

Eppendorf Eporator®

Description

The Eppendorf Eporator is a compact instrument designed for fast and controlled electroporation of bacteria, yeasts and other microorganisms. The instrument features an intuitive operation and user-friendly programming of standard methods. Experimental data can easily be exported and documented using its USB port.



Product features

- > Faster sample handling – simple one-button operation
- > Maximum safety via integrated cuvette holder
- > Compact, space-saving design
- > Self-explanatory operation guided by display indicators
- > Fast, freely programmable softkeys for saving and accessing the 2 most frequently used parameter settings
- > USB interface for data transfer and GLP supporting documentation

Applications

- > Transformation of bacteria, yeast or microorganisms with an optimal transformation efficiency of approx. 5 ms time constant
- > Mainly for delivery of plasmid DNA, but also RNA, proteins and other small molecules

Technical specifications

Model	Eporator
Interfaces	USB 2.0
Dimensions (W x D x H)	19 x 27.5 x 12.5 cm
Weight w/o accessories	3.2 kg
Capacitor	10 µF
Pulse form	Exponentially decreasing
Pulse voltage	200 – 2500 V
Resistance	600 Ohm
Special features	Electronic protective circuit to prevent arcs
Time constant	Nominal 5 ms

Ordering information

Description	Order no.
Eppendorf Eporator®, for bacteria and yeasts, 230 V/50 – 60 Hz	4309 000.019
Eppendorf Cuvette Rack, 30 positions, for glass and plastic cuvettes, 2 pcs. polypropylene, numbered positions, autoclavable	0030 119.851

✂ Ordering information for other voltage options begins on page 418



On page 394 you will find detailed information on services for these products!

Eppendorf TransferMan® 4r

Description

The user-friendly TransferMan 4r possesses an ergonomic and innovative design to meet the most demanding micromanipulation requirements. Smart functions, such as improved automated home function and position storage, enable simple and fast execution of even the most complex micromanipulation techniques. The DualSpeed™ joystick allows for precise and intuitive movement in all three dimensions, and dynamic movement for covering longer distances. It is ideal for manipulation of oocytes and early embryos, transfer of stem cells and microparticles, and a wide range of applications in non human reproductive biology. Application-specific user profiles simplify the individual workflow process with four pre-defined application masks to choose from (e.g., for cell transfer, DNA injection, etc). The freely programmable "My app" mask can be optimized according to individual needs. The TransferMan 4r is for research use only.



Applications

- > Micromanipulation of oocytes and early embryos
- > ES and iPS cell transfer
- > Nuclear transfer
- > Pronuclear and cytoplasmic injection (e.g., CRISPR/Cas, TALEN)
- > Selection of individual cells (e.g., biopsies, single cell picking)
- > Positioning and selection of microparticles
- > Microdissection of chromosomes, etc.
- > Microinjection into 3D organoids

Product features

- > Unique DualSpeed™ joystick for precise and instantaneous movement control
- > Maximum stability ensures vibration-free work
- > One Joystick for all 3 axes (X, Y, Z) movements and in axial direction (X/Z)
- > Angle adjustment from 0° to 90°
- > One-hand operation for capillary and angle settings
- > Programmable Z-axis limit for preventing capillary breakage
- > Connection with Eppendorf PiezoXpert® and electronic microinjectors FemtoJet® 4i/4x
- > Can be adapted to all conventional microscopes
- > PC interface for remote control



Ordering information

Description	Order no.
Eppendorf TransferMan® 4r, micromanipulator with DualSpeed™ joystick for direct and dynamic movement control, 100 – 240 V/50 – 60 Hz	5193 000.012

✂ Ordering information for other voltage options begins on page 418

Eppendorf InjectMan® 4

Description

The InjectMan 4 is ideal for microinjection into adherent cells, smaller organisms and embryos in the early stages of development. In combination with the FemtoJet 4i or 4x, it enables fast semi-automatic injection. Furthermore, the InjectMan 4 is the ideal micromanipulator for all complex applications that require a dynamic movement mode and direct control of the injection process via the joystick button. The axial injection movement (X/Z direction) helps to minimize mechanical stress to the adherent cells upon injection. The high penetration speed makes injection into rigid structures easier than ever. The new user interface with four pre-defined application masks facilitates the individual workflow process (e.g., for adherent cell injection, serial microinjection into fish larvae, etc.). The freely programmable "My app" mask can be optimized for individual needs. Due to its exceptional precision and position stability, the InjectMan 4 is highly suited for applications such as patch clamp. The motor modules can be uncoupled electronically to prevent accidental movement of the micropipette. The InjectMan 4 is for research use only.



Applications

- > Semi-automatic microinjection into adherent cells
- > Serial microinjection into fish larvae, frog eggs, insect embryos, etc.
- > Injection into living plant cells, *C. elegans* and other roundworms and flatworms
- > Automatic dispensing of cell suspensions or solutions
- > Stable, drift-free positioning, e.g. for electrophysiology techniques

Product features

- > Maximum stability ensures drift-free work
- > Electronic coupling to FemtoJet microinjectors for fast serial semi-automatic injections with highest reproducibility
- > Selection and programming of advanced functions (e.g. axial movement, step injection)
- > Ergonomically shaped control panel for fatigue-free work
- > Easy and precise angle adjustment
- > Connection with Eppendorf PiezoXpert for piezo-assisted penetration over a pre-defined distance
- > Can be adapted to all conventional microscopes
- > PC interface for remote control

Ordering information

Description	Order no.
Eppendorf InjectMan® 4, micromanipulator with dynamic movement control, 100 – 240 V/50 – 60 Hz	5192 000.019

✎ Ordering information for other voltage options begins on page 418



www.eppendorf.com/injectman4-360

For more information go to www.eppendorf.com

Technical specifications		
Model	InjectMan 4	TransferMan 4r
Motor module set		
Max. traveling distance	≥20 mm in X, Y, Z and X/Z direction	≥20 mm in X, Y, Z and X/Z direction
Weight (complete)	2.15 kg	2.15 kg
Stepper motor	X-, Y-, Z-module	X-, Y-, Z-module
Single module (X, Y, Z)		
Step size	<20 nm (computational resolution)	<20 nm (computational resolution)
Speed	0 – 10.000 µm/s	0 – 10.000 µm/s
Mechanical adjustability	>80 mm	>80 mm
Dimensions	129 x 51 x 36 mm	129 x 51 x 36 mm
Weight	570 g	570 g
Swivel joint		
Direction of rotation	-45° to +90°	-45° to +90°
Capillary exchange	Direction of rotation: forward	Direction of rotation: forward
Sample replacement	Direction of rotation: backward	Direction of rotation: backward
Angle head		
Operating angle	0° – 90°	0° – 90°
Control board		
Control	Joystick (dynamic kinetics)	Joystick (proportional and dynamic kinetics)
Speed modes	coarse, fine, x-fine	coarse, fine, x-fine
External Device/PC	Serial interface SUBD9, male	Serial interface SUBD9, male
Dimensions (W x H x D)	205 x 288 x 152 mm	205 x 288 x 152 mm
Weight	1.8 kg	1.8 kg

Accessories

	Order no.
Positioning aid , pack of 2, for mounting and re-positioning universal capillary holder and the capillary holder 4 on TransferMan® 4r and InjectMan® 4	5192 072.001
Spare parts kit	5192 071.005
Headstage holder	5192 073.008
Foot control for triggering injection with FemtoJet® 4i and FemtoJet® 4x	5252 070.020
Connection cable , for connecting TransferMan® 4r/InjectMan® 4 to FemtoJet® 4i/4x	5192 082.007
Connection cable , for connecting Eppendorf micromanipulators with FemtoJet® and FemtoJet® express	5181 070.015
Connection cable , for connecting Eppendorf micromanipulators with PC or Eppendorf PiezoXpert®	5181 150.094
Y-cable FJ4 , Y-cable for connecting FemtoJet® 4i/4x with a PC and TransferMan® 4r or InjectMan® 4	5192 080.004
Y-cable PX , Y-cable for connecting Eppendorf PiezoXpert® or a PC with TransferMan® 4r or InjectMan® 4 and FemtoJet® 4i/4x	5192 081.000

Microscope Adapters for Micromanipulation Systems



Description

Eppendorf microscope adapters enable the simple installation of the TransferMan® 4r or InjectMan® 4 on all conventional inverted microscopes manufactured by Leica®, Nikon®, Olympus® and Zeiss®.



Compatible to the four major microscope brands

Description

The Universal stand can be used for mounting the TransferMan 4 and InjectMan 4 micromanipulators on upright microscopes and stereo microscopes independent of the microscope tripod used. With its magnetic foot the Universal stand can be firmly fixed to any ferromagnetic base (plate or table).

Find all available adapters here



www.eppendorf.com/microscope_adapter

Ordering information

Description	Order no.
Adapter Leica® 1 , for Eppendorf micromanipulation systems, for Leica® DMi8, DMi3000 B, 3000 M, 4000 B, 5000 B, 5000 M, 6000 B, DM IRB E, HC and DM IRE 2 microscopes	5192 301.000
Adapter Leica® 2 , for Eppendorf micromanipulation systems, for Leica® DM IL LED and HC microscopes	5192 302.007
Adapter Nikon® 1 , for Eppendorf micromanipulation systems, for Nikon® Eclipse® Diaphot 200, 300 and Eclipse® Ti-E, Ti-U, Ti-S, TE200, TE300, TE2000 microscopes	5192 316.008
Adapter Nikon® 2 , for Eppendorf micromanipulation systems, for Nikon® Eclipse® Ts2R microscope	5192 317.004
Adapter Nikon® 3 , for Eppendorf micromanipulation systems, for Nikon® Eclipse Ti2-E/-A/-U microscopes	5192 318.000
Adapter Olympus® 1 , for Eppendorf micromanipulation systems, for Olympus® IX50, IX51, IX70, IX71, IX80 and IX81 microscopes	5192 306.002
Adapter Olympus® 2 , for Eppendorf micromanipulation systems, for microscopes of Olympus® IX3 series with illumination column IX3-ILL	5192 307.009
Adapter Olympus® 3 , for Eppendorf micromanipulation systems, for microscopes of Olympus® IX3 series with illumination column IX2-ILL30	5192 308.005
Adapter Zeiss® 1 , for Eppendorf micromanipulation systems, for Zeiss® Axiovert® 200, Axio Observer A1, D1, Z1 and Axio Observer 3, 5 and 7 microscopes	5192 311.006
Adapter Zeiss® 2 , for Eppendorf micromanipulation systems, for Zeiss® Axio Vert.A1 microscope	5192 312.002
Universal stand , for mounting Eppendorf micromanipulators on upright microscopes and stereo microscopes independent of the microscope tripod used	5192 325.007
Adapter bridge , for mounting Eppendorf micromanipulators on microscope adapters for TransferMan® NK 2, InjectMan® NI 2 and PatchMan NP 2	5192 321.001

Antivibration Pad

Description

The antivibration pads are specifically designed to effectively protect your micromanipulation system against external vibrations. The pads are simply positioned directly under the base points of your microscope. Five different formats optimized for specific weight ranges are available to guarantee optimal results. A selection of pads specifically chosen for each microscope ensures effective protection for your sample.

Product features

- > Effectively protects micromanipulation workstations from external vibrations
- > Five different formats available
- > Different formats can be combined for optimal adjustment



Ordering information

Description	Order no.
Antivibration Pad XS , weight range 4.5 – 6.0 kg	5181 301.009
Antivibration Pad S , weight range 6.0 – 8.0 kg	5181 303.001
Antivibration Pad M , weight range 8.0 – 10.0 kg	5181 305.004
Antivibration Pad L , weight range 10.0 – 12.5 kg	5181 307.007
Antivibration Pad XL , weight range 12.5 – 16.5 kg	5181 309.000

- It is decisive to take into account the total weight of your microscope, including the mounted accessories, and the load distribution of the individual contact points.

Eppendorf PiezoXpert®

Description

The Eppendorf PiezoXpert allows for piezo-assisted micromanipulation, enabling simple penetration of cells for microinjection or micromanipulation. Perforation of the cell membrane is supported by piezo impulses which are directly transferred to the capillary without any loss of intensity. Piezo-assisted micromanipulation improves the results of a variety of applications including transfer of embryonic or induced pluripotent stem cells into blastocysts and morulae, injection into mammalian oocytes and zygotes, and enucleation/nuclear transfer. The Eppendorf PiezoXpert forms the perfect system with Eppendorf micromanipulators, but it integrates just as easily into non-Eppendorf micromanipulation systems. The Eppendorf PiezoXpert is for research use only.



Product features

- > Fast and simple sample processing due to intuitive operation
- > Reproducible parameter setting
- > Program keys to save your experimental parameters
- > Trigger impulses with an ergonomic foot control or rotary knobs right on the device
- > Optical feedback of triggered impulses
- > Additional „Clean“ function for simple removal of contamination on the outside of the capillary

Applications

- > Transfer of embryonic or induced pluripotent stem cells into blastocysts or morulae
- > ICSI (Intracytoplasmic Sperm Injection) in mouse, equine, porcine etc.
- > Enucleation/nuclear transfer
- > Blastomere biopsy from mouse embryos
- > Biopsy of equine embryos for Preimplantation Genetic Diagnosis
- > RNA/DNA injection into fertilized oocytes of mammals

For more information go to www.eppendorf.com

Technical specifications subject to change.

Technical specifications	
Model	PiezoXpert
Interfaces	USB (for technical service), RS-232 (connection to foot control)
Power supply	100 – 240 V, 50 – 60 Hz
Max. power consumption	18 W
Dimensions (W x D x H)	17 x 23 x 11.5 cm
Weight w/o accessories	2.8 kg
Piezo impulse	
Intensity (of piezo impulses)	1 – 86 (1 – 22 adjustable in increments of 1, 22 – 86 adjustable in increments of 4)
Number (number of piezo impulses)	1 – 10, ∞ (1 – 10 adjustable in increments of 1)
Speed (frequency of piezo impulses/sec)	1 – 40 (1 – 40 adjustable in increments of 1, 1 – 10: 1 Hz per increment, 10 – 20: 2 Hz per increment, 20 – 34: 5 Hz per increment, 34 – 40: 25 Hz per increment)
Clean function	
Intensity (of piezo impulses)	1 – 86 (1 – 22 adjustable in increments of 1, 22 – 86 adjustable in increments of 4)
Speed (frequency of piezo impulses/sec)	1 – 40 (1 – 40 adjustable in increments of 1, 1 – 10: 1 Hz per increment, 10 – 20: 2 Hz per increment, 20 – 34: 5 Hz per increment, 34 – 40: 25 Hz per increment)

Ordering information

Description	Order no.
Eppendorf PiezoXpert®, for piezo-assisted micromanipulation, incl. actuator 2, foot control and spacer plate and grip head 4 size 0, 100 – 240 V/50 – 60 Hz	5194 000.016
Actuator 2, for piezo-assisted micromanipulation, as accessory for the Eppendorf PiezoXpert	5194 075.156
Grip head set 4 size 0, for microcapillaries with outer diameter 1.0 to 1.1 mm	5196 082.001
Grip head set 4 size 1, for microcapillaries with outer diameter 1.2 to 1.3 mm	5196 083.008
Grip head set 4 size 2, for microcapillaries with outer diameter 1.4 to 1.5 mm	5196 084.004
Grip head set 4 size 3, for microcapillaries with outer diameter 0.7 to 0.9 mm	5196 085.000
Tube adapter, pack of 2, for connecting tubes with an outer diameter of 2 mm or 3 mm with the capillary holder and the capillary holder 4	5194 075.407
Piezo Drill Tip Mouse ICSI, for piezo-assisted mouse ICSI (for research use only), 25° tip angle, 6 µm inner diameter, 6 mm flange, sterile, set of 25	5195 000.087
Piezo Drill Tip ES, for piezo-assisted mouse ES cell transfer (for research use only), 25° tip angle, 15 µm inner diameter, 6 mm flange, sterile, set of 25	5195 000.095

Ordering information for other voltage options begins on page 418

CellTram® 4r Air/Oil

Description

The CellTram 4r Air and CellTram 4r Oil are manual microinjectors suitable for a broad range of life science applications. The CellTram 4r Air is a pneumatic injector for oil-free micromanipulation and gentle holding of cells in suspension. Due to its excellent performance, it is also highly suitable for uptake and injection of cells (e.g., of sperm or ES cells). For this application, its performance is comparable to that of oil-filled injectors. The CellTram 4r Oil is a hydraulic, oil-filled microinjector that provides more direct sample control and can generate higher pressures than an air system. It is optimized for leakage-free work and easy oil filling. Both models can be used with all common micromanipulation systems yet they develop their full potential with Eppendorf manipulators. The CellTram 4r Air/Oil injectors are for research use only.



1. Non-hydraulic system for oil-free manipulation and injection of cells (CellTram 4r Air)
2. Piston position scale enables setting of air volume and injection characteristics according to individual needs (CellTram 4r Air)
3. Improved oil-filling system for quick and clean re-filling (CellTram 4r Oil)
4. Coarse and fine drive for precise and intuitive sample control
5. Improved rotary knob design for better handling and easier cleaning
6. Capillary holder 4 with markings for easier positioning
7. New grip head 4 system for simple capillary change and higher user safety
8. Position indicators and marking for in/out to reduce risk of user errors
9. Stable, nonslip base plate
10. Highly reliable performance with minimal maintenance

For more information go to www.eppendorf.com

Technical specifications subject to change.



CellTram 4r Air: Piston position scale indicates instrument status and allows for setting pressure characteristics according to individual needs

CellTram 4r Oil: The new oil-filling system helps avoid oil-spilling and facilitates the filling process

Applications

- > Mouse ICSI
- > Large mammal ICSI (e.g., equine, porcine...)
- > Piezo-assisted micromanipulation in combination with the Eppendorf PiezoXpert®
- > Transfer of cells or organelles (e.g., ES cell or iPS cell transfer into blastocysts or morulae)
- > Enucleation/nuclear transfer
- > (Xeno)transplantations
- > Removal of cells (e.g., for polar body biopsy, blastomere biopsy or trophectoderm biopsy)
- > Manual microinjection and dispensing of aqueous solutions

Technical specifications

Model	CellTram 4r Air	CellTram 4r Oil
Cylinder volume	10 mL	1,000 µL
Max. pressure	3,000 hPa	20,000 hPa
Min. adjustable volume	< 100 nL	< 1.5 nL
Pressure generation	Cylinder/piston system, air-filled	Cylinder/piston system, oil-filled
Volume change per revolution	60 µL/600 µL (fine/ coarse rotary knob)	1 µL/10 µL (fine/ coarse rotary knob)

Ordering information

Description	Order no.
CellTram® 4r Air, manual pneumatic microinjector, with gears 1:1 and 1:10, for holding and injection	5196 000.013
CellTram® 4r Oil, manual hydraulic microinjector, with gears 1:1 and 1:10, for holding and injection	5196 000.030
Capillary holder 4, for mounting microcapillaries	5196 081.005
Capillary holder 4 slim shape, for flat angle injections, for microcapillaries with outer diameter 1.0 mm	5196 062.000
Filling and Cleaning set, incl. filling tube, Luer lock adapter, 2 syringes for CellTram® 4	5196 088.000
Grip head set 4 size 0, for microcapillaries with outer diameter 1.0 to 1.1 mm	5196 082.001
Grip head set 4 size 1, for microcapillaries with outer diameter 1.2 to 1.3 mm	5196 083.008
Grip head set 4 size 2, for microcapillaries with outer diameter 1.4 to 1.5 mm	5196 084.004
Grip head set 4 size 3, for microcapillaries with outer diameter 0.7 to 0.9 mm	5196 085.000
Injection tube Air, white ring mark, I.D. 0.5 mm, length 1.3 m	5196 061.004
Injection tube Oil, blue ring mark, I.D. 1.0 mm, length 1.3 m	5196 089.006
O-ring set 4, incl. 10 o-rings large, 10 o-rings small, 2 distance sleeves, o-ring removal tool for grip head set 4	5196 086.007

Your local distributor: www.eppendorf.com/contact

Eppendorf AG · Barkhausenweg 1 · 22339 Hamburg · Germany · eppendorf@eppendorf.com · www.eppendorf.com

FemtoJet® 4i and FemtoJet® 4x

Description

Eppendorf's electronic microinjectors FemtoJet 4i and FemtoJet 4x with their simple operation menu and a range of functionalities are perfectly suited for injecting small to intermediate volumes. With a built-in compressor, the FemtoJet 4i is the tool of choice for injecting aqueous solutions into adherent cells and suspension cells. If your research demands injecting volumes greater than 100 µL and/or longer series at higher pressures, FemtoJet 4x with its external pressure supply (not included) delivers the precise and continuous pressure required. Featuring the same quality design and compatibility features as the FemtoJet 4i, the FemtoJet 4x is the "heavy duty" device for those more demanding applications. Both the FemtoJet 4i and FemtoJet 4x, form the perfect system with Eppendorf micromanipulators, yet they integrate just as easily with non-Eppendorf micromanipulation systems. The electronic connection between FemtoJet 4i or 4x and TransferMan 4r or InjectMan 4 guarantees simple, rapid and reproducible microinjections into cells, simplifying your daily work and speeding up your workflow. The FemtoJet 4i/ 4x injectors are for research use only.



Product features

- > Very simple and clearly arranged operation for routine tasks
- > Injection volume ranges from femtoliters to microliters
- > Inject and Clean function can be triggered right on the device using the included mouse or optional foot control
- > Programmable injection guarantees high reproducibility
- > Connection to TransferMan 4r, InjectMan 4 or InjectMan NI 2 enables semi-automatic microinjection
- > Small footprint
- > Can be combined with all conventional micromanipulation systems
- > Independent pressure supply via built-in compressor (only FemtoJet 4i)
- > External pressure supply guarantees the continuous availability of higher injection pressures - even with large volumes and very short intervals (only FemtoJet 4x)

FemtoJet® 4i



Description

The electronic microinjector, FemtoJet 4i, with its simple operation and wide range of functionality is ideally suited for injecting small to intermediate volumes of up to 100 µL into adherent cells and suspension cells for research purposes. The FemtoJet 4i with its built-in compressor forms a perfect team with Eppendorf micromanipulators, but it integrates just as easily with non-Eppendorf micromanipulator systems.

