TOMORROW LAB SINCE 1945

75 YEARS

eppendorf

Catalog 2020/21

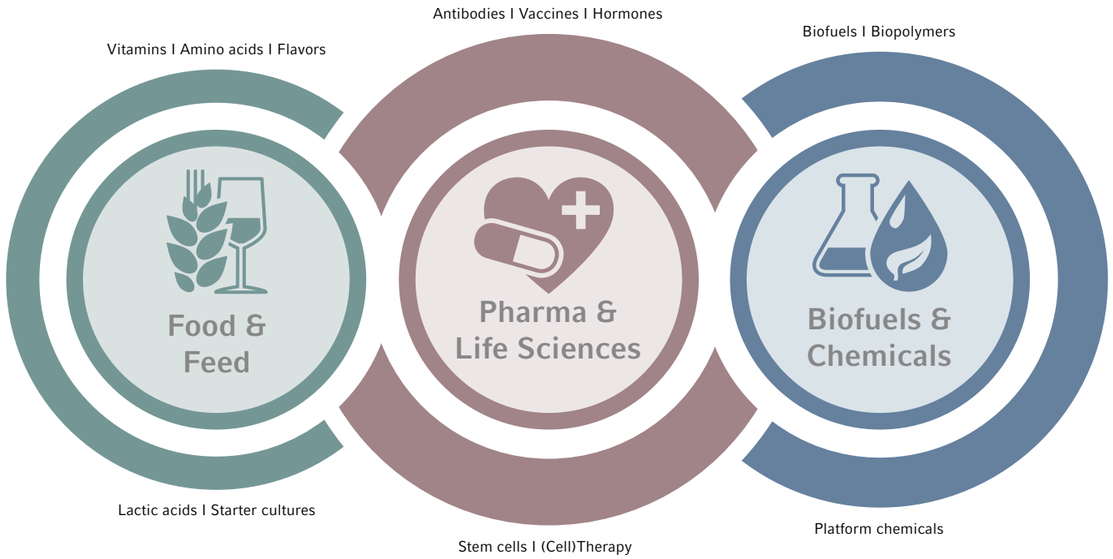
Bioprocess products

»Heal, Fuel, and Feed the World.«

Stephen Sherwin

Bioprocess engineers develop and produce a multitude of products and ingredients available today. Their applications are diverse, and the products can be found in pharmaceutical, chemical, and nutrition industries. Stephen Sherwin, former chairman of BIO association put it aptly: “Heal, fuel, and feed the world”.

Our Eppendorf bioprocess solutions are successfully used in these industries and in applied research for decades. By exploiting the strong synergies in bioreactor technology and polymer manufacturing, Eppendorf has emerged as a global player and valuable resource to its customers. With an integrated portfolio comprising software, instruments, consumables, and services, we can satisfy the demands of bioprocess development through production. In that way and in line with our corporate mission, we contribute to the efforts of Eppendorf customers worldwide to improve human living conditions.



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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 the highest 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. In addition to this initial training, 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.com/epServices

Vaccines, Antibodies, Stem Cells: Discover our Bioprocess Solutions Website for Various Industries and Applications

Information on bioprocessing are 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 offering and do not miss any news and events related to bioprocessing.

Addressing Our Customers' 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.

www.eppendorf.com/bioprocess

Eppendorf Digital

New design of the Eppendorf App

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 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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GET IT ON Google Play

Do You Want to Know More About Scale-Up?

Today's bioprocess professionals need to stay on top of many things: Scale-up parameters and equipment capabilities, control strategies, and automation, validation requirements, and documentation to name a few. New fields of applications like stem cell technology are evolving into powerful tools of the future.

Become an expert in bioprocessing.
Join us at www.eppendorf.com/bioprocess-experts

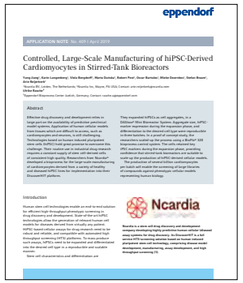
www.eppendorf.com/bioprocess-experts

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.com/publicationBP2020



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.com/appnote409

Easy Perfusion for Anchorage-dependent Cell Culture using an Eppendorf Vessel equipped with Microcarrier Spin Filter

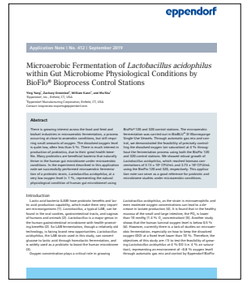
Anchorage-dependent cells, such as Vero cells, are widely used as a platform for viral vaccine production. In perfusion bioprocesses it is possible to constantly add nutrients and to remove byproducts, while retaining the cells in the bioreactor. In this study we tested the suitability of a spin filter as cell retention device. We cultivated Vero cells on Cytodex® 3 microcarriers (10 g/L) in an Eppendorf 3 L glass vessel using a microcarrier spin filter coupled with a pitched-blade impeller controlled by a BioFlo® 320 bioreactor control system, achieving Vero cell density of 8.0 × 10^6 cells/mL in 9 days.

www.eppendorf.com/appnote414

Microaerobic Fermentation of Lactobacillus acidophilus within Gut Microbiome Physiological Conditions by BioFlo® Bioprocess Control Stations

There is growing interest across the food and feed and biofuel industries in microaerobic fermentation, a process occurring at close to anaerobic conditions, but still requiring small amounts of oxygen. In the experiment described in this application note we successfully performed microaerobic fermentation of a probiotic strain, Lactobacillus acidophilus, at a very low oxygen level (< 1 %, representing the natural physiological condition of human gut microbiome) using BioFlo® 120 and 320 control stations using BioBLU® 3f Macrosparge Single-Use Vessels.

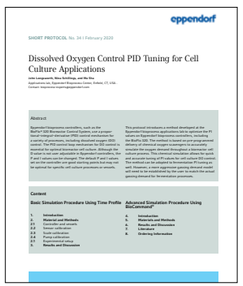
www.eppendorf.com/appnote412



Parallel Fed-batch CHO Culture on SciVario® twin, the Flexible Controller for All Your Bioprocess Needs

The SciVario® twin is the first parallel bioreactor control system developed by Eppendorf. It was designed to control small- and bench-scale vessels individually or in parallel. This application note describes the capabilities of the SciVario twin to perform a one and three liter fed-batch CHO culture in parallel.

www.eppendorf.com/appnote432



Dissolved Oxygen Control PID Tuning for Cell Culture Applications

The PID control loop mechanism for DO control is essential for optimal bioreactor cell culture. Although the D value is not user adjustable in Eppendorf controllers, the P and I values can be changed. The default P and I values set on the controller are good starting points but may not be optimal for specific cell culture processes or vessels. This protocol introduces a method developed at the Eppendorf bioprocess applications lab to optimize the PI values on Eppendorf bioprocess controllers, including the BioFlo 320. The method can be adopted to fermentation PI tuning as well. However, a more aggressive gassing demand model will need to be established by the user to match the actual gassing demand for fermentation processes.

www.eppendorf.com/Protocol034

Redox Potential Monitoring for Improved Anaerobic Fermentation Using the BioFlo® 120 Bioprocess Control Station and BioBLU® 3f Single-Use Vessels

Eppendorf provides powerful software for monitoring and control of your bioprocess workflow. With the possibility to integrate third party sensors, this application notes describes the impact of precisely controlling the redox potential on the growth of Clostridium and the production of butanol. The redox potential was monitored online using a ISM® redox sensor. Maintaining the redox potential close to -500 mV led to a drastical increase of cell growth and butanol production.

www.eppendorf.com/appnote358

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.com

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Model	DASbox® Mini Bioreactor System	DASGIP® Parallel Bioreactor Systems	SciVario® twin	BioFlo®120	BioFlo® 320
Page	18	22	26	30	36
Working volume ranges[1)]	60 – 250 mL	0.2 – 3.8 L	0.2 – 3.8 L	0.4 – 40 L	0.4 – 40
Single-use vessels	■	■	■	■	■
Glass vessels, autoclavable	■	■	■	■	■
Stainless-steel vessels, SIP					
Interchangeable vessels	■	■	■	■	■
Bacteria/yeasts/fungi	■	■	■	■	■
Plant cells/algae	■	■		■	■
Mammalian/animal cells	■	■	■	■	■
Stem cells	■	■		■	■
Insect cells	■	■		■	■
Number of parallel units	Up to 24	Up to 16	2		Up to 8
Controller[2)]	DWC	DWC	VisioNize-onboard	BCS	BCS
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)	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)
Gas flow control[3)]	TMFC	R or TMFC	TMFC	R or TMFC	TMFC
Exhaust analysis	■	■		■	■
Optical density measurement	■	■		■[4)]	■[4)]
Validation					■
Remote Device Monitoring and Notifications (VisioNize®)	–	–	■	–	–

[1)] Realized using multiple vessels [2)] Controllers: DWC = DASware control, RPC = Reactor Process Controller, PLC = Programmable Logic Controller, BCS=BioFlo Control Software

[3)] R = Rotameter, TMFC = Thermal Mass Flow Controller [4)] OD measurement possible via third-party equipment

■ = standard

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Technical specifications subject to change.

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Model	BioFlo®/CelliGen® 510 Fermentor/Bioreactor
Page	42
Working volume ranges[1]	10.75 – 32 L
Single-use vessels	
Glass vessels, autoclavable	
Stainless-steel vessels, SIP	■
Interchangeable vessels	
Bacteria/yeasts/fungi	■
Plant cells/algae	■
Mammalian/animal cells	■
Stem cells	■
Insect cells	■
Number of parallel units	
Controller[2]	RPC/PLC
Touchscreen controller	■
BioCommand®	■
DASware®	
Gas mixing options	4-gas (air, N_2, O_2, CO_2)
Gas flow control[3]	TMFC
Exhaust analysis	■
Optical density measurement	■[4]
Validation	■

[1] Realized using multiple vessels [2] Controllers: DWC = DASware control, RPC = Reactor Process Controller, PLC = Programmable Logic Controller, BCS=BioFlo Control Software [3] TMFC = Thermal Mass Flow Controller [4] OD measurement possible via third-party equipment

■ = standard

BioFlo® 610 Fermentor	BioFlo® Pro Fermentor
44	46
13 – 100 L	45 – 1,200 L
■	■
■	■
■	■
■	■
RPC	PLC
■	■
■	■
2-gas (air, O_2)	2-gas (air, O_2)
TMFC	TMFC
■	■
■[4]	■[4]
■	■

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DASbox® Mini Bioreactor System

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 and 0.3f Single-Use Vessels for cell culture and microbial applications.

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 vessels, 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 Vessels
> Small working volumes save on the amount of cell material, media 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

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

i For more information go to www.eppendorf.com

Suitable vessels for the DASbox can be found on pages 62 - 63.

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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
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
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/single-use vessels	Glass/single-use vessels	Glass/single-use vessels	Glass/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 – 2,500 rpm	20 – 500 rpm	20 – 2,500 rpm	20 – 2,000 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.com

Technical specifications subject to change.

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® 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
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

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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, phototrophic, mammalian and human cells, stem cell applications, as well as biofuel and biopolymer processes.

Applications
> Research and development in cell culture and microbiology as well as phototrophic applications
> 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, microbial fermentation, and phototrophic cultivation
> 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

The compact DASGIP Bioblock provides independent temperature control and can be operated with BioBLU 1 Single-Use Vessels.

i For more information go to www.eppendorf.com

With DASware control 5, DASGIP Parallel Bioreactor Systems can be operated with up to 16 vessels.

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
4-fold system, benchtop	76DG04CC
8-fold system, benchtop	76DG08CC
12-fold system, benchtop	76DG12CC
16-fold system, benchtop	76DG16CC
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
4-fold system, benchtop	76DG04MB
8-fold system, benchtop	76DG08MB
12-fold system, benchtop	76DG12MB
16-fold system, benchtop	76DG16MB
DASGIP® Parallel Bioreactor System, for phototrophic cultivation, max. 50 sL/h gassing, including LED illumination devices	
4-fold system with DASGIP® Bioblock	76DG04PBBB
8-fold system with DASGIP® Bioblock	76DG08PBBB
12-fold system with DASGIP® Bioblock	76DG12PBBB
16-fold system with DASGIP® Bioblock	76DG16PBBB
4-fold system, benchtop	76DG04PB
8-fold system, benchtop	76DG08PB
12-fold system, benchtop	76DG12PB
16-fold system, benchtop	76DG16PB

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 64-73.

