2

Constant temperature incubator shaker OD Monitor

■Model Selection Guide

Model Selection Guide..010

■Constant temperature incubator shaker with NewMax drive

DWMax VBR-104..012
DWMaxDwMax MBR-034P/034/032P/032/104P....................013

■Compact size constant temperature incubator shaker for Well plate and Microtube

Maximizer MBR-022UP..015
Bioshaker MBR-024..016

■Medium size constant temperature incubator shaker for Well plate

Bioshaker MBR-420FL..017

■Small size constant temperature incubator shaker

Bioshaker BR-21/22/23 Series...018

■Medium size constant temperature incubator shaker

Bioshaker BR-53FP...020
Bioshaker BR-40/41/42/43Series.......................................022

■Large size constant temperature incubator shaker

Bioshaker BR-300LF/BR-300LF LED irradiation....................024
Bioshaker Double platform BR-300LF................................026
Bioshaker BR-180LF/BR-180LF-70RT................................028
Bioshaker GBR-200/300...030
Bioshaker BR-3000LF/Double platformBR-3000LF...............032

■Non-contact turbidimeter for Shaking culture

OD-Monitor A&S/B&L/C&T...034
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■Digital colorimeter

Easy operation OD Monitor miniphoto 518R..........................036

■LED irradiation unit

LED irradiation unit LC-LED450W......................................037

Constant temperature incubator shaker series

Widely used for Cultivation of microbes such as Yeast, E.Coli. etc. that require temp. control.

NewMax drive

DWMax MBRSeries

DWMax VBR-104

for Deepwell plate

Maximizer MBR-022UP

Bioshaker MBR-024

Maximizer MBR-420FL

Small size

Low temp. **FP Type**

Mmiddle temp. **UM Type**

High temp. **FH Type**

Medium size

Low temp. **LF/FL/FP Type**

Middle temp. **FM Type**

High temp. **FH Type**

Large size

Bioshaker BR-300LF Series

Bioshaker BR-180LF Series

Bioshaker GBR Series

Bioshaker BR-3000LF Series

With NewMax drive

Page	Model	Door type	Cooling method	Temperature range
P.013	❶M·BR-034P	•lift-up door	Peltier element	•7°C below Room temperature to 60°C
	❶M·BR-034		N/A	•7°C above Room temperature to 60°C
	❷M·BR-032P		Peltier element	•15°C to 60°C
	❷M·BR-032		N/A	•7°C above Room temperature to 60°C
	❶M·BR-104P		Peltier element	•7°C below Room temperature to 60°C
P.012	❸V·BR-104		N/A	•8°C above Room temperature to 60°C

For Well plate and Microtube (Compact size&Medium size)

Page	Model	Door type	Cooling method	Temperature range
P.015	❹M·BR-022UP	•Lift-up door	Peltier element	•15°C to 60°C
P.016	❺M·BR-024		N/A	•5°C above Room temperature to 65°C
P.017	❻M·BR-420FL	•Single swing door	✓	•4°C to 70°C

Bioshaker (Small size)

Page	Model	Door type	Cooling method	Temperature range
P.018	❼BR-21FP-MR	•Single swing door (Leftward open)	Peltier element	•15°C to 60°C
	❼BR-22FP-MR			
	❼BR-23FP-MR			
P.018	❽BR-21UM-MR	•lift-up door	N/A	•5°C above Room temperature to 70°C
	❽BR-22UM-MR			
	❽BR-23UM-MR			
P.018	❼BR-21FH-MR	•Single swing door (Leftward open)		•5°C above Room temperature to 100°C
	❼BR-22FH-MR			
	❼BR-23FH-MR			

Bioshaker (Medium size)

Page	Model	Door type	Cooling method	Temperature range
P.022	❾BR-40LF	•Swing lift-up door	✓	•4°C to 70°C
	❻BR-41FL-MR	•Double hinged door (Rightward/Leftward open)		
	❻BR-42FL-MR			
	❻BR-43FL-MR			
P.020	❻BR-53FP		Peltier element	•15°C to 55°C (*)
P.022	❻BR-41FM-MR		N/A	•5°C above Room temperature to 70°C
	❻BR-42FM-MR			
	❻BR-43FM-MR			
P.022	❻BR-43FH-MR			•5°C above Room temperature to 100°C

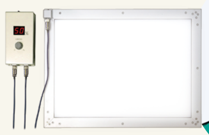
Bioshaker (Large size & Double platform & LED irradiation)

Page	Model	Door type	Cooling method	Temperature range
P.024	❿BR-300LF	•Single swing door (Leftward open)	✓	•4°C to 70°C
	❿LED irradiationBR-300LF			
P.026	❿Double platformBR-300LF			
P.028	⓫BR-180LF	•Clamshell split door (Divided into Upper and Lower, Upward opening and Front opening)		
	⓫BR-180LF-70RT			
P.030	⓬G-BR-200	•Swing lift-up door		•4°C to 80°C
	⓬G-BR-300			
P.032	⓭BR-3000LF	•Double swing door		•4°C to 70°C
	⓭Double platformBR-3000LF			

LED irradiation unit

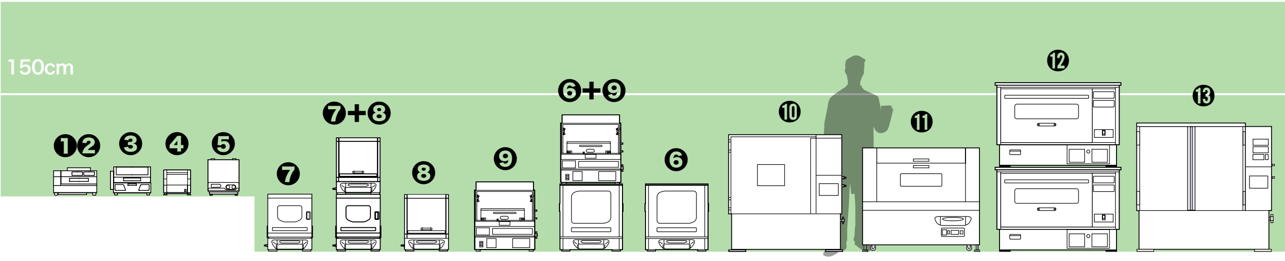
LED irradiation unit that is optimum used with Middle sized Bioshaker in combination.

-->P.037



● Protuberances not included in Dimensions. ● Vessels of photo not included.

Compact size	Small size	Medium size	Large size



Shaking motion	Speed range	Features	Applications	Page
•Horizontal eccentric shaking	•200〜1600r/min	•Well plate×4 •Microtube rack×4	•Cold-Shock expression for E.coli	P.013
			•Shaking Culture with Deep well plate or Microtube.	
		•Well plate×2 •Microtube rack×2	•Cold-Shock expression for E.coli	
			•Shaking Culture with Deep well plate or Microtube.	
•Orbital	•50〜500r/min	•15mL disposable tube ×16 •50ml disposable tube ×8 •100m Erlenmeyer flask×6 (Each requires optional accessories.)	•Enzyme digestion, Biodegradation test.	
			•Cultivation of Microbes such as E.coli.	P.012

Shaking motion	Speed range	Features	Applications	Page
•Horizontal eccentric shaking	•300〜2500r/min	•Well plate×2 •Microtube rack×2	•Shaking culture with Deep-well plate and Microtube rack. •ELISA and Phage display method.	P.015
	•100〜1200r/min	•Well plate×4 •Microtube rack×2		P.016
	•200〜1500r/min	•Well plate ×12 •Microplate ×24	•Possible for shaking culture with 96-deep well plate. •ELISA and Phage display method.	P.017

Shaking motion	Speed range	Shaking width	Features	Applications	Page
•Reciprocal	•20〜300r/min	•25mm	•500m Erlenmeyer flask×4 •2 Erlenmeyer flask×1	•Cultivation of yeast and insect cell.	P.018
•Orbital					
•Reciprocal / Orbital					
•Reciprocal				•Cultivation of Microbes such as E.coli.	P.018
•Orbital					
•Reciprocal / Orbital					
•Reciprocal				•Cultivation of Thermophile and Hybridization.	P.018
•Orbital					
•Reciprocal / Orbital					

Shaking motion	Speed range	Shaking width	Features	Applications	Page
•Reciprocal / Orbital	•20〜200r/min	•25mm	•500m Erlenmeyer flask×6 •2 Erlenmeyer flask×2	•Cultivation of Microbes such as E.coli. •Cultivation of yeast and insect cell.	P.022
•Reciprocal	•20〜300r/min		•500m Erlenmeyer flask×8 •5 Erlenmeyer flask×1		
•Orbital					
•Reciprocal / Orbital					
•Reciprocal / Orbital				•Cultivation of Protein expression vector for E.coli.	P.020
•Reciprocal				•Cultivation of Microbes such as E.coli.	P.022
•Orbital					
•Reciprocal / Orbital					
•Reciprocal / Orbital				•Cultivation of Thermophile and Hybridization.	P.022

(*)The value at 25°C of the rear surface intake temp.

Shaking motion	Speed range	Shaking width	Features	Applications	Page
•Reciprocal / Orbital	•25〜250r/min	•10〜50mm	•500m Erlenmeyer flask×15 •5 Erlenmeyer flask×3	•Cultivation of microbes such as E.Coli. etc.	P.024
	•25〜160r/min		•500m Erlenmeyer flask×30 •1 Erlenmeyer flask×18	•AGP test	P.026
	•25〜250r/min (*)	•25/50mm	•500m Erlenmeyer flask×24 •5 Erlenmeyer flask×4	•Cultivation of microbes such as E.Coli. etc.	P.028
•Reciprocal	•25〜250r/min	•70mm		•Cultivation of actinomycete.	
•Reciprocal / Orbital	•25〜200r/min	•25/50mm	•For as a laboratory bench. Stackable up to Two stage. •500m Erlenmeyer flask×24 •5 Erlenmeyer flask×4	•Cultivation of E. coli, yeast and insect cells. •Cultivation of Thermophile and Hybridization.	P.030
	•25〜300r/min				
	•25〜250r/min	•10〜50mm	•500m Erlenmeyer flask×32 •5 Erlenmeyer flask×4	•Cultivation of E. coli, yeast and insect cells.	P.032
	•25〜160r/min		•500m Erlenmeyer flask×64 •1 Erlenmeyer flask×36		

(*) When the width is 25mm, only orbital can be 25 to 400r/min.

OD-Monitor Series

**Non-contact turbidimeter that realizes to measure the turbidity of sample at OD600 while shaking in noncontact.
Available 3 models for Large and Small Erlenmeyer flask and Test tube.**

-->P.034

● Protuberances not included in Dimensions. ● Vessels of photo not included.

DwMax VBR-104

Our proprietary technology "NewMax drive" enables excellent aeration effectiveness Max. 500r/min.
Optimum for bacteriophage culture and small-scale cultivation.

Features

- Excellent aeration effectiveness.
- Suitable for small Erlenmeyer flask, Centrifuge tube and Microtube.
- Compact bench-top unit is easy to handle.

Applications

- Cultivation of Bacteriophage
- Cultivation of Microbes such as E.coli
- Solubility test for Refractory

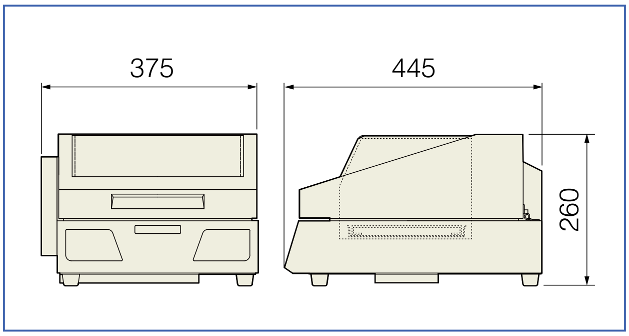
Our proprietary technology "NewMax drive" enables a great stirring effectiveness to preventing the wobble.

The shaker generates synergistically the wobble by its vibration and the wobbling of platform by inertia. The wobble sometimes spoils the effectiveness of shaking and stirring. NewMax drive realizes the shaker less wobbled. For example, we obtained the effectiveness dramatically the variation between wells in the cultivation using deep wells improved (see the page 014).

Model	**VBR-104**
Temperature range (*1)	8°C above RT (*2) to 60°C
Temp. control accuracy (*3)	±0.5°C to ±1.0°C
Shaking motion	Orbital shaking
Speed range	50 to 500r/min
Platform size	240 x 220mm (Max. inside height: 168mm)
Ambient temp. range	5°C to 30°C
Heating method	Heater 80W
Safety devices/functions	Fuse, Self-diagnosis function for temp. control error, Braking when hood open, Motor overload/Over-voltage protection
Dimensions (W x D x H)	375 x 445 x 260mm
Maximum load	1kg (Platform included)
Weight	Apporx. 20kg
Power supply	AC100 to 240V/2A
Standard accessories	1 x Stick sheet

(*1)It may not reach the maximum temperature by the surroundings. (*2)RT (Room temperature) has been set 25°C as the standard. (*3)The value at the ambient temperature 25°C.

Dimensions

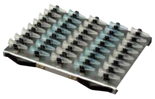


Easy to detach the platform. Plenty variations.

Comes with Stick sheet. Spring net shaking platform, Universal shaking platform and others are available as an option.

Spring net shaking platform
MR-2420 (Option)

Optional parts : Platforms


V·BR-1140

V·BR-1816

V·BR-1816S

V·BR-3508

V·BR-3508S

V·BR-0050

V·BR-0100

MR-2420

Product Name / Model	Capacity of Vessels
Shaking platform for 1.5mL Microtube V·BR-1140	1.5/2mL Microtube x40
Horizontal shaking platform for 15mL centrifuge tube V·BR-1816	15mL disposable tube x16
Diagonal shaking platform table for 15mL centrifuge tube V·BR-1816S	15mL disposable tube x16
Horizontal shaking platform for 50mL centrifuge tube V·BR-3508	50mL disposable tube x8
Diagonal shaking platform table for 50mL centrifuge tube V·BR-3508S	50mL disposable tube x8
Shaking platform for 50mL Erlenmeyer flask V·BR-0050	50mL Erlenmeyer flaskx6
Shaking platform for 100mL Erlenmeyer flask V·BR-0100	100mL Erlenmeyer flaskx6
Spring net shaking platform MR-2420	100mL Erlenmeyer flaskx6

● Protuberances not included in Dimensions. ● Vessels of photo not included.

DwMax MBR-034P/034/032P/032/104P

Powerful, Uniform and Silent! Our proprietary technology "NewMax drive" enables Excellent aeration effectiveness of 96-well plate, microtube and disposable centrifuge tube.

Experimental data --> P.014

CFC Free
[P type]

NewMax drive™

MBR-034P
Deep well plate

MBR-032P
Microtube rack (option)

MBR-104P
Shaking platform (option)

Features

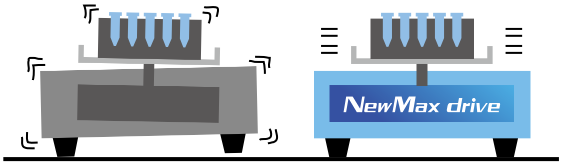
- •Optimum for using 96-well plate and stirring for microtube [Model 03]
- •Optimum for stirring of Microtube and/or Centrifuge tube [Model 10]
- •Temperature control below R.T. by peltier cooling [P Type]

Applications

- •Shaking Culture with Deep well plate or Microtube
- •Cold-Shock expression for E.coli [Model-032], ELISA etc.
- •Enzyme digestion, Biodegradation test, Metabolomic analysis etc.

Our proprietary technology "NewMax driveTM" enables a great stirring effectiveness to preventing the wobble.

The shaker generates synergistically the wobble by its vibration and the wobbling of platform by inertia. The wobble sometimes weak the effects for shaking and stirring. NewMax drive realizes Shaker less wobbled. For example, the effect of dramatically the variation between wells in the cultivation using well plate rack improved has been obtained (see the next page).



Capacity	4 x Well plate (*1) rack or 4 x Microtube rack		2 x Well plate or 2 x Microtube rack		1.5 or 2 mL microtube rack and 15 or 50mL disposable centrifuge tube by changing the platform.
Model	**MBR-034P**	**MBR-034**	**MBR-032P**	**MBR-032**	**MBR-104P**
Temperature range	7°C below RT (*2) to 60°C	7°C above RT (*2) to 60°C	15°C to 60°C	7°C above RT (*2) to 60°C	7°C below RT (*2) to 60°C
Temp. control accuracy	±0.5°C to ±1.0°C (*3)				
Shaking motion/Speed range	Horizontal eccentric shaking, 200 to 1600r/min				Orbital, 50 to 500r/min
Platform size	-				240 x 220mm (Max. inside height : 100mm)
Ambient temp. range	5°C to 30°C				
Heateing method	Peltier element	Heater 70W	Peltier element	Heater 70W	Peltier element
Cooling method		-		-	
Other functions	Digital display of temperature and speed, 1 x Memory function of temperature and speed.				
Safety devices/functions	Fuse, Self-diagnosis function for temp. control error, Braking when hood open, Motor overload/Over-voltage protection				
Dimensions (W x D x H)	405 x 445 x 230mm	405 x 402 x 230mm	365 x 400 x 230mm	365 x 347 x 230mm	405 x 445 x 230mm
Weight	Approx. 18kg	Approx. 16kg	Approx. 15kg	Approx. 13kg	Approx. 18kg
Power supply	AC100 to 240V/1.5A				
Standard accessories	-				

(*1)Equipped with the platform for Well plate. Since deisghned for 96-well plate, the agitating effectiveness will be different by using different well sizes such as 24-well and 384-well plate.
(*2) RT (Room temperature) has been set 25°C as the standard. (*3)The value at the ambient temperature 25°C.