The electronic connection between FemtoJet 4i and TransferMan 4r and InjectMan 4 guarantees simple, rapid and reproducible microinjections into cells.

Applications

- > Reproducible and serial microinjection into adherent cells when combined with the InjectMan 4 or InjectMan NI 2 micromanipulator
- > Pronuclear or cytoplasmic injection of RNA/DNA solutions into fertilized oocytes of mammals, when combined with the TransferMan 4r micromanipulator
- > Especially well suited for injection volumes from femtoliters to 100 µL

FemtoJet® 4x



Description

The FemtoJet 4x is the ideal solution if your research demands injection volumes greater than 100 µL and/or longer series at higher pressures – increasingly seen in functional genomics and developmental biology applications.

The FemtoJet 4x with its external pressure supply (not included) delivers the precise and continuous pressure required. Featuring the same quality design and compatibility as the FemtoJet 4i, the 4x model is the "heavy duty" device for those more demanding applications.

Applications

- > Microinjection into small organisms and embryos in the early stages of development (e.g., *Drosophila melanogaster*, Zebrafish, etc.)
- > Especially well suited for serial injection volumes from 100 µL to 1 µL or more

Gentle treatment for your cells



Minimizing mechanical trauma to your sample is critical for achieving optimal results. The new capillary holder 4 (slim shape) in combination with Eppendorf manipulators allows for injecting with straight capillaries at angles lower than 15°. This capillary holder 4 (slim shape) can be used in combination with the FemtoJet 4 as well as with the CellTram 4r. This helps to achieve highest survival rates for your developing embryos.



For more information go to www.eppendorf.com

Typical Injection Volume	FemtoJet 4i		FemtoJet 4x	
Cell nucleus of adherent cells				
Cytoplasm of adherent cells				
Pronucleus of fertilized mouse oocytes				
<i>Caenorhabditis elegans</i>				
Fish embryos in early development phases				
<i>Xenopus laevis</i> oocytes				
Volume (liter, logarithm, measurement unit)	10 ⁻¹⁵	10 ⁻¹²	10 ⁻⁹	10 ⁻⁶
Unit	femtoliter	picoliter	nanoliter	microliter

FemtoJet 4i is suitable for applications that require lower volume ranges; FemtoJet 4x is better suited for applications that require higher volume ranges. Both feature the same injection time and pressure parameters.

FemtoJet® 4i and FemtoJet® 4x



Both the FemtoJet 4i and FemtoJet 4x, can easily be combined for all types of micromanipulators, yet they form the perfect system with Eppendorf micromanipulators.

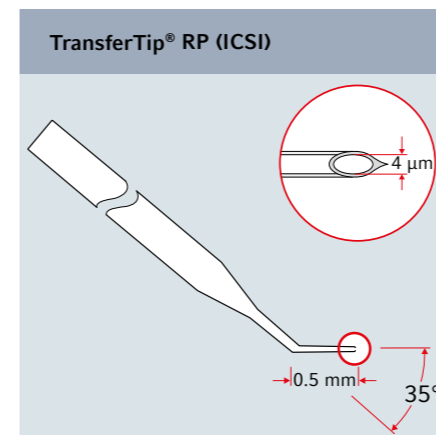
Technical specifications		
Model	FemtoJet 4i	FemtoJet 4x
Dimensions (W x D x H)	21.3 x 20.7 x 25 cm	21.3 x 20.7 x 25 cm
Weight w/o accessories	5 kg	3.5 kg
Clean function	Max. 6,000 hPa (87 psi)	Max. 6,000 hPa (87 psi)
Compensation pressure	5 – 6,000 hPa (87 psi); can be set in increments of 1 hPa	5 – 6,000 hPa (87 psi); can be set in increments of 1 hPa
Injection pressure	5 – 6,000 hPa (87 psi); can be set in increments of 1 hPa	5 – 6,000 hPa (87 psi); can be set in increments of 1 hPa
Pressure supply	Integrated compressor	External pressure supply (not included)

Ordering information

Description	Order no.
FemtoJet® 4i, programmable microinjector with integrated pressure supply, including foot control	5252 000.013
FemtoJet® 4x, programmable microinjector with external pressure supply (not included), including foot control	5253 000.017
Capillary holder 4, for mounting microcapillaries	5196 081.005
Capillary holder 4 slim shape, for flat angle injections, for microcapillaries with outer diameter 1.0 mm	5196 062.000
Injection tube, for universal capillary holder and capillary holder 4, 2 m	5252 070.054
O-ring set 4, incl. 10 o-rings large, 10 o-rings small, 2 distance sleeves, o-ring removal tool for grip head set 4	5196 086.007
Grip head set 4 size 0, for microcapillaries with outer diameter 1.0 to 1.1 mm	5196 082.001
Grip head set 4 size 1, for microcapillaries with outer diameter 1.2 to 1.3 mm	5196 083.008
Grip head set 4 size 2, for microcapillaries with outer diameter 1.4 to 1.5 mm	5196 084.004
Grip head set 4 size 3, for microcapillaries with outer diameter 0.7 to 0.9 mm	5196 085.000
Grip head set 4 (slim shape), for Capillary holder 4 slim shape incl. 6 O-rings and 2 distance sleeves, for capillaries with outer diameter 1.0 mm	5196 063.007
Hand control, for triggering inject function	5252 070.011
Y-cable FJ4, Y-cable for connecting FemtoJet® 4i/4x with a PC and TransferMan® 4r or InjectMan® 4	5192 080.004
Y-cable PX, Y-cable for connecting Eppendorf PiezoXpert® or a PC with TransferMan® 4r or InjectMan® 4 and FemtoJet® 4i/4x	5192 081.000

✂ Ordering information for other voltage options begins on page 418

Cell Transfer Capillaries

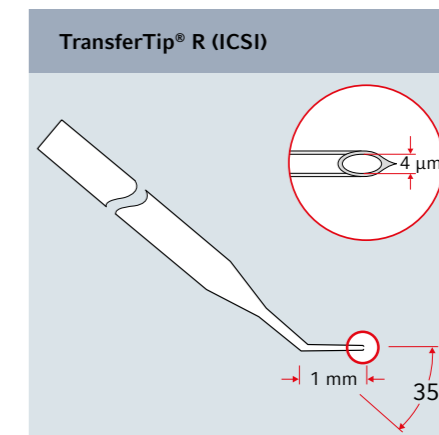


Applications

- > Sperm transfer into oocytes

Description

- > 4 µm inner diameter
- > 35° tip angle
- > 0.5 µm flange length
- > Fine tapered and rigid tip flange for optimal cell penetration
- > Heat-formed spike eases penetration
- > Sterilized via validated gamma irradiation
- > Non-cytotoxic (as proven by mouse embryo assay)

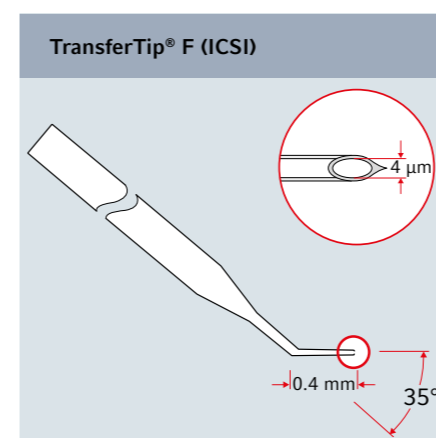


Applications

- > Sperm transfer into oocytes

Description

- > 4 µm inner diameter
- > 35° tip angle
- > 1 µm flange length
- > Rigid tip flange for successful penetration
- > Heat-formed spike eases penetration
- > Sterilized via validated gamma irradiation
- > Non-cytotoxic (as proven by mouse embryo assay)
- > Capillary safe for optimum protection

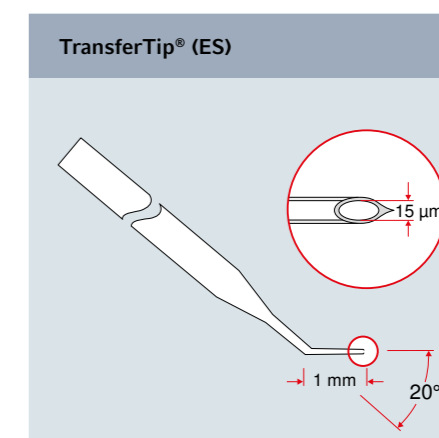


Applications

- > Sperm transfer into oocytes

Description

- > 4 µm inner diameter
- > 35° tip angle
- > 0.4 µm flange length
- > Fine tapered and flexible tip flange for minimal cell trauma
- > Heat-formed spike eases penetration
- > Sterilized via validated gamma irradiation
- > Non-cytotoxic (as proven by mouse embryo assay)
- > Capillary safe for optimum protection



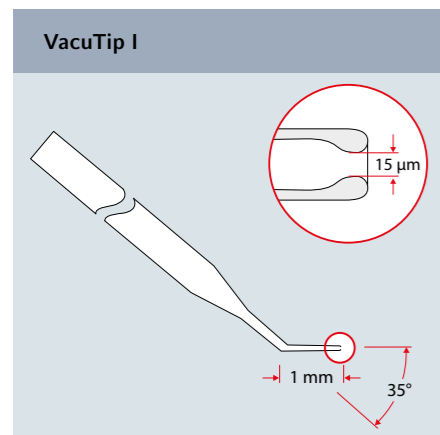
Applications

- > Transfer of ES cells into mouse blastocyst or morula

Description

- > 15 µm inner diameter
- > 20° tip angle
- > Rigid flange, 1 mm length
- > Heat-formed spike eases penetration
- > Sterilized via validated gamma irradiation
- > Capillary safe for optimum protection

Holding Capillaries

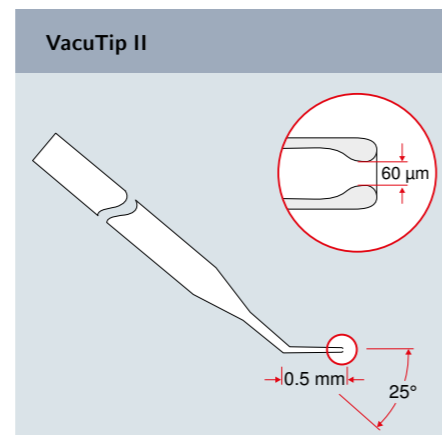


Applications

- > For holding oocytes, blastocysts, etc.

Description

- > 15 μm inner diameter
- > 100 μm outer diameter
- > 35° tip angle
- > Flange length 1 mm
- > Smooth, rounded tip end for gentle holding
- > Sterilized via validated gamma irradiation
- > Non-cytotoxic (as proven by mouse embryo assay)
- > Capillary safe for optimum protection



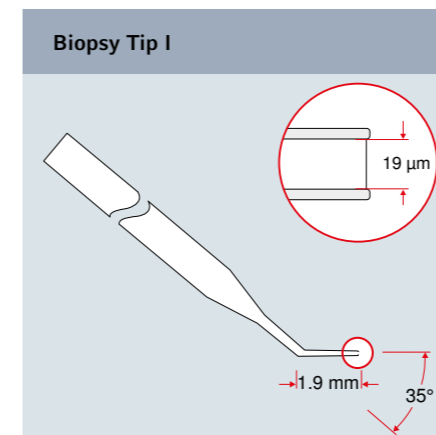
Applications

- > For holding oocytes, blastocysts, etc.

Description

- > 60 μm inner diameter
- > 110 μm outer diameter
- > 25° tip angle
- > Flange length 0.5 mm
- > Smooth rounded tip end for gentle holding
- > Sterilized via validated gamma irradiation
- > Non-cytotoxic (as proven by mouse embryo assay)
- > Capillary safe for optimum protection

Biopsy Tips

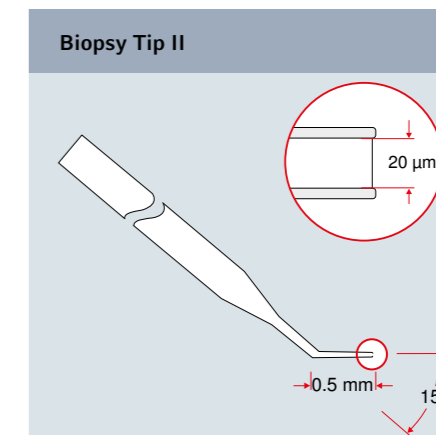


Applications

- > Laser-assisted biopsy of cells and organelles

Description

- > 19 μm inner diameter
- > 35° tip angle
- > 1.9 mm flange length
- > Rounded tip end to minimize oolemma trauma
- > Sterilized via validated gamma radiation
- > Non-cytotoxic (as proven by mouse embryo assay)
- > Capillary safe for optimum protection



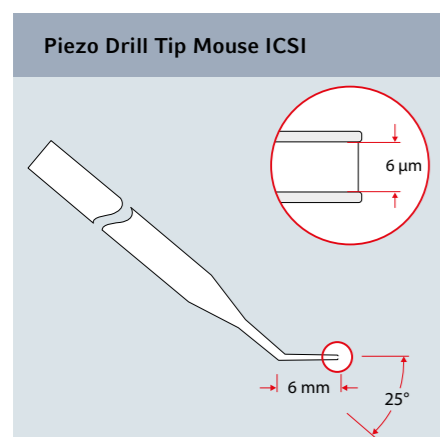
Applications

- > Laser-assisted biopsy of cells and organelles

Description

- > 20 μm inner diameter
- > 15° tip angle
- > 0.5 mm flange length
- > Rounded tip end to minimize oolemma trauma
- > Sterilized via validated gamma irradiation
- > Non-cytotoxic (as proven by mouse embryo assay)
- > Capillary safe for optimum protection

Capillaries for Piezo-assisted Cell Transfer

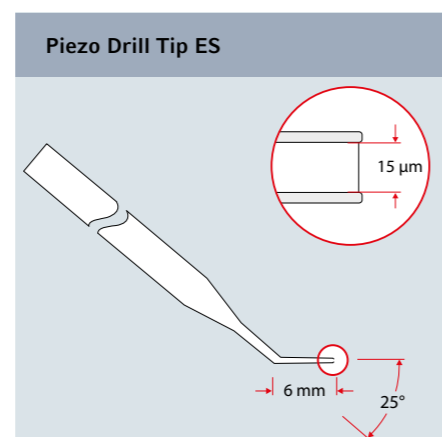


Applications

- > Piezo-assisted transfer of sperms into mouse oocytes

Description

- > 6 μm inner diameter
- > 25° tip angle for optimal pulse transfer
- > 6 mm flange length
- > Non-polished, blunt tip end for optimal piezo pulse force transfer and minimal trauma
- > Sterilized via validated gamma irradiation
- > Capillary safe for optimum protection



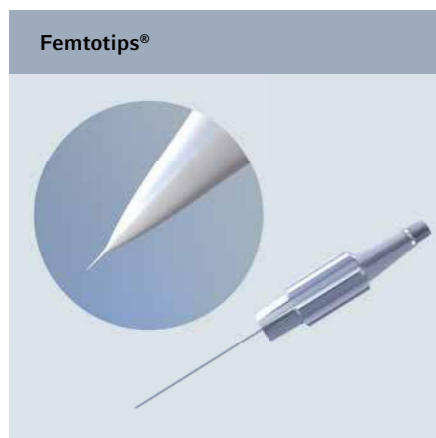
Applications

- > Piezo-assisted transfer of embryonic stem cells into blastocysts

Description

- > 15 μm inner diameter
- > 25° tip angle for optimal pulse transfer
- > 6 mm flange length
- > Non-polished, blunt tip end for optimal piezo pulse force transfer and minimal trauma
- > Sterilized via validated gamma irradiation
- > Capillary safe for optimum protection

Microinjection Capillaries

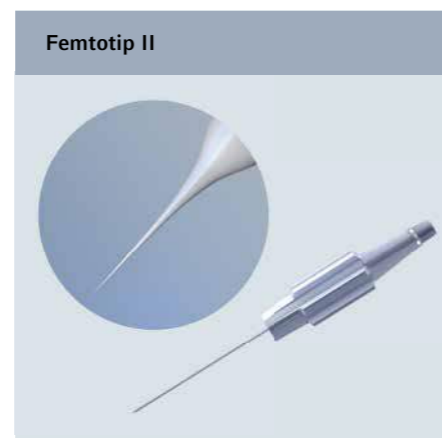


Applications

- > Injection into adherent cells
- > Near-surface injection into oocytes, early stage embryos and smaller organisms

Description

- > 0.5 µm inner diameter
- > Screw-in thread for quick assembly into FemtoJet capillary holder
- > Sterile
- > 100 % individual testing of every Femtotip using a flow parameter
- > Safe transport packaging



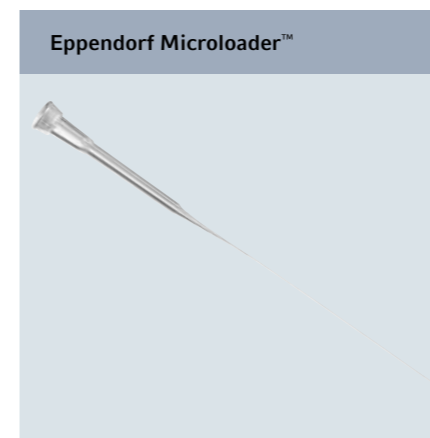
Applications

- > Injection into adherent cells
- > Deep injection into mammalian oocytes, early stage embryos (e.g. Zebrafish) and smaller organisms

Description

- > 0.5 µm inner diameter
- > Screw-in thread for quick assembly into FemtoJet capillary holder
- > Sterile
- > 100 % individual testing of every Femtotip using a flow parameter
- > Safe transport packaging

Microloader™



Applications

- > Pipette tip for back-filling of Femtotips and other microcapillaries

Description

- > Extremely long, fine and flexible tip for filling of microcapillaries for microinjection and where additional reach is needed
- > Microloader tips and rack autoclavable
- > Highest precision and accuracy when used with Eppendorf pipettes for 0.5 to 10 µL (gray control button)



Learn more:

[eppendorf.com/microcapillaries](https://www.eppendorf.com/microcapillaries)

Ordering information

Description	Order no.
Microloader™ , tip for filling Femtotips and other glass microcapillaries (for research use only), 0.5 – 20 µL, 100 mm, light gray, 192 pcs. (2 racks x 96 pcs.)	5242 956.003
Femtotips® , injection capillary (for research use only), sterile, set of 20	5242 952.008
Femtotip II , injection capillary (for research use only), sterile, set of 20	5242 957.000
VacuTip I , holding capillary (for research use only), 35° tip angle, 15 µm inner diameter, 100 µm outer diameter, 1 mm flange, sterile, set of 25	5195 000.036
VacuTip II , holding capillary (for research use only), 25° tip angle, 60 µm inner diameter, 100 µm outer diameter, 0.5 mm flange, sterile, set of 25	5195 000.044
TransferTip® RP (ICSI) , for sperm injection using the ICSI technique (for research use only), 35° tip angle, 4 µm inner diameter, 0.5 mm flange, sterile, set of 25	5195 000.010
TransferTip® F (ICSI) , for sperm injection using the ICSI technique (for research use only), 35° tip angle, 4 µm inner diameter, 0.4 mm flange, sterile, set of 25	5195 000.001
TransferTip® R (ICSI) , for sperm injection using the ICSI technique (for research use only), 35° tip angle, 4 µm inner diameter, 1 mm flange, sterile, set of 25	5195 000.028
Biopsy Tip I , capillary for laser-assisted biopsy of cells and organelles (for research use only), 35° tip angle, 19 µm inner diameter, 1.9 mm flange, sterile, set of 25	5195 000.052
Biopsy Tip II , capillary for laser-assisted biopsy of cells and organelles (for research use only), 15° tip angle, 20 µm inner diameter, 0.5 mm flange, sterile, set of 25	5195 000.060
TransferTip® (ES) , for ES cell transfer (for research use only), 20° tip angle, 15 µm inner diameter, 1 mm flange, sterile, set of 25	5195 000.079
Piezo Drill Tip Mouse ICSI , for piezo-assisted mouse ICSI (for research use only), 25° tip angle, 6 µm inner diameter, 6 mm flange, sterile, set of 25	5195 000.087
Piezo Drill Tip ES , for piezo-assisted mouse ES cell transfer (for research use only), 25° tip angle, 15 µm inner diameter, 6 mm flange, sterile, set of 25	5195 000.095

Workstations for Microinjection and Micromanipulation



Workstation for cell transfer and injection and related techniques

Recommended setup:

- > 2 × TransferMan® 4r
- > 1 × Microscope adapter (to be specified at time of order)
- > 1 × CellTram® 4r Air
- > 1 × CellTram® 4r Oil
- > 1 × set of 25 TransferTip® microcapillaries (to be specified at time of order)
- > 1 × set of antivibration pads (number and format depending on setup)

Optional for piezo-assisted micromanipulation:

- > 1 × Eppendorf PiezoXpert®
- > 1 × set of 25 Piezo Drill Tips (to be specified at time of order)

Workstation for pronuclear and cytoplasmic injection of nucleic acid solutions

Recommended setup:

- > 2 × TransferMan® 4r
- > 1 × Microscope adapter (to be specified at time of order)
- > 1 × CellTram® 4r Air
- > 1 × FemtoJet® 4i or FemtoJet® 4x
- > 1 × set of 20 Femtotip II
- > 2 × racks of 96 Microloader
- > 1 × set of antivibration pads (number and format depending on setup)

Optional for piezo-assisted micromanipulation:

- > 1 × Eppendorf PiezoXpert®
- > If necessary: 1 × Y cable PX)



Workstation for injection into adherent cells, plant cells, *Drosophila*, *C. elegans*, etc.

