eppendorf

Catalog 2014/15

Bioprocess products

We Know Bioprocessing

Eppendorf - Your expert partner for advanced bioprocessing

As a global leader for liquid-, sample- and cell-handling products, Eppendorf entered the bioprocess market in 2007 through the acquisition of New Brunswick™ Scientific, a global bioprocess technology leader. In 2012, Eppendorf further expanded its bioprocess expertise and product offerings by acquiring DASGIP®, a pioneer in the development and production of benchtop and small scale parallel bioreactor systems, and information technology.
Through the combined strengths of the New Brunswick and DASGIP product portfolios and by utilizing the strong synergies in bioreactor technology and polymer manufacturing, Eppendorf has emerged as a global player and valuable resource to its customers in the bioprocess marketplace.

For all your bioprocess needs

> The Eppendorf bioprocess portfolio offers comprehensive and scalable hardware and software solutions for R&D, process development, pilot and production.
> Eppendorf offers users from industry and research extensive bioprocess solutions from a single source and meets the highest quality demands.

Scalable systems

> Whether you are looking for a small scale screening and scale down model, parallel operated bioreactors, bench scale solutions or stainless steel sterilize-in-place systems - Eppendorf has the right one for you.
> With a wide range of working volumes from 35 mL to 2400 L we perfectly meet your demands in cell culture, phototrophic cultivation and microbial applications

Single-use options

> Our BioBLU® family of ready-to-use rigid wall single-use bioreactors, with 65 mL – 40 L working volume, complement our scale range. With specifically designed products we offer premium application focused solutions for cell culture and microbial applications.

Software solutions

> Comprehensive software packages offer innovative solutions for advanced process control and information management. Scalable control functionality enables reproducible results in a cost-effective manner whereas software solutions for real-time process control, integrated process historian, batch and recipe management and comprehensive information management accelerate bioprocess development from the beginning.

Eppendorf Life Science Solutions

Liquid Handling

Manual pipettes

Electronic pipettes

Pipette tips

Automated pipetting systems

Dispensers

Combitips®

Bottle-top dispensers

Cell Handling

Fermentors and bioreactors

Single-use bioreactors

CO_2 incubators

Biological shakers

Micromanipulators

Microinjectors

Electroporators

Sample Handling

Centrifuges

Spectrometers

Mixers

PCR devices

Ultra-low temperature freezers

PCR and deep-well plates

Test tubes

More than cell handling

Bioprocessing is a dynamic field closely interlinking life sciences and engineering for the development, modeling and optimization of production processes involving living cells. Precise isolation and purification of the target substance produced by genetically-engineered eukaryotic cells or bacteria are of vital importance. Basic research as well as development and industrial production of biosynthetic substances require a comprehensive array of laboratory equipment, ranging from bioreactors with different volume capabilities, consumables, instruments for liquid-, sample- and cell-handling, to user-friendly software solutions for operating, controlling and analyzing the experiments and production processes.

Don´t miss the Eppendorf general lab catalog and streamline your processes from research to production:

> Genetic modification
> Analysis of DNA and protein concentrations
> Centrifugation & sample concentration
> Manipulation of eukaryotic cells and bacteria
> Sample storage
> Process development
> Protein production

i Visit www.eppendorfna.com/catalog or contact your local distributor.

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Complementary Products

Premium life science solutions for your success

With its comprehensive portfolio Eppendorf accompanies the whole workflow in a life science lab: liquid handling, centrifugation, transfection, analysis, storage and cultivation. New Brunswick Incubator Shakers and our new Cell Culture Consumables are only two examples bridging our bioprocess portfolio and the equipment that you will find in the Eppendorf general lab catalog.

Two catalogs – one source: Eppendorf.

New Brunswick™ Innova® 44/44R stackable programmable incubator shaker

Description
The Innova 44 incubated and 44R incubated and refrigerated stackable shakers with the New Brunswick triple-eccentric counterbalanced drive provides years of dependable operation. The cast iron support and counter balanced drive is specifically designed to support high speed applications and heavy workloads. Innova 44 incubated shakers provide very broad temperature capabilities for culturing a wide variety of organisms in flasks up to 5 L. Refrigeration module is built into the Innova model 44R, or can be easily added to model 44, at any time. The Innova model 44/44R system provides space-saving design with stacking capabilities, glide up doors and an ergonomic slide-out platform.

Product features
> Stackable – up to three units for maximum space savings
> Triple-eccentric counterbalanced drive in cast iron housing provides vibration and trouble free operation for years
> 2.5 and 5 cm (1 and 2 in) orbits offered to meet your application needs
> Programmable Innova controls automatically changes temperature, speed and optional photosynthetic and UV germicidal lights at timed intervals
> Wide temperature range: Innova 44: 5 °C above ambient to 80 °C. (Innova 44R: 20 °C below ambient to 80 °C) Maximum temperature is 60 °C with optional humidity monitor and 70 °C with optional photosynthetic lights.
> Versatile 76 × 46 cm (30 × 18 in) accessory platform (sold separately) accommodates flasks up to 5 L
> Shaking speeds between 25 – 400 rpm (±1 rpm) provides versatility for culturing a wide range of cell types
> Slide-out platform mechanism—provides easy and effortless access to flasks located in the front and back of the incubator shaker
> Built-in water reservoir humidifies chamber to reduce sample evaporation, while also protecting unit from spills, includes a drain for easy cleaning.
> Pull-out service module allows access to all electronic and heating/cooling components, without having to unstack the units

> Find the New Brunswick™ Innova® 44/44R and the New Brunswick™ S41i also in the Eppendorf general lab catalog!

New Brunswick™ S41i

Description
The New Brunswick S41i is the only CO_2 incubator with a New Brunswick Shaker inside. The S41i precisely controls temperature, shaking speed, CO_2 and optionally O_2 providing the ideal environment for growing mammalian and plant suspension cultures. Accepts flasks up to 4 L. Standard perforated shelf allows for static incubation at the same time as shaking and a second static shelf can be added as an option. The world famous triple eccentric drive provides stable, uniform and vibration free motion – connected to the shaking platform by four encapsulated support rods. The drive mechanism located below the chamber ensuring that heat generated by the drive does not affect the critical environment within the chamber. The intuitive touch screen display and controls allows you to operate and monitor performance.

Applications
> Culturing of non adherent suspension cells requiring gentle agitation
> Incubating adherent cells on the shelf included with the unit…adding a 2nd static shelf and using the shaking platform as a 3rd shelf
> Adherent cells such as stem cells that require both incubation and periodic gentle shaking

Product features
> Temperature range from 4 °C above ambient to 50 °C
> Shaking speeds between 25 – 400 rpm (±1 % full scale), 25 – 300 rpm if stacked, provides versatility for culturing a wide range of cell types
> Large 35.6 x 61 cm (14 in x 24 in) platform accommodates flasks up to 4 L providing flexibility with your cultures
> Single or double stacked for increased capacity
> Inner and outer door saves valuable gasses while maintaining the perfect environment for your cells
> Standard high temperature disinfection provides a clean surface protecting your cells
> Intuitive touch screen controls provides for precise control of the culturing environment
> Optional perforated shelf allows for static incubation at the same time as shaking

CELL CULTURE CONSUMABLES

NEW

Cell Culture Consumables

Eppendorf Cell Culture Flasks

Eppendorf Cell Culture Plates

Eppendorf Cell Culture Dishes

Eppendorf Serological Pipets

Description
Experience a new dimension in cell culture with Eppendorf Cell Culture Consumables. The portfolio answers your needs for excellent cell performance and reliability as well as for advanced protection against contamination.
Innovative technologies for surface activation enable a tissue-culture-treated (TC treated) surface with outstanding homogeneity. The planarity and transparency of all surfaces contribute to an optical performance that not only facilitates your routine analysis, but also saves time during automated read-out.
In all formats, we focused on advanced handling, robustness in stacking and unsurpassed performance when it comes to identification, readability and tracking.
The packaging mirrors the comprehensive features of the tools by providing complete protection during transportation, tool-free opening, aid-free resealing of packages for safe and clean storage, fast identification of the desired product as well as compact boxes and to benefit limited space.
Learn more about the truly comprehensive solutions for daily needs in cell culture on the following pages.

Applications
> Expansion and culture of adherent and suspension cells on TC treated or on non-treated polystyrene
> Performance of cell-based assays and microscopic analysis

> Find the Cell Culture Consumables also in the Eppendorf general lab catalog!

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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.

Selection guide

				
Model	DASbox® Mini Bioreactor System	DASGIP® Parallel Bioreactor Systems	BioFlo®/CelliGen® 115 Fermentor/ Bioreactor	BioFlo® 310 Fermentor
Page(s)	18	22	30	38
Working volume ranges[1]	60 – 250 mL	35 mL - 3.8 L	0.4 – 10.5 L	0.8 – 10.5 L
Single-use vessels available	■	■	■	■
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	4, 8, 12 and more	4, 8 and more	Up to 3	Up to 4
Controller[2]	DGC	DGC	RPC	RPC
Touchscreen controller			■	■
BioCommand®			■	■
DASware®	■	■	■	■
Gas mixing options	4 gas (Air, N_2, O_2, CO_2)	1/2/4 gas (Air, N_2, O_2, CO_2)	2/3/4 gas	2/3/4 gas
Gas flow control[3]	TMFC	R or TMFC	R or TMFC	R or TMFC
Exhaust analysis	■	■	■	■
Optical density measurement	■	■	■	■
Validation				■

1) Realized using multiple vessels 2) Controllers: DGC = DASGIP Control, RPC = Reactor Process Controller, PLC = Programmable Logic Controller 3) R = Rotameter, TMFC = Thermal Mass Flow Controller 4) Rotameter is for overlay only

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CelliGen®310 Bioreactor	CelliGen® BLU	BioFlo® 415 Fermentor	BioFlo®/CelliGen® 510 Fermentor/ Bioreactor	BioFlo® 610 Fermentor	BioFlo®/CelliGen® Pro Fermentor/ Bioreactor	
42	48	51	54	56	58	
0.8 – 10.5 L	1.3 – 40 L	2.0 – 15.5 L	5.2 – 32 L	13 – 100 L	18.8 - 520 L (CelliGen) / 32 - 2400 L (BioFlo)	
■	■					
■						
		■	■	■	■	
■	■	■				
		■	■	■	■	
■		■	■	■	■	
■	■	■	■	■	■	
■	■		■		■	
■	■		■	■	■	
Up to 4						
RPC	RPC	RPC	RPC/PLC	RPC	PLC	
■	■	■	■	■	■	
■	■	■	■	■	■	
■	■	■				
2/3/4 gas	3/4 gas	2/3/4 gas	2/3/4 gas	1/2 gas	2 gas (BioFlo)/ 4 gas (CelliGen)	
R or TMFC	R or TMFC[4]	TMFC	R or TMFC	R or TMFC	R or TMFC	
■	■	■	■	■	■	
■	■					
■	■	■	■	■	■	

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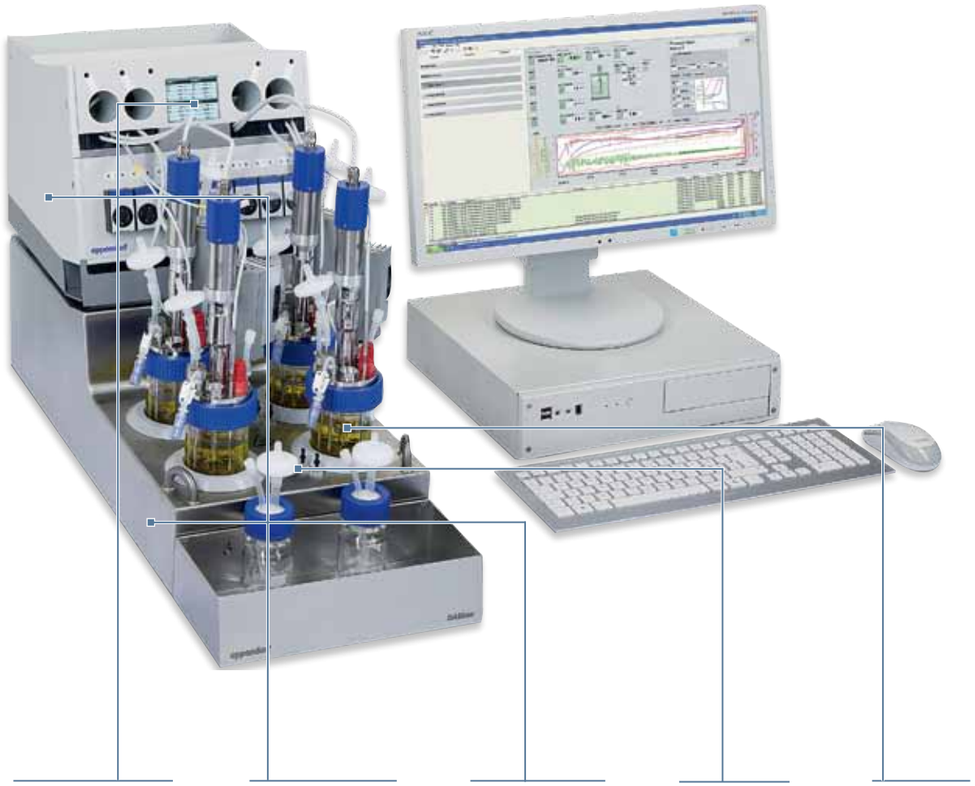
DASbox® Mini Bioreactor System



LC color display simplifies identification of bioreactors and monitoring

Feeding and monitoring system includes variable speed pumps and standard pH and DO sensors (redox or level options and optical pH sensors available)

Liquid-free temperature control unit for easy handling

Integrated mass flow-controlled gas mixing system for continuous mixing of Air, N_2, O_2 and CO_2

Industry standard glass mini bioreactors and single-use vessels BioBLU 0.3

Parallel operation of multiple bioreactors makes the DASbox a perfect fit for process development.

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

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 4, 8, 12 or more 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 satisfies users with easy handling.
In addition to using industry standard glass bioreactors the DASbox can be equipped with the new Eppendorf BioBLU 0.3 vessels, all fully instrumented single-use mini bioreactors.

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

Product features
> Parallel set-up of 4, 8, 12 or more bioreactors
> Excellent scalability and reproducibility in both microbial and cell culture applications
> Supports industry standard glass bioreactors (DASbox Mini Bioreactor) as well as the 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) bench space 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, O_2, CO_2 and N_2, each directable either to headspace or sparger
> Standard sensors for precise measurement and control of temperature, pH, DO, level and ORP (redox potential)
> 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

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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**
Glass vessels, autoclavable	■	■	■	■
Number of parallel units	4, 8, 12 and more	4, 8, 12 and more	4, 8, 12 and more	4, 8, 12 and more
Software	DASGIP Control, optional DASware	DASGIP Control, optional DASware	DASGIP Control, optional DASware	DASGIP Control, optional 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)
User interface	Process computer w/ monitor	Process computer w/ monitor	Process computer w/ monitor	Process computer w/ monitor
Gas flow control[2)]	TMFC	TMFC	TMFC	TMFC
Power supply	115/230 V, 50/60 Hz	115/230 V, 50/60 Hz	115/230 V, 50/60 Hz	115/230 V, 50/60 Hz
Typical power consumption (4-fold system w/o 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)
Typical dimensions (W × D × H, 4-fold system w/o 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 w/o accessories)	44 kg	44 kg	44 kg	44 kg
Bioreactors				
Vessels	Glass vessels	Single-use vessels	Glass vessels	Single-use vessels
Sterilization	Autoclavable	Pre-sterilized	Autoclavable	Pre-sterilized
Working volume (total)	60 – 250 mL	100 - 250 mL	60 - 250 mL	65 - 250 mL
Total volume	350 mL	380 mL	350 mL	380 mL
Agitation				
Drive	Direct overhead drives	Magnetic overhead drives	Direct overhead drives	Magnetic overhead drives
Agitation speed ranges	20 – 2500 rpm	20 – 500 rpm	20 – 2500 rpm	20 – 2000 rpm
Impellers	Marine-type	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 – 5 sL/h	0 – 5 sL/h	0 – 25 sL/h	0 – 25 sL/h
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 & 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	10 – 60 °C at 25 °C RT	10 – 60 °C at 25 °C RT	10 – 60 °C at 25 °C RT	10 – 60 °C at 25 °C RT

Technical specifications				
Model	**DASbox® Cell Culture**	**DASbox® Cell Culture Single-Use**	**DASbox® Microbiology**	**DASbox® Microbiology Single-Use**
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)
Antifoam/level	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)

Ordering information	
Description	**Catalog No.**
Mini Bioreactor System DASbox® for Cell Culture Applications, max. 5 sL/h gassing	
4-fold system	76DX04CC
8-fold system	76DX08CC
Mini Bioreactor System DASbox® for Cell Culture Applications, Single-use, max. 5 sL/h gassing	
4-fold system for single-use vessels	76DX04CCSU
8-fold system for single-use vessels	76DX08CCSU
Mini Bioreactor System DASbox® for Microbial Applications, max. 25 sL/h gassing	
4-fold system	76DX04MB
8-fold system	76DX08MB
Mini Bioreactor System DASbox® for Microbial Applications, Single-use, max. 25 sL/h gassing	
4-fold system for single-use vessels	76DX04MBSU
8-fold system for single-use vessels	76DX08MBSU
DASbox® MP8 Feeding Module, for 8 feeds, w/o feed lines and reservoir bottles	76DXMP8
DASbox® Autoclavable Carrier, for 4 vessels	76DXBKT4
DASbox® Pull-Out system, for 1 base unit	76DXRAIL
DASbox® Exhaust Analyzing System GA4, incl. accessories for 4 vessels	
O_2 0 – 100%, CO_2 0 – 25% (GA4E)	76DXGA4E
DASbox® GA4 Exhaust Analyzing Module, incl. accessories for 4 vessels	
O_2 1 – 50%, CO_2 0 – 25%	76DXGA4

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DASGIP® Parallel Bioreactor Systems

The compact DASGIP Bioblock provides accurate and integrated temperature control for four vessels.

Every DASGIP Parallel Bioreactor System features real-time process control, integrated process historian, batch and recipe management.

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 aerobe and anaerobe 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
> Advanced process control and parallel operation of 4, 8 or more bioreactors
> Comprehensive information management, integration of external devices and DoE with DASware discover
> Scalable bioreactors with working volumes of 35 mL – 3.8 L
> Direct overhead drives ranging from 20 – 1600 rpm
> Precise temperature control with the DASGIP Bioblock or heating blankets/cooling fingers
> Variable speed pumps for continuous feeding down to 0.3 mL/h
> Continuous and cyclic perfusion
> Thermal mass flow-controlled gassing with individual gas mixture from Air, O_2, CO_2 and N_2
> pH control using CO_2/base, acid/base or individual solutions
> Cascaded DO control
> Optional redox potential monitoring or level control/anti foam sensor as well as OD measurement and exhaust analysis

Ordering information

Description	Catalog No.
DASGIP® Parallel Bioreactor System for Cell Culture, max. 50 sL/h gassing	
4-fold system with Bioblock	76DG04CCBB
8-fold system with Bioblock	76DG08CCBB
4-fold system, benchtop	76DG04CC
8-fold system, benchtop	76DG08CC
DASGIP® Parallel Bioreactor System for Stem Cell Culture, max. 50 sL/h gassing, paddle-type impellers	
4-fold system, magnetic agitation	76DG04SC
8-fold system, magnetic agitation	76DG08SC
DASGIP® Parallel Bioreactor System for Microbial Applications, max. 250 sL/h gassing	
4-fold system with Bioblock	76DG04MBBB
8-fold system with Bioblock	76DG08MBBB
4-fold system, benchtop	76DG04MB
8-fold system, benchtop	76DG08MB
DASGIP® Parallel Bioreactor System for Phototrophic Cultivation, max. 50 sL/h gassing, incl. LED Illumination Devices	
4-fold system with Bioblock	76DG04PBBB
8-fold system with Bioblock	76DG08PBBB
4-fold system, benchtop	76DG04PB
8-fold system, benchtop	76DG08PB
DASGIP® Process Computer, incl. accessories, DASGIP Control, PC hardware and OS software	76DGPCS

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DASGIP® Parallel Bioreactor Systems

Technical specifications				
Model	**DASGIP® System for Cell Culture**	**DASGIP® System for Stem Cells**	**DASGIP® System for Microbiology**	**DASGIP® PhotoBioreactor System**
Number of parallel units	4, 8 and more	4, 8 and more	4, 8 and more	4, 8 and more
Software	DASGIP Control, optional DASware	DASGIP Control, optional DASware	DASGIP Control, optional DASware	DASGIP Control, optional DASware
User Interface	Process computer w/ monitor	Process computer w/ monitor	Process computer w/ monitor	Process computer w/ monitor
Power supply	115/230 V, 50/60 Hz	115/230 V, 50/60 Hz	115/230 V, 50/60 Hz	115/230 V, 50/60 Hz
Typical power consumption (4-fold system w/o process computer)	480 W (at 230 V) / 432 W (at 115 V) (595 W / 552 W w/o DASGIP Bioblock)	373 W (at 230 V) / 297 W (at 115 V)	541 W (at 230 V) / 467 W (at 115 V) (639 W / 584 W w/o DASGIP Bioblock)	490 W (at 230 V) / 441 W (at 115 V) (605 W / 561 W w/o DASGIP Bioblock)
Typical dimensions (W × D × H, 4-fold system w/o 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)	140 x 70 x 53 cm (55 x 28 x 21 in)
Typical weight (4-fold system w/o accessories)	78 kg (60 kg w/o DASGIP Bioblock	41 kg	96 kg (78 kg w/o DASGIP Bioblock)	77 kg (59 kg w/o DASGIP Bioblock
Bioreactors				
Vessels	Glass / single-use vessels	Glass vessels	Glass / single-use vessels	Glass vessels
Sterilization	Autoclavable / pre-sterilized	Autoclavable	Autoclavable / pre-sterilized	Autoclavable
Working volume	300 – 800 mL to 800 mL – 3.8 L	35 – 60 mL / 80 – 200 mL	200 mL – 1.0 L to 800 mL – 3.8 L	400 mL – 1.2 L / 700 mL – 2.7 L
Total volume	1.5 L to 4.6 L	185 mL / 380 mL	1.3 L to 4.6 L	1.9 L / 3.2 L
Agitation				
Drive	Direct (glass vessels) / magnetic (single-use) overhead drives	Stir plates, magnet-coupled	Overhead drives, directly coupled (glass vessels) / magnet-couplet (single-use)	Overhead drives, directly coupled
Agitation speed ranges	30 – 1250 rpm (standard) / 100 – 1600 rpm (optional)	2 – 250 rpm	100 – 1600 rpm (standard) / 30 – 1250 rpm (optional)	30 – 1250 rpm (standard) / 100 – 1600 rpm (optional)
Impellers	Pitched blade	Paddle type / pitched blade	Rushton-type	Pitched blade
Gassing				
Gas flow control	TMFC; overlay and/or submerged	TMFC; overlay	TMFC/Rotameter; sparger	TMFC; overlay and/or submerged
Standard gas flow rates	0.1 – 50 sL/h, 0.1 – 40 sL/h CO_2 (DASGIP MX4/4, other modules available)	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)

Technical specifications				
Model	**DASGIP® System for Cell Culture**	**DASGIP® System for Stem Cells**	**DASGIP® System for Microbiology**	**DASGIP® PhotoBioreactor System**
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 (other gases on request)	Air, N_2, O_2 and/or CO_2 (other gases on request)
Feeding				
Feed lines per vessel	Up to 8	Up to 4	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)	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 & control				
Temperature control	Heating blankets (optional cooling fingers) / heating and cooling integrated in DASGIP Bioblock	Heating blankets	Heating blankets (optional cooling fingers) / heating and cooling integrated in DASGIP Bioblock (additional cooling fingers optional)	Heating blankets (optional cooling fingers) / heating and cooling integrated in DASGIP Bioblock (additional cooling fingers optional)
Standard temperature range	5 °C above cooling agent temperature – 60 °C / 5 °C above cooling agent temperature – 99 °C (DASGIP Bioblock)	10 °C above RT – 60 °C	5 °C above cooling agent temperature – 60 °C / 5 °C above cooling agent temperature – 99 °C (DASGIP Bioblock)	5 °C above cooling agent temperature – 60 °C / 5 °C above cooling agent temperature – 99 °C (DASGIP Bioblock)
pH control	CO_2/base, and other set-ups	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 (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
ORP (redox) measurement	-	-	Optional	Optional
Antifoam/level	Optional	Optional	Optional	Optional
OD measurement	Optional (DASGIP OD4)	-	Optional (DASGIP OD4)	Optional (DASGIP OD4)
Exhaust condensation	Water-cooled or liquid-free (Peltier w/ DASGIP EGC4)	-	Water-cooled or liquid-free (Peltier w/ DASGIP EGC4)	Water-cooled
Exhaust analysis	Optional (DASGIP GA4)	Optional (DASGIP GA4)	Optional (DASGIP GA4)	Optional (DASGIP GA4)

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DASGIP® Parallel Bioreactor System with BioBLU® 5c Single-Use Vessels

With working volumes of 1.25 - 3.75 L the BioBLU 5c is the perfect tool for process development as well as bench scale production procedures.

