

Laboratory Instrument

2019 / 2020 CATALOG



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T S L CHEM Co.,Ltd.



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Vacuum Drying Oven

01



VACUUM OVEN

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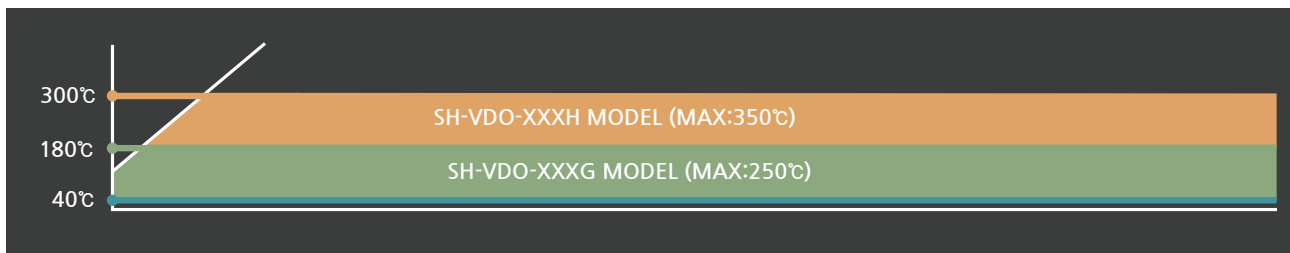
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VACUUM OVEN:

We offer:

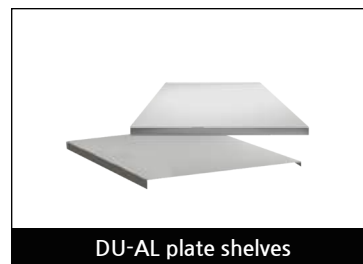
- Vacuum Drying Oven
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- Vacuum Drying Oven Package
- Vacuum Product Accessories

Selection guide



Ambient temperature is below 25°C, relative humidity is lower than 80%.

Shelves' detail



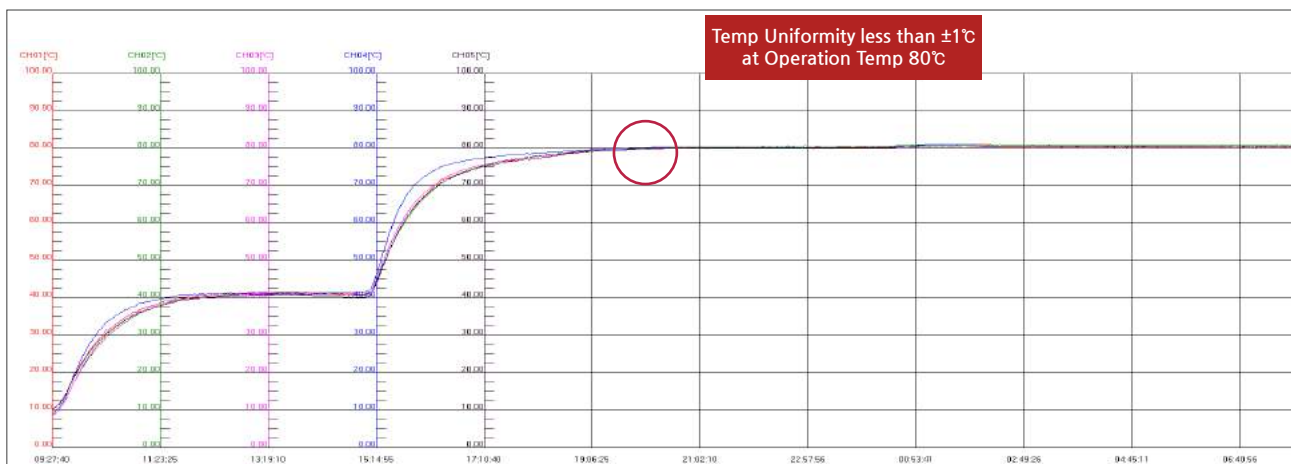
Catalog No.	Type	DIMENSION(WxDxH)	Weight	Material	Applicable Model
VDPS08	DU-AL 50 PLATE	185x183x3	0.3 Kg	Aluminum	SH-VDO-08NG
VDPS30	DU-AL 50 PLATE	285x283x3	0.7 Kg		SH-VDO-30NG
VDPS70	DU-AL 50 PLATE	385x383x3	1.3 Kg		SH-VDO-70NG
VDPS125	DU-AL 50 PLATE	485x483x3	2 Kg		SH-VDO-125NG
VDPS216	DU-AL 50 PLATE	585x583x3	2.5 Kg		SH-VDO-216NG

Vacuum Drying Oven

-Feature

A Vacuum Drying Oven is used for drying at a low temperatures by lowering the pressure. In addition, this unit dries samples without causing residues, scaling, or oxidation. Thus, this equipment widely used in laboratories and other related industries.

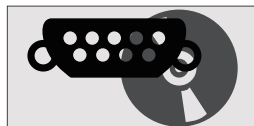
Uniformity sheet



Feature



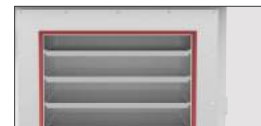
View window with spring mounted shatter proof safety glass panel



RS-485
or
RS-232C interface



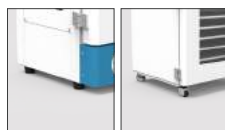
Digital PID controller



Stainless steel
&
Door sealing gasket



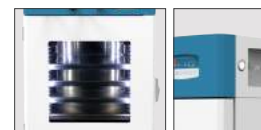
Steel plate with powder heating coated



Leveling feet / caster

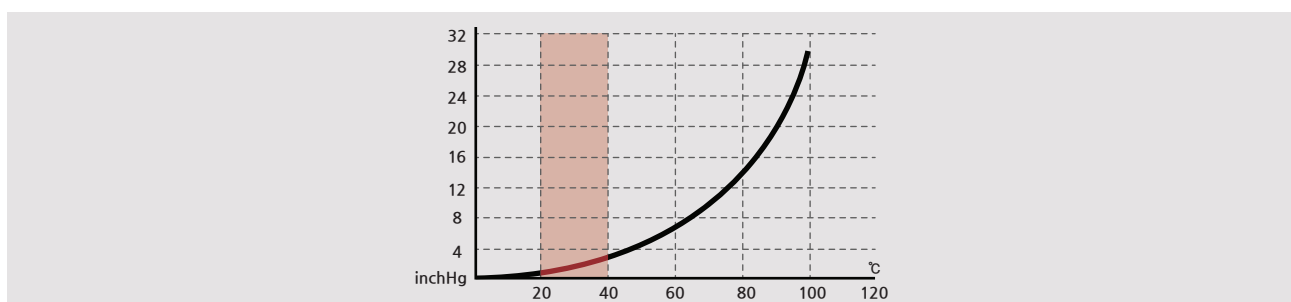


Safety devices



LED Lamp

Water vapor pressure



Vacuum Drying Oven:



Model	SH-VDO-08NG	SH-VDO-30NG	SH-VDO-70NG
Temp Range	Ambient +5℃ to 250℃ (Ambient + 9°F to 482°F)		
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer		
Vacuum Resistance	0 to 76 cmHg (0 to 0.1MPa)		
Temp &Time controller	Microprocess PID Membrane Touch Digital controller		
LED Lamp	-	DC 24V, 1.2W, LED bar, Waterproof, Cool White	
Heater capa	800 W	1000 W	1500 W
Dimension Internal (W×D×H)	200×200×200(mm)	300×300×300(mm)	400×400×400(mm)
	7.87x7.87x7.87(inch)	11.81x11.81x11.81(inch)	15.75x15.75x15.75(inch)
Dimension External (W×D×H)	385×315×555(mm)	605×550×770(mm)	705×620×870(mm)
	15.15x12.40x21.85(inch)	23.81x21.65x30.31 (inch)	27.75x24.80x34.25(inch)
Weight	29 Kg	69 Kg	100 Kg
Capa	8 L	27 L	64 L
Material Internal	Stainless Steel		
Material External	Steel Plate With Powder Heating Coated		
Material Packing	Silicon Rubber Packing		
View Window	Tempered Glass		
Aluminum Shelves	2 Supplied (2 Maximum)	2 Supplied (4 Maximum)	3 Supplied (5 Maximum)
Electrical Requirements 120V ,50/60Hz, 1Φ	6.6 A	8.3 A	12.5 A
Cat. No.	VDO08NG120	VDO30NG120	VDO70NG120
Electrical Requirements 230V,50/60Hz, 1Φ	3.5 A	4.3 A	6.5 A
Cat. No.	VDO08NG230	VDO30NG230	VDO70NG230

Option

Programmable Controller (30NG, 70NG)
RS-485 interface (30NG, 70NG)
RS-232C interface (30NG, 70NG)

Safety Device

Over temp controller
Automatic reset function incoming power cut
Buzzer on when set Time arrived
Electric leakage circuit breaker

Vacuum Drying Oven:



Model	SH-VDO-125NG	SH-VDO-216NG
Temp Range	Ambient +5℃ to 250℃ (Ambient + 9℉ to 482℉)	
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer	
Vacuum Resistance	0 to 76 cmHg (0 to 0.1MPa)	
Temp &Time controller	Microprocess PID Membrane Touch Digital controller	
LED Lamp	DC 24V, 1.2W, LED bar, Waterproof, Cool White	
Heater capa	3000 W	4500 W
Dimension Internal (W×D×H)	500×500×500(mm)	600×600×600(mm)
	19.69×19.69×19.69(inch)	23.62×23.62×23.62(inch)
Dimension External (W×D×H)	815×765×1050(mm)	915×880×1150(mm)
	32.08×30.11×41.33(inch)	36.02×34.64×45.27(inch)
Weight	200 Kg	281 Kg
Capa	125 L	216 L
Material Internal	Stainless Steel	
Material External	Steel Plate With Powder Heating Coated	
Material Packing	Silicon Rubber Packing	
View Window	Tempered Glass	
Aluminum Shelves	4 Supplied (6 Maximum)	5 Supplied (7 Maximum)
Electrical Requirements 120V, 50/60Hz, 1Φ	25.0 A	37.5 A
Cat. No.	VDO125NG120	VDO216NG120
Electrical Requirements 230V, 50/60Hz, 1Φ	13.0 A	19.6 A
Cat. No.	VDO125NG230	VDO216NG230

Option

Programmable Controller
RS-485 interface
RS-232C interface

Safety Device

Over temp controller
Automatic reset function incoming power cut
Buzzer on when set Time arrived
Electric leakage circuit breaker

450°C Vacuum Drying Oven

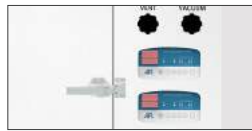
-Feature

Nowadays, the usage of high temperatures in testing and other industries is increasing. Thus, we produce this version of the Vacuum Drying Oven. This unit is suitable for samples that need to operate on a temperature as high as 450°C. This unit can also be used in case of drying samples without causing residues, scaling or oxidation.

Feature



Each shelves heating control function



Digital PID controller



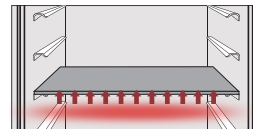
Stainless steel



Steel plate with powder heating coated



Leveling caster

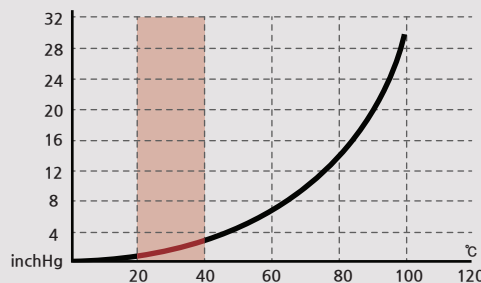


Direct heating shelves



Door sealing gasket

Water vapor pressure



450°C Vacuum Drying Oven:



Model	SH-VDO-30NS	SH-VDO-70NS	SH-VDO-125NS
Temp Range	Ambient +5°C to 450°C (Ambient + 9°F to 842°F)		
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer		
Vacuum Resistance	0 to 76 cmHg (0 to 0.1MPa)		
Temp &Time controller	Microprocess PID Membrane Touch Digital controller		
Controller	2 EA	3 EA	4 EA
Heater capa	1.6 KW	3.0 KW	5.0 KW
Dimension Internal (W×D×H)	300×300×300(mm)	400×400×400 (mm)	500×500×500 (mm)
	11.81x11.81x11.81(inch)	15.75x15.75x15.75(inch)	19.68x19.68x19.68(inch)
Dimension External (W×D×H)	800×570×565(mm)	900×670×665(mm)	1000×770×815(mm)
	31.49x22.44x22.24(inch)	35.43x26.37x26.18(inch)	39.37x30.31x32.08(inch)
Weight	87 Kg	105 Kg	230 Kg
Material Internal	Stainless Steel		
Material External	Steel Plate With Powder Heating Coated		
Material Packing	Silicon Rubber Packing		
View Window	None		
Heating Shelves	2 Supplied	3 Supplied	4 Supplied
Electrical Requirements 120V, 50/60Hz, 1Φ	13.3 A	25.0 A	N/A
Cat. No.	VDO30NS120	VDO70NS120	N/A
Electrical Requirements 230V, 50/60Hz, 1Φ	7.0 A	13.0 A	21.7 A
Cat. No.	VDO30NS230	VDO70NS230	VDO125NS230

Option

One to multi programmable controller

Safety Device

Over temp alarm
Automatic reset function incoming power cut
Buzzer on when set Time arrived
Electric leakage circuit breaker

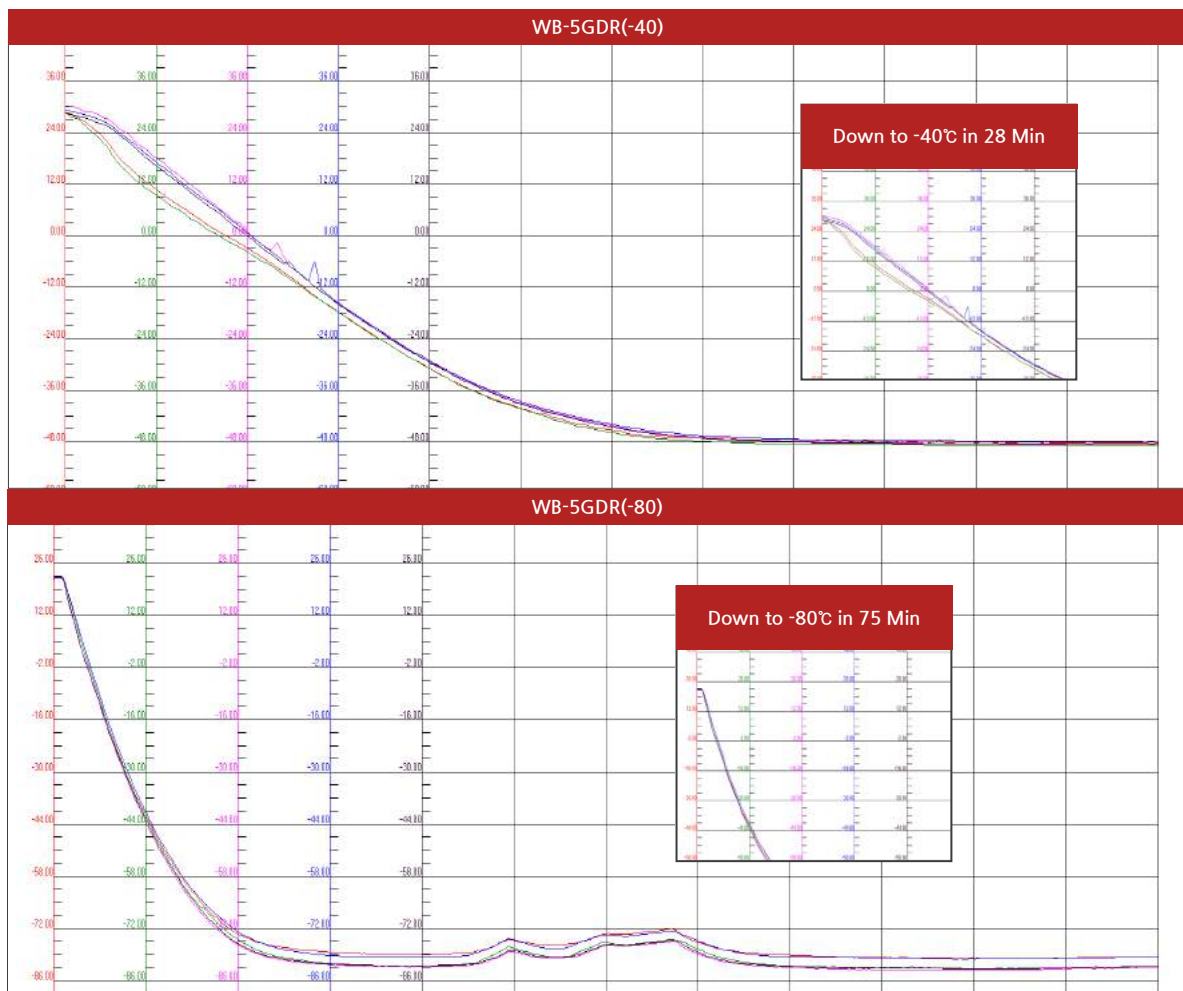


Cold Trap Bath

-Feature

In vacuum applications, a cold trap is a device that condenses all vapors(except the permanent gases) into a liquid or solid. The main purpose is to prevent vapors being produced by an experiment from entering the vacuum pump where they would condense and contaminate it. Cold traps can also cool surfaces or baffles to prevent oil vapors flowing from a pump into a chamber. In such a case, a baffle or section of pipe containing a number of cooled vanes, will be attached to the inlet of an existing pumping system.

Uniformity sheet



Feature



• Digital Controller



• Openable 3 glass trap



• Rust-free stainless coil



• Openable glass trap

Cold Trap Bath:



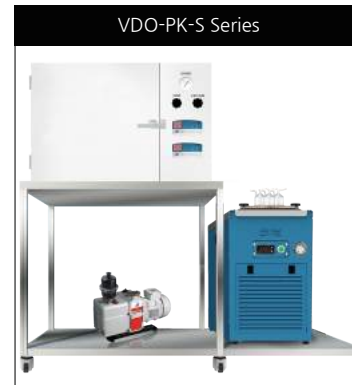
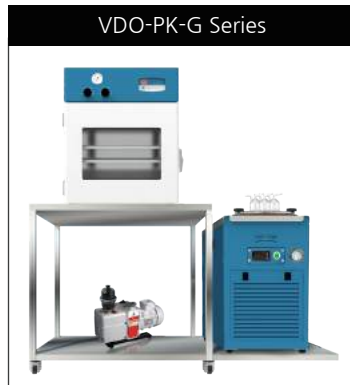
Model	SH-WB-5GDR	
Order Number	SH-WB-5GDR(-40)	SH-WB-5GDR(-80)
Temp Controller	Microprocessor digital controller	
Temp Control Range	-40℃ ~ -20℃ (-40°F ~ -4°F)	-80℃ ~ -60℃ (-112°F ~ -76°F)
Dimension Internal (W×D×H)	180Φ×210H(mm)	180Φ×210H(mm)
	7.09Φ×8.27H(inch)	7.09Φ×8.27H(inch)
Dimension External (W×D×H)	465×560×710(mm)	505×620×750(mm)
	18.18×22.04×27.95(inch)	19.88×24.41×29.52(inch)
Weight	43 Kg	68 Kg
Material Internal	Stainless Steel	
Material External	Steel Plate With Powder Heating Coated	
Trap	Openable glass trap×3EA	
Power	120V, 60Hz, 1Φ	120V, 60Hz, 1Φ
Cat. No.	WB5GDN-40120-60	WB5GDN-80120-60
Power	230V, 60Hz, 1Φ	230V, 60Hz, 1Φ
Cat. No.	WB5GDN-40230-60	WB5GDN-80230-60

Safety Device

Automatic reset function incoming power cut
Electric leakage circuit breaker

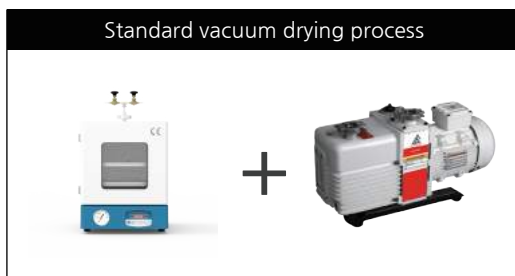


Vacuum Oven Package:



Package Model	VDO-PK-G1	VDO-PK-G2	VDO-PK-G3	VDO-PK-G4
Vacuum Dry Oven	SH-VDO-30NG	SH-VDO-70NG	SH-VDO-125NG	SH-VDO-216NG
Cold Trap	SH-WB-5GDR(-40)	SH-WB-5GDR(-40)	SH-WB-5GDR(-40)	SH-WB-5GDR(-40)
Vacuum Pump	V10	V10	V20	V20
Dimension(mm)	1195W*685D*1560H	1295W*735D*1660H	1405W*895D*1845H	1455W*955D*1865H
Dimension(inch)	47.04x26.96x61.41	50.98x28.93x65.35	55.31x35.23x72.63	57.28x37.59x73.42

Package Model	VDO-PK-S1	VDO-PK-S2	VDO-PK-S3
Vacuum Dry Oven	SH-VDO-30NS	SH-VDO-70NS	SH-VDO-125NS
Cold Trap	SH-WB-5GDR(-40)	SH-WB-5GDR(-40)	SH-WB-5GDR(-40)
Vacuum Pump	V10	V10	V20
Dimension(mm)	1405W*785D*1475H	1505W*885D*1600H	1605W*985D*1750H
Dimension(inch)	55.31x30.9x58.07	59.25x34.84x62.99	63.18x38.77x68.89



Model	Bath Capacity
SH-WB-7CDR	7 L
SH-WB-13CDR	13 L
SH-WB-22CDR	22 L
SH-WB-48CDR	48 L

Model	Pump Speed
V10	78 L/min
V20	156 L/min
V40	312 L/min
V60	474 L/min

Model	Temp Range
SH-WB-5GDR(-40)	-40℃(-40°F) ~ -20℃(-4°F)
SH-WB-5GDR(-80)	-80℃(-112°F) ~ -60℃(-76°F)

SH-V Series

Perfect design and performance

Constantly pursuing on highest technology norms, SH Scientific V series vacuum pump reached new highest level: cylinder structure and innovative oil circulation system results in super stability; auto anti-sucking back valve and two shifts gas ballast makes best reliability; Perfect combination of technology and aesthetics helps to become classic.



- Tow-Shift adjustable gas ballast valve satisfies different requirements of condensable vapor(such as water vapor) to be exhausted out of pump in different processes.
- Dual protection of oil anti-sucking back ensures vacuum system from oil pollution when pump stops running and needs to be easily restarted.
- Forced oil circulation system consisted of oil pump and constant pressure oil supply mechanism ensures stable running of the pump.
- Less components are used, easy to maintain and repair.

Model	SH-V10	SH-V20	SH-V40	SH-V60
Pumping Speed(50/60Hz)	78L/min	156L/min	312L/min	474L/min
Ultimate total pressure gas ballast close	5×10^{-2} Pa (3.7×10^{-4} torr)	5×10^{-2} Pa (3.7×10^{-4} torr)	4×10^{-2} Pa (3.0×10^{-2} torr)	4×10^{-2} Pa (3.0×10^{-2} torr)
Ultimate total pressure gas ballast open	3 Pa (2.2×10^{-2} torr)	3 Pa (2.2×10^{-2} torr)	8×10^{-1} Pa (6×10^{-3} torr)	8×10^{-1} Pa (6×10^{-3} torr)
Power supply	220V,50/60Hz or 110V,50/60Hz			
Power rating(kw)	0.4(1 Phase)	0.4(1 Phase)	0.75(1 Phase)	1.1(1 Phase)
Inlet/Exhaust Flange	KF 16/25	KF 16/25	KF 25	KF 25/40
Oil capacity(L)	0.6~1.0	0.6~1.0	0.9~1.5	1.3~2.0
Ambient temperature(°C)	5~40			
Noise level(dB)	≤56	≤56	≤58	≤58
Weight(kg)	19	21	30	43

Dimensions												
Model	A	B	C	D	E	G	H	I	J	K	L	DN
SH-V10	460	144	207	210	110	126	154	45	45	34	/	KF16/25
SH-V20	460	144	207	210	110	126	154	45	45	34	/	KF16/25
SH-V40	520	188	272	320	148	160	165	69	59	38	295	KF25
SH-V60	520	188	272	320	148	160	165	69	59	38	295	KF25



Option: Oil Mist Trap

SH-VDC (Low noise) Series

Dual stage low noise rotary vacuum pump

Constantly pursuing on innovative technology and high standards.
The pump is absolutely energy-saving with small motor power design.
The feature of low noise level is an ideal choice for high requirements of quite operation, especially for analytical applications.



- Low noise level allows for an installation close to the work space.
- Low power consumption for cost saving.
- Low and easy maintenance.
- Easy installation and small footprint.

Model	SH-VDC7	SH-VDC10	SH-VDC20
Pumping Speed(50/60Hz)	66L/min	96L/min	183L/min
Ultimate total pressure gas ballast close	5×10^{-2} Pa (3.7×10^{-4} torr)	5×10^{-2} Pa (3.7×10^{-4} torr)	5×10^{-2} Pa (3.7×10^{-4} torr)
Ultimate total pressure gas ballast open	10 Pa (7.5×10^{-2} torr)	10 Pa (7.5×10^{-2} torr)	10 Pa (7.5×10^{-2} torr)
Power supply	220V,50/60Hz or 110V,50/60Hz		
Power rating(kw)	0.37(1 Phase)	0.37(1 Phase)	0.37(1 Phase)
Inlet/Exhaust Flange	KF 16/25	KF 16/25	KF 16/25
Oil capacity(L)	0.6~1	0.6~1	0.6~1
Ambient temperature(°C)	5~40		
Noise level(dB)	≤48	≤48	≤50
Weight(kg)	14.5	14.5	15.5

Dimensions												
Model	A	B	C	D	E	G	H	I	J	K	L	DN
SH-VDC7	420	144	207	210	110	126	154	45	45	34	/	KF16/25
SH-VDC10	420	144	207	210	110	126	154	45	45	34	/	KF16/25
SH-VDC20	420	144	207	210	110	126	154	45	45	34	/	KF16/25



Option: Oil Mist Trap

SH-DV (Oil free) Series

Introduction of Oil free Scroll Vacuum Pump



- Wide product line up.
- No oil back diffusion or exhaust.
- Can be repeatedly continuous operated between atmospheric and vacuum.
- Low vibration, low noise and high efficiency.
- Ease of maintenance.