Recommended setup:

- > 1 × InjectMan® 4
- > 1 × Microscope adapter (to be specified at time of order)
- > 1 × FemtoJet® 4i or FemtoJet® 4x
- > 1 × set of 20 Femtotips® (to be specified at time of order)
- > 2 × racks of 96 Microloader
- > 1 × set of antivibration pads (number and format depending on setup)

Optional for adherent cell injection:

- > 1 × Eppendorf Cell Imaging Dishes



Workstation for injection into fish embryos

Recommended setup:

- > 1 × InjectMan 4
- > 1 × Universal stand
- > 1 × FemtoJet® 4x
- > 1 × set of 20 Femtotips® (to be specified at time of order)
- > 2 × racks of 96 Microloader

Optional for piezo-assisted injection:

- > 1 × Eppendorf PiezoXpert®

Eppendorf Cell Culture Consumables

Description

Experience a new dimension in cell culture with Eppendorf Cell Culture Consumables. These products meet your needs for excellent cell performance and reliability as well as for advanced protection against contamination.

Innovative technologies for surface activation deliver 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, secure stacking, and easy identification, readability and tracking.

The new packaging concept provides complete protection during transportation, tool-free opening, easy resealing for safe and clean storage, and fast identification of the desired product. The boxes and bags are very compact for space saving storage. Learn more about the truly comprehensive solutions for cell culture on the following pages.



www.eppendorf.com/cc

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

All Cell Culture Consumables	
Surface	Tissue culture treated or non-treated
Sterility / Purity	All products are sterile. Sterility is assured by irradiation according to DIN EN ISO 11137-2015 with sterility assurance level (SAL) of 10 ⁻⁶ . Sterility is tested according to USP, Ph. Eur. 2.6.12.
Material	Polystyrene. The raw material used complies with USP Class VI standards
Certificates	
Trace metal release	Al, Pb, Cd, Ca, Cr, Cu, Mg, Mn, Ni, Hg, Zn (measured with inductively coupled plasma - mass spectrometry after 72 h at 40°C incubation)
Leachables	Material suppliers of Eppendorf do not use or intentionally incorporate the following agents into the materials for the production: <ul style="list-style-type: none"> > Slip agents (including oleamide, erucamide, stearamides) > Biocides (including di(2-hydroxyethyl) methyl dodecyl ammonium salts (DiHEMDA)) > Plasticizers (including phthalates) > Bisphenol A > Latex > Antistatic agents > Metallic dyes > Mineral oil

Technical specifications subject to change.

Improve your cell culture experiments with smart solutions

Did you ever realize that the seemingly simple plastic surface of your cultureware can have a significant impact on the growth and metabolism of your cells? Together with the medium nothing comes closer to your cells, especially for a long duration. Therefore, the chemical composition including all additives and the absence of certain factors is crucial. In addition to smart solutions for contamination prevention, simplified handling and improved optical performance, Eppendorf cell culture consumables offer a transparent and certified insight into material quality.

For improved reproducibility with minimized interference of your cell culture results.



Did you ever think about the impact the chemical composition and quality of the cultureware has on your cells?

All Cell Culture Consumables	
Cytotoxicity testing	Tested in a cell-based assay for in-vitro cytotoxicity according to ISO 10993-5 by an external partner
Download certificates	www.eppendorf.com > Cell Culture Consumables > Certificates
Lot-specific certificates	
Sterility	SAL 10 ⁻⁶
Absence of	> Pyrogens > RNase and DNase > DNA
Performance of TC-treatment	Cell attachment and cell growth tested
Production conditions	Quality management system is certified according to ISO 9001, 13485 and 14001 All Eppendorf Cell Culture Consumables are produced in a controlled class 7 clean room environment according to ISO 14644-1 and EG-GMP Class
Download certificates	www.eppendorf.com > Cell Culture Consumables > Certificates
Operating temperature	-86 °C to 60 °C
Storage before use	Store dry and at RT. Protect from sunlight and UV rays

Your local distributor: www.eppendorf.com/contact

Eppendorf AG · Barkhausenweg 1 · 22339 Hamburg · Germany · eppendorf@eppendorf.com · www.eppendorf.com

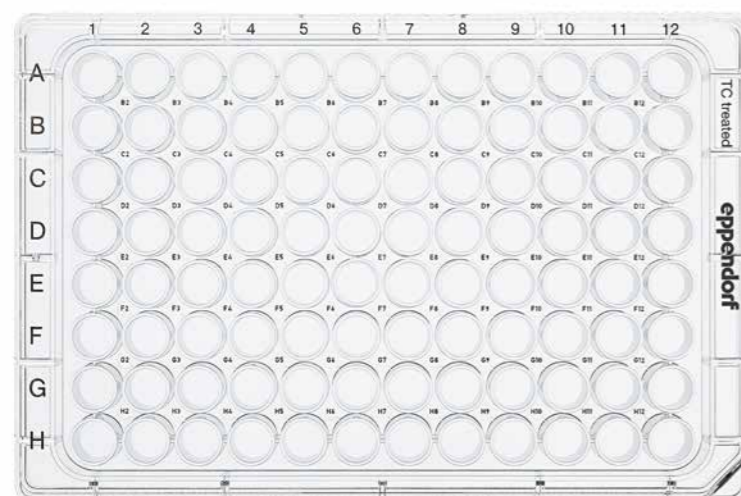
Eppendorf Cell Culture Plates

Description

Keep your cells warm outside the incubator, avoid the edge effect and use more wells.

Eppendorf Cell Culture Plates are designed for expansion of smaller cell numbers and for cell-based assays.

The chimney-well design avoids inhomogeneous growth of cells in the outer ring of wells which reduces costs and increases efficiency. If cells need to spend more time outside of the incubator, filling the inter-well spaces of the plate will keep the temperature stable and prevent unwanted temperature shifts. We optimized the optical performance by enhancement of the planarity, material clarity, and reduction of the liquid meniscus to facilitate both manual and automated read-out.



Product features

- > Prevent the edge effect and use 38% more wells by filling the moat surrounding the outer wells with liquid
- > Level out well-to-well temperature shifts outside the incubator by chimney-well design that enables filling of the inter-well spaces
- > Robust stacking performance by pronounced rims on plate lid and excellent fitting of lid and base when used in stacks
- > Minimized surface contact and reduced contamination risk by lid taps under the plate
- > Easy and fast well identification by contrast rich individual well ID and OptiTrack alphanumeric labeling
- > Easy differentiation of lid and plate bottom due to a pronounced corrugation and wider sized base
- > Optimized gas and temperature transfer when incubating in stacks by pronounced ventilation gaps
- > Optimized microscopical performance due to enhanced planarity, reduction of meniscus and clarity of the material

Plates	6-Well	12-Well	24-Well	48-Well	96-Well
Theoretical total volume	16.0 mL	6.8 mL	3.6 mL	1.5 mL	0.4 mL
Work volume	3 – 5 mL	1 – 2 mL	0.5 – 1 mL	0.3 – 0.5 mL	0.1 – 0.2 mL
Growth area/well ¹⁾	940.3 mm ²	391.1 mm ²	208.9 mm ²	85.6 mm ²	37.0 mm ²
Well diameter	34.6 mm	22.4 mm	16.2 mm	10.4 mm	6.8 mm
L x W x H	127.8 x 85.5 x 20.0 mm	127.8 x 85.5 x 20.0 mm	127.8 x 85.5 x 20.0 mm	127.8 x 85.5 x 20.0 mm	127.8 x 85.5 x 14.4 mm
Height with lid	23.2 mm	23.2 mm	23.2 mm	23.2 mm	17.6 mm
Dimensions	Conforms to ANSI/SBS I	Conforms to ANSI/SBS I	Conforms to ANSI/SBS I	Conforms to ANSI/SBS I	Conforms to ANSI/SBS I to V
Centrifugation	Can be centrifuged up to 2,500 x g. When stacked (up to 5 for 96-Well plates and up to 4 for all other formats) can be centrifuged up to 300 x g.				

¹⁾ For the initial seeding of cells, take into account the growth area in order to support optimal cell growth.

Eppendorf Cell Culture Plates

Enhance reproducibility and use up to 38% more wells

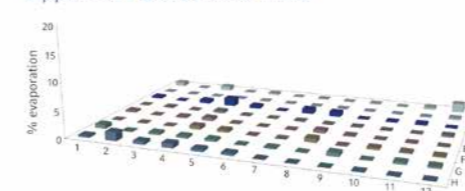
Evaporation of cell culture medium plays a critical role in multi-well based cellular assays because it can deteriorate assay performance. As evaporation mainly affects the peripheral wells of a plate this phenomenon is called the edge effect. With the Eppendorf 96-Well Cell Culture Plate evaporation from the wells can be reduced to a minimum. The plate offers two options for insulating the wells. A moat surrounding the edge wells and the complete chimney design of the inner wells allow filling of the complete inter-well space with liquid. Together this results in a more homogeneous distribution of temperature and humidity throughout the plate and reduces the edge effect.



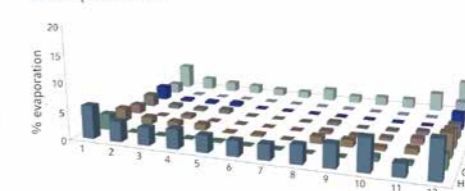
The filling of the surrounding moat prevents edge effect and yields up to 38 % more usable wells

Filling the complete inter-well space enables for additional insulation of all 96 wells. This not only prevents the edge effect, it also prevents well-to-well temperature shifts outside the incubator

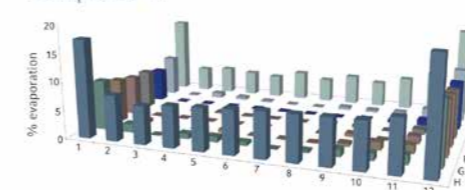
Eppendorf Cell Culture Plate



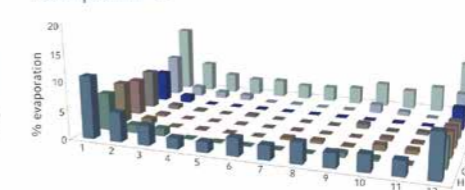
Competitor A



Competitor B



Competitor C

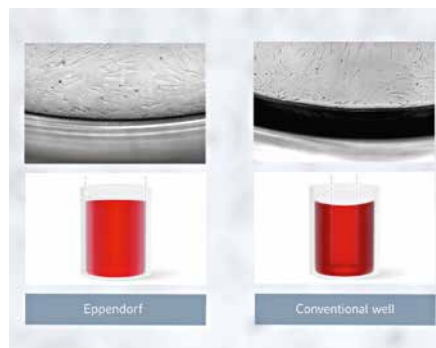


Comparison of evaporation in different 96-well plates

A comparison of different 96-well cell culture plates shows that filling the outer moat of the Eppendorf Cell Culture Plate leads to a superior well-to-well consistency in cell growth in the Eppendorf Cell Culture Plate. By this, the phenomenon of the edge effect can be minimized leading to reproducible performance in cell-based assays. For more information see Application Notes 326 and 384.

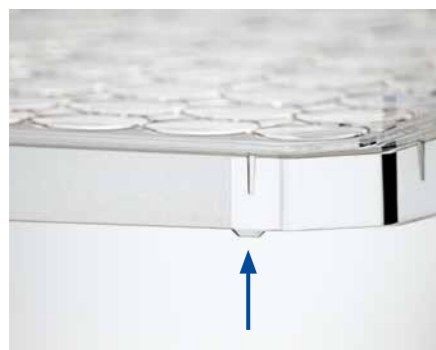
Eppendorf Cell Culture Plates

See more cells, improve assays



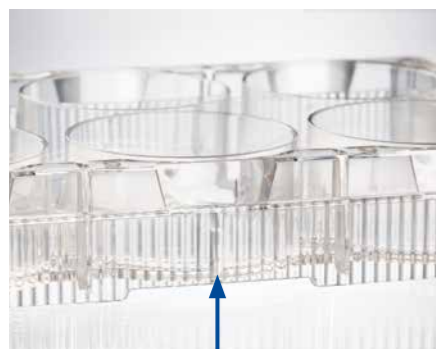
Uneven TC-surface treatment during production of vessels leads to meniscus formation. This causes optical interference resulting in shadow-formation at the edge of the well. Here, observation of the growth area is impeded and valuable clones get lost in analysis. A specialized surface treatment for Eppendorf Cell Culture Plates avoids this effect.

Safely place your lids and get your hands free



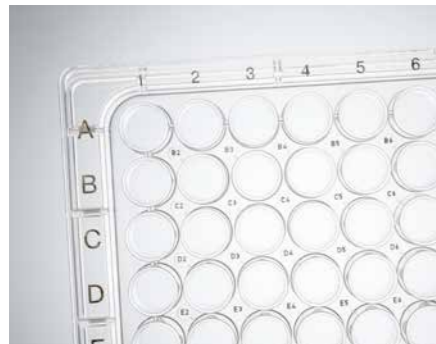
What do you do with your lids when you open plates for pipetting? Keep them in one hand and complicate handling? Or do you put them on the bench surface and risk contamination? You do not have to choose: with Eppendorf Cell Culture Plates you get your hands free and reduce the risk of contamination.

Reproducibility in stacks



Did you ever see a variation of cell growth on different plates of the same stack? The reason is often a temperature heterogeneity caused by impaired air flow between the plates. Ventilation gaps ensure proper airflow and avoid vacuum-formation for enhanced handling safety outside the incubator.

Identify your wells fast, easy and securely



Ever wondered why the labelling of individual wells or alpha-numerics on some cell culture plates is transparent on a transparent background? This seemingly little detail can result in pipetting errors, cross-contamination and time-consuming sample-loss. The lasered high contrast OptiTrack® matrix and individual well ID labelling ensures easy, fast and secure identification - without ink.

Eppendorf Cell Culture Dishes

Description

Whenever you need direct access to your cells, dishes are the format of choice. Eppendorf cell culture dishes were designed with a focus on improved handling and stacking performance to ensure a new level of safe and carefree usage. It all starts with the packaging: the innovative design can be easily opened without tools and resealed without tape. The bags are shrinkable for space-saving and safe storage of unused dishes. With the Eppendorf dishes, a corrugated handling ring provides safety in handling during transportation and expansion of cells. A SplashProtect™ ring inside the dish lid prevents spillage and traps fluid if condensation occurs. Combined with the outstanding, sturdy stacking, our cell culture dishes are unparalleled in their ease of transport and handling, safety, and convenience.



Product features

- > Unsurpassed safety in handling during transportation and while working due to corrugated handling ring
- > SplashProtect™ ring inside of the dish lid traps liquid and prevents spills during transportation or incubation
- > Pronounced rim on dish lid and exact fitting of lid and bottom ensure sturdy, secure stacking
- > Easy differentiation of lid and dish bottom prevents unintended removal of the lid
- > Packaging combines tool-free opening, resealable top and side for tape-free closing, and an easy solution to shrink the package for space-conscious storage
- > SAL 10⁻⁶
- > Certificates for leachables, trace metals, cytotoxicity etc. available

Dishes	35 mm	60 mm	100 mm
Theoretical total volume	8.1 mL	26.6 mL	99.2 mL
Work volume	2.0 – 3.0 mL	3.0 – 5.0 mL	8.0 – 10.0 mL
Growth area	9.5 cm ²	21.9 cm ²	56.8 cm ²
Diameter x height	36.7 x 10.8 mm	59.7 x 14.0 mm	93.8 x 19.4 mm
Height with lid	12.5 mm	15.7 mm	21.3 mm
Centrifugation	Cannot be centrifuged.		



Safe handling by corrugated handling ring



The SplashProtect™ ring on the inside of the lid traps liquid and prevents spills during transport or incubation



Easy and tape-free closing is possible by a package-included resealing clip

Eppendorf Cell Culture Flasks

Description

Flasks are the preferred vessel for long term cultivation or large-scale expansion of cells, providing the best protection against contamination. Unsurpassed protection of your cells from contaminants was one of the key requirements in developing the Eppendorf Cell Culture Flasks. A new, high efficiency air filter technology combines excellent protection with reliable gas exchange. In-line pressure testing for each flask guarantees leakage-free flasks for maximum workflow safety. The unique ConvexAccess™ shape of the neck facilitates the access to the growth area and makes cell seeding and media exchange much more convenient, safe, and reliable.



Product features

- > ConvexAcces™ geometry for facilitated access to growth area and easier and safe cell treatment
- > Optimized gas exchange and protection against contamination through high efficiency air filter technology
- > Defined arrested position on plug-seal caps to prevent undesired closing
- > Anti-rolling cap with corrugation facilitates cultivation steps when the cap needs to be set aside
- > 100 % in-line control for leakage-free flasks and maximum safety
- > Direct surface identification on flask and cap
- > SAL 10⁻⁶
- > Certificates for leachables, trace metals, cytotoxicity etc. available

Flasks	T-25	T-75	T-175
Theoretical total volume	83.6 mL	279.8 mL	662.1 mL
Work volume	3.0 – 7.0 mL	8.0 – 20.0 mL	20.0 – 30.0 mL
Growth area	26.9 cm ²	77.9 cm ²	179.5 cm ²
L x W x H	99.0 x 56.0 x 37.0 mm	163.0 x 82.0 x 46.6 mm	230.0 x 122.0 x 48.0 mm
Centrifugation	Can be centrifuged with the suitable adapters; refer to the manufacturer's instruction.		



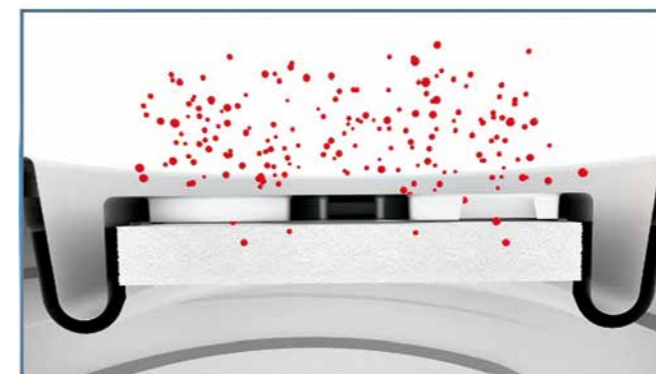
ConvexAccess™ neck for better and safer access to the growth surface



Various filter and plug seal caps with clear surface labelling are available

Protect your cells from contamination with new filter technology

Membrane filters, known to guarantee protection against contamination and optimal gas exchange were the state of the art up to now. Eppendorf reinvented the filter technology for Cell Culture Flasks for a higher safety standard and better contamination protection.

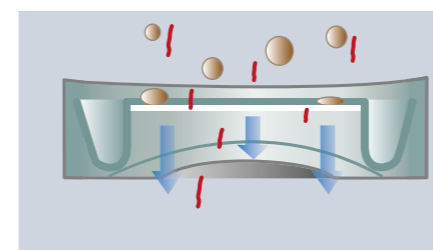


New volume filter technology

Instead of utilizing thin membrane filters Eppendorf filter caps are equipped with a reinvented high efficiency volume filter providing reliable gas exchange and better protection against airborne particles (Read more in our Whitepaper 024)

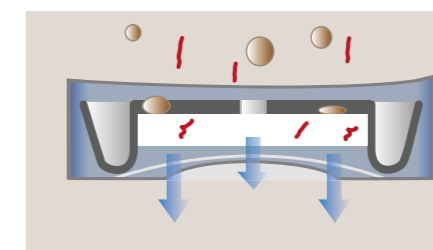
Just place your caps on the side

How do you place your caps under the biosafety cabinet? Inside up or inside down? How about placing them on the side for optimal contamination prevention?