Operating the BioBLU 5c with a DASGIP System allows for parallel processing of 4, 8 and more single-use vessels.

Description
Operating the DASGIP Control Software and the various DASGIP modules for monitoring and control with BioBLU 5c Single-use Vessels, scientists working in cell culture process development make use of the well-established DASGIP Control Software and comprehensive information management with DASware. They benefit from the advantages of single-use solutions up to 3.75 L working volume. Parallel operation and calibration, powerful recipe management and automated Microsoft Excel reporting accelerate process development. DoE approaches and development following the QbD

Product features
- > Fully instrumented single-use bioreactor for accelerated process development in cell culture applications
- > Parallel operation and calibration, integrated recipe management and Microsoft Excel reporting
- > Software suite DASGIP DASware offers numerous options for data management, interconnectivity with 3rd party lab devices, remote control and DoE
- > Liquid-free exhaust condenser with easy handling by automatic slide in activation and slide out deactivation mode
- > Sealed magnetic overhead drive reduces the risk of contamination
- > Pitched blade impeller, up- or downflow starting at 30 rpm
- > Fully mass flow-controlled gas mixing of Air, O_2, CO_2 and N_2
- > Operates with industry standard probes for precise measurement and control of temperature, pH and DO
- > Optionally, the BioBLU 5c is delivered with a PreSens pH optode readily installed and fully supported by the control system
- > Variable speed-controlled peristaltic pumps for multiple fluid transfers, continuous flow rates between 0.3 and 420 mL/h

Ordering information

Description	Catalog No.
DASGIP® Parallel Bioreactor System with BioBLU® 5c Single-Use Vessels, for New Brunswick BioBLU 5c	
4 single-use vessels	76DG04CCSU03
8 single-use vessels	76DG08CCSU03

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➢ The Eppendorf EGC4 Module for Exhaust Condensation can be found on page 119.

Expand Your Cells

Eppendorf solutions for advanced cultivation of stem cells

Embryonic and adult stem cell research is one of the most promising approaches in the advancement of cell therapy and regenerative medicine. Clinical studies and the associated governmental regulations require validated approaches with reproducible experimental results. Therefore, defined cultivation conditions are needed, including close monitoring and precise control of all relevant process parameters. Transfer of stem cell studies to the clinic needs large cell quantities and thus involves upscaling of cultures.

DASGIP® Parallel Bioreactor System for Stem Cell Culture

To satisfy the challenging requirements of stem cells, Eppendorf DASGIP Parallel Bioreactor Systems have been enhanced to meet stem cell specific demands. Starting with 35 mL working volume Eppendorf offers individual solutions for controlled cultivation of various stem cell lines. Studies with human pluripotent stem cells have proven our technology to be suitable to enable scale up and mass expansion.[*1]

[*1] Olmer R, Selzer S, Zweigerdt, R (2012): Massively Expanding Stem Cell Suspensions, GEN Vol. 32 No 20

Eppendorf BioBLU® p Single-use Vessels

> Our BioBLU 0.3p and 5p vessels are pre-loaded with Fibra-Cel® Disks, providing optimum growth conditions for adherent stem cells such as mesenchymal stem cells. Sensitive cells are being protected against damaging shear forces. Single-use technology eliminates time and costs associated with cleaning and autoclaving.

Eppendorf BioBLU Vessel for Stem Cell Cultivation (left)

> Our BioBLU 0.3 Single-use Vessel has been adapted to the special requirements of stem cells. Studies using the DASbox Mini Bioreactor System show it to be an appropriate tool for cultivation of these sensitive cells.[*2]

[*2] Eppendorf Application Note No. 292 (2013): Scalable Expansion of Human Pluripotent Stem Cells in Eppendorf BioBLU® 0.3 Single-Use Bioreactors

New Brunswick™ BioFlo®/CelliGen® 115

Description
The New Brunswick BioFlo/CelliGen 115 is an easy-to-use benchtop system, with built-in controls for operation as a microbial fermentor or mammalian/animal cell culture bioreactor. This versatility, coupled with the ability to control up to three independent vessels from a single control station, makes it ideally suited for use in R&D labs, universities, teaching facilities, testing labs, and more.

Applications
> Microbes, yeast, plant, mammalian, insect, and animal cell lines
> Batch, fed-batch, and continuous cultures

Product features
> Sophisticated RPC (Reactor Process Controller) software controls up to 32 process parameters
> Control up to three independent vessels from a single station
> Three fixed speed peristaltic pumps can be linked directly to acid, base, foam, level loops for control
> Systems can accommodate up to 4 Rotameters, or a Thermal Mass Flow Controller (TMFC) for gas-flow control
> Bright, easy to read, built-in, industrial touchscreen display for interactive system management and monitoring
> Eight interchangeable, autoclavable, glass vessels
> Vessels are available in heat blanketed (single-walled), or water-jacketed (double-walled) configurations
> Choose between direct and magnetic drive motor options
> Rushton, pitched-blade, marine-blade, and spin-filter impellers are available
> Pre-configured kits include everything you need to get started, from the vessel and control station to cable ties and tubing
> Compatible with BioBLU single-use vessels

Contents of Pre-Configured Kits

	Basic Fermentation Kit	Advanced Fermentation Kit	Advanced Cell Culture Kit
Basic vessel kit	■		
Advanced vessel kit		■	■
Master control station w/ touchscreen	■	■	■
Temperature control	■	■	■
Agitation control	■	■	■
pH/DO control		■	■
Foam/level control		■	■
3-fixed speed pumps		■	■
Manual gas mix	■	■	
Automatic gas mix (4 solenoids)			■
Manual gas flow (rotameter qty. shown)	1	2	1

■ = standard, o = optional

Standard Flow Rates

Vessel	Basic Fermentation Kit	Advanced Fermentation Kit	Advanced Cell Culture Kit
1 L	0.25 – 2.5 SLPM	0.25 – 2.5 SLPM	0.05 – 0.5 SLPM
2 L	0.2 – 5.0 SLPM	0.2 – 5.0 SLPM	0.12 – 1.2 SLPM
5 L	0.1 – 11.4 SLPM	0.1 – 11.4 SLPM	0.25 – 2.5 SLPM
10 L	2.0 – 20.0 SLPM	2.0 – 20.0 SLPM	0.5 – 5.0 SLPM

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New Brunswick™ BioFlo®/CelliGen® 115

Ordering information

New Brunswick™ BioFlo®/CelliGen® 115
Pre-Configured Kits contain everything you need to get started, including the vessel, control station and more

Vessel	Working Volume	Voltage	Vessel type	Drive	Catalog No.
Basic Fermentation Kit					
1 L	0.4 – 1.0 L	0.4 – 1.0 L	Heat Blanket	Direct	M1369-1101
1 L	0.4 – 1.0 L	0.4 – 1.0 L	Water Jacket	Direct	M1369-1621
2 L	0.8 – 2.2 L	0.8 – 2.2 L	Heat Blanket	Direct	M1369-1102
2 L	0.8 – 2.2 L	0.8 – 2.2 L	Water Jacket	Direct	M1369-1622
5 L	2.0 – 5.6 L	2.0 – 5.6 L	Heat Blanket	Direct	M1369-1105
5 L	2.0 – 5.6 L	2.0 – 5.6 L	Water Jacket	Direct	M1369-1625
10 L	4.0 – 10.5 L	4.0 – 10.5 L	Heat Blanket	Direct	M1369-1110
10 L	4.0 – 10.5 L	4.0 – 10.5 L	Water Jacket	Direct	M1369-1630
Advanced Fermentation Kit					
1 L	0.4 – 1.0 L	100 – 120 V	Heat Blanket	Direct	M1369-1121
1 L	0.4 – 1.0 L	100 – 120 V	Water Jacket	Direct	M1369-1111
2 L	0.8 – 2.2 L	100 – 120 V	Heat Blanket	Direct	M1369-1122
2 L	0.8 – 2.2 L	100 – 120 V	Water Jacket	Direct	M1369-1112
5 L	2.0 – 5.6 L	100 – 120 V	Heat Blanket	Direct	M1369-1125
5 L	2.0 – 5.6 L	100 – 120 V	Water Jacket	Direct	M1369-1115
10 L	4.0 – 10.5 L	100 – 120 V	Heat Blanket	Direct	M1369-1130
10 L	4.0 – 10.5 L	100 – 120 V	Water Jacket	Direct	M1369-1120

Ordering information

New Brunswick™ BioFlo®/CelliGen® 115
Pre-Configured Kits contain everything you need to get started, including the vessel, control station and more

Vessel	Working Volume	Voltage	Vessel type	Drive	Catalog No.
Advanced Cell Culture Kit					
1 L	0.4 – 1.0 L	100 – 120 V	Heat Blanket	Direct	M1369-1301
1 L	0.4 – 1.0 L	100 – 120 V	Heat Blanket	Magnetic	M1369-1201
1 L	0.4 – 1.0 L	100 – 120 V	Water Jacket	Direct	M1369-1311
1 L	0.4 – 1.0 L	100 – 120 V	Water Jacket	Magnetic	M1369-1211
2 L	0.8 – 2.2 L	100 – 120 V	Heat Blanket	Direct	M1369-1302
2 L	0.8 – 2.2 L	100 – 120 V	Heat Blanket	Magnetic	M1369-1202
2 L	0.8 – 2.2 L	100 – 120 V	Water Jacket	Direct	M1369-1312
2 L	0.8 – 2.2 L	100 – 120 V	Water Jacket	Magnetic	M1369-1212
5 L	2.0 – 5.6 L	100 – 120 V	Heat Blanket	Direct	M1369-1305
5 L	2.0 – 5.6 L	100 – 120 V	Heat Blanket	Magnetic	M1369-1205
5 L	2.0 – 5.6 L	100 – 120 V	Water Jacket	Direct	M1369-1315
5 L	2.0 – 5.6 L	100 – 120 V	Water Jacket	Magnetic	M1369-1215
10 L	4.0 – 10.5 L	100 – 120 V	Heat Blanket	Direct	M1369-1310
10 L	4.0 – 10.5 L	100 – 120 V	Heat Blanket	Magnetic	M1369-1210
10 L	4.0 – 10.5 L	100 – 120 V	Water Jacket	Direct	M1369-1320
10 L	4.0 – 10.5 L	100 – 120 V	Water Jacket	Magnetic	M1369-1220

Factory Installed Options
If a pre-configured kit does not meet your process requirements, a fully configurable system can be designed by selecting from our available options:

> pH/DO
> Automatic gas mixing
> Thermal Mass Flow Control (TMFC)
> Rotameters
> Pumps
> Foam/Level

> **Need a second or third system?** Budget-saving utility stations and “Add-A-Vessel Kits“ take the cost and work out of ordering added units.

> **Do you already own a BioFlo 110 vessel?** Save money by re-using your existing vessel. Retro kits are also offered.

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SYSTEMS

New Brunswick™ BioFlo®/CelliGen® 115

Contents of Vessel Kits

	Basic Fermentation Vessel Kit		Advanced Fermentation Vessel Kit		Advanced Cell Culture Vessel Kit	
Contents	**Heat Blanket**	**Water Jacket**	**Heat Blanket**	**Water Jacket**	**Heat Blanket**	**Water Jacket**
Dish bottom vessel w/ SS headplate	■	■	■	■	■	■
Vessel stand	■		■		■	
Agitation motor (50 – 1200 rpm)	■	■	■	■		
Agitation motor (25 – 200 rpm)					o	o
Agitation motor (25 – 400 rpm)					o	o
Heat blanket	■		■		■	
Water jacket		■		■		■
Cooling coil	■		■		■	
Thermowell/RTD	■	■	■	■	■	■
pH/DO sensor Kit	o	o	■	■	■	■
Foam/level sensor	o	o	■	■	■	■
Baffle assembly	■	■	■	■		
Rushton impellers (qty. 2)	■	■	■	■	o	o
Pitched blade impeller (qty. 1)	o	o	o	o		
Ring sparger	■	■	■	■	■	■
Microsparger	o	o	o	o	o	o
Exhaust condenser	o	o	■	■	■	■
Sampling assembly	o	o	■	■	■	■
Tri-port adaptor	o	o	■	■	■	■
Septum kit	o	o	■	■	■	■
Liquid addition Tube	o	o	■	■	■	■
Addition bottles (qty. 2)	o	o	■	■	■	■

■ = standard, o = optional

Ordering information

BioFlo®/CelliGen® 115 vessel kits
Contain most ancillary components required for independent operation as a second or third vessel

Vessel	Vessel type	Working Volume	Drive	Catalog No.
Basic Fermentation Vessel Kit				
1 L	Heat Blanket	0.4 – 1.0 L	Direct	M1369-1001
1 L	Water Jacket	0.4 – 1.0 L	Direct	M1369-1011
2 L	Heat Blanket	0.8 – 2.2 L	Direct	M1369-1002
2 L	Water Jacket	0.8 – 2.2 L	Direct	M1369-1012
5 L	Heat Blanket	2.0 – 5.6 L	Direct	M1369-1005
5 L	Water Jacket	2.0 – 5.6 L	Direct	M1369-1015
10 L	Heat Blanket	4.0 – 10.5 L	Direct	M1369-1010
10 L	Water Jacket	4.0 – 10.5 L	Direct	M1369-1020
Advanced Fermentation Vessel Kit				
1 L	Heat Blanket	0.4 – 1.0 L	Direct	M1369-1601
1 L	Water Jacket	0.4 – 1.0 L	Direct	M1369-1611
2 L	Heat Blanket	0.8 – 2.2 L	Direct	M1369-1602
2 L	Water Jacket	0.8 – 2.2 L	Direct	M1369-1612
5 L	Heat Blanket	2.0 – 5.6 L	Direct	M1369-1605
5 L	Water Jacket	2.0 – 5.6 L	Direct	M1369-1615
10 L	Heat Blanket	4.0 – 10.5 L	Direct	M1369-1610
10 L	Water Jacket	4.0 – 10.5 L	Direct	M1369-1620

Product appearance, specifications, and/or prices are subject to change without notice.

Ordering information

BioFlo®/CelliGen® 115 vessel kits
Contain most ancillary components required for independent operation as a second or third vessel

Vessel	Vessel type	Working Volume	Drive	Catalog No.
Advanced Cell Culture Vessel Kit				
1 L	Heat Blanket	0.4 – 1.0 L	Direct	M1369-1041
1 L	Heat Blanket	0.4 – 1.0 L	Magnetic	M1369-1051
1 L	Water Jacket	0.4 – 1.0 L	Direct	M1369-1021
1 L	Water Jacket	0.4 – 1.0 L	Magnetic	M1369-1031
2 L	Heat Blanket	0.8 – 2.2 L	Direct	M1369-1042
2 L	Heat Blanket	0.8 – 2.2 L	Magnetic	M1369-1052
2 L	Water Jacket	0.8 – 2.2 L	Direct	M1369-1022
2 L	Water Jacket	0.8 – 2.2 L	Magnetic	M1369-1032
5 L	Heat Blanket	2.0 – 5.6 L	Direct	M1369-1045
5 L	Heat Blanket	2.0 – 5.6 L	Magnetic	M1369-1055
5 L	Water Jacket	2.0 – 5.6 L	Direct	M1369-1025
5 L	Water Jacket	2.0 – 5.6 L	Magnetic	M1369-1035
10 L	Heat Blanket	4.0 – 10.5 L	Direct	M1369-1050
10 L	Heat Blanket	4.0 – 10.5 L	Magnetic	M1369-1060
10 L	Water Jacket	4.0 – 10.5 L	Direct	M1369-1030
10 L	Water Jacket	4.0 – 10.5 L	Magnetic	M1369-1040

Headplate Ports

Vessel	6 mm	12 mm	19 mm	Total
1 L	1	9	0	10
2 L	6	7	0	13
5 L	7	8	1	16
10 L	7	8	1	16

Vessel Dimensions (approximate vessel dimensions as prepared for autoclave)

Heat Blanket Vessels	With Exhaust Condenser			Without Exhaust Condenser	
Vessel	**Length**	**Width**	**Height**	**Diameter**	**Height**
1 L	24 cm (9.4 in)	24 cm (9.4 in)	56 cm (22.0 in)	22 cm (8.7 in)	42 cm (16.5 in)
2 L	24 cm (9.4 in)	24 cm (9.4 in)	56 cm (22.0 in)	22 cm (8.7 in)	42 cm (16.5 in)
5 L	37 cm (14.6 in)	37 cm (14.6 in)	65 cm (25.6 in)	29 cm (11.4 in)	49.5 cm (19.5 in)
10 L	29 cm (11.4 in)	29 cm (11.4 in)	74 cm (29.1 in)	29 cm (11.4 in)	61 cm (24.0 in)
			On Optional Slant Rack		
5 L	71 cm (28.0 in)	29 cm (11.4 in)	46 cm (18.1 in)	–	–
10 L	80 cm (31.5 in)	29 cm (11.4 in)	51 cm (20.1 in)	–	–
Water Jacket Vessels	**With Exhaust Condenser**			**Without Exhaust Condenser**	
Vessel	**Length**	**Width**	**Height**	**Diameter**	**Height**
1 L	29 cm (11.4 in)	29 cm (11.4 in)	52 cm (20.5 in)	23.5 cm (9.3 in)	41 cm (16.1 in)
2 L	29 cm (11.4 in)	29 cm (11.4 in)	56.5 cm (22.2 in)	24 cm (9.4 in)	45 cm (17.7 in)
5 L	29 cm (11.4 in)	29 cm (11.4 in)	68 cm (26.8 in)	29 cm (11.4 in)	52 cm (20.5 in)
10 L	29 cm (11.4 in)	29 cm (11.4 in)	80 cm (31.5 in)	29 cm (11.4 in)	67 cm (23.4 in)
			On Optional Slant Rack		
5 L	66 cm (26.0 in)	29 cm (11.4 in)	47 cm (18.5 in)	–	–
10 L	72 cm (28.3 in)	29 cm (11.4 in)	52 cm (20.5 in)	–	–

New Brunswick™ BioFlo®/CelliGen® 115

Accessories	
Description	**Catalog No.**
pH Sensor Kits	
1 L pH Sensor Kit	M1369-9970
2 L pH Sensor Kit	M1369-9977
5 L pH Sensor Kit	M1369-9982
10 L pH Sensor Kit	M1369-9985
DO Sensor Kits	
1 L DO Sensor Kit	M1369-9974
2 L DO Sensor Kit	M1369-9979
5 L DO Sensor Kit	M1369-9986
10 L DO Sensor Kit	M1369-9988
Foam/Level Sensor Kits	
1 L Foam/Level Sensor Kit	M1369-9947
2 L Foam/Level Sensor Kit	M1369-9951
5 L / 10 L Foam/Level Sensor Kit	M1369-9960
Replacement Foam/Level Cable & Adaptor	
Foam/Level Sensor Cable	M1361-8014
Motor Assemblies	
1 L / 2 L Direct Drive Fermentation Motor Assembly	M1369-3120
5 L / 10 L Direct Drive Fermentation Motor Assembly	M1369-3125
Direct Drive Cell Culture Motor Assembly (All Vessels)	M1369-3135
Magnetic Drive Cell Culture Motor Assembly (All Vessels)	M1369-3130
Replacement Heat Blankets	
1 L Heat Blanket	M1369-8021
2 L Heat Blanket	M1369-8022
5 L Heat Blanket	M1369-8020
10 L Heat Blanket	M1369-8023
Water Jacket Heaters	
1 L / 2 L Water Jacket Heater	M1369-3107
5 L / 10 L Water Jacket Heater	M1369-3108
Replacement Glass Vessels	
1 L H/B Replacement Glass Vessel	M1273-9907
2 L H/B Replacement Glass Vessel	M1273-9909
5 L H/B Replacement Glass Vessel	M1273-9916
10 L H/B Replacement Glass Vessel	M1273-9918
1 L W/J Replacement Glass Vessel	M1273-9908
2 L W/J Replacement Glass Vessel	M1273-9915
5 L W/J Replacement Glass Vessel	M1273-9917
10 L W/J Replacement Glass Vessel	M1273-9919
Exhaust Condensors	
1 L / 2 L / 5 L Exhaust Condensor	M1273-9945
10 L Exhaust Condensor	M1273-9957
Headplate Adaptors/Plugs	
Tri-port Adaptor	M1273-9961
12 mm pH/DO Sensor Compression Adaptor	M1273-5040
Septum Kit	M1273-3031
Adaptor - 6 mm port to 6 mm tube	M1273-5054
6 mm Addition Tube	M1273-9575
Adaptor - 12 mm port to 6 mm tube	M1273-5056
Adaptor - 12 mm port to 12 mm tube	M1273-5058
6.35 mm Port Plug	M1273-9405
12 mm Port Plug	M1273-9406
19 mm Port Plug	M1273-9407
Replacement Foam/Level Cable & Adaptor	
12 mm Foam / Level Sensor Compression Adaptor	M1273-5042
Spare Parts Kits	
Headplate port washers / O-rings	M1273-9900
1 L / 2 L Spare Parts Kit - H/B	M1273-9991
5 L / 10 L Spare Parts Kit - H/B	M1273-9992
1 L / 2 L Spare Parts Kit - W/J	M1273-9998
5 L / 10 L Spare Parts Kit - W/J	M1273-9999
Impellers	
5 L Pitched Blade Impeller - Upflow	M1273-9206
5 L Pitched Blade Impeller - Downflow	M1273-9290
5 L / 10 L Pitched Blade Impeller - Upflow	M1273-9207
5 L / 10 L Pitched Blade Impeller - Downflow	M1230-9212
1.3 / 3.0 L Marine Blade Impeller	M1273-9901
7.5 / 14 L Marine Blade Impeller	M1273-9902
1 L / 2 L Rushton Blade Impeller	M1273-9291
5 L Rushton Blade Impeller	M1273-9292
10 L Rushton Blade Impeller	M1273-9293
1 L Spin Filter Impeller - Suspension	M1273-3201
2 L Spin Filter Impeller - Suspension	M1273-3202
5 L Spin Filter Impeller - Suspension	M1273-3205
10 L Spin Filter Impeller - Suspension	M1273-3210
1 L Spin Filter Impeller - Microcarrier	M1273-3211
2 L Spin Filter Impeller - Microcarrier	M1273-3212
5 L Spin Filter Impeller - Microcarrier	M1273-3215
10 L Spin Filter Impeller - Microcarrier	M1273-3220
Microspargers	
1 L Sintered Microsparger - H/B	M1273-5007
1 L Sintered Microsparger - W/J	M1273-5003
2 L Sintered Microsparger	M1273-5004
5 L Sintered Microsparger	M1273-5005
10 L Sintered Microsparger	M1273-5006
Sampling Assemblies	
1 L Sampling Assembly	M1273-9946
2 L Sampling Assembly	M1273-9949
5 L Sampling Assembly	M1273-9953
10 L Sampling Assembly	M1273-9956
Additional Accessories	
Water Regulator (single system)	M1273-5001
Air Regulator (single system)	M1273-5002
Bearing Housing Cap (10 pack)	M1273-9936
Addition Bottle Kit (250 mL)	M1273-9989
Addition Bottle Kit (500 mL)	M1273-9990
Addition Bottle Holder	M1273-9940
O-Ring Lubricant	P0860-1050
Silicone Tubing Clamp	P0160-4460
Polysulfone Quick Connect - 0.635 cm (female)	P0240-2680
Polysulfone Quick Connect - 0.635 cm (male)	P0240-2670

New Brunswick™ BioFlo® 310

Applications
> Microbes, yeast, and plant cell lines
> Batch, fed-batch, and continous cultures

Product features
> Sophisticated RPC (Reactor Process Controller) software controls up to 32 process parameters, trends up to 8 loops, and provides built-in security
> Integrated control of up to 8 gases for sparge and gas overlay
> Systems include 3 integrated pumps; direct-drive motor; temperature, pH, and DO control; automatic gas mixing; 7 analog input/output connections
> 4 Interchangeable, autoclavable glass vessels
> Unique design stainless-steel dish bottom vessels (single-walled) provides enhanced temperature control capabilities for rapid changes
> Capable of controlling up to four reactors simultaneously from a single master control station
> Users can customize their entire system by selecting from our comprehensive list of factory installed options
> Our pre-configured kits include everything you need to get started, from the vessel and control station to cable ties and tubing
> Bright, easy to read, industrial touchscreen display for interactive system management and monitoring

Description
The New Brunswick BioFlo 310 is a validatable, benchtop, autoclavable fermentor with advanced controller and touchscreen interface capable of meeting and adapting to a wide variety of process needs.

