

Shakers

SELECTION GUIDE

- Open-air Shakers
- Mini Shaker
- Microplate Shaker
- Rocking Shaker
- Waving Shaker
- Heating Shaker
- Separatory Funnel Shaker

Shakers

| Description | | Speed Range (RPM) | Maximum Amplitude Size (mm / inch, dia) | Net Weight (kg/lbs) | Page |
|--|----------|----------------------|--|------------------------|------|
| Open-air Shakers (Dual-action Models) | OS-2000 | 10 to 500 | 19.1 / 0.75 | 22 / 48.5 | 133 |
| | OS-3000 | | 25.4 / 1 | 28 / 61.7 | |
| Open-air Shakers (General Models) | OS-4000 | 10 to 500 | 19.1 / 0.75 | 43 / 94.8 | 134 |
| | | 10 to 450 | 25.4 / 1 | | |
| | OS-7100 | 30 to 500 | 25.4 / 1 | 117 / 257.9 | |
| | OS-7200 | 30 to 300 | 50.8 / 2 | | |
| Open-air Shakers (Advanced Models) | SKC-6075 | 30 to 500 | 19.1 / 0.75 | 65 / 143.3 | 136 |
| | SKC-6100 | | 25 / 1 | | |
| | SKC-6200 | | 50 / 2 | 75 / 165.4 | |
| | SKC-7075 | | 19.1 / 0.75 | | |
| | SKC-7100 | | 25 / 01 | | |
| | SKC-7200 | | 50 / 2 | | |
| Mini Shaker | CMS-350 | 50 to 300 | 13 / 0.5 | 8 / 17.6 | 138 |
| Microplate Shakers | CPS-350 | 150 to 1200 | 3 / 0.1 | 7.7 / 17 | 139 |
| Rocking Shaker | CRS-350 | 5 to 100 | (Tilt 7~13° adjustable) | 3.7 / 8.16 | 140 |
| Waving Shaker | CWS-350 | 8 to 100 | (Tilt 0~13° adjustable) | 3.7 / 8.16 | 141 |

Heating Shaker

| Description | | Speed Range (RPM) | Temperature Range (°C/°F) | Net Weight (kg/lbs) | Page |
|----------------|---------|-------------------|---------------------------------|---------------------|------|
| Heating Shaker | CBS-350 | 150 to 1500* | Amb. +5 to 100 / Amb. 41 to 212 | 8.3 / 18.3 | 142 |

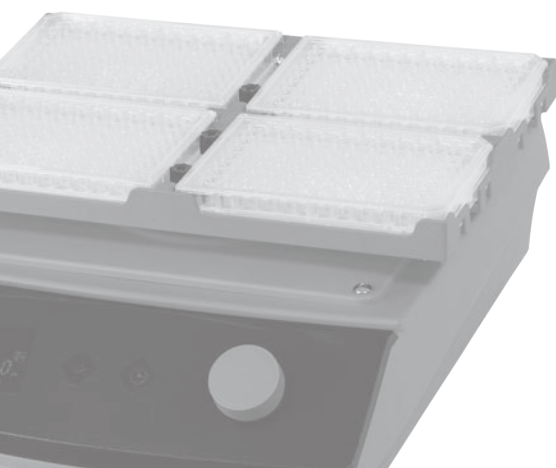
* Speed range from 150 to max. 1500rpm according to the choice of interchangeable block.

Separatory Funnel Shakers

| Description | | Speed Range (RPM) | Vertical Stroke Length (mm / inch) | Net Weight (kg/lbs) | Page |
|--------------------------|------|-------------------|------------------------------------|---------------------|------|
| Separatory Funnel Shaker | RS-1 | 50 to 300 | 40 / 1.6 | 24 / 52.9 | 143 |

