
L 370 mm, 90° tip	78530206
L 245 mm	78530511
L 290 mm	78530512
L 340 mm	78530513

BioFlo® 120 Bioreactors

Description
The BioFlo 120 is a bench-scale bioreactor/fermentor system perfectly suited for all levels of research and development. The system was designed to be flexible to meet the wide-ranging needs of scientists today. 24 interchangeable heat-blanketed and water-jacketed autoclavable vessels are available, along with BioBLU Single-Use Bioreactors ranging from 250 mL to 40 L working volume.

Product features
> Autoclavable glass vessels featuring working volume range between 0.4 – 10.5 L
> Bundles for use with BioBLU Single-Use Bioreactors
> Consistent vessel geometries for scale-up processes
> Fermentation vessel assemblies capable of high oxygen transfer rates, designed for maximum density microbial applications
> Pick from 24 autoclavable vessel options for cell culture and fermentation, including heat-blanketed and water-jacketed vessels with direct or magnetic drive
> Conversion bundles to keep using your legacy vessels
> Rushton-type, pitched-blade, and marine impellers as well as spinfilters available

i For more information go to www.eppendorf.link/bioprocess

Vessel Specifications				
Autoclavable vessels				
Vessel	1 L	2 L	5 L	10 L
Total volume	1.3 L	3.0 L	7.5 L	14.0 L
Working volume	0.4 – 1.0 L	0.8 – 2.2 L	2.0 – 5.6 L	4.0 – 10.5 L
Vessel type	Water-jacketed or heat-blanketed			
Material	Borosilicate glass, 316L stainless steel			
Impellers				
Direct drive or magnetic drive	Rushton-type, pitched blade, marine or spin filter			
Autoclave dimensions				
Heat-blanketed				
Outer diameter (O.D.)	20.3 cm	20.3 cm	29.8 cm	29.8 cm
	8.0 in	8.0 in	11.7 in	11.7 in
Height (without exhaust filter)	54.0 cm	54.0 cm	61.0 cm	68.0 cm
	21.3 in	21.3 in	24.0 in	26.9 in
Water-jacketed				
Outer diameter (O.D.)	24.1 cm	24.1 cm	29.8 cm	29.8 cm
	9.5 in	9.5 in	11.7 in	11.7 in
Height (without exhaust filter)	48.9 cm	56.5 cm	64.8 cm	76.8 cm
	19.3 in	22.3 in	25.5 in	30.3 in
Number of head plate ports				
6 mm	1	6	7	7
12 mm	9	7	8	8
19 mm	0	0	1	1
Total	10	13	16	16
Recommended sensor lengths (mm)				
Sensor				
pH (analog)[1)]	200	225	325	425
pH/redox (digital)[1)]	225	225	325	425
DO (analog)[1)]	160	220	320	420
DO (digital/optical)[1)]	220	220	320	420
Redox (analog)[1)]	200	225	325	425
CO_2 (digital)[1)]	220	220	320	320

[1)] Installation may require compression fitting for optimal fit and depth (M1273-5040), 2 x included with Vessel Connection Kit

BioFlo® 120 Bioreactors

Autoclavable Vessel Bundles - Fermentation
Bundles include: Vessel assembly with Rushton-type impeller and baffle assembly, exhaust condenser, heat blanket or heater base (for water jacketed vessels), vessel connection kit (provides all the necessary accessories for start-up), motor assembly, pH/DO sensors and cables

Ordering information

Description	Order no.
Fermentation Vessel Bundle, for BioFlo® 120, heat blanket, direct-drive	
1 L	B120AVB000
2 L	B120AVB001
5 L	B120AVB002
10 L	B120AVB003
Fermentation Vessel Bundle, for BioFlo® 120, water-jacketed vessel, direct-drive	
1 L	B120AVB004
2 L	B120AVB005
5 L	B120AVB006
10 L	B120AVB007

Autoclavable Vessel Bundles - Cell Culture
Bundles include: Vessel assembly with pitched-blade impeller, exhaust condenser, heat blanket or heater base (for water-jacketed vessels), vessel connection kit (provides all the necessary accessories for start-up), motor assembly, pH/DO sensors and cables

Ordering information

Description	Order no.
Cell Culture Vessel Bundle, for BioFlo® 120, heat blanket, magnetic-drive	
1 L	B120AVB008
2 L	B120AVB009
5 L	B120AVB010
10 L	B120AVB011
Cell Culture Vessel Bundle, for BioFlo® 120, water-jacketed vessel, magnetic-drive	
1 L	B120AVB012
2 L	B120AVB013
5 L	B120AVB014
10 L	B120AVB015
Cell Culture Vessel Bundle, for BioFlo® 120, heat blanket, direct-drive	
1 L	B120AVB016
2 L	B120AVB017
5 L	B120AVB018
10 L	B120AVB019
Cell Culture Vessel Bundle, for BioFlo® 120, water-jacketed vessel, direct-drive	
1 L	B120AVB020
2 L	B120AVB021
5 L	B120AVB022
10 L	B120AVB023

i For more information go to www.eppendorf.link/bioprocess

BioBLU Single-use Bioreactor Bundles - Fermentation[1)]
Bundles include: Motor assembly, heat blanket, temperature sensor, pressure relief valve, electric-cooled (Peltier) exhaust condenser for BioBLU 1f or water-cooled exhaust condensor for BioBLU 3f, pH/DO sensors and cables, vessel stand, sampling syringes, and tubing.

[1)] BioBLU Single-Use Bioreactores sold separately

Ordering information

Description	Order no.
BioBLU® Single-Use Bioreactor Bundle, for BioFlo® 120, heat blanket, magnetic-drive	
BioBLU® 1f	B120SUV000
BioBLU® 3f	B120SUV001

BioBLU Single-use Bioreactor Bundles - Cell Culture[1)]
Bundles include: Motor assembly, heat blanket, temperature sensor, pressure relief valves, Electric-cooled (Peltier) exhaust condenser (BioBLU 1c only) or electric heater band, pH/DO sensors and cables (Optical pH sensor and OP-76 included in BioBLU 3c Single-Use Bioreactors and up), vessel stand (BioBLU 1c), sampling syringes, and tubing.

[1)] BioBLU vessels sold separately

Ordering information

Description	Order no.
BioBLU® Single-Use Bioreactor Bundle, for BioFlo® 120, heat blanket, magnetic-drive	
BioBLU® 1c	B120SUV003
BioBLU® 3c/5c	B120SUV004
BioBLU® 5p	B120SUV005
BioBLU® 10c/14c	B120SUV006
BioBLU® 50c	B120SUV007

BioFlo 110/115 Conversion Bundles
Bundles include Vessel heat blanket or heater base (for water jacketed vessels), Vessel connection kit (provides all the necessary accessories for start-up), Motor assembly, pH/DO cables[1)]

[1)] pH/DO sensors are not included in conversion kits.

Ordering information

Description	Order no.
BioFlo® 120 to BioFlo® 110/115 Bundle, heat blanket, direct-drive	
1 L vessel	B120110000
2 L vessel	B120110001
5 L vessel	B120110002
10 L vessel	B120110003
BioFlo® 120 to BioFlo® 110/115 Bundle, water jacket, direct-drive	
1 L/2 L vessel	B120110004
5 L/10 L vessel	B120110005
BioFlo® 120 to BioFlo® 110/115 Bundle, heat blanket, magnetic-drive	
1 L vessel	B120110006
2 L vessel	B120110007
5 L vessel	B120110008
10 L vessel	B120110009
BioFlo® 120 to BioFlo® 110/115 Bundle, water jacket, magnetic-drive	
1 L/2 L vessel	B120110010
5 L/10 L vessel	B120110011

BioFlo® 120 Bioreactors

Contents of vessel assembly	Fermentation vessel, heat-blanketed	Fermentation vessel, water-jacketed	Cell culture vessel, heat-blanketed	Cell culture vessel, water-jacketed
Water-jacketed vessel with head plate[1)]	-	■	-	■
Heat-blanketed vessel with head plate (includes heat blanket)[1)]	■	-	■	-
Vessel stand	■	-	■	-
Direct drive assembly[2)]	■	■	■	■
Magnetic drive assembly[2)]	-	-	■	■
Immersion cooling coil	■	-	■	-
Thermowell	■	■	■	■
Baffle assembly	■	■	-	-
Two rushton-type impellers	■	■	-	-
One pitched-blade impeller	-	-	■	■
Ring sparger	■	■	■	■
Sample tube	■	■	■	■
Harvest tube	■	■	■	■
Single addition tube and adaptor	■	■	■	■

[1)] Heat-blanketed vessel assemblies include the heat blanket. Water-jacketed vessel assemblies do not include the base heater.

[2)] Cell culture direct drive or magnetic drive assembly based on selected vessel bundle.

■ = standard

Autoclavable Vessel Assemblies - Fermentation

Ordering information

Description	Order no.
Fermentation Vessel, for BioFlo® 120, heat blanket, direct-drive	
1 L	1390 400 000
2 L	1390 400 100
5 L	1390 400 200
10 L	1390 400 300
Fermentation Vessel, for BioFlo® 120, water jacket, direct-drive	
1 L	1390 402 000
2 L	1390 402 100
5 L	1390 402 200
10 L	1390 402 300

i For more information go to www.eppendorf.link/bioprocess

Autoclavable Vessel Assemblies - Cell Culture

Ordering information

Description	Order no.
Cell Culture Vessel, for BioFlo® 120, water jacket, direct-drive	
1 L	1390 402 400
2 L	1390 402 500
5 L	1390 402 600
10 L	1390 402 700
Cell Culture Vessel, for BioFlo® 120, water jacket, magnetic-drive	
1 L	1390 402 800
2 L	1390 402 900
5 L	1390 403 000
10 L	1390 403 100
Cell Culture Vessel, for BioFlo® 120, heat blanket, direct-drive	
1 L	1390 400 400
2 L	1390 400 500
5 L	1390 400 600
10 L	1390 400 700
Cell Culture Vessel, for BioFlo® 120, heat blanket, magnetic-drive	
1 L	1390 400 800
2 L	1390 400 900
5 L	1390 401 000
10 L	1390 401 100

BioFlo® 120 Bioreactor Accessories

Ordering information

Description	Order no.
Adaptor	
6 mm port to 6 mm tube	M1273-5054
12 mm port to 6 mm tube	M1273-5056
12 mm port to 12 mm tube	M1273-5058
12 mm port to tri-port	M1273-9961
19 mm port to 1 1/2 in tri-clamp	M1287-9545
compression fitting, 12 mm port to 12 mm sensor	M1273-5040
compression fitting, 19 mm port to 12 mm sensor	M1287-5037
compression fitting, for foam/level sensor and sample tube, 6 mm port to foam/level/sample	M1273-5042
19 mm port to 19 mm sensor	M1294-9542
for 19 mm port, for Pg 13.5 sensor	M1294-9544
Septum Kit, 12 mm port, 10 septa included	M1273-3031
Blind Plug	
6 mm port	M1273-9405
12 mm port	M1273-9406
19 mm port	M1273-9407

Ordering information

Description	Order no.
Tube, barbed, d 6 mm	
angled tip, L 76.2 mm	M1273-9544
blunt tip, L 110.0 mm	M1273-9575
angled tip, L 127.0 mm	M1273-9545
blunt tip, L 175.0 mm	M1273-9574
blunt tip, L 210.0 mm	M1273-9432
Spare Parts Kit	
1 L/2 L heat-blanketed vessel	M1273-9991
5 L/10 L heat-blanketed vessel	M1273-9992
1 L/2 L water-jacketed vessel	M1273-9998
5 L/10 L water-jacketed vessel	M1273-9999
Spare Parts Kit, head plate port o-rings/washers, all vessel sizes	M1369-0122
Foam Trap Kit, 250 mL	M1273-9942
Foam/Level Sensor	
4 in/100 mm	1390 500 200
7.5 in/190 mm	1390 500 400
14 in/355 mm	1390 500 500
Vessel Connection Kit, for BioFlo® 120	1390 010 000
Syringe Sampling Kit, for BioFlo® 120	1390 991 500
Tubing Kit, for BioFlo® 120, all vessel sizes	1390 910 000
Start-Up Kit, fermentation and cell culture, autoclavable vessels	M1369-0300
Autoclave Rack, angled, for BioFlo® 120, for 5 L/10 L vessels	M1273-9266

i For more information go to www.eppendorf.link/bioprocess

Vessel	1 L	2 L	5 L	10 L
Baffles	M1273-9263	M1273-9264	M1273-9245	M1273-9265
Sampling assembly[1)]	M1273-9946	M1273-9949	M1273-9953	M1273-9956
Sampling tube	M1273-9260[2)]	M1273-9198	M1273-9170	M1273-9193
Harvest tube	M1273-9260[2)]	M1273-9197	M1273-9162	M1273-9510
Cooling ring	M1273-9259[3)]	M1273-9249	M1273-9247	M1273-9250
Microsparger (10-15 µm pore size)	M1273-5007 (heat-blanketed) M1273-5003 (water-jacketed)	M1273-5004	M1273-5005	M1273-5006
Macrosparger	M1273-9259[3)]	M1273-9256	M1273-9246	M1273-9251
Thermowell	M1273-9200	M1273-9201	M1273-9202	M1273-9203
Glass vessel (heat-blanketed)	M1273-9907	M1273-9909	M1273-9916	M1273-9918
Glass vessel (water-jacketed)	M1273-9908	M1273-9915	M1273-9917	M1273-9919
Exhaust condenser	1390502000	1390502000	1390502000	1390502100

[1)] Sampling assembly with glass bottle system

[2)] Sample tube and harvest tube of 1L vessels is part of M1273-9260 (sampling/harvest/addition tube assembly)

[3)] Cooling ring and macro sparger of 1L vessels is part of M1273-9259 (sparger/cooling ring assembly)

Impellers	Rushton-type impeller			Pitched-blade impeller, 45 ° pitch				Marine impeller	
				upflow		downflow			
Order no.	M1273-9291	M1273-9292	M1273-9293	M1273-9206	M1273-9207	M1273-9290	M1230-9212	M1273-9901	M1273-9902
1 L vessel	■			■		■		■	
2 L vessel	■			■		■		■	
5 L vessel		■			■		■		■
10 L vessel			■		■		■		■

	Spinfilter								
	for suspension cells			for microcarriers					
Order no.	M1273-3201	M1273-3202	M1273-3205	M1273-3210	M1273-3211	M1273-3212	M1273-3215	M1273-3220	
1 L vessel	■				■				
2 L vessel		■				■			
5 L vessel			■				■		
10 L vessel				■				■	

■ = standard

BioFlo® 320 Bioreactors

Description
BioFlo 320 vessels feature an autoclavable borosilicate glass body and stainless steel head plate. Stainless-steel dished-bottom vessels are available for rapid heat transfer as well as traditional water-jacketed vessels for more gentle temperature control. Each vessel type is available in four sizes, with interchangeable overhead magnetic and direct drive options. A variety of impellers and multiple industry standard head plate ports are available for user flexibility.

Product features
> Working volume range between 0.6 – 10.5 L
> Stainless steel dish bottom and water jacketed vessels
> Interchangeable magnetic and direct overhead drive options
> Rushton, pitched-blade, marine, spinfilter, cell-lift and packed-bed impellers available

i For more information go to www.eppendorf.link/bioprocess

Technical specifications				
Vessel Volume	1 L	3 L	5 L	10 L
Volume	2.5 L	5 L	7.5 L	14 L
Working volume	0.6 - 1.9 L	1.3 - 3.8 L	1.9 - 5.6 L	3.5 - 10.5 L
Material	Borosilicate glass, 316 L stainless steel, EPDM o-rings			
Agitation				
Drive	Direct/magnetic overhead drive			
Speed ranges	25 - 1200 rpm (Direct Drive) 25 - 500 rpm (Magnetic Drive)			
Impellers	2 x Rushton, 1 x Pitched, 1x Marine, Spin Filter, Cell Lift, or Packed-bed			
Gassing				
Gas supply	Overlay and/or Sparger			
Sparger Type	Ringsparger or microsparger			
Monitoring and Control				
Temperature sensor	Pt100 RTD			
Exhaust condensation	Water-cooled			
Recommended sensor lengths				
pH[1)]	200 mm	225 mm	325 mm	425 mm
pH (packed-bed)[1)]	200 mm	200 mm	200 mm	225 mm
DO[1)]	220 mm	220 mm	320 mm	420 mm
DO (packed-bed)[1)]	120 mm	120 mm	220 mm	220 mm
Redox[1)]	200 mm	225 mm	325 mm	425 mm
CO_2[1)]	220 mm	220 mm	320 mm	420 mm
Head plate ports				
6 mm	1	3	3	3
Pg 13.5 ports	9	10	12	12
19 mm	0	1	1	1
Headplate port				
Total	10	14	16	16
Autoclave Dimensions (with exhaust condensor)				
Stainless Steel Dished Bottom Vessels				
Outer diameter (O.D.)	19.9 cm (7.8 in)	22.9 cm (9.0 in)	25.6 cm (10.1 in)	29.3 cm (11.5 in)
Height	51.8 cm (20.4 in)	58 cm (22.8 in)	61.2 cm (24.1 in)	67.9 cm (26.7 in)
Water-Jacketed Vessels				
Outer diameter (O.D.)	21.6 cm (8.5 in)	23.1 cm (9.1 in)	27.7 cm (10.9 in)	32.3 cm (12.7 in)
Height	55.4 cm (21.8 in)	61.9 cm (24.4 in)	65.4 cm (25.7 in)	72.9 cm (28.7 in)

[1)] May require 12 mm compression fitting (M1287-5030)

BioFlo® 320 Bioreactors

Contents of vessel kits	Stainless-steel dished-bottom, direct drive	Stainless-steel dished-bottom, magnetic drive	Water-jacketed, direct drive	Water-jacketed, magnetic drive
Water-jacketed vessel with head plate	-	-	■	■
Dished-bottom vessel with head plate (incl. stainless-steel heat exchanger)	■	■	-	-
Direct drive	■	-	■	-
Magnetic drive	-	■	-	■
Baffles	■	Sold separately	■	Sold separately
Exhaust condenser	■	■	■	■
Agitation motor	Included with vessel bundles, separately offered with configured vessels			

■ = standard

Kit contents	Direct drive impeller kits	Magnetic drive impeller kits	Vessel connection kit
Impeller	Rushton (2) or Pitched-blade(1) or marine (1)	Pitched-blade (1) or marine (1) or spinfilter with marine (1) or cell-lift (1) or basket (1)	-
Drive shaft	Included in vessel kit	■	-
Sparger with head plate adaptor	■	■	-
Thermowell	■	■	-
Sample tube with head plate adaptor	■	■	-
Harvest tube with head plate adaptor	■	■	-
Inlet & exhaust line with absolute filter	■	■	■
Compression fitting adaptors for sensors	-	-	■ (2x)
Foam/level sensor with adaptor and cable	-	-	■
Temperature sensor	-	-	■
Tri-port/Single addition tube and adaptor	-	-	■
Sampling kit	-	-	■

■ = standard

i For more information go to www.eppendorf.link/bioprocess

Stainless steel dished-bottom vessel bundles include vessel kit with direct-drive bearing housing (baffles included), direct-drive motor, vessel connection kit, and Rushton impeller kit.

Water-jacketed vessel bundles include vessel kit with magnetic drive bearing housing, magnetic-drive motor for autoclavable vessels, and vessel connection kit.
NOTE: Impeller kit is not included in water-jacketed vessel bundles.

BioBLU Single-Use Bioreactor bundles include magnetic drive motor for single-use vessels, heat blanket, and connection tubing.

Sensors and sensor cables must be purchased individually.

Ordering information

Description	Order no.
Vessel Bundle, for BioFlo® 320, stainless-steel dished-bottom, direct-drive	
1 L	M1379-0300
3 L	M1379-0301
5 L	M1379-0302
10 L	M1379-0303
Vessel Bundle, for BioFlo® 320, water jacket, magnetic-drive	
1 L	M1379-0310
3 L	M1379-0311
5 L	M1379-0312
10 L	M1379-0313
Single-Use Bioreactor Bundle, for BioFlo® 320	
for BioBLU® 1c	M1379-0320
for BioBLU® 1f	M1379-0321
for BioBLU® 3c/5c	M1379-0322
for BioBLU® 5p	M1379-0323
for BioBLU® 10c/14c	M1379-0324
for BioBLU® 50c	M1379-0325

BioFlo® 320 Bioreactors

Validated Vessel Configurations

> Choose from the options below to configure a validated autoclavable vessel bundle that meets your process needs
> All items are available for individual ordering
> Eight independently controlled process gas supplies
> Sensors and cables not included, sold separately
> Addition motor not included, sold separately

Ordering information

Description	Order no.
Validation, for BioFlo® 320, autoclavable vessel validation	M1379-0103
Vessel, for BioFlo® 320, stainless-steel dished-bottom, direct-drive	
1 L	M1379-1001
3 L	M1379-1002
5 L	M1379-1003
10 L	M1379-1004
Vessel, for BioFlo® 320, water jacket, direct-drive	
1 L	M1379-1005
3 L	M1379-1006
5 L	M1379-1007
10 L	M1379-1008
Vessel, for BioFlo® 320, stainless-steel dished-bottom, magnetic-drive	
1 L	M1379-1101
3 L	M1379-1102
5 L	M1379-1103
10 L	M1379-1104
Vessel, for BioFlo® 320, water jacket, magnetic-drive	
1 L	M1379-1105
3 L	M1379-1106
5 L	M1379-1107
10 L	M1379-1108
Vessel Connection Kit, fermentation and cell culture, autoclavable vessels, all vessel sizes	M1379-0115
Rushton-Type Impeller Kit, direct-drive	
for 1 L vessel	M1379-1011
for 3 L vessel	M1379-1012
for 5 L vessel	M1379-1013
for 10 L vessel	M1379-1014
Pitched-Blade Impeller Kit, direct-drive	
for 1 L vessel	M1379-1015
for 3 L vessel	M1379-1016
for 5 L vessel	M1379-1017
for 10 L vessel	M1379-1018

i For more information go to www.eppendorf.link/bioprocess

Ordering information

Description	Order no.
Marine Impeller Kit, direct-drive	
for 1 L vessel	M1379-1019
for 3 L vessel	M1379-1020
for 5 L vessel	M1379-1021
for 10 L vessel	M1379-1022
Pitched-Blade Impeller Kit, magnetic-drive	
for 1 L vessel	M1379-5068
for 3 L vessel	M1379-5069
for 5 L vessel	M1379-5070
for 10 L vessel	M1379-5071
Marine Impeller Kit, magnetic-drive	
for 1 L vessel	M1379-5072
for 3 L vessel	M1379-5073
for 5 L vessel	M1379-5074
for 10 L vessel	M1379-5075
Spinfilter Impeller Kit, for suspension cells (10 µm)	
for 1 L vessel	M1379-1125
for 3 L vessel	M1379-1126
for 5 L vessel	M1379-1127
for 10 L vessel	M1379-1128
Spinfilter Impeller Kit, for microcarriers (75 µm)	
for 1 L vessel	M1379-1135
for 3 L vessel	M1379-1136
for 5 L vessel	M1379-1137
for 10 L vessel	M1379-1138
Cell-Lift Impeller Kit, for microcarriers (80 µm), for BioFlo® 320	
for 1 L vessel	M1379-1110
for 3 L vessel	M1379-1111
for 5 L vessel	M1379-1112
for 10 L vessel	M1379-1113
Packed-Bed Impeller Kit, for BioFlo® 320	
for 1 L vessel	M1379-1140
for 3 L vessel	M1379-1141
for 5 L vessel	M1379-1142
for 10 L vessel	M1379-1143
Air Wash Kit, required with Cell-Lift impeller kits, for BioFlo® 320 and CelliGen 310, all vessel sizes	M1287-1150
Baffles, for BioFlo® 320	
for 1 L vessel	M1287-9217
for 3 L vessel	M1287-9218
for 5 L vessel	M1287-9219
for 10 L vessel	M1287-9220
Decanter Column	
for 1 L vessel	M1287-1190
for 3 L vessel	M1287-1191
for 5 L vessel	M1287-1192
for 10 L vessel	M1287-1193
Perfusion Kit, for BioFlo® 320, all vessel sizes	M1379-1185

