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Your smart start into mammalian suspension cell culture

CO_2 Incubator Shaker Evolution

Discover the only CO_2 incubator shaker on the market with 120 °C disinfection — the New Brunswick S41i

CO_2 incubator functionality: The two optional shelves (one included) can also transform your device into a standard CO_2 incubator

Tight CO_2 specifications for reproducible results: Range (control step size): 0.2–20 % (0.1 %), accuracy: ±0.2 % (at 5 % CO_2), homogeneity: ±0.1 %

Reliable process planning: Proven and tested Innova triple eccentric counterbalanced drive (three weight-supporting shafts) provides vibration and trouble-free operation for years

Vessel format flexibility: Accomodate a wide variety of vessel formats, like plates, tubes, and flasks up to 5L Corning®/ Thomson Ultra Yield®

Protect your light-sensitive expression media: The double door system also helps protect the atmosphere inside and reduce CO_2 consumption

Your Seamless Alternative

A true alternative for open-air shakers inside traditional CO_2 incubators

Open-air shakers inside classical CO_2 incubators seem like an easy way to establish suspension cultures in a lab. However, this approach often limits flask capacity, vessel format, increases maintenance, may interfere with temperature control and create contamination points that can put your results at risk. The New Brunswick S41i is a tested and proven alternative developed with these challenges in mind. Still the only CO_2 shaker combining CO_2 incubator features like an integrated high-temperature disinfection and a seamless, stainless-steel chamber, with the robust, heavy-duty Innova triple-eccentric drive. The New Brunswick S41i is a reliable choice for growing labs with medium throughput and limited space or budget.

Recommended applications:

> Expansion of mammalian cell lines in suspension, e.g. CHO or HEK293 for protein expression
> Viral vector production in mammalian cells
> Bioreactor inoculum preparation
> MSC/iPSC-cultivation (microcarrier-based, normoxic) for reprogramming or exosome production
> Cultivation of adherent cells and applications that require a static and shake flask cultivation such as hybridoma cultures or the adaption of adherent to suspension cells

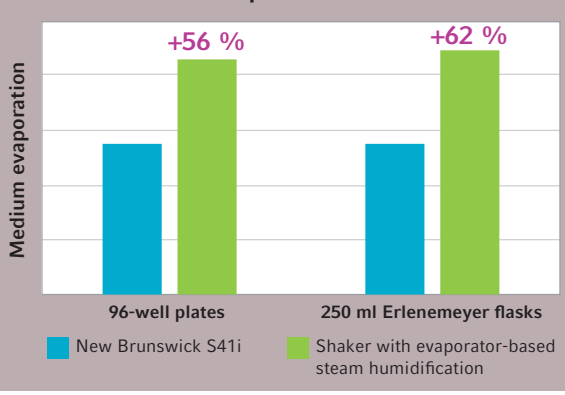
Optimized Growth Conditions for Reproducible Expression Results & Inocula

A reproducible atmosphere leads to faster time-to-market or time-to-publication, thus saving costs and workload.

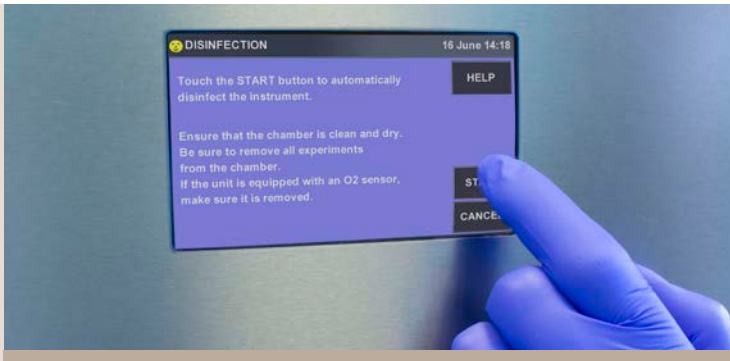
Two in one: Shaker platform for suspension cultures plus two optional shelves for simultaneous static cultivation
The New Brunswick S41i CO_2 incubator shaker easily adapts to evolving workflow requirements. It provides an accurate atmosphere for initial seeding in T-flasks, screening in plates or small shake flasks, optimization, and inoculum preparation in large shake flasks.

