



Yamato Stirrers and Shakers

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Laboratory Stirrer

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Laboratory Shaker

| | | |
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Magnetic Stirrer with Hot Plate



MG600H-115V MG600H-220V

Stirring rate
(rpm) 300~1500
MG600H

Stirring
capacity(ml) 100~2000 x 6
MG600H

Plate max.
temp. 250°C
MG600H

6 Point Controllable Type (individual stirring heating)

MG600H-115V / MG600H-220V

- Rotation and heating can be adjusted individually
- Equipped with circuit protector
- Chemical resistant ceramic coating hot plate



Specifications

| Model | MG600H-115V MG600H-220V |
|------------------------|--|
| Plate material | Aluminum with ceramic coating |
| Plate dimensions | ø126mm x 6 pcs. |
| Stirring capacity | 100~2000ml x 6 pcs. |
| Stirring rate | 300~1500rpm |
| Hot plate | W230mm x 6 pcs. Individual temp. control (set by volume with OFF) |
| Cooling | -- |
| Heater | 230W x 6 pcs. |
| Temp. control | Triac input control type |
| Hot plate temp. | Max.250°C |
| Motor | AC shading motor |
| Power source (50/60Hz) | AC115V 13.5A AC220V 7A |
| External dimensions* | W606 x D420 x H122 mm |
| Weight | ~14 kg |
| Accessory | Stirrer bar 30mm 6 pcs. |

* Protrusions excluded

Magnetic Stirrer

MFD800 / MFD810



Max. Speed Range 50 ~1600 rpm

Strong magnetic stirrer for chemical synthesis experiments



Operation and functions

- Simple operation
- Variable and convenient rotation functions
- Corrosion and chemical resistant ceramic coating stirring plate
- Strong magnetic force allows continuous stirring even when flask is removed
- Stirrer detachment detection function
- Recommended to work together with oil bath BOG and BOS Series

Specifications

| Model | MFD800 | MFD810 |
|-----------------------------|---|------------|
| Plate material | Aluminum die casting | |
| Plate dimensions | Ø135 diameter | |
| Speed range | 50 to 1600 rpm (set in 10 rpm increments) | |
| Operating temperature range | 4°C to 40°C (set in 1°C increments) | |
| Motor | DC brushless motor (31W) | |
| Magnet | Neodymium magnet | |
| Display | White LED digital display | |
| Exterior parts material | Aluminum die cast (ceramic coating) | |
| Rotation mode | Constant speed, step out detection, intermittent, auto reverse, slow-up | |
| Safety functions | Overcurrent fuse | |
| Standard load capacity | 30 kg or less | |
| External dimensions WxDxH | 165 × 275 × 90 mm | |
| Power supply (50/60 Hz) | 115V 0.25A | 230V 0.15A |
| Weight | 2.8 kg | |
| Included accessories | 1 heat plate, 1 protective cover, 2 screw caps, 1 power cord, 1 spare fuse (internal circuit, service outlet) | |

MFD combination

MFD800 + BOG oil bath



MFD800 + BOG oil bath + LM200 flask mixer



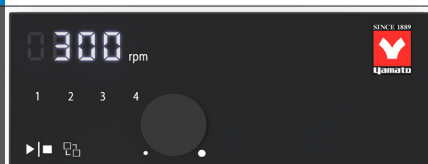
BOG Oil Bath



BOS Oil Bath



Control Panel



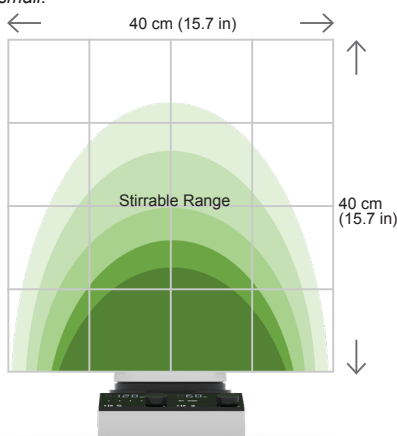
Rotation Mode Display

When mode number LED is off, unit rotates at a constant speed.

- No. 1: Step out detection
- No. 2: Intermittent
- No. 3: Auto reverse
- No. 4: Slow-up

Magnetic Force

Strong magnetic force allows stirring to continue even when flask is removed from the stirring table.
Range that can be stirred varies depending on the shape of the stirrer and the viscosity of the sample, but the figure shows an image of the range that can be stirred when the load is small.



BOG/BOS Series Bath



These oil baths fit perfectly with MFD800/810 as plate can be inserted at the bottom of the oil bath preventing risk of moving or slipping due to vibration.

Optional items

| Product code | Model | Description |
|--------------|-------|-----------------------------------|
| 281395 | OA154 | Protective cover |
| 281394 | OA153 | External temperature sensor |
| 281381 | OA143 | Pole set |
| 281384 | OA146 | Container fall prevention frame |
| 281385 | OA147 | Stage for lab jacks |
| 281587 | OA183 | Power cord (round terminal 2m) |
| 281382 | OA144 | Aluminum block handle |
| 281383 | OA145 | Dual-handed aluminum block handle |

Magnetic Stirrer with Hot Plate

MFH800 / MFH810



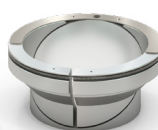
Speed Range 50 ~1600 rpm

Temp. control range RT +25°C to 310°C

Strong magnetic stirrer with hot plate for chemical synthesis experiments

Operation and functions

- Simple and intuitive operation
- Variable and convenient rotation functions
- Corrosion and chemical resistant ceramic coating stirring plate
- Equipped with circuit protector
- Strong magnetic force allows continuous stirring even when flask is removed
- Stirrer detachment detection function
- Recommended to work together with oil bath BOG and BOS Series
- Multiple options for aluminum block systems for oil-less synthesis experiments