Optional parts

Product Name / Model	Capacity of Vessels
Microtube rack EM-0524	0.5mL Microtube x24
Microtube rack EM-1524	1.5/2mL Microtube x24
Microtube rack EM-1515 (*1)	5mL tube x12

Product Name / Model	Capacity of Vessels
Shaking platform for 1.5mL Microtube V·BR-1140	1.5/2mL Microtube x40
Horizontal shaking platform for 15mL centrifuge tube V·BR-1816	15mL disposable tube x16
Horizontal shaking platform for 50mL centrifuge tube V·BR-3508	50mL disposable tube x8

(*1)The suitable 5mL Microtubes are WATSON's (Japan) and Argos's (USA) not Eppendorf's (Germany). The Microtube racks are for 03 models (034P/034/032P/032) and the shaking platform is for 10 model (104P).

● Protuberances not included in Dimensions. ● Vessels of photo not included.

DWMax experimental data

History for shaking culture with Deep well plate

Deep well plate (hereinafter, DWP) is a container originally used to store samples; However, when the method of High-throughput screening (HTS) was developed arround 2000, it was started being used for not only Storage but also other applications such as Cultivation and Reaction. At that time, we had a customer's inquiry "Do you have any ideas how to perform a shaking culture with DWP effectively?" Then, we managed to developed "Bioshaker® MBR-024 for DWP" that was the predecessor of current Bioshaker®.

USER'S VOICE

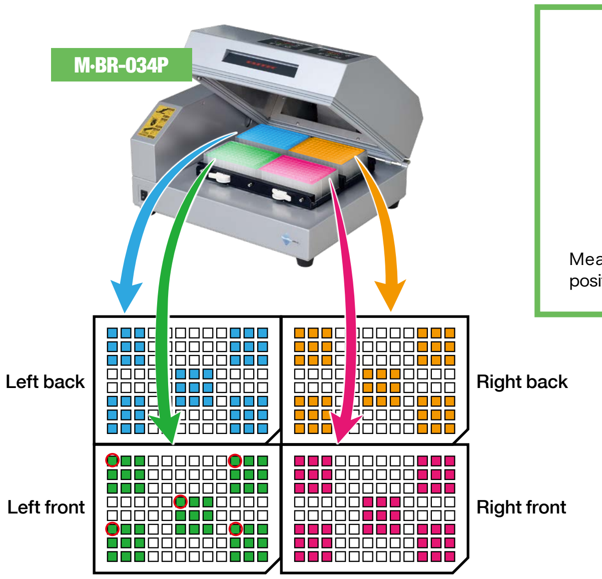
Really amazed an effective shaking culture of heavy yeast in such a small well was realized!

The verification for mounting position and the variation among the wells and the effectiveness of shaking culture of yeast with 96-DWP.

Validation for NewMax drive. To reduce the variations due to the position of vessels and wells.

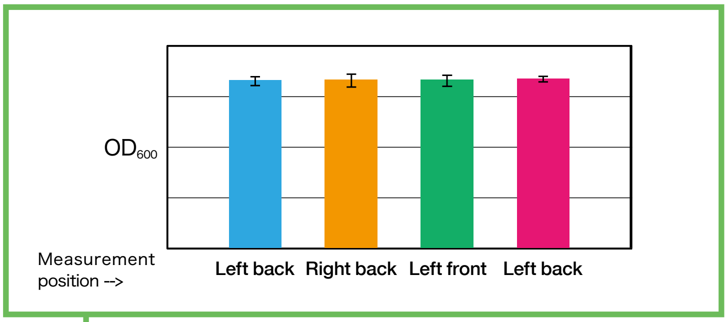
We verified the variation in turbidity (OD_{600}) for the yeast in four wells out of 96-deep well plate (squared well). Since yeast is a larger cell than E. coli, it is inclined to sink to the bottom of well in particular shaking culture with DWP if the stirring effectiveness is poor, which causes the variation in turbidity. At the same time, we also compared the popular shaking culture method using a Erlenmeyer flask to 96-deep well plate in turbidity (OD_{600}).The variation in among the position of deep wells are indicated with the bar graph. The deviation of each well plate in the same DWP is indicated with error bars in black (Fig.1).As a result, each one was no big difference in deviation. We have concluded that the stirring effectiveness at any positions in DWP made uniformally.Compared it with the Erlenmeyer flask in turbidity, finally the value doubled (OD_{600} = above 8) of the upper value in the Erlenmeyer flask was obtained (Figure.2).

[Measurement position of OD_{600}]

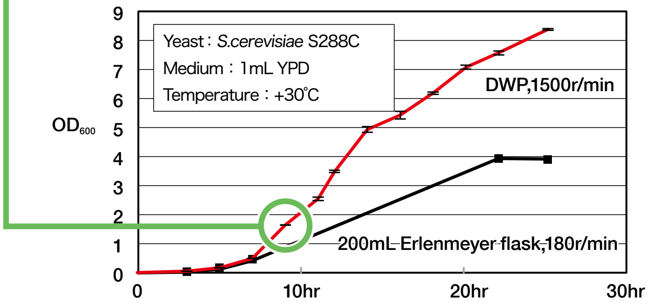


The six wells per group was respectively allocated at the four corner and center of DWP. Measured the five deep wells allocated among from respectively five groups at the four corner and center of DWP. *The deep well circled in red were measured for the variation in Front left; Also same with Left back, Right front and Right back.

1)Variations were measured 9 hours since the shaking culture started.



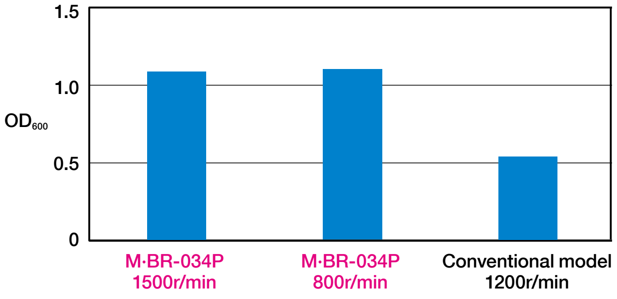
Comparison between DWP and Erlenmeyer flasks in OD 600.



Comparison with the conventional model: Shaking culture of E.coli with 96-well plate

We made shaking culture of E. coli using M·BR-034P and the conventional model with 96-well plate to compare. 4 hours after the started we measured the turbidity of theirs; As a result, we discovered that OD600 of M·BR-034P reached "OD600=1.0" in half the time early that of former model even the shaking speed slower.

Turbidity 4 hours after the start of shaking culture



[Conditions] *All models in common

- 96-deep well plate: Square hole (conical bottom), Capacity approx. 2mL per well
- Sealing Gas Permeable Adhesive Seals
- Cultivation volume:1 mL (approx. 50% of the well volume is optimal for aeration). In the case 1 mL, the solution does not reach the sealing up to 1500r/min while that reaches it at 1600r/min.

Maximizer MBR-022UP

Optimum for such as 96-welll plate, Microtube rack and Vial. Possible for Temp control below R.T. For Multi-specimen processing such as Plasmid purified that requires a high-speed micro vibrations.

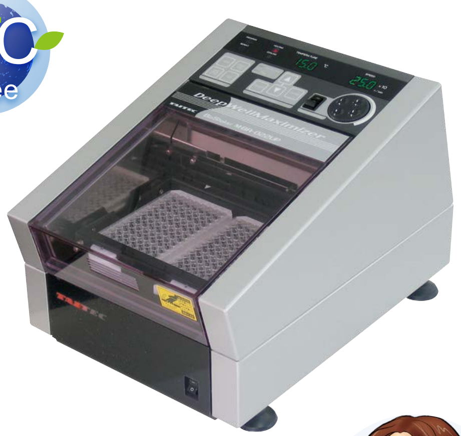
High-end model (improved uniformity and stability) --> P.013 Without temp. control "Micro mixer E-36" --> P.061

Features

- Optimum for stirring of 96-well plate and/or Microtube
- Enables Shaking culture with 96-deep well plate
- Peltier cooling enables temp. control from 15°C

Applications

- Shaking culture with Deep-well plate and Microtube rack
- ELISA and Phage display method
- Enzymatic digestion, Biodegradability tests, Metabolome analysis etc.

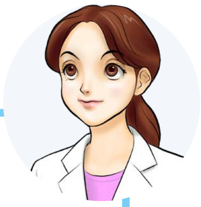


96-well plate

Deep well plate

1.5mL Microtubes
(optional rack required)

4mL Vials
(optional rack required)



USER'S VOICE

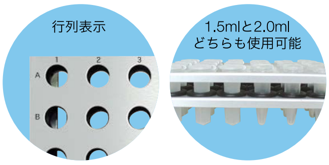
This device made me start Cultivation with Microtube rack and Deep well plate.

Model	MBR-022UP
Temperature range	15°C to 60°C
Temp. control accuracy (*1)	±0.3°C to ±0.8°C
Shaking motion	Horizontal eccentric shaking
Speed range	300 to 2500r/min
Capacity	2 x Well plate, 2 x Microtube rack (24 pcs) or 1 x Up to 4mL Vial rack (35 pcs)
Ambient temp. range	5°C to 35°C
Heateing cooling method	Peltier element
Display (Temp./Speed)	Digital display
Program functions	1 program, 9 segments (Temperature and Time)
Safety devices/functions	Fuse, Self-diagnosis function for temp. control error, Braking when hood open, Motor overload protection, Overload/ Overvoltage protection
Dimensions (W x D x H)	270 x 377 x 245mm
Weight	Apporx. 12kg
Power supply	AC100 to 240V/1.5A
Standard accessories	1x Plate adapter, 1 x Water-reception tray

(*1)The value at the ambient temperature 25°C as the standard.
•Since designed for 96-well plate, the agitating effectiveness will be different by using different well sizes such as 24-well and 384-well plate.

Optional parts : Microtube racks/Vial rack

EM-1524

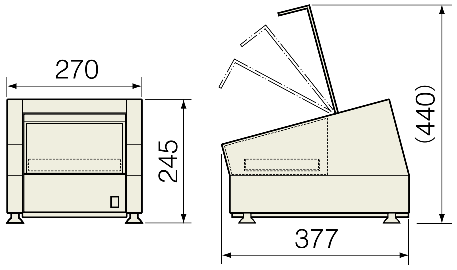


Microtube racks EM-0524 and EM-1524 are same footprint as standard well plate.

Product Name / Model	Microtube rack		Vial rack
	EM-0524	EM-1524	
Capacity of Vessels	0.5mLx24	1.5/2.0mLx24	4mLx35
Dimensions	126x86x28.5Hmm	126x86x40.5Hmm	–

The suitable Microtubes are Eppendorf's.

Dimensions



● Protuberances not included in Dimensions. ● Vessels of photo not included.

Bioshaker MBR-024

Optimum for such as 96-well plate and Microtube. The capacity doubled as MBR-022UP. For Multi-specimen processing such as Plasmid purified.

High-end model (improved uniformity and stability) --> P.013 Invitro shaker Mix-EVR --> P.056

96-deep well plate

Features

- Optimum for stirring of 96-well plate or Microtube rack.
- Possible for shaking culture with 96-deep well plate.
- Microtube racks available as an option.

Applications

- Shaking culture with Well plate or Microtube rack
- ELISA and Phage display method
- Enzymatic digestion, Biodegradability tests etc.

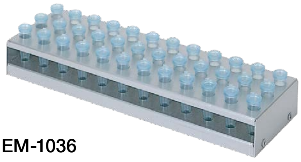
Model	**MBR-024**
Temperature range (*1)	5°C above RT (*2) to 65°C
Temp. control accuracy (*2)	±0.3°C to ±1.0°C
Shaking motion	Horizontal eccentric shaking
Speed range	100 to 1200r/min
Capacity	4 x Well plate or 2 x Microtube rack (36 pcs)
Ambient temp. range	15°C to 35°C
Heateing method	Heater 80W
Display (Temp./Speed)	Digital display (Temp./Speed switchable)
Timer	60min for operation
Safety devices/functions	Alarm of abnormal sample temp. (Set as desired), Braking when hood open, Motor overload protection, Self-diagnosis function for sensor error
Dimensions (W x D x H)	300 x 377 x 318mm
Weight	Apporx. 12kg
Power supply	AC100V/2A
Standard accessories	1 x 2 types adapter for plate

(*1)It may not reach the maximum temperature by the surroundings.
(*2)The value at the ambient temperature 25°C.
•Since designed for 96-well plate, the agitating effectiveness will be different by using different well sizes such as 24-well and 384-well plate.

96-deep well plate

1.5mm Microtube rack (option)

Optional parts : Microtube racks

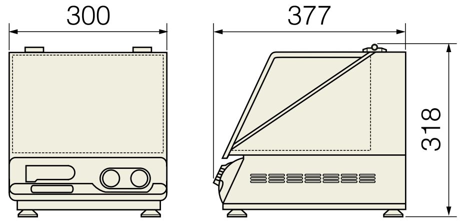


EM-1036

Model	**EM-0836**	**EM-1036**
Capacity of Vessels	0.5mLx36	1.5mLx36
Dimensions	262x82x32Hmm	

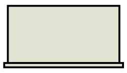
•Two tube racks must to hold at a time on the shaking rack.

Dimensions

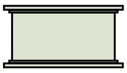


The shape of Deep well plate (compatible with MBR series)

Common shape of Deep well plate is shown below left. Another shape Deep well plate with rims is shown below right and it requires adapter (standard or option depending models) for use.



Common shape DWP



DWP with rims

● Protuberances not included in Dimensions. ● Vessels of photo not included.

Bioshaker MBR-420FL

Large capacity model is optimum for 96-well plate.
Possible for Temp control from 4°C.
For Multi-specimen processing such as Plasmid purified.

Features

- **Possible for shaking culture with 96-deep well plate**
- **Inverting function of shaking (Up to 1000 r/min)**
- **Possible for Temp. control from 4°C**

Applications

- **Shaking culture with Deep well plates**
- **ELISA and Phage display method**
- **Enzymatic digestion, Biodegradability tests etc.**

TAITEC
Maximizer M·BR-420FL

Shaking platform for Deep well plates (Option)

Optional parts: Shaking platform

Shaking platform for Deep well plates -->

6 plates can be placed on the platform. 2 sets of platform can be attached to the unit.

Shaking platform for Microplates -->

6 plates can be placed on the platform. 4 sets of platform can be attached to the unit.

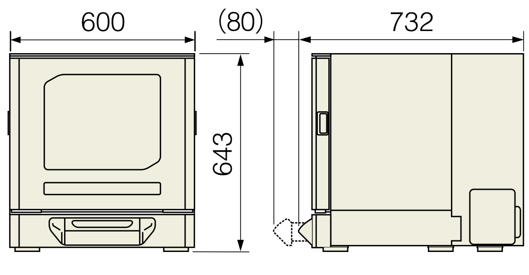
Example of use

Product Name / Model	Capacity of Vessels ／Remarks	Mounting qty on MBR-420FL	Capacity of vessel per plat-form	
Shaking platform for Deep well plates **DWP-2412**	Standard deep well plate	2	6	12
Adaptor **ADP-2412**	Required for mounting Deep Well plate with rims to DWP-2412, 2 sets.	2 sets of adaptor per platform	—	—
Shaking platform for Microplates **MTP-2412**	Standard microplate (Do not use lid, Sealing films recommended)	4	6	24
Stick sheet shaking platform **SR-2412**	Flat bottoms such as Petri dish can be held simply by placing on the platform. Max shakin speed 1000r/min.	4	—	—

Model	**MBR-420FL**
Temperature range (*1)	**4°C to 70°C**
Temp. control accuracy	**±0.3°C to ±1.0°C**
Shaking motion	**Horizontal eccentric shaking (Inverting function)**
Speed range	**200 to 1500r/min** **(Up to 1000 r/min at inverting shaking)**
Capacity (*2)	**12 x Well plate or 24 x Microplate (*3)**
Ambient temp. range	5°C to 35°C
Shaking inverting function	The time and speed for inverting can be set up.
Heateing/Cooling method	Heater 800W/Compressor 140W
Display (Temp./Speed)	Digital display
Program functions	4 programs, 9 segments: Temp., Shaking speed and time/per segment (Setting range: 00h00min to 99h59min), Wait function (*4)
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, Compressor overheating cut-off circuit
Dimensions (W x D x H)/ Weight	600 x 732 x 643mm, Approx. 110kg (Platform not included)
Power supply	AC100V/12A

(*1)The temp. of defrost function that just starting is not included.
(*2)Shaking platform (Option) is required to fix the plates.
(*3)Varies depending the number of shaking platform (option).
(*4)Shaking will start when reaching the preset temp.

Dimensions



● Protuberances not included in Dimensions. ● Vessels of photo not included.

Bioshaker BR-21/22/23 Series

Widely used for Cultivation of microbes etc. that require temp. control. The compact sized can be put under and on the Lab bench.

USER'S VOICE

FR type is CFC-free that relieves us from the gas leakage and the procedures for disposal.

Dimensions --> P.038 OD-Monitor Turbidimeter while shaking --> P.034
Shaker NR-1/2/3 --> P.062

CFC Free
[FP type]

BR-23FP-MR
The compact sized can be put under and on the Lab bench.

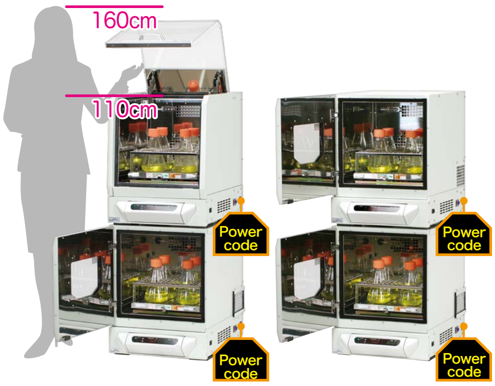
BR-23UM-MR
Lift-up door allows good visibility inside the chamber.