BioFlo® 320 Bioreactor Accessories

	Rushton impeller				Pitched-blade impeller, 45° pitch					Marine Impeller			
Order no.	M1379-9295	M1379-9296	M1379-9297	M1379-9298	M1287-9227	M1287-9228	M1287-9229	M1379-9230	M1287-9230	M1287-9950	M1287-9952	M1379-9954	M1287-9954
1 L vessel	■				■					■			
3 L vessel		■				■				■			
5 L vessel			■				■				■		
10 L vessel				■				■[1)]	■[2)]			■[1)]	■[2)]

[1)] direct drive only, [2)] magnetic drive only, ■ = standard

Ordering information

Description	Order no.
Adaptor	
compression fitting, 6.35 mm port to 1/4 in tube	M1287-5034
compression fitting, 6.35 mm port to foam/level sensor	M1294-5022
compression fitting, Pg 13.5 port to 1/4 in tube	M1287-5033
compression fitting, Pg 13.5 port to 12 mm sensor	M1287-5030
compression fitting, Pg 13.5 port to foam/level sensor	M1287-5032
compression fitting, 19 mm port to 12 mm sensor	M1287-5037
Pg 13.5 port to tri-port (3 x 3.2 mm)	M1287-5035
Pg 13.5 port to 1 1/2 in tri-clamp	M1287-9544
19 mm port to 1 1/2 in tri-clamp	M1287-9545
19 mm port to 19 mm sensor	M1294-9542
Blind Plug	
6.35 mm port	M1294-9534
Pg 13.5 port	M1294-9540
19 mm port	M1294-9536
Septum Kit, Pg 13.5 port, 10 septa included	M1287-5031
Addition/Gas Overlay Kit, for Pg 13.5 port	M1287-5043
Foam/Level Sensor	
372 mm	M1273-5036
206.4 mm	F5-137C
User's Kit, fermentation and cell culture, autoclavable vessels, all vessel sizes	M1379-0110
Head Plate O-Ring Kit, for BioFlo®/CelliGen 310 and BioFlo® 320	M1379-0121
Tubing Connection Kit, kynar	M1379-0122
Teflon Ferrule Kit	M1379-0116
Quick Connect Kit, polysulfone	M1379-0135
Cable Tie Kit, 300 pieces	P0700-8125
Tubing Clamp, plastic, pack of 20	M1379-0155
Needle-Free Sampling Valve, set of 10	M1379-0131
Connector, barbed tube to female Luer, 1/4 in tube, set of 10	M1379-0130
Hose Barb, for sparge gas option/overlay gas option, pack of 4	M1379-0145

i For more information go to www.eppendorf.link/bioprocess

Ordering information

Description	Order no.
Spare Parts Kit, stainless-steel dished-bottom vessel	
1 L	M1287-6020
3 L	M1287-6021
5 L	M1287-6022
10 L	M1287-6023
Spare Parts Kit, water jacket	
1 L	M1287-6030
3 L	M1287-6031
5 L	M1287-6032
10 L	M1287-6033
Bearing Housing Cap, pack of 10	M1273-9936
Replacement Screen and O-Ring Kit, for Cell-Lift impeller	
1 L	M1287-9985
3 L	M1287-9986
5 L	M1287-9987
10 L	M1287-9988
Needle-Free Syringe, pack of 10	M1363-9910
Autoclave Rack, angled, for BioFlo® 320, all vessel sizes	XMF-8624
Autoclave Rack, for BioFlo® 320, low-profile, 10 L only	M1227-9231

Vessel	1 L	3 L	5 L	10 L
Baffles	M1287-9217	M1287-9218	M1287-9219	M1287-9220
Sampling assembly (glass bottle)	M1287-5042 (all vessel sizes)			
Sampling adaptor to 15/50 mL tube	M1287-9964 (for sampling assembly M1287-5042 only)			
Sampling tube	M1287-9486	M1287-9487	M1287-9487	M1287-9489
Harvest tube	M1287-9482	M1287-9483	M1287-9484	M1287-9485
Macrosparge	M1287-9475	M1287-9476	M1287-9477	M1287-9478
Microsparge	M1287-5010	M1287-5011	M1287-5012	M1287-5013
Thermowell	M1287-9213	M1287-9214	M1287-9215	M1287-9216
Glass vessel (dished-bottom)	M1287-9930	M1287-9931	M1287-9932	M1287-9933
Glass vessel (water-jacketed)	M1287-9920	M1287-9921	M1287-9922	M1287-9923
Head plate	M1287-6950	M1287-6951	M1287-6952	M1287-6953
Exhaust condenser	M1287-5039	M1287-5041	M1287-5041	M1287-5045
Bearing assembly (direct drive)	M1379-4031	M1379-4032	M1379-4033	M1379-4034
Direct-drive shaft	M1287-9470	M1287-9471	M1287-9472	M1287-9473
Bearing assembly (magnetic drive)	M1379-4035 (all vessel sizes)			
Magnetic-drive shaft	M1287-5050	M1287-5051	M1287-5052	M1287-5053

BioFlo®/CelliGen® Bioreactor Replacement Parts

Replacement Rings and Compression Fitting Ferrules

> Rings are available in 6 mm, 12 mm, and 19 mm size
> Ferrules are available in 3/16 inch, 1/4 inch, and 12 mm size
> Material: Teflon

Minimum order quantities may apply.

	BioFlo/CelliGen 115, BioFlo 120	BioFlo/CelliGen 310, BioFlo 320	BioFlo 415	BioFlo/CelliGen 510, BioFlo 610, BioFlo/ CelliGen Pro
1/4 inch back ferrule	-	H-1351	-	-
1/4 inch front ferrule	-	H-1350	-	-
12 mm back ferrule	P0240-3201	P0240-3201	-	-
12 mm front ferrule	P0240-3200	P0240-3200	-	-
3/16 inch back ferrule	H-1260	H-1260	H-1260	H-1260
3/16 inch front ferrule	H-1259	H-1259	H-1259	H-1259
6 mm ring	P0100-9860	-	-	-
12 mm ring	P0100-9870	-	-	-
19 mm ring	P0100-9920	-	-	-

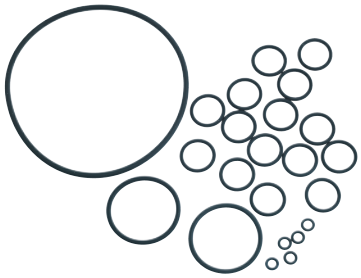
Replacement Septa

> Red rubber septum
> Validatable QMI 7-port and QMI 12-port septum

Minimum order quantities may apply.

	BioFlo/CelliGen 115, BioFlo 120	BioFlo/CelliGen 310, BioFlo 320	BioFlo 415	BioFlo/CelliGen 510, BioFlo 610, BioFlo/ CelliGen Pro
Septum	P0280-2690	P0280-2690	P0280-2690	P0280-2690
QMI 7-port	-	-	P0280-0640	P0280-0640
QMI 12-Port	-	-	-	P0280-0642
Harvest/Sample tube septum	-	-	P0280-0643	-

i For more information go to www.eppendorf.link/bioprocess



O-Rings

> Replacement o-rings are available for current and legacy Eppendorf bench-scale vessels
> Material of o-rings: EPDM

Minimum order quantities may apply.

	BioFlo/CelliGen 115, BioFlo 120 (heat-blanketed vessels)	BioFlo/CelliGen 115, BioFlo 120 (water-jacketed vessels)	BioFlo 310/320 (stainless-steel dished-bottom vessels)
6 /6.35 mm	P0280-5882	P0280-5882	P0280-5882
6 mm sample/foam port	P0280-6662	P0280-6662	-
12 mm	P0280-5352	P0280-5352	-
Pg 13.5	-	-	P0280-5912
19 mm	P0280-5962	P0280-5962	P0280-5952
Head plate	P0280-7922 (1L) P0280-8002 (2L) P0280-8122 (5L) P0280-8122 (10L)	P0280-7922 (1L) P0280-8002 (2L) P0280-8122 (5L) P0280-8122 (10L)	P0280-8002 (1L) P0280-8082 (3L) P0280-8122 (5L) P0280-8182 (10L)
Base (plate)	-	P0280-8622 (1L) P0280-8622 (2L) P0280-8682 (5L) P0280-8682 (10 L)	P0280-8002 (1L) P0280-8082 (3L) P0280-8122 (5L) P0280-8182 (10L)

	CelliGen 310, BioFlo 320 (water-jacketed vessels)	BioFlo 415	BioFlo/CelliGen 510, BioFlo 610, BioFlo/CelliGen Pro
6 /6.35 mm	P0280-5882	P0280-6662	-
6 mm sample/foam port	-	-	-
12 mm	-	P0280-5952	-
Pg 13.5	P0280-5912	P0280-5912	P0280-5912 (BioFlo/CelliGen 510/BioFlo 610)
19 mm	P0280-5952	P0280-5952	-
Head plate	P0280-8002 (1L) P0280-8082 (3L) P0280-8122 (5L) P0280-8182 (10L)	P0280-8512 (5L) P0280-8612 (10L) P0280-8612 (15L)	P0280-8222 (BioFlo/CelliGen 510-16L) P0280-8742 (BioFlo/CelliGen 510-32L) P0280-8742 (BioFlo 610-50L) P0280-8792 (BioFlo 610-100L) P0280-9385 (BioFlo Pro-60L) P0280-9365 (BioFlo Pro-120L/CelliGen Pro-60L) P0280-9375 (BioFlo Pro-240L/BioFlo Pro-2400L/ CelliGen Pro-120L) P0280-9315 (BioFlo Pro-400L) P0280-9415 (CelliGen Pro-240L) P0280-9395 (BioFlo Pro-800L/CelliGen Pro-500L P0280-9405 (BioFlo Pro-1200L)
Base (plate)	P0280-8082 (1L) P0280-8122 (3L) P0280-8182 (5L) P0280-8242 (10L)	-	-

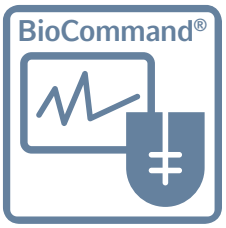
Software

Much more than just bioprocess control

Eppendorf offers several BioCommand Supervisory Control and Data Acquisition (SCADA) software packages to meet individual requirements in bioprocess control. The comprehensive DASware software suite stands for next generation bioprocess management with DASware control 6 as the key to parallel processing.

i For more information go to www.eppendorf.link/bioprocess

Our Portfolio – Your Choice

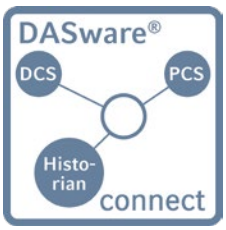


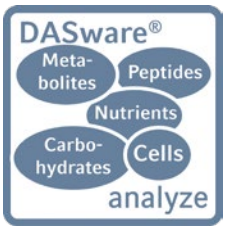
Model	BioCommand® SCADA Software	DASware® control
Page	**112**	**114**
Suitable systems	All BioFlo/CelliGen systems	DASbox, DASGIP, SciVario twin, BioFlo 120, BioFlo 320
Process control	■	■
Number of parallel units per controller	Up to 5	DASbox: up to 24 DASGIP: up to 16 SciVario twin: up to 8 BioFlo systems: up to 8
Automated data logging	■	■
Data historian	■	■
Remote control and monitoring (web browser)	■	■
Event logging	o	■
Online charts/trending	■	■
Analyzer integration	o	
Integration to third-party control systems	■	
Design of Experiments		
Configurable database queries and recipes	■[1)]	
Automated Microsoft® Excel® and Adobe® PDF export	■	■
Qualification Documents	o	IQ/OQ package optional

[1)] Recipes only

■ = standard, o = optional

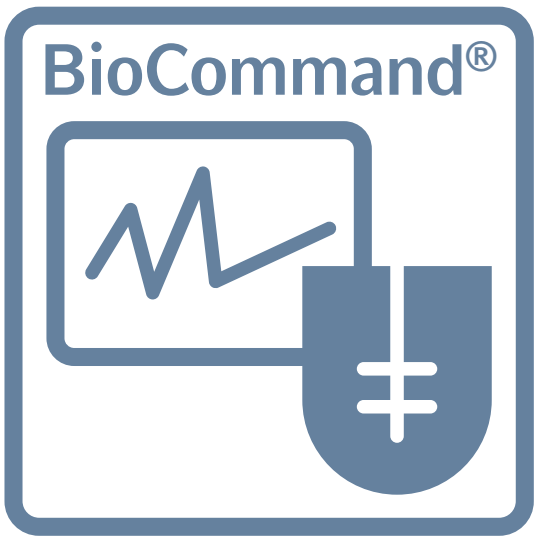
i For more information go to www.eppendorf.link/bioprocess





DASware® connect	DASware® analyze	DASware® design
116	**117**	**118**
DASbox, DASGIP, SciVario twin, BioFlo 120, BioFlo 320	DASbox, DASGIP, SciVario twin, BioFlo 120, BioFlo 320	DASbox, DASGIP, BioFlo 120, BioFlo 320
■	■	
		■

BioCommand® SCADA Software

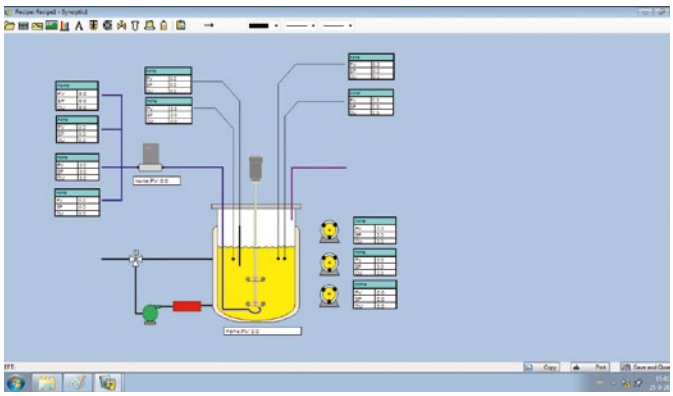


Description
Eppendorf offers three BioCommand software packages to enhance your ability to monitor, control, and log data from your fermentation and cell culture processes through your personal computer (PC). These Supervisory Control and Data Acquisition (SCADA) packages provide the tools needed for research, optimization, and if needed, the security and audit trails to support your regulatory requirements. All are OPC compatible to enable your fermentor or bioreactor to „talk" to any other OPC-compatible device in your lab or production facility.

Product features
> BioCommand Track and Trend: this entry-level package has been designed specifically for researchers and scientists requiring basic data management and monitoring capabilities. It provides the ability to trend and control parameter setpoints, establish alarm settings, and produce batch records; and is ideal for basic process management.
> BioCommand Batch Control: this intermediate package includes all the capabilities of Track and Trend, plus additional enhanced control features including a sophisticated programming module, custom synoptic display window, and equipment lock feature. The added control features of this software package make it ideal for optimizing your process.
> BioCommand Batch Control Plus: our premium package includes all of the features of the previous two packages, adding three levels of security, event logs, and audit-trail capabilities to be compatible with the FDA 21 CFR Part 11 requirements. The Batch Control Plus package allows the power of the New Brunswick BioCommand software to be utilized in validated processes.

i For more information go to www.eppendorf.link/bioprocess

Batch summary screen displays setpoints, current values, and more; custom trend screens allow you to compare and track all of your process data.



Synoptic screen provides graphical representation of process information.

Ordering information

Description	Order no.
BioCommand® Bioprocessing Software, Track and Trend	M1326-0000
BioCommand® Bioprocessing Software, Batch Control	M1326-0010
BioCommand® Bioprocessing Software, Batch Control Plus	M1326-0020

Accessories

Description	Order no.
Cable, for BioCommand®, RS-232-RS-422	M1286-8010
Connection Kit, for BioCommand®	M1286-0100
Converter, RS-232 serial pin-out to RS-422 cable connection	P0460-7550
Interconnecting Cable, for BioCommand® to controller connection, 50 ft/15.2 m	M1171-8010
RS-232 Interface Box, RS-232 to USB, 8 ports	M1287-0020
Ethernet Switch, 18 ports	P0460-2591

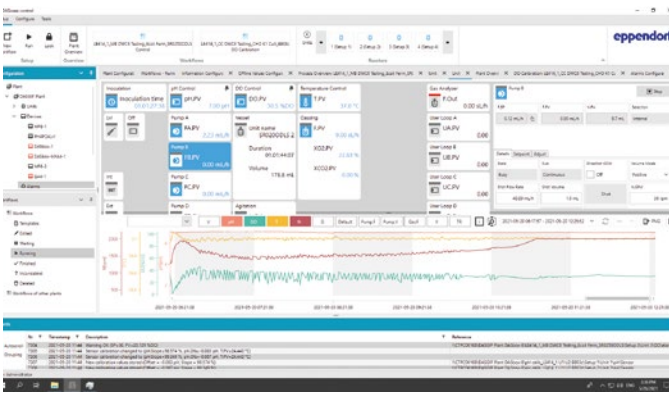
DASware® control

Description
DASware control is the bioprocess control software at the core of all DASGIP Parallel Bioreactor Systems and the DASbox Mini Bioreactor System and offers a parallel process design right from the scratch. Combined with extensive embedded process automation features, intelligent recipe management and integrated report generating capabilities it delivers an unprecedented level of integral process documentation.
The seamless integration of industry-leading OPC communication enables implementation of a host of solutions associated with QbD, DoE, PAT and the like. These are offered in the powerful DASware solution suite that integrates with DASware control.

Product features
> Parallel process control with individual control of each vessel: DASbox Mini Bioreactor System: up to 24 vessels, DASGIP Parallel Bioreactor Systems: up to 16
> Seamless integration with SciVario twin and BioFlo systems (up to 8 controllers)
> Integrated batch functionality for process and recipe management
> Ideally suited for Design of Experiments (DoE)
> Parallel calibration and cleaning procedures
> Customized views and user-defined functions
> Automated data export, reporting and chart creation for Microsoft® Excel®
> Professional database with managed access (Postgre SQL Server)
> OPC communication for easy integration with third party-equipment using DASware connect and DASware analyze
> Online batch-to-batch comparison, integrated analysis of offline values, online calculated values, and alarm notification
> IQ/OQ package available

i For more information go to www.eppendorf.link/bioprocess

The parallel design of DASware control allows for the operation of a DASGIP Parallel Bioreactor System with up to 16 vessels.

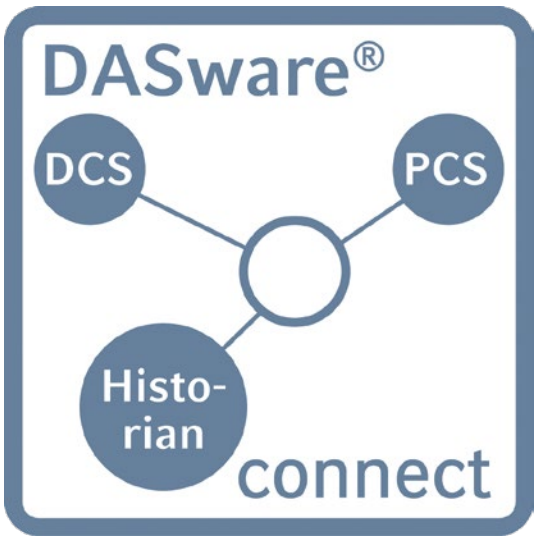


In the Process View of DASware control, the user finds all relevant information at a glance and can access and edit individual parameter settings.

Ordering information

Description	Order no.
DASware® control, including PC, OS, and licenses	
for 4-fold DASGIP® system	76DGCS4
for 8-fold DASGIP® system	76DGCS8
for 12-fold DASGIP® system	76DGCS12
for 16-fold DASGIP® system	76DGCS16
for 4-fold DASbox® Mini Bioreactor System	76DXCS4
for 8-fold DASbox® Mini Bioreactor System	76DXCS8
for 12-fold DASbox® Mini Bioreactor System	76DXCS12
for 16-fold DASbox® Mini Bioreactor System	76DXCS16
for 20-fold DASbox® Mini Bioreactor System	76DXCS20
for 24-fold DASbox® Mini Bioreactor System	76DXCS24
DASware® control Upgrade, for DASGIP® system, incl. database update and licenses	
adding 4 vessels	76DGCS+4
DASware® control Upgrade, for DASbox® Mini Bioreactor System, incl. database update and licenses	
adding 4 vessels	76DXCS+4
Software Update, from DASGIP® control 4.X or DASware® control 5.X to DASware® control 6	
for 4 vessels, (with Windows®10)	76DWC6UPD
for BioFlo, (with Windows®10)	76DWC6UPDBF
for SciVario twin, (with Windows®10)	76DWC6UPDSVT

DASware® connect



Description
DASware connect was designed to integrate DASbox and DASGIP systems, SciVario twin, and BioFlo/CelliGen bioprocess control stations into process control systems and legacy corporate historians. This includes but is not limited to Emerson® DeltaV™, Siemens® SIMATIC PCS 7®, ABB® 800 xA, OSIsoft® PI System and MatrikonOPC® Historian. DASware connect facilitates company-wide access to all relevant bioprocess data like set-points, process values, feed profiles, calibration and controller parameters as well as events and alarms.

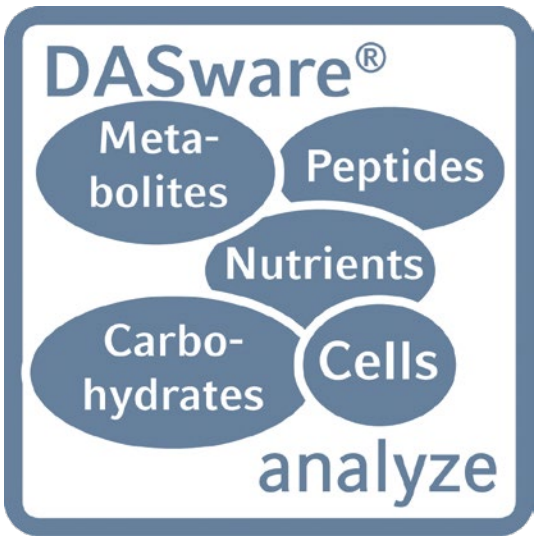
Product features
> Integration of bioreactor systems into legacy control systems and corporate historians using OPC technology
> Interfacing with scientific software packages like LabVIEW® and MATLAB®
> Enables, among others, the integration into: Emerson DeltaV, Siemens SIMATIC PCS 7, ABB 800xA, OSIsoft PI System, Matrikon OPC Historian

Ordering information

Description	Order no.
DASware® connect, OPC server (OPC DA for ext. PCS), for 1 vessel	76DWCON

i For more information go to www.eppendorf.link/bioprocess

DASware® analyze



Description
DASware analyze enables seamless integration of sampling and analytical laboratory devices to the bioreactor system. A broad and growing range of analyzers can be integrated, among them nutrient analyzers, cell counters, biomass monitors, HPLC and mass spectrometers. The OPC network protocol as well as the Modbus® protocol allows for interconnectivity between the bioreactor system and the analyzer, including the possibility of direct feedback from the bioreactor system according to online measured analytical data. This facilitates feedback control loops for nutrients, biomass or product concentrations. Online calculations as well as event- and data-driven decisions are supported. The bidirectional OPC communication, available for supporting devices enables sampling on demand and process-dependent analyzer panel selection.