Effective medium evaporation protection: 95% relative humidity at 37 °C
The New Brunswick S41i includes the proven 3D six-sided direct heating technology applied in Eppendorf CO_2 incubators to minimize medium evaporation. Data shows the effectiveness of the water tray-based humidification to 95% relative humidity compared to evaporator-based steam humidification (see graph).

*Data represents the mean of three flasks/plates, setpoints: 37°C, 5 % CO_2, 125 rpm, rh for device with steam humidification set to 85% (max)



For enhanced atmosphere integrity – meeting tight CO_2 specifications
Only a few premium CO_2 incubator shakers provide exact spatial and temporal CO_2 control – the critical factor in medium pH control. Smart gas control, a humidity-independent IR CO_2 sensor with auto zero function, and a double-door system in the New Brunswick S41i assure reliable pH control.
> CO_2 range (control step size): 0.2–20 % (0.1 %)
> CO_2 stability: ±0.2 % (at 5 % CO_2)
> CO_2 uniformity: ±0.1 %



Exacting setpoint control with the easy-to-operate touchscreen, with or without gloves

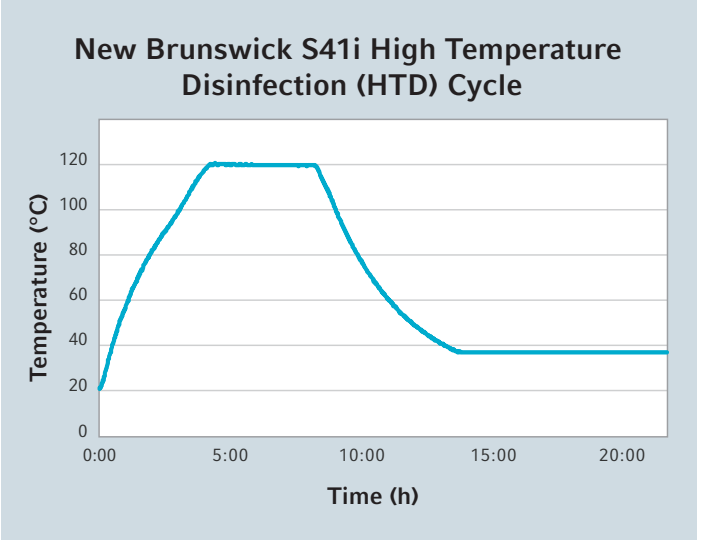
Wiped quickly and reliably: few internal parts, a stainless-steel chamber with rounded corners and a smooth, seamless surface makes it easy to clean

Easy Cleaning and 120 °C Disinfection

Are contamination and the resulting sample losses or delays in your processes unacceptable? How much time do you want to invest in regular, thorough cleaning? The fanless New Brunswick S41i comes with solutions to these challenges to protect your lab´s high productivity.

Peace of mind: 120 °C High Temperature Disinfection (HTD)
The New Brunswick S41i is the only CO_2 incubator shaker that offers 120 °C disinfection for reliable decontamination – for a fast and safe set-up your device for the next project. After preparation of the chamber interior, the HTD is simply started with push of a button.

Cleaned quickly, easily, and reliably:
No fan inside the smooth, seamless chamber
The New Brunswick S41i has a powerful anti-contamination concept that is especially important for shared lab devices. It includes an easy-to-clean, seamless chamber, 120 °C disinfection, and easy-to-remove single-piece water trays. The strongest contamination protection, however, comes from its fan-less design that effectively reduces the spread of airborne contaminants. It also ensures that a fan box, like those inside standard incubator shakers, does not become a constant source of contamination due to its limited cleanability.