Features

- **"9 models" can be selected by temp. range, shaking motion and door (right or left-opening)**
- **Stackable up to Two levels. The platform can be changed.**
- **Capacity : Erlenmeyer flask 500mL x 4 pcs, 2L x 1 pc**

Applications

- **Cultivation of Microbes such as E.Coli.**
- **Cultivation of Yeast and Insect cell (FR)**
- **Cultivation of Thermophile and Hybridization (FH).**

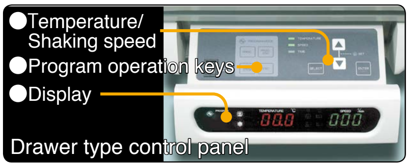


Compact design and Stackable

The compact sized can be placed under the Lab bench. Stackable up to Two levels with "Stackable base (Option)." Excellent performance for microbial cultures thanks to the shaking speed Max. 300r/min even 200r/min at the upper of stacked units.

Sliding retractable control panel

Sliding retractable control panel allows space saving and excellent in operability. Setting for Temperature, Shaking speed and Operation program with simply.



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-MR**	**BR-22FP-MR**	**BR-23FP-MR**	**BR-21UM-MR**	**BR-22UM-MR**	**BR-23UM-MR**	**BR-21FH-MR**	**BR-22FH-MR**	**BR-23FH-MR**
Shaking motion	Reciprocal	Orbital	Reciprocal/ Orbital	Reciprocal	Orbital	Reciprocal/ Orbital	Reciprocal	Orbital	Reciprocal/ Orbital
Temp. control accuracy (*1)	±0.2°C			±0.2°C to ±0.4°C			±0.1°C to ±0.5°C		
Speed range/Shaking width	20 to 300r/min (200r/min at the upper of stacked units), 25mm								
Platform size/Capacity	290 x 250mm (Max. inside height: FP/FH = 270mm, UM = 315mm), Erlenmeyer flask 500mL x 4, 2L x 1								
Door type	Single swing door (Leftward open)			Swing lift-up door			Single swing door (Leftward open)		
Ambient temp. range	5°C to 35°C								
Maximum load	Approx. 3.5kg (Platform and Vessel holder included)								
Heateing method	Peltier element (4 x 70W)			Heater (350W)					
Cooling method				-					
Display (Temp./Speed)	Digital display								
Program functions	1 program, 9 segments: Temp., Shaking speed and time/per segment (Setting range: 00h00min to 99h59min), 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, Overcurrent protection of Peltier (FR) , Motor current limiter								
Dimensions (W x D x H)	437 x 585 x 545mm			422 x 550 x 540mm			437 x 550 x 545mm		
Weight	Approx. 48kg	Approx. 49kg	Approx. 49.5kg	Approx. 41.5kg	Approx. 42.5kg	Approx. 43kg	Approx. 42kg	Approx. 43kg	Approx. 43.5kg
Power supply (*3)	AC100V/5A								
Standard accessories	1 x Spring net shaking platform (MR-2925), 1 x Drain nozzle, 1 x Drain hose								

(*1)The value at the ambient temperature 25°C. (*2)The transfer time of temperature can be set up. (*3)Voltage variation rate is ±5% for AC100V.

● Protuberances not included in Dimensions. ● Vessels of photo not included.

Optional accessories and Capacity/Qty of Vessels

Spring net shaking platform and Capacity/Qty of Vessels

Model	MR-2925
	Vessels can be easily mounted on regardless its shapes.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 option) recommended if vessel should be tightly held.
Spring net Pitch	20mm
Spring net stage	1 stage (Height is changeable.)
External dimension	290x250x108Hmm
Weight	Apporx.1.1kg

Capacity of Vessel	ϕ16 mm test tubes (*1)	50 (*2)	Erlenmeyer flask 300mL	5
	Disposable Centrifuge tube for 50 mL	20 (*2)	Erlenmeyer flask 500mL	4
	Erlenmeyer flask 50mL	20	Erlenmeyer flask 1L	2
	Erlenmeyer flask 100mL	10	Erlenmeyer flask 2L	1
	Erlenmeyer flask 200mL	9	Sakaguchi flask 500mL (*3)	2
	Erlenmeyer flask 250mL	5		

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

Universal shaking platform and Capacity/Qty of Flasks

Model	MT-2925
	It is used together Clamps, Angle racks and "OD-Monitor" series (Clamps of Erlenmeyer flask and Shake flask are available). It can hold flasks tightly than Spring shaking platform.
External dimension	290x250x23Hmm
Weight	Apporx.0.9kg

Capacity of Flask	Erlenmeyer flask 50mL	20	Erlenmeyer flask 500mL	4
	Erlenmeyer flask 100mL	10	Erlenmeyer flask 1L	2
	Erlenmeyer flask 200mL	9	Erlenmeyer flask 2L	1
	Erlenmeyer flask 250mL	5	Sakaguchi flask 500mL	3
	Erlenmeyer flask 300mL	5		

Angle rack for Test tubes and Disposable Centrifuge tubes

(Mounted on MT-2925 for use)

Model	AT-1250	AT-1620	AT-1650	AT-3518 (*1)
Vessels / Capacity	ϕ12㎜test tubes x50	ϕ16.5㎜test tubes x20	ϕ16.5㎜test tubes x50	Disposable Centrifuge tube for 50 mL x18
Mounting qty on MT-2925	1 (*2)	2 (*2)	1 (*2)	1
External dimension (mm)	250x100x95H	285x70x80H	286x110x100H	285x110x102H
Weight	Apporx.0.8kg	Apporx.0.6kg	Apporx.0.9kg	Apporx.0.8kg

(*1)Be sure be used below 50°C. (*2)The qty when Angle rack with 160mm test tube tilted 45 °.

Other optional accessories

Product Name / Model	Stackable base **STB-4842**	Inner rack **RSB-3430**
Shape		
Description	The fixing tool that prevents slippage when the stacked in use (Required when stacked)	It can be installed to the upper of chamber.The height of space that the sample placed differs depending on the mounting position.

Stick sheet shaking platform

Model	SR-2925
	Flat bottoms such as Erlenmeyer flask and Petri dish can be held simply by placing on the platform. The decreasing an adhesive force by dirt can be recovered by washing with water and drying it. Even Erlenmeyer flasks can be used up to 200r/min by using Optional Clamp belt.
Max. shaking speed	100r/min (200r/min when using Clamp belt)
External dimension / Weight	290x250x30Hmm / Apporx.1.1kg
Standard accessories	Stick sheetx1

Stick sheet, Clamp belt

Stick sheet (ST-2925) above also available as sold separately.
Clamp belt (CB-0205/1000) is for securely holding Erlenmeyer flask on Stick sheet shaking platform.

Model	ST-2925	Model	CB-0205	CB-1000
External dimension	290x250mm	Capacity of Erlenmeyer flask	200 to 500 mL	1 to 3 L (*)

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

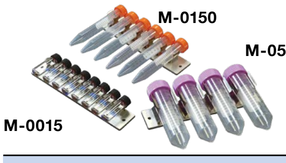
Clamps (Mounted on MT-2925 and AF-2070 for use.)

Shape	Vessels / Capacity		Model
 Above 300mL Clamps comes with Spring and Above 500 mL comes with Octagonal rubber sheet. MT-2925 with Multiple clamps mounted.	Erlenmeyer flask	50mL	**CF-0050**
		100mL	**CF-0100**
		200mL	**CF-0200**
		250mL	**CF-0250**
		300mL	**CF-0300**
		500mL	**CF-0500**
		1L	**CF-1000**
		2L	**CF-2000**
	Sakaguchi flask	500mL	**SF-0500**

Angle rack for Erlenmeyer flasks (Mounted on MT-2925 *Clamps required for use)

Model	AF-2070
Capacity	50mL:4, 100mL:3, 200 to 300mL:2, 500mL:1
Mounting qty on MT-2925	2 sets (The qty when Angle rack tilted 30 °.)
External dimension / Weight	250x110x50Hmm, Apporx.0.8kg

Tube holders (Mounted on MT-2925 for use)



Tube holder **M-0015**
3 sets x 8 racks for 1.5/2.0 mL Microtube and Micro Vial

Tube holder **M-0150**	Tube holder **M-0500**
Disposable Centrifuge tube for 15 mL 3 sets x 6 racks (*)	Disposable Centrifuge tube for 50 mL 3 sets x 4 racks (*)

(*)Up to 2 sets can be mounted on MT-2925 in BR-21/22/23 series.

The mounting direction of Angle rack.

AT-3518

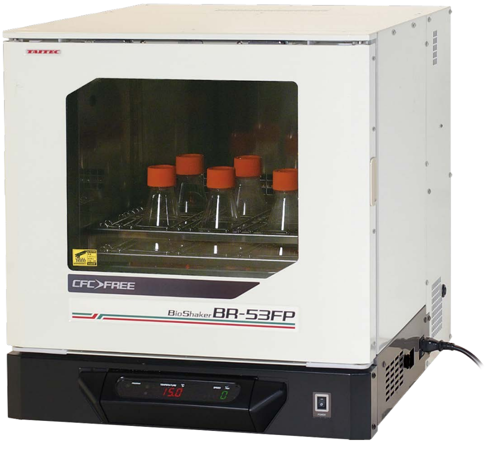
The tilt direction of Angle rack should be mounted orthogonal to the shaking direction when reciprocating due to the inside dimension of chamber.

Bioshaker BR-53FP

Peltier cooling with CFC-free. Temperature range ensures 15°C to 55°C. Cut power consumption by 80% with the conventional one.

USER'S VOICE

CFC-free relieves us from the gas leakage and the procedures for disposal. We should apply for "Subsidy scheme for energy efficiency".



Features

- Peltier cooling with CFC-free. Battery friendly.
- Capacity : Erlenmeyer flask 500mL x 8 pcs, 5L x 1 pc
- Stackable to two levels. Wide variation platforms available as an option.

Applications

- Cultivation of microbes such as Yeast, Insect cell, E.Coli. etc.
- Cultivation of Protein expression vector for E.coli.
- Food testing system and inspection for QC.

Peltier cooling with CFC-free.

Cut power consumption by 80% compared with the conventional one (100r/min at 37°C). Energy saving with 7A. CFC-free relieves you from the gas leakage and the procedures for disposal.

Model	Size	Power supply	Power consumption
BR-23FP	Small	5A	80Wh (at +37°C, 100r/min)
BR-53FP	**Medium**	**7A**	**90Wh (at +37°C, 100r/min)**
BR-43FL	Medium	12A	510Wh (at +37°C, 100r/min)

Open rightward and leftward "Double hinged door"

Open rightward and leftward "Double hinged door" without caring about a place of installation.

Detachable shaking platform. Wide variation available.

Comes with Spring net shaking platform. Others such as Universal shaking platforms available as an option.

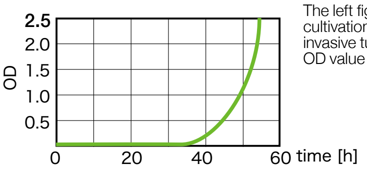
Stackable to two levels

Different temperature can be set respectively upper unit and lower unit for instance, which contribute a space saving.

The front panel in black has improved the high-visibility on the display.

The temp. range 5°C to 55°C works well for general cultivation. The program function enables to correspond to the various protocols such as the temp. range can be changed to another one after shaking. Temp. control is stable thanks to Peltier cooling.

Enables the culture at normal temp.



The left figure shows a test result for cultivation of E coli measured by Non-invasive turbidity meter. Cell growth reached OD value 2.5 (Upper limit) in 55 hours.

Model	**BR-53FP**
Temperature range (*1)	15°C to 55°C
Shaking motion	Switchable Reciprocal/Orbital shaking
Temp. control accuracy	±0.3°C
Speed range/Shaking width	20 to 300r/min (200r/min at the upper of stacked units) / 25mm
Capacity	Universal shaking platform MT-4430: Erlenmeyer flask 500mLx8 pcs Universal shaking platform MT-4030: Erlenmeyer flask 500mLx6 or 5L x 1
Door type	Double hinged door (Rightward/Leftward open)
Maximum load	Approx. 7 kg (Platform included)
Ambient temp. range (*2)	5°C to 30°C
Heateing method	Peltier element
Program functions	1 program, 9 segments: Temp., Shaking speed and time/per segment (Setting range: 00h00min to 99h59min), Temp. gradient function (*3)
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
Dimensions (W x D x H)/Weight	600 x 686 x 643mm, Approx. 86 kg (Platform included)
Power supply	AC100V to 240V/7A
Standard accessories	1 x Power cable, 1 x Spring net shaking platform (MR-4030)

(*1) The value at 25°C of the rear surface intake temp. (*2) Dew condensation (*3)The transfer time of temperature can be set up.

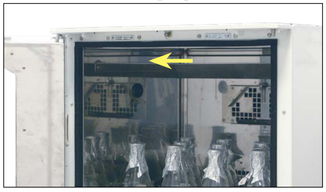
● Protuberances not included in Dimensions. ● Vessels of photo not included.

External output compatible with Pharmaceutical validation (Customization).

Customized external output for Pharmaceutical validation available.
- Temperature output
- Speed output
- Collectively signal output when safety device activated.

Connection holes included as standard equipment.

Equipped with Connection holes for installing such as the sensor of recorder inside the chamber. It is used with Junction pipe (Option).



Optional parts:Inner rack

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

Optional parts:Junction pipe

JCP-3657
The pipe (w/o Lid) for connection to the outside. Be sure be used below 50°C. **(*)**

(*)Electrical equipment should not be placed inside the chamber.

Optional parts:Stackable base

STB-6070
The fixing tool for Two levels.

Optional parts: Clamps

Mounted on Platforms MT-4030/4430 and Angle racks AF-2070/2570 for use.

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

MT-4030 with Multiple clamps mounted.

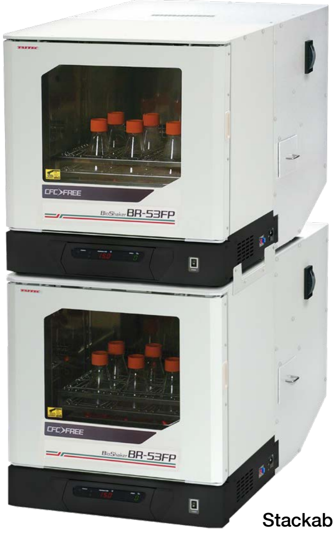
Vessels / Capacity		Model
Up to 2L sets of Erlenmeyer flask can be used in BR-40LF.	50mL	**CF-0050**
	100mL	**CF-0100**
	200mL	**CF-0200**
	250mL	**CF-0250**
	300mL	**CF-0300**
	500mL	**CF-0500**
	1L	**CF-1000**
	2L	**CF-2000**
	3L	**CF-3000**
	5L	**CF-5000**
Sakaguchi flask	500mL	**SF-0500**
	1L	**SF-1000**
	2L	**SF-2000**
Medium bottle	250mL	**MF-0250**

Shaking platform and Capacity/Qty of Flasks

Model		**MT-4430**
		The universal platform for 250mL to 1L. The capacity (Num. of flasks) is larger than that of shaking platform MT-4030. It can hold flasks tightly than shaking platform MR-4030
External dimension / Weight		440x300x23Hmm, Apporx.1.4kg
Capacity of Flask	Erlenmeyer flask 250mL	12
	Erlenmeyer flask 300mL	12
	Erlenmeyer flask 500mL	8
	Erlenmeyer flask 1L	6

Other optional accessories are compatible with BR-4X series. -->P.023

Example of customization for BP-53FR
Customized model "Equipped with HEPA (High efficiency particulate air) filter for CPC (Cell Processing Center)".



Stackable up to Two levels

Supply record of EU-GMP (European Union Good Manufacturing Practice) Grade B cleanrooms.

HEPA filter removes the particle in exhaust wind. Supplied to EU-GMP (European Union Good Manufacturing Practice) Grade B clean rooms that requires Strict cleanliness.

Model	**BR-53FP-CM**
Temp. control accuracy (*1)	18°C to 50°C
Shaking motion	Switchable Reciprocal/Orbital shaking
Temp. control accuracy	±0.5°C
Speed range/Shaking width	20 to 300r/min, 25mm
HEPA Filter	Accumulation rate: Above 99.99% for above 0.3µm particle
Door type	Double hinged door (Rightward/Leftward open)
Maximum load	Approx. 7 kg (Platform included)
Ambient temp. range (*2)	18°C to 25°C
Dimensions (W x D x H)/Weight	625 x 890 x 650mm, Approx. 108 kg
Power supply	AC100V or 220 to 240V/7A

(*1) The value at 25°C of the rear surface intake temp. (*2) Dew condensation.

● Protuberances not included in Dimensions. ● Vessels of photo not included.

Bioshaker BR-40/41/42/43 Series

Widely used for Cultivation of microbes such as Yeast, E.Coli. etc. that require temp. control. Sufficient capacity, Space saving and High versatility.

Dimensions --> P.038 OD-Monitor Turbidimeter while shaking --> P.034 LED irradiation unit --> P.037 Shaker NR-10/20/30 --> P.064

Lift-up door offers allows good visibility inside chamber (BR-40LF)

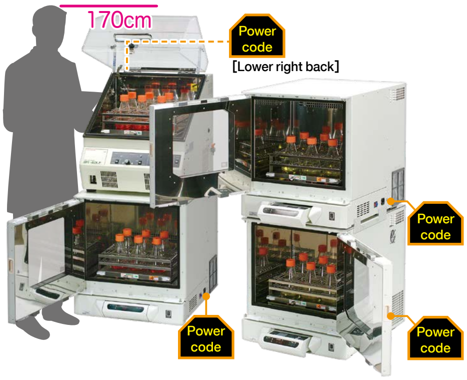
Open rightward and leftward "Double hinged door" (BR-41/42/43 series)

Features

- "8 models" can be selected by temp. range and shaking motion.
- Capacity : Erlenmeyer flask 500mL x 6 pcs, 5L x 1 pc
- Stackable up to Two levels. Platform can be changed.

Applications

- Cultivation of microbes such as E. Coli. etc.
- Cultivation of Yeast and Insect cell (LF/FL)
- Cultivation of Thermophile and Hybridization (FH).