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DASGIP® Parallel Bioreactor Systems

Technical specifications			
Model	**DASGIP® System for Cell Culture**	**DASGIP® System for Microbiology**	**DASGIP® PhotoBioreactor System**
Application	Cell culture	Microbiology	Phototrophic cultivation
Number of parallel units	Up to 16	Up to 16	Up to 16
Software	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
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)	490 W (at 230 V)/ 441 W (at 115 V) (605 W/561 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)	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)	77 kg (59 kg without DASGIP Bioblock)
Bioreactors			
Vessels	Glass/single-use vessels	Glass/single-use vessels	Glass vessels
Sterilization	Autoclavable/ pre-sterilized	Autoclavable/ pre-sterilized	Autoclavable
Total volume	1.5 L to 4.3 L	1.3 L to 4.3 L	1.9 L / 3.0 L
Agitation			
Drive	Direct/magnetic overhead drive	Direct/magnetic overhead drive	Direct overhead drives
Speed ranges	30 – 1,250 rpm (standard)/ 100 – 1,600 rpm (optional)	100 – 1,600 rpm (standard)/ 30 – 1,250 rpm (optional)	30 – 1,250 rpm (standard)/ 100 – 1,600 rpm (optional)
Impellers	Pitched-blade	Rushton-type	Pitched-blade
Gassing			
Gas supply	TMFC; overlay and/or sparger	TMFC/Rotameter; sparger	TMFC; overlay and/or 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)	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	Air, N_2, O_2 and/or CO_2
Feeding			
Feed lines per vessel	Up to 8	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)	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	Heat blankets (optional cooling fingers)/ heating and cooling integrated in DASGIP Bioblock	Heat blankets (optional cooling fingers)/ heating and cooling integrated in DASGIP Bioblock (additional cooling fingers optional)	Heat blankets (optional cooling fingers)/ 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 – 60°C (heat blankets)/ 5 K above cooling agent temperature – 99°C[1] (DASGIP Bioblock)	5 K above cooling agent temperature – 60°C (heat blankets/ 5 K above cooling agent temperature – 99°C[1] (DASGIP Bioblock)	5 K above cooling agent temperature – 60°C/ 5 K above cooling agent temperature – 99°C[1] (DASGIP Bioblock)
pH control	CO_2/base, and other set-ups	Acid and/or base, and other set-ups	CO_2/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	Cascade (O_2 concentration, gas flow rate), and other set-ups

i For more information go to www.eppendorf.com

Technical specifications subject to change.

The DASGIP modules enable customized solutions for all requirements. For more information see pages 118-119.

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

Technical specifications			
Model	**DASGIP® System for Cell Culture**	**DASGIP® System for Microbiology**	**DASGIP® PhotoBioreactor System**
ORP (redox) measurement	-	Optional	Optional
Level/foam	Optional	Optional	Optional
OD measurement	Optional (DASGIP OD4)	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)	Water-cooled
Exhaust analysis	Optional (DASGIP GA4)	Optional (DASGIP GA4)	Optional (DASGIP GA4)

[1] Application-specific operating conditions apply.

Accessories	
Description	**Order no.**
Cable, for DASGIP® overhead drive RE30/RE40	
L 1.3 m	78525121
L 3 m	78525112
Heat Blanket, for DASGIP® vessel 0.5 – 3L	
with Pt100, 95 x 260 mm, 100 W, 115 VAC, CE/UL certified	78525276
with Pt100, 95 x 260 mm, 100 W, 230 VAC, CE/UL certified	78525275
Overhead Drive, RE30 (magnetic), 30 – 1250 rpm, for BioBLU® 3c/5c	78525263
Overhead Drive, RE30 (magnetic), 30 – 1250 rpm, for BioBLU® 1	78525189
Overhead Drive, RE30, 30 – 1250 rpm, for head plate port with M30 thread	78525187
Overhead Drive, RE40 (magnetic), 100 – 1600 rpm	
for BioBLU® 1	78525198
for BioBLU® 3/5	78525199
Overhead Drive, RE40, 100 – 1600 rpm, for head plate port with M30 thread	78525188
Autoclavable Carrier	
for 2 DASGIP® vessels	76DGBKT2

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SciVario® twin

New

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®-onboard 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 Eppendorf Digital Lab, 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 fungi
> Cultivation of mammalian and human cell lines
> Special applications such biofuel/biopolymer development
> Media optimization
> Clone and cell line screening, strain characterization

Product features
> Parallel operation of 2 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 & reconfiguration
> VisioNize-onboard: intuitive and exciting new 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
> Compact design, 15-40 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 submerged and/or overlay
> Compatible with DASware® control software for advanced process control

Technical specifications subject to change.

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	
for 2 vessels	7600100001

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SciVario® twin

Technical specifications				
Model		**Scivario® twin**		
Application	Cell Culture, glass	Cell Culture, single-use	Microbiology, glass	Microbiology, single-use
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 VAC, 50/60 Hz	100 - 240 VAC, 50/60 Hz	100 - 240 VAC, 50/60 Hz	100 - 240 VAC, 50/60 Hz
Dimensions (W × D × H)	30.6 x 34.0 x 75.0 cm (12.0 x 13.4 x 29.5 in)	30.6 x 34.0 x 75.0 cm (12.0 x 13.4 x 29.5 in)	30.6 x 34.0 x 75.0 cm (12.0 x 13.4 x 29.5 in)	30.6 x 34.0 x 75.0 cm (12.0 x 13.4 x 29.5 in)
Weight	37.4 kg	37.4 kg	37.4 kg	37.4 kg
Bioreactors				
Vessels	Glass	Single-use vessels	Glass	Single-use vessels
Sterilization	Autoclavable	Pre-sterilized	Autoclavable	Pre-sterilized
Total Volume	1.5 - 4.3 L	380 mL - 5 L	1.3 - 4.3 L	380 mL - 5 L
Agitation				
Drive	Direct overhead drives	Magnetic overhead drives	Direct overhead drives	Magnetic overhead drives
Speed ranges (depending on drive and vessel selected)	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 O_2) 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				
Feed lines per vessel	5	5	5	5
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)
Foam control	Optional	Optional	Optional	Optional
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.com

Technical specifications subject to change.

Customizable and flexible thanks to the innovative bay-drawer concept

VisioNize®-onboard 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	7600110001
with 2 small peristaltic pumps	7600110002
with 1 big peristaltic pump	7600110003
Overhead Drive, for SciVario® twin	
direct drive for glass vessel, MD30	7600211003
magnetic drive for single-use vessel, MD30	7600211004
magnetic drive for single-use vessels, MD30	7600211005
direct drive for glass vessel, MD40	7600211006
magnetic drive for single-use vessel, MD40	7600211007
magnetic drive for single-use vessels, MD40	7600211008
Temperature Block, for SciVario® twin	
for glass and single-use vessels, 0.7 – 1.8 L	7600230102
Heat blanket, for SciVario® twin	
for glass and single-use vessels, 2.4 – 3.8 L	7600230201

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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.com

Technical specifications subject to change.

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

Besides the BioBLU Single-Use Vessels 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 Vessels 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 Vessels.
> New 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.

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BioFlo® 120

BioFlo 120 Specifications			
Control Station			
Dimensions (W x D x H)	24.7 x 55.9 x 62.9 cm (9.7 x 22 x 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** 10 psig (0.69 barg)	**Single-use** 6 psig (0.44 barg)
Exhaust	0.5 psig (0.035 barg)		
Operating conditions	10 – 30 °C, up to 80 % RH, non-condensing		
Altitude limit	2,000 m		
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 Vessels	BioBLU c vessels: 5 °C above ambient to 40 °C[1)] BioBLU f vessels: 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)	

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

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

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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 158 for details

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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 bothmicrobial and cell culture applications

4. Interchangeable autoclavable and BioBLU® Single-Use Vessels

i For more information go to www.eppendorf.com

Technical specifications subject to change.

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 vessels, 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 Vessels
> 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 Vessels
> Ethernet communication for multi-unit control, Eppendorf SCADA software, and IP addressing
> Up to six integrated pumps capable of operating in variable-speed mode
> Eight independently controlled process gas supplies

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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 - 1,200 rpm		
Magnetic drive (autoclavable vessels)	25 - 500 rpm/25 – 150 rpm (10 L)		
Magnetic drive	BioBLU 1c: 25 – 500 rpm, BioBLU 1f: 25 – 1,200 rpm, BioBLU 3f: 25 – 1,200 rpm, BioBLU 3c/5c/5p and BioBLU 10c/14c: 25 – 200 rpm, BioBLU 50c: 25 – 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		
Altitude limit	2,000 m		

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

Control up to eight units from a single user interface.

Description
Control Station Configurator: Choose from the options below to configure a BioFlo® 320 control station that meets your specific process needs. Contact your local Eppendorf sales representative for ordering information.

Ordering information

Description	Order no.
Validation, for BioFlo® 320, control station validation	M1379-0102
BioFlo® 320, base control station	1379963011
BioFlo® 320, left-handed orientation/four front-mounted peristaltic pumps (3 @ 5 – 25 rpm/1 @ 20 – 100 rpm)	1379963211
BioFlo® 320, right-handed orientation/four front-mounted peristaltic pumps (3 @ 5 – 25 rpm/1 @ 20 – 100 rpm)	1379963411
BioFlo® 320, sparge gas option	
1 TMFC (0.002 – 1.0 SLPM)	1379501011
1 TMFC (0.04 – 20 SLPM)	1379501111
3 TMFC (0.002 – 1.0 SLPM)	1379501211
3 TMFC (0.04 – 20 SLPM)	1379501311
4 TMFC (0.002 – 1.0 SLPM)	1379501411
4 TMFC (0.04 – 20 SLPM)	1379501511
BioFlo® 320, overlay gas option, 1 TMFC (0.05 – 5 SLPM)	1379502111
BioFlo® 320, no overlay gas option module	1379963511
BioFlo® 320, secondary sensor module	1379963611
BioFlo® 320, no secondary sensor module	1379963711
BioFlo® 320, optical pH module	1379963811
BioFlo® 320, no optical pH module	1379963911
BioFlo® 320, equipment connection module	1379964011
BioFlo® 320, no equipment connection module	1379964111

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BioFlo® 320

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

Variable/fixed speed front-mounted pumps are capable of clockwise and counterclockwise rotation.

Accessories

Description	Order no.
Scale, vessel volume, 150 kg	M1379-8188
Tubing Kit, 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 meter cable set, for BioFlo® 320	M1379-9906
Sparge Gas Drawer, field-installed	
1 TMFC, 0.002 – 1 SLPM	M1379-5010
1 TMFC, 0.04 – 20 SLPM	M1379-5011
3 TMFC, 0.002 – 1 SLPM	M1379-5012
3 TMFC, 0.04 – 20 SLPM	M1379-5013
4 TMFC, 0.002 – 1 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

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® 10c/14c	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 158 for details

i For more information go to www.eppendorf.com

Suitable vessels for the BioFlo 320 can be found on pages 98 – 99.

New Brunswick™ BioFlo®/CelliGen® 510

Description
The New Brunswick 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

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
> Allen Bradley® CompactLogix™ PLC Control System
> 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

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New Brunswick™ BioFlo® 610

Description
The New Brunswick 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 vaccine or biofuel/biopolymer production
> Suitable for batch, fed-batch, and continuous processes

Working volumes
> 16.0 L to 50.0L
> 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

i For more information go to www.eppendorf.com

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New Brunswick™ 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 and 1,200 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.com

Technical specifications subject to change.

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

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Vessels

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.com

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Model	BioBLU® Single-Use Vessels	DASbox® Mini Bioreactor
Page	**54**	**64**
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 and 3) 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
LED illumination		

■ = standard, o = optional

DASGIP® Bioblock and SciVario twin Vessels	DASGIP®Benchtop and SciVario twin Bioreactors	BioFlo® 120 Vessels
66	**70**	**88**
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	DASGIP Benchtop / SciVario twin	BioFlo 120
■	■	■
■	■	■
■	■	■
■	■	■
■	■	■
		■
■	■	■
Water-cooled	Water-cooled	Water-cooled
o (1.0 L spinner vessel)	o (2.5 L vessel)	

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Model	BioFlo® 320 Vessels	BioFlo®/CelliGen® 510
Page	**96**	
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
LED illumination		

■ = standard, o = optional

BioFlo® 610	BioFlo® Pro
-	-
16 - 100 L	45 - 1,200 L
Mobile skid	Skid-mounted
■	■
■	■
■	■
■	■
Bottom drive	Bottom drive
Water-cooled/ electric heat band	Water-cooled/ electric heat band

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BioBLU® c Single-Use Vessels

Description
Eppendorf BioBLU Single-Use Vessels combine all the advantages of single-use technology with the trusted performance and scalability of a stirred-tank design. Single-use vessels eliminate autoclaving, improve turn-around time, simplify validation, and reduce overall costs. The BioBLU portfolio has grown to accommodate users from early research and development through manufacturing. BioBLU c and p vessels 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 vessels available in sizes ranging from 100 mL to 40 L working volume
> All BioBLU c vessel sizes available with pitched-blade impellers for cell culture applications
> BioBLU 5p vessels 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
> Vessels 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
> Technical and material documentation available to support process validation activities

i For more information go to www.eppendorf.com

Technical specifications subject to change.

