

# 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

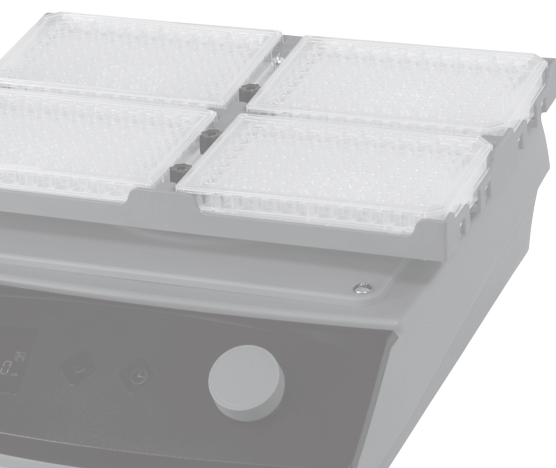
\* Speed range from 150 to max. 1500rpm according to the choice of interchangeable block.

### 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

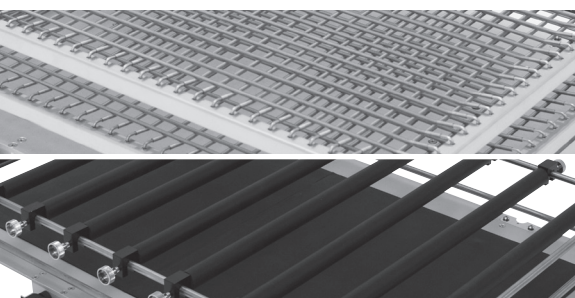
### Accessories & Options

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.

Lab Companion's wide ranged shakers are covering almost all of your applications. Find a shaker suitable for your needs.



# Shakers

## Open-air Shakers (Dual-action Models)

Dual-action benchtop platform shakers accommodate flask up to 6L.

The most versatile shakers at a reasonable price offer an ideal solution for your mixing needs.



### OS-3000

**Optional Accessories**

- Micro-Tube Rack with Cap
- Conical Tube Racks

☛ see page 144-145

※ Above products design can be changed without prior notice.

### Safety Features

- Worry-free operation.
  - Automatic shaking speed adjustment in case of excessive workload such as unbalanced load placement, unusual vibrations caused from unstable floor or external shock.
- Automatic run after power interruption.
- Audible/Visible alarm activated by shaking speed deviation.
- Shaker protection system against over-current, stalled platform check.

### Operating Features

- Microprocessor PID control and shaking speed calibration.
- Dual-action shaking motion: orbital or reciprocating.
- Speed range: 10 to 500 rpm
- Timer range: 1 min. to 999 hr 59 min.
- Adjustable shaking amplitude.
  - 12.7mm or 19.1mm for OS-2000
  - 19.1mm or 25.4mm for OS-3000
- User friendly control panel.
  - Lab Companion's unique VFD-bright, clear, easy to read.
  - Durable membrane touch switch and control knob.
- Speed is basically set and displayed in increments of 1 rpm. Also speed increment interval can be set among 1, 5, 10 rpm according to users preference.
- RS-232 port and USB port for external control and data collection.

### Constructional Features

- Wide speed range even with heavy workload.
  - Equipped with a maintenance-free BLDC motor to generate smooth, quiet, uniform, and yet powerful shaking motion.
- Repetitive task can be easily performed as the platform stops where it starts.
  - Stopping the shaking platform always at the same position is highly beneficial for automated dosing or sampling process.
- Pleasant test environment by the smooth acceleration and deceleration control.
  - Smooth start and smooth stop function prevent chemical spills from flasks or test tubes.
- Low-profile design minimizes vibration or sliding caused by the high speed shaking motion.