Product features
> Integration of third-party lab devices into bioreactor control units
> Enables bidirectional OPC interconnectivity, process-triggered feedback control loop and sampling on demand
> Allows for online calculations and event- or data-driven decisions
> Users benefit from integration of existing benchtop equipment, better process understanding and optimal process control
> Integration includes nutrient analyzers and cell counters, biomass monitors, mass spectrometers, automation platforms and autosamplers, HPLC, and Raman spectroscopy

Ordering information

Description	Order no.
DASware® analyze, OPC client standard (OPC DA e.g. for external analyzer), for 1 vessel	76DWANA
DASware® analyze, serial/Modbus integration (e.g. for external biomass sensors), license for 1 vessel	76DWANAM
DASware® analyze, cable and license	
for 4 Aber® Futura® sensors	76DWANA4AF
for 4 Hamilton® Fogale sensors	76DWANA4HF

DASware® design

Description
The DASbox Mini Bioreactor System and the DASGIP Parallel Bioreactor Systems serve as ideal platforms to carry out Design of Experiments (DoE) on bioreactors in parallel. DASware design automatically compiles DoE information from DoE software tools into recipes and feedback response information into DoE and multivariate analysis and reporting tools.
The software comes with a full factorial DoE builder. Alternatively, a large variety of DoE designs for screening, process development and optimization can be automatically imported from third-party DoE tools. Parallel recipes incorporating the DoE factor variations (i.e. pH, DO, temperature set-points or feed rates) are automatically populated. Following our Point-Click-Grow concept they can be carried out on a set of bioreactors with a single mouse-click.

Product features
> Built-in full factorial DoE: easy definition of experimental factors and responses; center points and randomized positioning of runs
> Integration of third-party DoE tools
> Recipe generator supporting multiple system layouts

Ordering information

Description	Order no.
DASware® design, DoE and local information management, license for 1 vessel	76DWDOE

i For more information go to www.eppendorf.link/bioprocess


DASware®
DoE
design

Monitoring & Control

Flexible solutions for monitoring & control

Eppendorf DASGIP® bioprocess analyzer modules deliver accurate measurement of critical process parameters allowing real-time monitoring (and control) of pH, dissolved Oxygen, temperature, ORP/redox, level/anti foam, cell density and exhaust. In addition, the DASGIP line includes variable speed pumps, and TMFC gassing stations. The DASGIP EasyAccess software package allows the modules to be operated as stand-alone solutions.

i For more information go to www.eppendorf.link/bioprocess

Our Portfolio – Your Choice

Model	DASGIP® PHPO	DASGIP® GA	DASGIP® OD4
Page	**124**	**126**	**128**
Number of parallel bioreactors per module	4/ 8	4/2/1	4
Operable as stand-alone		■	■
pH monitoring and control	■		
DO monitoring and control	o		
Level/foam monitoring and control	o		
ORP (redox) monitoring and control	o		
Optical density measurement			■
Exhaust analysis		O_2, CO_2, OTR, CTR, RQ	
Feeding			
Gas flow control			
Gas mixing			
Temperature control			
Agitation control			

■ = standard, o = optional

OTR = Oxygen transfer rate, CTR = Carbon Dioxide transfer rate, RQ = Respiratory Quotient

i For more information go to www.eppendorf.link/bioprocess

DASGIP® MP
129
4
■
■

DASGIP® TC4SC4
130
4
■
■
■

DASGIP® MF4
133
4
■
TMFC
1 gas (e.g. air, N_2, O_2, CO_2)

DASGIP® MX
134
4 / 1
■
TMFC
1/2/4 gas (air, N_2, O_2, CO_2)

DASGIP® PHPO for Monitoring of pH, DO, Redox and/or Level

Description
Eppendorf provides a range of DASGIP bioprocess monitoring modules delivering precise measurement and real-time control of pH, dissolved oxygen (DO), redox potential (ORP) and/or level/foam. Industry standard sensors can be connected. The monitoring systems enable parallel monitoring of four or eight pH sensors with temperature compensation. Additionally, up to two Pt100 temperature sensors can be connected and two 0/4-20mA/0-10V analog inputs provide external signal integration. An easy-to-use one- or two-point calibration procedure for pH, DO and temperature is integrated for use with DASware® control.
The four-channel modules PHPO (configured for pH and DO control) and PHPORD (pH, DO and ORP) each feature four optional conductivity-based level inputs. These inputs can be used for level control during continuous operation or automated antifoam addition.

Applications
> Parallel monitoring and control of crucial process parameters in cell culture and microbiology
> Seamless integration with DASGIP Parallel Bioreactor System

Product features
> Parallel monitoring of four or eight pH sensors with temperature compensation and precise control
> PHPO modules feature additional DO control and optional level/foam control
> PHPORD module for four vessels features additional ORP control and optional level/foam control
> Easy-to-use one- or two-point calibration procedure for pH, DO and temperature

i For more information go to www.eppendorf.link/bioprocess

Technical specifications

Model	PH4PO4	PH4PO4L	PH8PO8	PH4RD4	PH4PO4RD4L
Dimensions (W × D × H)	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in
Weight	8 kg	8 kg	8.2 kg	8 kg	9.4 kg
Typical power consumption	31 W (230 V) / 20 W (115 V)	31 W (230 V) / 20 W (115 V)	31 W (230 V) / 20 W (115 V)	31 W (230 V) / 20 W (115 V)	31 W (230 V) / 20 W (115 V)
pH measurement					
Channels	4	4	8	4	4
Measurement range (depending on sensor)	0 – 14	0 – 14	0 – 14	0 – 14	0 – 14
DO measurement					
Channels	4	4	8	–	4
Measurement range (depending on sensor)	0 – 500 % DO	0 – 500 % DO	0 – 500 % DO	–	0 – 500 % DO
Temperature compensation/measurement					
Pt100 inputs	2	2	2	2	2
NTC inputs[1)]	4	4	8	–	4
Redox/ORP measurement					
Channels	–	–	–	4	4
Measurement range (depending on sensor)	–	–	–	-2000 – 2000 mV	-2000 – 2000 mV
Level measurement					
Channels	–	4	–	–	4

[1)] NTC = Negative Temperature Coefficient

Ordering information

Description	Order no.
DASGIP® PH4PO4 Monitoring Module, for 4 vessels, without sensors, pH and DO	76DGPH4PO4
DASGIP® PH4PO4L Monitoring Module, for 4 vessels, without sensors, pH and DO with level/anti foam option	76DGPH4PO4L
DASGIP® PH8PO8 Monitoring Module, for 8 vessels without sensors, pH and DO	76DGPH8PO8
DASGIP® PH4PO4RD4L Monitoring Module, for 4 vessels, without sensors, pH, DO and redox with level/anti foam option	76DGPH4PO4RDL

Accessories

Description	Order no.
DO Cable, for DO sensor, for 1 vessel, T82 connector	76DGPOT82
Foam/Level Cable, for connecting a level sensor to a DASGIP® module, for 1 vessel	76DGLVLC
DO Cable, for DO sensor (optical), for 1 vessel, VP8 connector	76DGPOVP8
pH/Redox Cable, for pH/Redox Sensor, for 1 vessel, AK9 connector	76DGPHRDAK9
Platinum RTD Temperature Sensor, 100 Ohm class A, O.D. 1.6 mm, L 300 mm, cable L 3 m	78103304

i For sensors, see page 152- 168.

DASGIP® GA for Exhaust Analysis

Description
The DASGIP GA4 exhaust analyzer supports precise online measurement of exhaust oxygen and carbon dioxide in four discrete analyzer channels. An integrated mass flow sensor allows online calculation and monitoring of oxygen transfer rate (OTR), carbon dioxide transfer rate (CTR) and respiratory quotient (RQ), permitting direct conclusions on the metabolic state of the culture and online feedback loops. Optionally the DASGIP GA4 can be equipped with an analog input/output interface for easy integration into third party systems.

Product features
> Online calculation of OTR, CTR and RQ allowing for direct feedback
> Available with two alternative electrochemical O_2 sensors to best serve individual customer's needs (1 – 50 % O_2 or 0 – 100 % O_2)
> Can be operated as a stand-alone solution with EasyAccess Software
> Humidity and temperature compensation (rHT option)

i For more information go to www.eppendorf.link/bioprocess

Technical specifications

Model	DASGIP® GA	DASGIP® GA4E
Dimensions (W × D × H)	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in
Weight	12.1 kg	12.1 kg
Typical power consumption	47 W (230 V)/36 W (115 V)	47 W (230 V)/36 W (115 V)
Exhaust oxygen measurement		
Channels (O_2, CO_2, mass flow each)	4	4
Measuring principle	Zirconium Dioxide (ZrO_2)	Galvanic Cell
Measurement range	1 – 50 %	0 – 100 %
Pressure range	0,8 – 1,2 bar	0,8 – 1,2 bar
Channels	4	4
Exhaust carbon dioxide measurement		
Measurement range	0 – 25 %	0 – 25 %
Pressure range	0,8 – 1,2 bar	0,8 – 1,2 bar
Mass flow measurement		
Measurement range	0 – 300 sL/h	0 – 300 sL/h

Ordering information

Description	Order no.
DASGIP® GA4 Exhaust Analyzing Module, including accessories for 4 vessels, including analog I/O option	
O_2 1 – 50 % and CO_2 0 – 25 %	76DGGA4X
O_2 0 – 100 % and CO_2 0 – 25 % (GA4E)	76DGGA4EX
DASGIP® GA4 Stand-Alone Exhaust Analyzing Module, including analog I/O option, including accessories, without relative humidity measurement	
for 1 vessel, O_2 1 – 50 % and CO_2 0 – 25 %	76DMGA1X
for 1 vessel, O_2 0 – 100 %, CO_2 0 – 25 % (GA1E)	76DMGA1EX
for 2 vessels, O_2 1 – 50 % and CO_2 0 – 25 %	76DMGA2X
for 2 vessels, O_2 0 – 100 %, CO_2 0 – 25 % (GA2E)	76DMGA2EX
for 4 vessels, O_2 1 – 50 % and CO_2 0 – 25 %	76DMGA4X
for 4 vessels, O_2 0 – 100 %, CO_2 0 – 25 % (GA4E)	76DMGA4EX

Accessories

Description	Order no.
Kit to Compensate Relative Humidity and Temperature, for DASGIP® GA4	
including accessories, for 1 vessel	76DGGA1RHT
including accessories, for 2 vessels	76DGGA2RHT
including accessories, for 4 vessels	76DGGA4RHT

DASGIP® OD4 for Optical Density Monitoring

Description
The DASGIP OD4 monitoring module is suitable for applications in cell culture and microbiology enabling parallel optical absorbance measurement in 4 bioreactors. Integrated correlations to offline parameters such as OD_{600} or cell dry weight (CDW) provide online cell growth information. The DASGIP OD4 module can be operated as a stand-alone module or be integrated into legacy control systems and historians.

Product features
> Optical absorbance measurement in 4 bioreactors
> Runs with industry standard sensors, various sensor sizes available
> Integrated correlation to user-defined offline values
> Can be operated as a stand-alone solution with EasyAccess Software

Technical specifications

Model	**DASGIP® OD4**
Dimensions (W × D × H)	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in
Weight	7.6 kg
Typical power consumption	21 W (230 V)/11 W (115 V)
OD measurement	
Channels	4
Measurement range (depending on sensor)	0 – 5 AU

Ordering information

Description	Order no.
DASGIP® OD4 Monitoring Module for Optical Density Measurement, for 4 vessels, including transmitter and cables, without sensors	76DGOD4
DASGIP® OD4 Stand-Alone Monitoring Module for Optical Density Measurement, for 4 vessels, including transmitter and cables, without sensors, including DASGIP® EasyAccess software	76DMOD4

i For OD sensors, see page 170.

i For more information go to www.eppendorf.link/bioprocess

DASGIP® MP8 and MP4 Multi Pump Modules

Description
DASGIP variable speed pump modules MP8 and MP4 provide eight and four high precision speed controlled miniature peristaltic pumps, respectively. Pump head tubings with different inner diameters allow continuous flow rates from 0.3 – 420 mL/h (MP8) and 0.01 – 5 L/h (MP4). With set points below the minimum continuous flow rate duty cycling mode is activated automatically. Both modules can be operated as stand-alone solutions or be integrated into legacy control systems.

Product features
> Bidirectional peristaltic pump heads with digitally controlled variable speed motors
> Continuous feed rates (depending on tube diameter) of 0.3 – 420 mL/h (MP8) and 0.01 – 5 L/h (MP4)
> Embedded parallel calibration procedures
> Can be operated as stand-alone solutions with EasyAccess Software

Technical specifications

Model	MP8	MP4
Dimensions (W × D × H)	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in
Weight	8.1 kg	10.3 kg
Typical power consumption	8 W (230 V)/5 W (115 V)	11 W (230 V)/8 W (115 V)
Pumps		
Quantity	8	4
Variant	Pump head with 4 rollers	Spring mounted 2-roller rotor
Drive	Speed-controlled planetary drive	Speed-controlled planetary drive
Operational modes	Continuous and dispensing	Continuous and dispensing
Tubes		
Standard material	PTFE	PTFE/C-Flex
Inner diameter (flow rates)	0.25 mm (0.3 – 9.5 mL/h) 0.5 mm (1.3 – 42 mL/h) 1.0 mm (4.0 – 122 mL/h) 2.0 mm (13 – 420 mL/h)	0.5 mm (0.01 – 0.07 L/h) 0.8 mm (0.02 – 0.22 L/h) 1.6 mm (0.06 – 0.74 L/h) 2.4 mm (0.13 – 1.57 L/h) 3.2 mm (0.23 – 2.72 L/h) 4.8 mm (0.43 – 5.04 L/h)

Ordering information

Description	Order no.
DASGIP® MP4 Multi Peristaltic Pump Module, for 4 feeds, without feed lines and addition bottles	76DGMP4
DASGIP® MP8 Multi Peristaltic Pump Module, for 8 feeds, without feed lines and addition bottles	76DGMP8
DASGIP® MP4 Stand-Alone Multi Peristaltic Pump Module, for 4 feeds, without feed lines and addition bottles, including DASGIP® EasyAccess software	76DMMP4
DASGIP® MP8 Stand-Alone Multi Peristaltic Pump Module, for 8 feeds, without feed lines and addition bottles, including DASGIP® EasyAccess software	76DMMP8
DASGIP® MP8 Multi Peristaltic Pump Module, for 8 feeds, without feed lines and addition bottles, including analog I/O option	76DGMP8X

Accessories

Description	Order no.
Package to Support Calibration of DASGIP® MP4/MP8, including balance	
for 4 vessels	76DGMPAC4
for 8 vessels	76DGMPAC8

i For balances, see page 147.

DASGIP® TC4SC4 for Temperature and Agitation Control

Description
DASGIP TC4SC4 Modules for Temperature and Agitation Control provide individual stirring speed and temperature control for four bioreactors. Depending on the overhead drive stirring speeds ranging from 30 to 1,600 rpm can be achieved. For temperature control the TC4SC4 supplies four electrical outlets to switch cooling valves. The TC4SC4B module allows a seamless integration with the compact temperature control system DASGIP Bioblock.

Product features
> Individual temperature and agitation control for 4 vessels
> Powerful stirring up to 1,600 rpm supports high oxygen transfer rates in microbial applications
> Gentle cultivation of animal and human cells is achieved with continuously adjustable agitation speeds down to 30 rpm
> Use of the TC4SC4B module in combination with the DASGIP Bioblock enables advanced temperature control up to 99 °C
> Supports freely programmable scripts, trigger automation, user-defined profiles and DO cascades (integrated in DASGIP Parallel Bioreactor System)
> Can be operated as a stand-alone solution with EasyAccess Software

i For more information go to www.eppendorf.link/bioprocess

Technical specifications	
Model	**TC4SC4B**
Dimensions (W × D × H)	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in
Weight	9 kg
Temperature control	
Set-up	DASGIP Bioblock
Typical control range (depending on set-up)	5 K above cooling agent temperature – 99 °C
Agitation control	
Set-up	Overhead drives
Typical speed range (depending on drive)	30 – 1,250 rpm/ 100 – 1,600 rpm

Ordering information

Description	Order no.
DASGIP® TC4SC4 Temperature and Agitation Control Module, without sensors, for DASGIP® Bioblock and overhead drives (TC4SC4B), for 4 vessels	76DGTC4SC4B

Accessories

Description	Order no.
Overhead Drive, RE30 (magnetic), 30 – 1250 rpm, digitally encoded, for 1 BioBLU® 1 Single-Use Vessel	76DGRE30SU01
Overhead Drive, RE40 (magnetic), 100 – 1600 rpm, digitally encoded, for 1 BioBLU® 1 Single-Use Vessel	76DGRE40SU01
Overhead Drive, RE30, 30 – 1250 rpm, digitally encoded, for 1 vessel	76DGRE30
Overhead Drive, RE40, 100 – 1600 rpm, digitally encoded, for 1 vessel	76DGRE40

DASGIP® Bioblock

Description
The compact DASGIP Bioblock combined with the DASGIP TC4SC4B Module for Temperature and Agitation Control provides an integrated solution for accurate and independent temperature control for 4 bioreactors with overhead-driven agitation.
Each well is equipped with an individual electrical heating element featuring an integrated safety temperature sensor as well as separate cooling coils, activated by solenoid valves. A wide choice of DASGIP vessels suitable for the Bioblock is available (working volumes ranging from 200 mL – 2 L), including single-use vessels BioBLU 1c and 1f.

Product features
> Compact solution for 4 vessels with a footprint of 425 x 520 mm (17 x 20 in)
> Accurate temperature control up to 99 °C, individually in each well
> Wide range of Bioblock-suitable glass and single-use vessels for cell culture and microbiology
> Vessels can be directly inserted into the Bioblock without any additional connections

Technical specifications

Model	**DASGIP® Bioblock**
Dimensions (W × D × H)	425 × 520 × 130 mm / 16.7 × 20.4 × 5.1 in
Weight	18 kg
Typical power consumption (incl. DASGIP TC4SC4)	309 W/298 W (230 V)/ 323 W/297 W (115 V)
Suitable working volumes	200 mL – 1.6 L (cell culture)/ 200 mL – 1.8 L (microbiology)
Adjustable temperature range	5 K above cooling agent temperature – 99 °C

Ordering information

Description	**Order no.**
DASGIP® Bioblock, 4-position heating/cooling block, max. temp. 99 °C, for 4 vessels	76DGTBLOCK

Accessories

Description	**Order no.**
DASGIP® CWD4 Cooling Water Distribution Unit, including connection cable	
for 4 condenser-/ and 4 cooling finger ports (DASGIP® CWD4+4)	76DGCWD44
for 4 condenser ports (DASGIP® CWD4)	76DGCWD4
Accessories	
for DASGIP® CWD4+4, for 4-fold system	76DGCWD44UM
for DASGIP® CWD4, for 4-fold system	76DGCWD4UM
Inline Water Filter, for parallel DASGIP® Bioblock or benchtop systems, including accessories for 4-fold or 8-fold systems	76DGIWF

i For more information go to www.eppendorf.link/bioprocess

DASGIP® Rotameters and Gassing Modules

DASGIP® WRM Rotameter Gassing Station

> Designed to be mounted to the DASGIP Bioblock
> Supplying four-channel rotameter gassing
> Up to 75 sL/h or up to 260 sL/h gas flow rates

Ordering information

Description	Order no.
DASGIP® WRM Rotameter Gassing Station, for 4 vessels, rotameter and manual valves	
1 – 75 sL/h	76DGWRM
1 – 260 sL/h	76DGWRMH

Accessories

Description	Order no.
Stand for Rotameter Gassing Station, for 1 DASGIP® WRM	76DGWRMRX4
Stand for Rotameter Gassing Station, for 2 DASGIP® WRM	76DGWRMRX8

DASGIP® MF4 for TMFC Gas Supply

> Gassing of one bioreactor with four separate thermal mass flow-controlled (TMFC) channels
> Selectable gas types, including air, N_2, O_2, CO_2
> Individual set-points for each inlet gas
> Constant flow rates up to 1200 sL/h

Ordering information

Description	Order no.
DASGIP® MF4 Gassing Module, for 4 vessels, mass flow controller	
1 – 30 sL/h, 1 – 18 sL/h CO_2	76DGMF4F030
4 – 120 sL/h, 4 – 72 sL/h CO_2	76DGMF4F120
10 – 300 sL/h, 10 – 180 sL/h CO_2	76DGMF4F300
20 – 600 sL/h, 20 – 360 sL/h CO_2	76DGMF4F600
40 – 1200 sL/h, 40 – 720 sL/h CO_2	76DGMF4F1200

DASGIP® MX Modules for TMFC Gas Mixing

Description

The DASGIP MX4/4 gas mixing system supplies four separate culture vessels with independent mixtures of air, nitrogen, oxygen and carbon dioxide. Each gas outlet has separate setpoints for flow rate, and concentrations of O_2 and CO_2. The standard MX4/4 module with a maximum gas flow rate of 50 sL/h per outlet covers a wide range of microbial and cell culture applications. For applications with a higher gas flow rate demand, the MX4/4H provides up to 250 sL/h per gas outlet.

The DASGIP MX4/1 model suits pilot scale by providing one vessel with flow rates up to 1200 sL/h. Optional pressure sensors allow safe operation of glass bioreactors, BioBLU® Single-Use Bioreactors, and disposable bags.