281568



281424



281421 / 281422



281430



281577

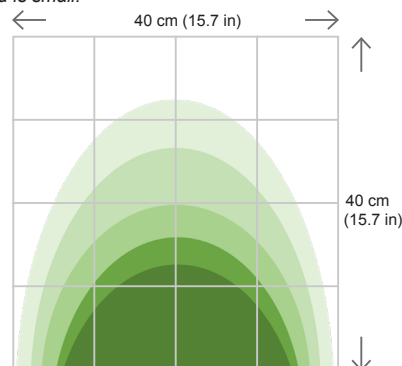
Specifications

| Model | MFH800 | MFH810 |
|------------------------------|--|--------------------------|
| Plate material | Aluminum die casting (ceramic coating) | |
| Plate dimensions | Ø135 diameter | |
| Speed range | 50 to 1600 rpm (set in 10 rpm increments) | |
| Temperature control range | RT +25°C to 310°C (set in 1°C increments) | |
| Temperature control accuracy | ±1.5°C @ 100°C (internal temperature sensor) ±1.0°C @ 50°C (external temperature sensor) | |
| Motor | DC brushless motor (31W) | |
| Magnet | Neodymium magnet | |
| Display | White LED digital display | |
| Temperature control method | PID control | |
| Temperature sensor | PT100 | |
| Heater | 600W mica heater | |
| Exterior parts material | Aluminum die cast | |
| Rotation mode | Constant speed, step-out detection, intermittent, auto reverse, slow-up | |
| Safety functions | Overcurrent fuse, temperature upper limit error, overheating prevention (fixed temperature), high temperature warning | |
| Additional features | Service outlet, temperature high limit function, power failure recovery mode selection, calibration offset function | |
| Standard load capacity | 30 kg or less | |
| Overcurrent fuse capacity | For internal circuit: 7A | For internal circuit: 5A |
| | For service outlet: 5A | |
| External dimensions WxDxH | 165 × 275 × 90 mm | |
| Power supply (50/60 Hz) | 115V 6A | 220V 3A |
| Weight | 3 kg | |
| Included accessories | 1 heat plate, 1 protective cover, 2 screw caps, 1 power cord, 1 spare fuse (internal circuit, service outlet), 1 external temperature sensor | |

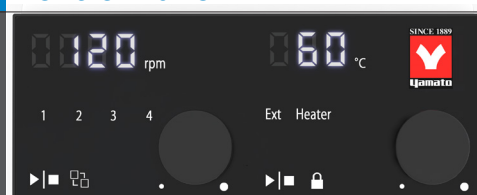
Magnetic Force

Strong magnetic force allows stirring to continue even when flask is removed from the stirring table.

Range that can be stirred varies depending on the shape of the stirrer and the viscosity of the sample, but the figure shows an image of the range that can be stirred when the load is small.



Control Panel



Rotation Mode Display

When mode number LED is off, unit rotates at a constant speed.

- No. 1: Step out detection
- No. 2: Intermittent
- No. 3: Auto reverse
- No. 4: Slow-up

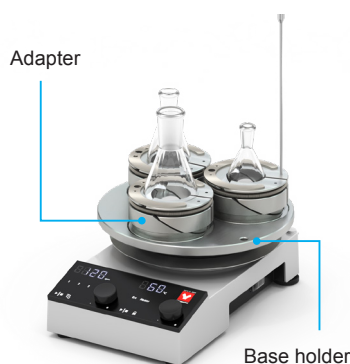
Optional items

| Product code | Model number | Description |
|--------------|--------------|-----------------------------------|
| 281396 | OA155 | Protective cover |
| 281394 | OA153 | External temperature sensor |
| 281381 | OA143 | Pole set |
| 281384 | OA146 | Container fall prevention frame |
| 281385 | OA147 | Stage for lab jack |
| 281587 | OA183 | Power cord (round terminal 2m) |
| 281382 | OA144 | Aluminum block handle |
| 281383 | OA145 | Dual-handed aluminum block handle |

MFH800 with aluminum block samples

MFH800 + 281422





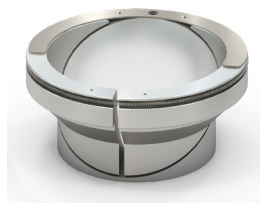
Aluminum block



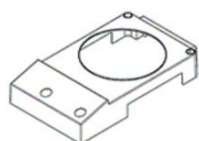
Aluminum plate



| Part Number | Code | Description | Weight | Compatible Containers |
|-------------|-------|----------------|--------|-----------------------------------|
| 281432 | OA167 | Aluminum block | 1.7 kg | Eggplant flask 200 mL |
| 281436 | OA171 | Aluminum block | 1.6 kg | Eggplant flask 300 mL |
| 281566 | OA172 | Aluminum block | 1.8 kg | Eggplant flask 500 mL |
| 281567 | OA173 | Aluminum block | 2.4 kg | Eggplant flask 1000 mL |
| 281568 | OA174 | Aluminum block | 2.4 kg | Eggplant flask 2000 mL |
| 281572 | OA175 | Aluminum block | 1.7 kg | Round flask 200 mL |
| 281573 | OA176 | Aluminum block | 1.7 kg | Round flask 300 mL |
| 281574 | OA177 | Aluminum block | 1.7 kg | Round flask 500 mL |
| 281575 | OA178 | Aluminum block | 2.4 kg | Round flask 1000 mL |
| 281576 | OA179 | Aluminum block | 2.4 kg | Round flask 2000 mL |
| 281423 | OA158 | Aluminum plate | 1.6 kg | Vial bottle Φ 12 mm 40 frame |
| 281424 | OA159 | Aluminum plate | 1.4 kg | Vial bottle Φ 15 mm 38 frame |
| 281425 | OA160 | Aluminum plate | 1.3 kg | Vial bottle Φ 17 mm 38 frame |
| 281426 | OA161 | Aluminum plate | 1.3 kg | Vial bottle Φ 18 mm 34 frame |
| 281427 | OA162 | Aluminum plate | 1.2 kg | Vial bottle Φ 21 mm 30 frame |
| 281428 | OA163 | Aluminum plate | 1.7 kg | Vial bottle Φ 30 mm 12 frame |
| 281429 | OA164 | Aluminum plate | 1.4 kg | Vial bottle Φ 35 mm 12 frame |
| 281421 | OA156 | Base holder | 0.4 kg | Adapter block 1 dress up |
| 281422 | OA157 | Base holder | 0.6 kg | Adapter block 3 dress up |
| 281434 | OA169 | Adapter block | 0.6 kg | Eggplant flask 10 mL |
| 281433 | OA168 | Adapter block | 0.6 kg | Eggplant flask 20 mL |
| 281430 | OA165 | Adapter block | 0.6 kg | Eggplant flask 30 mL |
| 281431 | OA166 | Adapter block | 0.6 kg | Eggplant flask 50 mL |
| 281435 | OA170 | Adapter block | 0.5 kg | Eggplant flask 100 mL |
| 281577 | OA180 | Adapter plate | 0.6 kg | Vial bottle Φ 12 mm 8 frame |
| 281578 | OA181 | Adapter plate | 0.6 kg | Vial bottle Φ 16 mm 6 frame |
| 281579 | OA182 | Adapter plate | 0.5 kg | Vial bottle Φ 24 mm 4 frame |