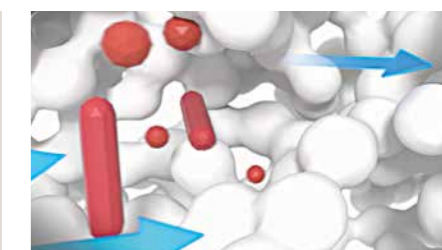
Standard membrane filter

Membrane filter with defined and constant pore size. Particles smaller than this (e.g., Mycoplasma) size can pass through



Eppendorf volume filter technology

The labyrinthine arrangement of filter pores in various sizes combined with greater filter thickness enable higher efficiency in holding back contaminants, such as bacteria, virus or mycoplasma, and therefore, in preventing contamination



How to prevent contamination in your cell culture lab?



www.eppendorf.com/ccflasks-video2

Download Whitepaper: Improved Handling of Cells and Protection against Contamination



www.eppendorf.com/whitepaper024

Eppendorf Cell Culture Consumables

Ordering information	
Description	Order no.
Eppendorf Cell Culture Plates, 6-Well , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
TC Treated, 5 mL, 60 plates, individually wrapped	0030 720.113
Non-Treated, 5 mL, 60 plates, individually wrapped	0030 720.016
TC Treated, 5 mL, 100 plates (10 bags × 10 plates)	0030 720.130
Eppendorf Cell Culture Plates, 12-Well , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
TC Treated, 2 mL, 60 plates, individually wrapped	0030 721.110
Non-Treated, 2 mL, 60 plates, individually wrapped	0030 721.012
Eppendorf Cell Culture Plates, 24-Well , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
TC Treated, 1 mL, 60 plates, individually wrapped	0030 722.116
Non-Treated, 1 mL, 60 plates, individually wrapped	0030 722.019
Eppendorf Cell Culture Plates, 48-Well , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
TC Treated, 0.5 mL, 60 plates, individually wrapped	0030 723.112
Non-Treated, 0.5 mL, 60 plates, individually wrapped	0030 723.015
Eppendorf Cell Culture Plates, 96-Well , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
TC Treated, 0.2 mL, 80 plates, individually wrapped	0030 730.119
Non-Treated, 0.2 mL, 80 plates, individually wrapped	0030 730.011
TC Treated, 0.2 mL, 100 plates (10 bags × 10 plates)	0030 730.135

Ordering information	
Description	Order no.
Eppendorf Cell Culture Dishes, 35 mm , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
TC Treated, 3.0 mL, 300 dishes (30 bags × 10 dishes)	0030 700.112
Non-Treated, 3.0 mL, 300 dishes (30 bags × 10 dishes)	0030 700.015
Eppendorf Cell Culture Dishes, 60 mm , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
TC Treated, 5.0 mL, 300 dishes (30 bags × 10 dishes)	0030 701.119
Non-Treated, 5.0 mL, 300 dishes (30 bags × 10 dishes)	0030 701.011
Eppendorf Cell Culture Dishes, 100 mm , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
TC Treated, 10.0 mL, 300 dishes (30 bags × 10 dishes)	0030 702.115
Non-Treated, 10.0 mL, 300 dishes (30 bags × 10 dishes)	0030 702.018

Ordering information	
Description	Order no.
Eppendorf Cell Culture Flasks T-25 , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
with filter cap, TC Treated, 7.0 mL, 192 flasks (24 bags × 8 flasks)	0030 710.126
with plug-seal cap, TC Treated, 7.0 mL, 192 flasks (24 bags × 8 flasks)	0030 710.118
with filter cap, Non-Treated, 7.0 mL, 192 flasks (24 bags × 8 flasks)	0030 710.029
with plug-seal cap, Non-Treated, 7.0 mL, 192 flasks (24 bags × 8 flasks)	0030 710.010
Eppendorf Cell Culture Flasks T-75 , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
with filter cap, TC Treated, 20.0 mL, 80 flasks (16 bags × 5 flasks)	0030 711.122
TC Treated, 20.0 mL, 80 flasks (16 bags × 5 flasks)	0030 711.114
with filter cap, Non-Treated, 20.0 mL, 80 flasks (16 bags × 5 flasks)	0030 711.025
with plug-seal cap, Non-Treated, 20.0 mL, 80 flasks (16 bags × 5 flasks)	0030 711.017
Eppendorf Cell Culture Flasks T-175 , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
with filter cap, TC Treated, 30.0 mL, 48 flasks (12 bags × 4 flasks)	0030 712.129
with plug-seal cap, TC Treated, 30.0 mL, 48 flasks (12 bags × 4 flasks)	0030 712.110
with filter cap, Non-Treated, 30.0 mL, 48 flasks (12 bags × 4 flasks)	0030 712.021
with plug-seal cap, Non-Treated, 30.0 mL, 48 flasks (12 bags × 4 flasks)	0030 712.013

CCAdvanced® FN1 motifs

Description

Tired of spending precious lab time coating vessels for your iPSC- or MSC-culture, sometimes even with unpredictable culturing results? How about a xeno-free or even better, a synthetic surface ready-to-use for fully defined conditions of your stem cell culture? Improve your experiments with the new CCAdvanced® FN1 motifs cultureware today.

Get a sample, let us support you with transition and convince yourself.



Product features

- > Ready-to-use, synthetic surface for reliable expansion and differentiation
- > Synthetic fibronectin-derived motifs with optimized steric configuration
- > Easy logistics with long shelf life of 36 months at room temperature
- > Advanced protection against contamination and temperature shifts outside the incubator
- > Guideline for easy transition of iPSCs to FN1 motifs surface available

Main applications

Expansion and differentiation of:

- > Stem cells (e.g., hiPSCs, hMSCs)
- > Primary cells
- > Other ECM-sensitive eukaryotic cells
- > Feeder-free cell culture
- > Restrictive culture conditions (serum-and xeno-free)



Available formats: 6/24-well plates and T-75/T-175 flasks

Papers on detailed expansion analysis

hiPSCs - Long-term expansion

Analysis of growth rate, morphology and differentiation potential during 20 successive passages + comparison to Corning® Matrigel®



www.eppendorf.com/appnote389

hMSCs-BM - Long-term expansion

Analysis of growth rate, morphology and differentiation potential during 10 successive passages + comparison to competitors



www.eppendorf.com/appnote390

Optimized to protect your stem cells

1. Optimized temperature stability during handling outside the incubator
with inter-well space filling



2. Safer transport in stacks
with stacking aid on the lid

3. Increased handling safety
with easy differentiation of lid and plate



Materials

Material	Polystyrene, meets requirements of USP Class VI
Quality Management System (QMS)	Manufactured in compliance to the standard QMS requirements (e.g. ISO 13485)
Surface	Coated with synthetic fibronectin-derived motifs (optimized steric configuration to mimic ECM proteins)
Xeno-free	Manufactured by using animal- and human-component-free materials
Compatibility	Compatible with a broad range of cell dissociation reagents as well as serum-, animal- and human component-free media. More information under www.eppendorf.com/ccc-advanced-shop under „Notes & Papers“

Ambient Conditions

Working Temperature	15 °C to 37 °C
Storage and shelf life	Shelf life of 36 months from date of manufacture (stored dry at 15 °C to 30 °C)

Certificates

General	<ul style="list-style-type: none"> > Leachables > Trace metal release > Production conditions > Purity and cytotoxicity
Lot-specific	<ul style="list-style-type: none"> > Free from RNase/DNase, human DNA, bacterial DNA, endotoxins > Sterility assurance level (SAL 10⁻³) > Cell growth test on Eppendorf Mimitate FN1 motifs consumables

Ordering information

Description	Order no.
CCCadvanced® FN1 motifs Cell Culture Plates, 6-well, with lid, flat bottom, Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic, 5 plates, individually wrapped	0038 110.010
CCCadvanced® FN1 motifs Cell Culture Plates, 24-well, with lid, flat bottom, Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic, 5 plates, individually wrapped	0038 110.030
CCCadvanced® FN1 motifs Cell Culture Flasks, T-75, with filter cap, Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic, 5 flasks, individually wrapped	0038 120.020
CCCadvanced® FN1 motifs Cell Culture Flasks, T-175, with filter cap, Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic, 5 flasks, individually wrapped	0038 120.030

Eppendorf Cell Imaging Consumables

Description

Eppendorf Cell Imaging Consumables allow sophisticated imaging and microscopy applications on an expert level. The products combine premium performance with innovative solutions for demanding optical analysis and fluorescent stainings. Whether you perform inverse microscopy, life cell imaging or fluorescence-based analysis: Find tailored solutions for single and parallel analysis as well as High Content Analysis (HCA) with Eppendorf Cell Imaging Consumables.



Eppendorf Cell Imaging Plates

Eppendorf Cell Imaging Plates with film bottom have excellent light transmission rates even for UV-A and UV-B light. The autofluorescence of the material is lower than a conventional polystyrene bottom with a significant reduction in background signaling. Furthermore, the film bottom enables high gas transfer: oxygen supply and equilibration with the atmosphere are achieved directly through the plate bottom. The glass bottom plates offer excellent planarity for sophisticated microscopic analysis.

Eppendorf Cell Imaging Slides

Eppendorf Cell Imaging Slides and Coverglasses offer a high chemical resistance of materials for reliable and reproducible results in fixation protocols. Tool-free and easy removal of chambers from Cell Imaging Slides and Coverglasses makes working easy, convenient and reliable. Products are available with one to eight chambers to suit a variety of applications.

Eppendorf Cell Imaging Dishes

Eppendorf Cell Imaging Dishes ensure excellent results in high resolution microscopy of living and fixed cells. The bottom of the 35 mm dishes is made from cover glass. The central 18 mm cavity is lower than the level of the surrounding polystyrene dish, which enables the concentration of the cells during seeding on the glass surface and helps to reduce costs of antibodies and dyes. Plate handling and reference are easy, safe, and convenient due to a polygonal gripping zone and directional orientation marking.

Eppendorf Cell Imaging Consumables

Product features

- > Outstanding performance of glass and film surfaces for adherent cells due to innovative tissue culture treatment
- > Low intrinsic fluorescence and high light transmission for enhanced signal-to-noise ratio
- > Easy access to the complete imaging area with immersion lenses for alleviated handling and advanced compatibility with microscopes
- > Ergonomic and robust design
- > Precise planarity supports high resolution microscopes and autofocus systems



Special Features Cell Imaging Plates

- > All plate types have a low skirt design perfectly suited to access all wells with immersion objectives
- > An excellent signal-to-noise ratio can be expected regardless of the plate bottom type
- > Excellent planarity of all plates ensures unsurpassed manual handling and reliable results in automated devices
- > Individually wrapped for reliable purity
- > The ultrathin film bottom allows for high gas permeability and UV-light transparency, ideal for phototoxicity and hypoxic studies

Special Features Cell Imaging Slides and Coverglasses

- > Choose between a microscopic slide with 1 mm thickness or a 170 μm coverglass, both providing excellent signal-to-noise ratios in fluorescent staining protocols
- > Chambers and lids show high chemical resistance, so fixation even with acetone is possible without problems
- > Benefit from easy and tool-free removal of the chambers with minimized glue residues

Special Features Cell Imaging Dishes

- > An 18 mm central cavity for defined growth and staining of cells for reduced costs of antibodies and dyes
- > Polygonal gripping zone for improved handling
- > Macroscopic orientation marks facilitate easy orientation
- > Low rim side walls allow easy access for microinjection/micromanipulation
- > Available thickness: 145 μm and 170 μm

How to simplify handling of imaging consumables



www.eppendorf.com/cic-video1

How to mount cells for fluorescent microscopy



www.eppendorf.com/cic-video2

i For more information go to www.eppendorf.com

Ordering information

Description	Order no.
Eppendorf Cell Imaging Plates , with lid, black with clear F-bottom, Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
24-Well Cell Imaging Plate with 170 μm coverglass bottom, individually wrapped, 20 pcs.	0030 741.021
96-Well Cell Imaging Plate with 170 μm coverglass bottom, individually wrapped, 20 pcs.	0030 741.030
24-Well Cell Imaging Plate with 25 μm film bottom, individually wrapped, 20 pcs.	0030 741.005
96-Well Cell Imaging Plate with 25 μm film bottom, individually wrapped, 20 pcs.	0030 741.013

Ordering information

Description	Order no.
Eppendorf Cell Imaging Dishes , with coverglass bottom, Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
35 x 10 mm Cell Imaging Dish 145 μm (1), 2 dishes per bag, 30 pcs.	0030 740.009
35 x 10 mm Cell Imaging Dish 170 μm (1.5), 2 dishes per bag, 30 pcs.	0030 740.017

Ordering information

Description	Order no.
Eppendorf Cell Imaging Slides , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic, Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
Cell Imaging Slide with 1 chamber, individually wrapped, 16 pcs.	0030 742.044
Cell Imaging Slide with 2 chambers, individually wrapped, 16 pcs.	0030 742.052
Cell Imaging Slide with 4 chambers, individually wrapped, 16 pcs.	0030 742.060
Cell Imaging Slide with 8 chambers, individually wrapped, 16 pcs.	0030 742.079
Eppendorf Cell Imaging Coverglasses , Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic, Sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic	
Cell Imaging Coverglass with 1 chamber, individually wrapped, 16 pcs.	0030 742.001
Cell Imaging Coverglass with 2 chambers, individually wrapped, 16 pcs.	0030 742.010
Cell Imaging Coverglass with 4 chambers, individually wrapped, 16 pcs.	0030 742.028
Cell Imaging Coverglass with 8 chambers, individually wrapped, 16 pcs.	0030 742.036



New

Model	Galaxy® 48 R	CellXpert® C170i
Positioning	Mid size (48 L) CO ₂ incubator for isolation applications (also hypoxic) and small labs	Large (170 L) CO ₂ incubator with advanced interface, easy monitoring/documentation/cleaning etc.
Page(s)	316	318
Capacity	48 L	170 L
Dimensions (W x D x H)	48.3 x 47.5 x 64.5 cm	71.8 x 70.5 x 90.0 cm
Dimensions internal (W x D x H)	40.1 x 30.5 x 40.1 cm	53.9 x 44.5 x 69.2 cm
Weight w/o accessories	31.8 kg	81 kg
Benchtop (B), Under Bench (U), Floor (F) or Stackable (S)	B, U, F, S (x2)	B, U, F, S (x2)
Display	standard display	touchscreen
High temperature disinfection (HTD)	120 °C optional	180 °C standard
Sealed inner glass doors	–	standard
Segmented doors	2 segments (factory & in-field upgradeable)	–
Temperature range	Ambient +4 °C to 50 °C	Ambient +4 °C to 50 °C
Temperature control increment	±0.1 °C	±0.1 °C
Temperature stability at 37 °C	±0.1 °C	±0.1 °C
Temperature uniformity	±0.3 °C	±0.3 °C
CO ₂ range	0.1 – 20 %	0.1 – 20 %
CO ₂ control increment	±0.1 %	±0.1 %
CO ₂ stability at 5 % CO ₂	±0.2 %	±0.1 %
CO ₂ uniformity	±0.1 %	±0.1 %
O ₂ control	0.1 – 19 % or 1 – 19 % optional	–
Number of shelves (standard/max)	3/6	4/8
Copper package	–	optional
Access port	1	2
On-board data logging	standard	standard
Data export interface	RS-232, VisioNize® box	USB, Ethernet, VisioNize® onboard
Water/Humidity monitoring	optional	–
BMS relay	standard	standard
4 – 20 mA interface (for remote monitoring)	–	optional



New

Model	CellXpert® C170	New Brunswick™ S41i
Positioning	Basic version of the C170i	Large (170 L) CO ₂ incubator with integrated shaker inside
Page(s)	322	323
Capacity	170 L	170 L
Dimensions (W x D x H)	71.8 x 70.5 x 90.0 cm	83.4 x 73 x 84.8 cm / 32.8 x 28.7 x 33.4 in
Dimensions internal (W x D x H)	53.9 x 44.5 x 69.2 cm	69.1 x 44.4 x 53.8 cm
Weight w/o accessories	81 kg	152 kg
Benchtop (B), Under Bench (U), Floor (F) or Stackable (S)	B, U, F, S (x2)	U, F, S (x2)
Display	standard display	touchscreen
High temperature disinfection (HTD)	140 °C standard	120 °C standard
Sealed inner glass doors	standard	standard
Segmented doors	1	–
Temperature range	Ambient +4 °C to 50 °C	Ambient +4 °C to 50 °C
Temperature control increment	±0.1 °C	±0.1 °C
Temperature stability at 37 °C	±0.1 °C	±0.1 °C
Temperature uniformity	±0.3 °C	±0.25 °C at 37 °C
CO ₂ range	0.1 – 20 %	0.1 – 20 %
CO ₂ control increment	±0.1 %	±0.1 %
CO ₂ stability at 5 % CO ₂	±0.1 %	±0.2 %
CO ₂ uniformity	±0.1 %	±0.1 %
O ₂ control	–	–
Number of shelves (standard/max)	3/6	1/2
Copper package	–	–
Access port	2	1
On-board data logging	–	standard
Data export interface	Ethernet, VisioNize® box	Ethernet, VisioNize® box
Water/Humidity monitoring	–	–
BMS relay	standard	standard
4 – 20 mA interface (for remote monitoring)	optional	–



For more information go to www.eppendorf.com

Technical specifications subject to change.



On page 396 you will find detailed information on services for these products!

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Galaxy[®] 48 R

Description

The Galaxy 48 R CO₂ Incubator is a mid-sized, 48 liter incubator designed to optimize performance in applications that require a higher level of isolation and can be used in small labs. The 48 R series of incubators feature a large backlit display with on screen help menu, control and data logging of temperature, CO₂, door openings, alarms, and optional O₂ gas and humidity monitoring.



Product features

- > 48 Liter (1.7 ft³) provides mid-sized capacity within a small footprint
- > Options: High Temp. Disinfection (4 hour at 120 °C), O₂ control (e.g. for hypoxic studies), 2-split inner glass door
- > Fanless design offers more usable space
- > Six-sided direct heating system provides a uniform incubated environment
- > Deep-drawn, easy-to-clean stainless steel chamber without seams or welds
- > Low gas consumption
- > Integrated alarm relay



One piece seamless chamber minimizes contamination risk and simplifies cleaning



Integrated, heated, viewing window in outer door allows observation without disturbing cultures

Ordering information

Description	Order no.
Galaxy[®] 48 R, 48 L, Stock, 230 V/50/60 Hz	
Standard	C048300001
1 – 19 % O ₂ Control	C048320001
High-Temp Disinfection	C048310001
High-Temp Disinfection, 1 – 19 % O ₂ Control	C048330001
Galaxy[®] 48 R, 48 L, Built to Order, 230 V/50/60 Hz	
High-Temp Disinfection, 2-Split Inner Door	C048312001
High-Temp Disinfection, 0.1 – 19 % O ₂ Control	C048310041
High-Temp Disinfection, 0.1 – 19 % O ₂ Control, Humidity Package	C048310061
High-Temp Disinfection, 0.1 – 19 % O ₂ Control, 2-Split Inner Door	C048312041
High-Temp Disinfection, 0.1 – 19 % O ₂ Control, 2-Split Inner Door, Humidity Package	C048312061
High-Temp Disinfection, 1 – 19 % O ₂ Control, 2-Split Inner Door	C048332001
High-Temp Disinfection, 1 – 19 % O ₂ Control, 2-Split Inner Door, Humidity Package	C048332011

✂ Ordering information for other voltage options begins on page 418

Galaxy[®] 48 R shelves, pans and stacking stand

Description	Order no.
Lower stacking frame, with casters	6705 070.103
Upper stacking frame	6705 070.111
Under-bench stand	6705 070.120
2-split inner door	6705 851.040
Multi-position shelf rack, 6 position	6705 851.016
Additional shelf, perforated	P0628-5080
Additional humidity tray, stainless steel	P0628-5940

For more information go to www.eppendorf.com

Technical specifications subject to change.

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CellXpert® C170i

Make your cell culture ready for the future

Are you looking for a 170 L-class CO₂ incubator that provides flexibility for the future, makes monitoring and documentation easy and provides optimized growth conditions, even for your sensitive cells? An incubator that also saves money and is produced with highest quality standards? Welcome the new CellXpert C170i and learn more below.

CellXpert – a new family of Eppendorf CO₂ incubators

New



Stay flexible for the future

- > In-field changeable door handle position (left/right)
- > Advanced user interface for easy and full control over parameter setting, monitoring and documentation
- > Easy documentation
- > Two access ports for experiments inside the incubator with user-validated devices

Safety for your cells

- > Uniform temperature verified at 27 points (German DIN 12880 norm) by multiple temperature sensors and four individually controlled heating circuits
- > Fast temperature and CO₂ recovery < 5 min without overshoot with advanced microprocessor control
- > 180 °C high temperature disinfection
- > Vibration and turbulence protection by fan-less design

Save money

- > Up to 25 % more usable space with fan-less design
- > Significantly reduced gas consumption by smart gas control
- > No internal spare parts that need regular replacement (Hepa-filters, UV-lamps etc.)
- > Increased workflow speed for handling, cleaning and documentation

For more information go to www.eppendorf.com

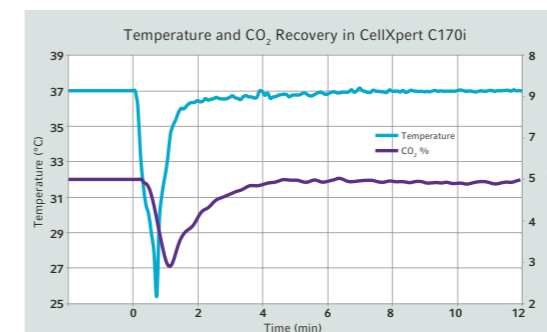
Technical specifications subject to change.



Full control and easy documentation with the intuitive to use, clearly arranged VisioNize® user interface. Export performance charts or HTD-protocols within seconds via the integrated USB ports at the front.



Easy to handle: The magnetic door locking concept significantly reduces opening forces of the tightly sealed doors. The dual way inner door latches are simply pulled to open and pushed or turned to close the inner door. This way, the mechanism can adjust to different user habits. It also offers advanced vibration protection for sensitive cells when the door latch is turned to close.



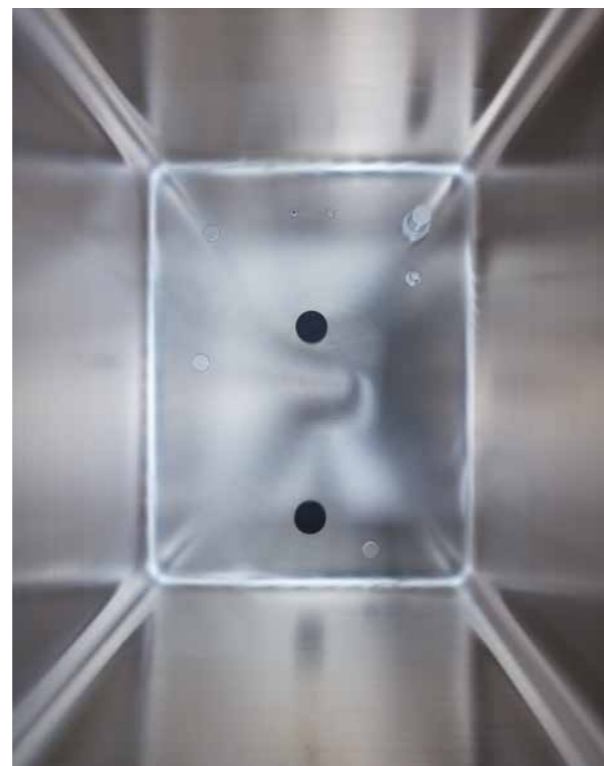
Highly homogenous growth conditions and fast recovery: A fast feedback CO₂ sensor, multiple temperature sensors, four individually controlled heating circuits and advanced microprocessor control ensure optimal growth conditions.



Want to know more about the CellXpert and see it in 360°?
www.eppendorf.com/cellxpert

CellXpert® C170i

New



Up to 25 % more space: The fan-less design, the smart racking system and an innovative insulation concept ensure highest capacity with minimal footprint.