Model		SH-DV75	SH-DV150	SH-DV300	SH-DV600
Pumping Speed(50/60Hz)		72L/min	143L/min	305L/min	623L/min
Ultimate Pressure		7.9 Pa (≤6.0×10 ⁻² torr)	5.3 Pa (≤4.0×10 ⁻² torr)	2.5 Pa (≤1.9×10 ⁻² torr)	0.9 Pa (≤7.5×10 ⁻³ torr)
Inlet/Exhaust Flange		KF 25/16	KF 25/16	KF 25/16	KF 40/16
Motor 1 phase	Motor Power(kW)	0.25	0.25	0.75	0.75
	Voltage(VAC)	220V,50/60Hz or 110V,50/60Hz			
	Speed(rpm)	50Hz /1425; 60Hz /1725			
Motor 3 phase	Motor Power(kW)	-	0.25	0.55	0.75
	Voltage(VAC)	-	50 Hz/200～230 or 380～415; 60 Hz/200～230 or 460		
	Speed(rpm)	-	50Hz/1425; 60Hz/1725		
Ambient temperature(℃)		5～40			
Noise Level (dB)		≤52	≤57	≤60	≤61
Net Weight	1 phase(kg)	15	18	27	31
	3 phase(kg)	-	20	31	38
Others		With air flush			

Dimensions													
Model	A	B	C	D	E	F	G	H	M	N	K	d1	d2
SH-DV75	405	225	260	200	192	114	72	131	146	225	125	KF25	KF16
SH-DV150	430	250	280	220	214	129	86	130	155	250	135	KF25	KF16
SH-DV300	492	268	324	226	252	163	87	174	192	288	140	KF25	KF16
SH-DV600	530	312	343	275	252	170	115	178	206	288	165	KF40	KF16

Programmable Controller Options:



- High Accuracy($\pm 0.1\%$) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 4 Points
- Easy parameter and value setting
- Function to protect over shoot
- RUN/STOP Function in the external Input contact point
- Display of Running status in Auxiliary Output
- Large Program Capacity : 2 Patterns / 30 Segments
- Variety of Auxiliary Output available (ex IS, TS, PEND etc)
- Input Piece Bias Function(Max 4 zone)
- Automatic PID Parameter Calculation
- Variety of communication Protocols
- Reliable quality(CE, CUL, ISO applied)

Display	Size	72(W) * 72(H) * 100(L) mm
	PV/SP Display	4 Digit
Operation Mode		Program / Reset, 2 Zone PID
Control Mode		1CH Control
Max Channel		-
Pattern & Segments		2 Pattern / Max 30 segments
Input	TC	K, J, E, T, R, B, S, L, N, U, W, C, Platinel II
	RTD	Pt100 Ω , JPt100 Ω
	Analog Voltage Input	-10~20mV, 0~100mV, 0.4~2.0V DC, 1~5V DC, 0~10V DC
Output	Control Output	RELAY, SSR(Voltage Pulse)
	Current Output	4 ~ 20mA DC
	Voltage Output	-
	Transmission Output	4 ~ 20mA (PV, SP, MV)
Digital Input	Contact Type	2 Points / 4 Types(RUN, HOLD, STEP, RESET)
	Contact capacity	-
Digital Output	Relay	Normal Open 30V DC A, 250V AC 1A Normal Close 30V DC3A 250V AC 3A
	Open Collector	ON voltage across contacts at less than 2V, the leakage current less than 100 μ A
Sampling Time		250ms
Accuracy		$\pm 0.1\%$ $\pm 1\%$ digit of Full Scale
Event	Alarm	1 Point / Max 3 Points(20 Types)
	Inner Signal	2 Points (PV, SP, TSP)
	Time Signal	1 Point
	Other	1 Point (RUN, Pattern END, UP, DOWN, SOAK)
Communication	Interface	RS485
	Protocol	PC-Link, MODBUS(ASCII, RTU), SYNC(Master, Slave)
	Speed	Max 19,200 bps
Power	Power	100 ~ 240V AC, 50 ~ 60Hz
	Power Consumption	Max 6W
Operating environment		-
Weight		-

Drying Oven

02

DRYING OVEN

General Description.....18

Forced Convection Drying Oven

-Feature.....19

-Specification.....20

-Economy Model.....22

Gravity Convection Drying Oven

-Feature.....23

-Specification.....24

350°C Drying Oven

-Feature.....25

-Specification.....26

500°C Drying Oven

-Feature.....28

-Specification.....29

Drying Oven with Air Filter

-Feature.....30

-Specification.....31

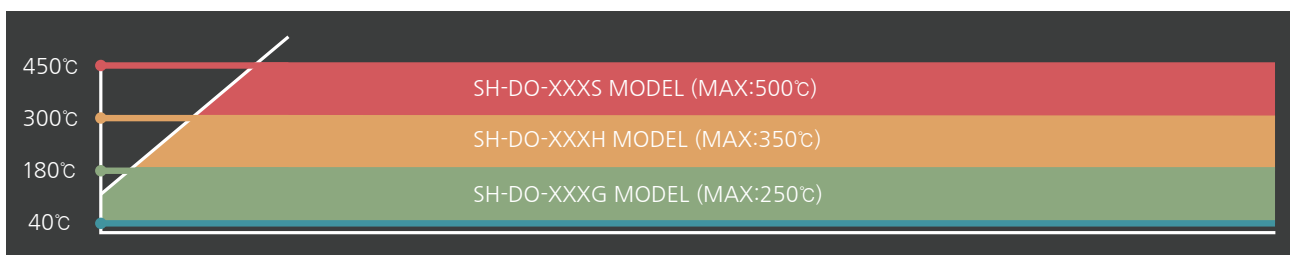


DRYING OVENS:

Drying oven is an equipment which is widely used in laboratories and other related industries. The main function of a Drying oven is to a constant temperature for a certain set period.

Drying oven can be classified into two types, depending on the air circulation; forced air circulation and natural air circulation.

Selection guide

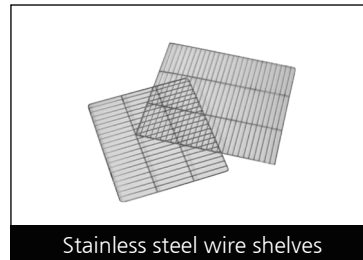


Ambient temperature is below 25°C, relative humidity is lower than 80%

Shelves' detail



Stainless steel 12mm punched shelves



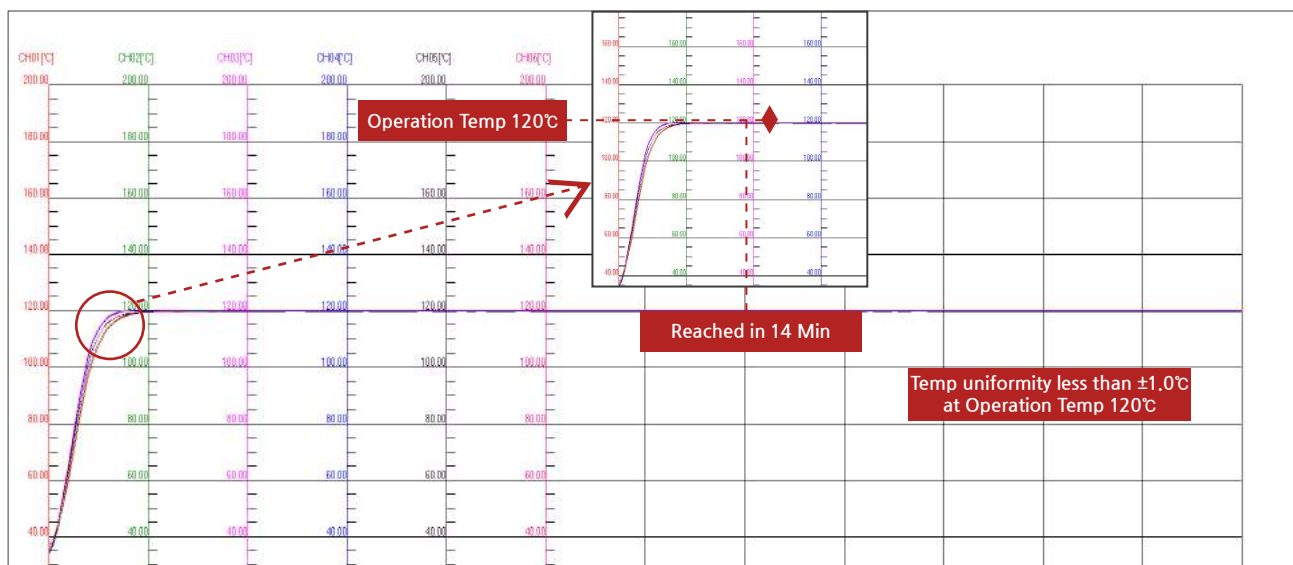
Stainless steel wire shelves

Catalog No.	Type	Dimensions(WxDxH)	Weight	Material	Application Model
DOWS54	WIRE PLATE	350x315x8	0.5 Kg	Stainless Steel	SH-DO-54NG,FG(E)
DOPS54	PUNCH PLATE	350x315x17	0.9 Kg		
DOWS100	WIRE PLATE	450x375x8	0.7 Kg		SH-DO-100NG,FG(E)
DOPS100	PUNCH PLATE	450x375x17	1.4 Kg		
DOWS149	WIRE PLATE	525x425x8	0.9 Kg		SH-DO-149NG,FG(E)
DOPS149	PUNCH PLATE	525x425x17	1.8 Kg		
DOWS250	WIRE PLATE	670x425x8	1.5 Kg		SH-DO-250FG, FH
DOPS250	PUNCH PLATE	670x425x17	2.4 Kg		
DOWS251	WIRE PLATE	670x575x8	1.7 Kg		SH-DO-251FG
DOPS251	PUNCH PLATE	670x575x17	3.2 Kg		
DOWS360	WIRE PLATE	570x575x8	1.4 Kg		SH-DO-360FG, FH
DOPS360	PUNCH PLATE	570x575x17	2.8 Kg		
DOWS550	WIRE PLATE	670x625x8	2.1 Kg		SH-DO-550FG, FH
DOPS550	PUNCH PLATE	670x625x17	3.5 Kg		
DOWS90	WIRE PLATE	420x425x8	0.6 Kg		SH-DO-90FG,FH,FS
DOWS150	WIRE PLATE	470x475x8	1 Kg		SH-DO-150FG,FH,FS
DOPS90H	PUNCH PLATE	420x425x17	1.6 Kg		SH-DO-90FG,FH
DOPS150H	PUNCH PLATE	470x475x17	1.9 Kg		SH-DO-150FG,FH
DOPS90S	PUNCH PLATE	420x425x17	2.3 Kg		SH-DO-90FS
DOPS150S	PUNCH PLATE	470x475x17	2.7 Kg		SH-DO-150FS

Forced Convection Drying Oven -Feature

Forced Convection Drying Oven is commonly used in laboratories and other related industries for the purpose of sample drying and sterilization. It also comes with outstanding features such as high level of temp. uniformity, precise accuracy and stable temperature control. All of these are possible through our advanced technology and continuous innovation.

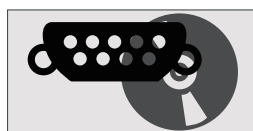
Uniformity Sheet



Features



Explosion-proof windows



RS-485 or RS-232C interface



Digital PID controller



door handle



Powder coated steel plate



Leveling feet



Safety devices



Surface finished stainless steel

General Model

Forced Convection Drying Oven:



Model	SH-DO-54FG	SH-DO-100FG	SH-DO-149FG	SH-DO-250FG
Air Circulation type	Forced			
Temp Range	Ambient +10°C to 250°C (Ambient +18°F to 482°F)			
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer			
Temp & Time controller	Microprocess PID Membrane Touch Digital controller			
Heater capa	800 W	1600 W	2000 W	3000 W
Dimension Internal (W×D×H)	380×340×420(mm)	480×400×530(mm)	555×450×600(mm)	700×450×800(mm)
	14.96×13.39×16.54(inch)	18.90×15.75×20.87(inch)	21.85×17.72×23.62(inch)	27.56×17.72×31.50(inch)
Dimension External (W×D×H)	500×630×760(mm)	600×690×870(mm)	675×740×940(mm)	820×740×1140(mm)
	19.68×24.80×29.92(inch)	23.62×27.16×34.25(inch)	26.57×29.13×37.01(inch)	32.28×29.13×44.88(inch)
Weight	49 kg	64 Kg	73 Kg	104 Kg
Capa	54 L	100 L	150 L	250 L
Material Internal	Stainless Steel			
Material External	Steel Plate With Powder Heating Coated			
Shelves	2 Supplied (12 Maximum)	2 Supplied (15 Maximum)	2 Supplied (17 Maximum)	2 Supplied (24 Maximum)
Electrical Requirements 120V, 50/60Hz, 1Φ	7.3 A	14.5 A	18.2 A	27.3 A
Cat. No.	DO54FG120	DO100FG120	DO149FG120	DO250FG120
Electrical Requirements 230V, 50/60Hz, 1Φ	3.5 A	7.0 A	8.7 A	13.0 A
Cat. No.	DO54FG230	DO100FG230	DO149FG230	DO250FG230

Accessory

Movable stainless wire shelves 2EA

Option

Programmable controller
Digital recorder
2CH Hybrid recorder
RS-485 interface
RS-232C interface

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Door open alarm
Electric leakage breaker
Over Temp Controller

General Model

Forced Convection Drying Oven:



Model	SH-DO-360FG	SH-DO-550FG
Air Circulation type	Forced	
Temp Range	Ambient +10℃ to 220℃ (Ambient +18°F to 428°F)	
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer	
Temp &Time controller	Microprocess PID Membrane Touch Digital controller	
Heater capa	4000 W	4800 W
Dimension Internal (W×D×H)	600×600×1000(mm)	700×650×1200(mm)
	23.62x23.62x39.37(inch)	27.56x25.59x47.24(inch)
Dimension External (W×D×H)	800×900×1420(mm)	900×950×1610(mm)
	31.49x35.43x55.90(inch)	35.43x37.40x63.38(inch)
Weight	134 Kg	185 Kg
Capa	360 L	546 L
Material Internal	Stainless Steel	
Material External	Steel Plate With Powder Heating Coated	
Shelves	2 Supplied (31 Maximum)	2 Supplied (38 Maximum)
Electrical Requirements 120V ,50/60Hz, 1Φ	36.4 A	43.6 A
Cat. No.	DO360FG120	DO550FG120
Electrical Requirements 230V,50/60Hz, 1Φ	17.4 A	20.9 A
Cat. No.	DO360FG230	DO550FG230

Accessory

Movable stainless wire shelves 2EA

Option

Programmable controller
Digital recorder
2CH Hybrid recorder
RS-485 interface
RS-232C interface

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Door open alarm
Electric leakage breaker
Over Temp Controller



Economy Model

Forced Convection Drying Oven:

This version of Forced Convection Drying Oven is suitable for test samples that don't need to be observed during the process.

It is a good choice if you are looking for a Forced Convection Drying Oven that comes within a budget.

This equipment can also be used for drying, baking, sterilizing, evaporating, heat-treating, annealing, testing, etc.



Model	SH-DO-54FGE	SH-DO-100FGE	SH-DO-149FGE
Air Circulation type	Forced		
Temp Range	Ambient +10°C to 220°C (Ambient +18°F to 428°F)		
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer		
Temp & Time controller	Microprocess PID Membrane Touch Digital controller		
Heater capa	800 W	1600 W	2000 W
Dimension Internal (W×D×H)	380×340×420(mm)	480×400×530(mm)	555×450×600(mm)
	14.96×13.39×16.54(inch)	18.90×15.75×20.87(inch)	21.85×17.72×23.62(inch)
Dimension External (W×D×H)	531×612×760(mm)	631×672×870(mm)	706×722×940(mm)
	20.91×24.09×29.92(inch)	24.83×26.45×34.25(inch)	27.79×28.42×37.01(inch)
Weight	43 kg	56 Kg	70 Kg
Capa	54 L	100 L	150 L
Material Internal	Stainless Steel		
Material External	Steel Plate With Powder Heating Coated		
Shelves	2 Supplied (12 Maximum)	2 Supplied (15 Maximum)	2 Supplied (17 Maximum)
Electrical Requirements 120V, 50/60Hz, 1Φ	7.3 A	14.5 A	18.2 A
Cat. No.	DO54FGE120	DO100FGE120	DO149FGE120
Electrical Requirements 230V, 50/60Hz, 1Φ	3.5 A	7.0 A	8.7 A
Cat. No.	DO54FGE230	DO100FGE230	DO149FGE230

Accessory

Movable stainless wire shelves 2EA

Option

Digital recorder
2CH Hybrid recorder

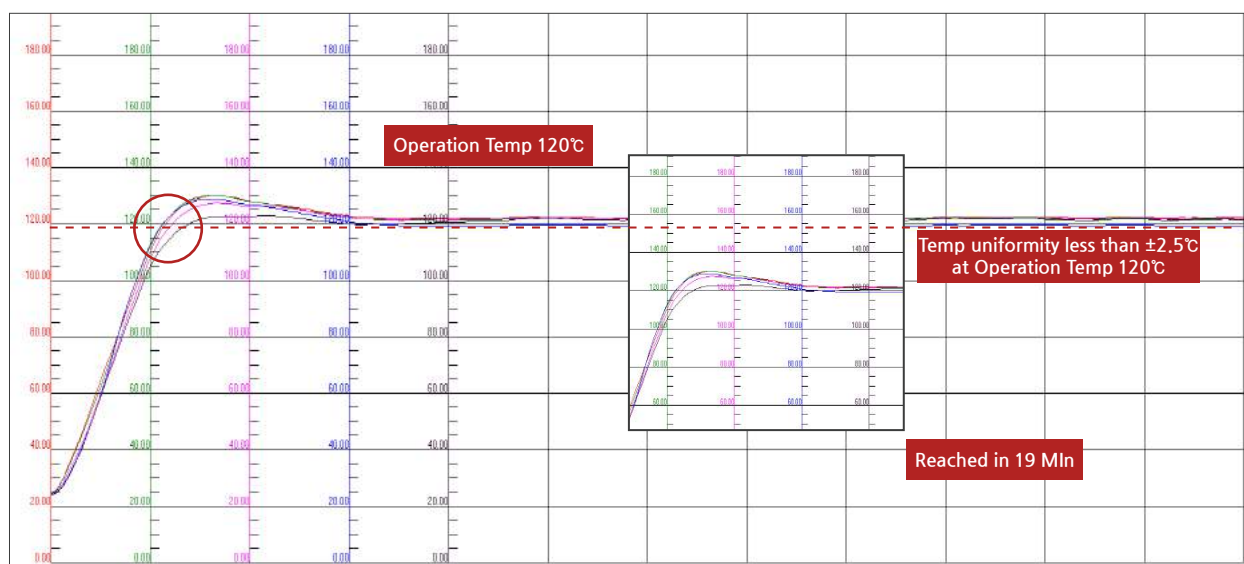
Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Door open alarm
Electric leakage breaker
Over Temp Controller

Gravity Convection Drying Oven -Feature

Gravity Convection Drying Oven is suitable for samples that are prone to disintegration. Unlike the forced convection drying ovens, this unit uses a natural convection method. It will also use a gravity-convection when drying minuscule samples such as those that come in powdered form. This equipment can also be used for drying, baking, sterilizing, evaporating, heat-treating, annealing, testing, etc.

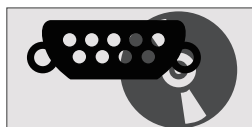
Uniformity Sheet



Features



View window with spring mounted shatter proof safety glass panel



RS-485
or
RS-232C interface



Digital PID controller



Stainless steel



Steel plate With powder heating coated



Leveling feet



Safety devices



Advanced door handle

Gravity Convection Drying Oven:



Model	SH-DO-54NG	SH-DO-100NG	SH-DO-149NG
Air Circulation type	Natural		
Temp Range	Ambient +10°C to 250°C (Ambient +18°F to 482°F)		
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer		
Temp & Time controller	Microprocess PID Membrane Touch Digital controller		
Heater capa	800 W	1200 W	1800 W
Dimension Internal (W×D×H)	380×340×420(mm)	480×400×530(mm)	555×450×600(mm)
	14.96×13.39×16.54(inch)	18.90×15.75×20.87(inch)	21.85×17.72×23.62(inch)
Dimension External (W×D×H)	500×495×820(mm)	600×555×930(mm)	675×605×1000(mm)
	19.69×19.49×32.28(inch)	23.62×21.85×36.61(inch)	26.57×23.82×39.37(inch)
Weight	44 kg	57.8 kg	74.4 kg
Capa	54 L	100 L	150 L
Material Internal	Stainless Steel		
Material External	Steel Plate With Powder Heating Coated		
Shelves	2 Supplied (12 Maximum)	2 Supplied (15 Maximum)	2 Supplied (17 Maximum)
Electrical Requirements 120V, 50/60Hz, 1Φ	7.3 A	10.9 A	16.4 A
Cat. No.	DO54NG120	DO100NG120	DO149NG120
Electrical Requirements 230V, 50/60Hz, 1Φ	3.5 A	5.2 A	7.8 A
Cat. No.	DO54NG230	DO100NG230	DO149NG230

Accessory

Movable stainless wire shelves 2EA

Option

Programmable controller
Digital recorder
2CH Hybrid recorder
RS-485 interface
RS-232C interface

Safety Device

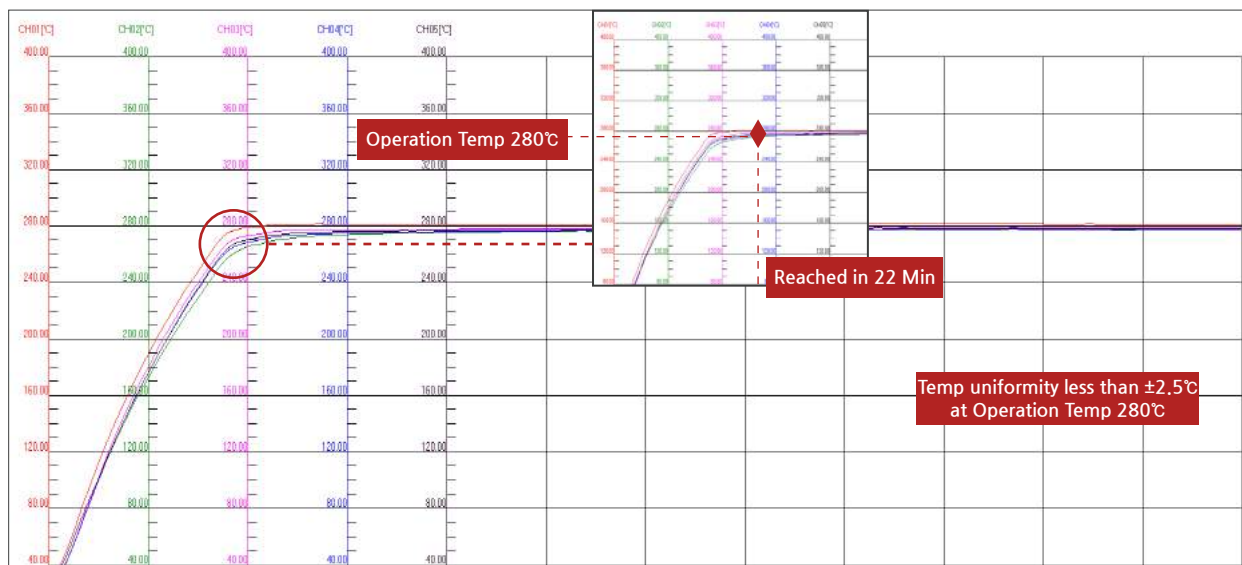
Automatic reset function incoming power cut
Buzzer on when set time arrived
Door open alarm
Electric leakage breaker
Over Temp Controller

350°C Drying Oven

-Feature

This version of the forced convection drying oven is suitable for samples that need to be treated and/or hardened under a high amount of temperature, such as 200°C. Our 350°C Drying Oven has an excellent durability as its chambers and shelves are made of stainless steel. furthermore, our 350°C Drying Oven contains a powerful lock device, therefore, there is absolutely no problem in keeping a high chamber temperature.

Uniformity Sheet



Features



Steel plate with powder heating coated



Digital PID controller



Stainless steel



Leveling feet

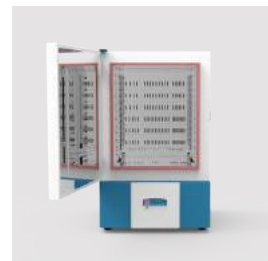


Safety devices



Door sealing gasket

350°C Drying Oven:



Model	SH-DO-90FH	SH-DO-150FH
Air Circulation type	Forced	
Temp Range	Ambient +10°C to 350°C (Ambient + 18°F to 662°F)	
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer	
Temp &Time controller	Microprocess PID Membrane Touch Digital controller	
Heater capa	2600 W	3000 W
Dimension Internal (W×D×H)	450×450×450(mm)	500×500×600(mm)
	17.72x17.72x17.72(inch)	19.69x19.69x23.62(inch)
Dimension External (W×D×H)	644×633×935(mm)	694×683×1110(mm)
	25.53x24.92x36.81(inch)	27.32x26.89x43.70(inch)
Weight	82 Kg	95 Kg
Capa	91 L	150 L
Material Internal	Stainless Steel	
Material External	Steel Plate With Powder Heating Coated	
Shelves	2 Supplied (12 Maximum)	2 Supplied (17 Maximum)
Electrical Requirements 120V ,50/60Hz, 1Φ	23.6 A	27.3 A
Cat. No.	DO90FH120	DO150FH120
Electrical Requirements 230V,50/60Hz, 1Φ	11.3 A	13.0 A
Cat. No.	DO90FH230	DO150FH230

Accessory

Movable stainless wire shelves 2EA

Option

Programmable controller
Digital recorder
2CH Hybrid recorder

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Door open alarm
Electric leakage breaker
Over Temp Controller

350°C Drying Oven:



Model	SH-DO-250FH	SH-DO-360FH	SH-DO-550FH
Air Circulation type	Forced		
Temp Range	Ambient +10°C to 350°C (Ambient + 18°F to 662°F)		
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer		
Temp & Time controller	Microprocess PID Membrane Touch Digital controller		
Heater capa	4000 W	5000 W	6000 W
Dimension Internal (W×D×H)	700x450x800(mm)	600x600x1000(mm)	700x650x1200(mm)
	27.56x17.72x31.50(inch)	23.62x23.62x39.37(inch)	27.56x25.59x47.24(inch)
Dimension External (W×D×H)	920x820x1230(mm)	820x970x1430(mm)	920x1020x1630(mm)
	36.22x32.28x48.42(inch)	32.28x38.18x56.29(inch)	36.22x40.15x64.17(inch)
Weight	145 Kg	188 Kg	264 Kg
Capa	252 L	360 L	546 L
Material Internal	Stainless Steel		
Material External	Steel Plate With Powder Heating Coated		
Shelves	2 Supplied (24 Maximum)	2 Supplied (31 Maximum)	2 Supplied (38 Maximum)
Electrical Requirements 120V, 50/60Hz, 1Φ	36.4 A	45.5 A	54.5 A
Cat. No.	DO250FH120	DO360FH120	DO550FH120
Electrical Requirements 230V, 50/60Hz, 1Φ	17.4 A	21.7 A	26.1 A
Cat. No.	DO250FH230	DO360FH230	DO550FH230

Accessory

Movable stainless wire shelves 2EA

Option

Programmable controller
Digital recorder
2CH Hybrid recorder

Safety Device

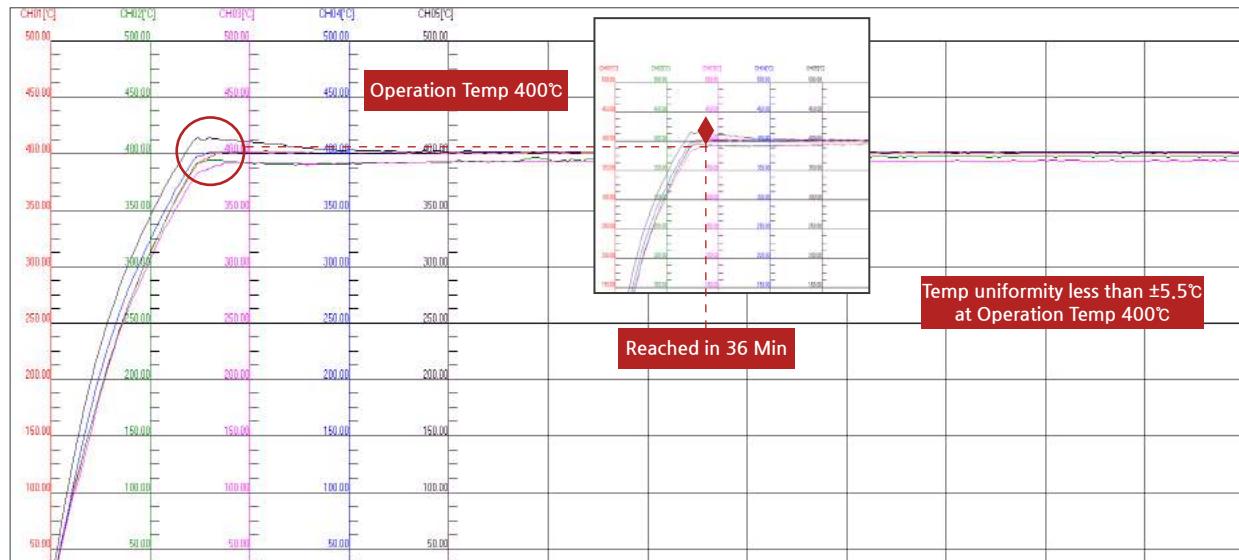
Automatic reset function incoming power cut
Buzzer on when set time arrived
Door open alarm
Electric leakage breaker
Over Temp Controller



500°C Drying Oven -Feature

This version of the forced convection drying oven is suitable for samples that need to be treated and/or hardened under a higher amount of temperature than 300°C. Furthermore, this model comes with improved insulation and structure, specially designed to ensure customer's safety.

