

NEW

Customized Bioshaker CO₂-BR series (MADE-TO-ORDER)

A culture equipment for culturing floating cells using Erlenmeyer flasks. This series is designed to efficiently culture mammalian cells, such as CHO and HEK293, or microalgae, such as cyanobacteria, in Erlenmeyer flasks instead of process bags.



CO₂-BR-40LF
with Gas controller (Optional)



CO₂-BR-43FL-MR
with Gas controller (Optional)
and LED Irradiation unit (Optional)



CO₂-BR-180LF
with 4 pcs of 5 L Disposable flask
and Gas controller (Optional)



CO₂-BR-180LF can also be
made with a built-in Gas
controller (only for 500 mL
flasks or smaller).

Features and Applications

- Aeration culture method, which is similar to the processing culture, where a gas mixture is fed directly into the flask
- Flask cap with filter prevents contamination on both IN and OUT. Handling, such as transplantation, is as easy as the bacteria culture.
- Irradiation type is optimal for culturing cyanobacteria, etc. Possible to culture from low light levels during strain separation

Large working volume (W.V.) even in flasks

Example: CO₂-BR-180LF

Volume of culture fluid in Thomson Optimum Growth flasks

When using 12 × 1.6 L flasks (@W.V. 800 mL): Approx. 9.6 L

When using 8 × 2.8 L flasks (@W.V. 1.4 L): Approx. 11.2 L

When using 5 × 5 L flasks (@W.V. 2.5 L): Approx. 12.5 L

Model (Shaking incubator)	CO ₂ -BR-40LF	CO ₂ -BR-43FL-MR/MT	CO ₂ -BR-180LF
Temperature range/accuracy (*1)	4°C to 50°C, ±0.3 to ±1.0°C		
Shaking motion/speed	Switchable Reciprocal/Orbital, 20 to 200 r/min		Switchable Reciprocal/Orbital, 25 to 250 r/min
Number of Gas supply tube	6 pcs (Standard)/Up to 12 pcs (Optional), About the applicable vessels and capacity, refer to the right page (*2)		12 pcs. About the applicable vessels and capacity, refer to the right page (*2)
Door	Swing lift-up door (Easily viewable)	Single swing door (Leftward open, Easy to make the chamber dark, Can be changed to rightward open) (*3)	Clamshell split door (Accessible for large vessels)
Dimensions(W×D×H)	585 × 630 × 660 mm	600 × 732 × 643 mm	1110 × 716 × 990 mm
Power supply	AC100V/9A (Need a step-down transformer)	AC100V/12A (Need a step-down transformer)	AC220-240V/12A (built-in down transformer)
Standard accessories	Gas supply hose set (6 pcs) GH-0625 Universal shaking platform MT-4030	Gas supply hose set (6 pcs) GH-0625 Spring net shaking platform MR-4030 (MR) Universal shaking platform MT-4030 (MT)	Gas supply hose set (12 pcs) GH-0635-180LF Universal shaking platform MT-7050 Light shielding plate for Door
Recommended Gas controller	CO-GAS3000 (Air & CO ₂) or Multi-GAS3000 (O ₂ & CO ₂ & Air). Both are optional, see below.		
Response to irradiation	LC-450EXP (Optional) ×1 pc, Example of capacity: Erlenmeyer flasks 300 mL × 6pcs		LC-450EXP (Optional) × 2 pcs, Example of capacity: 300 mL Erlenmeyer flasks × 6 pcs

(*1) The temp. for the defrost function is not included. Ambient temperature is 5°C to 35°C. (*2) For mammalian cells, flask caps for gas supply connection are designed assuming disposable type flasks (CORNING and Scrumb/Thomson, USA). (*3) Distributor can make necessary changes.