### Specifications & Ordering Information



Model		OS 2000	OS 3000
Shaking System	Motion Type	Orbital or Reciprocating motion selectable	
	Amplitude Size (mm / inch, dia.)	12.7, 19.1 / 0.5, 0.8 (Standard 19.1 / 0.75)	19.1, 25.4 / 0.8, 1 (Standard 19.1 / 0.75)
	Speed Range (RPM)	10 to 500	
	Accuracy	±1 % of set speed (>100rpm) / ±1 (<100rpm)	
	Timer	1 min. to 999 hr 59 min.	
Max Load (kg / lbs)		10 / 22.0 at 500 rpm in Orbital shaking motion 8.5 / 18.7 at 500 in Reciprocating shaking motion	
Dimension	Platform (WxD) (mm / inch)	320×260 / 12.6×10.2	350×350 / 13.8×13.8
	Overall (WxDxH) (mm/inch) <sup>1)</sup>	354×388×146/ 13.9×15.3×5.7	409×508×141/ 16.1×20×5.6
	Net Weight (Kg / lbs)	22 / 48.5	28 / 61.7
Electrical Requirements (230V, 50 / 60Hz)		0.3A	0.3A
Cat. No.		AAH3D1115K	AAH3D1215K
Electrical Requirements (120V, 50 / 60Hz)		0.6A	0.6A
Cat. No.		AAH3D1165U	AAH3D1265U

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

※ Above specifications can be changed without prior notice.



Powerful driving system with a durable body structure increases shaking capacity. Suitable for larger or heavier workloads requiring accurate and reproducible results.



### OS-4000 / OS-7100

#### Optional Accessories see page 144-145

- Universal / Dedicated Platforms, Rubber Mats, Universal Attachments
- Flask Clamps, Funnel Clamps
- Test Tube Racks, Spring Wire Racks

※ Above products design can be changed without prior notice.

#### Control Panel



# Shakers

## Open-air Shakers (General Models)

### Safety Features

- Worry-free operation.
  - Automatic shaking speed adjustment in case of excessive workload such as unbalanced load placement, unusual vibrations caused from unstable floor or external shock.
- Automatic run is available with non-volatile set point memory after power interruption, indicated in control display.
- Audible/Visible alarm activated by shaking speed deviation.
- Shaker protection system against over-current, stalled platform check. (Stalled platform check is only for OS-4000)

### Operating Features

- Microprocessor PID control.
  - Intelligent speed controller enables reproducible results.
- Shaking speed calibration enables matching the displayed rpm to the reference point.
- Various speed ranges up to max. 500 rpm.
- Timer range: 1 min. to 999 hr 59 min.
- Orbit diameter.
  - 19.1mm (Standard) or 25.4mm for OS-4000
  - 25.4mm for OS-7100
  - 50.8mm for OS-7200
- User friendly control panel.
  - Lab Companion's unique VFD-bright, clear, easy to read.
  - Durable membrane touch switch and control knob.

- Speed is basically set and displayed in increments of 1 rpm. Also speed increment interval can be set among 1, 5, 10 rpm according to users preference.
- Built-in RS-232 port and USB port for external control and data collection.

### Constructional Features

- Wide speed range even with heavy workload.
  - Ideal DD(Direct Drive) Brushless Motor and triple cam system support heavy load, quiet, maintenance free operation and deliver high torque at high speeds and smooth rotation. (only for OS-7100/7200)
  - Equipped with a maintenance-free BLDC motor to generate smooth, quiet, uniform, and yet powerful shaking motion. (only for OS-4000)
- Repetitive task can be easily performed as the platform stops where it starts.
  - Stopping the shaking platform always at the same position is highly beneficial for automated dosing or sampling process.
- Pleasant test environment by the smooth acceleration and deceleration control.
  - Smooth start and smooth stop function prevent chemical spills from flasks or test tubes.
- Low-profile design minimizes vibration or sliding caused by the high speed shaking motion.
- Various accessories.

### Specifications & Ordering Information



Model		OS-4000		OS-7100	OS-7200
Control System		PID feedback control			
Display		VFD			
Shaking System	Motion Type	Orbital			
	Amplitude Size (mm / inch, dia.)	19.1 / 0.75 (Standard)	25.4 / 1 (Adjustable)	25.4 / 1	50.8 / 2
	Speed Range (RPM)	10 to 500	10 to 450	30 to 500	30 to 300
	Accuracy	±1 % of set speed (>100rpm) / ±1 (<100rpm)			
	Timer	1 min. to 999 hr 59 min.			
Max Load (kg / lbs)		14 / 30.9 at 500 rpm 21 / 46.3 at 400 rpm	10 / 22.0 at 450 rpm 21 / 46.3 at 300 rpm	10 / 22.0 at 500 rpm 30 / 66.1 at 400 rpm	23 / 50.7 at 300 rpm 35 / 77.2 at 250 rpm
Dimension	Platform (WxD) (mm / inch)	450x450 / 17.7x17.7		755x520 / 29.6x20.5	
	Overall (WxDxH) (mm/inch) <sup>1)</sup>	510x632x156 / 20.1x24.9x6.1		755x627x151 / 29.7x24.7x5.9	
	Net Weight (Kg / lbs)	43 / 94.8		117 / 257.9	
Electrical Requirements (230V, 50 / 60Hz)		0.3A		0.4A	
Cat. No.		AAH3D1315K		AAH3D1415K	AAH3D1515K
Electrical Requirements (120V, 50 / 60Hz)		0.6A		0.8A	
Cat. No.		AAH3D1365U		AAH3D1465U	AAH3D1565U