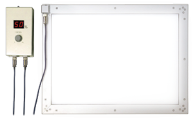


Open rightward and leftward "Double hinged door" and "Stackable"

Open rightward and leftward "Double hinged door" . Stackable up to Two levels with "Stackable base (Option)." Excellent performance for Cultivation of microbe thanks to the shaking speed Max. 300r/min even 200r/min at the upper of stacked units.

LED irradiation unit is available as an option.

LED (Light emitting diode) irradiation unit available as an option. Good effect on photosynthesis. * Recommended to use with Small and Medium sized unit (See ? page for details)



Temperature range	4°C to 70°C				5°C above RT to 70°C			5°C above RT to 100°C
Model	**BR-40LF**	**BR-41FL-MR**	**BR-42FL-MR**	**BR-43FL-MR**	**BR-41FM-MR**	**BR-42FM-MR**	**BR-43FM-MR**	**BR-43FH-MR**
Shaking motion	Reciprocal/ Orbital	Reciprocal	Orbital	Reciprocal/ Orbital	Reciprocal	Orbital	Reciprocal/ Orbital	Reciprocal/Orbital
Temp. control accuracy (*1)	±0.3 to ±1.0°C							
Speed range	20 to 200r/min	20 to 300r/min (200r/min at the upper of stacked units)						
Shaking width	10 to 40mm	25mm						
Capacity	Universal shaking platform MT-4430: Erlenmeyer flask 500mLx8, Universal shaking platform MT-4030: Erlenmeyer flask 5Lx1 *BR-40LF: 2L x 2 (*2)							
Door type	Swing lift-up door	Double hinged door (Rightward/Leftward open)						
Maximum load	approx. 7 kg (Platform and Vessel holder included)							
Ambient temp. range	5°C to 30°C	5°C to 35°C						
Heateing method	Heater 500W	Heater 800W						
Cooling method	Compressor 75W	Compressor 140W			-			
Timer/Program functions	BR-40LF (Timer): Temp. transition time and ON-OFF changeover (Non-functional by only temp. transition time *e.g.: Shaking at 37°C → Shaking stop at 4°C.) BR-41/42/43 (Program): 1 program, 9 segments: Temp., Shaking speed and time/per segment (Setting range: 00h00min to 99h59min), Temp. gradient function (*3)							
Safety devices/functions	Leakage/Overcurrent breaker, Fuse, High temp, Alarm of abnormal sample temp. (Set as desired), Detecting the door opening and closing, Self-diagnosis function for sensor error, Motor current limiter, Compressor overheating cut-off circuit (BR-40LF and FL)							
Dimensions (W x D x H)	586 x 630 x 679mm	600 x 686 x 643mm						
Weight	Approx. 70 kg	Approx.95 kg	Approx.98 kg		Approx.77 kg	Approx.80 kg		Approx.81 kg
Power supply	AC100V/9A	AC100V/12A			AC100V/9A			
Standard accessories	1 x Spring net shaking platform (MR-4030), 1 x Drain-reception plastic bottle with hose (BR-40LF)							

(*1)The temp. of defrost function that just starting is not included.
(*2)Maximum inside height are 331mm (40LF) and 350mm (41/42/43).
(*3)The transfer time of temperature can be set up.
•Temp. range and Temp. stability may not be meet the specs when frost by continuous operation. Required to defrost it regularly.

● Protuberances not included in Dimensions. ● Vessels of photo not included.

Optional accessories and Capacity/Qty of Vessels

Spring net shaking platform and Capacity/Qty of Vessels

Model	MR-4030
	Vessels can be easily mounted on regardless its shapes.It can be used by removing some springs and changing the height of the spring net as necessary. Universal shaking platform recommended for 5 L Erlenmeyer flask or 1 to 2L Shake flask.
Spring net Pitch	20mm
Spring net stage	2 stage (Height is changeable.)
External dimension / Weight	400x300x108Hmm, Apporx.3.3kg

Capacity of Vessel				
	ϕ16 mm test tubes (*1)	96 (*2)	Erlenmeyer flask 300mL	9
	Disposable Centrifuge tube for 50 mL	48 (*2)	Erlenmeyer flask 500mL	6
	Erlenmeyer flask 50mL	24	Erlenmeyer flask 1L	3
	Erlenmeyer flask 100mL	20	Erlenmeyer flask 2L	2
	Erlenmeyer flask 200mL	12	Erlenmeyer flask 3L (*3)	1
	Erlenmeyer flask 250mL	9	Sakaguchi flask 500mL	6

(*1)ϕ16 mm or less should be with the stand to be mounted on in Spring net.
(*2)The qty when Angle rack tilted 45 °.
(*3)It cannot be used with BR-40LF.

Shaking platforms and Capacity of Flasks

Model	MT-4030/MT-4430
	MT-4030 is used together Clamps, Angle racks and "OD-Monitor" series. It can hold flasks tightly than Spring shaking platform. In MT-4430 the mounting position for Flasks are fixed and the capacity of (Num. of flasks) is larger than that of MT-4030.
External dimension / Weight	400/440x300x23Hmm, Apporx.1.4kg

Capacity of Flask				
	Erlenmeyer flask 50mL	35/ -	Erlenmeyer flask 2L	2/ -
	Erlenmeyer flask 100mL	18/ -	Erlenmeyer flask 3L (*1)	2/ -
	Erlenmeyer flask 200mL	12/ -	Erlenmeyer flask 5L (*1) (*2)	1/ -
	Erlenmeyer flask 250mL	9/12	Sakaguchi flask 500mL	6/ -
	Erlenmeyer flask 300mL	9/12	Sakaguchi flask 1L	4/ -
	Erlenmeyer flask 500mL	6/ 8	Sakaguchi flask 2L	2/ -
	Erlenmeyer flask 1L	4/ 6		

(*1)It cannot be used with BR-40LF. (*2)The height is up to 350mm height.

Angle rack for Test tubess (Mounted on MT-4030 for use)

MT-4030 with Angle racks mounted.

Model	AT-1250	AT-1620	AT-1650	AT-1820
Capacity	ϕ12mm x50	ϕ16.5mm x20	ϕ16.5mm x50	ϕ18mm x20
Mounting qty on MT-4030	2 (*)	3 (*)	2 (*)	3 (*)
External dimension (mm)	250x100x95H	285x70x80H	286x110x100H	320x70x80H
Weight	Apporx.0.8kg	Apporx.0.6kg	Apporx.0.9kg	Apporx.0.7kg

(*)The qty when Angle rack with 160mm test tube tilted 45 °.

Other optional accessories

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

Stackable base	Junction pipe
The fixing tool for Two stages. For BR-41/42/43/53: STB-6070 For BR-40LF: Stackable baseA	The pipe (w/o Lid) for connection to the outside. (JCP-3657) Be sure be used below 50°C. (*)

(*)Electrical equipment should not be placed inside the chamber.

Angle rack for Disposable Centrifuge tubes

Model	AT-3518
Capacity	50mLx18
Mounting qty on MT-4030	2 (When Angle rack tilted 45 °)
External dimension	285x110x102Hmm
Weight	Apporx.0.8kg

Stick sheet shaking platform

Model	SR-4030
	Flat bottoms such as Erlenmeyer flask and Petri dish can be held simply by placing on the platform. The decreasing an adhesive force by dirt can be recovered by washing with water and drying it. Even Erlenmeyer flasks can be used up to 200r/min by using Optional Clamp belt.
Max. shaking speed	100r/min (200r/min when using Clamp belt)
External dimensio / Weight	400x300x30Hmm, Apporx.1.7kg
Standard accessories	Stick sheetx1

Stick sheet, Clamp belt

Stick sheet (ST-4030) above also available as sold separately. Clamp belt (CB-0205/1000) is for securely holding Erlenmeyer flask on Stick sheet shaking platform.

Model	ST-4030
External dimension	400x300mm

Model	CB-0205	CB-1000
Capacity of Erlenmeyer flask	200 to 500 mL	1 to 3 L (*)

(*)Up to 2L of Erlenmeyer flask can be used with the BR-40LF.

Clamps (Mounted on MT-4030 and AF-2070/2570 for use)

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

MT-4030 with Multiple clamps mounted.

Vessels / Capacity		Model
Up to 2L sets of Erlenmeyer flask can be used in BR-40LF.	50mL	CF-0050
	100mL	CF-0100
	200mL	CF-0200
	250mL	CF-0250
	300mL	CF-0300
	500mL	CF-0500
	1L	CF-1000
	2L	CF-2000
	3L	CF-3000
	5L	CF-5000
Sakaguchi flask	500mL	SF-0500
	1L	SF-1000
	2L	SF-2000

Angle rack for Erlenmeyer flasks (Mounted on MT-4030 *Clamps required)

MT-4030 with Angle racks mounted.

Model	AF-2070	AF-2570
Capacity	50mL:4, 100mL:3, 200 to 300mL:2, 500mL:1	50mL:5, 100mL:4, 200mL:3, 250 to 500mL:2
Mounting qty on MT-4030	2 (*1)	2 (*1)
External dimension	250x110x50Hmm	300x110x50Hmm
Weight	Apporx.0.8kg	Apporx.0.9kg

(*1)The qty when Angle rack tilted 30 °.•Clamps are available as an option.

Tube holders (Mounted on MT-4030 for use)

M-0150
M-0500
M-0015

Tube holder M-0015
3 sets x 8 racks for 1.5/2.0 mL Microtube and Micro Vial

Tube holder M-0150
Disposable Centrifuge tube for 15 mL 3 sets x 6 racks

Tube holder M-0500
Disposable Centrifuge tube for 50 mL 3 sets x 4 racks

● Protuberances not included in Dimensions. ● Vessels of photo not included.

Selection guide
Constant temperature incubator shaker OD-Monitor
CO_2 incubator CO_2 incubator shaker
Shaker
Mixer Rotator Stirrer
Bead beater homogenizer Ultrasonic homogenizer
Aluminum block bath Minisize bath
Water bath Shaking water bath Immersion cooler
Hybridization oven Constant temperature chamber
Centrifugal concentrator Cold trap
Freeze dryer
Electrophoresis and Blotting apparatus
Constant temperature water circulating system [Chiller]
Appendix

Bioshaker BR-300LF/BR-300LF LED irradiation

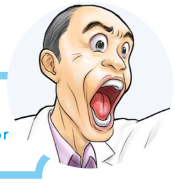
Widely used for Cultivation of microbes such as Yeast, E.Coli. etc. that require temp. control. The power saving LED irradiation model and a model without compressor available.

Dimensions --> P.038 OD-Monitor Turbidimeter while shaking --> P.034 Double Shaker NR-150 --> P.066

BR-300LF LED irradiation

BR-300LF

USER'S VOICE
Newly adopted LED irradiation unit for Power saving.

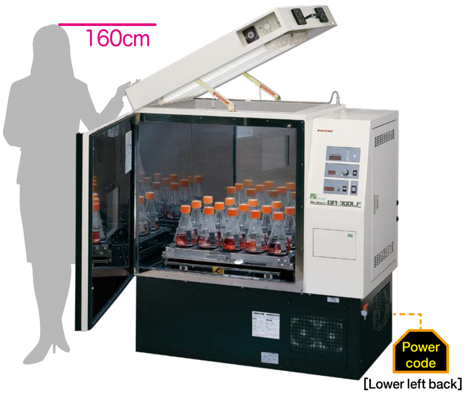


Features

- "Two models" with/without LED irradiation
- Capacity : Erlenmeyer flask 500mL x 15 pcs, 5L x 3 pcs
- Shaking width adjustable in stepless between 10mm to 50mm.

Applications

- Cultivation of microbes such as E.Coli. etc.
- Cultivation of Yeast, Psychrophile and Insect cell
- AGP/Algal Growth Potential (BR-300LF-LED irradiation)



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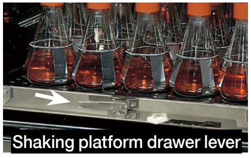
Providing a line up of incorporated LED irradiation unit.

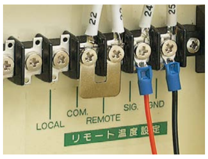
Large Bioshakers are long seller by continued improvements such as Shaking platform drawer lever. Equipped with Switchable shaking motion and adjustment of shaking width in stepless between 10mm and 50mm. LED irradiation unit has been adopted to save power more than conventional one. It has been proved comparable to Fluorescent lamp in the cultivation of algae.


Shaking platform drawer lever

7x Straight tube LED

Equipped with the remote terminal for the temp. control.

Connecting with Program unit PU-5 (see the roght page) enables the remote control setting and the program operation.



Model	BR-300LF	BR-300LF-LED
Temperature range	4°C to 70°C	
Temp. control accuracy (*1)	±0.3°C to ±1.0°C	
Shaking motion/Speed range/Width	Switchable Reciprocal/Orbital shaking, 25 to 250r/min, 10 to 50mm (Stepless)	
Platform size/Capacity	600 x 400mm (Max. inside height: 575mm), Erlenmeyer flask 500mLx15, 5Lx3	
Light source/Irradiation capacity	-	7 x Straight tube LED, 8000 lux (*2), Stepless dimming
Irradiation time setting	-	24-hour timer setting method (Swichable ON/OFF per 15min)
Door type	Single swing door (Leftward open)	
Maximum load	Approx. 10kg (Platform not included)	
Ambient temp. range (*1)	5°C to 35°C	
Display (Temp./Speed)	Digital display (Switchable Set temp./Chamber temp.)	
Heateing/Cooling method	Heater 700W/Compressor 125W	
Other functions	Shaking duration integrator (0.1h to 999.9h, Automatic resetting function *Required Program unit PU-5 or 6/Option to use), Chamber lamp	
Safety devices/functions	Leakage/Overcurrent breaker, Compressor overheating cut-off circuitr, Abromal sample temp. protection, High/Low temp., Display of deviation from set value (upper / lower limit), Self-diagnosis function for temperature sensor error,	
Dimensions (W x D x H)/Weight	1110 x 682 x 1120mm, Approx. 210kg	1110 x 682 x 1218mm, Approx. 230kg
Power supply	AC220 to 240V/11A	AC220 to 240V/12A
Standard accessories	1 x Universal shaking platform MT-6040E (*3), 4 x Vibration absorbing pad, 4 x Spacer, 1 x Drain-reception plastic bottle (With hose), 2 xSafety pin for the mounting stay (BR-300LF-LED), 1 x Light shielding plate (BR-300LF-LED)	

(*1)The temp. of defrost function that just starting is not included.
(*2)The value was measured at the position of 230mm from the center of platform. The value is 5500 lux at the position of 30mm from that.
(*3)Clamps not included.
•Temp. range and Temp. stability may not be meet the specs when frost by continuous operation. Required to defrost it regularly.

● Protuberances not included in Dimensions. ● Vessels of photo not included.

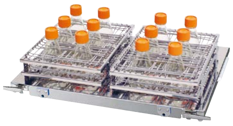
Optional accessories and Capacity/Qty of Vessels

Shaking platform and Capacity/Qty of Flasks

Model		**MT-6040E**		
		It is used together Clamps, Angle racks and “OD-Monitor” series (Clamps of Erlenmeyer flask and Sakaguchi flask available). It can hold flasks tightly than Spring shaking platform.		
External dimension / Weight		600x400x42Hmm, Apporx.4kg		
Capacity of Flask	Erlenmeyer flask 50mL	70	Erlenmeyer flask 2L	6
	Erlenmeyer flask 100mL	35	Erlenmeyer flask 3L	4
	Erlenmeyer flask 200mL	28	Erlenmeyer flask 5L/Disposable 3&5L	3
	Erlenmeyer flask 250mL	21	Sakaguchi flask 500mL	15
	Erlenmeyer flask 300mL	21	Sakaguchi flask 1L	9
	Erlenmeyer flask 500mL	15	Sakaguchi flask 2L	6
	Erlenmeyer flask 1L	9	Sakaguchi flask 3L	4

Spring net shaking platform and Capacity/Qty of Vessels

(Mounted on MT-6040E for use)

Model			**MR-4030L**
			The usable Shaking platform that Vessels can be easily mounted on regardless its shapes. Fixed with the screws to Platform MT-6040E for using. Up to Two sets can be mounted. (See Left figure.)
Spring net Pitch			20mm
Spring net stage			2 stage (Height is changeable.)
External dimension / Weight			400x300x108Hmm, Apporx.2kg
Capacity of Vessels (*2)	φ16 mm test tubes (*1)		96pcs (When Two sets mounted: 2 x 96 = 192pcs).
	Disposable Centrifuge tube for 50 mL (*1)		48pcs (When Two sets mounted: 2 x 48 = 96pcs).
	Erlenmeyer flask	50mL	24pcs (When Two sets mounted: 2 x 24 = 48pcs).
		100mL	20pcs (When Two sets mounted: 2 x 20 = 40pcs).
		200mL	12pcs (When Two sets mounted: 2 x 12 = 24pcs).
		250mL	9pcs (When Two sets mounted: 2 x 9 = 18pcs).
		300mL	9pcs (When Two sets mounted: 2 x 9 = 18pcs).
		500mL	6pcs (When Two sets mounted: 2 x 6 = 12pcs).
		1L	3pcs (When Two sets mounted: 2 x 3 = 6pcs).
		2L	2pcs (When Two sets mounted: 2 x 2 = 4pcs).
		3L	1pcs (When Two sets mounted: 2 x 1 = 2pcs).
	Sakaguchi flask 500mL		6pcs (When Two sets mounted: 2 x 6 = 12pcs).

(*1)The qty when Angle rack tilted 45 °.φ16mm or less test tube should fixed with the stand per net.
(*2)The Capacity/Qty of vessels are less than those of Universal platform.

Program units

Connecting to the remote temperature setting terminal of BR-300LF series enables remote setting and program setting of temperature (The modification of BR is required for the shaking control).