Gas controller



CO-GAS3000



Multi-GAS3000

Model	CO-GAS3000	Multi-GAS3000
CO ₂ Control range/accuracy	Atmospheric concentration up to 15%, ±1%	
O ₂ Control range/accuracy	-	1% to 50%, ±1% (*1)
Flow rate	30 to 300 mL/min (*2)	
Dimensions (W × D × H)	200 × 300 × 260 mm	
Weight	approx. 11 kg,	
Power supply	AC100V/2A (Need a step-down transformer)	
Standard accessories	Air filter ×2 pcs, Silicon tube ×1 pc (5 m), Gas supply tube ×1 pc (5 m), Gas cap ×1 pc, Tube fitting ×1 pc, Hose joint ×1 pc	






(*1) Above atmospheric concentration can be set. CO₂ and O₂ concentration are controlled by connecting N₂ or O₂ gas in the Multi-GAS3000.
(*2) 50 to 500 mL/min is available as an option to be built in the CO₂-BR-180LF.

CO₂-BR Series Reference Materials

Compatibility Chart of Disposable Erlenmeyer Flask and Flask Cap

The type of flask cap that fits each size of Erlenmeyer flask, the necessary clamps for fixing, and the capacity of vessels can be fixed to the shaking platform

shaking platform

		CO ₂ -BR-40LF	CO ₂ -BR-43FL, 53FP			CO ₂ -BR-180LF
Flask cap model	Applicable flasks (model of the vent cap for CORNING)	Universal shaking platform MT-4030 Capacity in use	Universal shaking platform MT-4030 Capacity in use	Universal shaking platform MT-4430 Capacity in use	Spring net shaking platform MR-4030 Capacity in use	Universal shaking platform MT-7050 Capacity in use
Flask cap B (Contains 6 pcs) 	CORNING 125 mL (431143, 431405) (*1) Thomson 125 mL (Ultra Yield 931147) AS ONE VIOLAMO SEF125V	6 pcs (Up to 12 pcs available for special models) Clamps used: CF-0100		6 pcs CF-0100	6 pcs CF-0100	12 pcs (*4) CF-0100
	CORNING 250 mL (431144, 431407) (*1)	6 pcs Clamps used: CF-0250			6 pcs CF-0250	12 pcs CF-0250
	Disposal centrifuge tubes 50 mL	6 pcs Angle rack for Disposable centrifugal tubes: AT-3518		N/A	6 pcs AT-3518	12 pcs AT-3518
Flask cap C (Contains 6 pcs) 	BM Equipment 125 mL WNB (781001,781011)	6 pcs (Up to 12 pcs available for special models) Clamps used: CF-0100		6 pcs CF-0100	6 pcs CF-0100	12 pcs (*4) CF-0100
	CORNING 250 mL (431144, 431407) (*1) Thomson 250 mL (Ultra Yield 931143) BM Equipment 250 mL WNB (782001,782011)	6 pcs Clamps used: CF-0250			6 pcs CF-0250	12 pcs CF-0250
	CORNING 500 mL (431145, 431401) (*1) Thermo Fisher 500 mL (4112-0500) BM Equipment 500 mL WNB (783001,783011)	6 pcs Clamps used: CF-0500			4 pcs CF-0500	12 pcs CF-0500
	CORNING 1 L (431147, 431403) (*1) Thermo Fisher 1 L (4112-1000) BM Equipment 1 L WNB (784001,784011)	4 pcs Clamps used: CF-1000		6 pcs CF-1000	3 pcs CF-1000	12 pcs CF-1000
	BM Equipment 2 L Low WNB (785101,785111)	4 pcs Clamps used: CF-2000		N/A	2 pcs CF-2000	8 pcs CF-2000
Flask cap D (Contains 6 pcs) 	CORNING 3 L (431252, 431253) (*1)	1 pc Clamps used: CF-3000DSP		N/A	1 pc CF-3000DSP	5 pcs CF-3000DSP
	Thomson 1.6 L (OGF 931113) (*2)	4 pcs Clamps used: CF-1000		6 pcs (*3) CF-1000	3 pcs CF-1000	12 pcs (*3) CF-1000
Flask cap E (Contains 2 pcs) 	Thomson 2.8 L (OGF 931114) (*2) BM Equipment 3 L Wide mouth WNB (786501,786511)	2 pcs Clamps used: CF-2000		N/A	1 pc CF-2000	8 pcs CF-2000
	Thomson 5L (OGF 931116) (*2)	1 pc Clamps used: CF-3000DSP		N/A	1 pc CF-3000DSP	5 pcs (*3) CF-3000DSP
	CORNING 5 L (431685) (*1)	1 pc Clamp used: Special clamps		N/A	N/A	5 pcs Special clamps
	Thomson 250 mL (OGF 931111) (*2)	6 pcs Clamps used: CF-0250			6 pcs CF-0250	12 pcs CF-0250
Flask cap F (Contains 2 pcs) 	Thomson 500 mL (OGF 931112) (*2)	6 pcs Clamps used: CF-0500			6 pcs CF-0500	12 pcs CF-0500
	CORNING 2 L (431255, 431256) (*1) BM Equipment 2 L High WNB (785001)	N/A	2 pcs Clamps used: CF-2000	N/A	1 pc CF-2000	8 pcs CF-2000