Uniformity Sheet



Features



Steel plate with powder heating coated



Digital PID controller



Stainless steel



Leveling caster



Safety devices



Door sealing gasket

500°C Drying Oven:



Model	SH-DO-90FS	SH-DO-150FS	SH-DO-216FS
Air Circulation type	Forced		
Temp Range	Ambient +10°C to 500°C (Ambient + 18°F to 932°F)		
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer		
Temp &Time controller	Microprocess PID Membrane Touch Digital controller		
Heater capa	4200 W	5400 W	7000 W
Dimension Internal (W×D×H)	450×450×450(mm)	500×500×600(mm)	600×600×600(mm)
	17.72x17.72x17.72(inch)	19.69x19.69x23.62(inch)	23.62 x23.62 x23.62(inch)
Dimension External (W×D×H)	1196×700×925(mm)	1296×750×1075(mm)	1396x850x1175(mm)
	47.09x27.56x36.41(inch)	51.02x29.53x42.32(inch)	54.96x33.46x46.26(inch)
Weight	190 Kg	234 Kg	308 kg
Capa	91 L	150 L	216 L
Material Internal	Stainless Steel		
Material External	Steel Plate With Powder Heating Coated		
Shelves	2 Supplied (12 Maximum)	2 Supplied (17 Maximum)	
Electrical Requirements 120V ,50/60Hz, 1Φ	38.2 A	49.1 A	N/A
Cat. No.	DO90FS120	DO150FS120	
Electrical Requirements 230V,50/60Hz, 1Φ	18.3 A	23.5 A	31.8 A
Cat. No.	DO90FS230	DO150FS230	DO216FS230

Accessory

Movable stainless wire shelves 2EA

Option

Programmable controller
Digital recorder
2CH Hybrid recorder

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Door open alarm
Electric leakage breaker
Over Temp Controller

Drying Oven with Air Filter -Feature

This version of the forced convection drying oven comes with an air filter. This unit is perfect for samples that need a completely dust-free environment. This addition is beneficial for drying and sterilization processes.

Feature

Excellent Clean Air Distribution

Air circulation type by means of filtering causes an low state of wind velocity and flow volume as it goes through the filter made in high density. Therefore, air distribution degree and thermal uniformity will be decreasing considerably. Regardless of this restriction, our Clean Drying Oven has improved uniformity of air and temperature under low air velocity and low airflow volume by making air flow layer inside door.

Excellent Filter Durability

The Hefa filter used our Clean Dry Oven is not a common filter in for clean bench. It is developed for an excellent durability under a high temperature and a heavy airflow enviroment.

Vertical Stand

Vertical design for space effectiveness

Features



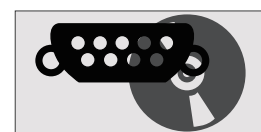
High temp flow hefa filter
99.97% 0.3μ efficiency filter



Digital P I D controller



Auto back up



RS-485
or
RS-232C interface



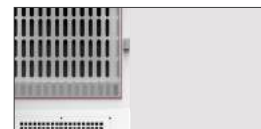
Steel plate with powder
heating coated



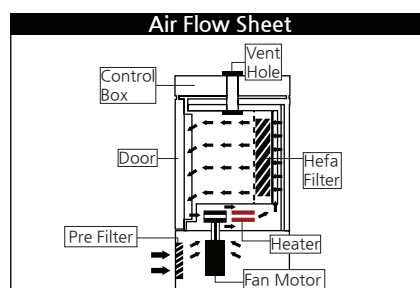
Leveling caster



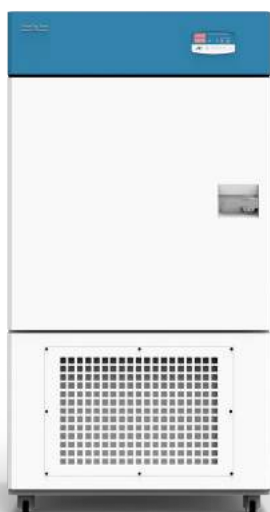
Safety devices



Door sealing gasket



Drying Oven with Air Filter:



Model	SH-DO-90FG	SH-DO-150FG	SH-DO-251FG
Air Circulation type	Forced with Air Fliter		
Temp Range	Ambient +10℃ to 250℃ (Ambient + 18°F to 482°F)		
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer		
Temp &Time controller	Microprocess PID Membrane Touch Digital controller		
Heater capa	1500 W	2000 W	2500 W
Dimension Internal (W×D×H)	450×450×450(mm)	600×500×500(mm)	700×600×600(mm)
	17.72×17.72×17.72(inch)	23.62×19.69×19.69(inch)	27.56×23.62×23.62(inch)
Dimension External (W×D×H)	630×842×1585(mm)	780×892×1635(mm)	880×992×1735(mm)
	24.80×33.15×62.40(inch)	30.71×35.12×64.17(inch)	34.65×39.06×68.31(inch)
Weight	110 Kg	150 Kg	204 Kg
Capa	90 L	150 L	250 L
Material Internal	Stainless Steel		
Material External	Steel Plate With Powder Heating Coated		
Shelves	2 Supplied (12 Maximum)	2 Supplied (14 Maximum)	2 Supplied (17 Maximum)
Electrical Requirements 120V ,50/60Hz, 1Φ	14 A	18 A	22.5 A
Cat. No.	DO90FG120HF	DO150FG120HF	DO251FG120HF
Electrical Requirements 230V,50/60Hz, 1Φ	7 A	9 A	11.3 A
Cat. No.	DO90FG230HF	DO150FG230HF	DO251FG230HF

Accessory

Movable stainless wire shelves 2EA

Option

Programmable controller
Digital recorder
2CH Hybrid recorder
RS-485 interface
RS-232C interface

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Door open alarm
Electric leakage breaker
Over Temp Controller



Industrial Drying Oven



03

INDUSTRIAL DRYING OVEN

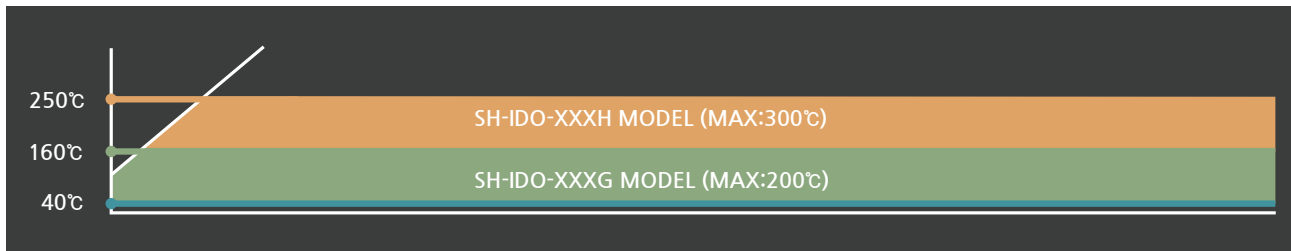
General Description.....	33
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-Specification.....	35
300°C Industrial Drying Oven	
-Feature.....	37
-Specification.....	38
Shelves Detail.....	40
Options.....	41

INDUSTRIAL DRYING OVENS:

We offer :

- Industrial Drying Oven
- 300℃ Industrial Drying Oven

Selection guide



Ambient temperature is below 25℃, relative humidity is lower than 80%.

Shelves' detail



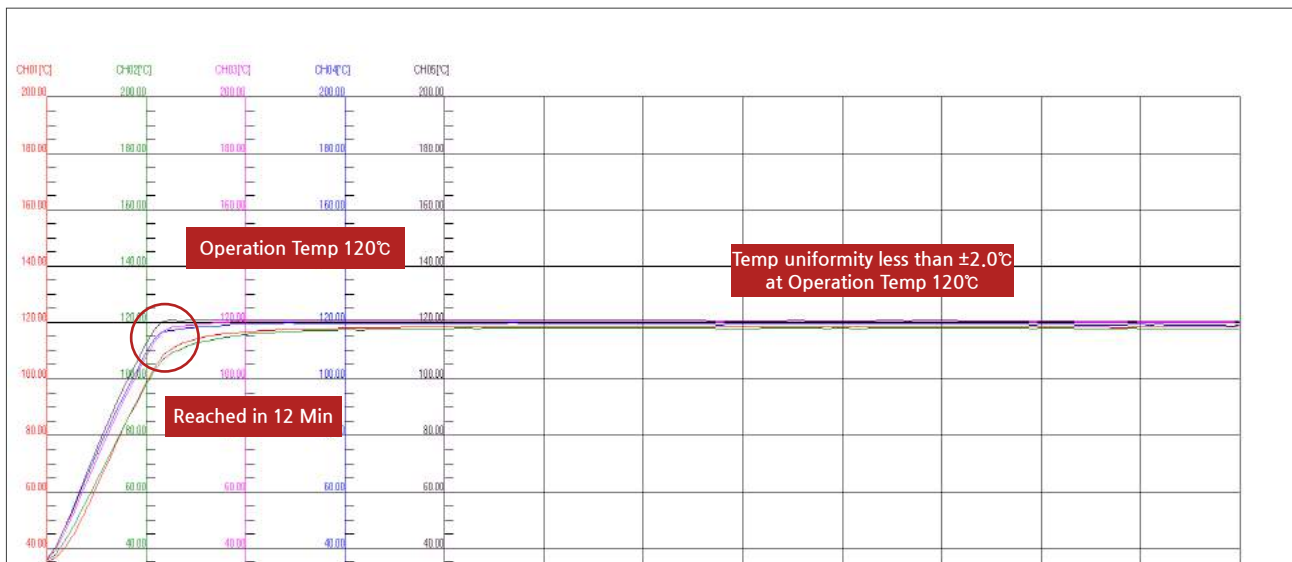
Catalog No.	Type	Dimension(WxDxH)	Weight(Kg)	Material	Application Model	Oven Type
IDPS864A	PUNCH PLATE	870x775x17	5.5	Stainless Steel	SH-IDO-864FG	AF,AM
IDPS864C	PUNCH PLATE	774x775x17	4.9			CF,CM
IDPS1152A	PUNCH PLATE	1170x775x17	7.7		SH-IDO-1152FG	AF,AM
IDPS1152B	PUNCH PLATE	475x775x17	3.2			BF,BM
IDPS1152C	PUNCH PLATE	1074x775x17	7.1			CF,CM
IDPS2250A	PUNCH PLATE	1570x905x17	15		SH-IDO-2250FG	AF,AM
IDPS2250B	PUNCH PLATE	675x905x17	6.5			BF,BM
IDPS2250C	PUNCH PLATE	1474x905x17	14			CF,CM
IDPS3612A	PUNCH PLATE	2120x1095x17	25		SH-IDO-3612FG	AF,AM
IDPS3612B	PUNCH PLATE	950x1095x17	11.2			BF,BM
IDPS3612C	PUNCH PLATE	2024x1095x17	24			CF,CM
IDPS864HA	PUNCH PLATE	870x775x17	6.6	Stainless Steel	SH-IDO-864FH	AF,AM
IDPS864HC	PUNCH PLATE	774x775x17	5.9			CF,CM
IDPS1152HA	PUNCH PLATE	1170x775x17	9.2		SH-IDO-1152FH	AF,AM
IDPS1152HB	PUNCH PLATE	475x775x17	3.8			BF,BM
IDPS1152HC	PUNCH PLATE	1074x775x17	8.5			CF,CM
IDPS2250HA	PUNCH PLATE	1570x905x17	18		SH-IDO-2250FH	AF,AM
IDPS2250HB	PUNCH PLATE	675x905x17	7.8			BF,BM
IDPS2250HC	PUNCH PLATE	1474x905x17	16.8			CF,CM
IDPS3612HA	PUNCH PLATE	2120x1095x17	30		SH-IDO-3612FH	AF,AM
IDPS3612HB	PUNCH PLATE	950x1095x17	13.4			BF,BM
IDPS3612HC	PUNCH PLATE	2024x1095x17	28.8			CF,CM

Industrial Drying Oven

-Feature

This version of the forced convection drying oven is used for a variety of industrial applications including drying, curing or baking components, parts or final products. The Industrial Drying Oven takes advantage of its capability to work on heavy duty samples. It is specially designed to operate on bulk samples or large amounts of test pieces. Our Industrial Drying Oven is equipped with a powerful circulation fan, electronically safe circuits and efficient carts.

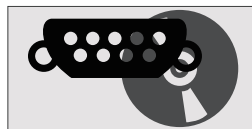
Uniformity Sheet



Feature



View window



RS-485
or
RS-232C interface



Digital PID controller



Stainless steel



Steel plate with powder
heating coated



Leveling caster



Safety devices



Door sealing gasket

Industrial Drying Oven:



Model	SH-IDO-864FG	SH-IDO-1152FG
Air Circulation type	Forced	
Temp Range	Ambient +10℃ to 200℃ (Ambient +18°F to 392°F)	
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer	
Temp & Time controller	Microprocess P I D Membrane Touch Digital controller	
Heater capa	7 KW	9 KW
Dimension Internal (W×D×H)	900×800×1200(mm)	1200×800×1200(mm)
	35.43×31.50×47.24(inch)	47.24×31.50×47.24(inch)
Dimension External (W×D×H)	1160×1000×1870(mm)	1480×1013×1948(mm)
	45.67×39.37×73.62(inch)	58.27×39.88×76.69(inch)
Weight	295 kg	415 Kg
Capa	864 L	1152 L
Material Internal	Stainless Steel	
Material External	Steel Plate With Powder Heating Coated	
Shelves	3 Supplied (38 Maximum)	3 Supplied (38 Maximum)
Electrical Requirements 230V ,50/60Hz, 3Φ	17.6 A	22.6 A
Cat. No.	IDO864FG230-3	IDO1152FG230-3
Electrical Requirements 380V,50/60Hz, 3Φ	10.6 A	13.7 A
Cat. No.	IDO864FG380-3	IDO1152FG380-3

Accessory

Movable stainless steel plate
(864FG,1152FG)-3EA,
(2250FG,3612FG)-3EAx2

Option

Programmable controller-63p
Digital recorder
2CH Hybrid recorder
Moving Cart & Room cart
(Accessory will be movable stainless steel
plate wide 3EA than 3ea x 2)
RS-485 interface
RS-232C interface

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
fan motor overload protection
Electric leakage breaker
Over temp controller

※ We accept custom-made order.



Industrial Drying Oven:



Model	SH-IDO-2250FG	SH-IDO-3612FG
Air Circulation type	Forced	
Temp Range	Ambient +10℃ to 200℃ (Ambient +18°F to 392°F)	
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer	
Temp &Time controller	Microprocess P I D Membrane Touch Digital controller	
Heater capa	18 KW	23 KW
Dimension Internal (W×D×H)	1600×930×1500(mm)	2150×1120×1500(mm)
	62.99×36.61×59.06(inch)	84.65×44.09×59.06(inch)
Dimension External (W×D×H)	2298×1046×2078(mm)	2850×1335×2130(mm)
	90.47×41.18×81.81(inch)	112.20×52.56×83.86(inch)
Weight	570 Kg	780 Kg
Capa	2232 L	3612 L
Material Internal	Stainless Steel	
Material External	Steel Plate With Powder Heating Coated	
Shelves	6 Supplied 2EAx3 (96 Maximum)	6 Supplied 2EAx3 (96 Maximum)
Electrical Requirements 230V ,50/60Hz, 3Φ	45.2 A	57.7 A
Cat. No.	IDO2250FG230-3	IDO3612FG230-3
Electrical Requirements 380V,50/60Hz, 3Φ	27.3 A	34.9 A
Cat. No.	IDO2250FG380-3	IDO3612FG380-3

Accessory

Movable stainless steel plate
(864FG,1152FG)-3EA,
(2250FG,3612FG)-3EAx2

Option

Programmable controller
Digital recorder
2CH Hybrid recorder
Moving Cart & Room cart
(Accessory will be movable stainless steel
plate wide 3EA than 3ea x 2)
RS-485 interface
RS-232C interface

Safety Device

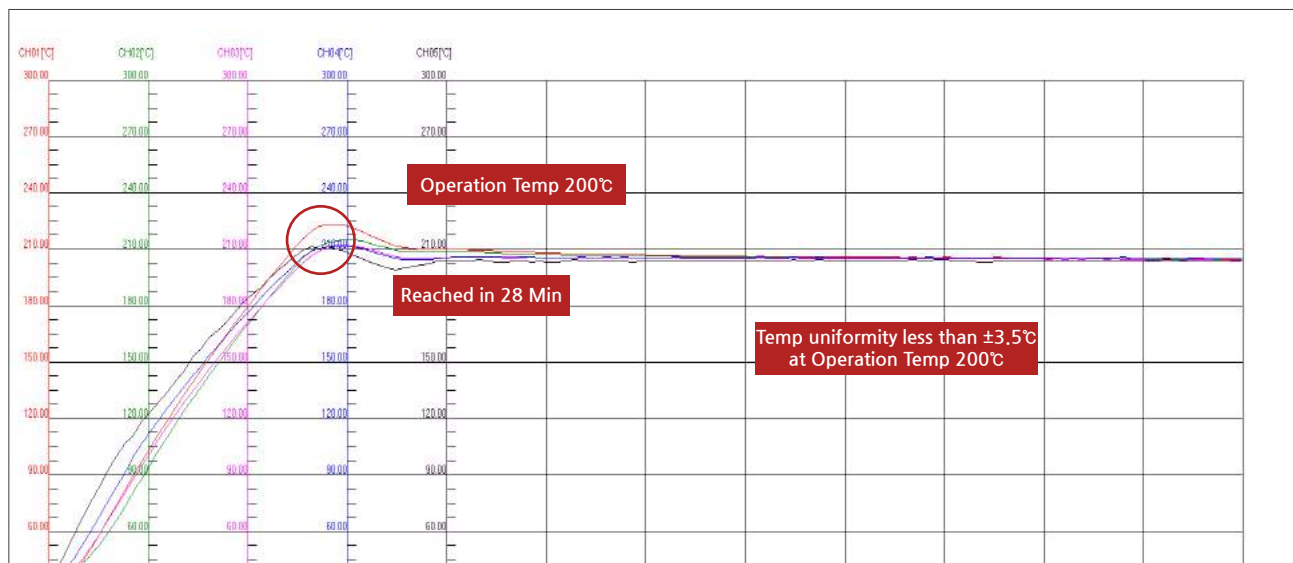
Automatic reset function incoming power cut
Buzzer on when set time arrived
fan motor overload protection
Electric leakage breaker
Over temp controller

※ We accept custom-made order.

300°C Industrial Drying Oven -Feature

This version of the Industrial Drying Oven is suitable for bulk samples or large amounts of test pieces that need to operate on a temperature as high as 300°C. This unit can also be used for drying, curing or baking components, parts or final products. In addition to these, our Industrial Drying Oven is equipped with a powerful circulation fan, electronically safe circuits and efficient carts.

Uniformity Sheet



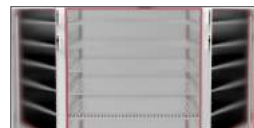
Feature



Steel plate with powder heating coated



Digital PID controller



Stainless steel



Leveling caster



Safety devices



Door sealing gasket

300°C Industrial Drying Oven:



Model	SH-IDO-864FH	SH-IDO-1152FH
Air Circulation type	Forced	
Temp Range	Ambient +10°C to 300°C (Ambient +18°F to 572°F)	
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer	
Temp & Time controller	Microprocess P I D Membrane Touch Digital controller	
Heater capa	9 KW	12 KW
Dimension Internal (W×D×H)	900×800×1200(mm)	1200×800×1200(mm)
	35.43x31.50x47.24(inch)	47.24x31.50x47.24(inch)
Dimension External (W×D×H)	1160×1000×1870(mm)	1480×1013×1948(mm)
	45.67x39.37x73.62(inch)	58.27x39.88x76.69(inch)
Weight	333 kg	468 Kg
Capa	864 L	1152 L
Material Internal	Stainless Steel	
Material External	Steel Plate With Powder Heating Coated	
Shelves	3 Supplied (38 Maximum)	3 Supplied (38 Maximum)
Electrical Requirements 230V ,50/60Hz, 3Φ	23.6 A	31.5 A
Cat. No.	IDO864FH230-3	IDO1152FH230-3
Electrical Requirements 380V,50/60Hz, 3Φ	14 A	18.3 A
Cat. No.	IDO864FH380-3	IDO1152FH380-3

Accessory

Movable Stainless Steel Plate
-(864FH,1152FH)-3EA,
(2250FH,3612FH)-3EAx2

Option

Programmable controller
Digital recorder
2CH Hybrid recorder
Moving Cart & Room cart
(Accessory will be movable stainless steel
plate wide 3EA than 3ea x 2)

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
fan motor overload protection
Electric leakage breaker
Over temp controller

※ We accept custom-made order.

300°C Industrial Drying Oven:



Model	SH-IDO-2250FH	SH-IDO-3612FH
Air Circulation type	Forced	
Temp Range	Ambient +10°C to 300°C (Ambient +18°F to 572°F)	
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer	
Temp & Time controller	Microprocess P I D Membrane Touch Digital controller	
Heater capa	23 KW	30 KW
Dimension Internal (W×D×H)	1600×930×1500(mm)	2150×1120×1500(mm)
	62.99×36.61×59.06(inch)	84.65×44.09×59.06(inch)
Dimension External (W×D×H)	2300×1145×2090(mm)	2850×1335×2090(mm)
	90.55×45.07×82.28(inch)	112.20×52.56×82.28(inch)
Weight	644 Kg	881 Kg
Capa	2232 L	3612 L
Material Internal	Stainless Steel	
Material External	Steel Plate With Powder Heating Coated	
Shelves	6 Supplied 2EAx3 (96 Maximum)	6 Supplied 2EAx3 (96 Maximum)
Electrical Requirements 230V ,50/60Hz, 3Φ	60.5 A	79 A
Cat. No.	IDO2250FH230-3	IDO3612FH230-3
Electrical Requirements 380V,50/60Hz, 3Φ	35 A	46 A
Cat. No.	IDO2250FH380-3	IDO3612FH380-3

Accessory

Movable Stainless Steel Plate
-(864FH,1152FH)-3EA,
(2250FH,3612FH)-3EAx2

Option

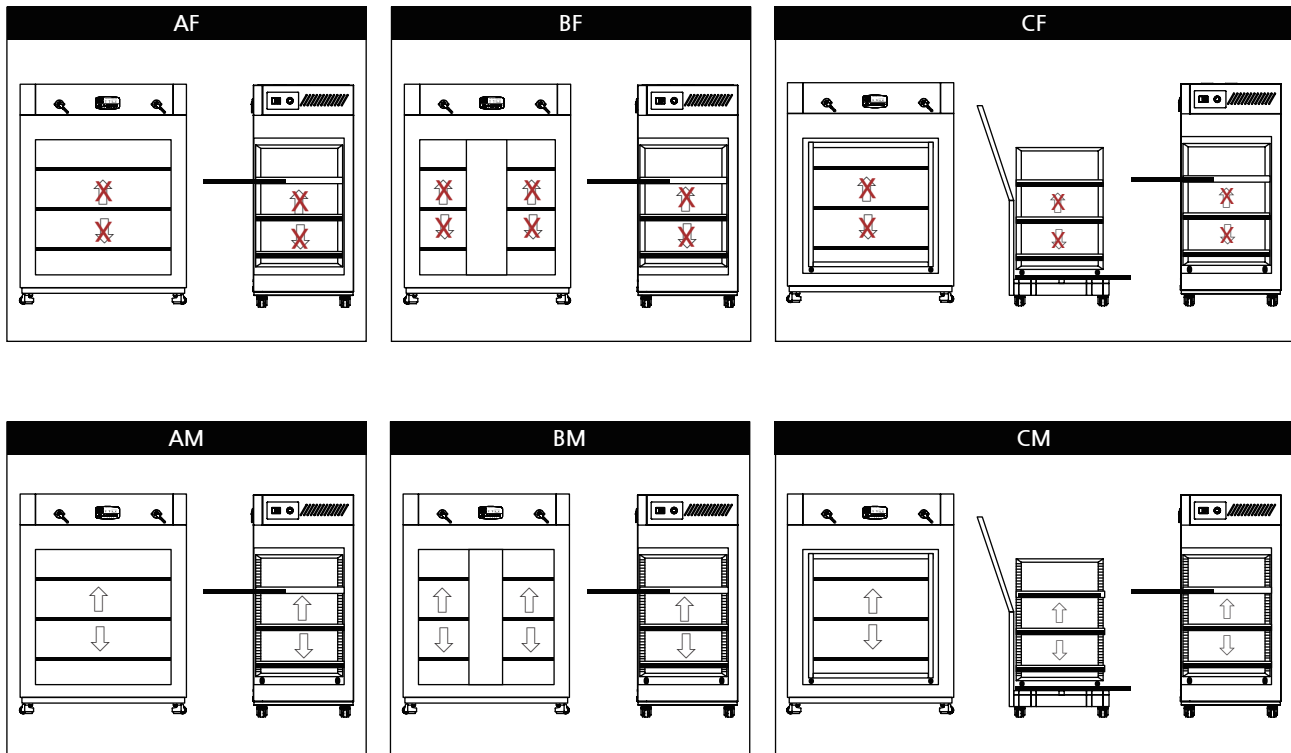
Programmable controller
Digital recorder
2CH Hybrid recorder
Moving Cart & Room cart
(Accessory will be movable stainless steel
plate wide 3EA than 3ea x 2)

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
fan motor overload protection
Electric leakage breaker
Over temp controller

※ We accept custom-made order.