	Model	**PU-5**
	Functions	Remote program control of Temperature.
	Main Spec.	Storage programs: 2 program (8 segments per program)
	Model	**PU-6**
	Functions	Remote program control of Temperature and Shaking ON/OFF.
	Main Spec.	Storage programs: 2 program (8 segments per program) Time signal (ON/OFF): Each 2 programs

Clamps (Mounted on MT-6040E and AF-2070/2570 for use)

	Vessels / Capacity		**Model**
Above 300mL Clamps comes with Spring and Above 500 mL comes with Octagonal rubber sheet.	Erlenmeyer flask	50mL	**CF-0050**
		100mL	**CF-0100**
		200mL	**CF-0200**
		250mL	**CF-0250**
		300mL	**CF-0300**
		500mL	**CF-0500**
		1L	**CF-1000**
		2L	**CF-2000**
		3L	**CF-3000**
		5L	**CF-5000**
		3&5L (*)	**CF-3000DSP**
Clamps for Sakaguchi flask and Sakaguchi flask	Sakaguchi flask	500mL	**SF-0500**
		1L	**SF-1000**
		2L	**SF-2000**
		3L	**SF-3000**

(*)For Disposable Erlenmeyer flasks (Corning 3L and Thomson 5L).

Angle rack for Test tubess

(Mounted on MT-6040E for use)

	Model	**AT-1250**	**AT-1620**	**AT-1650**	**AT-1820**
AT-1250	Capacity	φ12mm x50	φ16.5mm x20	φ16.5mm x50	φ18mm x20
	Mounting qty on MT-6040E	4 (*)	6 (*)	4 (*)	5 (*)
	External dimension (mm)	250x100x95H	285x70x80H	286x110x100H	320x70x80H
	Weight	Apporx.0.8kg	Apporx.0.6kg	Apporx.0.9kg	Apporx.0.7kg

(*)The qty when Angle rack with 160mm test tube tilted 45 °.

Angle rack for Disposable Centrifuge tubess

(Mounted on MT-6040E for use)

	Model	**AT-3518**
	Capacity	50mLx18
	Mounting qty on MT-6040E	4 (When Angle rack tilted 45 °)
	External dimension / Weight	285x110x102Hmm, Apporx.0.8kg
	Remarks	Be sure be used below 50°C.

Angle rack for Erlenmeyer flasks

(Mounted on MT-6040E *Clamps required)

	Model	**AF-2070**	**AF-2570**
AF-2070	Capacity	50mL:4, 100mL:3, 200 to 300mL:2, 500mL:1	50mL:5, 100mL:4, 200mL:3, 250 to 500mL:2
	Mounting qty on MT-6040E	4 (*1)	4 (*1)
	External dimension	250x110x50Hmm	300x110x50Hmm
	Weight	Apporx.0.8kg	Apporx.0.9kg

(*1)The qty when Angle rack tilted 30 °.•Clamps are available as an option.

● Protuberances not included in Dimensions. ● Vessels of photo not included.

Bioshaker Double platform BR-300LF

Enables to use widely for Cultivation of microbes such as Yeast, E.Coli. etc. that require temp. control. Equipped with double platform, the capacity is doubled as BR-300LF (Single platform).

Dimensions --> P.038 OD-Monitor Turbidimeter while shaking --> P.034 Double Shaker NR-150 --> P.066

Double platform BR-300LF

Features

- Wide temperature range for 4°C to 70°C
- Capacity : Erlenmeyer flask 500mL x 30 pcs, 1Lx18 pcs
- Shaking width adjustable in stepless between 10mm and 50mm.

Applications

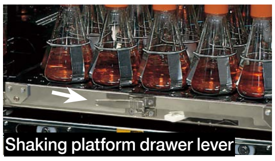
- Cultivation of microbes such as E.Coli. etc.
- Cultivation of Yeast, Psychrophile and Insect cell
- The other samples that require shaking and temp. control.

160cm
Power code

[Lower left back]

Double platform realizes the capacity twice as BR-300LF (Single platform).

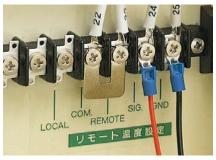
Large Bioshakers are long seller by the repeated improvements such as Shaking platform drawer lever. The capacity (Up to 1 liter Erlenmeyer flask) doubled as BR-300LF (Single platform). Note: The upper platform should be removed when above 2L Erlenmeyer flask and lL Shake flask are placed. (Ask us for details).



Shaking platform drawer lever

Equipped with the remote terminal for the temp. control.

Conecting with Program unit PU-5 (see the right page) enables the remote control setting and the program operation.



Model	**Double platform BR-300LF**
Temperature range	**4°C to 70°C**
Temp. control accuracy (*1)	**±0.3°C to ±1.0°C**
Shaking motion	**Switchable Reciprocal/Orbital shaking**
Speed range	**25 to 160r/min**
Shaking width	**10 to 50mm (stepless)**
Platform size/Capacity	**600 x 400mm (Capable/Max. vessel size: Up to 1L Erlenmeyer flask and 500mL Shake flask), Erlenmeyer flask 500mLx30, 1Lx18**
Door type	**Single swing door (Leftward open)**
Maximum load	Approx. 10kg/per platform (Platform not included)
Ambient temp. range (*1)	5°C to 35°C
Display (Temp./Speed)	Digital display (Switchable Set temp./Chamber temp.)
Heateing/Cooling method	Heater 700W/Compressor 125W
Other functions	Shaking duration integrator (0.1h to 999.9h, Automatic resetting function *Required Program unit PU-5 or 6/Option to use), Chamber lamp
Safety devices/functions	Leakage/Overcurrent breaker, Compressor overheating cut-off circuit, Alarm of abnormal sample temp. (Set as desired), High/Low temp., Display of deviation from set value (upper / lower limit), Self-diagnosis function for temperature sensor error
Dimensions (W x D x H)/Weight	1100 x 682 x 1120mm, Approx. 220kg
Power supply	AC220 to 240V/11A
Standard accessories	2 x Universal shaking platform MT-6040 (*2), 4 x Vibration absorbing pad, 4 x Spacer, 1 x Drain-reception plastic bottle (With hose)

(*1)The temp. of defrost function just run is not included.
(*2)Clamps not included.
•Temp. range and Temp. stability may not be meet the specs when frost by continuous operation. Required to defrost it regularly.

● Protuberances not included in Dimensions. ● Vessels of photo not included.

Optional accessories and Capacity/Qty of Vessels

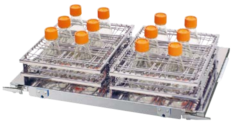
Shaking platform and Capacity/Qty of Flasks

Model		**MT-6040E**		
		It is used together Optional Clamps, Angle racks and “OD-Monitor” series (Clamps of Erlenmeyer flask and Shake flask are available). It can hold flasks tightly than Spring shaking platform.		
External dimension ⁄ Weight		600x400x42Hmm, Apporx.4kg		
Capacity of Flasks (Two stages in total)	Erlenmeyer flask 50mL	140	Erlenmeyer flask 2L (*)	6
	Erlenmeyer flask 100mL	70	Erlenmeyer flask 3L (*)	4
	Erlenmeyer flask 200mL	56	Erlenmeyer flask 5L/Disposable 3&5L (*)	3
	Erlenmeyer flask 250mL	42	Sakaguchi flask 500mL	30
	Erlenmeyer flask 300mL	42	Sakaguchi flask 1L (*)	9
	Erlenmeyer flask 500mL	30	Sakaguchi flask 2L (*)	6
	Erlenmeyer flask 1L	18	Sakaguchi flask 3L (*)	4

(*)It cannot be used in the upper platform and can be used on the lower platform when that of upper removed.

Spring net shaking platform and Capacity/Qty of Vessels

(Mounted on MT-6040E for use)

Model			**MR-4030L**
			The usable Shaking platform that Vessels can be easily mounted on regardless its shapes. Fixed with the screws to Platform MT-6040E for using. Up to Two sets can be mounted. (See Left figure.) 4 sets in total can be mounted on double platforms.
Spring net Pitch			20mm
Spring net stage			2 stage (Height is changeable.)
External dimension ⁄ Weight			400x300x108Hmm, Apporx.2kg
Capacity of Vessels (*2)	*ϕ*16 mm test tubes (*1)		96pcs (When Two sets mounted: 2 x 96 = 192pcs). x2 stage
	Disposable Centrifuge tube for 50 mL (*1)		48pcs (When Two sets mounted: 2 x 48 = 96pcs). x2 stage
	Erlenmeyer flask	50mL	24pcs (When Two sets mounted: 2 x 24 = 48pcs). x2 stage
		100mL	20pcs (When Two sets mounted: 2 x 20 = 40pcs). x2 stage
		200mL	12pcs (When Two sets mounted: 2 x 12 = 24pcs). x2 stage
		250mL	9pcs (When Two sets mounted: 2 x 9 = 18pcs). x2 stage
		300mL	9pcs (When Two sets mounted: 2 x 9 = 18pcs). x2 stage
		500mL	6pcs (When Two sets mounted: 2 x 6 = 12pcs). x2 stage
		1L	3pcs (When Two sets mounted: 2 x 3 = 6pcs). x2 stage
		2L (*3)	2pcs (When Two sets mounted: 2 x 2 = 4pcs).
		3L (*3)	1pcs (When Two sets mounted: 2 x 1 = 2pcs).
	Sakaguchi flask 500mL		6pcs (When Two sets mounted: 2 x 6 = 12pcs). x2 stage

(*1)The qty when Angle rack tilted 45 °.ϕ16mm or less test tube should fixed with the stand per net.

(*2)The Capacity/Qty of vessels are less than those of Universal platform.

(*3)It can be used on the lower platform when that of upper removed.

Program units

Connecting to the remote temperature setting terminal of BR-300LF series enables remote setting and program setting of temperature (The modification of BR is required for the shaking control).

	Model	**PU-5**
	Description	Remote program control of Temperature.
	Main Spec.	Storage programs: 2 program (8 segments per program)

	Model	**PU-6**
	Description	Remote program control of Temperature and Shaking ON/OFF.
	Main Spec.	Storage programs: 2 program (8 segments per program) Time signal (ON/OFF): Each 2 programs

● Protuberances not included in Dimensions. ● Vessels of photo not included.

Clamps (Mounted on MT-6040E and AF-2070/2570 for use)

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

Clamps for Sakaguchi flask and Sakaguchi flask

Vessels / Capacity		**Model**
Erlenmeyer flask	50mL	**CF-0050**
	100mL	**CF-0100**
	200mL	**CF-0200**
	250mL	**CF-0250**
	300mL	**CF-0300**
	500mL	**CF-0500**
	1L	**CF-1000**
	2L (*1)	**CF-2000**
	3L (*1)	**CF-3000**
	5L (*1)	**CF-5000**
	3&5L (*2)	**CF-3000DSP**
Sakaguchi flask	500mL	**SF-0500**
	1L (*1)	**SF-1000**
	2L (*1)	**SF-2000**
	3L (*1)	**SF-3000**

(*1)It cannot be used in the upper platform and can be used on the lower platform when that of upper removed.
(*2)For Disposable Erlenmeyer flasks (Corning 3L and Thomson 5L).

Angle rack for Test tubes

(Mounted on MT-6040E for use)

AT-1250

Model	**AT-1250**	**AT-1620**	**AT-1650**	**AT-1820**
Capacity	*ϕ*12mm x50	*ϕ*16.5mm x20	*ϕ*16.5mm x50	*ϕ*18mm x20
Mounting qty on MT-6040E	4 (*)x2 stage	6 (*)x2 stage	4 (*)x2 stage	5 (*)x2 stage
External dimension (mm)	250x100x95H	285x70x80H	286x110x100H	320x70x80H
Weight	Apporx.0.8kg	Apporx.0.6kg	Apporx.0.9kg	Apporx.0.7kg

(*)The qty when Angle rack with 160mm test tube tilted 45 °.

Angle rack for Disposable Centrifuge tubes

(Mounted on MT-6040E for use)

Model	**AT-3518**
Capacity	50mLx18
Mounting qty on MT-6040E	4 (When Angle rack tilted 45 °)x2 stage
External dimension ⁄ Weight	285x110x102Hmm, Apporx.0.8kg
Remarks	Be sure be used below 50°C.

Angle rack for Erlenmeyer flask

(Mounted on MT-6040E *Clamps required)

AF-2070

Model	**AF-2070**	**AF-2570**
Capacity	50mL:4, 100mL:3, 200 to 300mL:2, 500mL:1	50mL:5, 100mL:4, 200mL:3, 250 to 500mL:2
Mounting qty on MT-6040E	4 (*1)x2 stage	4 (*1)x2 stage
External dimension	250x110x50Hmm	300x110x50Hmm
Weight	Apporx.0.8kg	Apporx.0.9kg

(*1)The qty when Angle rack tilted 30 °. •Clamps are available as an option.

Selection guide
Constant temperature incubator shaker OD-Monitor
CO_2 incubator CO_2 incubator shaker
Shaker
Mixer Rotator Stirrer
Bead beater homogenizer Ultrasonic homogenizer
Aluminum block bath Minisize bath
Water bath Shaking water bath Immersion cooler
Hybridization oven Constant temperature chamber
Centrifugal concentrator Cold trap
Freeze dryer
Electrophoresis and Blotting apparatus
Constant temperature water circulating system [Chiller]
Appendix

Bioshaker BR-180LF/BR-180LF-70RT

Split doors enable to take large vessels in and out easily. Can be modified to Forced ventilation system of carbon dioxide. Shaking width 70mm has an effective on the cultivation of Actinomycete (BR-180LF-70RT).

Dimensions --> P.038 OD-Monitor Turbidimeter while shaking --> P.034 Forced ventilation system of carbon dioxide --> P.046

BR-180LF

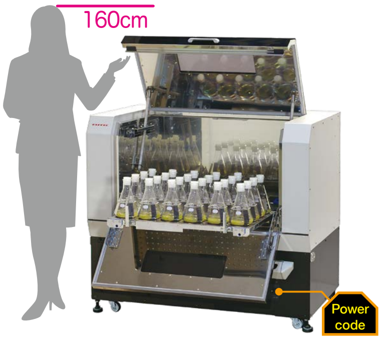
BR-180LF-70RT

Features

- Max. speed 400r/min.
- Split doors enable easy to take large vessels.
- Capacity : Erlenmeyer flask 500mL x 24 pcs, 5L x 4 pcs

Applications

- Cultivation of E.Coli and yeast
- Cultivation of Actinomycete (70RT)

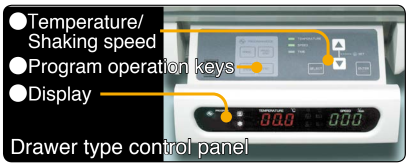


Easy to take large vessels in and out.

"Clamshell split doors" enable to take large vessels in and out easily. Equipped casters enable easy to move (BR-180LF). The Max. speed 400r/min. 70RT (orbital shaking/shaking width 70mm) can be shaked up to 250r/min that is optimum for especially Cultivation of microbe with Erlenmeyer flask.

Sliding retractable control panel

Setting for Temperature, Shaking speed and Operation program with simply.



Model	BR-180LF	BR-180LF-70RT
Shaking motion	Switchable Reciprocal/Orbital shaking	Orbital shaking
Temperature range	4°C to 70°C	4°C to 70°C
Temp. control accuracy (*1)	±0.3°C to ±1.0°C	
Speed range (*2)	25 to 250 r/min, 25 to 400r/min at 25mm/orbital	25 to 250r/min
Shaking width	Switchable 25/50mm (Default: 25mm)	70mm
Platform size/Capacity	700 x 500mm (Max. inside height: 420mm), Erlenmeyer flask 500mLx24, 5Lx4	680 x 480mm (Max. inside height: 420mm), Erlenmeyer flask 500mLx24, 5Lx4
Door type	Clamshell split door (Divided into Upper and Lower, Upward opening and Front opening)	
Maximum load	approx. 10kg (Platform not included)	
Ambient temp. range (*1)	5°C to 30°C	
Heateing/Cooling method	Heater 700W/Compressor 125W	
Program functions	1 program, 9 segments (4 combinations can be saved): Temp., Shaking speed and Time/per segment (Setting range: 00h00min to 99h59min), Temp. gradient function (*3)	
Safety devices/functions	Leakage/Overcurrent breaker, Compressor overheating cut-off circuit, Alarm of abnormal sample temp. (Set as desired), Overload/Overvoltage protection, Fuse, Current limiter, Detecting the door opening and closing, Self-diagnosis function for temperature sensor error, Nonvolatile memory error, Breaking device when motor runaway	
Dimensions (W x D x H)/Weight	1110 x 716 x 990mm, Approx. 180kg	1110 x 716 x 930mm, Approx. 190kg
Power supply	AC220 to 240V/12A	AC220 to 240V/12A
Standard accessories	1 x Universal shaking platform MT-7050 (LF)/MT-6848 (LF-70RT) (*4), 1 x Drip tray (LF)/Drain-reception plastic bottle with hose (LF-70RT), 4 x Vibration absorbing pad, 4 x Spacer (LF-70RT)	

(*1)The temp. of defrost function just run is not included.
(*2)There is the limitation depending the volume of vessels and the shaking diameter. See the figure "Note" on the right page.
(*3)The transfer time of temperature can be set up. (*4)Clamps not included.
•Temp. range and Temp. stability may not be meet the specs when frost by continuous operation. Required to defrost it regularly.

● Protuberances not included in Dimensions. ● Vessels of photo not included.