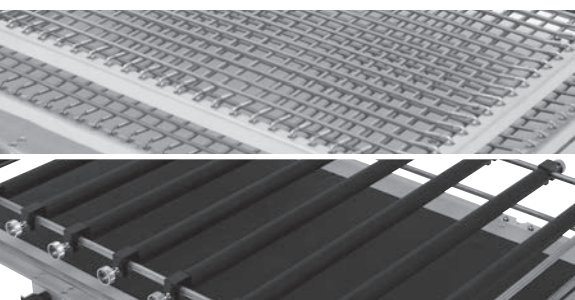
Accessories & Options

| Description | Page |
|-------------|---------|
| for Shakers | 144-147 |





GENERAL APPLICATIONS



| General Applications | Open-air and Separatory Funnel Shakers | | | | | |
|---|--|-----|----|---------|-----|---------|
| | OS | SKC | RS | CMS/CPS | CBS | CRS/CWS |
| Bacterial Suspensions | • | • | | | • | |
| Cell Culture | • | • | | • | • | • |
| Diagnostic Tests | • | | | • | • | • |
| Drug Analysis | • | • | • | • | • | • |
| ELISA | • | • | | • | • | • |
| Environmental Technology (waste water and soil analysis) | • | • | • | | • | |
| Enzyme Immunoassays | • | • | | • | • | • |
| Extraction Procedures | • | • | | • | • | • |
| General Mixing | • | • | • | • | • | • |
| Hemolyzing Blood Separation | • | | • | • | • | • |
| Hybridization | • | • | | • | • | • |
| Inorganic Solvent Extraction | | | • | | | |
| Soil Compound Extraction | | | • | | | |
| Solubility Studies | • | • | • | | • | |
| Solvent Extraction for Water Quality Analysis | | | • | | | |
| Staining and Destaining | • | • | | • | | • |
| Preparation for Metal Analysis | | | • | | | |
| Pharmaceutical Profiling | • | • | • | • | • | • |
| Protein Synthesis | • | • | | • | • | • |

* Above listed applications are for general purpose use.

TECHNICAL BENEFITS

Shakers

OS / SKC Models

- 1) Microprocessor PID controller enables reproducible results.
- 2) User friendly control panel with durable membrane touch switch and control knob.
- 3) Automatic run after power interruption.
- 4) Built-in RS-232 port and USB port for external control and data collection. (except for SKC)
- 5) Audible/Visible alarm activated by shaking speed deviation. (except for SKC)
- 6) Worry-free operation is guaranteed by automatic shaking speed adjustment in case of excessive workload.
- 7) Wide speed range even with heavy workload.
- 8) Repetitive task can be easily performed as the platform stops where it starts.
- 9) Smooth start and smooth stop function prevents chemical spills from flasks or test tubes.

Shakers

CMS / CPS / CRS / CWS Models

- 1) Microprocessor PID control.
- 2) Digital speed control providing gentle shaking motion.
- 3) Smooth, quiet, uniform, and yet powerful shaking motion.
- 4) Easy to adjust tilt angle. (only for CRS, CWS)
- 5) One-touch timer for time-dependent shaking operations. (1 min to 99 hour 59 min.)
- 6) Compact and lightweight design allowing for use inside chambers.
- 7) Digital VFD display for speed and shaking motion.
- 8) Its polypropylene main body is highly chemical-resistant and easy-to-clean.
- 9) Low-profile design with rubber feet for minimal vibration and noise.

Heating Shaker

CBS-350

- 1) Microprocessor PID control ensuring consistent shaking motion and precision accuracy.
- 2) Simple temperature calibration.
- 3) Memory function of programmed protocols allowing relevant parameters (such as temp., rpm, time) of each protocol step to be stored.
- 4) Bright VFD display with responsive touch buttons.
- 5) Its polypropylene main body is highly chemical-resistant and easy-to-clean.
- 6) Optimal heat transfer is achieved by the tight coupling design of the main body and the corrosion-resistant anodized aluminum blocks.

Shakers

Waving Shaker

Enhanced conveniences for tilt adjustment, removable tray, and digital controlling.

Accommodates to be used in a variety of test tube size, beakers, vials, micro-well plates, culture dishes, plastic/glass trays.



Operating Features

- Microprocessor PID control.
- Digital speed control providing gentle to vigorous motion.
 - Waving shaker: 8 to 100 rpm
- Easy to adjust tilt angle
 - Waving shaker: 0 to 13°
- One-touch timer range: 1 min to 99 hr 59 min.