Product features

> Thermal mass flow-controlled (TMFC) gassing of one (MX4/1) or up to 4 (MX4/4) bioreactors
> Individual gas mixing from air, N_2, O_2 and CO_2
> Gas flow rates ranging from 0.1 – 50 sL/h (MX4/4) to 40 – 1200 sL/h (MX4/1)
> Can be operated as a stand-alone solution with EasyAccess Software

i For more information go to www.eppendorf.link/bioprocess

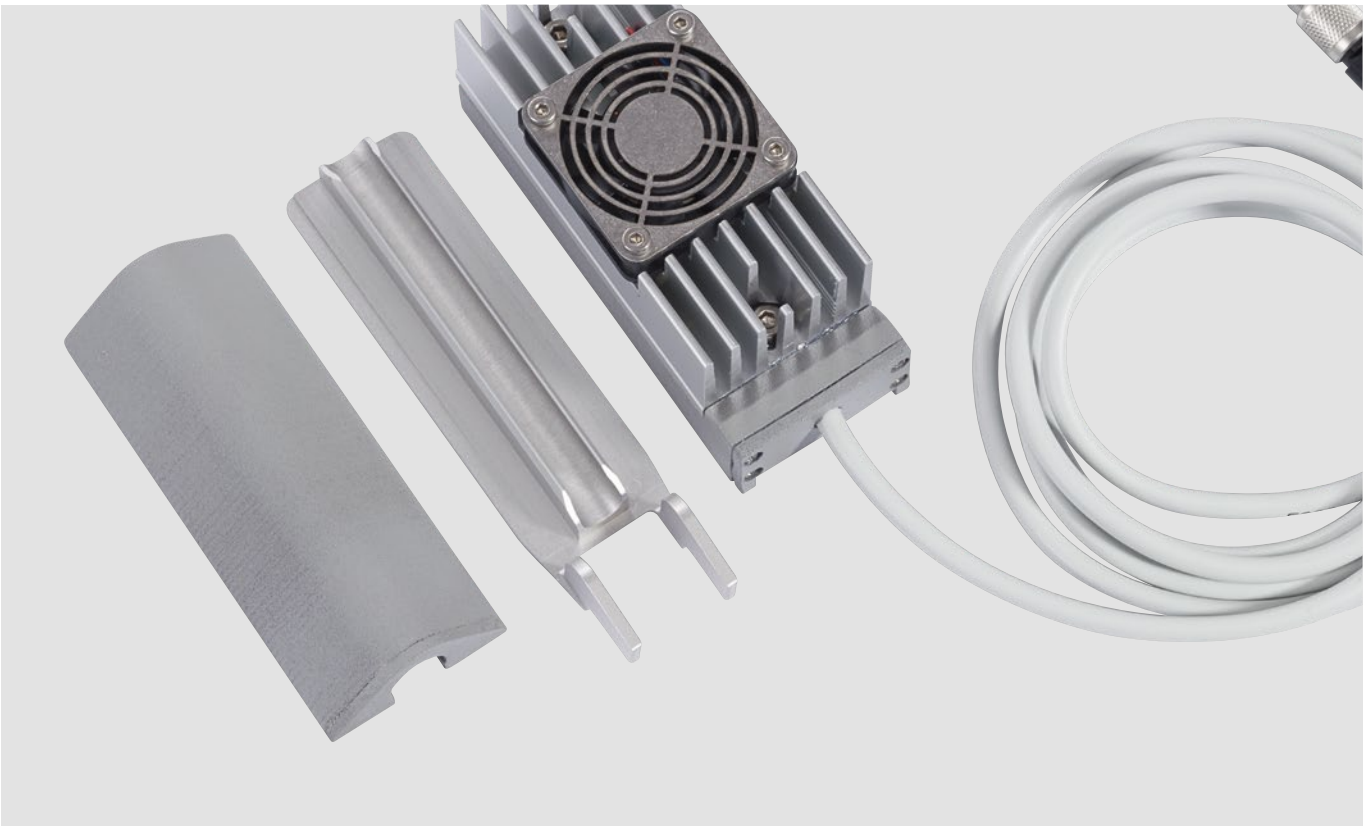
Technical specifications

Model	MX4/4	MX4/4H	MX4/1
Dimensions (W × D × H)	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in
Weight	16 kg	16 kg	10.2 kg
Typical power consumption	100 W (230 V)/ 90 W (115 V)	100 W (230 V)/ 90 W (115 V)	100 W (230 V)/ 90 W (115 V)
Gas inlet			
Quantity	4	4	4
Gas types	Air, O_2, CO_2, N_2	Air, O_2, CO_2, N_2	Air, O_2, CO_2, N_2
Gas outlet			
Quantity	4	4	1
Flow rates (CO_2)	0.1 – 50 sL/h (CO_2:0.1 – 40 sL/h)	0.5 - 250 sL/h (CO_2:0.5 – 150 sL/h)	1 – 30 sL/h (CO_2:1 - 18 sL/h) 4 – 120 sL/h (CO_2:4 - 72 sL/h) 10 – 300 sL/h (CO_2:10 - 180 sL/h) 20 – 600 sL/h (CO_2:20 - 360 sL/h) 40 – 1200 sL/h (CO_2:40 - 720 sL/h)

Ordering information

Description	Order no.
DASGIP® MX4/4 Gas Mixing Module, mass flow controller, 0.1 – 50 sL/h, 0.1 – 40 sL/h CO_2	
for 4 vessels	76DGMX44
DASGIP® MX4/4 Gas Mixing Module, mass flow controller, 0.5 – 250 sL/h, 0.5 – 150 sL/h CO_2	
for 4 vessels	76DGMX44H
DASGIP® MX4/1 Gas Mixing Module, for 4 vessels (4x MX4/1), mass flow controller	
20 – 600 sL/h	76DGMX41F600
10 – 300 sL/h	76DGMX41F300
4 – 120 sL/h	76DGMX41F120
1 – 30 sL/h	76DGMX41F030
40 – 1200 sL/h	76DGMX41F1200
DASGIP® MX4/4 Stand-Alone Gas Mixing Module, for 4 vessels, mass flow controller	
0.1 – 50 sL/h, 0.1 – 40 sL/h CO_2, including 2x 30 m gas tube and DASGIP® EasyAccess	76DMMX44
0.5 – 250 sL/h, 0.5 – 150 sL/h CO_2 (MX4/4H), including 2x 30 m gas tube and DASGIP® EasyAccess software	76DMMX44H
DASGIP® MX4/1 Stand-Alone Gas Mixing Module, for 1 vessel, mass flow controller	
20 – 600 sL/h, including 2x 30 m gas tube and DASGIP® EasyAccess software	76DMMX41F600
10 – 300 sL/h, including 2x 30 m gas tube and DASGIP® EasyAccess software	76DMMX41F300
4 – 120 sL/h, including 2x 30 m gas tube and DASGIP® EasyAccess software	76DMMX41F120
1 – 30 sL/h, including 2x 30 m gas tube and DASGIP® EasyAccess software	76DMMX41F030
40 – 1200 sL/h, including 2x 30 m gas tube and DASGIP® EasyAccess software	76DMMX41F1200

Accessories



Sensors, chillers, scales, and more

i For more information go to www.eppendorf.link/bioprocess

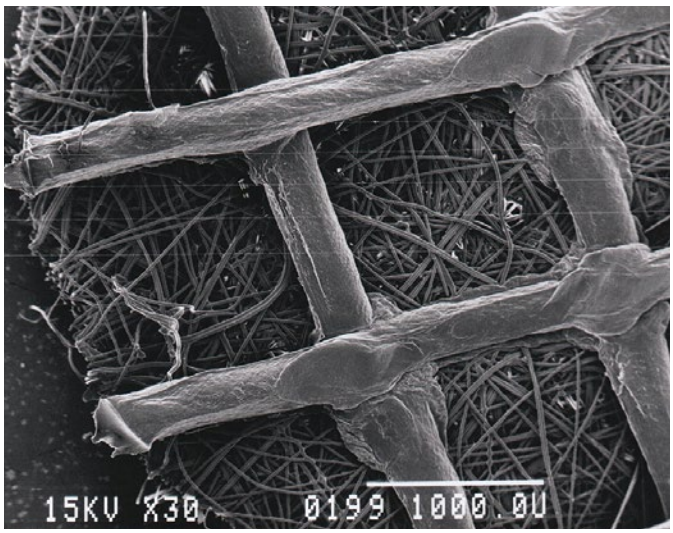
Fibra-Cel® Disks

Description
Fibra-Cel is a solid support growth matrix for mammalian, animal, and insect cells, used predominantly for production of secreted products such as recombinant proteins and viruses. Fibra-Cel enables sustained long-term periods of high-density growth in perfusion, without danger of clogging; and eliminates the need for cell filtration to separate cells from the end product.

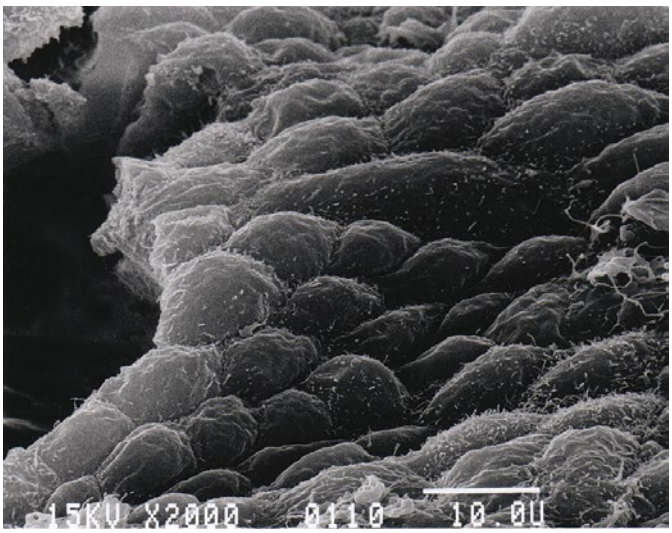
Applications
> **Hybridoma:** DA4-4, 123A, 127A, GAMMA, 67-9-B
> **Anchorage-Dependent:** 3T3, COS, Human Osteosarcoma, MRC-5, BHK, VERO, CHO, rCHO-tPA, rCHO - Hep B Surface Antigen, HEK 293, rHEK 293, rC127 - Hep B Surface Antigen, Normal Human Fibroblasts, Stroma, Hepatocytes
> **Insect:** Tn-368, SF9, rSF9, Hi-5

Product features
> Low pressure drop across the bed of Fibra-Cel minimizes the variability and maintains a global viability of cells over the entire bed
> High surface-to-volume ratios increases the total biomass that can be maintained in the bioreactor greatly enhancing production of cellular products
> Entrapped cells are shielded from the turbulence and are less susceptible to shear forces from impeller blades and sparger gas bubbles
> Higher mass transfer of nutrients and oxygen versus standard microcarrier systems
> Fibra-Cel is manufactured and tested according to strict quality guidelines
> Composed of USP Class VI polypropylene and polyester non-woven fiber

i For more information go to www.eppendorf.link/bioprocess



High-resolution micrograph of a Fibra-Cel disk indicating the polyester mesh with polypropylene support



HEK-293 cells grown on Fibra-Cel disk at day 7 of the growth cycle

Ordering information

Description	Order no.
Fibra-Cel® Disks	
50 g	M1292-9984
150 g	M1292-9992
250 g	M1292-9988
1 kg	M1292-9974

Custom package sizes available on request.

System Accessories

Interface Kit for RS-232 Device

> The RS-232 Device Interface Kit provides the ability to integrate up to eight simple RS-232 devices into your fermentation process to obtain weight measurements, flow rates or other data. Direct connection to selected controllers, provides direct integration in the touchscreen control software.
> Integration into OPC compatible BioCommand® packages provides the possibility for the development of powerful feed strategies based on weights or pump flow rates.
> The kit includes one USB cable to connect to your PC and an eight-port RS-232 serial box.
> This kit is designed to communicate with Mettler Toledo® scales which use SICS level 0 communication protocol.

Ordering information

Description	Order no.
RS-232 Interface Box, USB to RS-232, 8 RS-232 ports	1385 504 100

Analog Input/Output Module

> OPC server interface
> Communicates with OPC-compatible BioCommand® packages for total process control (requires a computer with USB connection)
> User-definable 0 – 5 V or 4 – 20 mA: 3 inputs, 3 outputs
> 0-5 V: 4 inputs, 4 outputs
> Connection of external pumps, transmitters for sensors, exhaust analyzers

Ordering information

Description	Order no.
Analog Input/Output Module	
100 – 240 V/50/60 Hz	M1372-1001

i For more information go to www.eppendorf.link/bioprocess

Recirculating Chillers

> For use with Eppendorf small and bench-scale systems
> Powerful heat removal
> Models from different vendors available

Ordering information

Description	Order no.
Recirculating Chiller, ThermoFlex® 1400 PD2, 230 V/50 Hz	P0620-2798
Recirculating Chiller, ThermoFlex® 1400 PD2, 120 V/60 Hz	P0620-2796
Plumbing Package, for ThermoFlex® recirculating chiller	P0620-0959
Pressure Regulator, for ThermoFlex® recirculating chiller, 0 – 20 PSIG (0 – 1.4 bar)	P0620-2799
Pressure Gauge, for ThermoFlex® recirculating chiller, 0 – 30 PSIG (0 – 2.1 bar)	M1287-9918
Chiller, Julabo® SC5000a	
208 – 230 V, 60 Hz	P0620-3380
400 V, 50 Hz	P0620-3381
Connection Kit, for Julabo® SC5000a chiller, for BioFlo®/CelliGen 510 and BioFlo® 610	M1361-0391
Recirculating Chiller, with 600 W, including accessories	
115 V/60 Hz	76DGCHILL06U1
230 V/50 Hz	76DGCHILL06U2
Recirculating Chiller, with 1200 W, including accessories	
115 V/60 Hz	76DGCHILL12U1
230 V/50 Hz	76DGCHILL12U2

Benchtop Scale

> Bench-top scales combine a robust design for long life, integrated display, and the precision needed to meet a variety of needs.
> Seamless integration with Eppendorf bench-scale controllers (requires RS-232 device interface kit)
> Offered in 6, 15, and 30 kg capacities
> Benchtop Scale Kits include a connection cable to RS-232.

Ordering information

Description	Order no.
Benchtop Scale Kit, Mettler Toledo® ICS425	
6 kg, North American plug	M1425-1001
15 kg, North American plug	M1425-1002
35 kg, North American plug	M1425-1003
6 kg, Schuko plug	M1425-1004
15 kg, Schuko plug	M1425-1005
35 kg, Schuko plug	M1425-1006

System Accessories

Variable Speed Pumps

> Watson-Marlow® variable speed pumps

Ordering information	
Description	**Order no.**
Variable-Speed Pump, Watson-Marlow® 120U, with 114DV pump head, 0 – 200 rpm, including connection cable with free leads	M1287-9959
Variable-Speed Pump, Watson-Marlow® 120U, with 114DV pump head, 0 – 200 rpm, including connection cable with Lumberg® connector, for BioFlo® 320 and BioFlo® 720	M1379-9959
Variable-Speed Pump, Watson-Marlow® 120U, with 114DV pump head, 0 – 200 rpm, including connection cable with Lumberg® connector, for BioFlo®/CelliGen 510 - Allen-Bradley®	M1287-9978

Regulator/pre-filter kits

> Regulator/pre-filter kits for water, gas, and steam
> Utility connection kit for metric conversions and sterilize-in-place systems

System	DASbox®	DASGIP®	BioFlo/ CelliGen 115, BioFlo 120	310	320	415
Single Gas (up to 4 systems)			M1273-5002	M1273-5002	M1273-5002	M1273-5002
4-Gas			M1363-5002	M1363-5002	M1363-5002	
1/4 inch to 6 mm converter kit [1]			77105038	77105038	77105038	
Single Water	76DGIWF	76DGIWF				
Water (up to 4)			M1273-5001	M1273-5001	M1273-5001	M1273-5001
Water (up to 4) - metric			77105037	77105037	77105037	

[1] Requires M1363-5002

System	BioFlo/ CelliGen 510	BioFlo 610	BioFlo/ CelliGen Pro (60 - 120L)	BioFlo/ CelliGen Pro (240 - 500 L)	BioFlo Pro (800 - 1200 L)	BioFlo Pro (2400 L)
Water	M1361-1100	M1361-1100	M1290-0650	M1290-0654	M1290-0656	M1290-0657
Main Steam	M1361-1101	M1361-1101	M1290-0660	M1290-0664	M1290-0666	M1290-0667
Process Steam	M1361-1102	M1361-1102	M1290-0670	M1290-0674	M1290-0676	M1290-0677
Process Air	M1361-1103	M1361-1103	-	-	-	-
Instrument Air	M1361-1104	M1361-1104	M1290-0760	M1290-0760	M1290-0760	M1290-0760
Process Steam to Utility Steam [2]	M1361-1105	M1361-1105	-	-	-	-
Utility Connection Kit	M1361-9992	M1362-9992	M1298-9992	M1298-9992	M1290-9992	

[2] Requires M1361-1101

i For more information go to www.eppendorf.link/bioprocess

Tubing

> Silicone tubing for liquid addition and gassing
> Polyurethane tubing for gas connections to control station

Ordering information

Description	Order no.
Tubing, silicone	
I.D. 1/16 in/1.6 mm, O.D. 3/16 in/4.7 mm, L 50 ft/15.2 m	M0740-2396
I.D. 1/8 in/3.2 mm, O.D. 1/4 in/6.4 mm, L 25 ft/7.6 m	M0740-2445
I.D. 3/16 in/4.7 mm, O.D. 5/16 in/7.9 mm, L 25 ft/7.6 m	M0740-2505
I.D. 3/32 in/2.4 mm, O.D. 1/4 in/6.4 mm, L 50 ft/15.2 m	M0740-2430
I.D. 1/4 in/6.4 mm, O.D. 3/8 in/9.5 mm, L 25 ft/7.6 m	M0740-2542
I.D. 5/16 in/7.9 mm, O.D. 7/16 in/11.1 mm, L 50 ft/15.2 m	M0740-2590
Tubing, polyurethane, blue, I.D. 5/64 in/2.0 mm, O.D. 3/16 in/4.7 mm, L 50 ft/15.2 m	M0740-3110
Tubing, polyurethane, blue, I.D. 1/8 in/3.2 mm, O.D. 1/4 in/6.4 mm, L 50 ft/15.2 m	M0740-3111C3
Tubing, polyurethane, blue, I.D. 5/32 in/4.0 mm, O.D. 1/4 in/6.4 mm, L 25 ft/7.6 m	M0740-3113C3

Replacement filters

> Round and Cartridge Filters
> Available in 0.2 µm and 1.2 µm

			BioFlo/ CelliGen 115	BioFlo 120	BioFlo/ CelliGen 310	BioFlo 320	BioFlo 415	BioFlo/ CelliGen 510	BioFlo 610	BioFlo/CelliGen Pro
Inlet	0.2 µm	Round	P0200-0491 (Small) P0200-0495 (Large)	P0200-0495	P0200-0491 (Small) P0200-0495 (Large)	P0200-0495	-	-	-	-
Inlet	0.2 µm	Cartridge	-	-	-	-	P0200-0129	P0200-4148	P0200-4148	P0200-4061 (BioFlo Pro 60-120L/CelliGen Pro) P0200-4060 (BioFlo Pro 240-400L) P0200-4064 (BioFlo Pro 800-2400L)
Exhaust	0.2 µm	Round	P0200-0495	P0200-0495	P0200-0495	-	-	-	-	-
Exhaust	0.2 µm	Cartridge	-	-	-	P0200-4130	P0200-0129	P0200-4147	-	P0200-4061 (BioFlo Pro 60-120L/CelliGen Pro) P0200-4060 (BioFlo Pro 240-400L) P0200-4063 (BioFlo Pro 800-1200L) P0200-4064 (BioFlo Pro 2400L)
Exhaust	1.2 µm	Cartridge	-	-	-	-	P0200-4150	P0200-4146	P0200-4190	-
Sample	0.2 µm	Round	P0200-0970	-	P0200-0970	-	P0200-0970	-	-	-

System Accessories

Addition/Harvest Bottles

> Autoclavable addition/harvest bottles in various sizes
> Ranging from 250 mL – 10 L

Ordering information

Description	Order no.
Foam Trap Kit, 250 mL	M1273-9942
Addition/Harvest Bottle Kit, for aerobic processes	
250 mL	M1362-9905
500 mL	M1362-9906
1 L	M1362-9901
2 L	M1362-9902
5 L	M1362-9903
10 L	M1362-9904
Addition/Harvest Bottle Kit, for anaerobic processes	
250 mL	M1362-9913
500 mL	M1362-9914
1 L	M1362-9915
2 L	M1362-9916
5 L	M1362-9917
10 L	M1362-9918
Addition/Harvest Bottle Kit, for aerobic processes, including bottle holder	
250 mL	M1273-9989
500 mL	M1273-9990
Bottle Holder Kit	
for 250/500 mL bottle	M1273-9940

i For more information go to www.eppendorf.link/bioprocess

Other Accessories

Ordering information	
Description	**Order no.**
Hypodermic Needle	
8 GA, L 107.95 mm, d 3.26 mm, 12 needles	P0440-0061A
18 GA, L 38 mm, pack of 100	P0440-0064
Sample Vials, autoclavable, case of 72	
25 mL, with caps	M1227-9935
40 mL, with caps	P0640-0500
Bearing Housing Cap, pack of 10	M1273-9936
Addition Vessel Kit	
4 L	M1290-0550
7.5 L	M1290-0551
11 L	M1290-0552

Bioprocess Accessories and Parts

> Tubing connectors
> Tri-clamp to barbed tube connectors
> Luer connectors

Straight connectors	
1/4 in to 1/8 in	P0242-0460
1/4 in to 1/4 in	P0242-0510
1/4 in to 3/16 in	P0242-0200
5/16 in to 1/4 in	P0242-0201
3/8 in to 1/4 in	P0242-0202
T-connector	
1/4 x 1/4 x 1/4 in	P0242-0210
Quick Connects	
Female	P0240-2680
Male	P0240-2670
Tri-clamp to barbed tube	
0.75 inch to 1/8 in barbed tube	P0240-0774C3
0.75 inch to 1/4 in barbed tube	P0240-0773C3
0.75 inch to 1/2 in barbed tube	P0240-0775C3
Tubing Clamps	
Clamp, plastic	P0160-4460
Clamp, steel	P0160-4830
Luer	
Barbed tube to male luer, 1/8 in tube, stainless steel	P0240-5000
Barbed tube to female luer, 1/4 in tube, set of 10	M1379-0130
Connector, barbed tube to female Luer, 1/8 in tube, polypropylene	P0242-0590
Connector, barbed tube to male Luer, 1/8 in tube, polypropylene	P0242-0591

System Accessories

DASGIP® Process Computer

> Intel Core® i5
> SSD ≥ 240 GB
> 22 in LCD monitor
> Microsoft® Windows® 10

Ordering information

Description	Order no.
Process Computer for Small Scale Systems, including OS software, DASware® control without licenses, and PC hardware, English language, with accessories	76DGPCS

Uninterruptible Power Supply for Bioreactor/Fermenter Systems

> Uninterruptable power supplies and replacement batteries

Ordering information

Description	Order no.
Uninterruptible Power Supply, for DASGIP® system, 230 V/50 Hz, Eaton® 5P 1550i, 1550 VA	78535272
Uninterruptible Power Supply, APC BackUPS BR1500G, 115 V, 60 Hz, 1500 W	78535267
Replacement Battery, for UPS BR1500(I/LCD), RBC33	78110007

DASGIP® CWD Cooling Water Distribution Unit

> Exhaust cooling and/or temperature control in up to four vessels
> Available with four or eight ports for condensers and/or cooling fingers

Ordering information

Description	Order no.
DASGIP® CWD4 Cooling Water Distribution Unit, including connection cable	
for 4 condenser ports (DASGIP® CWD4)	76DGCWD4
for 4 condenser-/ and 4 cooling finger ports (DASGIP® CWD4+4)	76DGCWD44
Accessories, for DASGIP® CWD4+4, for 4-fold system	76DGCWD44UM
Accessories, for DASGIP® CWD4, for 4-fold system	76DGCWD4UM
Inline Water Filter, for parallel DASGIP® Bioblock or benchtop systems, including accessories for 4-fold or 8-fold systems	76DGIWF

i For more information go to www.eppendorf.link/bioprocess

Balance

> Precision balances e.g. for integration with DASGIP MP8 and MP4 multi pumps
> Mettler Toledo® MS
> Available with max. capacities of 3.2 – 12.2 kg

Ordering information

Description	Order no.
Precision Balance, including license and cable	
3.2 kg	76DGBAL32
4.2 kg	76DGBAL42
6.2 kg	76DGBAL62
8.2 kg	76DGBAL82
12.2 kg	76DGBAL122

Serial Device Servers for DASGIP® Products

> Connects up to eight serial devices to the Ethernet

Ordering information

Description	Order no.
Serial Device Server, with 2 ports	
115 V	76DGRSPORT2U1
230 V	76DGRSPORT2U2
Serial Device Server, with 8 ports	76DGRSPORT8

DASGIP® EGC for Exhaust Condensation

Description
The Eppendorf DASGIP EGC4 Module in combination with our Peltier Exhaust Condensers provides liquid-free exhaust condensation for up to four vessels. Proven effective for the DASbox Mini Bioreactor and for the mini scale BioBLU 0.3 Single-Use Bioreactors, this innovative technology can also be utilized with the larger vessels of the Eppendorf BioBLU family, BioBLU 1c, 1f, 3c, 5c, and 5p. Optimum recovery of condensate prevents volume loss due to evaporation and associated changes in osmolarity as well as blocking of exhaust filters. No cooling agent or chiller is needed so users benefit from easy handling.