Optional accessories and Capacity/Qty of Vessels

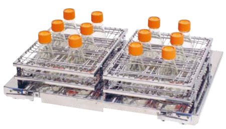
Shaking platform and Capacity/Qty of Flasks

Model		**MT-7050** (Refer MT-6848 below for 70RT.)		
		It is used together Clamps, Angle racks and "OD-Monitor" series (Clamps of Erlenmeyer flask and Sakaguchi flask available). It can hold flasks tightly than Spring shaking platform.		
External dimension ／ Weight		700x500x22Hmm, Apporx.6kg		
Capacity of Flask	Erlenmeyer flask 50mL	96	Erlenmeyer flask 2L	8
	Erlenmeyer flask 100mL	48	Erlenmeyer flask 3L	6
	Erlenmeyer flask 200mL	35	Erlenmeyer flask 5L / Disposable 3&5L	4/5
	Erlenmeyer flask 250mL	28	Sakaguchi flask 500mL	18
	Erlenmeyer flask 300mL	28	Sakaguchi flask 1L	12
	Erlenmeyer flask 500mL	24	Sakaguchi flask 2L	6
	Erlenmeyer flask 1L	13	Sakaguchi flask 3L	5

Model	**MT-6848** (for 70RT, Pre-assembled)
	Designed for BR-180LF-70RT. Fixed with Optional clamps. Not equipped with Drawer mechanism due to designed for High load.
External dimension ／ Weight	680x480x22Hmm, Apporx.5.2kg
Capacity	same as MT-7050 (see above)

Spring net shaking platform and Capacity/Qty of Vessels

(Mounted on MT-7050 for use)

Model			**MR-4030L** (Not used with 70RT)
			The usable Shaking platform that Vessels can be easily mounted on regardless its shapes. Fixed with the screws to Platform MT-7050 for using. Up to Two sets can be mounted. (See Left figure.)
Spring net Pitch			20mm
Spring net stage			2 stage (Height is changeable.)
External dimension ／ Weight			400x300x108Hmm, Apporx.2kg
Capacity of Vessels (*2)	ϕ16 mm test tubes (*1)		96pcs (When Two sets mounted: 2 x 96 = 192pcs).
	Disposable Centrifuge tube for 50 mL (*1)		48pcs (When Two sets mounted: 2 x 48 = 96pcs).
	Erlenmeyer flask	50mL	24pcs (When Two sets mounted: 2 x 24 = 48pcs).
		100mL	20pcs (When Two sets mounted: 2 x 20 = 40pcs).
		200mL	12pcs (When Two sets mounted: 2 x 12 = 24pcs).
		250mL	9pcs (When Two sets mounted: 2 x 9 = 18pcs).
		300mL	9pcs (When Two sets mounted: 2 x 9 = 18pcs).
		500mL	6pcs (When Two sets mounted: 2 x 6 = 12pcs).
		1L	3pcs (When Two sets mounted: 2 x 3 = 6pcs).
		2L	2pcs (When Two sets mounted: 2 x 2 = 4pcs).
		3L	1pcs (When Two sets mounted: 2 x 1 = 2pcs).
	Sakaguchi flask 500mL		6pcs (When Two sets mounted: 2 x 6 = 12pcs).

(*1)The qty when Angle rack tilted 45 °.ϕ16mm or less test tube should fixed with the stand per net.
(*2)The Capacity/Qty of vessels are less than those of Universal platform.

Machine height of BR-180LF and BR-180LF-70RT

BR-180LF -70RT

BR-180LF-70RT equipped with Vibration absorbing pad but not casters and adjusters unlike BR-180RT. Due to it the height is slightly lower than BR-180LF.

【Note】 limitation of Shaking speed by Shaking width and Vessel sizes. (70RT)

Shaking width ／ Shaking motion	70mm, Orbital
~500mL	250r/min
1L	250r/min
2L	200r/min
3L	160r/min
5L	150r/min

Clamps (Mounted on MT-7050/6848 and AF-2070/2570 for use.)

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

MT-7050 with multiple clamps mounted.

Vessels / Capacity		**Model**
Erlenmeyer flask	50mL	**CF-0050**
	100mL	**CF-0100**
	200mL	**CF-0200**
	250mL	**CF-0250**
	300mL	**CF-0300**
	500mL	**CF-0500**
	1L	**CF-1000**
	2L	**CF-2000**
	3L	**CF-3000**
	5L	**CF-5000**
	3&5L (*)	**CF-3000DSP**
Sakaguchi flask	500mL	**SF-0500**
	1L	**SF-1000**
	2L	**SF-2000**
	3L	**SF-3000**

(*)For Disposable Erlenmeyer flasks (Corning 3L and Thomson 5L).

Angle rack for Test tubes

(Mounted on MT-7050 for use)

AT-1250

Model	**AT-1250**	**AT-1620**	**AT-1650**	**AT-1820**
Capacity	ϕ12mm x50	ϕ16.5mm x20	ϕ16.5mm x50	ϕ18mm x20
Mounting qty on MT-7050	4 (*)	6 (*)	4 (*)	6 (*)
External dimension (mm)	250x100x95H	285x70x80H	286x110x100H	320x70x80H
Weight	Apporx.0.8kg	Apporx.0.6kg	Apporx.0.9kg	Apporx.0.7kg

(*)The qty when Angle rack with 160mm test tube tilted 45 °.
- It cannot be used with BR-180LF-70RT.

Angle rack for Disposable Centrifuge tubes

(Mounted on MT-7050 for use)

Model	**AT-3518**
Capacity	50mLx18
Mounting qty on MT-7050	4 (When Angle rack tilted 45 °)
External dimension ／ Weight	285x110x102Hmm, Apporx.0.8kg
Remarks	Be sure be used below 50°C.

- It cannot be used with BR-180LF-70RT.

Angle rack for Erlenmeyer flask

(Mounted on MT-7050 / Need Clanms)

AF-2070

Model	**AF-2070**	**AF-2570**
Capacity	50mL:4, 100mL:3, 200 to 300mL:2, 500mL:1	50mL:5, 100mL:4, 200mL:3, 250 to 500mL:2
Mounting qty on MT-7050	4 (*1)	4 (*1)
External dimension	250x110x50Hmm	300x110x50Hmm
Weight	Apporx.0.8kg	Apporx.0.9kg

(*1)The qty when Angle rack tilted 30 °.
- Clamps are available as an option.
- It cannot be used with BR-180LF-70RT.

【Note】limitation of Shaking speed by Shaking width and Vessel sizes. (BR-180LF)

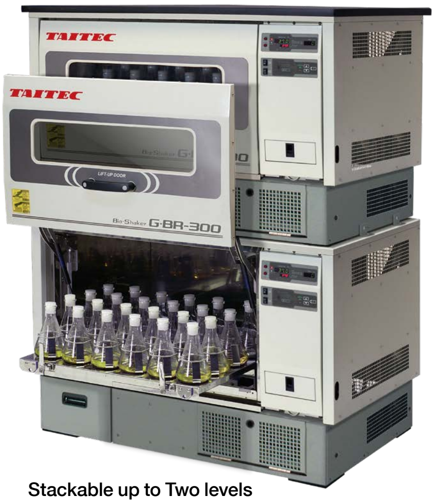
Shaking width	25mm			50mm			
Shaking motion	**Recip-rocal**	**Orbital**		**Reciprocal**		**Orbital**	
r/min	**250**	**250**	**400**	**200**	**250**	**200**	**250**
~500mL	○	○	○	○	○	○	○
1L	○	○	x	○	○	○	○
2L	○	○	x	○	x	○	○
3L	○	○	x	○	x	○	x
5L	○	○	x	○	x	170r/min	x

● Protuberances not included in Dimensions. ● Vessels of photo not included.

Bioshaker GBR-200/GBR-300

Enables to use widely for Cultivation of microbes such as Yeast, E.Coli. etc. that require temp. control. High-end model that features for stackable, wide range of temp. range and speed. Cut power consumption by 75% with the conventional one!

Dimensions --> P.038 OD-Monitor Turbidimeter while shaking --> P.034 LED Light irradiation unit --> P.037



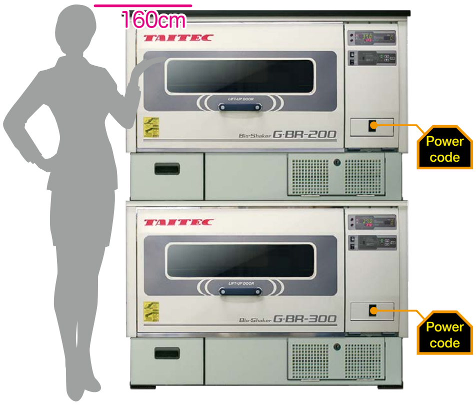
Stackable up to Two levels

Features

- **Max. speed 200r/min (GBR-200) and 300r/min (GBR-300)**
- **Capacity : Erlenmeyer flask 500mL x 24 pcs, 5L x 4 pcs**
- **For as a laboratory bench. Stackable up to Two stage.**

Applications

- **Cultivation of microbes such as E.Coli. etc.**
- **Cultivation of Yeast, Psychrophile and Insect cell**
- **Cultivation of Thermophile and Hybridization (FH).**



Swing lift-up door and Stackable up to Two levels.

Swing lift-up door and Stackable up to Two levels contribute space-saving while keeping large capacity. It can be shaked up to 300r/min (200r/min at the upper of stacked units) that is optimum for shaking culture.

The top board can be practically used for Lab bench.

Adopted the same material of Lab bench top board. The top board height is almost the same that of Lab bench.

Contributes save energy.

When set above 10°C, the compressor not run, while the heater runs for temp. control that is energy saving. It cuts power consumption by 75% with the conventional one!

Model	GBR-200	GBR-300
Shaking motion	Switchable Reciprocal/Orbital shaking	
Temperature range	4°C to 80°C	
Temp. control accuracy (*1)	±0.3°C to ±1.0°C	
Speed range (*2)	25 to 200r/min	25 to 300r/min (200r/min at the upper of stacked units)
Shaking width	Switchable 25/50mm (Default: 25mm)	
Platform size/Capacity	700 x 500mm (Max. inside height: 385mm), Erlenmeyer flask 500mLx24, 5Lx4	
Door type	Swing lift-up door	
Maximum load	approx. 10kg (Platform not included)	
Ambient temp. range (*1)	5°C to 30°C	
Heateing/Cooling method	Heater 700W/Compressor 125W	
Other functions	1 pattern, 9 segments (4 combinations can be saved): Temp., Shaking speed and Time/per segment (Setting range: 00h00min to 99h59min), Wait function (*3)	
Safety devices/functions	Leakage/Overcurrent breaker, Compressor overheating cut-off circuit, Alarm of abnormal sample temp. (Set as desired), Overload/Overvoltage protection, Fuse, Current limiter, Detecting the door opening and closing, Self-diagnosis function for temperature sensor error, Nonvolatile memory error, Breaking device when motor runaway, Self-check/lamp of filter	
Dimensions (W x D x H)/Weight	1200 x 800 x 810mm (Including Top board: 1200 x 750 x 25mm), Approx.235kg	
Power supply	AC100V/12A	
Standard accessories	1 x Universal shaking platform MT-7050 (*4), 2 x 2 types Spacer, 2 x Fixing bracket for stackable (*4)	

(*1)The temp. of defrost function just run is not included.
(*2)There is the limitation depending the volume of vessels and the shaking width. See the figure "Note" on the right page.
(*3)Shaking will start when reaching the preset temp. (*4)It comes with by the request at order.
(*4)Clamps not included.
•Temp. range and Temp. stability may not be meet the specs when frost by continuous operation. Required to defrost it regularly.

● Protuberances not included in Dimensions. ● Vessels of photo not included.

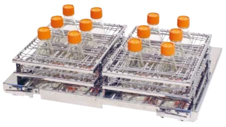
Optional accessories and Capacity/Qty of Vessels

Shaking platform and Capacity/Qty of Flasks

Model		**MT-7050**		
		It is used together Clamps, Angle racks and "OD-Monitor" series (Clamps of Erlenmeyer flask and Sakaguchi flask are available). It can hold flasks tightly than Spring shaking platform.		
External dimension / Weight		700x500x22Hmm, Apporx.6kg		
Capacity of Flask	Erlenmeyer flask 50mL	96	Erlenmeyer flask 2L	8
	Erlenmeyer flask 100mL	48	Erlenmeyer flask 3L	6
	Erlenmeyer flask 200mL	35	Erlenmeyer flask 5L / Disposable3&5L	4/5
	Erlenmeyer flask 250mL	28	Sakaguchi flask 500mL	18
	Erlenmeyer flask 300mL	28	Sakaguchi flask 1L	12
	Erlenmeyer flask 500mL	24	Sakaguchi flask 2L	6
	Erlenmeyer flask 1L	13	Sakaguchi flask 3L	5

Spring net shaking platform and Capacity/Qty of Vessels

(Mounted on MT-7050 for use)

Model			**MR-4030L**
			The usable Shaking platform that Vessels can be easily mounted on regardless its shapes. Fixed with the screws to Platform MT-7050 for using. Up to Two sets can be mounted. (See Left figure.)
Spring net Pitch			20mm
Spring net stage			2 stage (Height is changeable.)
External dimensions / Weight			400x300x108Hmm, Apporx.2kg
Capacity of Vessels (*2)	ϕ16 mm test tubes (*1)		96pcs (When Two sets mounted: 2 x 96 = 192pcs).
	Disposable Centrifuge tube for 50 mL (*1)		48pcs (When Two sets mounted: 2 x 48 = 96pcs).
	Erlenmeyer flask	50mL	24pcs (When Two sets mounted: 2 x 24 = 48pcs).
		100mL	20pcs (When Two sets mounted: 2 x 20 = 40pcs).
		200mL	12pcs (When Two sets mounted: 2 x 12 = 24pcs).
		250mL	9pcs (When Two sets mounted: 2 x 9 = 18pcs).
		300mL	9pcs (When Two sets mounted: 2 x 9 = 18pcs).
		500mL	6pcs (When Two sets mounted: 2 x 6 = 12pcs).
		1L	3pcs (When Two sets mounted: 2 x 3 = 6pcs).
		2L	2pcs (When Two sets mounted: 2 x 2 = 4pcs).
		3L	1pcs (When Two sets mounted: 2 x 1 = 2pcs).
	Sakaguchi flask 500mL		6pcs (When Two sets mounted: 2 x 6 = 12pcs).

(*1)The qty when Angle rack tilted 45 °.ϕ16mm or less test tube should fixed with the stand per net.
(*2)The Capacity/Qty of vessels are less than those of Universal platform.

Junction pipe

	Model	**JCP-3687**
	Description	The pipe (w/o Lid) for connection to the outside. It is for installing such as the sensor of recorder inside the chamber. Electrical equipment should not be placed inside the chamber.
	Remarks	Be sure be used below 50°C.

Clamps (Mounted on MT-7050 and AF-2070/2570 for use.)

		Vessels / Capacity	**Model**
 Above 300mL Clamps comes with Spring and Above 500 mL comes with Octagonal rubber sheet. MT-7050 with multiple clamps mounted.	Erlenmeyer flask	50mL	**CF-0050**
		100mL	**CF-0100**
		200mL	**CF-0200**
		250mL	**CF-0250**
		300mL	**CF-0300**
		500mL	**CF-0500**
		1L	**CF-1000**
		2L	**CF-2000**
		3L	**CF-3000**
		5L	**CF-5000**
		3&5L (*)	**CF-3000DSP**
	Sakaguchi flask	500mL	**SF-0500**
		1L	**SF-1000**
		2L	**SF-2000**
		3L	**SF-3000**

(*)For Disposable Erlenmeyer flasks (Corning 3L and Thomson 5L).

Angle rack for Test tubes (Mounted on MT-7050 for use)

	Model	**AT-1250**	**AT-1620**	**AT-1650**	**AT-1820**
 AT-1250	Capacity	ϕ12mm x50	ϕ16.5mm x20	ϕ16.5mm x50	ϕ18mm x20
	Mounting qty on MT-7050	4 (*)	6 (*)	4 (*)	6 (*)
	External dimension (mm)	250x100x95H	285x70x80H	286x110x100H	320x70x80H
	Weight	Apporx.0.8kg	Apporx.0.6kg	Apporx.0.9kg	Apporx.0.7kg

(*)The qty when Angle rack with 160mm test tube tilted 45 °.

Angle rack for Disposable Centrifuge tubes

(Mounted on MT-7050 for use)

	Model	**AT-3518**
	Capacity	50mL×18
	Num. of mounting to MT-7050	4(When Angle rack tilted 45 °)
	External dimension / Weight	285×110×102Hmm, Apporx.0.8kg
	Remarks	Be sure be used below 50°C.

Angle rack for Erlenmeyer flasks

(Mounted on MT-7050 for use)

	Model	**AF-2070**	**AF-2570**
 AF-2070	Capacity	50mL:4, 100mL:3, 200 to 300mL:2, 500mL:1	50mL:5, 100mL:4, 200mL:3, 250 to 500mL:2
	Mounting qty on MT-7050	4 (*1)	4 (*1)
	External dimension	250x110x50Hmm	300x110x50Hmm
	Weight	Apporx.0.8kg	Apporx.0.9kg

(*1)The qty when Angle rack tilted 30 °.•Clamps are available as an option.

【Note】limitation of Shaking speed by Shaking width and Vessel sizes.

Shaking width	25mm				50mm			
Shaking motion	**Reciprocal**		**Orbital**		**Reciprocal**		**Orbital**	
r/min	**200**	**300**	**200**	**300**	**200**	**300**	**200**	**300**
~500mL	○	○	○	○	○	○	○	○
1L	○	○	○	○	○	○	○	○
2L	○	○	○	○	○	x	○	○
3L	○	○	○	○	○	x	○	x
5L	○	○	○	○	170r/min	x	170r/min	x

● Protuberances not included in Dimensions. ● Vessels of photo not included.

Selection guide
Constant temperature incubator shaker OD-Monitor
CO_2 incubator CO_2 incubator shaker
Shaker
Mixer Rotator Stirrer
Bead beater homogenizer Ultrasonic homogenizer
Aluminum block bath Minisize bath
Water bath Shaking water bath Immersion cooler
Hybridization oven Constant temperature chamber
Centrifugal concentrator Cold trap
Freeze dryer
Electrophoresis and Blotting apparatus
Constant temperature water circulating system [Chiller]
Appendix

Bioshaker BR-3000LF Single platform /BR-3000LF Double platform

Enables to use widely for Cultivation of microbes such as Yeast, E.Coli. etc. that require temp. control. Double platform realizes Double capacity.