Constructional Features

- Smooth, quiet, uniform, and yet powerful shaking motion.
- Vivid and colorful vacuum fluorescent display (VFD) with touch-sensitive keypad.
- Compact and lightweight design allowing for use inside chambers.
- Three types of removable tray for easy transport of well-plates, test tubes, etc.
 - (included Dimpled mat, and optional Rubber mat, Universal harness)

CWS-350

- Included Accessories**
- Dimpled Mat (Tray, Silicone pad)
 - 2 Rubber Bands
- Optional Accessories**
- Rubber Mat (Tray, Sticky pad)
 - Universal Harness (Tray, Sticky pad, 6 Rubber bands)
- ☛ see page 147

Specifications & Ordering Information



| Model | | CWS-350 |
|-------------------------|---|-------------------------------|
| Control System | | PID feedback control |
| Display | | VFD |
| Shaking System | MotionType | Waving Type |
| | Speed Range (RPM) | 8 to 100 |
| | Accuracy at 100 RPM | ±5 |
| | Tilt Angle | 0 to 13° |
| | Max. Load (kg / lbs) | 5 / 11.02 |
| Material | Dimpled Mat (standard) | PP (Polypropylene) + Silicone |
| | Body | PP (Polypropylene) |
| Dimension | Tray (WxD) (mm / inch) | 276×276 / 10.87×10.87 |
| | Overall (WxDxH) (mm / inch) ¹⁾ | 249×325×139 / 9.8×12.8×5.5 |
| | Net Weight (kg / lbs) | 3.7 / 8.16 |
| Electrical Requirements | | AC 100 ~ 240 V, 50/60 Hz |
| Cat. No. | KR Plug | AAH381115K |
| | US Plug | AAH381115U |

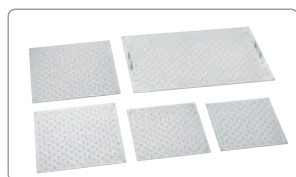
1) Main unit's dimension is measured without a tray.

※ Permissible environmental conditions: temperature (5-40°C) and relative humidity (up to 80%).

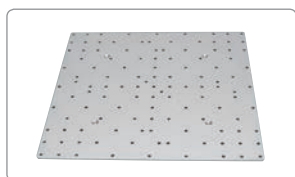
Shakers

Accessories & Options

for Open-air Shakers (Dual-action / General) & Mini Shakers



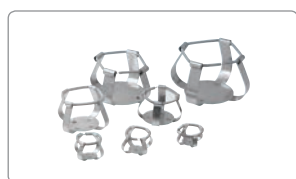
Universal Platforms
(OS Models)



Universal Platform
(CMS-350)



Test Tube Racks



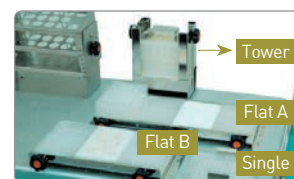
Flask Clamps (stainless steel)



Flask Clamps (plastic)