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

Ordering information

Description							Order no.
Vessel	**Working Volume**	**Sparger**	**Impeller**	**pH**	**Quantity**	**Sterilization**	
BioBLU® 0.3c	100 mL - 250 mL	Open pipe	1x pitched-blade	Standard	4-pack	15 kGy β-irradiated	1386100000
BioBLU® 0.3c	100 mL - 250 mL	Open pipe	1x pitched-blade	Optical	4-pack	15 kGy β-irradiated	1386100200
BioBLU® 0.3sc	100 mL - 250 mL	Open pipe	1x 8-blade	Optical	4-pack	15 kGy β-irradiated	1386100600
BioBLU® 1c	320 mL - 1.25 L	Open pipe	1x pitched-blade	Standard	4-pack	15 kGy β-irradiated	1386110000
BioBLU® 1c	320 mL - 1.25 L	Open pipe	1x pitched-blade	Optical	4-pack	15 kGy β-irradiated	1386110400
BioBLU® 1c	320 mL - 1.25 L	Open pipe	2x pitched-blade	Standard	4-pack	15 kGy β-irradiated	1386110100
BioBLU® 1c	320 mL - 1.25 L	Open pipe	2x pitched-blade	Optical	4-pack	15 kGy β-irradiated	1386110500
BioBLU® 3c	1.25 L - 3.75 L	Microsparger	1x pitched-blade	Optical	1-pack	15 kGy β-irradiated	1386000100
BioBLU® 3c	1.25 L - 3.75 L	Macrosparger	1x pitched-blade	Optical	1-pack	15 kGy β-irradiated	1386000300
BioBLU® 3c	1.25 L - 3.75 L	Microsparger	2x pitched-blade	Optical	1-pack	15 kGy β-irradiated	1386120000
BioBLU® 3c	1.25 L - 3.75 L	Macrosparger	2x pitched-blade	Optical	1-pack	15 kGy β-irradiated	1386121000
BioBLU® 5p	3.75 L	Microsparger	Packed bed	Optical	1-pack	15 kGy β-irradiated	M1363-0119
BioBLU® 5p	3.75 L	Macrosparger	Packed bed	Optical	1-pack	15 kGy β-irradiated	M1363-0133
BioBLU® 10c	3.3 L -10 L	Microsparger	1x pitched-blade	Optical	1-pack	15 kGy β-irradiated	1386140000
BioBLU® 10c	3.3 L -10 L	Macrosparger	1x pitched-blade	Optical	1-pack	15 kGy β-irradiated	1386141000
BioBLU® 50c	18 L - 40 L	Microsparger	1x pitched-blade	Optical	1-pack	15 kGy β-irradiated	M1363-0131
BioBLU® 50c	18 L - 40 L	Macrosparger	1x pitched-blade	Optical	1-pack	15 kGy β-irradiated	M1363-0129

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BioBLU® c Single-Use Vessels

Technical specifications		
Model	**BioBLU® 0.3c**	**BioBLU® 1c**
Bioreactors		
Sterilization	Pre-sterilized (15 kGy β-irradiated)	Pre-sterilized (15 kGy β-irradiated)
Working volume (total)	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)
Material tubing	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	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
Impellers	Pitched-blade	Pitched-blade
Recommended agitation speed	20 – 500 rpm	30 – 600 rpm
Gassing		
Gas supply	Sparger and/or overlay	Sparger and/or overlay
Monitoring and Control		
Sensor length	120 mm	220 mm
Temperature sensor	Pt100 RTD (not included)	Pt100 RTD (not included)
Max. operating temperature	40 °C	40 °C
pH sensor	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 - 4.7/229 mm
Exhaust condensation	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

BioBLU® 3c	**BioBLU® 5p**	**BioBLU® 10c**	**BioBLU® 50c**
Pre-sterilized (15 kGy β-irradiated)	Pre-sterilized (15 kGy β-irradiated)	Pre-sterilized (15 kGy β-irradiated)	Pre-sterilized (15 kGy β-irradiated)
1.25 – 3.75 L (5 L)	3.75 L (5 L)	3.3 – 10 L (14 L)	18 – 40 L (50 L)
PC (USP Class VI)	PS, PC (USP Class VI)	PC (USP Class VI)	PS, PC (USP Class VI)
Silicone, C-Flex	Silicone, C-Flex	Silicone, C-Flex	Silicone, C-Flex
4x 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 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 gas sparge, 1x gas overlay, 1x exhaust	4x 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 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 gas sparge, 1x gas overlay, 1x exhaust
Magnetic overhead drives	Magnetic overhead drives	Magnetic overhead drive	Magnetic overhead drives
Pitched-blade	Packed-bed	Pitched-blade	Pitched-blade
25 – 200 rpm	25 – 200 rpm	25 – 200 rpm	25 – 150 rpm
Sparger and/or overlay	Sparger and/or overlay	Sparger and/or overlay	Sparger and/or overlay
225 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 (120 mm)	Optical pH or standard glass sensor (325 mm)	Optical pH or standard glass sensor (625 mm)
Polarographic or optical DO - 12/225 mm	Polarographic DO - 12/120 mm	Polarographic or optical DO - 12/355 mm	Polarographic DO - 12/526 mm
Electric heater band or Peltier	Electric heater band or Peltier	Electric heater band	Electric heater band

i For more information go to www.eppendorf.com

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BioBLU® f Single-Use Vessels

Description
Eppendorf BioBLU Single-Use Vessels combine all the advantages of single-use technology with the trusted performance and scalability of a stirred-tank design. Single-use vessels eliminate labor-intensive cleaning, improve turn-around time, simplify validation, and reduce overall costs. BioBLU f vessels 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 vessels 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
> Vessels 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.com

Technical specifications subject to change.

Microbiology on the fast track - with the BioBLU f vessels.

Ordering information

Description							Order no.
Vessel	**Working Volume**	**Sparger**	**Impeller**	**pH**	**Quantity**	**Sterilization**	
BioBLU® 0.3f	65 mL - 250 mL	Open pipe	2x Rushton-type	Standard	4-pack	15 kGy β-irradiated	1386100100
BioBLU® 1f	250 mL - 1.25 L	Open pipe	2x Rushton-type	Standard	4-pack	15 kGy β-irradiated	1386110200
BioBLU® 1f	250 mL - 1.25 L	Open pipe	3x Rushton-type	Standard	4-pack	15 kGy β-irradiated	1386110300
BioBLU® 3f	1.25 L - 3.75 L	Macrosparger	3x Rushton-type	Standard	1-pack	Autoclavable	1386000900

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BioBLU® f Single-Use Vessels

Technical specifications			
Model	**BioBLU® 0.3f**	**BioBLU® 1f**	**BioBLU® 3f**
Application	Microbiology	Microbiology	Microbiology
Bioreactors			
Sterilization	Pre-sterilized (15 kGy β-irradiated)	Pre-sterilized (15 kGy β-irradiated)	Autoclavable
Working volume (total)	65 – 250 mL (380 mL)	250 mL – 1.25 L (1.8 L)	1.25 L – 3.75 L (5 L)
Material vessel[1)]	PS, PC (USP Class VI)	PS, PC (USP Class VI)	PC (USP Class VI)
Material tubing	Silicone	Silicone	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	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 DO sensor port with permeable membrane, 1x gas sparge, 1x exhaust, 4x baffles (incl. cooling water connection)
Agitation			
Drive	Magnetic overhead drives	Magnetic overhead drives	Magnetic overhead drives
Impellers	Rushton-type	Rushton-type	Rushton-type
Recommended agitation speed	20 – 2,000 rpm	100 – 1,500 rpm	25 – 1,200 rpm
Gassing			
Gas supply	Sparger	Sparger	Sparger
Monitoring and Control			
Temperature sensor	Pt100 RTD (not included)	Pt100 RTD (not included)	Pt100 RTD (not included)
Max. operating temperature	45 °C	45 °C	45 °C
pH sensor	Standard glass sensor (120 mm)	Standard glass sensor (220 mm)	Standard glass sensor
DO Sensor	Polarographic DO - 4.7/118 mm	Polarographic DO - 4.7/229 mm	Polarographic DO - 12/220 mm
Exhaust condensation	Liquid-free cooling (Peltier)	Liquid-free cooling (Peltier)/water-cooled	Water-cooled

[1)] PC = Polycarbonate, PS = Polystyrene

i For more information go to www.eppendorf.com

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BioBLU® Single-Use Vessel Adaptor Kits

Description
Single-use vessel adaptor kits convert existing autoclavable bioreactor controllers for use with Eppendorf BioBLU Single-Use Vessels. 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 Vessels
> 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 vessels 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, Peltier condensers	78532296
for DASGIP® benchtop system, 230 V, for 4 BioBLU® 3c/5c, 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, water-based condensers	78532331
230 V, for 4 BioBLU® 3c/5c, 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

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® 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 vessels. For information on single-use bundles in combination with a new controller, please refer to page 85 and 93.

Accessories

Description	Order no.
Multi-channel Fiber Optic pH Meter pH-4 mini, PreSens®, including sensors	
for 4 BioBLU 1/3 optical pH vessels	76DGPH4FO216
for 4 BioBLU 0.3 optical pH vessels	76DXPH4FO115
Adaptor, single-use compression fitting, for Pg 13.5 port, pack of 10	1386010200
Adaptor, single-use blind plug, for Pg 13.5 port, pack of 10	1386010300
Adaptor, single-use septum kit, for Pg 13.5 port, pack of 10	1386010100
Adaptor, single-use tri-port, for Pg 13.5 port, pack of 10	1386010000
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
Exhaust Condenser, Peltier	
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 sensor cables, see page 155, [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.com

Technical specifications subject to change.

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	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)

Contents of vessel kits		
	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			
Vessel Volume	**Working volume (total)**	**Impellers**	**Order no.**
Cell culture	60 – 250 mL (350 mL)	1x marine	76DS02500DSS
Microbiology	60 – 250 mL (350 mL)	2x Rushton-type	76SR02500DLS

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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.com

Technical specifications			
Model	**0.7 L**	**1 L**	**1.5 L**
Application	Cell culture	Cell culture	Cell culture
Standard set-up	DASGIP Bioblock	DASGIP Bioblock	DASGIP Bioblock
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	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

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 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

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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.com

Technical specifications subject to change.

Technical specifications			
Model	**1 L**	**1.5 L**	**1.8 L**
Application	Microbiology	Microbiology	Microbiology
Standard set-up	DASGIP Bioblock	DASGIP Bioblock	DASGIP Bioblock
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	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

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 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

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DASGIP® 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 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.com

Technical specifications subject to change.

Technical specifications		
Model	**2.5 L**	**3.5 L**
Application	Cell culture	Cell culture
Standard set-up	Benchtop (DASGIP)	Benchtop (DASGIP)
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	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

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

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DASGIP® 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 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.com

Technical specifications subject to change.

Technical specifications		
Model	**2.5 L**	**3.5 L**
Application	Microbiology	Microbiology
Standard set-up	Benchtop (DASGIP)	Benchtop (DASGIP)
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	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

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

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DASGIP® PhotoBioreactor

Description
DASGIP PhotoBioreactors are designed specifically to take advantage of DASGIP Parallel Bioreactor Systems in phototrophic cultivation applications.
Plant suspensions, algae and phototrophic bacteria can be grown under customized and variable lighting conditions. Making this possible are the integrated DASGIP LED Illumination Devices providing optimum light conditions for growth and photosynthesis. DASGIP PhotoBioreactors come in small and bench scale.

Product features
> Industry-standard autoclavable bioreactors with working volumes of 350 mL – 1.0 L and 750 mL – 2.6 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, redox potential, level, and OD
> Up to four DASGIP LED Illumination Devices integrated with emitted light spectra optimized to meet various photosynthesis requirements
> DASGIP PBR4 Module allows for parallel illumination of up to four bioreactors with three individually controlled wavelength ranges

i For more information go to www.eppendorf.com

Technical specifications subject to change.