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

※ Above specifications can be changed without prior notice.

Innovative triple-cam shaking mechanism with offering reliable performance across a wide speed range.

Specially designed to carry out heavy-duty and trouble-free operations continuously.



### SKC - 7075

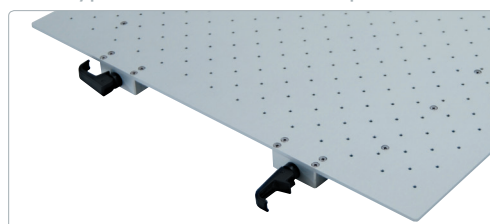
Optional Accessories  
 see page 146

- Universal Platforms, Dual Universal Platforms
- Rubber Mats, Universal Attachments
- Flask Clamps, Funnel Clamps
- Test Tube Racks, Spring Wire Racks

Control Panel



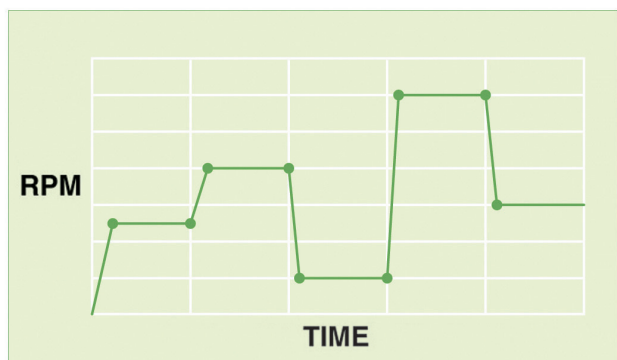
Slide type Universal Platform (optional)



# Shakers

## Open-air Shakers (Advanced Models)

### Progressive Program Operation



Programming parameters			
Maximum Number of segments in one(1) pattern(Cycle)		20	
Maximum Number of Patterns(Cycle) saved		20	
Shaking Motion - Forward & Backward, Pause	Time	1 min to 99hr 59min	
	RPM	30 to 500	

### Safety Features

- Worry-free operation.
  - Automatic shaking speed adjustment in case of excessive workload such as unbalanced load placement, unusual vibrations caused from unstable floor or external shock.
- Automatic run is available with non-volatile set point memory after power interruption, indicated in control display.
- Shaker protection system against over-current.

### Operating Features

- Microprocessor PID control maintaining constant speed.
- Wide speed range: 30 to 500 rpm
- Orbit diameter:
  - 19mm for SKC-6075/7075
  - 25mm for SKC-6100/7100
  - 50mm for SKC-6200/7200
- User friendly control panel.
  - Lab Companion's unique VFD-bright, clear, easy to read.
  - Durable membrane touch switch and control knob.

### Constructional Features

- Wide speed range even with heavy workload.
  - Ideal DD(Direct Drive) Brushless Motor and triple cam system support heavy load, quiet, maintenance free operation and deliver high torque at high speeds and smooth rotation.
- Repetitive task can be easily performed as the platform stops where it starts.
  - Stopping the shaking platform always at the same position is highly beneficial for automated dosing or sampling process.
- Pleasant test environment by the smooth acceleration and deceleration control.
  - Smooth start and smooth stop function prevent chemical spills from flasks or test tubes.
- Exceptional low-profile design (only 12cm from bottom to platform) minimizes vibration or sliding caused by the high speed shaking motion.
- Chemical-resistant and durable construction.
- Easy-exchangeable slide type universal platform reduces physical fatigue when handling the heavy load samples. (optional)

