

# Bioshaker BR-21/22/23 Series

*Widely used for Cultivation of microbes, etc. that require temp. control. Its compact sized can be placed under and on the Lab bench.*

- Dimensions --> P.046 •Non-contact turbidimeter "OD-Monitor" series --> P.042-043
- Without temp. control "NR-1/2/3" --> P.074

## Features

- "9 models" can be selected by temp. range, shaking motion, and door
- Stackable up to Two levels, The platform can be changed
- Capacity: Erlenmeyer flask 500 mL × 4 pcs, 2 L × 1 pc  
Details of optional parts and capacity --> P.036-037

## Applications

- Cultivation of Microbes such as E. Coli.
- Cultivation of Yeasts and Insect cells (FP)
- Cultivation of Thermophile and Hybridization (FH)

## USER'S VOICE

The FP type is CFC-free, so we can be worry free from the gas leakage and the procedures for disposal.



Its compact size can be placed under and on the Lab bench.  
(Photo shows BR-23FP and the optional spring net shaking platform)



Lift-up door allows for good visibility inside the chamber.  
(Photo shows BR-23UM and the optional spring net shaking platform)



## Compact design and Stackable

Its compact size can be placed under the Lab bench. It is stackable up to Two levels with "Stackable base (Optional)." The Lift-up door type is only for the upper of stacked units. Excellent performance for microbial cultures thanks to the shaking speed Max. 300 r/min even 200 r/min at the upper of stacked units.

## Sliding retractable control panel

The sliding retractable control panel allows for space saving and excellent operability. The settings for Temperature, Shaking speed, and Operation program are easy to perform (see P.040).



Temperature range	FP type: +15°C to +60°C (*1)			UM type: +5°C above RT to +70°C			FH type: + 5°C above RT to +100°C		
Model	BR-21FP	BR-22FP	BR-23FP	BR-21UM	BR-22UM	BR-23UM	BR-21FH	BR-22FH	BR-23FH
Shaking motion	Reciprocal	Orbital	Reciprocal/Orbital	Reciprocal	Orbital	Reciprocal/Orbital	Reciprocal	Orbital	Reciprocal/Orbital
Temp. control accuracy (*1)	±0.2°C			±0.2 to ±0.4°C			±0.1 to ±0.5°C		
Speed range/ Shaking width	20 to 300 r/min (200 r/min at the upper of stacked units), 25 mm								
Platform size/ Capacity	290 × 250 mm (Max. inside height: FP/FH = 270 mm, UM = 315 mm), Erlenmeyer flask 500 mL × 4, 2 L × 1								
Door type	Single swing door (Leftward open)			Swing lift-up door			Single swing door (Leftward open)		
Maximum load	Approx. 3.5 kg (Platform and Vessel holder included)								
Ambient temp. range	+5°C to +35°C								
Heating method	Peltier element (70 W × 4)			Heater (350 W)					
Cooling method				-					
Display (Temp./Speed)	Digital display								
Program functions	1 program, 9 segments: Temp., Shaking speed and time/per segment (Setting range: 00 h 00 min to 99 h 59 min), Temp. gradient function (*2)								
Safety devices/ functions	Leakage/Overcurrent breaker, Fuse, Alarm of abnormal sample temp. (Set as desired), Detecting the door opening and closing, Self-diagnosis function for sensor error, Motor current limiter, Overcurrent protection of Peltier (FP)								
Dimensions (W × D × H)	437 × 585 × 545H mm			422 × 550 × 540H mm			437 × 550 × 545H mm		
Weight	Approx. 48 kg	Approx. 49 kg	Approx. 49.5 kg	Approx. 41.5 kg	Approx. 42.5 kg	Approx. 43 kg	Approx. 42 kg	Approx. 43 kg	Approx. 43.5 kg
Power supply (*3)	AC100V/5A (Need a step-down transformer)								
Standard accessories	Drain nozzle ×1pc, Drain hose ×1pc (*Shaking platform sold separately, see P.037)								

(\*1)The value at the ambient temperature is 25°C. Also, the specifications may not be met outside of the ambient temperature range. (\*2)The transfer time of temperature can be set up. (\*3)Voltage variation rate is ±5% for AC 100 V.

# Common Options for BR series

## Clamps

(Mounted on Shaking platforms and Angle rack for Erlenmeyer flasks for use)



Above, 300 mL Clamps comes with Spring and 500 mL comes with Octagonal rubber sheet.