Dimensions --> P.038 OD-Monitor Turbidimeter while shaking --> P.034 LED irradiation unit --> P.037

BR-3000LF

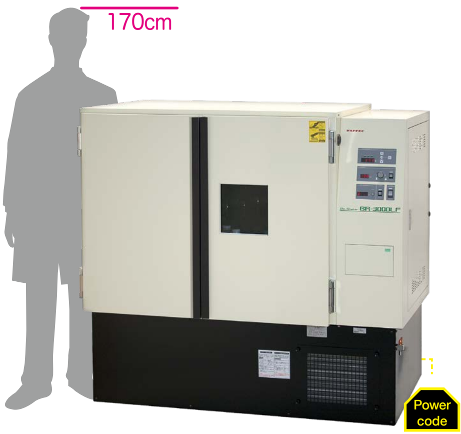
BR-3000LF Double platform

Features

- Single platform and Double platform
- Capacity : Erlenmeyer flask 500mL x 32 pcs (Single), 64 pcs (Double)
- Shaking width adjustable in stepless between 10mm and 50mm.

Applications

- Cultivation of microbes such as E.Coli. etc.
- Cultivation of Yeast, Psychrophile and Insect cell
- The other samples that require shaking and temp. control.



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The magnificent max. capacity model with the double platform

This is the magnificent max. capacity model with the double platform among TAITEC incubator shakers by the repeated improvements such as Shaking platform drawer lever. Up to 1 L flask can be placed on Double platform that vessel qty doubled as Single platform. Note: The upper platform should be removed when above 2L Erlenmeyer flask and IL Shake flask are placed. (Ask us for details).Since Switchable shaking motion and Shaking width can be adjusted in stepless the optimum efficiency of cultivation can be obtained depending a vessel.

Equipped with the remote terminal for the temp. control.

Conecting with Program unit PU-5 (see the right page) enables the remote control setting and the program operation.

Shaking platform drawer lever

22
24
25
LOCAL
COM.
REMOTE
SIG.
GND
リモート温度設定

Model	BR-3000 Single platform	BR-3000 Double platform
Temperature range	4°C to 70°C	
Temp. control accuracy (*1)	±0.3°C to ±1.0°C	
Shaking motion	Switchable Reciprocal/Orbital shaking	
Speed range	25 to 250r/min	25 to 160r/min
Shaking width	10 to 50mm (stepless)	
Platform size/Capacity	800 x 600mm (Max. inside height: 605mm), Erlenmeyer flask 500mLx32, 5Lx6	800 x 600mm (Limitation flask volume per platform: 1L Erlenmeyer flask or 500mL Sakaguchi flask) Erlenmeyer flask 500mLx64, 1Lx36
Door	Double swing door	
Maximum load	Approx. 17kg (Platform not included)	Approx. 17kg/per platform (Platform not included)
Ambient temp. range (*1)	5°C to 35°C	
Display (Temp./Speed)	Digital display (Switchable Set temp./Chamber temp.)	
Heateing/Cooling method	Heater 800W/Compressor 125W	
Other functions	Shaking duration integrator (0.1h to 999.9h, Automatic resetting function *Required Program unit PU-5 or 6/Option to use), Chamber lamp	
Safety devices/functions	Leakage/Overcurrent breaker, Compressor overheating cut-off circuit, Alarm of abnormal sample temp. (Set as desired), Display of deviation from set value (upper / lower limit), Self-diagnosis function for sensor error	
External Dimensions (W x D x H)	1325 x 862 x 1234mm	
Weight	Approx. 310kg	Approx. 330kg
Power supply	AC220 to 240V / 12A	
Standard accessories	1 x Universal shaking platform MT-8060A (Single type *Double type comes with 2 pcs of platform) (*2), 4 x Vibration absorbing pad, 4 x Spacer, 1 x Drain-reception plastic bottle (With hose)	

(*1)The temp. of defrost function just run is not included. (*2)Clamps not included.

•Temp. range and Temp. stability may not be meet the specs when frost by continuous operation. Required to defrost it regularly.

Optional accessories and Capacity/Qty of Vessels

Shaking platform and Capacity/Qty of Flasks

Model	MT-8060A			
	It is used together Optional Clamps, Angle racks and “OD-Monitor” series. 2 sets used with Double shaking platform type (included in BR-3000LF).			
External dimension ⁄ Weight	800x600x45Hmm, Apporx.9kg			
Capacity of Flask	Erlenmeyer flask 50mL	98	Erlenmeyer flask 2L	12
	Erlenmeyer flask 100mL	72	Erlenmeyer flask 3L	9
	Erlenmeyer flask 200mL	63	Erlenmeyer flask 5L / Disposable3&5L	6/7
	Erlenmeyer flask 250mL	46	Sakaguchi flask 500mL	27
	Erlenmeyer flask 300mL	46	Sakaguchi flask 1L	18
	Erlenmeyer flask 500mL	32	Sakaguchi flask 2L	12
	Erlenmeyer flask 1L	18	Sakaguchi flask 3L	9
Capacity/Qty in Double shaking platform type.				
Capacity of Flasks (Two stages in total)	Erlenmeyer flask 50mL	196	Erlenmeyer flask 2L (*)	12
	Erlenmeyer flask 100mL	144	Erlenmeyer flask 3L (*)	9
	Erlenmeyer flask 200mL	126	Erlenmeyer flask 5L/Disposable3&5L (*)	6/7
	Erlenmeyer flask 250mL	92	Sakaguchi flask 500mL	54
	Erlenmeyer flask 300mL	92	Sakaguchi flask 1L (*)	18
	Erlenmeyer flask 500mL	64	Sakaguchi flask 2L (*)	12
	Erlenmeyer flask 1L	36	Sakaguchi flask 3L (*)	9

(*)It can be used on the lower platform when that of upper removed.

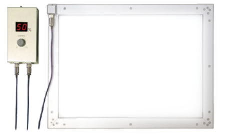
Spring net shaking platform and Capacity/Qty of Vessels

(Mounted on MT-8060A for use)

Model			MR-4030L
			The usable Shaking platform that Vessels can be easily mounted on regardless its shapes. Fixed with the screws to Platform MT-8060A for using. Up to Four sets can be mounted. (See Left figure.) 8 sets in total can be mounted on Double platforms.。
Spring net Pitch			20mm
Spring net stage			2 stage (Height is changeable.)
External dimension ⁄ Weight			400x300x108Hmm, Apporx.2kg
Capacity of Vessels (*2)	ϕ16 mm test tubes (*1)		96pcs (When Four sets mounted: 4 x 96 = 384pcs) x 2 stages
	Disposable Centrifuge tube for 50 mL (*1)		48pcs (When Four sets mounted: 4 x 48 = 192pcs) x2 stage
	Erlenmeyer flask	50mL	24pcs (When Four sets mounted: 4 x 24 = 96pcs) x2 stage
		100mL	20pcs (When Four sets mounted: 4 x 20 = 80pcs) x2 stage
		200mL	12pcs (When Four sets mounted: 4 x 12 = 48pcs) x2 stage
		250mL	9pcs (When Four sets mounted: 4 x 9 = 36pcs) x2 stage
		300mL	9pcs (When Four sets mounted: 4 x 9 = 36pcs) x2 stage
		500mL	6pcs (When Four sets mounted: 4 x 6 = 24pcs) x2 stage
		1L	3pcs (When Four sets mounted: 4 x 3 = 12pcs) x2 stage
		2L (*3)	2pcs (When Four sets mounted: 4 x 2 = 8pcs)
		3L (*3)	1pcs (When Four sets mounted: 4 x 1 = 4pcs)
	Sakaguchi flask 500mL		6pcs (When Four sets mounted: 4 x 6 = 24pcs) x2 stage

(*1)The qty when Angle rack tilted 45 °.ϕ16mm or less test tube should fixed with the stand per net.
(*2)The Capacity/Qty of vessels are less than those of Universal platform.
(*3)It can be used on the lower platform when that of upper removed.

LED irradiation unit (Mounted to MR-4030 for use)

	Model	LC-LED450W
	LED Color	White
	Peak wavelength	450nm
	Dimensions of Light source	340x240nm

•See details on 47 page.

Clamps (Mounted on MT-8060A and AF-2070/2570 for use)

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

MT-8060A with multiple clamps mounted.

	Vessels / Capacity	Model
Erlenmeyer flask	50mL	CF-0050
	100mL	CF-0100
	200mL	CF-0200
	250mL	CF-0250
	300mL	CF-0300
	500mL	CF-0500
	1L	CF-1000
	2L (*1)	CF-2000
	3L (*1)	CF-3000
	5L (*1)	CF-5000
	3&5L (*2)	CF-3000DSP
Sakaguchi flask	500mL	SF-0500
	1L (*1)	SF-1000
	2L (*1)	SF-2000
	3L (*1)	SF-3000

(*1)It cannot be used in the upper platform and can be used on the lower platform when that of upper removed.
(*2)For Disposable Erlenmeyer flasks (Corning 3L and Thomson 5L).

Angle rack for Test tubes (Mounted on MT-8060A for use)

 AT-1250	Model	AT-1250	AT-1620	AT-1650	AT-1820
	Capacity	ϕ12mm x50	ϕ16.5mm x20	ϕ16.5mm x50	ϕ18mm x20
	Mounting qty on MT-8060A	10 (*)	16 (*)	8 (*)	6 (*)
	External dimension (mm)	250x100x95H	285x70x80H	286x110x100H	320x70x80H
	Weight	Apporx.0.8kg	Apporx.0.6kg	Apporx.0.9kg	Apporx.0.7kg

(*)The qty when Angle rack with 160mm test tube tilted 45 °.

Angle rack for Disposable Centrifuge tubes

(Mounted on MT-8060A for use)

	Model	AT-3518
	Capacity	50mL×18
	Num. of mounting to MT-8060A	8(When Angle rack tilted 45 °)
	External dimension ⁄ Weight	285×110×102Hmm, Apporx.0.8kg
	Remarks	Be sure be used below 50°C.

Angle rack for Erlenmeyer flask

(Mounted on MT-8060A for use)

 AF-2070	Model	AF-2070	AF-2570
	Capacity	50mL:4, 100mL:3, 200 to 300mL:2, 500mL:1	50mL:5, 100mL:4, 200mL:3, 250 to 500mL:2
	Mounting qty on MT-8060A	10 (*1)	5 (*1)
	External dimension	250x110x50Hmm	300x110x50Hmm
	Weight	Apporx.0.8kg	Apporx.0.9kg

(*1)The qty when Angle rack tilted 30 °. •Clamps are available as an option.

Program units

Connecting to the remote temperature setting terminal of BR-300LF series enables remote setting and program setting of temperature (The modification of BR is required for the shaking control).

 PU-5	Model	PU-5	PU-6
	Description	Remote program control of Temperature.	Remote program control of Temperature and Shaking ON/OFF.
	Main Spec.	Storage programs: 2 program (8 segments per program))	Storage programs: 2 program (8 segments per program) Time signal (ON/OFF): Each 2 programs

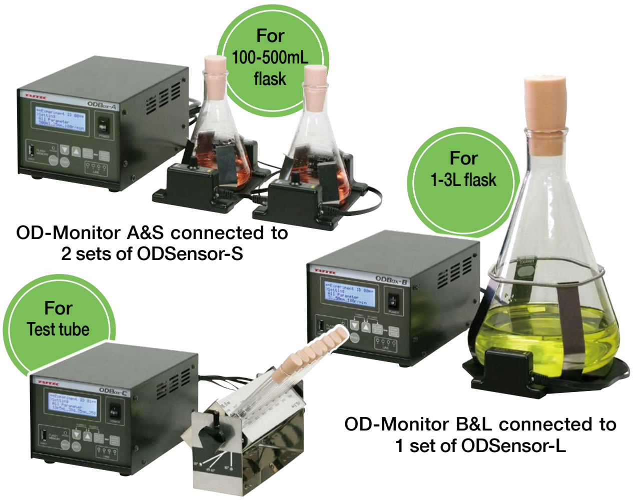
● Protuberances not included in Dimensions. ● Vessels of photo not included.

Selection guide
Constant temperature incubator shaker OD-Monitor
CO₂ incubator CO₂ incubator shaker
Shaker
Mixer Rotator Stirrer
Bead beater homogenizer Ultrasonic homogenizer
Aluminum block bath Minisize bath
Water bath Shaking water bath Immersion cooler
Hybridization oven Constant temperature chamber
Centrifugal concentrator Cold trap
Freeze dryer
Electrophoresis and Blotting apparatus
Constant temperature water circulating system [Chiller]
Appendix

OD-Monitor OD-Monitor A&S/B&L/C&T

The industry's first Non-contact turbidimeter realizes to measure the turbidity of sample at OD_{600} while shaking. Adopted among the hundreds of R&D institutions. Operated with Bioshaker (Incubator shaker) in combination.

"Bioshaker BR series" --> P.018-032 Shaker "NR series" --> P.062-066



OD-Monitor A&S connected to 2 sets of ODSensor-S

OD-Monitor B&L connected to 1 set of ODSensor-L

OD-Monitor C&T

Features

- The turbidity can be measured at OD_{600} noncontact while shaking.
- Three models for Large / Small Erlenmeyer flask and Test tube.
- Operated with Bioshaker (Incubator shaker) in combination

Applications

- Labor-saving acquisition of growth curve.
- Screening for Microbes such as beneficial bacteria that are sampled difficulty.
- Automation of IPTG induction [B&L with options].

Released from the cumbersome turbidity measurement.

Enables you to perform the shaking culture and the measurment of turbidity efficiently at the same time and released from the cumbersome turbidity measurement. Not has a harmful effect on the growth and metabolism of fungus thanks to no-stop stop shaking.

Operated with Bioshaker in combination.

Fix ODSensor with the clamp on the platform inside Bioshaker BR-series (w/o BR-180LF-70RT) and put the vessel on it. It can be also used in Shaker NR series.

Wide variety of customization.

We can customize it widely and flexibly per your request such as for Strictly anaerobic bacteria, Thermophile, Ultra-high concentration, Water bath and so on. Feel free to ask us.

Model	OD-Monitor A&S	OD-Monitor B&L	OD-Monitor C&T
Measurement method/range	Light transmission, 0.00 to 2.55 (OD600)	Light transmission/Reflected light, 0.00 to 9.99 (OD600)	Light transmission, 0.00 to 2.55 (OD600)
Vessel and Fluid volume	Vessel: Glass Erlenmeyer flask (*2) Size: 100/200/300/500mL Fluid volume: 20/40/60/100mL	Vessel: Glass Erlenmeyer flask (*2) Size: 1/2/3L Fluid volume: 350/700/1000mL	Vessel: Glass Test tube Size: ϕ16.5/18.0mL Fluid volume: 5mL or 10mL
Shaking conditions	Orbital shaking 80 to 400r/min (Shaking width 25mm) 80 to 200r/min (Shaking widthr 30/40mm) 80 to 250r/min (Shaking width 50mm)	Orbital shaking 100 to 250r/min (Shaking width 25/50mm)	Reciprocal shaking 100 to 250r/min (Shaking width 25/50mm) Angle of Test tube 90/45/30°
Measurement intervals	1/5/10/30/60/120/240min		
Measurement channel	1 to 8 (*1)	1 to 4 (*1)	1 to 8 (*1)
Ambient temp. range	15 to 50°C		
Other functions	Alarm for specific value at OD, Transformation to Spectrophotometer in measurment value, USB flash drive (CSV file), Operation for pump unit (B&L) when above specified OD value.		
Standard accessories for ODBox	1 x Flat cable (2m) * For A&S, 1 x Power code		
Standard accessories for ODSensor	1xVibration absorbing pad of Flask (large and small), 1 x Flat cable (0.5m)	1 x Flask stand (1L) , 1 x Flat cable (2m)	1 x Magnet adapter (2 types), 4 x Flat cable (2m)

(*1)A&S/B&L equipped with 1 channel per 1 set of ODSensor. Some number of ODSensor should be required depending the number of samples. Although C&T equipped with 8 channels per 1 set of ODSensor it can be only connected with 1 set of ODBox. ODSensor with maxmum nunber of channel cannot be put in Bioshaker depending its size. Ask us for details.
(*2)Flask clamp not come with. It is as an optoion.

The capacity (number of installation and measument) of ODSensor in Bioshaker BR-series.

A&S and B&L: In BR-series the number of measurement of the unit equal to that of installation of the unit.
C&T: The number of measurement to the number of installation is by 8 times.

BR series	ODSensor-S	ODSensor-L	ODSensor-T (at 45°)
BR-21/22/23	3 sets	1set (Up to 2L)	2 sets = 2 x C&T
BR-40/41/42/43	5 sets	2 sets (*1)	3 sets = 3 x C&T
BR-300LF	8 sets	4 sets	5 sets = 5 x C&T
BR-180LF/GBR	16 sets = 2 x A&S	5 sets = 2 x B&L	12 sets = 12 x C&T
BR-3000LF	20 sets = 3 x A&S	8 sets = 2 x B&L	14 sets = 14 x C&T

(*1)Up to 2L of Erlenmeyer flask can be used with the BR-40LF.

Combination of OD-Monitor C&T and BR-23FP

Combination of OD-Monitor A&S and BR-43FL

● Protuberances not included in Dimensions. ● Vessels of photo not included.

OD-Monitor Turbidostat System A / System B

Enables Continuous culture with OD-Monitor. Two types for large and small capacity available.

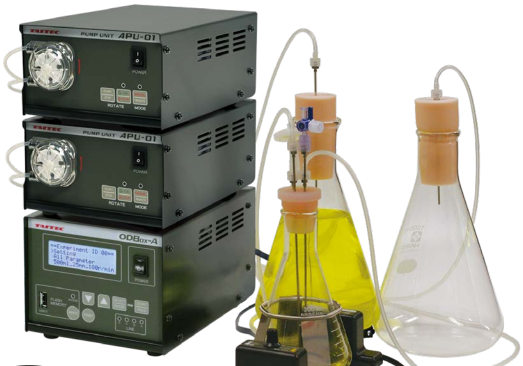
"Bioshaker BR series" --> P.018-032 Shaker "NR series" --> P.062-066

Features

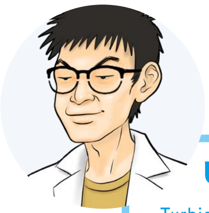
- OD-Monitor for Continuous culture system.
- Realized Small scale continuous culture compared to Mini jar fermentor.
- Used with Bioshaker BR-series in combination.