Funnel Clamps



Microplate Holders

| Description | | OS-2000 | OS-3000 | OS-4000 | OS-7100 OS-7200 | CMS-350 | |
|-----------------------------------|-------------------------|--------------------------|-------------|-----------------------------------|--------------------|----------|----|
| Universal Platform | Cat. No. | AAA3A501 | AAA31501-V1 | AAA31502-V1 | AAA23504 | AAA3B501 | |
| Flask Clamps (stainless steel) | | Erlenmeyer Flask Size | | Max. Mountable Flask Clamps | | | |
| | AAA23550 | for 50 mL | 21 | 36 | 55 | 88 | 16 |
| | AAA23551 | for 100 mL | 14 | 28 | 44 | 54 | 9 |
| | AAA23552 | for 250 mL | 8 | 13 | 24 | 35 | 9 |
| | AAA23556 | for 300 mL | 8 | 13 | 24 | 35 | 9 |
| | AAA23553 | for 500 mL | 5 | 10 | 16 | 24 | 5 |
| | AAA23554 | for 1L | 3 | 5 | 8 | 15 | 4 |
| | AAA23555 | for 2L | - | 4 | 5 | 11 | 1 |
| | AAA23557 | for 2.8L | - | 2 | 4 | 6 | - |
| | AAA23558 | for 4L | - | 1 | 2 | 6 | - |
| AAA23559 | for 6L | - | 1 | 2 | 5 | - | |
| Flask Clamps (plastic) | | Erlenmeyer Flask Size | | Max. Mountable Flask Clamps | | | |
| | AAA30570 | for 50 mL | 16 | 28 | 39 | 72 | 16 |
| | AAA30571 | for 100 ~ 125 mL | 12 | 16 | 29 | 54 | 9 |
| | AAA30572 | for 200 mL | 8 | 13 | 25 | 30 | 9 |
| | AAA30573 | for 250 mL | 6 | 12 | 20 | 30 | 9 |
| | AAA30574 | for 300 mL | 6 | 12 | 16 | 30 | 9 |
| | AAA30575 | for 500 mL | 4 | 9 | 12 | 24 | 5 |
| | AAA30576 | for 1L | 2 | 5 | 9 | 12 | 4 |
| | AAA30577 | for 2L | - | 4 | 5 | 6 | 1 |
| Funnel Clamps | | Separating Funnel Size | | Max. Mountable Funnel Clamps | | | |
| | AAA23562 | for 250 mL | 4 | 4 | 6 | 18 | 3 |
| | AAA23563 | for 500 mL | 3 | 3 | 4 | 11 | 2 |
| | AAA23564 | for 1L | 2 | 2 | 3 | 9 | 2 |
| | AAA23565 | for 2L | - | 1 | 2 | 7 | - |
| Test Tube Racks ¹⁾ | | | | Mountable Capacity of Racks | | | |
| | AAA23581 | for 86Test Tubes, ø8mm | 2 | 2 | 4 | 9 | 2 |
| | AAA23582 | for 86Test Tubes, ø10mm | | | | | |
| | AAA23583 | for 58Test Tubes, ø12mm | | | | | |
| | AAA23584 | for 58Test Tubes, ø14mm | | | | | |
| | AAA23585 | for 32 test tubes, Ø17mm | | | | | |
| | AAA23586 | for 19 test tubes, Ø25mm | | | | | |
| | AAA23587 | for 10 test tubes, Ø30mm | | | | | |
| | AAA23594 | for 10 test tubes, Ø35mm | | | | | |
| AAA23593 | for 4 test tubes, Ø50mm | | | | | | |
| Microplate Holders | | | | Max. Mountable Microplate Holders | | | |
| | AAA23654 | Single | 6 | 8 | 15 | 25 | 6 |
| | AAA23651 | Tower | 4 | 6 | 10 | 22 | 6 |
| | AAA23652 | Flat A(large) | - | - | 2 | 4 | - |
| | AAA23653 | Flat B(small) | 1 | 2 | 3 | 6 | - |

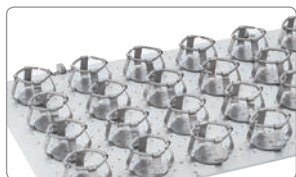
¹⁾ No declination.

※ Above accessories need to be mounted on a universal platform which is sold separately.

Shakers

Accessories & Options

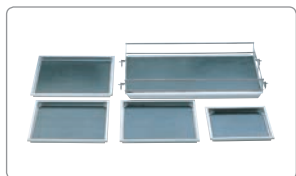
for Open-air Shakers (Dual-action / General) & Mini Shakers



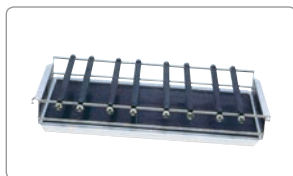
⌘ Dedicated Platform



⌘ Spring Wire Racks



⌘ Rubber Mats (SK, SKF)



⌘ Universal Attachment



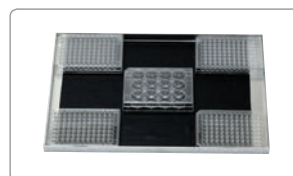
⌘ Lab Sticker (200x200, mm)



⌘ Rubber Mat (CMS-350)



⌘ Dual Stacking Tray



⌘ Large Tray



⌘ Stage Rack (OS Models)

| Description | | | OS-3000 | OS-4000 | OS-7100 / OS-7200 |
|--------------------|----------|--|----------|----------|-------------------|
| Dedicated Platform | Cat. No. | Universal Platform +250mL Flask Clamps | AAA31551 | AAA31561 | AAA23634 |
| | | No. of Flask Clamps | 13 | 24 | 35 |
| | | Universal Platform +500mL Flask Clamps | AAA31552 | AAA31562 | AAA23635 |
| | | No. of Flask Clamps | 10 | 16 | 24 |

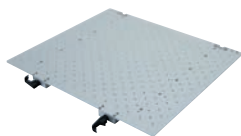
※ A dedicated platform is sold with setting each max. mountable amount of flask clamps on.