Contents of Pre-Configured Kits	
Master Control Station w/ Touchscreen	■
SS Dish-Bottomed Vessel	■
Direct Drive Motor Assembly (50-1200 RPM)	■
2 Rushton-type Impellers	■
pH/DO Control	■
Foam/Level Control	■
3-Fixed Speed Pumps	■
7 Analog I/O (0-5 V or 4-20 mA)	■
Automatic Gas Mix (4 solenoids)	■
Automatic Gas Flow (1 TMFC @ 0.4-20 SLPM)	■
■ = standard, o = optional	

Ordering information

New Brunswick™ BioFlo® 310,
Pre-Configured Kits include a Master Control Station with Touchscreen display, 1 TMFC (0.4-20 SLPM), Automatic Gas Mixing, Vessel Kit with Direct Drive Motor, pH/DO sensor kit, and Sampling Assembly. *(*vessel kit includes (2) rushton impellers)*

Vessel	Working volume	Voltage	Vessel type	Catalog No.
1 L	0.75 – 1.75 L	100 – 120 V	SS Dished-Bottom	M1287-1170
3 L	1.25 – 3.75 L	100 – 120 V	SS Dished-Bottom	M1287-1171
5 L	2.0 – 5.5 L	100 – 120 V	SS Dished-Bottom	M1287-1172
10 L	3.0 – 10.5 L	100 – 120 V	SS Dished-Bottom	M1287-1173

Contents of Vessel Kits	
SS Dished-Bottom Vessel	■
Direct Drive Motor (50 - 1200 RPM)	■
Baffle Assembly	■
Foam/Level Sensor	■
Rushton Impellers (Qty. 2)	■
Ring Sparger	■
Exhaust Condenser	■
Thermowell / RTD	■
Sampling Assembly	■
Harvest Tube	■
Tri-Port Adaptor	■
Septum Kit	■
Liquid Addition Tube	■
Inlet / Exhaust Filter	■
Silicone Tubing	■
Autoclave Cap (Qty. 10)	■
■ = standard, o = optional	

Ordering information

New Brunswick™ BioFlo® 310 Vessel Kits
Include a glass vessel with stainless steel headplate and dished-bottom heat exchanger, exhaust condenser, sampling assembly, Rushton-type impellers (qty. 2), foam/level sensor, and direct drive motor.

Vessel	Working volume	Vessel type	Drive	Catalog No.
1 L	0.75 – 1.75 L	SS Dished-Bottom	Direct	M1287-0300
3 L	1.25 – 3.75 L	SS Dished-Bottom	Direct	M1287-0301
5 L	2.0 – 5.5 L	SS Dished-Bottom	Direct	M1287-0302
10 L	3.0 – 10.5 L	SS Dished-Bottom	Direct	M1287-0303
1 L	0.75 – 1.75 L	SS Dished-Bottom	Not included	M1287-0320
3 L	1.25 – 3.75 L	SS Dished-Bottom	Not included	M1287-0321
5 L	2.0 – 5.5 L	SS Dished-Bottom	Not included	M1287-0322
10 L	3.0 – 10.5 L	SS Dished-Bottom	Not included	M1287-0323

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New Brunswick™ BioFlo® 310

Factory installed options for New Brunswick™ BioFlo® 310
If a pre-configured kit doesn't meet your process requirements, a fully configurable system can be designed by selecting from our available options.

Description	Catalog No.
1. Select Control Station,	
Master Control Station	M1287-2110
Utility Station (no display)	M1287-2112
2. Select Voltage,	
100 - 120 V	M1287-1010
3. Select Sparge Gas Option,	
0 TMFC (requires a rotameter)	M1287-2010
1 Rotameter, 0-20 SLPM (0 TMFC only)	M1287-3510
1 Rotameter, 0-5 SLPM (0 TMFC only)	M1287-3520
1 TMFC, 0.1 - 5 SLPM	M1287-2011
1 TMFC, 0.4 - 20 SLPM	M1287-2012
2 TMFC, 0.1 - 5 SLPM	M1287-2013
2 TMFC, 0.4 - 20 SLPM	M1287-2014
3 TMFC, 0.4 - 20 SLPM	M1287-2016
4 TMFC, 0.1 - 5 SLPM	M1287-2017
4 TMFC, 0.4 - 20 SLPM	M1287-2018
4. Select Vessel Kit,	
(see vessel kit table)	
5. Select Sensor Kits,	
(see accessories)	
6. Add 2nd pH/DO Board (Optional),	
Factory Installed	M1287-3540
7. Select Validation Package (Optional),	
Basic validation	M1287-0101
Basic Plus validation	M1287-0102

Ordering information

Description	Catalog No.
Upgrade Kits: Use your existing New Brunswick™ BioFlo® 3000 vessel with a New Brunswick™ BioFlo® 310 Cabinet, select a control station and motor conversion kit	
Master Control Station, 100 - 120V, 1 TMFC (0.4 - 20 SLPM)	M1287-1003
Master Control Station, 200 - 240V, 1 TMFC (0.4 - 20 SLPM)	M1287-1005
1 L / 3 L Motor Conversion Kit	M1287-1200
5 L Motor Conversion Kit	M1287-1201
10 L Motor Conversion Kit	M1287-1202
Upgrade Kits: Use your existing New Brunswick™ BioFlo® 3000 cabinet with a New Brunswick™ BioFlo® 310 Vessel, includes vessel assembly, vessel kit, tubing kit, and motor	
1 L Vessel Conversion Kit	M1287-1205
3 L Vessel Conversion Kit	M1287-1206
5 L Vessel Conversion Kit	M1287-1207
10 L Vessel Conversion Kit	M1287-1208

Accessories

Description	Catalog No.
Cell culture conversion kit/gas overlay	
Adapts the BioFlo®310 fermentor to enable high performance growth of mammalian, insect or plant cells using a CelliGen Plus or CelliGen® 310 vessel. Enables dual control for sparge and gas overlay. Includes 1 TMFC with 4 gas mix reducing the flow rate from 0 - 20 SLPM to 0 - 5 SLPM.	M1287-3501

Product appearance, specifications, and/or prices are subject to change without notice.

Accessories

Description	Catalog No.
pH/DO Sensor Kits, for all impellers except packed bed, includes sensor(s) and cable(s)	
1 L pH/DO Sensor Kit	M1287-0400
3 L pH/DO Sensor Kit	M1287-0401
5 L pH/DO Sensor Kit	M1287-0402
10 L pH/DO Sensor Kit	M1287-0403
BioFlo® 310 redox probe kit, includes sensor(s) and cable(s)	
1 L Redox Sensor Kit	M1287-0410
3 L Redox Sensor Kit	M1287-0411
5 L Redox Sensor Kit	M1287-0412
10 L Redox Sensor Kit	M1287-0413
Replacement Glass Vessels	
1 L Replacement Glass Vessel - SS Dish	M1287-9930
3 L Replacement Glass Vessel - SS Dish	M1287-9931
5 L Replacement Glass Vessel - SS Dish	M1287-9932
10 L Replacement Glass Vessel - SS Dish	M1287-9933
Sampling assembly	
Sampling Assembly (included in vessel kits)	M1287-5042
Headplate Adaptors/Plugs	
Septum adapter kit (includes 10 septa)	M1287-5031
Sensor Adaptor Kit (PG13.5 to 12 mm compression)	M1287-5030
Users Kits, includes tubing, clamps, filters, connectors, addition vessels and other commonly required items	
1 L / 3 L / 5 L User's Kit	M1287-9914
Spare parts kit	
1 L Spare Parts Kit	M1287-6020
3 L Spare Parts Kit	M1287-6021
5 L Spare Parts Kit	M1287-6022
10 L Spare Parts Kit	M1287-6023

Headplate Ports

Vessel	6 mm	PG 13.5	19 mm	Total
1 L	1	9	0	10
3 L	3	10	1	14
5 L	3	12	1	16
10 L	3	12	1	16

Vessel Dimensions BioFlo 310 with Exhaust Condenser

Total Vessel Volume	Length	Width	Height
1 L	20.3 cm (8.0 in)	20.3 cm (8.0 in)	53.3 cm (21.0 in)
3 L	24.1 cm (9.5 in)	24.1 cm (9.5 in)	61.0 cm (24.0 in)
5 L	26.7 cm (10.5 in)	26.7 cm (10.5 in)	63.5 cm (25.0 in)
10 L	29.9 cm (11.8 in)	29.9 cm (11.8 in)	71.1 cm (28.0 in)

Autoclave Dimensions for BioFlo/CelliGen 310

Catalog No.	Vessel Size (L)	Max Length Rack Mounted	Max Width Rack Mounted	Max Height Rack Mounted
	Recommended Autoclave Dimensions for BioFlo/CelliGen 310			
XMF-8624 Autoclave rack	1	66 cm (26.0 in)	27.4 cm (10.8 in)	45.7 cm (18 in)
	3	66 cm (26.0 in)	27.4 cm (10.8 in)	66 cm (26.0 in)
	5	66 cm (26.0 in)	27.4 cm (10.8 in)	55.3 cm (21.8 in)
	10	68.5 cm (27.0 in)	35.5 cm (14 in)	57 cm (22.4 in)
	For CelliGen 310			
M1227-9231 Autoclave Rack, Low Profile	10	73.6 cm (29.0 in)	35.5 cm (14 in)	50.8 cm (20.0 in)
	For BioFlo 310			
	10	73.6 cm (29.0 in)	35.5 cm (14 in)	50.8 cm (20.0 in)

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New Brunswick™ CelliGen® 310

Description
The New Brunswick CelliGen 310 is a validatable, benchtop, autoclavable bioreactor with advanced controller and touchscreen interface capable of meeting and adapting to a wide variety of process needs.

Applications
> Mammalian, insect, and animal cell lines
> Batch, fed-batch, and continous cultures

Product features
> Sophisticated RPC (Reactor Process Controller) software controls up to 32 process parameters, trends up to 8 loops, and provides built-in security
> Integrated control of up to 8 gases for sparge and gas overlay
> Systems include 3 integrated pumps; magnetic-drive motor; temperature, pH, and DO control; automatic gas mixing; 7 analog input/output connections
> 4 Interchangeable, autoclavable glass vessels
> Standard water jacketed vessels (double-walled) designed for gentle, even heat distribution
> Capable of controlling up to four reactors simultaneously from a single master control station
> Users can customize their entire system by selecting from our comprehensive list of factory installed options
> Our pre-configured kits include everything you need to get started, from the vessel and control station to cable ties and tubing
> Compatible with BioBLU single-use vessels
> Bright, easy to read, industrial touchscreen display for interactive system management and monitoring

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Contents of Pre-Configured Kits	
Master Control Station w/ Touchscreen	■
SS Dish-Bottomed Vessel	
Magnetic Drive Motor Assembly (25-500 RPM)	■
Magnetic Drive Motor Assembly (25-150 RPM)	10 L vessel kit only
Impellers	Sold Separately
pH/DO Control	■
Foam/Level Control	■
3-Fixed Speed Pumps	■
7 Analog I/O (0-5 V or 4-20 mA)	■
Automatic Gas Mix (4 solenoids)	■
Automatic Gas Flow (1 TMFC @ 0.4-20 SLPM)	■
■ = standard, o = optional	

Ordering information

New Brunswick™ CelliGen® 310
Pre-configured kits include a Master Control Station with Touchscreen display, 1 TMFC (0.1-5 SLPM), 4-Gas Gas Mixing, Vessel Kit with Magnetic Drive Motor, and Sample Assembly. (*pH/DO sensor and impeller kits sold separately)

Vessel	Working volume	Voltage	Vessel type	Catalog No.
1 L	0.6 – 1.4 L	100 – 120 V	Water Jacket	M1287-1260
3 L	1.2 – 3.5 L	100 – 120 V	Water Jacket	M1287-1261
5 L	1.5 – 5.0 L	100 – 120 V	Water Jacket	M1287-1262
10 L	3.5 – 10.0 L	100 – 120 V	Water Jacket	M1287-1263

Contents of Vessel Kits	
Water-Jacketed Vessel	■
Magnetic Drive Motor Assembly (25-500 RPM)	■
Magnetic Drive Motor Assembly (25-150 RPM)	10 L vessel kit only
Thermowell / RTD	■
Foam/Level Sensor	■
Impellers	Sold Separately
Ring Sparger	■
Microsparger	o
Exhaust Condenser	■
Thermowell / RTD	■
Sampling Assembly	■
Harvest Tube	■
Tri-Port Adaptor	■
Septum Kit	■
Liquid Addition Tube	■
Inlet / Exhaust Filter	■
Silicone Tubing	■
Autoclave Cap (Qty. 10)	■
■ = standard, o = optional	

SYSTEMS

New Brunswick™ CelliGen® 310

Ordering information

New Brunswick™ CelliGen® 310 Vessel Kits
Include a water-jacketed glass vessel with stainless steel headplate, exhaust condenser, sampling assembly, foam/level sensor, and magnetic drive motor.(*Impeller kit sold separately)

Vessel	Working volume	Vessel type	Drive	Catalog No.
1 L	0.6 – 1.4 L	Water Jacket	Magnetic	M1287-0310
3 L	1.2 – 3.5 L	Water Jacket	Magnetic	M1287-0311
5 L	1.5 – 5.0 L	Water Jacket	Magnetic	M1287-0312
10 L	3.5 – 10.0 L	Water Jacket	Magnetic	M1287-0313
1 L	0.6 – 1.4 L	Water Jacket	Not included	M1287-0330
3 L	1.2 – 3.5 L	Water Jacket	Not included	M1287-0331
5 L	1.5 – 5.0 L	Water Jacket	Not included	M1287-0332
10 L	3.5 – 10.0 L	Water Jacket	Not included	M1287-0333

Factory installed options for New Brunswick™ CelliGen® 310
If a pre-configured kit doesn't meet your process requirements, a fully configurable system can be designed by selecting from our available options.

Description	Catalog No.
1. Select Control Station,	
Master Control Station	M1287-2110
Utility Station (no display)	M1287-2112
2. Select Voltage,	
100 - 120 V	M1287-1010
3. Select Sparge Gas Option,	
0 TMFC (requires a rotameter)	M1287-2010
1 Rotameter, 0-20 SLPM (0 TMFC only)	M1287-3510
1 Rotameter, 0-5 SLPM (0 TMFC only)	M1287-3520
1 TMFC, 0.1 - 5 SLPM	M1287-2011
1 TMFC, 0.4 - 20 SLPM	M1287-2012
1 TMFC, 0.02 - 1 SLPM	M1287-2019
2 TMFC, 0.1 - 5 SLPM	M1287-2013
2 TMFC, 0.4 - 20 SLPM	M1287-2014
3 TMFC, 0.1 - 5 SLPM	M1287-2015
3 TMFC, 0.4 - 20 SLPM	M1287-2016
4 TMFC, 0.1 - 5 SLPM	M1287-2017
4 TMFC, 0.4 - 20 SLPM	M1287-2018
4 TMFC, 0.01 - 0.5 SLPM	M1287-2021
4. Select Vessel Kit,	
(see vessel kit table)	
5. Select Sensor Kits,	
(see accessories)	
6. Add 2nd pH/DO Board (Optional),	
Factory Installed	M1287-3540
7. Select Validation Package (Optional),	
Basic Validation	M1287-0111
Basic Plus Validation	M1287-0114

Ordering information

Description	Catalog No.
Use your existing New Brunswick™ CelliGen® Plus Vessel with a New Brunswick® CelliGen® 310 Cabinet , select control station and motor conversion kit	
Control Station, 100 - 120V, 1 TMFC (0.1 - 5 SLPM)	M1287-1002
1 L / 3 L Motor Conversion Kit	M1287-1203
5 L / 10 L Motor Conversion Kit	M1287-1204
Use your existing CelliGen® Plus cabinet with a new CelliGen® 310 Vessel, CelliGen 310 Vessel Conversion Kit includes vessel assembly, vessel kit, tubing and motor	
1 L Vessel Conversion Kit	M1287-1210
3 L Vessel Conversion Kit	M1287-1211
5 L Vessel Conversion Kit	M1287-1212
10 L Vessel Conversion Kit	M1287-1213

Accessories

Description	Catalog No.
Gas overlay	
Gas overlay with TMFC (0.1 - 5 SLPM)	M1287-3500
Gas overlay without TMFC (requires rotameter)	M1287-3550
Gas overlay vessel kit (includes stainless steel tube, adapter, filter and silicone tubing)	M1287-3505
pH/DO Sensor Kits, for all impellers except packed bed, includes sensor(s) and cable(s)	
1 L pH/DO Sensor Kit	M1287-0400
3 L pH/DO Sensor Kit	M1287-0401
5 L pH/DO Sensor Kit	M1287-0402
10 L pH/DO Sensor Kit	M1287-0403
pH/DO Sensor Kits - Packed Bed, includes sensor(s) and cable(s)	
1 L / 3 L pH/DO Sensor Kit - Packed Bed	M1287-0674
5 L pH/DO Sensor Kit - Packed Bed	M1287-0675
10 L pH/DO Sensor Kit - Packed Bed	M1287-0676
2nd DO-pH/redox options	
2nd DO-pH/redox controller (field installed)	M1287-3530
Microspargers	
1 L Microsparger	M1287-5010
3 L Microsparger	M1287-5011
5 L Microsparger	M1287-5012
10 L Microsparger	M1287-5013
Cell lift impeller kit, for microcarriers (80 µm)	
1 L Cell Lift Impeller Kit - 80 µ	M1287-1110
3 L Cell Lift Impeller Kit - 80 µ	M1287-1111
5 L Cell Lift Impeller Kit - 80 µ	M1287-1112
10 L Cell Lift Impeller Kit - 80 µ	M1287-1113
Air wash kit, for increasing oxygen transfer rate, used with cell lift only	
Air Wash Kit (all Vessels)	M1287-1150

New Brunswick™ CelliGen® 310

Accessories	
Description	**Catalog No.**
Marine blade impeller kit, for suspension cells	
1 L Marine Blade Impeller Kit	M1287-5072
3 L Marine Blade Impeller Kit	M1287-5073
5 L Marine Blade Impeller Kit	M1287-5074
10 L Marine Blade Impeller Kit	M1287-5075
Pitched blade impeller kit, for suspension cells	
1 L Pitched Blade Impeller Kit	M1287-5068
3 L Pitched Blade Impeller Kit	M1287-5069
5 L Pitched Blade Impeller Kit	M1287-5070
10 L Pitched Blade Impeller Kit	M1287-5071
Basket Impeller Kit, for secreted proteins – need to order Fibra-Cel® separately	
1 L Packed Bed Impeller Kit	M1287-1140
3 L Packed Bed Impeller Kit	M1287-1141
5 L Packed Bed Impeller Kit	M1287-1142
10 L Packed Bed Impeller Kit	M1287-1143
Spin filter impeller kit	
1 L Spin Filter Impeller Kit-10 µ	M1287-1125
3 L Spin Filter Impeller Kit-10 µ	M1287-1126
5 L Spin Filter Impeller Kit-10 µ	M1287-1127
10 L Spin Filter Impeller Kit-10 µ	M1287-1128
1 L Spin Filter Impeller Kit-75 µ	M1287-1135
3 L Spin Filter Impeller Kit-75 µ	M1287-1136
5 L Spin Filter Impeller Kit-75 µ	M1287-1137
10 L Spin Filter Impeller Kit-75 µ	M1287-1138
Pitched blade impeller only, right-hand	
1 L Pitched Blade Impeller (Upflow)	M1287-9227
3 L Pitched Blade Impeller (Upflow)	M1287-9228
5 L Pitched Blade Impeller (Upflow)	M1287-9229
10 L Pitched Blade Impeller (Upflow)	M1287-9230
Pitched blade impeller only, left-hand	
1 L Pitched Blade Impeller (Downflow)	M1287-9287
3 L Pitched Blade Impeller (Downflow)	M1287-9288
5 L Pitched Blade Impeller (Downflow)	M1287-9289
10 L Pitched Blade Impeller (Downflow)	M1287-9290
Marine blade impeller only	
1 L / 3 L Marine Blade Impeller (Upflow)	M1287-9950
5 L Marine Blade Impeller (Upflow)	M1287-9952
10 L Marine Blade Impeller (Upflow)	M1287-9954
1 L / 3 L Marine Blade Impeller (Downflow)	M1287-9951
5 L Marine Blade Impeller (Downflow)	M1287-9953
10 L Marine Blade Impeller (Downflow)	M1287-9955
Replacement Screens for Cell-Lift Impeller	
1 L Replacement Screen / O-Ring Kit	M1287-9985
3 L Replacement Screen / O-Ring Kit	M1287-9986
5 L Replacement Screen / O-Ring Kit	M1287-9987
10 L Replacement Screen / O-Ring Kit	M1287-9988

Accessories	
Description	**Catalog No.**
Decanter Assemblies	
1 L Decanter Kit	M1287-1190
3 L Decanter Kit	M1287-1191
5 L Decanter Kit	M1287-1192
10 L Decanter Kit	M1287-1193
Perfusion Kits	
1 L Perfusion Kit	M1287-1185
3 L Perfusion Kit	M1287-1186
5 L Perfusion Kit	M1287-1187
10 L Perfusion Kit	M1287-1188
Replacement Glass Vessels	
1 L Replacement Glass Vessel - W/J	M1287-9920
3 L Replacement Glass Vessel - W/J	M1287-9921
5 L Replacement Glass Vessel - W/J	M1287-9922
10 L Replacement Glass Vessel - W/J	M1287-9923
Sampling assembly	
Sampling Assembly (included in vessel kits)	M1287-5042
Spare Parts Kits	
1 L Spare Parts Kit	M1287-6030
3 L Spare Parts Kit	M1287-6031
5 L Spare Parts Kit	M1287-6032
10 L Spare Parts Kit	M1287-6033
Headplate Adaptors/Plugs	
Septum Adaptor Kit (includes 10 septa)	M1287-5031
Sensor Adaptor Kit (PG13.5 to 12 mm compression)	M1287-5030
Users Kits, includes tubing, clamps, filters, connectors, addition vessels and other commonly required items	
1 L / 3 L / 5 L User's Kit	M1287-9914
Headplate Adaptors/Plugs	
Tri-port Addition Kit	M1287-9212
PG13.5 - Single Addition Kit	M1287-5043

Headplate Ports				
Vessel	**6 mm**	**PG 13.5**	**19 mm**	**Total**
1 L	1	9	0	10
3 L	3	10	1	14
5 L	3	12	1	16
10 L	3	12	1	16

Vessel Dimensions CelliGen 310 with Exhaust Condenser			
Total Vessel Volume	**Length**	**Width**	**Height**
1 L	20.3 cm (8.0 in)	21.6 cm (8.5 in)	55.9 cm (22.0 in)
3 L	24.1 cm (9.5 in)	24.1 cm (9.5 in)	63.5 cm (25.0 in)
5 L	27.9 cm (11.0 in)	27.9 cm (11.0 in)	66 cm (26.0 in)
10 L	32.4 cm (12.8 in)	32.4 cm (12.8 in)	73.7 cm (29.0 in)

SYSTEMS

New Brunswick™ CelliGen® BLU

Description
The New Brunswick CelliGen BLU is a benchtop bioreactor that combines all the convenience of single-use technology with the trusted performance, advanced process management and scalability of a stirred-tank design, making it ideal for research through production.

Applications
> Mammalian, insect, and animal cell lines
> Batch, fed-batch, and continous cultures

Product features
> Sophisticated RPC (Reactor Process Controller) software controls up to 32 process parameters, trends up to 8 loops, and provides built-in security
> Three interchangeable, single-use vessel options in stirred-tank, rigid-walled design
> 5 L Vessel with Packed-bed impeller available, pre-loaded with 150 g of Fibra-Cel® disks
> Integrated control of up to 8 gases for sparge and gas overlay, available in high and low flow TMFC configurations
> Systems include 3 integrated pumps; magnetic-drive motor; temperature, pH, and DO control; 3 or 4-gas mixing; 7 analog Input/Output connections
> Bright, easy to read, industrial touchscreen display for interactive system management and monitoring
> Vessel components are constructed from USP Class VI and animal free materials, making them acceptable for GMP environments
> Single-Use vessels eliminate autoclaving, improve turn-around time, simplify validation and reduce cost
> Vessels are assembled with sparge, overlay, and exhaust filters as well as penetrations for pH, DO, temp, liquid additions, sampling and harvesting
> Pitched-blade impeller available on all vessel sizes
> Validation packages available upon request

Ordering information

New Brunswick™ CelliGen® BLU Vessel Kits
Include a heat blanket, RTD temperature sensor, optical pH and polarographic DO sensors with cables, and needle-free syringes (BioBLU® vessel not included)

Vessel	Voltage	Catalog No.
BioBLU® 5c	100 – 240 V	M1363-0105
BioBLU® 14c	100 – 240 V	M1363-0114
BioBLU® 50c	100 – 240 V	M1374-0151
BioBLU® 5p (packed-bed vessel)	100 – 240 V	M1363-0108

Ordering information

The New Brunswick™ CelliGen® BLU is a benchtop bioreactor that combines all the convenience of single-use technology with the trusted performance, advanced process management and scalability of a stirred-tank design, making it ideal for research through production.