Shelves detail:



⇔ : Movable
X : Fixed

Type of Shelves	AF	BF	CF	AM	BM	CM
Work Convenience	4	3	4	4	4	5
Utilization of work space	4	3	4	5	4	5
Maximum Weight of sample	4	5	4	2	3	2
Adjustable Height Length Interval	No	No	No	Yes	Yes	Yes
Moving Cart	No	No	Yes	No	No	Yes

5: Very high / 4: High / 3: Medium / 2: Low / 1: Very Low

Catalog No		Type	Dimension(WxDxH)	Application Model		Oven Type
Max 200 °C	Max 300 °C			Max 200 °C	Max 300 °C	
IDPS864A	IDPS864HA	PUNCH PLATE	870x775x17	SH-IDO-864FG	SH-IDO-864FH	AF,AM
IDPS864C	IDPS864HC	PUNCH PLATE	774x775x17			CF,CM
IDPS1152A	IDPS1152HA	PUNCH PLATE	1170x775x17	SH-IDO-1152FG	SH-IDO-1152FH	AF,AM
IDPS1152B	IDPS1152HB	PUNCH PLATE	475x775x17			BF,BM
IDPS1152C	IDPS1152HC	PUNCH PLATE	1074x775x17	SH-IDO-2250FG	SH-IDO-2250FH	CF,CM
IDPS2250A	IDPS2250HA	PUNCH PLATE	1570x905x17			AF,AM
IDPS2250B	IDPS2250HB	PUNCH PLATE	675x905x17	SH-IDO-3612FG	SH-IDO-3612FH	BF,BM
IDPS2250C	IDPS2250HC	PUNCH PLATE	1474x905x17			CF,CM
IDPS3612A	IDPS3612HA	PUNCH PLATE	2120x1095x17	SH-IDO-3612FG	SH-IDO-3612FH	AF,AM
IDPS3612B	IDPS3612HB	PUNCH PLATE	950x1095x17			BF,BM
IDPS3612C	IDPS3612HC	PUNCH PLATE	2024x1095x17			CF,CM

Programmable Controller Options:



- High Accuracy($\pm 0.1\%$) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 4 Points
- Easy parameter and value setting
- Function to protect over shoot
- RUN/STOP Function in the external Input contact point
- Display of Running status in Auxiliary Output
- Large Program Capacity : 2 Patterns / 30 Segments
- Variety of Auxiliary Output available (ex IS, TS, PEND etc)
- Input Piece Bias Function(Max 4 zone)
- Automatic PID Parameter Calculation
- Variety of communication Protocols
- Reliable quality(CE, CUL, ISO applied)

Display	Size	72(W) * 72(H) * 100(L) mm
	PV/SP Display	4 Digit
Operation Mode		Program / Reset, 2 Zone PID
Control Mode		1CH Control
Max Channel		-
Pattern & Segments		2 Pattern / Max 30 segments
Input	TC	K, J, E, T, R, B, S, L, N, U, W, C, Platinel II
	RTD	Pt100 Ω , JPt100 Ω
	Analog Voltage Input	-10~20mV, 0~100mV, 0.4~2.0V DC, 1~5V DC, 0~10V DC
Output	Control Output	RELAY, SSR(Voltage Pulse)
	Current Output	4 ~ 20mA DC
	Voltage Output	-
	Transmission Output	4 ~ 20mA (PV, SP, MV)
Digital Input	Contact Type	2 Points / 4 Types(RUN, HOLD, STEP, RESET)
	Contact capacity	-
Digital Output	Relay	Normal Open 30V DC A, 250V AC 1A Normal Close 30V DC 3A 250V AC 3A
	Open Collector	ON voltage across contacts at less than 2V, the leakage current less than 100 μ A
Sampling Time		250ms
Accuracy		$\pm 0.1\%$ $\pm 1\%$ digit of Full Scale
Event	Alarm	1 Point / Max 3 Points(20 Types)
	Inner Signal	2 Points (PV, SP, TSP)
	Time Signal	1 Point
	Other	1 Point (RUN, Pattern END, UP, DOWN, SOAK)
Communication	Interface	RS485
	Protocol	PC-Link, MODBUS(ASCII, RTU), SYNC(Master, Slave)
	Speed	Max 19,200 bps
Power	Power	100 ~ 240V AC, 50 ~ 60Hz
	Power Consumption	Max 6W
Operating environment		-
Weight		-

Digital Recorder Options:



- Touch panel 5.7 Inch 640 x 480 TFT-LCD
- Universal input (Thermocouple, RTD, VDC)
- Trend view mode available
- 80MB internal memory and support SD/SDHC memory card
- RS 485/422 communication (Modbus, PC-link)

Suffix Code		
Model	Code	Information
GR200		Graphic recorder(applied touch panel function) 145(W) × 145(H) mm
Input channel	2	2 channels
	4	4 channels
	8	8 channels
	12	12 channels

Model	GR200
Number of channels	2, 4, 8, 12 (Refer to the type configuration)
Input type	2 thermoresistors (Pt-100, KPt-100) 12 thermocouples (K, J, E, T, R, B, S, L, N, U, Wre 5-26, PL-II) 4 VDC (-10 ~ 20 mV, 0 ~ 100 mV, 1 ~ 5V, 0 ~ 30 V)
Sampling period	250 ms
Current to measure the thermoresistor (RTD)	About 0.21 mA
Input resistor	Thermocouple : More than 1 MΩ, VDC : More than 1 MΩ
Allowable wiring resistor	Thermoresistor : Maximum 100Ω/wire (The RTD is up to 10Ω/wire for the range of -100.00 ~ .150.00) Thermocouple : Less than 200 Ω VDC : Less than 2 kΩ
Impact of the wiring resistor	Thermoresistor : ±0.3 °C/10 Ω (The 3 lines have the same wiring resistors)
Allowable input voltage	Thermocouple : Less than ±10 V DC, VDC : Less than ±33 V DC
Degree	±0.15 % of F.S., ±1 digit (Except the RJC temperature error) ※ Refer to the input table
The error in the reference junction compensation (RJC)	±2.0 °C (0 ~ 50 °C)
Sensor short detection (Burn-out)	UP-Scale for the short

Hybrid Recorder Options:



- 50mm thermal transfer method of paper recorder
- Data logger functions for recording without paper
- Supports RS485 communication and dedicated communication port to set or monitor parameters in real-time by PC/PLC
- Multi-input with high accuracy 0.2% level (RTD, TC, Analog)
- 2-channel simultaneous recording in graphic mode and digital mode
- High visibility and easy setting by LCD dot matrix
- Supports various option I/O functions
- Small size(W96×H96×L100 mm), light weight

Record accuracy		±0.5%F.S.
Alarm output		CH1(AL1, AL2), CH2(AL1, AL2) Relay out put(250 VAC/30 VDC 3 A 1 a)
Alarm output hysteresis		ON/OFF interval setting for alarm output: 1 to 999digit variable
Communication output		RS485 communication output(Modbus RTU protocol)
Set method		Setting by front keys
Sampling cycle		500 ms/channel x 2 channels = 1000 ms
Dielectric strength		2300 VAC 50/60 Hz for 1 min.(charging terminal of the other polarity)
Vibration		0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min.) in each of X, Y, Z directions for 1 hour
Relay life cycle		Mechanical: Over 5,000,000 operations, Electrical: Over 100,000 operations
Insulation resistance		Over 100 MΩ (at 500 VDC megger)
Noise resistance		Square shaped noise by noise simulator (pulse width 1 μs)±2 kV
Print	Method	Direct thermal line print
	Resolution	8 dot/mm
	Dots	384 dot/Line
	Life cycle	50 km
Record	Graphic mode	• Record speed(recording paper speed): 10, 30, 60, 120, 240, 480, 940 mm/hour • Memo cycle: 30 s, 1 m, 5 m, 10 m, 15 m, 30 m, 1 h, 2 h, 3 h, 4 h, 8 h, 16 h, 24 h
	Digital mode	TEXT mode record cycle: 00 m 05 s to 99 m 59 s
	Paper	Thermal Direct Receipt Paper (57 mm x 16 m)
	Paper supply method	Clamshell Type
	Language	Korean, English
Environment	Ambient temperature	0 to 50 °C, storage: -20 to 60 °C
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH
Approval		CE
Unit weight		Approx. 700 g

Furnace

04

FURNACE

Muffle Furnace

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Elevator Furnace

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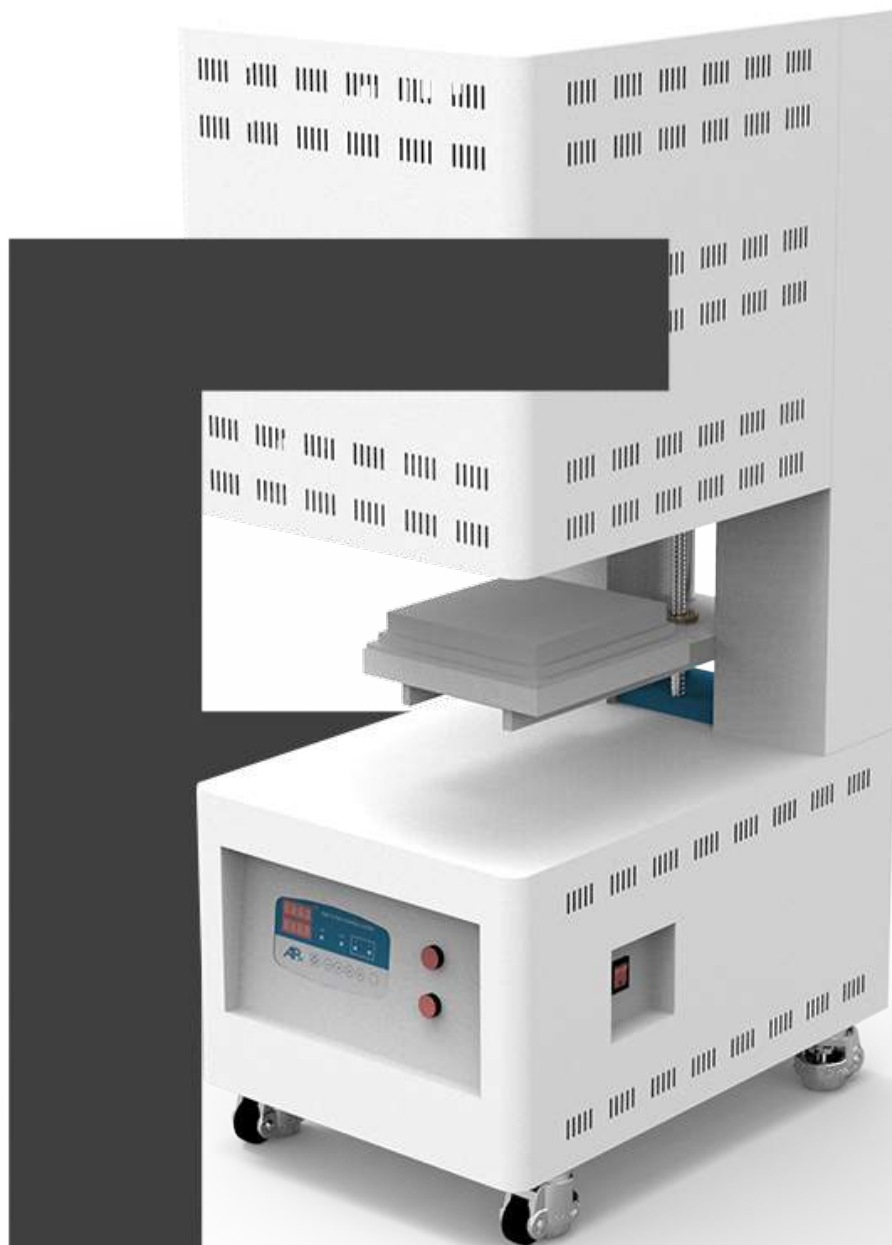
Tube Furnace

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Tube Furnaces Package.....

Options.....

Tube Furnace Accessory.....



1050°C Muffle Furnace:

Muffle Furnace is a type of furnace with an externally heated chamber with walls that radiantly heat the insides of the compartment in order to prevent the samples having any contact with the flame. This particular unit, Muffle Furnace (1050°C, 1200°C, 1500°C, 1700°C, 1800°C), can be used for laboratory and other related industries requiring a controlled environment under 1050°C, 1200°C, 1500°C, 1700°C, 1800°C.



Model	SH-FU-3MGE	SH-FU-5MGE	SH-FU-7MGE	SH-FU-11MGE
Max Temp	1050°C (2192°F)			
Temp Controller	Digital PID Controller			
Sensor	K type			
Heater Capa	1100 W	1500 W	2000 W	2800 W
Capa	3 L	5.1 L	7.4 L	11.2 L
Dimension Internal (W×D×H)	130x220x110(mm)	150x260x130(mm)	170x290x150(mm)	200x310x180(mm)
	5.12x8.66x4.33(inch)	5.91x10.24x5.12(inch)	6.69x11.42x5.91(inch)	7.87x12.20x7.09(inch)
Dimension External (W×D×H)	300x378x405 (mm)	320x428x425(mm)	340x458x445(mm)	370x468x475(mm)
	11.81x14.88x15.94(inch)	12.60x16.85x16.73(inch)	13.39x18.03x17.52(inch)	14.57x18.43x18.70(inch)
Net weight	19 Kg	22 Kg	28 Kg	34 Kg
Heater Element	KANTAL A-1 with CERAMIC FIBER			
Insulation	Ceramic Board & Wool			
Electrical Requirements 120V ,50/60Hz, 1Φ	10 A	14 A	18 A	25 A
Cat. No.	FU3MGE120	FU5MGE120	FU7MGE120	FU11MGE120
Electrical Requirements 230V ,50/60Hz, 1Φ	5 A	7 A	9 A	13 A
Cat. No.	FU3MGE230	FU5MGE230	FU7MGE230	FU11MGE230



1200°C Muffle Furnace:



Model	SH-FU-3MG	SH-FU-5MG	SH-FU-14MG	SH-FU-27MG
Max Temp	1200°C (2192°F)			
Temp Controller	Digital PID Controller			
Sensor	K type			
Heater Capa	1400 W	1600 W	4100 W	4900 W
Capa	2.9 L	4.5 L	14 L	27 L
Dimension Internal (W×D×H)	130x250x90(mm)	150x300x100(mm)	250x350x160(mm)	300x300x300(mm)
	5.12x9.87x3.54(inch)	5.91x11.81x3.93(inch)	9.84x13.78x6.30(inch)	11.81x11.81x11.81(inch)
Dimension External (W×D×H)	370x505x570(mm)	390x555x580(mm)	500x605x670(mm)	580x585x840(mm)
	14.57x19.88x22.44(inch)	15.30x21.85x22.83(inch)	19.69x23.82x26.38(inch)	22.83x23.03x33.07(inch)
Weight	34 Kg	44 Kg	65 Kg	105 Kg
Heater Element	KANTHAL A-1			
Insulation	Ceramic Board & Wool			
Electrical Requirements 120V, 50/60Hz, 1Φ	11.7 A	13.3 A	34.2 A	N/A
Cat. No.	FU3MG120	FU5MG120	FU14MG120	N/A
Electrical Requirements 230V, 50/60Hz, 1Φ	6.1 A	7 A	17.8 A	21.3 A
Cat. No.	FU3MG230	FU5MG230	FU14MG230	FU27MG230
Electrical Requirements 230V, 50/60Hz, 3Φ	N/A			12.3 A
				FU27MG230-3
Electrical Requirements 380V, 50/60Hz, 3Φ	N/A			7.5 A
Cat. No.				FU27MG380

Option

Programmable controller
 Hybrid recorder

Safety Device

Automatic reset function incoming power cut
 Buzzer on when set time arrived
 Over temperature protection
 Door open alarm

1500°C Muffle Furnace:



Model	SH-FU-4MH	SH-FU-11MH	SH-FU-22MH	SH-FU-36MH
Max Temp	1500°C (2732°F)			
Temp Controller	Programmable Controller -222p			
Sensor	R type			
Heater Capa	5000 W	7600 W	9600 W	11 KW
Capa	4.5 L	11 L	22 L	36 L
Dimension Internal (W×D×H)	150x200x150(mm)	200x270x200(mm)	250x350x250(mm)	300x400x300(mm)
	5.91x7.87x5.91(inch)	7.87x10.63x7.87(inch)	9.84x13.78x9.84(inch)	11.81x15.75x11.81(inch)
Dimension External (W×D×H)	820x560x737(mm)	870x625x787(mm)	920x705x867(mm)	970x760x920(mm)
	32.28x22.05x29.02(inch)	34.25x24.61x30.98(inch)	36.22x27.76x34.13(inch)	38.19x29.92x36.22(inch)
Weight	92 Kg	102 Kg	1 47 Kg	154 Kg
Heater Element	SIC			
Insulation	Ceramic Board & Wool			
Electrical Requirements 230V ,50/60Hz, 1Φ	21.7 A	33.0 A	41.7 A	N/A
Cat. No.	FU4MH230	FU11MH230	FU22MH230	
Electrical Requirements 230V ,50/60Hz, 3Φ	N/A			27.7 A
Cat. No.				FU36MH230-3

Option

Digital recoder
Hybrid recoder

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Over temperature protection

1700°C / 1800°C

Muffle Furnace:



Model(1700°C / 1800°C)		SH-FU-4MS	SH-FU-11MS	SH-FU-22MS
Max Temp		1700°C (3092°F) / 1800°C (3272°F)		
Temp Controller		Programmable Controller -223p		
Sensor		R type (1700°C) / B type (1800°C)		
Heater Capa	1700°C	4.2 KW	9.2 KW	13.0 KW
	1800°C	3.0 KW	6.6 KW	9.5 KW
Capa		4.5 L	11 L	22 L
Dimension Internal (W×D×H)		150x200x150(mm)	200x270x200(mm)	250x350x250(mm)
		5.91x7.87x5.91(inch)	7.87x10.63x7.87(inch)	9.84x13.78x9.84(inch)
Dimension External (W×D×H)		920x600x765(mm)	1000x670x835(mm)	1080x750x910(mm)
		36.22x23.62x30.12(inch)	39.37x26.38x32.87(inch)	42.52x29.53x35.83(inch)
Net weight		150 Kg	186 Kg	210 Kg
Heater Element		MoSi2		
Insulation		Ceramic Board & Wool		
Electrical Requirements 230V ,50/60Hz, 1Φ		19.0 A / 13.6 A	41.8 A / 30.0 A	59.1 A / 43.2 A
Cat. No	Max 1700°C	FU4MS230-17	FU11MS230-17	FU22MS230-17
	Max 1800°C	FU4MS230-18	FU11MS230-18	FU22MS230-18

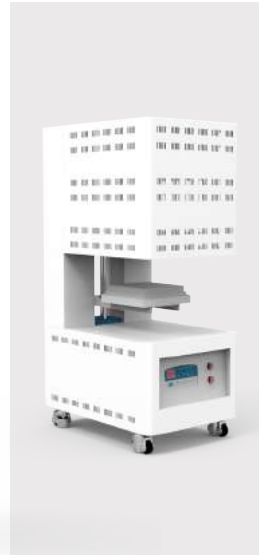
Option

Digital recoder
Hybrid recoder

Safety Device

Automatic reset function incoming power cut
Over temperature protection

1200°C Elevator Furnace:



Model	SH-FU3.5MGU	SH-FU6.5MGU
Max Temp	1200°C (2192°F)	
Temp Controller	Digital PID Controller	
Sensor	K type	
Heater Capa	2200 W	3000 W
Capa	3.5 L	6.5 L
Dimension Internal (W×D×H)	140x140x180(mm)	180x180x200(mm)
	5.51x5.51x7.08(inch)	7.08x7.08x7.87(inch)
Dimension External (W×D×H)	405x480x900(mm)	445x520x920(mm)
	15.94x18.89x35.43(inch)	17.51x20.47x36.22(inch)
Weight	45 Kg	60 Kg
Heater Element	KANTAL A-1 with CERAMIC	
Insulation	Ceramic Board & Wool	
Electrical Requirements 120V ,50/60Hz, 1Φ	20 A	27 A
Cat. No.	FU3.5MGU120	FU6.5MGU120
Electrical Requirements 230V ,50/60Hz, 1Φ	10 A	14 A
Cat. No.	FU3.5MGU230	FU6.5MGU230

| Option
Programmable controller

| Safety Device
Automatic reset function incoming power cut
Buzzer on when set time arrived
Over temperature protection
Door open alarm

1500°C Elevator Furnace:



Model	SH-FU-2MHU	SH-FU-4MHU	SH-FU-6MHU
Max Temp	1500°C (2732°F)		
Temp Controller	Programmable Controller -222p		
Sensor	R type		
Weight	65 Kg	80 Kg	105 Kg
Heater Capa	3500 W	3300 W	7700 W
Capa	2.2 L	3.8 L	6.2 L
Dimension Internal (W×D×H)	120x120x150(mm)	150x150x170(mm)	180x180x190(mm)
	4.72x4.72x5.91(inch)	5.91x5.91x6.69(inch)	7.09x7.09x7.48(inch)
Dimension External (W×D×H)	450x515x1025(mm)	480x545x1070(mm)	510x575x1115(mm)
	17.72x20.28x40.35(inch)	18.90x21.46x42.13(inch)	20.08x22.64x43.90(inch)
Heater Element	SIC		
Insulation	Ceramic Board & Wool		
Electrical Requirements 230V ,50/60Hz, 1Φ	16 A	15 A	35 A
Cat. No.	FU2MHU230	FU4MHU230	FU2MHU230

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Over temperature protection

1700°C / 1800°C Elevator Furnace:

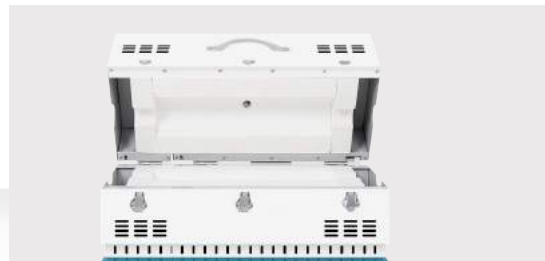


Model(1700°C/1800°C)		SH-FU-2MSU	SH-FU-4MSU	SH-FU-6MSU
Max Temp		1700°C (3092°F) / 1800°C (3272°F)		
Temp Controller		Programmable Controller -223p		
Sensor		R type (1700°C) / B type (1800°C)		
Weight		65 Kg	80 Kg	105 Kg
Heater Capa	1700°C	2700 W	4500 W	6600 W
	1800°C	1800 W	3000 W	4800 W
Capa		2.2 L	3.8 L	6.2 L
Dimension Internal (W×D×H)		120x120x150(mm)	150x150x170(mm)	180x180x190(mm)
		4.72x4.72x5.91(inch)	5.91x5.91x6.69(inch)	7.09x7.09x7.48(inch)
Dimension External (W×D×H)		450x515x1025(mm)	480x545x1070(mm)	510x575x1115(mm)
		17.72x20.28x40.35(inch)	18.90x21.46x42.13(inch)	20.08x22.64x43.90(inch)
Heater Element		MoSi2		
Insulation		Ceramic Board & Wool		
Electrical Requirements 230V ,50/60Hz, 1Φ		12 A / 8 A	20 A / 14 A	30 A / 22 A
Cat. No.		FU2MSU230-17 / FU2MSU230-18	FU4MSU230-17 / FU4MSU230-18	FU6MSU230-17 / FU6MSU230-18

Safety Device

Automatic reset function incoming power cut
Over temperature protection

1200°C / 300mm Length Hot Zone Tube Furnace:



Model	SH-FU-50STG	SH-FU-80STG	SH-FU-100STG	SH-FU-120STG
Max Temp	1200°C (2192°F)			
Temp Controller	Programmable Controller -222p			
Sensor	K type			
Applicable Tube Diameter	50 Φ	80 Φ	100 Φ	120 Φ
Heater Capa	2000 W	2500 W	3200 W	3600 W
Dimension Hot Zone	Length 300 mm			
Dimension External (W×D×H)	502x357x517(mm)	502x365x537(mm)	502x397x557(mm)	502x455x630(mm)
	19.76x14.06x20.35(inch)	19.76x14.37x21.14(inch)	19.76x15.63x21.93(inch)	19.76x17.91x24.80(inch)
Weight	27 Kg	32 Kg	48 Kg	70 Kg
Heater Element	Ceramic Molding			
Insulation	Ceramic Board & Wool			
Electrical Requirements 120V ,50/60Hz, 1Φ	17.4 A	21.9 A	28.0 A	33 A
Cat. No.	FU50STG120	FU80STG120	FU100STG120	FU120STG120
Electrical Requirements 230V ,50/60Hz, 1Φ	9.1 A	11.4 A	14.6 A	16 A
Cat. No.	FU50STG230	FU80STG230	FU100STG230	FU120STG230

Safety Device

Automatic reset function incoming power cut
 Buzzer on when set time arrived
 Over temperature protection

1200°C / 600mm Length Hot Zone Tube Furnace:



Model	SH-FU-50LTG	SH-FU-80LTG	SH-FU-100LTG	SH-FU-120LTG
Max Temp	1200°C (2192°F)			
Temp Controller	Programmable Controller -222p			
Sensor	K type			
Applicable Tube Diameter	50 Φ	80 Φ	100 Φ	120 Φ
Heater Capa	3600 W	4400 W	6000 W	7200 W
Dimension Hot Zone	Length 600 mm			
Dimension External (W×D×H)	802x357x517(mm)	802x365x537(mm)	802x397x557(mm)	802x455x630(mm)
	31.57x14.06x20.35(inch)	31.57x14.37x21.14(inch)	31.57x15.63x21.93(inch)	31.57x17.91x24.80(inch)
Weight	52 Kg	56 Kg	68 Kg	105 Kg
Heater Element	Ceramic Molding			
Insulation	Ceramic Board & Wool			
Electrical Requirements 120V ,50/60Hz, 1Φ	33 A	40 A	N/A	
Cat. No. 50Hz(60Hz)	FU50LTG120	FU80LTG120		
Electrical Requirements 230V ,50/60Hz, 1Φ	16 A	20 A	27 A	33 A
Cat. No. 50Hz(60Hz)	FU50LTG230	FU80LTG230	FU100LTG230	FU120LTG230
Electrical Requirements 230V ,50/60Hz, 3Φ	N/A		15.1 A	18.1 A
Cat. No. 50Hz(60Hz)			FU100LTG230-3	FU120LTG230-3
Electrical Requirements 380V ,50/60Hz, 3Φ			9.1 A	10.9 A
Cat. No. 50Hz(60Hz)			FU100LTG380-3	FU120LTG380-3

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Over temperature protection



1500°C Tube Furnace:



Model	SH-FU-50TH	SH-FU-80TH	SH-FU-100TH	SH-FU-120TH
Max Temp	1500°C (2732°F)			
Temp Controller	Programmable Controller -222p			
Sensor	R type			
Applicable Tube Diameter	50 Φ	80 Φ	100 Φ	120 Φ
Heater Capa	5 KW	7 KW	13 KW	9.6 KW
Dimension Hot Zone	Length 300 mm			
Dimension External (W×D×H)	682x487x580(mm)	682x517x610(mm)	682x547x640(mm)	682x570x730(mm)
	26.85x19.17x22.83(inch)	26.85x20.35x24.02(inch)	26.85x21.53x25.19(inch)	26.85x22.44x28.74(inch)
Weight	67 Kg	72 Kg	114 Kg	145 Kg
Heater Element	SIC			
Insulation	Ceramic Board & Wool			
Electrical Requirements 230V ,50/60Hz, 1Φ	22.7 A	31.8 A	59.1 A	44 A
Cat. No. 50Hz(60Hz)	FU50TH230	FU80TH230	FU100TH230	FU120TH230

| Safety Device

Automatic reset function incoming power cut
 Buzzer on when set time arrived
 Over temperature protection

1700°C / 1800°C Tube Furnace:



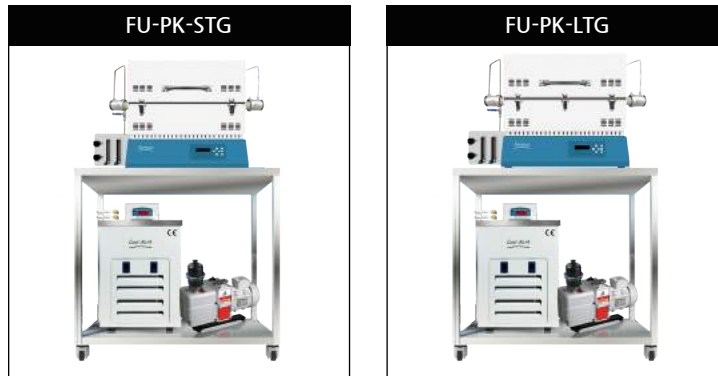
Model (1700°C / 1800°C)		SH-FU-50TS	SH-FU-80TS	SH-FU-100TS	SH-FU-120TS
Max Temp		1700°C (3092°F) / 1800°C (3272°F)			
Temp Controller		Programmable Controller -223p			
Sensor		R type (1700°C) / B type (1800°C)			
Applicable Tube Diameter		50 Φ	80 Φ	100 Φ	120 Φ
Heater Capa		4.1 KW / 3.1 KW	5.6 KW / 4.2 KW	6.5 KW / 4.9 KW	8.0 KW / 6.0 KW
Dimension Hot Zone		Length 300 mm			
Dimension External (W×D×H)		690x550x980(mm)	690x580x1010(mm)	690x600x1030(mm)	690x640x1110(mm)
		27.17x21.65x38.58(inch)	27.17x22.83x39.76(inch)	27.17x23.62x40.55(inch)	27.17x25.20x43.70(inch)
Weight		67 Kg	72 Kg	114 Kg	145 Kg
Heater Element		SiC			
Insulation		MoSi 2			
Electrical Requirements 230V ,50/60Hz, 1Φ		19 A / 14 A	25 A / 19 A	30 A / 22 A	36 A / 27 A
Cat. No. 50Hz(60Hz)	Max 1700°C	FU50TS230-17	FU80TS230-17	FU100TS230-17	FU120TS230-17
	Max 1800°C	FU50TS230-18	FU80TS230-18	FU100TS230-18	FU120TS230-18

Safety Device

Automatic reset function incoming power cut
Over temperature protection

Tube Furnace Package:

1200℃ Furnace



Package Model		FU-PK-G1	FU-PK-G2	FU-PK-G3	FU-PK-G4
Furnace Model		SH-FU-50(S,L)TG-WG	SH-FU-80(S,L)TG-WG	SH-FU-100(S,L)TG-WG	SH-FU-120(S,L)TG-WG
Chiller		SH-WB-7CDR	SH-WB-7CDR	SH-WB-13CDR	SH-WB-13CDR
Vacuum Pump		SH-V10	SH-V10	SH-V10	SH-V10
Oil Mist Trap		VOT-1020	VOT-1020	VOT-1020	VOT-1020
Dimension	300mm Hot Zone	1265x725x1420(mm)	1265x725x1440(mm)	1265x800x1495(mm)	1265x800x1570(mm)
		49.80x28.54x55.90(inch)	49.80x28.54x56.69(inch)	49.80x31.49x58.85(inch)	49.80x31.49x61.81(inch)
	600mm Hot Zone	1465x725x1420(mm)	1465x725x1440(mm)	1465x800x1495(mm)	1465x800x1570(mm)
		49.80x28.54x55.90(inch)	49.80x28.54x56.69(inch)	49.80x31.49x58.85(inch)	49.80x31.49x61.81(inch)
Cat.NO	300mm Hot Zone	FUPKG1300	FUPKG2300	FUPKG3300	FUPKG4300
	600mm Hot Zone	FUPKG1600	FUPKG2600	FUPKG3600	FUPKG4600

1500℃ Furnace



Package Model	FU-PK-H1	FU-PK-H2	FU-PK-H3	FU-PK-H4
Furnace Model	SH-FU-50TH-WG	SH-FU-80TH-WG	SH-FU-100TH-WG	SH-FU-120TH-WG
Chiller	SH-WB-7CDR	SH-WB-7CDR	SH-WB-13CDR	SH-WB-13CDR
Vacuum Pump	SH-V10	SH-V10	SH-V10	SH-V10
Oil Mist Trap	VOT-1020	VOT-1020	VOT-1020	VOT-1020
Dimension	1265x725x1485(mm)	1265x725x1515(mm)	1265x800x1580(mm)	1265x800x1670(mm)
	49.80x28.54x58.46(inch)	49.80x28.54x59.64(inch)	49.80x31.49x62.20(inch)	49.80x31.49x65.74(inch)
Cat.NO	FUPKH1300	FUPKH2300	FUPKH3300	FUPKH4300

1700℃ / 1800℃ Furnace



Package Model		FU-PK-S1	FU-PK-S2	FU-PK-S3	FU-PK-S4
Furnace Model		SH-FU-50TS-WG	SH-FU-80TS-WG	SH-FU-100TS-WG	SH-FU-120TS-WG
Chiller		SH-WB-7CDR	SH-WB-7CDR	SH-WB-13CDR	SH-WB-13CDR
Vacuum Pump		SH-V10	SH-V10	SH-V10	SH-V10
Oil Mist Trap		VOT-1020	VOT-1020	VOT-1020	VOT-1020
Dimension (Frame)		1265x725x1885(mm)	1265x725x1915(mm)	1265x800x1970(mm)	1265x800x2050(mm)
		49.80x28.54x74.21(inch)	49.80x28.54x75.39(inch)	49.80x31.49x77.56(inch)	49.80x31.49x80.71(inch)
Cat.NO	Max 1700℃	FUPKS1300-17	FUPKS2300-17	FUPKS3300-17	FUPKS4300-17
	Max 1800℃	FUPKS1300-18	FUPKS2300-18	FUPKS3300-18	FUPKS4300-18

Cooling Chiller



Temp Range -20℃~65℃
This is unit to supply coolant to cooling line.

Model	Bath Capacity
SH-WB-7CDR	7 L
SH-WB-13CDR	13 L
SH-WB-22CDR	22 L
SH-WB-48CDR	48 L

Vacuum pump

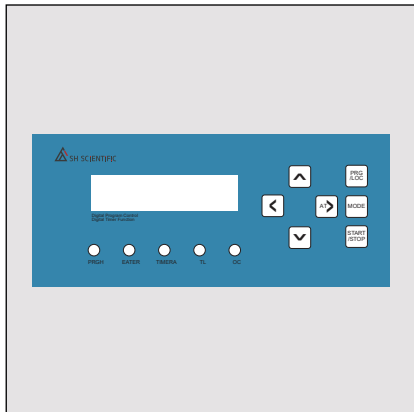


+ Oil Mist Trap

Oil rotary and head direct connection type. Feature of this type is convenient to operate and move because of it's small size and light weight.

Model	Pump Speed
SH-V10	78L/Min
SH-V20	156L/Min
SH-V40	312L/Min
SH-V60	474L/Min

Controller(Programmable):



- LCD Display
- Program mode, Standard Mode Selectable.
- Parameter setting
- Auto tune function
- Timer function
- PV,SV can be displayed together

Display	Size	190mmx75mm(WxH)
	PV/SP Display	4 Digit
Operation Mode		Program / Standard
Control Mode		1CH Control
Max Channel		-
Features	Patterns & Segments	5 patterns, 9 Segments / pattern, Total 45 Segments
	Cycles	1 ~ 999
Input	TC	K
Output	Control Output	SSR(Voltage Pulse)
Sampling Time		250ms
Accuracy		±0.1% ±1% digit of Full Scale
Power	Power	100 ~ 240V AC, 50 ~ 60Hz
	Power Consumption	Max 6W

Programmable Controller Options:



- High Accuracy($\pm 0.1\%$) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 4 Points
- Easy parameter and value setting
- Function to protect over shoot
- RUN/STOP Function in the external Input contact point
- Display of Running status in Auxiliary Output
- Large Program Capacity : 2 Patterns / 30 Segments
- Variety of Auxiliary Output available (ex IS, TS, PEND etc)
- Input Piece Bias Function(Max 4 zone)
- Automatic PID Parameter Calculation
- Variety of communication Protocols
- Reliable quality(CE, CUL, ISO applied)

Display	Size	72(W) * 72(H) * 100(L) mm
	PV/SP Display	4 Digit
Operation Mode		Program / Reset, 2 Zone PID
Control Mode		1CH Control
Max Channel		-
Pattern & Segments		2 Pattern / Max 30 segments
Input	TC	K, J, E, T, R, B, S, L, N, U, W, C, Platinel II
	RTD	Pt100 Ω , JPt100 Ω
	Analog Voltage Input	-10~20mV, 0~100mV, 0.4~2.0V DC, 1~5V DC, 0~10V DC
Output	Control Output	RELAY, SSR(Voltage Pulse)
	Current Output	4 ~ 20mA DC
	Voltage Output	-
	Transmission Output	4 ~ 20mA (PV, SP, MV)
Digital Input	Contact Type	2 Points / 4 Types(RUN, HOLD, STEP, RESET)
	Contact capacity	-
Digital Output	Relay	Normal Open 30V DC A, 250V AC 1A Normal Close 30V DC 3A 250V AC 3A
	Open Collector	ON voltage across contacts at less than 2V, the leakage current less than 100 μ A
Sampling Time		250ms
Accuracy		$\pm 0.1\%$ $\pm 1\%$ digit of Full Scale
Event	Alarm	1 Point / Max 3 Points(20 Types)
	Inner Signal	2 Points (PV, SP, TSP)
	Time Signal	1 Point
	Other	1 Point (RUN, Pattern END, UP, DOWN, SOAK)
Communication	Interface	RS485
	Protocol	PC-Link, MODBUS(ASCII, RTU), SYNC(Master, Slave)
	Speed	Max 19,200 bps
Power	Power	100 ~ 240V AC, 50 ~ 60Hz
	Power Consumption	Max 6W
Operating environment		-
Weight		-

Digital Recorder Options:



- Touch panel 5.7 Inch 640 x 480 TFT-LCD
- Universal input (Thermocouple, RTD, VDC)
- Trend view mode available
- 80MB internal memory and support SD/SDHC memory card
- RS 485/422 communication (Modbus, PC-link)

Suffix Code		
Model	Code	Information
GR200		Graphic recorder(applied touch panel function) 145(W) × 145(H) mm
Input channel	2	2 channels
	4	4 channels
	8	8 channels
	12	12 channels

Model	GR200
Number of channels	2, 4, 8, 12 (Refer to the type configuration)
Input type	2 thermoresistors (Pt-100, KPt-100) 12 thermocouples (K, J, E, T, R, B, S, L, N, U, Wre 5-26, PL-II) 4 VDC (-10 - 20 mV, 0 - 100 mV, 1 - 5V, 0 - 30 V)
Sampling period	250 ms
Current to measure the thermoresistor (RTD)	About 0.21 mA
Input resistor	Thermocouple : More than 1 MΩ, VDC : More than 1 MΩ
Allowable wiring resistor	Thermoresistor : Maximum 100Ω/wire (The RTD is up to 10Ω/wire for the range of -100.00 - .150.00) Thermocouple : Less than 200 Ω VDC : Less than 2 kΩ
Impact of the wiring resistor	Thermoresistor : ±0.3 °C/10 Ω (The 3 lines have the same wiring resistors)
Allowable input voltage	Thermocouple : Less than ±10 V DC, VDC : Less than ±33 V DC
Degree	±0.15 % of F.S., ±1 digit (Except the RJC temperature error) ※ Refer to the input table
The error in the reference junction compensation (RJC)	±2.0 °C (0 ~ 50 °C)
Sensor short detection (Burn-out)	UP-Scale for the short

Hybrid Recorder Options:



- 50mm thermal transfer method of paper recorder
- Data logger functions for recording without paper
- Supports RS485 communication and dedicated communication port to set or monitor parameters in real-time by PC/PLC
- Multi-input with high accuracy 0.2% level (RTD, TC, Analog)
- 2-channel simultaneous recording in graphic mode and digital mode
- High visibility and easy setting by LCD dot matrix
- Supports various option I/O functions
- Small size(W96×H96×L100 mm), light weight

Record accuracy		±0.5%F.S.
Alarm output		CH1(AL1, AL2), CH2(AL1, AL2) Relay out put(250 VAC/30 VDC 3 A 1 a)
Alarm output hysteresis		ON/OFF interval setting for alarm output: 1 to 999digit variable
Communication output		RS485 communication output(Modbus RTU protocol)
Set method		Setting by front keys
Sampling cycle		500 ms/channel x 2 channels = 1000 ms
Dielectric strength		2300 VAC 50/60 Hz for 1 min.(charging terminal of the other polarity)
Vibration		0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min.) in each of X, Y, Z directions for 1 hour
Relay life cycle		Mechanical: Over 5,000,000 operations, Electrical: Over 100,000 operations
Insulation resistance		Over 100 MΩ (at 500 VDC megger)
Noise resistance		Square shaped noise by noise simulator (pulse width 1 μs)±2 kV
Print	Method	Direct thermal line print
	Resolution	8 dot/mm
	Dots	384 dot/Line
	Life cycle	50 km
Record	Graphic mode	• Record speed(recording paper speed): 10, 30, 60, 120, 240, 480, 940 mm/hour • Memo cycle: 30 s, 1 m, 5 m, 10 m, 15 m, 30 m, 1 h, 2 h, 3 h, 4 h, 8 h, 16 h, 24 h
	Digital mode	TEXT mode record cycle: 00 m 05 s to 99 m 59 s
	Paper	Thermal Direct Receipt Paper (57 mm x 16 m)
	Paper supply method	Clamshell Type
	Language	Korean, English
Environment	Ambient temperature	0 to 50 °C, storage: -20 to 60 °C
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH
Approval		CE
Unit weight		Approx. 700 g

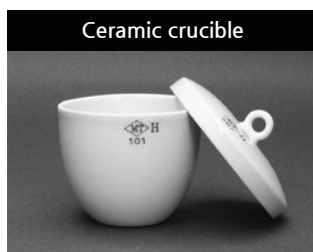
Furnace Accessory:



Model No.	Size (ml,LxWxH)	Temp-Limit
SH-QB-2	2ml, 15×48×8	Operation Temp 1100℃ Max Temp 1250℃
SH-QB-3	3ml, 16×77×11	
SH-QB-5	5ml, 20×77×11	
SH-QB-8	8ml, 20×92×11	
SH-QB-10	10ml, 20×102×11	
SH-QB-15	15ml, 27×105×11	

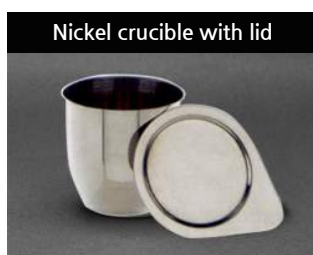


Model No.	Capa(ml)	Temp-Limit
SH-QC-30	30 ml	Operation Temp 1100℃ Max Temp 1250℃
SH-QC-50	50 ml	
SH-QC-100	100 ml	
SH-QC-250	250 ml	
SH-QC-500	500 ml	

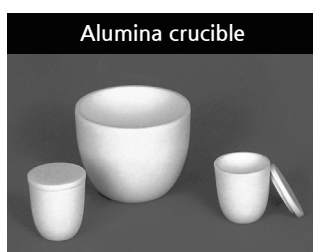


BODY		
Model No.	Capa(ml)	Dimension(φ)
SH-CC-15B	15 ml	36
SH-CC-30B	30 ml	45
SH-CC-50B	50ml	53
SH-CC-100B	100 ml	65
SH-CC-155B	155 ml	72
SH-CC-280B	280 ml	87

Lid	
Model No.	Capa(mm)
SH-CC-15L	15 ml
SH-CC-30L	30 ml
SH-CC-50L	50 ml
SH-CC-100L	100 ml
SH-CC-155L	155 ml
SH-CC-280L	280 ml

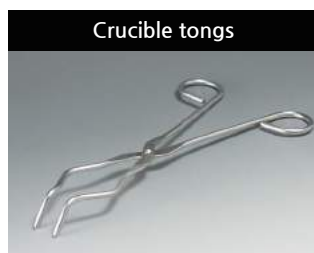


Model No.	Capa(ml)	Temp-Limit
SH-NC-30	30 ml	Operation Temp 600~1000℃
SH-NC-50	50 ml	
SH-NC-100	100 ml	

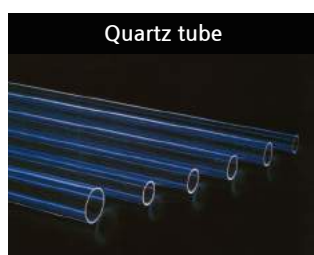


Model No.	Capacity(ml)	Max Temp
SH-ALC-10	10 ml	1700℃
SH-ALC-20	20 ml	
SH-ALC-30	30 ml	
SH-ALC-50	50 ml	
SH-ALC-100	100 ml	
SH-ALC-150	150 ml	
SH-ALC-200	200 ml	
SH-ALC-250	250 ml	
SH-ALC-500	500 ml	

Lid	
Model No.	Capa(mm)
SH-CC-15L	15 ml
SH-CC-30L	30 ml
SH-CC-50L	50 ml
SH-CC-100L	100 ml
SH-CC-155L	155 ml
SH-CC-280L	280 ml



Model No.	Opening Size(Φ)	Length
SH-CT-300	2~30 Φ	300 mm
SH-CT-400	2~30 Φ	400 mm
SH-CT-500	2~30 Φ	500 mm



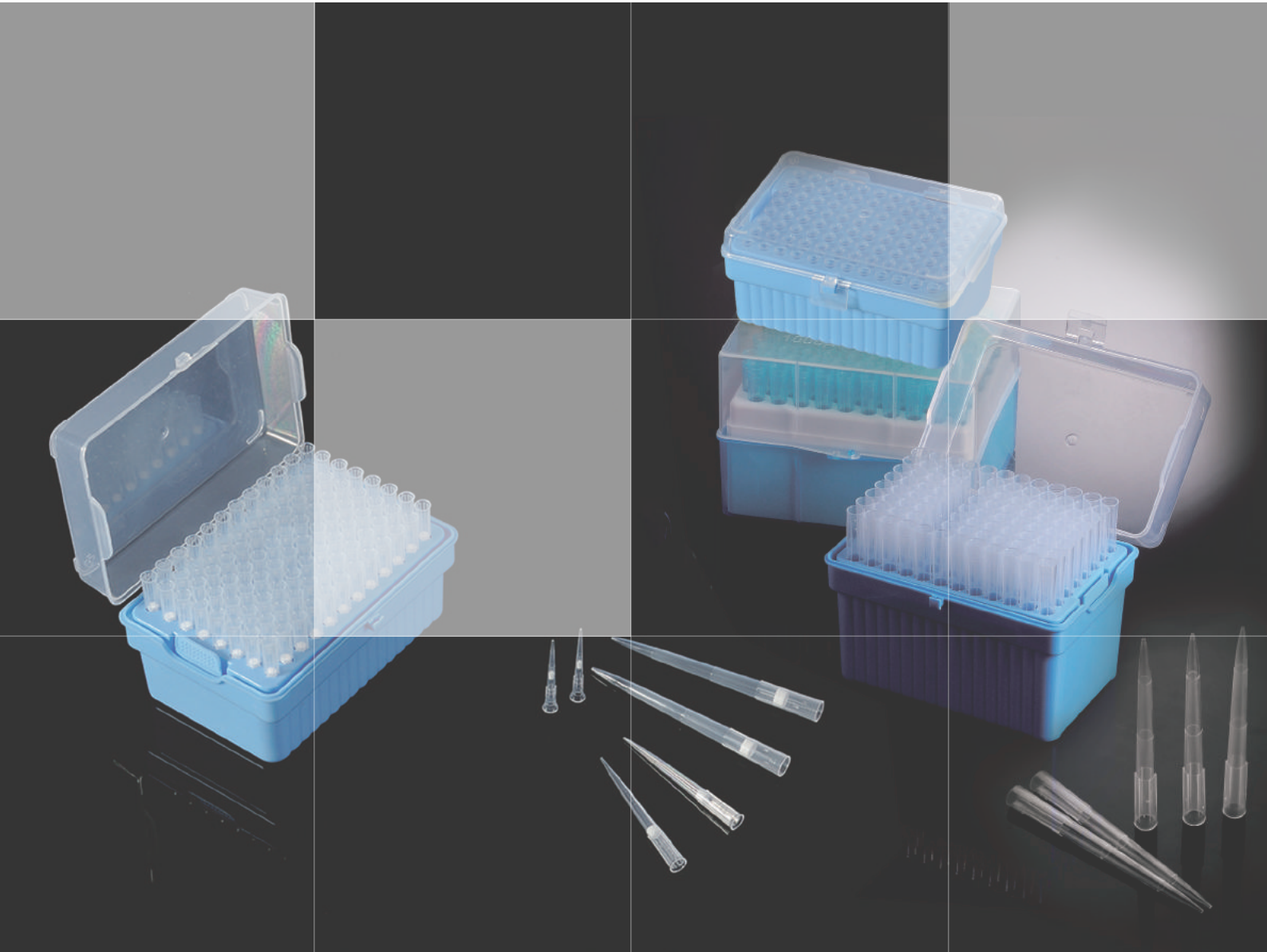
Model No.	Size(I.D/O.D×L)
SH-QT-50	46/50×1000(mm)
SH-QT-60	55/60×1000(mm)
SH-QT-80	74/80×1000(mm)
SH-QT-100	94/100×1000(mm)
SH-QT-120	114/120×1000(mm)



Model No.	Temp-Limit
SH-SG-500	Max 500℃
SH-SG-900	Max 900℃



Model No.	Size(I.D/O.D×L)	Alumina Purity : OVER 99%
SH-AT-25	20/25x1000(mm)	
SH-AT-30	24/30x1000(mm)	
SH-AT-35	28/35x1000(mm)	
SH-AT-50	42/50x1000(mm)	
SH-AT-60	50/60x1000(mm)	
SH-AT-70	60/70x1000(mm)	
SH-AT-80	70/80x1000(mm)	
SH-AT-90	80/90x1000(mm)	
SH-AT-100	88/100x1000(mm)	
SH-AT-120	110/120x1000(mm)	



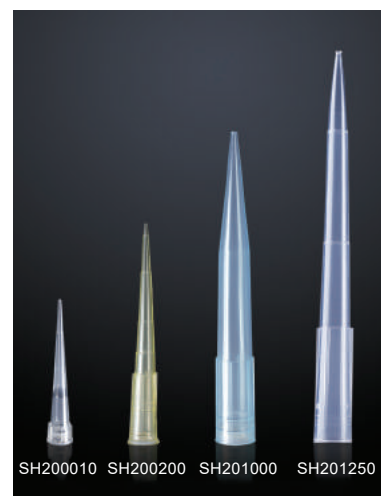
Tips Pipettes PCR

05

Tips & Pipettes & PCR

Tips.....	65
Pipet.....	72
PCR.....	80

Pipet Tips

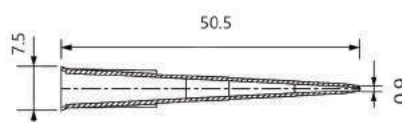


Features

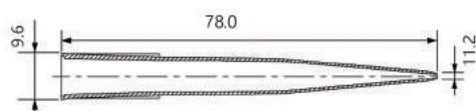
- Made of polypropylene, autoclavable
- Available in 10 μ l, 200 μ l and 1000 μ l sizes, suitable for standard manual and electronic pipettes
- 10 μ l and 200 μ l tips are graduated, 200 μ l tips have a beveled point design that reduces sample retention Extended 1000 μ l tips facilitate pipetting from deep or narrow containers
- RNase & DNase free, non-pyrogenic
- Available in racked package (sterile) and bulk package (non-sterile)



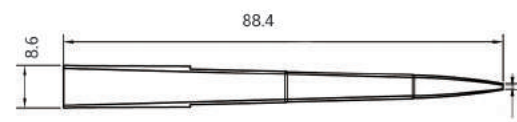
SH200010



SH200200



SH201000

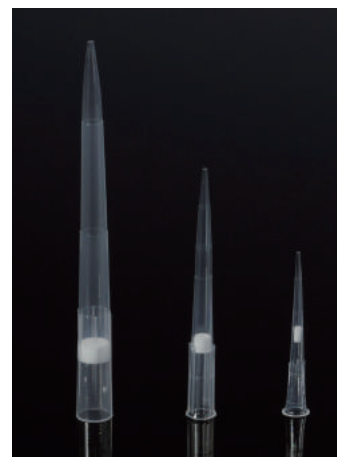


SH201250

Dimensions = mm

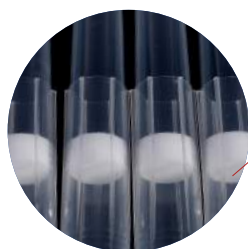
Cat #	Volume	Color	Sterile	Unit
SH200010	10 μ l	Natural	No	1,000 /Bag, 2 Bags /Pack, 5 Packs/Case
SH200200	200 μ l	Yellow	No	1,000 /Bag/Pack, 10 Packs/Case
SH201000	1000 μ l	Blue	No	1,000 /Bag/Pack, 10 Packs/Case
SH201250	1250 μ l	Natural	No	1,000 /Bag/Pack, 10 Packs/Case
SH210010	10 μ l	Natural	Yes	96 /Rack, 10 Racks/Pack, 10 Packs/Case
SH210200	200 μ l	Yellow	Yes	96 /Rack, 10 Racks/Pack, 10 Packs/Case
SH211000	1000 μ l	Blue	Yes	100 /Rack, 6 Racks/Pack, 10 Packs/Case
SH211250	1250 μ l	Natural	Yes	96 /Rack, 6 Racks/Pack, 10 Packs/Case

Filter Tips

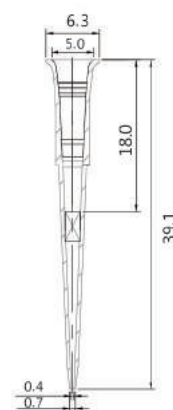


Features

- Tips are made of medical grade polypropylene, and filters are made of highly hydrophobic UHMWPE
- Filters prevent cross-contamination and damage to samples, ensure accurate and precise sample aspiration, and protect the user by preventing sample liquid or vapor from entering the pipette body
- Standard filter tips and low retention filter tips available in all sizes
- Low retention treated tips undergo a coating-free treatment and will not contaminate samples
- All filter tips are autoclavable
- Available in racked package (sterile) and bulk package (non-sterile)



Small and uniform filter pore size ensures the accuracy and precision of sample aspiration



10µl Dimensions=mm

Cat #	Volume	Color	Sterile	Low Retention	Unit
SH220010	10µl	Natural	No	No	1,000 /Bag/Pack, 10 Packs /Case
SH220011	10µl	Natural	No	Yes	1,000 /Bag/Pack, 10 Packs /Case
SH220200	200µl	Natural	No	No	1,000 /Bag/Pack, 10 Packs /Case
SH220201	200µl	Natural	No	Yes	1,000 /Bag/Pack, 10 Packs /Case
SH221000	1000µl	Natural	No	No	1,000 /Bag/Pack, 10 Packs /Case
SH221001	1000µl	Natural	No	Yes	1,000 /Bag/Pack, 10 Packs /Case
SH230010	10µl	Natural	Yes	No	96 /Rack, 10 Racks/Pack, 10 Packs/Case
SH230011	10µl	Natural	Yes	Yes	96 /Rack, 10 Racks/Pack, 10 Packs/Case
SH230200	200µl	Natural	Yes	No	96 /Rack, 10 Racks/Pack, 10 Packs/Case
SH230201	200µl	Natural	Yes	Yes	96 /Rack, 10 Racks/Pack, 10 Packs/Case
SH231000	1000µl	Natural	Yes	No	96 /Rack, 6 Racks/Pack, 10 Packs/Case
SH231001	1000µl	Natural	Yes	Yes	96 /Rack, 6 Racks/Pack, 10 Packs/Case

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Pipet Tip Compatibility

0.5-10µl	20-200µl	0.5-10µl	21-200µl	20-200µl	21-200µl	100-1000µl	20-1000µl	100-1000µl	21-1000µl	100-1000µl	20-1250µl	21-1250µl	0.5-10µl	22-200µl	0.5-10µl	22-200µl	0.5-10µl	23-200µl	1-200µl	22-200µl	1-200µl	23-200µl	1-200µl	23-200µl	100-1000µl	22-1000µl	100-1000µl	22-1000µl	100-1000µl	VolumeSH Scientific Tip	Volume Range	Pipettor Brand/Make
																																