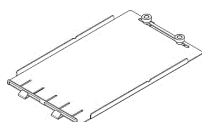
Aluminum block
281568Aluminum plate
281424Base holder
281421 / 281422Adapter block
281430Adapter plate
281577

| Part Number | Description | Code | Remarks |
|-------------|-----------------------------------|-------|---|
| 281395 | Protective cover for MFD | OA154 | Silicon protective cover protects the main unit from dirt and scattering of samples |
| 281396 | Protective cover for MFH | OA155 | |
| 281394 | External temperature sensor | OA153 | Sensor used when external temperature control is performed with MFH |
| 281381 | Pole set | OA143 | Pole for fixing baths and mixers $\Phi 10 \times 480$ mm |
| 281384 | Container fall prevention frame | OA146 | Variable frame to prevent containers such as beakers from falling when placed on the stirring table |
| 281385 | Stage for lab jack | OA147 | Allows main unit to be placed on a lab jack |
| 281587 | Power cord (round terminal 2m) | OA183 | Round terminal power cable |
| 281382 | Aluminum block handle | OA144 | Handle to carry hot aluminum block with one hand |
| 281383 | Dual-handed aluminum block handle | OA145 | Handles to carry hot aluminum blocks with both hands |
| 231632 | Muff | OLM44 | $\Phi 5 \sim \Phi 13$ mm |
| 231633 | Muff | OLM46 | $\Phi 6 \sim \Phi 17$ mm |
| 231634 | Muff | OLM48 | $\Phi 9.5 \sim \Phi 29$ mm |
| 231635 | Double opening clamp | OLM50 | Tightening adjustment range 3~55 mm, shaft $\Phi 10$ mm |
| 231636 | Double opening clamp | OLM52 | Tightening adjustment range 3~80 mm, shaft $\Phi 20$ mm |
| 222193 | Glass tank for BOG100 | OBO14 | Mounted on MFH and used as an oil bath $\Phi 150$ mm 1.0L |
| 222194 | Glass tank for BOG200 | OBO16 | Mounted on MFH and used as an oil bath $\Phi 180$ mm 2.2L |
| 281386 | High magnetic agitator | OA148 | Oval $\Phi 6 \times 15$ |
| 281390 | High magnetic agitator | OA149 | Octagon $\Phi 3 \times 13$ |
| 281391 | High magnetic agitator | OA150 | Octagon $\Phi 8 \times 13$ |
| 281392 | High magnetic agitator | OA151 | Octagon $\Phi 8 \times 38$ |
| 281393 | Magnetic agitator | OA152 | Micro $\Phi 2 \times 5$, set of 5 |
| F-4028-02 | Magnetic agitator | TB-20 | $\Phi 7 \times 20$ 12 pcs. |
| F-4028-03 | Magnetic agitator | TB-30 | $\Phi 8 \times 30$ 12 pcs. |
| F-4028-04 | Magnetic agitator | TB-40 | $\Phi 8 \times 40$ 12 pcs. |
| F-4025-04 | Magnetic agitator | A-43 | $\Phi 13 \times 43$ 6 pcs. |



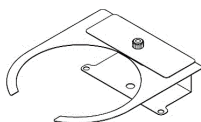
Protective cover (MFH)

281396



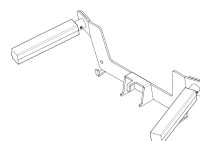
Stage for lab jack

281385



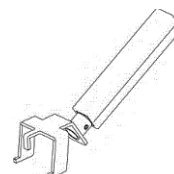
Container fall prevention frame

281384



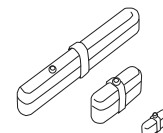
Dual-handed aluminum block handle

281383



Aluminum block handle

281382

High magnetic agitator
281390 / 281391 /
281392

Laboratory Flask Mixer



LM100/110/200/210 Series

Max. Speed Range 50 ~1000rpm

Max. Torque 0.1N·m



LM100

LM200
with Digital Display

LM Series compact design flask mixer features integrated drive and stirring seal allowing direct installation of flask and stirring in a vacuum and sealed state. No time-consuming shaft alignment required. Its strong stirring power is perfect for samples of high volume and high viscosity.

LM100/110 is designed with manual type rotation speed while LM200/210 is equipped with digital indicator.

- Wide range rotation speed of 50-1000 rpm
- Capable of vacuuming up to 399.9Pa without impairing rotation efficiency
- Directly attachable to a three-neck flask 24/40, 29/42 optional
- Maintenance free and superior DC brushless motor
- Belt drive transmission minimizes noise and vibration
- Variety of stirring shafts and blades available to handle small to large volume samples
- Fluorine rubber seal as standard for shaft seal, superior chemical resistant Teflon® rubber seal available as option
- At the flask joint, FKM o-ring is used as standard, superior chemical resistant Kalrez® o-ring available as option
- Equipped with 24/40 rotary joint, 29/42 optional
- Capable of AC100-240 by changing power cord

Specifications

| Model | LM100 | LM110 | LM200 | LM210 |
|---------------------------|--|---|---|---|
| Operating temp. range | 5°C~35°C | | | |
| Operating speed range*1 | 50~1000rpm | | | |
| Max. torque | 0.1N·m | | | |
| Max. ultimate vacuum | ≤399.9Pa | | | |
| Exterior | PBT /ADC12 (Surface treatment: Baking finish) | | | |
| Motor | DC brushless motor 30 W | | | |
| Power switch | Speed control dial with switch (stepless adjustment) | | | |
| Rotation speed indication | None | | 3 digits ×10 rpm (Digital display) | |
| Operation indicator lamp | LED (Green) | | None (Confirm operation with speed indicator) | |
| Adaptable flask size | 50~5000ml | | | |
| Joint size | TS24/40 | | | |
| Chuck | ø8mm (ø7.9~7.95) | | | |
| Sealing material | PTFE (rotary joint) / FKM (oil seal,o ring) | | | |
| Safety device | Overload protection function*2, coupling cover (hair entanglement prevention structure), slow start function | | | |
| External dimensions | W69 × D108 × H222 mm | | | |
| Power source | Single phase AC100V~AC120V 50/60Hz 1A | Single phase AC200V~AC220V 50/60Hz 1A | Single phase AC100V~AC120V 50/60Hz 1A | Single phase AC200V~AC220V 50/60Hz 1A |
| Power cord | A type 3P (AC115V 50/60Hz) | O type 3P (AC220V 50/60Hz) | A type 3P (AC115V 50/60Hz) | O type 3P (AC220V 50/60Hz) |
| Weight | 700 g (main body only) | | | |
| Included accessories | Hexagon socket head cap screw & wrench, AC adapter, 3m power cord, Coupling cover, handle(arbor), flask clip | | | |
| Operational accessories*3 | Stirring shaft (PTFE, stainless steel, glass), propellers (different types and sizes), stand | | | |