Voltage	Sparge	Overlay	Scale	Validation	Catalog No.
100 – 120 V	0.04 – 7.5 SLPM	TMFC			M1374-120-H0A
100 – 120 V	0.04 – 7.5 SLPM	R			M1374-120-H0M
100 – 120 V	0.04 – 7.5 SLPM	TMFC	■		M1374-120-HSA
100 – 120 V	0.04 – 7.5 SLPM	R	■		M1374-120-HSM
100 – 120 V	0.002 – 1.0 SLPM	TMFC			M1374-120-L0A
100 – 120 V	0.002 – 1.0 SLPM	R			M1374-120-L0M
100 – 120 V	0.002 – 1.0 SLPM	TMFC	■		M1374-120-LSA
100 – 120 V	0.002 – 1.0 SLPM	R	■		M1374-120-LSM
100 – 120 V	0.04 – 7.5 SLPM	TMFC		■	M1374-120-H0AV
100 – 120 V	0.04 – 7.5 SLPM	R		■	M1374-120-H0MV
100 – 120 V	0.04 – 7.5 SLPM	TMFC	■	■	M1374-120-HSAV
100 – 120 V	0.04 – 7.5 SLPM	R	■	■	M1374-120-HSMV
100 – 120 V	0.002 – 1.0 SLPM	TMFC		■	M1374-120-L0AV
100 – 120 V	0.002 – 1.0 SLPM	R		■	M1374-120-L0MV
100 – 120 V	0.002 – 1.0 SLPM	TMFC	■	■	M1374-120-LSAV
100 – 120 V	0.002 – 1.0 SLPM	R	■	■	M1374-120-LSMV

■ = standard, o = optional, R = Rotameter

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SYSTEMS

New Brunswick™ CelliGen® BLU

Accessories	
Description	**Catalog No.**
Media /Supplement Addition Kits	
500 mL Media/Supplement Addition Kit	P0640-8860
1 L Media/Supplement Addition Kit	P0640-8861
5 L Media/Supplement Addition Kit	P0640-8862
10 L Media/Supplement Addition Kit	P0640-8863
"Y" Connector for custom manifolds	P0620-0947
Additional Accessories	
Starter Kit, BioBLU® 5c/14c	M1374-0111
Starter Kit, BioBLU® 50c	M1374-0112
Pressure Regulator Kit	M1363-5002
Needle-Free Syringe, pack of 10	M1363-9910
Replacement Parts	
Heat Blanket, BioBLU® 5c (100 - 240 V)	M1363-8012
Heat Blanket, BioBLU® 14c (100 - 240 V)	M1363-8013
Heat Blanket, BioBLU® 50c (100 - 120 V)	M1374-8002
RTD and cable, BioBLU® 5c	M1363-8025
RTD and cable, BioBLU® 14c	M1363-8026
RTD and cable, BioBLU® 50c	M1374-8035
RTD and Cable, BioBLU® 5p (packed-bed vessel)	M1363-8028
DO Sensor, BioBLU® 5p (packed-bed vessel)	P0720-6280
DO Sensor cable	P0720-2336
Optical pH sensor and cable, BioBLU® 5c	P0300-2371
Optical pH sensor and cable, BioBLU® 14c	P0300-2370
Optical pH sensor and cable, BioBLU® 50c	P0300-2374
Optical pH sensor and cable, BioBLU® 5p (packed-bed vessel)	P0300-2372
Gel-filled pH sensor, BioBLU® 5p (packed-bed vessel)	P0720-5588
High Flow Replacement Sparge Drawer (3 TMFC @ 0.04 - 7.5 SLPM)	M1374-0114
Low Flow Replacement Sparge Drawer (3 TMFC @ 0.002 - 1.0 SLPM)	M1374-0113

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SYSTEMS

New Brunswick™ BioFlo® 415

Description
The New Brunswick BioFlo 415 sterilizable-in-place fermentor, with advanced touchscreen interface, provides an unprecedented level of convenience and control for research through production applications. This cGMP-compliant, validatable benchtop system is uniquely capable of automatic sterilization using only your lab's water supply and the unit's built-in heater. With the ability to control up to 32 process loops and regulate one to four gases, it's an ideal system for high-yield production of bacteria, yeast & fungi in aerobic and anaerobic cultures.

Applications
> Microbes, yeast, and plant cell lines
> Batch,and fed-batch

Product features
> Sophisticated RPC (Reactor Process Controller) software controls up to 32 process parameters, trends up to 8 loops, and provides built-in security
> Bright, easy to read, industrial touchscreen display for interactive system management and monitoring
> Easily integrates your external devices including scales, analyzers or sensors for optimized yields
> User-customizable trend graphs make it easy to track and export data. Trends up to 8 loops simultaneously and saves up to 10 of your recipes for repeat usage.
> 3 interchangeable stainless-steel vessels
> One Thermal Mass Flow Controller (TMFC) is standard, with multiple TMFCs optional through customization
> Multiple impeller options are available

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SYSTEMS

New Brunswick™ BioFlo® 415

Ordering information

New Brunswick™ BioFlo® 415
Pre-configured kits include a master control station w/ touchscreen, 1 TMFC (0.5 - 25 SLPM), automatic 4-gas mixing, and vessel assembly., Rotameter/TMFC

Vessel	Working volume	Working volume	Catalog No.
5 L	2.0 – 5.25 L	100 – 240 V	M1360-1120
10 L	4.0 – 10.5 L	100 – 240 V	M1360-1121
15 L	5.0 – 15.5 L	100 – 240 V	M1360-1123

Factory installed options for New Brunswick™ BioFlo® 415
If a pre-configured kit doesn't meet your process requirements, a fully configurable system can be designed by selecting from our available options.

Description	Catalog No.
1. Select System Assembly,	
5 L Vessel / Control Station	M1360-1110
10 L Vessel / Control Station	M1360-1111
15 L Vessel / Control Station	M1360-1113
2. Select Sparge Gas Option,	
0 TMFC (requires a Rotameter)	M1360-2030
1 TMFC (0.1 - 5 SLPM)	M1360-2031
1 TMFC (0.5 - 25 SLPM); built with 4-gas manifold for 4 gas mixing	M1360-2032
2 TMFC (0.1 - 5 SLPM)	M1360-2033
2 TMFC (0.5 - 25 SLPM)	M1360-2034
3 TMFC (0.1 - 5 SLPM)	M1360-2035
3 TMFC (0.5 - 25 SLPM)	M1360-2036
4 TMFC (.01 - 0.5 SLPM)	M1360-2040
4 TMFC (.02 - 1 SLPM)	M1360-2041
4 TMFC (0.1 - 5 SLPM)	M1360-2037
4 TMFC (0.5 - 25 SLPM)	M1360-2038
3. Select Rotameter (if needed),	
1 Rotameter (0 - 5 SLPM)	M1360-3520
1 Rotameter (0 - 20 SLPM)	M1360-3510
4. Add 2nd pH/DO Board (Optional),	
2nd DO - pH/Redox Board	M1287-3540
5. Select Sensor Kit(s),	
(See Accessories)	
6. Select Validation Package (Optional),	
Basic Validation	M1360-0101
Basic Plus Validation	M1360-0102
Enhanced Validation	M1360-0103

Ordering information

Description	Catalog No.
BioFlo® 415 Spare Vessel Assembly Kits, includes jacketed stainless steel pressure vessel, top magnetic drive motor, exhaust condensor, and sparger assembly with SIP inlet filter housing, foam/level sensor kit, and bottom drain valve.	
5 L Vessel, Magnetic Drive Assembly	M1360-2020
10 L Vessel, Magnetic Drive Assembly	M1360-2021
15 L Vessel, Magnetic Drive Assembly	M1360-2023

Accessories

Description	Catalog No.
pH Sensor Kits	
5 L pH Sensor Kit	M1294-9820
10 L pH Sensor Kit	M1294-9824
15 L pH Sensor Kit	M1294-9828
DO Sensor Kits	
5 L DO Sensor Kit	M1294-9822
10 L DO Sensor Kit	M1294-9826
15 L DO Sensor Kit	M1294-9830
Redox Sensor Kits	
5 L Redox Sensor Kit	M1360-9832
10 L Redox Sensor Kit	M1360-9834
15 L Redox Sensor Kit	M1360-9836
Impeller Kits	
10 L Pitched Blade Impeller (Upflow)	M1294-9940
15 L Pitched Blade Impeller (Upflow)	M1294-9942
10 L Pitched Blade Impeller (Downflow)	M1294-9941
15 L Pitched Blade Impeller (Downflow)	M1294-9943
5 L Marine Blade Impeller	M1294-9948
10 L Marine Blade Impeller	M1294-9944
15 L Marine Blade Impeller	M1294-9945
Miscellaneous	
19 mm 7-Port Septum	M1294-5023
Sensors	
DO Membrane Replacement Kit	P0720-6570
Miscellaneous	
19 mm to PG13.5 Adaptor	M1294-9544
19 mm Sensor Adaptor	M1294-9542
Water Regulator/Filter Kit	M1273-5001
18 Gauge Needle (3.8 cm Length) - Pack of 100	P0440-0064
Baffle Plug Kit	M1294-9954
Sampling Assembly	M1294-5013
Spare Parts Kit	M1360-9969
Air Regulator/Filter Kit	M1273-5002
Impeller Kits	
5 L Pitched Blade Impeller (Downflow)	M1273-9290
5 L Pitched Blade Impeller (Upflow)	M1273-9206

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SYSTEMS

New Brunswick™ BioFlo®/CelliGen® 510 Fermentor/Bioreactor

Description
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

Applications
> Microbes, yeast, plant, mammalian, insect, and animal cell lines
> Batch, fed-batch, and continous cultures

Working Volumes
> 5.5 L to 15.6 L
> 10.75 L to 32.0 L

Gas flow
> Rotameter:
  0-3 SLPM
  0-64 SLPM
  0-32 SLPM
> Various combinations of 2, 3, or 4 TMFCs:
  0.06-3 SLPM
  0.6-32 SLPM
  0.3-15 SLPM
  1-64 SLPM
> Overlay with TMFC (0-15 or 0-32 SLPM)
> Air Wash System with TMFC (0-15 or 0-32 SLPM)
> Overlay Valve only

Exhaust line
> Exhaust Condenser
> Automatic Pressure Control

Impellers
> Rushton Type – Used commonly for robust cell lines such as bacteria, yeast 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
> Pitched Blade with Magnetic Drive – For critical cell culture applications
> Marine Blade – Commonly used with mammalian, insect or other shear sensitive cell lines for batch, fed-batch, or continuous cultures. Produces axial mixing
> Spin Filter – 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 Basket Impeller – 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

Probes
> Single or Redundant pH/DO Control Systems
> Redox Control System
> Foam/Level Detection System

Addition and sampling
> Resterilizable Sample Valve
> Resterilizable Addition Valves (4 max.)
> Resterilizable Addition/Harvest Valve with Dip Tube (2 max.)
> 3.8 cm Sanitary Fitting 7-Port Septum
> Addition Vessels (Glass / Stainless Steel)
> Decanters
> Sterile Sampling Assembly (Kit of 3)

SCADA software
> BioCommand® Track and Trend
> BioCommand® Batch Control
> BioCommand® Batch Control Plus

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 Pre-Filter/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
> 8-Port Serial Controller (RS-232)
> Spare Parts Kits
> Preventative Maintenance Kits
> Mobile Skid
> System Passivation

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SYSTEMS

BioFlo® 610 Fermentor

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

Applications
> Microbes, yeast, plant and insect

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

Gas flow control
> Single Gas
> Two Gas
> Overlay (Valve only)

Gas flow
> Rotameter, 50 L Vessels, 9.5-95 SLPM
> Rotameter, 100 L Vessels, 15.0-150 SLPM
> 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 Blade, Optional

Probes
> Single or Redundant pH/DO Control Systems
> Redox Control System
> Foam/Level Detection System

Addition and sampling
> Resterilizable Sample Valve
> Resterilizable Addition Valves (4 Maximum)
> 3.8 cm Sanitary Fitting 7-Port Septum
> Addition Vessels (Glass / Stainless Steel)
> Sterile Sampling Assembly (Kit of 3)

SCADA software
> BioCommand® Track and Trend
> BioCommand® Batch Control
> BioCommand® Batch Control Plus

Validation
> Basic Package
> Basic Plus Package
> Enhanced Package

Utility regulator & pre-filter kit
> Process Air Pre-Filter/Regulator Kit
> Instrument Air Pre-Filter/Regulator Kit
> Water Pre-Filter/Regulator Kit
> Process Steam Pre-Filter/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
> 8-Port Serial Controller (RS-232)
> Spare Parts Kits
> Preventive Maintenance Kits
> System Passivation
> Vessel Electropolish
> Low seal pressure switch for double mechanical seal

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SYSTEMS

New Brunswick™ BioFlo®/CelliGen® Pro Fermentor/Bioreactor

Description
BioFlo Pro fermentors and CelliGen Pro bioreactors are modular systems designed for quick delivery, dependable operation and system flexibility, all at an affordable price. 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. Fermentors available in 60, 120, 240, 400, 800, 1200 & 2400 liter sizes. Bioreactors available in 60, 120, 240 & 520 liter sizes.

Applications
> Microbes, yeast, plant, mammalian, insect, and animal cell lines

BioFlo® Pro Working Volumes
> 32 L to 60 L
> 45 L to 120 L
> 68 L to 240 L
> 103 L to 400 L
> 250 L to 800 L
> 375 L to 1200 L
> 750 L to 2400 L

CelliGen® Pro Working Volumes
> 18.75 L to 60 L
> 37.5 L to 120 L
> 75.5 L to 240 L
> 125 L to 520 L

BioFlo® Pro Impellers
> Rushton Type
> Pitch Blade
> Marine

CelliGen® Pro Impellers
> Pitch Blade
> Marine
> Spin Filter
> Cell Lift (60 L and 120 L only)
> Basket (60 L and 120 L only)

Exhaust line
> Exhaust Condenser
> Automatic Backpressure Control
> Dual Exhaust Filters (in parallel)
> Single or Dual Exhaust Filters with test integrity ports

Pumps
> 4 Built-In Fixed-Speed Addition Pumps
> External Variable-Speed Pumps

Housings/probes
> pH / DO Probes and Transmitters
> Redox Probe and Transmitter
> Retractable Probe Housings
> Redundant Probe Kits

Foam kits
> Foam Kit
> High-Foam Kit
> High-High Foam Kit

Filter/regulator kits
> Process Steam
> Utility Steam
> Water
> Instrument Air
> Utility Connection Kit

Sampling
> Sampling Valve (Resterilizable)
> Sterile Sampling Assembly (Kit of 3)

Vessel volume/weight
> Vessel Volume via differential pressure
> Load Cells
> Level Probe

Additional accessories
> Clean-In-Place Option (transfer panel/spray balls)
> Cooling by dedicated heat exchanger for chiller
> Low-Seal Pressure Switch for Double-Mechanical Seal
> Thermometer (Digital)
> Electropolish
> Passivation
> Transfer Lines (Resterilizable)
> Utility Connection Kit

Data recording
> BioCommand® SCADA Software (Track and Trend, Batch Control, and Batch Control Plus)
> (7) Inputs (4-20 mA) for Ancillary Devices
> Delta V™ connectivity

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

Parts kits
> Spare Parts Kits
> Preventative Maintenance Kit

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SYSTEMS

CEPA High-speed Continuous Flow Centrifuges

Description
These CEPA centrifuges are designed for rapid cell separation and clarification of fermentation broth or other similar liquid-solid mixtures of varying densities and viscosities. A continuous liquid-liquid separation is also possible using the adjustable separation bowl. Models range from a small benchtop lab unit, through large production-scale systems capable of processing up to 3000 L/hr. All models are bottom fed, solids are retained in the cylinder bowl while liquids or supernant are expelled from the upper tray(s). All wetted surfaces are stainless steel except in the optional bottom valve which contain silicone. All floor models feature 3-phase electric motors for rapid acceleration. Each CEPA include the necessary tools.

Lifescience Applications
> Separating Biomass from broth
> Clarifying process liquids
> Liquid-liquid separation
> Fractionation of human blood
> Animal blood processing
> Bioremediation
> Biofuels

Industrial Applications
> Processing of granular, crystalline and fibrous suspensions
> Separation of filterable & non-filterable sludges
> Environmental oil spill recovery
> Water and sediment separation
> Clarifying oils or diesel fuel from impurities

Product features
> **Model LE:** A benchtop laboratory model features a variable speed drive with a wide choice of optional separation bowls for research scale experiments. The LE is typically used with 2 to 15 liter batches[1]. Maximum throughput is 30 liters/hour[1].
> **Model Z41:** The Z41 is smallest floor standing model and is ideal for small to large pilot-scale applications. Process volumes typically range from 20 to 75 liters[1] with a maximum throughput of 500 liters/hour[1].
> **Model Z61:** This large floor standing model allows convenient handling of workloads. This model provides three times the solids capacity than the Z41. Batch sizes range from 30 to 200 liters* and allows up to 1,500 liters/hour[1] throughput rate.
> **Model Z81:** Is the next size up from the Z61. The Z81 provides 100 to 500 liters[1] of process volume with a maximum throughput of 2,000 liters/hour[1].
> **Model Z101:** Just as powerful as the Z81 but with 25% larger cylinder capacity, the Z101 is typically used with 150 to 600 liter[1] process volumes. Maximum throughput is 3,000 liters/hour[1].

[1] Viscosity, solid particle size, and solid concentration to liquid ratio will vary batch size and throughput rate.

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Model GLE (LE with Enclosure)

Model Z41

Model Z101

Clarifying bowl
Retains solids such as biomass and discharges liquid through single-level upper discharge ports.

Separating bowl
Retains solids such as biomass in the cylinder and discharges liquids of different densities through the bi-level upper ports.

Adjustable separating bowl
For separation of two liquids accomplished by interchangeable separating rings.

Bottom valve
Centrifugally actuated silicone rubber valve prevents centrifuge contents from emptying when cylinder rotation is stopped. The valve prevents feed input when rotational speeds are less than 80% of maximum.

Cooling coil
Made from stainless steel or copper. Allows circulation of cold water or other coolants to lower the temperature of the cylinder's contents during centrifugation.

Enclosed models
CEPA centrifuges are available mounted in cast-metal chambers with stainless steel-clad interiors. Sealed by a sturdy door, the enclosure facilitates quieter operation, control of gaseous environment at atmospheric pressure.

HEMA configuration
CEPA centrifuges can be supplied with serum-clariying cylinders and full length cooling coils for blood fractionation.

Explosion proof
For use where volatile solvents are present.

Technical specifications

Model	LE	Z41	Z61	Z81	Z101
g-force	50,000 × *g*	17,000 × *g*	17,000 × *g*	18,000 × *g*	15,500 × *g*
Max. speed	15,000 - 45,000 rpm	20,000 rpm	17,000 rpm	16,000 rpm	14,000 rpm
Cylinder volume	0.25 L	2 L	6 L	8 L	10 L
Max. power consumption	330 W	900 W	1,500 W	2,200 W	2,200 W
Voltage/phase	115 V/single	230 V/three	230 V/three	230 V/three	230 V/three
Dimensions (W × D × H)	42.6 × 42.6 × 68.3 cm	41 × 72 × 117 cm	61.5 × 94 × 155 cm	50 × 95 × 155 cm	50 × 95 × 160 cm
Options	Extra-clarifying cylinders, Adjustable Separating cylinders, Cooling coils, Bottom valve	Extra-clarifying cylinders, Extra Separating cylinders, Cooling coils, Bottom valve	Extra-clarifying cylinders, Extra Separating cylinders, Cooling coils, Bottom valve	Extra-clarifying cylinders, Extra Separating cylinders, Cooling coils, Bottom valve	Extra-clarifying cylinders, Extra Separating cylinders, Cooling coils, Bottom valve

Biofuel Versatility

Eppendorf bioprocess equipment for biofuels development

> Whether first, second or third generation biofuels, the Eppendorf bioprocess portfolio offers a comprehensive line of products ideally suited for R&D and production in this field. As one of the most dynamic areas within biotechnology, biofuels research often requires products capable of operating at or beyond the limits of traditional bioprocesses.

High temperatures, anaerobic fermentation, multi-step procedures

> Most bacteria grow well at approximately 37°C, however extreme temperatures are frequently required for the growth of thermophiles in biofuels research and production. Temperatures of up to 99°C can be controlled and maintained with specially designed Eppendorf fermentation equipment providing a solution for unique processes requiring such extreme environments.
> For many biofuels processes an anaerobic environment is required and tight control of pH, dissolved oxygen and redox is essential. Eppendorf bioprocess controllers serve you with the ability to monitor and control these critical parameters and to maintain anaerobic conditions.

DASGIP PhotoBioreactor for effective cultivation of phototrophic organisms

> Algae have steadily increased in popularity for biofuels development over the past two decades. The Eppendorf PhotoBioreactor System is capable of most effective and best controlled light supply for highest photosynthesis and growth rates. LED illumination devices serve optimized light spectra with defined wavelengths to help fine tune the development and successfully grow phototrophic organisms.

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.

Selection guide

				
Model	BioBLU® Single-use Vessels	DASbox® Mini Bioreactor	DASGIP® Mini Spinner	DASGIP Spinner Vessel
Page(s)	68	74	76	77
Working volumes	65 mL - 40 L (multiple vessels)	60 - 250 mL	35 - 60 mL	80 - 200 mL
Standard set-up	DASbox (BioBLU 0.3) DASGIP Bioblock (BioBLU 1) Benchtop (BioBLU 5, 14 & 50)	DASbox	Stirrer plate	Stirrer plate
Autoclavable		■	■	■
Single-use	■			
Packed-bed	■			
Bacteria/yeasts/fungi	■	■		
Plant cells/algae				
Mammalian/animal cells	■	■		
Stem cells	■		■	■
Insect cells	■	■		
Side arms			3	1
Sensor length	Various, depending on vessel	120 mm	120 mm	220 mm
Magnetic drive	■		■	■
Overhead drive	■	■		
Peltier exhaust condensation (not included in vessel package)	■	■		
LED illumination				

					
DASGIP® Bioblock Spinner Vessels	DASGIP® Bioblock Stirrer Vessels	DASGIP® Benchtop Bioreactors for Cell Culture	DASGIP® Benchtop Bioreactors for Microbiology	DASGIP® PhotoBioreactor	DASGIP® Benchtop Spinner Vessels
78	80	82	84	86	88
200 mL - 1.0 L, 400 mL - 1.2 L, 400 mL - 1.6 L	200 mL - 1.0 L, 500 mL - 1.5 L, 400 mL - 2.0 L	700 mL - 2.7 L, 800 mL - 3.8 L	700 mL - 2.7 L, 800 mL - 3.8 L	400 mL - 1.2 L, 700 mL - 2.7 L	300 - 600 mL, 600 mL - 1.6 L
DASGIP Bioblock	DASGIP Bioblock	Benchtop	Benchtop	DASGIP Bioblock / Benchtop	Benchtop
■	■	■	■	■	■
	■		■	■	
				■	
■		■			■
■		■			■
2					2
220 / 320 mm	220 / 320 mm	220 / 320 mm	220 / 320 mm	220 mm	220 mm
■	■	■	■	■	■
				■	

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BioBLU® Single-use Vessels

Microbiology on the fast track - with the new BioBLU 1f and 0.3f vessels

BioBLU single-use packed-bed vessels create optimum growth conditions for adherent cells and perfusion culture.

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, across a wide variety of processes, including shear sensitive cell cultures, robust microbial applications, and adherent cell line development.