		✓	✓															✓	✓	✓	✓								20-200µl			
						✓	✓	✓	✓																✓	✓	✓		100-1000µl			
✓	✓										✓	✓	✓	✓															0.5-10µl	Biohit m-Line (multichannel)		
		✓	✓															✓	✓	✓	✓								5-100µl			
		✓	✓															✓	✓	✓	✓								30-300µl			
✓	✓										✓	✓	✓	✓															0.2-2µl			
✓	✓										✓	✓	✓	✓															0.5-10µl			
		✓	✓																										5-50µl			
		✓	✓																										10-100µl			
		✓	✓															✓	✓	✓	✓								25-200µl			
		✓	✓															✓	✓	✓	✓								50-300µl			
				✓	✓	✓	✓																	✓	✓	✓			100-1000µl			
																													0.2-2µl			
																													0.5-10µl	384 Format (multichannel)		
																													5-50µl			
✓	✓										✓	✓	✓	✓															0.1-1µl			
✓	✓										✓	✓	✓	✓															0.5-10µl			
																													2-20µl			
		✓	✓																										2-20µl			
		✓	✓																										5-50µl	BrandTech Transferpette (single channel)		
		✓	✓																										10-100µl			
		✓	✓															✓	✓	✓	✓								20-200µl			
		✓	✓															✓	✓	✓	✓								25-250µl			
				✓	✓	✓	✓																	✓	✓	✓			100-1000µl			
✓	✓										✓	✓	✓	✓															0.5-10µl			
		✓	✓																										2-20µl			
		✓	✓																										2.5-25µl			
		✓	✓																										5-50µl	BrandTech Transferpette (multichannel)		
		✓	✓																										10-100µl			
		✓	✓																										20-200µl			
		✓	✓																										30-300µl			
✓	✓										✓	✓	✓	✓															0.5-10µl			
		✓	✓																										5-100µl			
		✓	✓															✓	✓	✓	✓								2-200µl	Eppendorf Electronic		
				✓	✓	✓	✓																	✓	✓	✓			50-1000µl			

Pipet Tip Compatibility

Pipettor Brand/Make Volume Range		Volume/SH Scientific Tip																			
		0.5-10μl	0.5-10μl	1-200μl	1-200μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl	100-1000μl
																					
Labnet Labpette (single channel)	0.1-2μl	✓	✓																		
	0.5-10μl	✓	✓																		
	2-20μl			✓	✓																
	10-100μl			✓	✓																
	20-200μl			✓	✓												✓	✓	✓	✓	
	100-1000μl					✓	✓	✓	✓											✓	✓
Labnet Labpette (multichannel)	1-10μl	✓	✓																		
	5-50μl			✓	✓																
	20-200μl			✓	✓												✓	✓	✓	✓	
	50-300μl			✓	✓												✓	✓	✓	✓	
Labnet BioPette E (single channel)	0.5-10μl	✓	✓																		
	2-20μl	✓	✓																		
	10-200μl			✓	✓												✓	✓	✓	✓	
	100-1000μl					✓	✓	✓	✓											✓	✓
Labnet BioPette E (multichannel)	0.5-10μl	✓	✓																		
	2-20μl	✓	✓																		
	10-200μl			✓	✓												✓	✓	✓	✓	
	100-1000μl					✓	✓	✓	✓											✓	✓
MatrixImpact/ Impact [®] (s/mc)	2-125μl			✓	✓																
	5-250μl																✓	✓	✓	✓	
	15-1250μl							✓	✓											✓	✓
Nichiryo/Oxford Benchmate	0.5-10μl	✓	✓																		
	2-20μl			✓	✓																
	10-50μl			✓	✓																
	10-100μl																				
	40-200μl																				
	100-1000μl																				
Rainin EDP3 (single channel)	E-MIC-10,0.5-10μl	✓	✓																		
	E2-25,2.5-25μl			✓	✓																
	E2-100,10-100μl			✓	✓																
	E2-250,25-250μl			✓	✓												✓	✓	✓	✓	
	E2-1000,100-1000μl					✓	✓	✓	✓											✓	✓

Pipet Tip Compatibility

0.5-10μl	0.5-10μl	20-0010	21-0010	20-0200	21-0200	20-1000	21-1000	20-1250	21-1250	22-0010	22-0011	23-0010	23-0011	22-0200	22-0201	23-0200	23-0201	100-1000μl	22-1000	100-1000μl	22-1001	23-1000	Volume/SH Scientific Tip	Volume Range	Pipettor Brand/Make	
																										
✓	✓								✓	✓	✓	✓														
			✓	✓																						
			✓	✓																						
			✓	✓																						
																			</							

Pipet Tip Compatibility

Pipettor Brand/Make		Volume Range	Pipet Tip																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
			Volume/SH Scientific Tip	0.5-10µl	0.5-10µl	1-200µl	1-200µl	1-200µl	1-200µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000µl	100-1000



pipet4u® pro

Manual Single and Multi Channel Pipettes

UV
resistant

CE IVD

2
YEARS
WARRANTY

autoclavable
121°C
15 min



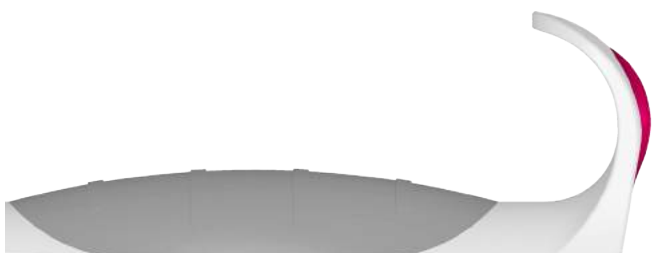
Features

- **Comfortable and effortless pipetting** - new user-friendly handle design with soft grip for comfortable operation to prevent hand stress / light weight / low plunger force minimizes RSI (repetitive strain injury)
- **Easy identification** - use the easily attachable colour-coded drops to identify your pipette according to your requirements
- **Durability** - new tip cone demonstrates high mechanical strength and high resistance against chemicals
- **Calibration stability** - even after multiple autoclaving no recalibration is required
- **Accurate and reliable pipetting** - reverse pipetting option for accurate and precise aspirating and dispensing of viscous liquids / innovative soft grip prevents transfer of heat to internal components, ensuring accurate pipette operation / lock counter mechanism of variable volume pipettes prevents volume changes while pipetting / blow out system allows last drop dispensing
- **Sterile handling** - fully autoclavable pipette (by steam at 121°C / 15 min)
- **Easy and quick maintenance and adjustment** - with the included disassembly and calibration tool
- **Meets following standards:** DIN EN ISO 8655-1 | DIN EN ISO 8655-2 | DIN EN ISO 8655-6 | EU Directive 98/79/EG
- **Compatibility list available on request**

Color coding



Ergonomic shape



Delivery package

1 pc. Manual pipette	1 bag Sample tips
1 pc. Calibration/ disassembling tool	1 bag O-rings
1 pc. Drop tool	1 pc. Instruction manual
1 bag Color coding drop	1 pc. Warranty card
1 pc. Silicon grease	1 pc. Calibration report

Ordering information- manual single channel pipettes, variable volume (주)티에스엘켄

Volume	Test volume	Increments	Inaccuracy ¹	Imprecision ²	Cat. No.
0.1-2.5 µL	0.25 µL 1.25 µL 2.5 µL	0.01 µL	12.0 % 3.0 % 2.5 %	6.00 % 3.00 % 1.60 %	8-100-20-9
0.5-10 µL	1 µL 5 µL 10 µL	0.1 µL	2.5 % 2.0 % 1.0 %	1.50 % 1.00 % 0.80 %	8-101-20-9
2-20 µL	2 µL 10 µL 20 µL	0.1 µL	3.0 % 1.5 % 0.9 %	2.00 % 1.00 % 0.40 %	8-102-20-9
5-50 µL	5 µL 25 µL 50 µL	0.5 µL	2.0 % 0.8 % 0.6 %	2.00 % 0.40 % 0.30 %	8-103-20-9
10-100 µL	10 µL 50 µL 100 µL	0.5 µL	3.0 % 1.0 % 0.8 %	1.50 % 0.50 % 0.15 %	8-104-20-9
20-200 µL	20 µL 100 µL 200 µL	1.0 µL	2.0 % 0.7 % 0.6 %	0.80 % 0.30 % 0.15 %	8-105-20-9
50-200 µL	50 µL 100 µL 200 µL	1.0 µL	1.0 % 0.8 % 0.6 %	0.40 % 0.20 % 0.15 %	8-105-21-9
100-1000 µL	100 µL 500 µL 1000 µL	5.0 µL	2.0 % 1.0 % 0.6 %	0.70 % 0.40 % 0.20 %	8-106-20-9
200-1000 µL	200 µL 500 µL 1000 µL	5.0 µL	0.9 % 0.75 % 0.6 %	0.30 % 0.25 % 0.20 %	8-106-21-9
0.5-5 mL	0.5 mL 2.5 mL 5 mL	0.05 mL	2.0 % 0.6 % 0.5 %	0.60 % 0.30 % 0.15 %	8-107-20-9

¹ Systematic error | ² Random error

Ordering information - manual multi channel pipettes, variable volume

Volume	Channels	Test volume	Increments	Inaccuracy ¹	Imprecision ²	Cat. No.
0.5-10 µL	8	0.50 µL 5 µL 10 µL	0.1 µL	4.00 % 2.50 % 1.50 %	4.00 % 2.50 % 1.50 %	8-201-20-9
5-50 µL	8	5 µL 25 µL 50 µL	0.5 µL	3.00 % 1.50 % 1.00 %	2.00 % 1.00 % 0.70 %	8-202-20-9
30-300 µL	8	30 µL 150 µL 300 µL	1.0 µL	1.50 % 1.00 % 0.80 %	0.75 % 0.50 % 0.25 %	8-203-20-9
0.5-10 µL	12	1 µL 5 µL 10 µL	0.1 µL	4.00 % 2.50 % 1.50 %	4.00 % 2.50 % 1.50 %	8-401-20-9
5-50 µL	12	5 µL 25 µL 50 µL	0.5 µL	3.00 % 1.50 % 1.00 %	2.00 % 1.00 % 0.70 %	8-402-20-9
30-300 µL	12	30 µL 150 µL 300 µL	1.0 µL	1.50 % 1.00 % 0.80 %	0.75 % 0.50 % 0.25 %	8-403-20-9

Ordering information - spare parts for pipet4u® pro manual single channel pipettes

Set	Volume	Cat. No.
	0.1-2.5 µL	8-190-00-9
	0.5-10 µL	8-190-01-9
	2-20 µL	8-190-02-9
	5 µL 10 µL 20 µL 25 µL 50 µL 5-50 µL	8-190-03-9
	100 µL 10-100 µL	8-190-04-9
	200 µL 20-200 µL 50-200 µL	8-190-05-9
	250 µL 500 µL 1000 µL 100-1000 µL 200-1000 µL	8-190-06-9
	2000 µL 2500 µL 5000 µL 500-5000 µL	8-190-07-9
	10000 µL 2000-10000 µL	8-190-08-9

pipet4u® Revolution

Electronic Single Channel and Multi Channel Pipettes



Features

- **Comfortable and effortless pipetting** - ultra bright OLED display for extra clear visibility / ergonomic design for fatigue-free operation / comfortable pipetting dial for easy volume control and low strain pipetting (minimizes RSI - repetitive strain injury)
- **Easy handling with one dial** - control of all operating programs with the patented one dial system 6 different operating programs - pipetting / dispensing / reverse pipetting / mixing / autocalibration / speed control
- **Accurate and reliable pipetting** - SCS-System (speed control system) controls piston movement giving highest precision and accuracy
- **Easy self-calibration** - ESM-System (easy self-calibration management system) allows user calibration of the pipette, the user can calibrate their pipette for solutions of different viscosity, the system also controls permanently all functions and indicates errors
- **Sterile handling** - autoclavable pipette cone (120 °C / 15 min)
- **Meets following standards:** DIN EN ISO 8655-1 | DIN EN ISO 8655-2 | DIN EN ISO 8655-6 | EU Directive 98/79/EG
- **Compatibility list available on request**

Ordering information

Volume	Test volume	Increments	Inaccuracy ¹	Imprecision ²	Cat. No.
0.2 -10 µL	0.50 µL 5 µL 10 µL	0.01 µL	5.0 % 2.5 % 0.9 %	3.0 % 1.5 % 0.5 %	8-500-00-0
5-100 µL	5 µL 50 µL 100 µL	0.1 µL	2.5 % 0.9 % 0.4 %	1.5 % 0.3 % 0.5 %	8-501-00-0
10-200 µL	10 µL 100 µL 200 µL	0.1 µL	0.9 % 0.4 % 0.3 %	0.5 % 0.5 % 0.1 %	8-502-00-0
50-1000 µL	100 µL 500 µL 1000 µL	1.0 µL	0.4 % 0.4 % 0.3 %	0.5 % 0.2 % 0.1 %	8-503-00-0
100-5000 µL	500 µL 2500 µL 5000 µL	5.0 µL	0.4 % 0.1 % 0.1 %	0.5 % 0.1 % 0.1 %	8-505-00-0

1 Systematic error / 2 Random error

Delivery package	
1 pc. Electronic pipette	1 pc. Li-Ion-battery
1 pc. Sample bag tips	1 pc. Charger (EU)
1 pc. Grease	1 pc. Instruction manual
1 pc. Screw driver	1 pc. Calibration report



Ordering information - electronic multi channel pipettes

Volume	Channel	Test volume	Increments	Inaccuracy ¹	Imprecision ²	Cat. No.
0.2 -10 µL	8	0.5 µL 5 µL 10 µL	0.01 µL	5.0 % 2.5 % 0.9 %	3.0 % 1.5 % 0.5 %	8-520-00-0
2.5-50 µL	8	5 µL 25 µL 50 µL	0.10 µL	2.5 % 0.9 % 0.4 %	1.5 % 0.3 % 0.5 %	8-521-00-0
15-300 µL	8	20 µL 150 µL 300 µL	0.50 µL	0.9 % 0.4 % 0.3 %	0.5 % 0.3 % 0.1 %	8-522-00-0
0.2-10 µL	12	0.5 µL 5 µL 10 µL	0.01 µL	5.0 % 2.5 % 0.9 %	3.0 % 1.5 % 0.5 %	8-530-00-0
2.5-50 µL	12	5 µL 25 µL 50 µL	0.10 µL	2.5 % 0.9 % 0.4 %	1.5 % 0.3 % 0.5 %	8-531-00-0
15-300 µL	12	20 µL 150 µL 300 µL	0.50 µL	0.9 % 0.4 % 0.3 %	0.5 % 0.3 % 0.1 %	8-532-00-0

1 Systematic error / 2 Random error

Delivery package	
1 pc. Electronic pipette	1 pc. Li-Ion-battery
1 pc. Sample bag tips	1 pc. Charger (EU)
1 pc. Grease	1 pc. Instruction manual
1 pc. Screw driver	1 pc. Calibration report

Pipette Stands

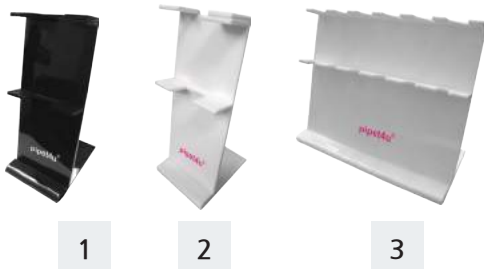
Single Channel and Multi Channel Pipettes



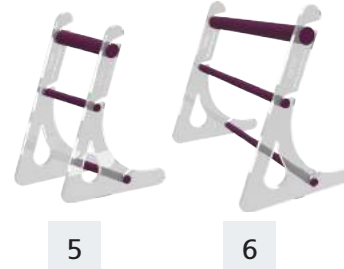
Features

- **Safe and effortless handling** - comfortable and reliable pipette storage / pipette stands can be easily assembled and disassembled for cleaning purposes
- **Versions** - available as 1 place/4 places and 6 places pipette stands for single channel and multi channel pipettes and as fixed place and variable place pipette stands

Acrylic pipette stands



Acrylic/Aluminium pipette stands



Ordering information

Description - Acrylic pipette stands		Color	Sales Unit	Cat. No.
1 place pipette stand for manual multi channel pipettes	1	black	Carton/1 pc.	8-130-02-7
1 place pipette stand for manual multi channel pipettes	2	white	Carton/1 pc.	8-130-02-9
4 places pipette stand for manual single channel pipettes	3	white	Carton/1 pc.	8-130-00-9
Description - Acrylic/Aluminium pipette stands		Color	Sales Unit	Cat. No.
1 place pipette stand for manual single and multi channel pipettes	5	clear/magenta	Carton/1 pc.	8-132-01-8
6 places pipette stand for manual single channel pipettes	6	clear/magenta	Carton/1 pc.	8-132-00-8

pipet4u® Oasis

Pipette Controller



Features

- **Comfortable and effortless pipetting** - light weight pipette design / smooth push buttons for precise pipetting control / ergonomic design for easy operation / cordless working (holds charge up to 8 hours) / quiet high-powered motor
- **Contamination control** - replacable membrane filter to minimize risk of contamination
- **Speed setting** - adjustment of pipetting speed on sample viscosity with 3 selectable speeds
- **Sterile handling** - autoclavable pipette cone (120 °C / 15 min)



Ordering information

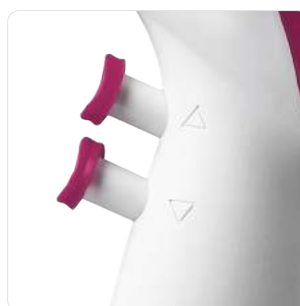
Description	Sales Unit	Cat. No.
pipet4u® Oasis Pipette Controller 0.1-100 mL	Carton/1 pc.	8-300-00-9

Description - spare parts	Sales Unit	Cat. No.
0.2 µm PTFE membrane filter	Carton/5 pc.	8-300-03-0
0.45 µm PTFE membrane filter	Carton/5 pc.	8-300-04-0
Silicone adapter	Carton/1 pc.	8-300-01-0
Pipette cone	Carton/1 pc.	8-300-02-8

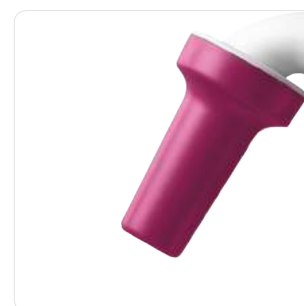
Delivery package

- 1 pc. Pipette controller
- 2 pcs. PTFE Membranfilters (0.2 µm/0.45 µm)
- 1 pc. Charger (EU)
- 2 pcs. NiMH batteries
- 1 pc. Wall mount bracket
- 1 pc. Desktop stand
- 1 pc. Instruction manual
- 1 pc. Warranty card

Ergonomic push buttons



Autoclavable tip cone



Bottle Top Dispenser



Features

- **Unique piston mechanism** - cleaning of piston and cylinder without affecting the calibration
- **Dual graduation marks** - readability of the volume from both sides
- **Springless valve design** - leads to smooth functioning and high chemical resistance
- **Eco-friendly** - while discharging the tubes in the re-circulation mode, in fast priming, the reagent is being redirected back into the bottle, eliminating any waste of precious reagents, ensuring safety and savings
- **Easy handling** - discharge tube with 360° rotation, makes the bottle label visible all the time / telescoping filling tube compatible with different sizes of reagent bottles / ergonomic grip
- **Easy to calibrate** - complies with ISO 8655-5 standard

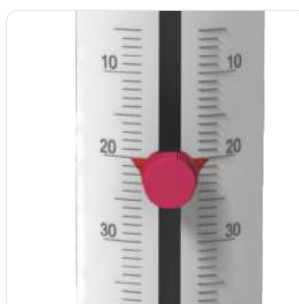
Ordering information

Description - spare parts	Sales Unit	Cat. No.
AHN myDpette Bottle Top Dispenser 0.25-2.5 mL	Carton/1 pc.	8-700-00-0
AHN myDpette Bottle Top Dispenser 0.5-5.0 mL	Carton/1 pc.	8-701-00-0
AHN myDpette Bottle Top Dispenser 1.0-10.0 mL	Carton/1 pc.	8-702-00-0
AHN myDpette Bottle Top Dispenser 2.5-25.0 mL	Carton/1 pc.	8-703-00-0
AHN myDpette Bottle Top Dispenser 5.0-25.0 mL	Carton/1 pc.	8-704-00-0

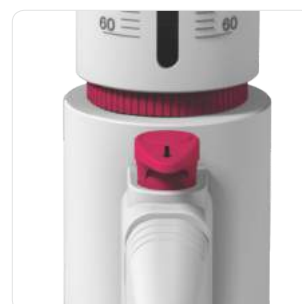
Delivery package

- 1pc. Bottle top dispenser
- 4 pcs. Adapters (28, 38, 40 and 45 mm screw cap)
- 1pc. Telescopic filling tube
- 1pc. Re-circulation tube
- 1pc. Spanner

Ergonomic push buttons



Autoclavable tip cone



PCR Tubes

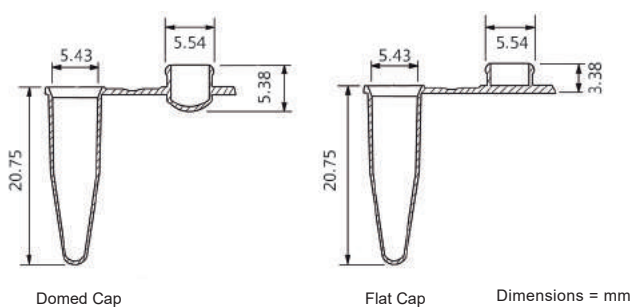


Features

- Made of high quality medical grade polypropylene
- Ultra thin-wall tubes provide faster heating & cooling and perfect preservation of samples without breakness
- High degree of transparency allows for easy observation of samples
- Available with domed caps or flat caps
- Domed caps ensure efficient heat transfer
- Flat caps are ideal for Real-Time PCR (qPCR)
- Unique cap design prevents opening during cycling and incubation stages
- DNase, RNase, and endotoxin free

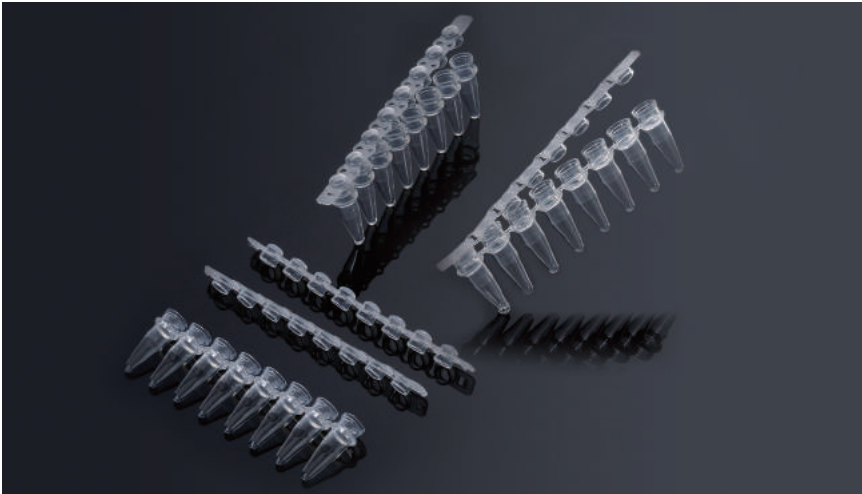
Specifications

- Fits most standard thermocyclers
- Can withstand centrifugation of up to 6,000 RCF



Cat #	Volume	Color	Cap	Sterile	Unit
SH600082	0.2ml	Clear	Flat-top	No	1,000 /Bag/Pack, 10 Packs/Case
SH600182	0.2ml	Pink	Flat-top	No	1,000 /Bag/Pack, 10 Packs/Case
SH600282	0.2ml	Green	Flat-top	No	1,000 /Bag/Pack, 10 Packs/Case
SH600382	0.2ml	Blue	Flat-top	No	1,000 /Bag/Pack, 10 Packs/Case
SH600482	0.2ml	Yellow	Flat-top	No	1,000 /Bag/Pack, 10 Packs/Case
SH600002	0.2ml	Clear	Dome-shaped	No	1,000 /Bag/Pack, 10 Packs/Case
SH600102	0.2ml	Pink	Dome-shaped	No	1,000 /Bag/Pack, 10 Packs/Case
SH600202	0.2ml	Green	Dome-shaped	No	1,000 /Bag/Pack, 10 Packs/Case
SH600302	0.2ml	Blue	Dome-shaped	No	1,000 /Bag/Pack, 10 Packs/Case
SH600402	0.2ml	Yellow	Dome-shaped	No	1,000 /Bag/Pack, 10 Packs/Case

8-Strip PCR Tubes

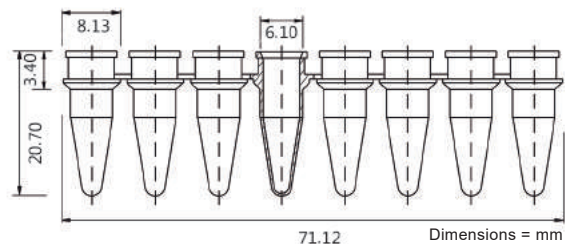


Features

- Made of high quality medical grade polypropylene
- Ultra thin-wall tubes provide faster heating & cooling and perfect preservation of samples without breakness
- High degree of transparency allows for easy observation of samples
- Available with domed caps or flat caps
- Domed caps ensure efficient heat transfer
- Flat caps are ideal for Real-Time PCR (qPCR)
- Unique cap design prevents opening during cycling and incubation stages

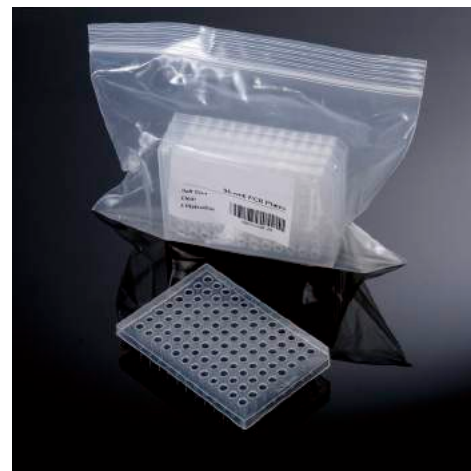
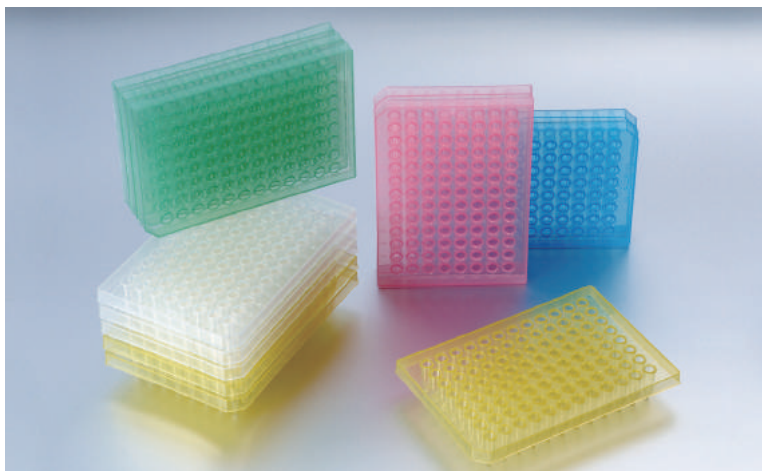
Specifications

- Fits most standard thermocyclers
- Can withstand centrifugation of up to 6,000 RCF
- Packaged in resealable bags