The HTD feature heats the internal chamber to 120 °C and holds it for 4 hours to effectively eliminate contaminants

Reliable process planning:
24/7 shaking performance with high loads

Are unexpected downtime and delayed results not an option for you? Do you have more important things to do than organize repair over the weekend? For more than 70 years, the Eppendorf and New Brunswick brands stand for uncompromising reliability and quality – for your peace of mind. The heavy-duty, triple eccentric shaker drive mechanism is optimized for stable, uniform, and vibration-free motion. Never compromise on the heart of your device.

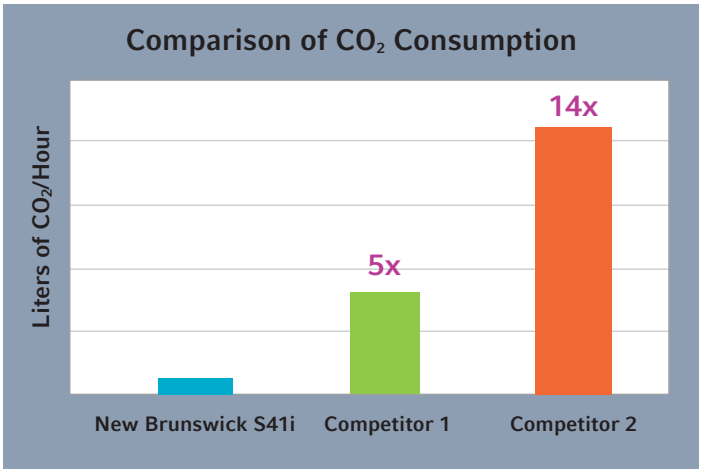
Your reliable choice for growing labs with limited space:
Compact design fits under the bench or stacked in a small footprint

With its small dimensions*, the New Brunswick S41i fits easily under the bench while still providing high capacity. For example, you can fit 12x 1L Erlenmeyer flasks onto the universal platform with sticky pads. Two stacked devices can be used to easily separate batch production or quickly switch from cell growth to protein expression, as often recommended by expression system manufacturers, while taking up the same footprint in your lab as a single device.

*(W × D × H: 87.5 × 73 × 85 cm / 34.4 × 28.7 × 33.5 in)

Save money, change gas cylinders less frequently, and support corporate sustainability goals:
Significantly reduced CO_2 consumption

CO_2 incubator shakers inject large volumes of CO_2 into the chamber to maintain the correct medium pH. High CO_2 consumption increases costs due to the gas price itself, but it also increases labor costs and shaker downtime due to changing gas cylinders. The New Brunswick S41i requires less CO_2 than other CO_2 incubator shakers – lowering your gas bill, reducing labor costs, limiting downtime, and saving you time & money.



***Expert tip:** Have the manufacturer of your next CO_2 incubator shaker provide actual gas consumption data and measurements. Don´t be satisfied with simple, unspecific statements like "low CO_2 consumption".*

Protect your light-sensitive expression media with the proven double-door system established by Eppendorf CO_2 incubators

Protect your light-sensitive expression media: double door system

Many expression media are light-sensitive and must also be protected from it during expression protocols for optimal performance (e.g. Gibco™ ExpiCHO™ Stable Production Medium). The New Brunswick S41i ensures light-protection with its double door system; it also helps protect the atmosphere inside and reduce CO_2 consumption.