Technical specifications		
Model	**1.0 L**	**2.5 L**
Application	Phototrophic cultivation	Phototrophic cultivation
Standard set-up	Benchtop (DASGIP)	Benchtop (DASGIP)
Bioreactors		
Sterilization	Autoclavable	Autoclavable
Working volume (total)	350 mL – 1.0 L (1.9 L)	750 mL – 2.6 L (3.0 L)
Material vessel	Glass	Glass
Head plate	Stainless steel, screw cap	Stainless steel
Head plate ports	1x M30, 4x Pg 13.5, 1x thermowell	1x M30, 8x M18x1.5, 4x 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	220 mm
Temperature sensor	Pt100 RTD	Pt100 RTD
Exhaust condensation	Water-cooled	Water-cooled
Illumination		
DASGIP LED Illumination Devices	3	4

Contents of Vessel Kits	
Contents	
Flat-bottom vessel (1.0 L)/ dished - bottom vessel (2.5 L) with stainless steel head plate	■
Vessel stand	■ (2.5 L vessel only)
Overhead drive (30 - 1,250 rpm)	Sold separately
Sensors	Sold separately
Impellers	■
Sparger assembly (L-sparger)	■
LED illumination devices	Sold separately
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® PhotoBioreactor

Vessel Volume	Working volume (total)	Impellers	Order no.
1 L	350 mL – 1.0 L (1.9 L)	2x pitched-blade	76DS1000ODSP
2.5 L	750 mL – 2.6 L (3.0 L)	2x pitched-blade	76DR03P

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DASbox® and DASGIP® Vessel Accessories

Head Plates

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

Model	Stainless-steel Head Plate		
Order no.	**78107301**	**78107157**	**78107249**
Outer diameter (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		■	
DASGIP® Benchtop Bioreactors 2.5 L			■
DASGIP® Benchtop Bioreactors 3.5 L			■
DASGIP® PhotoBioreactors 1.0 L		■	
DASGIP® PhotoBioreactors 2.5 L			■
D4 ports	4	-	-
D6 ports	-	1	8
M30 ports	-	1	1
M18 ports	-	-	8
Pg 13.5 ports	6	7	-
Thermowell included	1	-	-

■ = standard

i For more information go to www.eppendorf.com

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
I.D. 12 mm	78532284
Compression Fitting, complete, with M18x1.5 male thread	
I.D. 4 mm	78532279
I.D. 6 mm	78532280
I.D. 12 mm	78532281
DASGIP® 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, M18x1.5 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® and DASGIP® Vessel Accessories

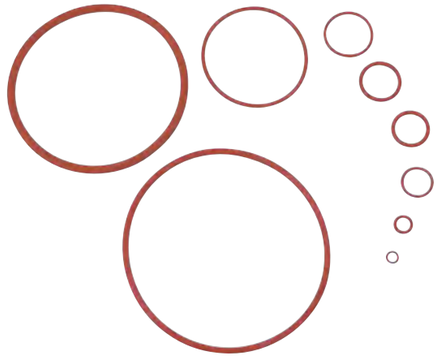
Blind Plugs and Septa

> 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
M18x1.5 thread	77102017
DASGIP® Septum Holder, stainless steel, with septum	
M18x1.5 male, I.D. 12 mm	77102019
Pg 13.5 male, I.D. 12 mm	77102006
Blind Plug, stainless steel, all parts included	
Pg 13.5 thread	77102041
Silicone Rubber Septum	
Pg 13.5, O.D. 18 mm/I.D. 12 mm	78106309
GL45	78106305
Silicone Rubber Septum, PTFE-coated, GL 45	78106306
DASGIP® Adaptor	
Pg 13.5 female thread to M18x1.5 male thread	77102016

i For more information go to www.eppendorf.com



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, 4x1.5 (I.D. x d)	78706417
VMQ 70/Si 820, red, 5x1.5 (I.D. x d)	78706429
VMQ 70/Si 820, red, 6x1.5 (I.D. x d)	78706416
VMQ 70/Si 820, red, 6x2 (I.D. x d)	78706407
VMQ 70/Si 820, red, 12x1.5 (I.D. x d)	78706419
VMQ 70/Si 820, red, 14x2 (I.D. x d)	78706406
VMQ 70/Si 820, red, 20x2 (I.D. x d)	78706458
VMQ 70/Si 820, red, 24x2 (I.D. x d)	78706440
VMQ 70/Si 820, red, 31x2.5 (I.D. x d)	78706439
VMQ 70/Si 820, red, 68x3 (I.D. x d)	78201138
VMQ 70/Si 820, red, 88x3 (I.D. x d)	78706408
VMQ 70/Si 820, red, 135x4 (I.D. x d)	78706460
VMQ 70/Si 820, red, 4x1 (I.D. x d)	78706415
VMQ 50/Si 50, blue, 8x1.5 (I.D. x d)	78706465
VMQ 65/Si 840, blue, 18x2.5 (I.D. x d)	78706447
NBR 70/P583, black, 166.75x2 (I.D. x d)	78706478
NBR/P583, black, 178x2 (I.D. x d)	78706477

DASbox® and DASGIP® Vessel Accessories

Valves

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

Ordering information	
Description	**Order no.**
DASGIP® sampling accessory, with swabable valve	78510145
Sampling 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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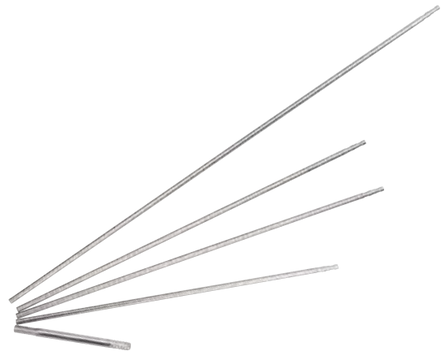

Stainless Steel Pipes

> 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					■
DASGIP® Benchtop Bioreactors 2.5 L				■	
DASGIP® 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 pipes, 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				
DASGIP® Benchtop Bioreactors 2.5 L	o		o	
DASGIP® Benchtop Bioreactors 3.5 L		o		o
DASGIP® PhotoBioreactors 1.0 L				
DASGIP® PhotoBioreactors 2.5 L	o			

■ = standard, o = optional

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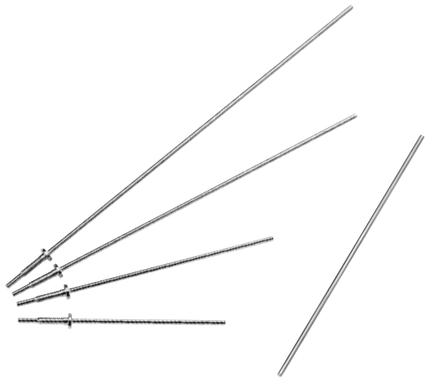
DASbox® and DASGIP® Vessel Accessories



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® Bioblock/SciVario® twin Spinner 0.7 L		■			
DASGIP® Bioblock/SciVario® twin 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				■	
DASGIP® Benchtop Bioreactors 2.5 L			■		
DASGIP® Benchtop Bioreactors 3.5 L					■
DASGIP® PhotoBioreactors 1.0 L			■		
DASGIP® PhotoBioreactors 2.5 L			■		

■ = standard

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	
Order no.	**78107304**	**78100557**	**78532236**	**78107325**
Inner diameter (I.D.)	5 mm	8 mm	8 mm	5 mm
Outer diameter (O.D.)	30 mm	46 mm	50 mm	30 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		■	■	
DASGIP® Benchtop Bioreactors 2.5 L		■	■	
DASGIP® 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® Bioblock/SciVario® twin Stirrer 1 L	■	■			
DASGIP® Bioblock/SciVario® twin Spinner 0.7 L		■			
DASGIP® Bioblock/SciVario® twin Spinner 1 L/Stirrer 1.5 L			■		
DASGIP® Bioblock/SciVario® twin 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				■	

■ = standard

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DASbox® and DASGIP® Vessel 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 ID 73 mm, without gasket	78903226
Screw Cap, GL 45, PBT, with port I.D. 34 mm	78903224
Screw Cap, GL 45, PBT, closed, incl. PTFE-coated silicone washer	78106122

Accessories

Description	Order no.
Silicone Washer	
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**
Outer diameter (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	■
DASGIP® Benchtop Bioreactors 2.5 L	■
DASGIP® 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	
Order no.	**77102037**	**77102036**
Inner length	240 mm	325 mm
Length	295 mm	380 mm
Outer diameter (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		■
DASGIP® Benchtop Bioreactors 2.5 L	■	
DASGIP® Benchtop Bioreactors 3.5 L		■
DASGIP® PhotoBioreactors 1.0 L	■	
DASGIP® PhotoBioreactors 2.5 L		■

■ = standard

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

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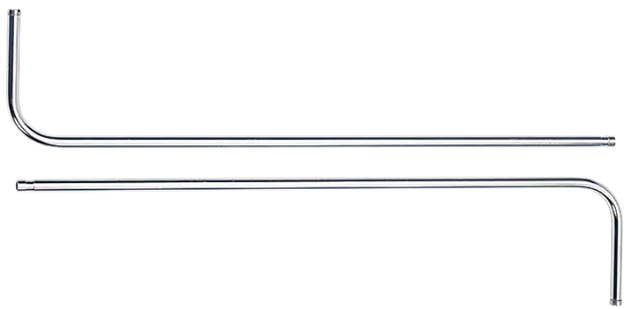
DASbox® and DASGIP® Vessel Accessories



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
Number of holes/hole diameter	7/0.5 mm	7/1.0 mm	7/1.0 mm	7/1.0 mm
DASbox® MiniBioreactor	■			
DASGIP® Bioblock/SciVario® twin Spinner 1 L/Stirrer 1 L		o	■	
DASGIP® Bioblock/SciVario® twin Spinner 1.2 L/Stirrer 1.5 L		o	■	
DASGIP® Benchtop Bioreactors 2.5 L			■	
DASGIP® 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					■
DASGIP® Benchtop Bioreactors 2.5 L				■	
DASGIP® Benchtop Bioreactors 3.5 L					■
DASGIP® PhotoBioreactors 1.0 L			■		
DASGIP® PhotoBioreactors 2.5 L				■	

■ = standard

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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

LED Illumination Devices

> For illumination of DASGIP PhotoBioreactors, providing optimum light conditions for growth and photosynthesis
> Diodes emitting light of specific wavelengths, aligned to the relevant chlorophyll absorption wavelengths
> Individual control of up to four photobioreactors with the DASGIP PBR4
> Other configurations available on request

Ordering information

Description	Order no.
LED Stick, L 235 mm, O.D. 12 mm, universal wavelength 453/572/625/640/660/780	78525301
DASGIP® Cable, 4pin M5, L 3 m	78702562

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BioFlo® 120 Vessels

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 Vessels 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 Vessels
> 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.com

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

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BioFlo® 120 Vessels

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

BioBLU Single-use Vessel 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 vessels sold separately

Ordering information

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

BioBLU Single-use Vessel 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 vessels and up), vessel stand (BioBLU 1c), sampling syringes, and tubing.
[1)] BioBLU vessels sold separately

Ordering information

Description	Order no.
BioBLU® Vessel 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

i For more information go to www.eppendorf.com

BioFlo® 120 Vessels

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	1390400000
2 L	1390400100
5 L	1390400200
10 L	1390400300
Fermentation Vessel, for BioFlo® 120, water jacket, direct drive	
1 L	1390402000
2 L	1390402100
5 L	1390402200
10 L	1390402300

i For more information go to www.eppendorf.com

Autoclavable Vessel Assemblies - Cell Culture

Ordering information

Description	Order no.
Cell Culture Vessel, for BioFlo® 120, water jacket, direct drive	
1 L	1390402400
2 L	1390402500
5 L	1390402600
10 L	1390402700
Cell Culture Vessel, for BioFlo® 120, water jacket, magnetic drive	
1 L	1390402800
2 L	1390402900
5 L	1390403000
10 L	1390403100
Cell Culture Vessel, for BioFlo® 120, heat blanket, direct drive	
1 L	1390400400
2 L	1390400500
5 L	1390400600
10 L	1390400700
Cell Culture Vessel, for BioFlo® 120, heat blanket, magnetic drive	
1 L	1390400800
2 L	1390400900
5 L	1390401000
10 L	1390401100

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BioFlo 120 Vessel Accessories

Ordering information	
Description	**Order no.**
Adaptor, 19 mm port to 1.5 in tri-clamp	M1287-9545
Adaptor, compression fitting, 19 mm port to 12 mm sensor	M1287-5037
Adaptor, for 19 mm port, for Pg 13.5 sensor	M1294-9544
Adaptor, for 19 mm port, for 19 mm sensor	M1294-9542
Adaptor	
12 mm port to tri-port	M1273-9961
Adaptor, compression fitting	
12 mm port to 12 mm sensor	M1273-5040
Septum Kit, 12 mm port, 10 septa included	M1273-3031
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
Blind Plug	
6 mm port	M1273-9405
12 mm port	M1273-9406
19 mm port	M1273-9407
Adaptor, compression fitting, for foam/level sensor and sample tube	
6 mm port to foam/level/sample	M1273-5042

Ordering information	
Description	**Order no.**
Tube, barbed, 6 mm diameter	
angled tip, 76.2 mm length	M1273-9544
blunt tip, 110.0 mm length	M1273-9575
angled tip, 127.0 mm length	M1273-9545
blunt tip, 175.0 mm length	M1273-9574
blunt tip, 210.0 mm length	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	1390500200
7.5 in / 190 mm	1390500400
14 in / 355 mm	1390500500
Vessel Connection Kit, for BioFlo® 120	1390010000
Syringe Sampling Kit, for BioFlo® 120	1390991500
Tubing Kit, for BioFlo® 120, all vessel sizes	1390910000
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

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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

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BioFlo® 320 Vessels

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.com

Technical specifications subject to change.