*1 Max. revolutions differ depending on the combination of oil seal + stirring shaft
50~1000rpm: FKM oil seal + PTFE stirring shaft / PTFE oil seal + glass or SUS stirring shaft
50~300rpm: FKM oil seal + glass or SUS stirring shaft / PTFE oil seal + PTFE stirring shaft

*2 When load exceeding maximum torque is applied, current limit circuit automatically controls the current to protect the motor

*3 Sold separately

LM Set Guide

| | |
|---------|---|
| LM-100A | LM-100 SET MAIN BODY, STAND, PTFE STIRRING BAR W/ PROPELLER L450mm×φ50mm, BURETTE CLAMP φ9.5~φ29mm and Double Opening Clamp 3~55mm. |
| LM-110A | LM-110 SET MAIN BODY, STAND, PTFE STIRRING BAR W/ PROPELLER L450mm×φ50mm, BURETTE CLAMP φ9.5~φ29mm and Double Opening Clamp 3~55mm |
| LM-200A | LM-200 SET MAIN BODY, STAND, PTFE STIRRING BAR W/ PROPELLER L450mm×φ50mm, BURETTE CLAMP φ9.5~φ29mm and Double Opening Clamp 3~55mm |
| LM-210A | LM-210 SET MAIN BODY, STAND, PTFE STIRRING BAR W/ PROPELLER L450mm×φ50mm, BURETTE CLAMP φ9.5~φ29mm and Double Opening Clamp 3~55mm |

LM200 with BM100 Water Bath



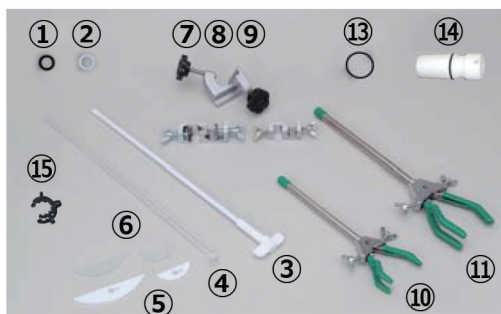
O ring and Oil seal Comparison Table of Chemical Resistance

| Chemical | FKM O ring + FKM oil seal (Standard) | FFKM O ring + PTFE oil seal (Option) |
|------------------------------|--------------------------------------|--------------------------------------|
| Acetone | D | A |
| Acetone 60°C | D | A |
| Hydrochloric acid (10%) | A | A |
| Hydrochloric acid (10%) 70°C | A | A |
| Hydrochloric acid (20%) | A | A |
| Hydrochloric acid (20%) 80°C | A | A |
| Hydrochloric acid (36%) | A | A |
| Hydrochloric acid (36%) 70°C | A | A |
| Xylene | A | A |
| Chloroform | B | A |
| Acetic acid (10%) | D | A |
| Acetic acid (100%) | D | A |
| Acetic acid (25%) | D | A |
| Acetic acid (50%) | D | A |
| Acetic acid (50%) 70°C | D | A |
| Acetic acid (anhydrous) | D | A |
| Tetrahydrofuran | D | A |
| Toluene | C | A |
| Pyridine | D | A |
| Hexane | A | A |
| Benzene | C | A |
| Benzene 70°C | C | A |

A: Good B: Usable based on a condition C/D: Unusable

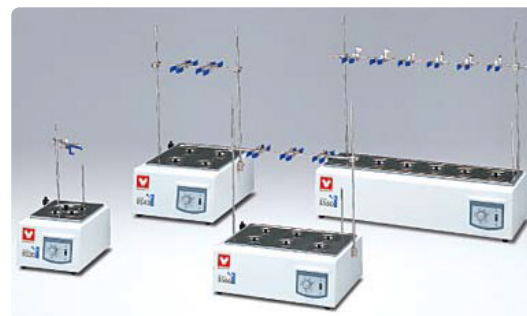
Accessories

| Product code | Model | Product name | No. | Specification |
|--------------|-------|--------------------------------|-----|---|
| 231640 | OLM60 | FKM oil seal | ① | FKM Black, 2pcs/set (standard) |
| 231641 | OLM62 | PTFE oil seal | ② | Teflon®, 2pcs/set |
| 231615 | OLM10 | PTFE stirring shaft with blade | ③ | L350×ø30mm, 100 ~ 300mL |
| 231616 | OLM12 | | | L450×ø30mm, 100 ~ 500mL |
| 231617 | OLM14 | | | L450×ø50mm, 200 ~ 1000mL |
| 231618 | OLM16 | | | L450×ø80mm, 300 ~ 1000mL |
| 231619 | OLM18 | | | L600×ø80mm, 1000 ~ 1500mL |
| 231620 | OLM20 | | | L600×ø100mm, 1000 ~ 5000mL |
| 231621 | OLM22 | | | L600×ø120mm, 3000 ~ 5000mL |
| 231622 | OLM24 | Glass stirring shaft | ④ | L350mm |
| 231623 | OLM26 | | | L400mm |
| 231624 | OLM28 | | | L530mm |
| 231625 | OLM30 | PTFE half-moon blade | ⑤ | ø40×16×t3mm |
| 231626 | OLM32 | | | ø50×17×t3mm, 100 ~ 500mL |
| 231627 | OLM34 | | | ø60×17×t4mm, 500 ~ 5000mL |
| 231628 | OLM36 | | | ø100×17×t4mm, 1000 ~ 5000mL |
| 231629 | OLM38 | Glass half-moon blade | ⑥ | ø125×30×t5mm, separable flask |
| 231630 | OLM40 | | | ø50×17×t3.3mm, 100 ~ 5000mL |
| 231631 | OLM42 | | | ø80×17×t3.8mm, 500 ~ 5000mL |
| 231632 | OLM44 | Burette clamp (muff) | ⑦ | ø5 ~ ø13mm |
| 231633 | OLM46 | Burette clamp (muff) | ⑧ | ø6 ~ ø17mm |
| 231634 | OLM48 | Burette clamp (muff) | ⑨ | ø9.5 ~ ø29mm |
| 231635 | OLM50 | Double opening clamp | ⑩ | Range 3~55 mm, ø10mm, 50mL~3000mL |
| 231636 | OLM52 | Double opening clamp | ⑪ | Range 3~80 mm, ø12mm, 50mL~5000mL |
| 231086 | -- | Y stand | ⑫ | H725×ø25, Leg W400 (Internal 310mm) × 420mm |
| 231640 | OLM64 | FFKM o ring | ⑬ | Kalrez® 29/42 |
| 231640 | OLM66 | | | Kalrez® 24/40 |
| LT00038897 | -- | FKM o ring | ⑭ | 29/42 |
| LT00038898 | -- | | | 24/40 (standard) |
| 231639 | OLM58 | 24/40 rotary joint seal set | ⑮ | Set of oil seal, o ring etc. |
| 231644 | OLM68 | 29/42 rotary joint seal set | | Set of oil seal, o ring etc. |
| 231637 | OLM54 | Flask clip | ⑮ | 2 pcs set for 29/42 |
| 231638 | OLM56 | Flask clip | | 2 pcs set for 24/40 |