Cat #	Volume	Color	Cap	Sterile	Unit
SH600088	0.2ml	Clear	Flat	No	125 Strip Tubes+125 Strip Caps/Bag/Pack, 10 Packs/Case
SH600188	0.2ml	Pink	Flat	No	125 Strip Tubes+125 Strip Caps/Bag/Pack, 10 Packs/Case
SH600288	0.2ml	Green	Flat	No	125 Strip Tubes+125 Strip Caps/Bag/Pack, 10 Packs/Case
SH600388	0.2ml	Blue	Flat	No	125 Strip Tubes+125 Strip Caps/Bag/Pack, 10 Packs/Case
SH600488	0.2ml	Yellow	Flat	No	125 Strip Tubes+125 Strip Caps/Bag/Pack, 10 Packs/Case
SH600008	0.2ml	Clear	Domed	No	125 Strip Tubes+125 Strip Caps/Bag/Pack, 10 Packs/Case
SH600108	0.2ml	Pink	Domed	No	125 Strip Tubes+125 Strip Caps/Bag/Pack, 10 Packs/Case
SH600208	0.2ml	Green	Domed	No	125 Strip Tubes+125 Strip Caps/Bag/Pack, 10 Packs/Case
SH600308	0.2ml	Blue	Domed	No	125 Strip Tubes+125 Strip Caps/Bag/Pack, 10 Packs/Case
SH600408	0.2ml	Yellow	Domed	No	125 Strip Tubes+125 Strip Caps/Bag/Pack, 10 Packs/Case

PCR Plates



Features

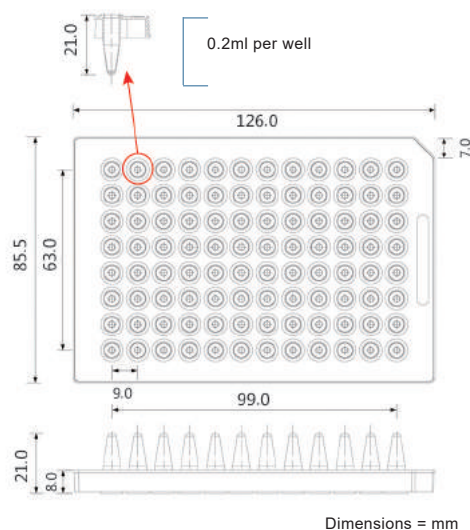
- Made of high quality medical grade polypropylene
- Ultra-thin tube walls with uniform thickness for accelerated heat transfer, shorter cycle times, and more consistent results
- Alphanumeric well labeling for convenient identification
- DNase, RNase, and endotoxin free

Specifications

- Fits most standard thermocyclers
- Can withstand centrifugation of up to 6,000 RCF
- * Assorted colors for PCR Plates should be ordered separately



Half-skirted plates are easy to insert and remove



Cat #	Well	Skirt	Color	Sterile	Unit
SH600056	96-well	Half-Skirted	Clear	No	5 /Bag, 5 Bags /Pack, 4 Packs/Case
SH600156	96-well	Half-Skirted	Pink	No	5 /Bag, 5 Bags /Pack, 4 Packs/Case
SH600256	96-well	Half-Skirted	Green	No	5 /Bag, 5 Bags /Pack, 4 Packs/Case
SH600356	96-well	Half-Skirted	Blue	No	5 /Bag, 5 Bags /Pack, 4 Packs/Case
SH600456	96-well	Half-Skirted	Yellow	No	5 /Bag, 5 Bags /Pack, 4 Packs/Case

PCR Plate Compatibility

Plates ▶		60-0056 (Half-Skirted)
Brand	Model	
Real Time PCR Thermal Cylcers Applied Biosystems	7000	✓
	7300	✓
	7500	✓
	7700	✓
	7900HT	✓
	StepOne	
BioRad	iCycler	✓
	MyiQ	
	iQ5	✓
Eppendorf	MasterCycler ep Realplex	
MJ Research	Opticon	
	Opticon 2	
	Chromo 4	
	MX-4000	
	MX-3000	
Techne	Quantica	
PCR Thermal Cylcers		
Applied Biosystems	Veriti	✓
	9600	✓
	9700	✓
	7800FAST	✓
	2720	✓
Biometra	Uno	✓
	Uno II	✓
	T1 Thermal Cycler	✓
	Tgrasient	✓
	Trobot	✓
BioRad	iCycler	✓
	MyCycler	✓
Corbett Research	PalmCycler 96	✓
	PalmCycler 384	
Eppendorf	Mastercycler	✓
	Mastercycler ep	✓
	Mastercycler M384	
Flexi	Gene	✓
	Genius	✓

Plates ▶		60-0056 (Half-Skirted)
Brand	Model	
Ericom	Single Block	✓
	Twin Block	✓
	Deltacycler I	✓
ThermoHybaid	PCR Sprint	✓
	PCR Express	✓
	Multiblock System	✓
	Touchdown	✓
	Omnigene	✓
	Omn-E	✓
	pxe	✓
MJ Research	px2	✓
	PTC-100	✓
	PTC-200	✓
	PTC-225 Tetrad	✓
	Dyad/Disciple	✓
MWG	Primus 96	✓
	Primus 384	✓
Stratagene	Robocycler	✓
TaKaRa	TP240	
	TP3000	✓
Techne	Touchgene Gradient (TC512)	✓
	Genius (TC412)	✓
	Touchgene X	✓
Sequencers		
Applied Biosystems	3100	✓
	3130	✓
	3700	✓
	3730/3730x	✓

This chart is intended only as a general guide. Compatibility may vary based on your particular configuration and features. For further help with product selection, please contact us.

Incubator



06

INCUBATOR

Incubator

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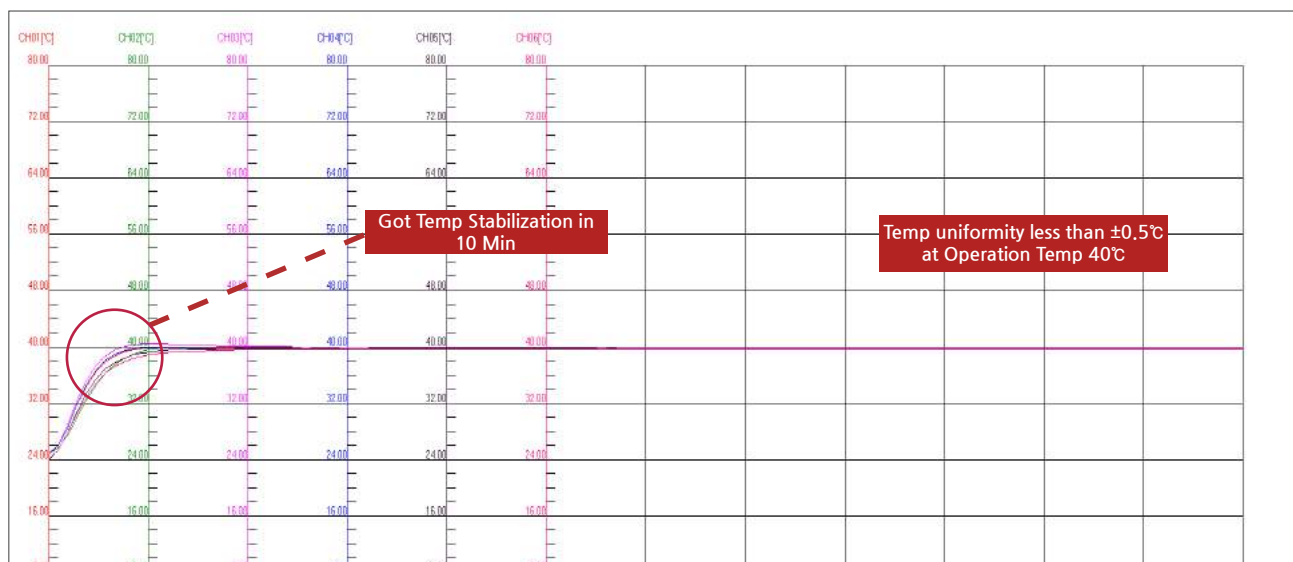
Co2 Incubator.....97

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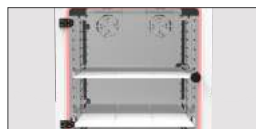
Incubator -Feature

Incubator is a basic piece lab equipment suitable for stagnant incubation and storage of tests requiring a specific range of temperatures for a specific period of time. In accordance to this, our Incubators can maintain a uniform range of temperatures for a certain set period.

Uniformity sheet



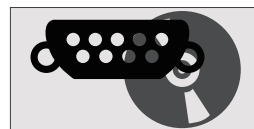
Feature



Stainless steel



Accurate temp control



RS-485
or
RS-232C interface



Leveling feet



Safety devices



Digital PID controller



Inner glass door

Forced Incubator:



Model	SH-CH-54G	SH-CH-100G	SH-CH-149G	SH-CH-250G
Air Circulation Type	Forced			
Temp Range	Ambient +5℃ to 70℃ (Ambient + 9°F to 158°F)			
Temp Control	Microprocessor PID Controller			
Time Range	00.00 to 99HR 59MIN(MIN SEC) Selectable Digital Display			
Temp Accuracy & Stability	±0.1℃			
Temp Uniformity	±0.5℃			
Capa	54 L	100 L	150 L	250 L
Dimension Internal (W×D×H)	380x340x420(mm)	480x400x530(mm)	555x450x600(mm)	700x450x800(mm)
	14.96x13.39x16.54(inch)	18.90x15.75x20.87(inch)	21.85x17.72x23.62(inch)	27.56x17.72x31.50(inch)
Dimension External (W×D×H)	525x520x757(mm)	625x580x870(mm)	700x630x937(mm)	845x630x1170(mm)
	20.67x20.47x29.80(inch)	24.61x22.83x34.25(inch)	27.56x24.80x37.00(inch)	33.27x24.80x46.06(inch)
Weight	40 Kg	51 Kg	60 Kg	85 kg
Material Internal	Stainless Steel			
Material External	Steel Plate with Powder Heating Coated			
Shelves	2 Supplied (12 Maximum)	2 Supplied (15 Maximum)	2 Supplied (17 Maximum)	2 Supplied (24 Maximum)
Heater	400 W	600 W	800 W	1000 W
Electrical Requirements 120V ,50/60Hz, 1Φ	3.3 A	5.0 A	6.7 A	8.3 A
Cat. No.	CH54G120	CH100G120	CH149G120	CH250G120
Electrical Requirements 230V ,50/60Hz, 1Φ	1.7 A	2.6 A	3.5 A	4.3 A
Cat. No.	CH54G230	CH100G230	CH149G230	CH250G230

Accessory

Movable Epoxy Coated Wire Shelves
2EA

Option

Programmable Controller
Digital Recorder
2CH Hybrid Recorder
RS-485 interface
RS-232C interface

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Door open alarm
Electric leakage breaker
Over temp controller



Economy Model

Gravity Incubator:

This version of the Incubator is suitable for incubate processes without airflow. It is choice if you are looking for a Incubator that comes within a budget. This equipment is fully focused on main incubating functions aside from other functions.



Model	SH-CH-54GE	SH-CH-100GE	SH-CH-149GE
Air Circulation Type	Natural		
Temp Range	Ambient +5℃ to 70℃ (Ambient + 9°F to 158°F)		
Temp Control	Microprocessor PID Controller		
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Display		
Temp Accuracy & Stability	±0.1℃		
Temp Uniformity	±1.5℃		
Capa	54 L	100 L	150 L
Dimension Internal (W×D×H)	380x340x420(mm)	480x400x530(mm)	555x450x600(mm)
	14.96x13.39x16.54(inch)	18.90x15.75x20.87(inch)	21.85x17.72x23.62(inch)
Dimension External (W×D×H)	525x485x825(mm)	625x545x935(mm)	700x595x1005(mm)
	20.66x19.09x32.48(inch)	24.60x21.45x36.81(inch)	27.55x23.42x39.57(inch)
Weight	41 Kg	51 Kg	60 Kg
Material Internal	Stainless Steel		
Material External	Steel Plate with Powder Heating Coated		
Shelves	2 Supplied (12 Maximum)	2 Supplied (15 Maximum)	2 Supplied (17 Maximum)
Heater	480 W	720 W	1080 W
Electrical Requirements 120V ,50/60Hz, 1Φ	4.0 A	6.0 A	9.0 A
Cat. No.	CH54GE120	CH100GE120	CH149GE120
Electrical Requirements 230V ,50/60Hz, 1Φ	2.1 A	3.1 A	4.7 A
Cat. No.	CH54GE230	CH100GE230	CH149GE230

Accessory

Movable Epoxy Coated Wire Shelves
2EA

Option

Digital Recorder
2CH Hybrid Recorder

Safety Device

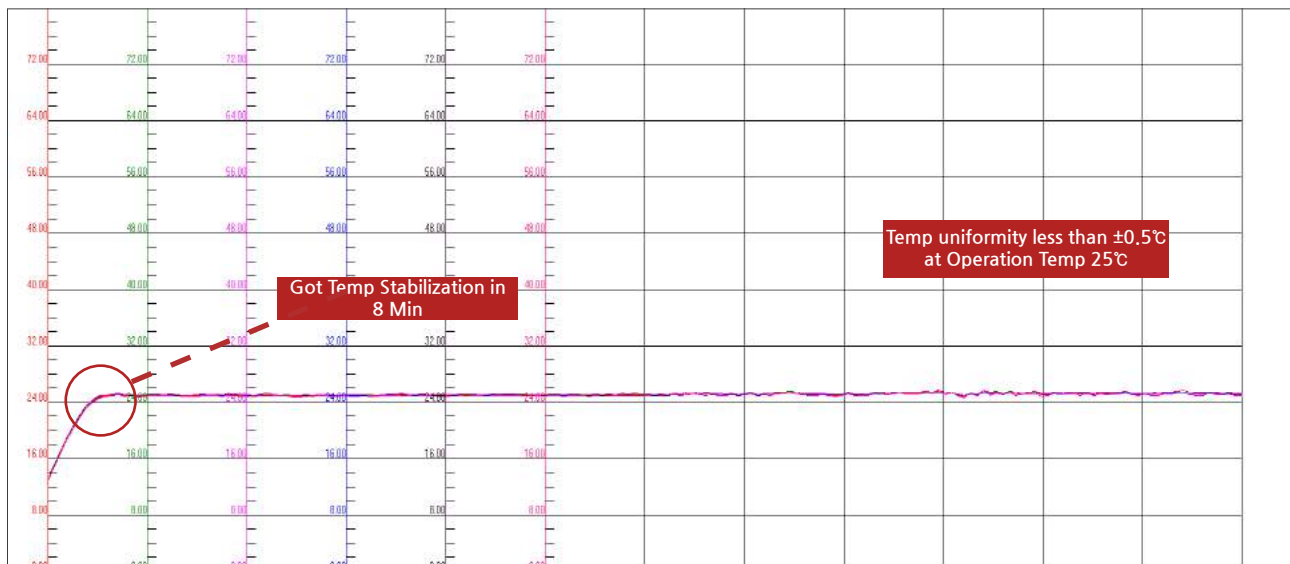
Automatic reset function incoming power cut
Buzzer on when set time arrived
Door open alarm
Electric leakage breaker
Over temp controller

Refrigerated Incubator

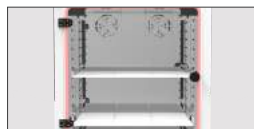
-Feature

This version of incubator comes with a high-powered refrigeration compressor. Its cooling temperatures ranges from -5°C to 60°C . It is designed to conduct separate tests in high or low temperature. Yet, it is also capable of minimizing adjustment period from low to high or vice versa.

Uniformity sheet



Feature



Stainless steel



Accurate temp control



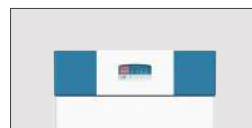
RS-485
or
RS-232C interface



Leveling caster



Safety devices



Digital controller



Inner glass door

Refrigerated Incubator:



Model	SH-CH-54R	SH-CH-149R	SH-CH-250R	SH-CH-480R
Air Circulation Type	Forced			
Temp Range	-5°C to 60°C (+23°F to 60°F)			
Temp Control	Microprocessor PID Controller			
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Display			
Temp Accuracy & Stability	±0.1°C			
Temp Uniformity	±0.5°C			
Capa	54 L	150 L	250 L	480 L
Dimension Internal (W×D×H)	380x340x420(mm)	555x450x600(mm)	700x450x800(mm)	800x600x1000(mm)
	14.96x13.39x16.54(inch)	21.85x17.72x23.62(inch)	27.56x17.72x31.50(inch)	31.50x23.62x39.37(inch)
Dimension External (W×D×H)	540x650x1170(mm)	715x760x1350(mm)	860x760x1590(mm)	960x960x1935(mm)
	21.26x25.59x46.06(inch)	28.15x29.92x53.14(inch)	33.86x29.92x62.59(inch)	37.80x37.80x76.18(inch)
Weight	82 Kg	117.2 Kg	156 Kg	195 kg
Material Internal	Stainless Steel			
Material External	Steel Plate with Powder Heating Coated			
Shelves	2 Supplied (12 Maximum)	2 Supplied (17 Maximum)	2 Supplied (24 Maximum)	2 Supplied (31 Maximum)
Heater	800 W	1000 W	1200 W	1800 W
Electrical Requirements 230V, 50/60Hz, 1Φ	3.6 A	4.6 A	5.6 A	8.3 A
Cat. No. 50Hz (60Hz)	CH54R230-50 (CH54R230-60)	CH149R230-50 (CH149R230-60)	CH250R230-50 (CH250R230-60)	CH480R230-50 (CH480R230-60)

Accessory

Movable Epoxy Coated Wire Shelves
2EA

Option

Programmable Controller
Digital Recorder
2CH Hybrid Recorder
RS-485 interface
RS-232C interface

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Door open alarm
Electric leakage breaker
Over temp controller
Refrigerator over load protection

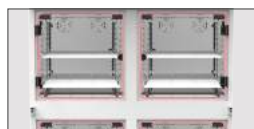
4-Chamber Incubator -Feature

For efficient space usage and increased productivity level, we provide a 4-room chamber model that can be controlled independently. The user can set four different temperatures into these four different compartments and have independent processes inside each of these four chambers at the same time.

Uniformity sheet



Feature



Stainless steel



Accurate temp control



RS-485
or
RS-232C interface



Leveling caster



Safety devices



Digital PID controller

4-Chamber Incubator:



Model	SH-CH-500G	SH-CH-500R
Air Circulation Type	Forced	
Temp Range	Ambient + 5℃ to 70℃ Ambient + 9°F to 158°F	-10℃ to 60℃ 14°F to 140°F
Temp Control	Microprocessor PID Controller	
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Display	
Temp Accuracy & Stability	±0.1℃	
Temp Uniformity	±0.5℃	
Capa	125L x 4 Chambers, Total 500L	
Dimension Internal (W×D×H)	500x500x500(mm) x 4 Chambers	
	19.69x19.69x19.69(inch) x 4 Chambers	
Dimension External (W×D×H)	1275x695x1575(mm)	1545x860x1775(mm)
	50.19x27.36x62.00(inch)	60.82x33.85x69.88(inch)
Weight	220 Kg	260 Kg
Material Internal	Stainless Steel	
Material External	Steel Plate with Powder Heating Coated	
Shelves	2 Supplied / Chamber, total 8EA (15EA / Chamber, total 60EA, Maximum)	
Refrigerator Compressor	None	1/4HP x 4 EA
Heater	2 KW	4 KW
Electrical Requirements 230V ,50/60Hz, 1Φ	9 A	22 A
Cat. No. 50Hz (60Hz)	CH500G-50 (CH500G-60)	CH500R-50 (CH500R-60)

Accessory

Movable Epoxy Coated Wire Shelves
(2EA /Chamber, total 8EA)

Option

Programmable Controller
Digital Recorder
2CH Hybrid Recorder
RS-485 interface
RS-232C interface

Safety Device

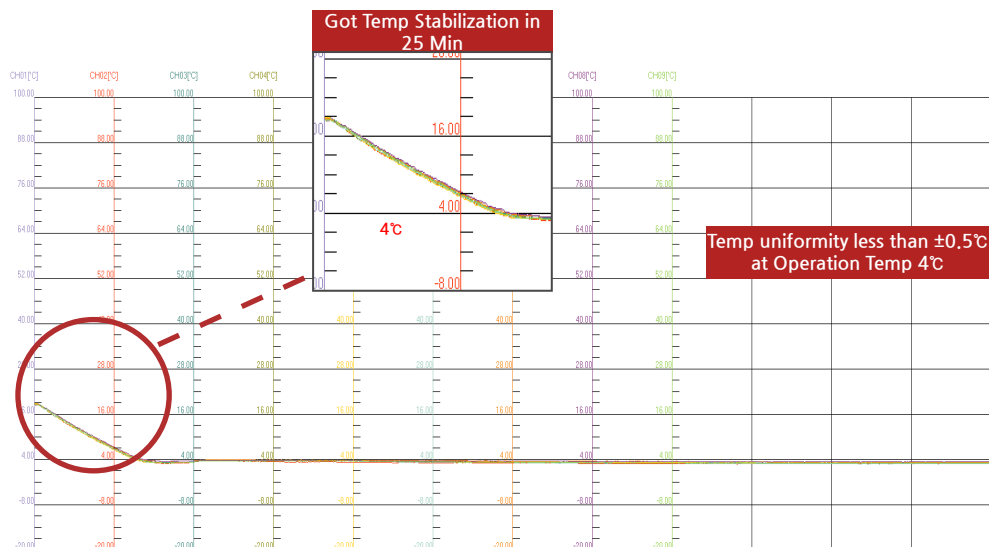
Automatic reset function incoming power cut
Buzzer on When Set Time Arrived
Electric leakage breaker
Over temp controller
Refrigerator over load protection

Cold Lab Chamber -Feature

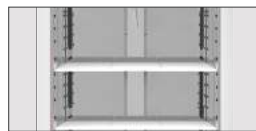
Cold lab chamber is a lab equipment which is necessary when keeping reagent or testing sample in a low temperature.

SH Scientific's cold lab chamber supports temperature from 0°C to 10°C and provides sophisticated and stable temperature control performed by heater controlling method.

Uniformity sheet



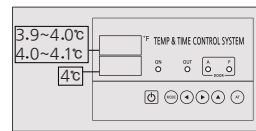
Feature



Stainless steel



Accurate temp control



Stable temperature control



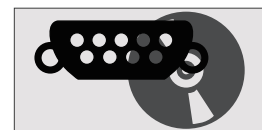
Caster



Super cool down



Digital PID controller



RS-485 interface
or
RS-232C interface

Cold Lab Chamber:



Model	SH-CH-650R	SH-CH-1200R
Air Circulation Type	Forced	
Temp Range	0℃ to 10℃ (32°F to 50°F)	
Temp Control	Microprocessor PID Controller	
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Display	
Temp Accuracy & Stability	±0.1℃	
Capa	620 L	1200 L
Dimension Internal (W×D×H)	645x700x1364(mm)	1330x720x1380(mm)
	25.39x27.55x53.70(inch)	52.36x28.34x54.33(inch)
Dimension External (W×D×H)	720x840x2085(mm)	1420x855x2092(mm)
	28.34x33.07x82.08(inch)	55.90x33.66x82.36(inch)
Weight	120 Kg	220 Kg
Material Internal	Stainless Steel	
Material External	Steel Plate with Powder Heating Coated	
Shelves	4 Supplied (34 Maximum)	8 Supplied (70 Maximum)
Refrigerator Compressor	1/3HP	3/4HP
Heater	1.0 KW	1.5 KW
Electrical Requirements 120V, 50/60Hz, 1Φ	10.4 A	17.2 A
Cat. No.	CH650R120-50(CH650R120-50-60)	CH1200R120-50(CH1200R120-60)
Electrical Requirements 230V, 50/60Hz, 1Φ	6.2 A	13.2 A
Cat. No. 50Hz (60Hz)	CH650R230-50(CH650R230-60)	CH1200R230-50(CH1200R230-60)

Accessory

Movable Epoxy Coated Wire Shelves

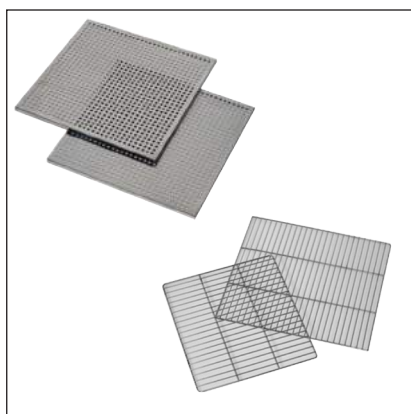
Option

Digital Recorder
2CH Hybrid Recorder
RS-485 interface
RS-232C interface

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Door open alarm
Electric leakage breaker
Over temp protection

Shelves Detail:



Catalog No.	Type	DIMENSION (WxDxH)	Weight	Material	Applicable Model
CHWS54	WIRE PLATE	350x315x8	0.5 Kg	Steel With Epoxy Coated	SH-CH-54G, R
CHPS54	PUNCH PLATE	350x315x17	0.9 Kg	Stainless Steel	
CHWS100	WIRE PLATE	450x375x8	0.7 Kg	Steel With Epoxy Coated	SH-CH-100G
CHPS100	PUNCH PLATE	450x375x17	1.4 Kg	Stainless Steel	
CHWS149	WIRE PLATE	525x425x8	0.9 Kg	Steel With Epoxy Coated	SH-CH-149G, R
CHPS149	PUNCH PLATE	525x425x17	1.8 Kg	Stainless Steel	
CHWS250	WIRE PLATE	670x425x8	1.5 Kg	Steel With Epoxy Coated	SH-CH-250G, R
CHPS250	PUNCH PLATE	670x425x17	2.8 Kg	Stainless Steel	
CHPS480	PUNCH PLATE	770x575x17	3.8 Kg	Stainless Steel	SH-CH-480R
CHWS500	WIRE PLATE	470x475x8	0.9 Kg	Steel With Epoxy Coated	SH-CH-500G, R
CHPS500	PUNCH PLATE	470x475x17	1.8 Kg	Stainless Steel	
CHWS650	WIRE PLATE	615x620x8	2 Kg	Steel With Epoxy Coated	SH-CH-650R
CHWS1200	WIRE PLATE	645x564x8	1.9 Kg	Steel With Epoxy Coated	SH-CH-1200R

Roll-in Incubators:



Model	PY-16	PY-30	PYC-16	PYC-30
Temp. Display	Digital			
Temp. Range	Environment Temperature +5℃~60℃			
Temp. Sensitivity	0.1℃			
Temp. Uniformity	±0.5℃(Environment Temp.: 25℃; Set: 37℃, No Load)			
Temp. Fluctuation	±0.2℃(Environment Temp.: 25℃; Set: 37℃, No Load)			
CO2 Concentration Indicator	N/A		Digital display	
CO2 Control Range	N/A		0-20%	
CO2 Control Sensitivity	N/A		0.1% (at 5%)	
CO2 Recovery Rate to 5%	N/A		<3min	
Return to 37°C after door opening	N/A		<10min	
CO2 Sensor	N/A		Infrared	
Power Supply	220V, 60Hz			
Power	1250W			
Internal Dimensions (WxDxH)	745x690x1115mm	870x690x1480mm	745x690x1115mm	870x690x1480mm
Overall Dimensions (WxDxH)	845x885x1349mm	970x885x1716mm	845x885x1349mm	970x885x1716mm
Interior Wall	Mirror Grade Stainless Steel			
Door	Double Glass Wondow			
Alarm Function	Over-temperature, Temperature Sensor Malfunction, CO2 Concentration Alarm			
Weight	175 kg	195 kg	175 kg	195 kg



Part Number	Applicable Product Type	Note
PY-16-S1	PYC-16 PY-16	standard 2 platforms, the most place 5 units



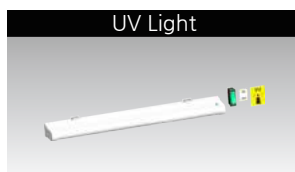
Part Number	Applicable Product Type	Note
PY-30-S3	PYC-30 PC-30	standard 3 platforms, the most place 8 units



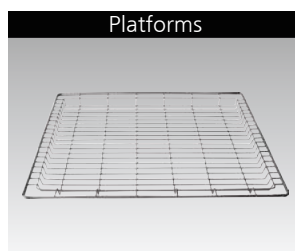
Part Number	Applicable Product Type	Note
PY-30-S2	PYC-30 PY-30	Can stack two shakers and two PY-30-S5. Fit to flask up to 5L capacity.