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 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
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)

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BioFlo® 320 Vessels

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

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.

Single-use vessel 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 Vessel 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® 3f	M1379-0326
for BioBLU® 10c/14c	M1379-0324
for BioBLU® 50c	M1379-0325

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BioFlo® 320 Vessels

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	
1 L	M1379-1011
3 L	M1379-1012
5 L	M1379-1013
10 L	M1379-1014
Pitched-Blade Impeller Kit, direct drive	
1 L	M1379-1015
3 L	M1379-1016
5 L	M1379-1017
10 L	M1379-1018

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Ordering information

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

BioFlo 320 Vessel 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.
Septum Kit, Pg 13.5 port, 10 septa included	M1287-5031
Adaptor, compression fitting, Pg 13.5 port to 12 mm sensor	M1287-5030
Addition/Gas Overlay Kit, for Pg 13.5 port	M1287-5043
Adaptor, Pg 13.5 port to tri-port (3 x 3.2 mm)	M1287-5035
Adaptor, compression fitting, for foam/level sensor, Pg 13.5 port to foam/level	M1287-5032
Adaptor, compression fitting, Pg 13.5 port to 1/4 in tube	M1287-5033
Adaptor, Pg 13.5 port to 1 1/2 in tri-clamp	M1287-9544
Adaptor, compression fitting, 6.35 mm port to 1/4 in tube	M1287-5034
Adaptor, compression fitting, for foam/level sensor, 6.35 mm port to foam/level	M1294-5022
Adaptor, 19 mm port to 1.5 in tri-clamp	M1287-9545
Adaptor, compression fitting, 19 mm port to 12 mm sensor	M1287-5037
Adaptor, for 19 mm port, for 19 mm sensor	M1294-9542
Adaptor, for 19 mm port, for Pg 13.5 sensor	M1294-9544
Blind Plug	
6.35 mm port	M1294-9534
Pg 13.5 port	M1294-9540
19 mm port	M1294-9536
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® 310/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	P0700-8125
Tubing Clamp, plastic, pack of 20	M1379-0155
Needle-Free Sampling Valve, set of 10	M1379-0131
Luer Connector, barbed tube to female Luer, set of 10	M1379-0130
Hosebarb, for sparge gas option/overlay gas option, pack of 4	M1379-0145

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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
Needle-Free Syringe, pack of 10	M1363-9910
Bearing Housing Cap, pack of 10	M1273-9936
Autoclave Rack, angled, for BioFlo® 320, all vessel sizes	XMF-8624
Autoclave Rack, BioFlo® 320, low-profile, 10 L only	M1227-9231
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

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

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BioFlo/CelliGen Vessel 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	-

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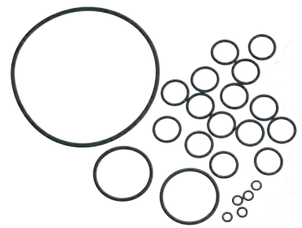

O-Rings

> 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)	-	-

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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 5 as the key to parallel processing.

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SELECTION GUIDE

Model	New Brunswick™ BioCommand® SCADA Software	DASware® control	DASware® access
Page	110	112	114
Suitable systems	All BioFlo/CelliGen systems	DASbox, DASGIP, SciVario twin, BioFlo 120, BioFlo 320	DASbox, DASGIP, BioFlo 120, BioFlo 320
Process control	■	■	
Number of parallel units per controller	5	DASbox: up to 24 DASGIP: up to 16	
Automated data logging	■	■	
Data historian	■	■	
Remote control and monitoring (web browser)	■	■	■
Remote control and monitoring (iPhone®, iPod touch®, iPad®)			o
Event logging	o	■	
Online charts/trending	■	■	
Analyzer integration	o		
Integration to third-party control systems	■		
Design of Experiments			
Configurable database queries and recipes	■[1)]		
Cross-system and historical comparison			
Automated Microsoft® Excel® and Adobe® PDF export	■	■	
Validation	o	IQ/OQ package optional	

[1)] Recipes only

■ = standard, o = optional

DASware® connect	DASware® analyze	DASware® design	DASware® discover
115	116	118	120
DASbox, DASGIP, BioFlo 120, BioFlo 320	DASbox, DASGIP, BioFlo 120, BioFlo 320	DASbox, DASGIP, BioFlo 120, BioFlo 320	DASbox, DASGIP, BioFlo 120, BioFlo 320
			■
			■
			■
■			
		■	
			■
			■
			■

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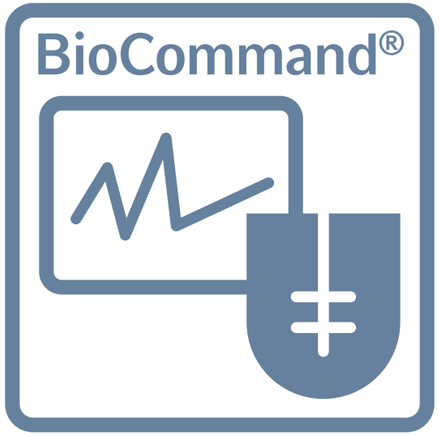
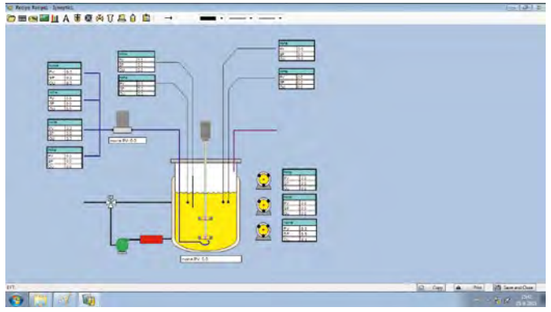
New Brunswick™ BioCommand® SCADA Software



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.

Description
Eppendorf offers three New Brunswick 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.

Watch our video clip about BioCommand!

www.eppendorf.com/biocommand-video

Product features
> New Brunswick BioCommand Track & 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.
> New Brunswick 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.
> New Brunswick 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.

Ordering information

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

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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. Additionally, the advanced software package DASware control professional transfers process data to the central database in real-time. Current process runs can be accessed online and compared to historical runs, including online charting.
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: up to 24 vessels, DASGIP systems: up to 16
> Seamless integration with BioFlo 120 and BioFlo 320
> 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 (Microsoft SQL Server®)
> OPC communication for easy integration with third party-equipment using DASware connect and DASware analyze
> DASware control professional: Online batch-to-batch comparison, integrated analysis of offline values, online calculated values, and alarm notification
> IQ/OQ package available

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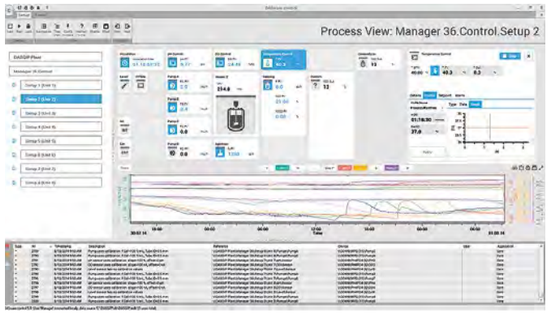
The parallel design of DASware control allows for the operation of a DASGIP Parallel Bioreactor System with up to 16 vessels.



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, incl. PC, OS, and licenses	
for 4-fold DASGIP® system	76DGCS4
for 8-fold DASGIP® system	76DGCS8
for 4-fold DASbox® system	76DXCS4
for 8-fold DASbox® system	76DXCS8
for 12-fold DASbox® system	76DXCS12
DASware® control Upgrade, incl. database update and licenses	
for 4-fold DASGIP® system	76DGCS+4
for 4-fold DASbox® system	76DXCS+4
DASware® control professional, incl. PC, OS, and licenses	
for 4-fold DASGIP® system	76DGCSP4
for 8-fold DASGIP® system	76DGCSP8
for 4-fold DASbox® system	76DXCSP4
for 8-fold DASbox® system	76DXCSP8
for 12-fold DASbox® system	76DXCSP12
DASware® control professional Upgrade, incl. database update and licenses	
for 4-fold DASGIP® system	76DGCSP+4
DASware® control professional Upgrade, incl. database update and licenses	
for 4-fold DASbox® system	76DXCSP+4
Software Update from DASGIP® Control 4.X to DASware® control 5	
for 4 Vessels, (with Win 7)	76DWUPD4
for 8 Vessels, (with Win 7)	76DWUPD8
Software Update from DASGIP® Control 4.X to DASware® control 5 professional	
for 4 Vessels, (with Win 7)	76DWUPD4P
for 8 Vessels, (with Win 7)	76DWUPD8P
Software Update from DASware® control 5 to DASware® control 5 professional, for 4 Vessels, (with Win 7)	76DWUPDP
DASware® control (professional), incl. PC, OS without licenses, for Eppendorf bench-scale controller (BioFlo 120 and 320, BioFlo®/ CelliGen® 115 and 310)	76DGCSX
Software License, DASware® control 5, for one culture vessel	78600166
Software License, DASware® control professional, for one culture vessel	78600167

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DASware® access

Description
DASware access provides an unprecedented level of freedom and flexibility in the management of bioprocesses. Each DASware control system on-site is accessible remotely by one or more remote clients simultaneously. Depending on the user-defined configuration and associated authentication either monitor or monitor and control access can be enabled for any network or mobile client.
Wi-Fi, Intranet, VPN and 4G connections can be used to provide web-based access with almost every browser to one or more bioreactor systems via PC, Notebook or Netbook. The unique DASGIP iApp supports access from iPhone, iPod touch and iPad, optionally with webcam support.

