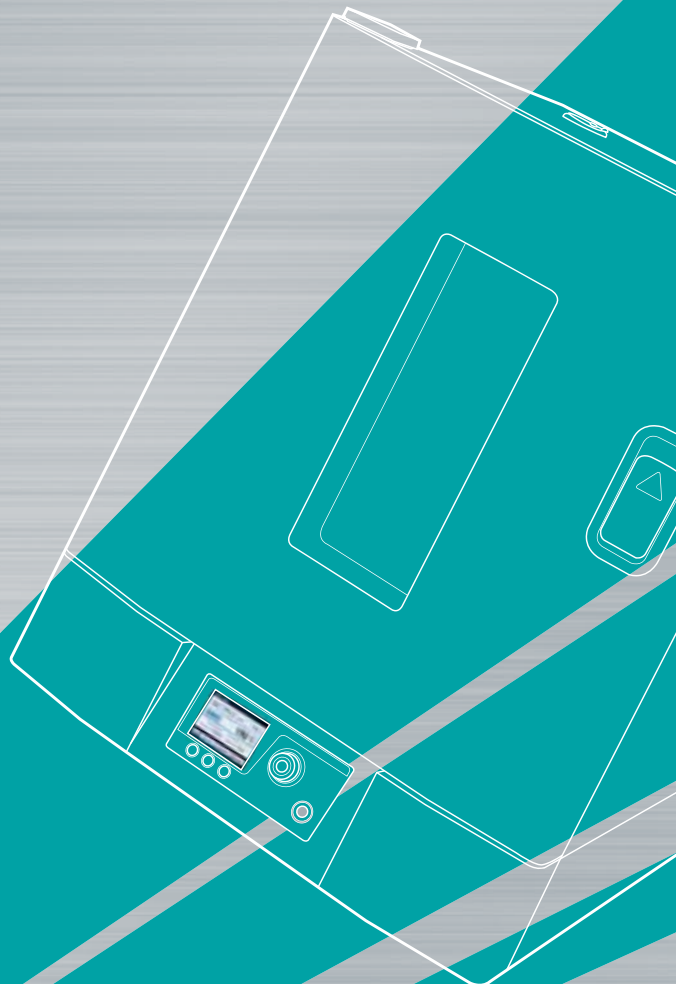
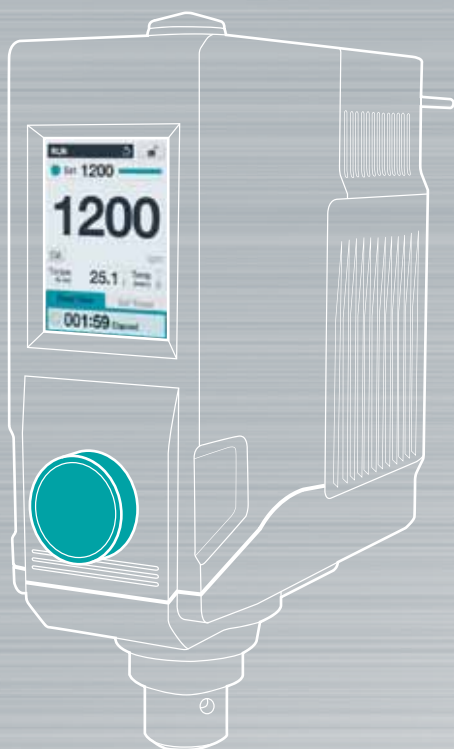
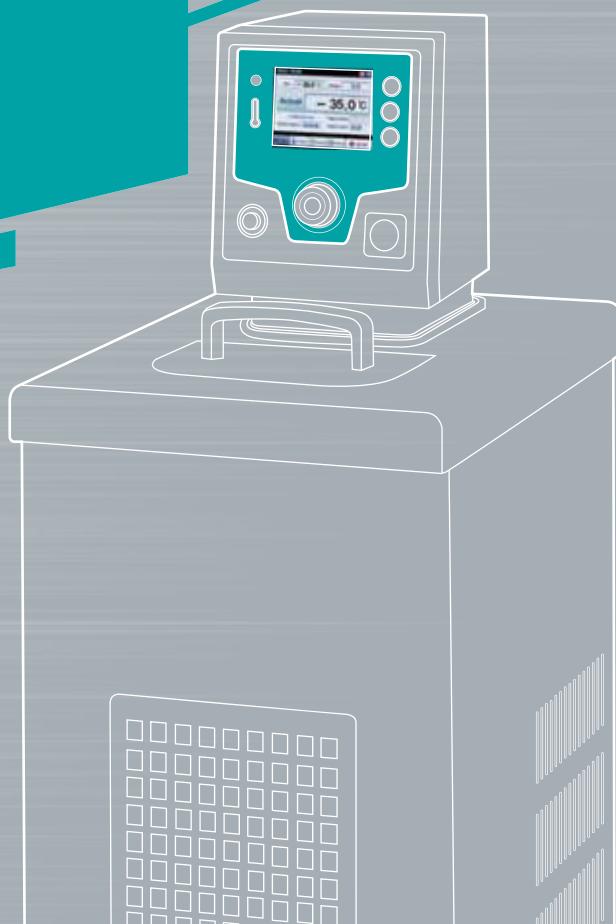




Lab Companion

Best
Products for
Reliable
Results



JEIOTECH offers reliable analytical solutions in the disciplines of biology, chemistry, medicine, pharmacology and so forth. Our top priority is to provide the world's best product and service through outstanding quality and customer satisfaction along with affordable prices.



2000 to Now

Becoming a Global Player

CE, UL, RoHS, CSA Certifications (Acquisition of CE marks by 2014: 71 products, 260 models)

Participation in international exhibitions (ACHEMA, Pittcon, Arab Lab, Analytica, MEDICA etc.)

Strong worldwide network

- Lab Companion overseas branches in China, the UK, Malaysia, and the USA
- More than 300 distributors and dealers worldwide

Annual technical seminar and service training

Leading manufacturer of scientific and industrial instruments

- Leader of the Korean market and average 20% annual growth
- Wide range of laboratory and industrial products (thermal, refrigerating, pressurizing, humidity control, and cleaning conditions)
- One-step solution for all your laboratory needs
- Perfect simulation of environmental conditions for scientific and industrial R&D purposes
- The second high-tech manufacturing facility built in 2011 in Daejeon Techno Valley, Korea

Jeio Tech was established in 1988 with the goal of delivering the best laboratory equipment and service for reliable results. our constant growth has been attributed to continuous management Innovation, outstanding human resource cultivation, and advanced technological investments. As a result, we have built and expanded an extensive product line for areas in laboratory equipments, medical devices, and environmental test equipments.

Now and always we are eager to take on new challenges in developing product and service that will set new standards. We promise to offer you differentiated solutions that help you make an impact in various research areas and make a positive difference for our world.



1991 to 1999

Growth and Consolidation

ISO 9001 Certification

18 technology patents awarded in Korea and the USA

Establishment of Jeio Tech R&D Center

Launching of the Lab Companion brand

1988 to 1990

Company founded

Establishment of Jeio Tech Co., Ltd.

about us

BEST PRODUCTS for RELIABLE RESULTS

One step solution



Jeio Tech's products are put under strict quality control from the most basic metal processing to final inspections. Also, our highly integrated engineering team strives to deliver outstanding quality to our clients based on over 27 years of technical experience in instrument manufacturing.

Our professorial know-how will always never cease to live up to its reputation as 'the primary partner for the customers' research needs.

Global leader 'Lab Companion'



Lab Companion is Jeio Tech's laboratory instrument brand. It has grown into an international brand thanks to its quality and service since 1989.

Our ultimate goal is we keep on striving to continue to provide our clients with safe, high quality, and user-friendly products aiming at setting new standards for the global market.

Immaculate service



We also endeavor to enhance the customer value through immaculate service in order to be the first choice of our customers.

In the first place, our ergonomically designed products minimize the maintenance problems and mechanical troubles. And our worldwide service teams with highly trained service engineers are ready to provide tailored customer service.

Standard certificates



In addition to CE, UL, CSA, RoHS, GD(Good Design Award), Jeio Tech(Lab Companion) obtained ISO 9001, ISO 13480.



CLS-Safety Control System

Custom Logical Safe
Control System



Thanks to our technical know-how accumulated for over two decades, we developed a versatile safety control system equipped with adjustable warning and safety functions for user safety and convenience.

All of our instruments are equipped with this patented safety devices and circuits which operate independently in case of electric or electronic system malfunction.

BDBC2-Fuzzy Control System

Balanced Dehumidifying
and Bath Cooling Fuzzy
Control



Our patented BDBC2 Fuzzy Control System allows our temperature and humidity chambers very low temperature with automatic control adjustment. In addition, our patented Cascading Refrigeration and Heating System for optimal humidity control significantly increase the energy efficiency of our chambers.

CFC-Free Refrigerant

Protect the Global
Environment



All Jeio Tech products use HFC refrigerant which causes NO damage to the ozone layer complying with the Montreal Protocol.

RS-232 Communication Interface

PC Control Software

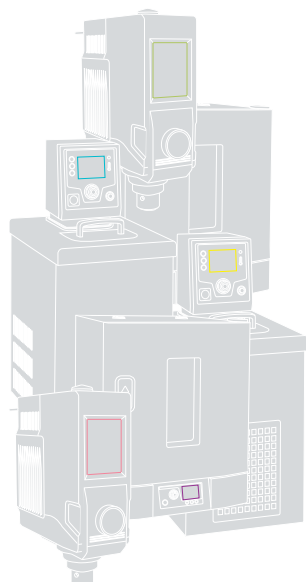


Temperature values and effective heating and cooling capacity are displayed on PC. Time parameters and individual temperature profiles can be programmed and recorded by the PC.

TECHNICAL HIGHLIGHTS

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20 SECTIONS with
213 reliable **PRODUCTS**



The contents of this catalogue are based on the following conditions unless otherwise specified:

1) Products without refrigerators

- Under room temperature of 25°C and no load
- Applicable operation temperature range: 15 to 40°C.

2) Products with refrigerators

- Under room temperature of 20°C and no load
- Applicable operation temperature range: 18 to 30°C.
(excellent for Temperature Chambers or Temperature & Humidity Chambers, see P. 168-237)

3) All specifications may be changed without prior notice subject to our performance improvement.

4) Our website includes detailed information of all Jeio Tech products with up-to-date technical data.



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008 Autoclaves (Vertical Type)



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Autoclaves (vertical type)

Microprocessor control with reliable safety functions guarantees optimum sterilization temperature.



ST-65G

- Included Accessories**
- Baskets(2ea), Heater Cover, Exhaust Tank, Drain Bucket
- Optional Accessories**
- Pressure Sensor, Recorder

Features

- Microprocessor controller and temperature calibration function allows for high precision temperature control.
 - Sterilization temperature at 110 to 123°C
 - Melting* temperature at 60 to 100°C
 - * liquefaction of coagulated agar media.
- Automatic sterilization system for unattended operation.
 - Heating > Check Safe > Sterilization > Sterilization Safe > Exhausting > End
- Convenient operation modes for various uses.
 - Standard modes and program modes are listed in detail as below tables.
- Conveniently monitored by an independent control display, sterilization process display, and pressure gauge.
 - VFD for visualization of temp, pressure (optional), timer, warning alert checks.
 - LED lamps for sterilization process check.
 - Easy pressure check with the standard gauge attached to the front.
- Temperature calibration function.

Standard Modes	Temp. (°C)	Time (min)
Decontamination	121	35
Solids Sterilization	121	20
Liquids Sterilization	121	15
Melting	100	30

Program Modes	Temp. (°C)	Time (min)
Sterilization 1	110 to 123	1 to 999
Sterilization 2	110 to 123	1 to 999
Liquid Sterilization	110 to 123	1 to 999
Melting	60 to 100	1 to 999

► Safety Features

- Mechanical Safety Devices
 - Over current protection.
 - Over temperature protection by automatic power cutoff.
 - Over pressure protection by automatic and manual safety valve.
- Safety Warning Systems
 - Over temperature warning.
 - Low temperature warning.
 - Low water level warning.
 - Low heat warning if the temperature does not reach the sterilization or melting temperature.
 - Sterilization fail warning if the operation is unexpectedly stopped during sterilization process.

► Constructional Features

- Vertical type autoclaves which allow for top loading are suitable for high volume sterilization.
 - Baskets are stackable two high or even more levels, which secure inside the chamber space requirements.
- Slide opening door with plastic cover of low thermal conductivity prevents burns from the contact.
- Low-maintenance
 - The chamber is constructed of stainless steel which is superiorly resistant to corrosion.
 - Easy to replace silicone gasket.
- Convenient documentation with the optional data recorder.
 - Thermal line type recorder(2 channels) allows for precise documentation.

► Specifications & Ordering Information

Model		ST-50G	ST-65G	ST-85G
Control		Microprocessor PID Control		
Chamber Volume (L / cu ft)		50 / 1.8	65 / 2.3	85 / 3.0
Temperature ¹⁾	Sterilization Temp. (°C / °F)	110 to 123 / 198 to 221.4		
	Melting Temp. (°C / °F)	60 to 100 / 108 to 180		
Safety		Over Temperature Protector / Pressure Safety Valve / Over Current Protector Warning Alert (Over Temp. / Low Temp. / Low Heat / Sterilization Fail / Low Water Level)		
Timer		0 to 999 min		
Programs		Standard modes (Decontamination, Solids Sterilization, Liquids Sterilization, Melting) Program modes (Sterilization 1, Sterilization 2, Liquid Sterilization, Melting)		
Dimension	No. of Baskets (Standard / Max.)	2 / 2	2 / 2	2 / 2
	Load per Baskets (Kg / lbs)	10 / 22.0		
	Basket (ØxH) (mm / inch)	380x180 / 14.9x7.1	380x230 / 14.9x9.1	380x330 / 14.9x13.0
	Interior (WxH) (mm / inch)	400x458 / 15.7x18.0	400x558 / 15.7x21.9	400x758 / 15.7x29.8
	Exterior ²⁾ (WxDxH) (mm / inch)	624x672x870 / 24.6x26.5x34.2	624x672x971 / 24.6x26.5x38.2	624x672x1083 / 24.6x26.5x42.6
	Net Weight (Kg / lbs)	94.5 / 208.3	99.5 / 219.4	104 / 229.3
Electrical Requirements (230V, 50 / 60 Hz)		14.3A	14.3A	14.3A
Cat. No.		AAHL1015K	AAHL1025K	AAHL1035K

1) Technical data according to EN 554 / BS EN 285:1997.

2) Exterior size is measured without the size of exhaust tank.

* Permissible environmental conditions: temperature (5–40°C) and relative humidity (10–80%).

► Accessories & Options

Cat. No.	Description	ST-50G	ST-65G	ST-85G
AAAL1501	Recorder set (dot type, 6 point)	•	•	•
AAAL1511	Pressure Sensor (0~3.5 bar)	•	•	•
ATC0002	Basket (Stainless steel, Ø380x180mm)	•	-	-
ATC0003	Basket (Stainless steel, Ø380x230mm)	-	•	-
ATC0004	Basket (Stainless steel, Ø380x330mm)	-	-	•

Baths & Circulators

SELECTION GUIDE

Heating Baths

Shaking & Heating Baths

Viscometer Heating Baths

Heating Bath Circulators

Refrigerated & Heating Bath Circulators

Cold Trap Bath

Heating Baths

Description	Working Temp. Range [°C/°F]	Bath Volume [L/cu ft]	Temperature Stability [±°C/°F]	Page
Analog Models (Economy)	Amb. +7 to 100 / Amb. +12.6 to 212	BW-05B 3.5 / 0.1	0.5 / 0.9	12
		BW-10B 11.5 / 0.4		
		BW-20B 20 / 0.7		
Digital Models (Economy)	Amb. +5 to 100 / Amb. +9 to 212	BW-05H 3.5 / 0.1	0.1 / 0.18	12
		BW-10H 11.5 / 0.4		
		BW-20H 20 / 0.7		
Dual Models (Economy)	Amb. +5 to 100 / Amb. +9 to 212	BW-0505H 3.5 & 3.5 / 0.1 & 0.1	0.1 / 0.18	12
		BW-0510H 3.5 & 11.5 / 0.1 & 0.4		
		BW-1010H 11.5 & 11.5 / 0.4 & 0.4		
		BW-1020H 11.5 & 20 / 0.4 & 0.7		
General Purpose	Amb. +5 to 100 / Amb. +9 to 212	BW-05G 5 / 0.2	0.2 / 0.36	14
		BW-10G 10 / 0.4		
		BW-20G 20 / 0.7		
		BS-06 17 / 0.6		
Shaking & Heating	Amb. +5 to 100 / Amb. +9 to 212	BS-11 25 / 0.9	0.2 / 0.36	15
		BS-21 37 / 1.3		
		BS-31 55 / 1.9		
		VB-25G 25 / 0.9		
Viscometer	Amb. +5 to 150 / Amb. +9 to 302	VB-40G 40 / 1.4	0.05 / 0.09	16
			0.1 / 0.18	

Bath Circulators

Description	Working Temp. Range [°C/°F]	Bath Volume [L/cu ft]	Temperature Stability [±°C/°F]	Page
Heating (General)	Amb. +5 to 150 / Amb. +9 to 302	CW-05G 5 / 0.2	0.05 / 0.09	17
		CW-10G 10 / 0.4	0.05 / 0.09	
		CW-20G 20 / 0.7	0.1 / 0.18	
		CW-30G 30 / 1.1	0.1 / 0.18	
Heating (Programmable)	Amb. +5 to 150 / Amb. +9 to 302	CW-05P 5 / 0.2	0.05 / 0.09	18
		CW-10P 10 / 0.4	0.05 / 0.09	
		CW-20P 20 / 0.7	0.1 / 0.18	
		CW-30P 30 / 1.1	0.1 / 0.18	
Refrigerated & Heating (General)	-25 to 150 / -13 to 302	RW-0525G 5 / 0.2	0.05 / 0.09	20
		RW-1025G 10 / 0.4	0.05 / 0.09	
		RW-2025G 20 / 0.7	0.05 / 0.09	
		RW-3025G 30 / 1.1	0.08 / 0.14	
	-35 to 150 / -31 to 302	RW-0540G 5 / 0.2	0.05 / 0.09	
		RW-1040G 10 / 0.4	0.05 / 0.09	
		RW-2040G 20 / 0.7	0.05 / 0.09	
		RW-3040G 30 / 1.1	0.08 / 0.14	
Refrigerated & Heating (Programmable)	-25 to 150 / -13 to 302	RW-0525P 5 / 0.2	0.05 / 0.09	22
		RW-1025P 10 / 0.4	0.05 / 0.09	
		RW-2025P 20 / 0.7	0.05 / 0.09	
		RW-3025P 30 / 1.1	0.08 / 0.14	
	-35 to 150 / -31 to 302	RW-0540P 5 / 0.2	0.05 / 0.09	
		RW-1040P 10 / 0.4	0.05 / 0.09	
		RW-2040P 20 / 0.7	0.05 / 0.09	
		RW-3040P 30 / 1.1	0.08 / 0.14	

Cold Trap Bath

Description	Working Temp. Range [°C/°F]	Bath Volume [L/cu ft]	Page
Cold Trap	CTB-10 Down to -40 / -40	4.8 / 0.17	24

Accessories & Options

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GENERAL APPLICATIONS



General Applications	Baths & Circulators		
	BW Models	BS Models	CW / RW Models
Bacteriological Examinations	•		•
Coagulation Tests	•		•
Coliform Determinations		•	•
Crude Oil Research	•		•
Cytochemistry Examinations	•		
Demulsibility Research	•		•
Enzyme Studies			•
Food Processing QC	•	•	
Genetic Studies	•	•	•
Hormone Studies	•	•	
Immunological Research	•	•	•
Incubation for	•	•	•
Microbiological Assays	•		•
Molecular Biology	•	•	•
Protein Studies	•		•
Serological Tests	•	•	•
Thawing Cryopreservation Vials	•		
Tissue Culture Studies	•	•	•
Virology Research	•	•	•
Warming Reagents	•		•
Water Quality Research	•	•	•

Additional Applications of Heating Bath Circulators

- Clinical chemistry and analytics, external temperature control applications for measuring cells, photometers, refractometers, polarimeters, viscometers, metrology, etc.

Additional Applications of Refrigerated and Heating Bath Circulators

- Routine laboratory temperature control applications, external temperature control applications for measuring cells, photometers, refractometers, polarimeters, viscometers, fermentors, electrophoresis chambers, chromatography columns, rotary evaporators, rheometers, etc.

* Above listed applications are for general and storage purpose use.

TECHNICAL BENEFITS

Safety Features

- 1) Built-in power cutoff circuit with audible and visual alarms:
 - Automatic power cutoff to the heater and controller before the unit shuts down in case of overheating.
 - Two separate fuses.
- 2) Time setting functions for both Automated Run and Off. (except for BW-B and BW-H Models):
 - Integrated time setting function for Delayed ON/OFF.
 - Operation mode selection function between Automated Run and Manual Run.
- 3) Protection against low fluid level and dry running. (except for BW-B and BW-H Models):
 - Intermittent alert sounds along with a visual alarm on the control panel.
 - Automatic shut down of the heater following the alarms to protect users and samples.

User-friendly Control Features

- 1) Advanced electronic and program controls. (except for BW-B Models):
 - Microprocessor PID temperature control with easy-to-use calibration and auto tuning features.
 - Preset three most commonly used temp. settings provided.
 - Simple conversion between Celsius and Fahrenheit.
 - Max. 10 programmable patterns of 10 segments each are settable for easy program control. (only for CW/RW-P Models)
 - Digital input and output control function for interlocking external devices. (only for CW/RW-P Models)
- 2) Splash-proof and easy-to-clean keypad and bright LED displays. (except for CW/RW-P Models)
- 3) Colorful LCD display with interactive input system. (only for CW/RW-P Models)

Constructional Features

- 1) High-quality 304 grade stainless steel interior bath and dirt-repellent powder coating for all external surface.
- 2) Corrosion-resistant stainless steel construction of all wetted parts allowing other bath fluids as well as water.
- 3) Corrosion-resistant, seamless, leak-proof, round-cornered, and easy-to-clean stainless steel reservoir.

Baths & Circulators

Heating Baths (Economy)

Economical water baths for optimal temperature control.

A wide range of available water baths (Analog, Digital, or even Dual Models) is ideal for both your needs and budget.



BW-10B with an optional Gable Cover



BW-10H with an optional Gable Cover



BW-0510H with an optional Open-rings Cover

Operating Features of BW-B (Analog Models)

- +7°C above room temperature to 100°C.
- On / Off temperature control.
- Over-temperature protection with alarm.
- Analog knob with fine adjustment.

Operating features of BW-H (Digital & Dual Models)

- +5°C above room temperature to 100°C.
- Microprocessor PID temperature control.
- Over-temperature protection with alarm.
- Digital LED displays of temperature readouts and set temperature values to 0.1°C or 1°C.

Constructional Features

- Low-profile design with sloped control panel for easier access and better safety.
- Additional inner circulation system using our patented agitator. (for Digital & Dual Models)
- Individually programmable and temperature controllable dual reservoirs. (for Dual Models)
- Various optional accessories: gable and flat covers, test tube racks, spring wire racks, half-shelf adjusters, etc.

* See BW-H or BW-B accessories depending on their respective bath sizes.

Optional Accessories

- Transparent Polypropylene Gable Covers, Open-ring Cover, Stainless Steel Flat Covers
- Test Tube Racks, Spring Wire Racks, Half-shelf Adjusters

➔ see page 26-27

Baths & Circulators

Heating Baths (Economy)

Specifications & Ordering Information

Analog Models



Model		BW-05B		BW-10B		BW-20B	
Bath Volume (L / cu ft)		3.5 / 0.1		11.5 / 0.4		20 / 0.7	
Working Temperature Range (°C / °F)		Amb. +7 to 100 / Amb. +12.6 to 212					
Temperature Stability ¹⁾ (±°C / °F)		0.5 / 0.9					
Dimension	Bath Opening / Depth (W×L, D) (mm / inch)	240×136, 115 / 9.4×5.4, 4.5		300×240, 165 / 11.8×9.5, 6.5		498×300, 165 / 19.6×11.8, 6.5	
	Overall (W×L×H) (mm / inch)	303×242×245 / 11.9×9.5×9.6		357×330×290 / 14.1×13×11.4		564×392×290 / 22.2×15.4×11.6	
	Net Weight (kg / lbs)	6.5 / 14.3		10 / 22		18.5 / 40.8	
Electrical Requirements (230V)		60Hz, 3A 50Hz, 3A		60Hz, 4.3A 50Hz, 4.3A		60Hz, 8.7A 50Hz, 8.7A	
Cat. No.		AAH46011K AAH46012K		AAH46021K AAH46022K		AAH46031K AAH46032K	
Electrical Requirements (120V)		60Hz, 5.8A		60Hz, 8.3A		60Hz, 8.3A	
Cat. No.		AAH46013U		AAH46023U		AAH46033U	

※ Bath fluid : water

1) Technical data according to DIN 12876.

Specifications & Ordering Information

Digital Models



Model		BW-05H		BW-10H		BW-20H	
Bath Volume (L / cu ft)		3.5 / 0.1		11.5 / 0.4		20 / 0.7	
Working Temperature Range (°C / °F)		Amb. +5 to 100 / Amb. +9 to 212					
Temperature Stability ¹⁾ (±°C / °F)		±0.1 / 0.18					
Dimension	Bath Opening / Depth (W×L, D) (mm / inch)	240×136, 150 / 9.4×5.4, 5.9		300×240, 200 / 11.8×9.5, 7.9		498×300, 200 / 19.6×11.8, 7.9	
	Overall (W×L×H) (mm / inch)	307×216×266 / 12.1×8.5×10.5		364×316×318 / 14.3×14.4×12.5		564×372×318 / 22.2×14.6×12.5	
	Net Weight (kg / lbs)	6.5 / 14.3		9.5 / 21		15.5 / 34.2	
Electrical Requirements (230V, 50 / 60Hz)		3.0A		4.3A		8.7A	
Cat. No.		AAH45115K		AAH45125K		AAH45135K	
Electrical Requirements (120V, 60Hz)		5.8A		8.3A		8.3A	
Cat. No.		AAH45113U		AAH45123U		AAH45133U	

※ Bath fluid : water, using agitator

1) Technical data according to DIN 12876.

Specifications & Ordering Information

Dual Models



Model		BW-0505H	BW-0510H	BW-1010H	BW-1020H
Bath Volume (L / cu ft)		3.5 & 3.5 / 0.1 & 0.1	3.5 & 11.5 / 0.1 &0.4	11.5 & 11.5 / 0.4 & 0.4	11.5 & 20 / 0.4 & 0.7
Working Temperature Range (°C / °F)		Amb. +5 to 100 / Amb. +9 to 212			
Temperature Stability ¹⁾ (±°C / °F)		±0.1 / 0.18			
Dimension	Bath Opening / Depth (W×L, D&W×L, D) (mm / inch)	240×136, 150 Per chamber	240×136, 150 & 300×240, 200	300×240, 200 Per chamber	300×240, 200 & 498×300, 200
		9.4×5.4, 5.9 Per chamber	9.4×5.4, 5.9 & 11.8×9.5, 7.9	11.8×9.5, 7.9 Per chamber	11.8×9.5, 7.9 & 19.6×11.8, 7.9
	Overall (W×L, H) (mm / inch)	590×216×265 / 23.2×8.5×10.4	544×316×318 / 21.4×12.4×12.5	706×300×318/ 27.8×11.8×12.5	844×372×318 / 33.2×14.6×12.5
	Net Weight (kg / lbs)	9.7 / 21.3	12.4 / 27.3	14 / 30.8	17.6 / 38.7
Electrical Requirements (230V, 50 / 60Hz)		3 & 3A	3 & 4.3A	4.3A & 4.3A	4.3A & 8.7A
Cat. No.		AAH47115K	AAH47125K	AAH47135K	AAH47145K
Electrical Requirements (120V, 60Hz)		5.8A & 5.8A	5.8A & 8.3A	8.3A & 8.3A	8.3A & 8.3A
Cat. No.		AAH47113U	AAH47123U	AAH47133U	AAH47143U

※ Bath fluid : water, using agitator

1) Technical data according to DIN 12876.

Baths & Circulators

Heating Baths (General)

Outstanding temperature control water baths for diverse applications.

Microprocessor PID controller guarantees all **BW-G Models** precise temperature control. In addition, the built-in digital timer and programming functions are ideal for critical research, quality control, and regulatory tests.



BW-05G with the included SUS Cover

- Included Accessories**
- Stainless Steel Flat Type Cover
- Optional Accessories**
- Open-rings Covers
 - Test Tube Racks, Spring Wire Racks, Half-shelf Adjusters
- see page 26-27

Operating Features

- +5°C above room temperature to 100°C.
- Microprocessor PID control / Automatic tuning / Calibration.
- Digital timer for delayed ON / OFF. (from 1 min to 99 hr 59 min)
- Protection against over-temperature and low fluid level.
- Convenient memory function of up to three frequently used temperature settings.
- Digital LED display. (0.1°C resolution)
- Splash-proof keypad.

Constructional Features

- Corrosion-resistant stainless steel construction of all wetted parts allowing other bath fluids as well as water and silicone fluids.
- Low-profile reservoir design with easy-to-use digital controller with dual LED displays.
- Protection against low fluid level and dry-running with audible and visual alarms.
- Automatic shut down of the heater following the alarms.
- Isolated design of heater, and sensor by a baffle plate to protect users and samples against direct contact.

Specifications & Ordering Information



Model		BW-05G	BW-10G	BW-20G
Bath Volume (L / cu ft)		5 / 0.2	10 / 0.4	20 / 0.7
Working Temperature Range (°C / °F)		Amb. +5 to 100 / Amb. +9 to 212		
Temperature Stability (±°C / °F)		0.2 / 0.36		
Dimension	Bath Opening / Depth (WxL, D) (mm / inch)	231×150, 160 / 9.1×5.9, 6.3	285×211, 180 / 11.2×8.3, 7.1	345×290, 200 / 13.6×11.4, 7.9
	Overall / with Gable Cover (WxLxH) (mm / inch)	355×260×334 / 14×10.2×13.1	410×311×354 / 16.1×12.2×14	471×390×374 / 18.5×15.4×14.7
	Net Weight (kg / lbs)	10 / 22	14 / 31	18 / 40
Electrical Requirements (230V, 50 / 60Hz)		3A	4.4A	8.7A
Cat. No.		AAH41405K	AAH41415K	AAH41425K
Electrical Requirements (120V, 50 / 60Hz)		5.8A	8.3A	8.3A
Cat. No.		AAH41406U	AAH41416U	AAH41426U

※ Bath fluid : water, using agitator

1) Technical data according to DIN 12876.

Baths & Circulators

Shaking & Heating Baths

Reciprocal shaking & heating baths.

All **BS Models** feature rapid and accurate shaking by adopting silent and anti-vibration BLDC (Brushless DC) motors. And their precise and constant temperature control provides ideal sample incubation conditions suitable for DNA, tissue, or cell culture applications.

► Operating Features

- +5°C above room temperature to 100°C.
- Microprocessor PID control / auto tuning / calibration.
- Digital timer for delayed ON / OFF. (from 1 min to 99 hr 59 min)
- Protection against over-temperature.
- Digital LED display. (0.1°C and 1 rpm resolution)
- Splash-proof keypad.

► Constructional Features

- Separate control keys for shaker mechanism allowing the unit also to be used as a constant temperature bath.
- Minimal shock to the samples thanks to the shaker's gentle start feature.
- Multiple LED displays for setting various values.
- Isolated design of agitator, heater, and sensor by a baffle plate to minimize the turbulence in the bath fluid and also to protect users and samples against direct contact.
- Included spring wire rack is easy to equip and the height of the rack is easily adjustable.
- Minimization of the liquid loss and dripping of the bath liquid into the samples thanks to the included gable cover.
- Included SUS 304 spring wire rack with double-two-tier providing various ways of glassware settings.



BS-31 with the included Gable Cover and Spring Wire Rack

- Included Accessories**
- Stainless steel Gable Cover
 - Spring Wire Rack
- Optional Accessories**
- Universal Platform, Dedicated Platform, Flask Clamps, etc
 - Test Tube Racks
- ◀ see page 25

► Specifications & Ordering Information



Model		BS-06	BS-11	BS-21	BS-31
Bath Volume (L / cu ft)		17 / 0.6	25 / 0.9	37 / 1.3	55 / 1.9
Working Temperature Range (°C / °F)		Amb. +5 to 100 / Amb. +9 to 212			
Temperature Stability ¹⁾ (±°C / °F)		0.2 / 0.36			
Shaking System	Motion / Speed Range (RPM)	Reciprocating / 20 to 180			
	Recip Stroke Length (mm / inch)	25, 30, 35 / 1.0, 1.2, 1.4 Available - Standard 30 / 1.2			
Dimension	Bath Opening /Depth (WxL, D) (mm / inch)	199x300, 235 / 7.8x11.8, 9.3	319x300, 235 / 12.6x11.8, 9.3	479x300, 235 / 18.9x11.8, 9.3	629x350, 235 / 24.8x13.8, 9.3
	Overall (WxLxH) (mm / inch)	430x440x355 / 16.9x17.3x14	550x440x355 / 21.7x17.3x14	710x440x355 / 28x17.3x14.3	860x490x355 / 33.9x19.3x14
	Net Weight (kg / lbs)	26 / 57	30 / 66	35 / 77	42 / 93
Electrical Requirements (230V, 60Hz)		3.7A	4.6A	8.9A	8.9A
Cat. No.		AAH44061K	AAH44111K	AAH44211K	AAH44311K
Electrical Requirements (230V, 50Hz)		3.7A	4.6A	8.9A	8.9A
Cat. No.		AAH44062K	AAH44112K	AAH44212K	AAH44312K
Electrical Requirements (120V, 60Hz)		7.1A	8.8A	-	-
Cat. No.		AAH44063U	AAH44113U	-	-

※ BS-21 and BS-31 Models are available ONLY for 230V.

※ Bath fluid : water

1) Technical data according to DIN 12876.

Baths & Circulators

Viscometer Heating Baths

Ultra precise temperature control with excellent visibility.

VB-G Models provide superb temperature stability as well as crystal-clear visibility required for kinematic viscosity measurement using glass capillary viscometers.



Operating Features

- +5°C above room temperature to 150°C.
- Microprocessor PID control / Automatic tuning / Calibration.
- Digital timer for delayed ON/OFF. (from 1 min to 99 hr 59 min)
- Protection against over-temperature and low fluid level.
- Convenient memory function of up to three frequently used temperature settings.
- Digital LED displays.
(0.01°C resolution at 0~99.9°C and 0.1°C resolution at 100~150°C)
- Splash-proof keypad.
- Simple conversion between Celsius and Fahrenheit.
- RS-232 interface.

Constructional Features

- Crystal-clear visibility provided by double tempered safety glass windows in front and rear sides.
- Isolated design of agitator, heater, and sensor by a baffle plate to minimize the turbulence in the bath fluid and also to protect users and samples against direct contact.
- Optimal temperature equilibrium achieved by a vane type stirrer with strong circulation power.
- Operations at below or slightly above ambient temperature allowed by the included stainless steel cooling coil.
(for operations from 10°C/50°F, use an optional cooling circulator)
- Ø 51mm holes (for glass capillary viscometer tubes) and a Ø12.6 mm hole. (for a thermometer)

VB-40G with the included SUS Covers

- Included Accessories**
- Stainless steel Covers for holes on the Top
 - Cooling Coil
- Optional Accessories**
- Tube Holders for U-shaped Viscometer Glass Tubes
(Up to 5 holders for VB-25G and up to 8 holders for VB-40G)
 - Cooling Circulators
- ☎ see page 27

Specifications & Ordering Information



Model		VB-25G		VB-40G	
Bath Volume (L / cu ft)		25 / 0.9		40 / 1.4	
Working Temperature Range ²⁾ (°C / °F)		Amb. +5 to 150 / Amb. +9 to 302			
Temperature Stability ¹⁾ (±°C / °F)		0.05 / 0.09		0.1 / 0.18	
Dimension	Bath Opening / Depth (WxL, D) (mm / inch)	145×265, 330 / 5.7×10.4, 13		295×265, 330 / 11.6×10.4, 13	
	Cover Lids / Hole for Thermometer (mm)	5ea / Ø51, 1ea / Ø12.6		8ea / Ø51, 1ea / Ø12.6	
	Overall (WxLxH) (mm / inch)	492×374×536 / 19.4×14.7×21.1		642×374×536 / 25.3×14.7×21.1	
	Net Weight (kg / lbs)	28 / 61.7		37 / 81.6	
Electrical Requirements (230V)		60Hz, 13A		60Hz, 13A	50Hz, 13A
Cat. No.		AAH43301K		AAH43401K	AAH43402K

※ Bath fluid : water

* VB-25G and VB-40G Models are available ONLY for 230V.

1) Technical data according to DIN 12876.

2) If you want to operate the unit below Amb. + 5°C (Amb. + 9°F), an optional cooling circulator is required.

The lowest temperature when using an optional cooling circulator is +10°C (+50°F). For ordering information, see page 17.

Baths & Circulators

Heating Bath Circulators (General)

External and internal circulation with powerful pumping capability

CW-G Models are specially designed for precise temperature control of external instruments or for immersion purposes using a powerful pump with five adjustable pressure steps.

Operating Features

- +5°C above room temperature to 150°C.
- Microprocessor PID control / Automatic tuning / Calibration.
- Digital timer for delayed ON / OFF. (from 1 min to 99 hr 59 min)
- Protection against low fluid level and dry-running.
- Convenient memory function of up to three frequently used temperature settings.
- Digital LED display. (0.1°C resolution)
- Splash-proof keypad.
- RS-232 interface.

Constructional Features

- Accurate, stable, and efficient temperature management by using a powerful variable-speed pump. (1 to 3 steps of pump for internal circulation and 4 to 5 steps for external circulation)
- Powerful pressure and suction pumps provide contrast pressure and flow rate throughout the whole temperature range.
- Isolated design of agitator, heater, and sensor by a baffle plate to minimize the turbulence in the bath fluid and also to protect users and samples against direct contact.
- Protection against low fluid level and dry running by automatic shut down of the heater together with audible and visual alarms.
- Corrosion-resistant, seamless, leak-proof, round-cornered, and easy-to-clean stainless steel bath with a drain valve.
- Compact footprints ideal for cramped lab space.



CW-05G with the included SUS Covers

- | | |
|-----------------------------|---|
| Included Accessories | <ul style="list-style-type: none"> • Stainless Steel Flat Type Cover • One 30cm (1 ft) Length and Ø12mm of Silicone Rubber Tubing |
| Optional Accessories | <ul style="list-style-type: none"> • Suction Function for Pump • Test Tube Racks, Spring Wire Racks |
- ☛ see page 26-27

Specifications & Ordering Information



CE Certification except for CW-30G

Model		CW-05G	CW-10G	CW-20G	CW-30G
Bath Volume (L / cu ft)		5 / 0.2	10 / 0.4	20 / 0.7	30 / 1.1
Working Temperature Range ²⁾ (°C / °F)		Amb. +5 to 150 / Amb. +9 to 302			
Temperature Stability ¹⁾ (±°C / °F)		0.05 / 0.09	0.05 / 0.09	0.1 / 0.18	0.1 / 0.18
Pump	Max. Pressure, Max. Flow Rate	5.9 PSI (406.8 millibar), 7.4 gallons / minute (28 liters / minute)			
	Max. Suction Flow Rate	2.6 gallons / minute (10 liters / minute)			
Dimension	Bath Opening / Depth (W×L, D) (mm / inch)	150×99, 160 / 5.9×3.9, 6.3	211×154, 180 / 8.3×6.1, 7.1	290×214, 200 / 11.4×8.4, 7.9	300×264, 230 / 11.8×10.4, 9
	Overall (W×L×H) (mm / inch)	220×395×424 / 8.7×15.6×16.7	281×450×444 / 11.1×17.7×17.5	360×510×464 / 14.2×20.1×18.3	370×560×494 / 14.6×22×19.4
	Net Weight (kg / lbs)	12.5 / 27.6	15 / 33	17.5 / 38.6	19.5 / 43
	Electrical Requirements (230V, 50 / 60 Hz)	4.5A	6.7A	8.8A	8.8A
Cat. No.		AAH52305K	AAH52315K	AAH52325K	AAH52335K
Electrical Requirements (120V, 50 / 60 Hz)		8.6A	8.6A	8.6A	8.6A
Cat. No.		AAH52306U	AAH52316U	AAH52326U	AAH52336U

※ Bath fluid : water

1) Technical data according to DIN 12876.

2) If you operate the unit in 1 to 3 steps of pump, the temperature range can be from Amb. +5°C but in 4 and 5 steps, the range will be from Amb. +15°C.

Baths & Circulators

Heating Bath Circulators (Programmable)

Highly intuitive user interface is insured by equipping the new smart programmable controller.

One-touch operating button, easy icons, well-organized menus make any complicated programming steps easy.



CW-05P/ CW-30P with the included SUS Covers

- | | |
|-----------------------------|---|
| Included Accessories | <ul style="list-style-type: none"> • Stainless Steel Flat Type Cover • One 30cm (1 ft) Length and Ø12mm of Silicone Rubber Tubing |
| Optional Accessories | <ul style="list-style-type: none"> • Suction Function for Pump • Test Tube Racks, Spring Wire Racks |
- 📖 see page 26-27



Control Panel



RS-232 & DI / DO Port

Baths & Circulators

Heating Bath Circulators (Programmable)

Operating Features

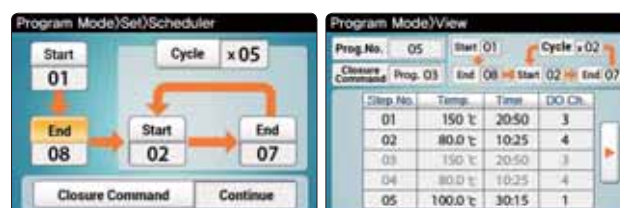
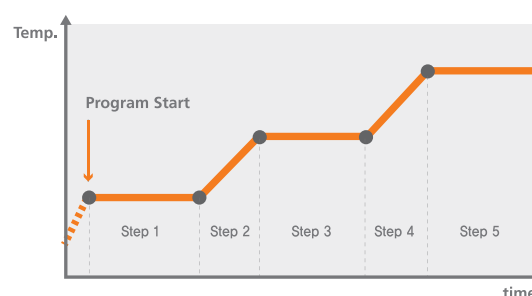
- +5°C above room temperature to 150°C.
- Microprocessor PID control.
- Three point temperature calibration.
- Automatic tuning / Auto run.
- Digital timer for delayed ON / OFF. (from 1 min to 99 hr 59 min)
- Protection against over-temperature and low fluid level.
- Colorful LCD display with interactive input system.
- Digital input and output control function for interlocking external devices.
- Temperature LED warning Indicator simply shows inner reservoir's temperature by three different colors.
- Keypad lock function prevents accidental changes during operation.
- Splash-proof keypad.
- RS-232 interface for external control and data collection. (RS-232 to USB serial converter is provided.)

Constructional Features

- Accurate, stable, and efficient temperature management by using a powerful variable-speed pump. (1 to 3 steps of pump for internal circulation and 4 to 5 steps for external circulation)
- Powerful pressure and suction pumps provide contrast pressure and flow rate throughout the whole temperature range.
- Isolated design of agitator, heater, and sensor by a baffle plate to minimize the turbulence in the bath fluid and also to protect users and samples against direct contact.
- Protection against low fluid level and dry running by automatic shut down of the heater together with audible and visual alarms.
- Corrosion-resistant, seamless, leak-proof, round-cornered, and easy-to-clean stainless steel bath with a drain valve.

Intelligent Program Control

- 10 programs available for temperature ramp up and dwell control.
- 10 steps per a program and 99 hours 59 minutes per a step.
- Stored programs are easily linkable.
- Programs can be repeated up to 99 cycles.
- Pre-heating and heating time are settable before program starts.



Convenient Scheduler

Program view at a glance

Specifications & Ordering Information



Model		CW-05P	CW-10P	CW-20P	CW-30P
Bath Volume (L / cu ft)		5 / 0.2	10 / 0.4	20 / 0.7	30 / 1.1
Working Temperature Range ²⁾ (°C / °F)		Amb. +5 to 150 / Amb. +9 to 302			
Temperature Stability ¹⁾ (±°C / °F)		0.05 / 0.09	0.05 / 0.09	0.1 / 0.18	0.1 / 0.18
Pump	Max. Pressure, Max. Flow Rate	5.9 PSI (406.8 millibar), 7.4 gallons / minute (28 liters / minute)			
	Max. Suction Flow Rate	2.6 gallons / minute (10 liters / minute)			
Dimension	Bath Opening / Depth (WxL, D) (mm / inch)	150×99, 160 / 5.9×3.9, 6.3	211×154, 180 / 8.3×6.1, 7.1	290×214, 200 / 11.4×8.4, 7.9	300×264, 230 / 11.8×10.4, 9
	Overall (WxLxH) (mm / inch)	220×395×424 / 8.7×15.6×16.7	281×450×444 / 11.1×17.7×17.5	360×510×464 / 14.2×20.1×18.3	370×560×494 / 14.6×22×19.4
	Net Weight (kg / lbs)	12.5 / 27.6	15 / 33	17.5 / 38.6	19.5 / 43
	Electrical Requirements (230V, 50 / 60 Hz)	4.5A	6.7A	8.8A	8.8A
Cat. No.		AAH52305PK	AAH52315PK	AAH52325PK	AAH52335PK
Electrical Requirements (120V, 50 / 60 Hz)		8.6A	8.6A	8.6A	8.6A
Cat. No.		AAH52306PU	AAH52316PU	AAH52326PU	AAH52336PU

※ Bath fluid : water

1) Technical data according to DIN 12876.

2) If you operate the unit in 1 to 3 steps of pump, the temperature range can be from Amb. +5°C but in 4 and 5 steps, the range will be from Amb. +15°C.

Rapid heating and cooling throughout the entire temperature range.

Specially designed to be used with **Refractometers** and **Viscometers**, RW-G Models feature accurate and stable temperature control capability even at very low temperatures (as low as -35°C) by adopting a powerful pump for both external and internal circulation.



RW-0525G with the included SUS Cover

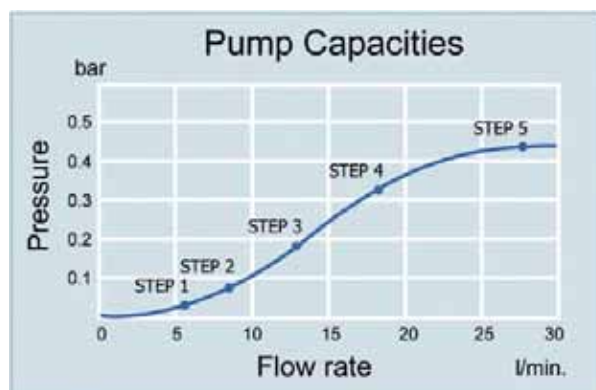
- Included Accessories**
- Stainless steel Flat Cover
 - 30 cm (1 ft) long and $\varnothing 12$ mm Silicone Rubber Tubing
- Optional Accessories**
- Additional Suction Pumps
 - Test Tube Racks and Spring Wire Racks
- ☞ see page 26-27

Operating Features

- Temp. range: from -35°C to 150°C for RW-40G Models.
from -25°C to 150°C for RW-25G Models.
- Microprocessor PID control / automatic tuning / calibration.
- Digital timer for delayed ON / OFF. (from 1 min to 99 hr 59 min)
- Protection against over-temperature and low fluid level.
- Convenient memory function of up to three frequently used temperature settings.
- Digital LED display. (0.1°C resolution)
- Splash-proof keypad.
- RS-232 interface.

Constructional Features

- Suitable for both internal and external bath environments due to reduced turbulence by using five-speed duplex pump and built-in cooling coil. (1 to 3 steps of the pump for internal circulation and 4 to 5 steps for external circulation)
- Isolated design of agitator, heater, and sensor by a baffle plate to minimize the turbulence in the bath fluid and also to protect users and samples against direct contact.
- Protection against low fluid level and dry running by automatic shut down of the heater together with audible and visual alarms.
- Corrosion-resistant, seamless, leak-proof, round-cornered, and easy-to-clean stainless steel reservoir with a drain valve.
- Usage of CFC-free refrigerant (R-507, R-404A) and a double service valve for leakage prevention.
- Quick-release front grille for easy cleaning of the condenser.



* Applicable for CW-G, RW-25G, and RW-40G Models
* Bath fluid: water (at the normal Temperature)

Baths & Circulators

Refrigerated & Heating Bath Circulators (General)

Specifications & Ordering Information

RW - 25G Models (for temperature range from -25°C to 150°C)



Model	RW-0525G	RW-1025G	RW-2025G	RW-3025G
Bath Volume (L / cu ft)	5 / 0.2	10 / 0.4	20 / 0.7	30 / 1.1
Working Temperature Range ²⁾ (°C / °F)	-25 to 150 / -13 to 302			
Temperature Stability ¹⁾ (±°C / °F)	0.05 / 0.09	0.05 / 0.09	0.05 / 0.09	0.08 / 0.14
Cooling Capacity (Bath fluid: ethanol)	at -20°C (-4°F), W	30	260	390
	at 0°C (+32°F), W	230	250	570
	at +20°C (68°F), W	320	380	680
	Refrigerator	1 / 3 LBP, R-507	1 / 3 LBP, R-507	3 / 4 LBP, R-404A
Pump (Bath fluid: water)	Max. Pressure, Max. Flow rate	5.9 PSI (406.8 millibar), 7.4 gallons / minute (28 liters / minute)		
	Max. Suction Flow Rate ³⁾	2.6 gallons / minute (10 liters / minute)		
Dimension	Bath Opening / Depth (WxL, D) (mm / inch)	150x99, 160 / 5.9x3.9, 6.3	211x154, 180 / 8.3x6.1, 7.1	290x214, 200 / 11.4x8.4, 7.9
	Overall (WxLxH) (mm / inch)	302x438x690 / 11.9x17.2x27.2	360x490x780 / 14.2x19.3x30.7	440x620x895 / 17.3x24.4x35.2
	Net Weight (kg / lbs)	37 / 81.6	44 / 97	60 / 132.2
Electrical Requirements (230V, 60Hz)	7 A	9.2A	12.8A	13.8A
Cat. No.	AAH57001K	AAH57011K	AAH57021K	AAH57031K
Electrical Requirements (230V, 50Hz)	7 A	9.2A	12.8A	13.8A
Cat. No.	AAH57002K	AAH57012K	AAH57022K	AAH57032K
Electrical Requirements (120V, 60Hz)	12.6A	12.6A	-	-
Cat. No.	AAH57003U	AAH57013U	-	-

* RW-2025G and RW-3025G Models are available ONLY for 230V.

1) Technical data according to DIN 12876.

2) The cooling capacity is measured on a 230V / 60Hz electrical condition.

3) Additional suction pump is optional.

Specifications & Ordering Information

RW - 40G Models (for temperature range from -35°C to 150°C)



Model	RW-0540G	RW-1040G	RW-2040G	RW-3040G
Bath Volume (L / cu ft)	5 / 0.2	10 / 0.4	20 / 0.7	30 / 1.1
Working Temperature Range ²⁾ (°C / °F)	-35 to 150 / -31 to 302			
Temperature Stability ¹⁾ (±°C / °F)	0.05 / 0.09	0.05 / 0.09	0.05 / 0.09	0.08 / 0.14
Cooling Capacity (Bath fluid: ethanol)	at -20°C (-4°F), W	80	150	440
	at 0°C (+32°F), W	150	330	700
	at +20°C (68°F), W	280	450	880
	Refrigerator	1 / 2 LBP, R-404A	1 / 2 LBP, R-404A	3 / 4 LBP, R-404A
Pump (Bath fluid: water)	Max. Pressure, Max. Flow rate	5.9 PSI (406.8 millibar), 7.4 gallons / minute (28 liters / minute)		
	Max. Suction Flow Rate ³⁾	2.6 gallons / minute (10 liters / minute)		
Dimension	Bath Opening /Depth (WxL, D) (mm / inch)	150x99, 160 / 5.9x3.9, 6.3	211x154, 180 / 8.3x6.1, 7.1	290x214, 200 / 11.4x8.4, 7.9
	Overall (WxLxH) (mm / inch)	302x438x690 / 11.9x17.2x27.2	360x490x780 / 14.2x19.3x30.7	440x620x895 / 17.3x24.4x35.2
	Net Weight (kg / lbs)	38 / 83.8	44 / 97	60 / 132.2
Electrical Requirements (230V, 60Hz)	8.5A	10.7A	13.8A	14.8A
Cat. No.	AAH57101K	AAH57111K	AAH57121K	AAH57131K
Electrical Requirements (230V, 50Hz)	8.5A	10.7A	13.8A	14.8A
Cat. No.	AAH57102K	AAH57112K	AAH57122K	AAH57132K

* RW-40G Models are available ONLY for 230V.

1) Technical data according to DIN 12876.

2) The cooling capacity is measured under 230V / 60Hz electrical condition.

3) Additional suction pump is optional.

Baths & Circulators

Refrigerated & Heating Bath Circulators (Programmable)

Newly developed bath circulator with the Intelligent programmable controller brings the best intuitive control performance to your laboratory.

Our new controller performs any sophisticated control depending on exactly how you plan the scheduler.



Intelligent Program Control

- 10 programs available for temperature ramp up and dwell control.
- 10 steps per a program and 99 hours 59 minutes per a step.
- Stored programs are easily linkable.
- Programs can be repeated up to 99 cycles.
- Pre-heating and heating time are settable before program starts.

Operating Features

- Temp. range: from -35°C to 150°C for RW-40P Models.
from -25°C to 150°C for RW-25P Models.
- Microprocessor PID control.
- Three point temperature calibration.
- Automatic tuning / Auto run.
- Digital timer for delayed ON / OFF. (from 1 min to 99 hr 59 min)
- Protection against over-temperature and low fluid level.
- Colorful LCD display with interactive input system.
- Digital input and output control function for interlocking external devices.
- Temperature LED warning Indicator simply shows inner reservoir's temperature by three different colors.
- Keypad lock function prevents accidental changes during operation.
- RS-232 interface. (RS-232 to USB serial converter is provided.)

RW-0525P with the included SUS Cover

- Included Accessories**
- Stainless steel Flat Cover
 - 30 cm (1 ft) long and Ø12 mm Silicone Rubber Tubing
- Optional Accessories**
- Additional Suction Pumps
 - Test Tube Racks and Spring Wire Racks
- see page 26-27

Baths & Circulators

Refrigerated & Heating Bath Circulators (Programmable)

Constructional Features

- Suitable for both internal and external bath environments due to reduced turbulence by using five-speed duplex pump and built-in cooling coil. (1 to 3 steps of the pump for internal circulation and 4 to 5 steps for external circulation)
- Isolated design of agitator, heater, and sensor by a baffle plate to minimize the turbulence in the bath fluid and also to protect users and samples against direct contact.
- Protection against low fluid level and dry running by automatic shut down of the heater together with audible and visual alarms.
- Corrosion-resistant, seamless, leak-proof, round-cornered, and easy-to-clean stainless steel reservoir with a drain valve.
- Usage of CFC-free refrigerant (R-507, R-404A) and a double service valve for leakage prevention.
- Quick-release front grille for easy cleaning of the condenser.

Specifications & Ordering Information

RW - 25P Models (for temperature range from -25°C to 150°C)



Model	RW-0525P	RW-1025P	RW-2025P	RW-3025P
Bath Volume (L / cu ft)	5 / 0.2	10 / 0.4	20 / 0.7	30 / 1.1
Working Temperature Range ²⁾ (°C / °F)	-25 to 150 / -13 to 302			
Temperature Stability ¹⁾ (±°C / °F) at -10°C	0.05 / 0.09			
Cooling Capacity (Bath fluid: ethanol)	at -20°C (-4°F), W	30	50	260
	at 0°C (+32°F), W	230	250	410
	at 20°C (68°F), W	320	380	560
	Refrigerator	1 / 3 LBP, R-507	1 / 3 LBP, R-507	1 / 2 LBP, R-404A
Pump (Bath fluid: water)	Max. Pressure, Max. Flow rate	5.9 PSI (406.8 millibar), 7.4 gallons / minute (28 liters / minute)		
	Max. Suction Flow Rate ³⁾	2.6 gallons / minute (10 liters / minute)		
Dimension	Bath Opening / Depth (W×L, D) (mm / inch)	150×99, 160 / 5.9×3.9, 6.3	211×154, 180 / 8.3×6.1, 7.1	290×214, 200 / 11.4×8.4, 7.9
	Overall (W×L×H) (mm / inch)	302×438×690 / 11.9×17.2×27.2	360×490×780 / 14.2×19.3×30.7	440×620×895 / 17.3×24.4×35.2
	Net Weight (kg / lbs)	37 / 81.6	44 / 97	60 / 132.2
				70 / 147.7
Electrical Requirements (230V, 60Hz)	7 A	9.2A	12.8A	13.8A
Cat. No.	AAH57304K	AAH57305K	AAH57306K	AAH57307K
Electrical Requirements (230V, 50Hz)	7 A	9.2A	12.8A	13.8A
Cat. No.	AAH57204K	AAH57205K	AAH57206K	AAH57207K
Electrical Requirements (120V, 60Hz)	12.6A	12.6A		
Cat. No.	AAH57104U	AAH57105U	-	-

RW - 40P Models (for temperature range from -35°C to 150°C)



Model	RW-0540P	RW-1040P	RW-2040P	RW-3040P
Bath Volume (L / cu ft)	5 / 0.2	10 / 0.4	20 / 0.7	30 / 1.1
Working Temperature Range ²⁾ (°C / °F)	-35 to 150 / -31 to 302			
Temperature Stability ¹⁾ (±°C / °F) at -10°C	0.05 / 0.09			
Cooling Capacity (Bath fluid: ethanol)	at -20°C (-4°F), W	80	150	400
	at 0°C (+32°F), W	150	330	660
	at 20°C (68°F), W	280	450	800
	Refrigerator	1 / 2 LBP, R-404A	1 / 2 LBP, R-404A	3 / 4 LBP, R-404A
Pump (Bath fluid: water)	Max. Pressure, Max. Flow rate	5.9 PSI (406.8 millibar), 7.4 gallons / minute (28 liters / minute)		
	Max. Suction Flow Rate ³⁾	2.6 gallons / minute (10 liters / minute)		
Dimension	Bath Opening / Depth (W×L, D) (mm / inch)	150×99, 160 / 5.9×3.9, 6.3	211×154, 180 / 8.3×6.1, 7.1	290×214, 200 / 11.4×8.4, 7.9
	Overall (W×L×H) (mm / inch)	302×438×690 / 11.9×17.2×27.2	360×490×780 / 14.2×19.3×30.7	440×620×895 / 17.3×24.4×35.2
	Net Weight (kg / lbs)	38 / 83.8	44 / 97	60 / 132.2
				70 / 154.3
Electrical Requirements (230V, 60Hz)	8.5A	10.7A	13.8A	14.8A
Cat. No.	AAH57308K	AAH57309K	AAH57310K	AAH57314K
Electrical Requirements (230V, 50Hz)	8.5A	10.7A	13.8A	14.8A
Cat. No.	AAH57208K	AAH57209K	AAH57210K	AAH57214K

1) Technical data according to DIN 12876.

2) The cooling capacity is measured on a 230V / 60Hz electrical condition.

3) The additional suction function is optional.

Baths & Circulators

Cold Trap Bath

Digital temperature display.
Effective capture of moisture or condensate.
Also useful as quick cooling baths.



CTB-10

CTB-10 with the included
U-type Glass Traps (2EA)

Features

- LED temperature display.
- Protection against over-current.
- Easy installation and maintenance of glass traps.
(Two glass traps included)
- Quick-release front grille for easy cleaning of the condenser.
- Compact size and little noise.
- Built-in dissolving system to easily remove ice or solid matter stuck on the bath.
- Durable stainless steel bath.
- Transparent acrylic lids on top of the glass trap to check condensate level in the trap.

Standard Accessories



Model	Cat. No.	Description
Related accessory	FCA1110	U-type Glass Trap(1ea)

Specifications & Ordering Information



Model		CTB - 10
Temperature Range (°C / °F)		Down to -40 / -40
Material	Bath External	Stainless steel, 1.2t, Double painted & baked
	Bath Up Desk	Stainless steel, 1.5t
	Insulation	Polyurethane foam (30mm)
	Refrigerator	1 / 2 HP, R-404A (LBP)
Dimension	Volume (L / cu ft)	4.8 / 0.17
	Bath (Ø×H, mm)	Dia, 210×204 / 8.3×8
	Overall (W×D×H) (mm / inch)	360×465×555 / 14.1×18.3×21.9
	Net Weight (kg / lbs)	46 / 101.4
Electrical Requirements (230V, 60Hz)		4.5 A
Cat. No.		AAH62011K
Electrical Requirements (230V, 50Hz)		4.5 A
Cat. No.		AAH62012K

Baths & Circulators

Accessories & Options

for Shaking & Heating Baths



Universal Platforms



Flask Clamps



Dedicated Platforms



Test Tube Racks

► Universal Platforms & Flask Clamps

The universal platforms provide flexibility for mixing different size test tubes and glassware on a single platform. Various clamps or racks can be interchanged or added easily using mounting holes on the platform. (only for BS Models)

Model		BS-06	BS-11	BS-21	BS-31
Universal Platform	Cat. No.	AAA44521	AAA44522	AAA44523	AAA44524
Flask Clamps	Erlenmeyer Flask Size	Max. mountable flask clamps			
	AAA23550 for 50mL	9	12	20	32
	AAA23551 for 100mL	3	9	15	24
	AAA23552 for 250ml	2	4	8	12
	AAA23556 for 300mL	2	4	8	12
	AAA23553 for 500ml	2	4	6	12
	AAA23554 for 1L	1	2	4	6
	AAA23555 for 2L °	-	1	2	3
	AAA23557 for 2.8L °	-	1	1	2

° 2 and 2.8L flasks must be used due to height restrictions, respectively.

* Flask clamps for universal platforms are sold separately.

► Dedicated Platforms

When using glassware of the same size, dedicated platforms with preinstalled 250 mL or 500 mL clamps provide maximum capacity for each platform size. If you need to use different size glassware, purchase other suitable clamps separately. (only for BS Models)

Cat. No.	Description	Suitable for
AAA44531	Universal Platform with 250mL flask clamps 2ea	BS-06
AAA44532	Universal Platform with 500mL flask clamps 2ea	
AAA44541	Universal Platform with 250mL flask clamps 4ea	
AAA44542	Universal Platform with 500mL flask clamps 4ea	BS-11
AAA44551	Universal Platform with 250mL flask clamps 8ea	
AAA44552	Universal Platform with 500mL flask clamps 6ea	
AAA44561	Universal Platform with 250mL flask clamps 12ea	BS-21
AAA44562	Universal Platform with 500mL flask clamps 12ea	

* Dedicated platforms are sold with maximum number of flask clamps preinstalled.

► Test Tube Racks

Highly durable stainless steel test tube racks feature adjustable angle and tube height support without requiring any base plate. You can easily mount and release test tube racks.

Cat. No.	Description	Insert Capacity of Racks*			
		BS-06	BS-11	BS-21	BS-31
AAA44581	for 86 Test Tubes Ø8mm / Ø0.3"	1EA	2EA	3EA	4EA
AAA44582	for 86 Test Tubes Ø10mm / Ø0.4"				
AAA44583	for 58 Test Tubes Ø12mm / Ø0.5"				
AAA44585	for 32 Test Tubes Ø16mm / Ø0.6"				
AAA44586	for 19 Test Tubes Ø25mm / Ø1.0"				

* No declination.

* Customized accessories to meet your specific requirements can be also provided. For inquiries, please contact your dealer.

Baths & Circulators

Accessories & Options

for Baths & Bath Circulators



Transparent Polypropylene Gable Covers



Stainless Steel Flat Covers



Open-rings Covers

Transparent Polypropylene Gable Covers

Designed to protect samples from contamination due to direct dripping of the bath liquid. (only for BW-H and BW-B Models)

Cat. No.	Suitable for
AAA45531	BW-05H / BW-05B
AAA45532	BW-10H / BW-10B
AAA45533	BW-20H / BW-20B

Stainless Steel Flat Covers

Made of stainless steel to prevent corrosion and rust. (only for BW-H and BW-B Models)

Cat. No.	Suitable for
AAA45541	BW-05H / BW-05B
AAA45542	BW-10H / BW-05B
AAA45543	BW-20H / BW-05B

Open-rings Covers

Beakers or Erlenmeyer flasks can be placed directly onto the perforated stainless steel half-shelf adjuster or water tank bottom. By adjusting ring size for each glassware, liquid loss due to evaporation is minimized. (only for BW-H, BW-B, BW-G Models)

Cat. No.	Description	Suitable for
AAA45521	with 2 openings Ø80mm / Ø3.1"	BW-05H / BW-05B
AAA45524	with 1 opening Ø110mm / Ø4.3"	
AAA45522	with 4 openings Ø80mm / Ø3.1"	
AAA45525	with 2 openings Ø110mm / Ø4.3"	BW-10H / BW-10B
AAA45526	with 1 opening Ø185mm / Ø7.3"	
AAA45523	with 8 openings Ø80mm / Ø3.1"	BW-20H / BW-20B
AAA45527	with 6 openings Ø110mm / Ø4.3"	
AAA45528	with 2 openings Ø185mm / Ø7.3"	
AAA41561	with 2 openings Ø80mm / Ø3.1"	BW-05G
AAA41564	with 1 opening Ø110mm / Ø4.3"	
AAA41562	with 4 openings Ø80mm / Ø3.1"	BW-10G
AAA41565	with 2 openings Ø110mm / Ø4.3"	
AAA41566	with 1 opening Ø185mm / Ø7.3"	BW-20G
AAA41563	with 6 openings Ø80mm / Ø3.1"	
AAA41567	with 4 openings Ø110mm / Ø4.3"	
AAA41568	with 1 opening Ø185mm / Ø7.3"	

Test Tube Racks

Highly durable stainless steel test tube racks feature adjustable angle and tube height support without requiring any base plate. You can easily mount and release test tube racks.

Cat. No.	Description	Insert Capacity of Racks*	
AAA44581	for 86 Test Tubes Ø8mm / Ø0.3"	BW-10G CW-20G/P, 30G/P RW-2025G/P, 2040G/P RW-3025G/P, 3040G/P 2EA	BW-20G 3EA
AAA44582	for 86 Test Tubes Ø10mm / Ø0.4"		
AAA44583	for 58 Test Tubes Ø12mm / Ø0.5"		
AAA44585	for 32 Test Tubes Ø16mm / Ø0.6"		
AAA44586	for 19 Test Tubes Ø25mm / Ø1.0"		
AAA41531	for 50 Test Tubes Ø8mm / Ø0.3"	BW-05H BW-05B BW-05G	RW-1025G/P RW-1040G/P CW-10G/P 1EA
AAA41532	for 50 Test Tubes Ø10mm / Ø0.4"		
AAA41533	for 33 Test Tubes Ø12mm / Ø0.5"		
AAA41535	for 16 Test Tubes Ø16mm / Ø0.6"	BW-10H BW-10B 1EA	BW-20H BW-20B 2EA
AAA41539	for 10 Test Tubes Ø25mm / Ø1.0"		
AAA45551	for 176 Test Tubes Ø8mm / Ø0.3"		
AAA45552	for 176 Test Tubes Ø10mm / Ø0.4"		
AAA45554	for 84 Test Tubes Ø12mm / Ø0.5"		
AAA45556	for 68 Test Tubes Ø16mm / Ø0.6"		
AAA45561	for 33 Test Tubes Ø25mm / Ø1.0"		

* No declination.

Baths & Circulators

Accessories & Options

for Baths & Bath Circulators



Spring Wire Racks



Half-shelf Adjusters



Additional Suction Pumps

Spring Wire Racks

Ideal for holding a wide variety of tubes, flasks, and other glassware. All components are made of stainless steel.
(for all models)

Cat. No.	Suitable for
AAA45502	BW-10H / BW-10B
AAA45503	BW-20H / BW-20B
AAA41502	BW-10G
AAA41503	BW-20G
AAA51522	CW-20G/P / RW-2025G/P, 2040G/P
AAA51523	CW-30G/P / RW-3025G/P, 3040G/P

Additional Suction Pumps*

Additional suction device for more powerful external and internal circulation. Maximum suction flow rate is 10.0 liters per minute. (only for CW-G and RW-G Models)

Cat. No.	Suitable for
52503	CW-05G/P / RW-0525G/P, 0540G/P
52513	CW-10G/P / RW-1025G/P, 1040G/P
52523	CW-20G/P / RW-2025G/P, 2040G/P
52533	CW-30G/P / RW-3025G/P, 3040G/P

* Adding this additional suction function after your purchase is time-consuming and costly. Prior request is highly recommended.

Half-shelf Adjusters

Stainless steel perforated sample tray shelves with adjustable height support prevent leaks and guard against rust and contamination.
(only for BW-H, BW-B, and BW-G Models)

Cat. No.	Suitable for
AAA45511	BW-05H / BW-05B
AAA45512	BW-10H / BW-10B
AAA45513	BW-20H / BW-20B
AAA41551	BW-05G
AAA41552	BW-10G
AAA41553	BW-20G

for Viscometer Heating Baths

Viscometer Tube Holders

Specially designed to hold a two-opening viscometer glass tube and made of Bakelite, renowned for its high thermal endurance. (only for VB Models)

Cat. No.	Suitable for
AAA43501	VB-25G (need Max. 5 holders)
	VB-40G (need Max. 8 holders)



Viscometer Tube Holders

Cooling Circulators

The temperature range of viscometer heating baths can be lowered up to +10°C (+50°F) when used with an optional cooling circulator.
(only for VB Models)

Cat. No.	Description	Suitable for
AAH57011K	RW-1025G/P (230V, 60Hz)	VB-25G (230V, 60Hz)
AAH57012K	RW-1025G/P (230V, 50Hz)	VB-25G (230V, 50Hz)
AAH57021K	RW-2025G/P (230V, 60Hz)	VB-40G (230V, 60Hz)
AAH57022K	RW-2025G/P (230V, 50Hz)	VB-40G (230V, 50Hz)

* Refer to p.20-23 for more information on the cooling circulators.

Desiccators

Offering a wide selection of desiccators including UV-blocking models with outstanding drying capability to suit your specific requirements.



Vacuum Desiccators

Desiccators

SELECTION GUIDE

Vacuum Desiccators
Desiccators

Vacuum Desiccators

	Description	Internal Volume (L / cu ft)	Vacuum Range (MPa)	Body Material
Cubic Models	VDC-11/11U	11 / 0.4	1.33 × 10 ⁻⁴ Mpa (Analog)	PC (Polycarbonate)
	VDC-21/21U	23 / 0.8		
	VDC-31/31U	35 / 1.2		
	VDC-41/41U	45 / 1.6		
Round Models	VDR-20 / 20U / 20G / 20UG	6 / 0.2		
	VDR-25 / 25U / 25G / 25UG	10 / 0.4		
	VDR-30 / 30U / 30G / 30UG	20 / 0.7		
Cylindrical Models	VDP-25 / 25U / 25G / 25UG	16 / 0.6		
	VDP-30 / 30U / 30G / 30UG	25 / 0.9		

Desiccators

	Description	Internal Volume (L / cu ft)	Body Material
Cubic Models	SDC-30/30U	35 / 1.2	PC (Polycarbonate)
	SDC-45/45U	50 / 1.8	

Desiccators

Vacuum Desiccators (Cubic Models)

Integrally molded cubic box design enabling outstanding vacuum capability with virtually no leakage and exceptional durability.

Various models available with respect to sizes and UV-blocking effect.

Features

- Maximum vacuum of 1 Torr (1.33×10^{-4} Mpa) for more than 72 hours.
- High quality silicone gasket ensures greaseless airtight seal for the clean and cost effective test environment.
- Highly transparent, shatterproof, non-corrosive, and easy to clean polycarbonate construction.
- Three-way stopcock provides great convenience for consistent and uniform vacuum draw, vacuum release, or gas exchange. The barbed fitting on each side secures attachment of tubing.
- Maximized utilization of internal space using maximum four to six shelves depending on product sizes.
- Stackable space-saving design allowing efficient usage of cramped lab space.
- Easy vacuum level checking with the standard vacuum gauge attached to the front door.
- Minimizing damages or discoloration of light-sensitive samples. (only for U models)
- Four built-in ports allowing easy attachment of tubing.



VDC-31

Included Accessories
 see page 33

- Vacuum Gauge
- Drying Agent Tray
- Perforated Sample Trays
- Stopcock

Specifications & Ordering Information



RoHS compliant except for VDC-U Models

Model ¹⁾		VDC-11/11U	VDC-21/21U	VDC-31/31U	VDC-41/41U
Internal Volume (L / cu ft)		11 / 0.4	23 / 0.8	35 / 1.2	45 / 1.6
Gauge Range (Mpa)		0 to -0.1			
Nozzle (mm / inch, Ø)		9.5 / 0.37			
Max. Permissible Vacuum (bodies)		1.33×10^{-4} Mpa			
Max. Load (kg / lbs) per Shelf		3 / 6.6	5 / 11		
Number of Shelves (included / max.)		2 / 4		3 / 5	3 / 6
Material	Body	Polycarbonate			
	Perforated Sample Tray				
	Drying Agent Tray / Locker	Polypropylene			
	Vacuum Seal	Silicone Rubber			
Dimension (WxDxH)	Internal (mm / inch)	248x254x238 / 9.8x10x9.4	346x365x246 / 13.6x14.4x9.7	355x375x345 / 14 x 14.8 x 13.6	355x374x445 / 14x14.7x17.5
	Exterior (mm / inch)	322x285x271 / 12.7x11.2x10.7	420x397x281 / 16.5x15.6x11.1	420x397x381 / 16.5x15.6x15	420x397x491 / 16.5x15.6x19.3
Net Weight (kg / lbs)		4.2 / 9.3	8.2 / 18.1	10.8 / 23.8	12.2 / 26.9
Cat. No.	Without UV Block Effect	AAAD4001	AAAD4021	AAAD4011	AAAD4031
	With UV Block Effect (U)	AAAD4101	AAAD4121	AAAD4111	AAAD4131

1) U models are translucent(amber-colored) vacuum desiccators with ultraviolet block effect.

D

Desiccators

Vacuum Desiccators (Round Models)

Round design featuring light weight yet high tensile strength.

High-quality silicone O-ring and specially designed 'Locking Clip' allowing outstanding vacuum capability with virtually no leakage.



VDR-25G

- Included Accessories**
- Drying Agent Tray
 - Perforated Sample Trays
 - Flange Locker
 - Stopcock
- ➔ see page 33

Features

- Maximum vacuum of 1 Torr (1.33×10^{-4} Mpa) for more than 72 hours.
- High quality silicone gasket ensures greaseless airtight seal for the clean and cost effective test environment.
- Highly transparent, shatterproof, non-corrosive, and easy to clean polycarbonate construction.
- Three-way stopcock provides great convenience for consistent and uniform vacuum draw, vacuum release, or gas exchange. The barbed fitting on each side secures attachment of tubing.
- Flange lock holding the top and the bottom together during non-vacuum conditions.
- Various models available with respect to sizes and UV-blocking effect.
- Minimizing damages or discoloration of light-sensitive samples (only for U/UG models).
- A vacuum gauge attachable at the center of the lid for easy vacuum level checking (only for G/UG models).
- The top and bottom of round vacuum desiccators and cylindrical vacuum desiccators are compatible with each other for diverse use.

Specifications & Ordering Information



RoHS compliant except for VDR-U/UG Models

Model ¹⁾		VDR-20/20G VDR-20U/20UG	VDR-25/25G VDR-25U/25UG	VDR-30/30G VDR-30U/30UG
Internal Volume (L / cu ft)		6 / 0.2	10 / 0.4	20 / 0.7
Gauge Range (Mpa)		0 to -0.1		
Nozzle (mm / inch, Ø)		9.5 / 0.37		
Max. Permissible Vacuum (Bodies)		1.33×10^{-4} Mpa		
Material	Lid / Bottom	Polycarbonate		
	Perforated Sample Tray	Polypropylene		
	Drying Agent Tray			
	Locker	Polypropylene		
Vacuum Seal		Silicone Rubber		
Dimension (I.D. × H)	Exterior (mm / inch)	Ø242×279(354) / Ø9.5×11(13.9)	Ø308×325(400) / Ø12.1×12.8(15.7)	Ø385×399(475) / Ø15.2×15.7(18.7)
	Net Weight (kg / lbs)	1.5 / 3.3	2.5 / 5.5	4.2 / 9.3
Cat. No.	Clear body	AAAD2011	AAAD2111	AAAD2211
	Clear body with Vacuum gauge (G)	AAAD2021	AAAD2121	AAAD2221
	UV block effect body (U)	AAAD2031	AAAD2131	AAAD2231
	UV block effect body with Vacuum gauge (UG)	AAAD2041	AAAD2141	AAAD2241

¹⁾ G models come standard with a vacuum gauge

U models are translucent (amber-colored) vacuum desiccators with ultraviolet block effect.

Desiccators

Vacuum Desiccators (Cylindrical Models)

Newly designed cylindrical desiccators are used by ideal for storing tall equipment, gas substitution, general drying and preserving.