Easy cleaning and disinfection: Disassemble the interior within 40 seconds, quickly wipe the seamless chamber, and start the HTD by push of a button. If it is easy, it gets done.

	C170i	C170
Display	Touchscreen, onboard data log	Standard display
High temperature disinfection	180 °C standard (protocol downloadable)	140 °C standard
Inner door latch	magnetic, dual way	magnetic, single way
VisioNize®	onboard	box
User management (incl. option to restrict access to parameter settings and HTD-start)	yes	no
Customized tasks	yes	no
USB port	2 (front)	no

For more information go to www.eppendorf.com

Technical specifications subject to change.

Ordering information

Door handle	Water/Humidity monitoring	Copper package	Order no.
right	-	-	6731 000.011
right	-	yes	6731 000.511
left	-	-	6731 000.021
left	-	yes	6731 000.521

CellXpert C170/C170i shelves, pans and stacking stand

Description	Order no.
Mid/upper stacking frame	6710 070.200
Lower stacking frame, with casters	6710 070.219
Additional shelves (2), perforated	6710 859.009
Multi-position shelf rack, 8 position, (standard on Galaxy® 170 R, optional on Galaxy® 170 S)	P0628-6390
Additional humidity tray, copper	P0628-6260
Additional humidity tray, stainless steel	P0628-6140



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CellXpert® C170

A reliable partner for your cell culture

Looking for a CO₂ incubator with a highly uniform atmosphere, fast recovery and effective contamination protection? A device that is easy to clean and use with a high useable volume to footprint ratio? Learn more about the CellXpert C170, the basic version of the C170i. CellXpert – a new family of Eppendorf CO₂ incubators.



Optimal growth conditions

- > Uniform temperature verified at 27 points (German DIN 12880 norm) by multiple temperature sensors and four individually controlled heating circuits
- > Fast temperature and CO₂ recovery < 5 min without overshoot with advanced microprocessor control
- > Vibration and turbulence protection by fan-less design

Effective contamination prevention

- > 140 °C High Temperature Disinfection
- > Easy cleaning with seamless chamber, fast disassembling
- > Fan-less design
- > No internal Hepa-filters that potentially contaminate the chamber after HTD

Save money

- > Up to 25 % more usable space with fan-less design
- > No internal spare parts that need regular replacement (Hepa-filters, UV-lamps etc.)
- > Increased workflow speed for handling and cleaning

Ordering information

Description	Order no.
CellXpert® C170, non-segmented inner door, handle right side, 220 – 240 V/50 – 60 Hz	6734 000.011

New Brunswick™ S41i

Description

The New Brunswick S41i is the only CO₂ incubator with an Eppendorf shaker inside. The S41i precisely controls temperature, shaking speed, and CO₂, providing the ideal environment for growing mammalian and stem cells in culture. Accepts flasks up to 4 liters. Standard perforated shelf allows for static incubation at the same time as shaking and a second static shelf can be added as an option. Renowned 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 ensures that heat generated by the drive does not affect the critical environment within the chamber. The intuitive touch screen display and controls allow you to operate and monitor performance.



Product features

- > Temperature range from 4 °C above ambient to 50 °C
- > Shaking speeds between 25 – 400 rpm, 25 – 300 rpm if stacked
- > Large 35.6 × 61 cm (14 in × 24 in) platform accommodates flasks up to 4 liters providing flexibility with your cultures
- > Single or double stacked for increased capacity
- > Inner and outer door saves valuable gass while maintaining the perfect environment for your cells
- > Standard High Temperature Disinfection provides a sterile surface protecting your cells
- > Intuitive touch screen ensures precise control of the culturing environment
- > Perforated shelf allows for static incubation at the same time as shaking

New Brunswick™ S41i	
Universal platform	M1334-9920
125 mL Erlenmeyer flasks	20
250 mL Erlenmeyer flasks	16
500 mL Erlenmeyer flasks	12
1 L Erlenmeyer flasks	10
2 L Erlenmeyer flasks	4
2 L Lauber Thompson	4
2.8 L Fernbach flasks	3
3 L Erlenmeyer flasks	3
4 L Erlenmeyer flasks	3
Test tube rack, small, 30.0 x 8.0 x 12.9 cm	6
Test tube rack, medium, 36 x 8 x 12.9 cm	3
Test tube rack, large, 45 x 8 x 12.9 cm	3
Platform size	36 x 61 cm (14 x 24 in)

New Brunswick™ S41i



Applications

- > Culturing of 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

Ordering information

Description	Order no.
New Brunswick™ S41i , 170 L, CO ₂ incubator shaker with inner shelf and touch screen control, 1 shelf, 1 (2. optional) shelves, 230 V/50 Hz, orbit diameter 2.5 cm (1 in)	S41I230011
Interchangeable platform for New Brunswick™ S41i , 35.6 × 61 cm (14 × 24 in)	
Universal platform	M1334-9920
125 mL Erlenmeyer flask dedicated platform, comes complete with 32 clamps installed	M1334-9921
250 mL Erlenmeyer flask dedicated platform, comes complete with 24 clamps installed	M1334-9922
500 mL Erlenmeyer flask dedicated platform, comes complete with 15 clamps installed	M1334-9923
1 L Erlenmeyer flask dedicated platform, comes complete with 11 clamps installed	M1334-9924
2 L Erlenmeyer flask dedicated platform, comes complete with 6 clamps installed	M1334-9925
2.8 L Erlenmeyer flask dedicated platform, comes complete with 3 clamps installed	M1334-9926
4 L Erlenmeyer flask dedicated platform, comes complete with 3 clamps installed	M1334-9927
Stacking kit , allows up to 2 each New Brunswick™ S41i shakers to be stacked one on top of the other	P0628-6502
Additional shelf for New Brunswick™ S41i , perforated, can easily be added to the New Brunswick S41i for static cell culture of adherent cells	P0628-6181
Sticky pad adaptor kit , 2 anodized aluminum sheets, each 15.2 x 45.7 cm (6 x 18 in)	M1250-9504
Sticky pad , 20 × 20 cm (8 × 8 in)	M1250-9700

✎ Ordering information for other voltage options begins on page 418

CO₂ Incubators Accessories

CO₂ Incubators Accessories

Description	Order no.
Galaxy® CO₂, O₂, and RH gas analyzer	P0628-7890
Autozero port filter	P0628-5060
CO₂ cylinder auto-changeover controller	P0628-5000
In-line gas filter for Eppendorf CO₂ incubators, 2 pieces	6710 070.251
Temperature probe, 5 mm tip for gas analyzer	P0628-7880
Temperature probe, 100 mm tip for gas analyzer	P0628-7881
Galaxy® CO₂ gas analyzer	P0628-6150
Galaxy® CO₂ and O₂ gas analyzer	P0628-6831

Cell Handling



Model	Innova® 40/40R	Innova® 42/42R	Innova® 43/43R
Page(s)	330	331	332
Dimensions (W x D x H)	55.9 x 76.2 x 61 cm / 22 x 30 x 24 in	62 x 75.4 x 82 cm / 32.3 x 29.7 x 32.3 in	115.6 x 81.3 x 103.1 cm / 45.5 x 20 x 40.6 in
External height (with lid/door open)	101.6 cm (40 in)	–	165.1 cm (65 in)
External depth (with lid/door open)	–	131 cm (51.6 in)	–
Weight w/o accessories	60 kg / 133 lb	99 kg / 217 lb	202 kg / 445 lb
Audible and visual alarms	yes	yes	yes
Available program modes	> Constant speed and temperature > Programmable multi-steps > RS-232 communication port	> Constant speed and temperature > Programmable multi-steps > RS-232 communication port	> Constant speed and temperature > Programmable multi-steps > RS-232 communication port
Drive mechanism	Triple-eccentric	Triple-eccentric	Triple-eccentric
cETLus and CE marked	yes	yes	yes
Benchtop (B), Under Bench (U), Floor (F) or Stackable (S)	B	B, U, S (x2)	F
Memory	Non volatile with automatic power failure restart	Non volatile with automatic power failure restart	Non volatile with automatic power failure restart
Motor type	Solid state, DC brushless motor	Solid state, DC brushless motor	Solid state, DC brushless motor
Platform size	46 x 46 cm (18 x 18 in)	46 x 46 cm (18 x 18 in)	76 x 46 cm (30 x 18 in)
Slide-out platform	no	no	no
Space-saving glide-up doors	no	no	no
Speed range	25 – 500 rpm	25 – 400 rpm; 25 – 300 rpm when stacked and using flasks larger than 500 mL	25 – 500 rpm with 2.5 cm orbit; 25 – 300 rpm with 5.1 cm orbit
Steps per program	15	15	15
Stored programs	4	4	4
Temperature range	5 °C above ambient to 80 °C. (Innova 40R: 15 °C below ambient to 80 °C)	–	5 °C above ambient to 80 °C. (Innova 43R: 20 °C below ambient to 80 °C)
Temperature uniformity	±0.25 °C at 37 °C	±0.25 °C at 37 °C	±0.25 °C at 37 °C
Timer	0.01 – 99.59 h, continuous	0.01 – 99.59 h, continuous	0.01 – 99.59 h, continuous
Orbit	1.9/2.5 cm (0.75/1 in)	–	2.5/5.1 cm (1/2 in)



Model	Innova® 44/44R	Innova® S44i	Excella® E24/E24R	Excella® E25/E25R
Page(s)	333	334	336	337
Dimensions (W x D x H)	135 x 87.3 x 66 cm / 53.1 x 33.2 x 26 in	118.2 x 95.8 x 63.1 cm / 46.5 x 37.7 x 24 in	56 x 76.2 x 61 cm / 22 x 30 x 24 in	127 x 77 x 105.9 cm / 50 x 30.5 x 41.7 in
External height (with lid/door open)	119.3 cm (47 in)	115.8 cm (45.6 in)	101.6 cm (40 in)	165.1 cm (65 in)
External depth (with lid/door open)	–	–	–	–
Weight w/o accessories	238 kg / 525 lb	198 kg / 437 lb	60 kg / 133 lb	171 kg / 377 lb
Audible and visual alarms	yes	yes	yes	yes
Available program modes	> Constant speed and temperature > Programmable multi-steps > RS-232 communication port	> Constant speed and temperature > Timed mode up to 95:59 hours > Programming mode with multiple steps and cycling of program	> Constant speed and temperature > Timed shaking	> Constant speed and temperature > Timed shaking
Drive mechanism	Triple-eccentric	Eppendorf X-Drive with semi-automated counterbalance	Heavy-duty with permanently lubricated ball bearings	Heavy-duty with automatic power failure restart
cETLus and CE marked	yes	yes	yes	yes
Benchtop (B), Under Bench (U), Floor (F) or Stackable (S)	F, S (x3)	F, S (x3)	B	F
Memory	Non volatile with automatic power failure restart	Non volatile with automatic power failure restart	Non volatile with automatic power failure restart	Non volatile with automatic power failure restart
Motor type	Solid state, DC brushless motor	Solid state, DC brushless motor	Solid state, DC brushless motor	Solid state, DC brushless motor
Platform size	76 x 46 cm (30 x 18 in)	76 x 62 cm (30 x 24 in)	46 x 46 cm (18 x 18 in)	76 x 46 cm (30 x 18 in)
Slide-out platform	yes	yes	no	no
Space-saving glide-up doors	yes	yes	no	no
Speed range	25 – 400 rpm with 2.5 cm orbit; 25 – 300 rpm with 5.1 cm orbit or 2 stacked units; 25 – 250 rpm with 3 stacked units	2.5 cm orbit: 20 – 400 rpm adjustable at 1 rpm increment; 5.1 cm orbit: 20 – 300 rpm at 1 rpm increment	50 – 400 rpm	50 – 400 rpm
Steps per program	15	unlimited	–	–
Stored programs	4	unlimited	–	–
Temperature range	5 °C above ambient to 80 °C. (Innova 44R: 20 °C below ambient to 80 °C)	Incubated: 5 °C above ambient to 80 °C; Refrigerated: 20 °C below ambient (min. 4 °C) to 80 °C.	7 °C above ambient to 60 °C. (Excella 24R: 15 °C below ambient to 60 °C)	7 °C above ambient to 60 °C. (Excella 25R: 15 °C below ambient to 60 °C)
Temperature uniformity	±0.25 °C at 37 °C	±0.25 °C at 37 °C and 250 rpm	±0.5 °C at 37 °C	±0.5 °C at 37 °C
Timer	0.01 – 99.59 h, continuous	0.01 – 95.59 h, continuous	0.1 – 99.9 h	0.1 – 99.9 h
Orbit	2.5/5.1 cm (1/2 in)	2.5/5.1 cm (1/2 in)	1.9 cm (0.75 in)	2.5 cm (1 in)

For more information go to www.eppendorf.com



On page 398 you will find detailed information on services for these products!

Cell Handling



Model	Innova® 2000
Page(s)	339
Dimensions (W x D x H)	35.5 x 37 x 14.6 cm / 14 x 14.5 x 5.8 in
Weight w/o accessories	15 kg / 33 lb
Audible and visual alarms	yes
Drive mechanism	Triple-eccentric with permanently lubricated ball bearings
cETLus and CE marked	yes
Benchtop (B), Under Bench (U), Floor (F) or Stackable (S)	B
Motor type	Solid state, DC brushless motor
Orbit	1.9 cm (0.75 in)
Platform size	33 x 28 cm (13 x 11 in)
Timer	0.1 – 99.9 h



Model	Innova® 2050
Page(s)	339
Dimensions (W x D x H)	43 x 37 x 14.6 cm / 17 x 14.5 x 5.8 in
Weight w/o accessories	16 kg / 35 lb
Audible and visual alarms	yes
Drive mechanism	Triple-eccentric with permanently lubricated ball bearings
cETLus and CE marked	yes
Benchtop (B), Under Bench (U), Floor (F) or Stackable (S)	B
Motor type	Solid state, DC brushless motor
Orbit	1.9 cm (0.75 in)
Platform size	41 x 31 cm (16 x 12 in)
Timer	0.1 – 99.9 h



Model	Innova® 2100
Page(s)	340
Dimensions (W x D x H)	48 x 55.5 x 16.3 cm / 19 x 21.9 x 6.4 in
Weight w/o accessories	34 kg / 75 lb
Audible and visual alarms	yes
Drive mechanism	Triple-eccentric with permanently lubricated ball bearings
cETLus and CE marked	yes
Benchtop (B), Under Bench (U), Floor (F) or Stackable (S)	B
Motor type	Solid state, DC brushless motor
Orbit	1.9 cm (0.75 in)
Platform size	46 x 46 cm (18 x 18 in)
Timer	0.1 – 99.9 h



Model	Innova® 2150
Page(s)	340
Dimensions (W x D x H)	60.1 x 59.1 x 16.3 cm / 24 x 23.3 x 6.4 in
Weight w/o accessories	36 kg / 80 lb
Audible and visual alarms	yes
Drive mechanism	Triple-eccentric with permanently lubricated ball bearings
cETLus and CE marked	yes
Benchtop (B), Under Bench (U), Floor (F) or Stackable (S)	B
Motor type	Solid state, DC brushless motor
Orbit	1.9 cm (0.75 in)
Platform size	61 x 46 cm (24 x 18 in)
Timer	0.1 – 99.9 h



Model	Innova® 2300
Page(s)	341
Dimensions (W x D x H)	76.2 x 56.6 x 16.3 cm / 30 x 22.3 x 6.4 in
Weight w/o accessories	48 kg / 105 lb
Audible and visual alarms	yes
Drive mechanism	Triple-eccentric with permanently lubricated ball bearings
cETLus and CE marked	yes
Benchtop (B), Under Bench (U), Floor (F) or Stackable (S)	B
Motor type	Solid state, DC brushless motor
Orbit	2.5/5.1 cm (1/2 in)
Platform size	76 x 46 cm (30 x 18 in)
Timer	0.1 – 99.9 h



Model	Innova® 2350
Page(s)	341
Dimensions (W x D x H)	91.4 x 61 x 16.3 cm / 36 x 24 x 6.4 in
Weight w/o accessories	52 kg / 115 lb
Audible and visual alarms	yes
Drive mechanism	Triple-eccentric with permanently lubricated ball bearings
cETLus and CE marked	yes
Benchtop (B), Under Bench (U), Floor (F) or Stackable (S)	B
Motor type	Solid state, DC brushless motor
Orbit	2.5/5.1 cm (1/2 in)
Platform size	91 x 61 cm (36 x 24 in)
Timer	0.1 – 99.9 h

For more information go to www.eppendorf.com

Technical specifications subject to change.

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New Brunswick™ Innova® 40/40R

Description

The Innova 40 incubated and 40R incubated and refrigerated benchtop shakers provide years of dependable operation. The cast iron Eppendorf triple-eccentric counterbalanced drive is specifically designed to support high-speed applications and heavy workloads. Innova 40 incubated shakers provide very broad temperature capabilities for culturing a wide variety of organisms in flasks up to 3 L. A Refrigeration module is built into the Innova 40R.



Product features

- > Triple-eccentric counterbalanced drive in cast iron housing provides vibration and trouble-free operation for years
- > Compact benchtop model – fits easily on the bench and holds flasks up to 3 L
- > Clear cover allows easy viewing of the cultures and lifts easily to access all samples
- > Versatile accessory platform (sold separately) accommodates flasks up to 3 L as well as test tube racks and microplate holders
- > Certified. Meets cETL, UL, CSA and CE standards



This icon tags devices that are connectable to the VisioNize® system. Further information are available at pages 10 – 11.

Ordering information

Description	Order no.
New Brunswick™ Innova® 40, Innova® 40/40R	
230 V/50 Hz, orbit diameter 1.9 cm (3/4 in)	M1299-0082
230 V/50 Hz, orbit diameter 2.5 cm (1 in)	M1299-0092
New Brunswick™ Innova® 40R, Innova® 40/40R	
230 V/50 Hz, orbit diameter 1.9 cm (3/4 in)	M1299-0086
230 V/50 Hz, orbit diameter 2.5 cm (1 in)	M1299-0096
Remote alarm option, for Innova® 44/44, Innova® 43/43, Innova® 42/42 or Innova® 40/40	M1320-8029
Drip pan, for universal platform M1250-9902	M1250-9906
Platform for Innova® 2100/40/40R/42/42R, Excella® E24/E24R, 45.7 × 45.7 cm, phenolic resin	
Universal platform, aluminum	M1250-9902
50 mL Erlenmeyer flask dedicated platform	M1194-9903
125 mL Erlenmeyer flask dedicated platform	M1194-9904
250 mL Erlenmeyer flask dedicated platform	M1194-9905
500 mL Erlenmeyer flask dedicated platform	M1194-9906
1 L Erlenmeyer flask dedicated platform	M1194-9907
2 L Erlenmeyer flask dedicated platform	M1194-9908
Sticky pad platform, sticky pads sold separately	M1250-9903
Quick-change platform kit, enables platform attachment without tools	M1192-9901
Utility carrier, holds racks and vessels between rubber-cushioned cross bars	M1194-9909
Utility tray, with non-skid rubber surface	M1194-9910
Rod kit, for utility carrier (one additional rod)	M1194-9923

Ordering information for other voltage options begins on page 418

New Brunswick™ Innova® 42/42R

Description

The Innova 42 incubated and 42R incubated and refrigerated shakers are our most versatile incubator shakers. The programmable Innova 42 and 42R provide exceptional convenience allowing you to simultaneously shake and static incubate cultures under the same conditions. Use on or under the bench, or double stacked for space savings. An optional culture drawer, gassing manifold, remote alarm, and humidity monitor are available for both models; a photosynthetic light bank and UV germicidal light are available for the 42R.



Product features

- > Cast iron triple-eccentric counterbalanced drive provides years of dependable operation
- > Programmable Innova controls automatically changes temperature, speed, and optional photosynthetic and UV germicidal lights at timed intervals
- > Large viewing window and internal light provide easy viewing of samples without the need to open the door
- > Built-in water reservoir humidifies chamber to reduce sample evaporation, while also protecting unit from spills and including a drain for easy cleaning
- > Versatile accessory platforms (sold separately) accommodates flasks up to 4 L as well as test tube racks and microplate holders

Ordering information

Description	Order no.
New Brunswick™ Innova® 42, Innova® 42/42R	
230 V/50 Hz, orbit diameter 1.9 cm (3/4 in)	M1335-0002
230 V/50 Hz, orbit diameter 2.5 cm (1 in)	M1335-0012
New Brunswick™ Innova® 42R, Innova® 42/42R	
230 V/50 Hz, orbit diameter 1.9 cm (3/4 in)	M1335-0006
230 V/50 Hz, orbit diameter 2.5 cm (1 in)	M1335-0016
Photosynthetic light bank, programmable, Innova® 42R only	M1335-0300
UV germicidal light, programmable, Innova® 42R only	M1335-0400
Humidity monitor, for Innova® 42/42R	M1335-0500
12-port gassing manifold, for Innova® 42/42R	M1335-0600
Remote alarm option, for Innova® 44/44, Innova® 43/43, Innova® 42/42 or Innova® 40/40	M1320-8029
Drip pan, for universal platform M1250-9902	M1250-9906
Platform for Innova® 2100/40/40R/42/42R, Excella® E24/E24R, 45.7 × 45.7 cm, phenolic resin	
Universal platform, aluminum	M1250-9902
50 mL Erlenmeyer flask dedicated platform	M1194-9903
125 mL Erlenmeyer flask dedicated platform	M1194-9904
250 mL Erlenmeyer flask dedicated platform	M1194-9905
500 mL Erlenmeyer flask dedicated platform	M1194-9906
1 L Erlenmeyer flask dedicated platform	M1194-9907
2 L Erlenmeyer flask dedicated platform	M1194-9908
Sticky pad platform, sticky pads sold separately	M1250-9903
Quick-change platform kit, enables platform attachment without tools	M1192-9901
Culture drawer, prevents plates from drying	M1335-0501
Stacking kit, for stacking Innova® 42/42R units	M1335-0800
Utility carrier, holds racks and vessels between rubber-cushioned cross bars	M1194-9909
Stacking kit, for stacking Innova® 4200/4230 units on top of Innova® 42/42R shakers	M1335-0810
Utility tray, with non-skid rubber surface	M1194-9910
Rod kit, for utility carrier (one additional rod)	M1194-9923
Additional perforated shelf and brackets, for Innova® 42/42R	M1335-0080

Ordering information for other voltage options begins on page 418

New Brunswick™ Innova® 43/43R

Description

The Innova 43 incubated and Innova 43R incubated and refrigerated shakers are the perfect choice for handling large quantities or large volumes of cultures with precision and ease. The cast iron triple-eccentric counterbalanced drive is specifically designed to support high-speed applications and heavy workloads.