MT-4030 with Multiple clamps mounted



Clamps for Sakaguchi flask and Sakaguchi flask

Vessels	Model
50 mL	<b>CF-0050</b>
100 mL [Disposable flasks] Corning Disposable 125 mL Thermo Fisher Disposable 125 mL (*)	<b>CF-0100</b>
200 mL [Disposable flasks] Thomson Disposable 250 mL (*)	<b>CF-0200</b>
250 mL [Disposable flasks] Corning Disposable 250 mL Thermo Fisher Disposable 250 mL (*) Thomson Disposable 250 mL (*)	<b>CF-0250</b>
300 mL	<b>CF-0300</b>
500 mL [Disposable flasks] Corning Disposable 500 mL Thermo Fisher Disposable 500 mL (*) Thomson Disposable 500 mL (*, 3)	<b>CF-0500</b>
1 L [Disposable flasks] Corning Disposable 1 L Thermo Fisher Disposable 1 L (*) Thomson Disposable 1.5 L (*, 2), 1.6 L (*)	<b>CF-1000</b>
2 L [Disposable flasks] Corning Disposable 2 L Thermo Fisher Disposable 2 L (*) Thomson Disposable 2.5 L (*, 2), 2.8 L (*)	<b>CF-2000</b>
3 L	<b>CF-3000</b>
5 L	<b>CF-5000</b>
[Disposable flasks] Corning Disposable 3 L Thermo Fisher Disposable 5 L (*)	<b>CF-3000DSP</b>
<b>Erlenmeyer flasks (glass, unless otherwise noted)</b>	
500 mL	<b>SF-0500</b>
1 L	<b>SF-1000</b>
2 L	<b>SF-2000</b>
3 L	<b>SF-3000</b>
<b>Sakaguchi flask</b>	

•Up to 2 L sets of Erlenmeyer flask can be used in BR-21/22/23 series and BR-40LF.  
(\*)Thermo Fisher PETG Erlenmeyer flask 411X-0125/0250/0500/1000/2000 type (\*)Thomson Ultra Yield flask (\*)Thomson Optimum Growth flask

## Tube holders (Mounted on MT-2925 for use)



M-0015

### Tube holder M-0150

Disposable Centrifuge tube for 15 mL  
3 sets × 6 racks (\*)

### Tube holder M-0015

3 sets × 8 racks for 1.5/2.0 mL  
Microtube and Micro Vial

### Tube holder M-0500

Disposable Centrifuge tube for 50 mL  
3 sets × 4 racks (\*)

(\*)Up to two can be attached to MT-2925 for BR-21/22/23 series. (If three are installed, the tip of the vessels will protrude from MT-2925 and may hit the inside of the chamber during shaking.)

## Angle rack for Erlenmeyer flasks

(Mounted on Shaking platforms \*Clamps required)

Model	AF-2070	AF-2570
Capacity	50 mL: 4, 100 mL: 3, 200 to 300 mL: 2, 500 mL: 1	50 mL: 5, 100 mL: 4, 200 mL: 3, 250 to 500 mL: 2
Mounting qty on MT-2925	2 (*)	-
Mounting qty on MT-4030	2 (*)	2 (*)
Mounting qty on MT-6040E	4 (*)	4 (*)
Mounting qty on MT-7050	4 (*)	4 (*)
Mounting qty on MT-8060A	10 (*)	5 (*)
External dimension	250 × 110 × 50H mm	300 × 110 × 50H mm
Weight	Apporx. 0.8 kg	Apporx. 0.9 kg

(\*)The qty when Angle rack is tilted 30°.

## Angle rack for Disposable Centrifuge tubess

(Mounted on Shaking platforms for use)

Model	AT-3518
Capacity	50 mL × 18
Mounting qty on MT-2925	1
Mounting qty on MT-4030	2 (When Angle rack is tilted 45°)
Mounting qty on MT-6040E	4 (When Angle rack is tilted 45°)
Mounting qty on MT-7050	4 (When Angle rack is tilted 45°)
Mounting qty on MT-8060A	8 (When Angle rack is tilted 45°)
External dimension/Weight	285 × 110 × 102H mm, Apporx. 0.8 kg
Remarks	Be sure to use below 50°C.

## Angle rack for Test tubes

(Mounted on Shaking platforms for use)

Model	AT-1250	AT-1620	AT-1650	AT-1820
Capacity	φ12 mm × 50	φ16.5 mm × 20	φ16.5 mm × 50	φ18 mm × 20
Mounting qty on MT-2925	1	2	1	-
Mounting qty on MT-4030	2	3	2	3
Mounting qty on MT-6040E	4	6	4	5
Mounting qty on MT-7050	4	6	4	6
Mounting qty on MT-8060A	10	16	8	6
External dimension (mm)	250 × 100 × 95H	285 × 70 × 80H	286 × 110 × 100H	320 × 70 × 80H
Weight	Apporx. 0.8 kg	Apporx. 0.6 kg	Apporx. 0.9 kg	Apporx. 0.7 kg

•The qty when Angle rack with 160 mm test tube is tilted 45°.