VDP-30

- Included Accessories**
- Perforated Sample Trays
 - Flange Locker
 - Stopcock
- ☞ see page 33

Features

- Maximum vacuum of 1 Torr (1.33×10^{-4} Mpa) for more than 72 hours.
- High quality silicone gasket ensures greaseless airtight seal for the clean and cost effective test environment.
- Highly transparent, shatterproof, non-corrosive, and easy to clean polycarbonate construction.
- Three-way stopcock provides great convenience for consistent and uniform vacuum draw, vacuum release, or gas exchange. The barbed fitting on each side secures attachment of tubing.
- Flange lock holding the top and the bottom together during non-vacuum conditions.
- Various models available with respect to sizes and UV-blocking effect.
- Minimizing damages or discoloration of light-sensitive samples (only for U/UG models).
- A vacuum gauge attachable at the center of the lid for easy vacuum level checking (only for G/UG models).
- The top and bottom of cylindrical vacuum desiccators and round vacuum desiccators are compatible with each other for diverse use.

Specifications & Ordering Information



RoHS compliant except for VDP-U/UG Models

Model ¹⁾		VDP-25/25G VDP-25U/25UG	VDP-30/30G VDP-30U/30UG
Internal Volume (L / cu ft)		16 / 0.6	25 / 0.9
Gauge Range (Mpa)		0 to -0.1	
Nozzle (mm / inch, Ø)		9.5 / 0.37	
Max. Permissible Vacuum (Bodies)		1.33×10^{-4} Mpa	
Material	Body / Base	Polycarbonate	
	Perforated Sample Tray		
	Locker	Polypropylene	
	Vacuum Seal	Silicone Rubber	
Dimension (I.D. x H)	Exterior (mm / inch)	Ø308×374(449) / Ø12.1×14.7(17.7)	Ø385×384(459) / Ø15.2×15.1(18.1)
	Net Weight (kg / lbs)	2.7 / 5.9	4.0 / 8.8
Cat. No.	Clear body	AAAD3011	AAAD3021
	Clear body with Vacuum gauge (G)	AAAD3111	AAAD3121
	UV block effect body (U)	AAAD3211	AAAD3221
	UV block effect body with Vacuum gauge (UG)	AAAD3311	AAAD3321

1) G models come standard with a vacuum gauge

U models are translucent (amber-colored) vacuum desiccators with ultraviolet block effect.

Desiccators

Desiccators (Cubic Models)

Stackable unit design provides space efficiency in daily use.

Transparent polycarbonate desiccators are designed for easy viewing of desiccant and vessels.



Features

- One molded design enables virtually no leakage and exceptional durability.
- High quality silicone gasket ensures greaseless airtight seal for the clean and cost effective test environment.
- Highly transparent, shatterproof, non-corrosive, and easy to clean polycarbonate construction.
- Maximized utilization of internal space using maximum three to five shelves depending on product sizes.
- Stackable space-saving design allowing efficient usage of cramped lab space.
- Easy humidity level checking with the hygrometer attached to the front door.
- Minimizing damages or discoloration of light-sensitive samples. (only for U models)

SDC-45

Included Accessories

➔ see page 33

- Hygrometer
- Drying Agent Tray
- Perforated Sample Tray
- Perforated Sample Drawer

Specifications & Ordering Information

Model ¹⁾		SDC-30/30U	SDC-45/45U
Internal Volume (L / cu ft)		35 / 1.2	50 / 1.8
Max. Load (kg / lbs) per Shelf or Drawer		5 / 11	
Number of Shelves (included / max.)		1 / 3	2 / 5
Number of drawers (included / max.)		1 / 3	1 / 5
Material	Body	Polycarbonate	
	Perforated Sample Tray		
	Perforated Sample Drawer		
	Drying Agent Tray / Locker	Polypropylene / Stainless Steel	
	Seal	Silicone Rubber	
Dimension (WxDxH)	Internal (mm / inch)	322x367x302 / 12.7x14.4x11.9	322x367x422 / 12.7x14.4x16.6
	Exterior (mm / inch)	360x410x326 / 14.1x16.1x12.8	360x410x447 / 14.1x16.1x17.6
Net Weight (kg / lbs)		4.9 / 10.8	6.2 / 13.7
Cat. No.	Without UV Block Effect	AAAD5011	AAAD5021
	With UV Block Effect (U)	AAAD5111	AAAD5121

1) U models are translucent(amber-colored) vacuum desiccators with ultraviolet block effect.

Desiccators

Accessories & Options



❖ Drying Agent Tray
for VDC



❖ Perforated Sample Tray
for VDC



❖ Drying Agent Tray
for VDR



❖ Perforated Sample Trays
for VDR

► For Vacuum Desiccators (Cubic Models)

Cat. No.	Accessories	VDC-11/11U	VDC-21/21U	VDC-31/31U	VDC-41/41U
VDC0035	Perforated Sample Tray	•	-	-	-
VDC0003		-	•	•	•
VDC0037	Drying Agent Tray	•	-	-	-
VDC0005		-	•	•	•
VDC0032	Vacuum seal	•	-	-	-
VDC0033		-	•	-	-
VDC0015		-	-	•	-
VDC0034		-	-	-	•
AAAD4501	Stopcock	•	•	•	•
EDA4301	Vacuum gauge	•	•	•	•

► For Vacuum Desiccators (Round & Sylindrical Models)

Cat. No.	Accessories	VDR-20/20G VDR-20U/20UG	VDR-25/25G VDR-25U/25UG	VDR-30/30G VDR-30U/30UG	VDP-25/25G VDP-25U/25UG	VDP-30/30G VDP-30U/30UG
AAAD1501	Drying Agent Tray	•	-	-	-	-
AAAD1502		-	•	-	•	-
AAAD1503		-	-	•	-	•
AAAD1511	Perforated Sample Tray	•	-	-	-	-
AAAD1512		-	•	-	-	-
AAAD1513		-	-	•	-	-
AAAD3511		-	-	-	•	-
AAAD3512		-	-	-	-	•
VDR0001	Vacuum seal	•	-	-	-	-
VDR0002		-	•	-	•	-
VDR0003		-	-	•	-	•
VDR0015	Flange Locker	•	-	-	-	-
VDR0016		-	•	-	•	-
VDR0017		-	-	•	-	•
AAAD1521	Stopcock	•	•	•	-	-
AAAD3501		-	-	-	•	•
EDA4302	Vacuum gauge	•	•	•	•	•

Furniture

GENERAL STORAGE CABINETS

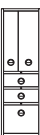
Tall Cabinets

Base Cabinets

Gas Cylinder Cabinets

Tall Cabinets

	Stand Type (DS-SL)			Stand Type (DS-S)				
								
Width(mm)	476	560	644	476	560	644	686	938
Height(mm)	2400			1800				
Depth(mm)	700			700				
Weight(kg)	181	196	212	124	137	146	172	206
Model	24047-D6	24056-D6	24064-D6	18047-D4	18056-D4	18064-D4	18068-D6	18093-D6
Depth(mm)	-			550				
Weight(kg)	-			017	119	126	148	178
Model	-			18047-N4	18056-N4	18064-N4	18068-N6	18093-N6

Combi Type (DS-C)					Window Type (DS-OW)			
								
Width(mm)	476	560			472	556	915	1083
Height(mm)	1800				1800			
Depth(mm)	700				-			
Weight(kg)	114	126	127	140	-			
Model	18047-D4	18047-D5	18056-D4	18056-D5	-			
Depth(mm)	550				550			
Weight(kg)	100	108	110	120	124	137	146	172
Model	18047-N4	18047-N5	18056-N4	18056-N5	18047-N1	18055-N1	18091-N2	18108-N2

	Open Rack Type (DS-OR)			
				
Width(mm)	472	556	915	1083
Height(mm)	1800			
Depth(mm)	550			
Weight(kg)	110	120	215	244
Model	18047-N1	18055-N1	18091-N2	18108-N2

	Gas Cylinder Type (DS-GC)	
		
Width(mm)	740	1070
Height(mm)	1800	
Depth(mm)	550	
Weight(kg)	107	140
Model	18074-N2	18107-N2



Base Cabinets

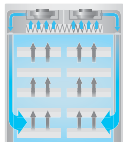
	Tabletop Type (DS-TT)			Tabletop Type (DS-TW)			
							
Width(mm)	476	560	644	472	556	915	1083
Height(mm)	900			900			
Depth(mm)	700			-			
Weight(kg)	61	67	73	-			
Model	09047-D2	09056-D2	09064-D2	-			
Depth(mm)	550			550			
Weight(kg)	54	59	64	61	65	110	119
Model	09047-N2	09056-N2	09064-N2	09047-N1	09055-N1	09091-N2	09108-N2

	Under Table Type (DS-UT)			Under Table Type (DS-UD)			
							
Width(mm)	476	560	644	476	560		
Height(mm)	650			650			
Depth(mm)	700			700			
Weight(kg)	58	64	70	50	61	57	69
Model	06047-D2	06056-D2	06064-D2	06047-D2	06047-D3	06056-D2	06056-D3
Depth(mm)	550			550			
Weight(kg)	50	55	60	43	52	49	59
Model	06047-N2	06056-N2	06064-N2	06047-N2	06047-N3	06056-N2	06056-N3

FILTERING STORAGE CABINETS

Single Door type
Double Door type

Filtering Storage Cabinets

	Single Door Type	Double Door Type
	 	 
Internal Volume(L)	685	1145
Width(mm)	1000	1560
Height(mm)	2000	2025
Depth(mm)	635	635
Weight(kg)	320	495
Model	FSC-120	FSC-200

Description		Capacity (L / gal, 1L Bottle *ea)	Airflow rate (m³/min, CMM)	Filter
Single Door Type	FSC-120	120 / 31.7	3.0	Prefilter
Double Door Type	FSC-200	200 / 52.8	5.34	

Furniture

General Storage Cabinets

Impressive range of cabinet Models to choose from for creating the most ideal lab environments. (65 Duco - Slide storage cabinet Models)

Manufactured with PP trays and dividers



- 8 different tray dimensions.
- Impact resistant, durable, and excellent chemical resistance rating.
- Adjustable trays can be placed at different heights.
- The tray divider keeps stuff tidy and organized.

Locking mechanism



- Adopted self-lock handle convenient for keeping things secure, comes standard with lock for protection against unauthorized users.
- Comes standard with lock for protection against unauthorized personnel.

Easily removable name plates

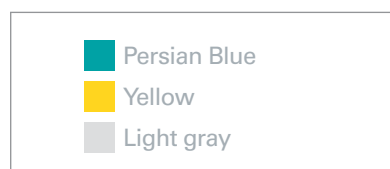


- Convenient and useful for keeping track of inventory.
- 3 different sizes.

Epoxy powder coated.

- High-grade steel constructed completely with galvanized and power coated surface for high protection against corrosion, and chemicals.

3 types of color choices.



Anchoring kit

- All tall cabinets include anchoring kits to fix the cabinet to the floor to prevent the cabinet from tipping over.

Gas cylinder storage



- Gas cylinder constructed for storage of gas cylinders inside building.
- DS-GC Models.
- : Essentially convenient and standard safety functions are incorporated in the cabinets.

Ventilation system

- Hexagonal or trapezoidal ventilation space is formed between the innovatively designed cabinet side structures.

Scientific Equipment and Furniture Association



- The world professional organization for providing leadership in issues involving the design, specification and utilization of laboratory furniture and equipment.

Furniture

Tall Cabinets

Tall cabinet models are useful for storing large amounts of liquid and solid substances.



The fully extendable drawers can be accessed from either left or right side of the cabinets.



Hidden wheels under the lower drawer for DS-SL and DS-S series easily support 60kg / 145.5lbs.



Connect multiple cabinets side by side to make the cabinets sturdy and balanced.
The air and vapor vented through both sides of the cabinet vent slits.



The removable name plates come included for keeping track of inventory.



Adjustable bracket mounts in the cabinet, designed for placing PP trays at any height.

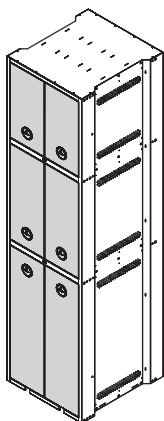
4 tray dividers comes included with each tray.

► Quantity of Trays (Standard / Max.)

	DS-SL	DS-S	DS-C	DS-OW	DS-OR
Upper	3 / 3	3 / 4	3 / 4	Each Vertical Compartment 6 / 11	Each Vertical Compartment 11 / 11
Mid	3 / 3	-	-		
Lower	4 / 6	4 / 6	1 / 1		

※ The distance is 135mm(5.31inch) between each bottoms of tray, when Max. tray setting in drawer.

Stand Type Cabinets (DS-SL, DS-S Models)

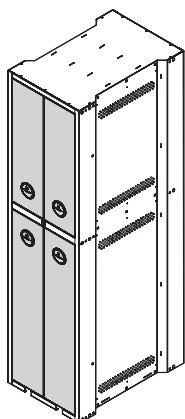


DS-SL Models

- Large and tall dimensions with a 3 tier pull-out storage drawers.

Height : 2400mm / 94.49inch, Depth : 700mm / 27.56inch

Model	Body	Width (mm / inch)		Net Weight (kg/lbs)	Cat. No.
		Each Narrow Drawer			
		Left	Right		
DS-SL-24047D6	476 / 18.74	194 / 7.64	194 / 7.64	181 / 339	AAAF1080
DS-SL-24056D6	560 / 22.04	194 / 7.64	278 / 10.94	196 / 432.1	AAAF1081
DS-SL-24064D6	644 / 26.14	278 / 10.94	278 / 10.94	212 / 467.4	AAAF1082

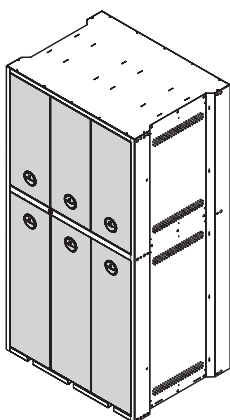


DS-S Models

- General height with a 2 tier pull-out storage drawers.

Height : 1800mm / 70.87inch, Depth : 700mm / 27.56inch

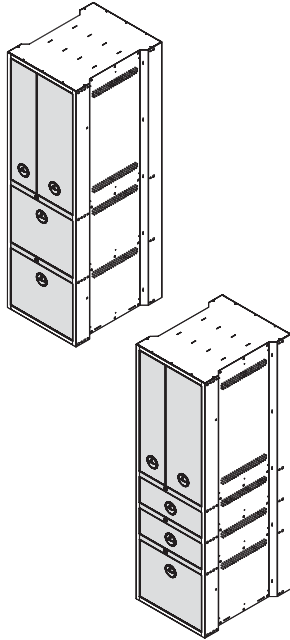
Model	Body	Width (mm / inch)			Net Weight (kg/lbs)	Cat. No.
		Each Narrow Drawer				
		Left	Middle	Right		
DS-S-18047D4	476 / 18.74	194 / 7.64	-	194 / 7.64	124 / 273.4	AAAF1000
DS-S-18056D4	560 / 22.05	194 / 7.64	-	278 / 10.94	137 / 302	AAAF1001
DS-S-18064D4	644 / 25.35	278 / 10.94	-	278 / 10.94	146 / 321.9	AAAF1002
DS-S-18068D6	686 / 27	194 / 7.64	194 / 7.64	194 / 7.64	172 / 379.2	AAAF1003
DS-S-18093D6	938 / 36.93	278 / 10.94	278 / 10.94	278 / 10.94	206 / 454.2	AAAF1004



Height : 1800mm / 70.87inch, Depth : 550mm / 21.65inch

Model	Body	Width (mm / inch)			Net Weight (kg/lbs)	Cat. No.
		Each Narrow Drawer				
		Left	Middle	Right		
DS-S-18047N4	476 / 18.74	194 / 7.64	-	194 / 7.64	107 / 235.9	AAAF1005
DS-S-18056N4	560 / 22.05	194 / 7.64	-	278 / 10.94	119 / 262.4	AAAF1006
DS-S-18064N4	644 / 25.35	278 / 10.94	-	278 / 10.94	126 / 277.8	AAAF1007
DS-S-18068N6	686 / 27	194 / 7.64	194 / 7.64	194 / 7.64	148 / 326.3	AAAF1008
DS-S-18093N6	938 / 36.93	278 / 10.94	278 / 10.94	278 / 10.94	178 / 392.4	AAAF1009

Combi Type Cabinets (DS-C Models)



DS-C Models

- Variety of different size drawers, narrow and wide.

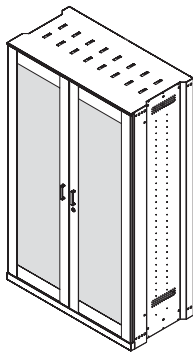
Height : 1800mm / 70.87inch, Depth : 700mm / 27.56inch

Model	Width (mm / inch)			Quantity of Drawer	Net Weight (kg/lbs)	Cat. No.
	Body	Each Narrow Drawer				
		Left	Right			
DS-C-18047D4	476 / 18.74	194 / 7.64	194 / 7.64	4	114 / 251.3	AAAF1030
DS-C-18047D5	476 / 18.74	194 / 7.64	194 / 7.64	5	126 / 277.8	AAAF1031
DS-C-18056D4	560 / 22.05	194 / 7.64	278 / 10.94	4	127 / 279.9	AAAF1032
DS-C-18056D5	560 / 22.05	194 / 7.64	278 / 10.94	5	140 / 380.6	AAAF1033

Height : 1800mm / 70.87inch, Depth : 550mm / 21.65inch

Model	Width (mm / inch)			Quantity of Drawer	Net Weight (kg/lbs)	Cat. No.
	Body	Each Narrow Drawer				
		Left	Right			
DS-C-18047N4	476 / 18.74	194 / 7.64	194 / 7.64	4	100 / 220.5	AAAF1034
DS-C-18047N5	476 / 18.74	194 / 7.64	194 / 7.64	5	108 / 238.1	AAAF1035
DS-C-18056N4	560 / 22.05	194 / 7.64	278 / 10.94	4	110 / 242.5	AAAF1036
DS-C-18056N5	560 / 22.05	194 / 7.64	278 / 10.94	5	120 / 264.6	AAAF1037

Open Window Type Cabinets (DS-OW Models)



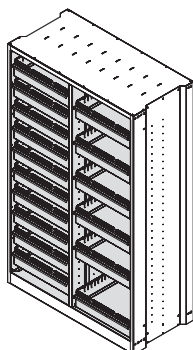
DS-OW Models

- Tempered glass cabinet door allow for easy viewing.

Height : 1800mm / 70.87inch, Depth : 550mm / 21.65inch

Model	Width (mm / inch)		Net Weight (kg/lbs)	Cat. No.
	Body	Each Compartment		
DS-OW-18047N1	472 / 18.58	418 / 16.46	124 / 273.4	AAAF1050
DS-OW-18055N1	556 / 21.89	502 / 19.76	137 / 302	AAAF1051
DS-OW-18091N2	915 / 36.02	418 / 16.46	146 / 321.9	AAAF1052
DS-OW-18108N2	1083 / 42.64	502 / 19.76	172 / 379.2	AAAF1053

Open Rack Type Cabinets (DS-OR Models)



DS-OR Models

- Multipurpose and stationary storage units.

Height : 1800mm / 70.87inch, Depth : 550mm / 21.65inch

Model	Width (mm / inch)		Net Weight (kg/lbs)	Cat. No.
	Body	Each Compartment		
DS-OR-18047N1	472 / 18.58	418 / 16.46	110 / 242.5	AAAF1090
DS-OR-18055N1	556 / 21.89	502 / 19.76	120 / 264.6	AAAF1091
DS-OR-18091N2	915 / 36.02	418 / 16.46	215 / 473.9	AAAF1092
DS-OR-18108N2	1083 / 42.64	502 / 19.76	244 / 537.9	AAAF1093

※ Available customized depth 700mm / 27.56 inch cabinets.

Steel base cabinets are ideally convenient on top or underneath the lab benches. Also, these cabinets come with basic exhaust structures for safe storage of routinely used laboratory items.



Fully-extendable slide out drawers useful for getting at stored lab items placed in the back of the drawer.



Comes included with 4 tray dividers.



The moveable cabinets (DS-UT/ DS-UD Models) are designed to fit under the lab bench, counter, fume hood, or window.



Superiorly chemical resistant PP trays included with the drawers keep lab material safely tidy and organized.

Inner air and vapor from the two connected cabinets vents using.
Maximum load capacity per each drawer 30kg / 66.1lbs.



The removable name plate comes included with the cabinet to keep track of inventory.

ADA Solutions

- DS-UT and DS-UD Models (only depth 550mm / 21.65inch models) are made cognizant by the Americans With Disabilities Act.

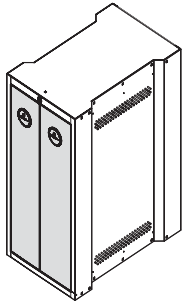
► Quantity of Trays (Standard / Max.)

DS-TT	DS-UT	DS-UD	DS-TW
Each Narrow Drawer 3 / 4	Each Narrow Drawer 3 / 3	1 / 1	Each Vertical Compartment 3 / 5

※ The distance is 135mm(5.31inch) between each bottoms of tray, when Max. tray setting in drawer.

Table Top Type Cabinets (DS-TT, DS-TW Models)

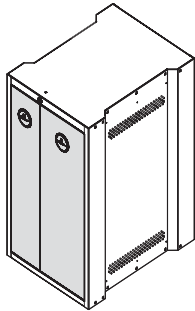
- Glass door cabinets and pull-out drawers can also be used as a table top storage unit.



DS-TT Models

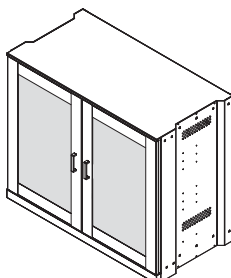
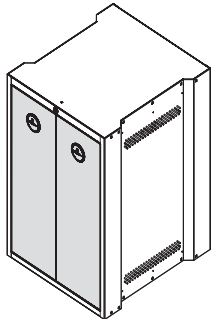
Height : 900mm / 35.43inch, Depth : 700mm / 27.56inch

Model	Width (mm / inch)			Net Weight (kg/lbs)	Cat. No.
	Body	Each Narrow Drawer			
		Left	Right		
DS-TT-09047D2	476 / 18.74	194 / 7.64	194 / 7.64	61 / 134.5	AAAF1020
DS-TT-09056D2	560 / 22.05	194 / 7.64	278 / 10.94	67 / 147.7	AAAF1021
DS-TT-09064D2	644 / 25.35	278 / 10.94	278 / 10.94	73 / 160.9	AAAF1022



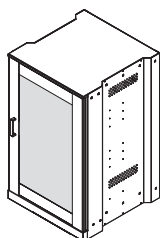
Height : 900mm / 35.43inch, Depth : 550mm / 21.65inch

Model	Width (mm / inch)			Net Weight (kg/lbs)	Cat. No.
	Body	Each Narrow Drawer			
		Left	Right		
DS-TT-09047N2	476 / 18.74	194 / 7.64	194 / 7.64	54 / 119	AAAF1023
DS-TT-09056N2	560 / 22.05	194 / 7.64	278 / 10.94	59 / 130	AAAF1024
DS-TT-09064N2	644 / 25.35	278 / 10.94	278 / 10.94	64 / 141	AAAF1025



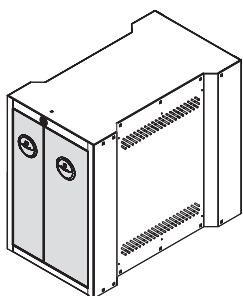
DS-TW Models

Model	Width (mm / inch)		Net Weight (kg/lbs)	Cat. No.
	Body	Compartment Each		
DS-TW-09047N1	472 / 18.58	418 / 16.46	61	AAAF1054
DS-TW-09055N1	556 / 21.89	502 / 19.76	65	AAAF1055
DS-TW-09091N2	915 / 36.02	418 / 16.46	110	AAAF1056
DS-TW-09108N2	1083 / 42.64	502 / 19.76	119	AAAF1057



Under Table Type Cabinets (DS-UT, DS-UD Models)

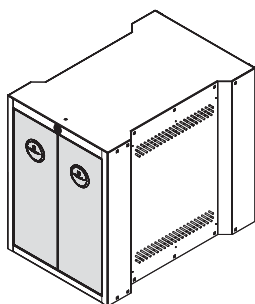
- Movable and compact storage units useful for underneath the lab bench.



DS-UT Models

Height : 650mm / 25.6inch, Depth : 700mm / 27.56inch

Model	Body	Width (mm / inch)		Net Weight (kg/lbs)	Cat. No.
		Each Narrow Drawer			
		Left	Right		
DS-UT-06047D2	476 / 18.74	194 / 7.64	194 / 7.64	58 / 127.9	AAAF1010
DS-UT-06056D2	560 / 22.05	194 / 7.64	278 / 10.94	64 / 141.1	AAAF1011
DS-UT-06064D2	644 / 25.35	278 / 10.94	278 / 10.94	70 / 154.3	AAAF1012



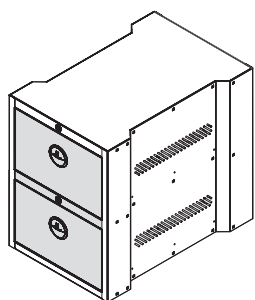
Height : 650mm / 25.6inch, Depth : 550mm / 21.65inch

Model	Body	Width (mm / inch)		Net Weight (kg/lbs)	Cat. No.
		Each Narrow Drawer			
		Left	Right		
DS-UT-06047N2	476 / 18.74	194 / 7.64	194 / 7.64	50 / 110.2	AAAF1013
DS-UT-06056N2	560 / 22.05	194 / 7.64	278 / 10.94	55 / 121.3	AAAF1014
DS-UT-06064N2	644 / 25.35	278 / 10.94	278 / 10.94	60 / 132.3	AAAF1015

DS-UD Models

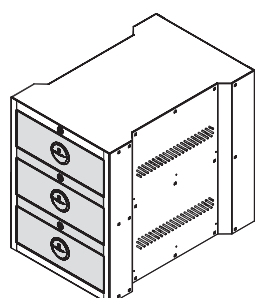
Height : 650mm / 25.6inch, Depth : 700mm / 27.56inch

Model	Width (mm / inch)		Net Weight (kg/lbs)	Cat. No.
	Body	Compartment Each		
DS-UD-06047D2	476 / 18.74	2	50 / 110.2	AAAF1040
DS-UD-06047D3	476 / 18.74	3	61 / 134.5	AAAF1041
DS-UD-06056D2	560 / 22.05	2	57 / 125.7	AAAF1042
DS-UD-06056D3	560 / 22.05	3	69 / 152.1	AAAF1043



Height : 650mm / 25.6inch, Depth : 550mm / 21.65inch

Model	Width (mm / inch)		Net Weight (kg/lbs)	Cat. No.
	Body	Compartment Each		
DS-UD-06047N2	476 / 18.74	2	43 / 94.8	AAAF1044
DS-UD-06047N3	476 / 18.74	3	52 / 114.6	AAAF1045
DS-UD-06056N2	560 / 22.05	2	49 / 108	AAAF1046
DS-UD-06056N3	560 / 22.05	3	59 / 130	AAAF1047

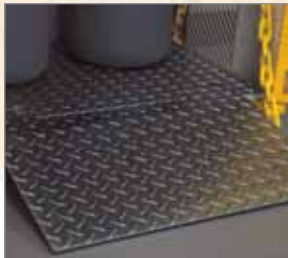


Furniture

Gas Cylinder Cabinets

Constructed progressively strong, and for storage of Gas Cylinders inside of buildings.

Essentially convenient and standard safety functions are incorporated in the cabinets.



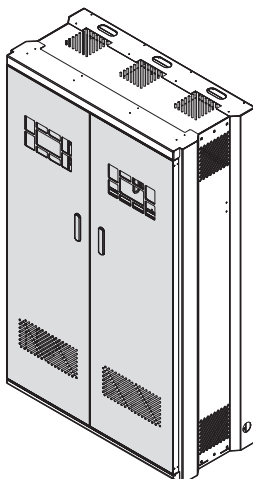
Large Interior

- Wide fold down ramp, safe and easy to maneuver gas cylinders in and out of the cabinet, easy to install gas fittings and pipes.



Spark proof plastic chains convenient for securing gas cylinders in place, prevents gas cylinders from getting scratched.

Front and both side vent slits vents the cabinet effectively disperses the gas leak out of the cabinet in case there is damage to one of the gas cylinders.



► DS-GC Models

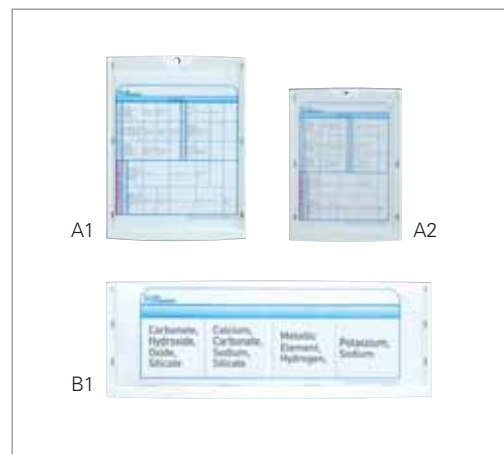
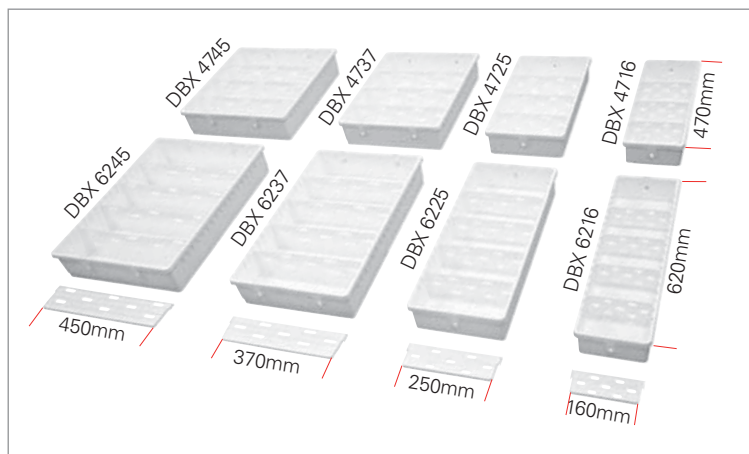
Height : 1800mm / 70.87inch, Depth : 550mm / 21.65inch

Model	Width (mm / inch)	Number of Gas Cylinder	Net Weight (kg/lbs)	Cat. No.
DS-GC-18074N2	740 / 29.13	2	107 / 235.9	AAAF1070
DS-GC-18107N2	1070 / 42.13	3	140 / 308.6	AAAF1071

※ Measured Gas Cylinder size is $\phi 230\text{mm}$ / 9.06inch.

Furniture

Accessories & Options



Trays

Cat. No.	Description	Dimension (W x D x H) (mm / inch)	Using Models
CBN0008	DBX 4716	160 × 470 × 80 / 6.3 × 18.5 × 3.1	DS-S-18047N4, DS-S-18056N4, DS-S-18068N6
			DS-C-18047N4, DS-C-18047N5, DS-C-18056N4, DS-C-18056N5
			DS-TT-09047N2, DS-TT-09056N2
			DS-UT-06047N2, DS-UT-06056N2
CBN0009	DBX 4725	250 × 470 × 90 / 9.8 × 18.5 × 3.5	DS-S-18056N4, DS-S-18064N4, DS-S-18093N6
			DS-C-18056N4, DS-C-18056N5
			DS-TT-09056N2, DS-TT-09064N2
			DS-UT-06056N2, DS-UT-06064N2
CBN0010	DBX 4737	370 × 470 × 100 / 14.6 × 18.5 × 3.9	DS-C-18047N4, DS-C-18047N5
CBN0011	DBX 4745	450 × 470 × 110 / 17.7 × 18.5 × 4.3	DS-UD-06047N2, DS-UD-06047N3
			DS-C-18056N4, DS-C-18056N5
CBN0014	DBX 6216	160 × 620 × 80 / 6.3 × 24.4 × 3.1	DS-UD-06056N2, DS-UD-06056N3
			DS-S-18047D4, DS-S-18056D4, DS-S-18068D6
			DS-SL-24047D6, DS-SL-24056D6
			DS-C-18047D4, DS-C-18047D5, DS-C-18056D4, DS-C-18056D5
			DS-TT-09047D2, DS-TT-09056D2
CBN0015	DBX 6225	250 × 620 × 90 / 9.8 × 24.4 × 3.5	DS-UT-06047D2, DS-UT-06056D2
			DS-S-18056D4, DS-S-18064D4, DS-S-18093D6
			DS-SL-24056D6, DS-SL-24064D6
			DS-C-18056D4, DS-C-18056D5
			DS-TT-09056D2, DS-TT-09064D2
CBN0012	DBX 6237	370 × 620 × 100 / 14.6 × 24.4 × 3.9	DS-UT-06056D2, DS-UT-06064D2
			DS-C-18047D4, DS-C-18047D5
CBN0013	DBX 6245	450 × 620 × 110 / 17.7 × 24.4 × 4.3	DS-UD-06047D2, DS-UD-06047D3
			DS-C-18056D4, DS-C-18056D5
			DS-UD-06056D2, DS-UD-06056D3

Furniture

Accessories & Options

Tray Dividers

Cat. No.	Description (W) (mm / inch)	Using Models
CBN0016	160 / 6.3	DS-S-18047D4, DS-S-18056D4, DS-S-18068D6, DS-S-18047N4, DS-S-18056N4, DS-S-18068N6
		DS-SL-24047D6, DS-SL-24056D6
		DS-C-18047D4, DS-C-18047D5, DS-C-18056D4, DS-C-18056D5, DS-C-18047N4, DS-C-18047N5, DS-C-18056N4, DS-C-18056N5
		DS-TT-09047D2, DS-TT-09056D2, DS-TT-09047N2, DS-TT-09056N2
		DS-UT-06047D2, DS-UT-06056D2, DS-UT-06047N2, DS-UT-06056N2
CBN0017	250 / 9.8	DS-S-18056D4, DS-S-18064D4, DS-S-18093D6, DS-S-18056N4, DS-S-18064N4, DS-S-18093N6
		DS-SL-24056D6, DS-SL-24064D6
		DS-C-18056D4, DS-C-18056D5, DS-C-18056N4, DS-C-18056N5
		DS-TT-09056D2, DS-TT-09064D2, DS-TT-09056N2, DS-TT-09064N2
		DS-UT-06056D2, DS-UT-06064D2, DS-UT-06056N2, DS-UT-06064N2
CBN0018	370 / 14.6	DS-C-18047D4, DS-C-18047D5, DS-C-18047N4, DS-C-18047N5
		DS-TW-09047N1, DS-TW-09091N2
		DS-UD-06047D2, DS-UD-06047D3, DS-UD-06047N2, DS-UD-06047N3
		DS-OW-18047N1, DS-OW-18091N2
		DS-OR-18047N1, DS-OR-18091N2
CBN0019	450 / 17.7	DS-C-18056D4, DS-C-18056D5, DS-C-18056N4, DS-C-18056N5
		DS-TW-09055N1, DS-TW-09108N2
		DS-UD-06056D2, DS-UD-06056D3, DS-UD-06056N2, DS-UD-06056N3
		DS-OW-18055N1, DS-OW-18108N2
		DS-OR-18055N1, DS-OR-18108N2

Name Plates

Cat. No.	Description	Dimension (W × H) (mm / inch)	Using Models
AAAF1521	Magnetic Name Plate-A1	150 × 200 / 5.9 × 7.9	DS-S-18047D4, DS-S-18056D4, DS-S-18068D6, DS-S-18064D4, DS-S-18093D6, DS-S-18047N4, DS-S-18056N4, DS-S-18068N6, DS-S-18064N4, DS-S-18093N6
			DS-SL-24047D6, DS-SL-24056D6, DS-SL-24064D6
			DS-C-18047D4, DS-C-18047D5, DS-C-18056D4, DS-C-18056D5, DS-C-18047N4, DS-C-18047N5, DS-C-18056N4, DS-C-18056N5
			DS-TT-09047D2, DS-TT-09056D2, DS-TT-09064D2, DS-TT-09047N2, DS-TT-09056N2, DS-TT-09064N2
			DS-UT-06047D2, DS-UT-06056D2, DS-UT-06064D2, DS-UT-06047N2, DS-UT-06056N2, DS-UT-06064N2
			DS-UD-06047D2, DS-UD-06047D3, DS-UD-06056D2, DS-UD-06056D3, DS-UD-06047N2, DS-UD-06047N3, DS-UD-06056N2, DS-UD-06056N3
AAAF1522	Magnetic Name Plate-A2	120 × 165 / 4.7 × 6.5	DS-C-18047D5, DS-C-18056D5, DS-C-18047N5, DS-C-18056N5
			DS-UD-06047D3, DS-UD-06056D3, DS-UD-06047N3, DS-UD-06056N3
AAAF1523	Name Plate-B1	320 × 115 / 12.6 × 4.5	DS-TW-09047N1, DS-TW-09091N2, DS-TW-09055N1, DS-TW-09108N2
			DS-OW-18047N1, DS-OW-18055N1, DS-OW-18091N2, DS-OW-18108N2

► Drawer Set

Cat. No.	Description	Dimension (W × H) (mm / inch)	Using Models
AAAF1501	Epoxy Painted Steel Drawer with Tray	388 × 504 / 15.3 × 19.8	DS-TW-09047N1, DS-TW-09091N2 DS-OW-18047N1, DS-OW-18091N2
AAAF1502		472 × 504 / 18.6 × 19.8	DS-TW-09055N1, DS-TW-09108N2 DS-OW-18055N1, DS-OW-18108N2
AAAF1507		388 × 523 / 15.3 × 20.6	DS-OR-18047N1, DS-OR-18091N2
AAAF1508		472 × 523 / 18.6 × 20.6	DS-OR-18055N1, DS-OR-18108N2
AAAF1504	Stainless Steel Drawer with Tray	388 × 504 / 15.3 × 19.8	DS-TW-09047N1, DS-TW-09091N2 DS-OW-18047N1, DS-OW-18091N2
AAAF1505		472 × 504 / 18.6 × 19.8	DS-TW-09055N1, DS-TW-09108N2 DS-OW-18055N1, DS-OW-18108N2
AAAF1509		388 × 523 / 15.3 × 20.6	DS-OR-18047N1, DS-OR-18091N2
AAAF1510		472 × 523 / 18.6 × 20.6	DS-OR-18055N1, DS-OR-18108N2

► Flask Supports

Model	FT 100 12	FT 050 12	FT 025 23	FT 025 12	FT 010 34	FT 010 13
Volume (ml)	1000	500	250	250	100	100
Cat. No.	AAA23704	AAA23703	AAA23702	AAA23707	AAA23701	AAA23706



► Anchor

Cat. No.	Description
CBN0036	Anchor



Furniture

Filtering Storage Cabinets

Storing reagents in this filtering storage cabinet ensures clean lab environment for users.

Feel free to install the cabinet anywhere without any concern of your existing exhaust system. Conveniently place and remove the reagents with the full-extension sliding drawers. Air purification inside the cabinet prevents heating and cooling loss caused by ducted air exhaust systems.



FSC-200 / FSC-120

Included Accessories

➔ see page 49

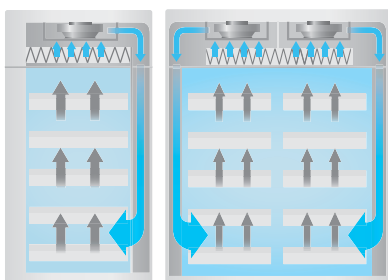
- Pre-filter, LED Lamp
- Slide Drawers (6ea for FSC-120, 10ea for FSC-200)
- Spill Tray (1ea for FSC-120, 2ea for FSC-200)



Furniture

Filtering Storage Cabinets

Energy efficient and space saving filtering system



- Flexible installation of the cabinet is possible and cost-intensive exhaust air ducts are no longer necessary. Air circulation inside the cabinet prevents heating and cooling loss due to the exhaust air, which causes high energy consumption.

Customized filter configuration.



- ISO Class 4 (US Class 10) HEPA filter for optimal protection against cross-contamination. (optional)
- 0.3 μm and larger particulates are removed with 99.99% efficiency, leak-tight HEPA filter which satisfying class 10. (US Federal Standard 209E) (average life span of HEPA filter: 3 years – it depends on the test room conditions) (optional)
- High-quality polyester fiber pre-filter (with minimal pressure loss and 85% arrestance on the A.F.I. test) for trapping larger particles and increasing the life of the main HEPA filter.
- Activated Carbon Filters; VOC / MA / MB Type. (optional)
- Convenient filter saturation check and easy filter replacement by an intelligent front cover design

BS 7989 2001

- Filtering capacity of our cabinet is tested by BS 7989, which describes specifications for the recirculatory filtration fume cupboards.

Various Display Modes



- Temperature, humidity, VOC information are on your selection.

User-friendly functions

- Auto run On / Off.
In case of power failure, the unit starts automatically when the unit gets the power back.
- Set each function's value to best suit the users.

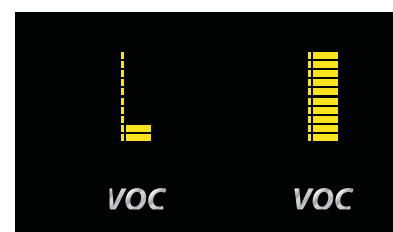
Safety warning alarms with LED indicators

- High temp. alarm with automatic fan stop.
- Fan fail alarm for abnormal fan stop.
- Door open alarm to protect users and clean environment.
- Filter check alarm for regular maintenance of filter.

Economical and eco-friendly sleep mode

- You can set the operating time from 8am to 6pm if your official working hour is from 9am to 6pm. It saves 60% of energy consumption and extends the life span of the fan and filter.

VOC level indication



- Clear and symbolic VOC level bar indicates VOC measurement of the inner cabinet.
- Real time detecting and displaying are available with VOC sensor inside the cabinet.

Powerful air purification



TURBO

Interlocking TURBO fan auto On / Off with door

Max. speed fan level for 30 seconds

- Simply push turbo fan button before opening the door to activate fan at the maximum speed level for protecting users from any remain hazardous gas inside.
- This turbo fan function can also be interlocked with door opening.

Furniture

Filtering Storage Cabinets

Door and drawer tested in accordance with

- It is designed and tested in accordance with SEFA for door hinge test and drawer static load test. The international standard guarantees users the quality and longer use of every unit. In addition, we autonomously conducted the overturning test for more safety.
- Max. 40kg heavy load sustainable inner chamber and drawers. Imagine that just one drawer can dramatically sustain a ten-year-old boy.

Chemical resistant epoxy coated steel and tempered glass door.

- Corrosion resistant epoxy coated steel for storage of toxic chemical samples.
- Well designed full length handle let you feel totally relaxed by opening the door at any height.
- Tempered glass door with long life span LED lighting. Auto light On / Off function for energy efficiency and convenient use.

Wide inner space use

- Wide inner space use with the provided extremely smooth full-extension sliding drawers.
- Spill tray and door lock key for clean and safe sample storage.



Specifications & Ordering Information



Model		FSC-120		FSC-200	
Internal Volume (L / cu ft)		685 / 24.2		1145 / 40.4	
Capacity ¹⁾ (L / gal , 1L Bottle *ea)		120 / 31.7		200 / 52.8	
Airflow Rate (m3/min, CMM)		3.0		5.34	
Pre-Filter		Polyester fibers with filter efficiency of 85% (A-F-ITEST)			
No. of Drawer Shelves, Slide (included / max.)		5 / 10		10 / 20	
Max. Load per Shelf (kg / lbs)		40 / 88.2		40 / 88.2	
Materials	Main Body	Epoxy Powered Coated Steel, Glass			
	Display	Vacuum Fluorescent Display (VFD)			
	Lamp	LED			
Noise Level (dB)		< 50		< 55	
Dimension (WxDxH)	Internal (mm / inch)	835x575x1420 / 32.9x22.6x55.9		1395x578x1420 / 54.9x22.8x55.9	
	External (mm / inch)	1000x635x2000 / 39.4x25.0x78.7		1560x635x2025 / 61.4x25.0x79.7	
	Drawer (mm / inch)	655x500x100 / 25.8x19.7x3.9		575x500x100 / 22.6x19.7x3.9	
	Spill Tray (mm / inch)	710x530x35 / 27.9x20.9x1.4		600x530x35 / 23.6x20.9x1.4	
	Net Weight (kg / lbs)	320 / 705.5		495 / 1091.3	
Electrical Requirements (230V)		60Hz, 0.5A		60Hz, 1.0A	
Cat. No.		AAHF1101K		AAHF1111K	
		AAHF1102K		AAHF1112K	
Electrical Requirements (120V)		60Hz, 1.0A		60Hz,	
Cat. No.		AAHF1103U		AAHF1113U	

1) Basic condition for above capacity is when five drawers are built in.

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

Accessories & Options

Cat. No.		Description	Application
FSC-120	FSC-200		
FSC0021	FSC0029	Activated Carbon Filter (VOC)	Volatile organic compounds (VOC)
FSC0003	FSC0027	Activated Carbon Filter (VOC + Acid)	Volatile organic compounds (VOC), Acidic solvents ¹⁾ (MA)
FSC0004	FSC0028	Activated Carbon Filter (VOC + NH ₃)	Volatile organic compounds (VOC), Ammonia, Alkaline solvents (MB)
FSC0001	FSC0030	HEPA Filter	Biohazardous aerosols and other visible and non-visible particles (filtration efficiency: 99.99% at 0.3 microns)
FSC0002	FSC0031	Pre filter	Larger particles and increasing the life of main filter

※ Please do not use high percentage of reactive acid such as perchloric acid.

Cat. No.	Description
AAAB2531	Gas Detector (KITAGAWA AP-20)
AAAB1550	Gas Detecting Tube (Benzene, GASTEC-121SP (0.5-10ppm))
AAAB1551	Gas Detecting tube (Toluene, GASTEC-122L (1-100ppm))
AAAB1552	Gas Detecting tube (Acetic acid, GASTEC-137 (0.125-25ppm))
AAAB1553	Gas Detecting tube (Chloroform, GASTEC-137 (4-400ppm))
AAAB1554	Gas Detecting tube (Formaldehyde, GASTEC-91LL (0.05-1ppm))
AAAB1555	Gas Detecting tube (Ammonia, GASTEC-3L (0.5-60ppm))

Hoods

SELECTION GUIDE

Clean Benches

Ductless Fume Hoods

Movable Extraction Arm Hoods

Extraction Arm Hoods

Bench Top Fume Hoods

PCR Workstations

UV Sterilization Cabinets

Clean Benches

Description		Filter	Work Surface	Page
Clean Benches (Advanced Models)	BC-01H	HEPA filter	Grade 304 Stainless Steel	52
	BC-11H			
	BC-21H			
Clean Benches (Basic Models)	BC-01B	HEPA filter	Grade 304 Stainless Steel	54
	BC-11B			
	BC-21B			

Fume Hoods

Description		Filter	Work Surface	Page
Ductless Fume Hoods	DLH-01G DLH-11G	6 Different Filter Types (optional)	6 Different Work Surface Types (optional)	56
Movable Extraction Arm Hoods (Extraction Arm + Basic Hood + Filter Box)	MAH-2100	Prefilter Hepafilter Activated carbon filter	Bench Top Fume Hoods (optional)	58
	MAH-3100			
Extraction Arm Hoods (Extraction Arm + Basic Hood)	AH-75	6 Different Filter Types (optional)	Bench Top Fume Hoods (optional)	59
Bench Top Fume Hoods	PMH-720	-	Polyethylene	60

PCR workstations

Description		Filter	Work Surface	Page
PCR Workstations	PW-01	HEPA filter	Transparent Acrylic Resin (10mm/0.39" thick)	61
	PW-11			
	PW-21			

UV Sterilization Cabinets

Description		Filter	Work Surface	Page
UV Sterilization Cabinets	UVC-01	-	Grade 304 Stainless Steel	62
	UVC-11			
	UVC-21			

Accessories & Options

Description	Page
for Clean Benches	55
for Ductless Fume Hoods	57
for (Movable) Extraction Arm Hoods	59
for Bench Top Fume Hoods	60
for PCR Workstations	63
for UV Sterilization Cabinets	63



GENERAL APPLICATIONS



Clean Benches

Asbestos Handling, Electronics Inspection/Repair, General Forensics, Non-toxic IV Solution Preparation, Plant Tissue Culture Maintenance, QA/QC Testing, Sterile Media Preparation, Syringe Filling, Tissue Fixation/Staining Preparation, etc.

Fume Hoods

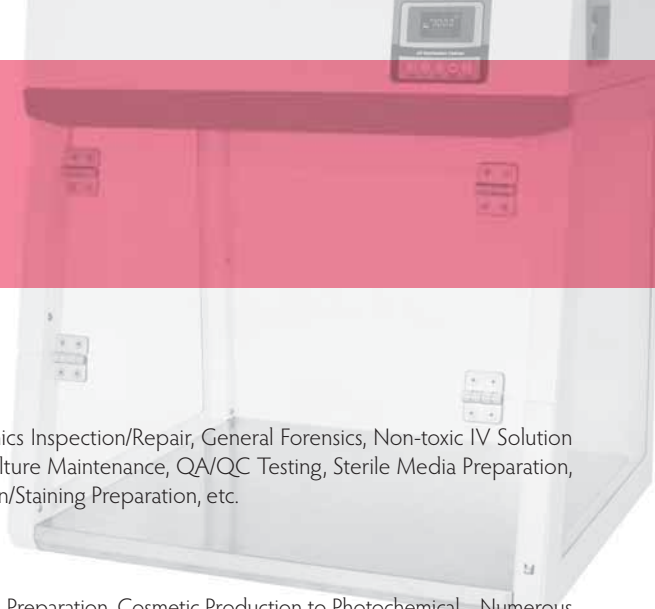
Chemical Sampling, Chemical Preparation, Cosmetic Production to Photochemical, Numerous Vapor-generating Laboratory Processes, Powder Extraction, Slide Preparation, Touch up Painting, Weighing Toxic Powders, Welding Fumes, etc.

PCR Workstations

Medical Device Assembly, PCR, Staining with Volatile, Sterile Media Preparation, Tissue Fixation/Staining Preparation etc.

UV Sterilization Cabinets

General Sterilization in daily use.



TECHNICAL BENEFITS

Clean Benches

- 1) UV-blocking tempered glass sliding door.
- 2) Automatic switch off of the UV lamp when the door is opened.
- 3) 99.99% efficient HEPA filter.
- 4) Separate fuses protecting against overcurrent.
- 5) Dirt-repellent powder coating on the external surface.
- 6) Grade 304 stainless steel work surface with high chemical resistance.
- 7) Using a BLDC motor in the blower provides a quiet (less than 65dB) and comfortable working environment.
- 8) Digital airflow rate sensor for automated airflow speed control. (BC-H model)
- 9) Each digital display is equipped inside and front. (BC-H model)
 - Ease to check the unit conditions during use.

Ductless Fume Hoods

- 1) Easy-to-operate control panel:
 - Consist of fluorescent lamp, Fan Start/Stop, Blower speed controller, alarm, menu and etc.
- 2) Built-in anemometer for visually monitoring real time input air velocity.
- 3) Transparent front door and bothsides made of acrylic resin providing clear inside view.
- 4) Door Stay: fixture to fix it when door open at 2 steps.
(if it's dropped without backing up, result in damage, and fixing magnetic enable to open hold it to 1 step-door.)
- 5) Protection against overcurrent.
- 6) Optional mobile stand with lockable casters for easy relocation.

PCR workstations & UV Sterilization Cabinets

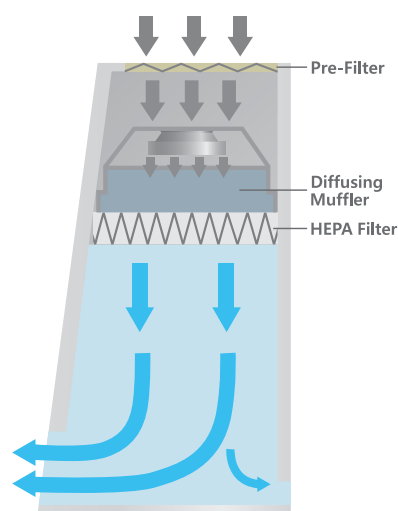
- 1) Powerful and uniformly distributed UV-C illumination.
(average lifespan: 8,000 hours)
- 2) Automatic switch off of the UV lamp when the door is opened unintentionally.
- 3) 99.99% efficient HEPA filter.
- 4) Protection against overcurrent.
- 5) Pre-filter extending the life of main HEPA filters. (PW models)
- 6) Intelligent digital controller for timer, alarm, and blower speed. (PW models)
- 7) Chemical-resistant work surface. (UVC-models)

Hoods

Clean Benches (Advanced Models)

Advanced vertical laminar flow clean benches with two digital displays are designed for high comfort and the best safe performance.

ISO Class 4 air cleanliness as per ISO 14644-1. (equivalent to Class 10 as per US Federal Standard 209E)
Nominal downflow velocity. (max. 0.45 m/sec)



BC-11H with an optional Stand

Included Accessories

see page 55

- HEPA Filter, Pre-Filter
- UV Lamp, Fluorescent Lamp
- Electrical Socket



Filtration Features

- ISO Class 4 (US Class 10) HEPA filter for optimal protection against cross-contamination.
- 0.3 μm and larger particulates are removed with 99.99% efficiency, leak-tight HEPA filter which satisfying class 10. (US Federal Standard 209E) (average life span of HEPA filter: 3 years – it depends on the test room conditions)
- Comfortable front access for inspection of HEPA filter and easy validation.
 - Standard gas injection hole for easy checking of HEPA filter leak performance test.

- High-quality polyester fiber pre-filter (with minimal pressure loss and 85% arrestance on the A.F.I. test) for trapping larger particles and increasing the life of the main HEPA filter.
- Digital differential pressure sensor allows for easy verification of HEPA filter condition great for knowing when to change HEPA filter.
- Digital airflow rate sensor (Microprocessor) for automated airflow speed control.
 - Offers continual airflow speed of same velocity and extends the HEPA filter life span.

Hoods

Clean Benches (Advanced Models)

► Safety & Constructional Features

- UV-blocking and impact-resistant tempered glass door.
- If the sash is opened during UV-lamp operation, UV lamp automatically turns OFF to protect users.
- If the sash is opened more than the recommended sash height level, during operation, warning alarm will activate and alarm users to lower the window to the recommended sash level to prevent contamination of samples.
- When UV light intensity is lower than 80%, UV warning lamp is automatically ON to let users know when to change UV-lamp.
- Quiet and comfortable working environment. (less than 65dB)
- Highly durable, rust-free, and easy-to-clean grade 304 stainless steel work surface.
- Smoothly sliding front door stoppable at any height for user's safety and easy transport of equipment into the workspace.
- Interlocking Smart Door System
 - Simply open the door while UV-lamp is ON. Interlocking smart door system will automatically turn OFF UV-lamp, turn ON Fluorescent lamp and Blower instead of your manual control.
- Two digital displays for the best convenience.
 - Even if any test is ongoing inside of the chamber, unit conditions such as velocity, temperature and humidity can be easily checked by the inner and outside displays.
- Exclusive diffusing muffler structure forms high quality laminar flow.
- The inner left side magnetic board allows some memos and small tools.

► Specifications & Ordering Information



Model		BC-01H		BC-11H		BC-21H	
Air Flow Type		Vertical laminar flow					
Air Volume (Minimum / Maximum)		0 to 1020 cmh / 0 to 600 cfm		0 to 2040 cmh / 0 to 1200 cfm			
Laminar Airflow Velocity (m / s / fpm)		0.3 / 59		0.45 / 89		0.3 / 59	
Air Cleanliness within Work space		ISO 14644-1 Class 4, US Federal Standard 209E Class 10					
Filters	HEPA Filter	Typical efficiency of 99.99% on 0.3μm (US MIL-STD-282) ; Micro glass fiber Media, Particle board, AL separator, Neoprene gaskets					
	Pre Filter	Polyester fibers with an filter efficiency of 85% (A-F-ITEST) ; Aluminum frame, Polyester fiber media					
Noise Level		Typically < 65dB at blower speed					
Materials	Main Body	Steel powder coating					
	Work Surface	Stainless steel grade 304, Hairline treatment					
Windows (Front / Side)		Colorless and transparent UV absorbing 5mm tempered glass					
Illumination	Intensity (lux)	> 650					
	Fluorescent lamp (w)	30Wx2ea				32Wx2ea	
		Electronically ballasted Fluorescent Lamp					
	UV lamp (w)	25Wx1ea		30Wx1ea		25Wx2ea	
		Electronically ballasted UV Lamp					
Electric Socket Outlets		230V socket					
Dimension (WxDxH)	Internal (mm / inch)	945x570x670/ 37.2x22.4x26.4		1245x570x670/ 49.0x22.4x26.4		1845x570x670/ 72.6x22.4x26.4	
	External without Stand (mm / inch)	1135x647x1150/ 44.7x25.5x45.3		1435x647x1150/ 56.5x25.5x45.3		2035x647x1150/ 80.1x25.5x45.3	
	External with Stand (mm / inch)	1135x647x1870/ 44.7x25.5x73.6		1435x647x1870/ 56.5x25.5x73.6		2035x647x1870/ 80.1x25.5x73.6	
	Net Weight (Body) (kg / lbs)	140 / 308.6		185 / 407.9		225 / 496	
	Net Weight (Body+Stand) (kg / lbs)	170 / 374.8		215 / 474		255 / 562.2	
Electrical Requirements (230V, 1ph)		60Hz / 1.25 A	50Hz / 1.38 A	60Hz / 1.57 A	50Hz / 1.73 A	60Hz / 2.09 A	50Hz / 2.30 A
Cat. No.		AAHA5011K	AAHA5012K	AAHA5021K	AAHA5022K	AAHA5031K	AAHA5032K
Electrical Requirements (120V, 1ph)		60Hz / 2.62 A		60Hz / 3.27 A		60Hz / 4.36 A	
Cat. No.		AAHA5013U		AAHA5023U		AAHA5033U	

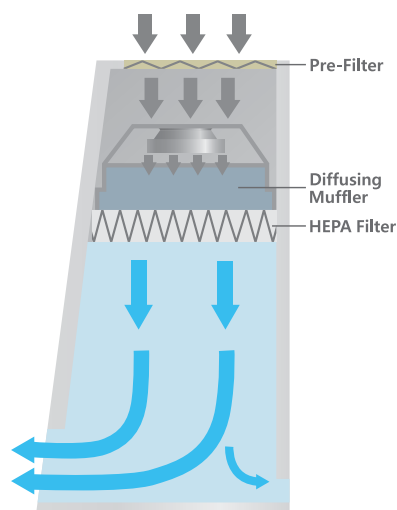
※ Permissible environmental conditions: temperature (5-40°C) and relative humidity (up to 80%).

Hoods

Clean Benches (Basic Models)

Vertical laminar flow clean benches!

ISO Class 4 air cleanliness as per ISO 14644-1. (equivalent to Class 10 as per US Federal Standard 209E)
Nominal downflow velocity. (max. 0.45 m/sec)



BC-11B with an optional Stand

- Included Accessories**
- HEPA Filter, Pre-Filter
 - UV Lamp, Fluorescent Lamp
 - Electrical Socket
 - Differential Pressure Gauge
- ➔ see page 55



Filtration Features

- ISO Class 4 (US Class 10) HEPA filter for optimal protection against cross-contamination.
- 0.3 μm and larger particulates are removed with 99.99% efficiency, leak-tight HEPA filter which satisfying class 10. (US Federal Standard 209E) (average life span of HEPA filter: 3 years – it depends on the test room conditions)
- Comfortable front access for inspection of HEPA filter and easy validation.
 - Standard gas injection hole for easy checking of HEPA filter leak performance test.
- High-quality polyester fiber pre-filter (with minimal pressure loss and 85% arrestance on the A.F.I. test) for trapping larger particles and increasing the life of the main HEPA filter.
- Built-in differential pressure gauge for easy checking HEPA filter condition.
- Easy blower speed adjustment by the control panel.

Safety & Constructional Features

- UV-blocking and impact-resistant tempered glass door.
- If the sash is opened during UV-lamp operation, UV lamp automatically turns OFF to protect users.
- Lighting mode selection by 3-position toggle switch (UV/OFF/Fluorescent) preventing harmful UV exposure.
- Quiet and comfortable working environment. (less than 65dB)
- Highly durable, rust-free, and easy-to-clean grade 304 stainless steel work surface.
- Smoothly sliding front door stoppable at any height for user's safety and easy transport of equipment into the workspace.
- Exclusive diffusing muffler structure forms high quality laminar flow.
- The inner left side magnetic board allows some memos and small tools.

Hoods

Accessories & Options

Specifications & Ordering Information



Model		BC-01B		BC-11B		BC-21B	
Air Flow Type		Vertical laminar flow					
Air Volume (Minimum / Maximum)		0 to 1020 cmh / 0 to 600 cfm		0 to 2040 cmh / 0 to 1200 cfm			
Laminar Airflow Velocity (m / s / fpm)		0.3 / 59		0.45 / 89		0.3 / 59	
Air Cleanliness within Work space		ISO 14644-1 Class 4, US Federal Standard 209E Class 10					
Filters	HEPA Filter	Typical efficiency of 99.99% on 0.3µm (US MIL-STD-282) ; Micro glass fiber Media, Particle board, AL separator, Neoprene gaskets					
	Pre Filter	Polyester fibers with an filter efficiency of 85% (A-F-ITEST) ; Aluminum frame, Polyester fiber media					
Noise Level		Typically < 65dB at blower speed					
Materials	Main Body	Steel powder coating					
	Work Surface	Stainless steel grade 304, Hairline treatment					
	Windows (Front / Side)	Colorless and transparent UV absorbing 5mm tempered glass					
Illumination	Intensity (lux)	> 650					
	Fluorescent lamp (w)	30Wx2ea				32Wx2ea	
		Electronically ballasted Fluorescent Lamp					
	UV lamp (w)	25Wx1ea		30Wx1ea		25Wx2ea	
		Electronically ballasted UV Lamp					
Electric Socket Outlets		230V socket					
Dimension (WxDxH)	Internal (mm / inch)	945×570×670/ 37.2×22.4×26.4		1245×570×670/ 49.0×22.4×26.4		1845×570×670/ 72.6×22.4×26.4	
	External without Stand (mm / inch)	1135×647×1150/ 44.7×25.5×45.3		1435×647×1150/ 56.5×25.5×45.3		2035×647×1150/ 80.1×25.5×45.3	
	External with Stand (mm / inch)	1135×647×1870/ 44.7×25.5×73.6		1435×647×1870/ 56.5×25.5×73.6		2035×647×1870/ 80.1×25.5×73.6	
	Net Weight (Body) (kg / lbs)	140 / 308.6		185 / 407.9		225 / 496	
	Net Weight (Body+Stand) (kg / lbs)	170 / 374.8		215 / 474		255 / 562.2	
Electrical Requirements (230V, 1ph)		60Hz / 1.25 A 50Hz / 1.38 A		60Hz / 1.57 A 50Hz / 1.73 A		60Hz / 2.09 A 50Hz / 2.30 A	
Cat. No.		AAHA6011K AAHA6012K		AAHA6021K AAHA6022K		AAHA6031K AAHA6032K	
Electrical Requirements (120V, 1ph)		60Hz / 2.62 A		60Hz / 3.27 A		60Hz / 4.36 A	
Cat. No.		AAHA6013U		AAHA6023U		AAHA6033U	

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

for Clean Benches



HEPA Filter

- 99.99% efficient HEPA filter, industry standard size for economical replacement.



Stand with Casters

- Stand with Casters : Mobile stand made of powder-coated steel ideal for easy relocation.



Pre Filter

- Easy-to-replace pre-filter for trapping larger particles and extending the life of HEPA filters.

Filters

Cat. No.	Description	BC-01H/B	BC-11H/B	BC-21H/B
AAAB1601	HEPA Filter	•		
AAAB1602			•	
AAAB1603				•
AAAB1611	Pre-Filter	•		
AAAB1612			•	
AAAB1613				•

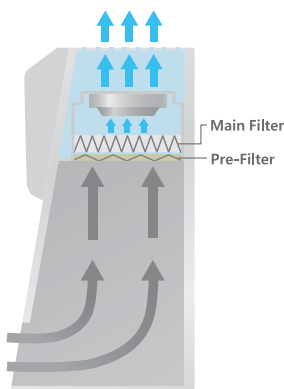
Others

Cat. No.	Description	BC-01H/B	BC-11H/B	BC-21H/B
AAAB1621	Stand with Casters	•		
AAAB1622			•	
AAAB1623				•
AAAB1631	UV Lamp(230V)	•		
AAAB1633			•	
AAAB1635				•
AAAB1632	UV Lamp(120V)	•		
AAAB1634			•	
AAAB1636				•
AAAB1561	Gas cock	•	•	•
AAAB1571	Differential Pressure Gauge (only for BC-B)	•	•	•

Hoods

Ductless Fume Hoods

Safe and energy-saving mobile workspace free from toxic vapors and fumes without the need of costly ductwork.



Digital Controller



Anemometer



Front Cover

DLH-01G with an optional Work Surface

Included Accessories • UV Lamp, Fluorescent Lamp

Optional Accessories • Work Surfaces
➔ see page 57

* DLH series do not come with any work surface at all. Please place an order one work surface among 6 optional different work surfaces for proper use.

Features

- Easy monitoring of the internal airflow speed thanks to the built-in anemometer.
- Convenient change of filter cartridges by opening the upper front cover.
- Fully or half openable front door for convenient transport of experimental apparatuses and equipment into or out of the workspace.
- Large-capacity blower maintaining sufficient intake flow rate and reducing noise.
(less than 55 dB under normal operation)
- Fluorescent light installed outside the workspace in order to prevent the airflow hindrance as well as the contamination while maintaining illumination intensity.
- Built-in utility hole for easily routing the cords or wires of the equipment placed inside the hood.
- A variety of filters and work surfaces available to suit your specific experimental needs. (refer to accessory section)

Safety Standards Compliance

- Efficiency and capacity of activated carbon filters :
BS 7989:2001
- Structure, electrical outlet, lighting, and sound level :
BS 7258-1:1994
- Local smoke, large volume visualization, face velocity, and tracer gas : ANSI/ASHRAE 110-1995 and NF EN 14175-1

Hoods

Accessories & Options

Specifications & Ordering Information



Model		DLH-01G		DLH-11G	
Controller		Microprocessor control			
Face Velocity		Initial set point: 0.4m/s, 80fpm			
Air Flow Meter		Swing vane type			
Main Filter		Chemical Filter (optional 6 different filters)			
Pre Filter		Washable high efficiency nylon filter			
Materials	Main Body, Window (Front / Side)	2.0mm steel (epoxy powder-coated), 8mm / 6mm thick acrylic resin			
	Work Surface	Optional 6 different work surfaces			
Fluorescent Light Intensity		> 600lux			
Noise Level		55dB under normal operation			
Dimension (WxDxH)	Internal (mm / inch)	880×640×800 / 34.6×25.2×31.5		1180×640×800 / 46.5×25.2×31.5	
	External without Stand (mm / inch)	900×660×1250 / 35.4×26×49.2		1200×660×1250 / 47.2×26×49.2	
	External with Stand (mm / inch)	900×660×1985 / 35.4×26×78.1		1200×660×1985 / 47.2×26×78.1	
	Net Weight (Body) (kg / lbs)	100 / 220.5		118 / 260.1	
	Net Weight (Body+Stand) (kg / lbs)	120 / 264.6		140 / 308.6	
Electrical Requirements (230V)		50Hz, 0.6A	60Hz, 0.7A	50Hz, 0.6A	60Hz, 0.7A
Cat. No.		AAHB2002K	AAHB2001K	AAHB2012K	AAHB2011K
Electrical Requirements (100V, 120V)		100V, 50Hz, 1.5A	120V, 60Hz, 1.3A	100V, 50Hz, 1.5A	120V, 60Hz, 1.3A
Cat. No.		AAHB2004U	AAHB2003U	AAHB2014U	AAHB2013U

※ Above specifications can be changed without prior notice.

for Ductless Fume Hoods

Filters

Cat. No.	Description	Application	DLH-01G	DLH-11G
EDA9191	Activated Carbon Filter	All common laboratory chemicals, especially VOC, Organic, Benzene, Toluene, etc	•	
EDA9192				•
EDA9199	Acid Filter	An acidic solvent; Acetic acid, etc	•	
EDA9200				•
EDA9201	Halogen Compounds Filter	Halogen compounds like Chlorine, Fluorine, Iodine, Bromine, Astatine, etc	•	
EDA9202				•
EDA9203	Formaldehyde Filter	Formadehyde applications	•	
EDA9204				•
EDA9205	Ammonia / Amines Filter	Ammonia / Amines by chemisorptions	•	
EDA9206				•
EDA9193	HEPA Filter	Biohazardous aerosols and other visible and non-visible particles (filtration efficiency: 99.99% at 0.3 microns)	•	
EDA9194				•
EDA9196	Pre filter	-	•	
EDA9198				•

Work Surfaces & Stands

Cat. No.	Description	DLH-01G	DLH-11G
AAAB2501	Work Surface (SUS #304)	•	
AAAB2502			•
AAAB2503	Work Surface (SUS #316)	•	
AAAB2504			•
AAAB2505	Work Surface (Ceramide)	•	
AAAB2506			•
AAAB2507	Work Surface (Polypropylene)	•	
AAAB2508			•
AAAB2509	Work Surface (Bakelite)	•	
AAAB2510			•
AAAB2511	Work Surface (PVC)	•	
AAAB2512			•
AAAB2521	Stand with Casters	•	
AAAB2522			•

Gas Detector & Gas Detecting Tubes

Cat. No.	Description	DLH-01G	DLH-11G
AAAB2531	Gas Detector (KITAGAWA AP-20)	•	•
EAA1550	Gas Detecting Tube (Benzene, GASTEC-121SP (0.5-10ppm))	•	•
EAA1551	Gas Detecting tube (Toluene, GASTEC-122L (1-100ppm))	•	•
EAA1552	Gas Detecting tube (Acetic acid, GASTEC-81L (0.125-25ppm))	•	•
EAA1553	Gas Detecting tube (Chloroform, GASTEC-137 (4-400ppm))	•	•
EAA1554	Gas Detecting tube (Formaldehyde, GASTEC-91LL (0.05-1ppm))	•	•
EAA1555	Gas Detecting tube (Ammonia, GASTEC-3L (0.5-60ppm))	•	•

Hoods

Movable Extraction Arm Hoods

Extraction Arm Hood with Filter Box.

When the mobility is important, the simplest solution for fume extraction!



Features

- In-lab ventilation system is no longer necessary with this movable extraction arm hood. MAH series can serve as the best mobile or fixed mounted fume extraction system.
- Chemical-resistant and heavy duty polypropylene extraction arm.
- 360-degree rotatable joints in the arms provide exceptional flexibility for easy positioning.
- Arm joints are easily removable for simple adjustment of length of the arm. (Adjustment parts : B, C)
- Air flow rate is adjustable by the damper of the extraction arm.
- Durable BLDC motor provides quiet and comfortable working environment.
- Convenient air flow control.
- Gas detecting port for checking filter condition.
- Automatic fan malfunction warning alarm.
- Prefilter, HEPA filter, activated carbon filter are provided as standard accessories.
- Optional different types of the hoods are available for effective fume extraction.

Chemical Filters

Cat. No.	Description
AAAB6507	Pre-Filter
AAAB6506	HEPA filter
AAAB6502	Activated carbon filter
AAAB6501	Acid filter
AAAB6505	Halogen compounds filter
AAAB6504	Formaldehyde filter
AAAB6503	Ammonia/Amines filter

* For chemical filters' application list and Gas Detector & Tubes ordering information, please refer to page 57.

* Please do not use it for highly reactive acid(perchloric acid) fume extraction.

MAH series with an optional Dome Hood

- Components**
- Extraction Arm + Basic Hood
 - Filter Box
(Prefilter/Hepa filter/Activated carbon filter)

Specifications & Ordering Information

Model	Joint	Length (mm/inch)					Ø (mm,inch)	Weight (kg / lbs)	Cat No.		
		A	B	C	D	Total			Electrical Requirements		
									230V/60Hz, 1.5A	230V/50Hz, 1.5A	120V/60Hz, 3A
Polypropylene Extraction Arm Hood + Filter Box*											
MAH-2100	2 joints	250/9.8	-	530/20.9	260/10.2	1040/40.9	75/2.9	1.8/3.9	AAHB6111K	AAHB6112K	AAHB6113U
MAH-3100	3 joints		640/25.2			1680/66.1		2.4/5.3	AAHB6301K	AAHB6302K	AAHB6303U

* Filter box dimensions (WxDxH, 500x500x850mm) (kg / lbs, 372 / 82.0)

Filter box comes with Prefilter/Hepafilter/Activated carbon filter.

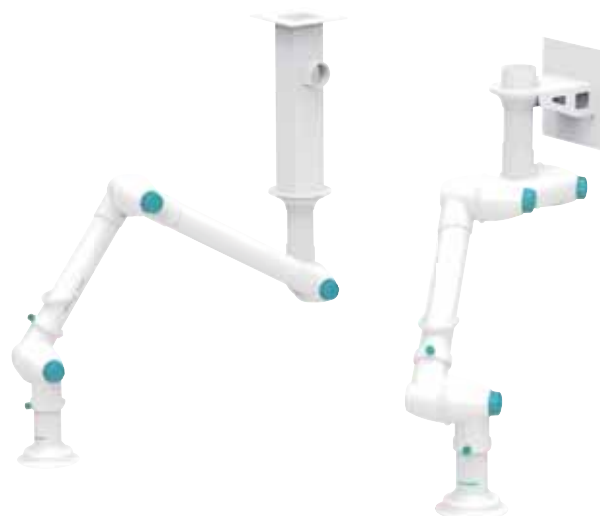
Hoods

Extraction Arm Hoods

The best solutions for eliminating dust and fume hazards at source.

Features

- Mountable on any surface such as ceiling, wall only when you have a ventilation system in your lab.
- Chemical-resistant and heavy duty polypropylene extraction arm.
- 360-degree rotatable joints in the arms provide exceptional flexibility for easy positioning.
- Arm joints are easily removable for simple adjustment of length of the arm. (Adjustment parts : B, C)
- Air flow rate is adjustable by the damper of the extraction arm.
- Optional different types of the hoods are available for effective fume extraction.
- One of the various brackets is essentially required for installing the extraction arm hood in your laboratory.



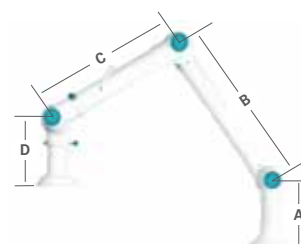
AH series with an optional Brackets

Components • Extraction Arm + Basic Hood

* Please make sure to place an order at least one bracket with AH series.

Specifications & Ordering Information

Model	Joint	Length (mm/inch)				Ø (mm,inch)	Weight (kg / lbs)	Cat No.	
		A	B	C	D				Total
Polypropylene Extraction Arm Hood									
AH-75	2 joints	250/9.8	-	530/20.9	260/10.2	1040/40.9	75/2.9	1.8/3.9	AAAB6511
	3 joints		640/25.2			1680/66.1		2.4/5.3	AAAB6541



for (Movable) Extraction Arm Hoods



Common Accessories

Cat. No.	Description	Dimension (WxDxH, mm/inch)
AAAB6221	Dome Hood (Polypropylene, White)	400x140 / 15.7x5.5 (ØxH, mm/inch)
AAAB6211	Dome Hood (Styrene Butadiene Copolymer, Transparent)	
AAAB6241	Square Hood (Polypropylene, White)	494x390x245 / 19.4x15.4x9.6
AAAB6231	Square Hood (Styrene Butadiene Copolymer, Transparent)	
AAAB5011	Bench Top Fume hood (PMH-720)	720x450x560 / 28.3x17.7x22
AAAB6411	Bracket for Bench Top Fume hood	178x178x2 / 7x7x0.1

Brackets

Cat. No.	Description	
	Type	Dimension (WxDxH, mm/inch)
AAAB6508	Ceiling	260x260x2 / 10.2x10.2x0.1
AAAB6512	Ceiling Column (Extra side connection hole for Ø 75mm ventilation duct)	100x100x250 / 3.9x3.9x9.8
AAAB6513		100x100x500 / 3.9x3.9x19.7
AAAB6514		100x100x750 / 3.9x3.9x29.5
AAAB6515		100x100x1000 / 3.9x3.9x39.4
AAAB6516		100x100x1250 / 3.9x3.9x49.2
AAAB6517		100x100x1500 / 3.9x3.9x59.1
AAAB6510	Wall	158x259x81.7 / 6.2x10.2x3.2

* All the brackets listed above are suitable for Ø 75mm Arms.
Exceptively Ceiling column brackets are suitable for Ø 50/75/100mm Arms.

Hoods

Bench Top Fume hoods

Ideal for use in limited laboratory spaces.

Cost-effective, fully portable alternative to metal hoods.



Features

- Compact design for easy moving and space saving.
- Transparent polycarbonate front door for observation.
- The door opens to five positions for comfort and convenience.
- One-piece molded design for leak-tight and exceptional durability.
- Chemical resistance and spark-less polyethylene.
- An exhaust motor is required. The unit can be connected to an in-house laboratory exhaust system. Either 150mm (6") dia flexible duct can be used.
- Rounded inner corners for continuous air flow and easy cleaning.