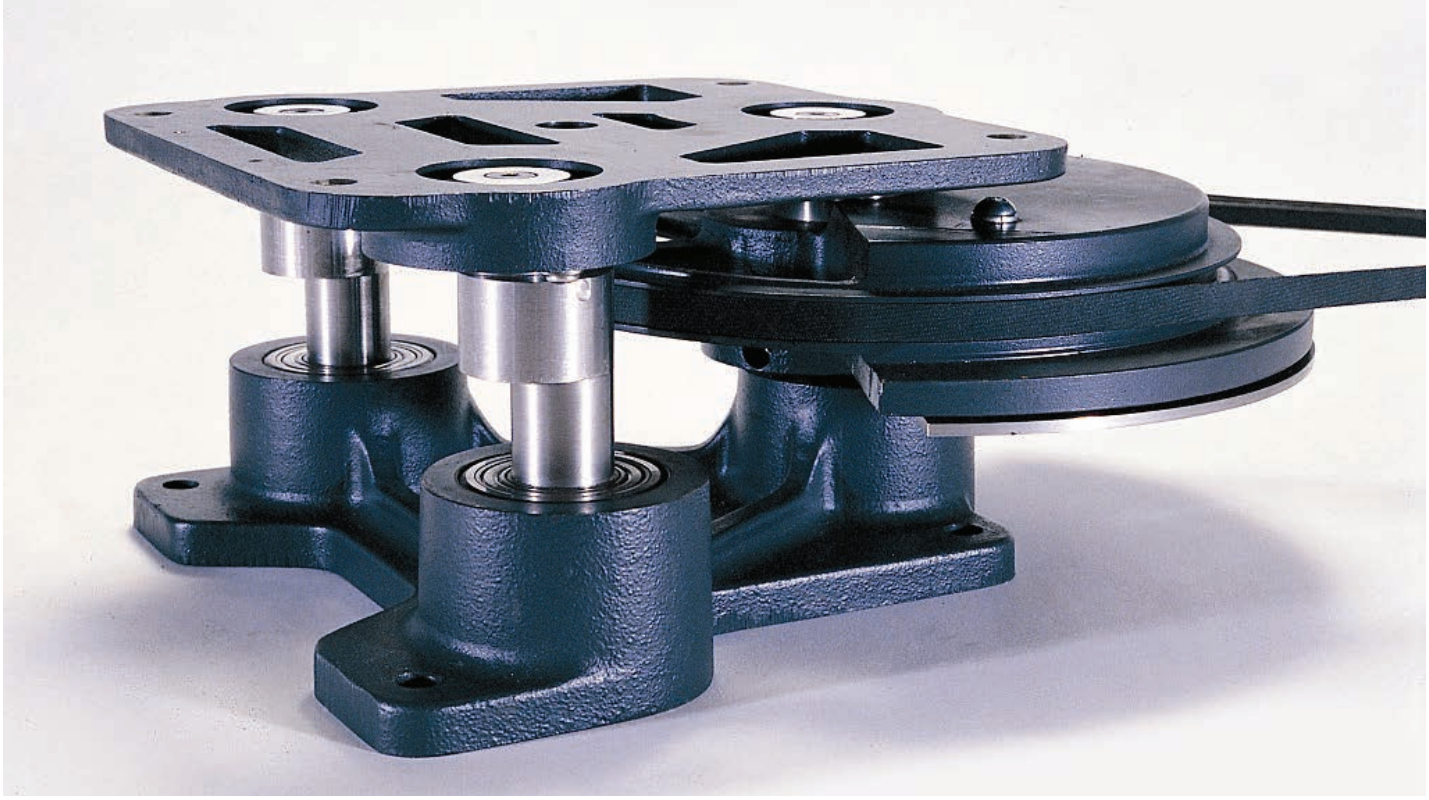
Getting annoyed by a roaring shaker?

Silence is golden, especially when working next to large laboratory shakers in operation. Maintain a stress-free and comfortable work environment by reducing noise with the New Brunswick S41i. With 50 db(A) in steady state, it is one of the quietest CO_2 incubator shakers on the market.

Removable shelf enables shaking of suspension cell cultures while incubating adherent cells under the same conditions

FAQ: Is temperature ramping necessary for high yield expression protocols?

A temperature ramping protocol is often used to switch from cell growth to protein expression. However, many expression system manufacturers recommend dedicated devices to speed up the process: "We recommend that a dedicated 32 °C incubator be used for shifting the temperature for the high-titer and max-titer protocols: with simply changing the temperature setting of a 37 °C incubator to 32 °C, it may take a long time for the cooling to complete and may limit the effectiveness of the temperature shift. Cooling the incubator by opening the door may result in contamination." (Gibco ExpiCHO Expression System; »Welcome to the future of transient expression«). Stacking of the New Brunswick S41i ensures proximity, thus supporting fast temperature changes without ramping.