CF302L-A

Related Products (Baths and Chiller)



BS200/401/601/660



BM100/200/401



BO601



BO500 + MB800

Laboratory Stirrer



LT400/500 Series

Max. Speed Range 3,000rpm (400 model) 1,200rpm (500 model)

Operation Wide speed range
Wide torque range



LT400B

*Operational accessories purchased separately



LT series stirrers include LT400A and LT500A with higher torque, LT400B and LT500B with well-balanced speed and torque, and LT400C with high speed to support different applications.

- Highly sensitive feedback system keeps the set speed even with changing viscosity during stir
- Maintenance free DC brushless motor
- Digital speed indicator for accurate speed setting and confirmation
- Noise prevention measures for optimal work environment
- More safety-oriented design

Specifications

| Model | LT400A | LT400B | LT400C | LT500A | LT500B |
|--------------------------|--|-----------------------|-----------------------|------------------------|-----------------------|
| Viscosity of sample | High | Medium | Medium-low | High | Medium |
| Speed range | 10~300rpm | 15~600rpm | 25~1,200rpm | 15~600rpm | 25~1,200rpm |
| Torque | 0.9N·m (9.0kgf·cm) | 0.5N·m (5.0kgf·cm) | 0.3N·m (3.0kgf·cm) | 1.0N·m (10.0kgf·cm) | 0.6N·m (6.0kgf·cm) |
| Motor | DC brushless motor 30W | | | | |
| Speed control | Feedback control | | | | |
| Panel display | Digital speed display, Overload display ^{*1} , Torque indicator (20% gradation) ^{*2} | | | | |
| Chuck | ø8mm drill chuck | | | | |
| Safety device | Current limit circuit ^{*3} , Thermal protector ^{*4} , Drill chuck cover | | | | |
| External dimensions | W146 x D154 x H165mm | | | | |
| Power source | AC100V~AC125V 50/60Hz | | | | |
| Power cord | Power supply cord with bipolar grounding type plug 2m | | | | |
| Weight | 2.4kg | | | | |
| Included accessories | Clamp, Safety cover, Chuck handle | | | | |
| Operational accessories* | Stirring shaft (stainless steel or glass), propellers (different types and sizes), stand and rod | | | | |

*1, When load exceeding the maximum torque is applied, tachometer display flashes.

*2, Torque indicator LED displays the loading status by 5 gradation.

*3, When load exceeding the maximum torque is applied, current limit circuit automatically controls the current to protect the motor.

*4, When temperature of the motor exceeds the upper limit temperature, thermal protector shuts off the current flowing to the motor and prevents it from burnout.

Digital Laboratory Stirrer

LR500A/B Series

Max. Speed Range 1,000rpm

Operation Low noise
Maintenance free

- DC brushless motor considered superior in safety as there are no brushes to cause sparks and no brush replacement required
- Direct-drive system reduces noise and require low maintenance
- Achieves high torque enabling stirring of high viscosity solution
- Digital tachometer for easy speed setting and

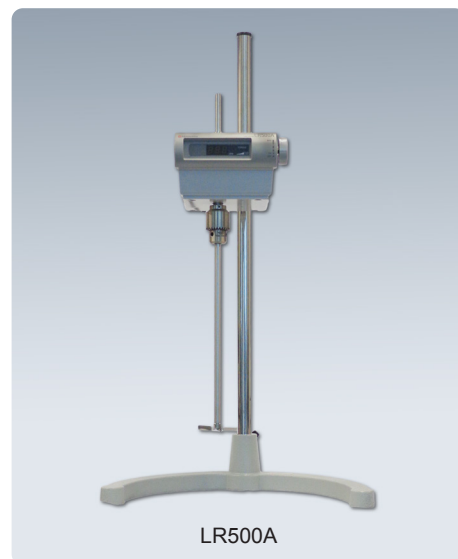
confirmation

- Load on the stirring shaft can be monitored by LED2 display. An overload lamp turns on when exceeding the maximum load, stopping the motor automatically
- Revolution feedback control function can maintain the setting rate despite change of load (especially suitable for high viscosity samples)

Specifications

| Model | LR500A | LR500B |
|--------------------------------|---|----------------------------|
| Speed range ^{*1} | 34~340rpm | 100~1,000rpm |
| Max. torque | 1.96N·m (20kgf·cm) | 0.98N·m (10kgf·cm) |
| Display of speed / torque | Digital, 3-digit / Green LED, 2 Steps + Overload Display | |
| Motor (brushless DC) | 70W | 100W |
| Speed control | Speed Feedback Control | |
| Safety device | Stops when overloaded | |
| Stirring function / shaft dia. | Gearless Direct Drive Type / ø10mm | |
| Power source | AC100 -125V, 50/60Hz, 3A | AC100 -125V, 50/60Hz, 3.5A |
| Included accessories | Stirring shaft (ø10*500mm), 75mm 4-blade propeller, clamp | |
| Operational accessories* | Stand and rod | |
| Optional accessories | Propellers (different types and sizes), vacuum adapter, extra long stirring shaft (ø10*800mm), glass stirring shaft | |