PMH-720



⚙ Stopper



⚙ O.D. 150mm Duct Hole
(flexible duct is not included)

Specifications & Ordering Information

Model		PMH-720
Permissible air velocity (m/s, fpm)		0.3 to 1 / 59.1 to 196.9
Permissible Environmental Condition		Temperature 2°C to 60°C Maximum relative humidity 80% Maximum altitude up to 2,000m
Material	Main Body	Polyethylene
	Window	Polycarbonate
Dimension	External (WxDxH, mm/inch)	720x450x560 / 28.3x17.7x22
	Entrance (WxD, mm/inch)	560x300 / 22x11.8
	Duct Hole (O.D., mm/inch)	150 / 6
	Net Weight (kg / lbs)	7 / 15.4
Cat. No.		AAAB5011

※ Above specifications can be changed without prior notice.

Hoods

PCR Workstations

Specially designed to minimize the sample contamination during PCR applications by combining ISO Class 4 (US Class 10) clean air environment.

Filtration Features

- ISO Class 4 (US Class 10) HEPA filter for optimal protection against cross-contamination. (average life span of HEPA filter: 3 years – it depends on the test room conditions)
- High-quality polyester fiber pre-filter (with minimal pressure loss and 85% arrestance on the A.F.I. test) for trapping larger particles and increasing the life of the main HEPA filter.
- Convenient change of filter cartridges by opening the upper front cover.
- Large capacity blower and easy blower speed adjustment by the control panel.



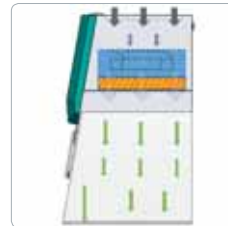
Safety & Constructional Features

- Interlocking safety door system shuts off UV light automatically when opening the door.
- UV-blocking door and side panels made of transparent acrylic resin provides clear inside view.
- UV over-exposure alarm and over-current protection.
- Effective sterilization using a long-life 254 nm UV lamp. (average life span of UV lamp: 8,000 hours)
- Built in anti-glare fluorescent lamp minimizes shadows and relieves eye strain.
- Programmable digital UV light timer with Delayed OFF function.
- User-friendly microprocessor-based control panel.

PW-11

Included Accessories
➔ see page 63

- HEPA Filter
- Pre Filter
- UV Lamp
- Fluorescent Lamp



Specifications & Ordering Information



Model			PW-01		PW-11		PW-21	
Air Flow Type			Vertical					
Max. Air Volume (cmh / cfm)			557 / 327		697 / 408		929 / 546	
Min. Air Volume (cmh / cfm)			167 / 97		209 / 121		279 / 162	
Laminar Airflow Velocity (m / s / fpm)			0.3 / 60					
Filter	Air Cleanliness		ISO 14644-1 Class 4					
	HEPA Filter		Typical efficiency of 99.99% at 0.3 μm US MIL-STD-282 ; Micro glass fiber Media, Particle board, Aluminum separator, Neoprene gaskets					
	Pre Filter		Polyester fibers with an efficiency of 85% (A.F.I TEST); AL frame, Polyester fiber media					
Noise level (dBA)			Typically < 60 dBA at blower speed					
Material	Work Surface		10mm thick acrylic resin (clear type)					
	Window (Front, Side / Back)		8mm / 10mm thick acrylic resin (clear type)					
Illumination	Intensity	Fluorescent Lamp (lux)	>1000					
		UV Density (μW / cm ²)	165		185		330	
	Capacity	Fluorescent Lamp	15W×1EA		20W×1EA		30W×1EA	
		UV Lamp	15W×1EA		20W×1EA		30W×1EA	
Dimension (W×D×H)	Interior (mm / inch)		700×585×602 / 27.5×23×23.7		880×585×602 / 34.6×23×23.7		1180×585×602 / 46.5×23×23.7	
	Exterior (mm / inch)		720×605×964 / 28×24×38		900×605×964 / 35.4×24×38		1200×605×964 / 47.2×24×38	
	Net Weight (Body) (kg / lbs)		56.2 / 123.9		64.2 / 141.5		77.8 / 171.5	
Electrical Requirements (230V)			60Hz, 1.3A	50Hz, 1.3A	60Hz, 1.4A	50Hz, 1.4A	60Hz, 1.5A	50Hz, 1.5A
Cat. No.			AAHB3001K	AAHB3002K	AAHB3011K	AAHB3012K	AAHB3021K	AAHB3022K
Electrical Requirements (120V)			60Hz, 2.2A		60Hz, 2.7A		60Hz, 2.9A	
Cat. No.			AAHB3003U		AAHB3013U		AAHB3023U	

※ Above specifications can be changed without prior notice.

Hoods

UV Sterilization cabinets

Ideal for effective decontamination of apparatus and equipment before carrying out sensitive PCR experiments using a high-quality UV lamp with timer control.



UVC-11

Included Accessories
 see page 63

- UV Lamp
- Fluorescent Lamp



Safety Features

- Interlocking safety door system shuts off UV light automatically when opening the door.
- UV-blocking door and side panels made of transparent acrylic resin provides clear inside view.
- UV over-exposure alarm and over-current protection.

Constructional Features

- Effective sterilization using a long-life 254 nm UV lamp. (average life span of UV lamp: 8,000 hours)
- Built in anti-glare fluorescent lamp minimizes shadows and relieves eye strain.
- Programmable digital UV light timer with Delayed OFF function.
- User-friendly microprocessor-based control panel.
- Easy-to-clean grade 304 stainless steel work surface with high chemical resistance against various organic solvents.

Specifications & Ordering Information



Model		UVC-01		UVC-11		UVC-21		
Illumination	Intensity	Fluorescent Lamp (Lux)	>800	>900		>1000		
		UV Density (μW / cm²)	150	385		450		
	Capacity	Fluorescent Lamp	8W×1ea	15W×1ea		20W×1ea		
		UV Lamp	8W×1ea	15W×1ea		20W×1ea		
Material	Work Surface		Stainless steel grade 304					
	Window (Front, Back / Side)		5 mm thick acrylic resin					
Dimension (W×D×H)	Interior (mm / inch)		433×500×468 / 17.0×19.7×18.4		583×500×468 / 23×19.7×18.4		880×500×468 / 34.6×19.7×18.4	
	Exterior (mm / inch)		450×509×610 / 17.7×20×24		600×509×610 / 23.6×20×24		900×509×610 / 35.4×20×24	
	Net Weight (Body) (kg / lbs)		15 / 33.1		175 / 38.6		20 / 44.1	
Electrical Requirements (230V)			60Hz, 0.1A	50Hz, 0.1A	60Hz, 0.2A	50Hz, 0.2A	60Hz, 0.3A	50Hz, 0.3A
Cat. No.			AAHB4001K	AAHB4002K	AAHB4011K	AAHB4012K	AAHB4021K	AAHB4022K
Electrical Requirements (120V)			60Hz, 0.2A		60Hz, 0.4A		60Hz, 0.6A	
Cat. No.			AAHB4003U		AAHB4013U		AAHB4023U	

※ Above specifications can be changed without prior notice.

Hoods

Accessories & Options

for PCR Workstations & UV Sterilization Cabinets

General UV Dose and Time Required

Pathogen	Average UV Dose Required ($\mu\text{W} \cdot \text{s}/\text{cm}^2$)	Average UV Time Required ($\mu\text{W}/\text{cm}^2/\text{sec.}$)					
		PW-01	UVC-01	PW-11	UVC-11	PW-21	UVC-21
		165	150	185	385	330	450
<i>S. enteritidis</i>	4,000	25	27	22	10	13	9
<i>B. megatherium sp. (spores)</i>	2,730	17	18	15	7	9	6
<i>B. subtilis</i>	7,100	43	47	39	18	22	16
<i>Eberthella typhosa</i>	2,140	13	14	12	6	7	5
<i>Escherichia coli (E. coli)</i>	3,000	19	20	17	8	10	7
<i>Micrococcus candidus</i>	6,050	37	40	33	16	19	13
<i>Proteus vulgaris</i>	2,640	16	18	15	7	8	6
<i>Pseudomonas aeruginosa</i>	5,500	34	37	30	14	17	12
<i>Pseudomonas aeruginosa</i>	3,500	22	23	19	9	11	8
<i>S. typhimurium</i>	8,000	49	53	44	21	25	18
<i>Shigella paradyserteriae</i>	1,680	101	11	10	4	6	4
<i>Spirillum rubrum</i>	4,400	27	29	24	11	14	10
<i>Staphylococcus albus</i>	1,840	12	12	10	5	6	4

* Permissible environmental conditions: temperature (20 to 25°C) and relative humidity (up to 60%).

* Above listed applications are for general purpose use.



HEPA Filter (only for PW models)



Fluorescent Lamp



UV Lamp

for PCR Workstations

Cat. No.	Description	PW-01	PW-11	PW-21
EDA9219	HEPA Filter	•		
EDA9220			•	
EDA9221				•
CHE4436	Fluorescent Lamp	•		
CHE4410			•	
CHE4409				•
CHE4431	UV Lamp	•		
CHE4427			•	
CHE4423				•

for UV Sterilization Cabinets

Cat. No.	Description	UVC-01	UVC-11	UVC-21
CHE4435	Fluorescent Lamp	•		
CHE4436			•	
CHE4410				•
CHE4434	UV Lamp	•		
CHE4431			•	
CHE4427				•

Incubators

SELECTION GUIDE

Incubators

Low Temperature Incubators

Incubated Shakers

Mini Incubators

Hybridization Oven

Incubators

Description		Operating Temp. Range (°C/°F)	Chamber Volume (L / cu ft)	Temperature Fluctuation at 37°C [±°C/°F]	Temperature Variation at 37°C [±°C/°F]	Page
General Models	IB-05G	Amb. +5 to 70 / Amb. +9 to 158	60 / 2.1	0.1 / 0.18	0.6 / 1.08	66
	IB-15G		102 / 3.6		0.2 / 0.36	
	IB-25G		151 / 5.3		0.6 / 1.08	
Economy Models	IB-01E	Amb. +3 to 60 / Amb. +5.4 to 140	65 / 2.3	0.2 / 0.36	0.6 / 1.08	67
	IB-11E		150 / 5.3		0.8 / 1.44	
	IB-21E		205 / 7.2		1.1 / 1.98	
2 & 4-chamber Models	IB-02G-2C	Amb. +5 to 70 / Amb. +9 to 158	60 / 2.1 x 2 chambers	0.1 / 0.18	0.6 / 1.08	68
	IB-02G-4C		60 / 2.1 x 4 chambers			

Low Temperature Incubators

Description		Operating Temp. Range (°C/°F)	Chamber Volume (L / cu ft)	Temperature Fluctuation at 25°C [±°C/°F]	Temperature Variation at 25°C [±°C/°F]	Page
Forced Convection Models	IL-11	0 to 60	150 / 5.3	0.1 / 0.18	0.5 / 0.9	70
	IL-21	+32 to 140	244 / 8.6		0.4 / 0.72	
Air-jacketed Models	IL-11A	+4 to 60	162 / 5.7	0.2 / 0.36	0.5 / 0.9	72
	IL-21A	+39.2 to 140	254 / 9			
Personal Models	ILP-02	+10°C to 40°C at ambient temperature of 25°C	14 / 0.5	0.1 / 0.18	0.5 / 0.9	73
	ILP-12		48 / 1.7		0.4 / 0.72	
2 & 4-chamber Models	IL-11-2C	*0 to 60 / + 32 to 140*	150 / 5.3 x 2 chambers	0.1 / 0.18	0.5 / 0.9	74
	IL-11-4C		150 / 5.3 x 4 chambers			

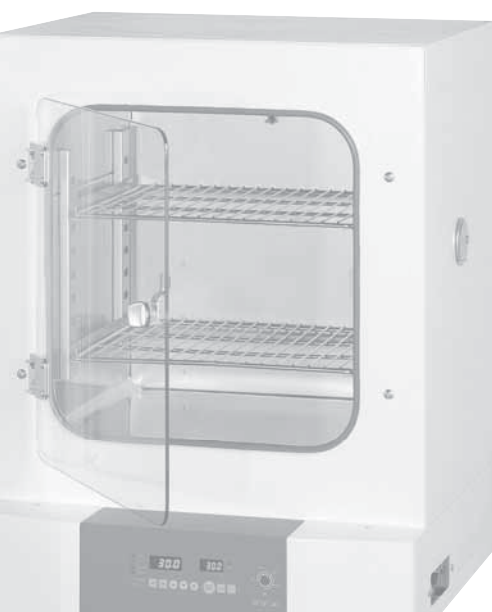
Incubated Shakers

Description		Operating Temp. Range (°C/°F)	Speed Range [RPM]	Maximum Amplitude Size (dia)	Page
Benchtop Models	IST-3075	Amb. +5 to 80 / Amb. +9 to 176	10 to 500	19.1mm (0.75" dia)	76
	IST-4075				
	IST-3075R	Amb. -15 (Min. +15°C) to 80 / Amb. -27 (Min. +27°C) to 176			
	IST-4075R				
Floor Standing Models	ISF-7100	Amb. +5 to 80 / Amb. +9 to 176	30 to 500	25.4mm (1" dia)	78
	ISF-7200		30 to 300	50.8mm (2" dia)	
	ISF-7100R	Amb. -15 (Min. +4°C) to 80 / Amb. -27 (Min. +72°C) to 176	30 to 500	25.4mm (1" dia)	
	ISF-7200R		30 to 300	50.8mm (2" dia)	
Chamber Models	ISS-3075	Amb. +5 to 80 / Amb. +9 to 176	10 to 500 (Stackable Top: 10 to 250)*	19 mm dia (0.75" dia)	80
	ISS-4075				
	ISS-3075R	Amb. -20 (Min. +4°C) to 80 / Amb. -36 (Min. +72°C) to 176			
	ISS-4075R				

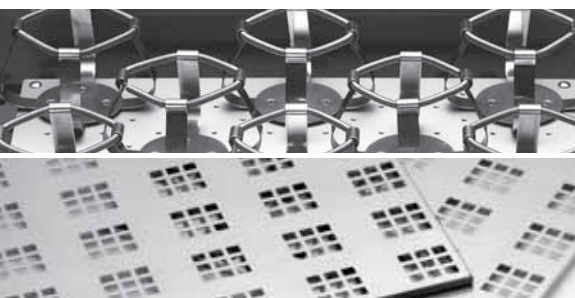
* If two products are stacked up, the upper one's shaking speed range is from 10 to 250 rpm.

Mini Incubator & Hybridization Oven

Description		Operating Temp. Range (°C/°F)	Chamber Volume (L / cu ft)	Temperature Fluctuation [±°C/°F]	Temperature Variation [±°C/°F]	Page
Mini Incubator	IM-10	Amb. +5 to 65 / Amb. +9 to 140	10 / 0.4	0.5 / 0.9 (at 37°C)	0.5 / 0.9 (at 37°C)	82
Hybridization Oven	HO -10	Amb. +5 to 65 / Amb. +9 to 149	10 / 0.4	0.5 / 0.9 (at 50°C with 9RPM)	0.5 / 0.9 (at 50°C with 9RPM)	83



GENERAL APPLICATIONS



General Applications	General, Low Temp. & Low Temp. Personal Incubators			Incubated Shakers	
	IB	IL	ILP	IST & ISS	ISF
Antibody Testing	•	•	•		
Bacterial Research	•		•		
Bacterial Suspensions				•	•
Chemical Storage	•	•			
Chick Embryo Studies	•		•		
Clinical Science	•	•	•		
Cultivating Low Temperature Microbes and Plant Cells		•			
Crystallization Studies	•	•			
Cultivating Thermophilic Bacteria	•				
Drying And Staining Procedures	•	•			
Denaturalizing Tests for Food	•	•			
Environmental Technology (waste water and soil analysis)				•	•
Enzyme Digestion Studies	•	•			
Extraction Procedures				•	•
Fermentation (Pharmacy and biotech -DNA and Enzymes)				•	•
General Mixing				•	•
Hematological Testing	•	•	•		
Histochemical Procedures	•	•			
Measuring COD/ BOD		•			
Medical Researches. (Diagnostic tests)				•	•
Microbiological Determinations	•	•	•		
Microorganism	•	•	•		
Molecular Biology				•	•
Organism Germs for Life Science	•	•	•		
Organism Pharmacy	•	•	•		
Paraffin Embedding	•	•			
Pharmaceutical Stability Testing		•			
Plasmid Purification				•	•
Protein Expression in Bacteria				•	•
Solubility				•	•
Staining and Destaining				•	•
Tissue Culturing	•	•	•		

* Above listed applications are for general and storage purpose use.

TECHNICAL BENEFITS

Incubators & Low Temp. Incubators

- 1) Microprocessor PID control.
- 2) Temp. calibration and auto-tuning functions.
- 3) Digital timer with Delayed ON/OFF function.
- 4) Automatic run after power interruption.
- 5) Convenient preset function for 3 most commonly used temperature settings.
- 6) Self-diagnostic function identifying errors.
- 7) Bright LED displays as well as splashproof and easy-to-clean keypads.
- 8) Audible and visible open door alarms.
- 9) Protection against overheating and over-current.
- 10) High-quality 304 grade stainless steel chamber interior and dirt-repellent external surface with power coating.
- 11) Perfectly sealed door gasket minimizing heat loss and fully insulated chambers.

Incubated Shakers

- 1) Intuitive touch LCD controller with easy icons and logical menus.
- 2) Automatic run after power interruption.
- 3) Built-in RS-232 port and USB port for external control and data collection.
- 4) Audible/Visible alarm activated by shaking speed deviation.
- 5) Worry-free operation is guaranteed by automatic shaking speed adjustment in case of excessive workload.
- 6) Microprocessor PID control and autotuning.
- 7) Three point temperature calibration.
- 8) Wide speed range even with heavy workload.
- 9) Repetitive task can be easily performed as the platform stops where it starts.
- 10) Smooth start and smooth stop function prevents chemical spills from flasks or test tubes.

Mini Incubator & Hybridization Oven

- 1) Over temperature limit protection and open door alert.
- 2) Microprocessor PID control.
- 3) Simple calibration function.
- 4) Ease-of-operation provided by a bright VFD, responsive touch buttons, and a jog dial.
- 5) Memory function of programmed protocols allowing relevant parameters (such as temperature, rocking speed, time, etc) of each protocol step to be stored. (HO-10 only)

I

Incubators

Incubators (General Models)

Versatile air-jacketed natural convection incubators.

Specially designed for uniform temperature distribution and minimal sample contamination caused by external air intrusion.



IB-05G

- Included Accessories**
- 2 Wire Shelves
- Optional Accessories**
- Perforated Shelves
 - Stacking Kits for Stackable Chambers
- ➔ see page 84

Operating Features

- Temperature control: +5°C above ambient to 70°C.
- Microprocessor PID control.
- Simple calibration and auto-tuning functions.
- Digital timer with Delayed ON/OFF function : 1 min to 99 hr 59 min.
- High temperature limit setting and open door alarm.
- Convenient preset function for 3 most commonly used temperature settings.
- Intuitive control panel with bright LED display (0.1°C resolution) and touch-sensitive keypad.
- RS-232 interface.

Constructional Features

- Fully insulated dual-wall door with magnetic rubber gasket.
- Vibration-free design ideal for yeast cultivation.
- Compact and lightweight construction with completely sealed gasket.
- Stackable up to 2 units using the optional stacking kit. (optional)
- Convenient sample monitoring without affecting chamber temperature via the inner tempered-glass door.
- Detachable shelves and round-cornered chamber interior allowing easy cleaning.
- Durable incoloy heating element with radiator fans for efficient heat dissipation.
- Built-in cable port to use other instruments inside the chamber. (dia 38mm/1.5°C, provided silicon or rubber cap)

Specifications & Ordering Information



Model	IB-05G	IB-15G	IB-25G
Chamber Volume (L / cu ft)	60 / 2.1	102 / 3.6	151 / 5.3
Temperature	Range (°C / °F)		
	Amb. +5 to 70 / Amb. +9 to 158		
	Fluctuation ¹⁾ at 37°C (±°C / °F)	0.1 / 0.18	0.2 / 0.36
Dimension (WxDxH)	Variation ¹⁾ at 37°C (±°C / °F)	0.6 / 1.08	0.6 / 1.08
	Interior (mm / inch)	400×360×420 / 15.7×14.2×16.5	480×410×520 / 18.9×16.1×20.5
	Exterior (mm / inch)	595×555×745 / 23×22×29	610×460×540 / 24×18×21.3
Electrical Requirements (230V, 50 / 60Hz)	Net Weight (Kg / lbs)	675×605×855 / 27×24×34	805×655×885 / 32×26×35
		45 / 99	62 / 136
		55 / 121	
Cat. No.	AAH21162K	AAH21172K	AAH21182K
Electrical Requirements (120V, 50 / 60Hz)	2.8A	4.6A	6.4A
Cat. No.	AAH21166U	AAH21176U	AAH21186U

1) Technical data according to DIN 12880.

Incubators

Incubators (Economy Models)

Affordable yet exceptionally reliable incubators featuring film type heaters.

Thanks to the film type heaters attached to the inner chamber's external walls, IB-E series incubators are free from noise, vibration, and mechanical troubles.

Operating Features

- Temperature control: +3°C above ambient to 60°C.
- Microprocessor PID control.
- Simple calibration and auto-tuning functions.
- Digital timer with delayed ON/OFF function: 1 min to 99 hr 59 min.
- High temperature limit setting and open door alarm.
- Convenient preset function for 3 most commonly used temperature settings.
- Intuitive control panel with bright LED display (0.1°C resolution) and touch-sensitive keypad.

Constructional Features

- Vibration-free design ideal for yeast cultivation.
- Compact and lightweight design with completely sealed gasket.
- Stackable up to 2 units using the optional stacking kit. (optional)
- Convenient sample monitoring without affecting chamber temperature via the inner tempered-glass door.
- Detachable shelves and round-cornered chamber interior allowing easy cleaning.



IB-01E

- Included Accessories**
- 2 Wire Shelves
- Optional Accessories**
- Perforated Shelves
 - Stacking Kits for Stackable Chambers
- see page 84

Specifications & Ordering Information



Model	IB-01E	IB-11E	IB-21E
Chamber Volume (L / cu ft)	65 / 2.3	150 / 5.3	205 / 7.2
Temperature	Range (°C / °F)	Amb. +3 to 60 / Amb. +5.4 to 140	
	Fluctuation ¹⁾ at 37°C (±°C / °F)	0.2 / 0.36	0.1 / 0.18
	Variation ¹⁾ at 37°C (±°C / °F)	0.6 / 1.08	1.1 / 1.98
Dimension (WxDxH)	Interior (mm / inch)	423×355×445 / 16.7×14×17.5	632×515×630 / 24.9×20.3×24.8
	Exterior (mm / inch)	533×475×725 / 21×18.7×28.5	740×630×910 / 29.1×24.8×35.8
	Net Weight (Kg / lbs)	33 / 72.8	57 / 125.7
Electrical Requirements (230V, 50 / 60Hz)	1.1A	2.2A	2.4A
Cat. No.	AAH26015K	AAH26025K	AAH26035K
Electrical Requirements (120V, 50 / 60Hz)	2.1A	4.2A	4.6A
Cat. No.	AAH26016U	AAH26026U	AAH26036U

1) Technical data according to DIN 12880.

Incubators

Incubators (2 & 4-chamber Models)



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IB-02G-4C

Incubators

Incubators (2 & 4-chamber Models)

Suitable for conducting each different experiments in two or four chamber incubators.

Force convection incubating with great temperature variation.
Efficient to use with the limited laboratory environment.

Operating Features

- Temperature range: Amb. +5°C to 70°C
- Independent temperature and timer control of each chamber using microprocessor PID.
- Simple calibration and auto-tuning functions.
- Digital timer with Delayed ON/OFF function: ranging from 1 min to 99 hr 59 min.
- Three most commonly used temperature settings programmable.
- Intuitive control panel with bright LED display (0.1°C resolution) and touch-sensitive keypad.
- High temperature limit setting and open door alert.

Constructional Features

- Two or four independently controlled 60L chambers merged into a single unit for space saving.
- Forced air convection generated by a noiseless and powerful sirocco fan ensuring optimal air circulation, temperature uniformity.
- Corrosion-resistant incoloy sheath heating element and stainless steel interior.
- Detachable shelves and rounded inner chamber corners allowing convenient cleaning.
- Built-in cable port to use other instruments inside the chamber.
- Built-in casters for easy transport and installation.



IB-02G-2C

Included Accessories
Optional Accessories
☞ see page 84

- 2 Wire Shelves per chamber
- Perforated Shelves

Specifications & Ordering Information



Model		IB-02G-2C	IB-02G-4C
Chamber Volume (L / cu ft)		60 / 2.1 x 2 Chambers	60 / 2.1 x 4 Chambers
Temperature	Range (°C / °F)	Amb. +5 to 70 / Amb. +9 to 158	
	Fluctuation ¹⁾ at 37°C (±°C / °F)	0.1 / 0.18	
	Variation ¹⁾ at 37°C (±°C / °F)	0.6 / 1.08	
Dimension (WxDxH)	Interior (mm / inch)	400×360×420 / 15.7×14.2×16.5 x 2 Chambers	400×360×420 / 15.7×14.2×16.5 x 4 Chambers
	Exterior (mm / inch)	570×640×1360 / 22.4×25.2×53.5	1170×640×1360 / 46.1×25.2×53.5
	Net Weight (Kg / lbs)	110 / 242.5	168 / 370.4
Electrical Requirements (230V, 50 / 60Hz)		4.1A	4.1A x 2EA
Cat. No.		AAH2A115K	AAH2A015K
Electrical Requirements (120V, 50 / 60Hz)		7.5A	7.5A x 2EA
Cat. No.		AAH2A116U	AAH2A016U

1) Technical data according to DIN 12880.

Incubators

Low Temp. Incubators (Forced Convection Models)



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IL-21 / IL-21A

Low Temp. Incubators (Forced Convection Models)

Superb low temperature incubation performance using a noiseless HBP compressor cooling system which reduces water evaporation within the chambers.

Operating Features

- Temperature control: 0°C to 60°C.
- Microprocessor PID control.
- Simple calibration and auto-tuning functions.
- Digital timer with Delayed ON/OFF function: 1 min to 99 hr 59 min.
- High temperature limit setting and open door alarm.
- Convenient preset function for 3 most commonly used temperature settings.
- Up to 9 temperature steps and maximum 200 cycles of repetition programmable for each profile.
- Adjustable three-step fan speed with defrosting time and period control.
- Intuitive control panel with bright LED display (0.1°C resolution) and touch-sensitive keypad.
- RS-232 interface.

※ Temperature change may occur during automatic defrost.

Constructional Features

- Forced air convection using an optimal cross flow fan for chamber temperature uniformity.
- Large chamber volume: maximum 244L. (8.6 cu ft)
- Built-in electrical outlet with a safety cover inside the chamber.
- Convenient sample monitoring without affecting chamber temperature via the inner tempered-glass door.
- Detachable shelves and round-cornered chamber interior allowing easy cleaning.



IL-21

- Included Accessories**
- 2 Wire Shelves for IL-11
 - 3 Wire Shelves for IL-21
- Optional Accessories**
- Perforated Shelves
- ☞ see page 84

Specifications & Ordering Information



Model		IL-11	IL-21
Chamber Volume (L / cu ft)		150 / 5.32	244 / 8.6
Refrigerator (Hp)		1 / 8 HBP	1 / 6 HBP
Temperature	Range (°C / °F)	0 to 60 / +32 to 140	
	Fluctuation ¹⁾ at 25°C (±°C / °F)	0.1 / 0.18	
	Variation ¹⁾ at 25°C (±°C / °F)	0.5 / 0.9	
Dimension (WxDxH)	Interior (mm / inch)	600×500×500 / 24×20×20	500×520×940 / 20×20.5×37
	Exterior (mm / inch)	735×742×1010 / 28.9×29×40	635×740×1630 / 25×29×64
	Net Weight (Kg / lbs)	100 / 220	135 / 297
Electrical Requirements (230V)		60Hz, 4.5A	50Hz, 4.5A
Cat. No.		AAH22041K	AAH22042K
Electrical Requirements (120V)		60Hz, 8.3A	60Hz, 10.6A
Cat. No.		AAH22046U	AAH22056U
			50Hz, 6.4A
			AAH22051K
			AAH22052K

1) Technical data according to DIN 12880.

Incubators

Low Temp. Incubators (Air-jacketed Models)

Specially designed for optimal temperature control as well as minimal sample contamination caused by external air intrusion.

Superb low temperature incubation performance thanks to the silent HBP compressor cooling system which also reduces water evaporation within the chamber.



Operating Features

- Temperature control: +4°C to 60°C.
- Microprocessor PID control.
- Simple calibration and auto-tuning functions.
- Digital timer with Delayed ON/OFF function: 1 min to 99 hr 59 min.
- High temperature limit setting and open door alarm.
- Convenient preset function for 3 most commonly used temperature settings.
- Up to 9 temperature steps and maximum 200 cycles of repetition programmable for each profile.
- Adjustable three-step fan speed with defrosting time and period control.
- Intuitive control panel with bright LED display (0.1°C resolution) and touch-sensitive keypad.
- RS-232 interface.

※ Temperature change may occur during automatic defrost.

IL-11A

Included Accessories

- 2 Wire Shelves for IL-11A
- 3 Wire Shelves for IL-21A

Optional Accessories

- Perforated Shelves

➔ see page 84

Constructional Features

- Natural convection within the chamber induced by the heater and the fan located inside the air jacket.
- Large chamber volume: maximum 244L. (8.6 cu ft)
- Built-in electrical outlet with a safety cover inside the chamber.
- Convenient sample monitoring without affecting chamber temperature via the inner tempered-glass door.
- Detachable shelves and round-cornered chamber interior allowing easy cleaning.

Specifications & Ordering Information



Model		IL-11A		IL-21A	
Chamber Volume (L / cu ft)		162 / 5.7		254 / 9	
Refrigerator (Hp)		1 / 6 HBP		1 / 4 HBP	
Temperature	Range (°C / °F)	+4 to 60 / +39.2 to 140			
	Fluctuation ¹⁾ at 25°C (±°C / °F)	0.2 / 0.36			
	Variation ¹⁾ at 25°C (±°C / °F)	0.5 / 0.9			
Dimension (WxDxH)	Interior (mm / inch)	600×540×500 / 24×21.3×20		500×540×940 / 20×21.3×37	
	Exterior (mm / inch)	770×772×1060 / 30×30×42		670×760×1680 / 26×30×66	
	Net Weight (Kg / lbs)	108 / 238.1		145 / 319.7	
Electrical Requirements (230V)		60Hz, 6.9A		60Hz, 8.4A	
Cat. No.		AAH22061K		AAH22071K	
Electrical Requirements (120V)		60Hz, 10.2A		60Hz, 12.3A	
Cat. No.		AAH22063U		AAH22073U	

1) Technical data according to DIN 12880.

Incubators

Low Temp. Incubators (Personal Models)

Compact, stackable, energy-efficient, and yet exceptionally reliable low temperature incubators using Peltier technology.

Contrary to conventional compressor-cooled incubators, Peltier Low Temperature Incubators generate little vibration, noise, and heat.

Operating Features

- Temperature control: +10°C to 40°C at ambient temperature of 25°C.
- Microprocessor PID control.
- Simple calibration and auto-tuning functions.
- Digital timer with Delayed ON/OFF function: 1 min to 99 hr 59 min.
- High temperature limit setting and open door alarm.
- Convenient preset function for 3 most commonly used temperature settings.
- Up to 9 temperature steps and maximum 200 cycles of repetition programmable for each profile.
- Adjustable 3-step fan speed with defrosting time and period control.
- Intuitive control panel with bright LED display (0.1°C resolution) and touch-sensitive keypad.
- RS-232 interface.



Constructional Features

- Convenient sample monitoring without affecting chamber temperature via the inner tempered-glass door.
- Environment-friendly insulation material (EPDM) used for safety and convenience. (compliant with ASTM-C534 specification)
- Space-saving design allowing even the smaller (14L) unit to hold two 1000mL Erlenmeyer flasks.

ILP-02 stackable chambers

- Included Accessories**
- 1 Wire Shelf for ILP-02
 - 2 Wire Shelves for ILP-12
- Optional Accessories**
- Perforated Shelves

see page 84

Specifications & Ordering Information



Model		ILP-02		ILP-12	
Chamber Volume (L / cu ft)		14 / 0.5		48 / 1.7	
Temperature	Range (°C / °F)	10 to 40°C (50~104°F) at ambient temperature of 25°C			
	Fluctuation ¹⁾ at 25°C (±°C / °F)	0.1 / 0.18			
	Variation ¹⁾ at 25°C (±°C / °F)	0.5 / 0.9		0.4 / 0.72	
Dimension (WxDxH)	Interior (mm / inch)	315×200×230 / 12.4×7.9×9.1		334×334×430 / 13.1×13.1×17	
	Exterior (mm / inch)	430×495×400 / 17×19.4×15.7		430×665×620 / 17×26.2×24.4	
	Net Weight (Kg / lbs)	27.5 / 60.6		49 / 108	
	Electrical Requirements (230V)	60Hz, 1.8A		60Hz, 3.5A	
Cat. No.		AAH24031K		AAH24041K	
Electrical Requirements (120V)		50Hz, 1.8A		50Hz, 3.5A	
Cat. No.		AAH24032K		AAH24042K	
Electrical Requirements (120V)		60Hz, 3.4A		60Hz, 6.7A	
Cat. No.		AAH24033U		AAH24043U	

1) Technical data according to DIN 12880.

Incubators

Low Temp. Incubator (2 & 4-chamber Models)



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Information is readily available on our website.



IL-11-4C

Incubators

Low Temp. Incubator (2 & 4-chamber Models)

Featuring two or four incubation chambers in a single unit, this Low Temperature Incubator is designed to offer an ideal and cost-effective solution for laboratories with limited space and budget.

Superb low temperature incubation performance thanks to the silent HBP compressor cooling system which also reduces water evaporation within the chamber.

► Operating Features

- Temperature range: 0°C to 60°C.
- Independent temperature and timer control of each chamber using microprocessor PID.
- Simple calibration and auto-tuning functions
- Digital timer with Delayed ON/OFF function: ranging from 1 min to 99 hr 59 min.
- Three most commonly used temperature settings programmable.
- Up to 9 temperature steps and maximum 200 cycles of repetition programmable for each profile.
- Adjustable 3 step fan speed with defrosting time and period control.
- Intuitive control panel with bright LED display (0.1°C resolution) and touch-sensitive keypad.

※ Temperature change may occur during automatic defrost.



► Constructional Features

- Two or four independently controlled 150L chambers (Model IL-11) merged into a single unit for space saving.
- Convenient sample monitoring without affecting chamber temperature via the inner tempered-glass door.
- Detachable shelves and rounded inner chamber corners allowing convenient cleaning.
- Built-in casters for easy transport and installation.

IL-11-4C

Included Accessories
Optional Accessories
➤ see page 84

- 2 wire shelves per chamber
- Perforated Shelves

► Specifications & Ordering Information



Model		IL-11-2C	IL-11-4C
Chamber Volume (L / cu ft)		150 / 5.3 x 2 Chambers	150 / 5.3 x 4 Chambers
Refrigerator (Hp)		1/8 HBP x 2EA	1/8 HBP x 4EA
Temperature	Range (°C / °F)	0 to 60°C / +32 to 140°F	
	Fluctuation ¹⁾ at 25°C (±°C / °F)	0.1 / 0.18	
	Variation ¹⁾ at 25°C (±°C / °F)	0.5 / 0.9	
Dimension (WxDxH)	Interior (mm / inch)	600x500x500 / 23.6x19.7x19.7 x 2 Chambers	600x500x500 / 23.6x19.7x19.7 x 4 Chambers
	Exterior (mm / inch)	760x760x1690 / 29.9x29.9x66.1	1500x760x1690 / 59.1x29.9x66.1
	Net Weight (Kg / lbs)	180 / 397	350 / 772
Electrical Requirements (230V, 60Hz)		9A	9A x 2EA
Cat. No.		AAH28111K	AAH28011K
Electrical Requirements (230V, 50Hz)		9A	9A x 2EA
Cat. No.		AAH28112K	AAH28012K
Electrical Requirements (120V, 60Hz)		16.5A	16.5A x 2EA
Cat. No.		AAH28113U	AAH28013U

1) Technical data according to DIN 12880.

Incubators

Incubated Shakers (Benchtop Models)

Digital incubating/ refrigerating benchtop shakers

Transparent lid offers great visibility and gas spring supports ensure hand-down handling of the samples by allowing immediate and easy access to your samples.



Gas Spring Lid

IST-3075 / IST-4075R

Optional Accessories

➔ see page 85-87

- 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 Display



Incubators

Incubated Shakers (Benchtop Models)

Operating Features

General Control

- Intuitive touch screen LCD controller with easy icons and logical menus.
- Automatic run is available with non-volatile set point memory after power interruption.
- Built-in RS-232 port and USB port for external control and data collection.

Shaking Control

- Speed range: 10 to 500 rpm.
- Orbit diameter: 19mm.
- Timer range: 1 min. to 999 hr 59 min.
- Audible/Visible alarm activated by shaking speed deviation.
- 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.
- Shaker protection system against over-current, stalled platform check.

Temperature Control

- Temperature range:
 - Amb. +5°C to 80 °C (for IST-3075 / 4075)
 - Amb. -15°C (Min. +15) to 80°C (for IST-3075R / 4075R)
- Microprocessor PID control and auto-tuning.
- Three point temperature calibration.
- Two different mechanical over-temperature protection devices.

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 prevents chemical spills from flasks or test tubes.
- Wide sample monitoring and convenient sample loading.
 - Convenient sample monitoring without affecting inside environment thanks to the three side transparent acrylic lid with bright LED lamps.
 - Gas spring lid supports providing smooth motion, soft opening and closing.
- Air-tight silicone door seal to provide excellent temperature uniformity.
- Corrosion resistance stainless steel interior.
- Three step adjustable high-velocity fan ensuring uniform temperature distribution and rapid thermal recovery after door open.
- Environment-friendly CFC-free refrigerant. (for IST-3075R / 4075R)

Specifications & Ordering Information



Model		IST-3075		IST-3075R		IST-4075		IST-4075R	
Temperature	Min. Temp. (°C / °F)	Amb. +5 to 80 / Amb. +9 to 176		Amb. -15 (Min. +15) to 80 / Amb. -27 (Min. +27) to 176		Amb. +5 to 80 / Amb. +9 to 176		Amb. -15 (Min. +15) to 80 / Amb. -27 (Min. +27) to 176	
	Fluctuation at 37°C in flask(±°C / °F)	0.1 / 0.18							
	Variation at 37°C in flask (±°C / °F)	0.5 / 0.90							
	Refrigerator (Hp)	-	1 / 8 HBP (220V, 230V) 1 / 6 HBP (100V, 120V)		-		1 / 8 HBP (220V, 230V) 1 / 6 HBP (100V, 120V)		
Shaking System	Motion Type	Orbital							
	Amplitude Size (mm / inch, dia.)	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.							
Dimension	Max. Load (kg / lbs)	10 / 22.0 at 500 rpm 15 / 33.1 at 400 rpm				14 / 30.9 at 500 rpm 21 / 46.3 at 400 rpm			
	Volume (L / cu ft)	53 / 1.9				83 / 2.9			
	Platform (WxD) (mm / inch)	350×350 / 13.8×13.8				450×450 / 17.7×17.7			
	Internal (WxDxH) (mm / inch)	410×410×320 / 16.1×16.1×12.6				510×510×320 / 20.1×20.1×12.6			
	Overall (WxDxH) (mm / inch)	440×785×510 / 17.3×30.9×20.1				540× 890 ×510 / 21.3×35×20.1			
Net Weight (Kg / lbs)		65 / 143.3		73 / 160.9		81 / 178.6		90 / 198.4	
Electrical Requirements (230V)		60Hz, 4A 50Hz, 4A		60Hz, 5.5A 50Hz, 5.5A		60Hz, 4A 50Hz, 4A		60Hz, 5.5A 50Hz, 5.5A	
Cat. No.		AAH23411K AAH23422K		AAH23511K AAH23522K		AAH23611K AAH23622K		AAH23711K AAH23722K	
Electrical Requirements (120V)		60Hz, 7.5A		60Hz, 10.1A		50/60Hz, 7.5A		60Hz, 10.1A	
Cat. No.		AAH23465U		AAH23565U		AAH23665U		AAH23765U	

※ Permissible environmental conditions: temperature (15-40°C).

※ Above specifications can be changed without prior notice.

Incubators

Incubated Shakers (Floor Standing Models)

Large capacity up to five 6L flasks and heavy workload shaking with rapid heating and cooling performance.

Exclusive drive mechanism with ergonomic design delivers years of trouble-free service.



ISF-7100R

Optional Accessories • Universal / Dedicated Platforms, Rubber Mats,
 see page 85-87 Universal Attachments

※ Above products design can be changed without prior notice.

Control Display



Com. Ports & Temp. Limiters



Incubators

Incubated Shakers (Floor Standing Models)

Operating Features

General Control

- Intuitive touch screen LCD controller with easy icons and logical menus.
- Automatic run is available with non-volatile set point memory after power interruption.
- Built-in RS-232 port and USB port for external control and data collection.

Shaking Control

- Speed range: 30 to 500 rpm.
- Orbit diameter:
 - 25.4mm for ISF-7100/R
 - 50.8mm for ISF-7200/R
- Timer range: 1 min. to 999 hr 59 min.
- Audible/Visible alarm activated by shaking speed deviation.
- 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.
- Shaker protection system against over-current.

Temperature Control

- Temperature range:
 - Amb. +5°C to 80 °C (for ISF-7100 / 7200)
 - Amb. -15°C (Min. +4) to 80°C (for ISF-7100R / 7200R)
- Microprocessor PID control and auto-tuning.
- Three point temperature calibration.
- Triple independent temperature monitor system.
 - Temperature deviation alarm (High/Low)
 - Electronic temperature limiter (High/Low)
 - Mechanical over-temperature limiter (High)

※ Temp. change may occur during automatic defrost. (for ISF-7100R/7200R)

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 prevents chemical spills from flasks or test tubes.
- Easy sample monitoring and convenient sample loading.
 - Clear observation of samples without affecting inner chamber's environment thanks to the transparent top viewing window with bright LED lamps.
 - The lid is inclined gently towards the front for easy loading and unloading samples in the chamber.
 - Gas spring lid supports providing smooth motion, soft opening and closing.
- Easy-access drain system with a quick disconnect valve offers great convenience to clean up of spills.
- Air-tight silicone door seal with lockable door for safe storage of samples.
- Corrosion resistance stainless steel interior.
- Three step adjustable high-velocity fan ensuring uniform temperature distribution and rapid thermal recovery after door open.
- Sturdy foot caster, beneficial for easy mobility during installation or relocation.
- Environment-friendly CFC-free refrigerant. (for ISF-7100R / 7200R)

Specifications & Ordering Information



Model		ISF-7100		ISF-7100R		ISF-7200		ISF-7200R	
Temperature	Range (°C / °F)	Amb. +5 to 80 / Amb. +9 to 176		Amb. -15 (Min. +4) to 80 / Amb. -27 (Min. +7.2) to 176		Amb. +5 to 80 / Amb. +9 to 176		Amb. -15 (Min. +4) to 80 / Amb. -27 (Min. +7.2) to 176	
	Fluctuation at 37°C in flask(±°C / °F)	0.1 / 0.18							
	Variation at 37°C in flask (±°C / °F)	0.5 / 0.90							
	Refrigerator (Hp)	-		1/6Hp		-		1/6Hp	
Shaking System	Motion Type	Orbital							
	Amplitude Size (mm / inch, dia.)	25.4 / 1				50.8 / 2			
	Speed Range (RPM)	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)	15 / 33.1 at 500 rpm 28 / 61.7 at 400 rpm 45 / 99.2 at 300 rpm				23 / 50.7 at 300 rpm 35 / 77.2 at 250 rpm			
Dimension	Volume (L / cu ft)	270 / 9.5							
	Platform (WxD) (mm / inch)	755x520 / 29.7x20.5							
	Internal (WxDxH) (mm / inch)	894x634x480 / 35.2x25x18.9							
	Overall (WxDxH) (mm / inch)	1128x1035x854 / 44.4x40.8x33.6							
	Net Weight (Kg / lbs)	277 / 610.7		287 / 632.7		277 / 610.7		287 / 632.7	
Electrical Requirements (230V)		50 / 60Hz, 5A		60Hz, 7.2A 50Hz, 7.2A		50 / 60Hz, 5A		60Hz, 7.2A 50Hz, 7.2A	
Cat. No.		AAH23342K		AAH23542K AAH23541K		AAH23442K		AAH23642K AAH23641K	
Electrical Requirements (120V)		60Hz, 9.5A		60Hz, 13.9A		60Hz, 9.5A		60Hz, 13.9A	
Cat. No.		AAH23375U		AAH23575U		AAH23475U		AAH23675U	

※ Permissible environmental conditions: temperature (15-40°C).

※ Above specifications can be changed without prior notice.

Incubators

Incubated Shakers (Chamber Models)

Specially designed to be double-stacked on the floor or located on the lab benches for space saving.

Multi-purpose incubated shakers feature a wide range of temperature control and large chamber volume.



ISS-4075R / ISS-3075

Included Accessories

Optional Accessories

☛ see page 85-87

- 2 Wire Shelves
- Retractable Foot Caster
- Universal / Dedicated Platforms
- Rubber Mats, Universal Attachments



※ Above products design can be changed without prior notice.

Control Display



Incubators

Incubated Shakers (Chamber Models)

Operating Features

General Control

- Intuitive touch screen LCD controller with easy icons and logical menus.
- Automatic run is available with non-volatile set point memory after power interruption.
- Built-in RS-232 port and USB port for external control and data collection.

Shaking Control

- Speed range: 10 to 500 rpm. (10 to 250rpm for the top unit of a stack)
- Orbit diameter: 19.1mm.
- Timer range: 1 min. to 999 hr 59 min.
- Audible/Visible alarm activated by shaking speed deviation.
- 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.
- Shaker protection system against over-current, stalled platform check.

Temperature Control

- Temperature range:
 - Amb. +5°C to 80 °C (for ISS-3075 / 4075)
 - Amb. -20°C (Min. +4) to 80°C (for ISS-3075R / 4075R)
- Microprocessor PID control and auto-tuning.
- Three point temperature calibration.
- Triple independent temperature monitor system.
 - Temperature deviation alarm (High/Low)
 - Electronic temperature limiter (High/Low)
 - Mechanical over-temperature limiter (High)

※ Temp. change may occur during automatic defrost. (for ISS-3075R/4075R)

Constructional Features

- Chambers stackable, up to two levels.
- 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 prevents chemical spills from flasks or test tubes.
- Wide sample monitoring and convenient sample loading.
 - Clear observation of samples without affecting inner chamber's environment thanks to the transparent viewing window with bright LED lamps.
- Easy-access drain system with a quick disconnect valve offers great convenience to clean up of spills.
- Two adjustable-height shelves provided allow static incubation or refrigeration, which increase storage capacity.
- Air-tight silicone door seal to provide excellent temperature uniformity.
- Corrosion resistance stainless steel interior.
- Three step adjustable high-velocity fan ensuring uniform temperature distribution and rapid thermal recovery after door open.
- Retractable foot caster, beneficial for easy mobility during installation or relocation. (optional)
- Built-in electrical outlet with a safety cover inside the chamber.
- Environment-friendly CFC-free refrigerant. (for ISS-3075R / 4075R)

Specifications & Ordering Information



Model		ISS-3075		ISS-3075R		ISS-4075		ISS-4075R	
Temperature	Min. Temp. (°C / °F)	Amb. +5 to 80 / Amb. +9 to 176		Amb. -20 (Min. +4) to 80 / Amb. -36 (Min. +72) to 176		Amb. +5 to 80 / Amb. +9 to 176		Amb. -20 (Min. +4) to 80 / Amb. -36 (Min. +72) to 176	
	Fluctuation at 37°C in flask (±°C / °F)	0.1 / 0.18							
	Variation at 37°C in flask (±°C / °F)	0.5 / 0.90							
	Refrigerator (Hp)	-	1/6Hp		-		1/6Hp		
Shaking System	Motion Type	Orbital							
	Amplitude Size (mm / inch, dia.)	19.1 / 0.75							
	Speed Range (RPM)	10 to 500 (Stackable Top :10 to 250)							
	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 21 / 46.3 at 400 rpm							
Dimension	Volume (L / cu ft)	80 / 2.8				150 / 5.3			
	Platform (WxD, mm / inch)	350x350 / 13.8x13.8				450x450 / 17.7x17.7			
	Interior (WxDxH, mm / inch)	440x440x418 / 17.3x17.3x16.5				540x540x518 / 21.3x21.3x20.4			
	Exterior (WxDxH, mm / inch)	578x815x854 / 22.8x32.1x33.6				678x895x934 / 26.7x35.2x36.8			
	Shelves (Standard / Max)	2 / 8				2 / 11			
	Net Weight (kg / lbs)	153 / 337.3		160 / 352.7		183 / 403.4		190 / 418.9	
Electrical Requirements (230V)		60Hz, 5.2A 50Hz, 5.2A		60Hz, 7A 50Hz, 7A		60Hz, 5.2A 50Hz, 5.2A		60Hz, 7.6A 50Hz, 7.6A	
Cat. No.		AAH23431K AAH23432K		AAH23531K AAH23532K		AAH23631K AAH23632K		AAH23731K AAH23732K	
Electrical Requirements (120V)		60Hz, 9.9A		60Hz, 13.5A		60Hz, 9.9A		60Hz, 14.7A	
Cat. No.		AAH23415U		AAH23515U		AAH23615U		AAH23715U	

※ Permissible environmental conditions: temperature (15-40°C).

※ Above specifications can be changed without prior notice.

Incubators

Mini Incubator

Compact design for efficient lab space use.
Maximum 8 microplates can be inserted to inner chamber for ELISA.



Operating Features

- Temperature range: from ambient +5 to 65°C.
- Door opening alarm
- Protection of the main body and the circuit board against overheating.
- Microprocessor PID feedback control of the heater and the fan ensuring temperature uniformity.
- Automatic temperature calibration.
- Ease-of-operation provided by a bright VFD (vacuum fluorescent display), responsive touch buttons, and a jog dial.

IM-10 with the included Wire Shelves

- Included Accessories** • 2 Wire Shelves
Optional Accessories • Perforated Shelves
 ➔ see page 84

Constructional Features

- Compact design for space saving of laboratory of the chamber interior.
- Wire shelves are provided for space saving of inner chamber. Maximum 4 wire shelves supporting 8 microplates is especially suitable for ELISA.
- Push buttons for easy opening of door.
- Transparent polycarbonate window providing a clear view of the chamber interior.

Specifications & Ordering Information

Model		IM-10
Temperature	Range (°C / °F)	Amb. +5 to 65 / Amb. +9 to 149
	Fluctuation at 37°C (±°C / °F)	0.5 / 0.9
	Variation at 37°C (±°C / °F)	0.5 / 0.9
Dimension	Volume (L / cu ft)	10 / 0.4
	Wire Shelf (WxD) (mm / inch)	247 x 247 / 9.7 x 9.7
	Internal (WxDxH) (mm / inch)	278 x 262 x 160 / 11 x 10.4 x 6.3
	External (WxDxH) (mm / inch)	400 x 410 x 264 / 15.7 x 16.1 x 10.4
	Net Weight (Kg / lbs)	12.8 / 28.2
Electrical requirements (230V, 50/60Hz)		1.0A
Cat. No.		AAH24315K
Electrical requirements (120V, 50Hz)		2.1A
Cat. No.		AAH24316U

1) Technical data according to DIN 12880.

Incubators

Hybridization Oven

Equipped with a precise rocker, this unit is offering ideal reproducibility for various molecular biology applications such as nucleic acid hybridization, Western, immunoblotting, immunoprecipitation, etc.

► Shaking Features

- Rocking motion: Tilt 8.5°.
- Speed range: 5 to 50 rpm.

► Operating Features

- Temperature range: from ambient +5 to 65°C
- Audible and visual alarms are activated:
 - When preset temperature limit is reached.
 - When each step of any programmed mode is terminated.
 - When low humidity level is detected by the sensor.
 - When the door is open.
- Door opening and low humidity alarm.
- Over temperature limit protection.
- Microprocessor PID feedback control of the heater and the fan ensuring temperature uniformity.
- Automatic temperature calibration.
- Ease-of-operation provided by a bright VFD, responsive touch buttons, and a jog dial.
- Memory function of programmed protocols allowing relevant parameters (such as temperature, rocking speed, time, etc.) of each protocol step to be stored.
 - Up to 10 protocols allowed for memory storage.
 - Up to 10 steps allowed for each protocol.



HO-10 with the included Water Tray

► Constructional Features

- Compact design for efficient lab space utilization.
- Transparent polycarbonate window providing a clear view of the chamber interior.
- Built-in sliding shelf for quick and convenient insertion or removal of samples.
- Sticky pad on sliding shelf for preventing accidental movement or spills of samples during operation.
- Drying function for the hybridization and washed membranes or strips.

► Specifications & Ordering Information

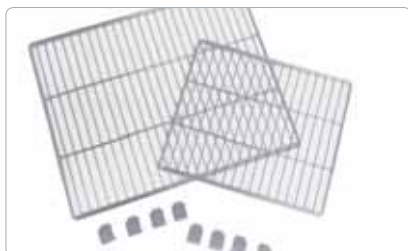
Model		HO-10
Temperature	Range (°C / °F)	Amb. +5 to 65 / Amb. +9 to 149
	Fluctuation at 50°C, 9RPM (±°C / °F)	0.5 / 0.9
	Variation at 50°C, 9RPM (±°C / °F)	0.5 / 0.9
Shaking System	Motion Type	Rocking Motion
	Speed Range (RPM)	5 to 50
	Tilt Angle	8.5°±1
	Max. Load (kg / lbs)	1 / 2.2
Dimension	Volume (L / cu ft)	10 / 0.4
	Sliding Shelf (WxD) (mm / inch)	256 x 198 / 10.1 x 7.8
	Internal (WxDxH) (mm / inch)	278 x 262 x 160 / 11 x 10.4 x 6.3
	External (WxDxH) (mm / inch)	400 x 410 x 264 / 15.7 x 16.1 x 10.4
	Net Weight (Kg / lbs)	14 / 30.9
Electrical requirements (230V, 60Hz)		1.2A
Cat. No.		AAH1B011K
Electrical requirements (230V, 50Hz)		2.4A
Cat. No.		AAH1B012K

1) Technical data according to DIN 12880.

Incubators

Accessories & Options

for Incubators



Wire Shelves



Perforated Shelves



Universal Platforms

Wire Shelves

Stainless steel and electropolished shelves are readily removed without using tools for easy cleaning.

Cat. No.	Description			Suitable for
	Included	Maximum	WxL (mm / inch)	
EDA8136	2	8	366×316 / 14.4×12.4	IB-05G
EDA8135	2	12	446×366 / 17.6×14.4	IB-15G
EDA8137	2	12	576×419 / 22.7×16.5	IB-25G
EDA8136	2	11	366×316 / 14.4×12.4	IB-01E
EDA8220	2	14	466×490 / 17.6×19.3	IB-11E
EDA8219	2	15	566×466 / 22.3×17.6	IB-21E
EDA8136	4	16	366×316 / 14.4×12.4	IB-02G-2C
	8	32		IB-02G-4C
EDA8219	2	12	566×466 / 22.3×17.6	IL-11 / 11A
	4	24		IL-11-2C
	8	48		IL-11-4C
EDA8220	3	26	466×490 / 17.6×19.3	IL-21 / 21A
EDA8223	1	6	195×310 / 7.7×12.2	ILP-02
EDA8221	2	11	305×299 / 12×11.8	ILP-12
EDA8235	2	8	416×406 / 16.4×16.0	ISS-3075 / R
EDA8233	2	11	516×506 / 20.3×19.9	ISS-4075 / R
EDA8244	2	5	247×247 / 9.7×9.7	IM-10

Perforated Shelves

Stainless steel shelves are readily removed without using tools for easy cleaning.

Cat. No.	Description		Suitable for
	Maximum	WxL (mm / inch)	
AAA12531	8	366×316 / 14.4×12.4	IB-05G
AAA12532	12	446×366 / 17.6×14.4	IB-15G
AAA12535	12	576×419 / 22.7×16.5	IB-25G
AAA12531	11	366×316 / 14.4×12.4	IB-01E
AAA22522	14	466×490 / 17.6×19.3	IB-11E
AAA22521	15	566×466 / 22.3×17.6	IB-21E
AAA12531	16	366×316 / 14.4×12.4	IB-02G-2C
	32		IB-02G-4C
AAA22521	12	566×466 / 22.3×17.6	IL-11 / 11A
	24		IL-11-2C
	48		IL-11-4C
AAA22522	26	466×490 / 17.6×19.3	IL-21 / 21A
AAA24501	6	195×310 / 7.7×12.2	ILP-02
AAA24502	11	305×299 / 12×11.8	ILP-12
AAA24511	5	247×247 / 9.7×9.7	IM-10

Stacking Kits

Stackable up to 2 units using exclusive stacking kits for space saving. (for IB-G and IB-E Models only)

Cat. No.	Description	Suitable for
AAA21521	Stacking kits for stackable chambers	IB-05G
AAA21522	Stacking kits for stackable chambers	IB-15G
AAA21523	Stacking kits for stackable chambers	IB-25G
AAA26501	Stacking kits for stackable chambers	IB-01E
AAA26502	Stacking kits for stackable chambers	IB-11E
AAA26503	Stacking kits for stackable chambers	IB-21E

Incubators

Accessories & Options

for Incubated Shakers



Flask Clamps



Plastic Clamps (Plastic)



Funnel Clamps

► Universal Platforms, Flask Clamps, and Funnel Clamps

Universal platforms provide flexibility for mixing assortments of test tubes and glassware of varying sizes on a single platform. Various clamps for Erlenmeyer flasks and separatory funnels are available.

Description			IST-3075/R	IST-4075/R	ISF-7100/R ISF-7200/R	ISS-3075/R	ISS-4075/R
Universal platform	Cat.No.		AAA23501-V1	AAA23502-V1	AAA23505	AAA31501-V1	AAA31502-V1
Flask clamps		Erlenmeyer flask size	Max. mountable flask clamps				
	AAA23550	for 50 mL	28	45	88	36	55
	AAA23551	for 100 mL	24	36	54	28	44
	AAA23552	for 250 mL	13	18	35	13	24
	AAA23556	for 300 mL	13	18	35	13	24
	AAA23553	for 500 mL	9	13	24	10	16
	AAA23554	for 1L	4	7	15	5	8
	AAA23555	for 2L	2	5	11	4	5
	AAA23557	for 2.8L	1	2	6	2	4
	AAA23558	for 4L	-	-	6	-	2
	AAA23559	for 6L	-	-	5	-	2
Flask clamps (Plastic)		Erlenmeyer flask size	Max. mountable flask clamps				
	AAA30570	for 50 mL	22	30	72	28	39
	AAA30571	for 100 ~ 125 mL	16	25	54	16	29
	AAA30572	for 200 mL	12	17	30	13	25
	AAA30573	for 250 mL	9	17	30	12	20
	AAA30574	for 300 mL	9	17	30	12	16
	AAA30575	for 500 mL	8	9	24	9	12
	AAA30576	for 1L	4	8	12	5	9
	AAA30577	for 2L	2	4	6	4	5
Funnel clamps		Seperating funnel size	Max. mountable funnel clamps				
	AAA23562	for 250 mL	4	6	18	4	6
	AAA23563	for 500 mL	2	3	11	2	3
	AAA23564	for 1L	-	2	9	-	2
	AAA23565	for 2L	-	-	7	-	-

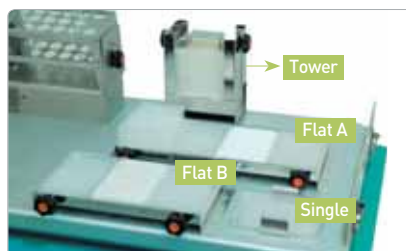
I Incubators

Accessories & Options

for Incubated Shakers



Test Tube Racks



Microplate Holders



Dedicated Platforms

Test Tube Racks

Easy to release and mount racks made of durable stainless steel with adjustable angle and tube height support. Test tube racks are used with an optional universal platform.

Description			IST-3075/R	IST-4075/R	ISF-7100/R ISF-7200/R	ISS-3075/R	ISS-4075/R
Universal platform	Cat.No.		AAA23501-V1	AAA23502-V1	AAA23505	AAA31501-V1	AAA31502-V1
Test tube racks		Test tube size	Mountable capacity of rack*				
	AAA23581	for 86 test tubes, Ø8mm / Ø0.3"	2	4	9	2	4
	AAA23582	for 86 test tubes, Ø10mm / Ø0.4"					
	AAA23583	for 58 test tubes, Ø12mm / Ø0.5"					
	AAA23584	for 58 test tubes, Ø14mm / Ø0.6"					
	AAA23585	for 32 test tubes, Ø17mm / Ø0.7"					
	AAA23586	for 19 test tubes, Ø25mm / Ø1.0"					
	AAA23587	for 10 test tubes, Ø30mm / Ø1.2"					
	AAA23594	for 10 test tubes, Ø35mm / Ø1.4"					
	AAA23593	for 4 test tubes, Ø50mm / Ø1.9"					

* No declination

※ We can manufacture other size of test tube racks to meet your specific requirements. Contact us for details.

Microplate Holders

Available in three styles: tower type, flat type (small and large), and single type. Tower type holder is for 10 standard or deep well plates. Large flat holder is for 4 standard or deep well plates. Small flat holder is for 3 standard or deep well plates. Single type holder is for 1 standard or deep well plate. (standard well plates' height: 14.7mm)

Description			IST-3075/R	IST-4075/R	ISF-7100/R ISF-7200/R	ISS-3075/R	ISS-4075/R
Universal platform	Cat.No.		AAA23501-V1	AAA23502-V1	AAA23505	AAA31501-V1	AAA31502-V1
Microplate holders		Microplate holder type	Max. mountable microplate holders				
	AAA23654	Single	7	12	25	8	15
	AAA23651	Tower	5	7	22	6	10
	AAA23652	Flat A(large)	-	2	4	-	2
	AAA23653	Flat B(small)	2	2	6	2	3

* Microplate holders need to be mounted on an universal platform which is sold separately.

Dedicated Platforms

When using a single flask size only, the dedicated platforms with pre-installed clamps provide maximum capacity. 250mL and 500mL clamps are standard but other sizes can be available.

Description			IST-3075/R	IST-4075/R	ISF-7100/R ISF-7200/R	ISS-3075/R	ISS-4075/R
Dedicated platforms	Cat.No.	Universal platform & 250mL flask clamps	AAA23611	AAA23621	AAA23634	AAA31551	AAA31561
		No. of flask clamps	13	18	35	13	24
		Universal platform & 500mL flask clamps	AAA23612	AAA23622	AAA23635	AAA31552	AAA31562
		No. of flask clamps	9	13	24	10	16

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

Incubators

Accessories & Options

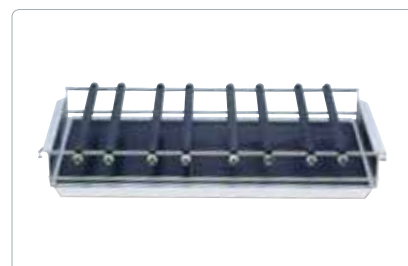
for Incubated Shakers



Spring Wire Racks



Rubber Mats



Universal Attachments

Spring Wire Racks

Ideal for holding a wide variety of tubes, flasks, and other glassware. All components are made of stainless steel.

Description		IST-3075/R	IST-4075/R	ISF-7100/R ISF-7200/R	ISS-3075/R	ISS-4075/R
Spring wire racks	Cat.No.	AAA23521-V1	AAA23522-V1	AAA23514	AAA31521-V1	AAA31522-V1
	Erlenmeyer flask size	Max. inserting flasks				
	for 50 mL	16	25	45	16	25
	for 100 mL	9	16	28	9	16
	for 250 mL	4	9	18	4	9
	for 300 mL	4	9	18	4	9
	for 500 mL	4	5	15	4	5
	for 1L	2	4	10	2	4
	for 2L	1	2	6	1	2
	for 2.8L	1	2	4	1	2

Rubber Mats

Designed for low-speed applications, non-skid rubber mats allow quick addition or removal of flasks, plates or tubes.

Model	IST-3075/R	IST-4075/R	ISF-7100/R ISF-7200/R	ISS-3075/R	ISS-4075/R
Cat. No.	AAA23531	AAA23532	AAA23534	AAA31531	AAA31532

Universal Attachments (Utility Carriers)

Several adjustable clamping bars for quickly securing a variety of glassware or tubes on non-skid rubber mats. Suitable for flat-bottomed flasks of various sizes.

Model	IST-3075/R	IST-4075/R	ISF-7100/R ISF-7200/R	ISS-3075/R	ISS-4075/R
Cat. No.	AAA31511	AAA31512	AAA23505	AAA31511	AAA31512

Retractable Foot Caster

Cat. No.	Description (WxDxH) (mm / inch)	Suitable for
AAA23801	700x733x145 / 27.6x28.9x5.7	ISS-3075 / 3075R
AAA23802	800x813x225 / 31.5x32x8.9	ISS-4075 / 4075R



※ Above products design is subject to change.

Lab Sticker

An alternative method for securing vessels to a shaker platform. Ideal for containers such as bottles and dishes that cannot be held on the universal platform with conventional flask clamps. For safe operation, gradual RPM increase is recommended.

Cat. No.	Description (WxDxH) (mm / inch)
AAA30551	200x200x5 / 7.9x7.9x0.2



* Lab Sticker need to be mounted on an universal platform which is sold separately.

Ovens

SELECTION GUIDE

Forced Convection Ovens

Natural Convection Ovens

Vacuum Ovens

Forced Convection Ovens (Mechanical)

Description		Operating Temp. Range (°C/°F)	Chamber Volume (L / cu ft)	Temperature Fluctuation at 100°C [±°C/°F]	Temperature Variation at 100°C [±°C/°F]	Page
Programmable Models	OF-02P	Amb. +10 to 250 / Amb. +18 to 482	60 / 2.1	0.5 / 0.9	1.0 / 1.8	90
	OF-12P		102 / 3.6	0.6 / 1.08	1.3 / 2.3	
	OF-22P		151 / 5.3	0.8 / 1.44	1.7 / 3.1	
General Models	OF-02G	Amb. +10 to 250 / Amb. +18 to 482	60 / 2.1	0.5 / 0.9	1.0 / 1.8	91
	OF-12G		102 / 3.6	0.6 / 1.08	1.3 / 2.3	
	OF-22G		151 / 5.3	0.8 / 1.44	1.7 / 3.1	
	OF-300G	Amb. +10 to 200 / Amb.+18 to 392	314 / 11	0.2 / 0.36	0.9 / 1.6	92
	OF-450G		450 / 15.9	0.1 / 0.18	0.7 / 1.3	
	OF-750G		760 / 26.8	0.2 / 0.36	1.5 / 2.7	
	OF-300H	Amb. +10 to 300 / Amb.+18 to 572	314 / 11	0.2 / 0.36	0.9 / 1.6	
	OF-450H		450 / 15.9		0.8 / 1.4	
	OF-750H		760 / 26.8		1.9 / 3.4	
2&4-Chamber Models	OF-02G-2C	Amb. +10 to 200 / Amb. +18 to 392	60 / 2.1 x 2 chambers	0.5 / 0.9	1.0 / 1.8	94
	OF-02G-4C		60 / 2.1 x 4 chambers			
Economy Models	OF-01E	Amb. +10 to 220 / Amb. +18 to 428	52 / 1.8	0.4 / 0.72	3.3 / 5.94	96
	OF-11E		100 / 3.5		3.3 / 5.94	
	OF-21E		150 / 5.3		2.3 / 4.14	

Natural Convection Ovens (Gravity)

Description		Operating Temp. Range (°C/°F)	Chamber Volume (L / cu ft)	Temperature Fluctuation at 100°C [±°C/°F]	Temperature Variation at 100°C [±°C/°F]	Page
General Models	ON-02G	Amb. +15 to 250 / Amb. +27 to 482	52 / 1.8	0.3 / 0.54	5.9 / 10.62	97
	ON-12G		91 / 3.2		7.5 / 13.5	
	ON-22G		135 / 4.8		6.9 / 12.42	
Economy Models	ON-01E	Amb. +15 to 220 / Amb. +27 to 428	52 / 1.8	0.3 / 0.54	6.5 / 11.7	98
	ON-11E		100 / 3.5	0.4 / 0.72	4.1 / 7.38	
	ON-21E		150 / 5.3	0.5 / 0.9	7.3 / 13.14	

Vacuum Ovens

Description		Operating Temp. Range (°C/°F)	Chamber Volume (L / cu ft)	Temperature Fluctuation at 100°C[±°C/°F]	Temperature Variation at 100°C[±°C/°F]	Page
Vacuum	OV-11	Amb. +5 to 250 / Amb. +9 to 482	28 / 1	0.1 / 0.18	3.7 / 6.66	99
	OV-12		65 / 2.3	0.3 / 0.54		

Accessories & Options

Description	Page
for Convection Ovens	100
for Vacuum Ovens	101



GENERAL APPLICATIONS



General Applications	Forced, Nature Convection Ovens & Vacuum		
	OF Models	ON Models	OV Models
General Aging and Curing	•		
Agricultural Genetic	•		•
Annealing	•	•	•
Asphalt Testing	•	•	
Conditioning	•	•	
Contamination-Free storage of semiconductors and other sensitive electronic components			•
Desiccating			•
Digestion of Proteins and Starches	•		
Drying of Plant Tissue		•	
Drug Metabolism	•	•	
Electronic Burn-in	•	•	
Epoxy and Plastic Curing	•	•	
Fine Chemical Precipitation		•	
General Baking	•	•	
General Heating	•	•	
Glassware Drying	•	•	
Ideal for General Drying			•
Life and Exposure Studies	•	•	
Ordinance Material Testing	•	•	
Out-gassing Solids and Liquids			•
Paper Drying	•	•	
Plating			•
Precise Moisture Determination	•		•
Preheating	•	•	
Rubber Drying	•	•	
Serum Protein Analysis	•	•	
Silicon Wafer Drying			•
Stability and QC/ Batch Testing	•	•	
Sterilization	•	•	
Suspended Solids Evaluation	•	•	
Textile Drying	•	•	
Vacuum Embedding			•
Volatile Resins and Polymers Testing			•
Vulcanization Studies	•	•	

TECHNICAL BENEFITS

Safety Features

- 1) Open door alert (except for OV Models):
 - Activation of audible and visible alarms.
 - Automatic power cutoff from the heater and the fan (only OF Models) if the door is open for the minimize heat loss and also to protect the operator.
- 2) Protection against overheating by automatic power cutoff from the heater and controller in sequence.
- 3) Two separate fuses for protecting against overcurrent.
(without OF-300, 450, 750 G/H Models)

Optimum Control Features

- 1) Microprocessor PID control.
- 2) Intuitive and easy-to-operate control panel design using HMI (Human Machine Interface) network system.
- 3) Simple calibration and auto-tuning function.
- 4) Convenient presetting function for 3 most commonly used temperature settings.
- 5) Max. 10 programmable patterns of 10 segments each are settable for easy program control. (only for OF-P Models)
- 6) Delayed ON/OFF digital timer range: 1 min ~ 99 hr 59 min
- 7) Operation mode selection after power interruption: either Automatic or Manual Run.

Constructional Features

- 1) Grade 304 Stainless Steel chamber interior and dirt-repellent external surface with power coating.
(without OV Models)
- 2) Air-tight door gasket minimizing heat loss.
- 3) Fully insulated oven chamber maintaining the exterior at a safe temperature.
- 4) Adjustable and electro polished stainless steel wire shelves allowing efficient airflow and easy cleaning.
(without OV Models)

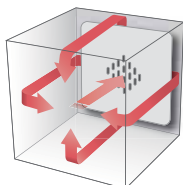


Ovens

Forced Convection Ovens (Programmable Models)

Unattended operation is absolutely available with the intelligent programmable controller.

Simply touch the easy icons on the LCD controller to set scheduler.



OF-12P with optional Viewing Window

Included Accessories
Optional Accessories
see page 100

- 2 Wire Shelves
- Tempered Viewing Window
- Perforated Shelves

Intelligent program control

- 10 programs available for temperature ramp up and dwell control.
- 10 steps per a program and 99 hours 59 minutes per a step.
- Stored programs are easily linkable.
- Programs can be repeated up to 99 cycles.
- Pre-heating and heating time are settable before program start.

Operating Features

- Microprocessor PID control.
- Maximum three point temperature calibration and auto-tuning function.
- Temperature control: 10°C above ambient to 250°C
- Delayed ON/OFF digital timer range: 1 min ~ 99 hr 59 min
- Colorful LCD controller with interactive input system.
- Digital input and output control function for interlocking external devices.
- High temperature limit setting and open door alert.
- Automatic run and button lock function.
- RS-232 interface.

Constructional Features

- Forced air convection ensuring optimal air circulation, temperature uniformity, and short heat-up time.
- Corrosion-resistant incoloy sheath heating element and stainless steel interior.
- Adjustable dual slide vents for controlling inner vapor circulation. (diameter: 38mm/1.5")

Specifications & Ordering Information



Model		OF-02P	OF-12P	OF-22P
Chamber Volume (L / cu ft)		60 / 2.1	102 / 3.6	151 / 5.3
Temperature	Range (°C / °F)	Amb. +10 to 250 / Amb. +18 to 482		
	Fluctuation ¹⁾ at 100°C (±°C / °F)	0.5 / 0.9	0.6 / 1.08	0.8 / 1.44
	Variation ¹⁾ at 100°C (±°C / °F)	1 / 1.8	1.3 / 2.3	1.7 / 3.1
Dimension (WxDxH)	Interior (mm / inch)	400×360×420 / 15.7×14.2×16.5	480×410×520 / 18.9×16.1×20.5	550×460×600 / 22×18×23.6
	Exterior (mm / inch)	577×642×760 / 22.7×25.3×30	657×692×870 / 25.9×27.2×34.3	727×742×974 / 28.7×29.2×38.3
	Net Weight (Kg / lbs)	53 / 117	63 / 139	72.5 / 160
Electrical Requirements (230V, 50 / 60Hz)		4.4A	6.1A	7.4A
Cat. No.		AAH12555K	AAH12565K	AAH12575K
Electrical Requirements (120V, 60Hz)		6.8A	8.4A	10.1A
Cat. No.		AAH12553U	AAH12563U	AAH12573U

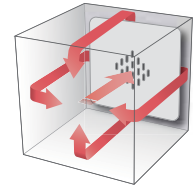
1) Technical data according to DIN 12880.

Ovens

Forced Convection Ovens (General Models)

Superb air dispersion and uniform temperature distribution

Equipped with a powerful yet noiseless sirocco fan, OF-G Models ovens provide superb drying performance especially suitable for samples with high moisture content.



Operating Features

- Microprocessor PID control.
- Simple calibration and auto-tuning function.
- Temperature control: 10°C above ambient to 250°C
- Delayed ON/OFF digital timer range: 1 min ~ 99 hr 59 min
- Intuitive control panel with bright LED display (0.1°C resolution) and touch-sensitive keypad.
- High temperature limit setting and open door alert.
- Convenient presetting function for 3 most commonly used temperature settings.
- RS-232 interface.

Constructional Features

- Forced air convection ensuring optimal air circulation, temperature uniformity, and short heat-up time.
- Rounded inner chamber corners for easy cleaning and optimal airflow.
- Corrosion-resistant incoloy sheath heating element and stainless steel interior.
- Adjustable dual slide vents for controlling inner vapor circulation. (diameter: 38mm/1.5")
- Threefold tempered-glass window providing clear inside view of the chambers. (optional)
- Fan speed control by an analog dial for preventing powdered samples from blowing away. (optional)



OF-22G with optional Viewing Window

Included Accessories
Optional Accessories
 ☛ see page 100

- 2 Wire Shelves
- Tempered Viewing Window
- Fan Speed Adjuster
- Perforated Shelves

Specifications & Ordering Information



Model		OF-02G	OF-12G	OF-22G
Chamber Volume (L / cu ft)		60 / 2.1	102 / 3.6	151 / 5.3
Temperature	Range (°C / °F)	Amb. +10 to 250 / Amb. +18 to 482		
	Fluctuation ¹⁾ at 100°C (±°C / °F)	0.5 / 0.9	0.6 / 1.08	0.8 / 1.44
	Variation ¹⁾ at 100°C (±°C / °F)	1 / 1.8	1.3 / 2.3	1.7 / 3.1
Dimension (WxDxH)	Interior (mm / inch)	400×360×420 / 15.7×14.2×16.5	480×410×520 / 18.9×16.1×20.5	550×460×600 / 22×18×23.6
	Exterior (mm / inch)	577×642×760 / 22.7×25.3×30	657×692×870 / 25.9×27.2×34.3	727×742×974 / 28.7×29.2×38.3
	Net Weight (Kg / lbs)	53 / 117	63 / 139	72.5 / 160
Electrical Requirements (230V, 50 / 60Hz)		4.4A	6.1A	7.4A
Cat. No.		AAH12155K	AAH12165K	AAH12175K
Electrical Requirements (120V, 50 / 60Hz)		6.8A	8.4A	10.1A
Cat. No.		AAH12156U	AAH12166U	AAH12176U

1) Technical data according to DIN 12880.