Built to Perform & Last

Unexpected downtime and late results are not an option for you? And do you have more important things to do than organize repair for your benchtop orbital shaker over the weekend? Since its introduction more than 50 years ago, the cast iron triple-eccentric drive from Eppendorf has been the gold-standard in our shaker drive technology. The heavy-duty construction of the triple-eccentric drive gives you confidence that our shakers will perform to your specifications, even when fully loaded and operating at top speed.

Peace of Mind – Your Service Options

Our Service Agreements – Your Advantages
With our basket of Service Agreement solutions, we take the load off your shoulders by simplifying your ordering and budgeting process for various services over the full life-time of your instruments.

Your costs become reduced and predictable, thereby assuring continuous productivity and a long service life. In addition, our agreements include repair costs – fully or partially – and discounts on other services.

Eppendorf Service Agreements

Services Agreement	**AdvancedCare** For assured instrument reliability an uptime	**PremiumCare** For assured instrument reliability, uptime and financial plannability
Full preventive maintenance	1/year	1/year
Priority support*[1]	■	■
Spare parts, labor, travel on repairs	20% discount	included
Discount on additional services (e.g. IQ/OQ)	10%	10%

*[1] Subject to local business conditions, and based on a »best effort« practise. For more information please contact your local service organization.

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Technical specifications

Temperature	
Range	4 °C above ambient to 50 °C
Control	± 0.1 °C
Stability	± 0.1 °C at 37 °C
Uniformity	± 0.25 °C (inside flask liquid)
Relative humidity	Water tray-based humidification, 90 %, ± 5 % at 37 °C (depending on ambient humidity level and other factors)
CO_2 Range	0.2 to 20 %
Orbit	2.5 cm (1 in)
Shaking speed	25–400 rpm (stacked: 25–250 rpm for top unit, 25–400 rpm for bottom unit)
Disinfection routine	4 h at 120 °C (platforms and clamps, excl. rubber girdles, are resistant to high temperature)
Dimensions	
Platform	612 x 356 mm (24 x 14 in)
Overall (W x D x H)	875 x 730 x 850 mm (34.4 x 28.7 x 33.5 in)
Net weight	154 kg (340 lb), with standard features
Ports	25 mm access port for instrumentation/probes, USB for communication/data logging
Installation position	Floor, under bench or double stacked
Included accessories	Shelf for static cultivation, 2x water trays (stainless-steel, removable for easy cleaning)

Ordering information

Description	Order no.
New Brunswick S41i, 170 L, CO2 incubator shaker with inner shelf and touch screen control, 1 shelf included (optional additional shelf available), orbit 2.5 cm (1 in)	see online*
Interchangeable platform for New Brunswick S41i, 36 × 61 cm (14 × 24 in)	
Universal platform (directly compatible with sticky pads: 5 necessary to cover platform, sold seperately, cutting required)	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
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, 20 × 20 cm (8 × 8 in)	M1250-9700
VisioNize® Lab Suite (VisioNize® box required), remote parameter and status monitoring, alarm notifications via email or SMS, response-based alarm escalation + more. **Check availability in your country** – sign up and connect 3 devices for free.	Sign up online

*To find the correct order number for your country, please check www.eppendorf.com/shakers or contact your local sales representative.

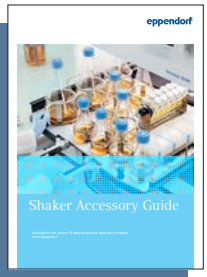
Bioprocess Basics

Interested in scaling up to bioreactors?

We are your source for hands-on information.

> www.eppendorf.com/bioprocess-basics

Find vessel capacities and the right accessory for your vessel format and application, along with detailed specifications and information!



Eppendorf Shaker Accessory Guide
www.eppendorf.com/shaker-accessory-guide

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Eppendorf SE · Barkhausenweg 1 · 22339 Hamburg · Germany
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