| Description | | | OS-2000 | OS-3000 | OS-4000 | OS-7100 OS-7200 | CMS-350 | |
|-----------------------|----------|-----------------------|----------|-----------------------|-------------|--------------------|----------|--|
| Spring Wire Racks | Cat. No. | | AAA3A521 | AAA31521-V1 | AAA31522-V1 | AAA23514 | AAA3B511 | |
| | | Erlenmeyer Flask Size | | Max. Inserting Flasks | | | | |
| | | for 50 mL | 15 | 16 | 25 | 45 | 15 | |
| | | for 100 mL | 9 | 9 | 16 | 28 | 9 | |
| | | for 250 mL | 4 | 4 | 9 | 18 | 4 | |
| | | for 300 mL | 4 | 4 | 9 | 18 | 4 | |
| | | for 500 mL | 4 | 4 | 5 | 15 | 4 | |
| | | for 1L | 2 | 2 | 4 | 10 | 2 | |
| | | for 2L | - | 1 | 2 | 6 | - | |
| | | for 2.8L | - | 1 | 2 | 4 | - | |
| Rubber Mat | Cat. No. | | AAA3A531 | AAA31531 | AAA31532 | AAA23534 | AAA38501 | |
| Universal Attachments | | | AAA3A511 | AAA31511 | AAA31512 | AAA23505 | AAA3B521 | |
| Lab Sticker | | | AAA30551 | | | | | |
| Dimpled Mat | | | AAA3A532 | - | - | - | AAA38502 | |
| Microlpate Tray | | Dual Stacking | AAA3A541 | - | - | - | AAA3B531 | |
| | | Large Tray | AAA3A542 | - | - | - | AAA3B532 | |
| Stage Racks | | 2 stage Rack | - | - | - | - | - | |
| | | 4 stage Rack | - | AAA31541 | AAA31542 | AAA31702 | - | |

Shakers

Accessories & Options

for Open-air Shakers (Advanced)



Universal Platforms



Dual Universal Platforms



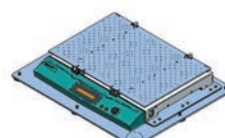
Spring Wire Racks



Universal Attachments



Rubber Mats



Weight Increaser

| Description | | | SKC - 6000 Models | | SKC - 7000 Models | |
|-------------------------------|--------------------------|------------------------------|-----------------------------------|---------------|--------------------------|--------------------------|
| | | | small | large | small | large |
| Universal Platform | Cat. No. | Single Dual ¹⁾ | AAA30501 - | AAA30503 - | AAA30502 AAA30541 | AAA30504 AAA30542 |
| Flask Clamps | | Erlenmeyer Flask Size | Max. Mountable Flask Clamps | | | |
| | AAA23550 | for 50 mL | 84 | 96 | 108 108 per each step | 126 126 per each step |
| | AAA23551 | for 100 mL | 54 | 66 | 72 72 per each step | 84 84 per each step |
| | AAA23552 | for 250 mL | 33 | 39 | 42 42 per each step | 51 51 per each step |
| | AAA23556 | for 300 mL | 33 | 39 | 36 | 40 |
| | AAA23553 | for 500 mL | 20 | 24 | 27 | 30 |
| | AAA23554 | for 1L | 14 | 16 | 18 | 20 |
| | AAA23555 | for 2L | 8 | 11 | 12 | 13 |
| | AAA23557 | for 2.8L | 6 | 8 | 9 | 11 |
| | AAA23558 | for 4L | 4 | 6 | 8 | 9 |
| AAA23559 | for 6L | 3 | 4 | 6 | 7 | |
| Flask Clamps (plastic) | | Erlenmeyer Flask Size | Max. Mountable Flask Clamps | | | |
| | AAA30570 | for 50 mL | 56 | 64 | 72 | 80 |
| | AAA30571 | for 100 ~ 125 mL | 42 | 48 | 54 | 60 |
| | AAA30572 | for 200 mL | 25 | 39 | 30 | 32 |
| | AAA30573 | for 250 mL | 25 | 30 | 30 | 32 |
| | AAA30574 | for 300 mL | 25 | 30 | 30 | 32 |
| | AAA30575 | for 500 mL | 20 | 20 | 24 | 28 |
| | AAA30576 | for 1L | 10 | 12 | 12 | 15 |
| AAA30577 | for 2L | 6 | 6 | 6 | 9 | |
| Funnel Clamps | | Separating Funnel Size | Max. Mountable Funnel Clamps | | | |
| | AAA23562 | for 250 mL | 14 | 16 | 18 | 20 |
| | AAA23563 | for 500 mL | 9 | 10 | 11 | 14 |
| | AAA23564 | for 1L | 7 | 8 | 9 | 12 |
| | AAA23565 | for 2L | 5 | 6 | 7 | 8 |
| Test Tube Racks ²⁾ | | | Mountable Capacity of Racks | | | |
| | AAA23581 | for 86 Test Tubes, ø8mm | 8 | 9 | 9 | 12 |
| | AAA23582 | for 86 Test Tubes, ø10mm | | | | |
| | AAA23583 | for 58 Test Tubes, ø12mm | | | | |
| | AAA23584 | for 58 Test Tubes, ø14mm | | | | |
| | AAA23585 | for 32 Test Tubes, ø16mm | | | | |
| | AAA23586 | for 19 Test Tubes, ø25mm | | | | |
| AAA23594 | for 10 Test Tubes, ø35mm | | | | | |
| Microplate Holders | | | Max. Mountable Microplate Holders | | | |
| | AAA23654 | Single | 20 | 23 | 25 | 28 |
| | AAA23651 | Tower | 16 | 19 | 22 | 25 |
| | AAA23652 | Flat A(large) | 3 | 4 | 4 | 5 |
| | AAA23653 | Flat B(small) | 4 | 5 | 6 | 7 |