Product features
> Remote monitoring and control of bioprocesses with multiple clients at the same time
> Used via Wi-Fi, Intranet, VPN and 3G/4G with PC and Notebook or with the DASGIP iApp for iPhone, iPod touch and iPad (available in the App Store)
> Supports existing IT infrastructure, network security and access control
> Optional webcam support

Ordering information

Description	Order no.
DASware® access, remote access support (web and iApp) for 1 vessel	76DWACC

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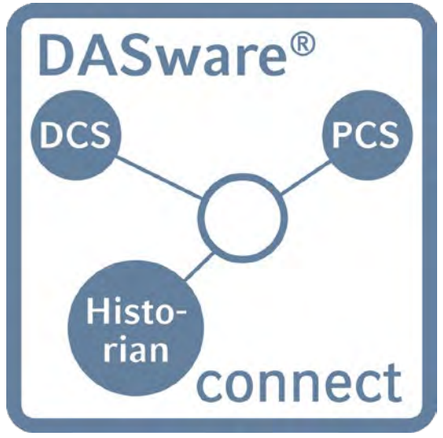
DASware® connect



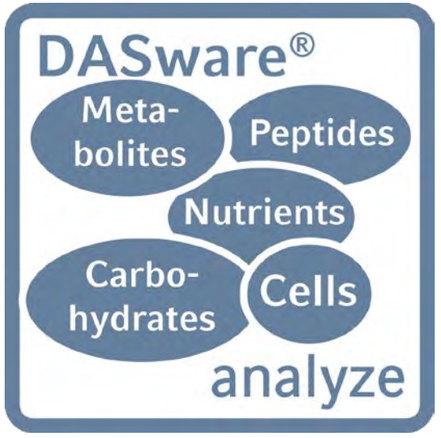
Description
DASware connect was designed to integrate DASbox and DASGIP systems and BioFlo/CelliGen bioprocess control stations into process control systems and legacy corporate historians. This includes but is not limited to Emerson® DeltaV™, Siemens® SIMATIC PCS 7®, ABB® 800 xA, OSIsoft® PI System 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

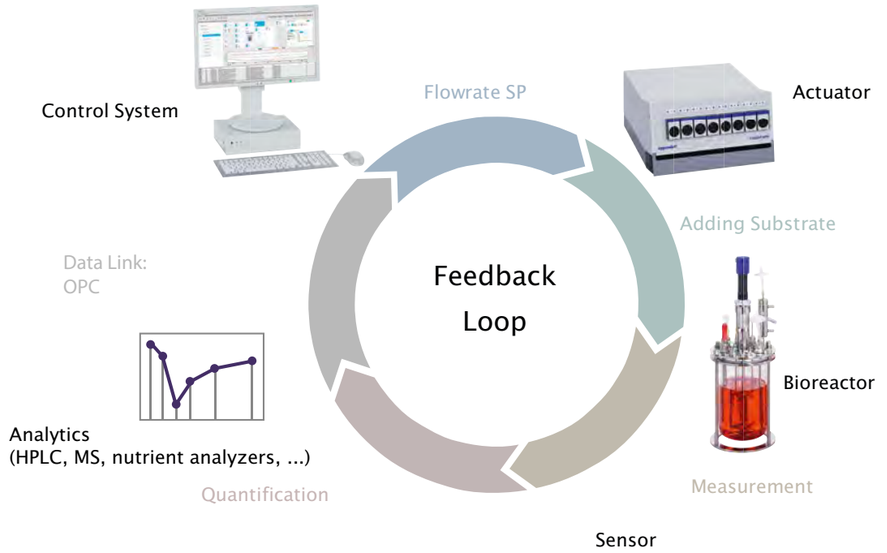
Description	Order no.
DASware® connect, OPC server (OPC DA for ext. PCS), for 1 vessel	76DWCON

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



DASware® analyze seamlessly integrates third-party analyzers - allowing real-time measurement and feedback loops.

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, OPC client professional incl. 1x tunneller license (OPC DA e.g. for external analyzer with autosampler)	
for 4 vessels	76DWANA4P
for 8 vessels	76DWANA8P
for 12 vessels	76DWANA12P
DASware® analyze, cable and license	
for 4 Aber® Futura® sensors	76DWANA4AF
for 4 Hamilton® Fogale sensors	76DWANA4HF

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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 3rd party DoE tools like JMP and others
> Recipe generator supporting multiple system layouts

Ordering information

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

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www Are you also interested in learning more about the benefits of Multivariate Data Analysis? Watch our on-demand webinar.

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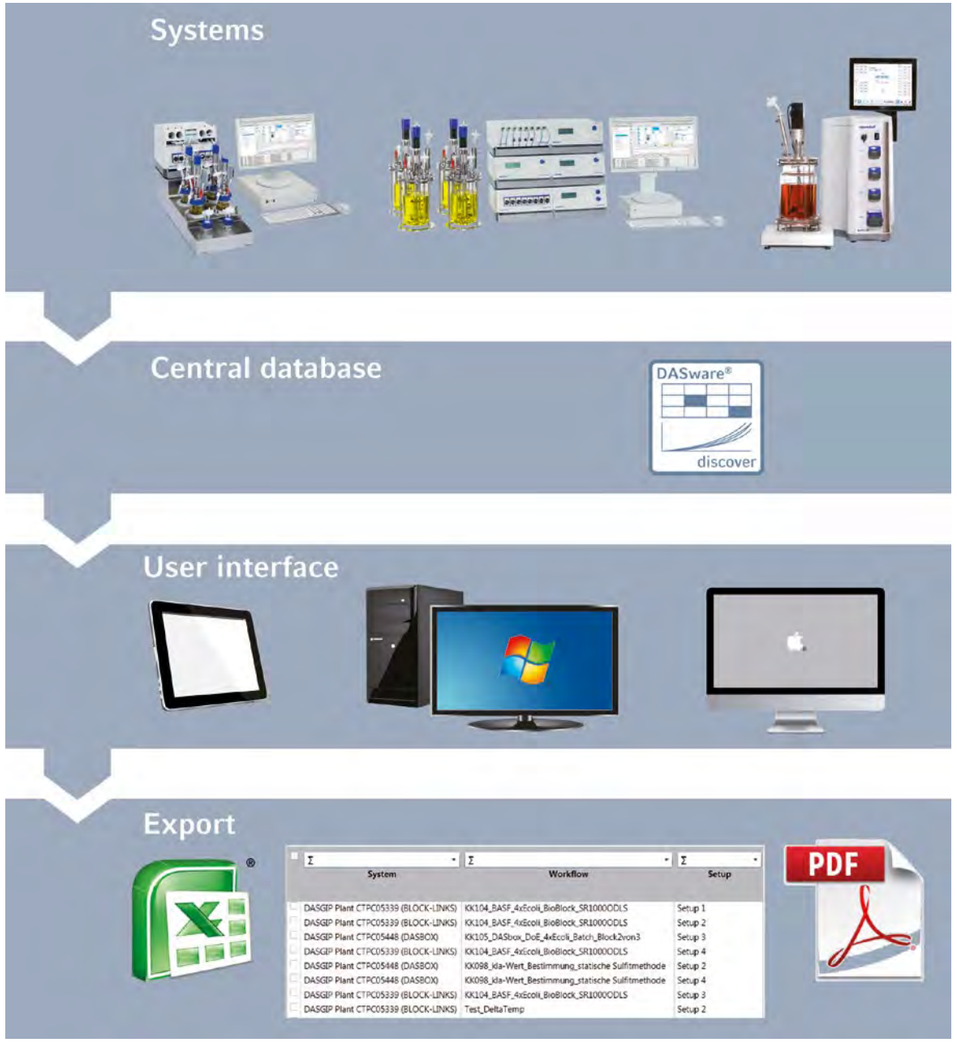
DASware® discover

Description
With DASware discover user-defined process parameters can be added to process runs either online or retrospectively. DASware discover enables near real-time retrieval of runtime information from an SQL Server database by intuitive Microsoft Excel style queries. An embedded report generator provides recipe information, process information as well as event reporting. Utilizing the integral Chart Creator tool users can easily compare bioprocess information from current and historical runs.

Product features
> Easy analysis of bioprocess information using an intuitive web-based database query tool
> Real-time retrieval of key process information
> Batch-to-batch comparison of process information and trends
> Tabulated and configurable views of all critical process information
> Easy chart generation using the integral Chart Creator tool
> Automatic Microsoft Excel® and Adobe PDF® process workbook generation
> Supports cross platform comparison of runtime data between Eppendorf and third-party systems

Applications
> Comprehensive management of bioprocess information derived from multiple systems and plants
> Long-term storage of online and offline data
> Bioprocess development in accordance with Quality by Design (QbD) standards



Advanced query templates allow for comparison of current and historical runs of multiple systems - stored and shared in a central database.

Ordering information

Description	Order no.
DASware® discover, client-license, for 1 vessel (SQL Server®-based information management)	76DWDIS
DASware® discover, information management server, PC hardware, OS software and server licence	76DWDISPC
DASware® discover, Server-License, SQL Server®-based information management	76DWDISS

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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, TMFC gassing stations, and solutions for photobioreactor illumination. The DASGIP EasyAccess software package allows the modules to be operated as stand-alone solutions.

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Model	DASGIP® PHPO	DASGIP® OD4	DASGIP® GA	DASGIP® TC4SC4
Page	126	128	129	130
Number of parallel bioreactors per module	4/8	4	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	
PhotoBioreactor illumination				
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




DASGIP® MP	DASGIP® MX	DASGIP® MF4	DASGIP® PBR4
133	134	136	137
4	4 / 1	4	4
■	■	■	■
			■
■			
	TMFC	TMFC	
	1/2/4 gas (air, N_2, O_2, CO_2)	1 gas (e.g. air, N_2, O_2, CO_2)	

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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.com

Technical specifications subject to change.

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.
Cable, for DO Sensor, for 1 vessel, T82 connector	76DGPOT82
Cable, for connecting a level sensor to a DASGIP® module, for 1 vessel	76DGLVLC
Cable, for DO Sensor (optical), for 1 vessel, VP8 connector	76DGPOVP8
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 154- 173.

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, incl. transmitter and cables, without sensors	76DGOD4
DASGIP® OD4 Stand-Alone Monitoring Module for Optical Density Measurement, for 4 vessels, incl. transmitter and cables, without sensors, incl. EasyAccess Software	76DMOD4

i For OD sensors, see page 172.

i For more information go to www.eppendorf.com

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)

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	
O2 1 - 50 % and CO2 0 - 25 %	76DGGA4X
O2 0 - 100 % and CO2 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, O2 1 - 50 % and CO2 0 - 25 %	76DMGA1X
for 1 vessel, O2 0 - 100 % and CO2 0 - 25 % (GA1E)	76DMGA1EX
for 2 vessels, O2 1 - 50 % and CO2 0 - 25 %	76DMGA2X
for 2 vessels, O2 0 - 100 % and CO2 0 - 25 % (GA2E)	76DMGA2EX
for 4 vessels, O2 1 - 50 % and CO2 0 - 25 %	76DMGA4X
for 4 vessels, O2 0 - 100 % and CO2 0 - 25 % (GA4E)	76DMGA4EX

Accessories

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

MONITORING & CONTROL

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 for heat blankets as well as 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

Technical specifications

Model	TC4SC4D	TC4SC4B	SC4D
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	9.5 kg	9 kg	8.5 kg
Temperature control			
Set-up	Heat blankets/cooling fingers	DASGIP Bioblock	–
Typical control range (depending on set-up)	5 K above cooling agent temperature – 99 °C	5 K above cooling agent temperature – 99 °C	–
Agitation control			
Set-up	Overhead drives	Overhead drives	Overhead drives
Typical speed range (depending on drive)	30 – 1,250 rpm/ 100 – 1,600 rpm	30 – 1,250 rpm/ 100 – 1,600 rpm	30 – 1,250 rpm/ 100 – 1,600 rpm

Ordering information

Description	Order no.
DASGIP® TC4SC4 Temperature and Agitation Control Module, without sensors, for Bioblock and overhead drives (TC4SC4B), for 4 vessels	76DGTC4SC4B
DASGIP® TC4SC4 Temperature and Agitation Control Module, without sensors, for heat blankets and overhead drives (TC4SC4D), for 4 vessels	76DGTC4SC4D
DASGIP® SC4D Agitation Control Module, for 4 vessels, for overhead drives	76DGSC4D
DASGIP® TC4SC4 Stand-Alone Temperature and Agitation Control Module, without sensors, for overhead drives (TC4SC4D), for 4 vessels, incl. EasyAccess Software	76DMTC4SC4D

Accessories

Description	Order no.
Overhead Drive RE30, 30 – 1,250 rpm, digitally encoded	
for 1 BioBLU® 1 Single-Use Vessel	76DGRE30SU01
for 1 BioBLU® 5 Single-Use Vessel	76DGRE30SU05
Overhead Drive RE40, 100 – 1,600 rpm, digitally encoded	
for 1 BioBLU® 1 Single-Use Vessel	76DGRE40SU01
Overhead Drive RE30, 30 – 1,250 rpm, digitally encoded, for 1 vessel	76DGRE30
Overhead Drive RE40, 100 – 1,600 rpm, digitally encoded, for 1 vessel	76DGRE40

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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, incl. connection cable	
for 4 condenser-/ and 4 cooling finger ports (CWD4+4)	76DGCWD44
for 4 condenser ports (CWD4)	76DGCWD4
Accessories for DASGIP® CWD4+4, for 4-fold system	76DGCWD44UM
Accessories for DASGIP® CWD4, for 4-fold system	76DGCWD4UM
Inline Water Filter, for parallel Bioblock or benchtop systems, incl. accessories for 4-fold or 8-fold systems	76DGIWF

i For more information go to www.eppendorf.com

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 EasyAccess Software	76DMMP4
DASGIP® MP8 Stand-Alone Multi Peristaltic Pump Module, for 8 feeds, without feed lines and addition bottles, including EasyAccess Software	76DMMP8
DASGIP® MP8 Multi Peristaltic Pump Module, for 8 feeds, without feed lines and addition bottles, including analog IO 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 149.