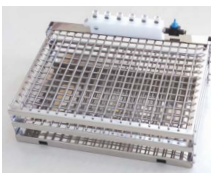
^{(*)1}CORNING flasks other than the product codes listed here are also compatible as long as they are of the same capacity. ^{(*)2}The name of the Thomson Erlenmeyer flask is Optimum Growth Flask.

^{(*)3}The combination of flasks and liquid volume will easily maximize W.V. ^{(*)4}The gas supply hose included with CO₂-BR (tube for connecting the device and flask) is not long enough, so it is required to perform production separately.

Example of Use for
MT-4430 and
Thomson 1.6 L



MR-4030 and Branch
gas tube included with
CO₂-BR-43FL-MR



CO₂-BR-180LF
Example of Use for
CORNING 3 L



Adjustment of ventilation volume

As a guideline for considering ventilation conditions, refer to 25 mL/min/one pc for 500 mL flasks or smaller, 40 mL/min/one pc or more for 1 L and 3 L flasks, and 80 mL/min/one pc or more for 5 L flasks.

Evaporation of culture fluid

Evaporation of the culture fluid increases relative to the increase in ventilation volume.

In a 500 mL flask at 37°C and a ventilation volume of 25 mL/min, the evaporation rate is approximately 1 mL/day. When culturing in small flasks, replenishing the culture fluid at the time of dilution can be expected to result in highly efficient culture.

If the duration of cell culture is 7 days, we recommend replacing the filter on the OUT side during dilution and sampling.

NEW

Constant
temperature
incubator shaker
OD Monitor

For cell culture
related products

Shaker

Mixer
Rotator
Stirrer

Bead beater
homogenizer
ultrasonic
homogenizer

Aluminum
block Bath
Mini-size Bath

Water bath
Shaking Water bath
Immersion cooler

Hybridization
Incubator
Constant temperature
Chambers

Centrifugal
Concentrators
Cold Trap

Freeze dryers

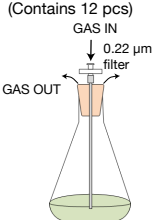
Substrate
Electroporation apparatus
Blotting device for
hybridization

Constant-temperature
water circulating
system [Chilled]

Appendix

Algae Culture Systems Compatibility Chart of Flask caps with needles

This cap is a combination of a needle and a silicone stopper to fit the flask size.

Needle cap	Model	Applicable flask and vessel size	BR-40LF BR-43FL	BR-180LF GBR-200/300	BR-3300S series
	NC100	Glass flask 100 mL (*) Flask inner diameter 22 to 26 mm	6 pcs	12 pcs	24 pcs
	NC200	Glass flask 200 mL (*) Flask inner diameter 24 to 30 mm			
	NC300	Glass flask 300 mL (*) Flask inner diameter 24 to 30 mm			
	NC500	Glass flask 500 mL (*) Flask inner diameter 28 to 36 mm			
	NC1000	Glass flask 1 L (*) Flask inner diameter 32 to 42 mm	3 pcs	6 pcs	12 pcs

(*) Needle cap should be the matching size for the size of the flask.

For CO₂-BR-43FL
Example of irradiation set



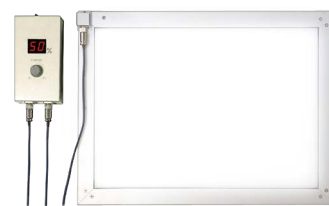
About LED irradiation units and controllers

The LED irradiation unit has been renewed. The illuminance (light intensity) of the new LC-450EXP has been greatly increased from approximately 215 μmol of our previous model to approximately 310 μmol. The light intensity can be controlled in 1% increments within the range of 10 to 100% with a dedicated controller (optional).