*1, No load



LR500A

*Operational accessories purchased separately

Adapter for depressurizing stirrer (for LT400/500)

| | | | |
|---------------|---------------------------------|--------------|--------|
| Material | Fluoride resin & Nitrile rubber | | |
| Stirrer shaft | ø8mm | | |
| Vacuum level | 6.7Pa (5×10 ⁻² Torr) | | |
| Accessories | Oil Seal (Nitrile rubber) 2pcs. | | |
| Joint type | T24/40 | Product code | 231380 |
| | T29/42 | | 231381 |



Additional stirrer support (for LT400/500)

| | |
|------------------------|------------------------|
| Product code | 231382 |
| Size | Max. 3L beaker 2pcs. |
| Stirrer shaft | ø8mm |
| Stirrer shaft interval | 135mm |
| Belt | O-ring (VitonP120) |
| Accessories | Hexagon wrench (2pcs.) |
| | Belt (1pc.) |
| | Chuck handle (1pc.) |
| | Clamp (1pc.) |
| | Puller (1pc.) |



Adapter for depressurizing stirrer (for LR500)

| | | | |
|---------------|---|--------------|--------|
| Material | Fluoride resin & Nitrile rubber | | |
| Stirrer shaft | ø10mm | | |
| Vacuum level | 6.7Pa (5×10 ⁻² Torr) | | |
| Accessories | Oil Seal (Nitrile rubber) 2pcs. Stirring propeller for small mouth | | |
| Joint type | T24/40 | Product code | 231097 |
| | T29/42 | | 231098 |



Additional stirrer support (for LR500)

| | |
|------------------------|------------------------|
| Product code | 231096 |
| Size | Max. 3L beaker 2pcs. |
| Stirrer shaft | ø10mm |
| Stirrer shaft interval | 135mm |
| Belt | O-ring (VitonP120) |
| Accessories | Hexagon wrench (2pcs.) |
| | Belt (1pc.) |
| | Chuck handle (1pc.) |
| | Clamp (1pc.) |
| | Puller (1pc.) |



*Use with propeller less than 60mm

PTFE Stirring shaft and propeller



| Product code | Product name | Model | Rod diameter | Length | Propeller | Material |
|--------------|---|-----------|--------------|--------|-------------------------|-----------------------------|
| F-4011-01 | PTFE coated stirring shaft (with propeller) | LT400/500 | ø8mm | 450mm | Length 80mm | PTFE upper stainless |
| F-4012-04 | PTFE coated stirring shaft (with propeller) | LT400/500 | ø8mm | 500mm | Length 100mm | PTFE internal iron core |
| F-4013-01 | PTFE large stirring shaft | LT400/500 | ø8mm | 600mm | Width 16 x length 80mm | PTFE internal stainless bar |
| F-4013-02 | | LR500 | ø10mm | 800mm | Width 20 x length 120mm | PTFE internal stainless bar |
| F-4014-04 | PTFE propeller type coated stirring shaft | LT400/500 | ø8mm | 450mm | Dia. ø52mm | PTFE upper stainless |



| Product code | Product name | Rod diameter | Length |
|--------------|--|--------------|--------|
| F-4053-01 | PTFE coated stirring shaft for LT400/500 | ø8mm | 350mm |
| F-4053-02 | | ø8mm | 450mm |
| F-4053-03 | | ø8mm | 500mm |
| F-4053-04 | | ø8mm | 600mm |

● F-4022 and F-4053 must be purchased together

| Product code | Product name | Propeller diameter |
|--------------|---------------------------------------|--------------------|
| F-4022-01 | PTFE coated half-moon blade propeller | 40×16mm×3t |
| F-4022-02 | | 50×19mm×3t |
| F-4022-03 | | 60×19mm×4t |
| F-4022-04 | | 75×20mm×4t |
| F-4022-05 | | 90×24mm×4t |
| F-4022-06 | | 100×24mm×4t |
| F-4022-07 | | 125×30mm×5t |
| F-4022-08 | | 150×30mm×5t |

Propellers



4-blade propeller

Standard
Material: Stainless steel SUS 304

| Product code | Propeller diameter | Mounting screw |
|--------------|--------------------|----------------|
| 280078 | 75mm | M5 |
| 280079 | 60mm | M5 |
| LR41AY0003 | 40mm | M5 |



Folding propeller

For narrow mouth bottle (up to I.D.18mm)
Material: Stainless steel SUS 304

| Product code | Propeller diameter | Mounting screw |
|--------------|--------------------|----------------|
| LR41AY0006 | 45mm | M5 |



2-blade glass propeller

Use for corrosive or strong acid samples
Material: Hard glass

| Product code | Model | Propeller Ø | Shaft Diameter |
|--------------|-----------|-------------|----------------|
| 231385 | LT400/500 | 60mm | ø8 |
| 231066101B | LR500 | 60mm | ø10 |



2 blade propeller

For wide mouth bottle. Use for high viscosity samples.

Material: Stainless steel SUS 304

| Product code | Propeller diameter | Mounting screw |
|--------------|--------------------|----------------|
| LR41AY0009 | 100mm | M5 |
| LR41AY0008 | 28mm | M5 |



Round plate turbine

Use for deep container for less air intake during stirring

Material: Stainless steel SUS 304

| Product code | Propeller diameter | Mounting screw |
|--------------|--------------------|----------------|
| LR41AY0022 | 100mm | M5 |
| LR41AY0010 | 60mm | M5 |



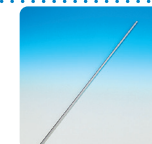
2 stage round plate turbine

Material: Stainless steel SUS 304

| Product code | Model | Propeller Ø | Mounting screw |
|--------------|-----------|-------------|----------------|
| 2310630101 | LR500 | 60mm | ø10 |
| 231386 | LT400/500 | 60mm | ø8 |

Stirring shaft

| Product code | Model | Diameter | Material |
|--------------|-----------|-------------|----------|
| 231384 | LT400/500 | 500mm ø8mm | SUS316 |
| LR41231169 | LR500 | 500mm ø10mm | |
| LR41AY0002 | LR500 | 800mm ø10mm | |



Fixing Support for Water Bath (for LT400/500, LR500)

| | |
|------------------------------------|-----------|
| Max. thickness of container's edge | Max. 35mm |
| Stirring shaft's changeable angle | Up to 60° |
| Product code | 231032 |



Stand & Rod Set

| Product code | Product name | Dimension |
|--------------|-----------------|----------------------------|
| LR-41-124 | Stand & rod set | ~7kg |
| 2310030209 | Rod | Length 725mm E.D. 25mm |
| YSA000194 | U-stand | Width 400mm Depth 420mm |