Product features

- > Console style shaker/incubator with triple-eccentric drive – provides large capacity shaking for flasks up to 6 L
- > Programmable Innova controls – automatically changes temperature, speed, and optional photosynthetic and UV germicidal lights at timed intervals
- > Top mounted controls and display – for easy, ergonomic viewing and setting
- > Foot pedal release with easy opening lid – provides hands-free operation
- > RS-232 port for data logging
- > Built-in water reservoir humidifies chamber to reduce sample evaporation while also protecting unit from spills and including a drain for easy cleaning

Ordering information

Description	Order no.
New Brunswick™ Innova® 43, Innova® 43/43R	
230 V/50 Hz, orbit diameter 2.5 cm (1 in)	M1320-0002
230 V/50 Hz, orbit diameter 5.1 cm (2 in)	M1320-0012
New Brunswick™ Innova® 43R, Innova® 43/43R	
230 V/50 Hz, orbit diameter 2.5 cm (1 in)	M1320-0006
230 V/50 Hz, orbit diameter 5.1 cm (2 in)	M1320-0016
Photosynthetic light bank , for Innova® 43R only, orbit diameter 2.5/5.1 cm (1/2 in)	M1320-0300
UV germicidal light , in the airflow path outside the chamber reduces the bio-burden of circulated air, Innova® 43R only, orbit diameter 2.5/5.1 cm (1/2 in)	M1320-0400
12-port gassing manifold , permits direct gassing into flasks, orbit diameter 2.5/5.1 cm (1/2 in)	M1320-0500
Humidity monitor , Innova® 43/43R, orbit diameter 2.5/5.1 cm (1/2 in)	M1320-0600
Remote alarm option , for Innova® 44/44, Innova® 43/43, Innova® 42/42 or Innova® 40/40	M1320-8029
Platform for Innova® 2300/43/43R, Excella® E10/E25/E25R , 76 × 46 cm, aluminum	
Universal platform, aluminum	M1250-9920
50 mL Erlenmeyer flask dedicated platform	M1191-9908
125 mL Erlenmeyer flask dedicated platform	M1191-9909
250 mL Erlenmeyer flask dedicated platform	M1191-9910
500 mL Erlenmeyer flask dedicated platform	M1191-9911
1 L Erlenmeyer flask dedicated platform	AG-1
2 L Erlenmeyer flask dedicated platform	AG-2
2.8 L Fernbach flask dedicated platform	AG-28
6 L Erlenmeyer flask dedicated platform	AG-6
Sticky pad platform, sticky pads sold separately	M1250-9904
Utility tray , with non-skid rubber surface	AG-00

Ordering information for other voltage options begins on page 418

New Brunswick™ Innova® 44/44R

Description

The Innova 44 incubated and 44R incubated and refrigerated shakers are stackable solutions that provide very broad temperature capabilities for culturing a wide variety of organisms in flasks up to 5 L. The cast iron triple-eccentric counterbalanced drive is specifically designed to support high-speed applications and heavy workloads. Refrigeration module is built into the Innova 44R, or can be easily added to 44, at any time.



Product features

- > Stackable – up to three units for maximum space savings
- > Programmable Innova controls automatically change temperature, speed, and optional photosynthetic and UV germicidal lights at timed intervals
- > Versatile accessory platform (sold separately) accommodates flasks up to 5 L
- > Slide-out platform mechanism – provides easy and effortless access to flasks located in the front and back of the 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

Ordering information

Description	Order no.
New Brunswick™ Innova® 44, Innova® 44/44R	
230 V/50 Hz, orbit diameter 2.5 cm (1 in)	M1282-0002
230 V/50 Hz, orbit diameter 5.1 cm (2 in)	M1282-0012
New Brunswick™ Innova® 44R, Innova® 44/44R	
230 V/50 Hz, orbit diameter 2.5 cm (1 in)	M1282-0006
230 V/50 Hz, orbit diameter 5.1 cm (2 in)	M1282-0016
Photosynthetic light bank , for Innova® 44R only, orbit diameter 2.5/5.1 cm (1/2 in)	M1282-9922
12-port gassing manifold , for Innova® 44R, orbit diameter 2.5/5.1 cm (1/2 in)	M1282-0291
Humidity monitor , for Innova® 44R, orbit diameter 2.5/5.1 cm (1/2 in)	M1282-5011
UV germicidal light , for Innova® 44R only, orbit diameter 2.5/5.1 cm (1/2 in)	M1282-9921
Remote alarm option , for Innova® 44/44, Innova® 43/43, Innova® 42/42 or Innova® 40/40	M1320-8029
Aluminum platform for Innova® 44/44R , 76 × 46 cm, not interchangeable with other 76 × 46 cm platforms	
Universal platform	M1282-9904
125 mL Erlenmeyer flask dedicated platform	M1282-9905
250 mL Erlenmeyer flask dedicated platform	M1282-9906
500 mL Erlenmeyer flask dedicated platform	M1282-9907
1 L Erlenmeyer flask dedicated platform	M1282-9908
2 L Erlenmeyer flask dedicated platform	M1282-9909
2.8 L Fernbach flask dedicated platform	M1282-9910
4 L Erlenmeyer flask dedicated platform	M1282-9911
Sticky pad platform, sticky pads sold separately	M1282-9913
Heavy duty 0.95 cm-thick aluminum plate platform for Innova® 44/44R only , 76 × 46 cm, not interchangeable with other 76 × 46 cm platforms. Heavy-duty platforms are recommended for shaking full loads of flasks, 1 L and larger, containing more than 20 % volume or with baffles	
Universal platform	M1282-9915
1 L Erlenmeyer flask dedicated platform	M1282-9925
2 L Erlenmeyer flask dedicated platform	M1282-9926
Base riser , increases the height of the shaker for easier access, for Innova® 44/44R	
10.2 cm, short	M1282-0600
30.5 cm, medium	M1282-0800
40.6 cm, tall	M1282-0700
Stacking kit , for stacking one additional 44 or 44R	M1282-0500

Innova® S44i

Description

Innova S44i is a large capacity, stackable shaker with temperature control functionality. It is designed to provide maximum flask and weight capacity at a compact footprint. Eppendorf X-Drive with software-guided counterbalance adjustment supports smooth shaking of uneven and heavy loads at high speeds. All Innova S44i in a triple stack can be operated at maximum speed.

The Innova S44i supports the integration of the shaker in regulated labs with its easy-to-use touchscreen user interface with user management capability, USB ports to download operational data and Ethernet for addition to customer network. Service products including installation and operation qualification allow seamless validation of the instrument.



This icon tags devices that are connectable to the VisioNize® system. Further information are available at pages 10 – 11.

1. High flask capacity in a smaller footprint to grow more cells in less space – 33 % more 500 mL flask capacity and 80 % more weight capacity than Innova 44
2. The new Eppendorf X-Drive with semi-automated counterbalance technology for smooth and vibration-free agitation
3. Double- or triple- stack the S44i for increased capacity
4. Intuitive touchscreen interface with unlimited programming and user management capability
5. New slide-out platform design with quick-release handle provides easy access to samples even at the back of the platform
6. Glide-up door for convenient and effortless chamber access
7. Easily reach all your samples using the slide-out platform
8. Photosynthetic LED light bank option provides uniform light across the platform for cyanobacteria and algae culture

Applications

- > Grow bacteria, yeast, fungus, cyanobacteria and algae
- > Plasmid dNA production and protein expression
- > Process and media development
- > Media screening and optimization
- > Seed cultures for bioprocess scale-up
- > Biofuel research
- > Food quality testing

Ordering information

Description	Order no.
Innova® S44i, incubated, 230 V/50/60 Hz, orbit diameter 2.5 cm (1 in)	S44I300001
Innova® S44i, refrigerated, 230 V/50/60 Hz, orbit diameter 2.5 cm (1 in)	S44I310001
Innova® S44i, refrigerated, photosynthetic LED light bank, 230 V/50/60 Hz, orbit diameter 2.5 cm (1 in)	S44I311001
Innova® S44i, incubated, 230 V/50/60 Hz, orbit diameter 5.1 cm (2 in)	S44I320001
Innova® S44i, refrigerated, 230 V/50/60 Hz, orbit diameter 5.1 cm (2 in)	S44I330001
Innova® S44i, photosynthetic LED light bank, 230 V/50/60 Hz, orbit diameter 5.1 cm (2 in)	S44I331001
Universal platform	S44I040001
125 mL Erlenmeyer flask dedicated platform, 86 clamps	S44I040002
250 mL Erlenmeyer flask dedicated platform, 53 clamps	S44I040003
500 mL Erlenmeyer flask dedicated platform, 39 clamps	S44I040004

¹⁾ Maximum agitation speed of Innova® S44i reduced to 300 rpm when stacked on one Innova® 44/44R and 250 rpm when triple stacked



LED lamps with adjustable intensity for uniform coverage over entire platform



Eppendorf X-Drive with five eccentric mounting points and adjustable counterbalance provides dependable operation

Technical specifications	
Model	Innova® S44i
Agitation	
Orbit	2.5/5.1 cm (1/2 in)
Drive mechanism	Eppendorf X-Drive with semi-automated counterbalance
Speed	2.5 cm (1 in) orbit: 20 – 400 rpm 5.1 cm (2 in) orbit: 20 – 300 rpm
Maximum platform load	35.4 kg (78 lb)
Temperature range	Incubated: 5 °C above ambient to 80 °C; Refrigerated: 20 °C below ambient (min. 4 °C) to 80 °C.
Temperature accuracy	±0.1 °C at 37 °C
Temperature uniformity	±0.25 °C at 37 °C and 250 rpm
Available program modes	> Constant speed and temperature > Timed mode up to 95:59 hours > Programming mode with multiple steps and cycling of program
Communication port	USB and Ethernet
Net weight	Incubated: 186 kg (411 lb) Refrigerated: 198 kg (437 lb)
Dimensions (W × D × H)	118.2 × 95.8 × 63.1 cm / 46.5 × 37.7 × 24 in
Photosynthetic LED light bank	
Intensity range	15 to 150 par adjustable in increments of 1 par
Main wavelength	Wide band spectrum; 400 – 700 nm

Ordering information

Description	Order no.
1 L Erlenmeyer flask dedicated platform, 23 clamps	S44I040005
2 L Erlenmeyer flask dedicated platform, 15 clamps	S44I040006
2.8 L Fernbach flask dedicated platform, 8 clamps	S44I040007
4 L Erlenmeyer flask dedicated platform, 8 clamps	S44I040008
10.5 cm (4.1 in) positioning base	S44I041001
30.7 cm (12.1 in) positioning base	S44I041002
Stacking kit, double stack of Innova® S44i	S44I041005
Stacking kit, Innova® S44i to Innova® 44/44R¹⁾	S44I041006
Stacking kit, triple stack of Innova® S44i	S44I041003
Static incubation shelf	S44I042001
Darkening window shade	S44I042002

¹⁾ Maximum agitation speed of Innova® S44i reduced to 300 rpm when stacked on one Innova® 44/44R and 250 rpm when triple stacked

Ordering information for other voltage options begins on page 418

New Brunswick™ Excella® E24/E24R

Description

The benchtop Excella E24 incubated and model E24R incubated and refrigerated shakers accommodate test tubes or flasks up to 2.8 L in a tightly-sealed growth chamber featuring a clear acrylic lid for excellent visibility of all samples. A wide variety of platforms, clamps, and test tube racks provide for unlimited flexibility. The Excella E24 and E24R offer field calibration of temperature and speed through the microprocessor-controlled touch pad.



Product features

- > Heavy-duty counterbalanced drive provides long life, vibration-free, quiet, and dependable operation
- > Versatile accessory platform (sold separately) accommodates flasks up to 2.8 L as well as test tube racks and microplate holders
- > User-friendly keypad with large LED display is clearly visible and easy to set
- > Clear large lid provides excellent visibility minimizing the need to open the lid
- > Audible and visual alarms alert you to setpoint deviations or end of study
- > Acceleration/deceleration circuit prevents sudden starts and stops protecting your cells
- > Microprocessor controls precisely regulate temperature, speed and running time

Ordering information

Description	Order no.
New Brunswick™ Excella® E24 , Excella® E24/E24R	
230 V/50 Hz, orbit diameter 1.9 cm (3/4 in)	M1352-0002
New Brunswick™ Excella® E24R , Excella® E24/E24R	
230 V/50 Hz, orbit diameter 1.9 cm (3/4 in)	M1352-0006
Drip pan , for universal platform M1250-9902	M1250-9906
Platform for Innova® 2100/40/40R/42/42R , Excella® E24/E24R, 45.7 × 45.7 cm, phenolic resin	
Universal platform, aluminum	M1250-9902
50 mL Erlenmeyer flask dedicated platform	M1194-9903
125 mL Erlenmeyer flask dedicated platform	M1194-9904
250 mL Erlenmeyer flask dedicated platform	M1194-9905
500 mL Erlenmeyer flask dedicated platform	M1194-9906
1 L Erlenmeyer flask dedicated platform	M1194-9907
2 L Erlenmeyer flask dedicated platform	M1194-9908
Sticky pad platform, sticky pads sold separately	M1250-9903
Quick-change platform kit , enables platform attachment without tools	M1192-9901
Utility carrier , holds racks and vessels between rubber-cushioned cross bars	M1194-9909
Utility tray , with non-skid rubber surface	M1194-9910
Rod kit , for utility carrier (one additional rod)	M1194-9923
Spare parts kit , for E24 and E24R	M1352-6000

✎ Ordering information for other voltage options begins on page 418

New Brunswick™ Excella® E25/E25R

Description

The large console Excella E25 incubated and Excella E25R incubated and refrigerated shakers accommodate test tubes or flasks up to 6 L in a tightly-sealed growth chamber featuring a large viewing window for easy viewing of samples. A wide variety of platforms, clamps and test tube racks provide for unlimited flexibility. The Excella models E25 and E25R offer field calibration of temperature and speed through the microprocessor-controlled touch pad.



Product features

- > Heavy-duty counterbalanced drive provides long life, vibration-free, quiet and dependable operation
- > Large platform size provides increased flexibility with the number and size of cultures (sold separately)
- > Large viewing window and internal light – for easy viewing of samples without the need to open the door
- > Microprocessor controls precisely regulate temperature, speed and running time
- > Audible and visual alarms alert you to setpoint deviations or end of study
- > Powerful fan and heater provide rapid heat up and temperature recovery after door opening

Ordering information

Description	Order no.
New Brunswick™ Excella® E25 , Excella® E25/E25R, 230 V/50 Hz, orbit diameter 2.5 cm (1 in)	M1353-0002
New Brunswick™ Excella® E25R , Excella® E25/E25R, 230 V/50 Hz, orbit diameter 2.5 cm (1 in)	M1353-0006
Platform for Innova® 2300/43/43R , Excella® E10/E25/E25R, 76 × 46 cm, aluminum	
Universal platform, aluminum	M1250-9920
50 mL Erlenmeyer flask dedicated platform	M1191-9908
125 mL Erlenmeyer flask dedicated platform	M1191-9909
250 mL Erlenmeyer flask dedicated platform	M1191-9910
500 mL Erlenmeyer flask dedicated platform	M1191-9911
1 L Erlenmeyer flask dedicated platform	AG-1
2 L Erlenmeyer flask dedicated platform	AG-2
2.8 L Fernbach flask dedicated platform	AG-28
6 L Erlenmeyer flask dedicated platform	AG-6
Sticky pad platform, sticky pads sold separately	M1250-9904
Utility tray , with non-skid rubber surface	AG-00

✎ Ordering information for other voltage options begins on page 418

Open Air Shakers

Description

For shaking in ambient conditions, on the bench, or in a warm or cold room, Innova Open Air Shakers are the instrument of choice. Dependable operation is due in large part to the Eppendorf triple-eccentric counterbalanced drive. Eppendorf offers a broad-based cast-iron support mechanism properly sized to each shaker and specifically designed to support high-speed applications and heavy workloads. Innova Open Air shakers are offered in 6 different sizes offering reliable, continuous-duty shaking of test tubes and flasks up to 6 L.



Product features

- > Triple-eccentric counterbalanced drive in cast iron housing provides vibration and trouble-free operation for years
- > Quiet operation provides a favorable work environment
- > Shaking speeds between 25 – 500 rpm (± 1 rpm) provide versatility for culturing a wide range of cell types
- > Speed controlled and displayed in increments of 1 rpm
- > Includes audible and visual alarms, timer (0 – 99.9 h) with continuous operation or automatic shut-off at the end of the study
- > Enclosed electronics and mechanical components prevent internal damage from accidental spills
- > Versatile 33 x 28 cm (13 x 11 in) accessory platform (sold separately) accommodates flasks up to 500 mL
- > Low profile - less than 6" (15 cm) tall-enables use of multiple shakers in an incubator or environmental chamber

For more information go to www.eppendorf.com

Technical specifications subject to change.

New Brunswick™ Innova® 2000



Ordering information

Description	Order no.
New Brunswick™ Innova® 2000 , platform sold separately, 220/230 V/50/60 Hz, orbit diameter 1.9 cm (0.75 in)	M1190-0002
Platform for Innova® 2000 , 33 x 28 cm, stainless steel	
Universal platform	M1001-0240
10 mL Erlenmeyer flask dedicated platform	AG2-10
25 mL Erlenmeyer flask dedicated platform	M1190-9919
50 mL Erlenmeyer flask dedicated platform	M1190-9915
125 mL Erlenmeyer flask dedicated platform	M1190-9916
250 mL Erlenmeyer flask dedicated platform	M1190-9917
500 mL Erlenmeyer flask dedicated platform	M1190-9918
Utility carrier , holds glassware between rubber-cushioned cross bars	AG2-UT
Utility tray , with non-skid rubber surface	AG2-00
Rod kit , for utility carrier (one additional rod)	M1001-9920
Capacity upgrade kit , to convert a Model 2000 to a Model 2050	M1190-9910
Temperature and speed monitoring kit , for recording on an external chart recorder	M1190-9909

Ordering information for other voltage options begins on page 418

New Brunswick™ Innova® 2050



Ordering information

Description	Order no.
New Brunswick™ Innova® 2050 , platform sold separately, 220/230 V/50/60 Hz, orbit diameter 1.9 cm (0.75 in)	M1190-0012
Platform for Innova® 2050 , 40.6 x 30.5 cm, stainless steel	
Universal platform	M1190-9900
10 mL Erlenmeyer flask dedicated platform	M1190-9901
25 mL Erlenmeyer flask dedicated platform	M1190-9902
50 mL Erlenmeyer flask dedicated platform	M1190-9903
125 mL Erlenmeyer flask dedicated platform	M1190-9904
250 mL Erlenmeyer flask dedicated platform	M1190-9905
500 mL Erlenmeyer flask dedicated platform	M1190-9906
1 L Erlenmeyer flask dedicated platform	M1190-9911
Utility carrier , holds glassware between rubber-cushioned cross bars	M1190-9907
Utility tray , with non-skid rubber surface	M1190-9908

Ordering information for other voltage options begins on page 418

New Brunswick™ Innova® 2100



Ordering information	
Description	Order no.
New Brunswick™ Innova® 2100 , platform sold separately, 220/230 V/50/60 Hz, orbit diameter 1.9 cm (0.75 in)	M1194-0002
Drip pan , for universal platform M1250-9902	M1250-9906
Platform for Innova® 2100/40/40R/42/42R, Excella® E24/E24R , 45.7 × 45.7 cm, phenolic resin	
Universal platform, aluminum	M1250-9902
50 mL Erlenmeyer flask dedicated platform	M1194-9903
125 mL Erlenmeyer flask dedicated platform	M1194-9904
250 mL Erlenmeyer flask dedicated platform	M1194-9905
500 mL Erlenmeyer flask dedicated platform	M1194-9906
1 L Erlenmeyer flask dedicated platform	M1194-9907
2 L Erlenmeyer flask dedicated platform	M1194-9908
Sticky pad platform, sticky pads sold separately	M1250-9903
Quick-change platform kit , enables platform attachment without tools	M1192-9901
Utility carrier , holds racks and vessels between rubber-cushioned cross bars	M1194-9909
Utility tray , with non-skid rubber surface	M1194-9910
Rod kit , for utility carrier (one additional rod)	M1194-9923
Capacity upgrade kit , to convert a Model 2100 to a Model 2150	M1194-9926
Temperature and speed monitoring kit , for recording on an external chart recorder for Innova® 2100/2150/2300/2350	M1194-9924

✎ Ordering information for other voltage options begins on page 418

New Brunswick™ Innova® 2300



Ordering information	
Description	Order no.
New Brunswick™ Innova® 2300 , platform sold separately	
220/230 V/50/60 Hz, orbit diameter 2.5 cm (1 in)	M1191-0002
220/230 V/50/60 Hz, orbit diameter 5.1 cm (2 in)	M1191-0022
Drip pan , to catch accidental spills, for use with universal platform M1250-9920	M1250-9921
Platform for Innova® 2300/43/43R, Excella® E10/E25/E25R , 76 × 46 cm, aluminum	
Universal platform, aluminum	M1250-9920
50 mL Erlenmeyer flask dedicated platform	M1191-9908
125 mL Erlenmeyer flask dedicated platform	M1191-9909
250 mL Erlenmeyer flask dedicated platform	M1191-9910
500 mL Erlenmeyer flask dedicated platform	M1191-9911
1 L Erlenmeyer flask dedicated platform	AG-1
2 L Erlenmeyer flask dedicated platform	AG-2
2.8 L Fernbach flask dedicated platform	AG-28
6 L Erlenmeyer flask dedicated platform	AG-6
Sticky pad platform, sticky pads sold separately	M1250-9904
Utility tray , with non-skid rubber surface	AG-00
Quick-change platform kit , enables platform attachment without tools	M1191-9904
Capacity upgrade kit , to convert a Model 2300 to a Model 2350	M1191-9905
Temperature and speed monitoring kit , for recording on an external chart recorder for Innova® 2100/2150/2300/2350	M1194-9924

✎ Ordering information for other voltage options begins on page 418

New Brunswick™ Innova® 2150



Ordering information	
Description	Order no.
New Brunswick™ Innova® 2150 , platform sold separately, 220/230 V/50/60 Hz, orbit diameter 1.9 cm (0.75 in)	M1194-0012
Interchangeable platform for Innova® 2150 , 61 × 45.7 cm, phenolic resin	
Universal platform	M1194-9912
1 L Erlenmeyer flask dedicated platform	M1194-9919
2 L Erlenmeyer flask dedicated platform	M1194-9920
Utility carrier , holds glassware between rubber-cushioned cross bars	M1194-9921
Utility tray , with non-skid rubber surface	M1194-9922
Rod kit , for utility carrier (one additional rod)	M1194-9925
Quick-change platform kit , enables platform attachment without tools	M1194-9927
Temperature and speed monitoring kit , for recording on an external chart recorder for Innova® 2100/2150/2300/2350	M1194-9924

✎ Ordering information for other voltage options begins on page 418

New Brunswick™ Innova® 2350



Ordering information	
Description	Order no.
New Brunswick™ Innova® 2350 , platform sold separately	
220/230 V/50/60 Hz, orbit diameter 2.5 cm (1 in)	M1191-0012
220/230 V/50/60 Hz, orbit diameter 5.1 cm (2 in)	M1191-0032
Interchangeable platform for Innova® 2350 , 91.4 × 61 cm, marine plywood unless otherwise noted	
Universal platform	PTL-386
Universal platform, aluminum	PTL-393
125 mL Erlenmeyer flask dedicated platform	M1191-9912
250 mL Erlenmeyer flask dedicated platform	M1191-9913
500 mL Erlenmeyer flask dedicated platform	M1191-9914
Utility tray , with non-skid rubber surface	AG-21-00
Temperature and speed monitoring kit , for recording on an external chart recorder for Innova® 2100/2150/2300/2350	M1194-9924

✎ Ordering information for other voltage options begins on page 418

For more information go to www.eppendorf.com

Technical specifications subject to change.