### Specifications & Ordering Information



Model			SKC-6075	SKC-6100	SKC-6200	SKC-7075	SKC-7100	SKC-7200
Control System			PID feedback control					
Display			VFD					
Shaking System	Motion Type		Orbital					
	Amplitude Size (mm / inch, dia)		19 / 0.75	25 / 1	50 / 2	19 / 0.75	25 / 1	50 / 2
	Speed Range <sup>2)</sup> (RPM)		30 to 500					
	Accuracy at 100 RPM		±1					
Dimension	Platform (WxD) (mm / inch)	Small	580×520 / 22.8×20.5			755×520 / 29.7×20.5		
		Large	660×520 / 26×20.5			885×520 / 34.8×20.5		
	Overall (WxDxH) (mm / inch) <sup>1)</sup>		582.8×618 ×122.2			754.8×662×122.2		
			22.9×24.3×4.8			29.7×26.1×4.8		
	Net Weight (kg / lbs)		65 / 143.3			75 / 165.4		
Electric Requirements (230V, 50 / 60Hz)			0.4A					
Cat. No.			AAH30105K	AAH30115K	AAH30125K	AAH30205K	AAH30215K	AAH30225K
Electric Requirements (120V, 50 / 60Hz)			0.8A					
Cat. No.			AAH30106U	AAH30116U	AAH30126U	AAH30206U	AAH30216U	AAH30226U

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

2) When operating at high speed (350 ~ 500 rpm), it should be recommended to use an optional attachment to be fixed on the floor of the working place.



Compact and lightweight design for space saving and portability with a real-time responsive speed control knob.

Ideal for hybridization, immunocytochemistry, gel staining/destaining, and other bioscience applications.



### CMS-350

#### Optional Accessories ☛ see page 144-145

- Rubber Mat (Tray, Sticky pad)
- Flask Clamps, Funnel Clamps
- Test Tube Racks, Spring Wire Racks
- Microplate Holders
- Universal Platform
- Universal Attachments

### Operating Features

- Microprocessor PID control.
- Suitable for low rpm sensitive applications.
- Speed range: 50 ~ 300 rpm
- One-touch timer for time-dependent shaking operations : 1 min to 99 hour 59 min.
- Orbit size: 13mm dia. (0.51" dia.)
- Digital VFD display for speed and shaking motion.

### Constructional Features

- Equipped with a maintenance-free BLDC motor to generate 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.
- Removable tray for easy transport of well-plates (Max. 6 ea) and dishes. (optional)
- Its polypropylene main body is highly chemical-resistant and easy-to-clean.
- Various accessories.

### Specifications & Ordering Information



Model		CMS-350
Control System		PID feedback control
Display		VFD
Shaking System	Motion Type	Orbital
	Speed Range (RPM)	50 to 300
	Accuracy at 100 RPM	±5
	Timer	1 min. to 99hrs. 59min.
	Orbit Size (mm / inch, dia)	13 / 0.51
	Max. Load (kg / lbs)	up to 4 / 8.81
Dimension	Tray (WxD) (mm / inch)	276×276 / 10.87×10.87
	Platform (WxD) (mm / inch)	250×250 / 9.8×9.8
	Overall (WxDxH) (mm / inch) <sup>1)</sup>	249×325×109 / 9.8×12.8×4.3
	Net Weight (kg / lbs)	8 / 17.6
Electrical Requirements		AC 100 ~ 240 V, 50 / 60 Hz
Cat. No.	KR Plug	AAH3B1115K
	US Plug	AAH3B1115U

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

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

# Shakers

## Microplate Shaker

Fitted with 4 microplates and wider speed range to accommodate various sample testing.

Optimally designed to shake four microplates simultaneously, this Microplate Shaker is ideal for applications that demand precise and repeatable mixing.



### CPS-350

**Optional Accessories** • Micro-Tube Rack with Cap  
 see page 147 • Conical Tube Racks

### Operating Features

- Microprocessor PID control.
- One-touch timer for time-dependent shaking operations : 1 min to 99 hour 59 min.
- Smooth start feature to avoid sample contamination.
- Timer range: 1 min to 99 hour 59 min.
- Orbital size: 3 mm (0.12")  
 - Automatic shut down: Overload (max. load: 4kg)
- Digital VFD display for speed and shaking motion.

### Constructional Features

- Equipped with a maintenance-free BLDC motor to generate 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.
- Its polypropylene main body is highly chemical-resistant and easy-to-clean.
- Various accessories.  
 - Optional tube racks also available for 1.5ml microtubes, 15ml conical tubes, and 50ml conical tubes.