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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 Vessels, 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

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, incl. 2x 30 m gas tube and EasyAccess Software	76DMMX44
0.5 – 250 sL/h, 0.5 – 150 sL/h CO_2 (MX4/4H), incl. 2x 30 m gas tube and EasyAccess Software	76DMMX44H
DASGIP® MX4/1 Stand-Alone Gas Mixing Module, for 1 vessel, mass flow controller	
20 – 600 sL/h, incl. 2x 30 m gas tube and EasyAccess Software	76DMMX41F600
10 – 300 sL/h, incl. 2x 30 m gas tube and EasyAccess Software	76DMMX41F300
4 – 120 sL/h, incl. 2x 30 m gas tube and EasyAccess Software	76DMMX41F120
1 – 30 sL/h, incl. 2x 30 m gas tube and EasyAccess Software	76DMMX41F030
40 – 1200 sL/h, incl. 2x 30 m gas tube and EasyAccess Software	76DMMX41F1200

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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.
DASGIP® Stand for Rotameter Gassing Station, for 1 DASGIP® WRM	76DGWRMRX4
DASGIP® 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

i For more information go to www.eppendorf.com

DASGIP® PBR4 for PhotoBioreactor Illumination

Description
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 A, B and C, 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/night cycles and the programming of different flash modes.

Product features
> Parallel illumination of up to 4 vessels (DASGIP PhotoBioreactors)
> Three individually controlled channels A (660 nm, 780 nm), B (572 nm, 625 nm, 640 nm) and C (453 nm) reflecting the relevant chlorophyll absorption wavelenghts
> Continuous mode or flash mode with adjustable period and pulse width
> Day/night simulation
> Illumination carried out with DASGIP LED Illumination Devices
> Can be operated as stand-alone solution with EasyAccess Software

Technical specifications

Model	**PBR4**
Dimensions (W × D × H)	300 × 320 × 190 mm / 11.8 × 15.6 × 7.5 in
Weight	7.8 kg
Typical power consumption	31 W (230 V) / 20 W (115 V)
Illumination	
Bioreactors	Up to 4
LED illumination devices per bioreactor	Up to 4
Individual wavelenght channels	A (660 nm, 780 nm) B (572 nm, 625 nm, 640 nm) C (453 nm)

Ordering information

Description	Order no.
DASGIP® PBR4 PhotoBioreactor Illumination Module, for 4 vessels, without LED Illumination Devices	76DGPBR4
DASGIP® PBR4 Stand-Alone PhotoBioreactor Illumination Module, for 4 vessels, without LED Illumination Devices, incl. EasyAccess Software	76DMPBR4

Accessories

Description	Order no.
LED Illumination Device[1], L 235 mm, O.D. 12 mm, type S (4 sticks with 453/572/625/640/660/780 nm)	76DGLED220S

[1] Other configurations available on request.

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Accessories

Sensors, chillers, scales, and more

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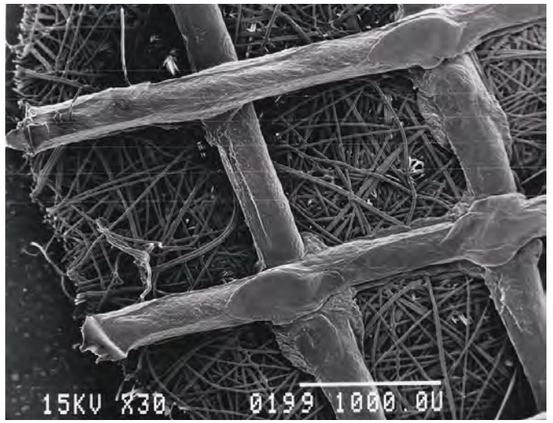
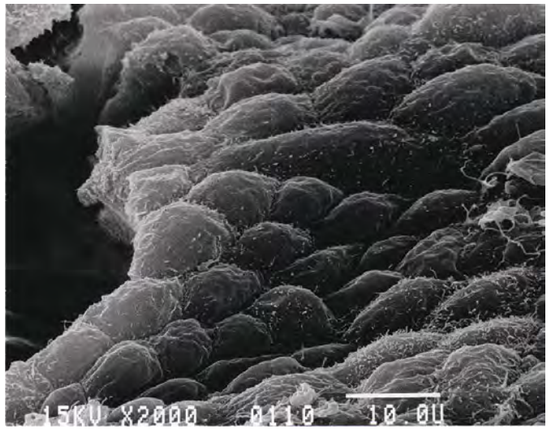
Fibra-Cel® Disks



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

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

Ordering information

Description	Order no.
Fibra-Cel® Disks	
50 g	M1292-9984
250 g	M1292-9988

Custom package sizes available on request.

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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. This information can be integrated directly into OPC-compatible BioCommand® packages 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 (OPC server software designed specifically to communicate with BioCommand included with M1295-0002 only).
> 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, RS-232 to USB, 8 ports, including OPC Server	M1295-0002
RS-232 Interface Box, RS-232 to USB, 8 ports	M1287-0020

[1] Kit M1287-0020 is designed for direct connection to reactor process control (RPC) and BioFlo® control software (BCS) controllers, no OPC server required.

[2] Kit M1295-0002 is designed for integration to BioCommand and is primarily intended for the BioFlo/CelliGen® 115, BioFlo/CelliGen 510 - Allen Bradley and BioFlo/CelliGen Pro.

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.com

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, incl. accessories	
115 V	76DGCHILL06U1
230 V	76DGCHILL06U2
Recirculating Chiller, with 1200 W, incl. accessories	
115 V	76DGCHILL12U1
230 V	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

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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	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
Four gasses, single system			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 systems)			M1273-5001	M1273-5001	M1273-5001	M1273-5001
Water (up to 4 systems) - 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

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

ACCESSORIES

i For more information go to www.eppendorf.com

Other Accessories

Ordering information	
Description	**Order no.**
Hypodermic Needle, 107.95 mm long, 3.26 mm diameter, 12 needles	P0440-0061A
Hypodermic Needle, 18 Gauge (3.8 cm Length) - 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, includes stainless-steel vessel with dip tube, stainless-steel process valve, silicone tubing and 0.2 µm vent filter	
4 L	M1290-0550
7.5 L	M1290-0551
11 L	M1290-0552
19 L	M1290-0553
38 L	M1290-0554

Pump Tubing Accessories

> 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

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System Accessories

DASGIP® Process Computer

> Intel Core® i5
> SSD ≥ 128 GB
> 22 in LCD monitor
> Microsoft® Windows® 7

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

Uninterruptable Power Supply for DASGIP® Products

> 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 RBC33, for UPS BR1500(I/LCD)	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, incl. connection cable	
for 4 condenser ports (CWD4)	76DGCWD4
for 4 condenser-/ and 4 cooling finger ports (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 Bioblock or benchtop systems, incl. accessories for 4-fold or 8-fold systems	76DGIWF

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

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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 Vessels, this innovative technology can also be utilized with the larger vessels of the Eppendorf BioBLU family, BioBLU 1c, 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 single-use vessels BioBLU 1c, 3c, 5c, and 5p

Ordering information

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

i For more information go to www.eppendorf.com

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 single-use vessels (BioBLU 0.3). The DASGIP EGC4 module makes this technology available as well for use with our larger BioBLU Single-Use Vessels.

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 single-use vessels
BioBLU 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 Vessels

Ordering information

Description	Order no.
Actuator Unit for Peltier Exhaust Condenser	
incl. cable L 1.6 m	78201321
incl. cable L 4 m	78201330
Exhaust Condenser Adaptor, incl. insulation	
for DASbox® Mini Bioreactor	78201323
for BioBLU® 0.3/1c Single-Use Vessels	78201322
for BioBLU® 1f Single-Use Vessels	78109131
for BioBLU® 3c/5c/5p Single-Use Vessels	78201326

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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® 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

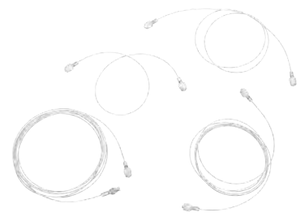
DASGIP® Head Gears

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

Ordering information

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

i For more information go to www.eppendorf.com



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 PTFE, uncolored with 2x Luer lock fittings, I.D. 0.8 mm	
L 1 m, male/male	78510241
L 3 m, male/male	78510243
Feed Line C-Flex®, with 2x Luer lock fittings, male/male	
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	7600252001
I.D. 0.5 mm	7600252002
I.D. 1.0 mm	7600252003
I.D. 2.0 mm	7600252004
Feed Line Set, for SciVario® twin double pump drawer, C-Flex®	
I.D. 0.25 mm	7600252011
I.D. 0.5 mm	7600252012
I.D. 1.0 mm	7600252013
I.D. 2.0 mm	7600252014
Feed Line Set, for SciVario® twin double pump drawer, C-Flex®	
I.D. 0.25 mm	7600252101
I.D. 0.8 mm	7600252102
I.D. 1.6 mm	7600252103
I.D. 2.4 mm	7600252104
I.D. 3.2 mm	7600252105
I.D. 4.8 mm	7600252106

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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	Bio BLU® 0.3c/f/sc	Bio BLU® 1c/f	Bio BLU® 3c/5c/3f	Bio BLU® 5p	Bio BLU® 10c/14c	Bio BLU® 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	-	-	-

i For more information go to www.eppendorf.com

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
DO Sensor, Mettler Toledo® InPro 6850i, ISM®, autoclavable, O.D. 12 mm	B	
L 220 mmw		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 225 mm		78108059
L 325 mm		78108060
DASGIP® DO Sensor O.D. 4.7 mm, including cable L 3 m and storage chamber for BioBLU® 0.3, L 162 mm	G	78108046
DASGIP® DO Sensor O.D. 4.7 mm, including cable L 1 m and storage chamber for BioBLU® 1, L 278 mm, for SciVario® twin		78108065
DASGIP® DO Sensor O.D. 4.7 mm, including cable L 3 m and storage chamber for BioBLU® 1, L 278 mm		78108051

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DO Sensors

Model Vessel Size	Sensor Group	Bio BLU® 0.3c/f/sc	Bio BLU® 1c/f	Bio BLU® 3c/5c/3f	Bio BLU® 5p	Bio BLU® 10c/14c	Bio BLU® 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® 415	H	-	-	-	320 mm	420 mm	625 mm	-
BioFlo®/CelliGen® 510	H, I, J *	-	-	-	-	-	-	120 mm
BioFlo® 610	H, I, J *	-	-	-	-	-	-	120 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.com

Technical specifications subject to change.

Ordering information

Description	Sensor Group	Order no.
DASGIP® DO Sensor O.D. 4.7 mm, including cable L 3 m and storage chamber for BioBLU® 0.3, L 162 mm	G	78108046
DASGIP® DO Sensor O.D. 4.7 mm, including cable L 1 m and storage chamber for BioBLU® 1, L 278 mm, for SciVario® twin		78108065
DASGIP® DO Sensor O.D. 4.7 mm, 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

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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	78522040	-	78522042	-	-	-
DASGIP® Parallel Bioreactor System	78522040	-	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®/CelliGen® Pro - Standard Housing	P0720-2342	-	-	-	-	P0720-6450C1
BioFlo®/CelliGen® Pro - Retractable Housing	P0720-2342	-	-	-	-	P0720-5570C

[1] For DASGIP Benchtop Bioreactors

ACCESSORIES

Technical specifications subject to change.

Ordering information	
Description	**Order no.**
Cable, for connecting DO sensors to DASGIP® modules, grey, with plug type T82, L 3 m	78522040
Cable, for connecting DO sensors to DASGIP® modules, grey, with plug type VP8 for VisiFerm™, L 3 m	78522042
Cable, for SciVario® twin, analog DO sensor, T82 connector	7600222501
Cable, for SciVario® twin, digital sensor, AK9 connector	7600220001
Cable, for SciVario® twin, digital sensor, VP8 connector	7600220002
Cable, ISM® sensor, 1 m	M1379-8108
DO Cable, with T-82 connector, for BioFlo® 120, 1 m	1390810600
DO Cable, with T-82 connector, for BioFlo® 320, 1 m	M1379-8106
Optical DO Cable, ISM® sensor, 1 m	M1379-8107
DO Cable, with T-82 connector, for BioFlo®/CelliGen® 310, BioFlo® 410, BioFlo® 415, 1.1 m (45 in)	P0720-2333
DO Cable, with T-82 connector, for BioFlo®/CelliGen® 115, BioFlo®/CelliGen® 510 , BioFlo® 610, CelliGen® BLU (2nd generation), 1.4 m (55 in)	P0720-2336
DO Cable, with T-82 connector, for BioFlo®/CelliGen® Pro, 1.8 m (6 ft)	P0720-2342
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
Adaptor	
VP connector to T-82 connector, for analog sensors	P0720-6470
Power Adaptor, VP to T-82 connector	P0720-9771

Accessories	
Description	**Order no.**
DO Electrolyte, Mettler Toledo®, pack of 3 x 25 mL	0045840006
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

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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	Bio BLU® 0.3c/f/sc	Bio BLU® 1c/f	Bio BLU® 3c/5c/3f	Bio BLU® 5p	Bio BLU® 10c/14c	Bio BLU® 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	-	-	-

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
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
pH Sensor, Hamilton® EasyFerm Plus ARC, autoclavable, O.D. 12 mm	**D**	
L 225 mm		78103237
L 325 mm		78103242

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pH Sensors

Model Vessel Size	Sensor Group	Bio BLU® 0.3c/f/sc	Bio BLU® 1c/f	Bio BLU® 3c/5c/3f	Bio BLU® 5p	Bio BLU® 10c/14c	Bio BLU® 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®/CelliGen® Pro	E, F *	-	-	-	-	-	-	Standard Housing - 125 mm Retractable Housing - 320 mm

* Depending on option installedw

i For more information go to www.eppendorf.com

Technical specifications subject to change.