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New Brunswick™ Innova® 5050/5051 Racking Systems



Description

Save space and stack Innova 2300 open air shakers. Model 5050 consists of a sturdy, stainless-steel rack to hold up to 4 Innova 2300 shakers. Innova 5051 rack extension can be added to support an additional 4 shakers, bringing the total number to 8 Innova 2300 shakers.

Product features

- > Includes electrical strip for power multiple shakers
- > Maximum speed 400 rpm for 2.5 cm (1 in) orbits and 300 rpm for 5.1 cm (2 in) orbits
- > Larger flasks can be accommodated by removing adjustable-height shelves
- > Comes pre-assembled

Ordering information

Description	Order no.
New Brunswick™ Innova® 5050 Rack System, 230/240 V/50/60 Hz	M1232-0101
New Brunswick™ Innova® 5051 Rack Extension, 230/240 V/50/60 Hz	M1232-0111

Clamps and Accessories for Universal Platforms



Dedicated platforms come with clamps of one size pre-installed.



Flask clamp, of one-piece stainless steel, fitted with springs for stability at elevated speeds.



Microplate racks and carriers mount to any universal platform and are used to secure microplates. Racks can either be ordered for stacking the plates or laying plates flat in a single layer.



Test tube racks, small, medium and large.

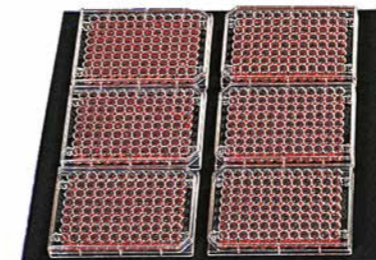


Utility carries secure vessels between adjustable, cushioned rods.



Universal platform shown with accessory clamps, test tube racks and sticky tape.

For more information go to www.eppendorf.com



Utility trays provide a non-slip surface for low-speed applications.



Sticky pad (shown) and sticky tape replace clamps for speeds up to 250 rpm. Sticky pad requires an anodized aluminum surface.

Accessories

Description	Order no.
Test tube rack, small, 30.0 x 8.0 x 12.9 cm	
diameter 8 – 11 mm, 48 tubes	M1289-0001
diameter 12 – 15 mm, 34 tubes	M1289-0002
diameter 15 – 18 mm, 24 tubes	M1289-0003
diameter 18 – 21 mm, 18 tubes	M1289-0004
diameter 22 – 26 mm, 13 tubes	M1289-0005
diameter 26 – 30 mm, 12 tubes	M1289-0006
Test tube rack, medium, 36 x 8 x 12.9 cm	
diameter 8 – 11 mm, 60 tubes	M1289-0010
diameter 12 – 15 mm, 44 tubes	M1289-0020
diameter 15 – 18 mm, 31 tubes	M1289-0030
diameter 18 – 21 mm, 23 tubes	M1289-0040
diameter 22 – 26 mm, 16 tubes	M1289-0050
diameter 26 – 30 mm, 16 tubes	M1289-0060
Test tube rack, large, 45 x 8 x 12.9 cm	
diameter 8 – 11 mm, 80 tubes	M1289-0100
diameter 12 – 15 mm, 60 tubes	M1289-0200
diameter 15 – 18 mm, 42 tubes	M1289-0300
diameter 18 – 21 mm, 30 tubes	M1289-0400
diameter 22 – 26 mm, 22 tubes	M1289-0500
diameter 26 – 30 mm, 20 tubes	M1289-0600
Clamp, for 1 L media bottles	ACSB-1000S
Clamp, for 500 mL media bottles	ACSB-500S
Angled test tube rack holder, for user-supplied test tube racks and microplates	TTR-210
Spacer bar for TTR-210	TTR-215
Microplate rack, single layer, for single layer of five plates	TTR-221
Microplate rack, stack, stack three deepwell or nine standard plates	M1289-0700
Sticky pad adaptor kit, 2 anodized aluminum sheets, each 15.2 x 45.7 cm (6 x 18 in)	M1250-9504
Sticky tape, 500 x 4.1 cm (16.4 feet x 1.6 in) roll	M1250-9600
Sticky pad, 20 x 20 cm (8 x 8 in)	M1250-9700
Drip pan, for universal platform M1250-9902	M1250-9906
Drip pan, to catch accidental spills, for use with universal platform M1250-9920	M1250-9921

Universal Platforms and Clamps for Incubated Shakers

Universal Platforms and Clamps for Incubated Shakers

	Innova® 40/40R	Innova® 42/42R	Innova® 43/43R	Innova® 44/44R
	M1250-9902	M1250-9902	M1250-9920	M1282-9904
10 mL Erlenmeyer flasks	109	109	183	187
25 mL Erlenmeyer flasks	64	64	92	93
50 mL Erlenmeyer flasks	45	45	92	91
125 mL Erlenmeyer flasks	21	21	39	39
250 mL Erlenmeyer flasks	18	18	30	30
500 mL Erlenmeyer flasks	14	14	18	24
1 L Erlenmeyer flasks	8	8	12	14
2 L Erlenmeyer flasks	5	5	8	8
500 mL media bottle flask	9	9	19	18
1 L media bottle flask	8	8	13	13
2 L Lauber Thompson	5	5	8	8
2.8 L Fernbach flasks	4	4	6	6
3 L Erlenmeyer flasks	4	4	6	6
4 L Erlenmeyer flasks		4	6	6
5 L Erlenmeyer flasks		4	6	6
6 L Erlenmeyer flasks		2	4	
Microplate rack, single layer	5	2	4	4
Microplate rack, stack	8	8	16	16
Test tube rack, small, 30.0 x 8.0 x 12.9 cm	5	5	9	9
Test tube rack, medium, 36 x 8 x 12.9 cm	5	5	9	9
Test tube rack, large, 45 x 8 x 12.9 cm	4	4	7	7
Platform size	46 x 46 cm (18 x 18 in)	46 x 46 cm (18 x 18 in)	76 x 46 cm (30 x 18 in)	76 x 46 cm (30 x 18 in)

Dedicated Platforms and Clamps for Incubated Shakers

	Innova® 40/40R		Innova® 42/42R		Innova® 43/43R	
	Clamps	Order no.	Clamps	Order no.	Clamps	Order no.
50 mL Erlenmeyer flasks	64	M1194-9903	64	M1194-9903	108	M1191-9908
125 mL Erlenmeyer flasks	34	M1194-9904	34	M1194-9904	60	M1191-9909
250 mL Erlenmeyer flasks	25	M1194-9905	25	M1194-9905	40	M1191-9910
500 mL Erlenmeyer flasks	16	M1194-9906	16	M1194-9906	24	M1191-9911
1 L Erlenmeyer flasks	9	M1194-9907	9	M1194-9907	15	AG-1
2 L Erlenmeyer flasks	5	M1194-9908	5	M1194-9908	12	AG-2
2.8 L Fernbach flasks	4	M1233-9932	4	M1233-9932	6	AG-28
4 L Erlenmeyer flasks			4	M1233-9930	6	AG-4
6 L Erlenmeyer flasks					4	AG-6
Sticky platform		M1250-9903		M1250-9903		M1250-9904
Platform size	46 x 46 cm (18 x 18 in)		46 x 46 cm (18 x 18 in)		76 x 46 cm (30 x 18 in)	

For more information go to www.eppendorf.com

Innova® S44i	Excella® E24/E24R	Excella® E25/E25R	Clamp	Clamp
M1250-9920	M1250-9902	M1250-9920	Order no.	Dimensions (W x H)
238	109	183	ACE-10S	31 x 26 mm
238	64	92	M1190-9004	38 x 21 mm
130	45	92	M1190-9000	51 x 26 mm
81	21	39	M1190-9001	66 x 36 mm
49	18	30	M1190-9002	79 x 48 mm
36	14	18	M1190-9003	100 x 52 mm
20	8	12	ACE-1000S	120 x 63 mm
13	5	8	ACE-2000S	152 x 71 mm
20	9	19	ACSB-500S	110 x 108 mm
20	8	13	ACSB-1000S	129 x 146 mm
13	5	8	M1190-9005	168 x 112 mm
8	4	6	ACFE-2800S	198 x 66 mm
8	4	6	ACE-3000S	189 x 128 mm
8		6	ACE-4000S	196 x 95 mm
6		6	ACE-5000S	222 x 145 mm
4		4	ACE-6000S	225 x 96 mm
4	5	4	TTR-221	
20	8	16	M1289-0700	
12	5	9	see page 342	
10	5	9	see page 342	
8	4	7	see page 342	
76 x 62 cm (30 x 24 in)	46 x 46 cm (18 x 18 in)	76 x 46 cm (30 x 18 in)		

Innova® 44/44R		Innova® S44i		Excella® E24/E24R		Excella® E25/E25R	
Clamps	Order no.	Clamps	Order no.	Clamps	Order no.	Clamps	Order no.
60	M1282-9905	86	S44I040002	64	M1194-9903	108	M1191-9908
40	M1282-9906	53	S44I040003	34	M1194-9904	60	M1191-9909
24	M1282-9907	39	S44I040004	25	M1194-9905	40	M1191-9910
15	M1282-9908	23	S44I040005	16	M1194-9906	24	M1191-9911
12	M1282-9909	15	S44I040006	9	M1194-9907	15	AG-1
6	M1282-9910	8	S44I040007	5	M1194-9908	12	AG-2
6	M1282-9911	8	S44I040008	4	M1233-9932	6	AG-28
						6	AG-4
						4	AG-6
	M1282-9913				M1250-9903		M1250-9904
76 x 46 cm (30 x 18 in)		76 x 62 cm (30 x 24 in)		46 x 46 cm (18 x 18 in)		76 x 46 cm (30 x 18 in)	

Universal Platforms and Clamps for Innova® Open Air Shakers

Universal Platforms and Clamps for Innova® Open Air Shakers

	Innova® 2000	Innova® 2050	Innova® 2100	Innova® 2150
	M1001-0240	M1190-9900	M1250-9902	M1194-9912
10 mL Erlenmeyer flasks	60	86	109	
25 mL Erlenmeyer flasks	20	32	64	
50 mL Erlenmeyer flasks	15	32	45	63
125 mL Erlenmeyer flasks	11	16	21	35
250 mL Erlenmeyer flasks	6	10	18	24
500 mL Erlenmeyer flasks	4	8	14	20
1 L Erlenmeyer flasks			8	12
2 L Erlenmeyer flasks			5	6
500 mL media bottle flask	4	6	9	15
1 L media bottle flask	2	4	8	11
2 L Lauber Thompson			4	5
2.8 L Fernbach flasks			4	5
3 L Erlenmeyer flasks			4	5
4 L Erlenmeyer flasks			4	5
5 L Erlenmeyer flasks			4	4
6 L Erlenmeyer flasks			2	3
Microplate rack, stack	3	8	8	16
Microplate rack, single layer		2	2	4
Test tube rack, small, 30.0 x 8.0 x 12.9 cm	3	4	5	9
Test tube rack, medium, 36 x 8 x 12.9 cm		3	5	9
Test tube rack, large, 45 x 8 x 12.9 cm			4	7
Platform size	33 x 28 cm (13 x 11 in)	41 x 31 cm (16 x 12 in)	46 x 46 cm (18 x 18 in)	61 x 46 cm (24 x 18 in)

Dedicated Platforms and Clamps for Innova Open Air Shakers

	Innova® 2000		Innova® 2050		Innova® 2100	
	Clamps	Order no.	Clamps	Order no.	Clamps	Order no.
10 mL Erlenmeyer flasks	60	AG2-10	86	M1190-9901		
25 mL Erlenmeyer flasks	32	M1190-9919	48	M1190-9902		
50 mL Erlenmeyer flasks	20	M1190-9915	35	M1190-9903	64	M1194-9903
125 mL Erlenmeyer flasks	12	M1190-9916	20	M1190-9904	34	M1194-9904
250 mL Erlenmeyer flasks	8	M1190-9917	12	M1190-9905	25	M1194-9905
500 mL Erlenmeyer flasks	6	M1190-9918	8	M1190-9906	16	M1194-9906
1 L Erlenmeyer flasks			6	M1190-9911	9	M1194-9907
2 L Erlenmeyer flasks					5	M1194-9908
2.8 L Fernbach flasks						M1233-9932
4 L Erlenmeyer flasks						
6 L Erlenmeyer flasks						
Sticky platform		M1190-0300				M1250-9903
Platform size		33 x 28 cm (13 x 11 in)		41 x 31 cm (16 x 12 in)		46 x 46 cm (18 x 18 in)

Innova® 2300	Innova® 2350	Clamp	Clamp
M1250-9920	PTL-386	Order no.	Dimensions (W x H)
183		ACE-10S	31 x 26 mm
92		M1190-9004	38 x 21 mm
92		M1190-9000	51 x 26 mm
39	75	M1190-9001	66 x 36 mm
30	50	M1190-9002	79 x 48 mm
18	30	M1190-9003	100 x 52 mm
12	24	ACE-1000S	120 x 63 mm
8	15	ACE-2000S	152 x 71 mm
19	35	ACSB-500S	110 x 108 mm
13	23	ACSB-1000S	129 x 146 mm
6	12	M1190-9005	168 x 112 mm
6	12	ACFE-2800S	198 x 66 mm
6	11	ACE-3000S	189 x 128 mm
6	11	ACE-4000S	196 x 95 mm
6	8	ACE-5000S	222 x 145 mm
4	7	ACE-6000S	225 x 96 mm
16	16	M1289-0700	
4	4	TTR-221	
9	18	see page 342	
9	13	see page 342	
7	12	see page 342	
76 x 46 cm (30 x 18 in)	91 x 61 cm (36 x 24 in)		

Innova® 2150		Innova® 2300		Innova® 2350	
Clamps	Order no.	Clamps	Order no.	Clamps	Order no.
80	M1194-9915	108	M1191-9908		
48	M1194-9916	60	M1191-9909	96	M1191-9912
35	M1194-9917	40	M1191-9910	70	M1191-9913
20	M1194-9918	24	M1191-9911	40	M1191-9914
12	M1194-9919	15	AG-1		
8	M1194-9920	12	AG-2		
		6	AG-28		
		6	AG-4		
		4	AG-6		
			M1250-9904		
	61 x 46 cm (24 x 18 in)		76 x 46 cm (30 x 18 in)		91 x 61 cm (36 x 24 in)

For more information go to www.eppendorf.com



BIOPROCESSING

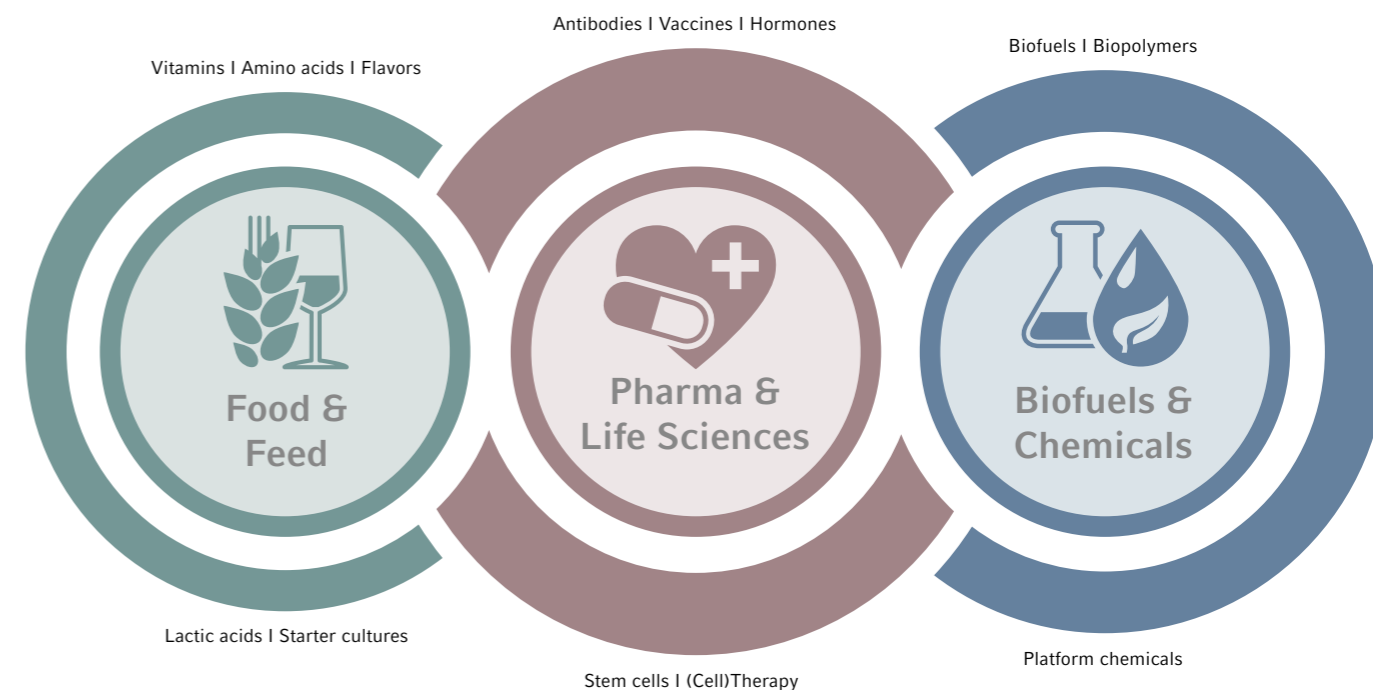


»Heal, fuel, and feed the world.«

Stephen Sherwin

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

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



BIOPROCESSING

Addressing Our Customers' Challenges

Single-use equipment, automation, perfusion culture, and other techniques have the potential to increase efficiency and change the way scientists and engineers work. Along with process intensification comes the need to utilize resources wisely. Users have to cope with rising amounts of data in order to achieve their goals faster.

They are being appraised by process performance characteristics such as costs per run and turn-around times. Eppendorf is the right partner to meet these challenges. Satisfying professionals with full solutions to their tasks is what our bioprocess specialists are focussing on day-to-day. Expert teams take care of our customers worldwide.

»Our bioprocess customers expect a special kind of support. Not only do our employees need to know their way around the technical devices; a knowledge of biological applications is also required. After all, we can only help if we understand exactly what our customers do and need. And in many cases, this close contact also results in new solutions.«
Dr. Karl Rix, Vice President, Head of Business Unit Bioprocess, Eppendorf



Process and Manufacturing

The biopharmaceutical landscape has long been dominated by the production of recombinant proteins and monoclonal antibodies (mABs). Nowadays, the industry is moving towards more diverse pipelines with a broader variety of biological active pharmaceutical ingredients (APIs), including biosimilars. Reacting to these rising demands, companies put flexible systems in place, optimized to balance costs and time-to-market.

Eppendorf offers flexible bioprocess solutions from a single source, supporting batch, fed-batch, continuous, and perfusion cultivation. From parallel small-scale bioreactor systems for early stage bioprocess development, benchtop bioreactors and fermentors for the laboratory scale to sterilize-in-place products for technology transfer and scale-up to production. They enable bioprocess professionals to establish robust and reproducible processes in all scales.