Product features
> Effective liquid-free exhaust condensation via Peltier technology
> Up to four exhaust condensers can be connected
> Suitable for BioBLU Single-Use Bioreactors 1c, 1f, 3c, 5c, and 5p

Ordering information

Description	Order no.
DASGIP® EGC4 Exhaust Gas Condenser Controller, for 4 Peltier actuators, 110 – 240 V/50/60 Hz	76DGEGC4

i For more information go to www.eppendorf.link/bioprocess

DASGIP® Peltier Exhaust Condensers

Description
Our innovative Peltier Exhaust Condenser offers highly effective condensation - without the need for a cooling agent or chiller. Volume loss due to evaporation is thereby minimized and blocking of exhaust filter prevented. The condenser's automatic slide in activation and slide out deactivation mode satisfies users with its easy handling.
The Peltier-based exhaust condenser was designed for use with the Eppendorf DASbox Mini Bioreactor System and is ready-to-use with both autoclavable (DASbox Mini Bioreactor) and BioBLU Single-Use Bioreactors in combination with the DASGIP EGC4 module.

Product features
> Liquid-free exhaust condensation through Peltier-based cooling
> Highly effective condensation minimizes volume loss caused by evaporation
> Prevents blocking of exhaust filter
> Automatic activation/deactivation with proximity sensor
> Automatic and manual de-icing functionality
> Suitable for BioBLU Single-Use Bioreactors 0.3c, 0.3f, 1c, 1f, 3c, 5c, and 5p

Applications
> Cell culture and fermentation in mini scale using the Eppendorf DASbox
> Small and bench scale applications with BioBLU Single-Use Bioreactors

Ordering information

Description	Order no.
Actuator Unit for Peltier Exhaust Condenser	
including cable L 1.6 m	78201321
including cable L 4.0 m	78201330
Exhaust Condenser Adaptor, including insulation	
for DASbox® Mini Bioreactors autoclavable vessels	78201323
for BioBLU® 0.3c/0.3f/1c Single-Use Bioreactors	78201322
for BioBLU® 1f Single-Use Bioreactors	78109131
for BioBLU® 3c/5c/5p Single-Use Bioreactors	78201326
Exhaust Condenser Unit, for SciVario® twin, Peltier based	7600 241 001

DASGIP® Feeding Accessories

DASGIP® Pump Head Tubings

> Available with different inner diameter (ID) and wall thickness (W)
> Material: Bioprene®/Marprene®
> Connectors: male/female, female/female
> Suitable for DASGIP MP4 and MP8, respectively

Ordering information

Description	Order no.
Pump Head Tubing, for DASGIP® MP8 pump, PharMed®	
I.D. 0.25/W 0.85 mm, male/female	78510198
I.D. 0.25/W 0.85 mm, female/female	78510119
Pump Head Tubing, for DASGIP® MP4 pump, Bioprene®	
I.D. 0.5/W 1.6 mm, male/female	78510251
I.D. 2.4/W 1.6 mm, male/female	78510254
I.D. 3.2/W 1.6 mm, male/female	78510255
Pump Head Tubing, for DASGIP® MP8 pump, Bioprene®	
I.D. 0.5/W 1.05 mm, male/female	78510117
I.D. 0.5/W 1.05 mm, female/female	78510118
I.D. 1.0/W 1.05 mm, male/female	78510109
I.D. 1.0/W 1.05 mm, female/female	78510236
Pump Head Tubing, for DASGIP® MP8 pump, Peripren®	
I.D. 2.0/W 0.8 mm, male/female	78510197
I.D. 2.0/W 0.8 mm, female/female	78510237
Pump Head Tubing, for DASGIP® MP4 pump, Marprene®	
I.D. 0.5/W 1.6 mm, female/female	78510292
I.D. 0.8/W 1.6 mm, female/female	78510293
I.D. 1.6/W 1.6 mm, female/female	78510295
I.D. 2.4/W 1.6 mm, female/female	78510296
I.D. 3.2/W 1.6 mm, female/female	78510297
I.D. 4.8/W 1.6 mm, female/female	78510298

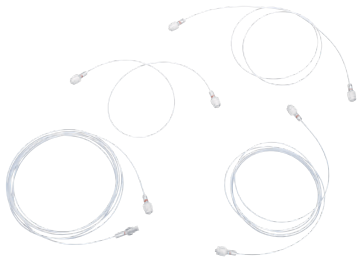
DASGIP® Head Gears

> Allows easy transfer of liquids from addition bottles to the bioreactor
> For GL45 neck

Ordering information

Description	Order no.
Head Gear, for addition bottles with GL45 neck, C-Flex®	
female Luer lock	78510311

i For more information go to www.eppendorf.link/bioprocess



DASGIP® Feed Lines

> Available with different inner diameter (ID) and length (L)
> Material: C-Flex® or PTFE
> Connectors: male/male

Ordering information

Description	Order no.
Feed Line, uncolored with 2x Luer lock fittings, I.D. 0.8 mm, PTFE	
L 1 m, male/male	78510241
L 3 m, male/male	78510243
Feed Line, with 2x Luer lock fittings, male/male, C-Flex®	
I.D. 0.8 mm, L 1 m	78510309
I.D. 0.8 mm, L 2 m	78510310
I.D. 3.2 mm, L 1 m	78510320
I.D. 3.2 mm, L 2 m	78510321
Feed Line Set, for SciVario® twin double pump drawer, PTFE	
I.D. 0.25 mm	7600 252 001
I.D. 0.5 mm	7600 252 002
I.D. 1.0 mm	7600 252 003
I.D. 2.0 mm	7600 252 004
Feed Line Set, for SciVario® twin double pump drawer, C-Flex®	
I. D. 0.25 mm	7600 252 011
I. D. 0.5 mm	7600 252 012
I. D. 1.0 mm	7600 252 013
I. D. 2.0 mm	7600 252 014
Feed Line Set, for SciVario® twin single pump drawer, C-Flex®,	
I. D. 0.5 mm	7600 252 101
I. D. 0.8 mm	7600 252 102
I. D. 1.6 mm	7600 252 103
I. D. 2.4 mm	7600 252 104
I. D. 3.2 mm	7600 252 105
I. D. 4.8 mm	7600 252 106

DO Sensors

DO Sensors

> Accurate monitoring of dissolved oxygen
> Standard clark electrodes as well as optical sensors
> Various sensor lengths available

Model Vessel Size	Sensor Group	"DASbox® 0.25 L"	Spinner 0.7 L/ Stirrer 1 L	Spinner 1 L/ Stirrer 1.5 L	Spinner 1.5 L/ Stirrer 1.8 L	Bioreactor 2.5 L	Bioreactor 3.5 L	Photo-Bioreactor 1.0 L /2.5 L
DASbox® MiniBioreactor	A, D, F	120 mm	-	-	-	-	-	-
DASGIP® Bioblock	A, D, F	-	220-225 mm	220-225 mm	320-325 mm	-	-	-
DASGIP® Benchtop	A, D, F	-	-	-	-	220-225 mm	320-325 mm	-
DASGIP® PhotoBioreactors	A, D, F	-	-	-	-	-	-	220-225 mm
SciVario® twin	A, B, C, D, E, F	-	220-225 mm	220-225 mm	320-325 mm	220-225 mm	320-325 mm	-

Model Vessel Size	Sensor Group	BioBLU® 0.3c/f/sc	BioBLU® 1c/f	BioBLU® 3c/5c/3f	BioBLU® 5p	BioBLU® 10c/14c	BioBLU® 50c
DASbox® MiniBioreactor	A, D, F, G	162 mm	-	-	-	-	-
DASGIP® Bioblock	A, D, F, G	-	278 mm	-	-	-	-
DASGIP® Benchtop	A, D, F, G	-	278 mm	220-225 mm	-	-	-
SciVario® twin	A, B, C, D, E, F, G	-	278 mm	220-225 mm	-	355 mm	526 mm

i For more information go to www.eppendorf.link/bioprocess

Ordering information

Description	Sensor Group	Order no.
DO Sensor, Mettler Toledo® InPro 6820, autoclavable, O.D. 12 mm	A	
L 120 mm		78108018
L 220 mm		78108026
L 320 mm		78108022
L 355 mm		78108076
L 526 mm		78108077
DO Sensor, Mettler Toledo® InPro 6850i, ISM®, autoclavable, O.D. 12 mm	**B**	
L 220 mm		78108063
L 320 mm		78108067
DO Sensor (Optical), Mettler Toledo® InPro 6860i, ISM®, autoclavable, O.D. 12 mm	**C**	
L 220 mm		78108071
L 320 mm		78108072
DO Sensor, Hamilton® OxyFerm, autoclavable, O.D. 12 mm	**D**	
L 120 mm		78108023
L 225 mm		78108039
L 325 mm		78108040
DO Sensor, Hamilton® OxyFerm FDA ARC, autoclavable, O.D. 12 mm	**E**	
L 225 mm		78108064
L 325 mm		78108069
DO Sensor (Optical), Hamilton® VisiFerm™, autoclavable, O.D. 12 mm, H0 cap	**F**	
L 120 mm		78108058
L 215 mm		78108059
L 325 mm		78108060
DASGIP® DO Sensor O.D. 4.7 mm	**G**	
including cable L 3 m and storage chamber for BioBLU® 0.3, L 162 mm		78108046
including cable L 1 m and storage chamber for BioBLU® 1, L 278 mm, for SciVario® twin		78108065
including cable L 3 m and storage chamber for BioBLU® 1, L 278 mm		78108051

DO Sensors

Model Vessel Size	Sensor Group	BioBLU® 0.3c/f/sc	BioBLU® 1c/f	BioBLU® 3c/5c/3f	BioBLU® 5p	BioBLU® 10c/14c	BioBLU® 50c
BioFlo®/CelliGen 115	H	-	-	220-225 mm	120 mm	355/420 mm	526 mm
BioFlo® 120	G, H, I, J	-	278 mm	220-225 mm	120 mm	355/420 mm	526 mm
BioFlo®/CelliGen 310	H	-	-	220-225 mm	120 mm	355/420 mm	526 mm
BioFlo® 320	G, H, I, J	-	278 mm	220-225 mm	120 mm	355/420 mm	526 mm
CelliGen BLU - 1st generation	H	-	-	220-225 mm	120 mm	355/420 mm	526 mm
CelliGen BLU - 2nd generation	H	-	-	220-225 mm	120 mm	355/420 mm	526 mm

Model Vessel Size	Sensor Group	1 L	2 L	3 L	5 L	10 L	15 L	All Vessels
BioFlo®/CelliGen 115	H	160 mm	220 mm	-	320 mm	420 mm	-	-
BioFlo® 120	H, I, J	160 mm	220 mm	-	320 mm	420 mm	-	-
BioFlo®/CelliGen 310	H	220 mm	-	220 mm	320 mm	420 mm	-	-
BioFlo® 320	H, I, J	220 mm	-	220 mm	320 mm	420 mm	-	-
CelliGen 310 (packed-bed)	H	120 mm	-	120 mm	220 mm	220 mm	-	-
BioFlo® 320 (packed-bed)	H, I, J	120 mm	-	120 mm	220 mm	220 mm	-	-
BioFlo® 415	H	-	-	-	320 mm	420 mm	625 mm	-
BioFlo®/CelliGen 510	H, I, J *	-	-	-	-	-	-	120 mm
BioFlo® 610	H, I, J *	-	-	-	-	-	-	120 mm
BioFlo® 720	H, I, J							225 mm
BioFlo®/CelliGen Pro	H, I, J *	-	-	-	-	-	-	Standard Housing - 120 mm Retractable Housing - 320 mm

* Depending on option installed

i For more information go to www.eppendorf.link/bioprocess

Ordering information

Description	Sensor Group	Order no.
DASGIP® DO Sensor O.D. 4.7 mm	**G**	
including cable L 1 m and storage chamber for BioBLU® 1, L 278 mm, for SciVario® twin		78108065
including cable L 3 m and storage chamber for BioBLU® 1, L 278 mm		78108051
DO Sensor, Mettler Toledo® InPro 6810, 160 mm, angled VP connector	**H**	P0720-6281
DO Sensor, Mettler Toledo® InPro 6820, straight T-82 connector		
L 225 mm		P0720-6526
L 355 mm		P0720-6525
L 526 mm		P0720-6529
DO Sensor, Mettler Toledo® InPro 6830, angled T-82 connector		
L 120 mm		P0720-6280
L 160 mm		P0720-6580
L 220 mm		P0720-6282
L 320 mm		P0720-6283
L 420 mm		P0720-6284
DO Sensor, Hamilton® OxyFerm FDA, 625 mm, straight T-82 connector		P0720-6520
DO Sensor, Mettler Toledo® InPro 6850i, ISM®	**I**	
L 120 mm		P0720-6652
L 220 mm		P0720-6653
L 320 mm		P0720-6654
L 420 mm		P0720-6655
DO Sensor (Optical), Mettler Toledo® InPro 6860i, ISM®	**J**	
L 120 mm		P0720-6651
L 220 mm		P0720-6660
L 320 mm		P0720-6661
L 420 mm		P0720-6662
L 590 mm		P0720-6666

DO Sensors

Model	Cable			Adaptor/ sensor housing		
	Analog	Digital	Digital			
	T-82	AK9 (ISM)	VP8 (ISM-Optical DO/ ARC)	Head plate adaptor	Side-Wall Adaptor	Sensor Housing
DASbox® MiniBioreactor	78522099	–	78522042	–	–	–
DASGIP® Parallel Bioreactor System	78522099	–	78522042	77102016[1)]	–	–
SciVario® twin	7600222501	7600220001	7600220002	77102016[1)]	–	–
BioFlo®/CelliGen 115	P0720-2336	–	–	M1273-5040	–	–
BioFlo® 120	1390810600	M1379-8108	M1379-8107	M1273-5040	–	–
BioFlo®/CelliGen 310	P0720-2333	–	–	M1287-5030	–	–
BioFlo® 320	M1379-8106	M1379-8108	M1379-8107	M1287-5030	–	–
BioFlo® 415	P0720-2333	–	–	–	–	–
CelliGen BLU - 1st Generation	P0720-2336	–	–	–	–	–
CelliGen BLU - 2nd Generation	P0720-2336	–	–	–	–	–
BioFlo®/CelliGen 510	P0720-2336	–	–	–	M1361-9208	P0720-6240C3
BioFlo® 610	P0720-2336	–	–	–	M1361-9208	P0720-6240C3
BioFlo® 720	1385810600	1385810700	1385810800	–	0045890038	–
BioFlo®/CelliGen Pro - Standard Housing	P0720-2342	–	–	–	–	P0720-6450C1
BioFlo®/CelliGen Pro - Retractable Housing	P0720-2342	–	–	–	–	P0720-5570C

[1)] For DASGIP / SciVario twin Benchtop Bioreactors

i For more information go to www.eppendorf.link/bioprocess

Ordering information

Description	Order no.
Sensor Cable, for connecting DO sensors to DASGIP® modules, grey, with plug type T82, L 2.9 m (9.5 ft)	78522099
Sensor Cable, for connecting DO sensors to DASGIP® modules, grey, with plug type VP8 for VisiFerm™, L 3 m (9.8 ft)	78522042
Sensor Cable, for analog DO sensors, for SciVario® twin, with plug type T82	7600 222 501
Sensor Cable, for ISM® sensors, for SciVario® twin, with plug type AK9	7600 220 001
Sensor Cable, for ARC® sensors, for SciVario® twin, with plug type VP8	7600 220 002
Sensor Cable, for analog DO sensors, for BioFlo® 120, with plug type T82, L 1 m (3.3 ft)	1390 810 600
Sensor Cable, for analog DO sensors, for BioFlo® 320, with plug type T82, L 1 m (3.3 ft)	M1379-8106
Sensor Cable, for optical DO sensors, ISM®, with plug type VP8, L 1 m (3.3 ft)	M1379-8107
Sensor Cable, for ISM® sensors, with plug type AK9, L 1 m (3.3 ft)	M1379-8108
Sensor Cable, for analog DO sensors, for BioFlo®/CelliGen 310, BioFlo® 410, BioFlo® 415, with plug type T82, L 1.1 m (3.5 ft)	P0720-2333
Sensor Cable, for analog DO sensors, for BioFlo®/CelliGen 115, BioFlo®/CelliGen 510, BioFlo® 610, CelliGen BLU (2nd generation), with plug type T82, L 1.4 m (4.6 ft)	P0720-2336
Sensor Cable, for analog DO sensors, for BioFlo®/CelliGen Pro, with plug type T82, L 1.8 m (6 ft)	P0720-2342
Sensor Cable, for analog DO sensors, controller with Lumberg® connector, with plug type T82, L 3 m (9.8 ft)	1385 810 600
Sensor Cable, for optical DO sensors, controller with Lumberg® connector, with plug type VP8, L 3 m (9.8 ft)	1385 810 700
Sensor Cable, for ISM® sensors, controller with Lumberg® connector, with plug type AK9, L 3 m (9.8 ft)	1385 810 800
Sensor Housing, stainless steel	
for 25 mm Ingold® port, for 120 mm sensor length, with material certificate	P0720-6450C1
InFit® 761, for 25 mm Ingold® port, for 120 mm sensor length, with material certificate	P0720-6240C3
retractable, InTrac® 797, for 25 mm Ingold® port, 325 mm sensor length, with material certificate	P0720-5570C
Ingold® Port Weldment, converts 1 1/2 in sanitary to 25 mm Ingold® port	M1361-9208
Sensor Sleeve Bellow, for attaching sensor to SUB, with AseptiQuik® connector	0045 890 038
Adaptor	
VP connector to T-82 connector, for analog sensors	P0720-6470
Pg 13.5 female thread to M18x1.5 male thread	77102016
compression fitting, 12 mm port to 12 mm sensor	M1273-5040
compression fitting, Pg 13.5 port to 12 mm sensor	M1287-5030
Power Adaptor, for optical DO sensors, VP to T-82 connector	P0720-9771

Accessories

Description	Order no.
DO Electrolyte, Mettler Toledo®, pack of 3 x 25 mL	0045 840 006
DO Electrolyte, Mettler Toledo®	
pack of 3 x 25 mL	78108053
Membrane Kit, for 12 mm DO sensors, Hamilton®, including spare o-rings, 3 membrane bodies	78108042
Membrane Kit, for 12 mm DO sensors, Mettler Toledo®, including spare o-rings, 4 membrane bodies	78108003
Membrane Kit, for 12 mm DO sensors, including spare o-rings, Mettler Toledo®	
4 membrane bodies	P0720-6268
1 membrane body	P0720-6339
Membrane Kit, for 12 mm DO sensors, including spare o-rings, Hamilton®, 3 membrane bodies	P0720-6570
Sensor Cap, Optocap BT O2T, for Mettler Toledo® InPro® 6860i	P0720-6621
Dust Cap, for DO sensor, with 4-pin connector (T82)	P0720-5567

pH Sensors

pH Sensors

> Electrodes for accurate monitoring of pH
> Various sensor lengths available

Model Vessel Size	Sensor Group	DASbox® 0.25 L	Spinner 0.7 L/ Stirrer 1 L	Spinner 1 L/ Stirrer 1.5 L	Spinner 1.5 L/ Stirrer 1.8 L	Bioreactor 2.5 L	Bioreactor 3.5 L	Photo-Bioreactor 1.0 L /2.5 L
DASbox® MiniBioreactor	A, C	120 mm	-	-	-	-	-	-
DASGIP® Bioblock	A, C	-	225 mm	225 mm	325 mm	-	-	-
DASGIP® Benchtop	A, C	-	-	-	-	225 mm	325 mm	-
DASGIP® PhotoBioreactors	A, C	-	-	-	-	-	-	225 mm
SciVario® twin	A, B, C, D	-	225 mm	225 mm	325 mm	225 mm	325 mm	-

Model Vessel Size	Sensor Group	BioBLU® 0.3c/f/sc	BioBLU® 1c/f	BioBLU® 3c/5c/3f	BioBLU® 5p	BioBLU® 10c/14c	BioBLU® 50c
DASbox® MiniBioreactor	A, C	120 mm	-	-	-	-	-
DASGIP® Bioblock	A, C	-	225 mm	-	-	-	-
DASGIP® Benchtop	A, C	-	225 mm	225 mm	-	-	-
SciVario® twin	A, B, C, D	-	225 mm	225 mm	-	425 mm	625 mm

i For more information go to www.eppendorf.link/bioprocess

Ordering information

Description	Sensor Group	Order no.
pH Sensor, Mettler Toledo® 405-DPAS-SC-K8S, autoclavable, O.D. 12 mm	**A**	
L 120 mm		78103207
L 225 mm		78103220
L 325 mm		78103209
L 425 mm		78103227
pH Sensor, Mettler Toledo® InPro 3253i, ISM®, autoclavable, O.D. 12 mm	**B**	
L 225 mm		78103236
L 325 mm		78103239
pH Sensor, Hamilton® EasyFerm Plus, autoclavable, O.D. 12 mm	**C**	
L 120 mm		78103205
L 225 mm		78103230
L 325 mm		78103231
L 425 mm		78103232
L 625 mm		78108075
pH Sensor, Hamilton® EasyFerm Plus ARC, autoclavable, O.D. 12 mm	**D**	
L 225 mm		78103237
L 325 mm		78103242

pH Sensors

Model Vessel Size	Sensor Group	BioBLU® 0.3c/f/sc	BioBLU® 1c/f	BioBLU® 3c/5c/3f	BioBLU® 5p	BioBLU® 10c/14c	BioBLU® 50c
BioFlo®/CelliGen 115	E	-	-	225 mm	120 mm	425 mm	625 mm
BioFlo® 120	E, F	-	225 mm	225 mm	120 mm	425 mm	625 mm
BioFlo®/CelliGen 310	E	-	-	225 mm	120 mm	425 mm	625 mm
BioFlo® 320	E, F	-	225 mm	225 mm	120 mm	425 mm	625 mm
CelliGen BLU - 1st generation	E	-	-	225 mm	120 mm	425 mm	625 mm
CelliGen BLU - 2nd generation	E	-	-	225 mm	120 mm	425 mm	625 mm

Model Vessel Size	Sensor Group	1 L	2 L	3 L	5 L	10 L	15 L	All Vessels
BioFlo®/CelliGen 115	E	200 mm	225 mm	-	325 mm	425 mm	-	-
BioFlo® 120	E, F	200 mm	225 mm	-	325 mm	425 mm	-	-
BioFlo®/CelliGen 310	E	200 mm	-	225 mm	325 mm	425 mm	-	-
BioFlo® 320	E, F	200-225 mm	-	225 mm	325 mm	425 mm	-	-
CelliGen 310 (packed-bed)	E	200 mm	-	200-225 mm	200 mm	225 mm	-	-
BioFlo® 320 (packed-bed)	E, F	200-225 mm	-	200-225 mm	200-225 mm	225 mm	-	-
BioFlo® 415	E	-	-	-	325 mm	425 mm	625 mm	-
BioFlo®/CelliGen 510	E, F *	-	-	-	-	-	-	120 mm
BioFlo® 610	E, F *	-	-	-	-	-	-	120 mm
BioFlo® 720	E, F	-	-	-	-	-	-	225 mm
BioFlo®/CelliGen Pro	E, F *	-	-	-	-	-	-	Standard Housing - 125 mm Retractable Housing - 320 mm