Heating Magnetic Stirrer



MB800-115V / MB800-220V

Stirring rate 70 ~ 1200 rpm

Stirring capacity 100 ml to 10L



Equipped with optimum heat prevention function for oil bath

- Chemical-proof, anodized aluminum finish top plate
- Employs a magnetic stirrer bar to agitate solutions
- High-powered electronic controlled AC motor which provides stable rotation
- Power supply to the outlet for oil bath can be cut off and stopped when the temperature of the bottom of the oil bath reaches the specified value
- Suitable for BO500 oil bath

Specifications

| Model | MB800-115V | MB800-220V |
|------------------------------|--|---------------------------------------|
| Top plate material | Aluminum | |
| Top plate dimensions | W250×D270 mm | |
| Stirring capacity | 100 ~ 10000 ml | |
| Stirring rate | 70 ~ 1200 rpm | |
| Temp. control | Triac input control type | |
| Motor | AC motor, condenser motor | |
| Overheat prevention function | 70 to 200°C | |
| Sensor | Thermistor type | |
| Safety device | Overheat prevention device for oil bath, earth leakage breaker | |
| Power source (50/60Hz) | AC115V 8.7A with external transformer | AC220V 4.5A with external transformer |
| External dimensions* | W250 × D270 × H150 mm | |
| Weight | ~4.2kg | |
| Included accessory | Magnetic stirrer bar 40mm 1pc. | |

* Protrusions excluded

Compact Shaker



MK161-115V MK161-220V

Shaking frequency 20 ~ 200 rpm

Shaking range 30 mm

Rotary, elliptical and reciprocate motion

- Compact, space saving design
- Changeable rotary, elliptical and reciprocate motion for mixing, extracting and stirring of samples
- Stable and high torque shaking power and speed with the DC brushless motor
- Shaking frequency and timer are dial setting and digital display
- Shake pause function, timer function and constant operation by one switch
- Selectable mixing, extracting and stirring patterns when used with different shaking stage and racks (optional item)
- Can be placed inside IN604W incubator for shaking incubation

Specifications

| Model | MK161-115V MK161-220V |
|--------------------------|---|
| Shaking mode | Rotary, Elliptical and Reciprocate (manual operation) |
| Shaking range | Rotary: 30mm Reciprocate: 30mm |
| Shaking frequency | 20~200rpm |
| Frequency controller | Dial Setting, Digital Display |
| Timer | Dial Setting, Digital Display / Digital 0.1min. (6 sec.) to 99.9hr. |
| Shaking stage dimensions | Main Unit : W300 x D254mm, Stage : W290 x D250mm |
| External dimensions | W350 x D300 x H150mm |
| Weight | ~15kg |
| Power source 50/60Hz | AC115V 0.5A AC220V 0.3A |



Example of using mounting stage and erlenmeyer flask holder clamps (optional)

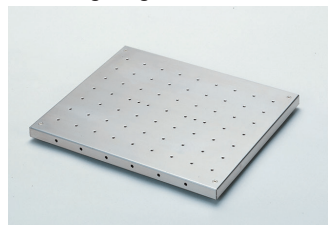


Incubator IN604W with optional slide shaker stage and MK161 shaker

*Glassware not included.

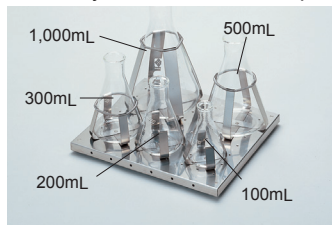
Operational accessories

Mounting stage



| Capacity | Number of erlenmeyer flask clamp |
|--------------|----------------------------------|
| 100ml | 10pcs |
| 200ml | 9pcs |
| 300ml | 5pcs |
| 500ml | 4pcs |
| 1,000ml | 2pcs |
| Product code | 232061 |

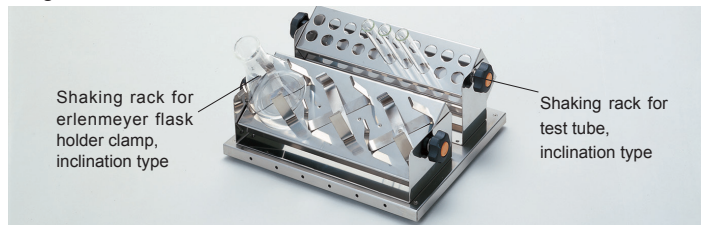
Erlenmeyer flask holder clamp



| Product code | Capacity | No. of clamps |
|--------------|----------|---------------|
| 232062 | 100ml | 10 pcs. |
| 232063 | 200ml | 9 pcs. |
| 232064 | 300ml | 5 pcs. |
| 232065 | 500ml | 4 pcs. |
| 232066 | 1,000ml | 2 pcs. |

*Mounting stage sold separately

Diagonal rack holder



| Diagonal erlenmeyer flask holder | | |
|----------------------------------|----------|-------------|
| Product code | Capacity | No. of unit |
| 232067 | 100ml | 3 pcs |
| 232068 | 200ml | 2 pcs |
| 232069 | 300ml | 2 pcs |

*Mounting stage sold separately

| Diagonal test tube holder | | |
|---------------------------|----------|-------------|
| Product code | Diameter | No. of unit |
| 232080 | ø12mm | 50 pcs |
| 232081 | ø16.5 | 20 pcs |
| 232082 | ø18 | 20 pcs |

*Mounting stage sold separately

Diagonal centrifugal tube holder



| For spitz tube | | |
|----------------|------|--------------|
| Product code | Size | No. of units |
| 232070 | 15ml | 12 pcs. |

| For 50ml centrifugal tube | |
|---------------------------|----------|
| Product code | Diameter |
| 232083 | ø29mm |

*Mounting stage sold separately

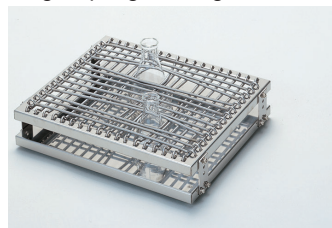
Non-skid sheet



| Product code | Dimension (W x D x H) |
|--------------|-----------------------|
| 232084 | 290 x 250 x 30 |

*Mounting stage sold separately

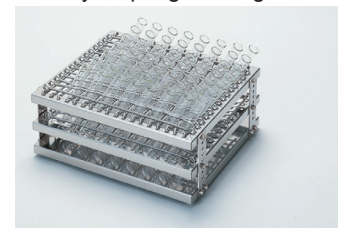
Single spring shaking rack



| Dimension (W x D x H) | |
|---|--------|
| 290 x 250 x 66mm | |
| Number of test tube: ø16mm test tube x 64 (45°inclination) | |
| Number of erlenmeyer flask 50mlx20pcs, 100mlx10pcs, 200mlx9pcs, 300mlx5pcs, 500mlx4pcs, 1000mlx2pcs | |
| Product code | 232050 |

*Mounting stage not necessary
This can be set directly to the main unit.