1) Universal platform attachments are mounted on the dual universal platform. Under the dual universal platform are mounted only 50ml, 100ml 250ml - Refer to the above chart (Distance between platforms is 175mm).

2) No declination

| Description | SKC - 6000 Models | | SKC - 7000 Models | |
|----------------------|-------------------|----------|-------------------|----------|
| | small | large | small | large |
| Spring wire rack | AAA30521 | AAA30522 | AAA30523 | AAA30524 |
| Universal attachment | AAA30511 | AAA30512 | AAA30513 | AAA30514 |
| Rubber mat | AAA30531 | AAA30532 | AAA30533 | AAA30534 |

| Description | SKC - 6000 Models | | SKC - 7000 Models | |
|------------------|-------------------|-------|-------------------|-------|
| | small | large | small | large |
| Lab Sticker | AAA30551 | | | |
| Weight increaser | AAA30562 | | AAA30561 | |

※ Above accessories need to be mounted on a universal platform which is sold separately.

Shakers

Accessories & Options

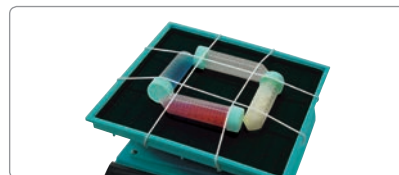
for Rocking Shaker & Waving Shaker



✦ Rubber Mat



✦ Dimpled Mat



✦ Universal Harness

| Cat. No. | Description | Component |
|----------|-------------------|-------------------------------------|
| AAA38501 | Rubber mat | Tray, Sticky pad |
| AAA38502 | Dimpled mat | Tray, Silicone pad |
| AAA38503 | Universal harness | Tray, Sticky pad, Rubber band (6ea) |

for Microplate Shaker



✦ 1.5mL Micro-Tube Rack



✦ 15mL Conical Tube Rack



✦ 50mL Conical Tube Rack

| Cat. No. | Description | Max. Mountable Tube |
|----------|--------------------------------|---------------------|
| AAAJ2311 | 1.5mL Micro-Tube Rack with Cap | 80 (5 x 16) |
| CPS0011 | 15mL Conical Tube Rack | 30 (3 x 10) |
| CPS0012 | 50mL Conical Tube Rack | 12 (2 x 6) |

for Heating Shaker



✦ 96-well Tube Block with Cover



✦ 0.5mL Tube Block with Cover



✦ 1.5mL Tube Block with Cover



✦ 50mL Tube Block with Cover

| Cat. No. | Description | Max. Mountable Tube |
|----------|-------------------------------|----------------------------------|
| AAAJ4504 | 96-well Tube Block with Cover | 0.2mL x 96 holes (microtube) |
| AAAJ4501 | 0.5mL Tube Block with Cover | 0.5mL x 48 holes (microtube) |
| AAAJ4502 | 1.5mL Tube Block with Cover | 1.5mL x 24 holes (microtube) |
| AAAJ4503 | 50mL Tube Block with Cover | 50mL x 6 holes (centrifuge tube) |