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

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pH Sensors

Model	Cable		Adaptor/Sensor Housing		
	Analog	Digital			
	AK9	ISM	Headplate Adaptor	Side-Wall Adaptor	Sensor Housing
DASbox® MiniBioreactor	78522020	–	–	–	-
DASGIP® Parallel Bioreactor System	78522020	–	77102016	–	-
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®/CelliGen® Pro - Standard Housing	M1290-0610	–	–	–	P0720-6450C1
BioFlo®/CelliGen® Pro - Retractable Housing	M1290-0610 and M1290-8012	–	–	–	P0720-5570C

Ordering information

Description	Order no.
pH/Redox Cable, grey, with AK9 plug, L 3 m	78522020
Cable,for SciVario® twin, analog pH sensor, AK9 connector	7600221501
Cable, for SciVario® twin, digital sensor, AK9 connector	7600220001
Cable, for SciVario® twin, digital sensor, VP8 connector	7600220002
pH/Redox Cable, with AK9 connector, for BioFlo® 120, 1 m	1390810400
Cable, ISM® sensor, 1 m	M1379-8108
pH/Redox Cable, for BioFlo®/CelliGen® Pro, 1.8 m	M1290-0610
Cable, pH/redox ground wire extension, for retractable sensor housings	
0.6 m	M1290-8012
pH Cable, with AK9 connector, for BioFlo® 320, 1 m	M1379-8104
pH Cable, with AK9 connector, for BioFlo®/CelliGen® 310, BioFlo® 410, BioFlo® 415, 1 m (3.3 ft)	P0720-2273
pH Cable, with AK9 connector, for BioFlo®/CelliGen® 115, BioFlo®/CelliGen® 510 and BioFlo® 610, 1.4 m (4.6 ft)	P0720-2276
Optical pH Sensor Cable	
for BioBLU® 1c/3c/5c	P0300-2371
for BioBLU® 10c/14c	P0300-2370
for BioBLU® 50c	P0300-2374
for BioBLU® 5p	P0300-2372
Polymer Optical Fiber, for optical pH measurement in BioBLU® 1/3, 216 mm shaft, L 2.0 m	78703017
Polymer Optical Fiber, for optical pH measurement in BioBLU® 1/3, 115.5 mm shaft, L 1.5 m	78703030
Sensor Housing, stainless steel	
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

Accessories

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

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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

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

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	Bio BLU® 0.3c/f/sc	Bio BLU® 1c/f	Bio BLU® 3c/5c/3f	Bio BLU® 5p	Bio BLU® 10c/14c	Bio BLU® 50c
DASbox® MiniBioreactor	A	120 mm	-	-	-	-	-
DASGIP® Bioblock	A	-	225 mm	-	-	-	-
DASGIP® Benchtop	A	-	225 mm	225 mm	-	-	-

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Redox Sensors

Model Vessel Size	Sensor Group	Bio BLU® 0.3c/f/sc	Bio BLU® 1c/f	Bio BLU® 3c/5c/3f	Bio BLU® 5p	Bio BLU® 10c/14c	Bio BLU® 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	200 mm	225 mm	-	325 mm	425 mm	-	-
BioFlo® 120	B, C	200 mm	225 mm	-	325 mm	425 mm	-	-
BioFlo®/CelliGen® 310	B	200 mm	-	225 mm	325 mm	425 mm	-	-
BioFlo® 320	B, C	200-225 mm	-	225 mm	325 mm	425 mm	-	-
CelliGen® 310 (packed-bed)	B	200 mm	-	200-225 mm	200 mm	225 mm	-	-
BioFlo® 320 (packed-bed)	B, C	200-225 mm	-	200-225 mm	200-225 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®/CelliGen® Pro	B, C *	-	-	-	-	-	-	Standard Housing - 120 mm Retractable Housing - 325 mm

* Depending on option installedw

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Ordering information

Description	Sensor Group	Order no.
Redox Sensor, Mettler Toledo® Pt4805-DPAS-SC-K8S, gel-filled	**B**	
L 120 mm		P0720-5780
L 200 mm		P0720-5781
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

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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	–	–	–	–
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®/CelliGen® Pro - Standard housing	M1290-0610	–	–	–	P0720-6450C1
BioFlo®/CelliGen® Pro - Retractable housing	M1290-0610 & M1290-8012	–	–	–	P0720-5570C

Ordering information

Description	Order no.
DASGIP® pH/Redox Cable, grey, with AK9 plug, L 3 m	78522020
pH/Redox Cable, with AK9 connector, for BioFlo® 120, 1 m	1390810400
Redox Cable, with AK9 connector, for BioFlo® 320, 1 m	M1379-8105
Cable, ISM® sensor, 1 m	M1379-8108
Redox Cable, with AK9 connector, for BioFlo® 110 and BioFlo®/CelliGen® 115, 1.8 m (6 ft)	P0720-2763
Redox Cable, with AK9 connector, for BioFlo®/CelliGen® 310 and BioFlo® 415, 1 m (40 in)	P0720-2275
Redox Cable, with AK9 connector, for BioFlo®/CelliGen® 510 and BioFlo® 610, 1.4 m (55 in)	P0720-2277
pH/Redox Cable, for BioFlo® and CelliGen® Pro, 1.8 m	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

ACCESSORIES

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Turbidity Sensors

Ordering information

Description	Order no.
Turbidity Sensor, Mettler Toledo® InPro 8100, autoclavable, 120 mm (cable not included)	P0720-5951
Turbidity Sensor, Mettler Toledo® InPro 8100, autoclavable, 297 mm (cable not included)	P0720-5950
Turbidity Sensor, Mettler Toledo® InPro 8200	
SIP, 120 mm (with cable)	P0720-5961
SIP, 205 mm (with cable)	P0720-5962
SIP, 297 mm (with cable)	P0720-5963
SIP, 407 mm (with cable)	P0720-5960
Turbidity Cable, 5 m	P0720-2430
Transmitter, Mettler Toledo® M800, one-channel, Turbidity	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
CO_2 sensor, Mettler Toledo® InPro 5000, VP Connector	
120 mm	P0720-6480
220 mm	P0720-6481
320 mm	P0720-6482
CO_2 Cable, with VP connector, for Mettler Toledo® transmitter, 3 m (10 ft)	P0720-9660
Transmitter Kit, Mettler Toledo® M400, CO_2	M1287-3200
Cable, ISM® sensor, 1 m	M1379-8108
CO_2 Membrane Kit, incl. spare o-rings and electrolyte, Mettler Toledo® InPro 5000/InPro 5000i, 4 membrane bodies	P0720-6641

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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

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
Cable, for connecting OD sensors to DASGIP® modules, L 3 m	78522037
Cable, for connecting OD sensors to DASGIP® modules, L 5 m	78522054

i For more information go to www.eppendorf.com

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.
DASGIP® 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
DASGIP® 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
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)	78103319
Temperature Sensor (RTD), for SciVario® twin	
for glass vessels, L 300 mm, O.D. 1.6 mm	7600223002
for glass vessels, L 400 mm, O.D. 1.6 mm	7600223003
for BioBLU® 1 Single-Use Vessels, L 215 mm, O.D. 2.5 mm	7600223011
for BioBLU® 3 Single-Use Vessels, L 250 mm, O.D. 4.5 mm	7600223012

ACCESSORIES

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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.com

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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.

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification/ Operational Qualification (IQ/OQ)[1]
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[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

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

i For more information go to www.eppendorf.com

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SERVICE

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.com

Technical specifications subject to change.

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTENANCE	PREMIUM SERVICE	Installation Qualification/ Operational Qualification (IQ/OQ)[1]
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[2]	■	■	■	■
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

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

[2] Where feature is present

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SERVICE

SERVICE

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.

i For more information go to www.eppendorf.com

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] Seprarate 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 (O_2/CO_2): 77 105 000
> GA4 sensor train maintenance (O_2/CO_2/flow): 77 105 001
> GA4 maintenance (4x O_2/CO_2): 77 105 002

GA4E:
> GA4E sensor train inspection (O_2/CO_2): 77 105 039
> GA4E sensor train maintenance (O_2/CO_2/flow): 77 105 040
> GA4E maintenance (4x O_2/CO_2): 77 105 041

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SERVICE

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.

eppendorf
Performance tested on
Model: _____
Serial no.: _____
Serviced by: _____
Service no.: _____
Next service: _____
Date: _____
epServices
for premium performance

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

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SERVICE

DASGIP® MP8 and MP4 Performance Plans

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

SERVICE

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.com

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DASGIP® MX 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.

i For more information go to www.eppendorf.com

Technical specifications subject to change.

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

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SERVICE

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.com

Technical specifications subject to change.

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

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SERVICE

DASGIP® PBR4 Performance Plans

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

SERVICE

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.

i For more information go to www.eppendorf.com

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DASGIP® Control System Performance Plans

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

SERVICE

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.com

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SERVICE

SciVario® twin Performance Plans

SciVario® twin performance plan
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 Vessels 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.
Bioprocess maintenance – see the advantage!

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Technical specifications subject to change.

Service Operation	ESSENTIAL CHECK	ADVANCED MAINTE-NANCE	PREMIUM SERVICE	Installation Qualification (IQ)	Operational Qualification (OQ)
Order Number	0082 150 770	0082 150 780	0082 150 790	0082 150 768	0082 150 769
External Inspection and Maintenance					
General condition of the controller	■	■	■	■	
General condition of all attached cables & tubing	■	■	■	■	
General condition of the vessels	■	■	■	■	
General condition of all inserted bay-drawer	■	■	■	■	
Verify utility connections	■	■			
Internal Inspection					
Update to latest firmware & software revision		■	■		
Perform export of all experiment data		■	■		
Functional Check					
Operational check of all actuators (heating, cooling, gassing, pumps)	■	■	■		
Operational check of exhaust condenser	■	■	■		
Operational check of sensor cables	■	■	■		■
Verification					
Verification of the sensor performance	■				
Verification of the agitation speed	■				■
Verification of the gas flow	■				
Verification of the temperature measurement	■				■
Perform software test run					■
Calibration and Adjustment					
Calibration and adjustment of agitation speed		■	■		
Calibration and adjustment of the mass flow sensors		■	■		
Calibration and adjustment of electronics of sensors for pH, DO, level, and redox		■	■		
Calibration and adjustment of the temperature sensors		■	■		
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
Number of preventive services included	one	one	one	n/a	n/a
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	n/a	n/a

*For a complete maintenance of your SciVario twin system, **Small 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

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DASGIP® and DASbox® Vessels 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.com

Technical specifications subject to change.

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

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SERVICE

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 Vessel 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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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 Vessels 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.

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SERVICE

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 Vessel options. Eppendorf Bioprocess Performance Plans help you to maintain the optimal performance of your equipment over years of frequent use.

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 Vessels 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.

i For more information go to www.eppendorf.com

Technical specifications subject to change.

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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 Vessel 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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i For more information go to www.eppendorf.com

Technical specifications subject to change.

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 Vessels 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.

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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 Vessels 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.

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 Vessels 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.

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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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Technical specifications subject to change.

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

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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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Technical specifications subject to change.

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

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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.

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Technical specifications subject to change.

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

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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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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

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Performance tested on

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Technical specifications subject to change.

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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BioBLU® 0.3c/f BioBLU® 1c/f BioBLU® 3 c/f BioBLU® 10c	US 10,030,220
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