Two layer spring shaking rack



| Dimension (W x D x H) | |
|---|--------|
| 290 x 250 x 110mm | |
| Number of test tube: ø16mm test tube x 64 (45°inclination) | |
| Number of erlenmeyer flask 50mlx20pcs, 100mlx10pcs, 200mlx9pcs, 300mlx5pcs, 500mlx4pcs, 1000mlx2pcs | |
| Product code | 232056 |

*Mounting stage not necessary
This can be set directly to the main unit.

*Glassware not included.

Laboratory Shaker

Vertical / Horizontal / Rotary / Double-sided vertical shaking motion

SA300-115V SA300-220V / SA320-115V SA320-220V
SA400-115V SA400-220V



SA300/400 20~300rpm

SA320 20~210rpm

Shaking width 40mm



SA320 with test tube holder

Test tube and funnel holders sold separately

SA300 with separating funnel holder

Glassware not included

The SA300 achieves two dimensional shaking (horizontal and vertical), while the SA320 enables rotary shaking and SA400 is double-sided vertical shaking. All models are efficient in extraction, culture and mixture stirring of samples.

- Stable turns from low to high speed can be obtained
- Compact and equipped with a powerful shaking load
- Easy-to-use dial settings for shaking frequency and digital displays.
- Possible to switch between timer operation and continuous operation
- Various holders can be easily attached and removed and are extremely durable

SA300/320

- The main unit shakes vertically, but it can be laid on the side to shake horizontally

SA400

- 6 pieces of 1 liter liquid sample holder and 4 pieces of 2 liter liquid sample holder can shake simultaneously
- Double sided shaking possibility



SA320 with separating funnel holder

Funnel holders sold separately

SA400 with separating funnel holder

Glassware not included

Specifications

| Model | SA300-115V SA300-220V | SA320-115V SA320-220V | SA400-115V SA400-220V |
|------------------------------|--|--------------------------------------|---|
| Shaking method | Horizontal / Vertical shaking | Horizontal / Vertical rotary shaking | Double sided vertical shaking |
| Max. number of sample holder | 100ml x 5, 300ml x 4, 200ml x 4, 1000ml x 3, 500ml x 4, 2000ml x 2 | | 100ml x 10, 300ml x 8, 1000ml x 6, 200ml x 8, 500ml x 8, 2000ml x 4 |
| Shaking speed: horizontal | 20~300 rpm | 20~210 rpm | None |
| Shaking speed: vertical | 20~300 rpm | 20~210 rpm | 20~300 rpm |
| Speed setting display | Dial setting | | Dial setting / Digital display |
| Timer | Dial setting 0~60 min. (minimum scale 5 min.). Continuous switching function | | |
| Motor | DC motor 90W | | |
| External dimensions | W460 x D460 x H423 | | W520 x D460 x H483 |
| Weight | ~40kg | | ~39kg |
| Power source (50/60Hz) | Single phase AC115V 2A Single phase AC220V 1A | | |
| Included accessories | Fuse x 1, carbon brush x 1 | | |

Horizontal Shaking



Rotary + Horizontal Shaking



Vertical Shaking



Rotary + Vertical Shaking



Operational Accessories

Centrifugal tube holder



For all models
Horizontal / vertical shaking

Dia. 16~35mm
Length 110~130mm
18 pcs.

Product code 232087

Test tube holder



For SA300/320
Horizontal shaking

Dia. 16.5~18mm
Length 160~190mm
18 pcs.

Product code 232086

Separating funnel holder



For all models
Vertical shaking

50ml
100~1000ml
2000ml

Product code 232089

Separating funnel holder



For all models
Vertical shaking

100~1000ml

Product code 232096

Mounting stage



For SA300/320
Horizontal shaking

| Capacity | No. of pcs. |
|--------------|-------------|
| 100ml | 28 |
| 200ml | 19 |
| 500ml | 14 |
| 1L | 9 |
| Product code | 232095 |

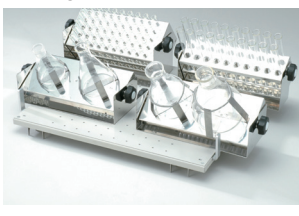
Erlenmeyer flask holder clamp



For SA300/320
Horizontal shaking

| Product code | Capacity | No. of pcs. |
|--------------|----------|-------------|
| 232062 | 100ml | 10 |
| 232063 | 200ml | 9 |
| 232064 | 300ml | 5 |
| 232065 | 500ml | 4 |
| 232066 | 1L | 2 |

Diagonal rack



For SA300/320
Horizontal shaking

| Diagonal erlenmeyer flask holder | | |
|----------------------------------|----------|------------|
| Product code | Capacity | |
| 232067 | 100ml | |
| 232068 | 200ml | |
| 232069 | 300ml | |
| Diagonal test tube holder | | |
| Product code | Size | No. of pcs |
| 232080 | ø12mm | 50 |
| 232081 | ø16.5mm | 20 |
| 232082 | ø18mm | 20 |

Mounting stage sold separately

Non-skid sheet



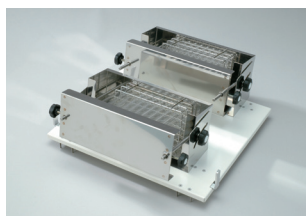
For SA300/320
Horizontal shaking

Thickness 1mm
W450 x D396mm

Product code 232071

Mounting stage sold separately

Test tube rack holder



For SA300/320
Vertical horizontal shaking

Max. test tube rack
W238 x D121 x H105mm
2 lines

Product code 232088

Mounting stage sold separately

Erlenmeyer flask holder



For SA300/320
Horizontal shaking

Adjustable 100~1000ml

Product code 232097

Two layer spring shaking rack



For SA300/320
Horizontal shaking

320 pcs. of ø16 test tube
(Pitch 20mm)

Product code 232079