Applications

- Seed fungus not harmed during the experiment.
- Continuous culture (Producing substance)
- Study for Mutation by Continuous culture.



OD-Monitor Turbidostat system A



USER'S VOICE

Turbidostat system enables continuous culture at low cost maintenance.

Continuous culture with Erlenmeyer flask.

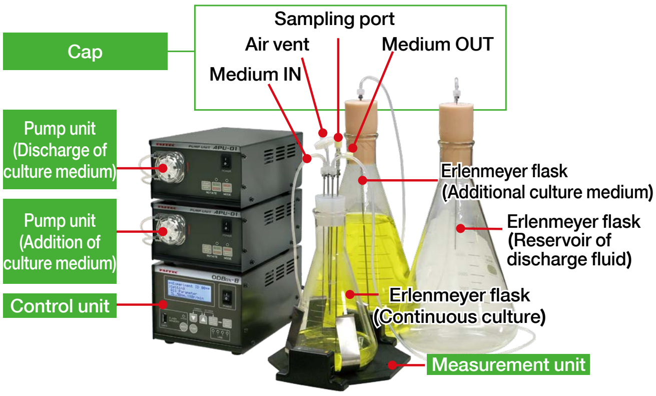
The fungus concentration is kept constant at arbitrary OD value while measuring the turbidity at OD600 noncontact by adding medium and discharging liquid.

Operated with Bioshaker in combination.

Fix ODSensor with the clamp on the platform inside Bioshaker BR-series and put the vessel on it. It can be also used in TAITEC Shaker NR series in combination.

System configuration

The component units/parts are highlighted in the green squared. The photo of composition is for "1 Channel" of System B and also System A.


Sampling port
Air vent
Medium OUT
Medium IN
Cap
Pump unit (Discharge of culture medium)
Pump unit (Addition of culture medium)
Control unit
Erlenmeyer flask (Additional culture medium)
Erlenmeyer flask (Reservoir of discharge fluid)
Erlenmeyer flask (Continuous culture)
Measurement unit

Realizes Small scale continuous culture at low cost.

Small scale continuous culture (Min 20mL volume) that even Mini jar fermentor cannot. Drastically save the cost of culture medium and effort of washing operation.

Model	OD-Monitor Turbidostat system A	OD-Monitor Turbidostat system B
Measurement method	Light transmission	Light transmission/ Reflected light
Measurement range	0.00 to 2.55 (OD600)	0.00 to 9.99 (OD600)
Vessel and Fluid volume	Glass Erlenmeyer flask Size: 100/200/300/500mL Fluid volume: 20/40/60/100mL	Glass Erlenmeyer flask Size: 1/2/3L Fluid volume: 350/700/1000mL
Shaking conditions	Orbital shaking 80 to 400r/min (Shaking width 25mm) 80 to 200r/min (Shaking width 30/40mm) 80 to 250r/min (Shaking width 50mm)	Orbital shaking 100 to 250r/min (Shaking width 25/50mm)
Measurement channel	1 to 4	
Ambient temp. range	15 to 50°C	
Composition at 1 Channel	1x Control unit, 1 x Measurment unit, 2 x Pump unit, 1 x Turbidostat cap (with Pre-assembled Fluid feeding tube and Needle)	

•Flask clamps required. •This unit should be fixed to the universal platform of Bioshaker with Flask clamps (Option). See the below the below options for details •Ask us when Fraction Collector required.

Optional accesories for OD-Monitor and OD-Monitor Turbidostat System

Product Name / Model	Remarks
Universal shaking platform MT-2925	Required for using BR-21/22/23 series with OD-Monitor series and Turbidostat system
Universal shaking platform MT-4030	Required for using BR-40/41/42/43 series with OD-Monitor series and Turbidostat system
Auto pump unit APU-01	For B&L. Starts to operate when a preset OD value is reached in ODBox-B. It can be used for automatically addition of IPTG.
Flat cable OD-CAV0200	Mainly for A&S. 2m in length, 1 set required when connecting 3 to 4 sets of ODSensor-S, 2 sets required when connecting 5 to 6 sets of that, 3 sets required when connecting 7 to 8 sets of that.
Turbidostat Cap	Same as that of Turbidostat system.
Needle for OD-CC cyctem	The needle used when inserting the liquid feeding tube of the automatic pump unit into the reservoir.

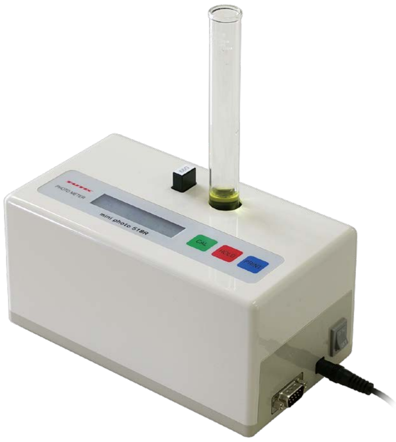
•Optional Clamps are required to fix Erlenmeyer flasks on ODSensor (except for C&T). [For 50mL Erlenmeyer flask : CF-0050] [100mL : CF-0100] [200mL : CF-0200] [300mL : CF-0300][500mL : CF-0500][1L : CF-1000][2L : CF-200] [3L : CF-3000]

● Protuberances not included in Dimensions. ● Vessels of photo not included.

Easy operation OD Monitor miniphoto 518R

Enables to measure the absorbance (turbidity) by just inserting Test tube and L-shaped test tube used cultivation and reaction. Wavelength can be changed with replacement of filter.

"Bioshaker BR series" --> P.018-032 Shaker "NR series" --> P.062-66 Seesaw shaking for L shaped test tube --> P.120/124/134



Insert of Test tube

Model	**miniphoto 518R**
Measurement range	Absorbance: 0.000 to 2.000A, Transmittance: 1-100%T
Measurement wavelength	660mm (*1)
Vessels	ϕ16.5 to 18mm Glass test tube or L-shaped test tube (*2)
Light source/Detector	High-Brightness LED, Photodiode
Display	Optical Density/Transmittance simultaneously, HOLD function.
Interface	Printer (Option)
Dimensions (W x D x H)	187 x 106 x 95mm
Weight	Apporx. 880g
Power supply	AC100 to 240V
Standard accessories	1 x Glass filter (660nm), 1 x Light shielding cap (*3), 1 x AC adapter

(*1)Wavelength can be changed with replacement of the filter. See the below option for details. (*2)Test tube without scratches should be used. Ask us when a different diameter of Test tube required. (*3)It cannot be used with L shaped test tube. Aluminum foil or something can be substituted if light shielding required.

Option

Interference Filter

Printer

Product Name	Remarks
interference Filter	Band-pass filter approx. 10mm FWHM, 4 types R420/R530/R620/R660, Dedicated for miniphoto 518R.
L shaped test tube	ϕ18x120x70Hmm,10sets
Printer	Printer for miniphoto 518R, included with Connecting cable and Roll paper

Features

- For ϕ16.5 to 18mm Test tube and L-shaped test tube. Liquid volume 4mL
- Comes with 660nm Glass filter (Changes wavelength by replacement)
- Displays the value just inserting test tube. The display can be pinned with HOLD key.

Applications

- Measurement turbidity of Microbe culture fluid
- Absorbance measurement of Colorimetric samples
- Applications requiring measuring Absorbance/Transmittance of sample

Measurement by inserting Test tube that has been used cultivation and reaction.

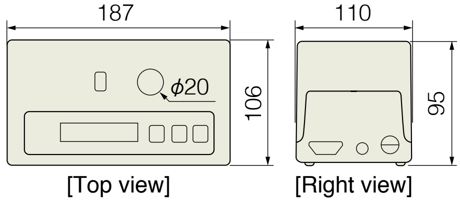
Minimum volume of the measurement is 4mL .

USER'S VOICE

Lightweight compact size and Easy Operation come in handy to me.

Light shielding cap (Standard ACC) and Printer (Option) in combination.

Dimensions



● Protuberances not included in Dimensions. ● Vessels of photo not included.

LED irradiation unit LC-LED450W LC-LED450W

Optimum used with Middle and Large sized Bioshaker in combination. The white LED contains wavelength that has an effect of photosynthesis.

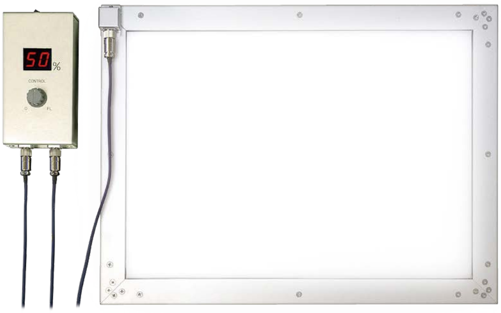
Middle sized "Bioshaker BR-40/41/42/43" series --> P.022 Large sized "Bioshaker GBR-200/300" --> P.030

Features

- LED contains wavelength that has an effect of photosynthesis.
- Optimum used with Middle sized Bioshaker mainly.
- The irradiation intensity can be adjusted per 1%.

Applications

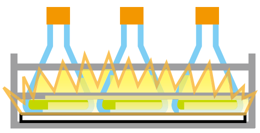
- Cultivation of Cyanobacteria and Algae
- Culture of Plant callus
- Cultivation of Plants in the laboratory



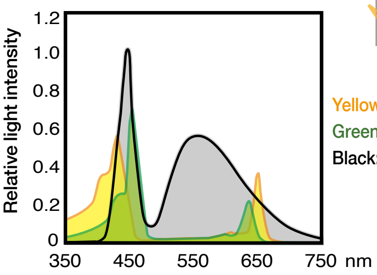
LC-LED450W

Optimum for a substitute for white fluorescent light as an upgrade.

It contains 450 nm that is the main absorption wavelength of chlorophyll as the primary peak and also contains the required intensity around 660 to 740 nm. Optimum for a substitute for white fluorescent light as an upgrade.



Irradiation from the bottom



Yellow: Absorption of Chlorophyll a.
Green: Absorption of Chlorophyll b.
Black: Emission of LED450W

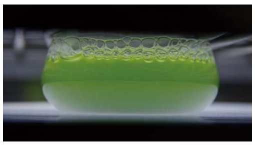
USER'S VOICE

It has a peak sufficiently overlapping with those of absorption of Chlorophyll.

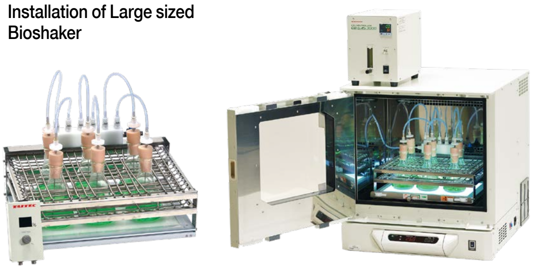
Optimum for using with Middle sized Bioshaker BR and Middle sized Shaker combination.

Optimum for using with Middle sized Bioshaker BR-40LF/41FL/42FL/43FL/53FP and Middle sized Shaker NR-10/20/30/80 combination. The irradiation from the bottom can be done effectively. * Ask us for how to use it with Large sized Bioshaker in combination.

Installation of Large sized Bioshaker



Algae cultivated with LC-LED450



Basic system of CO2-BR-43FL for cultivation of Algae combined with CO_2-BR.

Combination of LC-LED450W+MR-4030

Product Name / Model	Remarks
Spring net shaking platform MR-4030	Remove the bottom plate and fix the LC-LED plate with screws. See p23 for vessels capacity/qty.
Transparent Stick sheet for LC-LED	Transparent stick sheet for protecting LC-LED plate and holding flat bottom vessels. It can be used up to 100r/min.

Model	**LC-LED450W**
LED Color	White
Peak wavelength	450mm
Half width	±15mm
Photon flux density (*)	approx. 215μmol
Irradiated surface average	±15%
Dimentions of LED light source	340 x 240mm
Dimming system	PWM control (can be adjusted per 1%)
Use conditions	Temperature range: 4 to 50°C, Shaking speed: Up to 200r/min
Weight/Power supply	Apporx. 2.5kg, AC100V/2A
Standard accessories	1 x Controller

(*)The value may be varied depending a light quantum meter.

● Protuberances not included in Dimensions. ● Vessels of photo not included.

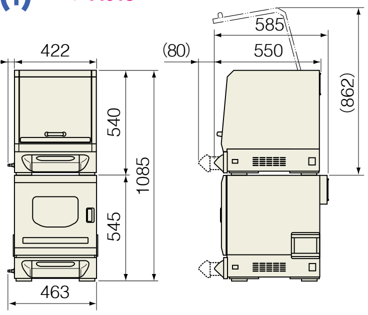
Selection guide
Constant temperature incubator shaker OD-Monitor
CO₂ incubator CO₂ incubator shaker
Shaker
Mixer Rotator Stirrer
Bead beater homogenizer Ultrasonic homogenizer
Aluminum block bath Minisize bath
Water bath Shaking water bath Immersion cooler
Hybridization oven Constant temperature chamber
Centrifugal concentrator Cold trap
Freeze dryer
Electrophoresis and Blotting apparatus
Constant temperature water circulating system [Chiller]
Appendix

Dimensions for Bioshaker BR-series.

BR-21/22/23 series (1)

--> P.018

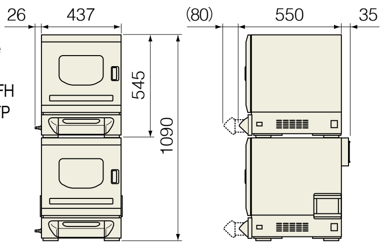
The drawing shows the units stacked.
Upper : BR-21UM/22UM/23UM
Lower : BR-21FP/22FP/23FP


33
422
540
1085
545
463
(80)
585
550
(862)

BR-21/22/23 series (2)

--> P.018

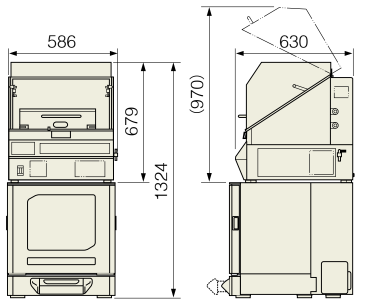
The drawing shows the units stacked.
Upper : BR-21FH/22FH/23FH
Lower : BR-21FP/22FP/23FP


26
437
545
1090
(80)
550
35

BR-40LF

--> P.022

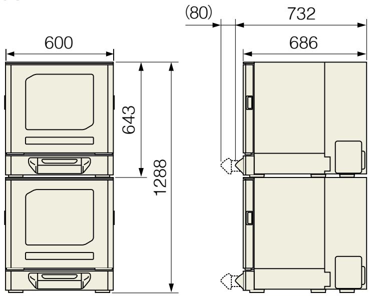
The drawing shows the units stacked.
Upper : BR-40LF
Lower : BR-41/42/43series


586
679
1324
(970)
630

BR-41/42/43 series

--> P.022

The drawing shows the units stacked.

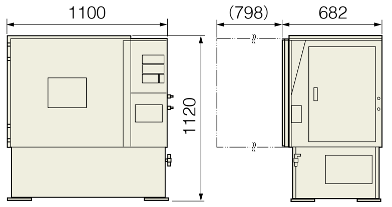

600
643
1288
(80)
732
686

BR-300LF

--> P.024

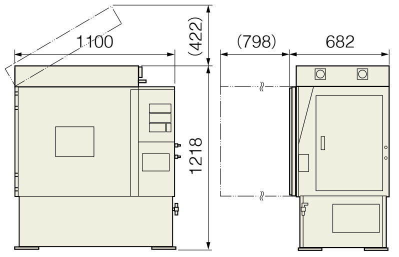
Double platform BR-300LF

--> P.026


1100
(798)
682
1120

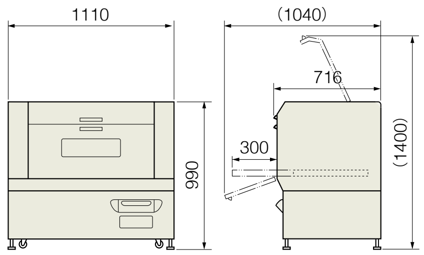
BR-300LF-LED

--> P.024


1100
(422)
(798)
682
1218

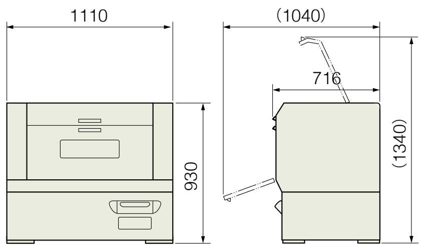
BR-180LF

--> P.028


1110
(1040)
716
300
990
(1400)

BR-180LF-70RT

--> P.028

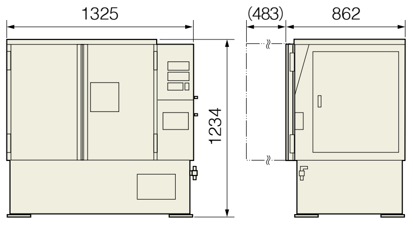

1110
(1040)
716
930
(1340)

BR-3000LF

--> P.032

Double platform BR-3000LF

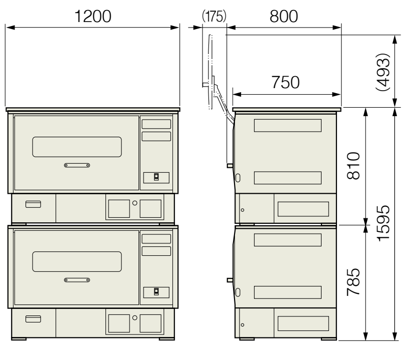
--> P.032


1325
(483)
862
1234

G·BR-200/300

--> P.030

The drawing shows the units stacked.


1200
(175)
800
750
(493)
810
1595
785

● Protuberances not included in Dimensions. ● Vessels of photo not included.