Ovens

Forced Convection Ovens (General Models)



Please visit JEIOTECH.com

For further information on Jeio Tech's Oven products
Information is readily available on our website.



OF-G / H Models with an optional Viewing Window



OF-G/H(large) Display

Ovens

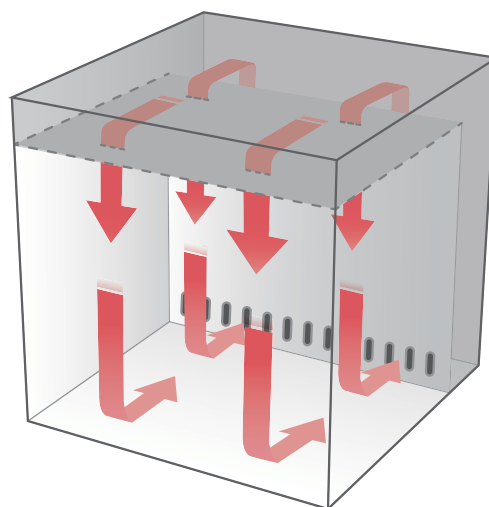
Forced Convection Ovens (General Models)

Specially designed for large volume (maximum 760 L) and fast drying (maximum 300°C) applications

Offering rapid heating performance as well as uniform temperature distribution, these heavy-duty ovens are ideal for obtaining quick test results.

Operating Features

- Microprocessor PID control.
- Simple calibration and auto-tuning function.
- Temperature control
 - OF-G models: 10°C above ambient to 200°C
 - OF-H models: 10°C above ambient to 300°C
- Delayed ON/OFF digital timer range: 1 min ~ 99 hr 59 min.
- Intuitive control panel with bright LED display. (0.1°C resolution)
- High temperature limit setting and open door alert.
- Convenient presetting function for 3 most commonly used temperature settings.
- Operation mode selection after power recovery: either Automatic or Manual Run.
- RS-232 interface.



Constructional Features

- Forced air convection generated by two noiseless and powerful sirocco fans ensuring optimal air circulation, temperature uniformity, and short heat-up time.
- Threefold tempered-glass window providing clear inside view of the chamber. (optional)
- Rounded inner chamber corners for easy cleaning and optimal airflow.
- Corrosion-resistant incoloy sheath heating element and stainless steel interior.
- Adjustable dual slide vents for controlling inner vapor circulation. (diameter: 38mm/1.5")
- Adjustable 5-speed fan for controlling inner circulation rate.

Convection Pattern of OF-G / H Models

Included Accessories

- 2 Wire Shelves (OF-300G / H)
- 3 Wire Shelves (OF-450G / H, 750G / H)

Optional Accessories

☛ see page 100

- Tempered Viewing Window
- Perforated Shelves
- Digital Recorders
 - 6-point dot type recorder.
 - Thermal line recorder.

Specifications & Ordering Information



Model		OF-300G	OF-450G	OF-750G	OF-300H	OF-450H	OF-750H
Chamber Volume (L / cu ft)		314 / 11	450 / 15.9	760 / 26.8	314 / 11	450 / 15.9	760 / 26.8
Temperature	Range (°C / °F)	Amb. +10 to 200 / Amb.+18 to 392		Amb. +10 to 300 / Amb.+18 to 572			
	Fluctuation ¹⁾ at 100°C (±°C / °F)	0.2 / 0.36	0.1 / 0.18	0.2 / 0.36	0.2 / 0.36	0.2 / 0.36	0.2 / 0.36
	Variation ¹⁾ at 100°C (±°C / °F)	0.9 / 1.6	0.7 / 1.3	1.5 / 2.7	0.9 / 1.6	0.8 / 1.4	1.9 / 3.4
Dimension (WxDxH)	Interior (mm / inch)	645×750×650 / 25.4×29.5×25.6	645×750×930 / 25.4×29.5×36.6	745×850×1200 / 29.3×33.5×47.2	645×750×650 / 25.4×29.5×25.6	645×750×930 / 25.4×29.5×36.6	745×850×1200 / 29.3×33.5×47.2
	Exterior (mm / inch)	835×1020×1225 / 32.9×40.2×48.2	835×1020×1505 / 32.9×40.2×59.3	955×1140×1775 / 37.6×44.9×69.9	835×1020×1225 / 32.9×40.2×48.2	835×1020×1505 / 32.9×40.2×59.3	955×1140×1775 / 37.6×44.9×69.9
	Net Weight (Kg / lbs)	175 / 385.8	210 / 462.9	280 / 617.3	210 / 462.9	250 / 551.2	335 / 738.5
Electrical Requirements (230V, 1 ph, 50 / 60 Hz)		12.7A					
Cat. No.	Solid Door Type	AAH18015K	-	-	-	-	-
	Viewing Window Door Type	AAH18115K	-	-	-	-	-
Electrical Requirements (230V, 3 ph, 50 / 60 Hz)		10A		13.8A	10A	13.8A	16.8A
Cat. No.	Solid Door Type	-	AAH180213K	AAH180313K	AAH190113K	AAH190213K	AAH190313K
	Viewing Window Door Type	-	AAH181213K	AAH181313K	AAH191113K	AAH191213K	AAH191313K
Electrical Requirements (380V, 3 ph, 50 / 60 Hz)		6.5A		8.8A	6.5A	8.8A	10.6A
Cat. No.	Solid Door Type	-	AAH180214K	AAH180314K	AAH190114K	AAH190214K	AAH190314K
	Viewing Window Door Type	-	AAH181214K	AAH181314K	AAH191114K	AAH191214K	AAH191314K

1) Technical data according to DIN 12880.



Ovens

Forced Convection Oven (2 & 4-Chamber Models)



Please visit [JEIOTECH.com](https://www.jeiotech.com)

For further information on Jeio Tech's Oven products
Information is readily available on our website.



OF-02G-2C / 4C

Forced Convection Oven (2 & 4-Chamber Models)

Featuring two or four 60L forced convection chambers in a single unit, this oven is designed to offer an ideal and cost-effective solution for laboratories with limited space and budget.

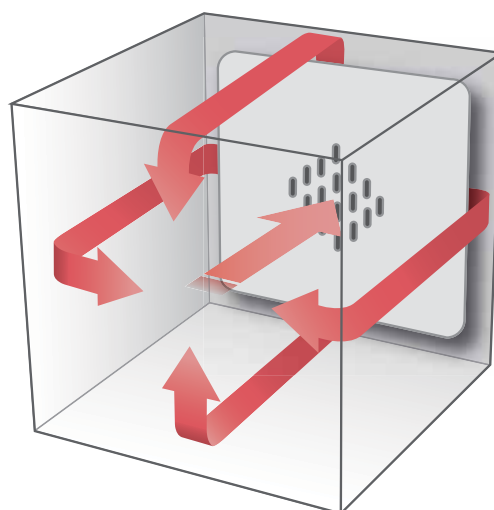
Incorporating specially designed ovens (Model OF-02G) with a powerful yet noiseless sirocco fan, this oven guarantees intensive drying performance, especially for material with high moisture content.

Operating Features

- Microprocessor PID control.
- Simple calibration and auto-tuning function.
- Temperature control: 10°C above ambient to 200°C
- Delayed ON/OFF digital timer range: 1 min ~ 99 hr 59 min.
- Intuitive control panel with bright LED display (0.1°C resolution) and touch-sensitive keypad.
- High temperature limit setting and open door alert.
- Convenient presetting function for 3 most commonly used temperature settings.

Constructional Features

- Two or Four independently controlled 60L ovens (Model OF-02G) merged into a single unit for space saving.
- Forced air convection generated by a noiseless and powerful sirocco fan ensuring optimal air circulation, temperature uniformity, and short heat-up time.
- Rounded inner chamber corners for easy cleaning and optimal airflow.
- Corrosion-resistant incoloy sheath heating element and stainless steel interior.
- Adjustable two and four slide vents for controlling inner vapor circulation. (diameter: 38mm/1.5")
- Built-in casters for easy transport and installation.



Convection Pattern of OF-02G-2C/4C

- Included Accessories** • 2 Wire Shelves per chamber
Optional Accessories • Perforated Shelves
 ☞ see page 100

Specifications & Ordering Information



Model		OF-02G-2C	OF-02G-4C
Chamber Volume (L / cu ft)		60 / 2.1 x 2 Chambers	60 / 2.1 x 4 Chambers
Temperature	Range (°C / °F)	Amb. +10 to 200 / Amb. +18 to 392	
	Fluctuation ¹⁾ at 100°C (±°C / °F)	0.5 / 0.9	
	Variation ¹⁾ at 100°C (±°C / °F)	1 / 1.8	
Dimension (WxDxH)	Interior (mm / inch)	400×360×420 / 15.7×14.2×16.5x 2 Chambers	400×360×420 / 15.7×14.2×16.5x 4 Chambers
	Exterior (mm / inch)	570×640×1340 / 22.4×25.2×52.8	1170×640×1340 / 46.1×25.2×52.8
	Net Weight (Kg / lbs)	110 / 242.5	170 / 374.8
Electrical Requirements (230V, 50 / 60Hz)		8.4A	8.4A x 2EA
Cat. No.		AAH1A115K	AAH1A015K
Electrical Requirements (120V, 50 / 60Hz)		16.7A	16.7A x 2EA
Cat. No.		AAH1A116U	AAH1A016U

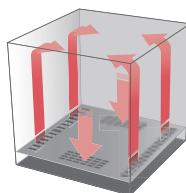
1) Technical data according to DIN 12880.



Ovens

Forced Convection Ovens (Economy Models)

Affordable multi-function fast drying ovens with vertical airflow.



Operating Features

- Microprocessor PID control.
- Simple calibration and auto-tuning function.
- Temperature control: 10°C above ambient to 220°C
- Delayed ON/OFF digital timer range: 1 min ~ 99 hr 59 min.
- Intuitive control panel with bright LED display. (0.1°C resolution) and touch-sensitive keypad.
- High temperature limit setting and open door alert.
- Convenient presetting function for 3 most commonly used temperature settings.

Constructional Features

- Forced air convection generated by a circular fan providing high and uniform drying performance.
- Corrosion-resistant incoloy sheath heating element and stainless steel interior.
- Adjustable dual slide vents for controlling inner vapor circulation. (diameter: 38mm/1.5")
- Easy-to-grip circular door handle.

OF-11E

Included Accessories
Optional Accessories
☛ see page 100

- 2 Wire Shelves
- Perforated Shelves

Specifications & Ordering Information



Model		OF-01E	OF-11E	OF-21E
Chamber Volume (L / cu ft)		52 / 1.8	100 / 3.5	150 / 5.3
Temperature	Range (°C / °F)	Amb. +10 to 220 / Amb. +18 to 428		
	Fluctuation ¹⁾ at 100°C (±°C / °F)	0.4 / 0.72		
	Variation ¹⁾ at 100°C (±°C / °F)	3.3 / 5.94	3.3 / 5.94	2.3 / 4.14
Dimension (WxDxH)	Interior (mm / inch)	375×370×370 / 14.8×14.6×14.6	455×430×510 / 18×17×20	585×460×555 / 23×18.1×21.9
	Exterior (mm / inch)	530×535×737 / 20.9×21.1×29	610×595×877 / 24×23.4×34.5	740×625×922 / 29.1×24.6×36.3
	Net Weight (Kg / lbs)	36 / 79.4	47 / 103.6	59 / 130
Electrical Requirements (230V, 50 / 60 Hz)		4.3A	6 A	7.4A
Cat. No.		AAH14012K	AAH14022K	AAH14032K
Electrical Requirements (120V, 50 / 60 Hz)		6.8A	8.4A	10.1A
Cat. No.		AAH14016U	AAH14026U	AAH14036U

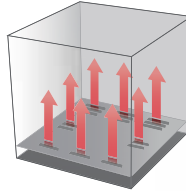
1) Technical data according to DIN 12880.

Ovens

Natural Convection Ovens (General Models)

Specially designed for applications requiring gentle airflow.

Ideal for all sterilization, drying, and high-temperature storage tasks that do not require high drying performance or special time requirements but can't be affected by strong airflow.



Operating Features

- Microprocessor PID control.
- Simple calibration and auto-tuning function.
- Temperature control: 15°C above ambient to 250°C
- Delayed ON/OFF digital timer range: 1 min ~ 99 hr 59 min.
- Intuitive and easy-to-operate control panel with bright LED display (1°C resolution) and touch-sensitive keypad.
- High temperature limit setting and open door alert.
- Convenient presetting function for 3 most commonly used temperature settings.
- RS-232 interface.

Constructional Features

- Gravity flow convection for uniform sample heating.
- Fully insulated dual-wall door with 180 degree hinges and a pull-down handle.
- Rounded inner chamber corners for easy cleaning and optimal airflow.
- Corrosion-resistant incoloy sheath heating element and stainless steel interior.
- Adjustable dual slide vents for controlling inner vapor circulation. (diameter: 38mm/1.5")
- Threefold tempered-glass window providing clear inside view of the chambers. (optional)



ON-22G with optional Viewing Window

Included Accessories
Optional Accessories
 • see page 100

- 2 Wire Shelves
- Tempered Viewing Windows
- Perforated Shelves

Specifications & Ordering Information



Model	ON-02G	ON-12G	ON-22G
Chamber Volume (L / cu ft)	52 / 1.8	91 / 3.2	135 / 4.8
Temperature	Range (°C / °F)		
	Amb. +15 to 250 / Amb. +27 to 482		
	Fluctuation ¹⁾ at 100°C (±°C / °F)		
	0.3 / 0.54		
	Variation ¹⁾ at 100°C (±°C / °F)	5.9 / 10.62	7.5 / 13.5
Dimension (WxDxH)	Interior (mm / inch)	400×360×365 / 15.7×14.2×14.4	480×410×465 / 18.9×16.1×18.3
	Exterior (mm / inch)	577×542×760 / 22.7×21.3×30	657×592×870 / 25.9×23.3×34.3
	Net Weight (Kg / lbs)	49 / 108	59 / 130
			68 / 150
Electrical Requirements (230V, 50 / 60 Hz)	4.3A	6 A	7.4 A
Cat. No.	AAH11135K	AAH11145K	AAH11155K
Electrical Requirements (120V, 50 / 60 Hz)	6.7A	8.3A	10 A
Cat. No.	AAH11136U	AAH11146U	AAH11156U

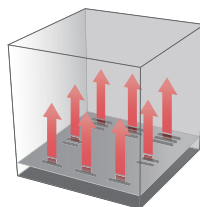
1) Technical data according to DIN 12880.



Ovens

Natural Convection Ovens (Economy Models)

Economical multi-function ovens with gentle airflow.



Operating Features

- Microprocessor PID control.
- Simple calibration and auto-tuning function.
- Temperature control: 15°C above ambient to 220°C
- Delayed ON/OFF digital timer range: 1 min ~ 99 hr 59 min.
- Intuitive and easy-to-operate control panel with bright LED display (1°C resolution) and touch-sensitive keypad.
- High temperature limit setting and open door alert.
- Convenient presetting function for 3 most commonly used temperature settings.
- Corrosion-resistant incoloy sheath heating element and stainless steel interior.
- Adjustable dual slide vents for controlling inner vapor circulation. (diameter: 38mm/1.5")

Constructional Features

- Gravity-flow convection generates a vertical airflow of heat for a uniform heating of samples.
- Moderately sized, an easy to clean spacious chamber, and an easy to grip circular door handle.
- Corrosion-resistant incoloy sheath heater and stainless steel chamber.
- Two circular adjustable top slide vents helps to control inner air vapor circulation. (38mm / 1.5" in dia.)

ON-11E

Included Accessories
Optional Accessories
➔ see page 100

- 2 Wire Shelves
- Perforated Shelves

Specifications & Ordering Information



Model		ON-01E	ON-11E	ON-21E
Chamber Volume (L / cu ft)		52 / 1.8	100 / 3.5	150 / 5.3
Temperature	Range (°C / °F)	Amb. +15 to 220 / Amb. +27 to 428		
	Fluctuation ¹⁾ at 100°C (±°C / °F)	0.3 / 0.54	0.4 / 0.72	0.5 / 0.9
	Variation ¹⁾ at 100°C (±°C / °F)	6.5 / 11.7	4.1 / 7.38	7.3 / 13.14
Dimension (WxDxH)	Interior (mm / inch)	375×370×370 / 14.8×14.6×14.6	455×430×510 / 18×17×20	585×460×555 / 23×18.1×21.9
	Exterior (mm / inch)	530×535×737 / 20.9×21.1×29	610×595×877 / 24×23.4×34.5	740×625×922 / 29.1×24.6×36.3
	Net Weight (Kg / lbs)	34 / 75	46 / 101.4	59 / 130
Electrical Requirements (230V, 50 / 60 Hz)		4.3A	6A	7.4A
Cat. No.		AAH15015K	AAH15025K	AAH15035K
Electrical Requirements (120V, 50 / 60 Hz)		6.7A	8.3A	10A
Cat. No.		AAH15016U	AAH15026U	AAH15036U

1) Technical data according to DIN 12880.

Ovens

Vacuum Ovens

Optimally constructed for separating solvents from solutions or drying solvents with high boiling points. Vacuum oven model with a wide temperature range optimal for separating solvents from solutions.

Drying a solvent in vacuum lowers its boiling point, thereby making the separation process easier and eliminating the need to use high temperatures.



OV-11

- Included Accessories**
- Plate Shelve, 3.0mm (0.12"): 2 for OV-11 / 3 for OV-12
- Optional Accessories**
 see page 101
- Safety Cover
 - Viton Gasket
 - Vacuum Pumps and Oil Mist Trap
 - Cold Trap Baths and U-type Glass Trap

Operating Features

- Microprocessor PID control.
- Simple calibration and auto-tuning function.
- Temperature control: 5°C above ambient to 250°C
- Vacuum range: 0 to 0.1 MPa. (analog vacuum gauge)
- Delayed ON/OFF digital timer range: 1 min ~ 99 hr 59 min.
- Intuitive and easy-to-operate control panel with bright LED display (1°C resolution) and touch-sensitive keypad.
- High temperature limit setting and open door alert.
- Convenient presetting function for 3 most commonly used temperature settings.
- RS-232 interface.

Constructional Features

- Separate vacuum and vent ports.
- Heat tempered glass window providing clear inside view of the chambers.
- Tight vacuum seal thanks to spring-loaded glass door, silicone gasket, and a push-button latch handle.
- Uniform heat distribution from Block type heater attached to the chamber exterior to the anodized aluminum shelves.
- Viton (fluorine rubber) door gasket also available for acidic applications. (optional)

Specifications & Ordering Information



Model		OV-11	OV-12
Chamber Volume (L / cu ft)		28 / 1	65 / 2.3
Vacuum Range		0~0.1MPa, Analog	
Nozzle Size (mm / inch)		Vacuum Ø10 / 0.4, Vent Ø10 / 0.4	
Temperature	Range (°C / °F)	Amb. +5 to 250 / Amb. +9 to 482	
	Fluctuation ¹⁾ (±°C / °F at 100°C)	0.1 / 0.18	0.3 / 0.54
	Variation ¹⁾ (±°C / °F at 100°C)	3.7 / 6.66	
Dimension (WxDxH)	Interior (mm / inch)	302×305×302 / 11.9×12×11.9	402×405×402 / 15.8×15.9×15.8
	Exterior (mm / inch)	680×453×495 / 26.8×17.8×19.5	780×557×595 / 30.7×21.9×23.4
	Net Weight (Kg / lbs)	63 / 139	103 / 227
Electrical Requirements (230V, 50 / 60 Hz)		5.3A	6.1A
Cat. No.		AAH13115K	AAH13125K
Electrical Requirements (120V, 50 / 60 Hz)		10A	11.7A
Cat. No.		AAH13116U	AAH13126U

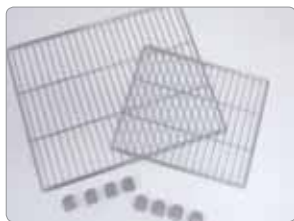
1) Technical data according to DIN 12880.



Ovens

Accessories & Options

for Forced & Natural Convection Ovens



Wire Shelves



Perforated Shelves



Tempered Viewing Windows



Fan Speed Adjuster

Wire Shelves

Stainless steel and electropolished shelf system is removed easily without using tools for easy cleaning.

Cat. No.	Description			Suitable for
	Included	Maximum	W×L (mm / inch)	
EDA8136	2	8	366×316 / 14.4×12.4	OF-02G/P
	4	16		OF-02G-2C
	8	32		OF-02G-4C
EDA8135	2	12	446×366 / 17.6×14.4	OF-12G/P
EDA8134	2	14	516×416 / 20.3×16.4	OF-22G/P
EDA8136	2	10	366×316 / 14.4×12.4	OF-01E, ON-01E
EDA8135	2	14	446×366 / 17.6×14.4	OF-11E, ON-11E
EDA8137	2	15	576×419 / 22.7×16.5	OF-21E, ON-21E
RTD1196	2	17	708×608 / 27.9×23.9	OF-300G/H
	3	26		OF-450G/H
RTD1197	3	35		OF-750G/H
EDA8136	2	8	366×316 / 14.4×12.4	ON-02G
EDA8135	2	12	446×366 / 17.6×14.4	ON-12G
EDA8137	2	12	576×419 / 22.7×16.5	ON-22G

Perforated Shelves

Stainless steel shelf system is removed easily without using tools for easy cleaning.

Cat. No.	Description		Suitable for
	Maximum	W×L (mm / inch)	
AAA12531	8	366×316 / 14.4×12.4	OF-02G/P
	16		OF-02G-2C
	32		OF-02G-4C
AAA12532	12	446×366 / 17.6×14.4	OF-12G/P
AAA12533	14	516×416 / 20.3×16.4	OF-22G/P
AAA12531	10	366×316 / 14.4×12.4	OF-01E, ON-01E
AAA12532	14	446×366 / 17.6×14.4	OF-11E, ON-11E
AAA12535	15	576×419 / 22.7×16.5	OF-21E, ON-21E
AAA80604-2	17	708×608 / 27.9×23.9	OF-300G/H
	26		OF-450G/H
AAA80604-3	35		OF-750G/H
AAA12531	8	366×316 / 14.4×12.4	ON-02G
AAA12532	12	446×366 / 17.6×14.4	ON-12G
AAA12535	12	576×419 / 22.7×16.5	ON-22G

Tempered Viewing Windows

Optimized sample monitoring with threefold, tempered safety glass window. (only for OF-G/P, ON-G Models)

Cat. No.	Description		Suitable for
	Thickness, WxL (mm / inch)		
AAA12611	5, 150x280 / 0.2, 5.9x11		OF-02G/P, ON-02G
AAA12612	5, 150x380 / 0.2, 5.9x15		OF-12G/P, 22G/P, ON-12G, 22G

Fan-Speed Adjuster

Adjustable inner air circulation speed, which protects spreading out powder sample. (only for OF-G Models)

Cat. No.	Description	Suitable for
AAA12701	Analog Dial Control	OF-02G, 12G, 22G

Recorders

Easy recognizable digital recorders for efficient temperature indicating.

Cat. No.	Description	Suitable for
AAA8T500	Recorder (6 Point)	OF-300G/H, 450G/H, 750G/H
AAAE1503	Recorder (Thermal Line type)	

Ovens

Accessories & Options

for Vacuum Ovens



➤ Safety Covers



➤ Viton Gaskets



➤ Vacuum Pumps



➤ ColdTrap Baths

➤ Safety Covers

In case of the glass is destroyed, the netted steel frame and polycarbonate sheet cover prevent user from glass splinters.

Cat. No.	Description	Suitable for
AAA13603	Safety Cover	OV-11
AAA13604	Safety Cover	OV-12

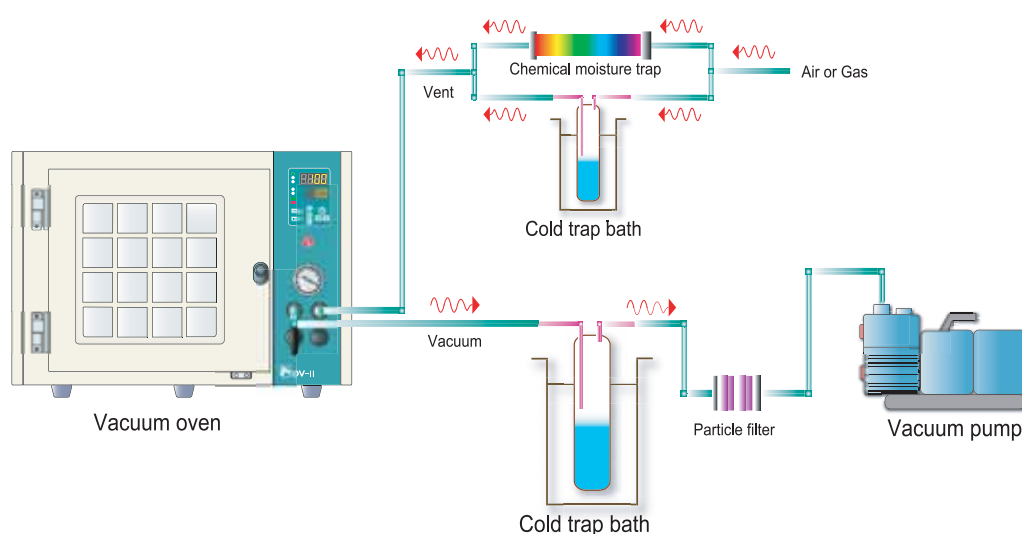
➤ Gaskets

Viton (fluorine rubber) door gaskets can be provided upon request.

Cat. No.	Description	Suitable for
FAA5146	Silicone Gasket	OV-11
FAA5187	Viton (fluorine rubber) Gasket	
FAA5147	Silicone Gasket	OV-12
FAA5188	Viton (fluorine rubber) Gasket	

➤ Related Products for Vacuum Ovens

(Organization chart for use of Vacuum oven with Pump and Cold trap bath)



➤ Vacuum Pumps

Rotary vacuum pumps with directly connected oil seal prevent air reflux and provide high vacuum pressure for vacuum ovens.

Cat. No.	Electrical Requirements	Suitable for
BEH73105K	230V, 50 / 60Hz	MVP-6
BEH73501	Oil Mist Trap	Related Accessory

※ In order to get rid of evaporated oil or to block oil in-flow, an optional oil mist trap is recommended. (Refer to Page 103 for additional information.)

➤ Cold Trap Baths

CTB-10 cold trap baths equipped with two U-type glass traps prevent a vacuum pump from vapors or contamination.

Cat. No.	Description	Suitable for
AAH62011K	230V, 60Hz	CTB-10
AAH62012K	230V, 50Hz	
AAA62501	U-type Glass Trap	Related Accessory

※ In addition to standard accessories, we can also provide customized accessories to meet your specific requirements. Please contact your local dealer for more details.

Pumps

Electrical Aspirator Pump

Portable dual-channel water-jet aspirator pumps

Creating a vacuum by means of Venturi effect, VE-11 aspirator pumps are suitable for rotary vacuum evaporation, decompression distillation, vacuum drying, and vacuum filtering.



VE-11
with optional vacuum gauge / regulator

Features

- Built-in circulating pump and water tank make the unit portable.
- Circulating pump continuously pumps water quietly across a set of aspirators, and is therefore clean and efficient.
- Built-in check valve prevents backflow of water into the aspirator pump.
- Corrosion-resistant construction of all wetted parts with 304 stainless steel, polypropylene, silicone, or nickel-coated brass.
- Water tank features a drain port and a spigot for easy changing of water.

Included Accessories

- Water tank, aspirator pump, tank closure
- Two aspirators
- Two 20cm long Ø 6mm (0.2") silicone rubber tubes
- One 100cm long Ø 8mm (0.3") silicone rubber tube

Specifications & Ordering Information



Model		VE-11		
Bath Volume (L / cu ft)		9.5 / 0.3		
Max. Vacuum (Mpa / Hg)		0.0998 / 29.5"		
Free-air Capacity		18L / minute (0.6 cfm) x2ea		
Material	Bath	Polypropylene		
	Aspirator	Nickel-coated Brass x2ea		
Dimension	Bath Internal (WxL, D) (mm / inch)	298x210, 227 / 11.7x8.3, 8.9		
	Overall (WxLxH) (mm / inch)	330x265x390 / 13x10.4x15.4		
	Inhale Nozzle	external Ø9.5mm (0.4") x2ea		
	Drain Cook, Over Flow Nozzle (mm / inch)	Ø17 / 0.7		
	Net Weight (kg / lbs)	5.7 / 12.6		
Electrical Requirements		230, 60Hz / 0.7A	230, 50Hz / 0.7A	120, 60Hz / 1.4A
Cat. No.		AAH71011K	AAH71015K	AAH71016U

Optional Accessories

- Vacuum gauge with regulator: to monitor and control the vacuum pressure.
(between 0.0267~0.0998MPa / 7.9~29.5" Hg)
- Cooling coil: to prevent vacuum from decreasing due to temperature increase.

Description	Cat. No.
Vacuum Gauge with Regulator	AAA71531
Cooling Coil	AAA71501
Aspirator (1 ea)	EFA9111
Aspirator (10 ea)	AAH71122



Cooling Coil



Aspirators

Rotary Vacuum Pump

Features

- Rotary vacuum pump equipped with direct connect oil seal prevents air reflux, essentially used with vacuum ovens to achieve a higher level of vacuum pressure.
- Oil mist trap, an optional feature, prevents oil in-flow.

Specifications & Ordering Information

Model	MVP - 6	
	60 Hz	50 Hz
Pumping Speed (L / min)	100	80
Max. Pressure (Pa)	6.7×10^{-2}	
Motor Power (W)	400	
Motor Speed (rpm)	1750	1450
Recommended Oil (L)	1.1	
Inlet / Outlet Port (DN)	25KF	
Net Weight (Kg / lbs)	22.5 (49.6lb)	
Electrical Requirement	230V	
Cat. No.	BEH73105K	



Optional Accessories

Model	Electrical Requirement	Cat. No.
MVP-6	Oil Mist Trap	BEA700104

MVP-6 Rotary Vacuum Pump

- Optional Accessories
- Oil Mist Traps (TMF-12)

Recirculating Coolers

SELECTION GUIDE

Recirculating Coolers
(General Models)

Recirculating Coolers
(Low Temp. Models)

Recirculating Coolers
(Advanced Low Temp. Models)

Recirculating Coolers
(High Temp. Models)

Recirculating Coolers
(Compact Models)

Recirculating Coolers

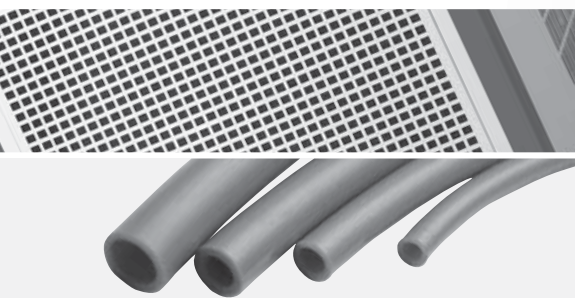
Description		Working Temp. Range (°C / °F)	Cooling Capacity at 20°C (Kw)	Pump (50Hz)		Page
				Max. Flow Rate (L / min, gal / min)	Max. Pressure (bar / psi)	
General Models	HX-20	+3 to 40 / +37.4 to 104	1.9	40 / 10.6	1.58 / 22.92	106
	HX-25		2.4			
	HX-20H		1.9	28 / 7.39	4.3 / 62.37	
	HX-25H		2.4			
	HX-35H		3.6			
	HX-45H		4.7			
	HX-55H		7.1			
Low Temp. Models	HL-05	-20 to 40 / - 4 to 104	0.6	50 / 13.2	1 / 14.50	108
	HL-10		0.7			
	HL-15		1.45			
	HL-20		1.8	40 / 10.57	3.3 / 47.9	
	HL-15H		1.45			
	HL-20H		1.8			
	HL-25H		2.5			
	HL-35H		3.3	70 / 18.49	6 / 87.02	
	HL-45H		6.5			
HL-55H	7.1					
Advanced Low Temp. Models	HS-15	-20 to 40 / - 4 to 104	1.45	40 / 10.57	3.3 / 47.86	110
	HS-20		1.8			
	HS-25		2.5			
	HS-35		3.3			
	HS-45		6.5			
	HS-55		7.1			
	HS-45H		6.5	70 / 18.49	6 / 87.02	
	HS-55H	7.1				
High Temp. Models	HH-15	-20 to 80 / - 4 to 176	1.45	40 / 10.57	3.3 / 47.86	112
	HH-20		1.8			
	HH-25		2.5			
	HH-35		3.3	70 / 18.49	6 / 87.02	
	HH-45H		6.5			
	HH-55H		7.1			
Compact Models	RC-05	-20 to 30 / -4 to 86	0.58	26 / 6.87	0.7 / 10.15	114

Accessories & Options

Description	Page
for Recirculating Coolers	116-117



GENERAL APPLICATIONS



General Applications	Recirculating Coolers	
	HX Models	HL/HS/HH Models
AAS	•	•
Autoclaves	•	•
Calorimeters	•	-
CCM cameras	•	-
Combinatorial chemistry	-	•
Cooling of peltier elements	•	-
Diffusion pumps	•	•
Distillation apparatus	•	•
Dosing and gluing techniques	-	•
Drying of gas	-	•
Electrophoresis chambers	•	•
Gas chromatographs	-	•
General industries	•	•
General laboratory apparatus	•	•
Lasers	-	•
Mass spectrometers	•	•
Mills and kneaders	-	•
NMR	•	•
Pilot plants	•	•
Plastic industries	•	•
Reaction vessels	•	•
Rotary evaporators	•	•
SEM	-	•
Semiconductor industries	•	•
Soxhlet installation	•	-
Spectrometers	•	•
Vacuum systems	•	•

* Above listed applications are for general purpose use.

TECHNICAL BENEFITS

Safety Features

- 1) Self - protecting cut-off function and signal
 - For over temp. the power supply is automatically cut from controller systematically before the unit shuts down. (except for HH Models)
 - Over current circuit breaker for user safety.
- 2) Low fluid level and dry-running protection:
 - Intermittent tone alert sounds and optical signals alarms display on the control panel.
- 3) Double service valve provided to prevent refrigerant leakage.

Optimum Control Features

- 1) Functional LCD (resolution 0.1°C) keypad type display (only for RC-05, HX Models)
 - Clear and easy-to-use LCD display.
- 2) Designed to simplify operation with a VFD touch screen type display. (only for HL / HS / HH Models)
 - Self-diagnostic function identifies equipment errors.
 - Recognizable and convenient keypad.
- 3) Bright LED water level indicator.
- 4) Pump pressure gauge. (except for RC-05)
- 5) Run, compressing, pumping visual indicator.
- 6) Eco-friendly R-404A or R507 refrigerant.
- 7) Hot gas by-pass. (only for HL Models)
- 8) Integrated heaters with high temp. stability. (only for HH Models)

Constructional Features

- 1) High quality #304 grade stainless inner bath and dirt repellent powder coated external surface.
- 2) Stainless steel submerged parts are resistant to corrosion against all usual bath fluids.
- 3) Pump pressure can be controlled using a bypass function. (only for HX-H type)
- 4) Removable gridded vent for reducing condenser contamination and to facilitate cleanliness.
- 5) Wheels allow for easy mobility. (except for RC-05)
- 6) Computer Interface. (only for HS / HH Models)
- 7) Warning alarm/monitoring system.
 - Over temperature.
 - Lack of bath solutions.
- 8) Pressure gauge comes standard with recirculating units to provide fluid system diagnostics at a glance and for observing the pump pressure.

Recirculating Coolers (Chillers)

Recirculating Coolers (General Models)

Providing a constant temperature control and high cooling efficiency.

Operating cost can be reduced by using the recirculator for cooling water.

It is eco-friendly and reduces energy consumption.



Operating Features

- Temperature range is from 3°C to 40°C.
- Clear and easy-to-use LCD display. (resolution 0.1°C)
- Bright LED water level indicator can be seen from a distance.
- Low fluid level and dry-running protection when triggered shows an error symbol on the display and an audible buzzer sound.
- If the equipment operates at 40°C or above due to the external environment, user can simply identify the error with a visual signal or an audible buzzer sound.
- Pump pressure can be controlled using a by-pass function. (only for H type)

Constructional Features

- The refrigerating system is designed to reduce energy consumption and to maximize in refrigerating efficiency.
- Eco-friendly R-404A refrigerant is used to prevent environmental pollution. Double service valve is used to prevent refrigerant leakage.
- Removable gridded vent for reducing condenser contamination and to facilitate cleanliness.
- A wide (Ø50mm / 1.97") solution inlet is for easy and safe pouring of solution into the recirculating cooler.
- Pressure gauge comes standard with chiller units to provide fluid system diagnostics at a glance and for observing the pump pressure.
- Wheels allow for easy mobility throughout the lab.
- Different types of pumps and valves come standard with the chiller to provide versatility.
- Variety of accessories are available to meet user's different lab environment needs. (refer to accessories)



LCD Display



Pressure Gauge



Level Indicator

Testing in accordance with DIN EN 12876

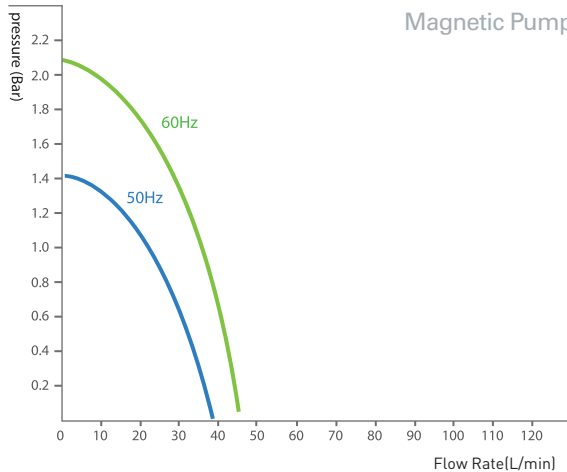
Included Accessories
 see page 116-117

- 3/4" Male to 3/4" Male Adapters (2ea)
- Ball Valves (2ea)

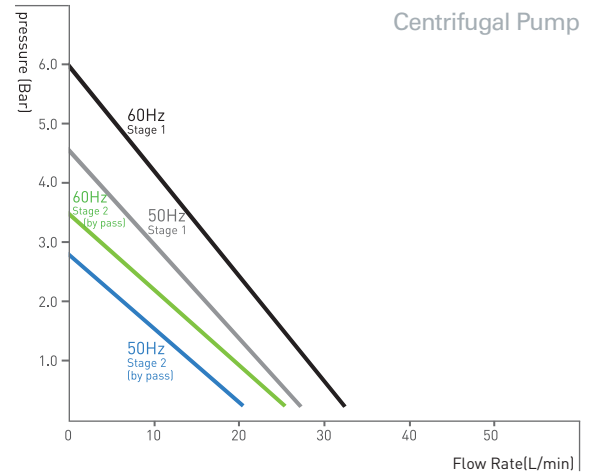
Recirculating Coolers (Chillers)

Recirculating Coolers (General Models)

Pumping Capacities (bath fluid: water)



• HX-20, 25



• HX-20H, 25H, 35H, 45H, 55H

Specifications & Ordering Information



Model		HX-20	HX-25	HX-20H	HX-25H	HX-35H	HX-45H ¹⁾	HX-55H ²⁾
Temperature ¹⁾ (bath fluid : water)	Working Temperature Range (°C / °F)	+3 to 40 / +37.4 to 104						
	Temperature Stability at 15°C (±°C / °F)	1 / 1.8						
Cooling Capacity (bath fluid : water)	at 20°C (kW)	1.9	2.4	1.9	2.4	3.6	4.7	7.1
	at 10°C (kW)	1.4	1.7	1.4	1.7	3.1	3.6	5.1
	at 5°C (kW)	1	1.4	1	1.4	2.4	2.9	4.2
Pump	Max. Flow Rate (L / min, gal / min)	40 / 10.6		28 / 7.39				
	Max. Pressure (bar / psi)	1.43 / 20.74		4.3 / 62.37				
Dimension	Max. Filling Capacity (L / cu ft)	35 / 1.24				45 / 1.59		
	For Tubing Dia (mm / inch)	20 / 3/4						
	Overall (WxLxH, mm / inch)	620×785×990 / 24.4×30.9×39				745×800×1095 / 29.3×31.5×43.1		
	Net Weight (kg / lbs)	93 / 205	101 / 223	97 / 214	105 / 231	120 / 265	130 / 287	140 / 309
Electrical Requirements (230V, 60Hz)		8.5A	9A	9.3A	9.8A	15A	19A	
Cat. No.		AAH64011K	AAH64021K	AAH64111K	AAH64121K	AAH64131K	AAH64141K	-
Electrical Requirements (230V, 50Hz)		7A	7.6A	7.9A	8.8A	14A		
Cat. No.		AAH64012K	AAH64022K	AAH64112K	AAH64122K	AAH64132K	-	-
Electrical Requirements (120V, 60Hz)		17A	22A					
Cat. No.		AAH64013U	AAH64023U	-	-	-	-	-
Electrical Requirements (380V, 60Hz)							10A	11.5A
Cat. No.		-	-	-	-	-	AAH64149K	AAH64159K
Electrical Requirements (380V, 50Hz)							7A	8.5A
Cat. No.		-	-	-	-	-	AAH64148K	AAH64158K

1) Technical data according to DIN 12876

2) Only HX-45H, 55H is recorded by 380V, 60Hz.

※ Above specification value is recorded by 50Hz.

※ The performance values refer to +20°C(68°F) ambient temperature.

※ Product performance may be affected by ambient temperatures.

Recirculating Coolers (Chillers)

Recirculating Coolers (Low Temp. Models)

Powerful recirculating coolers, the HL Models provide a wide range of cooling capacities with temperature reliability.

Innovative control system, with a dynamic pumping capacity, and ideal for external temp. applications. Broad range of models to choose from based on working temperature range.



Operating Features

- Temperature range is from -20°C to 40°C .
- Bright LED water level indicator can be easily identified.
- Low fluid level and dry-running protection when triggered shows an error symbol on the display and an audible sound.
- If the equipment operates at 40°C or above due to the external environment, user can simply identify the error with a visual or an audible sound.
- Designed to simplify operation with a touch screen type display.
 - Easy-to-read VFD display with interactive touch keys.
 - Setting and resolution indication $0.1^{\circ}\text{C}/^{\circ}\text{F}$.
 - Quick keypad lock prevents accidental parameter changes.
 - Signal indicator for operation status.

Constructional Features

- The refrigerating system is designed to reduce energy consumption and to maximize in refrigerating efficiency.
- Eco-friendly R-404A / R507 refrigerant is used to prevent environmental pollution. Double service valve is used to prevent refrigerant leakage.
- Removable gridded vent for reducing condenser contamination and to facilitate cleanliness.
- A wide ($\varnothing 120\text{mm} / 4.72"$) solution inlet is for easy and safe pouring of solution into the recirculating cooler.
- Pressure gauge comes standard for observing the pump pressure.
- The refrigeration system can be observed easily to diagnostic at a glance by high / low pressure gauges. (HL-25H, 35H, 45H, 55H Models)
- Wheels allow for easy mobility.
- Different types of pumps come standard with the recirculating cooler to provide versatility.
- Warning alarm/monitoring system.
 - Over temperature.
 - Lack of bath solutions.



Testing in accordance with DIN EN 12876

Included Accessories
 ➤ see page 116-117

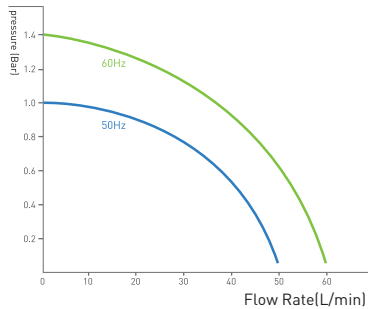
- 3/4" Male to 3/4" Male Adapters (2ea)
- Ball Valves (2ea)

Recirculating Coolers (Chillers)

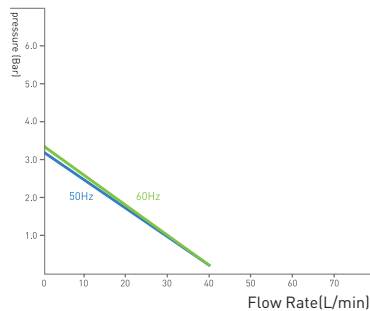
Recirculating Coolers (Low Temp. Models)

Pumping Capacities (Bath fluid : ethylene glycol mix 1:1 water)

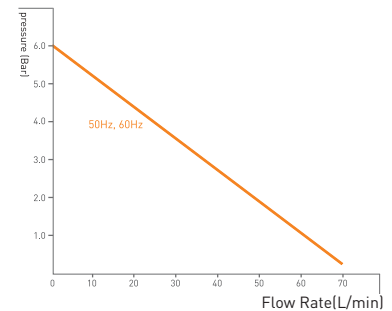
Submersible Pump



• HL-05, 10, 15, 20



• HL-15H, 20H, 25H, 35H



• HL-45H, 55H

Specifications & Ordering Information



Model		HL-05	HL-10	HL-15	HL-20	HL-15H	HL-20H	HL-25H	HL-35H	HL-45H ²⁾	HL-55H ²⁾
Temperature ¹⁾ (Bath fluid : ethylene glycol mix 1:1 water)	Working Temperature Range (°C / °F)	-20 to 40 / -4 to 104									
	Temperature Stability at 15°C, (±°C / °F)	1 / 1.8									
Cooling Capacity (bath fluid : ethylene glycol mix 1:1 water)	at 20°C (kw)	0.6	0.7	1.45	1.8	1.45	1.8	2.5	3.3	6.5	7.1
	at 10°C (kw)	0.5	0.6	1.15	1.5	1.15	1.5	1.8	2.3	4.5	6
	at 0°C (kw)	0.35	0.42	0.86	1.15	0.86	1.15	1.1	1.7	3	4.1
	at -10°C (kw)	0.18	0.32	0.62	0.85	0.62	0.85	0.65	1	2.1	2.5
	at -20°C (kw)	0.04	0.14	0.3	0.40	0.3	0.4	0.4	0.55	1.2	1.5
Pump	Max. Flow Rate (L / min, gal / min)	50 / 13.2					40 / 10.57			70 / 18.49	
	Max. Pressure (bar / psi)	1 / 14.5					3.3 / 47.9			6 / 87	
Dimension	Max., Filling Capacity (L, cu ft)	7.5 / 0.26		13.5 / 0.47				25 / 0.88		39 / 1.37	
	For Tubing Dia (mm / inch)	20 / 3/4									
	Overall (WxLxH, mm / inch)	405×620×710 / 15.9×24.4×28		515×715× 835 / 20.3×28.1×32.9				550×900×1140 / 21.7×35.4×44.9		605×1045×1300 / 23.8×41.4×51.2	
	Net Weight (kg / lbs)	62.85 / 138.6	64.85 / 143	86.5 / 190.7	87.35 / 192.9	91.8 / 202.4	92.65 / 204.3	141.3 / 310.9	146.3 / 321.9	171 ±10 / 377 ±22	176 ±10 / 388 ±22
Electric Requirement (230V, 60Hz)		5A	5.5A	6.5A	7.5A	6.5A	7.5A	9.5A	13.5A		
Cat. No.		AAH65001K	AAH65011K	AAH65021K	AAH65031K	AAH65121K	AAH65131K	AAH65141K	AAH65151K	-	-
Electric Requirement (230V, 50Hz)		4.5A	5A	6A	7A	6A	7A	7.5A	12.5A		
Cat. No.		AAH65002K	AAH65012K	AAH65022K	AAH65032K	AAH65122K	AAH65132K	AAH65142K	AAH65152K	-	-
Electric Requirement (120V, 60Hz)		10A	11A	13A	15A						
Cat. No.		AAH65003U	AAH65013U	AAH65023U	AAH65033U	-	-	-	-	-	-
Electric Requirement (380V, 60Hz)										5.5A	7A
Cat. No.		-	-	-	-	-	-	-	-	AAH65169K	AAH65179K
Electric Requirement (380V, 50Hz)										5A	6A
Cat. No.		-	-	-	-	-	-	-	-	AAH65168K	AAH65178K

1) Technical data according to DIN 12876.

2) Only HL-45H, 55H is recorded by 380V, 60Hz.

※ Above specification value is recorded by 50Hz.

※ The performance values refer to +20°C(68°F) ambient temperature.

※ Product performance may be affected by ambient temperatures.

Recirculating Coolers (Chillers)

Recirculating Coolers (Advanced Low Temp. Models)

Adjustable, precise PID temperature controller beneficial for various cooling tasks, for use in the science, research, and industrial laboratories.

Innovative and exclusive controller can be adjusted the cooling capacity from 1% to 100%

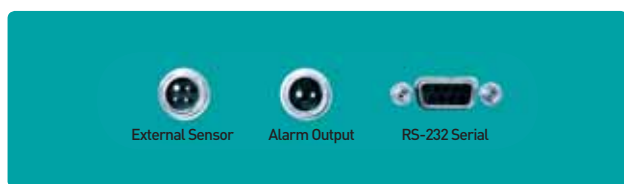


Operating Features

- Temperature range is from -20°C to 40°C.
- As an option an external sensor can be directly installed into the cooling circuit for monitoring and regulating of temp.
- Precise temperature stability $\pm 0.2^{\circ}\text{C}$ (at 15°C) without heater.
- Bright LED water level indicator can be easily identified.
- Low fluid level and dry-running protection when triggered shows an error symbol on the display and an audible sound.
- If the equipment operates at 40°C or above due to the external environment, user can simply identify the error with a visual or an audible sound.
- Designed to simplify operation with a touch screen type display.
 - Setting and resolution indication $0.1^{\circ}\text{C}/^{\circ}\text{F}$.
 - Quick keypad lock prevents accidental parameter changes.



Digital Controller



RS-232 Serial Port & Etc

Testing in accordance with DIN EN 12876

Included Accessories

➔ see page 116-117

- 3/4" Male to 3/4" Male Adapters (2ea)
- Ball Valves (2ea)

Constructional Features

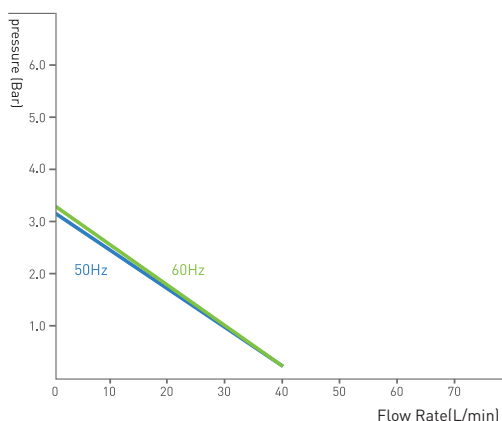
- The refrigerating system is designed to reduce energy consumption and to maximize in refrigerating efficiency.
- Available external temperature sensor (Pt 100) for measured value.
- RS-232C and software included.
 - Storage of program information, backup of temperature settings, recovery, and excel saving format capabilities.
- Eco-friendly R-404A / R507 refrigerant.
- Double service valve for preventing refrigerant leakage.
- Removable gridded vent for reducing condenser contamination and to facilitate cleanliness.
- A wide ($\varnothing 37\text{mm} / 4.72"$) solution inlet is for easy and safe pouring of solution into the recirculating cooler.
- Pressure gauge comes standard for observing the pump pressure.
- The refrigeration system can be observed easily to diagnostic at a glance by high / low pressure gauges. (HS-25, 35, 45H, 55H Models)
- Different types of pumps come standard with the recirculating cooler to provide versatility.
- Warning alarm/monitoring system.
 - Over temperature.
 - Lack of bath solutions.

Recirculating Coolers (Chillers)

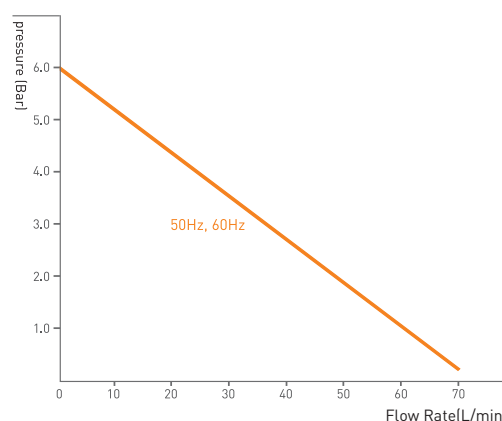
Recirculating Coolers (Advanced Low Temp. Models)

Pumping Capacities (bath fluid: water)

Submersible Pump



• HS -15, 20, 25, 35, 45, 55



• HS - 45H, 55H

Specifications & Ordering Information



	Model	HS-15	HS-20	HS-25	HS-35	HS-45	HS-55	HS-45H ⁽²⁾	HS-55H ⁽²⁾
Temperature ¹⁾ (bath fluid : ethylene glycol mix 1:1 water)	Working Temperature range (°C / °F)	-20 to 40 / -4 to 104							
	Temperature Stability at 15°C, (±°C / °F)	0.2 / 0.36							
Cooling Capacity (bath fluid : ethylene glycol mix 1:1 water)	at 20°C (kw)	1.45	1.8	2.5	3.3	6.5	7.1	6.5	7.1
	at 10°C (kw)	1.15	1.5	1.8	2.3	4.5	6	4.5	6
	at 0°C (kw)	0.86	1.15	1.1	1.7	3	4.1	3	4.1
	at -10°C (kw)	0.62	0.85	0.65	1	2.1	2.5	2.1	2.5
	at -20°C (kw)	0.3	0.4	0.4	0.55	1.2	1.5	1.2	1.5
Pump	Max. Flow Rate (L / min, gal / min)	40 / 10.57						70 / 18.49	
	Max. Pressure (bar / psi)	3.3 / 47.86						6 / 87	
Dimension	Max. Filling Capacity (L, cu ft)	13.5 / 0.47		25 / 0.88		39 / 1.37			
	For Tubing Dia (mm / inch)	20 / 3/4							
	Overall (WxLxH, mm / inch)	515x715x 835 / 20.3x28.1x32.9		550x900x1140 / 21.7x35.4x44.9		605x1045x1300 / 23.8x41.4x51.2			
	Net Weight (kg / lbs)	91.8 / 202.4	92.65 / 204.3	141.3 / 310.9	146.3 / 321.9	168 ±10 / 370 ±22	173±10 / 381 ±22	171 ±10 / 377 ±22	176 ±10 / 388 ±22
Electric Requirement (230V, 60Hz)		6.5 A	7.5 A	9.5 A	13.5 A				
Cat. No.		AAH66011K	AAH66021K	AAH66031K	AAH66041K	-	-	-	-
Electric Requirement (230V, 50Hz)		6 A	7 A	7.5 A	12.5 A				
Cat. No.		AAH66012K	AAH66022K	AAH66032K	AAH66042K	-	-	-	-
Electric Requirement (380V, 60Hz)						5.5 A	7 A	5.5 A	7 A
Cat. No.		-	-	-	-	AAH66259K	AAH66469K	AAH66359K	AAH66569K
Electric Requirement (380V, 50Hz)						5 A	6 A	5 A	6 A
Cat. No.		-	-	-	-	AAH66258K	AAH66468K	AAH66358K	AAH66568K

1) Technical data according to DIN 12876.

2) Only HS-45H, 55H is recorded by 380V, 60Hz.

※ Above specification value is recorded by 50Hz.

※ The performance values refer to +20°C(68°F) ambient temperature.

※ Product performance may be affected by ambient temperatures.

Recirculating Coolers (Chillers)

Recirculating Coolers (High Temp. Models)

Broad temperature ranging up to 80°C for various applications.
Also integrated heaters greatly provides high temperature stability.

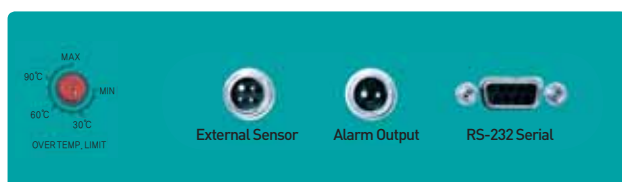


Operating Features

- Temperature range is from -20°C to 80°C.
- As an option an external sensor can be directly installed into the cooling circuit for monitoring and regulating of temp.
- Precise temperature stability $\pm 0.1^\circ\text{C}$ (at 15°C) with integrated heaters.
- Bright LED water level indicator can be easily identified.
- Low fluid level and dry-running protection when triggered shows an error symbol on the display and an audible sound.
- If the equipment operates at 80°C or above due to the external environment, user can simply identify the error with a visual or an audible sound.
- Designed to simplify operation with a touch screen type display.
 - Setting and resolution indication $0.1^\circ\text{C}/^\circ\text{F}$.
 - Quick keypad lock prevents accidental parameter changes.



Digital Controller



Temp. limit & RS-232 Serial & Etc

Testing in accordance with DIN EN 12876

Included Accessories

see page 116-117

- 3/4" Male to 3/4" Male Adapters (2ea)
- Ball Valves (2ea)

Constructional Features

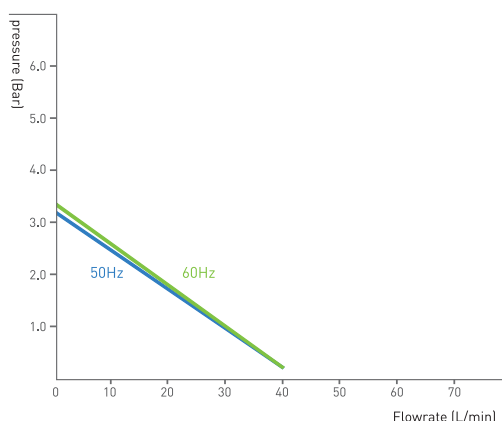
- The refrigerating system is designed to reduce energy consumption and to maximize in refrigerating efficiency.
- Available external temperature sensor (Pt 100) for measured value.
- RS-232C and software included.
 - Storage of program information, backup of temperature settings, recovery, and excel saving format capabilities.
- Eco-friendly R-404A / R507 refrigerant.
- Double service valve for preventing refrigerant leakage.
- Removable gridded vent for reducing condenser contamination and to facilitate cleanliness.
- A wide ($\varnothing 120\text{mm} / 4.72"$) solution inlet is for easy and safe pouring of solution into the recirculating cooler.
- Pressure gauge comes standard for observing the pump pressure.
- The refrigeration system can be observed easily to diagnostic at a glance by high / low pressure gauges. (HH-25, 35, 45H, 55H Models)
- Different types of pumps come standard with the recirculating cooler to provide versatility.
- Warning alarm/monitoring system.
 - Over temperature.
 - Lack of bath solutions.

Recirculating Coolers (Chillers)

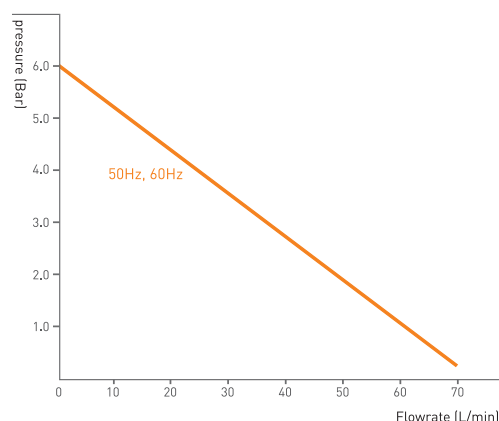
Recirculating Coolers (High Temp. Models)

► Pumping Capacities (bath fluid : ethylene glycol mix 1:1 water)

Submersible Pump



• HH- 15, 20, 25, 35



• HH- 45H, 55H

► Specifications & Ordering Information



	Model	HH-15	HH-20	HH-25	HH-35	HH-45H ²⁾	HH-55H ²⁾
Temperature ¹⁾ (bath fluid : ethylene glycol mix 1:1 water)	Working Temperature Range (°C / °F)	-20 to 80 / - 4 to 176					
	Temperature Stability at 15°C, (±°C / °F)	0.1 / 0.2					
Cooling Capacity (bath Fluid : ethylene glycol mix 1:1 water)	at 80°C (kw)	2	2.5	3.5	4	6	7.5
	at 40°C (kw)	0.9	1	2.4	2.5	4.5	5
	at 20°C (kw)	1.45	1.8	2.5	3.3	6.5	7.1
	at 0°C (kw)	0.86	1.15	1.1	1.7	3	4.1
	at -20°C (kw)	0.3	0.4	0.4	0.55	1.2	1.5
Heating Capacity(kw)		2		4		8.4	
Pump	Max. Flow Rate (L / min, gal / min)	40 / 10.6				70 / 18.5	
	Max. Pressure (bar / psi)	3.3 / 47.9				6 / 87.02	
Dimension	Max. Filling Capacity (L, cu ft)	13.5 / 0.47		25 / 0.88		39 / 1.37	
	For Tubing Dia (mm / inch)	20 / 3/4					
	Overall (WxDxH, mm / inch)	515×715× 835 / 20.3×28.1×32.9		550×900×1140 / 21.7×35.4×44.9		605×1045×1300 / 23.8×41.4×51.2	
	Net Weight (kg / lbs)	92 / 202.8	93 / 205	142 / 313	147 / 324	171±10 / 377±22	176±10 / 388±22
Electric Requirement (230V, 60Hz)		15A	16A	27A	31A		
Cat. No.		AAH67011K	AAH67021K	AAH67031K	AAH67041K	-	-
Electric Requirement (230V, 50Hz)		14.5A	15.5A	25A	30A		
Cat. No.		AAH67012K	AAH67022K	AAH67032K	AAH67042K	-	-
Electric Requirement (380V, 60Hz)						18.3	19.8
Cat. No.		-	-	-	-	AAH67159K	AAH67169K
Electric Requirement (380V, 50Hz)						17.8	19.3
Cat. No.		-	-	-	-	AAH67158K	AAH67168K

1) Technical data according to DIN 12876.

2) Only HH-45H, 55H is recorded by 380V, 60Hz.

※ Above specification value is recorded by 50Hz.

※ The performance values refer to +20°C(68°F) ambient temperature.

※ Product performance may be affected by ambient temperatures.

※ Under the condition of no-load operation, cooling capacity should be lower than heating capacity.

Recirculating Coolers (Chillers)

Recirculating Coolers (Compact Model)

This compact designed model is ideal for cooling small laboratory equipments in daily use.

All the operating parts are located in front for extremely easy handling.

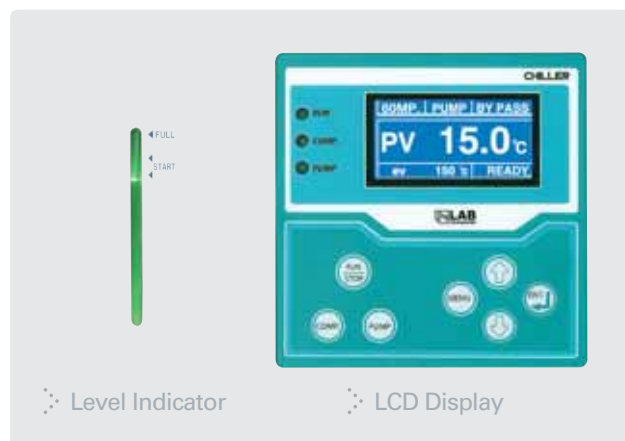


Operating Features

- Temperature range is from -20°C to 30°C.
- Clear and easy-to-use LCD display. (resolution 0.1°C)
- Bright LED water level indicator can be seen from a distance.
- Low fluid level and dry-running protection when triggered shows an error symbol on the display and an audible buzzer sound.
- If the equipment operates at 30°C or above due to the external environment, user can simply identify the error with a visual signal or an audible buzzer sound.

Constructional Features

- Compact design for space saving. The unit is suitable for stable temperature adjustment of compact devices such as rotary evaporators in laboratory.
- The refrigerating system is designed to reduce energy consumption and to maximize in refrigerating efficiency.
- Eco-friendly R-507 refrigerant is used to prevent environmental pollution.
- Double service valve is used to prevent refrigerant leakage.
- Removable gridded vent for reducing condenser contamination and to facilitate cleanliness.
- A wide (Ø37mm / 1.46") solution inlet is for easy and safe pouring of solution into the recirculating cooler.
- Variety of accessories are available to meet user's different lab environment needs. (refer to accessories)



Level Indicator

LCD Display

Testing in accordance with DIN EN 12876

Optional Accessories
 ➔ see page 116-117

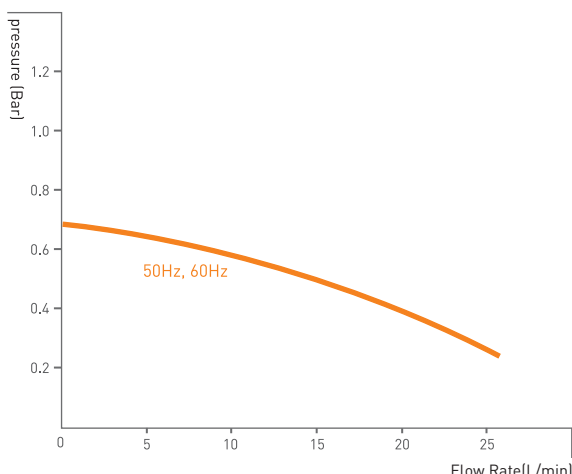
- Adapters
- Tubing, Insulations
- Tube Clamps
- Bath Fluid

Recirculating Coolers (Chillers)

Recirculating Coolers (Compact Model)

► Pumping Capacities (bath fluid: ethanol)

Magnetic Pump



• RC-05



► Specifications & Ordering Information



Model		RC-05
Temperature ¹⁾	Working Temperature Range (°C / °F)	-20 to 30 / -4 to 86
	Temperature Stability at 15°C (±°C / °F) (bath fluid : water)	1 / 1.8
Cooling Capacity (bath fluid : ethanol)	at 20°C (kW)	0.58
	at 10°C (kW)	0.45
	at 0°C (kW)	0.35
	at -10°C (kW)	0.27
	at -20°C (kW)	0.11
Pump	Max. Flow Rate (L / min, gal / min)	26 / 6.87
	Max. Pressure (bar / psi)	0.7 / 10.15
Dimension	Max. Filling Capacity (L / cu ft)	5 / 0.18
	For Tubing Dia (mm / inch)	9.5 / 3/8
	Overall (WxLxH, mm / inch)	300×550×530 / 11.8×21.7×20.9
	Net Weight (kg / lbs)	45 / 99.2
Electrical Requirements (230V, 60Hz)		4A
Cat. No.		ACH651011K
Electrical Requirements (230V, 50Hz)		4A
Cat. No.		ACH651012K

1) Technical data according to DIN 12876

※ Above specification value is recorded by 60Hz.

※ The performance values refer to +20°C(68°F) ambient temperature.

※ Product performance may be affected by ambient temperatures.

Recirculating Coolers (Chillers)

Accessories & Options



Barbed Fittings



Connectors / Adapters



One Touch Adapters Set



Flexible Fittings

Barbed Fittings

Barbed fitting systems are geared for quick connecting of various size type tubes using pipe fittings, tube fittings, and hose fittings without tools.

Cat. No.	Description
HXE1066	3/4" Male to Barbed Fitting for Tubing 1" inner dia
HXE1067	3/4" Male to Barbed Fitting for Tubing 3/4" inner dia
HXE1068	3/4" Male to Barbed Fitting for Tubing 5/8" inner dia
HXE1069	3/4" Male to Barbed Fitting for Tubing 1/2" inner dia
HXE1070	3/4" Male to Barbed Fitting for Tubing 3/8" inner dia
AAA64501	1" Barbed Fittings Set with Ball Valve
AAA64502	3/4" Barbed Fittings Set with Ball Valve
AAA64503	5/8" Barbed Fittings Set with Ball Valve
AAA64504	1/2" Barbed Fittings Set with Ball Valve
AAA64505	3/8" Barbed Fittings Set with Ball Valve
AAA64506	1" Barbed Fittings Set with Gate Valve
AAA64507	3/4" Barbed Fittings Set with Gate Valve
AAA64508	5/8" Barbed Fittings Set with Gate Valve
AAA64509	1/2" Barbed Fittings Set with Gate Valve
AAA64510	3/8" Barbed Fittings Set with Gate Valve

Connectors / Adapters

Cat. No.	Description
HXE1105	3/4" Male to 3/4" Female
HXE1106	3/4" Male to 5/8" Female
HXE1107	3/4" Male to 1/2" Female
HXE1108	3/4" Male to 3/8" Female
HXE1109	3/4" Male to 3/4" Male
HXE1110	3/4" Male to 5/8" Male
HXE1111	3/4" Male to 1/2" Male
HXE1112	3/4" Male to 3/8" Male

One touch Adapters Set

Connect and exchange rigid tubing easily.

Cat. No.	Description
HXE1075	12mm One Touch Adapter
HXE1076	10mm One Touch Adapter
HXE1077	8mm One Touch Adapter
HXE1078	6mm One Touch Adapter
AAA64531	12mm Adapters Set with Ball Valve
AAA64532	10mm Adapters Set with Ball Valve
AAA64533	8mm Adapters Set with Ball Valve
AAA64534	6mm Adapters Set with Ball Valve

Flexible Fittings

Stainless tubing designed for superior flexibility and with good chemical resistance.

Cat. No.	Description
HXE1071	3/4" Male to 3/4" Flexible Fitting
HXE1072	3/4" Male to 1/2" Female with 1/2" Male to 1/2" Flexible Fitting
AAA64521	3/4" Flexible Fittings Set with Ball Valve
AAA64522	1/2" Flexible Fittings Set with Ball Valve
AAA64523	3/4" Flexible Fittings Set with Gate Valve
AAA64524	1/2" Flexible Fittings Set with Gate Valve

Recirculating Coolers (Chillers)

Accessories & Options



❖ Distributing Fittings



❖ Tubing



❖ Tubing Insulations



❖ Tube Clamps

► Tubing

Cat. No.	Description	
HXE1079	1m 12mm Urethane Tubing	id 9mm, od 12mm
HXE1080	1m 10mm Urethane Tubing	id 6.5mm, od 10mm
HXE1081	1m 8mm Urethane Tubing	id 5.5mm, od 8mm
HXE1082	1m 6mm Urethane Tubing	id 4mm, od 6mm
HXE1083	1m 1" PVC Tubing with Thread	id 25mm, od 31mm
HXE1084	1m 3/4" PVC Tubing with Thread	id 19mm, od 24mm
HXE1085	1m 5/8" PVC Tubing with Thread	id 16mm, od 20.5mm
HXE1086	1m 1/2" PVC Tubing with Thread	id 12mm, od 16mm
HXE1087	1m 3/8" PVC Tubing with Thread	id 10mm, od 14mm
HXE1088	1m 1" PVC Tubing with Wire	id 25mm, od 33mm
HXE1089	1m 3/4" PVC Tubing with Wire	id 19mm, od 26mm
HXE1090	1m 5/8" PVC Tubing with Wire	id 15mm, od 22mm
HXE1091	1m 1/2" PVC Tubing with Wire	id 12mm, od 18mm
HXE1092	1m 3/8" PVC Tubing with Wire	id 9mm, od 15mm

► Tubing Insulations

EPDM insulation is used to reduce heat loss and condensation from cold water plumbing, chilled water, and refrigeration lines.

Cat. No.	Description
HXE1093	EPDM Insulation, 16mm inner dia.(9T)
HXE1094	EPDM Insulation, 19mm inner dia.(9T)
HXE1095	EPDM Insulation, 25mm inner dia.(9T)
HXE1096	EPDM Insulation, 28mm inner dia.(9T)
HXE1097	EPDM Insulation, 35mm inner dia.(9T)

► Flexible Tubing

Cat. No.	Description
HXE1073	3/4" Flexible Tubing (sus304, m)
HXE1074	1/2" Flexible Tubing (sus304, m)

► Tube Clamps

Cat. No.	Description
HXE1098	1" Clamp
HXE1099	3/4" Clamp
HXE1100	5/8" Clamp
HXE1101	1/2" Clamp
HXE1102	3/8" Clamp

► Distribution Fittings

Distributing fittings connect even with small tubes with barb fittings.

Cat. No.	Description
AAA64541	3-Way Distributing Barbed Fittings Set (1/4")
AAA64542	3-Way Distributing Barbed Fittings Set (3/8")

► Bath Fluid

Are bath fluids that may be suitable to use with the recirculating cooler, in place of water.

Cat. No.	Description
HXE1113	Distilled Water (20L)
HXE1114	Ethylene Glycol (4L)
HXE1115	Ethylene Glycol (20L)

► External Sensor (only for HS, HH Models)

External temperature sensor (Pt 100) for measured value.

Cat. No.	Description
CFA1946	3m Cable for Pt 100 Sensor

Refrigerators & Freezers

SELECTION GUIDE

Laboratory Refrigerators

Laboratory Freezers

Blood Bank Refrigerators

Plasma Freezers

Pharmacy Refrigerators

Laboratory Cooling

Description		Operating Temp. Range (°C/°F)	Chamber Volume (L / cu ft)	Door type	Shelve or Drawer	Page
Laboratory Refrigerators	CLG-150	2 to 10 / 35.6 to 50	156 / 5.5	Glass or Solid	Shelve	120
	CLG-300		303 / 10.7			
	CLG-650		603 / 21.3			
	CLG-850		805 / 28.4			
	CLG-1400		1327 / 46.9			
Laboratory Freezers	FHG-150	-15 to 0 / 5 to 32	154 / 5.4	Solid	Shelve	122
	FHG-300		303 / 10.7			
	FHG-650		647 / 22.8			
	FMG-150	-25 to -15 / -13 to 5	154 / 5.4			
	FMG-300		303 / 10.7			
	FMG-650		647 / 22.8			
	FCG-150	-35 to -25 / -31 to -13	154 / 5.4			
	FCG-300		303 / 10.7			
	FCG-650		647 / 22.8			
	FDG-300	-50 to -35 /	303 / 10.7			
	FDG-650	-58 to -31	647 / 22.8			

Medical Cooling

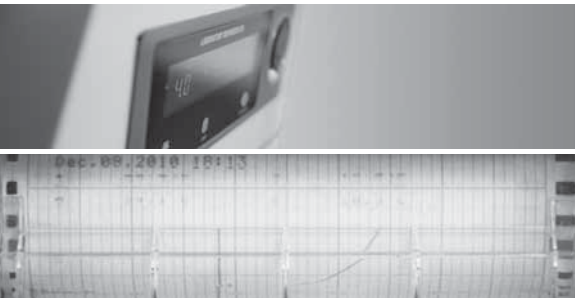
Description		Operating Temp. Range (°C/°F)	Chamber Volume (L / cu ft)	Door type	Shelve or Drawer	Page
Blood Bank Refrigerators	BSR-300	4 / 39.2	303 / 10.7	Glass	Drawer	124
	BSR-650		614 / 21.7			
Plasma Freezers	BSF-300	-40 to -25 /	303 / 10.7	Solid	Drawer	125
	BSF-650	-40 to -13	647 / 22.8			
Pharmacy Refrigerators	PSR-300	2 to 10 / 35.6 to 50	303 / 10.7	Glass	Shelve	126
	PSR-650		614 / 21.7			

Accessories & Options

Description	Page
for Laboratory Cooling	127, 128
for Medical Cooling	127, 129



GENERAL APPLICATIONS



Laboratory Cooling

Chemical, Reagents, Culture storage.
Temperature Sensitive Material, Enzyme storage, Pre-Freezing.

Medical Cooling

Valuable blood and blood plasma storage in life science.
Sensitive pharmaceutical products and vaccine storage in clinics, hospitals, retail pharmacies.

TECHNICAL BENEFITS

Safety Features

- 1) High as well as low temperature alerts with visual and audible alarms when the temperature exceeds the set temperature limits.
- 2) Open door alert
 - 1st: visible alarm for two minutes after the door is opened.
 - 2nd: audible alarm thereafter if the door is still opened.
- 3) Two separate fuses protecting against over current.
- 4) Built-in door lock.
- 5) Eco-friendly refrigerant: non-ozone.
- 6) Additional features of Medical Cooling Devices.
 - Dual temperature controllers.
 - Battery back up system.
 - Built in auto-dialing remote alarm to alert abnormal temperature changes.

Optimum Control Features

- 1) Intuitive and easy-to-operate control panel with vivid and colorful vacuum fluorescent display (VFD), touch-sensitive buttons, and a jog dial.
- 2) Optimizing temperature control system
 - All 150, 300, 650 Models with Automatic defrost system minimize temperature change.
 - All 850, 1400 Models with highly efficient dual refrigeration system minimize temperature change itself. (no defrost system needed)
 - Additional manual defrost system also allows for immediate control. (except for CLG Models)
- 3) Keypad lock button preventing inadvertent parameter changes.
- 4) Easy temperature unit conversion between °C and °F
- 5) Precise documentation is available with the included chart type recorder. (Included only for Medical Cooling Devices)

Constructional Features

- 1) High-quality 304 grade stainless steel chamber interior and dirt-repellent external surface with powder coating.
- 2) Double-pane tempered glass door with built-in wire heater providing clear inside view of the chambers. (for the models with glass doors only)
- 3) Door seal packing
 - Refrigerators : magnetic door seal for absorbing impact from opening and closing the door.
 - Freezers : air-tight silicone door seal with vice lock door closing mechanism for safe storage of samples.
- 4) Fully insulated chamber ensuring minimal chamber temperature fluctuation.
- 5) High thermal efficiency evaporation system made of low corrosion material.
- 6) Built-in casters for easy transport. (except for all 150 Models)

Refrigerators & Freezers

Laboratory Refrigerators

Ideal for research, and industrial laboratories.
Your laboratory space is efficiently managed with our various different size models.