* Depending on option installedw

i For more information go to www.eppendorf.link/bioprocess

Ordering information

Description	Sensor Group	Order no.
pH Sensor, Mettler Toledo® 405-DPAS-SC-K8S, gel-filled	**E**	
L 120 mm		P0720-5581
L 200 mm		P0720-5582
L 225 mm		P0720-5584
L 325 mm		P0720-5580
L 425 mm		P0720-5583
pH Sensor, Hamilton® EasyFerm Plus, gel-filled		
L 625 mm		P0720-6540
pH/Redox Sensor, Mettler Toledo® InPro 3253i, ISM®	**F**	
L 120 mm		P0720-6656
L 225 mm		P0720-6657
L 325 mm		P0720-6658
L 425 mm		P0720-6659

pH Sensors

Model	Cable			Adaptor/ Sensor Housing		
	Analog	Digital	Digital			
	AK9	AK9 (ISM)	VP8 (ARC)	Headplate Adaptor	Side-Wall Adaptor	Sensor Housing
DASbox® MiniBioreactor	78522020	–	–	–	–	-
DASGIP® Parallel Bioreactor System	78522020	–	–	77102016[1)]	–	-
SciVario® twin	7600221501	760020001	760020002	77102016[1)]	–	-
BioFlo®/CelliGen 115	P0720-2276	–	–	M1273-5040	–	-
BioFlo® 120	1390810400	M1379-8108	–	M1273-5040	–	-
BioFlo®/CelliGen 310	P0720-2273	–	–	M1287-5030	–	-
BioFlo® 320	M1379-8104	M1379-8108	–	M1287-5030	–	-
BioFlo® 415	P0720-2273	–	–	–	–	-
CelliGen BLU - 1st Generation	N/A	–	–	–	–	-
CelliGen BLU - 2nd Generation	P0720-2276	–	–	–	–	-
BioFlo®/CelliGen 510	P0720-2276	–	–	–	M1361-9208	P0720-6240C3
BioFlo® 610	P0720-2276	–	–	–	M1361-9208	P0720-6240C3
BioFlo® 720	1385810400	1385810800	–	–	–	0045890038
BioFlo®/CelliGen Pro - Standard Housing	M1290-0610	–	–	–	–	P0720-6450C1
BioFlo®/CelliGen Pro - Retractable Housing	M1290-0610 and M1290-8012	–	–	–	–	P0720-5570C

[1)] For DASGIP / SciVario twin Benchtop Bioreactors

i For more information go to www.eppendorf.link/bioprocess

Ordering information

Description	Order no.
Sensor Cable, for connecting pH/Redox sensors to DASGIP® modules, grey, with plug type AK9, L 3 m (9.8 ft)	78522020
Sensor Cable, for analog pH sensors, for SciVario® twin, with plug type AK9	7600 221 501
Sensor Cable, for ISM® sensors, for SciVario® twin, with plug type AK9	7600 220 001
Sensor Cable, for ARC® sensors, for SciVario® twin, with plug type VP8	7600 220 002
Sensor Cable, for analog pH sensors, for BioFlo®/CelliGen 115, BioFlo®/CelliGen 510 and BioFlo® 610, with plug type AK9, L 1.4 m (4.6 ft)	P0720-2276
Sensor Cable, for analog pH sensors, controller with Lumberg® connector, with plug type AK9, L 3 m (9.8 ft)	1385 810 400
Sensor Cable, for ISM® sensors, controller with Lumberg® connector, with plug type AK9, L 3 m (9.8 ft)	1385 810 800
Sensor Cable, for analog pH sensors, for BioFlo®/CelliGen 310, BioFlo® 410, BioFlo® 415, with plug type AK9, L 1 m (3.3 ft)	P0720-2273
Sensor Cable, for analog pH/Redox sensors, for BioFlo® 120, with plug type AK9, L 1 m (3.3 ft)	1390 810 400
Sensor Cable, for analog pH sensors, for BioFlo® 320, with plug type AK9, L 1 m (3.3 ft)	M1379-8104
Sensor Cable, for ISM® sensors, with plug type AK9, L 1 m (3.3 ft)	M1379-8108
Sensor Cable, for analog pH/Redox sensors, for BioFlo®/CelliGen Pro, with plug type AK9, L 1.8 m (5.9 ft)	M1290-0610
Cable, pH/redox ground wire extension, for retractable sensor housings, 0.6 m	M1290-8012
Polymer Optical Fiber, for optical pH measurement in BioBLU® Single-Use Bioreactors, for BioBLU® 1/3, 216 mm shaft, L 2.0 m	78703017
Polymer Optical Fiber, for optical pH measurement in BioBLU® Single-Use Bioreactors, for BioBLU® 1c/3c/5c	P0300-2371
Polymer Optical Fiber, for optical pH measurement in BioBLU® Single-Use Bioreactors, for BioBLU® 10c/14c	P0300-2370
Polymer Optical Fiber, for optical pH measurement in BioBLU® Single-Use Bioreactors, for BioBLU® 50c	P0300-2374
Polymer Optical Fiber, for optical pH measurement in BioBLU® Single-Use Bioreactors, for BioBLU® 5p	P0300-2372
Polymer Optical Fiber, for optical pH measurement in BioBLU® Single-Use Bioreactors, for BioBLU® 0.3, 115.5 mm shaft, L 1.5 m	78703030
Polymer Optical Fiber, for optical pH measurement in BioBLU® Single-Use Bioreactors, for SciVario® twin, for BioBLU® 1/3, 216 mm shaft	7600 229 001
Polymer Optical Fiber, for optical pH measurement in BioBLU® Single-Use Bioreactors, for SciVario® twin, for BioBLU® 10, 346 mm shaft	7600 229 002
Polymer Optical Fiber, for optical pH measurement in BioBLU® Single-Use Bioreactors, for SciVario® twin, for BioBLU® 50, 504 mm shaft	7600 229 003
Sensor Housing, stainless steel	
for 25 mm Ingold® port, for 120 mm sensor length, with material certificate	P0720-6450C1
InFit® 761, for 25 mm Ingold® port, for 120 mm sensor length, with material certificate	P0720-6240C3
retractable, InTrac® 797, for 25 mm Ingold® port, 325 mm sensor length, with material certificate	P0720-5570C
Ingold® Port Weldment, converts 1 1/2 in sanitary to 25 mm Ingold® port	M1361-9208
Sensor Sleeve Bellow, for attaching sensor to SUB, with AseptiQuik® connector	0045 890 038
Adaptor	
Pg 13.5 female thread to M18x1.5 male thread	77102016
compression fitting, 12 mm port to 12 mm sensor	M1273-5040
compression fitting, Pg 13.5 port to 12 mm sensor	M1287-5030

Accessories

Description	Order no.
Dust Cap, for sensor, K9 connector	P0720-5317

Redox Sensors

Redox Sensors

> Accurate monitoring of ORP (redox potential)
> Used with DASGIP/DASbox PHPO monitoring module series and Eppendorf control units, respectively
> Various sensor lengths available

Model Vessel Size	Sensor Group	DASbox® 0.25 L	Spinner 0.7 L/ Stirrer 1 L	Spinner 1 L/ Stirrer 1.5 L	Spinner 1.5 L/ Stirrer 1.8 L	Bioreactor 2.5 L	Bioreactor 3.5 L	Photo-Bioreactor 1.0 L /2.5 L
DASbox® MiniBioreactor	A	120 mm	-	-	-	-	-	-
DASGIP® Bioblock	A	-	225 mm	225 mm	325 mm	-	-	-
DASGIP® Benchtop	A	-	-	-	-	225 mm	325 mm	-
DASGIP® PhotoBioreactors	A	-	-	-	-	-	-	225 mm

Model Vessel Size	Sensor Group	BioBLU® 0.3c/f/sc	BioBLU® 1c/f	BioBLU® 3c/5c/3f	BioBLU® 5p	BioBLU® 10c/14c	BioBLU® 50c
DASbox® MiniBioreactor	A	120 mm	-	-	-	-	-
DASGIP® Bioblock	A	-	225 mm	-	-	-	-
DASGIP® Benchtop	A	-	225 mm	225 mm	-	-	-

i For more information go to www.eppendorf.link/bioprocess

Ordering information

Description	Sensor Group	Order no.
Redox Sensor, Mettler Toledo® Pt4805-DPAS-SC-K8S, autoclavable, O.D. 12 mm	**A**	
L 120 mm		78103224
L 225 mm		78103225
L 325 mm		78103226

Redox Sensors

Model Vessel Size	Sensor Group	BioBLU® 0.3c/f/sc	BioBLU® 1c/f	BioBLU® 3c/5c/3f	BioBLU® 5p	BioBLU® 10c/14c	BioBLU® 50c
BioFlo®/CelliGen 115	B	-	-	225 mm	225 mm	325 mm	625 mm
BioFlo® 120	B, C	-	225 mm	225 mm	225 mm	325 mm	625 mm
BioFlo®/CelliGen 310	B	-	-	225 mm	225 mm	325 mm	625 mm
BioFlo® 320	B, C	-	225 mm	225 mm	225 mm	325 mm	625 mm

Model Vessel Size	Sensor Group	1 L	2 L	3 L	5 L	10 L	15 L	All Vessels
BioFlo®/CelliGen 115	B	225 mm	225 mm	-	325 mm	425 mm	-	-
BioFlo® 120	B, C	225 mm	225 mm	-	325 mm	425 mm	-	-
BioFlo®/CelliGen 310	B	225 mm	-	225 mm	325 mm	425 mm	-	-
BioFlo® 320	B, C	225 mm	-	225 mm	325 mm	425 mm	-	-
CelliGen 310 (packed-bed)	B	225 mm	-	225 mm	225 mm	225 mm	-	-
BioFlo® 320 (packed-bed)	B, C	225 mm	-	225 mm	225 mm	225 mm	-	-
BioFlo® 415	B	-	-	-	325 mm	425 mm	625 mm	-
BioFlo®/CelliGen 510	B, C *	-	-	-	-	-	-	120 mm
BioFlo® 610	B, C *	-	-	-	-	-	-	120 mm
BioFlo® 720	B, C	-	-	-	-	-	-	225 mm
BioFlo®/CelliGen Pro	B, C *	-	-	-	-	-	-	Standard Housing - 120 mm Retractable Housing - 325 mm

* Depending on option installedw

i For more information go to www.eppendorf.link/bioprocess

Ordering information

Description	Sensor Group	Order no.
Redox Sensor, Mettler Toledo® Pt4805-DPAS-SC-K8S, gel-filled	**B**	
L 120 mm		P0720-5780
L 225 mm		P0720-5783
L 325 mm		P0720-5782
L 425 mm		P0720-5784
Redox Sensor, Hamilton® EasyFerm RX, gel-filled		
L 325 mm		P0720-6532
L 425 mm		P0720-6531
L 625 mm		P0720-6530
pH/Redox Sensor, Mettler Toledo® InPro 3253i, ISM®	**C**	
L 120 mm		P0720-6656
L 220 mm		P0720-6657
L 320 mm		P0720-6658
L 420 mm		P0720-6659

Redox Sensors

Model	Cable		Adaptor/Sensor		
	Analog	Digital			
	AK9	ISM	Headplate Adaptor	Side-Wall Adaptor	Sensor Housing
DASbox® MiniBioreactor	78522020	–	–	–	–
DASGIP® Parallel Bioreactor System	78522020	–	77102016 [1]	–	–
BioFlo®/CelliGen 115	P0720-2763	–	M1273-5040	–	–
BioFlo® 120	1390810400	M1379-8108	M1273-5040	–	–
BioFlo®/CelliGen 310	P0720-2275	–	M1287-5030	–	–
BioFlo® 320	M1379-8105	M1379-8108	M1287-5030	–	–
BioFlo® 415	P0720-2275	–	–	–	–
BioFlo®/CelliGen 510	P0720-2277	–	–	M1361-9208	P0720-6240C3
BioFlo® 610	P0720-2277	–	–	M1361-9208	P0720-6240C3
BioFlo® 720	1385810500	1385810800	–	–	0045890038
BioFlo®/CelliGen Pro - Standard housing	M1290-0610	–	–	–	P0720-6450C1
BioFlo®/CelliGen Pro - Retractable housing	M1290-0610 & M1290-8012	–	–	–	P0720-5570C

[1] For DASGIP Benchtop Bioreactors

Ordering information	
Description	**Order no.**
Sensor Cable, for connecting pH/Redox sensors to DASGIP® modules, grey, with plug type AK9, L 3 m (9.8 ft)	78522020
Sensor Cable, for analog pH/Redox sensors, for BioFlo® 120, with plug type AK9, L 1 m (3.3 ft)	1390 810 400
Sensor Cable, for analog Redox sensors, for BioFlo® 320, with plug type AK9, L 1 m (3.3 ft)	M1379-8105
Sensor Cable, for ISM® sensors, with plug type AK9, L 1 m (3.3 ft)	M1379-8108
Sensor Cable, for analog Redox sensors, controller with Lumberg® connector, with plug type AK9, L 3 m (9.8 ft)	1385 810 500
Sensor Cable, for ISM® sensors, controller with Lumberg® connector, with plug type AK9, L 3 m (9.8 ft)	1385 810 800
Sensor Cable, for analog Redox sensors, for BioFlo® 110 and BioFlo®/CelliGen 115, with plug type AK9, L 1.8 m (5.9 ft)	P0720-2763
Sensor Cable, for analog Redox sensors, for BioFlo®/CelliGen 310 and BioFlo® 415, with plug type AK9, L 1 m (3.3 ft)	P0720-2275
Sensor Cable, for analog Redox sensors, for BioFlo®/CelliGen 510 and BioFlo® 610, with plug type AK9, L 1.4 m (4.6 ft)	P0720-2277
Sensor Cable, for analog pH/Redox sensors, for BioFlo®/CelliGen Pro, with plug type AK9, L 1.8 m (5.9 ft)	M1290-0610
Cable, pH/redox ground wire extension, for retractable sensor housings, 0.6 m	M1290-8012
Transmitter, Mettler Toledo® M300	
redox, panel mounted	P0620-5974
redox, wall mounted	P0620-5975
Secondary DO-pH/Redox Option, for BioFlo®/CelliGen 310 and BioFlo® 415, field-installed	M1287-3530
Sensor Housing, stainless steel	
for 25 mm Ingold® port, for 120 mm sensor length, with material certificate	P0720-6450C1
InFit® 761, for 25 mm Ingold® port, for 120 mm sensor length, with material certificate	P0720-6240C3
retractable, InTrac® 797, for 25 mm Ingold® port, 325 mm sensor length, with material certificate	P0720-5570C
Ingold® Port Weldment, converts 1 1/2 in sanitary to 25 mm Ingold® port	M1361-9208
Sensor Sleeve Bellow, for attaching sensor to SUB, with AseptiQuik® connector	0045 890 038
Adaptor	
Pg 13.5 female thread to M18x1.5 male thread	77102016
compression fitting, 12 mm port to 12 mm sensor	M1273-5040
compression fitting, Pg 13.5 port to 12 mm sensor	M1287-5030

i For more information go to www.eppendorf.link/bioprocess

Turbidity Sensors

Ordering information	
Description	**Order no.**
Turbidity Sensor, Mettler Toledo® InPro® 8100, autoclavable, 297 mm (cable not included)	P0720-5950
Turbidity Sensor, Mettler Toledo® InPro® 8200	
SIP, 407 mm (with cable)	P0720-5960
SIP, 120 mm (with cable)	P0720-5961
SIP, 205 mm (with cable)	P0720-5962
SIP, 297 mm (with cable)	P0720-5963
Turbidity Cable, 5 m	P0720-2430
Transmitter, Mettler Toledo® M800, one-channel	P0620-6571

CO_2 Sensors

Ordering information	
Description	**Order no.**
CO_2 Sensor, Mettler Toledo® InPro® 5000i, ISM®	
120 mm	P0720-6663
220 mm	P0720-6664
320 mm	P0720-6665
Transmitter, Mettler Toledo® M800, one-channel	P0620-6571
Sensor Cable, for CO_2 sensors, for Mettler Toledo® transmitter, with plug type VP, L 3 m (9.8 ft)	P0720-9660
Sensor Cable, for ISM® sensors, with plug type AK9, L 1 m (3.3 ft)	M1379-8108
CO_2 Membrane Kit, including spare o-rings and electrolyte, Mettler Toledo® InPro® 5000/InPro® 5000i, 4 membrane bodies	P0720-6641

Optical Density Sensors

Optical Density Sensors

> Accurate measurement of optical absorbance
> Used with the DASGIP OD4 monitoring module
> Different optical path lengths for various applications
> Various sensor lengths available

Model	DASGIP® OD Sensor								
Optical path length	5 mm	5 mm	5 mm	10 mm	10 mm	10 mm	20 mm	20 mm	20 mm
Order no.	781 03411	781 03408	781 03414	781 03412	781 03409	781 03415	781 03413	781 03410	781 03416
Sensor length	120 mm	225 mm	335 mm	120 mm	225 mm	335 mm	120 mm	225 mm	335 mm
DASbox® MiniBioreactor	■			■			■		
DASGIP® Benchtop Spinner 0.5 L		■			■			■	
DASGIP® Benchtop Spinner 1.5 L		■			■			■	
DASGIP® Bioblock Spinner 0.7 L/Stirrer 1 L		■			■			■	
DASGIP® Bioblock Spinner 1 L/Stirrer 1.5 L		■			■			■	
DASGIP® Bioblock Spinner 1.5 L/Stirrer 1.8 L			■			■			■
DASGIP® Benchtop Bioreactors 2.5 L		■			■			■	
DASGIP® Benchtop Bioreactors 3.5 L			■			■			■
DASGIP® PhotoBioreactors 1.0 L		■			■			■	
DASGIP® PhotoBioreactors 2.5 L		■			■			■	

Accessories

Description	Order no.
Compression Fitting, complete, with M18x1.5 male thread, I.D. 12 mm	78532281
Compression Fitting, complete, with Pg 13.5 male thread, I.D. 12 mm	78532284
OD Cable, for connecting OD sensors to DASGIP® modules, L 3 m	78522037

i For more information go to www.eppendorf.link/bioprocess

Level Sensors

Level Sensors

> Activation of pumps for level control due to level changes
> Anti foam addition due to foam build-up
> Used with the DASGIP PHPO monitoring modules with level option

Ordering information

Description	Order no.
Level Sensor, stainless steel with PFA coating	
L 130 mm, Li 20 – 90 mm	78103145
L 200 mm, Li 20 – 160 mm	78103146
L 230 mm, Li 20 – 190 mm	78103147

Li = immersion depth

Accessories

Description	Order no.
Compression Fitting, complete, with M18x1.5 male thread, I.D. 4 mm	78532279
Compression Fitting, complete, with Pg 13.5 male thread, I.D. 4 mm	78532282
Level Sensor Cable, L 3 m	78522031

Temperature Sensors

Temperature Sensors

> Platinum RTD temperature sensors (Pt100)
> Designed for use with DASGIP bioreactors

Ordering information

Description	Order no.
Platinum RTD Temperature Sensor, 100 Ohm class A	
O.D. 1.6 mm, L 150 mm, cable L 1.8 m	78103314
O.D. 1.6 mm, L 300 mm, cable L 1.3 m	78103308
Platinum RTD Temperature Sensor, 100 Ohm class A, O.D. 1.6 mm, L 300 mm, cable L 3 m	78103304
O.D. 1.6 mm, L 400 mm, cable L 3 m	78103307
Platinum RTD Temperature Sensor, 100 Ohm class 1/10b	
O.D. 4.78 mm, L 111 mm, cable L 1.35 m (for BioBLU® 3c/5c/5p)	78103319
Temperature Sensor (RTD), for SciVario® twin	
for BioBLU® 1 Single-Use Vessels, L 215 mm, O.D. 2.5 mm	7600 223 011
for BioBLU® 3 Single-Use Vessels, L 250 mm, O.D. 4.5 mm	7600 223 012
for BioBLU® 10 Single-Use Bioreactors, L 340 mm, O.D. 4.5 mm	7600 223 015
for BioBLU® 50 Single-Use Bioreactors, L 495 mm, O.D. 4.5 mm	7600 223 016
for glass vessels, L 300 mm, O.D. 1.6 mm	7600 223 002
for glass vessels, L 400 mm, O.D. 1.6 mm	7600 223 003

Service

As with all complex technical systems, Eppendorf bioprocess equipment should be maintained regularly to keep all parts in good working order. This maintenance avoids cost-intensive down times and contributes to preservation of value.

i For more information go to www.eppendorf.link/bioprocess

DASbox® Mini Bioreactor System Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The Eppendorf DASbox is the solution for bioprocessing in small working volumes. In small volumes precision and process reliability are essential. Slight deviations or irregularities influence the process and the cultivated cells and organisms much more than at larger scales. Be on the safe side with calibrated and adjusted mass flow sensors, sensor electronics and actuators.
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

eppendorf

Performance tested on

Model: _____

Serial no.: _____

Serviced by: _____

Service no.: _____

Next service: _____

Date: _____

epServices
for premium performance

i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification/ Operational Qualification (IQ/OQ)*
Order Number	0082 150 373	0082 150 374	0082 150 375	0082 150 379
External Inspection				
General condition of DASbox® and all attached cables	■	■	■	■
General condition of tubing	■	■	■	
Internal Inspection				
Check/update of firmware and internal battery	■	■	■	
Check of internal settings	■	■	■	■
Functional Check				
Operational check of all actuators (heating, cooling, gassing, pumps)	■	■	■	
Operational check of exhaust condenser	■	■	■	
Operational check of sensor cables		■	■	
Operational check of all attached sensors	■			
Verification				
Verification of sensor performance		■	■	
Verification of agitation speed		■	■	■
Verification of gas flow	■			
Verification of temperature measurement		■	■	■
Verification of exhaust performance		■	■	
Calibration and Adjustment				
Calibration and adjustment of mass flow sensors		■	■	
Calibration of electronics of sensors for pH, DO, level, redox, temperature**	■	■	■	■
Documentation				
Check list provided	■	■	■	
Dated service sticker to confirm Eppendorf service	■	■	■	■
IQ/OQ report and certificate				■
Supporting Information				
Contract period	one year	one year	one year	n/a
Number of preventive services included	one	one	one	n/a
Costs of repairs/parts replacement outside scope of preventive maintenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a

* Separate purchase of IQ/OQ documents will be necessary

**Where feature is present

For a complete mainenance of your DASbox® additional services are recommended:

Control system:
> Essential Check: 0082 150 003
> Advanced Maintenance: 0082 150 004
> Premium Service: 0082 150 005

Small scale vessel:
> Essential Check: 0082 150 333
> Advanced Maintenance: 0082 150 334
> Premium Service: 0082 150 335