### Specifications & Ordering Information



Model		CPS-350
Control System		PID feedback control
Display		VFD
Shaking System	Motion Type	Orbital
	Speed Range (RPM)	150 to 1,200
	Accuracy at 500 RPM	±15
	Timer	1min. to 99hrs. 59min.
	Orbit Size (mm / inch, dia)	3 / 0.12
	Max. Load (kg / lbs)	4 / 8.8
Dimension	Tray (WxD) (mm / inch)	267×185 / 10.5×7.3
	Overall (WxDxH) (mm / inch)	269×325×128 / 10.6×12.8×5.0
	Net Weight (kg / lbs)	7.7 / 17
Electrical Requirements		AC 100 ~ 240 V, 50/60 Hz
Cat. No.	(KR Plug)	AAH3C1115K
	(US Plug)	AAH3C1115U

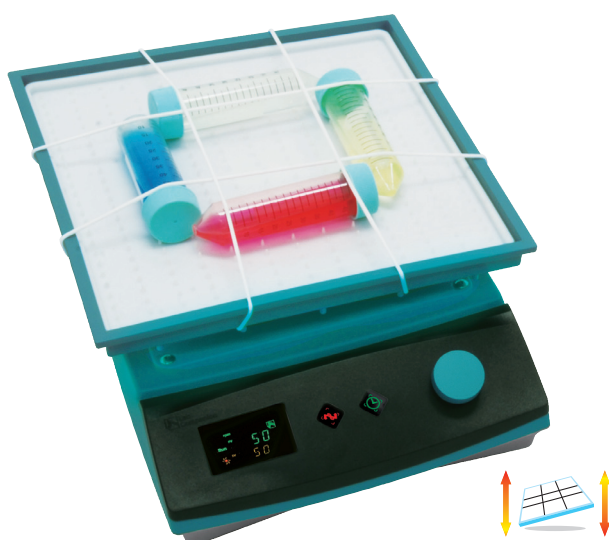
※ Permissible environmental conditions: temperature (5-40°C) and relative humidity (up to 80%).

# Shakers

## Rocking Shaker

Adjustable tilt angle and precise digital speed control providing desired rocking motion.

Designed for time-dependent and low rpm sensitive applications such as ELISA, enzyme immunoassays, protein synthesis, hybridization staining/destaining gels, pharmaceutical profiling, etc.



### CRS-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

### Operating Features

- Microprocessor PID control.
- Digital speed control providing gentle to vigorous motion.
  - Rocking shaker: 5 to 100 rpm
- Easy to adjust tilt angle
  - Rocking shaker: 7 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)

## Specifications & Ordering Information



Model		CRS-350
Control System		PID feedback control
Display		VFD
Shaking System	MotionType	Rocking type
	Speed Range (RPM)	5 to 100
	Accuracy at 100 RPM	±5
	Tilt Angle	7 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) <sup>1)</sup>	249×325×138 / 9.8×12.8×5.4
	Net Weight (kg / lbs)	3.7 / 8.16
Electrical Requirements		AC 100 ~ 240 V, 50/60 Hz
Cat. No.	KR Plug	AAH391115K
	US Plug	AAH391115U

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

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

# 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) <sup>1)</sup>	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%).



Useful for a variety of molecular biology applications.

Interval mix function in program mode can be properly set according to user's experimental conditions.



### CBS-350

**Optional Accessories**  
 • see page 147

- 96-Well Tube Block Set with Covers
- 0.5ml / 1.5ml / 50ml Tube Block Set with Covers

### Operating Features

- Microprocessor PID control ensuring consistent shaking motion and precision accuracy.
- Speed range from 150 to max. of 1500 rpm (depend on a choice of interchangeable blocks)
- Simple temperature calibration.
- Memory function of programmed protocols allowing relevant parameters (such as temp., rpm, time) of each protocol step to be stored.
  - Up to 10 protocols allowed for memory storage.
  - Up to 10 steps allowed for each protocol.
  - Interval Mix function (continuous switching between shaking and phasing)
- Two types of timer modes:
  - Timer 1 starts immediately after the timer setting.
  - Timer 2 starts only after reaching the set temp.