Applications

> Insect, mammalian and human suspension cell lines, and stem cells
> Adherent cells
> Bacteria, yeasts and fungi

Product features

> Market leading portfolio of single-use, stirred-tank, rigid-walled vessels available in sizes ranging from 65 mL to 40 L working volumes
> All BioBLU c vessel sizes available with pitched blade impellers for cell culture applications
> BioBLU 0.3p and 5p vessels with packed-bed impeller, pre-loaded with Fibra-Cel® disks
> BioBLU 0.3f and 1f vessels with Rushton-type impellers for microbial applications
> 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
> Vessel components are constructed from USP Class VI (wetted surfaces) and animal free materials - making them acceptable for GMP environments
> Vessels are assembled with sparger, overlay, and exhaust filters as well as ports for pH, DO, temperature, liquid additions, sampling and harvest
> For use with DASbox Mini Bioreactor System, DASGIP Parallel Bioreactor Systems and New Brunswick CelliGen BLU controllers
> Adaptor kits for legacy and 3rd party bioreactor controllers available (BioBLU 1, 5 and 14)
> Validation packages available upon request

Ordering information

Description							Catalog No.
Vessel	**Application**	**Working Volume**	**Sparger**	**Impeller**	**pH**	**Quantity**	
BioBLU® 0.3c	Cell culture	100 mL - 250 mL	Open pipe	Pitched blade	Standard	4-pack	78903501
BioBLU® 0.3c	Cell culture	100 mL - 250 mL	Open pipe	Pitched blade	Optical	4-pack	78903507
BioBLU® 0.3f	Microbiology	65 mL - 250 mL	Open pipe	Rushton-type	Standard	4-pack	78903503
BioBLU® 0.3p	Cell culture	250 mL	Open pipe	Packed bed	Standard	4-pack	78903504
BioBLU® 1c	Cell culture	320 mL - 1.25 L	Open pipe	Pitched blade	Standard	4-pack	78903506
BioBLU® 1c	Cell culture	320 mL - 1.25 L	Open pipe	Pitched blade	Optical	4-pack	78903510
BioBLU® 1f	Microbiology	250 mL - 1.25 L	Open pipe	Rushton-type	Standard	4-pack	78903505
BioBLU® 5c	Cell culture	1.25 L - 3.75 L	Microsparger	Pitched blade	Optical	1-pack	M1363-0125
BioBLU® 5c	Cell culture	1.25 L - 3.75 L	Microsparger	Pitched blade	Optical	4-pack	M1363-0127
BioBLU® 5c	Cell culture	1.25 L - 3.75 L	Macrosparger	Pitched blade	Optical	1-pack	M1363-0121
BioBLU® 5c	Cell culture	1.25 L - 3.75 L	Macrosparger	Pitched blade	Optical	4-pack	M1363-0123
BioBLU® 5p	Cell culture	3.75 L	Microsparger	Packed bed	Optical	1-pack	M1363-0119
BioBLU® 5p	Cell culture	3.75 L	Microsparger	Packed bed	Optical	4-pack	M1363-0120
BioBLU® 5p	Cell culture	3.75 L	Macrosparger	Packed bed	Optical	1-pack	M1363-0133
BioBLU® 5p	Cell culture	3.75 L	Macrosparger	Packed bed	Optical	4-pack	M1363-0134
BioBLU® 14c	Cell culture	3.5 L -10.5 L	Microsparger	Pitched blade	Optical	1-pack	M1363-0126
BioBLU® 14c	Cell culture	3.5 L -10.5 L	Microsparger	Pitched blade	Optical	4-pack	M1363-0128
BioBLU® 14c	Cell culture	3.5 L -10.5 L	Macrosparger	Pitched blade	Optical	1-pack	M1363-0122
BioBLU® 14c	Cell culture	3.5 L -10.5 L	Macrosparger	Pitched blade	Optical	4-pack	M1363-0124
BioBLU® 50c	Cell culture	18 L - 40 L	Microsparger	Pitched blade	Optical	1-pack	M1363-0131
BioBLU® 50c	Cell culture	18 L - 40 L	Microsparger	Pitched blade	Optical	4-pack	M1363-0132
BioBLU® 50c	Cell culture	18 L - 40 L	Macrosparger	Pitched blade	Optical	1-pack	M1363-0129
BioBLU® 50c	Cell culture	18 L - 40 L	Macrosparger	Pitched blade	Optical	4-pack	M1363-0130

Technical specifications

Model	BioBLU® 0.3c	BioBLU® 0.3f	BioBLU® 0.3p	BioBLU® 1c
Application	Cell culture	Microbiology	Cell culture	Cell culture
Standard system/ controller	DASbox	DASbox	DASbox	DASGIP Bioblock
Sterilization	Pre-sterilized (15kGy β-irradiated)	Pre-sterilized (15kGy β-irradiated)	Pre-sterilized (15kGy β-irradiated)	Pre-sterilized (15kGy β-irradiated)
Working volume	100 – 250 mL	65 – 250 mL	250 mL	320 mL – 1.25 L
Material of construction	PS, PC, PA (USP class VI)	PS, PC, PA (USP class VI)	PS, PC, PA (USP class VI)	PS, PC, PA (USP class VI)
Material tubing	Silicone, C-Flex	Silicone, C-Flex	Silicone, C-Flex	Silicone, C-Flex
Max. operating temperature	60 °C	60 °C	60 °C	60 °C
Head plate ports	2x Pg13.5, 4x dip tube long, 1x harvest tube, 2x dip tube short, 1x thermowell, DO sensor port with permeable membrane, exhaust port	2x Pg13.5, 4x dip tube long, 1x harvest tube, 2x dip tube short, 1x thermowell, DO sensor port with permeable membrane, exhaust port	2x Pg13.5, 4x dip tube long, 1x harvest tube, 2x dip tube short, 1x thermowell, DO sensor port with permeable membrane, exhaust port	3x Pg 13.5, 4x dip tube long, 3x dip tube short, 1x harvest tube, 1x thermowell, DO sensor port with permeable membrane, exhaust port
Agitation				
Drive*	Magnetic overhead drive	Magnetic overhead drive	Magnetic overhead drive	Magnetic overhead drive
Impeller type	Pitched blade	Rushton-type	Packed bed	Pitched blade
Recommended agitation speed range	20 – 500 rpm	20 – 2000 rpm	20 – 500 rpm	30 - 500 rpm
Gassing				
Gas supply	Sparger and/or overlay	Sparger	Sparger and/or overlay	Sparger and/or overlay
Monitoring & control				
T sensor*	Pt100 RTD	Pt100 RTD	Pt100 RTD	Pt100 RTD
pH sensor*	Optical pH or standard glass sensor	Standard glass sensor	Standard glass sensor	Optical pH or standard glass sensor
DO sensor*	Polarographic DO - 4.7/118 mm	Polarographic DO - 4.7/118 mm	Polarographic DO - 4.7/118 mm	Polarographic DO - 4.7/229 mm
Exhaust treatment*	Liquid-free (Peltier)	Liquid-free (Peltier)	Liquid-free (Peltier)	Liquid-free (Peltier)

* separate items

Model	BioBLU® 1f	BioBLU® 5c	BioBLU® 5p	BioBLU® 14c	BioBLU® 50c
Application	Microbiology	Cell culture	Cell culture	Cell culture	Cell culture
Standard system/ controller	DASGIP Bioblock	New Brunswick CelliGen BLU	New Brunswick CelliGen BLU	New Brunswick CelliGen BLU	New Brunswick CelliGen BLU
Sterilization	Pre-sterilized (15kGy β-irradiated)	Pre-sterilized (15kGy β-irradiated)	Pre-sterilized (15kGy β-irradiated)	Pre-sterilized (15kGy β-irradiated)	Pre-sterilized (15kGy β-irradiated)
Working volume	250 mL – 1.25 L	1.25 L - 3.75 L	3.75 L	3.5 L - 10.5 L	18 L - 40 L
Material of construction	PS, PC, PA (USP class VI)	PS, PC, PA (USP class VI)	PS, PC, PA (USP class VI)	PS, PC, PA (USP class VI)	PS, PC, PA (USP class VI)
Material tubing	Silicone, C-Flex	Silicone, C-Flex	Silicone, C-Flex	Silicone, C-Flex	Silicone, C-Flex
Max. operating temperature	60 °C	40 °C	40 °C	40 °C	40 °C
Head plate ports	3x Pg 13.5, 4x dip tube long, 3x dip tube short, 1x harvest tube, 1x thermowell, DO sensor port with permeable membrane, exhaust port, 4x baffles (incl. cooling water connection)	1x PG 13.5, 1x harvest tube, 1x thermowell, 1x sample port, 3x liquid addition, 1x DO sensor port with permeable membrane, 1x optical pH, 1x gas inlet, 1x gas overlay, 1x exhaust	1x PG 13.5, 1x harvest tube, 1x thermowell, 1x sample port, 3x liquid addition, 1x DO sensor port with permeable membrane, 1x optical pH, 1x gas inlet, 1x gas overlay, 1x exhaust	1x PG 13.5, 1x harvest tube, 1x thermowell, 1x sample port, 3x liquid addition, 1x DO sensor port with permeable membrane, 1x optical pH, 1x gas inlet, 1x gas overlay, 1x exhaust	1x PG 13.5, 1x harvest tube, 1x thermowell, 1x sample port, 3x liquid addition, 1x DO sensor port with permeable membrane, 1x optical pH, 1x gas inlet, 1x gas overlay, 1x exhaust
Agitation					
Drive*	Magnetic overhead drive	Magnetic overhead drive	Magnetic overhead drive	Magnetic overhead drive	Magnetic overhead drive
Impeller type	Rushton-type	Pitched blade	Packed bed	Pitched blade	Pitched blade
Recommended agitation speed range	100 - 1600 rpm	25 - 200 rpm	25 - 200 rpm	25 - 200 rpm	25 - 150 rpm
Gassing					
Gas supply	Sparger	Sparger and/or overlay	Sparger and/or overlay	Sparger and/or overlay	Sparger and/or overlay
Monitoring & control					
T sensor*	Pt100 RTD	Pt100 RTD	Pt100 RTD	Pt100 RTD	Pt100 RTD
pH sensor*	Standard glass sensor	Optical pH or standard glass sensor	Optical pH or standard glass sensor	Optical pH or standard glass sensor	Optical pH or standard glass sensor
DO sensor*	Polarographic DO - 4.7/229 mm	Polarographic DO - 12/225 mm	Polarographic DO - 12/120 mm	Polarographic DO - 12/355 mm	Polarographic DO - 12/526 mm
Exhaust treatment*	Liquid-free (Peltier)	Electric heater band	Electric heater band	Electric heater band	Electric heater band

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BioBLU® Single-Use Vessel Adaptor Kits

Description
These 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 Applikon®, Sartorius® and New Brunswick autoclavable cell culture systems for use with Eppendorf BioBLU single-use vessels
> Provides all the benefits of single use technology with minimal upfront investment
> Kits include heat blanket, motor adaptor, pressure relief valve assemblies, exhaust tube heat blanket, spare tubing, and more
> BioBLU Vessels sold separately

Ordering information

Description	Catalog No.
Adaptor Kit: BioBLU® Single-Use Vessel & New Brunswick™ BioFlo® / CelliGen® 115, includes vessel heat blanket, pressure relief valve assembly (2), exhaust tube heat blanket, spare tubing	
100 – 240 V, BioBLU® 14c	M1376-9941
100 – 240 V, BioBLU® 10c	M1376-9942
100 – 240 V, BioBLU® 50c	Call
Adaptor Kit: BioBLU® Single-Use Vessel & New Brunswick™ CelliGen® 310, includes vessel heat blanket, relief valve assembly (2), exhaust heat blanket, heat blanket conversion drawer, motor adaptor, spare tubing.	
100 – 120 V, BioBLU® 5c	M1376-9927
100 – 120 V, BioBLU® 14c	M1376-9928
100 – 120 V, BioBLU® 50c	Call
Adaptor Kit: BioBLU® Single-Use Vessel & Applikon® ADI 1025 Bio Console, includes vessel heat blanket, pressure relief valve assembly (2), exhaust tube heat blanket, RTD, motor adaptor, spare tubing.	
100 – 120 V, BioBLU® 5c	M1376-9921
100 – 120 V, BioBLU® 14c	M1376-9922
100 – 120 V, BioBLU® 50c	Call
Adaptor Kit: BioBLU® Single-Use Vessel & Applikon® ez-Control, includes vessel heat blanket, pressure relief valve assembly (2), exhaust tube heat blanket, RTD, motor adaptor, spare tubing.	
100 – 120 V, BioBLU® 5c	M1376-9944
100 – 120 V, BioBLU® 14c	M1376-9943
100 – 120 V, BioBLU® 50c	Call
Adaptor Kit: BioBLU® Single-Use Vessel & Sartorius® BioStat® B-Plus (Left-Hand), includes vessel heat blanket, relief valve assembly (2), exhaust heat blanket, RTD, heat blanket conversion drawer, motor adaptor, spare tubing.	
100 – 120 V, BioBLU® 5c	M1376-9931
100 – 120 V, BioBLU® 14c	M1376-9932
100 – 120 V, BioBLU® 50c	Call
Adaptor Kit: BioBLU® Single-Use Vessel & Sartorius® BioStat® BDCU II (Heat-Blanket), includes vessel heat blanket, relief valve assembly (2), exhaust heat blanket, RTD, motor adaptor, spare tubing.	
100 – 120 V, BioBLU® 5c	M1376-9963
100 – 120 V, BioBLU® 14c	M1376-9964
New Brunswick™ OP-76 Optical pH Module, allows you to monitor and control the optical pH signal of your BioBLU® Single-Use Vessels using your existing bioreactor control station.	
New Brunswick™ OP-76 Optical pH Module	M1376-1001

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DASbox® Mini Bioreactor

Parallel processing with the Eppendorf DASbox Mini Bioreactor System supports advanced process development and faster time-to-market.

The innovative Peltier condenser technology provides liquid-free exhaust cooling.

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.

Applications
> Parallel processing with the Eppendorf DASbox Mini Bioreactor System
> Process development in cell culture and microbiology
> Design of Experiments (DoE)
> Media optimization
> Clone and cell line screening, strain characterization

Product features
> Industry standard design for excellent scalability and reproducibility in both cell culture and microbiology
> Stainless steel head plate, fully equipped 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

Technical specifications		
Model	**DS0250ODSS**	**SR0250ODLS**
Application	Cell culture	Microbiology
Standard set-up	DASbox	DASbox
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 Pg13.5, 2x dip tube long, 2x dip tube short, 1x thermowell	6x Pg13.5, 2x dip tube long, 2x dip tube short, 1x thermowell
Agitation		
Drive	Direct overhead drive	Direct overhead drive
Impellers	1x marine-type	2x Rushton-type
Recommended agitation speed	20 – 2000 rpm	20 – 2500 rpm
Gassing		
Gas supply	Overlay and/or sparger	Sparger
Monitoring & control		
Sensor size	120 mm	120 mm
T sensor	Pt100 RTD	Pt100 RTD
Exhaust condensation	Liquid-free (Peltier)	Liquid-free (Peltier)

Ordering information	
Description	**Catalog No.**
DASbox® Vessel Type DS0250ODSS, marine-type impeller, 60 – 250 mL, overhead drive	76DS0250ODSS
DASbox® Vessel Type SR0250ODLS, 2x Rushton-type impeller, 60 – 250 mL, overhead drive	76SR0250ODLS
DASbox® Exhaust Condenser, Peltier	
for 1 vessel	76DXCOND
DASbox® Overhead Drive, for 1 vessel	
20 – 2500 rpm	76DXOHD

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DASGIP® Mini Spinner

Description
The DASGIP Mini Spinner was designed for stem cell applications demanding minimal working volumes. The vessel is equipped with 3 standard ports and a sampling port from the side, as well as gas in/out, plus 2 dosing ports from the top. Magnetic agitation down to 2 rpm and adapted impeller design (paddle-type impeller) ensure smooth stirring of sensitive cells, such as stem cells.

Product features
> Minimal working volumes of 35 – 60 mL for savings on cellular material, medium and supplements
> Smooth agitation with stir plates, 2 – 250 rpm
> Adapted impeller design (paddle-type impeller) for reduced shear forces
> Precise monitoring and control of temperature, oxygen tension and pH using standard sensors

Technical specifications	
Model	**DS0100B**
Application	Stem cell culture
Standard set-up	Stirrer plate
Bioreactors	
Sterilization	Autoclavable
Working volume (total)	35 – 60 mL (185 mL)
Material vessel	Glass
Head plate	Stainless steel flange, GL45 screw cap
Head plate ports	2x AD4 pipe, 2x AD6 pipe, 2x GL25 port
Agitation	
Drive	Magnetic drive
Impellers	1x paddle-type
Recommended agitation speed	2 – 250 rpm
Gassing	
Gas supply	Overlay
Monitoring & control	
Sensor size	120 mm
T sensor	Pt100 RTD
Exhaust condensation	-

Ordering information	
Description	**Catalog No.**
DASGIP® Vessel Type DS0100B, paddle-type impeller, 35 – 100 mL	76DS0100B
DASGIP® Heating Blanket and Pt100, for 1 vessel type DS0100	
115 V	76DGHBD0100U1
DASGIP® Magnetic Stirrer Plate bioMIXdrive, for 1 vessel	
2 – 250 rpm	76DGMSP

DASGIP® Spinner Vessel

Description
This magnetically agitated spinner vessel features a stainless steel head plate and an adapted impeller design. It is perfectly suited for stem cell applications. Magnetic agitation down to 2 rpm and the integrated paddle-type impeller ensure smooth stirring of sensitive cells.

Product features
> Working volume 80 – 200 mL
> Smooth agitation with stir plates, 2 – 250 rpm
> Paddle-type impeller for reduced shear forces
> Precise monitoring and control of temperature, oxygen tension and pH using standard sensors
> One GL14 side arm

Technical specifications	
Model	**DS0200TBSC**
Application	Stem cell culture
Standard set-up	Stirrer plate
Bioreactors	
Sterilization	Autoclavable
Working volume (total)	80 – 200 mL (380 mL)
Material vessel	Glass
Head plate	Stainless steel
Head plate ports	5x Pg13.5, 3x D6 port
Agitation	
Drive	Magnetic drive
Impellers	1x paddle-type
Recommended agitation speed	2 – 250 rpm
Gassing	
Gas supply	Overlay and/or sparger
Monitoring & control	
Sensor size	220 mm
T sensor	Pt100 RTD
Exhaust condensation	-

Ordering information	
Description	**Catalog No.**
DASGIP® Spinner Vessel, paddle-type impeller, 80 – 200 mL, 1x GL14 side arms, OD 120 mm foot	76DS0200TBSC
DASGIP® Heating Blanket and Pt100, for 1 vessel type DS0100	
115 V	76DGHBD0100U1
DASGIP® Magnetic Stirrer Plate bioMIXdrive, for 1 vessel	
2 – 250 rpm	76DGMSP

VESSELS

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DASGIP® Bioblock Spinner Vessels

Description
Eppendorf offers a line of advanced autoclavable spinner vessels suitable for temperature control with the compact DASGIP Bioblock. 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 300 mL – 1.6 L they are perfectly suited for cell culture research and process development.

Product features
> Working volumes ranging from 300 mL – 1.6 L
> Direct overhead drives with 30 – 1250 rpm (100 – 1600 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

Applications
> Advanced temperature control with the DASGIP Bioblock
> Cell culture research and process development
> Parallel small scale cultivation of mammalian, insect and human cell lines

Technical specifications			
Model	**DS0700ODSS**	**DS1000ODSS**	**DS1500ODSS**
Application	Cell culture	Cell culture	Cell culture
Standard set-up	DASGIP Bioblock	DASGIP Bioblock	DASGIP Bioblock
Bioreactors			
Sterilization	Autoclavable	Autoclavable	Autoclavable
Working volume (total)	200 mL – 1.0 L (1.3 L)	400 mL – 1.2 L (1.9 L)	400 mL – 1.6 L (2.4 L)
Material vessel	Glass	Glass	Glass

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DASGIP Bioblock Spinner Vessels are perfectly suited for parallel cell cultivation with the DASGIP Bioblock.

The compact DASGIP Bioblock provides individual temperature control for up to four vessels.

Technical specifications			
Model	**DS0700ODSS**	**DS1000ODSS**	**DS1500ODSS**
Head plate	Stainless steel, screw cap	Stainless steel, screw cap	Stainless steel, screw cap
Head plate ports	1x M30, 7x Pg13.5, 1x thermowell	1x M30, 7x Pg13.5, 1x thermowell	1x M30, 7x Pg13.5, 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 – 1250 rpm	30 – 1250 rpm	30 – 1250 rpm
Gassing			
Gas supply	Overlay and/or sparger	Overlay and/or sparger	Overlay and/or sparger
Monitoring & control			
Sensor size	220 mm	220 mm	320 mm
T sensor	Pt100 RTD	Pt100 RTD	Pt100 RTD
Exhaust condensation	Water-cooled	Water-cooled	Water-cooled

Ordering information	
Description	**Catalog No.**
DASGIP® Vessel Type DS0700ODSS, pitched blade impeller, 200 mL – 1.0 L, 2x GL45 side arms, overhead drive, Bioblock	76DS0700ODSS
DASGIP® Vessel Type DS1000ODSS, 2x pitched blade impeller, 400 mL – 1.2 L, 2x GL45 side arms, overhead drive, Bioblock	76DS1000ODSS
DASGIP Vessel Type DS1500ODSS, 2x pitched blade impeller, 400 mL – 1.6 L, 2x GL45 side arms, overhead drive, Bioblock	76DS1500ODSS
DASGIP® Exhaust Condenser, Pg13.5, incl. accessories for 1 vessel	
OD 30 mm	76DGCOND30
DASGIP® Heat Exchanger, Pg13.5 for 1 vessel	
220 mm	76DGHE220
320 mm	76DGHE320
DASGIP® Heating Blanket and Pt100, for 1 vessel type BS/DS	
115 V	76DGHBD1000U1
DASGIP® Overhead Drive RE30, 30 - 1250 rpm, digitally encoded	
for 1 vessel	76DGRE30

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DASGIP® Bioblock Stirrer Vessels

Description
Eppendorf offers a line of advanced autoclavable stirrer vessels suitable for temperature control with the compact DASGIP Bioblock. 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 – 2.0 L they are perfectly suited for microbial research and process development.

Product features
> Working volumes ranging from 200 mL – 2.0 L
> Direct overhead drives with 100 – 1600 rpm (30 – 1250 rpm optional), Rushton-type impellers
> Industry standard sensors available for precise monitoring and control of temperature, pH, DO, redox potential, level and OD

Applications
> Advanced temperature control with the DASGIP Bioblock
> Microbial research and process development
> Parallel small scale fermentation of aerobic and anaerobic bacteria, yeasts and fungi

Technical specifications			
Model	**SR0700ODLS**	**SR1000ODLS**	**SR1500ODLS**
Application	Microbiology	Microbiology	Microbiology
Standard set-up	DASGIP Bioblock	DASGIP Bioblock	DASGIP Bioblock
Bioreactors			
Sterilization	Autoclavable	Autoclavable	Autoclavable
Working volume (total)	200 mL – 1.0 L (1.3 L)	500 mL – 1.5 L (1.9 L)	400 mL – 2.0 L (2.2 L)
Material vessel	Glass	Glass	Glass

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DASGIP Bioblock Stirrer Vessels are perfectly suited for parallel fermentation with the DASGIP Bioblock.

The compact DASGIP Bioblock provides individual temperature control for up to four vessels.

Technical specifications			
Model	**SR0700ODLS**	**SR1000ODLS**	**SR1500ODLS**
Head plate	Stainless steel, screw cap	Stainless steel, screw cap	Stainless steel, screw cap
Head plate ports	1x M30, 7x Pg13.5, 1x thermowell	1x M30, 7x Pg13.5, 1x thermowell	1x M30, 7x Pg13.5, 1x thermowell
Agitation			
Drive	Direct overhead drive	Direct overhead drive	Direct overhead drive
Impellers	2x Rushton-type	2x Rushton-type	2x Rushton-type
Recommended agitation speed	100 – 1600 rpm	100 – 1600 rpm	100 – 1600 rpm
Gassing			
Gas supply	Sparger	Sparger	Sparger
Monitoring & control			
Sensor size	220 mm	220 mm	320 mm
T sensor	Pt100 RTD	Pt100 RTD	Pt100 RTD
Exhaust condensation	Water-cooled	Water-cooled	Water-cooled

Ordering information

Description	Catalog No.
DASGIP® Vessel Type SR0700ODLS, 2x Rushton-type impeller, L-Sparger, 200 mL – 1.0 L, overhead drive, Bioblock	76SR0700ODLS
DASGIP® Vessel Type SR1000ODLS, 2x Rushton-type impeller, L-Sparger, 500 mL – 1.5 L, overhead drive, Bioblock	76SR1000ODLS
DASGIP® Vessel Type SR1500ODLS, 2x Rushton-type impeller, L-Sparger, 400 mL – 2.0 L, overhead drive, Bioblock	76SR1500ODLS
DASGIP® Baffle Cage, for 1 vessel type SR0700 (H180)	76DGBC0700
DASGIP® Baffle Cage, for 1 vessel type SR1000 (H250)	76DGBC1000
DASGIP® Exhaust Condenser, Pg13.5, incl. accessories for 1 vessel	
OD 30 mm	76DGCOND30
DASGIP® Heat Exchanger, Pg13.5 for 1 vessel	
220 mm	76DGHE220
320 mm	76DGHE320
DASGIP® Overhead Drive RE40, for 1 vessel	
100 - 1600 rpm, digitally encoded	76DGRE40

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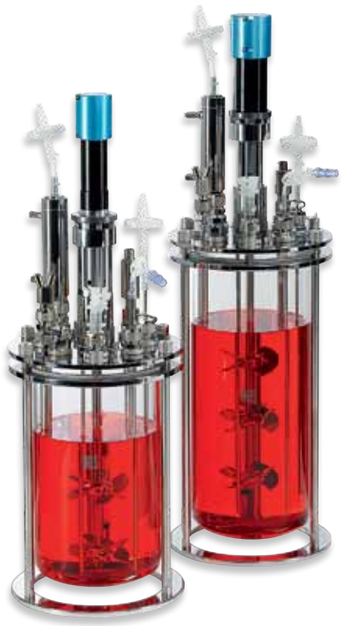
DASGIP® Benchtop Bioreactors for Cell Culture



Description
DASGIP Benchtop Bioreactors feature an autoclavable glass body and a stainless steel head plate. 16 industry standard ports, directly coupled 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.