DASGIP® PHPO and OD4 Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The most common reasons for failed experiments are incorrect sensor readings or defective sensors. Therefore, it is essential to identify and eliminate these risks before they arise. Preventive maintenance of electronics, cables, and sensors notably diminishes in-process failure.
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification/ Operational Qualification (IQ/OQ)*
Order Number (for DASGIP® PHPO)	0082 150 453	0082 150 454	0082 150 455	0082 150 459
Order Number (for DASGIP® OD4)	0082 150 043	0082 150 044	0082 150 045	0082 150 049
External Inspection				
General condition of DASGIP® module and attached cables	■	■	■	■
Internal Inspection				
Check/update of firmware	■	■	■	
Check/update of internal battery	■	■	■	
Check of internal settings	■	■	■	■
Functional Check				
Operational check of sensor cables		■	■	
Operational check of all attached sensors	■			
Verification				
Verification of sensor performance		■	■	
Calibration and Adjustment				
Calibration and adjustment of electronics of sensors for pH, DO, level, redox, temperature**	■	■	■	■
1-point calibration of all attached sensors	■			
2-point calibration of all attached sensors		■	■	
Documentation				
Check list provided	■	■	■	
Dated service sticker to confirm Eppendorf service	■	■	■	■
IQ/OQ report and certificate				■
Supporting Information				
Contract period	one year	one year	one year	n/a
Number of preventive services included	one	one	one	n/a
Cost of repairs/parts replacement outside scope of preventive maintenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a

*Separate purchase of IQ/OQ documents will be necessary

**Where feature is present

DASGIP® GA Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The DASGIP GA4 exhaust analyzer supports precise online measurement of exhaust oxygen and carbon dioxide in four discrete analyzer channels. The online monitoring of oxygen transfer rate (OTR), carbon dioxide transfer rate (CTR), and respiratory quotient (RQ) permits direct conclusions on the metabolic state of the culture and allows implementation of online feedback loops. As the GA4 gas sensors have a limited working lifetime, regular maintenance is essential to obtaining reliable experimental data.
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

eppendorf

Performance tested on

Model: _____

Serial no.: _____

Serviced by: _____

Service no.: _____

Next service: _____

Date: _____

epServices
for premium performance

i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification/ Operational Qualification (IQ/OQ)[1]
Order Number	0082 150 203	0082 150 204	0082 150 205	0082 150 209
External Inspection				
General condition of DASGIP® GA4 module and attached cables	■	■	■	■
Internal Inspection				
Check/update of firmware	■	■	■	
Check/exchange of internal battery	■	■	■	
Check of internal settings	■	■	■	■
Check lifetime of gas sensors	■	■	■	
Verification				
Characterization of gas sensor performance with air	■	■	■	■
Characterization of gas sensor performance with test gas[2]	■	■	■	■
Characterization of mass flow sensor performance	■	■	■	■
Calibration and Adjustment				
Calibration and adjustment of mass flow sensors		■	■	
Calibration and adjustment of ambient pressure sensor		■	■	
1-point calibration of gas sensors with air	■			
2-point calibration of gas sensors with air and test gas[2]		■	■	■
Documentation				
Check list provided	■	■	■	
Dated service sticker to confirm Eppendorf service	■	■	■	■
IQ/OQ report and certificate				■
Supporting Information				
Contract period	one year	one year	one year	n/a
Number of preventive services included	one	one	one	n/a
Costs of repair/parts replacement outside scope of preventive maintenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a

[1] Separate purchase of IQ/OQ documents will be necessary

[2] Test gas has to be provided by customer

Order numbers for additional, inhouse services:

GA4:
> GA4 sensor train inspection (O2/CO2): 77 105 000
> GA4 sensor train maintenance (O2/CO2/flow): 77 105 001
> GA4 maintenance (4x O2/CO2): 77 105 002

GA4E:
> GA4E sensor train inspection (O2/CO2): 77 105 039
> GA4E sensor train maintenance (O2/CO2/flow): 77 105 040
> GA4E maintenance (4x O2/CO2): 77 105 041

DASGIP® TC4SC4 Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
Efficient mixing and accurate temperature control are indispensable to achieve optimum growth conditions, especially for mass and heat transfer in microbial cultivation. Mammalian cells require smooth mixing with low shear stress. The DASGIP TC4SC4 module provides individual temperature and agitation controls for four bioreactors.
Their correct functioning is essential for every experiment, because even the smallest deviations can disrupt the experiment, as well as further process development and upscaling. Therefore, regular verification and calibration of motors, temperature sensors, and heating and cooling devices is indispensable for standardized process conditions.
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

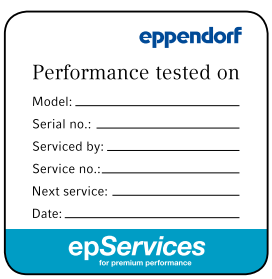
i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification/ Operational Qualification (IQ/OQ)[1]
Order Number	0082 150 413	0082 150 414	0082 150 415	0082 150 419
External Inspection				
General condition of DASGIP® TC4SC4 module and attached cables	■	■	■	■
Internal Inspection				
Check/update of firmware	■	■	■	
Check/exchange of internal battery	■	■	■	
Check of internal settings	■	■	■	■
Functional Check				
Operational checks of heating	■	■	■	■
Operational check of cooling	■	■	■	■
Operational check of agitation	■	■	■	■
Verification				
Verification of temperature sensor performance	■	■	■	■
Verification of heating performance		■	■	■
Verification of cooling performance		■	■	■
Verification of agitation performance		■	■	■
Calibration				
Calibration and adjustment of temperature electronics	■	■	■	
Calibration and adjustment of temperature sensors	■	■	■	■
Documentation				
Check list provided	■	■	■	
Dated service sticker to confirm Eppendorf service	■	■	■	■
IQ/OQ report and certificate				■
Supporting Information				
Contract period	one year	one year	one year	n/a
Number of preventive services included	one	one	one	n/a
Cost of repairs/parts replacement outside scope of preventive maintenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a

[1] Separate purchase of IQ/OQ documents will be necessary

DASGIP® MP8 and MP4 Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
Microbial and cell culture applications require precise flows of feed and buffer. The DASGIP variable-speed pump modules MP4 and MP8 provide four or eight high-precision, speed-controlled miniature peristaltic pumps, respectively.
Our field service engineers ensure accurate functioning of the pumps and accessories with scheduled preventive maintenance. They take equipment usage and condition into account with predictive maintenance techniques to determine when service will be required, thus saving money and downtime. Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.



i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification/ Operational Qualification (IQ/OQ)[1]
Order Number	0082 150 083	0082 150 084	0082 150 085	0082 150 089
External Inspection				
General condition of DASGIP® MP module, attached cables, and feed lines[2]	■	■	■	■
Internal Inspection				
Check/update of firmware	■	■	■	
Check/exchange of internal battery	■	■	■	
Check for correct calibration parameters		■	■	
Functional Check				
Operational check of all pumps (manual mode)	■	■	■	■
Operational check of all pumps (automatic mode)	■	■	■	■
Verification				
Verification of pump and pump head condition	■	■	■	
Verification of tightness of the feed line manifold[2]		■	■	
Verification of tightness of the feed lines[2]		■	■	
Documentation				
Check list provided	■	■	■	
Dated service sticker to confirm Eppendorf service	■	■	■	■
IQ/OQ report and certificate				■
Supporting Information				
Contract period	one year	one year	one year	n/a
Number of preventive services included	one	one	one	n/a
Cost of repairs/parts replacement outside scope of preventive maintenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a

[1] Separate purchase of IQ/OQ documents will be necessary

[2] Where feed lines are available

DASGIP® MX4/4 Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The DASGIP MX4/4 gas mixing system supplies four separate culture vessels with independent mixtures of air, N_2, O_2, and CO_2. Each gas outlet has separate setpoints for flow rate, and concentrations of O_2 and CO_2. Regular maintenance is crucial to ensuring reproducible and reliable gas mixtures for your cell culture applications and microbial fermentations. Fast and precise calibration and adjustment of your gas mixing system can be performed on-site, which minimizes down time.
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

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Performance tested on

Model: _____

Serial no.: _____

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Service no.: _____

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i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification/ Operational Qualification (IQ/OQ)[1)]
Order Number	0082 150 123	0082 150 124	0082 150 125	0082 150 129
External Inspection				
General condition of DASGIP® MX module and attached cables	■	■	■	■
Internal Inspection				
Check/update of firmware	■	■	■	
Check/exchange of internal battery	■	■	■	
Check of internal settings	■	■	■	■
Functional Check				
Operational check of inline gas filter		■	■	■
Operational check of alarm functions on all channels/gasses	■	■	■	■
Operational check of gas inlets/outlets	■	■	■	■
Verification				
Verification of valve resistance		■	■	
Characterization of mass flow sensor performance	■	■	■	
Verification of gassing system tightness		■	■	
Calibration and Adjustment				
Calibration and adjustment of inline pressure sensors		■	■	
Calibration and adjustment of valve current of flow valves		■	■	
Calibration and adjustment of mass flow sensors		■	■	
Documentation				
Check list provided	■	■	■	
Dated service sticker to confirm Eppendorf service	■	■	■	■
IQ/OQ report and certificate				■
Supporting information				
Contract period	one year	one year	one year	n/a
Number of preventive services included	one	one	one	n/a
Costs of repair/parts replacement outside scope of preventive maintenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a

[1)] Separate purchase of IQ/OQ documents will be necessary

DASGIP® MX4/1, MF4 and Rotameters Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The DASGIP MX4/1 gas mixing system supplies one culture vessel with an individual mixture of air, N_2, O_2, and CO_2. The DASGIP MF4 gassing module allows mass flow-controlled gassing of up to four vessels with individual flow rates. DASGIP Rotameters WRM and RX2/4 provide four-channel rotameter gassing at an adjustable flow rate from one and two gas supplies, respectively. Regular maintenance is crucial to ensure a reproducible and reliable gas supply. Fast calibration of your gassing system can be performed on-site, which minimizes down time.
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification/ Operational Qualification (IQ/OQ)[1]
Order Number	0082 150 163	0082 150 164	0082 150 165	0082 150 169
External Inspection				
General condition of DASGIP® module	■	■	■	■
General condition of all attached cables, tubes, and labels	■	■	■	■
Internal Inspection				
Check/update of firmware	■	■	■	
Check/exchange of internal battery	■	■	■	
Check of internal settings and parameters	■	■	■	■
Inspection of flow controller[2]	■	■	■	■
Check of alarm settings	■	■	■	■
Check system tightness	■	■	■	■
Functional Check				
Operational check of pressure sensor and pressure control[2]	■	■	■	■
Calibration				
2-point calibration of WRM or RX2/4[2]	■			
4-point calibration of WRM or RX2/4[2]		■	■	
4-point calibration of MX4/1 or MF4[2]	■			
8-point calibration of MX4/1 or MF4[2]		■	■	
Documentation				
Check list provided	■	■	■	
Dated service sticker to confirm Eppendorf service	■	■	■	■
IQ/OQ report and certificate				■
Supporting Information				
Contract period	one year	one year	one year	n/a
Number of preventive services included	one	one	one	n/a
Costs of repairs/parts replacement outside scope of preventive maintenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a

[1] Separate purchase of IQ/OQ documents will be necessary

[2] Where feature is present

DASGIP® PBR4 Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
Phototrophic organisms use different types of chlorophyll. To address their individual requirements, the DASGIP PBR4 enables illumination of photobioreactors with selected wavelengths, ideally matched to the absorption maxima of relevant chlorophyll molecules. The DASGIP PBR4 module provides parallel illumination of up to 4 bioreactors under individual conditions. By selectively varying the light intensities of different wavelength channels, both the spectral composition and the overall intensity of the resulting light can be adjusted according to individual requirements. In addition to a continuous illumination mode the DASGIP PBR4 module supports the configuration of variable day and night cycles as well as the programming of different flash modes.
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

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Model: _____

Serial no.: _____

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i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification/ Operational Qualification (IQ/OQ)[1]
Order Number	0082 150 293	0082 150 294	0082 150 295	0082 150 299
External Inspection				
General condition of DASGIP® PBR4 module and all attached cables	■	■	■	■
Internal Inspection				
Check/update of firmware	■	■	■	
Check/exchange of internal battery	■	■	■	
Check of internal settings	■	■	■	■
Functional Check				
Operational check of LED cables	■	■	■	■
Operational check of all attached illuminators	■	■	■	■
Operational check of all LED types	■	■	■	■
Operational check of illumination modes		■	■	■
Verification				
Verification of photon intensity values		■	■	
Documentation				
Check list provided	■	■	■	
Dated service sticker to confirm Eppendorf service	■	■	■	■
IQ/OQ report and certificate				■
Supporting Information				
Contract period	one year	one year	one year	n/a
Number of preventive services included	one	one	one	n/a
Costs of repairs/parts replacement outside scope of preventive maintenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a

[1] Separate purchase of IQ/OQ documents will be necessary

DASGIP® Control System Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The DASGIP control system comprises a process computer and the bioprocess control software DASware® control. It is at the core of all DASGIP Parallel Bioreactor Systems and the DASbox® Mini Bioreactor System. Operating multiple bioreactors in parallel reduces the number of runs needed and therefore accelerates process development. DASware control facilitates the control of up to 24 bioreactors in parallel. Combined with extensive embedded process automation features, intelligent recipe management, and integrated report generating capabilities it offers an unprecedented level of integral process documentation.
Our field service engineers ensure accurate functioning of your process computer, implement updates of DASware control, and maintain your database, to ensure the best performance of your control system. Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

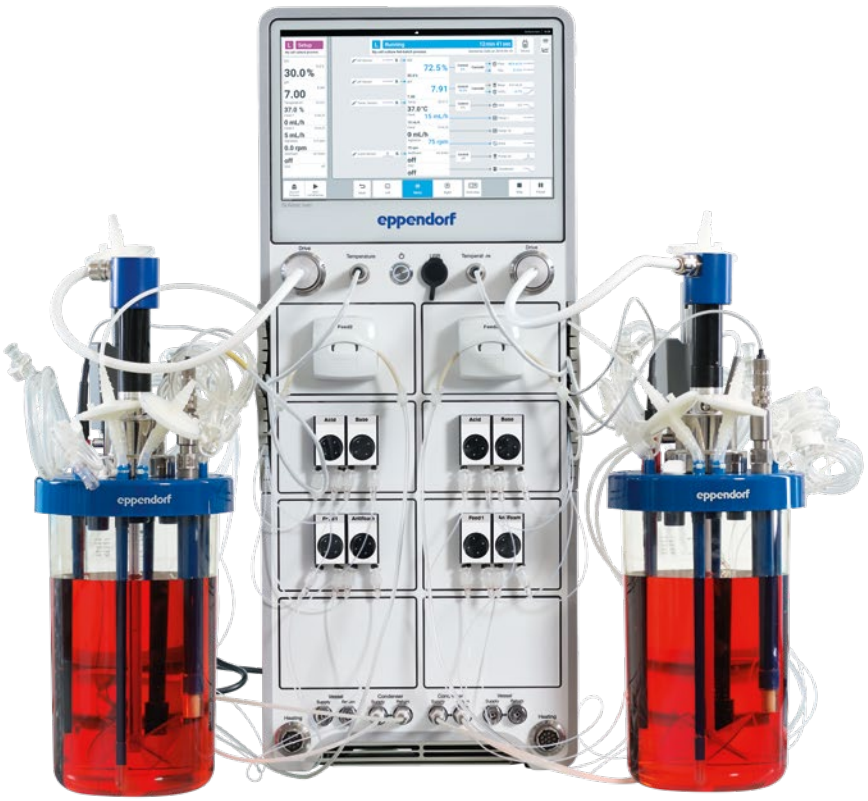
i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification/ Operational Qualification (IQ/OQ)[1]
Order Number	0082 150 003	0082 150 004	0082 150 005	0082 150 009
External Inspection				
General condition of DASGIP® process computer	■	■	■	■
General condition of all attached cables	■	■	■	■
Internal Inspection				
Check database size	■	■	■	
Check DTP-Insight firmware version	■	■	■	■
Check process computer settings	■	■	■	■
Check/update of firmware	■	■	■	■
Update of minor release		■	■	
Functional Check				
Check automatic export function	■	■	■	■
Perform database export	■	■	■	
UPS capacity check[2]		■	■	
Assistance				
Scripting support			■	
Documentation				
Check list provided	■	■	■	
Dated service sticker to confirm Eppendorf service	■	■	■	■
IQ/OQ report and certificate				■
Supporting Information				
Contract period	one year	one year	one year	n/a
Number of preventive services included	one	one	one	n/a
Costs of repairs/parts replacement outside scope of preventive maintenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a

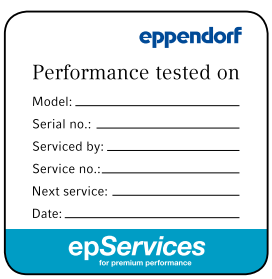
[1] Separate purchase of IQ/OQ documents will be necessary

[2] Where feature is present

SciVario® twin Performance Plans



Bioprocess systems include several sophisticated technologies. Peak performance requires a smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The SciVario twin next-generation bioreactor control station is the first product of our new bioprocess controller platform SciVario for small- and bench-scale instruments with a new intuitive user-interface and highly innovative hard- and software solutions. The SciVario twin was developed for the individual or parallel control of up to two bioreactors (BioBLU® Single-Use Bioreactors and glass vessels). With the patented baydrawer system, the hardware of the controller can be flexibly adapted to your needs, without the necessity of purchasing a completely new system.
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over the years of frequent use.



i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE
Order Number	0082 150 770	0082 150 780	0082 150 790
External Inspection and Maintenance			
General condition of the controller	■	■	■
General condition of all attached cables and tubing	■	■	■
General condition of the vessels	■	■	■
General condition of all inserted drawers	■	■	■
General condition of all accessories (temperature control block, heating blanket, motors)	■	■	
Verify utility connections	■	■	■
Internal Inspection			
Update to latest firmware and software revision		■	■
Perform export of experimental data		■	■
Functional Check			
Operational check of all actuators (heating, cooling, agitation, gassing, pumps)	■	■	■
Operational check of exhaust condensers	■	■	■
Operational check of sensor cables	■	■	■
Verification			
Verification of the sensor performance	■	■	■
Verification of sensor electronics for pH and DO		■	■
Verification of the agitation speed	■	■	■
Verification of the temperature measurement	■	■	■
Perform software test run		■	■
Documentation			
Check list provided	■	■	■
Dated service sticker to confirm Eppendorf service	■	■	■
Supporting Information			
Contract period	one year	one year	one year
Number of preventive services included	one	one	one
Cost of repairs/parts replaced outside scope of preventive maintenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time

*For a complete maintenance of your SciVario twin system, **Small Scale Vessel Maintenance** and **DASware® Control System Maintenance** services are recommended.

	Small Scale Vessel	DASware control system
Essential Check	0082 150 333	0082 150 003
Advanced Maintenance	0082 150 334	0082 150 004
Premium Service	0082 150 335	0082 150 005

DASGIP®, DASbox®, and SciVario® twin Performance Plans

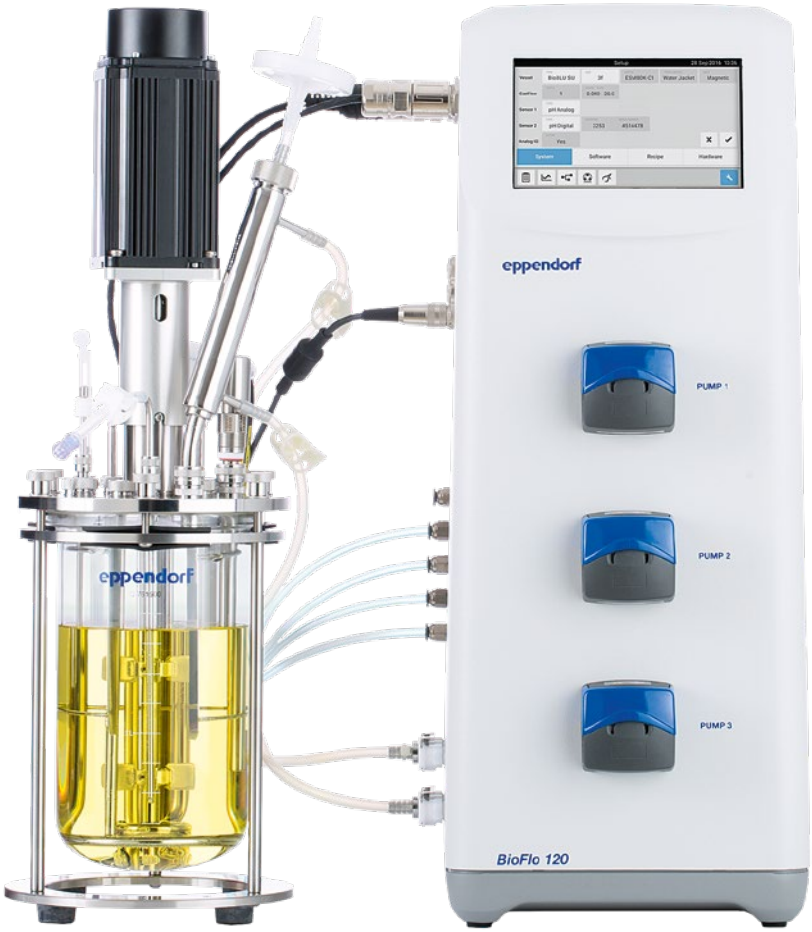
Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts.
Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime. Eppendorf offers autoclavable, overhead-driven glass vessels for microbial and cell culture applications. They feature multi-port stainless steel head plates and Rushton-type or pitched-blade impellers and cover working volumes of 60 mL – 3.8 L. Stirrer assemblies and head plates are equipped with numerous seals and O-rings to ensure a safe and sterile connection between the different parts. To ensure culture sterility, it is essential to exchange them on a regular basis. A preventive maintenance of the vessel and the stirring assembly notably diminishes contamination and performance problems. Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification/ Operational Qualification (IQ/OQ)[1]
Order Number	0082 150 333	0082 150 334	0082 150 335	0082 150 339
External Inspection				
General condition of DASGIP® or DASbox® vessel	■	■	■	■
General condition of all O-rings and seals	■	■	■	■
General conditions of all reusable parts	■	■	■	■
General condition of all vessel filters	■	■	■	■
Maintenance				
Maintenance of stirrer assembly	■	■	■	
Exchange of all O-rings on vessel		■	■	
Functional Check				
Operational check of vessel		■	■	
Documentation				
Check list provided	■	■	■	
Dated service sticker to confirm Eppendorf service	■	■	■	■
IQ/OQ report and certificate				■
Supporting Information				
Contract period	one year	one year	one year	n/a
Number of preventive services included	one	one	one	n/a
Costs of repairs/parts replacement outside scope of preventive maintenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a

[1] Separate purchase of IQ/OQ documents will be necessary

BioFlo® 120 Performance Plans



Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The Eppendorf BioFlo 120 offers simplicity and ease of use, without sacrificing capability. No matter if you are in an academic, governmental or industrial research setting, or working with bacteria, yeast, fungi, mammalian, insect or plant cells, the BioFlo 120 is an attractive solution to meet your needs. It features an extensive range of glass and BioBLU® Single-Use Bioreactors options (250 mL – 40 L). Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

eppendorf

Performance tested on

Model: _____

Serial no.: _____

Serviced by: _____

Service no.: _____

Next service: _____

Date: _____

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i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTE-NANCE	PREMIUM SERVICE	Installation Qualification (IQ)	Operational Qualification (OQ)	IQ/OQ
Order Number	0082 140 043	0082 140 044	0082 140 045	0082 140 047	0082 140 048	0082 140 049
External Inspection and Maintenance						
Check installation environment	■	■	■	■		■
Verify utility connections	■	■	■	■		■
Inspect addition pump heads and motors	■	■	■	■		■
Inspect motor cables and sensor cables	■	■	■	■		■
Check vessel for damage	■	■	■	■		■
Internal Equipment						
Check motor and bearing housing for speed and operation[1)]	■	■	■		■	■
Rebuild bearing housing		■	■			
Replace o-rings, gaskets, washers, and ferrules		■	■			
Inspect cooling valve	■	■	■			
Inspect gas sequencing valves	■	■	■			
System Checks						
Calibrate pH and DO loops with simulator	■	■	■	■	■	■
Check gas flow and mixing	■	■	■			
Verify motor speed[1)]	■	■	■	■	■	■
Verify temperature	■	■	■			
Perform test run[1)]	■	■	■	■	■	■
Check for latest firmware revision	■	■	■	■	■	■
Documentation						
Check list provided	■	■	■			
Dated service sticker to confirm Eppendorf service	■	■	■	■	■	■
IQ report and signed documentation				■		■
OQ report and signed documentation					■	■
Supporting Information						
Contract period	one year	one year	one year	n/a	n/a	n/a
Number of preventive services included	one	one	one	n/a	n/a	n/a
Cost of repairs/parts replaced outside scope of preventive mainenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a	n/a	n/a

Note: For customers using BioBLU® Single-Use Bioreactors please select the Essential Check only. Please contact your local Eppendorf representative for other service contract options.