CE



CLG Models with the optional recorders

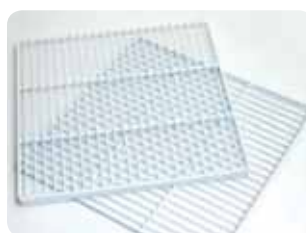
Included Accessories

• Wire Shelves

🔍 see page 127, 128



Display



Wire Shelves



Door Key Lock

Refrigerators & Freezers

Laboratory Refrigerators

Safety Features

- Automatic shutdown of fan for minimization of heat loss when the door is opened.
- Over current protection, high and low temperature alerts, key pad button lock function.
- Open door alert, built in door lock.

Operating Features

- Intuitive and easy-to-operate control panel with VFD and touch-sensitive buttons.
 - Easy temperature unit conversion between °C and °F
- Optimizing defrost systems
 - Innovative auto-defrost system automatically activated when detecting trace amount of frost build-up in the evaporator for CLG-150, 300, 650.
 - None defrost system needed for CLG-850, 1400 due to its dual refrigerating system.
- Three types of recorders to choose from (optional)
 - Dot recorder (6 point)
 - Chart recorder (6", 24hr/7days)
 - Thermal line recorder

Constructional Features

- High-quality 304 grade stainless steel chamber.
- Fully insulated chamber ensuring minimal chamber's temperature fluctuation.
- Clear observation of stored samples.
 - Tempered glass door with built in wire heater. (for the models with glass doors only)
 - Built-in bright fluorescent lighting. (except for CLG-150)
- Easy to store samples with included wire shelves.
- High thermal efficiency evaporation system, made of low corrosive materials.
- Built-in 50mm diameter cable port for external probes or wires. (except for CLG-150)
- Dedicated stand with casters and stacking kit for CLG-150 for use in labs with limited space. (optional)

Specifications & Ordering Information



Model		CLG-150	CLG-300	CLG-650	CLG-850	CLG-1400
Chamber Volume (L / cu ft)		156 / 5.5	303 / 10.7	603 / 21.3	805 / 28.4	1327 / 46.9
Temperature Range (°C / °F)		2 to 10 / 35.6 to 50				
Refrigerator (Hp)		1/8	1/6	1/4	1/6×2ea	1/4×2ea
No. of Wire Shelves (included / max.)		2 / 6	3 / 11	3 / 17	3 / 17	6 / 34
No. of Wire Shelves, Slide (max., optional)		4	7	11	11	22
No. of Drawer Shelves, Slide (max., optional)		3	5	8	8	16
Max. Load per Shelf (kg / lbs)		26 / 57.3		30 / 66.1		
Material	Interior	Stainless steel #304				
	Exterior	Steel, 1 mm, powder coating				
	Insulation	60mm, Polyurethane foam				
Dimension (W×D×H)	Interior (mm / inch)	550×580×490 / 21.7×22.8×19.3	550×550×1000 / 21.7×21.7×39.4	650×640×1450 / 25.6×25.2×57.1	750×740×1450 / 29.5×29.1×57.1	1430×640×1450 / 56.3×25.2×57.1
	Exterior (mm / inch)	683×791×870 / 26.9×31.1×34.4	670×770×1515 / 26.4×30.3×59.6	770×865×1965 / 30.3×34.1×77.4	870×965×1965 / 34.3×37.9×77.4	1550×865×1965 / 61×34.1×77.4
	Net Weight (kg / lbs)	100 / 220.4	130 / 286.6	210 / 463	260 / 573.2	350 / 771.6
Electrical Requirements (230V, 60Hz)		2A	2.3 A	4A	5A	6A
Cat. No.	Solid Door Type	AAHE1001K	AAHE1011K	AAHE1021K	AAHE1031K	AAHE1041K
	Glass Door Type	AAHE1101K	AAHE1111K	AAHE1121K	AAHE1131K	AAHE1141K
Electrical Requirements (230V, 50Hz)		2A	2.3 A	4A	5A	6A
Cat. No.	Solid Door Type	AAHE1002K	AAHE1012K	AAHE1022K	AAHE1032K	AAHE1042K
	Glass Door Type	AAHE1102K	AAHE1112K	AAHE1122K	AAHE1132K	AAHE1142K
Electrical Requirements (120V, 60Hz)		4A	4.5 A	6.5 A	9A	13A
Cat. No.	Solid Door Type	AAHE1003U	AAHE1013U	AAHE1023U	AAHE1033U	AAHE1043U
	Glass Door Type	AAHE1103U	AAHE1113U	AAHE1123U	AAHE1133U	AAHE1143U

Refrigerators & Freezers

Laboratory Freezers

A variety of freezer models for subzero degree storage of your sensitive lab material with innovative defrost system.

CE



FHG / FMG / FCG-150

FHG / FMG / FCG / FDG-650

FHG / FMG / FCG / FDG-300

FHG/FMG/FCG/FDG Models with the optional recorders

Included Accessories

• Wire Shelves

➡ see page 127, 128

► Safety Features

- Automatic shutdown of fan for minimization of heat loss when the door is opened.
- Over current protection, high and low temperature alerts, key pad button lock function.
- Open door alert, built in door lock.

► Operating Features

- Intuitive and easy-to-operate control panel with VFD and touch-sensitive buttons.
 - Easy temperature unit conversion between °C and °F
- Dual defrost systems
 - Innovation auto-defrost system automatically activated when detecting trace amount of frost build-up in the evaporator.
 - Additional manual defrost system for immediate frost removal.
- Three types of recorders to choose from (optional)
 - Dot recorder (6 point)
 - Chart recorder (6", 24hr/7days)
 - Thermal line recorder

► Constructional Features

- High-quality 304 grade stainless steel chamber.
- Fully insulated chamber ensuring minimal chamber's temperature fluctuation.
- Air-tight door seal with vice lock door closing mechanism for safe storage of samples.
- Easy to store samples with included wire shelves.
- High thermal efficiency evaporation system, made of low corrosive materials.
- Built-in 50mm diameter cable port for external probes or wires. (except for FHG/FMG/FCG-150)
- Dedicated stand with casters and stacking kit for FHG/FMG/FCG-150 for use in labs with limited space. (optional)

Refrigerators & Freezers

Laboratory Freezers

Specifications & Ordering Information

FHG Models (for temperature range from -15°C to 0°C)



Model		FHG-150	FHG-300	FHG-650
Chamber Volume (L / cu ft)		154 / 5.4	303 / 10.7	647 / 22.8
Temperature Range (°C / °F)		-15 to 0 / 5 to 32		
Refrigerator (Hp)		1/3	1/3	1/3
No. of Wire Shelves (included / max.)		2 / 6	3 / 11	3 / 17
No. of Wire Shelves, Slide (max., optional)		4	7	11
No. of Drawer Shelves, Slide (max., optional)		3	5	8
Max. Load per Shelf (kg / lbs)		26 / 57.3		30 / 66.1
Material	Interior / Exterior	Stainless steel #304 / Steel, 1 mm, powder coating		
	Insulation	100mm, Polyurethane foam		
Dimension (WxDxH)	Interior (mm / inch)	550x570x490 / 21.7x22.4x19.3	550x550x1000 / 21.7x21.7x39.4	700x675x1370 / 27.6x26.6x53.9
	Exterior (mm / inch)	763x815x1055 / 30x32.1x41.5	765x760x1650 / 30.1x29.9x64.9	915x885x2020 / 36x34.8x79.5
	Net Weight (kg / lbs)	120 / 264.6	150 / 330.7	230 / 507.1
Electrical Requirements (230V, 60Hz)		3.5A	3.8A	3.8A
Cat. No.		AAHE2101K	AAHE2111K	AAHE2121K
Electrical Requirements (230V, 50Hz)		3.5A	3.8A	3.8A
Cat. No.		AAHE2102K	AAHE2112K	AAHE2122K

FMG Models (for temperature range from -25°C to -15°C)

Model		FMG-150	FMG-300	FMG-650
Chamber Volume (L / cu ft)		154 / 5.4	303 / 10.7	647 / 22.8
Temperature Range (°C / °F)		-25 to -15 / -13 to 5		
Refrigerator (Hp)		1/2	1/2	3/8
No. of Wire Shelves (included / max.)		2 / 6	3 / 11	3 / 17
No. of Wire Shelves, Slide (max., optional)		4	7	11
No. of Drawer Shelves, Slide (max., optional)		3	5	8
Max. Load per Shelf (kg / lbs)		26 / 57.3		30 / 66.1
Material	Interior / Exterior	Stainless steel #304 / Steel, 1 mm, powder coating		
	Insulation	100mm, Polyurethane foam		
Dimension (WxDxH)	Interior (mm / inch)	550x570x490 / 21.7x22.4x19.3	550x550x1000 / 21.7x21.7x39.4	700x675x1370 / 27.6x26.6x53.9
	Exterior (mm / inch)	763x815x1055 / 30x32.1x41.5	765x760x1650 / 30.1x29.9x64.9	915x885x2020 / 36x34.8x79.5
	Net Weight (kg / lbs)	120 / 264.6	150 / 330.7	233 / 513.7
Electrical Requirements (230V, 60Hz)		4.5A	4.8A	5.5A
Cat. No.		AAHE2201K	AAHE2211K	AAHE2221K
Electrical Requirements (230V, 50Hz)		4.5A	4.8A	5.5A
Cat. No.		AAHE2202K	AAHE2212K	AAHE2222K

FCG Models (for temperature range from -35°C to -25°C)

Model		FCG-150	FCG-300	FCG-650
Chamber Volume (L / cu ft)		154 / 5.4	303 / 10.7	647 / 22.8
Temperature Range (°C / °F)		-35 to -25 / -31 to -13		
Refrigerator (Hp)		3/4	1	1-1/2
No. of Wire Shelves (included / max.)		2 / 6	3 / 11	3 / 17
Max. Load per Shelf (kg / lbs)		26 / 57.3		30 / 66.1
Material	Interior / Exterior Insulation	Stainless steel #304 / Steel, 1 mm, powder coating 100mm, Polyurethane foam		
Dimension (WxDxH)	Interior (mm / inch)	550x570x490 / 21.7x22.4x19.3	550x550x1000 / 21.7x21.7x39.4	700x675x1370 / 27.6x26.6x53.9
	Exterior (mm / inch)	763x815x1055 / 30x32.1x41.5	765x760x1650 / 30.1x29.9x64.9	915x885x2020 / 36x34.8x79.5
	Net Weight (kg / lbs)	123 / 271.2	155 / 341.7	238 / 524.7
Electrical Requirements (230V, 60Hz)		6A	7.5A	10.5A
Cat. No.		AAHE2301K	AAHE2311K	AAHE2321K
Electrical Requirements (230V, 50Hz)		6A	7.5A	10.5A
Cat. No.		AAHE2302K	AAHE2312K	AAHE2322K

FDG Models (for temperature range from -50°C to -35°C)

Model		FDG-300	FDG-650
Chamber Volume (L / cu ft)		303 / 10.7	647 / 22.8
Temperature Range (°C / °F)		-50 to -35 / -58 to -31	
Refrigerator (Hp)		1/3 x 2	1/2 x 2
No. of Wire Shelves (included / max.)		3 / 11	3 / 17
Max. Load per Shelf (kg / lbs)		26 / 57.3	30 / 66.1
Material	Interior / Exterior	Stainless steel #304 / Steel, 1 mm, powder coating	
	Insulation	120mm, Polyurethane foam	
Dimension (WxDxH)	Interior (mm / inch)	550x550x1000 / 21.7x21.7x39.4	700x675x1370 / 27.6x26.6x53.9
	Exterior (mm / inch)	805x800x1690 / 31.7x31.5x66.5	955x925x2060 / 37.6x36.4x81.1
	Net Weight (kg / lbs)	180 / 396.8	280 / 617.3
Electrical Requirements (230V, 60Hz)		5.0A	6.5A
Cat. No.		AAHE2411K	AAHE2421K
Electrical Requirements (230V, 50Hz)		5.0A	6.5A
Cat. No.		AAHE2412K	AAHE2422K

1) Technical data according to DIN 12880.

※ Permissible environmental conditions: temperature (18 to 30°C) and relative humidity (up to 85%).

Refrigerators & Freezers

Blood Bank Refrigerators

Ideal for safe storage of precious blood samples.

Precise temperature uniformity with various safety functions to meet the strict requirements of the International medical standards. (ISO13485 / DIN 58371)



BSR-300

Included Accessories

☞ see page 127, 129

- Chart Type Recorder
- Auto Dialing Remote System
- Slide Drawers

Safety Features

- Dual temperature controllers for safe blood storage.
 - If one controller fails to adjust temperature, then the other automatically activates to counteract the failure.
- Battery back up for emergency caused by power failures.
- Automatic shutdown of fan for minimization of heat loss when the door is opened.
- Built in auto-dialing remote alarm to alert abnormal temperature changes or power failures.
- Over current protection, high and low temperature alerts, key pad button lock function.
- Open door alert, built in door lock.

Operating & Constructional Features

- Intuitive and easy-to-operate control panel with VFD and touch-sensitive buttons.
- Auto-defrost system for automatic frost removal and manual defrost system for immediate frost removal.
- Precise documentation is available by the included chart type recorder.
- High-quality 304 grade stainless steel chamber.
- Clear observation of stored samples.
 - Tempered glass door with built in wire heater.
 - Energy efficiency, long life span LED lighting.
- High thermal efficiency evaporation system, made of low corrosive materials.

Specifications & Ordering Information



Automatic Defrost

Manual Defrost

Model		BSR-300	BSR-650
Chamber Volume (L / cu ft)		303 / 10.7	614 / 21.7
Temperature Range (°C / °F)		4 / 39.2	
Refrigerator (Hp)		1/6	1/3
No. of Drawer Shelves, Slide (included / max.)		4 / 4	6 / 6
Max. Load per Shelf (kg / lbs)		26 / 57.3	30 / 66.1
Material	Interior	Stainless steel #304	
	Exterior	Steel, 1 mm, powder coating	
	Insulation	60mm, Polyurethane foam	
Dimension (WxDxH)	Interior (mm / inch)	550x550x1000 / 21.7x21.7x39.4	700x640x1370 / 27.6x25.2x53.9
	Exterior (mm / inch)	670x770x1515 / 26.4x30.3x59.6	820x860x1885 / 32.3x33.9x74.2
	Net Weight (kg / lbs)	130 / 286.6	210 / 463
Electrical Requirements (230V)		50/60Hz, 2.8A	50Hz, 3.8A 60Hz, 3.8A
Cat. No.		AAHE4105K	AAHE4112K AAHE4111K
Electrical Requirements (120V)		60Hz, 5.5A	60Hz, 7.5A
Cat. No.		AAHE4103U	AAHE4113K

1) Technical data according to DIN 58371.

※ Permissible environmental conditions: temperature (15 to 30°C) and relative humidity (up to 85%).

Refrigerators & Freezers

Plasma Freezers

The most suitable environments for sensitive plasma freezing.

Wide temperature range down to -40°C and high advanced safety functions satisfying the high medical standards. (DIN 58375)

Safety Features

- Dual temperature controllers for safe blood storage.
- If one controller fails to adjust temperature, then the other automatically activates to counteract the failure.
- Battery back up for emergency caused by power failures.
- Built in auto-dialing remote alarm to alert abnormal temperature changes or power failures.
- Over current protection, high and low temperature alerts, key pad button lock function.
- Open door alert, built in door lock.

Operating & Constructional Features

- Intuitive and easy-to-operate control panel with VFD and touch-sensitive buttons.
- Auto-defrost system for automatic frost removal and manual defrost system for immediate frost removal.
- Precise documentation is available by the included chart type recorder.
- High-quality 304 grade stainless steel chamber.
- Fully insulated chamber ensuring minimal chamber's temperature fluctuation.
- High thermal efficiency evaporation system, made of low corrosive materials.



BSF-650

Included Accessories

see page 127, 129

- Chart Type Recorder
- Auto Dialing Remote System
- Slide Drawers

Specifications & Ordering Information



Automatic Defrost

Manual Defrost

Model		BSF-300		BSF-650	
Chamber Volume (L / cu ft)		303 / 10.7		647 / 22.8	
Temperature Range (°C / °F)		-40 to -25 / -40 to -13			
Refrigerator (Hp)		1		1-1/2	
No. of Drawer Shelves, Slide (included / max.)		4 / 4		6 / 6	
Max. Load per Shelf (kg / lbs)		26 / 57.3		30 / 66.1	
Material	Interior	Stainless steel #304			
	Exterior	Steel, 1 mm, powder coating			
	Insulation	100mm, Polyurethane foam			
Dimension (WxDxH)	Interior (mm / inch)	550x550x1000 / 21.7x21.7x39.4		700x675x1370 / 27.6x26.6x53.9	
	Exterior (mm / inch)	765x760x1650 / 30.1x29.9x64.9		915x885x2020 / 36x34.8x79.5	
	Net Weight (kg / lbs)	150 / 331		240 / 529	
Electrical Requirements (230V)		50Hz, 5.5A		50Hz, 7.5A	60Hz, 7.5A
Cat. No.		AAHE5102K	AAHE5101K	AAHE5112K	AAHE5111K
Electrical Requirements (120V)		60Hz, 11A			
Cat. No.		AAHE5103U		-	

1) Technical data according to DIN 58375.

※ Permissible environmental conditions: temperature (15 to 30°C) and relative humidity (up to 85%).

Ideal for pharmaceutical, clinical laboratories

Eco-friendly lab refrigeration systems with advanced safety features providing stable refrigerated environments (DIN 58345)



PSR-300

Included Accessories

☞ see page 127, 129

- Chart Type Recorder
- Auto Dialing Remote System
- Slide Drawers

Safety Features

- Dual temperature controllers for safe pharmaceutical storage.
 - If one controller fails to adjust temperature, then the other automatically activates to counteract the failure.
- Battery back up for emergency caused by power failures.
- Automatic shutdown of fan for minimization of heat loss when the door is opened.
- Built in auto-dialing remote alarm to alert abnormal temperature changes or power failures.
- Over current protection, high and low temperature alerts, key pad button lock function.
- Open door alert, built in door lock.

Operating & Constructional Features

- Intuitive and easy-to-operate control panel with VFD and touch-sensitive buttons.
- Auto-defrost system for automatic frost removal and manual defrost system for immediate frost removal.
- Precise documentation is available by the included chart type recorder.
- High-quality 304 grade stainless steel chamber.
- Clear observation of stored samples.
 - Tempered glass door with built in wire heater.
 - Energy efficiency, long life span LED lighting.
- High thermal efficiency evaporation system, made of low corrosive materials

Specifications & Ordering Information



Automatic Defrost

Manual Defrost

Model		PSR-300	PSR-650	
Chamber Volume (L / cu ft)		303 / 10.7	614 / 21.7	
Temperature Range (°C / °F)		2 to 10 / 35.6 to 50		
Refrigerator (Hp)		1/6	1/3	
No. of Drawer Shelves, Slide (included / max.)		4 / 4	6 / 6	
Max. Load per Shelf (kg / lbs)		26 / 57.3	30 / 66.1	
Material	Interior	Stainless steel #304		
	Exterior	Steel, 1 mm, powder coating		
	Insulation	60mm, Polyurethane foam		
Dimension (W×D×H)	Interior (mm / inch)	550×550×1000 / 21.7×21.7×39.4	700×640×1370 / 27.6×25.2×53.9	
	Exterior (mm / inch)	670×770×1515 / 26.4×30.3×59.6	820×860×1885 / 32.3×33.9×74.2	
	Net Weight (kg / lbs)	130 / 286.6	210 / 463	
Electrical Requirements (230V)		50/60Hz, 2.8A	50Hz, 3.8A	60Hz, 3.8A
Cat. No.		AAHE6015K	AAHE6022K	AAHE6021K
Electrical Requirements (120Hz)		60Hz, 5.5A	60Hz, 7.5A	
Cat. No.		AAHE6013U	AAHE6023U	

1) Technical data according to DIN 58345.

※ Permissible environmental conditions: temperature (15 to 30°C) and relative humidity (up to 85%).

Refrigerators & Freezers

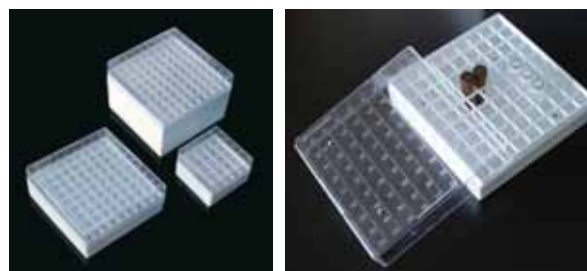
Accessories & Options

Cryo Box

Designed for ultra-low temperature storage of biological materials.

Features

- Ideal for use in mechanical freezers and liquid nitrogen tanks.
- Autoclavable and polycarbonate chemical resistance materials.
- Transparent lid with alphanumeric inscription is beneficial for clear sample's monitoring and easy sample arrangement.
- Heat Resistance : -196°C to 121°C
- Suitable for storing it inside of all the model series.
(CLG / FHG / FMG / FCG / FDG / BSR / BSF / PSR)



Specifications & Ordering Information

Model	CRB-25	CRB-81S	CRB-81T
Tube size (ml)	1.2 to 2.0	1.2 to 2.0	5
Max. mountable tube	25 (5×5)	81 (9×9)	81 (9×9)
Dimension (W×D×H) (mm / inch)	77×77×53 / 3.0×3.0×2.1	132×132×54 / 5.2×5.2×2.1	132×132×96 / 5.2×5.2×3.8
Material	PC (Polycarbonate)		
Cat. No.	AAAJ7001	AAAJ7002	AAAJ7003

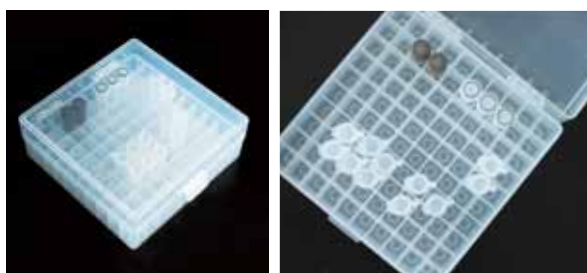
※ Above specifications can be changed without prior notice.

Storage Box

Suitable for storage of samples in general conditions.

Features

- Autoclavable and polypropylene chemical resistance materials.
- Transparent lid with locking clasp keeps samples secure while offering a clear view of samples.
- Alphanumeric grid on the lid for easy handling and identifying samples.
- Heat Resistance: 20°C to 121°C
- Recommend to store it inside of the model series such as
CLG / FHG / BSR / PSR.



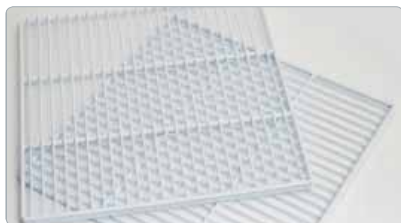
Specifications & Ordering Information

Model	SRB-100
Tube size (ml)	1.2 to 2.0
Max. mountable tube	100 (10×10)
Dimension (W×D×H) (mm / inch)	140×140×53 / 5.5×5.5×2.1
Material	PP (Polypropylene)
Cat. No.	AAAJ7011

※ Above specifications can be changed without prior notice.

for Laboratory Cooling

Shelves



Wire Shelves



Wire Shelves (slide type)



Drawer Shelves (slide type)

Laboratory Refrigerators

Cat. No.	Description	CLG-150	CLG-300	CLG-650	CLG-850	CLG-1400
AAAE1511	Wire Shelves - flat type (included shelf bracket)	•	•	-	-	-
AAAE1512		-	-	•	-	•
AAAE1513		-	-	-	•	-
AAAE1514	Wire Shelves - slide type (included guide rail)	•	•	-	-	-
AAAE1515		-	-	•	-	•
AAAE1516		-	-	-	•	-
AAAE1517	Drawer Shelves - slide type (included guide rail)	•	•	-	-	-
AAAE1518		-	-	•	-	•
AAAE1519		-	-	-	•	-
AAA8T500	Recorder (dot type , 6 point)	•	•	•	•	•
AAAE1501	Recorder (chart type, 6", 24hr / 7day)	•	•	•	•	•
AAAE1502	Chart Recorder Paper (6", 60ea/1 package)	•	•	•	•	•
AAAE1503	Recorder (thermal line type)	•	•	•	•	•
AAAE1521	Cable Port	-	•	•	•	•
AAAE1531	Electric Outlet (120V-US style)	-	•	•	•	•
AAAE1532	Electric Outlet (230V-Korea style)	-	•	•	•	•

Laboratory Freezers

Cat. No.	Description	FHG-150 / FMG-150	FHG-300 / FMG-300	FHG-650 / FMG-650	FCG-150	FCG-300 / FDG-300	FCG-650 / FDG-650
AAAE1511	Wire Shelves - flat type (included shelf bracket)	•	•	-	•	•	-
AAAE1512		-	-	•	-	-	•
AAAE1514	Wire Shelves - slide type (included guide rail)	•	•	-	-	-	-
AAAE1515		-	-	•	-	-	-
AAAE1517	Drawer Shelves - slide type (included guide rail)	•	•	-	-	-	-
AAAE1518		-	-	•	-	-	-
AAA8T500	Recorder (dot type , 6 point)	•	•	•	•	•	•
AAAE1501	Recorder (chart type, 6", 24hr / 7day)	•	•	•	•	•	•
AAAE1502	Chart Recorder Paper (6", 60ea/1 package)	•	•	•	•	•	•
AAAE1503	Recorder (thermal line type)	•	•	•	•	•	•

Refrigerators & Freezers

Accessories & Options

for Medical Cooling

Recorders



Dot Recorder



Chart Recorder



Thermal Line Recorder

Blood Bank Refrigerators

Cat. No.	Description	BSR-300	BSR-650
AAAE1517	Drawer Shelves - slide type (included guide rail)	•	-
AAAE1518		-	•
AAAE1501	Recorder (chart type, 6", 24hr / 7day)	•	•
AAAE1502	Chart Recorder Paper (6", 60ea/1 package)	•	•
AAAE1551	Auto Dialing Remote System	•	•

Plasma Freezers

Cat. No.	Description	BSF-300	BSF-650
AAAE1517	Drawer Shelves - slide type (included guide rail)	•	-
AAAE1518		-	•
AAAE1501	Recorder (chart type, 6", 24hr / 7day)	•	•
AAAE1502	Chart Recorder Paper (6", 60ea/1 package)	•	•
AAAE1551	Auto Dialing Remote System	•	•

Pharmacy Refrigerators

Cat. No.	Description	PSR-300	PSR-650
AAAE1511	Wire Shelves - flat type (included shelf bracket)	•	-
AAAE1512		-	•
AAAE1514	Wire Shelves - slide type (included guide rail)	•	-
AAAE1515		-	•
AAAE1517	Drawer Shelves - slide type (included guide rail)	•	-
AAAE1518		-	•
AAAE1501	Recorder (chart type, 6", 24hr / 7day)	•	•
AAAE1502	Chart Recorder Paper (6", 60ea/1 package)	•	•
AAAE1551	Auto Dialing Remote System	•	•

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		
	SKC-7075		19.1 / 0.75	75 / 165.4	
	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

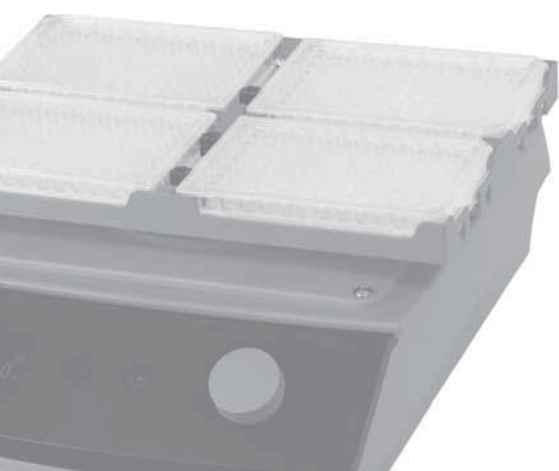
* Speed range from 150 to max. 1500rpm according to the choice of interchangeable block.

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

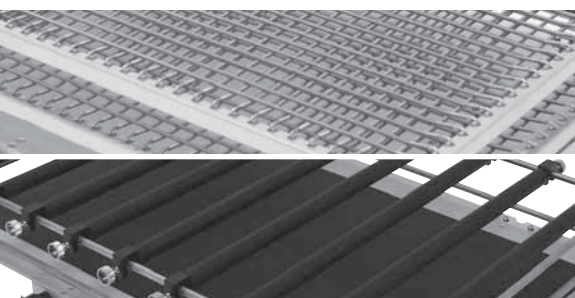
Accessories & Options

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

Shaker Series

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

※ 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) ¹⁾	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.

Shakers

Open-air Shakers (General Models)

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) ¹⁾	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



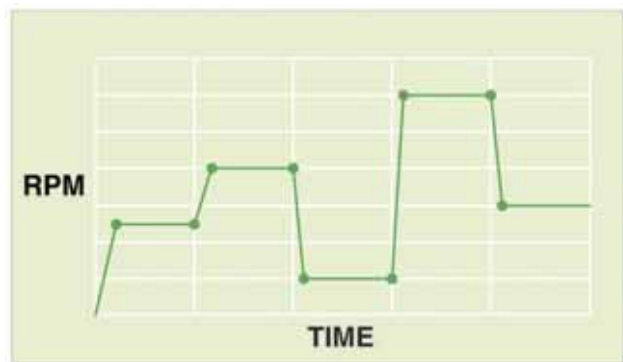
Slide type Universal Platform (optional)



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 ²⁾ (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) ¹⁾		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
Dimension	Max. Load (kg / lbs)	up to 4 / 8.81
	Tray (WxD) (mm / inch)	276×276 / 10.87×10.87
	Platform (WxD) (mm / inch)	250×250 / 9.8×9.8
	Overall (WxDxH) (mm / inch) ¹⁾	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
Dimension	Max. Load (kg / lbs)	4 / 8.8
	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) ¹⁾	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) 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%).

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) ¹⁾	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



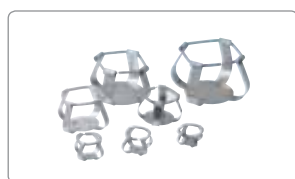
Universal Platforms
(OS Models)



Universal Platform
(CMS-350)



Test Tube Racks



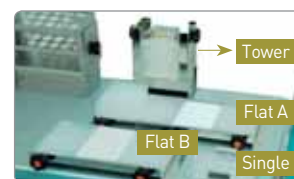
Flask Clamps (stainless steel)



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 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



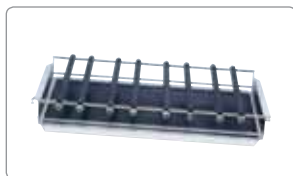
⌘ Dedicated Platform



⌘ Spring Wire Racks



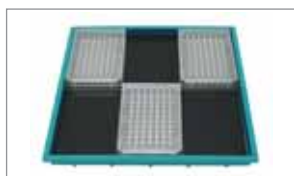
⌘ Rubber Mats (SK, SKF)



⌘ 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

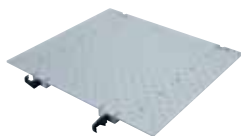
※ A dedicated platform is sold with setting each max. mountable amount of flask clamps on.

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



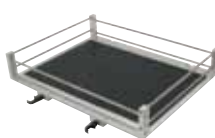
Dual Universal Platforms



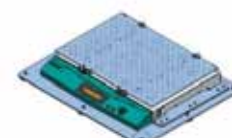
Spring Wire Racks



Universal Attachments



Rubber Mats



Weight Increaser

Description			SKC - 6000 Models		SKC - 7000 Models	
			small	large	small	large
Universal Platform	Cat. No.	Single	AAA30501	AAA30503	AAA30502	AAA30504
		Dual ¹⁾	-	-	AAA30541	AAA30542
Flask Clamps		Erlenmeyer Flask Size	Max. Mountable Flask Clamps			
	AAA23550	for 50 mL	84	96	108	126
	AAA23551	for 100 mL	54	66	108 per each step	126 per each step
					72	84
	AAA23552	for 250 mL	33	39	72 per each step	84 per each step
					42	51
	AAA23556	for 300 mL	33	39	42 per each step	51 per each step
	AAA23553	for 500 mL	20	24	36	40
	AAA23554	for 1L	14	16	27	30
	AAA23555	for 2L	8	11	18	20
AAA23557	for 2.8L	6	8	12	13	
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

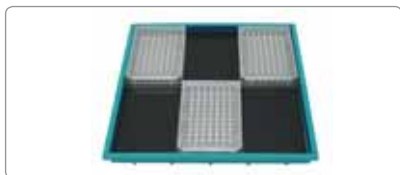
Description	SKC - 6000 Models		SKC - 7000 Models	
	small	large	small	large
Lab Sticker	AAA30551			
Weight increaser	AAA30562		AAA30561	

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

Shakers

Accessories & Options

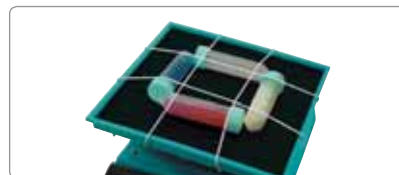
for Rocking Shaker & Waving Shaker



✧ 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)

Heating & Cooling Blocks

Indispensable for incubation and activation of cultures, culture enrichment, enzyme reactions, immunoassay, etc.



CCB-350



CHB-350S



CHB-350T

Heating & Cooling Block Heating Blocks

SELECTION GUIDE

Heating & Cooling Blocks
Heating Blocks

Description		Temperature Range (°C/°F)	Temperature Fluctuation (±°C/°F)	Temperature Variation (±°C/°F)	Page
Heating & Cooling Block	CCB-350	Amb. -20 to 95 / Amb. -36 to 203	0.06 / 0.11 at 37°C	0.15 / 0.27 at 37°C	149
Heating Blocks	CHB-350S	Amb. +5 to 130 / Amb. +41 to 266	0.1 / 0.18 at 80°C	0.2 / 0.36 at 80°C	150
	CHB-350T				

Heating & Cooling blocks

Heating & Cooling Block

Rapid cooling and heating in centrifuge tubes, sample vials, micro tubes within the broad temperature range.

Outstanding temperature compensation function guarantees precise temperature control.



CCB-350 with the optional Blocks

Included Accessories • Block Lifters (2ea)
Optional Accessories • Tube Blocks

➤ see page 151

Operating Features

- Precision accuracy of $\pm 0.1^{\circ}\text{C}$ is ensured by its PID controller.
- Wide temperature control range from Amb. -20 to 95°C with rapid cool down and heat-up times.
- Simple temperature calibration.
- Memory function of programmed protocols allowing relevant parameters of each protocol step to be stored.
 - Up to 10 protocols allowed for memory storage.
 - Up to 10 steps allowed for each protocol.
- Two types of timer modes:
 - Timer 1 starts immediately after the timer setting.
 - Timer 2 starts only after reaching the set temp.

Constructional Features

- Cooling is controlled by Peltier elements for an energy efficient compact design.
- 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.
- Transparent lid allows easy sample monitoring and even temperature distribution.
- Blocks can be easily interchanged by the included block lifter.

Specifications & Ordering Information



Model		CCB-350
Control System		Feedback control PID
Display		VFD(0.1 $^{\circ}\text{C}$ resolution)
Temperature	Range ($^{\circ}\text{C}$ / $^{\circ}\text{F}$)	Amb. -20 to 95 / Amb. -36 to 203
	Fluctuation at 37°C ($\pm^{\circ}\text{C}$ / $^{\circ}\text{F}$)	0.06 / 0.11
	Variation at 37°C ($\pm^{\circ}\text{C}$ / $^{\circ}\text{F}$)	0.15 / 0.27
Safety	Over Temp.	Heating plate PCB
	Over Current	Current limit protection
Dimension (WxDxH)	Internal (mm / inch)	99 x 77.5 x 36 / 3.9 x 3.1 x 1.4
	Overall (mm / inch)	249x325x168 / 9.8x12.8x6.6
	Net Weight (kg / lbs)	5.0 / 11.0
Electrical Requirements (230V, 50 / 60Hz)		2 A
Cat. No.		AAHJ5015K
Electrical Requirements (120V, 60Hz)		4 A
Cat. No.		AAHJ5013U

Heating & Cooling blocks

Heating Blocks

Ideal for simultaneous sample heating of multiple vials or test tubes with uniform and precise temperature control.

Operating Features

- Precision accuracy of $\pm 0.1^{\circ}\text{C}$ is ensured by its PID controller from ambient $+ 5^{\circ}\text{C}$ to 130°C .
- Its built-in temperature limit setting feature (with max. 0.2°C overshooting) allows you to perform highly temp. sensitive reactions such as isothermal amplifications.
- Automatic power cutoff.
 - If the temperature of the main body exceeds 150°C .
 - If the internal circuit is overheated.
- Two types of timer modes:
 - Timer 1 starts immediately after the timer setting.
 - Timer 2 starts only after reaching the set temperature.



Constructional Features

- 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.
- Bright VFD display with responsive touch buttons.
- Transparent lid allows easy sample monitoring and even temperature distribution.
- Blocks can be easily interchanged by the included block lifter.

CHB-350S / CHB-350T with the optional Blocks

Included Accessories • Block Lifters (2ea)

Optional Accessories • Tube Blocks

☞ see page 151

Specifications & Ordering Information



Model		CHB-350S	CHB-350T
Control System		Feedback control PID	
Display		VFD(0.1°C resolution)	
Temperature	Range (°C / °F)	Amb. +5 to 130 / Amb. +41 to 266	
	Fluctuation at 80°C (±°C / °F)	0.1 / 0.18	
	Variation at 80°C (±°C / °F)	0.2 / 0.36	
Safety	Over Temp.	Heating plate	
	Over Current	PCB	
Dimension (WxDxH)	Internal (mm / inch)	154×99×37 / 6.1×3.9×1.5	
	Overall (mm / inch)	249×325×120 / 9.8×12.8×4.7	249×325×250 / 9.8×12.8×9.8
	Net Weight (kg / lbs)	3.9 / 8.6	4.3 / 9.5
Electrical Requirements (230V, 50 / 60Hz)		3.5A	
Cat. No.		AAHJ1015K	AAHJ1115K
Electrical Requirements (120V, 60Hz)		6.7A	
Cat. No.		AAHJ1013U	AAHJ1113U

Heating & Cooling blocks

Accessories & Options

Tube Blocks

Block	Cat. No.	Description	Max. Mountable Tube	WxDxH (mm, inch)	Mountable Capacity of Blocks		
					CHB-350S	CHB-350T	CCB-350
	CHB0030	96-well Tube Block (microtube)	0.2mL x 96 holes	153×98×41 / 6×3.9×1.6	1	1	-
	CHB0029	0.5 mL Tube Block (microtube)	0.5mL x 48 holes	98×76.5×41 / 3.9×3×1.6	2	2	1
	CHB0045	1.5 mL Tube Block (microtube)	1.5mL x 30 holes	98×76.5×41 / 3.9×3×1.6	2	2	1
	CHB0028	1.5 mL Tube Block (microtube)	1.5mL x 48 holes	153×98×41 / 6×3.9×1.6	1	1	-
	CHB0031	15 mL Tube Block (centrifuge tube)	15mL x 15 holes	98×76.5×51 / 3.9×3×2	2*	2	1*
	CHB0032	50 mL Tube Block (centrifuge tube)	50mL x 6 holes	98×76.5×51 / 3.9×3×2	2*	2	1*
	CHB0033			98×76.5×87 / 3.9×3×3.4	2*	2	1*
	CHB0034	Ø10 Tube Block	Ø10 x 35 holes	98×76.5×51 / 3.9×3×2	2*	2	1*
	CHB0035	Ø12 Tube Block	Ø12 x 24 holes		2*	2	1*
	CHB0036	Ø13 Tube Block	Ø13 x 24 holes		2*	2	1*
	CHB0037	Ø15 Tube Block	Ø15 x 20 holes		2*	2	1*
	CHB0038	Ø16 Tube Block	Ø16 x 16 holes		2*	2	1*
	CHB0039	Ø18 Tube Block	Ø18 x 12 holes		2*	2	1*
	CHB0040	Ø20 Tube Block	Ø20 x 12 holes		2*	2	1*

* Available to use only when the lid is opened.

Hotplates & Stirrers

SELECTION GUIDE

Hotplates

Hotplate Stirrers

Magnetic Stirrers

Overhead Stirrers

Hotplates & Hotplate Stirrers

Description		Temperature Range (°C/°F)	Speed Range (RPM)	Stirring Capacity, Max. (L / cu ft, H ₂ O)	Positions	Page
Hotplates	T-14S/R ¹⁾	Max. 350 / 662	-	-	Single	154
	T-17S/R ¹⁾					
	T-18Q ²⁾					
Hotplate Stirrers (Basic)	TM-14SB/RB ¹⁾	Max. 350 / 662	50 to 2,000	20 / 0.7	Single	155
	TM-17SB/RB ¹⁾					
	TM-18Q ²⁾					
Hotplate Stirrers (Advanced)	TS-14S ¹⁾	Max. 350 / 662	30 to 2,000	20 / 0.7	Single	156
	TS-17S ¹⁾					
	TS-18Q ²⁾					
Hotplate Stirrers (Multi-position)	MS-33MH	Max. 120 / 248	30 to 2,000	2.25*	9	157
	MS-53MH			3.75*	15	

1) Round type top plate 2) Square type top plate.

Magnetic Stirrers

Description		Speed Range (RPM)	Stirring Capacity, Max. (L, H ₂ O)	Positions	Page
Magnetic Stirrers (Scale)	MS-12B/T ⁽¹⁾	150 to 2,500	2	Single	158
	MS-17B/T ⁽¹⁾		4		
	MS-22B		5		
Magnetic Stirrers (Digital)	MS-17G	30 to 2,000	4	Single	
	MS-22G		5		
Magnetic Stirrers (Multi-position)	MS-23M	30 to 2,000	1.5*	6	
	MS-32M		1.5*	6	
	MS-33M		2.25*	9	
	MS-51M		1.25*	5	
	MS-52M		2.5*	10	
	MS-53M		3.75*	15	

1) B Models: round type body, T Models: triangle type body.

* Erlenmeyer flask: usable under 250mL in case full positions.

Overhead Stirrers

Description		Speed Range (RPM)	Stirring Capacity, Max. (L, H ₂ O)	Page
Overhead Stirrers (Economy)	MSE-1	up to 1,400	20	160
	MSE-2	up to 1,200	30	
	MSE-3	up to 900	50	
Overhead Stirrers (Analog)	MSM-1	50 to 1,400	20	
	MSM-2	50 to 1,200	30	
	MSM-3	50 to 900	50	
Overhead Stirrers (Digital)	MSP-1	50 to 1,400	20	161
	MSP-2	50 to 1,200	30	
	MSP-3	50 to 900	50	
Overhead Stirrers (Advanced)	MSH-0513	50 to 1,200	20	161

Accessories & Options

Description	Page
for Hotplates & Hotplate Stirrers	162-163
for Magnetic Stirrers	
for Overhead Stirrers	164-165





GENERAL APPLICATIONS

Hotplates

Acid and base digestions, trace metal analysis, sample drying, general reagent heating, heating TLC plates, evaporation, etc.

Hotplate Stirrers

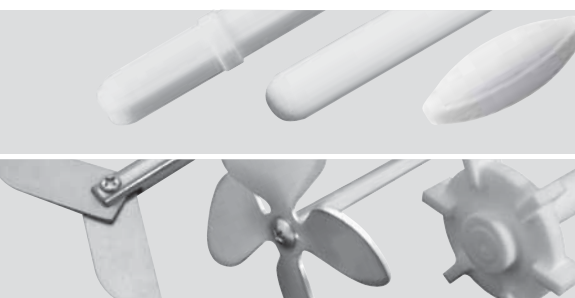
Various heating and mixing applications that require accuracy, stability, and repeatability.

Magnetic Stirrers

Crystallization, solvent evaporation, chemical reactions, titration, distillation, media dissolution, food processing, etc.

Overhead Stirrers

Chemical and petrochemical applications, beverage production, dairy production, food processing, sugar and candy production, ceramic applications, water treatment, cosmetics production, colorant and paint production, paper production, etc.



TECHNICAL BENEFITS

Hotplates & Hotplate Stirrers

- 1) Two different shapes of top plate are available (Round type / Square type)
- 2) Virtually no decoupling of stir bars. (only for Hotplate Stirrers)
- 3) Fast and precise stirring speed even at high temperatures. (only for Hotplate Stirrers)
- 4) High heat transfer rate.
- 5) Non-slip heating bath preventing accidental spills. (optional)
- 6) Hot top warning indicator and multiple overheat prevention features.
- 7) Smooth start and quick stop.
- 8) Bright digital display panel. (except for TM-SB/RB models)
- 9) Separate heater ON/OFF button. (except for TM-SB/RB models)

Magnetic Stirrers

- 1) Easy to use.
- 2) Microprocessor PID controls. (MS-G/M Models only)
- 3) Equipped with a durable and silent BLDC motor.
- 4) Wide speed range.
- 5) Accurate speed control regardless of the sample weight.
- 6) Safe control even at low speed.
- 7) Quick real-time start of the stirring action. (MS-B/T Models only)

Overhead Stirrers

- 1) Powerful torque capable of handling high viscosity tasks.
- 2) Maintenance of constant motor speed by PID feedback control system even under conditions of changing viscosity. (MSP / MSH Models only)
- 3) Wide speed range with silent operation.
- 4) Compact and slim head design.
- 5) Sturdy aluminum main body efficiently absorbing and emitting the heat generated by the motor.
- 6) Best effort function automatically adjusts stirring speed to prevent sample's damage. (MSH Model only)
- 7) Selectable stirring directions to suit each different impeller's shape. (MSH Model only)

Hotplates & Stirrers

Hotplates

Superior temperature control with various safety functions.
Two different shapes of top plate are available for your optimum use.



T-17S/14R

Optional Accessories

➔ see page 162-163

T-18Q

- Heating Bath (only for T-S/R)
- Transparent Shield (only for T-S/R)
- Support Rod

Operating Features

- Microprocessor PID temperature control.
- Precise temperature is set by digital display and optimum heating level is adjustable.
- Auto-tuning and temperature calibration functions.
- Multi-functional temperature control modes.
(Optimal Mode / Fast Mode / Slow Mode / User Mode / Point Mode)
- Two user-selectable timer activation modes.
- Hot top warning indicator for preventing accidental injuries.
- Built in thermal shutdown and current limit protection.
- Upper and lower temperature limit setting for users' convenience and safety.
- Separate operation RUN/STOP button.
- Keypad lock function prevents accidental changes during operation.

Constructional Features

- Integrated design of the heater and the top plate provides exceptional heat transfer rate and quick heat up capability.
- Non-slip heating bath with concavo-convex bottom prevents unintentional slips of the bath. (optional)
- A transparent safety shield protects users from liquid splashes. (optional)
- Support rod allows for diverse flexibility in configuring other test equipment and accessories. (optional)



Specification & Ordering Information

Model		T-14S	T-14R	T-17S	T-17R	T-18Q	
Technical Data	Heating	Temperature Range (°C / °F)	Max. 350 / 662				
		Control	Feedback Control with PID				
		Display	LED digital (0.1°C resolution)				
		Heating Power (W)	600	800			
	Safety	Hot Top Indicator (°C / °F)	Warning lamp (50 / 122)				
		Over Temp.	Top plate / Main body / PCB				
		Over Current	Current limit protection				
Timer	2 type, 1min to 99 hrs 59 min						
Load, Max (kg / lbs)	25 / 55.1						
General Data	Top Plate	Shape	Round Type			Square type	
		Material	Ceramic coated aluminum				
		Dimension (Ø or WxD, mm / Inch)	140 / 5.5		170 / 6.7		180x180 / 7.08x7.08
	Body	Shape	Straight body	Round handles	Straight body	Round handles	Straight body
		Material	Aluminum				
		Dimension (WxDxH, mm / Inch)	161x290x100 / 6.34x11.42x3.94	210x294x99 / 8.27x11.57x3.90	191x330x101 / 7.52x12.99x3.98	240x324x100 / 9.45x12.76x3.94	209x326x102 / 8.22x12.83x4.0
	Net Weight (kg / lbs)	2.2 / 4.9	2.4 / 5.3	2.9 / 6.4	3 / 6.6	3.8 / 8.37	
Electrical Requirements (230V,50Hz / 60Hz)		3.0 A		4.0 A			
Cat. No.		AAH35015K	AAH35115K	AAH35025K	AAH35125K	AAH35035K	
Electrical Requirements (120V,60Hz)		5.0 A		6.7 A			
Cat. No.		AAH35013U	AAH35113U	AAH35023U	AAH35123U	AAH35033U	

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

Hotplates & Stirrers

Hotplate Stirrers (Basic Models)

Easy to control with simple dial knobs for general lab heating and stirring applications.

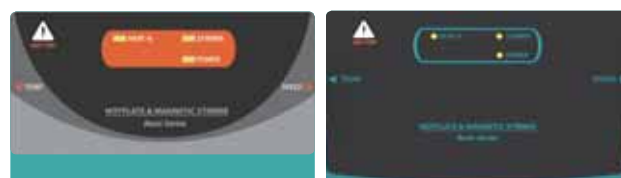
Operating Features

- Fast and precise stirring operations are enabled by BLDC motor and special magnet with extremely strong magnetic coupling power.
- Smooth-start mechanism provides virtually no decoupling of stir bars even with viscous media.
- Instant halt of the stirring operation due to the exceptionally fast response characteristics of the BLDC motor.
- Hot Top warning Indicator for preventing accidental injuries.
- Built in thermal shutdown and current limit protection.
- Large stirring capacity up to 20 liter in case of water.



Constructional Features

- Integrated design of the heater and the top plate provides exceptional heat transfer rate and quick heat up capability.
- Non-slip heating bath with concavo-convex bottom prevents unintentional slips of the bath. (optional)
- A transparent safety shield protects users from liquid splashes. (optional)
- Support rod allows for diverse flexibility in configuring other test equipment and accessories. (optional)



TM-14RB/17SB TM-18Q

Optional Accessories

see page 162-163

- Heating Bath (only for TM-SB/RB)
- Transparent Shield (only for TM-SB/RB)
- Support Rod

Specification & Ordering Information



RoHS / CSA except for TM-18Q

Model ¹⁾			TM-14SB	TM-14RB	TM-17SB	TM-17RB	TM-18Q
Technical Data	Heating	Temperature Range (°C / °F)	Max. 350 / 662				
		Control	Scale				
		Heating Power (W)	600		800		
	Stirring	Speed Range (RPM)	50 to 2,000				
		Capacity (L / cu ft, H ₂ O)	20 / 0.71				
		Magnetic Bar, Max. (ØxL, mm / Inch)	8 x 40 / 0.31 x 1.57				
	Safety	Hot Top Indicator (°C / °F)	Warning lamp (50 / 122)				
		OverTemp.	Top plate / Main body / PCB				
		Over Current	Current limit protection				
	Motor	BLDC motor					
Load, Max (kg / lbs)	25 / 55.12						
General Data	Top plate	Shape	Round Type				Square type
		Material	Ceramic coated aluminum				
		Dimension (Ø or WxD, mm / Inch)	140 / 5.51		170 / 6.69		180x180 / 7.08x7.08
	Body	Shape	Straight body	Round handles	Straight body	Round handles	Straight body
		Material	Aluminum				
		Dimension (WxDxH, mm / Inch)	161x290x100 / 6.34x11.42x3.94	210x294x99 / 8.27x11.57x3.9	191x330x101 / 7.52x12.99x3.98	240x324x100 / 9.45x12.76x3.94	209x326x102 / 8.22x12.83x4.0
	Net Weight (kg / lbs)	2.8 / 6.17	3 / 6.61	3.5 / 7.72	3.6 / 7.94	3.8 / 8.37	
	Electrical Requirements (230V,50Hz/60Hz)		3.0 A		4.0 A		
Cat. No.		AAH34215K	AAH34315K	AAH34225K	AAH34325K	AAH34235K	
Electrical Requirements (120V,60Hz)		5.0 A		6.7 A			
Cat. No.		AAH34213U	AAH34313U	AAH34223U	AAH34323U	AAH34233U	

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

Hotplates & Stirrers

Hotplate Stirrers (Advanced Models)

Digital heating and stirring control with high advanced features such as auto-tuning and various control modes.



TS-17S

Included Accessories

see page 162-163

TS-18Q

- Temperature Probe (PT100, Max.250°C)

Operating Features

- Feedback control allows constant stirring speed.
- Fast and precise stirring operations are enabled by BLDC motor and special magnet with extremely strong magnetic coupling power.
- Smooth-start mechanism provides virtually no decoupling of stir bars even with viscous media.
- Instant halt of the stirring operation.
- Microprocessor PID temperature control.
- Precise temperature is set by digital display and optimum heating level is adjustable.
- Auto-tuning and temperature calibration functions.
- Multi-functional temperature control modes. (Optimal Mode / Fast Mode / Slow Mode / User Mode / Point Mode)
- Two user-selectable timer activation modes.
- Hot Top warning Indicator, built in thermal shutdown, current limit protection.
- Upper and lower temperature limit setting for users' convenience and safety.
- Separate operation RUN/STOP button.

Constructional Features

- Integrated design of the heater and the top plate provides exceptional heat transfer rate and quick heat up capability.
- The provided temperature probe detects the actual temperature of media in real time. (PT100, Max. 250°C, SN-8-4 connector sensor)



RoHS / CSA except for TS-18Q

Specification & Ordering Information

Model ¹⁾		TS-14S	TS-17S	TS-18Q	
Technical Data	Heating	Temperature Range (°C / °F)	Max. 350 / 662		
		Control	Feedback Control with PID		
		Display	LED digital (0.1℃ resolution)		
	Stirring	Heating Power (W)	600	800	800
		Speed Range (RPM)	30 to 2,000		
		Capacity (L / cu ft, H ₂ O)	20 / 0.71		
	Safety	Magnetic Bar, Max. (ØxL, mm / Inch)	8 x 40 / 0.31 x 1.57		
		Hot Top Indicator (°C / °F)	Warning lamp (60 / 122)		
		Over Temp.	Top plate / Main body / PCB		
	Over Current	Current limit protection			
Motor	BLDC motor				
Timer	2 type, 1min. to 99 hours 59 min.				
General Data	Load, Max (kg / lbs)		25 / 55.1		
	Top plate	Shape	Round Type	Square type	
		Material	Ceramic coated aluminum		
		Dimension (Ø or WxD, mm / Inch)	140 / 5.51	170 / 6.69	180x180 / 7.08x7.08
	Body	Shape	Straight body		
		Material	Aluminum		
		Dimension (WxDxH, mm / Inch)	161x290x100 / 6.34x11.42x3.94	191x330x101 / 7.52x12.99x3.98	209x326x102 / 8.22x12.83x4.0
	Net Weight (kg / lbs)		2.8 / 6.17	3.5 / 7.72	3.8 / 8.37
Electrical Requirements (230V, 50Hz / 60Hz)		3.0 A	4.0 A		
Cat. No.		AAH34415K	AAH34425K	AAH34435K	
Electrical Requirements (120V, 60Hz)		5.0 A	6.7 A		
Cat. No.		AAH34413U	AAH34423U	AAH34433U	

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

Hotplates & Stirrers

Hotplate Stirrers (Multi-position Model)

Simultaneous stirring is available at max. 15 points with stable heating.

► Operating Features

- Ideal for the multiple sample testing under the same condition.
 - Maximum 15 independently controlled stirring positions on one heated top plate.
- Fast and precise stirring operations are enabled by BLDC motor and special magnet with extremely strong magnetic coupling power.
- Various stirring control modes are available.
 - All Mode / Column Mode / Row Mode / Point Mode
- Timer set for each stirring mode is available for the unattended operation.
- Smooth-start mechanism provides virtually no decoupling of stir bars even with viscous media.
- Instant halt of the stirring operation.
- Built in thermal shutdown and current limit protection.



► Constructional Features

- Integrated design of the heater and the top plate provides exceptional heat transfer rate and quick heat up capability.
- Easy-to-read VFD and intuitive control panel.
- Bright and vivid LED stirring position indicating lamps and heating operation lamp for stable operations.
- High heat transfer aluminum top-plate.
- Unit is safely designed to protect internal components from accidental spills.
- Non-slip silicon plate mat is attached on the top plate to prevent unintended slips

MS-33MH / MS-53MH

- Optional Accessories**
- Magnetic Stirring Bars
 - Plastic Retrievers

🔍 see page 162-163

► Specification & Ordering Information



Model		MS-33MH		MS-53MH	
Technical Data	Heating	Temperature Range (°C / °F)	Max. 120 / 248		
		Control	Scale		
	Stirring	Heating Power (W)	600	1000	
		Speed Range (RPM)	30 to 2,000		
		Control	Feedback control with PID		
		Stirring Positions	9	15	
		Stirring Point Distance (WxD, mm / inch)	117x90 / 4.61x3.54		
		Timer	1min. to 99 hours 59 min.		
		Motor	BLDC motor		
	Safety	Motor Rating Input / Output (w) per each point	2.9/1.6		
		Magnetic Bar, Max. (ØxL, mm / Inch)	8x30 / 0.31x1.18		
Over Temp.		Top plate			
Over Current		Current limit protection			
General Data	Load, Max (kg / lbs)	30 / 66.14			
	Top plate	Material	Aluminum		
		Dimension (WxD, mm / Inch)	385x328 / 15.16x12.91	385x493 / 15.16x19.41	
	Body	Material	Powder coated steel		
		Dimension (WxDxH, mm / Inch)	395x450x104 / 15.55x17.72x4.09	395x614x104 / 15.55x24.17x4.09	
Net Weight (kg / lbs)		10 / 22.05	15 / 33.06		
Electrical Requirements (230V, 50Hz / 60Hz)		4.1 A	5.8 A		
Cat. No.		AAHK34015K	AAHK34025K		
Electrical Requirements (120V, 60Hz)		8.0 A	11.2 A		
Cat. No.		AAHK34013U	AAHK34023U		

Hotplates & Stirrers

Magnetic Stirrers (Scale & Digital & Multi-position Models)

Powerful magnets and motors guarantee a high-speed and a good-management of the devices.



MS-B / T with the included Plate Covers



MS-G with the included Plate Covers



MS-M with an optional Plate Mats

Common Features (MS-B/T, MS-G, MS-M)

- Best-in-the-class with broad speed range and suitable for high-speed rotation experimental environment.
- Ergonomic designed, lightweight, easy to operate, and low profile.
- Wide top plate.
- Two non-slip silicon plate covers (white & black) provided for MS-B, T, G Models.
- Non-slip strength rubber feet.
- Sparkless, silent and durable BLDC motor.
- Built-in thermal shutdown and current limit protection.

Additional Features

Digital Models - MS-G

- Digital PID feedback control for reproducible stirring results.
- Bright and vivid VFD and responsive touch buttons.
- Gradual start-up to protect users against splashing of samples.
- M10 threaded hole to hold a support rod.
- Digital timer range: 1 min to 99hr 59min.
- Convenient program control.

Multi-position Models - MS-M

- Digital PID feedback control for every single point, separately.
- User-friendly operation and time setting modes allowing various ways of multi-position stirring to meet users' demands: single point, multiple point, whole row, whole column, etc.
- Easy-to-read VFD and intuitive control panel.
- Bright and vivid LED position indicating lamps.
- Non-slip see-through silicon plate mat. (optional)
- Chemical-resistant #304 grade stainless steel top-plate.

Included Accessories (without MS-M Models)

- Plate Covers (white & black)
- Magnetic Stirring Bar

Optional Accessories

- Silicone Plate Mats
- Plastic Retrievers

➔ see page 162-163

Hotplates & Stirrers

Magnetic Stirrers (Scale & Digital & Multi-position Models)

Specifications & Ordering Information



RoHS compliant only for MS-22B

Model ¹⁾		MS-12B	MS-12T	MS-17B	MS-17T	MS-22B	
Technical Data	Speed Control	Electronic speed control					
	Stirring Capacity (Liter, H ₂ O)	2		4		5	
	Speed Range (RPM)	150 ~ 2,500					
	Speed Display	None					
	Motor Rating Input / Output (w)	2.9 / 1.6					
	Magnetic Bar (ØxL, mm / Inch), Max.	8x30 / 0.31x1.18	8x30 / 0.31x1.18	8x40 / 0.31x1.57	8x30 / 0.31x1.18	10x50 / 0.39x1.97	
Top Plate	Load, Max (kg / lbs)	15 / 33.07	10 / 22.05	20 / 44.09	20 / 44.09	25 / 55.12	
	Material	Polypropylene with non-slip silicon cover					
General Data	Dimension (mm / inch, Ø)	120 / 4.72	115 / 4.53	170 / 6.69	165 / 6.5	220 / 8.66	
	Body Material	Poly propylene					
	Dimension (mm / inch, WxDxH)	130x130x65 / 5.12x5.12x2.56	181x176x57 / 7.13x6.93x2.24	185x185x65 / 7.28x7.28x2.56	246x243x57 / 9.69x9.57x2.24	230x230x65 / 9.06x9.06x2.56	
	Weight (kg / lbs)	0.6 / 1.32		0.9 / 1.98		1.1 / 2.43	
	Electrical Requirements	AC 100 ~ 240V, 50 / 60Hz with power adapter					
	Power Consumption (w)	5		6			
Cat. No.	Protection Class (DIN EN 60529)		IP42				
	Persian Blue	KR plug	AAH330115BK	AAH333115BK	AAH330215BK	AAH333215BK	AAH330315BK
		US plug	AAH330115BU	AAH333115BU	AAH330215BU	AAH333215BU	AAH330315BU
	Yellow	KR plug	AAH330115YK	-	AAH330215YK	-	AAH330315YK
		US plug	AAH330115YU	-	AAH330215YU	-	AAH330315YU
	Orange	KR plug	-	AAH333115RK	-	AAH333215RK	-
		US plug	-	AAH333116RU	-	AAH333216RU	-

1) B-models: round type body, T-models; triangle type body.

Specifications & Ordering Information



Model		MS-17G		MS-22G
Technical Data	Speed Control	Feedback control with PID		
	Stirring Capacity (Liter, H ₂ O)	4		5
	Speed Range (RPM)	30 to 2,000		
	Speed Display	VFD		
	Motor Rating Input / Output (W)	2.9 / 1.6		
Top Plate	Magnetic Bar (ØxL, mm / Inch), Max.	8x40 / 0.31x1.57		10x50 / 0.39x1.97
	Load, Max (kg / lbs)	20 / 44.09		25 / 55.12
	Material	Polypropylene with non-slip silicon cover		
General Data	Dimension (mm / inch, Ø)	170 / 6.69		220 / 8.66
	Body Material	Poly propylene		
	Dimension (mm / inch, WxDxH)	210x280x72 / 8.27x11.02x2.82		260x360x72 / 10.24x14.17x2.82
	Weight (kg / lbs)	1.35 / 2.98		1.75 / 3.86
	Electrical Requirements	AC 100 ~ 240V, 50 / 60Hz		
Cat. No.	Power Consumption (W)	6		
	Protection Class (DIN EN 60529)	IP42		
	Persian Blue	KR plug	AAH331215BK	AAH331315BK
		US plug	AAH331215BU	AAH331315BU
	Yellow	KR plug	AAH331215YK	AAH331315YK
		US plug	AAH331215YU	AAH331315YU

Specifications & Ordering Information



Model		MS-23M	MS-32M	MS-33M	MS-51M	MS-52M	MS-53M
Technical Data	Speed Control	Feedback control with PID					
	Stirring Positions	6	6	9	5	10	15
	Speed Range (RPM)	30 to 2,000					
	Stirring Point Distance (mm / inch, WxD)	117x170 / 4.6x6.69	117x90 / 4.6x3.54	117x90 / 4.6x3.54	90 / 3.54	117x90 / 4.6x3.54	
	Timer	1 min. to 99 hours 59 min.					
General Data	Speed Display	VFD					
	Motor Rating Input / Output (W) per each point	2.9 / 1.6					
	Load, Max (kg / lbs)	30 / 66.14					
	Dimension (mm / inch, WxDxH)	377x434x81 / 14.84x17.09x3.19	254x434x81 / 10x17.09x3.19	377x434x81 / 14.84x17.09x3.19	130x591x75 / 5.12x23.27x2.95	251x591x75 / 9.88x23.27x2.95	378x591x75 / 14.89x23.27x2.95
	Weight (kg / lbs)	6 / 13.23	5 / 11.02	7 / 15.43	4 / 8.82	8 / 17.64	11 / 24.25
Cat. No.	Electrical Requirements	AC 100 ~ 240V, 50 / 60Hz					
	Power Consumption (W)	45	45	54	45	85	135
	Protection Class (DIN EN 60529)	IP 21					
	KR plug	AAH332115K	AAH332215K	AAH332315K	AAH332415K	AAH332515K	AAH332615K
	US plug	AAH332115U	AAH332215U	AAH332315U	AAH332415U	AAH332515U	AAH332615U

Different types of overhead stirrers are available, offering you the best solutions in various stirring and mixing applications.



MSE / MSM / MSP Models

Optional Accessories

- Impellers
- Stands, Support Rods
- Clamps, Stirring seals

➔ see page 164-165

Common Features (MSE / MSM / MSP)

- Compact and slim head design.
- Powerful torque capable of handling high viscosity tasks.
- Safety features against overload and overheating.
- High speed, vibration-free, and silent operation.
- Separated adapter from the main body minimizes the risks of electrical hazards to the users.
- Sturdy aluminum main body efficiently absorbing and emitting the heat generated by the motor.

Additional Features

Analog Models - MSM

- Well illuminated digital display panel with sensitive touch buttons.
- RPM, power ratio. (%) visible together on one screen.
- Convenient emergency stop feature.

Digital Models - MSP

- Digital PID control, guaranteeing constant shaking speed, even under the varying viscosity.
- Well illuminated digital display panel with sensitive touch buttons.
- Selectable display modes: rpm, power ratio (%), motor temp, and run time.
- Convenient emergency stop feature.
- Prevention of accidental spills or splashes thanks to micro-processor controlled smooth start and stop functions.
- keypad lock function prevents accidental changes during operation.
- Built-in USB port for external control and data collection.
(Lab Companion software required)



Computer Interface is only for MSP Models

Specifications & Ordering Information

Complete technical data for Motor Model										
	Model	MSE-1	MSE-2	MSE-3	MSM-1	MSM-2	MSM-3	MSP-1	MSP-2	MSP-3
Technical Data	Speed Control	Scale						PID feedback control		
	Speed Range (rpm)	Up to 1,400	Up to 1,200	Up to 900	50 to 1,400	50 to 1,200	50 to 900	50 to 1,400	50 to 1,200	50 to 900
	Display	None			Digital-FND					
	Stirring Capacity (L, H ₂ O)	20	30	50	20	30	50	20	30	50
	Torque, Max. (N·cm)	15	27	53	15	27	53	15	27	53
	Motor Rating Output (W)	15	20.4	31.2	15	20.4	31.2	15	20.4	31.2
General Data	Body Material	Aluminum, PP								
	Dimension (mm / inch, WxDxH)	65x135x190 / 2.56x5.31x7.48	70x150x200 / 2.76x5.91x7.87	70x150x215 / 2.76x5.91x8.46	65x135x190 / 2.56x5.31x7.48	70x150x200 / 2.76x5.91x7.87	70x150x215 / 2.76x5.91x8.46	65x135x190 / 2.56x5.31x7.48	70x150x200 / 2.76x5.91x7.87	70x150x215 / 2.76x5.91x8.46
	Net Weight (Kg / lbs)	2 / 4.41	2.5 / 5.51	3 / 6.61	2 / 4.41	2.5 / 5.51	3 / 6.61	2 / 4.41	2.5 / 5.51	3 / 6.61
	Electrical Requirements	AC 100 ~ 240V, 50/60Hz								
	Safety Device	Thermal protection, Current protection, Emergency stop (MSM)						Thermal protection, Current protection, Emergency stop, Automatic speed-down (MSP)		
	Shaft Dia, Max (mm / Inch)	3 ~ 10 / 0.12 ~ 0.39								
	Protection Class (DIN EN 60529)	IP20								
Cat. No.	KR plug	AAH372115K	AAH372215K	AAH372315K	AAH370115K	AAH370215K	AAH370315K	AAH371115K	AAH371215K	AAH371315K
	US plug	AAH372115U	AAH372215U	AAH372315U	AAH370115U	AAH370215U	AAH370315U	AAH371115U	AAH371215U	AAH371315U

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

※ Protection class according to DIN EN 60529: waterproof, Dust production index based on the test level.

※ Above specifications can be changed without prior notice.

Hotplates & Stirrers

Overhead Stirrers (Advanced Model)

Ideally perform your professional stirring tasks requiring high functionality, safety, and longevity.

Intelligent speed controller enables reproducible results under varying viscosity condition. your high standard sitring needs can be met by our considerate design and safety features.

► Features

- Years of vibration-free and silent operation.
 - Equipped with a maintenance-free BLDC motor to generate smooth, quiet, and yet powerful stirring.
- Maintenance of constant motor speed by PID feedback control system even under conditions of changing viscosity.
- Powerful torque capable of handling high viscosity tasks. In addition, the varying motor torque is indicated on display in real time.
- Motor temperature condition is indicated on display by three different colors to protect motor.
- Stirring directions are selectable depending on each impeller's shape and the set direction is visible on display.
- Screen lock function prevents accidental changes during operation.
- Best effort function intelligently manages its stirring speed to keep stirring even workload is out of its capacity.
- Safety features against overload and overheating.
 - When it comes to heavy workload, it tries to activate best effort function. But if it determines that performing the work is harmful for it, than it stops stirring.
 - Equipped with a mini fan inside to minimize overheating of the motor.
- Prevention of accidental spills or splashes thanks to micro-processor controlled smooth start and stop functions.
- Separated adapter from the main body minimizes the risks of electrical hazards to the users.
- Built-in USB port for external control and data collection. (Lab Companion software required)



Touch type LCD controller

Various essential information visible at once.

- RPM, rotation direction
- Motor torque, motor temp.
- Run time

MSH-0513

Optional Accessories

► see page 164-165

- Impellers
- Stands, Support Rods
- Clamps, Stirring seals

► Specifications & Ordering Information



Model		MSH-0513
Technical Data	Speed Control	PID feedback control
	Speed Range (rpm)	50 to 1,200
	Display	Digital-LCD
	Stirring Capacity, Max. (L, H ₂ O)	20
	Torque, Max. (N·cm)	41.6
	Motor Rating Output (W)	50
General Data	Body Material	Aluminum, PP
	Dimension (mm / inch, WxDxH)	80x181x235 / 3.14x7.13x9.25
	Net Weight (Kg / lbs)	3.1 / 6.83
	Electrical Requirements	AC 100 ~ 240V, 50 / 60Hz
	Safety Device	Thermal protection, Current protection, Emergency stop, Automatic speed control
	Shaft Die, Max (mm / Inch)	3 ~ 10 / 0.12 ~ 0.39
Cat. No.	Protection Class (DIN EN 60529)	IP20
	KR plug	AAH371415K
	US plug	AAH371415U

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

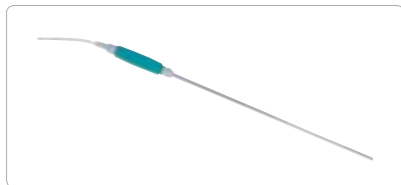
※ Protection class according to DIN EN 60529: waterproof, Duet production index based on the test level.

※ Above specifications can be changed without prior notice.

Hotplates & Stirrers

Accessories & Options

for Hotplates & Hotplate Stirrers



Temperature Probe



Heating Bath



Transparent Safety Shield

Cat. No.	Description	Suitable for
AAA34501	Temperature Probe (PT 100, Max. 250°C, SN-8-4 connector sensor)	TS series
AAA34502	Temperature Probe (PT 100, Max. 350°C, SN-8-4 connector sensor)	
HPS0012	Heating Bath	T-14S/R, TM-14SB/RB, TS-14S
HPS0015	Heating Bath	T-17S/R, TM-17SB/RB, TS-14S
HPS0059	Transparent Safety Shield (PC)	T-14S/R, TM-14SB/RB, TS-14S
HPS0039	Transparent Safety Shield (PC)	T-14S/R, TM-14SB/RB, TS-14S
MTT0132	Support Rod, M10 (Ø12mmx400mm / Ø0.47"x15.74")	All models
HPS0137	Sensor Holder (PP body)	All models



Clamp Holder (C-10)



Clamp Holder (C-7)



Clamp Holder (C-5)

Cat. No.	Description	Suitable for
AAA37512	Clamp Holder, C-10 (Al body, Ø17mm / Ø0.66")	All models
AAA37513	Clamp Holder, C-7 (Al body, Ø12mm / Ø0.47")	
AAA37514	Clamp Holder, C-5 (PP body, Ø12mm / Ø0.47")	
BEA1000014	2 Prong Clamp (60mm / 2.36" grip)	

for Magnetic Stirrers



Plate Covers (Black & White)



Silicone Pad



Power Divider(5 channels*)

Cat. No.	Description	Suitable for
MTT0144	Plate cover (White color, Silicone Ø115mm / Ø4.53")	MS-12T
MTT0146	Plate cover (White color, Silicone Ø165mm / Ø6.49")	MS-17T
MTT0002	Plate cover (White color, Silicone Ø120mm / Ø4.72")	MS-12B
MTT0003	Plate cover (White color, Silicone Ø170mm / Ø6.69")	MS-17B/G
MTT0004	Plate cover (White color, Silicone Ø220mm / Ø8.66")	MS-22B/G
MTT0143	Plate cover (Black color, Silicone Ø115mm / Ø4.53")	MS-12T
MTT0145	Plate cover (Black color, Silicone Ø165mm / Ø6.49")	MS-17T
MTT0005	Plate cover (Black color, Silicone Ø120mm / Ø4.72")	MS-12B
MTT0006	Plate cover (Black color, Silicone Ø170mm / Ø6.69")	MS-17B/G
MTT0007	Plate cover (Black color, Silicone Ø220mm / Ø8.66")	MS-22B/G

Cat. No.	Description	Suitable for
MTS0015	Silicone pad (355x475x1mm / 13.98x18.70x0.04")	MS-53M
MTS0016	Silicone pad (235x475x1mm / 9.25x18.70x0.04")	MS-52M
MTS0017	Silicone pad (115x475x1mm / 4.53x18.70x0.04")	MS-51M
MTS0041	Silicone pad (235x310x1mm / 9.25x12.20x0.04")	MS-32M
MTS0042	Silicone pad (355x310x1mm / 13.98x12.20x0.04")	MS-23M/33M
MTT0001	Power Adapter (100~240V, 50/60Hz)	MS-12B/T, MS-17B/T
AAH33501	Power Divider(5 channels*) with M10 rod, adapter(100~240V, 50/60Hz), five DC plugs	
MTT0132	Support Rod (M10, Ø12x400mm / Ø0.47x15.75")	MS-17G/22G

※ Power supply to max. five units at the same time.

Hotplates & Stirrers

Accessories & Options

for Hotplates Stirrers & Magnetic Stirrers

► Magnetic Stirring Bars



✧ Octahedral Magnetic Stirring Bars

Cat. No.	Ø (mm / inch)	L (mm / inch)
BCW1513	8 / 0.31	13 / 0.51
BCW1515	8 / 0.31	15 / 0.59
BCW1522	8 / 0.31	22 / 0.86
BCW1525	8 / 0.31	25 / 0.98
BCW1528	8 / 0.31	28 / 0.10
BCW1538	8 / 0.31	38 / 1.49
BCW1541	8 / 0.31	41 / 1.61
BCW1551	8 / 0.31	51 / 2.00
BCW155110	10 / 0.39	51 / 2.00



✧ Cylindrical Magnetic Stirring Bars

Cat. No.	Ø (mm / inch)	L (mm / inch)
BCW11138	8 / 0.31	13 / 0.51
BCW11156	6 / 0.23	15 / 0.59
BCW11208	8 / 0.31	20 / 0.78
BCW11258	8 / 0.31	25 / 0.98
BCW11308	8 / 0.31	30 / 1.18
BCW1140	8 / 0.31	40 / 1.57
BCW1150	8 / 0.31	50 / 1.96



✧ Oval Magnetic Stirring Bars

Cat. No.	Ø (mm / inch)	L (mm / inch)
BCW1610	5 / 0.19	10 / 0.39
BCW1615	6 / 0.23	15 / 0.59
BCW1620	10 / 0.39	20 / 0.78
BCW162510	10 / 0.39	25 / 0.98
BCW1630	16 / 0.63	30 / 1.18
BCW1635	16 / 0.63	35 / 1.38
BCW1640	20 / 0.78	40 / 1.57
BCW1650	20 / 0.78	50 / 1.96

► Plastic Retrievers



✧ Plastic Retrievers (PP)

Cat. No.	Ø (mm / inch)	L (mm / inch)
BCW41300	10 / 0.39	300 / 11.81
BCW41350	10 / 0.39	350 / 13.77
BCW41450	10 / 0.39	450 / 17.71



✧ Plastic Retrievers (PTFE)

Cat. No.	Ø (mm / inch)	L (mm / inch)
BCW4150	10 / 0.39	150 / 5.90
BCW4250	10 / 0.39	250 / 9.84
BCW4350	10 / 0.39	350 / 13.77
BCW4450	10 / 0.39	450 / 17.71

for Overhead Stirrers

Impellers

Propeller Impellers

Standard grade stainless steel with Teflon shaft produces an axial flow stir between the bottom and top levels of a sample with local shearing force. Used at medium or high speeds for mixing normal range level viscosity samples.