Applications
> Cell culture research and process development
> Parallel bench scale cultivation of mammalian, insect and human cell lines

Product features
> Working volumes of 700 mL – 2.7 L (DR03C) and 800 mL – 3.8 L (DR04C)
> Direct overhead drives with 30 – 1250 rpm (100 – 1600 rpm optional), pitched blade impellers
> Industry standard sensors available for precise monitoring and control of temperature, pH, DO, level and OD

Technical specifications		
Model	**DR03C**	**DR04C**
Application	Cell culture	Cell culture
Standard set-up	Benchtop	Benchtop
Bioreactors		
Sterilization	Autoclavable	Autoclavable
Working volume (total)	700 mL – 2.7 L (3.2 L)	800 mL – 3.8 L (4.5 L)
Material vessel	Glass	Glass

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DASGIP Benchtop Bioreactors are designed for parallel cultivation in a flexible set-up.

DASGIP Benchtop Bioreactors feature headspace and submerged gassing options with individual gas mixing (DASGIP MX4 Modules).

Technical specifications		
Model	**DR03C**	**DR04C**
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	3x pitched blade
Recommended agitation speed	30 – 1250 rpm	30 – 1250 rpm
Gassing		
Gas supply	Overlay and/or sparger	Overlay and/or sparger
Monitoring & control		
Sensor size	220 mm	320 mm
T sensor	Pt100 RTD	Pt100 RTD
Exhaust condensation	Water-cooled	Water-cooled

Ordering information	
Description	**Catalog No.**
DASGIP® Vessel Type DR03C, pitched blade impeller, dip tube, 700 mL – 2.7 L, overhead drive	76DR03C
DASGIP® Vessel Type DR04C, pitched blade impeller, dip tube, 800 mL – 3.8 L, overhead drive	76DR04C
DASGIP® Exhaust Condenser, M18x1.5, incl. accessories for 1 vessel	
OD 30 mm	76DGCOND30M
DASGIP® Heat Exchanger, M18x1.5 for 1 vessel	
220 mm	76DGHE220M
320 mm	76DGHE320M
DASGIP® Heating Blanket and Pt100, for 1 vessel type DR03	
115 V	76DGHDR03U1
DASGIP® Heating Blanket and Pt100, for 1 vessel type DR04	
115 V	76DGHDR04U1
DASGIP® Overhead Drive RE30, 30 - 1250 rpm, digitally encoded	
for 1 vessel	76DGRE30

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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, directly coupled 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.

Applications
> Microbial research and process development
> Parallel bench scale fermentation of aerobic and anaerobic bacteria, yeasts and fungi

Product features
> Working volumes of 700 mL – 2.7 L (DR03F) and 800 mL – 3.8 L (DR04F)
> Direct overhead drives with 100 – 1600 rpm (30 – 1250 rpm optional), Rushton-type impellers
> Industry standard sensors available for precise monitoring and control of temperature, pH, DO, redox potential, level and OD

Technical specifications		
Model	**DR03F**	**DR04F**
Application	Microbiology	Microbiology
Standard set-up	Benchtop	Benchtop
Bioreactors		
Sterilization	Autoclavable	Autoclavable
Working volume (total)	700 mL – 2.7 L (3.2 L)	800 mL – 3.8 L (4.5 L)
Material vessel	Glass	Glass

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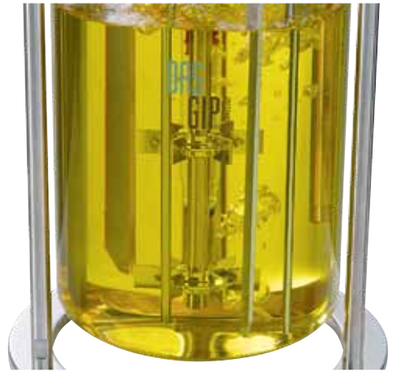
DASGIP Benchtop Bioreactors are designed for parallel fermentation in a flexible set-up.



DASGIP Benchtop Bioreactors feature powerful Rushton-type impellers and submerged gassing with individual gas mixing (DASGIP MX4 Modules).

Technical specifications		
Model	**DR03F**	**DR04F**
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 Rushton-type	3x Rushton-type
Recommended agitation speed	100 – 1600 rpm	100 – 1600 rpm
Gassing		
Gas supply	Sparger	Sparger
Monitoring & control		
Sensor size	220 mm	320 mm
T sensor	Pt100 RTD	Pt100 RTD
Exhaust condensation	Water-cooled	Water-cooled

Ordering information	
Description	**Catalog No.**
DASGIP® Vessel Type DR03F, Rushton-type impeller, L-Sparger, 700 mL – 2.7 L, overhead drive	76DR03F
DASGIP® Vessel Type DR04F, Rushton-type impeller, L-Sparger, 800 mL – 3.8 L, overhead drive	76DR04F
DASGIP® Exhaust Condenser, M18x1.5, incl. accessories for 1 vessel	
OD 30 mm	76DGCOND30M
DASGIP® Heat Exchanger, M18x1.5 for 1 vessel	
220 mm	76DGHE220M
320 mm	76DGHE320M
DASGIP® Heating Blanket and Pt100, for 1 vessel type DR03	
115 V	76DGHDR03U1
DASGIP® Heating Blanket and Pt100, for 1 vessel type DR04	
115 V	76DGHDR04U1
DASGIP® Overhead Drive RE40, for 1 vessel	
100 - 1600 rpm, digitally encoded	76DGRE40

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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 (400 mL – 1.2 L working volume) and bench scale (700 mL – 2.7 L working volume).

Applications

> Small and bench scale cultivation of plant cell suspensions
> Biofuel and other applications using green or brown algae
> Cultivation of phototrophic bacteria such as cyanobacteria or green sulfur bacteria

Product features

> Industry standard autoclavable bioreactors with working volumes of 400 mL – 1.2 L and 700 mL – 2.7 L
> Direct overhead drives with 30 – 1250 rpm (100 – 1600 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

Technical specifications		
Model	**DS1000ODSP**	**DR03P**
Application	Phototrophic cultivation	Phototrophic cultivation
Standard set-up	DASGIP Bioblock	Benchtop
Bioreactors		
Sterilization	Autoclavable	Autoclavable
Working volume (total)	400 mL – 1.2 L (1.9 L)	700 mL – 2.7 L (3.2 L)
Material vessel	Glass	Glass
Head plate	Stainless steel, screw cap	Stainless steel

Product appearance, specifications, and/or prices are subject to change without notice.

The DASGIP PBR4 Module provides parallel illumination of up to four bioreactors.

Up to four DASGIP LED Illumination Devices per bioreactor offer optimized light spectra to meet specific photosynthesis requirements.

Technical specifications		
Model	**DS1000ODSP**	**DR03P**
Head plate ports	1x M30, 7x Pg13.5, 1x thermowell	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 – 1250 rpm	30 – 1250 rpm
Gassing		
Gas supply	Overlay and/or sparger	Overlay and/or sparger
Monitoring & control		
Sensor size	220 mm	220 mm
T sensor	Pt100 RTD	Pt100 RTD
Exhaust condensation	Water-cooled	Water-cooled
Illumination		
DASGIP LED Illumination Devices	3	4

Ordering information

Description	Catalog No.
DASGIP® Vessel Type DS1000ODSP, 2x pitched blade impeller, 400 mL – 1.2 L, 2x GL45 side arms, overhead drive, photobioreactor	76DS1000ODSP
DASGIP® Vessel Type DR03P, pitched blade impeller, dip tube, 700 mL – 2.7 L, overhead drive, photobioreactor	76DR03P
DASGIP® Exhaust Condenser, M18x1.5, incl. accessories for 1 vessel	
OD 30 mm	76DGCOND30M
DASGIP® Heat Exchanger, M18x1.5 for 1 vessel	
220 mm	76DGHE220M
DASGIP® PhotoBioreactor LED Illumination Devices, for 1 vessel, 220 mm	
type S (4 sticks w/ 453/572/625/640/660/780 nm)	76DGLED220S
DASGIP® Overhead Drive RE30, 30 - 1250 rpm, digitally encoded	
for 1 vessel	76DGRE30
DASGIP® PhotoBioreactor Illumination Module, for 4 vessels	
110 – 240 V/50/60 Hz, w/o LED Illumination Devices	76DGPBR4

VESSELS

DASGIP® Benchtop Spinner Vessels

Description
DASGIP Spinner Vessels come in two sizes with working volumes of 300 – 600 mL and 600 mL – 1.6 L, respectively. These overhead driven spinner vessels feature a stainless steel head plate, pitched blade impellers and two side arms. They are perfectly suited for cell culture research and process development.

Product features
> Working volumes ranging from 300 mL – 1.6 L
> Direct overhead drives with 30 – 1250 rpm, pitched blade impellers
> Industry standard sensors available for precise monitoring and control of temperature, pH, DO, level and OD
> Two GL45 side arms

Technical specifications		
Model	**BS0500OGSS**	**BS1000OGSS**
Application	Cell culture	Cell culture
Standard set-up	Benchtop	Benchtop
Bioreactors		
Sterilization	Autoclavable	Autoclavable
Working volume (total)	300 – 600 mL (1.4 L)	600 mL – 1.6 L (2.6 L)
Material vessel	Glass	Glass
Head plate	Stainless steel, screw cap	Stainless steel, screw cap
Agitation		
Drive	Directly coupled overhead drive	Directly coupled overhead drive
Impellers	1x pitched blade	1x pitched blade
Recommended agitation speed	30 – 1250 rpm	30 – 1250 rpm
Gassing		
Gas supply	Overlay and/or sparger	Overlay and/or sparger
Monitoring & control		
Sensor size	220 mm	220 mm
T sensor	Pt100 RTD	Pt100 RTD
Exhaust condensation	Water-cooled	Water-cooled

Ordering information	
Description	**Catalog No.**
DASGIP® Vessel Type BS0500OGSS, pitched blade impeller, 300 – 600 mL, 2x GL45 side arms	76BS0500OGSS
DASGIP® Vessel Type BS1000OGSS, pitched blade impeller, 600 mL – 1.6 L, 2x GL45 side arms	76BS1000OGSS
DASGIP® Exhaust Condenser, Pg13.5, incl. accessories for 1 vessel	
OD 12 mm	76DGCOND12
DASGIP® Heat Exchanger, Pg13.5 for 1 vessel	
220 mm	76DGHE220
DASGIP® Heating Blanket and Pt100, for 1 vessel type BS/DS	
115 V	76DGHBD1000U1
DASGIP® Heating Blanket and Pt100, for 1 vessel type BS0500OGSS	
115 V	76DGHBV0500U1
DASGIP® Heating Blanket and Pt100, for 1 vessel type BS1000OGSS	
115 V	76DGHBV1000U1
DASGIP® Overhead Drive RE30, 30 - 1250 rpm, digitally encoded	
for 1 vessel (Pg13.5)	76DGRE30G

Software

Much more than just bioprocess control

Eppendorf offers BioCommand and DASGIP Control Supervisory Control and Data Acquisition (SCADA) software packages for advanced bioprocess control. Next generation bioprocess management is provided by the comprehensive DASware software suite.

SELECTION GUIDE

Selection guide

			
Model	New Brunswick™ BioCommand® SCADA Software	DASGIP® Control	DASware® migrate
Page(s)	94	96	98
Suitable systems[1]	All New Brunswick systems	DASbox, DG, NB (BioFlo/ CelliGen 115 & 310, CelliGen BLU, BioFlo 415)[2], 3rd party[2]	DASbox, DG, NB (BioFlo/ CelliGen 115 & 310, CelliGen BLU, BioFlo 415)[2], 3rd party[2]
Process control	■	■	
Number of parallel units per controller	5	4, 8, 12 (DASbox) / 4, 8 (DG)	
Automated data logging	■	■	
Data historian	■	■	
Remote control and monitoring (web browser)	■	■	
Remote control and monitoring (iPhone®, iPod touch®, iPad®)			
Event logging	o	■	
Online charts/trending	o	■	
Analyzer integration	o		
Integration to 3rd party control systems	o		
Design of Experiments			
Configurable database queries and recipes			
Cross-system and historical comparison			
Automated Microsoft® Excel® and Adobe® PDF export		■	
Integration of 3rd party bioreactor control units			■
Validation	o	IQ/OQ package optional	

[1] Systems: NB=New Brunswick, DG=DASGIP,

[2] via DASware migrate

■ = standard, o = optional

				
DASware® access	DASware® analyze	DASware® connect	DASware® design	DASware® discover
100	101	102	103	104
DASbox, DG, NB (BioFlo/CelliGen 115 & 310, CelliGen BLU, BioFlo 415)[2], 3rd party[2]	DASbox, DG, NB (BioFlo/CelliGen 115 & 310, CelliGen BLU, BioFlo 415)[2], 3rd party[2]	DASbox, DG, NB (BioFlo/CelliGen 115 & 310, CelliGen BLU, BioFlo 415)[2], 3rd party[2]	DASbox, DG, NB (BioFlo/CelliGen 115 & 310, CelliGen BLU, BioFlo 415)[2], 3rd party[2]	DASbox, DG, NB (BioFlo/CelliGen 115 & 310, CelliGen BLU, BioFlo 415)[2], 3rd party[2]
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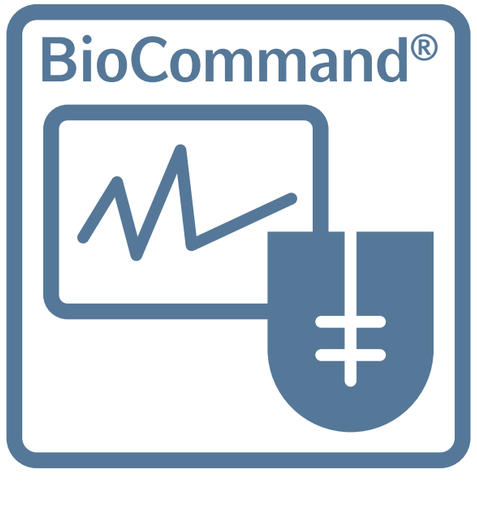
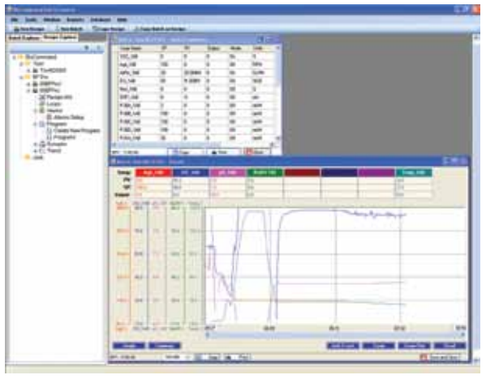
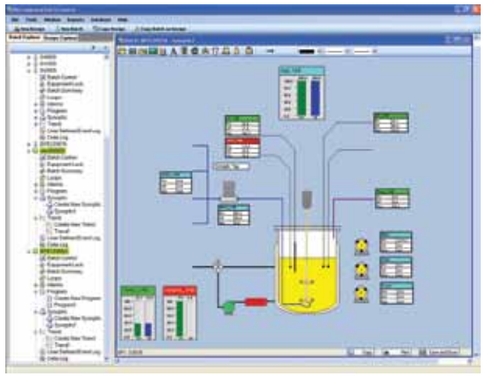
New Brunswick™ BioCommand® SCADA Software





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 next-generation 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 necessary, the security and audit trails to meet your regulatory requirements. All are OPC compatible to enable your fermentor or bioreactor to "talk" to any other OPC-compatible device in your lab or production facility.

Product features
> New Brunswick BioCommand Track & Trend
> New Brunswick BioCommand Batch Control
> New Brunswick BioCommand Batch Control Plus
> New Brunswick OPC Server

Ordering information

Description	Catalog No.
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.	M1326-0000
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-out feature. The added control features of this software package make it ideal for optimizing your process. BioCommand Batch Control includes OPC server.	M1326-0010
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 FDA validated processes.	M1326-0020
New Brunswick™ OPC Server, used to interface and connect OPC-compliant 3rd party equipment to New Brunswick Bioreactors and Fermentors. Included with all BioCommand software packages listed above. Additionally, can be used without BioCommand packages to provide connectivity to 3rd party SCADA such as MATLAB ®, LabVIEW® and other OPC-compatible packages.	M1291-0011

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DASGIP® Control

The parallel design of DASGIP Control software allows for the operation of up to 8 vessels.

The reactor view helps you keep track of your bioprocess.

Description
The DASGIP Control software platform is at the core of all DASGIP Parallel Bioreactor Systems. DASGIP Control offers greater functionality than those most often associated with SCADA-based platforms. The intuitive user interface associated with the DASGIP Control software combined with extensive embedded process automation features, recipe management and integrated report generating capabilities deliver an unprecedented level of integral process documentation. The seamless integration of industry-leading OPC communication enables implementation of a host of solutions associated with QbD, DoE, PAT and the like. These are offered in the powerful DASware solution suite that integrates with DASGIP Control.

Product features
> Parallel process control of up to 8 (12 with DASbox) bioreactors with individual control of every vessel
> Integrated batch functionality for process and recipe management
> Ideally suited for Design of Experiments (DoE)
> Parallel calibration and cleaning procedures
> Parallel process control and individual parameterization
> Online help
> File-based recipe exchange between systems and one-click start of user recipes
> Integral security manages system access
> Configurable online charts/trending
> Online configurable control parameters
> Online configurable profiles with a unique graph display
> Offline entry of process values and events
> Built-in process automation package
> Full controller scripting for easy scale-up and scale-down
> Automated data export, reporting and chart creation for Microsoft® Excel®
> Professional database with managed access (Microsoft SQL Server®)
> Integrated automated backup
> IQ/OQ package available

Ordering information

Description	Catalog No.
DASGIP® Control System, incl. PC, OS, DASGIP Control and licenses	
for 4 vessels	76DGCS4
for 8 vessels	76DGCS8
DASGIP® Control System Upgrade, incl. database update and licenses	
for 4 vessels	76DGCS+4
DASbox® Control System, incl. PC, OS, DASGIP Control and licenses	
for 4 vessels	76DXCS4
for 8 vessels	76DXCS8
for 12 vessels	76DXCS12
DASGIP® Control Option External I/O, 4x analog input and output per vessel, for 1 vessel	76DGSWEIO
DASGIP® Control Option Online Calculated Values, for 1 vessel	76DGSWOCV
DASGIP® Process Computer, incl. accessories, DASGIP Control, PC hardware and OS software	76DGPCS

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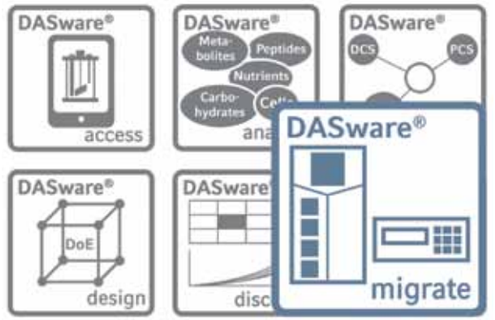
DASware® migrate



DASware migrate opens up the possibility to use DASGIP Control and all DASware functions on 3rd party bioreactor controllers.

Scientists and process engineers working with New Brunswick CelliGen/BioFlo 115 and 310, BioFlo 415 or CelliGen BLU bioreactor units can also benefit from DASware migrate.

Description
DASware migrate provides the ability to operate a set of bioreactor units collectively – including shared recipes and process data and information management. It has been proven effective in the integration not only of Eppendorf New Brunswick BioFlo/CelliGen 115 and 310 as well as BioFlo 415 and CelliGen BLU, but also external bioreactor controllers such as Sartorius® BIOSTAT® Bplus DCU and Qplus and Applikon® 1010, 1030 & ez-Control.
Utilizing this solution enables access to the advanced DASGIP control features and powerful Microsoft Excel reporting as well as the suite of DASware solutions. All relevant process parameters can be simultaneously controlled, monitored and visualized online within a single user interface. DASware migrate easily integrates DASGIP exhaust analyzers (GA4), biomass monitors (OD4), precision multi pumps (MP8) and gas mixing modules (MX4/4) into 3rd party bioreactor controllers. Thereby, DASware migrate provides all crucial advantages of the DASware bioprocessing software to users in microbiology and cell culture.

Applications
> Applying DASware software solutions to existing New Brunswick and 3rd party bioreactor controllers
> Grouped operation of multiple bioreactor units
> Design of Experiments (DoE)

Product features
> Access to the complete DASware software solution suite
> Comprehensive information management and process data historian with shared recipes
> Powerful Microsoft® Excel® report generator provides recipe information, process information as well as event reporting
> Facilitates DoE approaches, process automation as well as data management and storage consistent with QbD guidelines
> Allows for integration of DASGIP exhaust analyzer GA4, biomass monitor OD4, precision multi pumps MP8, and gas mixing modules MX4/4 with New Brunswick or 3rd party bioreactor controllers
> Enables integration of 3rd party autosamplers and analyzers with direct feedback from the system according to online measured analytical data
> Optional, remote control of bioprocesses via PC, Notebook, iPhone®, iPod touch® or iPad®

Ordering information

Description	Catalog No.
DASware® migrate, license for 1 vessel	
for New Brunswick controllers	76DWMIGNB
DASware® migrate, DASGIP Control System for up to 8 vessels	
for New Brunswick controllers	76DWMIGNBPC
DASware® migrate, license for 1 vessel	
for 3rd party systems	76DWMIGTP
DASware® migrate, DASGIP Control System for up to 8 vessels	
for 3rd party systems	76DWMIGTPPC

DASware® access

Description
DASware access provides an unprecedented level of freedom and flexibility in the management of bioprocesses. Each DASGIP 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
> Remote access to online charts/trending
> 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	Catalog No.
DASware® access, remote access support (web and iApp) for 1 vessel	76DWACC

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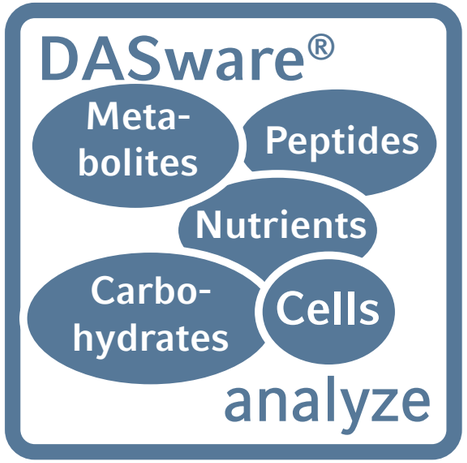
DASware® analyze



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, mass spectrometers and Roman spectroscopy. The OPC network 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 unique bidirectional OPC communication, available for supporting devices enables sampling on demand and process-dependent analyzer panel selection.

Product features
> Integration of 3rd party lab devices into bioreactor control units
> Enables bidirectional OPC interconnectivity, process-triggered feedback control loop and sampling on demand
> Allows for online calculations and event- or data-driven decisions
> Users benefit from integration of existing benchtop equipment, better process understanding and optimal process control
> Integration includes nutrient analyzers and cell counters, biomass monitors, mass spectrometers, automation platforms and autosamplers, HPLC and Raman spectroscopy

Ordering information

Description	Catalog No.
DASware® analyze, OPC client standard (OPC DA e.g. for ext. analyzer)	
for 1 vessel	76DWANA
DASware® analyze, license for serial/Modbus integration (e.g. for ext. biomass sensors)	
for 4 vessels	76DWANA4M
DASware® analyze, OPC client professional incl. 1x tunneller lic. (OPCDA e.g. for ext. analyzer with autosampler)	
for 4 vessels	76DWANA4P
for 8 vessels	76DWANA8P
for 12 vessels	76DWANA12P

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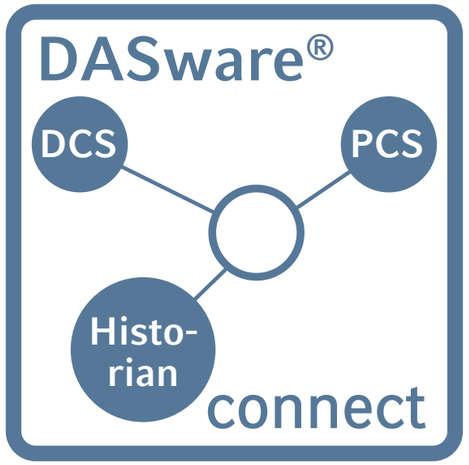
DASware® connect



Description
DASware connect was designed to integrate DASGIP Parallel Bioreactor Systems, New Brunswick bioreactors and fermentors and 3rd party bioreactor controllers 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 from 3rd party products.