[1)] Customers using single-use vessels must provide a vessel for these tests.

BioFlo®/CelliGen 115 Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The Eppendorf BioFlo/CelliGen 115 is an easy-to-use benchtop system, with built-in controls for operation as a microbial fermentor or mammalian cell culture bioreactor.
It features an extensive range of glass and BioBLU Single-Use Bioreactor options. Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

eppendorf

Performance tested on

Model: _____

Serial no.: _____

Serviced by: _____

Service no.: _____

Next service: _____

Date: _____

epServices
for premium performance

i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE
Order Number	0082 140 003	0082 140 004	0082 140 005
External Inspection and Maintenance			
Check installation environment	■	■	■
Verify utility connections	■	■	■
Inspect addition pump heads and motors	■	■	■
Inspect motor cables and sensor cables	■	■	■
Check vessel for damage	■	■	■
Internal Equipment			
Check motor and bearing housing for speed and operation[1)]	■	■	■
Rebuild bearing housing		■	■
Replace o-rings, gaskets, washers, and ferrules		■	■
Inspect cooling valve	■	■	■
Inspect gas sequencing valves	■	■	■
System Checks			
Calibrate pH and DO loops with simulator	■	■	■
Check gas flow and mixing	■	■	■
Verify motor speed[1)]	■	■	■
Verify temperature	■	■	■
Perform test run[1)]	■	■	■
Check for latest software revision	■	■	■
Documentation			
Check list provided	■	■	■
Dated service sticker to confirm Eppendorf service	■	■	■
Supporting Information			
Contract period	one year	one year	one year
Number of preventive services included	one	one	one
Cost of repairs/parts replaced outside scope of preventive mainenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time

Note: For customers using BioBLU® Single-Use Bioreactor please select the Essential Check only. Please contact your local Eppendorf representative for other service contract options.

[1)] Customers using single-use vessels must provide a vessel for these tests.

BioFlo® 320 Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The BioFlo 320, next-generation bioprocess control station, is designed as a universal platform capable of meeting the ever changing needs of all segments of biotech and pharmaceutical sciences. The BioFlo 320 is suitable for microbial and cell culture, scale up and scale down, and batch, fed batch, and perfusion processes. It features an extensive range of glass and BioBLU Single-Use Bioreactor options (250 mL – 40 L). Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

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Performance tested on

Model: _____

Serial no.: _____

Serviced by: _____

Service no.: _____

Next service: _____

Date: _____

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i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTE-NANCE	PREMIUM SERVICE	Installation Qualification (IQ)	Operational Qualification (OQ)	IQ/OQ
Order Number	0082 140 123	0082 140 124	0082 140 125	0082 140 127	0082 140 128	0082 140 129
External Inspection and Maintenance						
Check installation environment	■	■	■	■		■
Verify utility connections	■	■	■	■		■
Inspect addition pump heads and motors	■	■	■	■		■
Inspect motor cables and sensor cables	■	■	■	■		■
Check vessel for damage	■	■	■	■		■
Internal Equipment						
Check motor and bearing housing for speed and operation[1)]	■	■	■		■	■
Rebuild bearing housing		■	■			
Replace o-rings, gaskets, and ferrules		■	■			
Check water circulation system	■	■	■			
Inspect gas sequencing valves	■	■	■			
System Checks						
Calibrate pH and DO loops with simulator	■	■	■	■	■	■
Check gas flow and mixing	■	■	■			
Verify motor speed[1)]	■	■	■	■	■	■
Verify temperature	■	■	■			
Perform test run[1)]	■	■	■	■	■	■
Check for latest software revision	■	■	■	■	■	■
Documentation						
Check list provided	■	■	■			
Dated service sticker to confirm Eppendorf service	■	■	■	■	■	■
IQ report and signed documentation				■		■
OQ report and signed documentation					■	■
Supporting Information						
Contract period	one year	one year	one year	n/a	n/a	n/a
Number of preventive services included	one	one	one	n/a	n/a	n/a
Cost of repairs/parts replaced outside scope of preventive mainenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a	n/a	n/a

Note: For customers using BioBLU® Single-Use Bioreactor please select the Essential Check only. Please contact your local Eppendorf representative for other service contract options.

[1)] Customers using single-use vessels must provide a vessel for these tests.

BioFlo®/CelliGen 310 Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The BioFlo/CelliGen 310 is a benchtop, autoclavable fermentor/bioreactor with advanced controller and touchscreen interface. The system can operate glass vessels of four sizes ranging from 0.6 L to 10 L, as well as BioBLU Single-Use Bioreactors covering working volumes of 1.25 L to 40 L.
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

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Performance tested on

Model: _____

Serial no.: _____

Serviced by: _____

Service no.: _____

Next service: _____

Date: _____

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i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE
Order Number	0082 140 083	0082 140 084	0082 140 085
External Inspection and Maintenance			
Check installation environment	■	■	■
Verify utility connections	■	■	■
Inspect addition pump heads and motors	■	■	■
Inspect motor cables and sensor cables	■	■	■
Check vessel for damage	■	■	■
Internal Equipment			
Check motor and bearing housing for speed and operation[1)]	■	■	■
Rebuild bearing housing		■	■
Replace o-rings, gaskets, and ferrules		■	■
Check water circulation system	■	■	■
Inspect gas sequencing valves	■	■	■
System Checks			
Calibrate pH and DO loops with simulator	■	■	■
Verify motor speed[1)]	■	■	■
Verify temperature	■	■	■
Perform test run[1)]	■	■	■
Check for latest software revision	■	■	■
Documentation			
Check list provided	■	■	■
Dated service sticker to confirm Eppendorf service	■	■	■
Supporting Information			
Contract period	one year	one year	one year
Number of preventive services included	one	one	one
Cost of repairs/parts replaced outside scope of preventive mainenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time

Note: For customers using BioBLU® Single-Use Bioreactors please select the Essential Check only. Please contact your local Eppendorf representative for other service contract options.

[1)] Customers using single-use vessels must provide a vessel for these tests.

CelliGen BLU Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime. The CelliGen BLU combines the benefits of single-use technology with the performance and scalability of a stirredtank design.
The CelliGen BLU features interchangeable pitched-blade, single-use vessels in 5 L, 14 L and 50 L capacities, as well as a single-use vessel featuring the proprietary Eppendorf packed-bed impeller.
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

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Performance tested on

Model: _____

Serial no.: _____

Serviced by: _____

Service no.: _____

Next service: _____

Date: _____

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i For more information go to www.eppendorf.link/bioprocess

Service Operation	■ ESSENTIAL CHECK
Order Number	0082 140 253
External Inspection and Maintenance	
Check installation environment	■
Verify utility connections	■
Inspect addition pump heads and motors	■
Inspect motor cables and sensor cables	■
System Checks	
Calibrate pH and DO loops with simulator	■
Verify gas flow and check mixing	■
Inspect gas sequencing valves	■
Verify motor speed (without vessel)	■
Verify temperature	■
Check for latest software revision	■
Check PI values for inconsistent settings	■
Documentation	
Check list provided	■
Dated service sticker to confirm Eppendorf service	■
Supporting Information	
Contract period	one year
Number of preventive services included	one
Cost of repairs/parts replaced outside scope of preventive mainenance visit (where Eppendorf product warranty has expired)	not included

Specifications subject to change

BioFlo® 415 Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The BioFlo 415 is an economical sterilize-in-place fermentor available in three vessel sizes with working volumes from 2 L to 15 L. The system's built-in electrical heaters make the BioFlo 415 particularly suitable for those labs where a steam source is not present.
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

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Performance tested on

Model: _____

Serial no.: _____

Serviced by: _____

Service no.: _____

Next service: _____

Date: _____

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Service Operation	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification (IQ)
Order Number	0082 140 164	0082 140 165	0082 140 167
External Inspection and Maintenance			
Check installation environment	■	■	■
Verify utility connections	■	■	■
Inspect addition pump heads and motors	■	■	■
Inspect motor cables and sensor cables	■	■	■
Check vessel for damage and leaks	■	■	■
Verify loop PI settings	■	■	■
Check valve operation	■	■	■
Check hoses	■	■	■
Internal Equipment			
Check motor and bearing housing for speed and operation	■	■	
Rebuild bearing housing	■	■	
Replace o-rings, gaskets, and ferrules	■	■	
Inspect solenoid valves operations	■	■	
Inspect gas sequencing valves	■	■	
Replace rupture disk	■	■	
Test TMFC for operation	■	■	
System Checks			
Calibrate pH and DO loops with simulator	■	■	■
Verify motor speed	■	■	■
Verify temperature	■	■	■
Perform test run	■	■	■
Check for latest software revision	■	■	■
Documentation			
Check list provided	■	■	
Dated service sticker to confirm Eppendorf service	■	■	■
IQ report and signed documentation			■
Supporting Information			
Contract period	one year	one year	n/a
Number of preventive services included	one	one	n/a
Cost of repairs/parts replaced outside scope of preventive mainenance visit (where Eppendorf product warranty has expired)	not included	discount on parts, labor, travel time	n/a

BioFlo®/CelliGen 510 (RPC/AB) Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The BioFlo/CelliGen 510 is a sterilize-in-place pilot/production-scale fermentor/bioreactor that can be placed on a laboratory bench or on a mobile cart. The system can be controlled by the Eppendorf RPC controller or an Allen Bradley Programmable Logic Controller (PLC).
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

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Performance tested on

Model: _____

Serial no.: _____

Serviced by: _____

Service no.: _____

Next service: _____

Date: _____

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Service Operation	ESSENTIAL CHECK	ADVANCED MAINTE-NANCE	PREMIUM SERVICE	Installation Qualification (IQ)	Operational Qualification (OQ)	IQ/OQ
Order Number	0082 140 293	0082 140 294	0082 140 295	0082 140 297	0082 140 298	0082 140 299
External Inspection and Maintenance						
Check installation environment	■	■	■	■		■
Verify utility connections	■	■	■	■		■
Inspect addition pump heads and motors	■	■	■	■		■
Inspect motor cables and sensor cables	■	■	■	■		■
Check vessel for damage and leaks	■	■	■	■		■
Verify loop PI settings	■	■	■	■		■
Check valve operation	■	■	■	■		■
Check hoses	■	■	■	■		■
Internal Equipment						
Check motor and bearing housing for speed and operation	■	■	■		■	■
Rebuild bearing housing		■	■			
Replace o-rings, gaskets, and ferrules	■	■	■			
Rebuild solenoid, pneumatic, hand-operated, addition, sample, and harvest valves	■	■	■			
Inspect angle seat valves, gas sequencing valves, and circulating pump	■	■	■			
Replace rupture disk	■	■	■			
Test TMFC for operation	■	■	■		■	■
System Checks						
Calibrate pH and DO loops with simulator	■	■	■	■	■	■
Verify motor speed	■	■	■	■	■	■
Verify temperature	■	■	■			
Perform pressure hold	■	■	■	■	■	■
Perform test run	■	■	■	■	■	■
Check for latest software revision	■	■	■	■	■	■
Verify valve sequence	■	■	■		■	■
Documentation						
Check list provided	■	■	■			
Dated service sticker to confirm Eppendorf service	■	■	■	■	■	■
IQ report and signed documentation				■		■
OQ report and signed documentation					■	■
Supporting Information						
Contract period	one year	one year	one year	n/a	n/a	n/a
Number of preventive services included	one	one	one	n/a	n/a	n/a
Cost of repairs/parts replaced outside scope of preventive mainenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a	n/a	n/a

BioFlo® 610 Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The BioFlo 610 is a compact, mobile, pilot/production fermentor for technology transfer and small-scale production. A modular design and wide variety of standard and optional components provide the flexibility to customize the system to meet your process requirements. The BioFlo 610 is available in two vessel sizes with working volumes of 16 L to 100 L.
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTE-NANCE	PREMIUM SERVICE	Installation Qualification (IQ)	Operational Qualification (OQ)	IQ/OQ
Order Number	0082 140 333	0082 140 334	0082 140 335	0082 140 337	0082 140 338	0082 140 339
External Inspection and Maintenance						
Check installation environment	■	■	■	■		■
Verify utility connections	■	■	■	■		■
Inspect addition pump heads and motors	■	■	■	■		■
Inspect motor cables and sensor cables	■	■	■	■		■
Check vessel for damage and leaks	■	■	■	■		■
Verify loop PI settings	■	■	■	■		■
Check valve operation	■	■	■	■		■
Check hoses	■	■	■	■		■
Internal Equipment						
Check motor and bearing housing for speed and operation	■	■	■		■	■
Rebuild bearing housing		■	■			
Replace o-rings, gaskets, and ferrules	■	■	■			
Rebuild solenoid, pneumatic, hand-operated, addition, sample, and harvest valves	■	■	■			
Inspect angle seat valves, gas sequencing valves, and circulating pump	■	■	■			
Replace rupture disk	■	■	■			
Test TMFC for operation	■	■	■		■	■
System Checks						
Calibrate pH and DO loops with simulator	■	■	■	■	■	■
Verify motor speed	■	■	■	■	■	■
Verify temperature	■	■	■			
Perform pressure hold	■	■	■	■	■	■
Perform test run	■	■	■	■	■	■
Check for latest software revision	■	■	■	■	■	■
Verify valve sequence	■	■	■		■	■
Documentation						
Check list provided	■	■	■			
Dated service sticker to confirm Eppendorf service	■	■	■	■	■	■
IQ report and signed documentation				■		■
OQ report and signed documentation					■	■
Supporting Information						
Contract period	one year	one year	one year	n/a	n/a	n/a
Number of preventive services included	one	one	one	n/a	n/a	n/a
Cost of repairs/parts replaced outside scope of preventive mainenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a	n/a	n/a

BioFlo® 720 Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime. The BioFlo 720 is a compact, mobile, and flexible pilot/ production bioreactor control system. It supports seamless scalability from 50 L upto 2000 L. Designed to save time, the BioFlo 720 comes with a variety of new features to automate your workflow and to mitigate risks. Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

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Performance tested on

Model: _____

Serial no.: _____

Serviced by: _____

Service no.: _____

Next service: _____

Date: _____

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Service Operation	ESSENTIAL CHECK	ADVANCED MAINTE-NANCE	PREMIUM SERVICE	IQ/OQ	OQ
Order Number	0082140905	0082140906	0082140907	0082140904	0082140914
External Inspection and Maintenance	■	■	■	■	
Check installation environment	■	■	■	■	
Verify utility connections	■	■	■		
Inspect addition pump heads and motors		■	■		
Inspect RTD	■	■	■		
Inspect temperature control cable	■	■	■		
Inspect motor cables	■	■	■		
Inspect sensor cables	■	■	■		
Verify loop PI settings	■	■	■		
Check valve operation		■	■		
Check hoses	■	■	■		
Internal Equipment					
Check motor for speed and operation	■	■	■	■	■
Inspect solenoid valves		■	■		
Test TMFC for operation	■	■	■	■	■
Inspect TCU	■	■	■		
Inspect gas sequencing valves		■	■		
System Checks					
Calibrate sensors	■	■	■	■	■
Verify motor speed		■	■	■	■
Perform test run		■	■		
Validation & Metrology					
Verify PI values	■	■	■	■	■
Check for the latest SW revision	■	■	■	■	■
Verify scale reading operates within specifications				■	■
Verify shipment vs order				■	
Verify TMFC operating within specifications				■	■
Verify temperature is operating within specifications				■	■
Verify agitation is operating within specifications				■	■
Verify external scales and pumps operate within specifications				■	■
Test sensor readins in all operation modes				■	■
Verify Input/Output operarate with in specifications				■	■
Documentation					
Check list provided	■	■	■		
Dated service sticker to confirm Eppendorf service	■	■	■		
IQ/OQ report and signed documentation				■	■
Supporting Information					
Contract Period		one year	one year		
Number of preventative services included		one	one		
Cost of repairs/parts replaced outside scope of preventive maintenance visit(where Eppendorf product warranty has expired		not included	Discounts on parts, labor, travel time		

BioFlo® Pro Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The BioFlo Pro fermentor is a modular system designed for quick delivery, dependable operation, and system flexibility. Systems are available in seven vessel sizes with working volumes from 32 L to 2,400 L. All BioFlo Pro fermentors utilize industry-standard components including an Allen Bradley® Compact Programmable Logic Controller (PLC).
Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

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Performance tested on

Model: _____

Serial no.: _____

Serviced by: _____

Service no.: _____

Next service: _____

Date: _____

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i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTE-NANCE	PREMIUM SERVICE	Installation Qualification (IQ)	Operational Qualification (OQ)	IQ/OQ
Order Number 60L Vessel	0082 140 373	0082 140 374	0082 140 375	0082 140 377	0082 140 378	0082 140 379
Order Number 120 L Vessel	0082 140 463	0082 140 464	0082 140 465	0082 140 377	0082 140 378	0082 140 379
Order Number 240 L Vessel	0082 140 503	0082 140 504	0082 140 505	0082 140 377	0082 140 378	0082 140 379
Order Number 400 L Vessel	0082 140 543	0082 140 544	0082 140 545	0082 140 377	0082 140 378	0082 140 379
Order Number 800 L/1,200 L/2,400 L Vessels	0082 140 593	0082 140 594	0082 140 595	0082 140 377	0082 140 378	0082 140 379
External Inspection and Maintenance						
Check installation environment	■	■	■	■		■
Verify utility connections	■	■	■	■		■
Inspect addition pump heads and motors	■	■	■	■		■
Inspect motor cables and sensor cables	■	■	■	■		■
Check vessel for damage and leaks	■	■	■	■		■
Verify loop PI settings	■	■	■	■		■
Check valve operation	■	■	■	■		■
Check hoses	■	■	■	■		■
Internal Equipment						
Check motor and bearing housing for speed and operation	■	■	■		■	■
Rebuild bearing housing		■	■			
Replace o-rings, gaskets, and ferrules	■	■	■			
Rebuild solenoid, pneumatic, hand-operated, addition, sample, and harvest valves	■	■	■			
Inspect angle seat valves, gas sequencing valves, and circulating pump	■	■	■			
Replace rupture disk	■	■	■			
Test TMFC for operation	■	■	■		■	■
Check PLC battery	■	■	■			
System Checks						
Calibrate pH and DO loops with simulator	■	■	■	■	■	■
Verify motor speed	■	■	■	■	■	■
Verify temperature	■	■	■			
Perform pressure hold	■	■	■	■	■	■
Perform test run	■	■	■	■	■	■
Check for latest software revision	■	■	■	■	■	■
Verify valve sequence	■	■	■		■	■
Documentation						
Check list provided	■	■	■			
Dated service sticker to confirm Eppendorf service	■	■	■	■	■	■
IQ report and signed documentation				■		■
OQ report and signed documentation					■	■
Supporting Information						
Contract period	one year	one year	one year	n/a	n/a	n/a
Number of preventive services included	one	one	one	n/a	n/a	n/a
Cost of repairs/parts replaced outside scope of preventive mainenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a	n/a	n/a

CelliGen Pro Performance Plans

Bioprocess systems include several sophisticated technologies. Peak performance requires smooth interplay of the subsystems and fully functioning consumable parts. Regular maintenance by qualified engineers helps to ensure reliable operation, while deferring it can cause unreliable results, expensive repairs, and prolonged downtime.
The CelliGen Pro bioreactor is a modular system designed for quick delivery, dependable operation, and system flexibility. Systems are available in four vessel sizes with working volumes from 19 L to 520 L. All CelliGen Pro bioreactors utilize industry-standard components including an Allen Bradley® Compact Programmable Logic Controller (PLC). Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

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Performance tested on

Model: _____

Serial no.: _____

Serviced by: _____

Service no.: _____

Next service: _____

Date: _____

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i For more information go to www.eppendorf.link/bioprocess

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTE-NANCE	PREMIUM SERVICE	Installation Qualification (IQ)	Operational Qualification (OQ)	IQ/OQ
Order Number 60L Vessel	0082 140 413	0082 140 414	0082 140 415	0082 140 417	0082 140 418	0082 140 419
Order Number 120 L Vessel	0082 140 693	0082 140 694	0082 140 695	0082 140 417	0082 140 418	0082 140 419
Order Number 240 L Vessel	0082 140 743	0082 140 744	0082 140 745	0082 140 417	0082 140 418	0082 140 419
Order Number 520 L Vessel	0082 140 643	0082 140 644	0082 140 645	0082 140 417	0082 140 418	0082 140 419
External Inspection and Maintenance	■	■	■	■		■
Check installation environment	■	■	■	■		■
Verify utility connections	■	■	■	■		■
Inspect addition pump heads and motors	■	■	■	■		■
Inspect motor cables and sensor cables	■	■	■	■		■
Check vessel for damage and leaks	■	■	■	■		■
Verify loop PI settings	■	■	■	■		■
Check valve operation	■	■	■	■		■
Check hoses	■	■	■	■		■
Internal Equipment						
Check motor and bearing housing for speed and operation	■	■	■		■	■
Rebuild bearing housing		■	■			
Replace o-rings, gaskets, and ferrules	■	■	■			
Rebuild solenoid, pneumatic, hand-operated, addition, sample, and harvest valves	■	■	■			
Inspect angle seat valves, gas sequencing valves, and circulating pump	■	■	■			
Replace rupture disk	■	■	■			
Test TMFC for operation	■	■	■		■	■
Check PLC battery	■	■	■			
System Checks						
Calibrate pH and DO loops with simulator	■	■	■	■	■	■
Verify motor speed	■	■	■	■	■	■
Verify temperature	■	■	■			
Perform pressure hold	■	■	■	■	■	■
Perform test run	■	■	■	■	■	■
Check for latest software revision	■	■	■	■	■	■
Verify valve sequence	■	■	■		■	■
Documentation						
Check list provided	■	■	■			
Dated service sticker to confirm Eppendorf service	■	■	■	■	■	■
IQ report and signed documentation				■		■
OQ report and signed documentation					■	■
Supporting Information						
Contract period	one year	one year	one year	n/a	n/a	n/a
Number of preventive services included	one	one	one	n/a	n/a	n/a
Cost of repairs/parts replaced outside scope of preventive mainenance visit (where Eppendorf product warranty has expired)	not included	not included	discount on parts, labor, travel time	n/a	n/a	n/a

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Philipp von Loeper

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