Turbine Impellers

A radial flowing stir from the top and bottom levels of a sample with a powerful, high shearing turbulent force. Used ideally for the gassing of liquids and mixing medium to high range level viscosity samples.

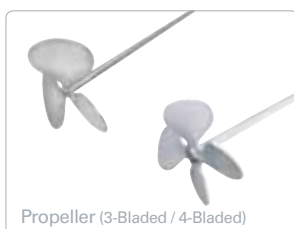
Half-Moon Impellers Centrifugal Impellers

Tiltable moon-shaped and blade shaft produces a normal axial flow percentage mixing of samples. Used with round bottom shaped containers, medium mixing speed, and samples ranging from low to medium viscosity levels.

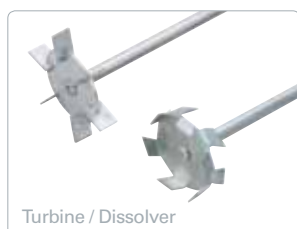
Anchor Impellers Paddle Impellers

An anchored shaft that produces a strong tangential flow with a high shearing percentage force on samples with medium to high viscosity level with speed setting in the low to medium range.

Stainless Steel Impellers



Propeller (3-Bladed / 4-Bladed)



Turbine / Dissolver



Half-Moon / Centrifugal

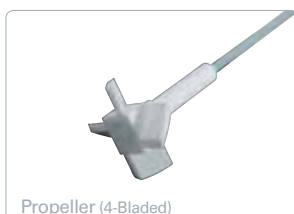


Anchor / Paddle

Cat. No.	Blade, WxH (mm / inch)	Shaft Ø (mm / inch)	Length (mm / inch)
3-Bladed Propeller			
AAA37521	50 / 1.97	8 / 0.31	400 / 15.75
AAA37522	70 / 2.76	8 / 0.31	400 / 15.75
AAA37523	100 / 3.94	8 / 0.31	400 / 15.75
4-Bladed Propeller			
AAA37531	50 / 1.97	8 / 0.31	400 / 15.75
AAA37532	70 / 2.76	8 / 0.31	400 / 15.75
AAA37533	100 / 3.94	8 / 0.31	400 / 15.75
Turbine			
AAA37561	40 / 1.57	8 / 0.31	500 / 19.69
AAA37562	70 / 2.76	8 / 0.31	500 / 19.69
Dissolver			
BEA0570031	55 / 2.17	8 / 0.31	350 / 13.78
BEA0570032	75 / 2.95	8 / 0.31	350 / 13.78

Cat. No.	Blade, WxH (mm / inch)	Shaft Ø (mm / inch)	Length (mm / inch)
Half-Moon			
AAA37541	65x20 / 2.56x0.79	8 / 0.31	300 / 11.81
AAA37542	90x25 / 3.54x0.98	8 / 0.31	500 / 19.69
Centrifugal			
AAA37551	50x15 / 1.97x0.59	8 / 0.31	500 / 19.69
AAA37552	80x15 / 3.15x0.59	8 / 0.31	500 / 19.69
Anchor			
AAA37571	45x45 / 1.77x1.77	8 / 0.31	300 / 11.81
AAA37572	60x60 / 2.36x2.36	8 / 0.31	500 / 19.69
Paddle A			
AAA37581	70x70 / 2.76x2.76	8 / 0.31	500 / 19.69

PTFE Coated Impellers



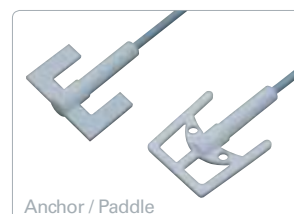
Propeller (4-Bladed)



Turbine



Half-Moon / Centrifugal



Anchor / Paddle

Cat. No.	Blade, WxH (mm / inch)	Shaft Ø (mm / inch)	Length (mm / inch)
4-Bladed Propeller			
BEA0570081	50 / 1.97	8 / 0.31	500 / 19.69
BEA0570082	70 / 2.76	8 / 0.31	500 / 19.69
Turbine			
BEA0570131	70 / 2.76	8 / 0.31	500 / 19.69

Cat. No.	Blade, WxH (mm / inch)	Shaft Ø (mm / inch)	Length (mm / inch)
Half-Moon			
BEA0570091	60x18 / 2.36x0.71	8 / 0.31	500 / 19.69
Centrifugal			
BEA0570101	76x17 / 2.99x0.67	8 / 0.31	500 / 19.69
Anchor			
BEA0570111	80x50 / 3.15x1.97	8 / 0.31	500 / 19.69
BEA0570121	80x40 / 3.15x1.57	8 / 0.31	500 / 19.69
Paddle			
BEA0570141	70 / 2.76	8 / 0.31	500 / 19.69
Paddle A			
BEA0570151	78x80 / 3.07x3.15	8 / 0.31	500 / 19.69

Hotplates & Stirrers

Accessories & Options

for Overhead Stirrers

► Stands & Support Rods



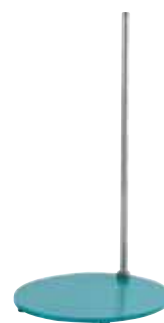
⚙️ Dial Stand with two optional support rods



⚙️ Basic Stand 1 with two optional support rods



⚙️ Basic Stand 2



⚙️ Basic Stand 3

Cat. No.	Description
AAA37501	Dial Stand (WxDxH, 400x400x700 / 15.75x15.75x27.56)
AAA37502	Basic Stand 1 (WxDxH, 400x400x700 / 15.75x15.75x27.56)
AAA37503	Basic Stand 2 (WxDxH, 300x400x700 / 11.81x15.75x27.56)
AAA37504	Basic Stand 3 (WxDxH, 250x350x700 / 9.84x13.78x27.56)

Cat. No.	Description
MSS0051	Ø15mm (Ø0.59") Support Rod, 500mm (19.68"), M14 Nut
MSS0052	Ø18mm (Ø0.71") Support Rod, 500mm (19.68"), M14 Nut
MSS0053	Ø20mm (Ø0.79") Support Rod, 500mm (19.68"), M14 Nut

► Clamps & Others



Utility Clamp 3 Prong



Utility Clamp Plat



3 Prong Clamp



2 Prong Clamp



Fixing Clamp



Clamp Holder (C-10)



Clamp Holder (C-20)



Flexible Coupling



PTFE Stirring seals

Cat. No.	Description
BEA1000001	Utility Clamp 3 Prong
BEA1000002	Utility Clamp Plat
BEA1000011	3 Prong Clamp (80mm / 3.15" grip)
BEA1000012	3 Prong Clamp (60mm / 2.36" grip)
BEA1000013	3 Prong Clamp (20mm / 0.79" grip)
BEA1000014	2 Prong Clamp (60mm / 2.36" grip)
BEA0570181	Fixing Clamp

Cat. No.	Description
AAA37512	Clamp Holder, C-10 (Al body, Ø17mm / 0.67")
AAA37511	Clamp Holder, C-20 (Al body, Ø27mm / 1.06")
BEA0570191	Flexible Coupling
BEA0570161	PTFE Stirring Seals (24 / 40)
BEA0570162	PTFE Stirring Seals (29 / 42)
BEA0570163	PTFE Stirring Seals (34 / 45)

Vortex Mixers

Low profile design and highly touch sensitive sensor reduce wrist stresses when pushing and holding experiment tools resulting in less fatigue and less unpleasant feeling .



VM-96B / VM-96E

Included Accessories • Rubber Platform



Features

- Well-balanced design and optimized safety features.
- Low-profile with small footprint ideal for use on lab benches and within fume hoods or clean benches.
- Real-time mixing for thanks to highly touch sensitive switch.
- Selective mixing modes with Variable speed control knob.
 - VM-96B: Touch, Continuous, High-continuous.
 - VM-96E: Touch, Continuous.
- Built-in LED lamps in case of VM-96B for easy recognition of the mixing mode selected.
- Sparkless BLDC motor adopted for safety, quick acceleration, and low maintenance.
- Built-in safety features against overload and over current.
- Chemically resistant PP (polypropylene) molded exterior.
- A wide range of accessories available. (rubber platform comes standard)

Specifications & Ordering Information



RoHS compliant only for VM-96B

Model			VM-96B	VM-96E
Technical Data	Motion		Orbital	
	Speed Range (RPM)		0 - 3,000	200 - 3,000
	Control		Scale	
	Orbit (mm / inch, Ø)		4 / 0.16	
	Operating Mode		Touch, Continuous, High-continuous	Touch, Continuous
	Motor Rating Input / Output (w)		12W / 6W	
	Motor		BLDC motor	
	Max. Load (kg / lbs) - incl. attachment		0.5 / 1.1	
General Data	Material	Body	Polypropylene	
		Platform	Silicone rubber	
	Dimension (mm / inch, WxDxH)*		154×210×83 / 6.1×8.3×3.3	148×159×77 / 5.8×7.4×3
	Net Weight (kg / lbs)		3.1 / 6.8	2.6 / 5.7
	Electrical Requirements		AC 100V ~ 240V, 50 / 60Hz	
	Safety Device		Self-resetting / Current limit protection	Current limit protection
	Protection Class (DIN EN 60529)		IP 42	
Cat. No.	KR Plug	AAH360115K	Parsian blue	AAH361115BK
			Orange	AAH361115RK
	US Plug	AAH360115U	Parsian blue	AAH361115BU
			Orange	AAH361115RU

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

※ Protection class according to DIN EN 60529: Waterproof, Dust production index based on the test level.

* Exterior dimension without attachment.

Accessories & Options

Cat. No.	Description
VMS0008	Microplate Tray
VMS0011	Rubber Platform
AAA36520	Tube Holder with Insert Retainer
AAA36521	Tube Holder with Insert Retainer (Ø10mm / Ø0.39")
AAA36522	Tube Holder with Insert Retainer (Ø12mm / Ø0.47")
AAA36523	Tube Holder with Insert Retainer (Ø15mm / Ø0.59")
AAA36524	Tube Holder with Insert Retainer (Ø20mm / Ø0.79")
AAA36525	Tube Holder with Insert Retainer (Ø25mm / Ø0.98")



✦ Rubber Platform



✦ Tube Holders

Temperature Chambers

SELECTION GUIDE

Heating Chambers
(Floor Standing Models)

Heating & Cooling Chambers
(Floor Standing Models)

Heating & Cooling Chambers
(Tabletop Models)

Heating Chambers

Description		Operating Temp. Range (°C/°F)	Chamber Volume (L / cu ft)	Page
Heating Chambers (Floor Standing Models)	LBV Models	Amb. +45 to 250 / Amb. +81 to 482	125 to 1000 / 4.4 to 35.3	170
	LTV Models	Amb. +45 to 350 / Amb. +81 to 662		

Heating & Cooling Chambers

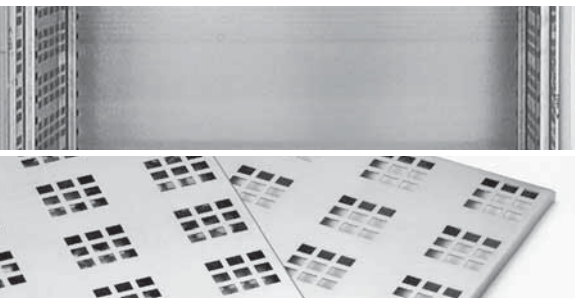
Description		Operating Temp. Range (°C/°F)	Chamber Volume (L / cu ft)	Page
Heating & Cooling Chambers (Floor Standing Models)	KBD Models	-70 to 180 / -94 to 356	125 to 420 / 4.4 to 14.8	176
Heating & Cooling Chambers (Floor Standing Models)	KMV Models	-35 to 180 / -31 to 356	125 to 1000 / 4.4 to 35.3	181
	JMV Models	-35 to 180 / -31 to 356	125 to 990 / 4.4 to 34.9	
	PBV Models	-25 to 100 / -13 to 212	125 to 1000 / 4.4 to 35.3	
	PMV Models	-5 to 100 / 23 to 212		
Heating & Cooling Chambers (Floor Standing Models)	LCH Models	-20 to 100 / -4 to 212	150 to 485 / 5.3 to 17.1	190
	LCH-11-2C		150 / 5.3 x 2 chambers	
	LCH-G Models	0 to 100 / 32 to 212	150 to 485 / 5.3 to 17.1	
	LCH-11G-2C		150 / 5.3 x 2 chambers	
Heating & Cooling Chambers (Tabletop Models)	TC-KE Models	-35 to 150 / -31 to 302	25 to 100 / 0.9 to 3.53	192
	TC-ME Models	-20 to 120 / -4 to 248		195

Accessories & Options

Description	Page
for Temperature Chambers	198-199



GENERAL APPLICATIONS



► Temperature Chambers

Test for reliability, durability, climatic, freezing resistance, quality assurance, thermal endurance etc.

- Testing for electric and electronic component, sensors.
- Testing for semiconductor, PCB, LCD & LED.
- Pharmaceutical tests.
- Mechanical / Military / Aircraft engineering.
- Automobile, Transport / automobile supply industries.
- Chemical / Petrochemical industries.
- Construction materials / Plastic / Textile industries.
- Testing mould, liquor, cigar, paintings.
- Testing metal related industries like plating etc.

TECHNICAL BENEFITS

Safety Features

- 1) Self-protecting cut-off function:
 - Over temperature, electrical leakage or over voltage automatically cuts the power from the unit, in an orderly fashion, starting with the heating element then the controller unit.
- 2) Time setting function for automated RUN / OFF:
 - Enable automatic start and shut off of a unit at any specific time.
 - Data can be recorded in time, day, or week intervals.
- 3) Door-open warning alarm:
 - Intermittent toned alarm audible alarm and visual alarms.
 - Heating element, fan, and platform automatically stops when the door is opened to minimize heat loss and to ensure users safety.

Optimum Control Features

- 1) Microprocess PID control / Auto-tuning / Calibration.
- 2) Optimize CPU logic control system.
 - Optimum control of temperature with economical control that reduces power consumption.
- 3) Touch screen type display.
 - Color LCD display with interactive input system. (Floor Standing Models only)
 - Temperature / timer settings, and operation condition.
 - Temp., other operating parameters can be recorded using a recorder.
 - Easily visible set value: set point value (SV) / pre-sent value (PV) are also added on the colorful LCD controller.

Protect the Global Environment

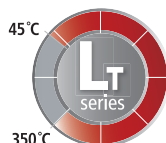
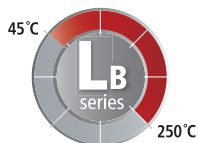
- 1) Use of HFC refrigerant prevents damage to the ozone layer.
- 2) Complies with the Montreal Protocol on Substances That Deplete the Ozone Layer control measures.



T

Temperature Chambers

Heating Chambers (Floor Standing Models)

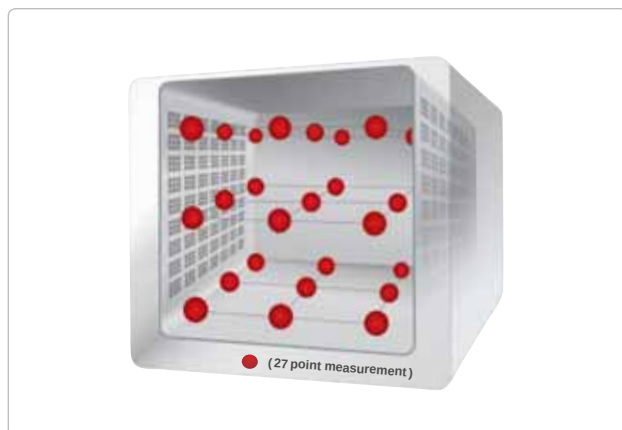


LBV-040 / LTV-040 with optional recorder

Temperature Chambers

Heating Chambers (Floor Standing Models)

Reliable International Standard

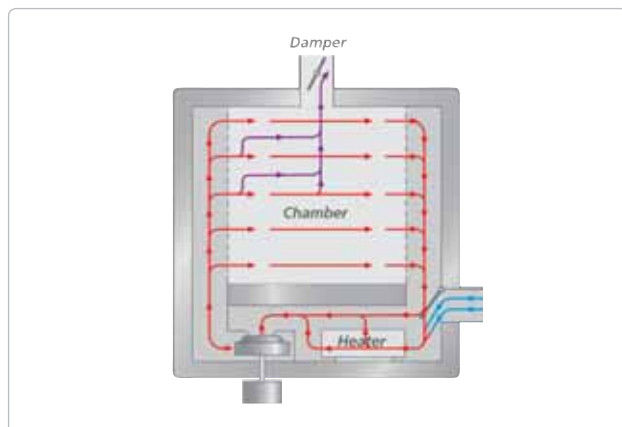


➤ **Designed and tested in accordance with the international standards.**

➤ **Temperature values of all chambers are measured according to DIN 12880 and IEC 60068-3-5.**

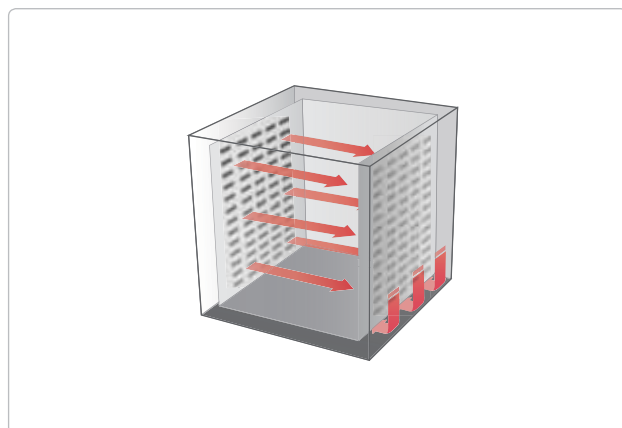
- Increase in reliability of accurate temperature implementation and test results. (27 point measurement data)

Uniform Air Circulation



➤ **An unrivalled designed air circulation system boosts a uniform temperature distribution.**

- Horizontal forced convection increases temperature uniformity by flowing heated air throughout the whole chamber.
- Air intake and exhaust damper rapidly cools-down and ventilates chamber.
- Various applications are available for higher air exchange.
 - Freely control of air volume by adjusting the air flap position with damper handle based on individual application needs.
- Safe damper guard protect users from overheated damper.



➤ Horizontal Airflow

➤ **LBV series**

- Amb.+45°C to 250°C / Amb. +113°F to 482°F
- Horizontal Airflow

➤ **LTV series**

- Amb.+45°C to 350°C / Amb. +113°F to 662°F
- Horizontal Airflow

Temperature Chambers

Heating Chambers (Floor Standing Models)

L - SERIES



Two-point Door Latch



Double Sealed Packings
(only for LTV Models)



Warning Signal Lamp
(optional)



Indication Lamp & Emergency Stop



Individual OverTemperature Limiter

Constructional Features

- Air-tight door closure with double sealed Packing.
 - Heat-resistant silicone double packing completely blocks high heat leakage from the inner chamber. (only for LBV Models)
 - Non-conducting ceramic and heat-resistant silicone packing completely blocks high heat leakage from the inner chamber. (only for LTV Models)
 - Two-point door latch also enhances tightness to door closure.
- Energy efficiency is achieved thanks to optimization of the insulation system.
 - Even if the unit is operating at max. temperature, the surface of the unit doesn't allow high temperatures of over 51 °C. (DIN EN 563)
- Reliable design and production of door is guaranteed.
 - Evaluates the results after opening the door by 90 degrees and applying 50kg load to the point of 30cm from hinges.
- Corrosion resistance stainless steel inner chamber.
- Space efficient and easy loading chamber design.
 - Included two shelves for loading of large amounts of samples.
 - Heavy load shelving, rated for 40kg are also available. (optional)

Safety Features

- Over-current & Current Leakage Protection (ELCB, Earth Leakage Circuit Breaker)
- Independent Safety Fuse.
 - Important parts such as controller and heaters are highly secured from short circuit. Especially each heater has an individual fuse to completely break a short circuit.
- Reversed-phase Protection
 - Electrical connection error indicator helps user to rapidly fix the connection.
- Over-current Protection of Motor
 - Automatic Shut-off in situations where there is over-current to the Motor.
- Door Open Warning
 - Heater & Fan stop when the door is the open state.
- Electric wiring panel access warning
 - Automatic stop if the cover of electric wiring panel is opened.

Temperature Chambers

Heating Chambers (Floor Standing Models)

Operating Features

- Suitable for specific use such as heat treatment and drying process.
- Colorful interactive touch type LCD controller.
- Set point temperature and present temperature are clearly shown together on display.
- Sufficient programmable control support.
- Operating progress can be shown in graph mode for better data understanding.
- Automatic start/stop can be programmed for unattended operations.
- User selectable operation mode after power interruption - either Automatic run or Manual run.
- Display indicates abnormal temperature changes or power failures.
- Three different language support. (English / Chinese / Korean)
- Temperature and other operating parameters can be recorded using a six channel digital recorder.(optional)

Description	No
Programmable pattern capacity	100
Pattern repeat time	999
Part repeat time	255
Max. segments per a pattern	100
Available max. segments*	6000
Programmable process time per a segment	0 to 99 hr 59 min

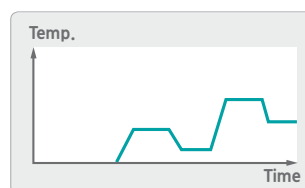
* Even though the max. segments per pattern are 100, the total available segments are up to 6000 not 10000, therefore arrangement of the number of segment and patterns will need to be done properly.

Software

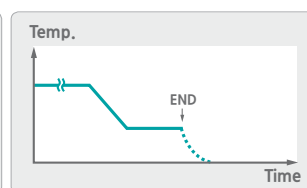
- RS-485 communication port(optional) enables connection up to maximum 32 units. Simultaneous monitoring and operating of multiple units is an available feature.
- Program patterns are simple to set with the use of our software.
- Easy to check status of real-time operations. Graph data supports easy understanding.
- Storage and documentation of programs.
- Data with saving capabilities in excel and text format.
- Storage of program information, backup of value settings, recovery, and temperature values.
- RS-232 communication port as standard offer.



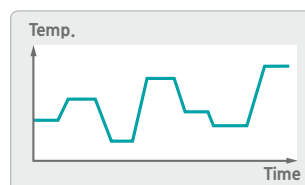
Color LCD Controller



Automatic Start



End of Program



Program Control



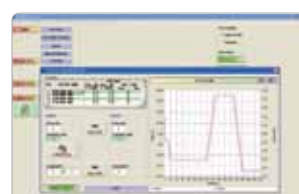
Function Setup



Program Setup



Operating Status



Graph Display

Temperature Chambers

Heating Chambers (Floor Standing Models)

Specifications & Ordering Information



Model		LBV-012	LBV-025	LBV-040	LBV-070	LBV-100
Chamber Volume (L / cu ft)		125 / 4.4	253 / 8.9	420 / 14.8	720 / 25.4	1000 / 35.3
Controller		Programmable, Touch screen type controller (3.5" Color monitor)				
Temperature Range (°C / °F)	intake/damper 100% close	Amb.+45 to 250 / Amb. +81 to 482				
	intake/damper 100% open	Max. 80 / Max. 176	Max. 80 / Max. 176	Max. 120 / Max. 248	Max. 80 / Max. 176	Max. 140 / Max. 284
Temperature Fluctuation ^{1) 2)} at 100°C (±°C / °F)		0.3 / 0.54	0.3 / 0.54	0.3 / 0.54	0.3 / 0.54	0.3 / 0.54
Temperature Variation ²⁾ (±°C / °F)	at 100°C	0.4 / 0.72	0.4 / 0.72	1.3 / 2.34	0.5 / 0.90	0.5 / 0.90
	at 150°C	0.7 / 1.26	0.7 / 1.26	2.3 / 4.14	0.7 / 1.26	0.8 / 1.44
	at 200°C	1.1 / 1.98	1.1 / 1.98	3.2 / 5.76	1.1 / 1.98	1.2 / 2.16
	at 250°C	1.7 / 3.06	1.7 / 3.06	4.1 / 7.38	1.5 / 2.70	1.7 / 3.06
Heating Time ²⁾ (min.) from Amb. to 250°C		51	51	51	55	60
Recovery time ²⁾ after door was opened (min.)	at 100°C	10.5	10.5	8	6.5	8
	at 150°C	8	8	9	8	9.5
	at 200°C	4.5	4.5	8.5	7	8.5
	at 250°C	5	5	9.5	5.5	9.5
Air Change rate (approx, x/h)		213	266	173	233	193
Air Circulation (approx, x/h)		374	590	294	348	220
Exhaust air volume flow (approx, L/min)		380	1240	1400	1910	1560
Air flow velocity (m/s)		0.2 to 0.6	0.2 to 0.6	0.2 to 0.6	0.2 to 0.6	0.2 to 0.6
Dimension (WxDxH)	Interior (mm / inch)	500×500×500 / 19.7×19.7×19.7	600×650×650 / 23.6×25.6×25.6	750×700×800 / 29.5×27.6×31.5	900×800×1000 / 35.4×31.5×39.4	1000×910×1100 / 39.4×35.8×43.3
	Exterior (mm / inch)	1100×745×1362 / 43.3×29.3×53.6	1200×995×1559 / 47.2×39.2×61.4	1350×1045×1712 / 53.1×41.1×67.4	1500×1145×1912 / 59×45.1×75.3	1600×1255×2012 / 62.9×49.4×79.2
	Net Weight (kg / lbs)	170 / 374.8	260 / 573.2	320 / 705.5	390 / 859.8	440 / 970
Interface Port		Basically RS-232C [RS-485(Maximum 32 Units Control)-optional]				
Electrical Requirements (230V, 60Hz)		1ph / 14A	1ph / 21.3A			
Cat. No.		AAHK1011K	AAHK1021K	-	-	-
Electrical Requirements (230V, 50Hz)		1ph / 14A	1ph / 21.3A	3ph / 16.2A	3ph / 20.7A	3ph / 24.6A
Cat. No.		AAHK1012K	AAHK1022K	AAHK10312K	AAHK10412K	AAHK10512K
Electrical Requirements (380V, 50Hz)				3ph / 9.4A	3ph / 12A	3ph / 14.2A
Cat. No.		-	-	AAHK1038K	AAHK1048K	AAHK1058K

1) According to IEC 60068-3-5

2) According to DIN 12880

※ Above specification value is recorded by 230V/60Hz, 380V/50Hz.

※ Above specifications can be changed without prior notice.

Temperature Chambers

Heating Chambers (Floor Standing Models)

Specifications & Ordering Information



Model		LTV-012	LTV-025	LTV-040	LTV-070	LTV-100
Chamber Volume (L / cu ft)		125 / 4.4	253 / 8.9	420 / 14.8	720 / 25.4	1000 / 35.3
Controller		Programmable, Touch screen type controller (3.5" Color monitor)				
Temperature Range (°C / °F)	intake/damper 100% close	Amb.+45 to 350 / Amb. +81 to 662				
	intake/damper 100% open	Max. 115 / Max. 239	Max. 115 / Max. 239	Max. 180 / Max. 356	Max. 150 / Max. 302	Max. 210 / Max. 410
Temperature Fluctuation ^{1) 2)} at 100°C (±°C / °F)		0.4 / 0.72	0.4 / 0.72	0.3 / 0.54	0.5 / 0.90	0.4 / 0.72
Temperature Variation ²⁾ (±°C / °F)	at 100°C	0.5 / 0.90	0.5 / 0.90	0.6 / 1.08	0.7 / 1.26	0.4 / 0.72
	at 150°C	0.7 / 1.26	0.7 / 1.26	1.0 / 1.80	1.1 / 1.98	0.6 / 1.08
	at 200°C	1.1 / 1.98	1.1 / 1.98	1.7 / 3.06	1.9 / 3.42	1.1 / 1.98
	at 250°C	1.6 / 2.88	1.6 / 2.88	2.5 / 4.5	2.7 / 4.86	1.6 / 2.88
	at 300°C	2.4 / 4.32	2.4 / 4.32	3.4 / 6.12	3.4 / 6.12	2.4 / 4.32
	at 350°C	3.4 / 6.12	3.4 / 6.12	3.4 / 6.12	4.1 / 7.38	3.2 / 5.76
Heating Time ²⁾ (min.) from Amb. to 350°C		41	41	43	40	45
Recovery time ²⁾ after door was opened (min.)	at 100°C	8.5	8.5	6	6	7.5
	at 150°C	8.5	8.5	9	7.5	9.5
	at 200°C	3.5	3.5	8.5	8.5	8.5
	at 250°C	5	5	11.5	8.5	9.5
	at 300°C	7.5	7.5	12.5	8.5	9
	at 350°C	8.5	8.5	12.5	10	10
Air Change rate (approx, x/h)		213	266	173	233	193
Air Circulation (approx, x/h)		374	590	294	348	220
Exhaust air volume flow (approx, L/min)		380	1240	1400	1910	1560
Air flow velocity (m/s)		0.2 to 0.6	0.2 to 0.6	0.2 to 0.6	0.2 to 0.6	0.2 to 0.6
Dimension (WxDxH)	Interior (mm / inch)	500×500×500 / 19.7×19.7×19.7	600×650×650 / 23.6×25.6×25.6	750×700×800 / 29.5×27.6×31.5	900×800×1000 / 35.4×31.5×39.4	1000×910×1100 / 39.4×35.8×43.3
	Exterior (mm / inch)	1100×745×1362 / 43.3×29.3×53.6	1200×995×1559 / 47.2×39.2×61.4	1350×1045×1712 / 53.1×41.1×67.4	1500×1145×1912 / 59×45.1×75.3	1600×1255×2012 / 62.9×49.4×79.2
	Net Weight (kg / lbs)	170 / 374.8	260 / 573.2	320 / 705.5	390 / 859.8	440 / 970
Interface Port		Basically RS-232C [RS-485(Maximum 32 Units Control)-optional]				
Electrical Requirements (230V, 60Hz)		1ph / 27.6A				
Cat. No.		AAHK2011K	-	-	-	-
Electrical Requirements (230V, 50Hz)		1ph / 27.6A	3ph / 24.1A	3ph / 32A	3ph / 40.3A	3ph / 48.2A
Cat. No.		AAHK2012K	AAHK20212K	AAHK20312K	AAHK20412K	AAHK20512K
Electrical Requirements (380V, 50Hz)			3ph / 13.9A	3ph / 18.5A	3ph / 23.4A	3ph / 27.9A
Cat. No.		-	AAHK2028K	AAHK2038K	AAHK2048K	AAHK2058K

1) According to IEC 60068-3-5

2) According to DIN 12880

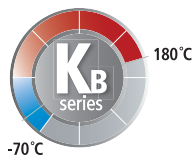
※ Above specification value is recorded by 380V/50Hz.

※ Above specifications can be changed without prior notice.

T

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

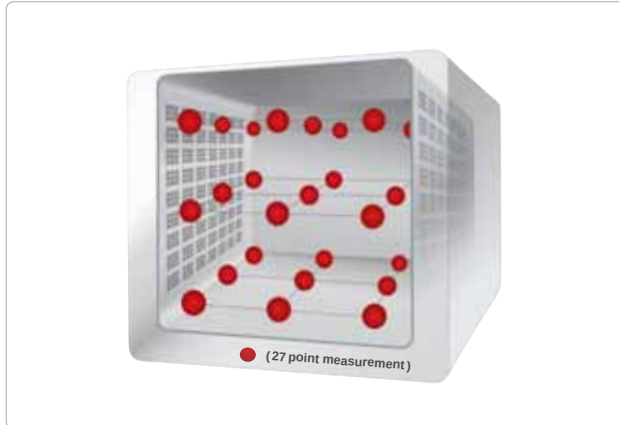


KBD-040 with optional recorder

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

Reliable International Standard

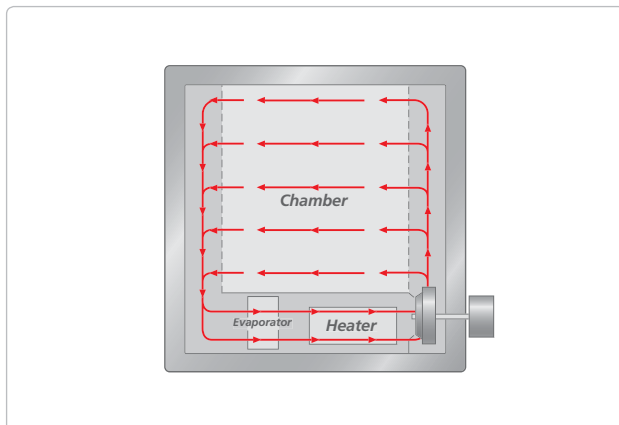


➤ **Designed and tested in accordance with the international standards.**

➤ **Temperature values of all chambers are measured according to IEC 60068-3-5 and DIN 12880.**

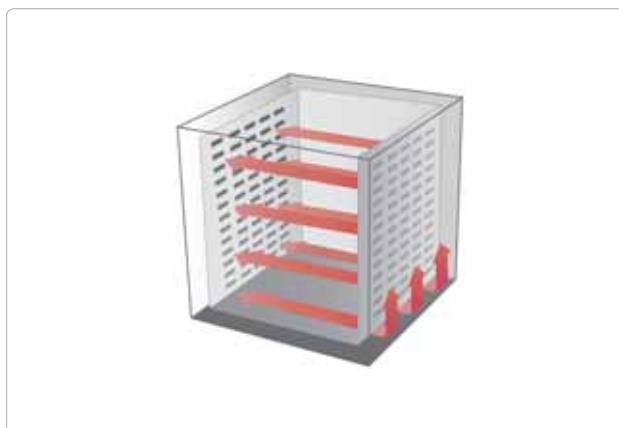
- Increase in reliability of accurate temperature implementation and test results. (27 point measurement data)

Uniform Air Circulation



➤ **An unrivalled designed air circulation system boosts a uniform temperature distribution.**

- Horizontal forced convection increases temperature uniformity by flowing heated air throughout the whole chamber.



➤ Horizontal Airflow

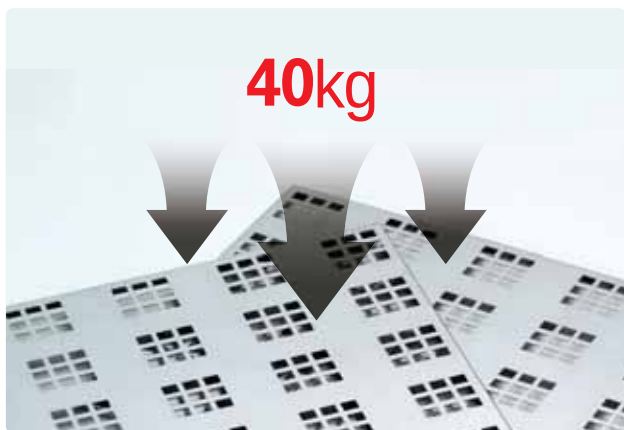
➤ **KBD series**

- -70°C to 180°C / -94°F to 356°F
- Horizontal Airflow

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

K - SERIES



Perforated Shelves for Heavy Load (optional)



Stainless Steel Chamber



Two-point Door Latch



Individual Over Temperature Limiter



Warning Signal Lamp (optional)

Constructional Features

- Air-tight door closure with double sealed packing.
 - Heat-resistant silicone double packing completely blocks high heat leakage from the inner chamber.
 - Two-point door latch also enhances tightness to door closure.
- Energy efficiency is achieved thanks to optimization of the insulation system.
 - Even if the unit is operating at max. temperature, the surface of the unit doesn't allow high temperatures of over 51°C. (DIN EN 563)
- Reliable design and production of door is guaranteed.
 - Evaluates the results after opening the door by 90 degrees and applying 50kg load to the point of 30cm from hinges.
- Corrosion resistance stainless steel inner chamber.
- Space efficient and easy loading chamber design.
 - Included two shelves for loading of large amounts of samples.
 - Heavy load shelving, rated for 40kg are also available. (optional)

Safety Features

- Over-current & Current Leakage Protection. (ELCB, Earth Leakage Circuit Breaker)
- Independent Safety Fuse.
 - Important parts such as controller and heaters are highly secured from short circuit. Especially each heater has an individual fuse to completely break a short circuit.
- Reversed-phase Protection.
 - Electrical connection error indicator helps user to rapidly fix the connection.
- Over-current Protection of Motor.
 - Automatic Shut-off in situations where there is over-current to the Motor.
- Door Open Warning.
 - Heater & Fan stop when the door is the open state.
- Electric wiring panel access warning.
 - Automatic stop if the cover of electric wiring panel is opened.

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

Operating Features

- Suitable for specific use such as heat treatment and drying process.
- Colorful interactive touch type LCD controller.
- Set point temperature and present temperature are clearly shown together on display.
- Sufficient programmable control support.
- Operating progress can be shown in graph mode for better data understanding.
- Automatic start/stop can be programmed for unattended operations.
- User selectable operation mode after power interruption - either Automatic run or Manual run.
- Display indicates abnormal temperature changes or power failures.
- Three different language support. (English / Chinese / Korean)
- Temperature and other operating parameters can be recorded using a six channel digital recorder.(optional)

Description	No
Programmable pattern capacity	100
Pattern repeat time	999
Part repeat time	255
Max. segments per a pattern	100
Available max. segments*	6000
Programmable process time per a segment	0 to 99 hr 59 min

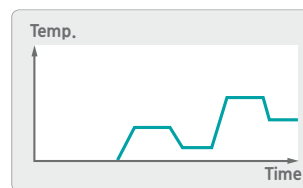
* Even though the max. segments per pattern are 100, the total available segments are up to 6000 not 10000, therefore arrangement of the number of segment and patterns will need to be done properly.

Software

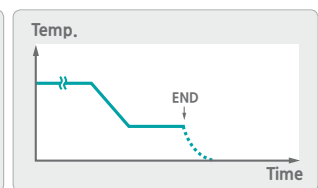
- RS-485 communication port(optional) enables connection up to maximum 32 units. Simultaneous monitoring and operating of multiple units is an available feature.
- Program patterns are simple to set with the use of our software.
- Easy to check status of real-time operations. Graph data supports easy understanding.
- Storage and documentation of programs.
- Data with saving capabilities in excel and text format.
- Storage of program information, backup of value settings, recovery, and temperature values.
- RS-232 communication port as standard offer.



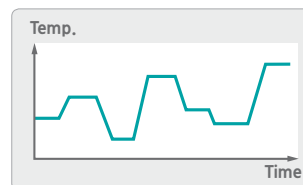
Color LCD Controller



Automatic Start



End of Program



Program Control



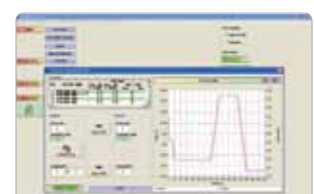
Function Setup



Program Setup



Operating Status



Graph Display

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

Specifications & Ordering Information



Model		KBD-012	KBD-025	KBD-040
Chamber Volume (L / cu ft)		125 / 4.4	253 / 8.9	420 / 14.8
Controller		Programmable, Touch screen type controller (5.7" Color monitor)		
Temperature Range (°C / °F)		-70 to 180 / -94 to 356		
Temperature Fluctuation ^{1) 2)} at 25°C (±°C / °F)		0.2 / 0.36	0.2 / 0.36	0.2 / 0.36
Temperature Variation ²⁾ (±°C / °F)	at -70°C	0.3 / 0.54	0.3 / 0.54	0.3 / 0.54
	at -50°C	0.4 / 0.72	0.5 / 0.90	0.4 / 0.72
	at -25°C	0.5 / 0.9	0.4 / 0.72	0.4 / 0.72
	at -10°C	0.5 / 0.9	0.4 / 0.72	0.5 / 0.9
	at 25°C	0.5 / 0.9	0.4 / 0.72	0.4 / 0.72
	at 70°C	0.4 / 0.72	0.7 / 1.26	0.6 / 1.08
	at 100°C	1.2 / 2.16	1.0 / 1.80	1.0 / 1.80
	at 150°C	1.1 / 1.98	1.1 / 1.98	1.0 / 1.80
	at 180°C	1.2 / 2.16	1.2 / 2.16	1.1 / 1.98
Heating Time ²⁾ (min.) from 25 to 180°C		60	60	60
Cooling Time ²⁾ (min.) from 25°C to -70°C		100	100	100
Recovery time ²⁾ after door was opened (min.)	at -70°C	10	10	10
	at -50°C	10	10	9
	at -25°C	8	7	7
	at -10°C	7	5	6
	at 25°C	-	-	-
	at 70°C	5	6	6
	at 100°C	8	7	9
	at 150°C	9	8	10
	at 180°C	9	8	10
Program Control	Temperature Range (°C / °F)	-50 to 120 / -58 to 248		
	Heating Rate (°C / °F per min.) from -50°C to 120°C	3.0 / 5.4	3.0 / 5.4	3.0 / 5.4
	Cooling Rate (°C / °F per min.) from 120°C to -50°C	1.7 / 3.06	1.7 / 3.06	1.7 / 3.06
Dimension (WxDxH)	Interior (mm / inch)	500×500×500 / 19.7×19.7×19.7	600×650×650 / 23.6×25.6×25.6	750×700×800 / 29.5×27.6×31.5
	Exterior (mm / inch)	1114×1360×1208 / 43.9×53.6×47.6	1240×1525×1308 / 48.8×60.0×51.5	1424×1600×1509 / 56.1×62.9×59.4
	Net Weight (kg / lbs)	170 / 374.8	260 / 573.2	320 / 705.5
Interface Port		Basically RS-232C [RS-485(Maximum 32 Units Control)-optional]		
Electrical Requirements (230V, 50Hz)		3ph / 16.7A	3ph / 21.8A	3ph / 31.6A
Cat. No.		AAHKC1112K	AAHKC2112K	AAHKC3112K
Electrical Requirements (380V, 50Hz)		3ph / 9.7A	3ph / 12.6A	3ph / 18.3A
Cat. No.		AAHKC1114K	AAHKC2114K	AAHKC3114K

1) 1) According to IEC 60068-3-5

2) According to DIN 12880

※ Above specification value is recorded by 380V/50Hz.

※ Above specifications can be changed without prior notice.

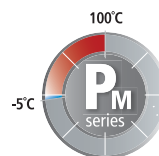
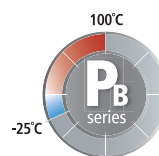
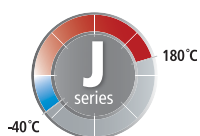
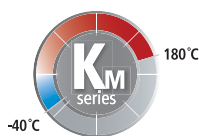
Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)



Please visit JEIOTECH.com

For further information on Jeio Tech's Temperature Chamber products
Information is readily available on our website.

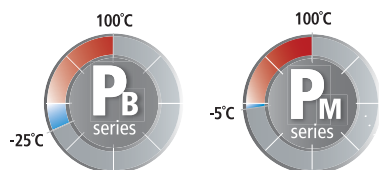


K / J / P series with optional recorder

T

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)



PBV-040 / PMV-040 with optional recorder

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

Reliable International Standard

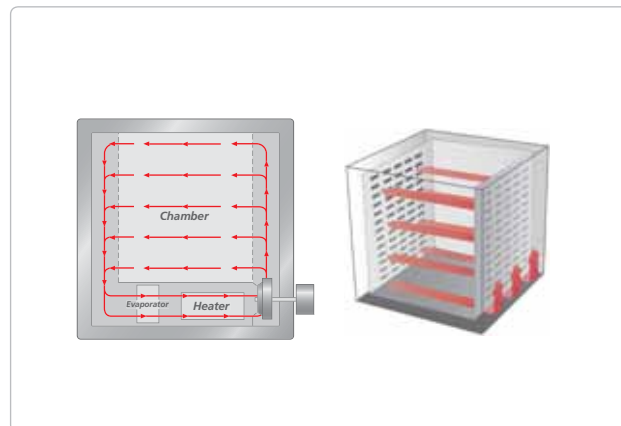


➤ **Designed and tested in accordance with the international standards.**

➤ **Temperature values of all chambers are measured according to IEC 60068-3-5 and DIN 12880.**

- Increase in reliability of accurate temperature implementation and test results. (27 point measurement data)

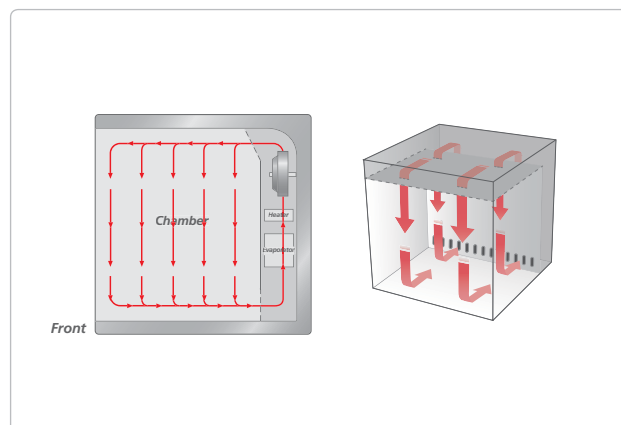
Uniform Air Circulation



⌵ Horizontal Airflow (K / P series)

➤ **Horizontal airflow and vertical airflow models can be selected depending on the volume and loading type of the sample.**

- Forced convection increases temperature uniformity by flowing heated air throughout the whole chamber and all around samples.



⌵ Vertical Airflow (J series)

➤ **KMV series**

- -35°C to 180°C / -31°F to 356°F
- Horizontal Airflow

➤ **JMV series**

- -35°C to 180°C / -31°F to 356°F
- Vertical Airflow

➤ **PBV / PMV series**

- -25°C to 100°C / -13°F to 212°F
- -5°C to 100°C / 23°F to 212°F
- Horizontal Airflow

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

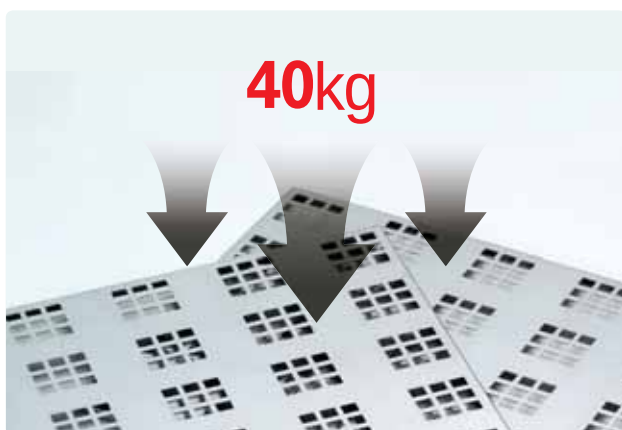
K / J / P - SERIES



Two-point Door Latch



Stainless Steel Chamber



Perforated Shelves for Heavy Load (optional)



Individual OverTemp. Limiter (except for P series)



Indication Lamp & Emergency Stop

Constructional Features

- Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
- Two-point door latch also enhances tightness to door closure.
- Energy efficiency is achieved thanks to optimization of the insulation system.
 - Even if the unit is operating at max. temperature, the surface of the unit doesn't allow high temperatures of over 51°C. (DIN EN 563)
- Reliable design and production of door is guaranteed.
 - Evaluates the results after opening the door by 90 degrees and applying 50kg load to the point of 30cm from hinges.
- Corrosion resistance stainless steel inner chamber.
- Space efficient and easy loading chamber design.
 - Included two shelves for loading of large amounts of samples.
 - Heavy load shelving, rated for 40kg are also available. (optional)

Safety Features

- Over-current & Current Leakage Protection. (ELCB, Earth Leakage Circuit Breaker)
- Independent Safety Fuse.
 - Important parts such as controller and heaters are highly secured from short circuit. Especially each heater has an individual fuse to completely break a short circuit.
- Reversed-phase Protection.
 - Electrical connection error indicator helps user to rapidly fix the connection.
- Over-current Protection of Motor.
 - Automatic Shut-off in situations where there is over-current to the Motor.
- Door Open Warning.
 - Heater & Fan stop when the door is the open state.
- Electric wiring panel access warning.
 - Automatic stop if the cover of electric wiring panel is opened.

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

Operating Features

- Suitable for specific use such as heat treatment and drying process.
- Colorful interactive touch type LCD controller.
- Set point temperature and present temperature are clearly shown together on display.
- Sufficient programmable control support.
- Operating progress can be shown in graph mode for better data understanding.
- Automatic start/stop can be programmed for unattended operations.
- User selectable operation mode after power interruption - either Automatic run or Manual run.
- Display indicates abnormal temperature changes or power failures.
- Three different language support. (English / Chinese / Korean)
- Temperature and other operating parameters can be recorded using a six channel digital recorder.(optional)

Description	No
Programmable pattern capacity	100
Pattern repeat time	999
Part repeat time	255
Max. segments per a pattern	100
Available max. segments*	6000
Programmable process time per a segment	0 to 99 hr 59 min

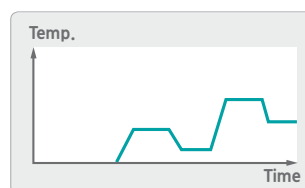
* Even though the max. segments per pattern are 100, the total available segments are up to 6000 not 10000, therefore arrangement of the number of segment and patterns will need to be done properly.

Software

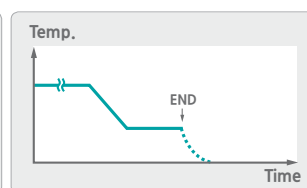
- RS-485 communication port(optional) enables connection up to maximum 32 units. Simultaneous monitoring and operating of multiple units is an available feature.
- Program patterns are simple to set with the use of our software.
- Easy to check status of real-time operations. Graph data supports easy understanding.
- Storage and documentation of programs.
- Data with saving capabilities in excel and text format.
- Storage of program information, backup of value settings, recovery, and temperature values.
- RS-232 communication port as standard offer.



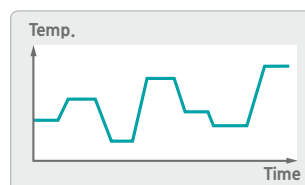
Color LCD Controller



Automatic Start



End of Program



Program Control



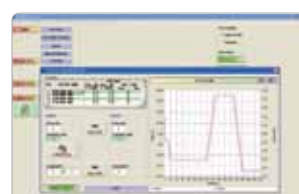
Function Setup



Program Setup



Operating Status



Graph Display

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

Specifications & Ordering Information



Model		KMV-012	KMV-025	KMV-040	KMV-070	KMV-100
Chamber Volume (L / cu ft)		125 / 4.4	253 / 8.9	420 / 14.8	720 / 25.4	1000 / 35.3
Controller		Programmable, Touch screen type controller (3.5" Color monitor)				
Temperature Range (°C / °F)		-35 to 180 / -31 to 356				
Temperature Fluctuation ^{1) 2)} at 25°C (±°C / °F)		0.4 / 0.72	0.4 / 0.72	0.3 / 0.54	0.2 / 0.36	0.2 / 0.36
Temperature Variation ²⁾ (±°C / °F)	at -35°C	0.6 / 1.08	0.6 / 1.08	0.7 / 1.26	0.4 / 0.72	0.4 / 0.72
	at -25°C	0.6 / 1.08	0.6 / 1.08	0.7 / 1.26	0.5 / 0.9	0.5 / 0.9
	at -10°C	0.8 / 1.44	0.8 / 1.44	0.7 / 1.26	0.5 / 0.9	0.5 / 0.9
	at 25°C	0.8 / 1.44	0.8 / 1.44	0.5 / 0.9	0.5 / 0.9	0.5 / 0.9
	at 70°C	0.8 / 1.44	0.8 / 1.44	0.9 / 1.62	0.8 / 1.44	0.8 / 1.44
	at 100°C	1.0 / 1.8	1.0 / 1.8	0.9 / 1.62	1.0 / 1.8	0.9 / 1.62
	at 150°C	1.1 / 1.98	1.1 / 1.98	1.7 / 3.06	1.6 / 2.88	0.9 / 1.62
	at 180°C	1.6 / 2.88	1.6 / 2.88	2.0 / 3.6	1.9 / 3.42	1.0 / 1.8
Heating Time ²⁾ (min.) from 25°C to 180°C		64	64	66	51	78
Cooling Time ²⁾ (min.) from 25°C to -35°C		56	56	60	62	96
Recovery time ²⁾ after door was opened (min.)	at -35°C	8.0	8.0	6.5	7.0	6.0
	at -25°C	3.5	3.5	7.5	6.0	7.0
	at -10°C	2.5	2.5	6.5	6.5	6.5
	at 25°C	4.0	4.0	5.5	4.5	5.0
	at 70°C	4.0	4.0	5.5	5.0	8.0
	at 100°C	4.0	4.0	6.5	6.0	6.0
	at 150°C	4.0	4.0	4.5	4.5	3.5
	at 180°C	11.5	11.5	6.0	5.0	4.0
Program Control	Temperature Range (°C / °F)	-25 to 120 / -13 to 248				
	Heating Rate (°C / °F per min.) from -25°C to 120°C	2.3 / 4.14	2.3 / 4.14	2.2 / 3.96	2.8 / 5.04	1.7 / 3.06
	Cooling Rate (°C / °F per min.) from 120°C to -25°C	2.0 / 3.6	2.0 / 3.6	2.0 / 3.6	1.9 / 3.42	1.9 / 3.42
Dimension (WxDxH)	Interior (mm / inch)	500×500×500 / 19.7×19.7×19.7	600×650×650 / 23.6×25.6×25.6	750×700×800 / 29.5×27.6×31.5	900×800×1000 / 35.4×31.5×39.4	1000×910×1100 / 39.4×35.8×43.3
	Exterior (mm / inch)	1070×775×1385 / 42.1×30.5×54.5	1170×925×1585 / 46.1×36.4×62.4	1370×975×1780 / 53.9×38.4×70.1	1495×1625×1650 / 58.9×63.9×64.9	1595×1725×1800 / 62.8×67.9×70.9
	Net Weight (kg / lbs)	170 / 374.8	260 / 573.2	320 / 705.5	390 / 859.8	440 / 970
Interface Port		Basically RS-232C (RS-485 (Maximum 32 Units Control)-optional)				
Electrical Requirements (230V, 60Hz)		1ph / 19.2A	1ph / 26A			
Cat. No.		AAHK9011K	AAHK9021K	-	-	-
Electrical Requirements (230V, 50Hz)		1ph / 19.2A	1ph / 26A	3ph / 21.6A	3ph / 31.1A	3ph / 33.5A
Cat. No.		AAHK9012K	AAHK9022K	AAHK90312K	AAHK90412K	AAHK90512K
Electrical Requirements (380V, 50Hz)				3ph / 12.5A	3ph / 18A	3ph / 19.4A
Cat. No.		-	-	AAHK9038K	AAHK9048K	AAHK9058K

1) According to IEC 60068-3-5

2) According to DIN 12880

※ Above specification value is recorded by 230V/50Hz, 380/50Hz.

※ Above specifications can be changed without prior notice.

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

Specifications & Ordering Information



Model		JMV-012	JMV-025	JMV-040	JMV-070	JMV-100
Chamber Volume (L / cu ft)		125 / 4.4	253 / 8.9	420 / 14.8	720 / 25.4	990 / 34.9
Controller		Programmable, Touch screen type controller (3.5" Color monitor)				
Temperature Range (°C / °F)		-35 to 180 / -31 to 356				
Temperature Fluctuation ^{1) 2)} at 25°C (±°C / °F)		0.5 / 0.9	0.5 / 0.9	0.3 / 0.54	0.4 / 0.72	0.3 / 0.54
Temperature Variation ²⁾ (±°C / °F)	at -35°C	0.7 / 1.26	0.7 / 1.26	0.5 / 0.9	1.0 / 1.8	0.7 / 1.26
	at -25°C	0.7 / 1.26	0.7 / 1.26	0.6 / 1.08	1.1 / 1.98	0.8 / 1.44
	at -10°C	0.8 / 1.44	0.8 / 1.44	0.6 / 1.08	1.2 / 2.16	0.9 / 1.62
	at 25°C	0.8 / 1.44	0.8 / 1.44	0.5 / 0.9	0.8 / 1.44	0.9 / 1.62
	at 70°C	0.9 / 1.62	0.9 / 1.62	0.7 / 1.26	1.2 / 2.16	0.8 / 1.44
	at 100°C	1.0 / 1.8	1.0 / 1.8	0.8 / 1.44	1.2 / 2.16	0.9 / 1.62
	at 150°C	1.2 / 2.16	1.2 / 2.16	1.3 / 2.34	1.1 / 1.98	1.1 / 1.98
	at 180°C	1.4 / 2.52	1.4 / 2.52	1.5 / 2.7	1.3 / 2.34	1.4 / 2.52
Heating Time ²⁾ (min.) from 25°C to 180°C		67	67	46	44	60
Cooling Time ²⁾ (min.) from 25°C to -35°C		48	48	35	35	58
Recovery time ²⁾ after door was opened (min.)	at -35°C	6.0	6.0	6.0	6.5	9.0
	at -25°C	5.0	5.0	6.5	7.0	6.5
	at -10°C	6.5	6.5	6.5	8.5	6.5
	at 25°C	5.5	5.5	4.5	2.0	7.0
	at 70°C	8.5	8.5	8.0	9.5	7.5
	at 100°C	5.5	5.5	4.5	6.0	5.5
	at 150°C	6.5	6.5	7.0	9.0	3.5
	at 180°C	6.5	6.5	6.5	8.0	4.0
Program Control	Temperature Range (°C / °F)	-25 to 120 / -13 to 248				
	Heating Rate (°C / °F per min.) from -25 °C to 120°C	2.0 / 3.6	2.0 / 3.6	3.1 / 5.58	3.4 / 6.12	2.4 / 4.32
	Cooling Rate (°C / °F per min.) from 120°C to -25°C	2.1 / 3.78	2.1 / 3.78	2.3 / 4.14	2.7 / 4.86	1.6 / 2.88
Dimension (WxDxH)	Interior (mm / inch)	500×500×500 / 19.7×19.7×19.7	600×650×650 / 23.6×25.6×25.6	750×700×800 / 29.5×27.6×31.5	900×800×1000 / 35.4×31.5×39.4	1000×910×1100 / 39.4×35.8×43.3
	Exterior (mm / inch)	890×1000×1200 / 35.0×39.4×47.2	990×1230×1350 / 38.9×48.4×53.1	1140×1380×1590 / 44.9×54.3×62.6	1290×1480×1940 / 50.8×58.3×76.4	1390×1580×2040 / 54.7×62.2×80.4
	Net Weight (kg / lbs)	170 / 374.8	260 / 573.2	320 / 705.5	390 / 859.8	440 / 970
Interface Port		Basically RS-232C [RS-485(Maximum 32 Units Control)-optional]				
Electrical Requirements (230V, 60Hz)		1ph / 19.2A	1ph / 26A			
Cat. No.		AAHKB011K	AAHKB021K	-	-	-
Electrical Requirements (230V, 50Hz)		1ph / 19.2A	1ph / 26A	3ph / 21.6A	3ph / 31.1A	3ph / 33.5A
Cat. No.		AAHKB012K	AAHKB022K	AAHKB0312K	AAHKB0412K	AAHKB0512K
Electrical Requirements (380V, 50Hz)				3ph / 12.5A	3ph / 18A	3ph / 19.4A
Cat. No.		-	-	AAHKB038K	AAHKB048K	AAHKB058K

1) According to IEC 60068-3-5

2) According to DIN 12880

※ Above specification value is recorded by 230v/50Hz, 380/50Hz.

※ Above specifications can be changed without prior notice.

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

Specifications & Ordering Information



Model		PBV-012	PBV-025	PBV-040	PBV-070	PBV-100
Chamber Volume (L / cu ft)		125 / 4.4	250 / 8.8	400 / 14.1	700 / 24.7	1000 / 35.3
Controller		Programmable, Touch screen type controller (3.5" Color monitor)				
Temperature Range (°C / °F)		-25 to 100 / -13 to 212				
Temperature Fluctuation ^{1) 2)} at 25°C (±°C / °F)		0.3 / 0.54	0.3 / 0.54	0.3 / 0.54	0.4 / 0.72	0.2 / 0.36
Temperature Variation ²⁾ (±°C / °F)	at -25°C	0.3 / 0.54	0.3 / 0.54	0.4 / 0.72	0.4 / 0.72	0.4 / 0.72
	at -15°C	0.3 / 0.54	0.3 / 0.54	0.4 / 0.72	0.4 / 0.72	0.4 / 0.72
	at -10°C	0.3 / 0.54	0.3 / 0.54	0.4 / 0.72	0.4 / 0.72	0.4 / 0.72
	at 25°C	0.3 / 0.54	0.3 / 0.54	0.4 / 0.72	0.4 / 0.72	0.4 / 0.72
	at 70°C	0.4 / 0.72	0.4 / 0.72	0.6 / 1.08	0.6 / 1.08	0.6 / 1.08
	at 100°C	0.6 / 1.08	0.6 / 1.08	0.7 / 1.26	0.8 / 1.44	0.8 / 1.44
Heating Time ²⁾ (min.) from 25°C to 100°C		34	34	52	35	38
Cooling Time ²⁾ (min.) from 25°C to -25°C		44	44	34	33	42
Recovery time ²⁾ after door was opened (min.)	at -25°C	5.0	5.0	5.0	4.0	7.0
	at -15°C	4.5	4.5	3.5	5.5	5.0
	at -10°C	6.0	6.0	4.5	4.0	5.0
	at 25°C	5.0	5.0	4.0	5.5	3.5
	at 70°C	5.0	5.0	9.5	5.0	7.5
	at 100°C	5.5	5.5	9.0	6.0	7.0
Program Control	Temperature Range (°C / °F)	-12.5 to 87.5 / 9.5 to 189.5				
	Heating Rate (°C / °F per min.) from -12.5°C to 87.5°C	2.6 / 4.68	2.6 / 4.68	1.5 / 2.7	2.7 / 4.86	2.0 / 3.6
	Cooling Rate (°C / °F per min.) from 87.5°C to -12.5°C	2.1 / 3.78	2.1 / 3.78	2.8 / 5.04	2.5 / 4.5	2.4 / 4.32
Dimension (WxDxH)	Interior (mm / inch)	500×500×500 / 19.7×19.7×19.7	600×650×650 / 23.6×25.6×25.6	750×700×800 / 29.5×27.6×31.5	900×800×1000 / 35.4×31.5×39.4	1000×910×1100 / 39.4×35.8×43.3
	Exterior (mm / inch)	1060×702×1340 / 41.7×27.6×52.8	1154×852×1540 / 45.4×33.5×60.6	1304×902×1724 / 51.3×35.5×67.9	1454×1540×1628 / 57.2×60.6×64.1	1720×1650×1534 / 67.7×64.9×60.4
	Net Weight (kg / lbs)	160 / 352.7	260 / 573.2	320 / 705.5	390 / 859.8	440 / 970
Interface Port		Basically RS-232C [RS-485 (Maximum 32 Units Control)-optional]				
Electrical Requirements (230V, 60Hz)		1ph / 15.5A	1ph / 25.2A			
Cat. No.		AAHK5011K	AAHK5021K	-	-	-
Electrical Requirements (230V, 50Hz)		1ph / 15.5A	1ph / 25.2A	3ph / 17.4A	3ph / 26.7A	3ph / 29A
Cat. No.		AAHK5012K	AAHK5022K	AAHK50312K	AAHK50412K	AAHK50512K
Electrical Requirements (380V, 50Hz)				3ph / 10A	3ph / 15.4A	3ph / 16.8A
Cat. No.		-	-	AAHK5038K	AAHK5048K	AAHK5058K

1) According to IEC 60068-3-5

2) According to DIN 12880

※ Above specification value is recorded by 230V/50Hz, 380V/50Hz.

※ Above specifications can be changed without prior notice.

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

Specifications & Ordering Information



Model		PMV-012	PMV-025	PMV-040	PMV-070	PMV-100
Chamber Volume (L / cu ft)		125 / 4.4	250 / 8.8	400 / 14.1	700 / 24.7	1000 / 35.3
Controller		Programmable, Touch screen type controller (3.5" Color monitor)				
Temperature Range (°C / °F)		-5 to 100 / 23 to 212				
Temperature Fluctuation ^{1) 2)} at 25°C (±°C / °F)		0.3 / 0.54	0.3 / 0.54	0.3 / 0.54	0.3 / 0.54	0.3 / 0.54
Temperature Variation ³⁾ (±°C / °F)	at -5°C	0.4 / 0.72	0.4 / 0.72	0.4 / 0.72	0.4 / 0.72	0.3 / 0.54
	at 0°C	0.4 / 0.72	0.4 / 0.72	0.4 / 0.72	0.4 / 0.72	0.3 / 0.54
	at 25°C	0.2 / 0.36	0.2 / 0.36	0.3 / 0.54	0.4 / 0.72	0.3 / 0.54
	at 40°C	0.3 / 0.54	0.3 / 0.54	0.3 / 0.54	0.4 / 0.72	0.3 / 0.54
	at 60°C	0.5 / 0.90	0.5 / 0.90	0.4 / 0.72	0.4 / 0.72	0.4 / 0.72
	at 80°C	0.7 / 1.26	0.7 / 1.26	0.6 / 1.08	0.5 / 0.90	0.5 / 0.90
	at 100°C	1.0 / 1.80	1.0 / 1.80	0.8 / 1.44	0.7 / 1.26	0.7 / 1.26
Heating Time ²⁾ (min.) from 25°C to 100°C		45	45	48	52	56
Cooling Time ²⁾ (min.) from 25°C to -5°C		44	44	43	39	39
Recovery time ²⁾ after door was opened (min.)	at -5°C	8.0	8.0	6.5	5.0	5.0
	at 0°C	6.0	6.0	6.0	6.0	8.0
	at 25°C	0.5	0.5	4.0	6.0	6.0
	at 40°C	2.5	2.5	2.5	2.5	2.5
	at 60°C	4.0	4.0	4.5	5.0	6.0
	at 80°C	5.0	5.0	5.0	5.5	6.0
	at 100°C	7.0	7.0	7.0	6.5	8.0
Program Control	Temperature Range (±°C / °F)	5.5 to 89.5 / 9.9 to 161.1				
	Heating Rate (°C / °F per min.) from 5.5°C to 89.5°C	1.7 / 3.06	1.7 / 3.06	1.6 / 2.88	1.5 / 2.7	1.3 / 2.34
	Cooling Rate (°C / °F per min.) from 89.5°C to 5.5°C	0.9 / 1.62	0.9 / 1.62	0.9 / 1.62	0.9 / 1.62	0.9 / 1.62
Dimension (W×D×H)	Interior (mm / inch)	500×500×500 / 19.7×19.7×19.7	600×650×650 / 23.6×25.6×25.6	750×700×800 / 29.5×27.6×31.5	900×800×1000 / 35.4×31.5×39.4	1000×910×1100 / 39.4×35.8×43.3
	Exterior (mm / inch)	1060×702×1340 / 41.7×27.6×52.8	1154×852×1540 / 45.4×33.5×60.6	1304×902×1724 / 51.3×35.5×67.9	1454×1540×1628 / 57.2×60.6×64.1	1720×1650×1534 / 67.7×64.9×60.4
	Net Weight (kg / lbs)	160 / 352.7	260 / 573.2	320 / 705.5	390 / 859.8	440 / 970
Interface Port		Basically RS-232C [RS-485 (Maximum 32 Units Control)-optional]				
Electrical Requirements (230V, 60Hz)		1ph / 9.7A	1ph / 13.2A	1ph / 15.5A	1ph / 21.7A	
Cat. No.		AAHK4011K	AAHK4021K	AAHK4031K	AAHK4041K	-
Electrical Requirements (230V, 50Hz)		1ph / 9.7A	1ph / 13.2A	1ph / 15.5A	1ph / 21.7A	3ph / 11A
Cat. No.		AAHK4012K	AAHK4022K	AAHK4032K	AAHK4042K	AAHK40512K
Electrical Requirements (380V, 50Hz)						3ph / 6A
Cat. No.		-	-	-	-	AAHK4058K

1) According to IEC 60068-3-5

2) According to DIN 12880

※ Above specification value is recorded by 230V/50Hz, 380V/50Hz.

※ Above specifications can be changed without prior notice.

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Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)



Please visit JEIOTECH.com

For further information on Jeio Tech's Incubator products
Information is readily available on our website.



LCH-11-2C

Temperature Chambers

Heating & Cooling Chambers (Floor Standing Models)

High-performance horizontal air flow provides excellent uniformity and fast heat-up time.

Operating Features

- Microprocessor PID control.
- Simple calibration and auto-tuning functions.
- Digital timer with Delayed ON/OFF function: 1 min to 99 hr 59 min.
- High temperature limit setting and open door alarm.
- Convenient preset function for 3 most commonly used temperature settings.
- Up to 9 temperature steps and maximum 200 cycles of repetition programmable for each profile.
- Adjustable three-step fan speed with defrosting time and period control.
- Intuitive control panel with bright LED display (0.1°C resolution) and touch-sensitive keypad.
- RS-232 interface.

Constructional Features

- Forced air convection using an optimal cross flow fan for chamber temperature uniformity.
- Two independently controlled chambers merged into a single unit for space saving.
- Energy efficiency is achieved thanks to optimization of the insulation system. The surface of the unit doesn't allow high temperatures of over 60°C.
- Included cable port (Ø 80mm) for user's convenience.



LCH-21 with optional recorder

Specifications & Ordering Information



Model	LCH-11	LCH-21	LCH-31	LCH-11-2C	LCH-11G	LCH-21G	LCH-31G	LCH-11G-2C
Chamber Volume (L / cu ft)	150/5.3	255/9.0	485/17.1	150/5.3 x 2 chambers	150/5.3	255/9.0	485/17.1	150/5.3 x 2 chambers
Temperature	Range (°C / °F)		-20 to 100 / -4 to 212		0 to 100 / 32 to 212			
	Fluctuation (±°C / °F)		0.2 to 0.3 / 0.36 to 0.54					
	Variation at 80°C (±°C / °F)		0.8 / 1.44					
Time	Heating (Min.)		80 (from 20°C to 100°C)					
	Cooling (Min.)		60 (from 100°C to 40°C)					
Dimension (WxDxH)	Interior (mm / inch)		600x500x500 /23.6x19.7x19.7	600x500x850 /23.6x19.7x33.5	700x680x1020 /27.6x26.8x40.2	600x500x500 /23.6x19.7x19.7	600x500x500 /23.6x19.7x19.7	600x500x500 /23.6x19.7x19.7
	Exterior (mm / inch)		794x1070x1280 /31.3x42.1x50.4	794x1070x1630 /31.3x42.1x64.2	894x1250x1800 /35.2x49.2x70.9	794x1070x1280 /31.3x42.1x50.4	794x1070x1630 /31.3x42.1x64.2	794x1070x1900 /31.3x42.1x74.8
	Net Weight (Kg / lbs)		125/275.6	185/407.9	225/496.0	195/429.9	120/264.6	180/396.8
Cable Port (mm / inch)		Ø 80 / Ø 3.15						
Interface Port		RS-232C						
Electrical Requirements (230V,60Hz)		6.3A	9.2A	11.1A	12.6A	7.1A	10.6A	13.8A
Cat. No.		AAHK6111K	AAHK6211K	AAHK6311K	AAHK6411K	AAHK6121K	AAHK6221K	AAHK6321K
Electrical Requirements (230V,50Hz)		6.6A	9.6A	11.6A	13.2A	7.4A	11.1A	14.4A
Cat. No.		AAHK6112K	AAHK6212K	AAHK6312K	AAHK6412K	AAHK6122K	AAHK6222K	AAHK6322K
Electrical Requirements (120V,60Hz)		11.6A			23.2A	13A		26A
Cat. No.		AAHK6113U	-	-	AAHK6413U	AAHK6123U	-	AAHK6423U

1) Technical data according to DIN 12880.

Temperature Chambers

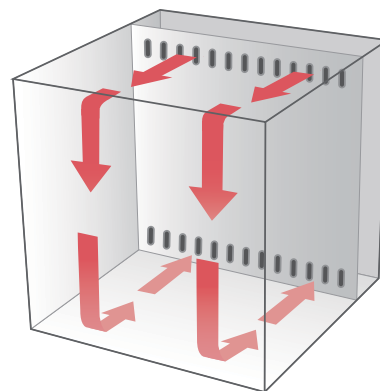
Heating & Cooling Chambers (Tabletop Models)

The best choice for the limited laboratory space!
Tabletop chamber is beneficial for space efficiency.



Control Range

Temperature Range from -35 to 150°C



TC-KE-25/65/100

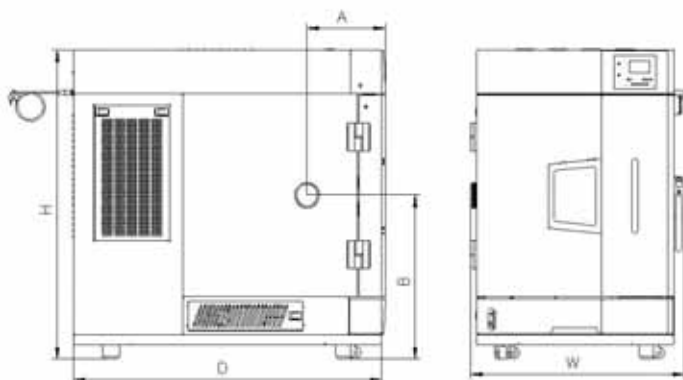
TC-KE

Included Accessories

- Viewing Window
- Wire Shelves
- Cable Port (Ø50mm)

➡ see page 120

※ Above products design can be changed without prior notice.
※ Inner glass door is not equipped to the unit since 2013.



Dimension

Model	TC-KE-25	TC-KE-65	TC-KE-100
Capacity	25L (0.9 cu ft)	65L (2.3 cu ft)	100L (3.53 cu ft)
W	553mm (21.8")	603mm (23.7")	760mm (29.9")
D	874mm (34.4")	1037mm (40.8")	1105mm (43.5")
H	919mm (36.2")	1064mm (41.9")	1099mm (43.3")
A	219mm (8.6")	272mm (10.7")	283mm (11.1")
B	498mm (19.6")	571mm (22.5")	583mm (22.9")

Temperature Chambers

Heating & Cooling Chambers (Tabletop Models)

TC-KE

► Safety Features

- Built in door lock
- Automatic shut off after overheat alarm.
- Power supply leakage breaker.
- Over current protection.
- Overheat protection.
- Door open alarm.

► Operating Features

- Microprocessor PID control / Auto-tuning / Calibration.
- User friendly LCD controller.
 - Set value and present value are clearly visible together on display.
 - Operating progression visible in graph mode allow for direct data interpretation.
 - Temperature and other operating parameters recorded with use of an optional recorder. (optional)
- Sufficient programmable control support.

Description	TC-KE
Programmable Pattern Capacity	10
Pattern RepeatTime	999
Max. Segments per a Pattern	100
Available Max. Segments*	100
Programmable ProcessTime per a Segment	0 to 99 hr 59 min

* Even though the max. segments per a pattern are 100, available total segments are up to 300 not 3000, so you need to arrange the number of segment and patterns properly.

- Computer interface.
 - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
 - Program patterns are simple to set with the use of our software.
 - Storage of program information, backup of value settings, recovery, temperature, humidity values.
 - RS-232 communication port comes standard.

► Constructional Features

- Compact design and quite operation.
- Uniform temperature control guarantees reliable test result.
- Three different size models are available to suit user's need.
- Corrosion resistance stainless steel chamber.
- Air-tight door closure with perfect sealed packing.
 - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
- Operating condition is clearly noticed by the front LED indicator.
 - Three different colored lights show each status of running, stop, and power off condition.
- Clear observation of samples.
 - Tempered glass window with wire heater and lighting provides a clear view of samples in the chamber, beneficial for during testing.
- Cable port for introduction of external probes or wires.
 - 50mm diameter cable port comes standard on the left side of the unit.
 - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Two type of stands for space-saving. (optional)
 - Single stand with a drawer provides enough storage space.
 - Two step stand accepts loading two units to save limited space.



✦ LCD Controller



✦ Viewing Window



✦ Stand with Caster (optional)

Temperature Chambers

Heating & Cooling Chambers (Tabletop Models)

Specifications & Ordering Information



Model		TC-KE-025	TC-KE-065	TC-KE-100
Chamber Volume (L / cu ft)		25 / 0.9	65 / 2.3	100 / 3.53
Controller		PID control (LCD Type)		
Temperature ¹⁾	Range (°C / °F)	-35 to 150 / -31 to 302		
	Fluctuation ²⁾ at 50°C (±°C / °F)	0.5 / 0.9		
	Variation ²⁾ at 50°C (±°C / °F)	1.0 / 1.8		
Time	Heating ³⁾ (min.)	60 (-35°C to 100°C)		
	Cooling ³⁾ (min.)	70 (25°C to -35°C)		
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-507A		
Cooler		Plate fin cooler (copper)		
Heater	Material	SUS sheath Heater		
Temperature Sensor		Pt 100		
Material	Internal	Stainless steel #304		
	External	Stainless steel #304, Steel with powder coating		
	Insulation	Polyurethane foam 100mm (3.94")		
	Door	Glasswool		
Air Flow		2 sets of sirocco fan		
Interface Port		Basically RS-232C, [RS-485:optional]		
Cable Port		Basically one hole provided / Ø50mm (2") Optionally max. two holes available / Ø50 or 80mm (2 or 3.2")		
Dimension (WxDxH)	Internal (mm / inch)	350×220×350 / 13.8×8.7×13.8	400×330×495 / 15.7×13×19.5	500×380×530 / 19.7×15×20.9
	External (mm / inch)	553×874×919 / 21.8×34.4×36.2	603×1037×1064 / 23.7×40.8×41.9	760×1105×1099 / 29.9×43.5×43.3
	Viewing Window (mm / inch)	220×300 / 8.7×11.8		
	Weight (kg / lbs)	110 ±10 / 242.5 ±22	140 ±10 / 308.6 ±22	150 ±10 / 330.7 ±22
Electrical Requirements	AC230V, 1ph, 60Hz	7.4A	8.8A	10.8A
		AAH86111K	AAH86121K	AAH86131K
	AC230V, 1ph, 50Hz	7.1A	8.4A	10.3A
		AAH86112K	AAH86122K	AAH86132K

1) All specifications are under ambient temperature 20°C (68°F), no load.