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	Catalog No.
DASware® connect, OPC server for 1 vessel (OPCDA for ext. PCS)	76DWCON

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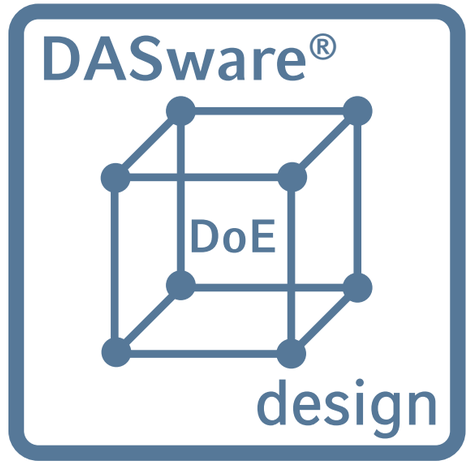
DASware® design



Description
DASGIP bioreactor systems serve as an ideal platform to carry out Design of Experiments (DoE) on bioreactors in parallel. There is a multitude of 3rd party DoE software tools available on the market – DASware design automatically compiles DoE information from such tools into recipes and feedback response information into DoE and multivariate analysis and reporting tools.
DASware design 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 the most powerful 3rd party DoE tools like JMP®, MODDE® (Umetrics), Minitab®, and Design-Expert® (Stat-Ease®). Parallel recipes incorporating the DoE factor variations (i.e. pH, DO, temperature set-points or feed rates) are automatically populated. Following DASGIP's Point-Click-Grow concept they can be carried out on a set of bioreactors with a single mouse-click.

Applications
> DoE with parallel bioreactor systems such as the DASbox Mini Bioreactor System
> Screening, process development and optimization

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	Catalog No.
DASware® design, license for 1 vessel (DoE and local information management)	76DWDOE

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Eppendorf Canada: 800-263-8715
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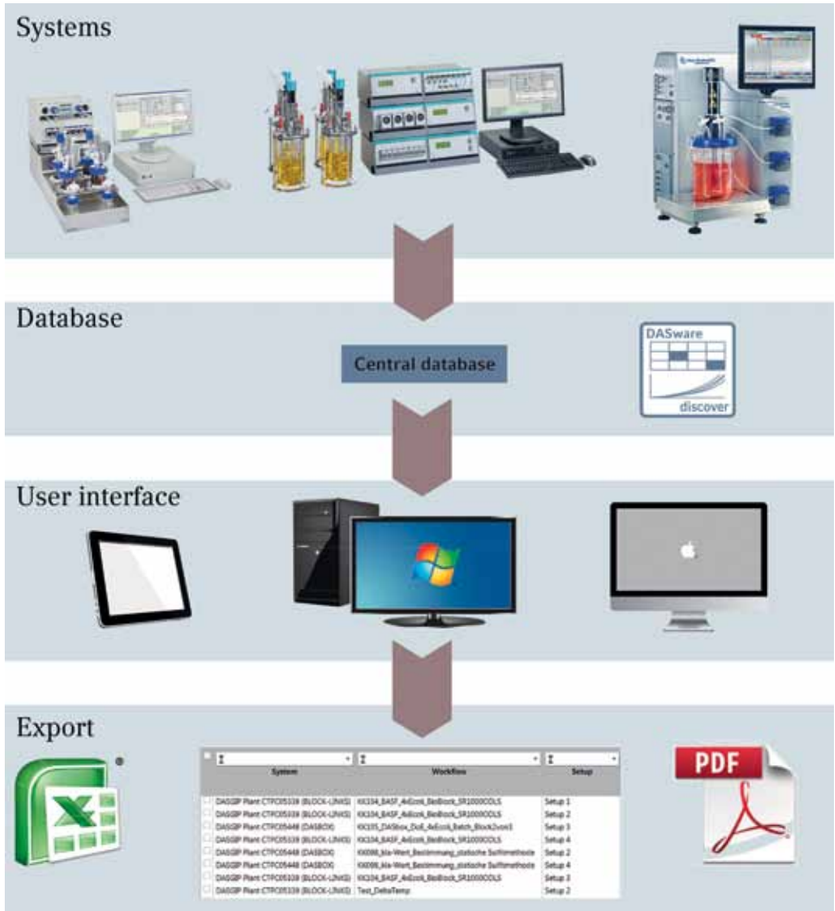
DASware® discover

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.

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

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



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

Ordering information

Description	Catalog 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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Modules

Flexible solutions for monitoring and 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 and liquid-free exhaust condensation. The DASGIP EasyAccess software package allows the modules to be operated as stand-alone solutions.

Selection guide

				
Model	DASGIP® PHPO	DASGIP® OD4	DASGIP® GA4	DASGIP® PBR4
Page(s)	110	113	114	115
Number of parallel bioreactors per module	4 / 8	4	4	4
Operatable as stand-alone		■	■	■
pH monitoring and control	■			
DO monitoring and control	o			
Level/antifoam monitoring and control	o			
ORP (redox) monitoring and control	o			
Optical density measurement		■		
Exhaust analysis			O_2, CO_2, flow calculation of OTR, CTR, RQ	
PhotoBioreactor illumination				■
Feeding				
Gas flow control				
Gas mixing				
Temperature control				
Agitation control				
Peltier exhaust condensation				

■ = standard, o = optional

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

						
DASGIP® MP	DASGIP® MX	DASGIP® WRM	DASGIP® MF4	DASGIP® EGC	DASGIP® TC4SC4	DASGIP® Bioblock
116	117	118	118	119	120	122
4	4 / 1	4	4	4	4	4
■	■		■	■	■	
■						
	TMFC	Rotameter	TMFC			
	1/2/4 gas (Air, N_2, O_2, CO_2)	1/2/4 gas (Air, O_2, CO_2, N_2)	1 gas (e.g. N_2, O_2, CO_2, MH_4 or CO)			
					■	■
					■	
				■		

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SELECTION GUIDE

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

Precise monitoring and control of pH, DO, ORP and optional level in up to 4 vessels with the DASGIP PH4PO4RD4 module.

DASGIP monitoring modules can be operated with industry standard sensors.

Description
Eppendorf provides a range of DASGIP bioprocess analyzer modules delivering precise measurement and real-time control of pH, dissolved Oxygen (DO), redox potential (ORP) and/or level/antifoam. Industry standard sensors can be connected. The monitoring systems enable parallel monitoring of 4 or 8 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.
The 4 channel modules PHPO (configured for pH and DO control), PHRD (pH and ORP) and PHPORD (pH, DO and ORP) each feature 4 optional conductivity-based level inputs. These inputs can be used for level control during continuous operation or automated anti-foam addition.

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

Product features
> Parallel monitoring of 4 or 8 pH sensors with temperature compensation and precise control
> PHPO modules feature additional DO control and optional level/antifoam control
> PHPORD module for 4 vessels features additional ORP control and optional level/antifoam control
> Easy-to-use one or two point calibration procedure for pH, DO and temperature integrated

Technical specifications				
Model	**PH4/PH4FO**	**PH8**	**PH4PO4**	**PH4PO4L**
Power supply	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz
Dimensions (W × D × H)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)
Weight	7.5 kg	8 kg	8 kg	8 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)
pH measurement				
Channels	4	8	4	4
Measurement range (depending on sensor)	0 – 14	0 – 14	0 – 14	0 – 14
DO measurement				
Channels	–	–	4	4
Measurement range (depending on sensor)	–	–	0 – 500% DO	0 – 500% DO
Temperature compensation				
Pt100 inputs	2	2	2	2
NTC inputs	–	–	4	4
ORP measurement				
Channels	–	–	–	–
Measurement range (depending on sensor)	–	–	–	–
Level measurement				
Channels	–	–	–	4

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MODULES FOR MONITORING & CONTROL

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

Technical specifications					
Model	**PH8PO8**	**PH4RD4**	**PH4RD4L**	**PH8RD8**	**PH4PO4RD4L**
Power supply	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz
Dimensions (W × D × H)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)
Weight	8.2 kg	8 kg	8 kg	8.2 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	8	4	4	8	4
Measurement range (depending on sensor)	0 – 14	0 – 14	0 – 14	0 – 14	0 – 14
DO measurement					
Channels	8	–	–	–	4
Measurement range (depending on sensor)	0 – 500% DO	–	–	–	0 – 500% DO
Temperature compensation					
Pt100 inputs	2	2	2	2	2
NTC inputs	8	–	–	–	4
ORP measurement					
Channels	–	4	4	8	4
Measurement range (depending on sensor)	–	-2000 – 2000 mV	-2000 – 2000 mV	-2000 – 2000 mV	-2000 – 2000 mV
Level measurement					
Channels	–	–	4	–	4

Ordering information	
Description	**Catalog No.**
DASGIP® PH4 Monitoring Module, for 4 vessels, w/o sensors, pH	76DGPH4
DASGIP® PH4 Monitoring Module, for 4 vessels, w/o sensors, fiber optical pH measurement (PH4FO)	76DGPH4FO
DASGIP® PH8 Monitoring Module, for 8 vessels w/o sensors, pH	76DGPH8
DASGIP® Monitoring System PH4PO4, for 4 vessels w/o sensors, pH and DO	76DGPH4PO4
DASGIP® PH4PO4 Monitoring Module, for 4 vessels, w/o sensors, pH and DO with level/anti-foam option (PH4PO4L)	76DGPH4PO4L
DASGIP® Monitoring System PH8PO8, for 8 vessels w/o sensors, pH and DO	76DGPH8PO8
DASGIP® PH4RD4 Monitoring Module, for 4 vessels w/o sensors, pH and redox	76DGPH4RD4
DASGIP® PH4RD4 Monitoring Module, for 4 vessels, w/o sensors, pH and redox, with level/anti-foam option (PH4RD4L)	76DGPH4RD4L
DASGIP® PH8RD8 Monitoring Module, for 8 vessels w/o sensors, pH and redox	76DGPH8RD8
DASGIP® PH4PO4RD4L Monitoring Module, for 4 vessels, w/o sensors, pH, DO and redox with level/anti-foam option (PH4PO4RD4L)	76DGPH4PO4RD4L
DASGIP® Cable for DO Sensor, for 1 vessel, T82 connector	76DGPOT82
DASGIP® Cable for Level Sensor, for 1 vessel	76DGLVLC
DASGIP® Cable for DO Sensor (optical), for 1 vessel, VP8 connector	76DGPOVP8
DASGIP® Cable for pH/Redox Sensor, for 1 vessel, AK9 connector	76DGPHRDAK9

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	**OD4**
Power supply	110 – 240 V, 50/60 Hz
Dimensions (W × D × H)	300 × 320 × 190 mm (11.8 x 15.6 x 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	**Catalog No.**
DASGIP® Optical Density Measurement, for 4 vessels, incl. transmitter and cables, w/o sensors	76DGOD4
DASGIP® OD4 Optical Density Measurement, for 4 vessels, incl. transmitter and cables, w/o sensors	
incl. EasyAccess Software	76DMOD4

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DASGIP® GA4 for Exhaust Analysis

Description
The DASGIP exhaust analyzer GA4 supports precise online measurement of exhaust Oxygen and Carbon Dioxide in four discrete analyzer channels. Systems of up to 16 bioreactors can be monitored. 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 GA4 module can be equipped with an analog input/output interface for easy integration into 3rd party systems.

Product features
> Parallel monitoring of exhaust O_2 and CO_2
> 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 (optional)

Technical specifications		
Model	**GA4***	**GA4E**
Power supply	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz
Dimensions (W × D × H)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 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	4	4
Measuring principle	Zirconium Dioxide (ZrO_2)	Galvanic Cell
Measurement range	1 – 50%	0 – 100%
Pressure range	0.8 – 2 bar	0.8 – 2 bar
Exhaust Carbon Dioxide measurement		
Channels	4	4
Measurement range	0 – 25%	0 – 25%
Pressure range	0.8 – 2 bar	0.8 – 2 bar
Mass flow measurement		
Channels	4	4
Measurement range	0 – 300 sL/h	0 – 300 sL/h

* GA4 is not suitable for anaerobic.

Ordering information

Description	Catalog No.
DASGIP® GA4 Exhaust Analyzing Module, incl. accessories for 4 vessels	
O_2 1 – 50%, CO_2 0 – 25%	76DGGA4
O_2 0 – 100%, CO_2 0 – 25% (GA4E)	76DGGA4E
O_2 1 – 50%, CO_2 0 – 25%, incl. rHT and EasyAccess Software	76DMGA4
O_2 0 – 100%, CO_2 0 – 25% (GA4E), incl. rHT and EasyAccess Software	76DMGA4E
DASGIP® GA1 Exhaust Analyzing Module, incl. accessories for 1 vessel	
O_2 1 – 50%, CO_2 0 – 25%, incl. rHT and EasyAccess Software	76DMGA1
DASGIP® GA2 Exhaust Analyzing Module, incl. accessories for 2 vessels	
O_2 1 – 50%, CO_2 0 – 25%, incl. rHT and EasyAccess Software	76DMGA2
DASGIP® Relative Humidity and Temperature Sensors, incl. accessories for DASGIP GA4 Exhaust Analyzing Module for 4 vessels	76DGGA4RHT

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 DR03P, DS1000ODSP)
> 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 wavelengths
> Continuous mode or flash mode with adjustable period and pulse width
> Day/night simulation
> Illumination carried out with DASGIP LED Illumination Devices
> DASGIP PBR4 can be integrated into a DASGIP Control system as well as be operated as a stand-alone device with EasyAccess Software

Technical specifications	
Model	**PBR4**
Power supply	110 – 240 V, 50/60 Hz
Dimensions (W × D × H)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)
Weight	7.8 kg
Typical power consumption	31 W (230 V) / 20 W (115 V)
Illumination	
Bioreactors	Up to 4
LED Sticks per Bioreactor	Up to 4
Individual wavelength channels	A (660 nm, 780 nm) B (572 nm, 625 nm, 640 nm) C (453 nm)

Ordering information

Description	Catalog No.
DASGIP® PhotoBioreactor Illumination Module, for 4 vessels	
w/o LED Illumination Devices	76DGPBR4
w/o LED Illumination Devices, incl. EasyAccess Software	76DMPBR4
DASGIP® PhotoBioreactor LED Illumination Devices, for 1 vessel, 220 mm	
type S (4 sticks w/ 453/572/625/640/660/780 nm)	76DGLED220S
DASGIP® Vessel Type DR03P, pitched blade impeller, dip tube, 700 mL – 2.7 L, overhead drive, photobioreactor	76DR03P
DASGIP® Vessel Type DS1000ODSP, 2x pitched blade impeller, 400 mL – 1.2 L, 2x GL45 side arms, overhead drive, photobioreactor	76DS1000ODSP

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DASGIP® Multi Pump Modules MP8 and MP4

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). When the pump goes below the minimum continuous flow rate it turns into duty cycling mode automatically. Both modules can be operated as stand-alone solutions or be integrated into legacy control systems.

Product features
> High quality 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
> Bidirectional pump heads
> Can be operated as stand-alone solutions with EasyAccess Software

Technical specifications		
Model	**MP8**	**MP4**
Power supply	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz
Dimensions (W × D × H)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 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, framed tube track	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	**Catalog No.**
DASGIP® MP8 Feeding Module, for 8 feeds, w/o feed lines and reservoir bottles	76DGMP8
DASGIP® MP4 Feeding Module, for 4 feeds, w/o feed lines and reservoir bottles	76DGMP4
DASGIP® MP8 Feeding Module, for 8 feeds	
w/o feed lines and reservoir bottles, incl. EasyAccess Software	76DMMP8
DASGIP® MP4 Feeding Module, for 4 feeds	
w/o feed lines and reservoir bottles, incl. EasyAccess Software	76DMMP4
Package to Support MP4/MP8 Calibration, incl. balance	
for 4 vessels	76DGMPAC4
for 8 vessels	76DGMPAC8
DASGIP® Option Gravimetric Dosing, of one feed	
for 4 vessels	76DGBAL4
for 8 vessels	76DGBAL8

DASGIP® MX Modules for Mass Flow-Controlled Gas Mixing

Description
The DASGIP MX4/4 gas mixing system supplies 4 separate culture vessels with an individual mixture of Air, Nitrogen, Oxygen and Carbon Dioxide. Each gas outlet has separate set-points for flow rate, O_2 and CO_2 concentration. The standard MX4/4 model 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 600 sL/h or 1200 sL/h (MX4/1H). An optional pressure sensor allows safe operation of disposable bags and glass bioreactors.

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 (MX4/1H)
> Can be operated as a stand-alone solution with EasyAccess Software

Technical specifications				
Model	**MX4/4**	**MX4/4**	**MX4/1**	**MX4/1**
Power supply	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz
Dimensions (W × D × H)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)
Weight	16 kg	16 kg	10.2 kg	9.8 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)	100 W (230 V) / 90 W (115 V)
Gas Inlet				
Quantity	4	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	Air, O_2, CO_2, N_2
Gas Outlet				
Quantity	4	4	1	1
Flow rates (CO_2)	0.1 - 50 sL/h	0.5 - 250 sL/h	20 - 600 sL/h	40 - 1200 sL/h

Ordering information	
Description	**Catalog No.**
DASGIP® MX4/4 Gas Mixing Module, for 4 vessels, mass flow controller	
0.1 – 50 sL/h, 0.1 – 40 sL/h CO_2	76DGMX44
DASGIP® MX4/4 Gas Mixing Module, for 4 vessels, mass flow controller	
0.5 – 250 sL/h, 0.5 – 150 sL/h CO_2 (MX4/4H)	76DGMX44H
DASGIP® MX4/1 Gas Mixing Module, for 4 vessels (4x MX4/1), mass flow controller	
20 – 600 sL/h	76DGMX41
40 – 1200 sL/h (MX4/1H)	76DGMX41H
DASGIP® MX4/4 Gas Mixing Module, for 4 vessels, mass flow controller	
0 – 50 sL/h, 0.1 – 40 sL/h CO_2, incl. 2x 30 m gas tube and EasyAccess Software	76DMMX44
0 – 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 Gas Mixing Module, for 1 vessel, mass flow controller	
20 – 600 sL/h, incl. 2x 30 m gas tube and EasyAccess Software	76DMMX41
40 – 1200 sL/h (MX4/1H), incl. 2x 30 m gas tube and EasyAccess Software	76DMMX41H

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DASGIP® Rotameters and Gassing Modules

DASGIP® WRM Rotameter Gassing Station

> Designed to be mounted to the DASGIP Bioblock
> Supplying 4 channel rotameter gassing
> Up to 75 sL/h or up to 260 sL/h gas flow rates

Ordering information	
Description	**Catalog No.**
DASGIP® Gassing System, for 4 vessels, rotameter and manual valves	
1x WRM, 0 – 75 sL/h	76DGWRM
1x WRMH, 4 – 260 sL/h	76DGWRMH
DASGIP® Accessories, for rotameter gassing systems WRM	76DGWRMUM
for 1 WRM	76DGWRMRX4
DASGIP® Stand for Rotameter, for 2x rotameter gassing station	76DGWRMRX8

DASGIP® MF4 for TMFC Gas Supply

> Gassing with 4 separate thermal mass flow-controlled (TMFC) channels
> Selectable gas types, including Air, N_2, O_2, CO_2, Methane and Carbon Monoxide
> Individual set-points for each inlet gas
> Constant flow rates up to 1200 sL/h

Ordering information	
Description	**Catalog No.**
DASGIP® Gassing Module, for 4 vessels, mass flow controller	
1 – 30 sL/h	76DGMF4F030
4 – 120 sL/h	76DGMF4F120
10 – 300 sL/h	76DGMF4F300
20 – 600 sL/h	76DGMF4F600
max. 1200 sL/h	76DGMF4F1200

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NEW

DASGIP® EGC for Exhaust Condensation

Description
The new Eppendorf DASGIP EGC4 Module in combination with our Peltier Exhaust Condensers provides liquid-free exhaust condensation for up to 4 vessels. Proven effective for the DASbox Mini Bioreactor and for the mini scale BioBLU 0.3 Single-use Vessels, this innovative technology can now be utilized with the larger vessels of the Eppendorf BioBLU family, BioBLU 1c, 5c and 5p and 14c. 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 4 exhaust condensers can be connected
> Suitable for single-use vessels BioBLU 1c, 5c and 5p, 14c
> DASGIP EGC1 available for use with one bioreactor

Technical specifications	
Model	**EGC4**
Power supply	110 – 240 V, 50/60 Hz
Dimensions (W × D × H)	135 × 190 × 106 mm (5.3 x 7.5 x 4.2 in)
Weight	0.7 kg
Typical power consumption	51 W (230 V) / 47 W (115 V)
Exhaust condensation	
Bioreactors	Up to 4

Ordering information	
Description	**Catalog No.**
DASGIP® EGC4 Exhaust Condenser Controller, incl. accessories, for 4 Peltier actuators	76DGEGC4
DASGIP® EGC1 Exhaust Condenser Controller, incl. accessories, for 1 Peltier actuator	76DGEGC1
DASGIP® Exhaust Condenser, Peltier	
for 1 single-use vessel (BioBLU 1c)	76DGCONDSU1C
for 1 single-use vessel (BioBLU 1f)	76DGCONDSU1F
for 1 single-use vessel (BioBLU 5c, 5p or 14c)	76DGCONDSU5C
DASbox® Exhaust Condenser, Peltier	
for 1 vessel	76DXCOND
for 1 single-use vessel	76DXCONDSU

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DASGIP® TC4SC4 for Temperature and Agitation Control

Description
DASGIP TC4SC4 Modules for Temperature and Agitation Control provide individual stirring speed and temperature control for 4 bioreactors. Different versions support magnetic stirrer plates (TC4SC4C) or overhead drives (TC4SC4D). Depending on the drive stirring speeds ranging from 2 to 1600 rpm can be achieved. For temperature control the TC4SC4 supplies 4 electrical outlets for heating blankets as well as 4 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 1600 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 2 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	**TC4SC4B**	**TC4SC4C**	**TC4SC4D**
Power supply	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz	110 – 240 V, 50/60 Hz
Dimensions (W × D × H)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)	300 × 320 × 190 mm (11.8 x 15.6 x 7.5 in)
Weight	9 kg	8.6 kg	9.5 kg
Typical power consumption (incl. heating blankets/Bioblock and stirring device)	309 W / 298 W (230 V) / 323 W / 297 W (115 V) (depending on drive)	94 W (230 V) / 42 W (115 V)	24 W/18 W (230 V) / 21 W/14 W (115 V) (depending on drive)
Temperature Control			
Set-up	DASGIP Bioblock	Heating blankets / cooling fingers	Heating blankets / cooling fingers
Typical control range (depending on set-up)	5 °C above cooling agent temperature – 99 °C	5 °C above cooling agent temperature – 60 °C	5 °C above cooling agent temperature – 60 °C
Agitation control			
Set-up	Overhead drives	Stirrer plates	Overhead drives
Typical speed range (depending on drive)	30 – 1250 rpm / 100 – 1600 rpm	2 – 250 rpm	30 – 1250 rpm / 100 – 1600 rpm

Ordering information

Description	Catalog No.
DASGIP® TC4SC4 Temperature and Agitation Control Module, for 4 vessels, w/o sensors	
for Bioblock (TC4SC4B)	76DGTC4SC4B
for stirring plates (TC4SC4C)	76DGTC4SC4C
for overhead drives (TC4SC4D)	76DGTC4SC4D
for overhead drives (TC4SC4D), incl. EasyAccess Software	76DMTC4SC4D
DASGIP® Bioblock, for 4 vessels (4-position heating/cooling block, max. temp. 99°C)	76DGTBLOCK
DASGIP® Magnetic Stirrer Plate bioMIXdrive, for 1 vessel	76DGMSP
DASGIP® Overhead Drive RE30, 30 - 1250 rpm, digitally encoded	
for 1 vessel	76DGRE30
for 1 single-use vessel	76DGRE30SU
DASGIP® Overhead Drive RE40, for 1 vessel	
100 - 1600 rpm, digitally encoded	76DGRE40

MODULES FOR MONITORING & CONTROL

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Eppendorf North America: 800-645-3050
Email: info@eppendorf.com · www.eppendorfna.com

Eppendorf Canada: 800-263-8715
Email: canada@eppendorf.com · www.eppendorf.ca

DASGIP® Bioblock

The DASGIP Bioblock, as part of the DASGIP Parallel Bioreactor Systems, is well suited for the use in animal and human cell culture.