### Constructional Features

- Bright VFD display with responsive touch buttons.
- Its polypropylene main body is highly chemical-resistant and easy-to-clean.
- Optimal heat transfer is achieved by the tight coupling design of the main body and the corrosion-resistant anodized aluminum blocks.
- Low-profile design with rubber feet for minimal vibration and noise.

### Specifications & Ordering Information



Model		CBS-350	
Control		PID feedback control	
Display		VFD (0.1°C resolution)	
Temperature	Range (°C / °F)	Amb. +5 to 100 / 41 to 212	
	Fluctuation at 80°C (±°C / °F)	0.5 / 0.9	
	Variation at 80°C (±°C / °F)	0.15 / 0.27	
	Heating power (W)	360	
Safety	Over Temp.	Heating plate	
	Over Current	PCB	
Shaking System Dimension (WxDxH)	Motion Type	Orbital	
	Speed range (RPM)	96-well tube block	150 to 1500
		0.5ml tube block	150 to 1000
		1.5ml tube block	150 to 1000
		50ml tube block	150 to 800
	Orbit Size (mm / inch, dia.)	2 / 0.08	
Dimension (WxDxH)	Overall (mm/inch) <sup>1)</sup>	249 x 325 x 120 / 9.8 x 12.8 x 4.7	
	Net Weight (Kg / lbs)	8.3 / 18.3	
Electrical requirements (230V, 50Hz/60Hz)		1.7A	
Cat. No.		AAHJ4015K	
Electrical requirements (120V, 60Hz)		3.4A	
Cat. No.		AAHJ4013U	

1) Main unit's dimension is measured without a block set

# Shakers

## Separatory Funnel Shaker

Intensive vertical reciprocating agitation for quick solvent extraction.

Shaking up to 6 samples in identical conditions for any series or comparative protocols in chemistry, biotech, and medical labs.



### Features

- Vertical reciprocating motion with maximum stroke length of 40mm. (1.6")
- Easy to operate.
- Wide speed range (50 to 300 rpm) suitable for most applications.
- Timer range: 0 to 60 min / continuous
- Digital LED speed indicator.
- Audible alarm and automatic shut down at the end of each shaking session.
- Easily adjustable funnel holders.
- Maximum number of funnels installable : 10 (up to 5 holders per each side)

### RS-1

**Included Accessories** • Funnel Holder 6 Sets  
(ordering information - Cat. No.: AAA32501)

### \* Funnel Capacities (per each side)

Capacity	Round type funnel	Slim type funnel
under 500ml	3-5	5
500ml	3	3
1L	-	3

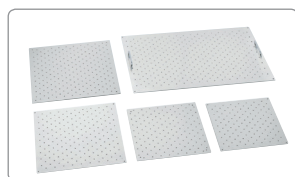
### Specifications & Ordering Information

Model		RS-1	
Shaking System	Motion Type	Vertical reciprocating	
	Speed Range (RPM)	50 to 300	
	Timer	60 min or continuous operation	
	Vertical Stroke Length (mm / inch)	40 / 1.6	
Dimension	Overall (WxDxH) (mm / inch)	445×730×505 / 17.5×28.7×19.9	
	Max. Load per each Side (kg / lbs)	3 / 6.6	
	Net Weight (Kg / lbs)	53 / 116.8	
Electrical Requirements (230V)		50Hz, 0.4A	60Hz, 0.4A
Cat. No.		AAH32012K	AAH32015K

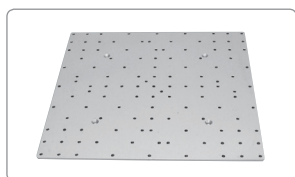
# Shakers

## Accessories & Options

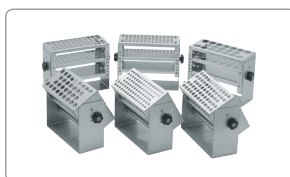
for Open-air Shakers (Dual-action / General) & Mini Shakers



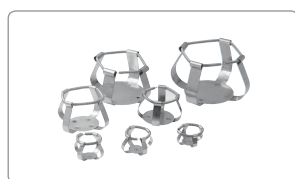
Universal Platforms  
(OS Models)



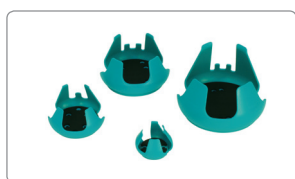
Universal Platform  
(CMS-350)