2) Technical data according to DIN 12880, IEC 60068.

3) Up to 98% of the set value.

* 80mm cable access hole is NOT available for 25L chamber (TC-ME-025).

* Above the dimensions are NOT included size of attached accessories.

※ Permissible environmental conditions: temperature (18 to 30°C) and relative humidity (up to 85%).

→ Recommended ambient temperature : +20°C (68°F).

Temperature Chambers

Heating & Cooling Chambers (Tabletop Models)

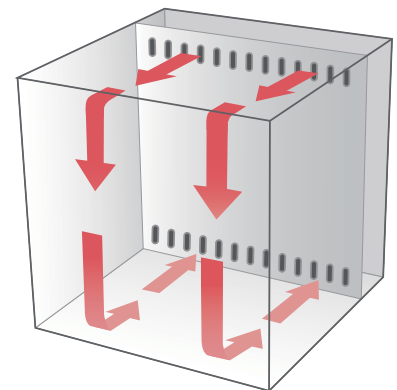
Light weight and compact design with high performance.

Built-in viewing window and operating LED indicator provide you the better convenience for the best temperature test solutions.



Control Range

Temperature Range from -20 to 120°C



TC-ME-25/65/100

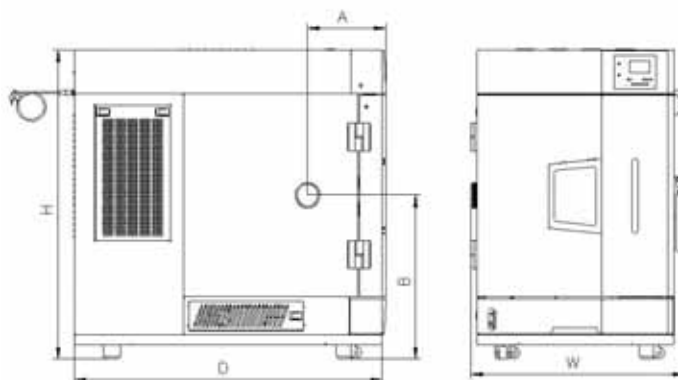
TC-ME

Included Accessories

☉ see page 120

- Viewing Window
- Wire Shelves
- Cable Port (Ø50mm)

※ Above products design can be changed without prior notice.
 ※ Inner glass door is not equipped to the unit since 2013.



Dimension

Model	TC-ME-25	TC-ME-65	TC-ME-100
Capacity	25L (0.9 cu ft)	65L (2.3 cu ft)	100L (3.53 cu ft)
W	553mm (21.8")	603mm (23.7")	760mm (29.9")
D	874mm (34.4")	1037mm (40.8")	1105mm (43.5")
H	919mm (36.2")	1064mm (41.9")	1099mm (43.3")
A	219mm (8.6")	272mm (10.7")	283mm (11.1")
B	498mm (19.6")	571mm (22.5")	583mm (22.9")

Temperature Chambers

Heating & Cooling Chambers (Tabletop Models)

TC-ME

Safety Features

- Built in door lock
- Automatic shut off after overheat alarm.
- Power supply leakage breaker.
- Over current protection.
- Overheat protection.
- Door open alarm.

Operating Features

- Microprocessor PID control / Auto-tuning / Calibration.
- User friendly LCD controller.
 - Set value and present value are clearly visible together on display.
 - Operating progression visible in graph mode allow for direct data interpretation.
 - Temperature and other operating parameters recorded with use of an optional recorder. (optional)
- Sufficient programmable control support.

Description	TC-ME
Programmable Pattern Capacity	10
Pattern Repeat Time	999
Max. Segments per a Pattern	100
Available Max. Segments*	100
Programmable Process Time per a Segment	0 to 99 hr 59 min

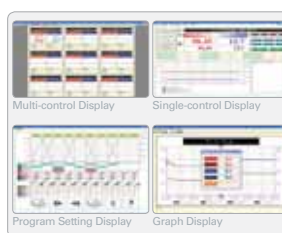
* Even though the max. segments per a pattern are 100, available total segments are up to 300 not 3000, so you need to arrange the number of segment and patterns properly.

- Computer interface.
 - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
 - Program patterns are simple to set with the use of our software.
 - Storage of program information, backup of value settings, recovery, temperature, humidity values.
 - RS-232 communication port comes standard.

Constructional Features

- Compact design and quite operation.
- Uniform temperature control guarantees reliable test result.
- Three different size models are available to suit user's need.
- Corrosion resistance stainless steel chamber.

- Air-tight door closure with perfect sealed packing.
 - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
- Operating condition is clearly noticed by the front LED indicator.
 - Three different colored lights show each status of running, stop, and power off condition.
- Clear observation of samples.
 - Tempered glass window with wire heater and lighting provides a clear view of samples in the chamber, beneficial for during testing.
- Cable port for introduction of external probes or wires.
 - 50mm diameter cable port comes standard on the left side of the unit.
 - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Two type of stands for space-saving. (optional)
 - Single stand with a drawer provides enough storage space.
 - Two step stand accepts loading two units to save limited space.



Computer Interface



LCD Controller



Stainless Steel Chamber



Viewing Window

Temperature Chambers

Heating & Cooling Chambers (Tabletop Models)

Specifications & Ordering Information



Model		TC-ME-025	TC-ME-065	TC-ME-100
Chamber Volume (L / cu ft)		25 / 0.9	65 / 2.3	100 / 3.53
Controller		Program controller (LCD type)		
Temperature	Range (°C / °F)	-20 to 120 / -4 to 248		
	Fluctuation ¹⁾ (±°C / °F) at 100°C	0.4 / 0.72	0.3 / 0.55	0.3 / 0.55
	Variation ¹⁾ (±°C / °F) at 100°C	2.0 / 3.60	1.9 / 3.42	1.8 / 3.24
Time	Heating (Min.)	55 From -15°C to 120°C (5°F to 248°F)		
	Cooling (Min.)	60 From 20°C to -15°C (68°F to 5°F) on single point control *		
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-507A		
Cooler		Plate fin cooler (cooper)		
Heater	Material	SUS sheath Heater		
Temperature Sensor		Pt 100		
Material	Interior	Stainless steel #304		
	Exterior	Stainless steel #304, Steel with powder coating		
	Insulation	Polyurethane foam 100mm [3.94"]		
	Door	Glass wool		
Air Flow		2 sets of sirocco fan		
Dimension (WxDxH)	Interior (mm / inch)	350×220×350 / 13.8×8.7×13.8	400×330×495 / 15.7×13×19.5	500×380×530 / 19.7×15×20.9
	Exterior (mm / inch)	553×874×919 / 21.8×34.4×36.2	603×1037×1064 / 23.7×40.8×41.9	760×1105×1099 / 29.9×43.5×43.3
	Viewing Window (mm / inch)	220×300 / 8.7×11.8		
	Net Weight (kg / lbs)	80±5 / 176±11	110±5 / 242±11	130±5 / 286±11
Cable Port		Basically one hole provided / Ø 50mm (2") Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")		
Interface Port		Basically RS-232C [RS-485 (Maximum 9 Units Control) - optional]		
Electrical Requirements	AC230V, 1ph, 60Hz	5.3A	6.1A	6.8A
		AAH86011K	AAH86021K	AAH86031K
	AC230V, 1ph, 50Hz	5.1A	6A	6.5A
		AAH86012K	AAH86022K	AAH86032K

1) Technical data according to DIN 12880, IEC 60068.

* 80mm cable access hole is NOT available for 25L chamber (TC-ME-025).

* Above the dimensions are NOT included size of attached accessories.

※ Permissible environmental conditions: temperature (18 to 30°C) and relative humidity (up to 85%).

※ All specifications are under ambient temperature 20°C (68°F), no load.

Temperature Chambers

Accessories & Options



Viewing Window



Recorder



Cable Port

Viewing Window

- A tempered dual window provides a clear view of samples during testing.

Cable Port

- A through hole of 50 or 80mm dia. (2.0 or 3.2" dia.) is provided on the wall of chamber to allow electrical cables to be introduced into the chamber.

Tabletop Chambers

Cat. No.	Description	TC-KE			TC-ME		
		25L	65L	100L	25L	65L	100L
AAA8T504	Portable Recorder (6 points)	•	•	•	•	•	•
AAA8T506	Portable Recorder (digital, 6 channels)	•	•	•	•	•	•
AAA8T540	Interface Converter (RS - 485 → 232) included a cable (5m / 16.4ft)	•	•	•	•	•	•
AAA8T542	Interface Cable (5m / 16.4ft)	•	•	•	•	•	•
AAA80550	Warning Signal Lamp	•	•	•	•	•	•
RTD679	Wire Shelf for TC-KE/ME-025	•	-	-	•	-	-
RTD680	Wire Shelf for TC-KE/ME-065	-	•	-	-	•	-
RTD681	Wire Shelf for TC-KE/ME-100	-	-	•	-	-	•
AAA80602-6	Perforated Shelf for TC-KE/ME-025	•	-	-	•	-	-
AAA80602-7	Perforated Shelf for TC-KE/ME-065	-	•	-	-	•	-
AAA80602-8	Perforated Shelf for TC-KE/ME-100	-	-	•	-	-	•
AAA8T612	Cable Port (Ø 50mm / 2.0") for TC-ME Models	-	-	-	•	•	•
AAA8T613	Cable Port (Ø 80mm / 3.2") for TC-ME Models	-	-	-	•	•	•
AAA8T610	Cable Port (Ø 50mm / 2.0") for TC-KE Models	•	•	•	-	-	-
AAA8T611	Cable Port (Ø 80mm / 3.2") for TC-KE Models	•	•	•	-	-	-
AAA80631	Stand for TC-KE/ME-025	•	-	-	•	-	-
AAA80632	Stand for TC-KE/ME-065	-	•	-	-	•	-
AAA80633	Stand for TC-KE/ME-100	-	-	•	-	-	•
AAA80634	Two Step Stand for TC-KE/ME-025	•	-	-	•	-	-
AAA80635	Two Step Stand for TC-KE/ME-065	-	•	-	-	•	-
CFA1910	Temperature Sensor (RTD type)	•	•	•	•	•	•

※ 80mm cable access hole is NOT available for 25L chamber.

Wire & Perforated Shelves for Tabletop Chambers

Models	Description			
	Included*	Maximum	Space	Dimension (W×L)
TC-KE/ME-025	2	7	20mm (0.8")	195×310mm (7.7×12.2")
TC-KE/ME-065	2	10	20mm (0.8")	280×360mm (11×14.2")
TC-KE/ME-100	2	10	20mm (0.8")	330×460mm (13×18.1")

* Only wire shelves are included.

Temperature Chambers

Accessories & Options



➤ Digital Recorder



➤ Perforated shelf



➤ Warning Signal Lamp

➤ Wire Shelves

- Wire shelves (shelf brackets included) are made of durable stainless steel. Standard shelves and shelf brackets come standard.

➤ Perforated Shelves

- This optional perforated shelves are rated for 40kg. It is ideal for heavy loading samples.

➤ Warning Signal Lamp

- A malfunction indicator can be placed on the right upper side.

➤ Floor Standing Chambers

Cat. No.	Description	Models						
		LBV	LTV	KBD	KMV	JMV	PBV/PMV	LCH
AAA8T505	Recorder (digital, 6 channels)	•	•	•	•	•	•	•
AAA8T540	Interface Converter (RS - 485 → 232) included a cable (5m / 16.4ft)	•	•	•	•	•	•	-
AAA80550	Warning Signal lamp	•	•	•	•	•	•	•
LTV0052	Wire Shelf for LBV/LTV/KBD/KMV/JMV/PBV/PMV-012	•	•	•	•	•	•	-
LTV0053	Wire Shelf for LBV/LTV/KBD/KMV/JMV/PBV/PMV-025	•	•	•	•	•	•	-
LTV0029	Wire Shelf for LBV/LTV/KBD/KMV/JMV/PBV/PMV-040	•	•	•	•	•	•	-
LTV0030	Wire Shelf for LBV/LTV/KBD/KMV/JMV/PBV/PMV-070	•	•	•	•	•	•	-
LTV0054	Wire Shelf for LBV/LTV/KBD/KMV/JMV/PBV/PMV-100	•	•	•	•	•	•	-
EDA8219	Wire Shelf for LCH-11 Models	-	-	-	-	-	-	•
EDA8220	Wire Shelf for LCH-21 Models	-	-	-	-	-	-	•
AAAK6531	Wire Shelf for LCH-31 Models	-	-	-	-	-	-	•
AAAK1501	Perforated Shelf (max. load 40kg) for LBV/LTV/KBD/KMV/JMV/PBV/PMV-012	•	•	•	•	•	•	-
AAAK1502	Perforated Shelf (max. load 40kg) for LBV/LTV/KBD/KMV/JMV/PBV/PMV-025	•	•	•	•	•	•	-
AAAK1503	Perforated Shelf (max. load 40kg) for LBV/LTV/KBD/KMV/JMV/PBV/PMV-040	•	•	•	•	•	•	-
AAAK1504	Perforated Shelf (max. load 40kg) for LBV/LTV/KBD/KMV/JMV/PBV/PMV-070	•	•	•	•	•	•	-
AAAK1505	Perforated Shelf (max. load 40kg) for LBV/LTV/KBD/KMV/JMV/PBV/PMV-100	•	•	•	•	•	•	-
AAA22521	Perforated Shelf for LCH-11 Models	-	-	-	-	-	-	•
AAA22522	Perforated Shelf for LCH-21 Models	-	-	-	-	-	-	•
AAAK6532	Perforated Shelf for LCH-31 Models	-	-	-	-	-	-	•

➤ Wire & Perforated Shelves for Floor Standing Chambers

Models	Description			
	Included*	Maximum	Space	Dimensions (W×L)
LBV/LTV/KBD/KMV/JMV/PBV/PMV-012	2	6	60mm (2.4")	462x470 (18.2x18.5")
LBV/LTV/KBD/KMV/JMV/PBV/PMV-025	2	9	60mm (2.4")	562x620 (22.1x22.4")
LBV/LTV/KBD/KMV/JMV/PBV/PMV-040	2	11	60mm (2.4")	712x670 (28.0x26.4")
LBV/LTV/KBD/KMV/JMV/PBV/PMV-070	2	14	60mm (2.4")	862x770 (33.9x30.3")
LBV/LTV/KBD/KMV/JMV/PBV/PMV-100	2	16	60mm (2.4")	962x880 (37.9x34.6")

* Only wire shelves are included.

※ In addition to providing standard accessories, we will manufacture customized accessories to meet your specific requirements. Contact us for details.

Temperature &

SELECTION GUIDE

Temp. & Humid. Chambers
(Floor Standing Models)

Temp. & Humid. Chambers
(Tabletop Models)

Pharmaceutical Stability
Test Chambers

Clean Temp. & Humid. Chamber

Fingerprint Development
Chamber

Plant Growth Chambers

Temperature & Humidity Chambers

Description		Operating Temp. Range ¹⁾ (°C/°F)	Operating Humid. Full Range ²⁾ (%RH)	Chamber Volume (L / cu ft)	Page
Floor Standing Chambers	TH-G Models	-35 to 150 / -31 to 302	25 to 95	189 to 1000 / 7.4 to 35.3	202
	TH-I Models		20 to 98	180 to 408 / 6.4 to 14.4	205
	TH-KH Models	-70 to 150 / -94 to 302	25 to 95	189 to 408 / 7.4 to 14.4	208
	TH-TG Models		10 to 95	180 to 419 / 6.4 to 14.8	211
Tabletop Chambers	TH-KE Models	-35 to 150 / -31 to 302	20 to 95	25 to 100 / 0.9 to 3.53	214
	TH-ME Models		20 to 95		217
	TH-PE Models	0 to 120 / 32 to 248	30 to 95		220

1) Operating temperature ranges obtained without using humidity.
2) Please, refer to the specification details in the catalog.

Specific Purpose Chambers

Description		Operating Temp. Range ¹⁾ (°C/°F)	Operating Humid. Full Range ²⁾ (%RH)	Chamber Volume (L / cu ft)	Page
Pharmaceutical Stability Test Chambers	TH-ICH ¹⁾ Models	-5 to 85 / 23 to 185	20 to 85	300, 760 / 10.6, 26.8	223
Clean Temp. & Humid. Chamber	TH-CR-270	-35 to 100 / -31 to 212	30 to 90	270 / 9.5	226
Fingerprint Development Chamber	TH-PF-100	40 to 100 / 104 to 212	50 to 95	100 / 3.53	229

1) TH-ICH Models temperature ranges obtained without using light or humidity.

Plant Growth Chambers

Description		Operating Temp. Range ¹⁾ (°C/°F)	Operating Humid. Full Range ²⁾ (%RH)	Chamber Volume (L / cu ft)	Page
Plant Growth Chambers	GC-300TL	5 to 50 / 41 to 122 - Lamp off	-	300 / 10.6	234
	GC-300TLH		40 to 90		
	GC-1000TLH	10 to 50 / 50 to 122 - Lamp on	50 to 90	1000 / 35.3	

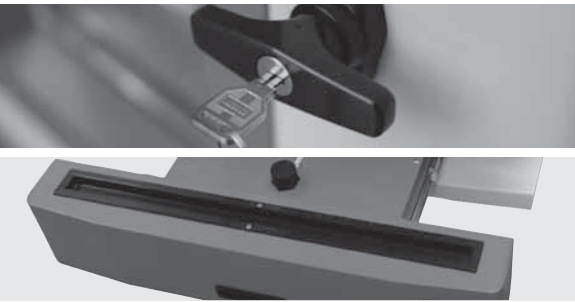
Accessories & Options

Description	Page
for Temperature & Humidity Chambers	232-233
for Specific Purpose Chambers	
for Plant Growth Chambers	237



Humidity Chambers

GENERAL APPLICATIONS



Temperature & Humidity Chambers

Test for reliability, durability, climatic, freezing resistance, quality assurance, thermal endurance etc.

- Testing for electric and electronic component, sensors.
- Testing for semiconductor, PCB, LCD & LED.
- Pharmaceutical tests.
- Mechanical / Military / Aircraft engineering.
- Automobile, Transport / automobile supply industries.
- Chemical / Petrochemical industries.
- Construction materials / Plastic / Textile industries.
- Testing mould, liquor, cigar, paintings.
- Testing metal related industries like plating etc.

Specific purpose Chambers

Clean Environmental Test Chamber

Specially designed for the process requiring environmental test in the clean condition. ISO Class 5 air cleanliness as per ISO 14644-1. (Class 100 as per US Federal Standard 209E)

Pharmaceutical Stability Test Chambers

Stability test chamber in accordance with ICH Guideline Q1A (R2) and Q1B (Option 2)

Fingerprint Development Chamber

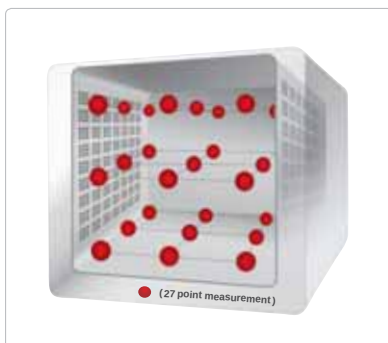
Exceptional design for Ninhydrin, DFO and other fingerprint development processes.

Plant Growth Chambers

Optimal photosynthesis condition for plant growth.

- Agriculture experiment with growth of plants.
- Growth experiment of animals and insects.
- Food preservation experiments.
- Genetic of life science researches.
- Genetic researches and pathology of plants.
- Retardation researches of seeds.
- Tissue culture of plants and germinating researches of seeds.

RELIABLE INTERNATIONAL STANDARD



Designed and tested in accordance with the international standards.

Temperature values of all chambers are measured according to IEC 60068-3-5 and DIN 12880.

Increase in reliability of accurate temperature implementation and test results. (27 point measurement data)

Temp. & Humid. Chambers

Floor Standing Chambers (TH-G)

Standard Environmental Test Chamber.
Highly interactive LCD controller, beneficial for sophisticated long-term test cycles.



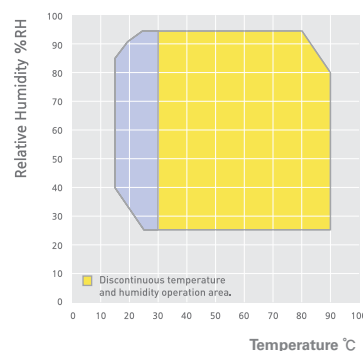
CE Certification except for TH-G-1500



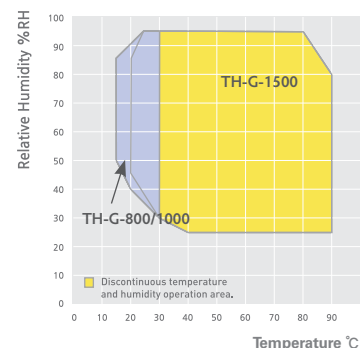
Control Range

Temperature Range from -35 to 150°C

Humidity Range from 25 to 95% RH



TH-G-180/300/408



TH-G-800/1000/1500

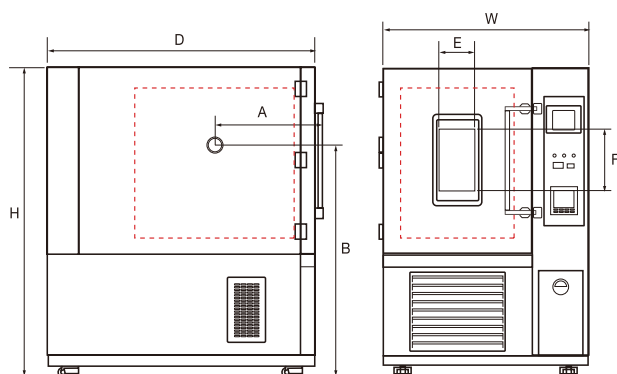
TH-G with an optional Recorder

Included Accessories

- Viewing Window
- Wire Shelves
- Cable Port (Ø50mm)
- Water Container

see page 233

※ Above products design can be changed without prior notice.



Dimension

Model	TH-G-180	TH-G-300	TH-G-408
Capacity	189L (7.4cu ft)	302L (11.9cu ft)	408L (14.4cu ft)
W	1003mm (39.5")	1103mm (43.4")	1103mm (43.4")
D	1139mm (44.8")	1139mm (44.8")	1359mm (53.5")
H	1468mm (57.8")	1668mm (65.7")	1668mm (65.7")
A	412mm (16.2")	432mm (17.0")	532mm (20.9")
B	1110mm (43.7")	1246mm (49.0")	1246mm (49.0")
Model	TH-G-800	TH-G-1000	TH-G-1500
Capacity	800L (28.3cu ft)	1000L (35.3cu ft)	1540L (54.4cu ft)
W	1503mm (59.2")	1503mm (59.2")	1603mm (63.1")
D	1319mm (51.9")	1519mm (59.8")	1960mm (77.2")
H	1968mm (77.5")	1968mm (77.5")	1950mm (76.8")
A	509mm (20.0")	609mm (23.9")	609mm (23.9")
B	1465mm (57.7")	1465mm (57.7")	1350mm (53.1")

Temp. & Humid. Chambers

Floor Standing Chambers (TH-G)

TH-G

► Safety Features

- Built in door lock
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Overheat protection.
- Door open alarm.

► Constructional Features

- Spacious chamber volume with a maximum capacity of 1500L.
 - Various volume sizes, available to suit any users' need.
- Advanced performance of low and high temperature and humidity control, achieved by adapting the humidification tank exterior to the chamber, added benefit for long term test.
- Water recycling and purifying system reduce water consumption for longer operation.
- Corrosion resistance stainless steel chamber and electric polished humidification tank.
- Air-tight door closure with perfect sealed packing.
 - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
 - Two-point door latch also enhances tightness to door closure.
- Energy efficiency is achieved by optimization of the insulation system.
 - Even if the unit is operating at max. temperature, the surface of the unit doesn't allow high temperatures of over 60°C.
- Maintenance of water supply are easily performed with a front water tank.
 - Portable water container makes supplying water convenient.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Clear observation of samples.
 - Tempered glass door with built in wire heater.
 - Energy efficient, long life span LED lighting.
 - Wider view, inner glass door is available for monitoring of samples. (optional)
- Cable port for introduction of external probes or wires.
 - 50mm diameter cable port comes standard on the left side of the unit.
 - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Casters for easy mobility during installation or relocation.

► Operating Features

- Microprocessor PID control / Auto-tuning / Calibration.
- 5.7 inch colorful interactive touch type LCD controller.
- Set value and present value are clearly visible together on display.
- Operating progression visible in graph mode allow for direct data interpretation.
- Built-in SD card drive.
- Tri-lingual language support. (English / Chinese / Korean)
- Temperature and other operating parameters recorded with use of an optional recorder. (optional)
- Sufficient programmable control support.

Description	TH-G
Programmable Pattern Capacity	120
Pattern Repeat Time	999
Max. Segments per a Pattern	100
Available Max. Segments*	1200
Programmable Process Time per a Segment	0 to 999hr 59 min 59 sec

* Even though the max. segments per a pattern are 100, available total segments are up to 1200 not 12000, so you need to arrange the number of segment an patterns properly.

- Computer interface.
 - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
 - Program patterns are simple to set with the use of our software.
 - Storage of program information, backup of value settings, recovery, temperature, humidity values.
 - RS-232 communication port comes standard.



Color LCD Controller



Computer Interface



Door Handle



Portable Water Container

Temp. & Humid. Chambers

Floor Standing Chambers (TH-G)

Specifications & Ordering Information



CE Certification except for TH-G-1500

Model		TH-G-180	TH-G-300	TH-G-408	TH-G-800	TH-G-1000	TH-G-1500
Chamber Volume (L / cu ft)		189 / 7.4	302 / 11.9	408 / 14.4	800 / 28.3	1000 / 35.3	1540 / 54.4
Control System		BDBC2 system - Balanced Dehumidifying & Bath Cooling control					
Controller		Programmable, Touch screen type controller (5.7" Color monitor)					
Temperature	Range (°C / °F)	-35 to 150 / -31 to 302 without humidity, 15 to 90 / 59 to 194 with humidity * Best programmable control range : -30 to 140 / -22 to 284					
	Fluctuation ¹⁾ (±°C / °F) at 40°C / 75%RH	0.3 / 0.54					
	Variation ¹⁾ (±°C / °F) at 40°C / 75%RH	0.5 / 0.9					
Time	Heating - without Humidity (Min.)	70 From -35°C to 120°C (-31°F to 248°F)			70 From -35°C to 120°C (-31°F to 248°F)		90 From -35°C to 120°C (-31°F to 248°F)
	Cooling - without Humidity (Min.)	60 From 20°C to -35°C (68°F to -31°F)			75 From 20°C to -35°C (68°F to -31°F)		90 From 20°C to -35°C (68°F to -31°F)
Humidity	Range (%RH)	Full Range: 25 to 95			Full Range: 25 to 95		Full Range: 25 to 95
		40 to 85 at 15°C (59°F) 25 to 95 at 25°C to 80°C (77°F to 176°F) 25 to 80 at 90°C (194°F)			50 to 85 at 15°C (59°F) 40 to 90 at 20°C (68°F) 30 to 95 at 30°C (86°F) 25 to 95 at 40°C to 80°C (104°F to 176°F) 25 to 80 at 90°C (194°F)		45 to 90 at 20°C (68°F) 30 to 95 at 30°C (86°F) 25 to 95 at 40°C to 80°C (104°F to 176°F) 25 to 80 at 90°C (194°F)
	Fluctuation ¹⁾ (±%RH) at 75%RH / 40°C	0.4			1.0		2.0
	Variation ¹⁾ (±%RH) at 75%RH / 40°C	3					
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)			Mechanical dual stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-507					
Cooler		AL Plate fin cooler					
Heater	Material	SUS sheath Heater					
Sensor	Temperature	Pt 100					
	Humidity	Electronic sensor - Free of drying a wet pack and good reaction time					
Material	Interior	Stainless steel #304					
	Exterior	Stainless steel #304, Steel with powder coating					
	Insulation	Polyurethane foam 100mm (3.94")					
	Door	Glass wool					
Air Flow		2 sets of sirocco fan					
Water Supply	Capacity	15L (0.53cu ft) - Cartridge type					
	Water Quality	pH6.2 to 7.2 / Electrical conductivity 20μs/cm to below					
Quantity of Wire Shelves (included / max.)		2 / 9	2 / 10	2 / 10	2 / 14	2 / 14	2 / 16
Distance of between Shelves (mm / inch)		60 / 2.4	60 / 2.4	60 / 2.4	60 / 2.4	60 / 2.4	40 / 1.6
Dimension (WxDxH)	Interior (mm / inch)	500×630×600 / 19.7×24.8×23.6	600×630×800 / 23.6×24.8×31.5	600×850×800 / 23.6×33.5×31.5	1000×800×1000 / 39.4×31.5×39.4	1000×1000×1000 / 39.4×39.4×39.4	1100×1000×1400 / 43.3×39.4×55.1
	Exterior (mm / inch)	1003×1139×1468 / 39.5×44.8×57.8	1103×1139×1668 / 43.4×44.8×65.7	1103×1359×1668 / 43.4×53.5×65.7	1503×1319×1968 / 59.2×51.9×77.5	1503×1519×1968 / 59.2×59.8×77.5	1603×1960×1950 / 63.1×77.2×76.8
	Viewing Windows (mm / inch)	200×330 / 7.9×13			270×330 / 10.6×13		
	Net Weight (kg / lbs)	320 / 705.5	385 / 848.8	410 / 903.9	620 / 1366.9	680 / 1499.1	860 / 1895.9
Cable Port		Basically one hole provided / Ø50mm (2") - Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")					
Interface Port		Basically RS-232C [RS-485-optional]					
Electrical Requirements (230V, 60Hz)		1ph / 26.3A	1ph / 26.7A		1ph / 35.5A		
Cat. No.		AAH80011K	AAH80021K	AAH80031K	AAH80041K	AAH80051K	-
Electrical Requirements (230V, 50Hz)		3ph / 15.3A	3ph / 15.6A		3ph / 20.6A		3ph / 26.3A
Cat. No.		AAH80012K	AAH80022K	AAH80032K	AAH80042K	AAH80052K	AAH80072K
Electrical Requirements (380V, 50Hz)		3ph / 9.1A	3ph / 9.2A		3ph / 12.2A		3ph / 15.5A
Cat. No.		AAH80018K	AAH80028K	AAH80038K	AAH80048K	AAH80058K	AAH80078K

1) Technical data according to DIN 12880, IEC 60068.

* Permissible environmental conditions: temperature (18 to 30°C) and relative humidity (up to 85%).

* All specifications are under ambient temperature 20°C (68°F), No load

Temp. & Humid. Chambers

Floor Standing Chambers (TH-I)

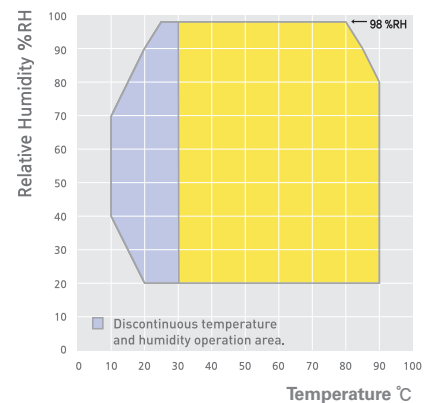
Great low temperature and humidity control performance.



Control Range

Temperature Range from -35 to 150°C

Humidity Range from 20 to 98% RH



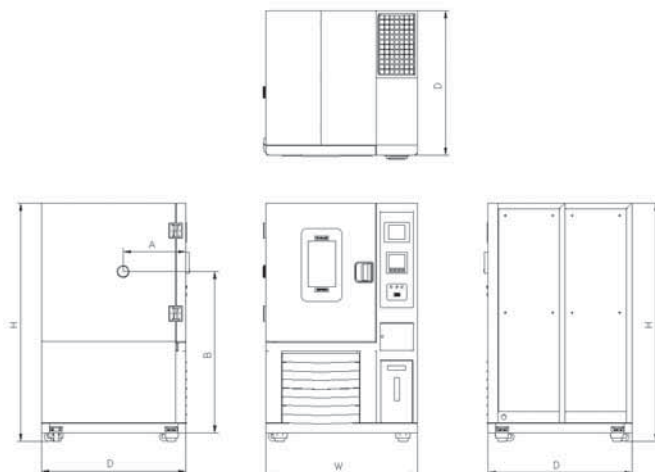
TH-I-180/300/408

TH-I with an optional Recorder

Included Accessories

- Viewing Window
- Wire Shelves
- Cable Port (Ø50mm)
- Water Container

see page 233



Dimension

Model	TH-I-180	TH-I-300	TH-I-408
Capacity	180L (6.4cu ft)	300L (10.6cu ft)	408L (14.4cu ft)
W	1025mm (40.4")	1120mm (44.1")	1120mm (44.1")
D	1035mm (40.7")	1070mm (42.1")	1240mm (48.8")
H	1530mm (60.2")	1730mm (68.1")	1730mm (68.1")
A	450mm (17.7")	450mm (17.7")	520mm (20.5")
B	1230mm (48.4")	1230mm (48.4")	1230mm (48.4")

Temp. & Humid. Chambers

Floor Standing Chambers (TH-I)

TH-I

► Safety Features

- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Overheat protection.
- Door open alarm.

► Constructional Features

- Three different volume sizes are available to suit any users' needs.
- Advanced performance of low temperature and humidity control is achieved by adapting the humidification tank interior to the chamber.
- Corrosion resistance stainless steel chamber.
- Air-tight door closure with perfect sealed packing.
 - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
- Maintenance of water supply are easily performed with a front water tank.
 - Water level check indicated by water level bar in the tank.
 - Portable water container makes supplying water convenient.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term test. (optional)
- Clear observation of samples.
 - Tempered glass window with wire heater and lighting provides a clear view of samples in the chamber, beneficial for during testing.
 - Wider view, inner glass door is available for monitoring of samples. (optional)
- Exhaust duct is located at the upper right side of the unit to avoid influence other devices.
- Detachable condenser air-filter for easy maintenance of refrigerating efficiency.
 - Maintenance of air filter no longer cumbersome with our detachable condenser air filter.
- Cable port for introduction of external probes or wires.
 - 50mm diameter cable port comes standard on the left side of the unit.
 - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Casters for easy mobility during installation or relocation.

► Operating Features

- Microprocessor PID control / Auto-tuning / Calibration.
- 5.7 inch colorful interactive touch type LCD controller.
- Set value and present value are clearly visible together on display.
- Operating progression visible in graph mode allow for direct data interpretation.
- Temperature and other operating parameters recorded with use of an optional recorder. (optional)
- Sufficient programmable control support.

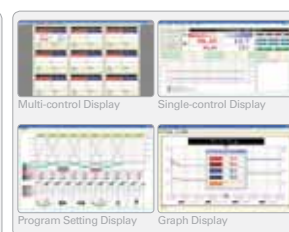
Description	TH- I
Programmable Pattern Capacity	120
Pattern Repeat Time	999
Max. Segments per a Pattern	100
Available Max. Segments*	1200
Programmable Process Time per a Segment	0 to 999hr 59 min 59 sec

* Even though the max. segments per a pattern are 100, available total segments are up to 1200 not 12000, so you need to arrange the number of segment an patterns properly.

- Computer interface.
 - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
 - Program patterns are simple to set with the use of our software.
 - Storage of program information, backup of value settings, recovery, temperature, humidity values.
 - RS-232 communication port comes standard.



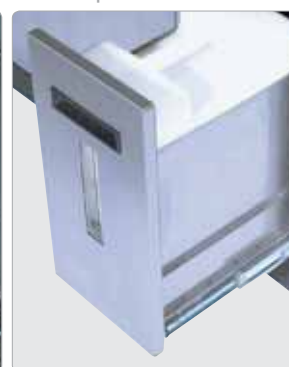
Color LCD Controller



Computer Interface



Door Handle



Portable Water Container

Temp. & Humid. Chambers

Floor Standing Chambers (TH-I)

Specifications & Ordering Information



Model		TH-I-180	TH-I-300	TH-I-408
Chamber Volume (L / cu ft)		180 / 6.4	300 / 10.6	408 / 14.4
Control System		BDHC2 system - Balanced Dehumidifying & Bath Cooling control		
Controller		Programmable, Touch screen type controller (5.7" Color monitor)		
Temperature	Range (°C / °F)	-35 to 150 / -31 to 302 without humidity, 15 to 90 / 59 to 194 with humidity * Best programmable control range : -30 to 140 / -22 to 284		
	Fluctuation ¹⁾ (±°C / °F) at 55°C / 60%RH	0.1 / 0.18	0.2 / 0.36	0.2 / 0.36
	Variation ¹⁾ (±°C / °F) at 55°C / 60%	0.6 / 1.08	0.5 / 0.9	0.5 / 0.9
Time	Heating - without Humidity (Min.)	50 From -35°C to 120°C (-31°F to 248°F)		
	Cooling - without Humidity (Min.)	60 From 20°C to -35°C (68°F to -31°F) on single point control *		
Humidity	Range (%RH)	Full Range: 20 to 98 40 to 70 at 10°C (50°F) 20 to 90 at 20°C (68°F) 20 to 98 at 25 to 80°C (77°F to 176°F) 20 to 80 at 90°C (194°F)		
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-404A		
Cooler		Plate fin cooler		
Heater		Ni-Cr Wire Heater / SUS sheath Heater		
Sensor	Temperature	Pt 100		
	Humidity	Electronic sensor - Free of drying a wet pack and good reaction time		
Material	Interior	Stainless steel #304		
	Exterior	Stainless steel #304, Steel with powder coating		
	Insulation	Polyurethane foam 100mm (3.94")		
	Door	Glass wool		
Air Flow		Tangent blower		
Water Supply	Capacity	15L (0.53cu ft) - Cartridge type		
	Water Quality	pH6.2 to 7.2 / Electrical conductivity 20µS /cm to below		
Quantity of Wire Shelves (included / max.)		2 / 9	2 / 10	2 / 10
Distance of between Shelves (mm / inch)		60 / 2.4	60 / 2.4	60 / 2.4
Dimension (WxDxH)	Interior (mm / inch)	500×630×600 / 19.7×24.8×23.6	600×630×800 / 23.6×24.8×31.5	600×850×800 / 23.6×33.5×31.5
	Exterior (mm / inch)	1025×1035×1530 / 40.4×40.7×60.2	1120×1070×1730 / 44.1×42.1×68.1	1120×1240×1730 / 44.1×44.8×68.1
	Viewing Windows (mm / inch)	200×330 / 7.9×13		
	Net Weight (kg / lbs)	310±10 / 683.4±22	375±10 / 826.7±22	400±10 / 881.8±22
Cable Port		Basically one hole provided / Ø50mm (2") Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")		
Interface Port		Basically RS-232C [RS-485-optional]		
Electrical Requirements (230V, 60Hz)		1ph / 23A		
Cat. No.		AAH80111K	AAH80121K	AAH80131K
Electrical Requirements (230V, 50Hz)		1ph / 23A		
Cat. No.		AAH80112K	AAH80122K	AAH80132K
Electrical Requirements (380V, 50Hz)		3ph / 7.7A		
Cat. No.		AAH80118K	AAH80128K	AAH80138K

1) Technical data according to DIN 12880, IEC 60068.

※ Permissible environmental conditions: temperature (18 to 30°C) and relative humidity (up to 85%).

※ All specifications are under ambient Temperature 20°C (68°F), No Load.

Temp. & Humid. Chambers

Floor Standing Chambers (TH-KH)

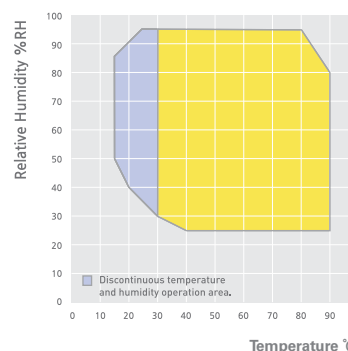
Wide temperature range down to -70°C and high advanced safety features for quality and reliability.



Control Range

Temperature Range from -70 to 150°C

Humidity Range from 25 to 95% RH



TH-KH-180/300/408

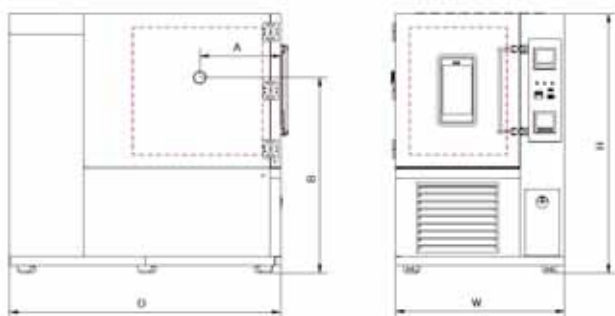
TH-KH with an optional Recorder

Included Accessories

see page 233

- Viewing Window
- Wire Shelves
- Cable Port ($\varnothing 50\text{mm}$)
- Water Container

※ Above products design can be changed without prior notice.



Dimension

Model	TH-KH-180	TH-KH-300	TH-KH-408
Capacity	189L (7.4cu ft)	302L (11.9cu ft)	408L (14.4cu ft)
W	1043mm (41.1")	1143mm (45.0")	1143mm (45.0")
D	1613mm (63.5")	1833mm (72.2")	2053mm (80.8")
H	1558mm (61.3")	1758mm (69.2")	1758mm (69.2")
A	550mm (21.7")	570mm (22.4")	670mm (26.4")
B	1225mm (48.2")	1325mm (52.2")	1325mm (52.2")

Temp. & Humid. Chambers

Floor Standing Chambers (TH-KH)

TH-KH

► Safety Features

- Built in door lock
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Overheat protection.
- Door open alarm.

► Constructional Features

- Three different volume sizes are available to suit any users' needs.
 - Various volume sizes, available to suit any users' need.
- Advanced performance of low and high temperature and humidity control, achieved by adapting the humidification tank exterior to the chamber, added benefit for long term test.
- Water recycling and purifying system reduce water consumption for longer operation.
- Corrosion resistance stainless steel chamber and electric polished humidification tank.
- Air-tight door closure with perfect sealed packing.
 - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
 - Two-point door latch also enhances tightness to door closure.
- Energy efficiency is achieved by optimization of the insulation system.
 - Even if the unit is operating at max. temperature, the surface of the unit doesn't allow high temperatures of over 60°C.
- Maintenance of water supply are easily performed with a front water tank.
 - Portable water container makes supplying water convenient.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Clear observation of samples.
 - Tempered glass door with built in wire heater.
 - Energy efficient, long life span LED lighting.
 - Wider view, inner glass door is available for monitoring of samples. (optional)
- Cable port for introduction of external probes or wires.
 - 50mm diameter cable port comes standard on the left side of the unit.
 - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Casters for easy mobility during installation or relocation.

► Operating Features

- Microprocessor PID control / Auto-tuning / Calibration.
- 5.7 inch colorful interactive touch type LCD controller.
- Set value and present value are clearly visible together on display.
- Operating progression visible in graph mode allow for direct data interpretation.
- Built-in SD card drive.
- Tri-lingual language support. (English / Chinese / Korean)
- Temperature and other operating parameters recorded with use of an optional recorder. (optional)
- Sufficient programmable control support.

Description	TH-KH
Programmable Pattern Capacity	120
Pattern Repeat Time	999
Max. Segments per a Pattern	100
Available Max. Segments*	1200
Programmable Process Time per a Segment	0 to 999hr 59 min 59 sec

* Even though the max. segments per a pattern are 100, available total segments are up to 1200 not 12000, so you need to arrange the number of segment an patterns properly.

- Computer interface.
 - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
 - Program patterns are simple to set with the use of our software.
 - Storage of program information, backup of value settings, recovery, temperature, humidity values.
 - RS-232 communication port comes standard.



Color LCD Controller



Computer Interface



Door Handle



Portable Water Container

Temp. & Humid. Chambers

Floor Standing Chambers (TH-KH)

TH-KH



Specifications & Ordering Information

Model		TH-KH-180	TH-KH-300	TH-KH-408
Chamber Volume (L / cu ft)		189 / 7.4	302 / 11.9	408 / 14.4
Control System		BDBC2 system - Balanced Dehumidifying & Bath Cooling control		
Controller		Programmable, Touch screen type controller (5.7" Color monitor)		
Temperature	Range (°C / °F)	-70 to 150 / -94 to 302 without humidity, 15 to 90 / 59 to 194 with humidity * Best programmable control range : -60 to 140 / -76 to 284		
	Fluctuation ¹⁾ (±°C / °F) at 40°C / 75%RH	0.3 / 0.54		
	Variation ¹⁾ (±°C / °F) at 40°C / 75%RH	0.5 / 0.90		
Time	Heating - without Humidity (Min.)	70 From -70°C to 120°C (-96°F to 248°F)		
	Cooling - without Humidity (Min.)	80 From 20°C to -70°C (68°F to -96°F)		
Humidity	Range (%RH)	Full Range: 25 to 95		
		50 to 85 at 15°C (59°F) 40 to 90 at 20°C (68°F) 30 to 95 at 30°C (86°F) 25 to 95 at 40 to 80°C (104°F to 176°F) 25 to 80 at 90°C (194°F)		
		Fluctuation ¹⁾ (±%RH) at 75%RH / 40°C		
		0.4		
Refrigeration	System	Mechanical dual stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-507, R-23		
Cooler		AL Plate fin cooler		
Heater	Material	SUS sheath Heater		
Sensor	Temperature	Pt 100		
	Humidity	Electronic sensor - Free of drying a wet pack and good reaction time		
Material	Interior	Stainless steel #304		
	Exterior	Stainless steel #304, Steel with powder coating		
	Insulation	Polyurethane foam 120mm (4.7"), 100mm (3.94")		
	Door	Glass wool		
Air Flow		2 sets of sirocco fan		
Water Supply	Capacity	15L (0.53cu ft) - Cartridge type		
	Water Quality	pH6.2 to 7.2 / Electrical conductivity 20µS/cm to below		
Quantity of Wire Shelves (included / max.)		2 / 9	2 / 10	2 / 10
Distance of between Shelves (mm / inch)		60 / 2.4		
Dimension (WxDxH)	Interior (mm / inch)	500×630×600 / 19.7×24.8×23.6	600×630×800 / 23.6×24.8×31.5	600×850×800 / 23.6×33.5×31.5
	Exterior (mm / inch)	1043×1613×1558 / 41.1×63.5×61.3	1143×1833×1758 / 45.0×72.2×69.2	1143×2053×1758 / 45.0×80.8×69.2
	Viewing Windows (mm / inch)	200×330 / 7.9×13		
	Net Weight (kg / lbs)	320 / 705.5	385 / 848.8	410 / 903.9
Cable Port		Basically one hole provided / Ø50mm (2") - Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")		
Interface Port		Basically RS-232C [RS-485-optional]		
Electrical Requirements (230V, 50Hz)		3ph / 17.2A	3ph / 17.3A	
Cat. No.		AAHC3012K	AAHC3112K	AAHC3212K
Electrical Requirements (380V, 50Hz)		3ph / 10.1A	3ph / 10.2A	
Cat. No.		AAHC3014K	AAHC3114K	AAHC3214K

1) Technical data according to DIN 12880, IEC 60668.

※ Permissible environmental conditions: temperature (18 to 30°C) and relative humidity (up to 85%).

※ All specifications are under ambient temperature 20°C (68°F), No load.

Temp. & Humid. Chambers

Floor Standing Chambers (TH-TG)

Economy Environmental Test Chamber.

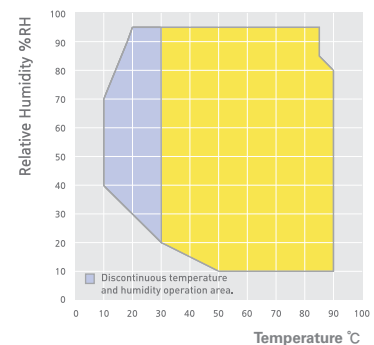
Stability Test in accordance with ICH Guidelines Q1A (R2)



Control Range

Temperature Range from -5 to 100°C

Humidity Range from 10 to 95% RH

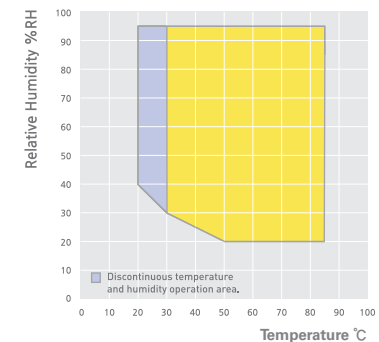


TH-TG-180/300/408

Control Range

Temperature Range from -5 to 100°C

Humidity Range from 20 to 95% RH



TH-TG-800/1000/1500

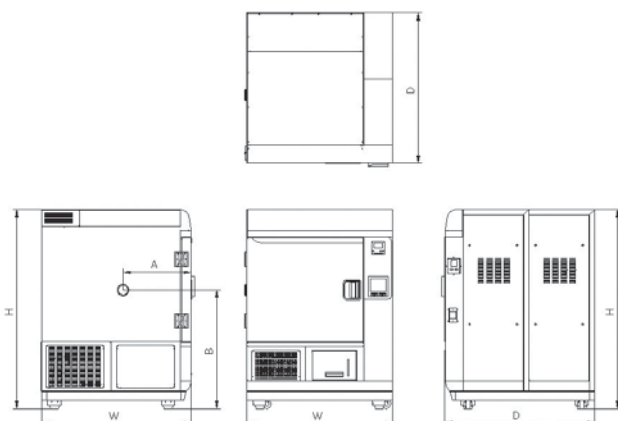
TH-TG with an optional Recorder

Included Accessories

- Viewing Window
- Wire Shelves
- Cable Port (Ø50mm)
- Water Container

☞ see page 233

※ Above products design can be changed without prior notice.



Dimension

Model	TH-TG-180	TH-TG-300	TH-TG-408
Capacity	180L (6.4 cu ft)	314L (11.1 cu ft)	419L (14.8 cu ft)
W	950mm (37.4")	1200mm (47.2")	1200mm (47.2")
D	907mm (35.7")	863mm (33.9")	1063mm (41.9")
H	1484mm (58.4")	1524mm (60.0")	1524mm (59.2")
A	321mm (12.6")	295mm (11.6")	421mm (16.6")
B	985mm (38.8")	1015mm (39.9")	995mm (39.2")
Model	TH-TG-800	TH-TG-1000	TH-TG-1500
Capacity	770L (27.2 cu ft)	997L (35.2 cu ft)	1540L (54.4 cu ft)
W	1200mm (47.2")	1200mm (47.2")	1554mm (61.2")
D	1230mm (48.4")	1500mm (59.1")	1876mm (73.9")
H	1973mm (77.7")	1973mm (77.7")	1935mm (76.2")
A	385mm (15.2")	475mm (18.7")	478mm (18.8")
B	1315mm (51.8")	1315mm (51.8")	1354mm (53.3")

Temp. & Humid. Chambers

Floor Standing Chambers (TH-TG)

TH-TG

► Safety Features

- Built in door lock
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Overheat protection.
- Door open alarm.

► Constructional Features

- Spacious chamber volume with a maximum capacity of 1500L.
 - Various volume sizes, available to suit any users' need.
- Advanced performance of low and high temperature and humidity control, achieved by adapting the humidification tank exterior to the chamber, added benefit for long term test.
- Water recycling and purifying system reduce water consumption for longer operation.
- Corrosion resistance stainless steel chamber and electric polished humidification tank.
- Air-tight door closure with perfect sealed packing.
 - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
 - Two-point door latch also enhances tightness to door closure.
- Energy efficiency is achieved by optimization of the insulation system.
 - Even if the unit is operating at max. temperature, the surface of the unit doesn't allow high temperatures of over 60°C.
- Maintenance of water supply are easily performed with a front water tank.
 - Portable water container makes supplying water convenient.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Clear observation of samples.
 - Tempered glass door with built in wire heater.
 - Energy efficient, long life span LED lighting.
 - Wider view, inner glass door is available for monitoring of samples. (optional)
- Cable port for introduction of external probes or wires.
 - 50mm diameter cable port comes standard on the left side of the unit.
 - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Casters for easy mobility during installation or relocation.

► Operating Features

- Microprocessor PID control / Auto-tuning / Calibration.
- User friendly LCD controller.
 - Set value and present value are clearly visible together on display.
 - Operating progression visible in graph mode allow for direct data interpretation.
 - Temperature and other operating parameters recorded with use of an optional recorder. (optional)
- Sufficient programmable control support.

Description	TH-TG
Programmable Pattern Capacity	10
Pattern Repeat Time	999
Max. Segments per a Pattern	100
Available Max. Segments*	100
Programmable Process Time per a Segment	0 to 99 hr 59 min

* Even though the max. segments per a pattern are 100, available total segments are up to 300 not 3000, so you need to arrange the number of segment and patterns properly.

- Computer interface.
 - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
 - Program patterns are simple to set with the use of our software.
 - Storage of program information, backup of value settings, recovery, temperature, humidity values.
 - RS-232 communication port comes standard.



✦ LCD Controller



✦ Control Panel



✦ Viewing Window



✦ Portable Water Container

Temp. & Humid. Chambers

Floor Standing Chambers (TH-TG)

Specifications & Ordering Information



Model			TH-TG-180	TH-TG-300	TH-TG-408	TH-TG-800	TH-TG-1000	TH-TG-1500
Chamber Volume (L / cu ft)			180 / 6.4	314 / 11.1	419 / 14.8	770 / 27.2	997 / 35.2	1540 / 54.4
Controller			PID control (LCD Type)					
Temperature ¹⁾	Range	without Humidity (°C / °F)	-5 to 100 / 23 to 212					
		with Humidity (°C / °F)	10 to 90 / 50 to 194			20 to 90 / 68 to 194		
	Fluctuation ¹⁾ (±°C / °F) at 40°C / 60%RH		0.3 / 0.55					
	Variation ¹⁾ (±°C / °F) at 40°C / 60%RH		0.5 / 0.9					
Humidity	Range (%RH)	Full Range: 10 to 95			Full Range: 20 to 95			
		40 to 70 at 10°C (50°F) 30 to 95 at 20°C (68°F) 20 to 95 at 30°C (86°F) 10 to 95 at 50 to 85°C (122°F to 185°F) 10 to 80 at 90°C (194°F)			40 to 95 at 20°C (59°F) 30 to 95 at 30°C (86°F) 20 to 95 at 50°C to 85°C (122°F to 185°F)			
		Fluctuation ²⁾ (±%RH) at 60%RH / 40°C			2			
		Variation ²⁾ (±%RH) at 60%RH / 40°C			3			
Time		Heating ³⁾	50min (-5°C → 100°C)			55min (-5°C → 100°C)		
	Cooling ³⁾	120min (100°C → -5°C)			145min (100°C → -5°C)			
Refrigeration	System	Air-cooled						
	Refrigerant	R-507A						
	Capacity (W)	250	375				750	
Cooler			AL plate fin cooler					
Heater	Material	SUS sheath Heater						
	Drying Bulb (W)	700 x 2	900 x 2			1000 x 2		1500 x 2
	Humidity Bulb (W)	600 x 2					600 x 3	
Sensor	Temperature	Pt 100						
	Humidity	Electronic sensor (Free of drying a wet pack and good response time)						
Air Flow			2 sets of sirocco fan					
Material	Internal	Stainless steel #304						
	External	Stainless steel #304, Steel with powder coating						
	Insulation	Polyurethane foam (70mm / 2.76")						
	Door	Glasswool						
Water Tank	Capacity (L / cu ft)	15 / 0.53					30 / 1.1	
	Water Quality	pH6.2 ~ 7.2, Electrical conductivity 20μS / cm to below						
Interface Port			Basically RS-232C, [RS-485 : optional]					
Cable Port			Basically one hole provided / Ø 50mm (2"), Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")					
Quantity of Wire Shelves (included / max.)			2 / 7	2 / 8	2 / 8	2 / 17	2 / 17	2 / 17
Distance of between Shelves (mm / inch)			60 / 2.4	60 / 2.4	60 / 2.4	60 / 2.4	60 / 2.4	60 / 2.4
Dimension (WxDxH)	Viewing Window (mm / inch)	200×330 / 7.9×13						
	Internal (mm / inch)	500×600×600 / 19.7×23.6×23.6	748×600×700 / 29.4×23.6×27.6	748×800×700 / 29.4×31.5×27.6	748×920×1120 / 29.4×36.2×44.1	748×1190×1120 / 29.4×46.9×44.1	1100×1000×1400 / 43.3×39.4×55.1	
	External (mm / inch)	950×907×1484 / 37.4×35.7×58.4	1200×863×1524 / 47.2×34×60	1200×1063×1524 / 47.2×41.9×60.0	1200×1230×1973 / 47.2×48.4×77.7	1200×1500 ×1973 / 47.2×59.1×77.7	1554×1876×1935 / 61.2×73.9×76.2	
Net Weight (kg / lbs)			220±10 / 485±22	250±10 / 551±22	280±10 / 617±22	360±10 / 794±22	410±10 / 904±22	480±10 / 1058±22
Electrical Requirements	AC230V, 1ph, 60Hz	12.3 A	14.5 A	14.5 A	15.4 A	15.4 A	25.0A	
	Cat.No.	AAHC2001K	AAHC2011K	AAHC2021K	AAHC2031K	AAHC2041K	AAHC2051K	
	AC230V, 1ph, 50Hz	14.8A	17.4A	17.4A	18.5A	18.5A	30.0A	
	Cat.No.	AAHC2002K	AAHC2012K	AAHC2022K	AAHC2032K	AAHC2042K	AAHC2052K	

1) All specifications are under ambient temperature 20°C (68°F), No load.

2) Technical data according to DIN 12880, IEC 60068.

3) Up to 98% of the set value.

Temp. & Humid. Chambers

Tabletop Chambers (TH-KE)

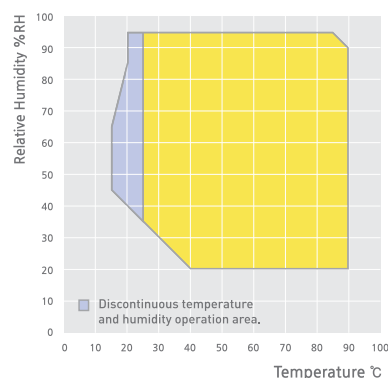
Various environmental tests can be performed due to wide temperature and humidity control range.



Control Range

Temperature Range from -35 to 150°C

Humidity Range from 20 to 95% RH



TH-KE-25/65/100

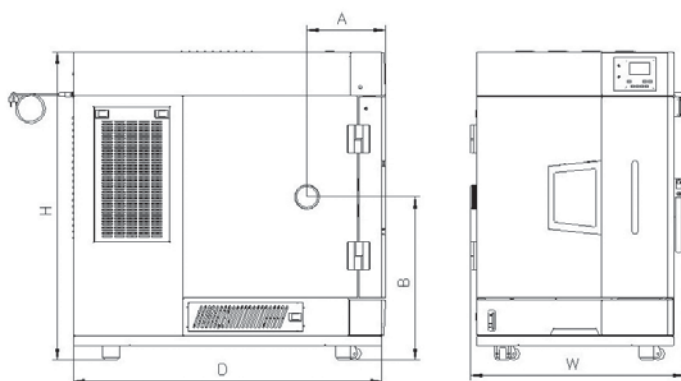
TH-KE

Included Accessories

- Viewing Window
- Wire Shelves
- Cable Port (Ø50mm)

☞ see page 232

- ※ Above products design can be changed without prior notice.
- ※ Inner glass door is not equipped to the unit since 2013.



Dimension

Model	TH-KE-25	TH-KE-65	TH-KE-100
Capacity	25L (0.9 cu ft)	65L (2.3 cu ft)	100L (3.53 cu ft)
W	553mm (21.8")	603mm (23.7")	760mm (29.9")
D	874mm (34.4")	1037mm (40.8")	1105mm (43.5")
H	919mm (36.2")	1064mm (41.9")	1099mm (43.3")
A	219mm (8.6")	272mm (10.7")	283mm (11.1")
B	498mm (19.6")	571mm (22.5")	583mm (22.9")

Temp. & Humid. Chambers

Tabletop Chambers (TH-KE)

TH-KE

Safety Features

- Built in door lock
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Overheat protection.
- Door open alarm.

Operating Features

- Microprocessor PID control / Auto-tuning / Calibration.
- User friendly LCD controller.
 - Set value and present value are clearly visible together on display.
 - Operating progression visible in graph mode allow for direct data interpretation.
 - Temperature and other operating parameters recorded with use of an optional recorder. (optional)
- Sufficient programmable control support.

Description	TH-KE
Programmable Pattern Capacity	10
Pattern Repeat Time	999
Max. Segments per a Pattern	100
Available Max. Segments*	100
Programmable Process Time per a Segment	0 to 99 hr 59 min

* Even though the max. segments per a pattern are 100, available total segments are up to 300 not 3000, so you need to arrange the number of segment and patterns properly.

- Computer interface.
 - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
 - Program patterns are simple to set with the use of our software.
 - Storage of program information, backup of value settings, recovery, temperature, humidity values.
 - RS-232 communication port comes standard.

Constructional Features

- Compact design and quite operation.
- Uniform temperature and humidity control guarantees reliable test result.
- Three different size models are available to suit user's need.
- Corrosion resistance stainless steel chamber.
- Air-tight door closure with perfect sealed packing.
 - Heat-resistant silicone packing completely blocks high heat

leakage from the inner chamber.

- Maintenance of water supply are easily performed with a front water tank.
 - Water level check indicated by water level bar in the tank.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Operating condition is clearly noticed by the front LED indicator.
 - Three different colored lights show each status of running, stop, and power off condition.
- Clear observation of samples.
 - Tempered glass window with wire heater and lighting provides a clear view of samples in the chamber, beneficial for during testing.
- Cable port for introduction of external probes or wires.
 - 50mm diameter cable port comes standard on the left side of the unit.
 - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Two type of stands for space-saving. (optional)
 - Single stand with a drawer provides enough storage space.
 - Two step stand accepts loading two units to save limited space.



LCD Controller



Viewing Window



Stand with Caster (optional)

Temp. & Humid. Chambers

Tabletop Chambers (TH-KE)

Specifications & Ordering Information



Model		TH-KE-025	TH-KE-065	TH-KE-100
Chamber Volume (L / cu ft)		25 / 0.9	65 / 2.3	100 / 3.5
Controller		Program controller (LCD type)		
Temperature ¹⁾	Range (°C / °F)	-35 to 150 / -31 to 302 without humidity 15 to 90 / 59 to 194 with humidity		
	Fluctuation ²⁾ (±°C / °F) at 50°C / 60%RH	0.4 / 0.72	0.4 / 0.72	0.3 / 0.54
	Variation ²⁾ (±°C / °F) at 50°C / 60%RH	0.3 / 0.54	0.4 / 0.72	0.4 / 0.72
Time	Heating - without Humidity (Min.) from -35°C to 100°C	60		
	Cooling - without Humidity (Min.) from 20°C to -35°C	70		
Humidity	Range (%RH)	Full Range : 20 to 95 45 to 65 at 15°C (59°F) 40 to 95 at 20°C (68°F) 20 to 95 at 40 to 85°C (104 to 176°F) 20 to 90 at 90°C (194°F)		
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-507A		
Cooler		Plate fin cooler (cooper)		
Heater		SUS sheath Heater		
Sensor	Temperature	Pt 100		
	Humidity	Electronic sensor - Free of drying a wet pack and good reaction time		
Air Flow		2 sets of sirocco fan		
Material	Internal	Stainless steel #304		
	External	Stainless steel #304, Steel with powder coating		
	Insulation	Polyurethane foam 100mm [3.94"]		
	Door	Glasswool		
Water Tank	Capacity (L / cu ft)	8 / 0.28	11 / 0.39	15 / 0.53
	Quality	pH6.2 ~ 7.2, Electrical conductivity 20°C / cm to below		
Interface Port		Basically RS-232C, (RS-485: optional)		
Cable Port		Basically one hole provided / Ø 50mm (2") Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")		
Quantity of Wire Shelves (included / max.)		2 / 7	2 / 10	2 / 10
Distance of between Shelves (mm / inch)		20 / 0.8	20 / 0.8	20 / 0.8
Dimension (WxDxH)	Internal (mm / inch)	350×220×350 / 13.8×8.7×13.8	400×330×495 / 15.7×13×19.5	500×380×530 / 19.7×15×20.9
	External (mm / inch)	553×874×919 / 21.8×34.4×36.2	603×1037×1064 / 23.7×40.8×41.9	760×1105×1099 / 29.9×43.5×43.3
	Viewing Window (mm / inch)	220×300 / 8.7×11.8		
	Net Weight (kg / lbs)	110 ±10 / 242.5 ±22	140 ±10 / 308.6 ±22	150 ±10 / 330.7 ±22
Electrical Requirements (AC230V, 1ph, 60Hz)		10.1A	12.4A	16A
Cat. No.		AAH82411K	AAH82421K	AAH82431K
Electrical Requirements (AC230V, 1ph, 50Hz)		9.7A	11.8A	15.6A
Cat. No.		AAH82412K	AAH82422K	AAH82432K

1) All specifications are under ambient temperature 20°C (68°F), No load.

2) Technical data according to DIN 12880, IEC 60068.

※ Permissible environmental conditions: temperature (18 to 30°C) and relative humidity (up to 85%).

※ Recommended ambient temperature: +20°C (68°F).

Temp. & Humid. Chambers

Tabletop Chambers (TH-ME)

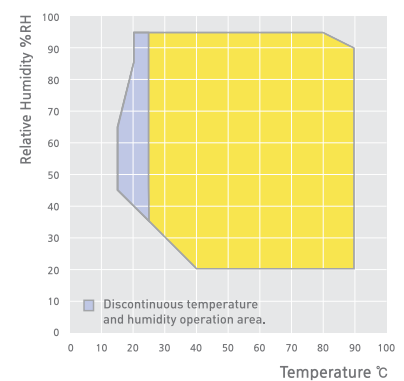
Light weight and compact design with high performance.



Control Range

Temperature Range from -20 to 150°C

Humidity Range from 20 to 95% RH



TH-ME-25/65/100

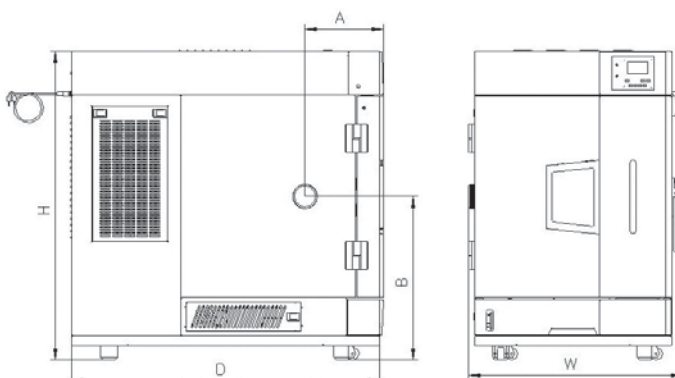
TH-ME

Included Accessories

☛ see page 232

- Viewing Window
- Wire Shelves
- Cable Port (Ø50mm)

※ Above products design can be changed without prior notice.
 ※ Inner glass door is not equipped to the unit since 2013.



Dimension

Model	TH-ME-25	TH-ME-65	TH-ME-100
Capacity	25L (0.9 cu ft)	65L (2.3 cu ft)	100L (3.53 cu ft)
W	553mm (21.8")	603mm (23.7")	760mm (29.9")
D	874mm (34.4")	1037mm (40.8")	1105mm (43.5")
H	919mm (36.2")	1064mm (41.9")	1099mm (43.3")
A	219mm (8.6")	272mm (10.7")	283mm (11.1")
B	498mm (19.6")	571mm (22.5")	583mm (22.9")

Temp. & Humid. Chambers

Tabletop Chambers (TH-ME)

TH-ME

► Safety Features

- Built in door lock
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Overheat protection.
- Door open alarm.

► Operating Features

- Microprocessor PID control / Auto-tuning / Calibration.
- User friendly LCD controller.
 - Set value and present value are clearly visible together on display.
 - Operating progression visible in graph mode allow for direct data interpretation.
 - Temperature and other operating parameters recorded with use of an optional recorder. (optional)
- Sufficient programmable control support.

Description	TH-ME
Programmable Pattern Capacity	10
Pattern Repeat Time	999
Max. Segments per a Pattern	100
Available Max. Segments*	100
Programmable Process Time per a Segment	0 to 99 hr 59 min

* Even though the max. segments per a pattern are 100, available total segments are up to 300 not 3000, so you need to arrange the number of segment and patterns properly.

- Computer interface.
 - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
 - Program patterns are simple to set with the use of our software.
 - Storage of program information, backup of value settings, recovery, temperature, humidity values.
 - RS-232 communication port comes standard.

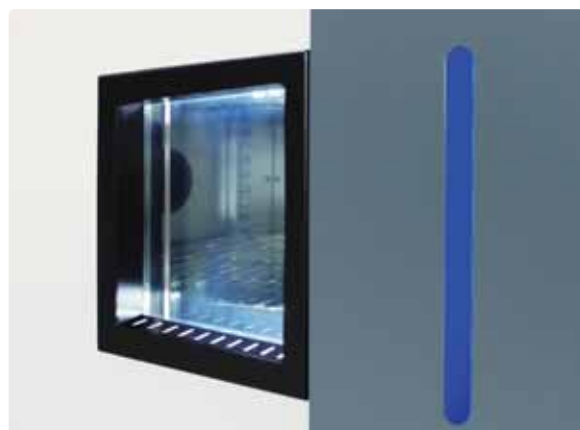
► Constructional Features

- Compact design and quite operation.
- Uniform temperature and humidity control guarantees reliable test result.
- Three different size models are available to suit user's need.
- Corrosion resistance stainless steel chamber.

- Air-tight door closure with perfect sealed packing.
 - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
- Maintenance of water supply are easily performed with a front water tank.
 - Water level check indicated by water level bar in the tank.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Operating condition is clearly noticed by the front LED indicator.
 - Three different colored lights show each status of running, stop, and power off condition.
- Clear observation of samples.
 - Tempered glass window with wire heater and lighting provides a clear view of samples in the chamber, beneficial for during testing.
- Cable port for introduction of external probes or wires.
 - 50mm diameter cable port comes standard on the left side of the unit.
 - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Two type of stands for space-saving. (optional)
 - Single stand with a drawer provides enough storage space.
 - Two step stand accepts loading two units to save limited space.



Control Panel



Viewing Window with Operating LED Indicator

Temp. & Humid. Chambers

Tabletop Chambers (TH-ME)

Specifications & Ordering Information



Model		TH-ME-025	TH-ME-065	TH-ME-100
Chamber Volume (L / cu ft)		25 / 0.9	65 / 2.3	100 / 3.5
Controller		Program controller (LCD type)		
Temperature	Range (°C / °F)	-20 to 150 / -4 to 302 without humidity 15 to 90 / 59 to 194 with humidity		
	Fluctuation ¹⁾ (±°C / °F) at 25°C / 60%RH	0.3 / 0.54	0.2 / 0.36	0.2 / 0.36
	Variation ¹⁾ (±°C / °F) at 25°C / 60%RH	0.6 / 1.08	0.2 / 0.36	0.2 / 0.36
Time	Heating - without Humidity (Min.) from -20°C to 120°C	60	67	73
	Cooling - without Humidity (Min.) from 120°C to -20°C	174	144	153
Humidity	Range (%RH)	Full Range : 20 to 95 45 to 65% at 15°C (59°F) 40 to 95% at 20°C (68°F) 20 to 95% at 40 to 80°C (104 to 176°F) 20 to 90% at 90°C (194°F)		
	Fluctuation ¹⁾ (±%RH) at 60%RH / 55°C	2.0	2.7	2.7
	Variation ¹⁾ (±%RH) at 60%RH / 55°C	0.6	1.1	1.2
	System	Mechanical single stage refrigerator system (air-cooled condenser)		
Refrigeration	Refrigerant	R-507A		
Cooler		Plate fin cooler (copper)		
Heater	Material	SUS sheath Heater		
Sensor	Temperature	Pt 100		
	Humidity	Electronic sensor - Free of drying a wet pack and good reaction time		
Material	Interior	Stainless steel #304		
	Exterior	Stainless steel #304, Steel with powder coating		
	Insulation	Polyurethane foam 100mm [3.94"]		
	Door	Glass wool		
Air Flow		2 sets of sirocco fan		
Water Tank	Capacity (L / cu ft)	8 / 0.28	11 / 0.39	15 / 0.53
	Water Quality	pH6.2 to 7.2 / Electrical conductivity 20°C/cm to below		
Quantity of Wire Shelves (included / max.)		2 / 7	2 / 10	2 / 10
Distance of between Shelves (mm / inch)		20 / 0.8	20 / 0.8	20 / 0.8
Dimension (WxDxH)	Interior (mm / inch)	350×220×350 / 13.8×8.7×13.8	400×330×495 / 15.7×13×19.5	500×380×530 / 19.7×15×20.9
	Exterior (mm / inch)	553×874×919 / 21.8×34.4×36.2	603×1037×1064 / 23.7×40.8×41.9	760×1105×1099 / 29.9×43.5×43.3
	Viewing Window (mm / inch)	220×300 / 8.7×11.8		
	Net Weight (kg / lbs)	80±5 / 176±11	110±5 / 242±11	130±5 / 286±11
Cable Port		Basically one hole provided / Ø 50mm (2") Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")		
Interface Port		Basically RS-232C [RS-485-optional]		
Electrical Requirements (230V, 1ph, 60Hz)		9.6A	12A	15.5A
Cat. No.		AAH82111K	AAH82121K	AAH82131K
Electrical Requirements (230V, 1ph, 50Hz)		9.2A	11.1A	13.8A
Cat. No.		AAH82112K	AAH82122K	AAH82132K

1) Technical data according to DIN 12880, IEC 60068.

* 80mm cable access hole is NOT available for 25L chamber. (TH-ME-025).

* Above the dimensions are NOT included size of attached accessories.

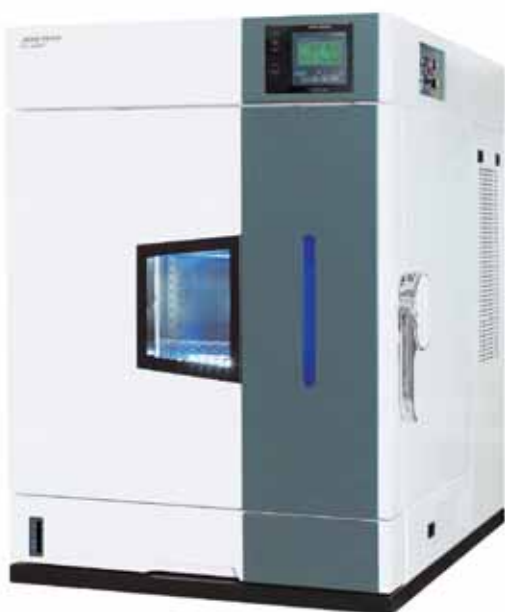
※ Permissible environmental conditions: temperature (18 to 30°C) and relative humidity (up to 85%).

※ All specifications are under ambient temperature 20°C (68°F), No load.

Temp. & Humid. Chambers

Tabletop Chambers (TH-PE)

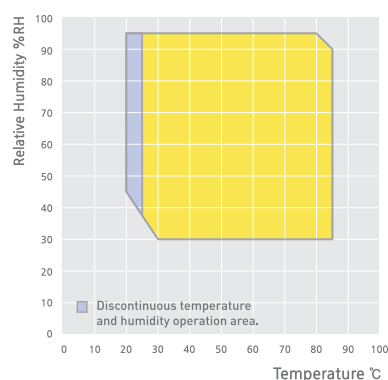
The best choice for the limited laboratory space!
Tabletop chamber is beneficial for space efficiency.



Control Range

Temperature Range from 0 to 120°C

Humidity Range from 30 to 95% RH



TH-PE-25/65/100

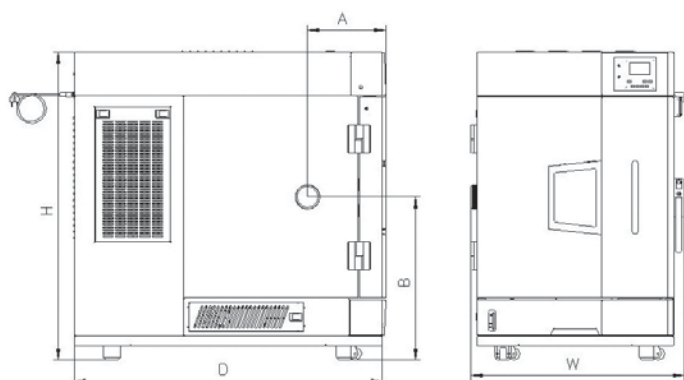
TH-PE

Included Accessories

- Viewing Window
- Wire Shelves
- Cable Port (Ø50mm)

see page 232

※ Above products design can be changed without prior notice.
※ Inner glass door is not equipped to the unit since 2013.