The DASGIP Bioblock: A compact solution for accurate temperature control in cell culture and microbial applications.

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).

Applications
> Performing active cooling in microbial applications, e.g. high cell density fermentations
> Special applications in biocatalysis or biofuel development (up to 99 °C)
> Active cooling and individual temperature profiles in cell culture for best possible protection of cells and products

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 DASGIP vessels for cell culture and microbiology
> Vessels can be directly inserted into the Bioblock without any additional connections

Technical specifications	
Model	**DASGIP® Bioblock**
Power supply	110 – 240 V, 50/60 Hz
Dimensions (W × D × H)	425 × 520 × 130 mm
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 (microbiology) / 200 mL - 2.0 L (cell culture)
Temperature control range	5 °C above cooling agent temperature – 99 °C

Ordering information	
Description	**Catalog No.**
DASGIP® Bioblock, for 4 vessels (4-position heating/cooling block, max. temp. 99°C)	76DGTBLOCK
DASGIP® Cooling Water Distribution Unit , incl. connection cable	
for 4 condenser ports	76DGCWD4
for 4 condenser-/ and 4 cooling finger ports	76DGCWD44
DASGIP® Inline Water Filter, incl. accessories	76DGIWF

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Accessories

Sensors, exhaust condensers, chillers and more

Sensors for DASGIP® Products

DO Sensors

> Accurate monitoring of dissolved Oxygen
> Used with the DASGIP PHPO monitoring module series and the DASbox Mini Bioreactor System, respectively
> Standard clark electrodes as well as optical sensors
> Various sensor lengths available

Ordering information

Description	Catalog No.
DO Sensor, MTI [1], autoclavable, D 12 mm	
L 120 mm	78108018
L 220 mm	78108026
L 320 mm	78108022
L 420 mm	78108036
DO Sensor, VisiFerm [2], autoclavable, optical sensor, D 12 mm	
L 120 mm	78108031
L 225 mm	78108032
L 325 mm	78108033
L 425 mm	78108038
DO Sensor, HMC [3], autoclavable, D 12 mm	
L 120 mm	78108023
L 225 mm	78108039
L 325 mm	78108040
L 425 mm	78108041
DO Sensor, DASGIP, D 4.7 mm	
L 162 mm	78108046
L 278 mm	78108051
DASGIP DO Cable, L 3 m	
with plug type VP8 for VisiFerm	78522042
with plug type T82	78522040
with AK9 plug	78522038

[1] Mettler-Toledo [2] Hamilton VisiFerm [3] Hamilton OxyFerm

pH Sensors

> Electrodes for accurate monitoring of pH
> Used with the DASGIP PHPO monitoring module series
> Various sensor lengths available

Ordering information

Description	Catalog No.
pH Sensor, MTI [1], autoclavable, D 12 mm	
L 120 mm	78103207
L 225 mm	78103220
L 325 mm	78103209
L 425 mm	78103227
pH Sensor, HMC [2], autoclavable, D 12 mm	
L 120 mm	78103205
L 225 mm	78103230
L 325 mm	78103231
L 425 mm	78103232
DASGIP® pH/Redox Cable, L 3 m, with AK9 plug	78522020

[1] Mettler-Toledo [2] Hamilton EasyFerm

Redox Sensors

> Accurate monitoring of ORP (redox potential)
> Used with the monitoring modules DASGIP PH4RD4 and PH4PO4RD4
> Various sensor lengths available

Ordering information

Description	Catalog No.
Redox Sensor, MTI [1], autoclavable, D 12 mm	
L 120 mm	78103224
L 225 mm	78103225
L 325 mm	78103226
DASGIP® pH/Redox Cable, L 3 m, with AK9 plug	78522020

[1] Mettler-Toledo

Sensors for DASGIP® Products

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	Catalog No.
DASGIP® Level Sensor , OD 4 mm	
L 275 mm, Li 235 mm	78103113
L 205 mm, Li 165 mm	78103117
DASGIP® Level Sensor Cable, L 3 m	78522031

OD Sensors

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

Ordering information

Description	Catalog No.
DASGIP® OD Sensor, autoclavable, D 12 mm, S 5 mm	
L 120 mm	78103411
L 225 mm	78103408
L 325 mm	78103414
DASGIP® OD Sensor, autoclavable, D 12 mm, S 10 mm	
L 120 mm	78103412
L 225 mm	78103409
L 325 mm	78103415
DASGIP® OD Sensor, autoclavable, D 12 mm, S 20 mm	
L 120 mm	78103413
L 225 mm	78103410
L 325 mm	78103416
DASGIP® OD Sensor Cable	
L 3 m	78522037
L 5 m	78522054

Temperature Sensors

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

Ordering information

Description	Catalog No.
Platinum RTD Temperature Sensor, 100 Ohm class A	
OD 1.6 mm, L 400 mm, cable L 3 m	78103307
OD 1.6 mm, L 300 mm, cable L 3 m	78103304
OD 1.6 mm, L 300 mm, cable L 1.3 m	78103308
OD 1.6 mm, L 150 mm, cable L 1.8 m	78103314
OD 4.5 mm, L 230 mm, cable L 3 m	78103318
OD 6 mm, L 200 mm, cable L 3 m	78103311

Redox Sensors for New Brunswick™ Products

Locate vessel on the left column of appropriate chart. Locate Ref. number to the right of the vessel name. This corresponds to appropriate sensor in the table that follows.

Model	Mettler Toledo® Ingold			Hamilton®		
Catalog No.	**P0720-5780**	**P0720-5781**	**P0720-5782**	**P0720-6532**	**P0720-6531**	**P0720-6530**
Immersion depth	120 mm	200 mm	325 mm	325 mm	425 mm	625 mm
Vessel connector	PG 13.5	PG 13.5	PG 13.5	PG 13.5	PG 13.5	PG 13.5
Cable end	K8	K8	K8	K8	K8	K8
Type	Gel	Gel	Gel	Gel	Gel	Gel
BioFlo® 110/115, 1.3 L/3 L		1				
BioFlo® 110/115 7.5 L			1	1		
BioFlo® 110/115, 14.0 L					1	
BioFlo® 310 2.5 L		2		2		
BioFlo® 310 5.0 L/7.5 L			2	2		
BioFlo® 310 14.0 L			2	2		
BioFlo® 410/415 7.0 L			2	2		
BioFlo® 410/415 14.0 L					2	
BioFlo® 410/415 19.5 L						2
BioFlo® 510 all vessels	3, 7 & 9					
BioFlo® 610 all vessels	3, 7 & 9					
BioFlo® Pro all vessels	4 & 6		4, 5 & 8	4, 5 & 8		

Ordering information

Description	Ref.	Catalog No.
Redox cable, for BioFlo®/CelliGen® 110/115	1	P0720-2763
Redox cable, for BioFlo® 310, 410 and 415	2	P0720-2275
Redox cable, for BioFlo® 510	3	P0720-2277
pH/Redox cable, for BioFlo® and CelliGen® Pro	4	M1290-0610
pH/Redox cable ground wire extension, for retractable probe housings (325 mm)	5	M1290-8012

Ordering information

Description	Ref.	Catalog No.
12 mm probe housing, 25 mm Ingold port, with material certificate, BioFlo®/CelliGen® pro only	6	P0720-6450C1
Probe housing, 25 mm Ingold port, with material certificate	7	P0720-6240C3
InTrac® 797 stainless steel retractable probe housing, 25 mm Ingold port, 325 mm probe length, with material certificate	9	P0720-5570C
510 Port Adapter, converts 1.5" sanitary to 25 mm Ingold port	8	M1361-9208

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Ordering information

Description	Catalog No.
Redox transmitter, required with BioFlo® 115 Redox probes	
panel mount	P0620-5974
Redox transmitter, required with BioFlo® 115 Redox probes	
wall mount	P0620-5975

Ordering information

Description	Catalog No.
Turbidity sensor, autoclavable	
12 mm / 297 mm Length InPro® 8100 (Cable not included)	P0720-5950
12 mm / 120 mm Length InPro® 8100 (Cable not included)	P0720-5951
Turbidity sensor, SIP	
SIP 12 mm / 120 mm Length InPro® 8200 with Cable	P0720-5961
SIP 12 mm / 205 mm Length InPro® 8200 with Cable	P0720-5962
SIP 12 mm / 297 mm Length InPro® 8200 with Cable	P0720-5963
SIP 12 mm / 407 mm Length InPro® 8200 with Cable	P0720-5960
5M Turbidity Cable	P0720-2430
Turbidity transmitter, TRB 8300	P0620-5551

Ordering information

Description	Catalog No.
CO_2 sensor, VP connector	
12 mm/120 mm length	P0720-6480
12 mm/220 mm length	P0720-6481
12 mm/320 mm length	P0720-6482
CO_2 Accessories	
CO_2 Cable	P0720-9660
M400 CO_2 Transmitter	M1287-3200

ACCESSORIES

pH Sensors for New Brunswick™ Products

Model	Mettler Toledo® Ingold				Hamilton®	
Catalog No.	**P0720-5581**	**P0720-5582**	**P0720-5584**	**P0720-5580**	**P0720-5583**	**P0720-6540**
Immersion depth	120 mm	200 mm	225 mm	325 mm	425 mm	625 mm
Type	Gel	Gel	Gel	Gel	Gel	Gel
Vessel connector	25 mm	PG 13.5	PG 13.5	PG 13.5	PG 13.5	PG 13.5
Cable end	K9	K9	K9	K9	K9	K9
BioFlo®/CelliGen® 510, all vessels	4, 8 & 10					
BioFlo®/CelliGen® Pro, all vessels	5 & 7			5, 6 & 9		
BioFlo® 110 1.3 L		2				
BioFlo® 110 14.0 L					2	
BioFlo® 110 3.0 L			2			
BioFlo® 110 7.5 L				2		
BioFlo® 115 1.3 L		4				
BioFlo® 115 14.0 L					4	
BioFlo® 115 3.0 L			4			
BioFlo® 115 7.5 L				4		
BioFlo® 310 14.0 L				3		
BioFlo® 310 2.5 L		3				
BioFlo® 310 5.0 L/7.5 L			3			
BioFlo® 410/415 14.0 L					3	
BioFlo® 410/415 19.5 L						3
BioFlo® 410/415 7.0 L				3		
BioFlo® 4500 all vessels	2 & 8			2 & 9		
BioFlo® 5000 all vessels	1 & 8			1 & 9		
BioFlo® 610 all vessels	4, 8 & 10					
CelliGen® 310 14.0 L				3		
CelliGen® 310 2.5 L		3				
CelliGen® 310 5.0 L/7.5 L			3			
CelliGen® 310 Basket 14.0 L			3			
CelliGen® 310 Basket 2.5 L/5.0 L/7.5 L		3				

Ordering information

Description	Ref.	Catalog No.
AK9 cable, for BioFlo 5000	1	P0720-2093
AK9 cable, pH sensor cable, BioFlo® 110, 4500, CelliGen® Plus, 3 ft	2	P0720-2095
pH cable, for BioFlo® 310, 410, 415 and CelliGen® 310	3	P0720-2273
pH cable, For BioFlo®115, 510 and CelliGen® 115, 510	4	P0720-2276
pH/Redox cable, for BioFlo® and CelliGen® Pro	5	M1290-0610
pH/Redox cable ground wire extension, for retractable probe housings (325 mm)	6	M1290-8012

Ordering information

Description	Ref.	Catalog No.
12 mm probe housing, 25 mm Ingold port, with material certificate, BioFlo/CelliGen pro only	6	P0720-6450C1
Probe housing, 25 mm Ingold port, with material certificate	7	P0720-6240C3
InTrac® 797 stainless steel retractable probe housing, 25 mm Ingold port, 325 mm probe length, with material certificate	9	P0720-5570C
510 Port Adapter, converts 1.5“ sanitary to 25 mm Ingold port	8	M1361-9208

ACCESSORIES

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DO Sensors for New Brunswick™ Products

Model	Mettler Toledo® Ingold (InPro 6800)							Hamilton®
Catalog No.	P0720-6270	P0720-6280	P0720-6281	P0720-6580	P0720-6282	P0720-6283	P0720-6284	P0720-6520
Immersion depth	80 mm	120 mm	160 mm	80 mm	220 mm	320 mm	420 mm	625 mm
Vessel connector	25 mm	PG 13.5	PG 13.5	PG 13.5	PG 13.5	PG 13.5	PG 13.5	PG 13.5
Cable end	T82	T82	VP	T82	T82	T82	T82	T82
BioFlo®/CelliGen® 510, all vessels		6, 8 & 10						
BioFlo®/CelliGen® Pro, all vessels		4 & 7				4 & 9		
BioFlo® 110 1.3 L			3					
BioFlo® 110 14.0 L							1	
BioFlo® 110 3.0 L					1			
BioFlo® 110 7.5 L						1		
BioFlo® 115 1.3 L				6				
BioFlo® 115 14.0 L							6	
BioFlo® 115 3.0 L					6			
BioFlo® 115 7.5 L						6		
BioFlo® 310 2.5 L/5.0 L					5			
BioFlo® 310 7.5 L/14.0 L						5		
BioFlo® 410/415 14.0 L							5	
BioFlo® 410/415 19.5 L								5
BioFlo® 410/415 7.0 L						5		
BioFlo® 4500 all vessels	1 & 8	1 & 8				1 & 9		
BioFlo® 5000 all vessels	2 & 8	2 & 8				2 & 9		
BioFlo® 610 all vessels		6, 8 & 10						
CelliGen® 310 (Basket only) 14.0 L					5			
CelliGen® 310 (Basket only) 2.2 L		5						
CelliGen® 310 (Basket only) 5.0 L		5						
CelliGen® 310 (Basket only) 7.5 L					5			
CelliGen® 310 2.5 L/5.0 L					5			
CelliGen® 310 7.5 L/14.0 L						5		

Ordering information

Description	Catalog No.
Optical DO Sensors, Mettler Toledo® InPRO 6860i	
120 mm	P0720-6651
220 mm	P0720-6660
320 mm	P0720-6661
420 mm	P0720-6662
Accessories	
Optocap BT O2T (replacement)	P0720-6621
i-Link Cable (sensor to PC connection)	P0720-9663
Power adaptor (VP to T-82 connector)	P0720-9771

Ordering information

Description	Ref.	Catalog No.
DO cable, BioFlo® 4500, 110 (except 1.3 L) and CelliGen Plus	1	P0720-2331
DO cable, BioFlo® 5000	2	M1131-8009
DO cable, BioFlo® 110 (1.3 L)	3	P0720-2332
DO cable, BioFlo® and CelliGen® Pro	4	P0720-2342
DO cable, BioFlo® 310, 410, 415 and CelliGen® 310	5	P0720-2333
DO Sensor cable, For BioFlo® and CelliGen® 115 and 510	6	P0720-2336
12 mm probe housing, 25 mm Ingold port, with material certificate, BioFlo/CelliGen pro only	7	P0720-6450C1
Probe housing, 25 mm Ingold port, with material certificate	8	P0720-6240C3
InTrac® 797 stainless steel retractable probe housing, 25 mm Ingold port, 325 mm probe length, with material certificate	9	P0720-5570C
510 Port Adapter, converts 1.5" sanitary to 25 mm Ingold port	10	M1361-9208
DO probe adapter, PG13.5 thread adapter for 3/8" NPT port	11	M1016-0900
DO probe adapter, PG13.5 thread adapter for 3/8" NPT port, 92.07 mm	12	M1226-9446
DO probe adapter, DO port length extender (same threads), 42.86 mm	13	M1176-9540
DO probe adapter, DO port length extender (same threads)		
76.99 mm		M1176-9575
82.55 mm		M1176-9579

Ordering information

Description	Catalog No.
Gasket for probe adapters M1016-0900 & M1226-9446	M1016-0890
DO cable, for Mettler Model 4500	
3 m	P0720-2560
5 m	P0720-2561
DO probe cap	P0720-5567
DO Membrane Kit for Inpro 6000	
includes 4 membranes, O-rings, & 25 mL electrolyte	P0720-6268
includes 1 membrane, O-rings, & 25 mL electrolyte	P0720-6339
pH & DO simulator/calibrator, for checking integrity of pH & DO electronics & cables	P0720-5631

ACCESSORIES

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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 new DASGIP EGC4 module now makes this technology available for use with our larger BioBLU Single-use Vessels.

Applications
> Cell culture and fermentation in mini scale using the Eppendorf DASbox
> Small and bench scale applications with BioBLU 1, 5 and 14 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 1c, 5c and 5p, 14c

Ordering information

Description	Catalog No.
DASbox® Exhaust Condenser, Peltier	
for 1 vessel	76DXCOND
for 1 single-use vessel	76DXCONDSU
DASGIP® Peltier Exhaust Condenser, Peltier	
for 1 single-use vessel (BioBLU 1c)	76DGCONDSU1C
for 1 single-use vessel (BioBLU 1f)	76DGCONDSU1F
for 1 single-use vessel (BioBLU 5c, 5p or 14c)	76DGCONDSU5C
Exhaust Condenser Adaptor, incl. insulation	
for BioBLU 1 and 5 Single-use Vessels	78201317

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Bioprocess Accessories

Chiller

> Specially designed for use with most Eppendorf benchtop fermentors and bioreactors
> 1400 Watt heat removal capacity for the 120 V/50/60 Hz unit, at 20 °C
> Positive-displacement pump, 7.2 liter reservoir, digital controller display, level indicator, integrated funnel and air filter

Ordering information

Description	Catalog No.
Recirculating Chiller	
120 V/50/60 Hz	P0620-2796

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

Ordering information

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

Bioprocess Accessories

Interface kit for RS-232 device

> The RS-232 Device Interface Kit provides the ability to integrate up to eight (8) 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, an eight-port RS-232 serial box, and OPC server software designed specifically to communicate with BioCommand
> This kit is designed to communicate with Mettler scales which use SICS level 0 communication protocol

Ordering information

Description	Catalog No.
Interface Kit for RS-232 Device	
RS-232 OPC Server Kit	M1295-0002

EX-2000 Off-Gas Oxygen/Carbon Dioxide Monitor

> The EX-2000 gas analyzer provides continuous and unattended monitoring of exhaust CO_2 and O_2 gasses in benchtop fermentors and bioreactors
> Infrared (IR) sensor determines CO_2 concentration. Electro mechanical sensor monitors O_2 concentration
> Factory calibrated
> Provides 4 - 20 mA output

Ordering information

Description	Catalog No.
EX-2000 Off-Gas Oxygen/Carbon Dioxide Monitor	
100 – 240 V/50/60 Hz	M1276-0000
EX-2000 Off-Gas Oxygen/Carbon Dioxide Monitor, Accessory	
Stand for bench mounting	M1276-5000

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Bench-top Scales

> 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 New Brunswick™ RPC controllers (Requires RS-232 to USB converter - M1287-0020)
> Offered in 6, 15, and 30 kg capacities

Ordering information

Description	Catalog No.
Bench-top Scales	
6 kg	M1425-1001
15 kg	M1425-1002
35 kg	M1425-1003
RS-232 8-Port interface box, converts up to eight RS-232 COM ports into USB, e.g. required when connecting scales	M1287-0020
Replacement RS-232 Cable (included with scale)	P0440-4230

NC-200 Cell Counter & Cell Viability

> The NC-200 is an automated cell counter that also reads viability for Eukaryotic cells, including mammalian and insect cells
> Measuring cell viability and cell count has never been easier or more precise. The NC-200 is a giant step forward for automated cell counting by taking a reading without the need for costly buffers or dyes.
> It is also calibration free! Prepare your suspension sample, load into the Via-1 Cassette™, press run and get a reading in less than 50 seconds
> Minimum sample size of only 200 µL
> The displayed results include Total cell count, Cell Viability, Cell Diameter and percentage of cells in clumps
> Flexible software package allows for easy storage of standard protocols and data readings
> 21CFR part 11 ready

Ordering information

Description	Catalog No.
NucleoCounter® NC-200™ (Tablet or PC not included)	M1293-0001
Cleaning Kit	P0820-5210
Via-1Cassette™ 1 box (100 cassettes per box)	P0820-5220
Via-1Cassette™ 10 boxes	P0820-5221
Solution 10 - Lysis Buffer, 100 mL	P0820-5230
IQ/OQ Kit	P0820-5250
Replacement RS-232 Cable (included with scale)	P0440-4230
NucleoCounter® NC-100™	M1293-0000
NucleoCassette™ 1 box (100 cassettes per box)	M1293-0100

Accessories for New Brunswick™ Systems

Ordering information	
Description	**Catalog No.**
120U pump, 0-200 rpm Variable speed pump may be remotely controlled using most New Brunswick benchtop bioprocess controllers	
Flying leads (for 310, 415, 510 and 610)	M1287-9959
Lumberg (for 510 Allen-Bradley)	M1287-9978
323U pump, 3-400 rpm variable speed pump with front panel auto/manual control. Accepts 4-20 mA signals for automatic start/stop operation and reversible pumping by remote control	
Turk (for CelliGen®/BioFlo® Pro)	M1364-9956
Lumberg (for 510 Allen-Bradley)	M1364-9957
Flying leads (for 510 and 610)	M1364-9958
520U/N pump, Flow rates up to 3.5 L/min. Large capacity 0.1-220 rpm variable speed pump with front panel auto/manual control. Accepts external signals up to 60 V or 32 mA for automatic start/stop operation and reversible pumping by remote control. NEMA-4X (IP66) rated.	M1364-9950

Ordering information	
Description	**Catalog No.**
Replacement tubing	
I.D. 2.0 mm, O.D. 6.4 mm, length 15.2 m	M0740-3110
I.D. 6.4 mm, O.D. 9.8 mm, length 7.6 m	M0740-2542
I.D. 3.2 mm, O.D. 6.4 mm, length 7.6 m	M0740-2445
I.D. 4.8 mm, O.D. 8.0 mm, length 7.6 m	M0740-2505
I.D. 8.0 mm, O.D. 11.1 mm, length 15.2 m	M0740-2590
I.D. 2.4 mm, O.D. 6.4 mm, length 15.2 m	M0740-2430
I.D. 1.6 mm, O.D. 4.8 mm, length 15.2 m	M0740-2396
I.D. 9.5 mm, O.D. 16.6 mm, length 7.6 m	M0740-2721C3
Replacement Polyurethane Tubing	
I.D. 3.2 mm, O.D. 6.4 mm, length 15.2 m	M0740-3111C3
I.D. 3.2 mm, O.D. 6.4 mm, length 7.6 m	M0740-3113C3

I.D. = Inner Diameter, O.D. = Outer Diameter.

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Ordering information	
Description	**Catalog No.**
Resterilizable Quick Connect, for SIP units	
19 mm	M1153-9633
25 mm	M1153-9639
Luer-lock Syringe Connector, Luer-lock Syringe Connector	P0240-5000
Hypodermic Needle	
107.95 mm long, 3.26 mm diameter, 12 needles	P0440-0061A
Autoclavable sample vials, Case of 72	
25 mL Autoclavable Sample Vials with caps	M1227-9935
Autoclavable sample vials, case of 72	
40 mL Autoclavable Sample Vials with caps	P0640-0500
Addition Vessels, includes stainless-steel vessel with dip tube, stainless-steel process valve, silicone tubing and 0.2 µm vent filter	
4 L Addition Vessel Kit	M1290-0550
7.5 L Addition Vessel Kit	M1290-0551
11 L Addition Vessel Kit	M1290-0552
19 L Addition Vessel Kit	M1290-0553
Addition/Harvest bottle kit for aerobic cell culture, includes a clear Pyrex glass bottle with aseptic reservoir cap including a full length stainless-steel dip tube and 0.2 µm vent filter, for aerobic cell culture	
0.25 L	M1362-9905
0.5 L	M1362-9906
1 L	M1362-9901
2 L	M1362-9902
5 L	M1362-9903
10 L	M1362-9904
Addition/Harvest bottle kit for anaerobic cell culture, includes a clear Pyrex glass bottle with aseptic reservoir cap including (2) full length stainless steel dip tubes and (2) 0.2 µm vent filters, for anaerobic processes	
0.25 L	M1362-9913
0.5 L	M1362-9914
1 L	M1362-9915
2 L	M1362-9916
5 L	M1362-9917
10 L	M1362-9918

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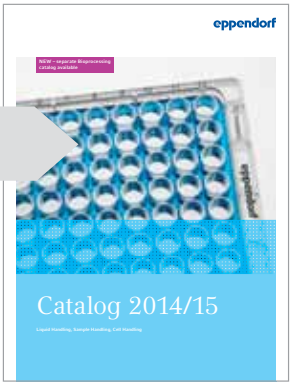

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