Test Tube Racks



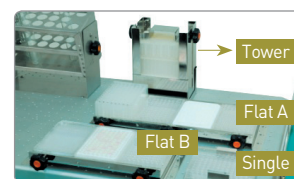
Flask Clamps (stainless steel)



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 <sup>1)</sup>				Mountable Capacity of Racks			
	AAA23581	for 86 Test Tubes, ø8mm	2	2	4	9	2
	AAA23582	for 86 Test Tubes, ø10mm					
	AAA23583	for 58 Test Tubes, ø12mm					
	AAA23584	for 58 Test 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	-

<sup>1)</sup> 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



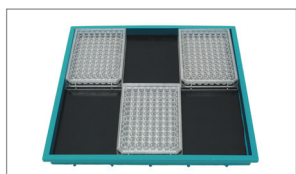
❖ Rubber Mats (SK, SKF)



❖ Universal Attachment



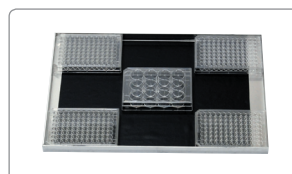
❖ Lab Sticker (200x200, mm)



❖ Rubber Mat (CMS-350)



❖ Dual Stacking Tray



❖ Large Tray



❖ Stage Rack (OS Models)

Description		OS-3000	OS-4000	OS-7100 / OS-7200
Dedicated Platform	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.

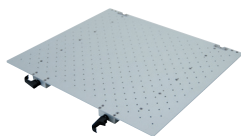
Description		OS-2000	OS-3000	OS-4000	OS-7100 OS-7200	CMS-350		
Spring Wire Racks	Cat. No.		AAA3A521	AAA31521-V1	AAA31522-V1	AAA23514	AAA3B511	
		Erlenmeyer Flask Size		Max. Inserting Flasks				
		for 50 mL	15	16	25	45	15	
		for 100 mL	9	9	16	28	9	
		for 250 mL	4	4	9	18	4	
		for 300 mL	4	4	9	18	4	
		for 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	
Microplate 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



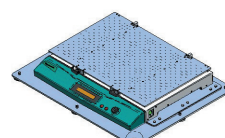
Spring Wire Racks



Universal Attachments



Rubber Mats



Weight Increaser

Description			SKC - 6000 Models		SKC - 7000 Models	
			small	large	small	large
Universal Platform	Cat. No.	Single Dual <sup>1)</sup>	AAA30501	AAA30503	AAA30502	AAA30504
		Erlenmeyer Flask Size	-	-	AAA30541	AAA30542
Flask Clamps			Max. Mountable Flask Clamps			
	AAA23550	for 50 mL	84	96	108	126
					108 per each step	126 per each step
	AAA23551	for 100 mL	54	66	72	84
					72 per each step	84 per each step
	AAA23552	for 250 mL	33	39	42	51
					42 per each step	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 <sup>2)</sup>			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

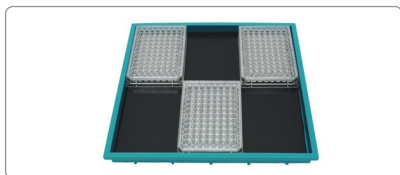
Description	SKC - 6000 Models		SKC - 7000 Models	
	small	large	small	large
Lab Sticker	AAA30551			
Weight increaser	AAA30562		AAA30561	

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

# Shakers

## Accessories & Options

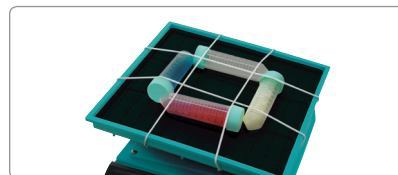
### for Rocking Shaker & Waving Shaker



⌘ 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



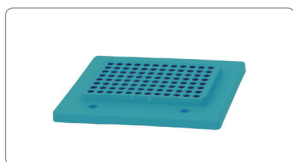
⌘ 15mL Conical Tube Rack



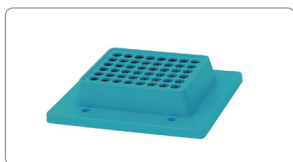
⌘ 50mL Conical Tube Rack

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)

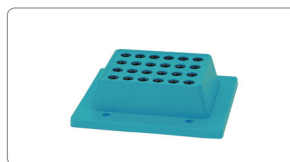
### for Heating Shaker



⌘ 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)