Dimension

Model	TH-PE-25	TH-PE-65	TH-PE-100
Capacity	25L (0.9 cu ft)	65L (2.3 cu ft)	100L (3.53 cu ft)
W	553mm (21.8")	603mm (23.7")	760mm (29.9")
D	874mm (34.4")	1037mm (40.8")	1105mm (43.5")
H	919mm (36.2")	1064mm (41.9")	1099mm (43.3")
A	219mm (8.6")	272mm (10.7")	283mm (11.1")
B	498mm (19.6")	571mm (22.5")	583mm (22.9")

Temp. & Humid. Chambers

Tabletop Chambers (TH-PE)

TH-PE

► Safety Features

- Built in door lock
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Overheat protection.
- Door open alarm.

► Operating Features

- Microprocessor PID control / Auto-tuning / Calibration.
- User friendly LCD controller.
 - Set value and present value are clearly visible together on display.
 - Operating progression visible in graph mode allow for direct data interpretation.
 - Temperature and other operating parameters recorded with use of an optional recorder. (optional)
- Sufficient programmable control support.

Description	TH-PE
Programmable Pattern Capacity	10
Pattern Repeat Time	999
Max. Segments per a Pattern	100
Available Max. Segments*	100
Programmable Process Time per a Segment	0 to 99 hr 59 min

* Even though the max. segments per a pattern are 100, available total segments are up to 300 not 3000, so you need to arrange the number of segment and patterns properly.

- Computer interface.
 - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
 - Program patterns are simple to set with the use of our software.
 - Storage of program information, backup of value settings, recovery, temperature, humidity values.
 - RS-232 communication port comes standard.

► Constructional Features

- Compact design and quite operation.
- Uniform temperature and humidity control guarantees reliable test result.
- Three different size models are available to suit user's need.
- Corrosion resistance stainless steel chamber.

- Air-tight door closure with perfect sealed packing.
 - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
- Maintenance of water supply are easily performed with a front water tank.
 - Water level check indicated by water level bar in the tank.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Operating condition is clearly noticed by the front LED indicator.
 - Three different colored lights show each status of running, stop, and power off condition.
- Clear observation of samples.
 - Tempered glass window with wire heater and lighting provides a clear view of samples in the chamber, beneficial for during testing.
- Cable port for introduction of external probes or wires.
 - 50mm diameter cable port comes standard on the left side of the unit.
 - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Two type of stands for space-saving. (optional)
 - Single stand with a drawer provides enough storage space.
 - Two step stand accepts loading two units to save limited space.



✧ Computer Interface

✧ LCD Controller



✧ Stainless Steel Chamber



✧ Viewing Window

Temp. & Humid. Chambers

Tabletop Chambers (TH-PE)

Specifications & Ordering Information



Model		TH-PE-025	TH-PE-065	TH-PE-100
Chamber Volume (L / cu ft)		25 / 0.9	65 / 2.3	100 / 3.5
Controller		Program controller (LCD type)		
Temperature	Range (°C / °F)	0 to 120 / 32 to 248 without humidity 15 to 90 / 59 to 194 with humidity		
	Fluctuation ¹⁾ (±°C / °F) at 25°C / 60%RH	0.2 / 0.36	0.3 / 0.54	0.2 / 0.36
	Variation ¹⁾ (±°C / °F) at 25°C / 60%RH	0.3 / 0.54		
Time	Heating - without Humidity (Min.) from 0°C to 120°C	40		
	Cooling - without Humidity (Min.) from 20°C to 0°C	30		
Humidity	Range (%RH)	Full Range : 30 to 95 45 to 95 at 20°C (68°F) 30 to 95 at 30 to 80°C (86 to 176°F) 30 to 90 at 85°C (185°F)		
	Fluctuation ¹⁾ (±%RH) at 60%RH / 55°C	1.6	0.4	0.5
	Variation ¹⁾ (±%RH) at 60%RH / 55°C	3.0		
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-404A		
Cooler		Plate fin cooler (cooper)		
Heater	Material	SUS sheath Heater		
Sensor	Temperature	Pt 100		
	Humidity	Electronic sensor - Free of drying a wet pack and good reaction time		
Material	Interior	Stainless steel #304		
	Exterior	Stainless steel #304, Steel with powder coating		
	Insulation	Polyurethane foam 100mm [3.94"]		
	Door	Glass wool		
Air Flow		2 sets of sirocco fan		
Water Tank	Capacity (L / cu ft)	8 / 0.28	11 / 0.39	15 / 0.53
	Water Quality	pH6.2 ~ 7.2, Electrical conductivity 20°C / cm to below		
Quantity of Wire Shelves (included / max.)		2 / 7	2 / 10	2 / 10
Distance of between Shelves (mm / inch)		20 / 0.8	20 / 0.8	20 / 0.8
Dimension (WxDxH)	Interior (mm / inch)	350×220×350 / 13.8×8.7×13.8	400×330×495 / 15.7×13×19.5	500×380×530 / 19.7×15×20.9
	Exterior (mm / inch)	553×874×919 / 21.8×34.4×36.2	603×1037×1064 / 23.7×40.8×41.9	760×1105×1099 / 29.9×43.5×43.3
	Viewing Window (mm / inch)	220×300 / 8.7×11.8		
	Net Weight (kg / lbs)	80±5 / 176±11	110±5 / 242±11	130±5 / 286±11
Cable Port		Basically one hole provided / Ø 50mm (2") Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")		
Interface Port		Basically RS-232C [RS-485-optional]		
Electrical Requirements (230V, 1hp, 60Hz)		9.6A	12A	14.4A
Cat. No.		AAH82211K	AAH82221K	AAH82231K
Electrical Requirements (230V, 1hp, 50Hz)		9.2A	11.1A	13.8A
Cat. No.		AAH82212K	AAH82222K	AAH82232K

1) Technical data according to DIN 12880, IEC 60068.

* 80mm cable access hole is NOT available for 25L chamber (TH-PE-025).

* Above the dimensions are NOT included size of attached accessories.

※ Permissible environmental conditions: temperature (18 to 30°C) and relative humidity (up to 85%).

※ All specifications are under ambient temperature 20°C (68°F), No load.

Temp. & Humid. Chambers

Specific Purpose Chambers (TH-ICH)

Pharmaceutical Stability Test Chamber

Manufactured in accordance with ICH Guidelines Q1A-Stability Test (R2), Q1B-Photostability Test (Option 2).

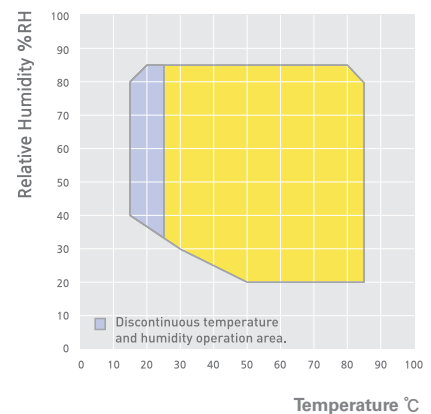
- ▶ Optimum temperature and humidity control system for long-term stability test.
- ▶ Independent luminescence control system for photostability test.

CE



▶ Control Range

Temperature Range from -5 to 85°C
Humidity Range from 20 to 85% RH



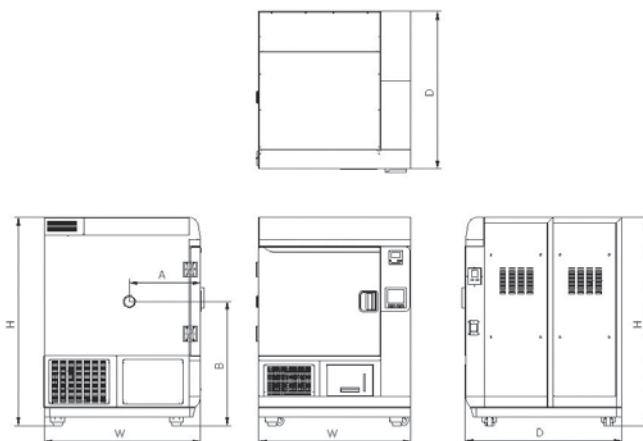
Temperature °C
TH-ICH-300/800

TH-ICH with the optional Recorder

Included Accessories

- Viewing Window
- Wire Shelves
- Cable Port (Ø50mm)

see page 233



Dimension

Model	TH-ICH-300	TH-ICH-800
Capacity	300L (10.6 cu ft)	760L (26.8 cu ft)
W	1130mm (44.5")	1220mm (48")
D	985mm (38.8")	1215mm (47.8")
H	1520mm (59.8")	1965mm (77.4")
A	460mm (18.1")	545mm (21.5")
B	905mm (35.6")	1185mm (46.7")

Temp. & Humid. Chambers

Specific Purpose Chambers (TH-ICH)

TH-ICH

► Safety Features

- Completed photostability test alarm.
- Built in door locking mechanism.
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Overheat protection.
- Door open alarm.

► Operating Features

- Microprocessor PID control / Auto-tuning / Calibration.
- User friendly LCD controller.
 - Set value and present value are clearly visible together on display.
 - Operating progression visible in graph mode allow for direct data interpretation.
 - Temperature and other operating parameters recorded with use of an optional recorder. (optional)
- Sufficient programmable control support.

Description	TH-ICH
Programmable Pattern Capacity	10
Pattern Repeat Time	999
Max. Segments per a Pattern	100
Available Max. Segments*	100
Programmable Process Time per a Segment	0 to 99 hr 59 min

* Even though the max. segments per a pattern are 100, available total segments are up to 300 not 3000, so you need to arrange the number of segment and patterns properly.

- Computer interface.
 - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
 - Program patterns are simple to set with the use of our software.
 - Storage of program information, backup of value settings, recovery, temperature, humidity values.
 - RS-232 communication port comes standard.

► Constructional features

- Two different sized models available to suit any users' needs
- Rapid humidity control is achieved by adapting the humidification tank interior to the chamber.
- Corrosion resistant stainless steel chamber.
- Air-tight door closure with perfect sealed packing.
 - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.

- Cable port for introduction of external probes or wires.
 - 50mm diameter cable port comes standard on the left side of the unit.
 - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Inner glass door with entry ports for handling samples without affecting inner chamber temperature and humidity. (optional)
- Casters for easy mobility during installation or relocation.

► Features for Stability Test ICH Guideline Q1A (R2)

- Microprocessor PID control / Auto-tuning / Calibration.
- Operating progression visible through graph mode for better data analyzation.
- Cyclic defrost system, designed to work excellently for the long period stability test operation.
 - (※ Temperature and humidity changes may occur during automatic defrost.)
- Maintenance of water supply are easily performed with a front water tank.
 - Water level check indicated by water level bar in the tank.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term test. (optional)

► Features for Photostability Test ICH Guideline Q1B (Option 2)

- Built in UV and fluorescent lamps for uniformed luminescence.
- Equipped with movable UV and VIS sensors .
- Independent lamp controller
 - An indicator for Total usage time of UV and fluorescent lamps.
- Convenient set function of cumulative dosage and lamp Off.



◀ Lamp Controller



◀ LCD Controller



◀ Digital Recorder (optional)



◀ Water Level Indicator

Temp. & Humid. Chambers

Specific Purpose Chambers (TH-ICH)

Specifications & Ordering Information



Model		TH-ICH-300	TH-ICH-800
Chamber Volume (L / cu ft)		300 / 10.6	760 / 26.8
Controller		PID control (LCD Type)	
Temperature ¹⁾	Range	without Humidity (°C / °F)	-5 to 85 / 23 to 185 without Light 0 to 85 / 32 to 185 with Light
		with Humidity (°C / °F)	+15 to 85 / 59 to 185 with Light
	Fluctuation ¹⁾ (±°C / °F) at 40°C / 60%RH		0.3 / 0.55
	Variation ¹⁾ (±°C / °F) at 40°C / 60%RH		0.5 / 0.9
Humidity	Range (%RH)		Full Range: 20 to 85 40 to 80 at 15°C (59°F) 30 to 85 at 30°C (86°F) 20 to 85 at 50 to 80°C (122 to 176°F) 20 to 80 at 85°C (185°F)
	Fluctuation ²⁾ (±%RH) at 60%RH / 40°C		3
	Variation ²⁾ (±%RH) at 60%RH / 40°C		5
	Light Source (ICH Q1B option 2)		
Light Source (ICH Q1B option 2)	Cool White ³⁾		6,000 lux
	Ultraviolet-A ³⁾		4.5 W/m ²
	Light Uniformity		VIS. : ±10% UVA : ±15%
Typical Time Required to Reach ICH Recommendation of 1.2 million lux-hr		≒ 200Hr	≒ 184Hr
Typical Time Required to Reach ICH Recommendation of 200 W-hr/m ²		≒ 50Hr	≒ 40Hr
Time	Heating ⁴⁾		25min (20°C → 85°C)
	Cooling ⁴⁾		35min (20°C → -5°C)
Refrigeration	System		Air-cooled
	Refrigerant		R-404A
Cooler		Copper plate fin cooler	
Heater	Material		Ni-Cr Wire Heater / SUS Tube Heater
	Temperature		Pt 100
Sensor	Humidity		Electronic sensor (Free of drying a wet pack and good response time)
	Air Flow		2 set of sirocco fan
Material	Internal		Stainless steel #304
	External		Stainless steel #304, Steel with powder coating
	Insulation		Polyurethane (70mm / 2.76")
	Door		EPDM Sheet
Water Tank	Capacity (L / cu ft)		15 / 0.53
	Water Quality		pH6.2 ~ 7.2, Electrical conductivity 20μs / cm to below
Interface Port		Basically RS-232C, IRS-485 : optional	
Cable Port		Basically one hole provided / Ø 50mm (2"), Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")	
Quantity of Wire Shelves (included / max.)		2 / 8	2 / 17
Distance of between Shelves (mm / inch)		60 / 2.4	60 / 2.4
Dimension (W×D×H)	Internal (mm / inch)		750×650×650 / 29.5×25.6×25.6
	External (mm / inch)		1130×985×1520 / 44.5×38.8×59.8
Net Weight (kg / lbs)		280±10 / 617±22	400±10 / 882±22
Electrical Requirements	AC230V, 1ph, 60Hz		15.4 A
	Cat.No.		AAHC1001K
	AC230V, 1ph, 50Hz		14.7 A
	Cat.No.		AAHC1002K

1) All specifications are under ambient temperature 20°C (68°F), No load.

2) Technical data according to DIN 12880, IEC 60068.

3) The value is measured on the center of chamber at the point of vertical direction.

4) Up to 98% of the set value.

Temp. & Humid. Chambers

Specific Purpose Chambers (TH-CR)

Clean Environmental Test Chamber.

Specially designed for processes requiring clean and controlled environmental test conditions. (ISO Class 5 air cleanliness as per ISO 14644-1)

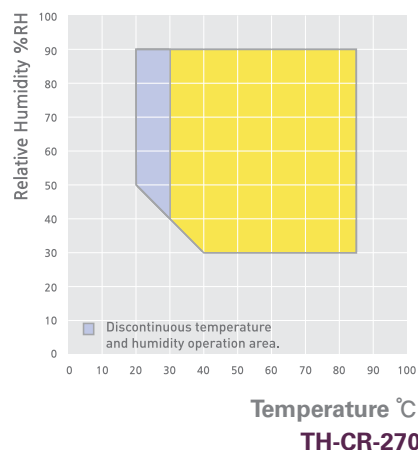
- ▶ Heat-resisting HEPA filter provides clean environment.
 - 0.3 μm and larger particulates are removed with 99.99% efficiency
- ▶ ULPA filter provides for better air cleanliness of the chamber. (optional)
 - 0.1 μm and larger particulates are removed with 99.999% efficiency
- ▶ No external exhaust system required.



Control Range

Temperature Range from -35 to 100°C

Humidity Range from 30 to 90% RH



TH-CR-270 with an optional Recorder

Included Accessories

- Viewing Window
- Wire Shelves
- Cable Port ($\varnothing 50\text{mm}$)

see page 233



Dimension

Model	TH-CR-270
Capacity	270L (9.5 cu ft)
W	1180mm (46.5")
D	1120mm (44.1")
H	1935mm (76.1")
A	325mm (12.8")
B	1155mm (45.5")

Temp. & Humid. Chambers

Specific Purpose Chambers (TH-CR)

TH-CR

► Safety Features

- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Overheat protection.
- Door open alarm.

► Operating Features

- Microprocessor PID control / Auto-tuning / Calibration.
- 5.7 inch colorful interactive touch type LCD controller.
- Set value and present value are clearly visible together on display.
- Operating progression visible in graph mode allow for direct data interpretation.
- Temperature and other operating parameters recorded with use of an optional recorder. (optional)
- Sufficient programmable control support.
- Programming operation.

Description	TH-CR-270
Programmable Pattern Capacity	120
Pattern Repeat Time	999
Max. Segments per a Pattern	100
Available Max. Segments*	1200
Programmable Process Time per a Segment	0 to 99 hr 59 min

* Even though the max. segments per a pattern are 100, available total segments are up to 1200 not 12000, so you need to arrange the number of segment and patterns properly.

- Computer interface.
 - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
 - Program patterns are simple to set with the use of our software.
 - Storage of program information, backup of value settings, recovery, temperature, humidity values.
 - RS-232 communication port comes standard.

► Constructional Features

- Silicone-free construction for clean environment..
- Corrosion resistance stainless steel chamber.
- Built-in differential pressure gauge for easy observation of HEPA filter condition.
- Exhaust duct is located at the upper right side of the unit to avoid influence other devices.

- Maintenance of water supply are easily performed with a front water tank.
 - Water level check indicated by water level bar in the tank.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Clear observation of samples.
 - Tempered glass window with wire heater and lighting provides a clear view of samples in the chamber, beneficial for during testing.
 - Inner glass door with entry ports for handling samples without affecting inner chamber temperature and humidity. (optional)
- Cable port for introduction of external probes or wires.
 - 50mm diameter cable port comes standard on the left side of the unit.
 - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Casters for easy mobility during installation or relocation.



Control Panel



Air-filter



Viewing Window



Water Level Indicator

Temp. & Humid. Chambers

Specific Purpose Chambers (TH-CR)

Specifications & Ordering Information



Model		TH-CR-270
Chamber Volume (L / cu ft)		270 / 9.5
Controller		Programmable, Touch screen type controller (5.7" Color monitor) Local controller (Fixed - command control)
Temperature	Range (°C / °F)	-35 to 100 / -31 to 212 without humidity 20 to 85 / 104 to 185 with humidity
	Fluctuation ¹⁾ (±°C / °F) at 40°C / 60%RH	0.5 / 0.9
	Variation ¹⁾ (±°C / °F) at 40°C / 60%RH	0.5 / 0.9
Time	Heating - without Humidity (Min.)	60 From -35°C to 120°C (-31°F to 248°F)
	Cooling - without Humidity (Min.)	65 From 20°C to -35°C (68°F to -31°F)
Humidity	Range (%RH)	Full Range : 30 to 90 50 to 90 at 20°C (68°F) 40 to 90 at 30°C (86°F) 30 to 90 at 40 to 85°C (104 to 185°F)
	Fluctuation ¹⁾ (±%RH)	3
	Variation ¹⁾ (±%RH) at 60%RH	3
Cleanliness		Class 100 (ISO 14644-1)
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)
	Refrigerant	R-404A
Cooler		Plate fin cooler
Heater	Material	Ni-Cr Wire Heater / SUS sheath Heater
Sensor	Temperature	Pt 100
	Humidity	Electronic sensor - Free of drying a wet pack and good reaction time
Material	Interior	Stainless steel #304
	Exterior	Stainless steel #304, Steel with powder coating
	Insulation	Polyurethane
	Door	Glass wool
		*Silicon Free (optional) EPDM for door packing, chamber sealing and tube Poly Urethane for DI water inlet & drainage
Air Flow		Sirocco fan
Water Supply	Capacity	15L (0.53cu ft) - Cartridge type
	Water Quality	pH6.2 to 7.2 / Electrical conductivity 20µS /cm to below
Quantity of Wire Shelves (included / max.)		2 / 10
Distance of between Shelves (mm / inch)		40 / 1.6
Dimension (WxDxH)	Interior (mm / inch)	600×700×648 / 23.6×27.6×25.4
	Exterior (mm / inch)	1180×1120×1935 / 46.5×44.1×76.2
	Viewing Windows (mm / inch)	200×330 / 7.9×13
	Net Weight (kg / lbs)	400±10 / 881.8±22
Cable Port		Basically one hole provided / Ø 50mm (2") Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")
Interface Port		Basically RS-232C (RS-485-optional)
Electrical Requirements (230V, 1ph)		60Hz / 29A
Cat. No.		AAH83011K
Electrical Requirements (380V, 3ph)		50Hz / 9.6A
Cat. No.		AAH83018K

1) Technical data according to DIN 12880, IEC 60068.

※ Permissible environmental conditions: temperature (18 to 30°C) and relative humidity (up to 85%).

※ All specifications are under ambient temperature 20°C (68°F), No load.

※ Upon request, other sizes of chambers are available. Please contact with us.

Temp. & Humid. Chambers

Specific Purpose Chambers (TH-PF)

Fingerprint Development Chamber

Exceptional design for Ninhydrin, DFO and other fingerprint development processes.

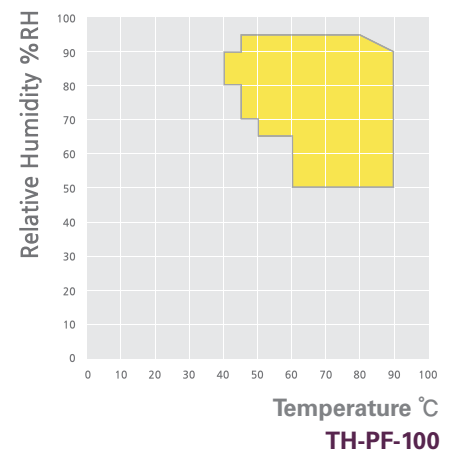
- ▶ Highly precise microprocessor PID controller for rapid performance.
- ▶ A clear fingerprint observation development process with LED light and heated glass window.
- ▶ Advanced safety features such as timer alarm and lockable door for protecting crucial evidence.



▶ Control Range

Temperature Range from 40 to 100°C

Humidity Range from 50 to 95% RH

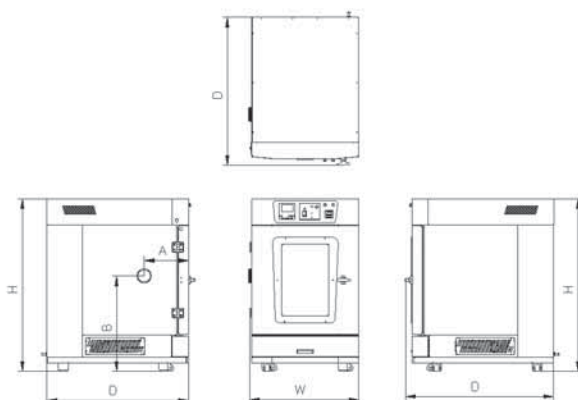


TH-PF-100

Included Accessories

- Wire Shelves
- Cable Port (Ø50mm)

▶ see page 232



Dimension

Model	TH-PF-100
Capacity	100L (3.5 cu ft)
W	670mm (26.4")
D	845mm (33.3")
H	1045mm (41.15")
A	271mm (10.7")
B	581mm (22.9")

Temp. & Humid. Chambers

Specific Purpose Chambers (TH-PF)

TH-PF

Safety Features

- Built in door lock for crucial evidence.
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Overheat protection.
- Door open alarm.

Operating Features

- Microprocessor PID control / Auto-tuning / Calibration.
 - Precise temperature & humidity control.
 - Faster fingerprint development.
 - Rapid recovery time after door has been opened.
- User friendly LCD controller.
 - Set value and present value are clearly visible together on display.
 - Operating progression visible in graph mode allow for direct data interpretation.
 - Temperature and other operating parameters recorded with use of an optional recorder. (optional)
- Sufficient programmable control support.

Description	TH-PF
Programmable Pattern Capacity	10
Pattern Repeat Time	999
Max. Segments per a Pattern	100
Available Max. Segments*	100
Programmable Process Time per a Segment	0 to 99 hr 59 min

* Even though the max. segments per a pattern are 100, available total segments are up to 300 not 3000, so you need to arrange the number of segment and patterns properly.

- Intuitive control panel.
 - Sight Lamp, Window Clean, and Water Level indicators.
- Digital timer with alarm.
 - Start / Reset button for easy operation.
 - Wide display for easy visual of time remaining.
 - Set time expired alarm.
- Computer interface.
 - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
 - Program patterns are simple to set with the use of our software.
 - Storage of program information, backup of value settings, recovery, temperature, humidity values.
 - RS-232 communication port comes standard.

Constructional features

- Light weight and compact design with high performance.
- Corrosion resistant stainless steel chamber.
- Air-tight door closure with perfect sealed packing.
 - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
- Maintenance of water supply are easily performed with a front water tank.
 - Water level check indicated by water level bar in the tank.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Clear observation of fingerprint development processes.
 - Tempered glass door with built in wire heater.
 - Energy efficient, long lasting LED lighting.
 - Easy operating lamp button.
- Cable port for introduction of external probes or wires.
 - 50mm diameter cable port comes standard on the left side of the unit.
 - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Stand with casters allow for space-saving. (optional)
- Chambers stackable, up to two levels.



Control Panel



Water tank with Level Indicator



Digital Recorder (optional) Water Level Indicator

Temp. & Humid. Chambers

Specific Purpose Chambers (TH-PF)

Specifications & Ordering Information



Model		TH-PF-100
Chamber Volume (L / cu ft)		100 / 3.53
Controller		PID control (LCD Type)
Temperature	Range (°C / °F)	40 to 100 / 104 to 212 without humidity 40 to 90 / 104 to 194 with humidity
	Fluctuation (±°C / °F) at 100°C	0.5 / 0.9
	Variation (±°C / °F) at 100°C	0.5 / 0.9
Humidity	Range (%RH)	Full Range : 50 to 95 80 to 90 at 40°C (104°F) 70 to 95 at 45°C (113°F) 65 to 95 at 50°C (122°F) 50 to 95 at 60°C (140°F) 50 to 95 at 60 to 80°C (104 to 176°F) 50 to 90 at 90°C (194°F)
	Fluctuation (±%RH)	3
	Variation (±%RH)	3
Heater	Material	Ni-Cr Wire Heater / SUS cartridge Heater
	Drying Bulb	400W
	Humidity Bulb	400W
Sensor	Temperature	Pt 100
	Humidity	Electronic sensor (free of drying a wet pack and good response time)
Air Flow		2 set of sirocco fan
Material	Interior	Stainless steel #304
	Exterior	Stainless steel #304, Steel with powder coating
	Insulation	Polyurethane (70mm)
	Door	Glasswool
Water Tank	Capacity (L / cu ft)	9 / 0.32
	Quality	pH6.2 ~ 7.2, Electrical conductivity 20μs / cm to below
Viewing Window (mm / inch)		280×430 / 11.02×16.9
Cable Port		Basically one hole provided / Ø 50mm (2") Optionally max. two holes available/ Ø 50 or 80mm (2 or 3.2")
Interface		Basically RS-232C (RS-485-optional)
Quantity of Wire Shelves (included / max.)		2 / 10
Distance of between Shelves (mm / inch)		40 / 1.6
Dimension (W×D×H)	Interior (mm / inch)	500×380×530 / 1.97×15×20.9
	Exterior (mm / inch)	670×845×1045 / 26.4×33.3× 41.15
	Net Weight (kg / lbs)	115kg±5kg / 253.5±11
Electrical Requirements	AC230V, 1ph, 60Hz	4.5A
Cat. No.		AAH82331K
Electrical Requirements	AC230V, 1ph, 50Hz	4.3A
Cat. No.		AAH82332K

- ※ Permissible environmental conditions: temperature (18 to 30°C) and relative humidity (up to 85%).
- ※ Recommended ambient temperature: +20°C(68°F).
- ※ All specifications are under ambient temperature 20°C(68°F), No load.

Temp. & Humid. Chambers

Accessories & Options

for Tabletop Chambers

Accessory Check List

☐ Included ☐ Optional

Description	Models			
	TH-KE	TH-ME	TH-PE	TH-PF
Portable Recorder (6 points)	☐	☐	☐	☐
Portable Recorder (Digital, 6 channels)	☐	☐	☐	☐
Interface Converter RS-485C → 232C Included a Cable (5m / 16.4ft)	☐	☐	☐	☐
Interface Cable (5m / 16.4ft)	☐	☐	☐	☐
Warning Signal Lamp	☐	☐	☐	☐
Viewing window	☐	☐	☐	☐
Wire Shelf	☐	☐	☐	☐
Perforated Shelf	☐	☐	☐	☐
Cable Port (Ø 50mm / 2.0")	☐	☐	☐	☐
Cable Port (Ø 80mm / 3.2") ¹⁾	☐	☐	☐	☐
Stand	☐	☐	☐	☐
Two Step Stand	☐	☐	☐	-
Temperature Sensor (RTD type)	☐	☐	☐	☐
Humidity Sensor	☐	☐	☐	☐
Water Purifier	☐	☐	☐	☐
Direct water system	☐	☐	☐	☐

¹⁾ 80mm cable access hole is NOT available for 25L chamber.

Ordering Information

Cat. No.	Description	Suitable for
AAA8T504	Portable Recorder (6 points)	All models
AAA8T506	Portable Recorder (Digital, 6 channels)	All models
AAA8T540	Interface Converter RS-485C → 232C Included a Cable (5m / 16.4ft)	All models
AAA8T542	Interface Cable (5m / 16.4ft)	All models
AAA80550	Warning Signal Lamp	All models
RTD679	Wire shelf	TH-KE/ME/PE-025
RTD680		TH-KE/ME/PE-065
RTD681		TH-KE/ME/PE-100, TH-PF-100
AAA80602-6	Perforated shelf	TH-KE/ME/PE-025
AAA80602-7		TH-KE/ME/PE-065
AAA80602-8		TH-KE/ME/PE-100, TH-PF-100
AAA8T610	Cable Port (Ø 50mm / 2.0")	TH-KE/ME/PE/PF Models
AAA8T611	Cable Port (Ø 80mm / 3.2")	TH-KE/ME/PE/PF Models ¹⁾
AAA80631	Stand	TH-KE/ME/PE-025
AAA80632		TH-KE/ME/PE-065
AAA80633		TH-KE/ME/PE-100, TH-PF-100
AAA80634	Two step stand	TH-KE/ME/PE-025
AAA80635		TH-KE/ME/PE-065
CFA1923	Temperature sensor (RTD type)	All models
CFA7113	Humidity sensor	All models
AAA8T621	Water purifier	All models
AAA80620	Direct water system	All models

¹⁾ 80mm cable access hole is NOT available for 25L chamber.

Temp. & Humid. Chambers

Accessories & Options

for Floor Standing Chambers

Accessory Check List

☐ Included ☐ Optional

Description	Models					
	TH-G	TH-I	TH-KH	TH-TG	TH-ICH	TH-CR
Recorder (6 points)	☐	☐	☐	☐	☐	☐
Recorder (Digital, 6 channels)	☐	☐	☐	☐	☐	☐
Interface Converter RS-485C → 232C Included a Cable (5m / 16.4ft)	☐	☐	☐	☐	☐	☐
Interface cable (5m / 16.4ft)	☐	☐	☐	☐	☐	☐
Warning signal lamp	☐	☐	☐	☐	☐	☐
Inner Glass Door	☐	☐	☐	☐	☐	-
Viewing window	☐	☐	☐	☐	-	☐
Wire shelf	☐	☐	☐	☐	☐	☐
Perforated shelf	☐	☐	☐	☐	☐	☐
Cable port (Ø 50mm / 2")	☐	☐	☐	☐	☐	☐
Cable port (Ø 80mm / 3.2")	☐	☐	☐	☐	☐	☐
Temperature sensor (RTD type)	☐	☐	☐	☐	☐	☐
Humidity sensor	☐	☐	☐	☐	☐	☐
Fluorescent Lamp (Cool White)	-	-	-	-	☐	-
UVA Lamp	-	-	-	-	☐	-
UV Sensor	-	-	-	-	☐	-
Illumination Sensor	-	-	-	-	☐	-
HEPA filter	-	-	-	-	-	☐
ULPA filter	-	-	-	-	-	☐
Water Cartridge Tank (Water Container)	☐	☐	☐	☐	-	☐
Water purifier	☐	☐	☐	☐	☐	☐
Direct water system	☐	☐	☐	☐	☐	☐

Ordering Information

Cat. No.	Description	Suitable for
AAA8T500	Recorder (6 points)	All models
AAA8T505	Recorder (Digital, 6 channels)	All models
AAA8T540	Interface Converter RS-485C → 232C Included a Cable (5m / 16.4ft)	All models
AAA8T542	Interface cable (5m / 16.4ft)	All models
AAA80550	Warning signal lamp	All models
AAA81552	Inner Glass Door	TH-G/I/KH-180
AAA81551		TH-G/I/KH-300, 408, CR-270
AAA81550		TH-G-800, 1000
AAAC2501		TH-TG-180
AAAC2502		TH-TG-300, 408
AAAC2503		TH-TG-800, 1000
AAA81554		TH-ICH-300
AAA81555		TH-ICH-800
AAA8T610		All models
AAA8T611		All models
CFA1185	Temperature sensor (RTD type)	TH-G/I/GU models
CFA1923		TH-TG/ICH/CR models
CFA7113	Humidity sensor	All models
RTD1190	Fluorescent Lamp (Cool White)	TH-ICH-300
RTD1191		TH-ICH-800
RTD1188	UVA Lamp	TH-ICH-300
RTD1189		TH-ICH-800
AAA80680	THE-680 UV Sensor	TH-ICH-300/800
AAA80681	THE-681 Illumination Sensor	TH-ICH-300/800
AAA80661	Door Lock device	TH-ICH-300/800
EDA9184	HEPA filter	TH-CR-270
EDA9175	ULPA filter	TH-CR-270
AAA80622	Water Cartridge Tank	All models

Cat. No.	Description	Suitable for
AAA8T621	Water purifier	All models
AAA80620	Direct water system	All models
EDA8212	Wire shelf	TH-G/I/KH-180
EDA8213		TH-G/I/KH-300
EDA8214		TH-G/I/KH-408
EDA8215		TH-G-800
EDA8216		TH-G-1000
RTD1302		TH-TG-180
RTD1303		TH-TG-300
RTD1300		TH-TG-408
RTD1304		TH-TG-800
RTD1301		TH-TG-1000
RTD1305	Perforated shelf	TH-G/TG-1500
RTD1196		TH-ICH-300
RTD1198		TH-ICH-800
STT1040		TH-CR-270
AAA80602-1		TH-G/I/KH-180
AAA80602-2		TH-G/I/KH-300
AAA80602-3		TH-G/I/KH-408
AAA80602-4		TH-G-800
AAA80602-5		TH-G-1000
AAA80604-11		TH-TG-180
AAA80604-12		TH-TG-300
AAA80604-13		TH-TG-408
AAA80604-14		TH-TG-800
AAA80604-15		TH-TG-1000
AAA80604-16		TH-G/TG-1500
AAA80604-2		TH-ICH-300
AAA80604-4		TH-ICH-800
AAA80603-1		TH-CR-270

Temp. & Humid. Chambers

Plant Growth Chambers (GC)

Optimal photosynthesis condition guaranteed when using our plant growth chamber.

Ample capacity, maximum capacity of 1000L to satisfy user's plant growth needs



GC-1000TLH

Optimal photosynthesis condition for plant growth.

- ▶ Uniform temperature and humidity. (TLH models)
- ▶ Reinforced Blue and Red spectrums lighting system for plant photosynthesis.
- ▶ Optional CO₂ sensor (optional)
- ▶ Programmable temperature, humidity, and lighting.
- ▶ Progressive temperature, humidity, illumination program control for optimization of plant growth environment for night and day.

Temp. & Humid. Chambers

Plant Growth Chambers (GC)

► Safety Features

- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection,
- Overheat protection.
- Door open alarm.

► Operating Features

General Control System

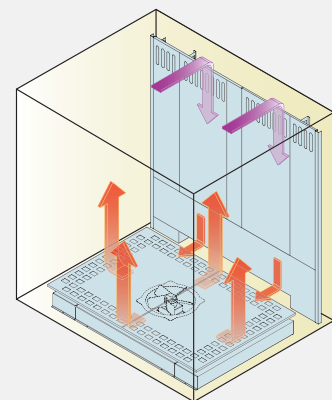
- 5°C to 50°C (lamp off) / 10°C to 50°C. (lamp on)
- Max. to 35,000Lux for GC-1000.
Max. to 20,000Lux for GC-300 Models.
- 40 to 80% RH for GC-300TLH. (at 20~35°C)
50 to 90% RH for GC-1000TLH. (at 20~35°C)
- Max. 5,000ppm CO₂ ON/OFF system. (optional)
- Microprocessor PID control / Auto-tuning / Calibration.
- 10 step programmable temperature, humidity, and illumination profiles and repeatable steps of up to 999 cycles.

Illuminance Control System

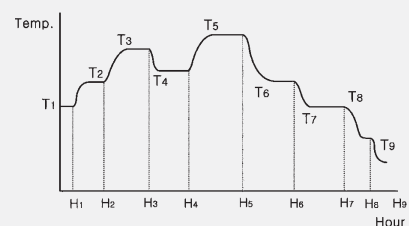
- Uniformed luminescence distribution.
- Broad distribution of side lamps for hastening the growth of plants.
- High intensity illumination of upper lamp for light efficient and low thermal load. (only for GC-1000TLH/1000TL)
- Unique construction for minimization of heat increase from surrounding lamps.
 - Tempered glass door blocks heated air from lamps.
 - Designed to exhaust heated air through upper vent holes. (only for GC-1000TLH)
- Stable and long lasting lighting through introduction of high frequency electronic ballast lamps.

► Constructional Features

- Ergonomically designed door construction.
 - Inner glass door with silicone and external door with magnetic sealing for dual airtight packing.
 - Well designed providing a smooth open for minimization of damage to plants.
- Wide inner tempered glass door for clear observation of plant growth without affecting inner chamber's environment.
- Tall plants can be grown inside of the chamber with adjustment of shelf level.
- Maintenance of water supply are easily performed with a front water tank. (GC-1000TLH)
 - Water level check indicated by water level bar in the tank.
- Water supply during operation is also available for long term test purposes.
- Adjustable water tank position. (only for GC-300TLH)
- Detachable condenser air-filter for easy maintenance of refrigerating efficiency.
 - Maintenance of air filter no longer cumbersome with our detachable condenser air filter.
- Casters for easy mobility during installation or relocation.



Efficient airflow for plant growth (1000L)



Temperature setting graph

* 00:00 time value setting for the step 10 makes total number of step is 9 as the above graph.

Temp. & Humid. Chambers

Plant Growth Chambers

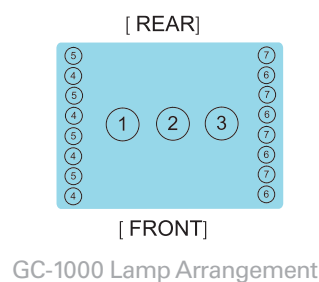
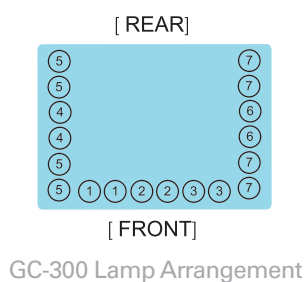
Specifications & Ordering Information



Model		GC-300TL		GC-300TLH		GC-1000TLH	
Chamber Volume (L / cu ft)		300 / 10.6				1000 / 35.3	
Control System		Microprocessor PID controller					
Temperature	Range (°C / °F)	5 to 50 / 41 to 122 - Lamp off					
		10 to 50 / 50 to 122 - Lamp on					
		20 to 50 / 68 to 122 - with humidity					
	Fluctuation (±°C / °F) at 25°C	0.1 / 0.18 - without humidity					
	Variation (±°C / °F) at 25°C	0.8 / 1.43 - without humidity					
Illumination	Range (Lux)	0 to 20,000				0 to 35,000	
	Control (steps)	10				11	
	Lamp	Fl lamp (32W×18EA)				FL lamp (32W×16EA) Metal lamp (400W×3EA)	
Humidity	Range (% RH)	-	40 to 80 at 20 to 35°C		50 to 90 at 20 to 35°C		
			70 to 90 at 36 to 50°C		60 to 90 at 36 to 50°C		
	Fluctuation (±RH) at 60% RH	-	3				
CO ₂ (optional)	Range (ppm)	Max. 5,000					
	Sensor	NDIR CO ₂ sensor					
Refrigerant (HP)		1/2				3/4	
Temp. Heater Power (W)		750×2EA				1,500×2EA	
Humid. Heater Power (W)		-		1300		1500	
Dimension (W×D×H)	Interior (mm / inch)	510×540×1100 / 20×21.3×43.3				1200×800×1080 / 47.2×31.5×42.5	
	Exterior (mm / inch)	700×805×1900 / 27.6×30.1×74.8				1410×1070×2150 / 55.5×42.1×84.7	
	Net Weight (kg / lbs)	250 / 551.2				550 / 1212.5	
Electrical Requirements (230V)		60Hz / 12.5A	50Hz / 12.5A	60Hz / 16A	50Hz / 16A	60Hz / 30A	50Hz / 30A
Cat. No.		AAHA1011K	AAHA1012K	AAHA1021K	AAHA1022K	AAHA1031K	AAHA1032K

Lamps Setting

Control illumination values with the below lamp setting arrangements.



Lamps Setting for GC-300

No.	Lux (lx)	Set Values on Display	Lamp Diagram
1	1,500	0000 010	2
2	3,500	0000 101	1,3
3	5,500	0000 111	1,2,3
4	6,000	0101 010	2,4,6
5	8,000	0101 101	1,3,4,6
6	10,000	1010 010	2,5,7
7	12,000	1010 101	1,3,5,7
8	14,000	1111 010	2,4,5,6,7
9	17,000	1111 101	1,3,4,5,6,7
10	20,000	1111 111	1,2,3,4,5,6,7

※ Above the set values are measured at the center of chamber toward upside.

Lamps Setting for GC-1000

No.	Lux (lx)	Set Values on Display	Lamp Diagram
1	5,000	0101 000	4,6 (or 5,7)
2	7,500	0000 010	2
3	9,500	1111 000	4,5,6,7
4	12,500	0101 010	2 with 4,6 (or 5,7)
5	15,000	0000 101	1,3
6	18,500	1111 010	2,4,5,6,7
7	21,000	0101 101	1,3 with 4,6 (or 5,7)
8	24,000	0000 111	1,2,3
9	28,000	1111 101	1,3,4,5,6,7
10	31,500	0101 111	1,2,3 with 4,6 (or 5,7)
11	35,000	1111 111	1,2,3,4,5,6,7

Temp. & Humid. Chambers

Accessories & Options

for Plant Growth Chambers



Wire Shelves



Perforated Shelves



Recorder



CO₂ Sensor

Wire Shelves

Cat. No.	Included	Description Maximum	Dimensions (W×L)	Models
EDA8220	3	15	466×490mm (18.3×19.3")	GC-300TL GC-300TLH
EDA8222	6	30	580×770mm (22.8×30.3")	GC-1000TLH

Perforated Shelves

Cat. No.	Included	Description Maximum	Dimensions (W×L)	Models
AAA22522	-	15	466×490mm (18.3×19.3")	GC-300TL GC-300TLH
AAAA1512	-	30	580×770mm (22.8×30.3")	GC-1000TLH

Recorder

Cat. No.	Description	Models
AAAA1501	Recorder (6 points) with temperature sensor	All GC series

CO₂ Control System

Cat. No.	Description	Models
AAAA1521	CO ₂ control system	All GC series

※ In addition to providing standard accessories, we will manufacture customized accessories to meet your specific requirements. Contact us for details.

Pipettes



► Mechanical Pipettes

- Volume Locking device.
- Volume on the knob is fully visible during both left and right handed operation.
- The only pipetter with fixed and variable exchangeable counter mechanism.
- Single-channel Models:
Lightweight handle for ease of tip ejection with finger rest.
- Multi-channel Models:
Large handle for comfortable grip and soft-touch tip ejection.
- Entire pipetter can be steam autoclaved. (No disassemble required)
- Double O-ring for optimal tip seal.



► Electronic Pipettes

- Easy electronic setting and pipetting without hand fatigue.
- Automatic calibration.
- Large easy-to-read display.
- Aspirating and Dispensing Speed: 5 steps.
- Pipetting mode:
 - Auto: Automatic pipetting
 - MD: Multi dispensing with Reverse pipetting.
 - Mix: Mixing
 - SE: Sequential Aspirating and Dispensing.
- Acoustic Signals, Tip Ejection Alarm, Blow-Out function.
- Program Recall: Maximum 9 protocols can be stored.
- Lower half of the pipetter is Autoclavable.
- Double O-ring for optimal tip seal.
- Left and right handed operation available for Multi-channel Models.



► Pipette Controller / Aid

- Light and fatigue free: weights only 167g, including the battery.
- Powerful: 50ml pipette is filled in less than 10 seconds.
- Gravity delivery, blow-out dispensing and fully adjustable speed-setting.
- Exchangeable 0.2 μ m PTFE disc filter acts as effective shut-down system if overfill occurs.
- Vapour outlet for venting out corrosive liquids or fumes.
- Autoclavable: Nose cone, pipette holder and filter.

Specifications & Ordering Information

Mechanical Pipettes



Cat No.	Type	Description	Inaccuracy %	Imprecision %	Color Code
BCPC021S	Single	variable vol. 0.2-2 μ l	12 / 2	6 / 1	Violet
BCPC101		variable vol. 0.5-10 μ l	2.5 / 1	1.8 / 0.5	White
BCPC201		variable vol. 2-20 μ l	5 / 1	1.5 / 0.3	Gray
BCPC501		variable vol. 5-50 μ l	2 / 1	1.2 / 0.3	Red
BCPC1001		variable vol. 10-100 μ l	2 / 0.7	0.8 / 0.2	Orange
BCPC2001		variable vol. 20-200 μ l	1.5 / 0.6	0.5 / 0.15	Yellow
BCPC10001		variable vol. 100-1000 μ l	1.5 / 0.8	0.4 / 0.15	Blue
BCPC50001		variable vol. 1000-5000 μ l	1.2 / 0.6	0.3 / 0.15	Green
BCPC108	Multi	8-channel, 0.5-10 μ l	5 / 2	3.6 / 1	White
BCPC208		8-channel, 2-20 μ l	5 / 2	3.6 / 1	Gray
BCPC508		8-channel, 5-50 μ l	3.2 / 1.4	1.6 / 0.6	Red
BCPC1008		8-channel, 10-100 μ l	2.5 / 1.3	1.2 / 0.5	Orange
BCPC2008		8-channel, 20-200 μ l	1.8 / 1.2	0.8 / 0.4	Yellow
BCPC3008		8-channel, 30-300 μ l	1.66 / 1.4	0.6 / 0.3	Black

Specifications & Ordering Information

Electronic Pipettes



Cat No.	Type	Description	Inaccuracy %	Imprecision %	Color Code
BCPE201BA	Single	1-channel, 2-20 μ l	1	0.3	Red
BCPE2001BA		1-channel, 10-200 μ l	0.6	0.15	Yellow
BCPE10001BA		1-channel, 100-1000 μ l	0.5	0.15	Blue
BCPE208BA	Multi	8-channel, 2-20 μ l	1	0.3	Red
BCPE2008BA		8-channel, 10-200 μ l	0.6	0.15	Yellow
BCPE12008BA		8-channel, 100-1200 μ l	0.5	0.15	Blue

Specifications & Ordering Information

Pipette Controller / Aid



Model		Pipette Controller
Pipette Range		0.1~100ml
Aspirating and Dispensing Speed		6ml/sec
Material	Body	UV-resistant ABS housing
	Filter	25 mm diameter, PTFE(external), Hydrophobic(internal), 0.2 μ m,
	Nose Cone	Polypropylene
	Pipette Holder	Silicon
Electrical Requirement	Battery	600 mAh / 3.6 V (up to 12 hours of continuous use of Lithium battery)
	Power Adapter	AC 100~240V, AC-DC 3.6V
Cat. No.		BCPPA100

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

Pipettes

Accessories & Options



Pipette Tips



Volume Controller Knobs



Combi Stands

Pipette Tips

- A variety of Pipette tips
 - Standard tips, Low retention tips and Low retention filter tips.
- Superiority of Low retention tips.
 - Low retention tips deliver volumes within 0.1 % of the set volume, versus 0.5-0.7% for standard tips.
- Filter tips Eliminate opportunities for cross contamination.
 - No detectable nucleic acid contamination, No detectable PCR inhibitors, No detectable endonucleases, No detectable endotoxin, Sterile.
- Cost saving ReLoad system.
 - A unique ReLoad system makes re-filling the racks easier than ever, and is designed to cut down on both cost and waste.

Cat. No.	Type	Size(μl)	Sterile	Packaging	Qty/Unit	Description
BCP5130010C	Standard Tips	10	-	Bag	1000 Tips × 20	Clear
BCP5130070C		200	-	Bag	1000 Tips × 10	Clear
BCP5130100C		300	-	Bag	1000 Tips × 10	Clear
BCP5130130C		1000	-	Bag	1000 Tips × 5	Clear
BCP5130160C		5000	-	Bag	250 Tips × 10	Clear
BCP5130105C		300	-	Hinged Racks	10x96 Tips × 5	-
BCP5130135C		1000	-	Hinged Racks	16x60 Tips	-
BCP5130165C		5000	-	Racks	10x50 Tips	-
BCP5130110C		300	pre-sterile	Hinged Racks	10x96 Tips × 5	-
BCP5130140C		1000	pre-sterile	Hinged Racks	16x60 Tips	-
BCP5030010C	Low Retention Tips (without filter)	10	-	Bag	1000 Tips × 20	Clear
BCP5030070C		200	-	Bag	1000 Tips × 10	Clear
BCP5030015C		10	-	Hinged Racks	10x96 Tips × 5	-
BCP5030075C		200	-	Hinged Racks	10x96 Tips × 5	-
BCP5030020C		10	pre-sterile	Hinged Racks	10x96 Tips × 5	-
BCP5030080C		200	pre-sterile	Hinged Racks	10x96 Tips × 5	-
BCP5030035C		10	pre-sterile	-	20x96 Tips × 4	Reload
BCP0530095C		200	pre-sterile	-	10x96 Tips × 10	Reload
BCP5131030C	Low Retention Tips (with filter)	10	pre-sterile	Bag	1000 Tips × 20	-
BCP5131062C		20	pre-sterile	Bag	1000 Tips × 10	-
BCP5131066C		100	pre-sterile	Bag	1000 Tips × 10	-
BCP5131090C		200	pre-sterile	Bag	1000 Tips × 10	-
BCP5131150C		1000	pre-sterile	Bag	1000 Tips × 10	-
BCP5030030C		10	pre-sterile	Hinged Racks	10x96 Tips × 5	-
BCP5030062C		20	pre-sterile	Hinged Racks	10x96 Tips × 5	-
BCP5030066C		100	pre-sterile	Hinged Racks	10x96 Tips × 5	-
BCP5030090C		200	pre-sterile	Hinged Racks	10x96 Tips	-
BCP5130150C		1000	pre-sterile	Hinged Racks	8x60 Tips × 10	-
BCP5130155C		1000	pre-sterile	-	10x96 Tips × 5	Reload

Pipettes

Accessories & Options



Carousel Stands



Wall Holders



Stand for Electronic Pipettes

for Mechanical Pipettes

Cat. No.	Description	Models	
		Single	Multi
BCP2VZ	Variable volume controller knob for 0.2-2 μ l pipettes	•	-
BCP10VZ	Variable volume controller knob for 0.5-10 μ l pipettes	•	•
BCP20VZ	Variable volume controller knob for 2-20 μ l pipettes	•	•
BCP50VZ	Variable volume controller knob for 5-50 μ l pipettes	•	•
BCP100VZ	Variable volume controller knob for 10-100 μ l pipettes	•	•
BCP200VZ	Variable volume controller knob for 20-200 μ l pipettes	•	•
BCP1000VZ	Variable volume controller knob for 100-1000 μ l pipettes	•	-
BCP5000VZ	Variable volume controller knob for 1000-5000 μ l pipettes	•	-
BCP300VZ1	Variable volume controller knob, 30-200 μ l, for 30-300 μ l pipettes	-	•
BCP300VZ	Variable volume controller knob, 125-300 μ l, for 30-300 μ l pipettes	-	•
BCP02FE1	1 μ l fixed volume controller knob for 0.2-2 μ l pipettes	•	-
BCP02FE2	2 μ l fixed volume controller knob for 0.2-2 μ l pipettes	•	-
BCP10FE5	5 μ l fixed volume controller knob for 0.5-10 μ l pipettes	•	-
BCP10FE10	10 μ l fixed volume controller knob for 0.5-10 μ l pipettes	•	-
BCP20FE10	20 μ l fixed volume controller knob for 2-20 μ l pipettes	•	-
BCP20FE20	20 μ l fixed volume controller knob for 2-20 μ l pipettes	•	-
BCP50FE20	20 μ l fixed volume controller knob for 5-50 μ l pipettes	•	-
BCP50FE25	25 μ l fixed volume controller knob for 5-50 μ l pipettes	•	-
BCP50FE50	50 μ l fixed volume controller knob for 5-50 μ l pipettes	•	-
BCP100FE30	30 μ l fixed volume controller knob for 10-100 μ l pipettes	•	-
BCP100FE50	50 μ l fixed volume controller knob for 10-100 μ l pipettes	•	-
BCP100FE100	100 μ l fixed volume controller knob for 10-100 μ l pipettes	•	-
BCP200FE100	100 μ l fixed volume controller knob for 20-200 μ l pipettes	•	-
BCP200FE200	200 μ l fixed volume controller knob for 20-200 μ l pipettes	•	-
BCP1000FE500	500 μ l fixed volume controller knob for 100-1000 μ l pipettes	•	-
BCP1000FE1000	1000 μ l fixed volume controller knob for 100-1000 μ l pipettes	•	-
BCPC10001FT	Disposable filter for use with 100-1000 μ l pipettes, bag w/ 50 pcs	•	-
BCPC50001FT	Disposable filter for use with Capp 1000-5000 μ l pipettes, bag w/ 25 pcs	•	-
BCP003921	Block for 4 volume controllers	•	•
BCPC01	Combi Stand (2 modules) for up to 3 mechanical pipettes	•	•
BCPS06	Carousel stand for up to 6 mechanical pipettes	•	•
BCPW1M	Wall holder for mechanical pipettes	•	•
BCP001691	Bench top stand for multichannel pipettes	-	•

for Electronic Pipettes

Cat. No.	Description	Models	
		Single	Multi
BCPESTAND	Stand for 3 units of Electronic pipettes	•	•

Plasticware

Carboys

Great for storing and dispensing solutions.

Sturdy carboys have a spigot which is molded in to the body for convenience and strength.



Features

- Space-saving design for storing liquid solvent.
- HDPE container features durable and excellent chemical resistance.
- Spigot provides easy dispensing and leak resistance.
- The amount of liquid solvent is easily adjustable by spigot tap's angle.
- Molded in shoulder handles provide great convenience and strength.
- Gradations for easy checking.
 - DBR models : gradations on the side and front of the body are great for checking the volume of media at any side of view.
 - DBC models : gradations on the front and bottom for convenience of storing media even when you stand the carboy up.

Specifications & Ordering Information

Model		DBR-05	DBR-10	DBR-20	DBC-05	DBC-10
Description		Round type			Rectangular type	
Volume (L / gal)		5 / 1.32	10 / 2.64	20 / 5.28	5 / 1.32	10 / 2.64
Tube inner dia. (Ø, mm / inch)		15.9 / 5/8" (when used with provided spigot adapter : 6.35~7.94 / 1/4"~5/16")				
Material	Body	HDPE (High-density polyethylene)				
	Cap	Polypropylene & Silicone				
	Spigot	Polypropylene & Teflon				
Dimension	Overall (WXDXH, mm / inch)	180 x 242 x 333 / 7.1 x 9.5 x 13.1	225 x 277 x 399 / 8.9 x 10.9 x 15.7	260 x 317 x 539 / 10.2 x 12.5 x 21.2	114 x 387 x 305 / 4.5 x 15.2 x 12	204 x 387 x 317 / 8 x 15.2 x 12.5
	Opening inner size (Ø, mm/inch)	Ø 51 / 2	Ø 73 / 2.9	Ø 74 / 2.9	Ø 49 / 1.9	Ø 72 / 2.8
	Net Weight (kg / lbs)	0.8 / 1.8	1.5 / 3.3	2.1 / 4.6	1.4 / 3.1	1.8 / 4
Cat. No.		AAAJ3011	AAAJ3021	AAAJ3031	AAAJ3111	AAAJ3121

Plasticware

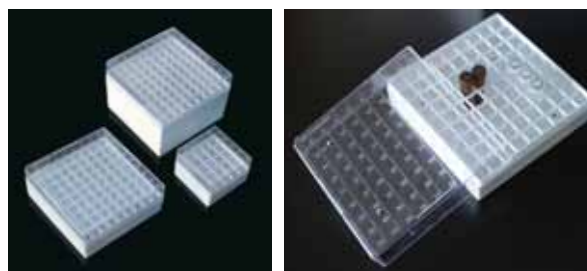
Cryo Box & Storage Box

Cryo Box

Designed for ultra-low temperature storage of biological materials.

Features

- Ideal for use in mechanical freezers and liquid nitrogen tanks.
- Autoclavable and polycarbonate chemical resistance materials.
- Transparent lid with alphanumeric inscription is beneficial for clear sample's monitoring and easy sample arrangement.
- Heat Resistance : -196°C to 121°C



Specifications & Ordering Information

Model	CRB-25	CRB-81S	CRB-81T
Tube size (ml)	1.2 to 2.0	1.2 to 2.0	5
Max. mountable tube	25 (5×5)	81 (9×9)	81 (9×9)
Dimension (W×D×H) (mm / inch)	77×77×53 / 3.0×3.0×2.1	132×132×54 / 5.2×5.2×2.1	132×132×96 / 5.2×5.2×3.8
Material	PC (Polycarbonate)		
Cat. No.	AAAJ7001	AAAJ7002	AAAJ7003

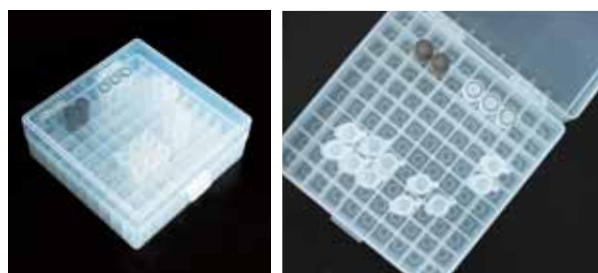
※ Above specifications can be changed without prior notice.

Storage Box

Suitable for storage of samples in general conditions.

Features

- Autoclavable and polypropylene chemical resistance materials.
- Transparent lid with locking clasp keeps samples secure while offering a clear view of samples.
- Alphanumeric grid on the lid for easy handling and identifying samples.
- Heat Resistance: -20°C to 121°C

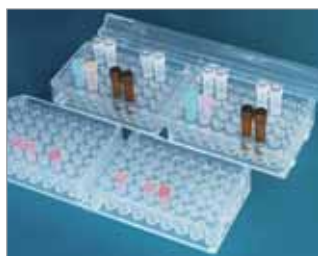


Specifications & Ordering Information

Model	SRB-100
Tube size (ml)	1.2 to 2.0
Max. mountable tube	100 (10×10)
Dimension (W×D×H) (mm / inch)	140×140×53 / 5.5×5.5×2.1
Material	PP (Polypropylene)
Cat. No.	AAAJ7011

※ Above specifications can be changed without prior notice.

Transparent and chemical resistance tube racks are ready to play a vital role in the laboratory environment.



Micro tube Rack with Cap 30ml Centrifuge tube Rack 15ml Conical tube Rack 50ml Conical tube Rack

Micro tube Rack

- Autoclavable and chemical resistance PC rack.
- Included transparent cap has a recessed area allowing stacking.
- Use each rack itself alone and also it is suitable for use with Microplate Shakers.
- Hold eighty 1.5/2.0 ml micro tubes on one side or eighty 1.2/0.5 ml micro tubes on the other.

Centrifuge tube Rack

- Autoclavable and chemical resistance PC rack.
- Hold six 30 ml centrifuge tubes.

Conical tube Rack

- Chemical resistance ABS racks and PC rack are available.
- Use each rack itself alone and also it is suitable for use with Microplate Shakers. (only for ABS racks)
- Autoclavable (only for PC rack)

Specifications & Ordering Information

Micro tube Rack

Model	1.5/2.0ml Micro tube rack
	0.2/0.5ml Micro tube rack
Material	PC (Polycarbonate)
Dimensions (WxDxH, mm / inch)	269 x 90 x 50 (cap included) / 10.6 x 3.5 x 2.0
Max. mountable tube	80 (5 x 16), each side
Cat. No.	AAAJ2311

Centrifuge tube Rack

Model	30ml Centrifuge tube Rack
Material	PC (Polycarbonate)
Dimensions (WxDxH, mm / inch)	263 x 55 x 55, Ø 25.7 / 10.4 x 2.2 x 2.2, Ø 1.0
Max. mountable tube	6
Cat. No.	AAAJ2111

Conical tube Rack

Model	15ml Conical tube Rack	50ml Conical tube Rack
Material	ABS (Acrylonitrile-butadienestyrene)	ABS (Acrylonitrile-butadienestyrene) PC (Polycarbonate)
Dimensions (WxDxH, mm / inch)	269x85x72 / 10.6x3.3x2.8	269x85x72 / 10.6x3.3x2.8 263x55x55 / 10.4x2.2x2.2
Max. mountable tube	30 (3 x 10)	12 (2 x 6) 6 (1 x 6)
Cat. No.	CPS0011	CPS0012 AAAJ2211

Plasticware

Ice Pan/On-Ice Rack & Flask Supports

Ice Pan/On-Ice Rack

Ice pan keeps bottles, test tubes, and temperature-sensitive samples cool for hours.

Features

- Rigid one molded urethane foam construction provides high durability and excellent insulating properties.
- Water proof, leak proof, unbreakable with normal use.
- Rim enables safe handling and transport.
- Ice pan can be used with On-ice racks(optional) for higher heat transfer. Scratch-proof and high heat transfer aluminum rack with easy tube identification.(numbers carved into the rack)



Specifications & Ordering Information

Ice Pan

Model		IBS-310
Material	Urethane Foam	
Volume (L / cu ft)	4 / 0.14	
Dimension (WxDxH)	Overall (mm / inch)	347x257x132 / 13.7x10.1x5.2
	Net Weight (kg / lbs)	1.4 / 3.1
Cat. No.	AAAJ2801	

Optional Accessory - On-Ice Rack

Model		JCB-150
Material	Aluminum	
Dimensions (WxDxH, mm)	157.5 x 151.5 x 21.1	
Max. mountable tube	1.5ml micro tube x 50ea 0.2ml micro tube x 64ea	
Cat. No.	AAAJ2011	



Flask Supports

It's concave recessed, secure, and safe multi-volume flask holder.

Features

- Polypropylene body is chemically resistant to various organic solvents.
- Heat Resistance: -30°C ~ 121°C
- Convenient grip for easy carrying
- Noticeable name tag for classification
- Multi-purpose holder also is able to hold ice.



Specifications & Ordering Information

Model	FT 010 13	FT 010 34	FT 025 12	FT 025 23
Hole Capacity (ml)	100	100	250	250
Hole (Dia, xH) (mm / inch)	70x91 / 2.76x3.58	70x91 / 2.76x3.58	98x122 / 3.86x4.8	98x122 / 3.86x4.8
Dimension (WxDxH) (mm / inch)	310x100x100 / 12.2x3.94x3.94	384x265x98 / 15.12x10.43x3.86	280x125x130 / 11.02x4.92x5.12	389x239x130 / 15.31x9.41x5.12
Cat. No.	AAA23706	AAA23701	AAA23707	AAA23702
Model	FT 050 12	FT 100 12	FT 200 12	
Hole Capacity (ml)	500	1000	2000	
Hole (Dia, xH) (mm / inch)	121x128 / 4.76x5.04	148x156 / 5.83x6.14	183x188 / 7.2x7.4	
Dimension (WxDxH) (mm / inch)	360x146x135 / 14.17x5.75x5.31	415x192x165 / 16.34x7.56x6.5	503x223x199 / 19.8x8.78x7.83	
Cat. No.	AAA23703	AAA23704	AAA23705	

Ultrasonic Cleaners

Aggressive cleaning ability in a variety of output modes!

Industrial B.L.T type ultrasonic transducer (Bolt Clamped Langevin Type Transducer) generates high-frequency sound waves that provide maximum cleaning power.



UCP-02 / UCP-10

Included Accessories • Cover, Basket, Drain Valve (except for UCP-02)



* Baskets as standard offer (1ea per a unit)



UCS-20

Included Accessories • Cover, Basket, Drain Valve

► Features for UCP Models (ABS, Membrane key pad, and SUS tank)

- Durable / flame resistance ABS material used and cover with 304 stainless steel tanks.
- Over-temperature protection with alarm. (except for UCP-02)
- Digital LED display using splash-proof keypads: timer (1 to 99 min, Max 4 hour operating), temperature monitor. (except for UCP-02)
- High-frequency 40 kHz sound waves provide greater cleaning power and increased reliability.
- Multiple output mode(Normal/Pulse/Sweep) with power selection(Low/Middle/ High). (except for UCP-02)
- Before cleaning, dissolved gas removed by degas function. (except for UCP-02)
- Drain valve, basket, cover as standard offer. (except for UCP-02)

► Specifications & Ordering Information

Model		UCP - 02	UCP - 10	UCP - 20
Bath Volume (L / cu ft)		2 / 0.07	10 / 0.35	20 / 0.70
Temperature Range (°C / °F)		-	Amb. to 70 / Amb. to 158	
Ultrasonic Power (W)		100	300	500
Dimension	Bath Internal (W×L, D) (mm / inch)	142×132, 104 / 5.6×5.2, 4.1	295×240, 160 / 11.6×9.4, 6.3	500×290, 160 / 19.7×11.4, 6.3
	Overall (W×L×H) (mm / inch)	290×210×200 / 11.4×8.4×7.9	490×368×297 / 19.3×14.5×11.7	721×451×297 / 28.4×17.8×11.7
	Net Weight (kg / lbs)	2 / 4.4	11 / 24.3	17 / 37.5
Electrical Requirements (230V, 50 / 60Hz)		0.6A	1.3A	2.2A
Cat. No.		BDH532011K	BDH532012K	BDH532013K
Electrical Requirements (120V, 60Hz)		1A	1.7A	4.2A
Cat. No.		BDH532011U	BDH532012U	BDH532013U

► Features for UCS Models (SUS external and tank)

- External and tank parts are made of durable 304 stainless steel.
- Over-temperature protection with alarm.
- Digital LED display using splash-proof keypads: timer (1 to 99 min, Max 4 hour operating), temperature monitor.
- High-frequency 40 kHz sound waves provide greater cleaning power and increased reliability.
- Multiple output mode(Normal/Pulse/Sweep) with power selection (Low/Middle/ High).
- Drain valve, basket, cover as standard offer.

► Specifications & Ordering Information

Model		UCS-05	UCS-10	UCS-20
Bath Volume (L / cu ft)		5.7 / 0.20	10 / 0.35	20 / 0.70
Temperature Range (°C / °F)		Amb. to 70 / Amb. to 158		
Ultrasonic Power (W)		200	300	500
Dimension	Bath Internal (W×L, D) (mm / inch)	295×160, 160 / 11.6×6.3, 6.3	295×240, 160 / 11.6×9.4, 6.3	500×290, 160 / 19.7×11.4, 6.3
	Overall (W×L×H) (mm / inch)	325×230×320 / 12.8×9.1×12.6	325×330×320 / 12.8×12.9×12.6	530×330×297 / 20.9×12.9×11.7
	Net Weight (kg / lbs)	8 / 17.6	11 / 24.3	15 / 33.1
Electrical Requirements (230V, 50 / 60Hz)		0.9A	1.3A	2.2A
Cat. No.		BDH532031K	BDH532032K	BDH532033K
Electrical Requirements (120V, 50 / 60Hz)		1.7A	2.5A	4.2A
Cat. No.		BDH532031U	BDH532032U	BDH532033U

Other Products

Electrophoresis Systems

Three systems for different sized gels, satisfying your need for a more detailed DNA/RNA analysis.



EP-05



EP-10



EP-18

Feature

- The electrophoresis system is a molded transparent polycarbonate product with superior shock-resistance, transparent, and durability to acrylic adhesives
- Detachable electrode assembly allows for easy cleaning and maintenance.
- Each unit comes with one banana cable. Black & red cords are coupled together and can be inserted or extracted at the same time.
- UV-transparent gel trays allow for viewing bands on the UV-transilluminator without removing gel tray.
- Diverse-sized molded gel trays and casters for leak-free casting
 - EP-5 : 82x81mm (1ea) and 82x58mm(2ea) gel trays with one comb position.
 - EP-10 : 181x103mm (2ea) gel trays with max. four comb positions.
 - EP-18 : 181x206mm (1ea) gel tray with max. six comb positions.
- Double-sided combs are provided depending on each model.
 - EP-5 : 1mm thick 27-and 40-well comb (1ea)
 - EP-10, 18 : 1.5mm thick 20-and 31-well comb (2ea), 1mm thick 20-and 31-well comb (2ea), 1.5mm thick 16-and 20-well comb (2ea), 1mm thick 16-and 20-well comb (2ea), 1.5mm thick 25-and 34-well comb (2ea), 1mm thick 25-and 34-well comb (2ea)
- 31-well comb and 16-well comb for matching multichannel pipettes. Suitable for large amounts of sample screening- up to 186 samples at once using 6 combs in EP-18 gel tray.
- Comb-setting grooves in gel trays or caster prevents sliding of combs.
- Adjustable Gel Length.
- Flat, uniformly thick gels are formed by built in level maker on the gel tray and level bubble on the gel castor.

Specifications & Ordering Information

Model		EP-05	EP-10	EP-18
Buffer capacity (L / cu ft)		0.5 / 0.02	1.0 / 0.04	1.8 / 0.07
Material	Tank, Lid, Gel tray, Gel Caster	PC (Polycarbonate)		
	Comb	ABS (Acrylonitrile-butadienestyrene)		
	Electrode	Platinum wire		
Dimension	Electrophoresis tank (mm / inch)	219x134x70 / 8.6x5.3x2.8	219x214x70 / 8.6x8.4x2.8	387x214x70 / 15.2x8.4x2.8
	Gel caster (WxDxH) (mm / inch)	254x87x17 / 10x3.4x0.7	167x264x30 / 6.6x10.4x1.2	167x264x30 / 6.6x10.4x1.2
	Gel tray (WxDxH) (mm / inch)	82x81x17 / 3.2x3.2x0.7	180x102x29 / 7.1x4.0x1.1	180x205x29 / 7.1x8.1x1.1
		82x57x17 / 3.2x2.2x0.7		
	Comb (WxD) (mm / inch)	225x45 / 8.9x1.8	158x46 / 6.2x1.8	158x46 / 6.2x1.8
Net Weight (Kg / lbs) ¹⁾		0.39 / 0.86	0.60 / 1.32	0.93 / 2.05
Cat. No.		AAAJ6011	AAAJ6021	AAAJ6031

1) Electrophoresis unit's weight

* Included Electrophoresis unit, Gel caster unit, Combs in one system. (power supply is not included)

Other Products

Accessories & Options

for Electrophoresis Systems



Electrophoresis Unit



Gel Caster Unit



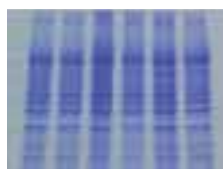
Combs / Electrode Assembly

Electrophoresis Unit

Cat. No.	Description	Suitable for
AAAJ6501	Electrophoresis unit (Tank, Lid, Electrode assembly)	EP-05
AAAJ6502	Electrophoresis unit (Tank, Lid, Electrode assembly)	EP-10
AAAJ6503	Electrophoresis unit (Tank, Lid, Electrode assembly)	EP-18
AAAJ6511	Gel caster unit (Gel caster/tray)	EP-05
AAAJ6512	Gel caster unit (Gel caster/tray)	EP-10
AAAJ6513	Gel caster unit (Gel caster/tray)	EP-18
AAAJ6521	Electrode assembly	EP-05
AAAJ6522	Electrode assembly	EP-10

Cat. No.	Description	Suitable for
AAAJ6523	Electrode assembly	EP-18
AAAJ6531	Comb 27/40 well, thickness 1.0mm (5each)	EP-05
AAAJ6536	Comb 25/34 well, thickness 1.0mm (5each)	EP-10/18
AAAJ6537	Comb 25/34 well, thickness 1.5mm (5each)	
AAAJ6532	Comb 20/31 well, thickness 1.0mm (5each)	
AAAJ6533	Comb 20/31 well, thickness 1.5mm (5each)	
AAAJ6534	Comb 16/20 well, thickness 1.0mm (5each)	
AAAJ6535	Comb 16/20 well, thickness 1.5mm (5each)	

Power Supply



Using Lab Companion EPS-300 power supply, 40 µg of total NCL-H1299 cell lysate was separated by SDS-PAGE electrophoresis.

- Four pairs of outlet terminals enable running 4 cells simultaneously.
- Folding front legs obtain wider viewing angle.
- Compact and stackable design.
- EPS-300 comes with one banana cable together.

Model	EPS-300
Output Range	5–250 V, fully adjustable in 1 V steps 20mA–3000mA, fully adjustable in 10mA steps Max. 300 W
Type of Output	Constant voltage, Constant current
Output Terminals	4pair recessed banana jack in parallel
Timer	1min to 99hr 59min, Continuous (elapsed time display)
Pause/Resume Function	Yes
Display	7-segment 4 digit LED, 2 line
Safety Features	No-load detection, Rapid resistance change detection, Ground leak detection, Overcurrent protection, Overvoltage protection, Overpower protection, Over temperature protection
Dimensions (WxDxH) (mm/inch)	230x307x92 / 9.1x12.1x3.6
Material	ABS
Net Weight (Kg / lbs)	2.5 / 5.5
Electrical Requirements	AC 100 to 240V, 50/60Hz
Power Consumption	4.0A at 100V, 1.7A at 240V (max voltage & max power)
Cat. No.	AAAJ6541



Other Products

Magnetic Drives

Magnetic drives are designed for agitating a fully vacuumed flask.
Multi-functional easy to replace impeller.



Magnetic Drive

► Feature

- Use of rare-earth elements which is Neodymium (Nd), Samarium (Sm-Co) magnet.
- High-speed rpm, vibration free.
- Specifically designed with permanent magnets which has a dynamic torque rating.
- Small size and powerful rotating magnetic drive is useful both for laboratory and manufacturing applications.



Application of Magnetic Drive

► Specifications & Ordering Information

Model		MD-T6-24	MD-T6-29	MD-T6-34
Ground Joint		24 / 40	29 / 42	34 / 45
Material	Body / Housing	SUS316L / CR-PLATE		
	Bushing / Seal	PTFE / Viton		
Driving	Vacuum	Max. 1×10 ⁻⁴ mmHg		
	Pressure	Max. 5kg / cm ²		
	Temp	Max. 70°C (without cooling), Max. 300°C (with cooling)		
Shaft Size (Ø, mm)		Ø8		
Cooling in / out Size (Ø, mm)		Ø3.2		
Dimension (Ø×L, mm)		Ø50×200		
Weight (kg / lbs)		1.02 / 2.25	1.04 / 2.29	1.08 / 2.38
Cat. No.		BEA511001	BEA511002	BEA511003

Other Products

Clamp Holders

Clamp holders are ideal for use with overhead stirrers and hotplate stirrers.

► Feature

- Adjustable to fit support rods up to 5/8" in. diameter.
- Lightweight, also selectable aluminum or polypropylene clamp holders.
- One-molded knob with fixing screw for strong support
- Nonskid contact surface tightens stand rod stably.
- C-20, C-10 for overhead stirrers and C-10, C-7, C-5 for hotplate stirrers.



C-20



C-10



C-7



C-5

Clamp Holders

► Specifications & Ordering Information

Model		C-20	C-10	C-7	C-5
Dimension	Max. (Ø, mm)	27	17	12	12
	Open (Ø, mm)	20	15	-	-
Material	Body	Aluminum			Polypropylene
	Knob	Polypropylene			
	Bolt	Stainless Steel			
Cat. No.		AAA37511	AAA37512	AAA37513	AAA37514

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Best Products for Reliable Results

- / Autoclaves
- / Baths & Circulators
- / Desiccators
- / Furniture
- / Hoods
- / Incubators
- / Ovens
- / Pumps
- / Recirculating Coolers (Chillers)
- / Refrigerators & Freezers
- / Shakers
- / Heating & Cooling Blocks
- / Hotplates & Stirrers
- / Vortex mixers
- / Temperature Chambers
- / Temperature & Humidity Chambers
- / Pipettes
- / Plasticware
- / Ultrasonic Cleaners
- / Other Products
- / Appendixes



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