Two types of optional controllers are available:

a type that controls the light intensity of a single LED irradiation unit (for use with medium-sized BRs) and a type that can control 1 to 4 units at the same output (%) (for large-sized BRs).

See P.032 and P.045 for details.



LED irradiation unit LC-450EXP and optional controller LC-LED-CON1



Optional controller LC-LED-CON4 that enables irradiation of up to 4 units with the same output

CO₂-BR series Optional accessories

Optional



Regulator



Light shielding plate
SB-5338



LED irradiation unit
LC-450EXP





Nitrogen gas generator N₂ GENESIS 200 (Left)
Dedicated optional tank GST-0205M (Right)



System frame F
Example of combination
with a gas controller

Product Name/Model	Remarks
Regulator (One-touch joint φ6 mm)	Needle valve type, Inner diameter 4 mm/Outer diameter 6 mm for PISCO Hoses
Light shielding plate SB-5338	For BR-43FL, magnet type for easy attaching/detaching. The surface can be used as a whiteboard, and notes can be written on it or magnets can be attached.
Light shielding plate SHP-180LF	For shielding the Door and Window of the CO ₂ -BR-180LF from a light, 2 pcs, Included in the CO ₂ -BR-180LF, For repair
LED irradiation unit LC-450EXP	LED Color: White, Peak wavelength: 450 nm, Photon flux density: Approx. 310 μmol/m ² /s (See page 045 for details)
Dedicated controller for LED irradiation unit LC-LED-CON1	Controller for LED irradiation unit LC-450EXP, controlling the light intensity of a single LED irradiation unit. For use with medium-sized BRs.
Dedicated controller for LED irradiation unit LC-LED-CON4	Controller for LED irradiation unit LC-450EXP, capable of controlling 1 to 4 LED irradiation units simultaneously at the same output (%). Suitable for combination with large-sized BRs.
Spring net shaking platform MR-4030	Remove the bottom plate and fix the LC-LED plate with screws. See page 023 for vessels capacity/qty.
Transparent Sticky sheet for LC-LED	Transparent Sticky sheet for protecting LC-LED plate and holding flat bottom vessels. It can be used up to 100 r/min.
Mounting bracket for LED top irradiation RSB-3424LED	Mounting brackets for attaching the LED irradiation unit to the inside top surface of the BR-41/42/43/53 series chamber. The height can be adjusted to 4 levels.
LED irradiation unit mounting bracket LC-0950BR	Mounting brackets for attaching the LED irradiation unit to the Universal shaking platform MT-6040/7050/8060 for large size BRs. One set is required per one LED irradiation unit.
Nitrogen gas Generator N₂ GENESIS 200	Concentrates the atmospheric nitrogen and supplies it; It can be directly connected to the CO ₂ -BR or via Multi-GAS3000 (See page 051 for details)
Optional tank for Nitrogen gas Generator GST-0205M	Stores nitrogen gas generated from the N ₂ GENESIS 200 in a small pressure vessel and stops N ₂ GENESIS 200 while the stored nitrogen gas is used. Reduced operating time reduces long-term maintenance costs. (For details, see p.051)
System frame F	Enables installation of gas controllers together. Up to 2 gas controllers can be installed. 320 × 330 × 730H mm

Optional accessories • Replacement and Consumable parts

Product Name/Model	Remarks
 Syringe filter E255	Consumables for Flask caps, Lure lock type, Correspond to Autoclave, Pore size 0.2 μm, Contains 50 pcs
 Gas supply hose set (6 pcs) GH-0625	For CO ₂ -BR-40LF/43FL, 6 pcs × Hose (25 cm length) with connection connector. For replacement when the accessories are worn.
Gas supply hose set (12 pcs) GH-0635-180LF	For CO ₂ -BR-180LF, 12 pcs × Hose (35 cm length) with connection connector. For replacement when the accessories are worn.