Control and Analytics

Monitoring and control is key in bioprocess development and ensures the process environment for optimum cell growth and high-titer production. Applying Process Analytical Technology (PAT) concepts provides real-time insights improving product quality. Predictive models of cell and process performance enhance process understanding and optimize control through forecasting and estimating optimum parameter settings. Statistical tools like Multivariate Data Analysis (MVA) help scientists to get the most out of their data.

Software solutions from Eppendorf make use of these techniques by providing more than just bioprocess control. Comprehensive data- and information management supports scientists in enhancing their development efforts.



Quality and Regulatory Aspects

The FDA's Quality by Design approach aims to design product quality and process efficiency into the process as early as possible. It includes the identification of critical process parameters (CPPs) and critical quality attributes (CQAs). These have to be monitored, controlled, and documented already early in biopharmaceutical development. Process automation opens up new possibilities in terms of quality control and validation, especially in GMP environments. Eppendorf's parallel small-scale bioreactor systems support customers in implementing Quality by Design (QbD) principles in the development phase. Our advanced bioprocess control software is 21 CFR Part 11 compatible. Single-use bioreactor solutions from Eppendorf help make laboratories more efficient and safe.



Integration and Services

Bioprocess equipment requires first-class service to achieve optimum results. Globalization, digital technologies, rising cost pressures, and the urge to be flexible in their operations make companies in the bioprocessing space face new challenges. They have to adapt their processes, facilities, and supply chains to these needs, establish global networks, and ensure high-quality training of all employees. At Eppendorf, we offer broad expertise in automation and integration of third-party devices, making sure your systems run efficiently and are seamlessly integrated. Eppendorf customers can rely on high-quality technical and application support as well as comprehensive training and technical documentation.

Vaccines

Driven by epidemic events and by governmental vaccination programs, there is a rising demand for development of new vaccines and the industry is growing at a double-digit rate. Eppendorf bioprocess equipment helps companies in setting up flexible processes that help balancing costs and shortening time-to-market. Learn more on www.eppendorf.com/vaccines

Antibodies/Hormones

Improved cultivation techniques such as perfusion and new possibilities in data handling and automation enhance development of antibodies, therapeutic proteins, and active ingredients. See how Eppendorf can support you with these initiatives on www.eppendorf.com/antibodies

Besides standard impellers, Eppendorf offers specially impellers which can facilitate continuous and perfusion processes: Spin filters, Cell-Lift impellers, and packed-bed basket impellers.

Fibra-Cel® disks are a solid support material for growth of adherent mammalian, animal, and insect cells, when secreted proteins are desired.

Key advantages:

- > Cell densities averaging 10 times higher than traditional microcarriers, due to protection from shear forces
- > Higher mass transfer of nutrients and oxygen
- > Low pressure drop across the bed for efficient scale-up
- > Higher surface-to-volume ratios

Stem Cells

Stem cell-based technologies are promising approaches for therapy and drug discovery. For commercialization, researchers are evaluating standardization of their cultures and efficient scale-up. Eppendorf customers rely on our bioprocess solutions for controlled cultivation of induced pluripotent stem cells (iPSCs), mesenchymal stem cells (MSCs), and others.



Researchers at Ncardia®, Netherlands rely on the DASbox® Mini Bioreactor System to develop a process for scaling up their production of iPSC-derived cardiovascular cells. Find this and more research examples at www.eppendorf.com/stem-cell-bioprocessing



Food & Feed

Microorganisms are routinely used in the food and animal feed industries for processes such as alcohol fermentation, the acidification of dairy products or ensilage. Besides, bacteria and fungi are gaining popularity in the production of food additives such as vitamins, antioxidants or bioactive peptides.

Eppendorf fermentors are available in sizes ranging from 65 mL – 1,200 L and serve process engineers from research and process development through production:

- > Strain and process characterization
- > Scale-down
- > High-cell-density fermentation
- > Scale-up

Read how our customers at BIOMIN®, Evonik®, and others benefit from Eppendorf fermentation solutions:

www.eppendorf.com/food-feed

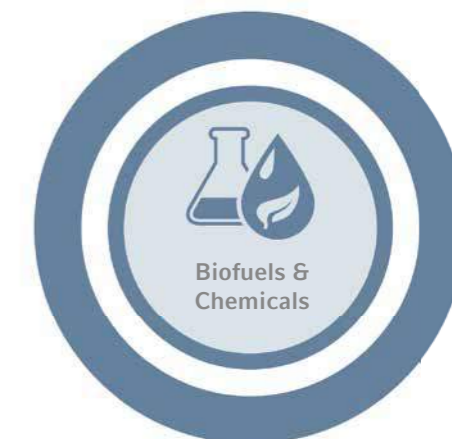


Chemicals

Chemical synthesis, with its use of partially toxic reagents and solvents as well as high energy consumption, is in direct conflict with the sustainable handling of energy and raw material resources. Meanwhile, a large variety of chemicals can be efficiently produced by microbial fermentation. They are used for example as building blocks for polymers, food supplements, and ingredients for cosmetics. Complex biopolymers have the potential to replace fossil-derived plastics in the future.

Learn more:

www.eppendorf.com/chemicals



Academic Customers

No matter which area you are doing research in: We understand that universities and other publicly funded institutes are facing special challenges, such as frequently changing staff and often limited budgets. Also for these requirements, Eppendorf has the right solution.



The BioFlo® 120 Auto Culture modes allow 1-touch process control for microbial and cell culture applications and make the control station the perfect workhorse for beginners.



Model	DASbox® Mini Bioreactor System	DASGIP® Parallel Bioreactor Systems
Page	358	358
Working volume range ¹⁾	60 – 250 mL	0.2 – 3.8 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	Up to 24	Up to 16
Controller ²⁾	DWC	DWC
Touchscreen controller		
BioCommand®		
DASware®	■	■
Gas mixing options	4 gas (air, N ₂ , O ₂ , CO ₂)	4 gas (air, N ₂ , O ₂ , CO ₂)
Gas flow control ³⁾	TMFC	R or TMFC
Exhaust analysis	■	■
Optical density measurement	■	■
Validation		

¹⁾ Realized using multiple vessel sizes ²⁾ Controllers: DWC = DASware® control, RPC = Reactor Process Controller, BCS = BioFlo® Control Software, PLC = Programmable Logic Controller ³⁾ Gas Flow Controllers: R = Rotameter, TMFC = Thermal Mass Flow Controller



Model	BioFlo® 120
Page	359
Working volume range ¹⁾	0.25 – 40 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	up to 8
Controller ²⁾	BCS
Touchscreen controller	■
BioCommand®	■
DASware®	■
Gas mixing options	4 gas (air, N ₂ , O ₂ , CO ₂)
Gas flow control ³⁾	R or TMFC
Exhaust analysis	■
Optical density measurement	■
Validation	



Model	BioFlo® 320
Page	359
Working volume range ¹⁾	0.25 – 40 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	up to 8
Controller ²⁾	BCS
Touchscreen controller	■
BioCommand®	■
DASware®	■
Gas mixing options	4 gas (air, N ₂ , O ₂ , CO ₂)
Gas flow control ³⁾	TMFC
Exhaust analysis	■
Optical density measurement	■
Validation	



Are you searching for more bioprocess products? Have a look at our 2018/2019 bioprocess catalog - available online!

More information at www.eppendorf.com/catalog, in the Eppendorf App, and in the eShop.





Model	BioFlo® 510	CelliGen® 510
Page	360	360
Working volume ranges ¹⁾	10.75 – 32 L	10.75 – 32 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		
Controller ²⁾	RPC/PLC	RPC/PLC
Touchscreen controller	■	■
BioCommand®	■	■
DASware®		
Gas mixing options	4-gas (air, N ₂ , O ₂ , CO ₂)	4-gas (air, N ₂ , O ₂ , CO ₂)
Gas flow control ³⁾	TMFC	TMFC
Exhaust analysis	■	■
Optical density measurement		
Validation	■	■

¹⁾ Realized using multiple vessel sizes ²⁾ Controllers: DWC = DASware® control, RPC = Reactor Process Controller, BCS = BioFlo® Control Software, PLC = Programmable Logic Controller ³⁾ Gas Flow Controllers: R = Rotameter, TMFC = Thermal Mass Flow Controller

Model	BioFlo® 610	BioFlo® Pro
Page	360	361
Working volume ranges ¹⁾	13 – 100 L	45 – 1,200 L ¹⁾
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		
Controller ²⁾	RPC	PLC
Touchscreen controller	■	■
BioCommand®	■	■
DASware®		
Gas mixing options	2-gas (air, O ₂)	2-gas (air, O ₂)
Gas flow control ³⁾	TMFC	TMFC
Exhaust analysis	■	■
Optical density measurement		
Validation	■	■

Parallel Bioprocessing for Unparalleled Results – Small-Scale Systems



DASbox® Mini Bioreactor System
60 - 250 mL working volume

Product features

- > 4-fold parallel system extendable to up to 24 parallel operated glass or single-use bioreactors
- > Suitable for cell culture and microbial fermentation
- > Compact mini bioreactor system: requires only 7 cm (3 inches) bench space per bioreactor
- > Optimal tool for DoE and scale down approaches
- > Agitation control supporting overhead-driven Rushton, marine-type or pitched blade impellers
- > Innovative liquid-free temperature control system needs no cooling agent supply and supports independent temperature control for each bioreactor
- > Accurate monitoring and control of pH, DO and level
- > Variable speed pumps for accurate liquid addition and operation in batch, fed-batch, continuous and cyclic perfusion mode
- > 4 mass flow controllers per bioreactor allow for individual mixing of air, N₂, O₂ and CO₂ to headspace and/or submerged
- > Novel liquid-free Peltier exhaust condenser with easy to handle slide in – slide out activation and deactivation
- > DASware® control Software for advanced process control
- > Compatible with DASware Software Suite for interconnectivity and bioprocess information management



DASGIP® Parallel Bioreactor Systems
0.2 – 3.8 L working volume

Product features

- > Parallel operation of up to 16 glass or single-use bioreactors
- > DASGIP Bioblock for advanced and user-friendly temperature control or temperature control via heat blankets and cooling fingers (benchtop bioreactors)
- > Suitable for cell culture, microbial fermentation and phototrophic cultivation
- > Modular design of control units allows for flexible system configurations that meet the demands of specific applications
- > Control of agitation, pH, level and DO (including customizable cascade modes) in each bioreactor
- > Variable speed pumps for accurate liquid addition and operation in batch, fed-batch, continuous and cyclic perfusion mode
- > Optical absorbance measurement for online calculation of e.g. OD₆₀₀ or cell dry weight
- > TMFC individual gas mixing of air, N₂, O₂ and CO₂
- > Online calculation of OTR, CTR and RQ
- > DASware control Software for advanced process control
- > Compatible with DASware Software Suite for interconnectivity and bioprocess information management

Exceedingly Versatile – Bench Scale Fermentors and Bioreactors



BioFlo® 120
0.4 – 10.5 L working volume (autoclavable),
0.25 – 40 L working volume (single-use)

Product features

- > Updated flexible software platform for universal control of both microbial and cell culture applications
- > New Auto Culture modes offer process control at the touch of a button
- > Compatible with BioBLU® Single-Use Vessels for fermentation and cell culture applications
- > Precise temperature control provided through interchangeable heat-blanketed or water-jacketed vessels
- > High precision thermal mass flow controller (TMFC) for automatic gas flow control
- > Automatic gas mix for four independent sparge gas supplies
- > Available analog input/output connection for direct integration of accessories (i.e. scales, variable-speed pumps, etc.)
- > Integrated Mettler Toledo® Intelligent Sensor Management (ISM) platform
- > Integrated 7 in touchscreen for local process control
- > Compatible with DASware Software Suite or BioCommand for bioprocess information management



BioFlo® 320
0.6 - 10.5 L working volume (autoclavable),
0.25 - 40 L working volume (single-use)

Product features

- > Interchangeable autoclavable and BioBLU Single-Use Vessels
- > Integrated Mettler Toledo Intelligent Sensor Management (ISM) platform
- > Control up to eight systems from a single user interface
- > Universal control for both microbial and cell culture applications
- > Field-upgradable TMFC drawers for sparge and overlay gas
- > Enhanced software package with new cascade and time profile features
- > Built-in optical pH sensing technology for use with the BioBLU Single-Use Vessels
- > Ethernet communication for multi-unit control, Eppendorf SCADA software, and IP addressing
- > Up to six integrated pumps capable of operating in variable-speed mode
- > Eight independently controlled process gas supplies
- > Suitable for batch, fed batch, and continuous processes as well as perfusion
- > Validation packages available for GMP regulated processes

Industry Standards Meet Flexibility – Sterilizable-in-Place Fermentors and Bioreactors



BioFlo 510 and CelliGen 510
Bench- and pilot-scale SIP fermentor and bioreactor
10.75 – 32 L working volume

Product features

- > SIP bench and pilot scale reactors designed to meet the needs of R&D through production
- > Modular design allows for complete system flexibility
- > Add or remove components pre- or post-delivery
- > Multiple impeller and gas flow options
- > Integrated skid design with mobile table option to simplify transport
- > Features intuitive RPC control software and touchscreen interface
- > Optional Allen Bradley® PLC
- > Integrated load cell for online vessel volume monitoring
- > Fully automated SIP sequence for sterilization
- > Flush mounted vessel ports for enhanced vessel design and drainability
- > Validation packages available
- > 7 additional analog input/output connections for local integration of ancillary equipment
- > ASME-rated pressure vessel



BioFlo 610
Pilot-scale SIP fermentor
13 – 100 L working volume

Product features

- > Pilot production system without the traditional cost or footprint
- > Modular design allows for complete system flexibility
- > Add or remove components pre- or post-delivery
- > Multiple impeller and gas flow options
- > Integrated mobile skid simplifies transport
- > Features intuitive RPC control software and touchscreen interface
- > Integrated load cell for online vessel volume monitoring
- > Fully automated SIP sequence for sterilization
- > Flush mounted vessel ports for enhanced vessel design and drainability
- > Validation packages available
- > 7 additional analog input/output connections for local integration of ancillary equipment
- > ASME-rated pressure vessel



BioFlo Pro
Large-scale SIP fermentor
45 – 1,200 L working volume

Product features

- > Large scale industrial system supporting operation in accordance to cGMP and GAMP® guidelines
- > Modular design with over a hundred options allows for high level of customization pre and post delivery
- > Multiple impeller and gas flow options
- > NEMA-4 (IP65) rated control cabinet with industry-standard Allen Bradley PLC
- > Open piping skid allows for easy accessibility
- > Fully automated SIP sequence for sterilization
- > Clean-in-Place (CIP) options available for vessel and piping
- > Flush mounted vessel ports for enhanced vessel design and drainability
- > Validation packages available
- > ASME-rated pressure vessel



BioBLU® Single-Use Vessels – Dependability through Proven Design

Single-use simplicity

With renowned polymer expertise, Eppendorf is proud to offer the largest portfolio of rigid walled stirred-tank single-use vessels – in small and bench scale, to be operated with parallel DASbox Mini Bioreactor System, DASGIP Parallel Bioreactor Systems or BioFlo bench-scale systems.



From 65 mL to 40 L, working volume, Eppendorf has a single-use solution to meet your needs

Product features

- > Proven performance and scalability of stirred-tank design
- > User-friendly set-up for rapid turnaround, shorter development times and lower operating costs
- > Specifically adapted designs available for microbial applications
- > Packed-bed configuration with Fibra-Cel disks is ideal for perfusion/continuous processes
- > USP Class VI and animal component-free materials, making vessels appropriate for GMP production
- > Non-invasive or industry standard sensor technology



BioBLU c Single-Use Vessels for cell culture applications

Single-use solutions for small and bench scale cell culture applications. A full portfolio of vessels covers a working volume range of 100 mL - 40 L, offering unmatched scalability. The single-layer polymer design mitigates issues related to leachables and extractables.



BioBLU 5p Single-Use Vessel with packed bed

For the cultivation of adherent cells and for perfusion processes we offer the BioBLU 5p packed-bed vessel. It utilizes the proprietary Eppendorf packed-bed impeller design and is pre-loaded with Fibra-Cel® disks. Providing a shear-free environment, it is a premium choice in a wide variety of applications, including the production of secreted products and stem cell culture.



BioBLU f Single-Use Vessels for microbial applications

Single-use solutions for small and bench scale fermentation applications, covering a working volume range of 65 mL – 3.75 L. Fermentation processes have high mass transfer and heat removal requirements. Proven stirred-tank design, powerful overhead drives featuring Rushton-type impellers, and effective cooling make it possible for the BioBLU f vessels to achieve these demands.



BioBLU Single-Use Vessel Adaptor Kits

BioBLU vessels are designed for use with the Eppendorf DASbox and DASGIP systems, BioFlo 120, and BioFlo 320. A range of adaptor kits is offered as well, enabling your existing bioreactor system for single-use operation without the expense of replacing the whole system.

BioBLU Single-Use Vessel bundles provide you with highest flexibility. They ease up to switch your bioreactor system from single-use to reusable vessel usage, back and forth.

Eppendorf Bioprocess Software – Much More Than Just Bioprocess Control

Eppendorf offers BioCommand and DASware control Supervisory Control and Data Acquisition (SCADA) software packages for advanced bioprocess control. The comprehensive DASware software suite provides next-generation bioprocess management.

DASware software suite

Next-generation bioprocess management

A suite of smart and flexible software solutions to accelerate bioprocess development, with DASware control for parallel bioprocess control. The DASware licences enable interconnectivity of bioreactors with external lab-devices, comprehensive data- and information management, Design of Experiments (DoE) and remote control of bioprocesses. DASware can be used with any Eppendorf benchtop bioreactor solution.



DASware control

> Advanced process monitoring, control, and data logging - for parallel cultivation with individual control of each bioreactor



DASware connect

> Integration into process control systems and legacy corporate historians facilitating company-wide access to all relevant bioprocess data



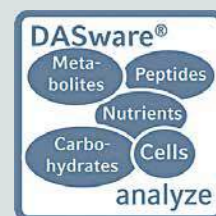
DASware access

> Remote monitoring and control of bioprocesses via PC, Notebook and Netbook or with the DASGIP iApp via iPhone®, iPod touch® and iPad®



DASware design

> Applies the Design of Experiments (DoE) concept via a full factorial DoE builder or by importing DoE designs from third-party DoE tools



DASware analyze

> Seamless integration of external lab devices to the bioreactor allows for process automation and feedback control loops



DASware discover

> A comprehensive and user-friendly information management solution for bioprocessing



BioCommand software

The BioCommand software enhances your ability to monitor, control and log data from your fermentation and cell culture processes through your personal computer. Three distinct packages provide the tools needed for research, optimization, and if needed, the security and audit trails to support your regulatory requirements.

through your personal computer. Three distinct packages provide the tools needed for research, optimization, and if needed, the security and audit trails to support your regulatory requirements.

> **Track and Trend:** Provides the ability to trend and control parameter setpoints, establish alarm settings, and produce batch records; and is ideal for basic process management

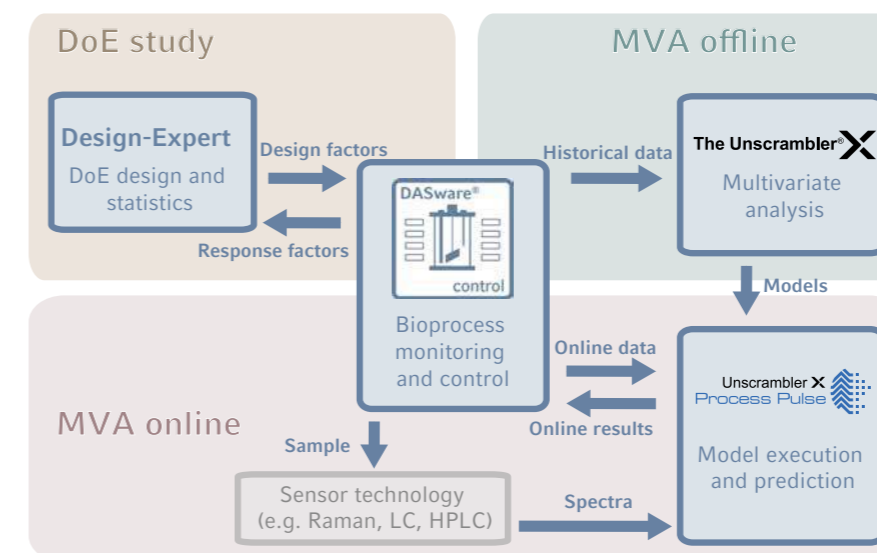
> **Batch Control:** Additional enhanced control features including a sophisticated programming module, custom synoptic display window, and equipment lock feature

> **Batch Control Plus:** Includes three levels of security, event logs, and audit-trail capabilities to be compatible with the FDA 21 CFR Part 11

Features	Track and Trend	Batch Control	Batch Control Plus	DASware control
Batch info	■	■	■	■
User-defined event log	■	■	■	■
Summary	■	■	■	■
Loop info	■	■	■	■
Alarms	■	■	■	■
Trend graphs	■	■	■	■
Data log	■	■	■	■
Reports	■	■	■	■
Graphical programming		■	■	
Script programming		■	■	■
Synoptic display		■	■	■
Equipment lock		■	■	■
Audit trail/security			■	■
21 CFR Part 11			■	■ ¹⁾
OPC compliance	■	■	■	■
Parallel calibration				■
DASware compatibility				■

¹⁾ 21 CFR Part 11 compatibility is available for DASware control as an optional package. Please contact us for further information.

Unlock the Box – Integrated Software Solutions for DoE and MVA



Bringing together the Eppendorf DASware control 5 software and the CAMO Software packages The Unscrambler® X with Design-Expert® and Unscrambler X Process Pulse II we present an integrated software solution for bioprocess control, DoE, and Multivariate Analysis (MVA).

Use cases:

- > DoE studies: From experimental design to data analysis
- > Offline MVA: Analyze historical data and develop batch trajectory models
- > Online MVA: Implement models with real-time predictive control

Learn more at www.eppendorf.com/MVA