### The mounting direction of Angle rack.


The tilt direction of Angle rack should be mounted orthogonal to the shaking direction (direction of shaking efficiency decreases) when reciprocating due to the inside dimension of the chamber.

AT-3518




# Options for the compact BR (BR-21/22/23) series

## Spring net shaking platform and Capacity/Qty of Vessels


Model	MR-2925			
	Vessels can be easily mounted on regardless of its shape. It can be used by removing some springs and changing the height of the spring net as necessary. Universal shaking platform (w/ o Clamp "It is optional) is recommended if vessel should be tightly held.			
Spring net Pitch	20 mm			
Spring net stage	1 stage (Height is changeable.)			
External dimension	290 × 250 × 108H mm			
Weight	Apporx. 1.1 kg			
Capacity of Vessel	φ16 mm test tubes (*1)	50 (*2)	Erlenmeyer flask 300 mL	5
	Disposable Centrifuge tube for 50 mL	20 (*2)	Erlenmeyer flask 500 mL	4
	Erlenmeyer flask 50 mL	20	Erlenmeyer flask 1 L	2
	Erlenmeyer flask 100 mL	10	Erlenmeyer flask 2 L	1
	Erlenmeyer flask 200 mL	9	Sakaguchi flask 500 mL (*3)	2
	Erlenmeyer flask 250 mL	5		

(\*1) φ16 mm or less should be with the stand to be mounted on in Spring net. (\*2) The qty when Angle rack is tilted 45°. (\*3) Be careful when using Shake flasks as they are fragile.

## Universal shaking platform and Capacity/Qty of Flasks

Model	MT-2925			
	It is used together with Clamps, Angle racks and "ODMonitor" series (Clamps of Erlenmeyer flask and Shake flask are available). It can hold flasks tightly compared to the Spring shaking platform.			
External dimension	290 × 250 × 23H mm			
Weight	Apporx. 0.9 kg			
Capacity of Flask	Erlenmeyer flask 50 mL	20	Erlenmeyer flask 500 mL	4
	Erlenmeyer flask 100 mL	10	Erlenmeyer flask 1 L	2
	Erlenmeyer flask 200 mL	9	Erlenmeyer flask 2 L	1
	Erlenmeyer flask 250 mL	5	Sakaguchi flask 500 mL	3
	Erlenmeyer flask 300 mL	5		

## Sticky sheet shaking platform

Model	SR-2925
	Flat bottoms such as Erlenmeyer flasks and Petri dishes can be held simply by placing them on the platform. The decreasing an adhesive force by dirt can be recovered by washing with water and drying it.
Max. shaking speed	100 r/min
External dimension/Weight	290 × 250 × 30H mm / Apporx. 1.1 kg
Standard accessories	Sticky sheet × 1




## Sticky sheet

Sticky sheet (ST-2925) above is also available and sold separately.

Model	ST-2925
External dimension	290 × 250 mm




•Up to 2 L of Erlenmeyer flask can be used with the BR-21/22/23 series.

## Other optional accessories

Shading plate for BR SB-3625	Stackable base STB-4842	Inner rack RSB-3430
		
Shade plate for small BR (front door type) doors. Easy to attach and detach with magnet type. The surface can be used as a white board, and magnets can be affixed. 360 × 250 × 10H mm. (BR should be used at temperatures below 70°C when mounted).	The fixing tool that prevents slippage when the stackable base is in use (Required when stacked)	It can be installed to the upper of the chamber. The height of space that the sample is placed differs depending on the mounting position.

# Options for the medium-sized BR (BR-40/41/42/43/53) series

## Stackable base (The fixing tool for Two stages.)

Stackable base A	STB-6070	STB-6070S
		
For stacking of BR-40LF + BR-41/42/43/53	For two-tier stacking of BR-41/42/43/53	For small size BR (21/22/23) + medium size BR (41/42/43/53)

## Inner rack

RSB-5032
It can be installed to the upper chamber. The Maximum load is 1 kg.



## LED irradiation unit (Mounted to MR-4030 and RSB-3424LED for use)

Model	LC-450EXP
LED Color	White
Peak wavelength	450 nm
Dimensions of Light source	340 × 240 mm

•See details on P.045. Optional controller (LC-LED-CON1 for 1 unit or LC-LED-CON4 for 1 to 4 units) is required.

## Mounting bracket for LED top irradiation

RSB-3424LED
Mounting brackets for attaching the LED irradiation unit (LC-450EXP) to the inside top surface of the BR-41/42/43/53 series chamber. Use it when you want to irradiate light from the top surface. The height can be adjusted to 4 levels.



LED irradiation unit installed on the upper surface of the chamber

•The space height from the LED panel to the bottom of the shaking platform varies depending on the rail mounting position.  
•After installation, be sure to check that the LED panel does not collide with the vessel to be shaken.