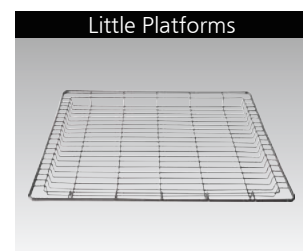
Part Number	Applicable Product Type	Note
PY-30-S7	PYC-30 PY-30	For 3 orbital shakers



Part Number	Applicable Product Type	Note
PY-30-S4	PYC-16/PYC-30 PY-16/PY30	N/A



Part Number	Applicable Product Type	Note
PY-30-S5	PYC-30 PY-30	For 8 Shelf Rack



Part Number	Applicable Product Type	Note
PY-16-S2	PYC-16 PY-16	For 5 Shelf Rack

CO₂ Incubators:



Model	CI-191C	CIB-191C
Capa	191 L	
Temp. Range	Ambient +5°C~60°C	
Temp Uniformity	±0.3°C (@37°C)	
Temp. Sensor	PT 100	
Temp. Accuracy	0.1°C	
CO ₂ Range	0~20%	
CO ₂ Control Accuracy	0.1%	
CO ₂ Detector	Dual wavelength NDIR	
CO ₂ Recovery 5% time after Door Operation	<7min	
Return to 37°C after door opening	<4min	
Humidification Dish	3 L	
Insulation	Dry-Wall	
Relative Humidity	>95% @37°C	
Dimension External (W×D×H)	670x705x1010(mm)	
	26.38x27.76x39.76(inch)	
Chamber Dimensions (W×D×H)	540x510x705(mm)	
	21.26x20.08x27.76(inch)	
Shelves	4 Supplied	
Sterilization	140°C (High Temp)	90°C (Moist heat sterilization)
HEPA Filter	Yes	
Power Supply	220V, 60Hz	

Programmable Controller Options:



- High Accuracy($\pm 0.1\%$) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 4 Points
- Easy parameter and value setting
- Function to protect over shoot
- RUN/STOP Function in the external Input contact point
- Display of Running status in Auxiliary Output
- Large Program Capacity : 2 Patterns / 30 Segments
- Variety of Auxiliary Output available (ex IS, TS, PEND etc)
- Input Piece Bias Function(Max 4 zone)
- Automatic PID Parameter Calculation
- Variety of communication Protocols
- Reliable quality(CE, CUL, ISO applied)

Display	Size	72(W) * 72(H) * 100(L) mm
	PV/SP Display	4 Digit
Operation Mode		Program / Reset, 2 Zone PID
Control Mode		1CH Control
Max Channel		-
Pattern & Segments		2 Pattern / Max 30 segments
Input	TC	K, J, E, T, R, B, S, L, N, U, W, C, Platinel II
	RTD	Pt100 Ω , JPt100 Ω
	Analog Voltage Input	-10~20mV, 0~100mV, 0.4~2.0V DC, 1~5V DC, 0~10V DC
Output	Control Output	RELAY, SSR(Voltage Pulse)
	Current Output	4 ~ 20mA DC
	Voltage Output	-
	Transmission Output	4 ~ 20mA (PV, SP, MV)
Digital Input	Contact Type	2 Points / 4 Types(RUN, HOLD, STEP, RESET)
	Contact capacity	-
Digital Output	Relay	Normal Open 30V DC A, 250V AC 1A Normal Close 30V DC3A 250V AC 3A
	Open Collector	ON voltage across contacts at less than 2V, the leakage current less than 100 μ A
Sampling Time		250ms
Accuracy		$\pm 0.1\%$ $\pm 1\%$ digit of Full Scale
Event	Alarm	1 Point / Max 3 Points(20 Types)
	Inner Signal	2 Points (PV, SP, TSP)
	Time Signal	1 Point
	Other	1 Point (RUN, Pattern END, UP, DOWN, SOAK)
Communication	Interface	RS485
	Protocol	PC-Link, MODBUS(ASCII, RTU), SYNC(Master, Slave)
	Speed	Max 19,200 bps
Power	Power	100 ~ 240V AC, 50 ~ 60Hz
	Power Consumption	Max 6W
Operating environment		-
Weight		-

Digital Recorder Options:



- Touch panel 5.7 Inch 640 x 480 TFT-LCD
- Universal input (Thermocouple, RTD, VDC)
- Trend view mode available
- 80MB internal memory and support SD/SDHC memory card
- RS 485/422 communication (Modbus, PC-link)

Suffix Code		
Model	Code	Information
GR200		Graphic recorder(applied touch panel function) 145(W) × 145(H) mm
Input channel	2	2 channels
	4	4 channels
	8	8 channels
	12	12 channels

Model	GR200
Number of channels	2, 4, 8, 12 (Refer to the type configuration)
Input type	2 thermoresistors (Pt-100, KPt-100) 12 thermocouples (K, J, E, T, R, B, S, L, N, U, Wre 5-26, PL-II) 4 VDC (-10 - 20 mV, 0 - 100 mV, 1 - 5V, 0 - 30 V)
Sampling period	250 ms
Current to measure the thermoresistor (RTD)	About 0.21 mA
Input resistor	Thermocouple : More than 1 MΩ, VDC : More than 1 MΩ
Allowable wiring resistor	Thermoresistor : Maximum 100Ω/wire (The RTD is up to 10Ω/wire for the range of -100.00 - .150.00) Thermocouple : Less than 200 Ω VDC : Less than 2 kΩ
Impact of the wiring resistor	Thermoresistor : ±0.3 °C/10 Ω (The 3 lines have the same wiring resistors)
Allowable input voltage	Thermocouple : Less than ±10 V DC, VDC : Less than ±33 V DC
Degree	±0.15 % of F.S, ±1 digit (Except the RJC temperature error) ※ Refer to the input table
The error in the reference junction compensation (RJC)	±2.0 °C (0 ~ 50 °C)
Sensor short detection (Burn-out)	UP-Scale for the short

Hybrid Recorder Options:



- 50mm thermal transfer method of paper recorder
- Data logger functions for recording without paper
- Supports RS485 communication and dedicated communication port to set or monitor parameters in real-time by PC/PLC
- Multi-input with high accuracy 0.2% level (RTD, TC, Analog)
- 2-channel simultaneous recording in graphic mode and digital mode
- High visibility and easy setting by LCD dot matrix
- Supports various option I/O functions
- Small size(W96×H96×L100 mm), light weight

Record accuracy		±0.5%F.S.
Alarm output		CH1(AL1, AL2), CH2(AL1, AL2) Relay out put(250 VAC/30 VDC 3 A 1 a)
Alarm output hysteresis		ON/OFF interval setting for alarm output: 1 to 999digit variable
Communication output		RS485 communication output(Modbus RTU protocol)
Set method		Setting by front keys
Sampling cycle		500 ms/channel x 2 channels = 1000 ms
Dielectric strength		2300 VAC 50/60 Hz for 1 min.(charging terminal of the other polarity)
Vibration		0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min.) in each of X, Y, Z directions for 1 hour
Relay life cycle		Mechanical: Over 5,000,000 operations, Electrical: Over 100,000 operations
Insulation resistance		Over 100 MΩ (at 500 VDC megger)
Noise resistance		Square shaped noise by noise simulator (pulse width 1 μs)±2 kV
Print	Method	Direct thermal line print
	Resolution	8 dot/mm
	Dots	384 dot/Line
	Life cycle	50 km
Record	Graphic mode	• Record speed(recording paper speed): 10, 30, 60, 120, 240, 480, 940 mm/hour • Memo cycle: 30 s, 1 m, 5 m, 10 m, 15 m, 30 m, 1 h, 2 h, 3 h, 4 h, 8 h, 16 h, 24 h
	Digital mode	TEXT mode record cycle: 00 m 05 s to 99 m 59 s
	Paper	Thermal Direct Receipt Paper (57 mm x 16 m)
	Paper supply method	Clamshell Type
	Language	Korean, English
Environment	Ambient temperature	0 to 50 °C, storage: -20 to 60 °C
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH
Approval		CE
Unit weight		Approx. 700 g

Hood & Clean Bench

07

HOOD & CLEAN BENCH

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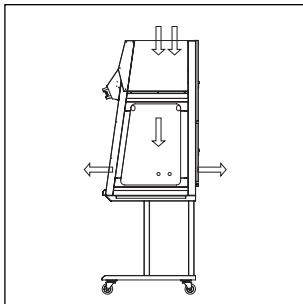
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Hood & Clean Bench -Feature

Laminar Clean Bench

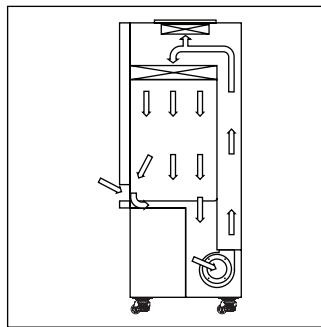


The Laminar Clean Bench is suitable for use within a manufacturing area, laboratory or a cleanroom. This unit protects sensitive samples and processes from airborne particulate.

Only extreme air passing down over the process is ensured through the HEPA filtered unidirectional down flow.

This method guarantees that air will be free of any particles and that any particles generated from the process will be pushed away, maintaining its contamination free area.

Biosafety Cabinet

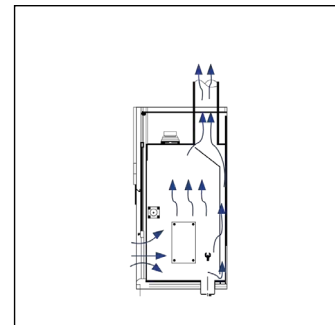


The Biosafety Cabinet is an enclosed, ventilated laboratory workspace made for working with materials contaminated or possibly contaminated with pathogens, thus, requiring a specified biosafety level. Our Biosafety Cabinet ensures both the safety of its users and samples as it prevents the air from the cabinet to the surrounding environment.

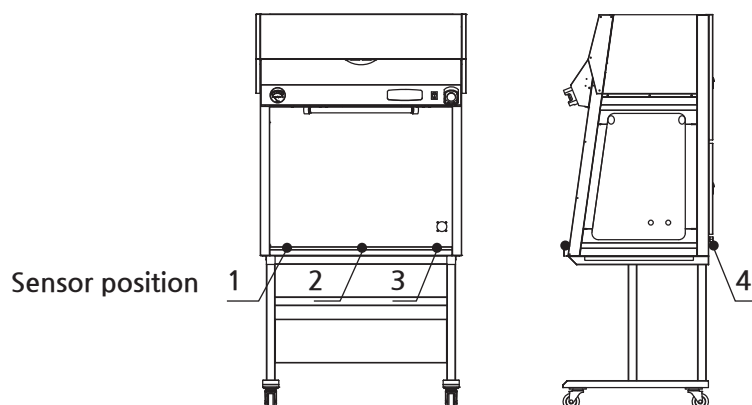


Fume Hood

A fume hood is a type of local ventilation device that is designed to limit exposure to hazardous or toxic fumes, vapors or dusts. A fume hood is typically a large piece of equipment enclosing five sides of a work area, the bottom of which is most commonly located at a standing work height.



Laminar flow sheet

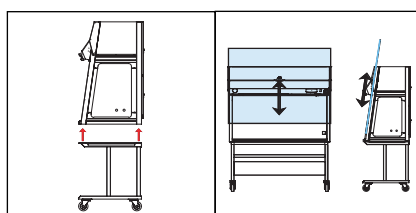


Step	Position	1	2	3	4
0		0m/s	0m/s	0m/s	0m/s
1		0.2m/s	0.2m/s	0.2m/s	0.1m/s
2		0.6m/s	0.6m/s	0.6m/s	0.4m/s
3		0.9m/s	0.9m/s	0.9m/s	0.9m/s
4		1.9m/s	1.9m/s	1.9m/s	1.8m/s
5		2.2m/s	2.2m/s	2.2m/s	2.1m/s
6		2.4m/s	2.4m/s	2.4m/s	2.2m/s
7		2.3m/s	2.3m/s	2.3m/s	2.3m/s
8		2.3m/s	2.4m/s	2.4m/s	2.3m/s
9		2.3m/s	2.4m/s	2.4m/s	2.3m/s
10		2.3m/s	2.4m/s	2.3m/s	2.3m/s

Feature



Informing filter replacement time



Detachable

Maximize space efficiency



Easy to change consumables



Power socket

Option

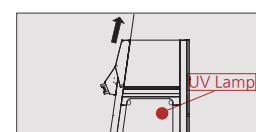
Operation supporting utilities



Safety devices



Digital microprocessor controller



UV Lamp turns off as window opens

Laminar Clean Bench:



Model	SH-HD-900V	SH-HD-1500V	SH-HD-1900V
Type	Laminar Vertical Down Flow		
Dimension Internal (W×D×H)	860x613×690(mm)	1391x613×690(mm)	1891x613×690(mm)
	33.86x24.13x27.17(inch)	54.76x24.13x27.36(inch)	74.45x24.13x27.36(inch)
Dimension External (W×D×H)	966x696×1820(mm)	1496x696×1820(mm)	1996x696×1820(mm)
	35.43x30.71x74.80(inch)	59.06x30.71x74.80(inch)	74.80x30.71x74.80(inch)
Weight	130 Kg	190 Kg	230 Kg
Control System	Microprocessor LCD Digital Controller		
Main Filter	Hefa Filter 0.3μ 99.97% Efficient Filter		
Material External	Steel Plate with Powder Heating Coated		
Working Table	Stainless Steel		
Illumination FL Lamp	15W x 1EA	32W x 1EA	
Illumination UV Lamp	15W x 1EA	32W x 1EA	
UV Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable LCD Counter		
Winding Velocity	0.2~2.3M/SEC, 10 Step Adjustable		
Purity	Below to Class 100		
Door Type	Tempered Glass by Weight Balance		
Electrical Requirements	120V,230V, 1Φ		
Cat. No. 120V, 50Hz	HD900V120-50	HD1500V120-50	HD1900V120-50
Cat. No. 120V, 60Hz	HD900V120-60	HD1500V120-60	HD1900V120-60
Cat. No. 230V, 50Hz	HD900V230-50	HD1500V230-50	HD1900V230-50
Cat. No. 230V, 60 Hz	HD900V230-60	HD1500V230-60	HD1900V230-60

| Option
 Air & Gas Port

| Safety Device
 Fan motor over load Protection
 Automatic reset function incoming power cut
 Buzzer on and UV Lamp cut off when set time arrived
 UV Lamp turns off as window opens
 Emergency stop button

Biosafety Cabinet:



Model	SH-HD-900B	SH-HD-1500B	SH-HD-1900B
Type	Bio Hazard Type		
Dimension Internal (W×D×H)	740x600x750(mm)	1340x600x750(mm)	1740x600x750(mm)
	29.13x23.62x29.53(inch)	52.76x23.62x29.53(inch)	68.50x23.62x29.53(inch)
Dimension External (W×D×H)	900x825×1875(mm)	1500x825×1900(mm)	1900x825×1900(mm)
	35.43x32.48x73.81(inch)	59.06x32.48x74.80(inch)	74.80x32.48x74.80(inch)
Weight	210 Kg	265 Kg	305 Kg
Control System	Microprocessor LCD Digital Controller		
Main Filter	Hefa Filter 0.3μ 99.97% Efficient Filter		
Material Internal	Stainless Steel		
Material External	Steel Plate with Powder Heating Coated		
Utility	Air & Gas Port		
Illumination FL Lamp	15W x 1EA	32W x 1EA	
Illumination UV Lamp	15W x 1EA	32W x 1EA	
UV Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable LCD Counter		
Winding Velocity	0.2~1.9M/SEC, 10 Step Adjustable		
Purity	Below to Class 100		
Door Type	Tempered Glass by Weight Balance		
Electrical Requirements	120V,230V, 1Φ		
Cat. No. 120V, 50 Hz	HD900B120-50	HD1500B120-50	HD1900B120-50
Cat. No. 120V, 60 Hz	HD900B120-60	HD1500B120-60	HD1900B120-60
Cat. No. 230V, 50 Hz	HD900B230-50	HD1500B230-50	HD1900B230-50
Cat. No. 230V, 60 Hz	HD900B230-60	HD1500B230-60	HD1900B230-60

Safety Device

Fan motor over load Protection
Automatic reset function incoming power cut
Buzzer on and UV Lamp cut off when set time arrived
Emergency stop button

Fume Hood:



Option



Storage Cabinet
(General type)



Storage Cabinet
(Fire safety type)



Storage Cabinet
(Acid & corrosive safety type)



Automatic spreading fire
extinguisher



Support Frame
(SUS rack)

Model	SH-HD-1200UP	SH-HD-1500UP	SH-HD-1800UP	SH-HD-2100UP	SH-HD-2400UP
Type	Fume Hood Type				
Dimension External (W×D×H)	1200x800x2350(mm)	1500x800x2350(mm)	1800x800x2350(mm)	2100x800x2350(mm)	2400x800x2350(mm)
	47.24x31.50x92.52(inch)	59.06x31.50x92.52(inch)	70.87x31.50x92.52(inch)	82.68x31.50x92.52(inch)	94.49x31.50x92.52(inch)
STRUCURE	AL. PROFILE				
Exterior	Phenolic laminat				
INTERIOR/BAFFLE	Phenolic laminate				
WORK TOP	Chemical Resistant Phenolic laminate				
LIGHT	16W LED				
SASH WINDOWS	SAFETY GLASS 5.0T				
SASH FRAME	STEEL 위 분체도장				
COCK & VALVE	P.P MADE (AIR/N2/WATER)				
Exhaust Duct	200φ P.V.C Pipe	250φ P.V.C Pipe		300φ P.V.C Pipe	
RECEPTACLE	1구 매입형/ 안전커버부착				
SWITCH	ROCKER TYPE				
하부 FRAME	STEEL 위 분체도장				
하부 BACK PANEL	STEEL 위 분체도				
조절좌	Ø45 ZINC DIE CASTED ADJUSTER				
Cat. No. 120V	HD1200UP120	HD1500UP120	HD1800UP120	HD2100UP120	HD2400UP120
Cat. No. 230V	HD1200UP230	HD1500UP230	HD1800UP230	HD2100UP230	HD2400UP230

Built-In Fan Motor



Model	SH-HDF-1200UP	SH-HDF-1500UP	SH-HDF-1800UP	SH-HDF-2100UP	SH-HDF-2400UP
Cat. No. 120V, 50 Hz	HDF1200UP120-50	HDF1500UP120-50	HDF1800UP120-50	HDF2100UP120-50	HDF2400UP120-50
Cat. No. 120V, 60 Hz	HDF1200UP120-60	HDF1500UP120-60	HDF1800UP120-60	HDF2100UP120-60	HDF2400UP120-60
Cat. No. 230V, 50 Hz	HDF1200UP230-50	HDF1500UP230-50	HDF1800UP230-50	HDF2100UP230-50	HDF2400UP230-50
Cat. No. 230V, 60 Hz	HDF1200UP230-60	HDF1500UP230F-60	HDF1800UP230-60	HDF2100UP230-60	HDF2400UP230-60

PP Fume Hood:



- It is safer to use anti-corrosive water tap.
- With memory function in case of power-failure
- Made of porcelain white PP, resistant to strong acid, alkali and anti-corrosion.
- Front window which is made of thick transparent toughened glass maximize light and visibility inside the fume hood, providing a bright and open working environment.
- Microprocessor control system, LED display (Option)



Waterproof Socket



Water&Gas Remote Control



PP Sink
resistant to acid,
alkali and anti-corrosion



(Option)
Built-in PP centrifugal blower
+
LED display control system

Model		SH-HDPP-1200UP	SH-HDPP-1500UP	SH-HDPP-1800UP
Type		Ducted PP Fume Hood Type		
Dimension External (W×D×H)		1240x800x2200(mm)	1540x800x2200(mm)	1840x800x2200(mm)
		48.8x31.5x86.6(inch)	60.6x31.5x86.6(inch)	72.4x31.5x86.6(inch)
Dimension Internal (W×D×H)		1020x570x872(mm)	1320x570x872(mm)	1620x570x872(mm)
		40.2x22.4x34.3(inch)	52.0x22.4x34.3(inch)	63.8x22.4x34.3(inch)
Work Surface Height		740		
Max Opening		815		
Air Velocity		0.4~0.6m/s		
Noise		≤60dB		
Illuminating Lamp		Fluorescent Lamp (30Wx2)		
PP work table		Epoxy resin board or ceramic board		
Front Window		Manual, 5 toughened glass, height adjustable.		
Consumption		360W		
Material	Main Body	Made of Porcelain white PP, thickness 8, resistant to strong acid, alkali and anti-corrosion		
	Work Table	Chemical resistant phenolic resin		
Standard Accessory		Illuminating Lamp , Water tap, Gas tap, Water sink, Base cabinet		
		Waterproof socket x 2		
		4 meters PVC duct (2 Pcs of 4 meters PVC dust for FH1800(P) only), Diameter:250		
Gross Weight		198kg	225kg	259kg
Package Size (W×D×H)	Main Body	1320x880x1620(mm)	1620x880x1620(mm)	1920x880x1620(mm)
		52.0x34.6 x63.8(inch)	63.8x34.6x63.8(inch)	75.6x34.6x63.8(inch)
	Base Cabinet	1320x880x1040(mm)	1610x880x1040(mm)	1920x880x1040(mm)
		52.0x34.6x40.9(inch)	63.8x34.6x40.9(inch)	75.6x34.6x40.9(inch)
Power Supply		AC220V±10%, 50/60Hz; 110V±10%, 60Hz		

Option

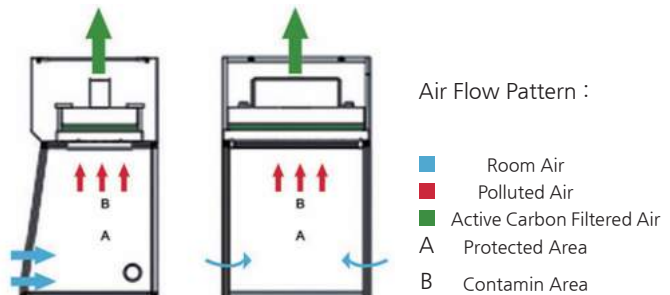
Built-in PP centrifugal blower (2 blowers for FH1800(P) only)
Microprocessor control system, LED display

Table Top Fume Hood:



- Folding acrylic front window, down part with free stop function.
- Microprocessor control system, LED display.
- With memory function in case of power-failure.
- Built-in centrifugal blower.
- Interlock function: UV lamp and blower, fluorescent lamp (Only for choosing UV lamp).

Note : Experiments with strong acid and alkali, flammable or explosive substances can not be conducted with this type fume hood.



Fume Hood SH-HDT-700UP : Negative pressure in work area protects operator and environment.



LED Display
Digital LED display :
Airflow Level



Folding acrylic Front
window, down part
with free stop function



Three Side Glass Windows
Back@Side glass windows maximize light
and visibility, providing a bright and open
working environment alkali and anti-corrosion

Model		SH-HD-700UP
Type		Table Top Ducted Fume Hood Type
Dimension External (W×D×H)		700x620x1150(mm)
		27.6x24.4x45.3(inch)
Dimension Internal (W×D×H)		640x550x700(mm)
		25.2x21.7 x27.6(inch)
Max Opening		660
Air Velocity		0.3~0.8m/s
Noise		≤60dB (A)
HEPA Filter		99.999% efficiency at 0.3um
LED Fluorescent Lamp		4Wx2
Blower		Built-in centrifugal blower; Speed adjustable
Front Window		Folding acrylic window, down part with free stop function
Consumption		200W
Material	Main Body	
	Work Table	
Standard Accessory		LED lamp, Active carbon filter, Blower, 4 meters PVC exhaust duct, Pipe strap
Gross Weight		45kg
Package Size without Base Stand (WxDxH)		840x760x1400(mm)
		33.1x29.9 x55.1(inch)
Power Supply		AC220V±10%,50/60 Hz; 110V±10%,60 Hz

Option
15W UV lamp
HEPA filter

EXPLORIS[®] Pharmacy Fume Cupboard:

Köttermann Germany



Pharmacy fume cupboards are small fume cupboards that were especially developed for the handling of hazardous substances in pharmacies.

Of course, they comply with the requirements of § 4 (2) of the German Pharmacy Regulations and are ideally suited for working with dusty preparations or volatile chemicals - not only in pharmacies. Pharmacy fume cupboards are always used when less toxic substances need to be extracted.

- Protection against harmful vapours
- Filling of volatile solvents
- Enclosing of small experiments
- Neutralisation of odours

	EXPLORIS [®] Pharmacy Fume Cupboard
Type	German Pharmacy Regulations
Dimension External (W×D×H)	900x640x1350(mm)
	35.4x25.2x53.1(inch)
Dimension Internal (W×D×H)	640x550x700(mm)
	25.2x21.7 x27.6(inch)
Minimum required volume flow	660

Option
Built-in Fan Motor
Moving Frame

Properties and benefits

- Tested according to DIN 12924 Part 4
- Sash: one-piece sash made of polyacrylic
- Well suited for small laboratories and rooms with low ceiling height
- Optimal placement on a table
- Integrated airflow monitoring
- For the connection to an exhaust air system available on site

Equipment

- Monitoring electronics
- Two sockets
- Interior lighting
- Infinitely adjustable acrylic glass sash
- Optionally with integrated fan
- Completely equipped with gas, water and power supply



Freezer

08

FREEZER

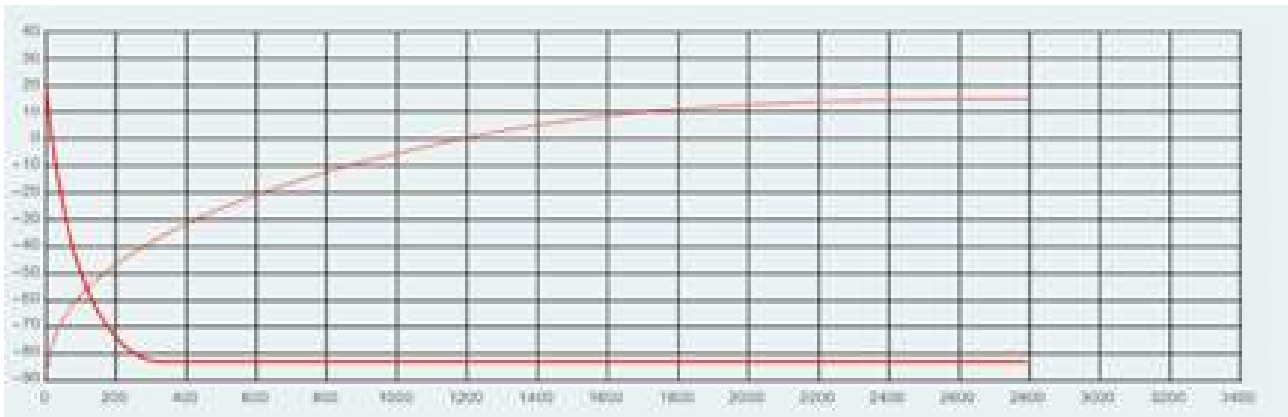
-Feature.....111

-Specification.....112



Freezer -Feature

Temperature up/down test map



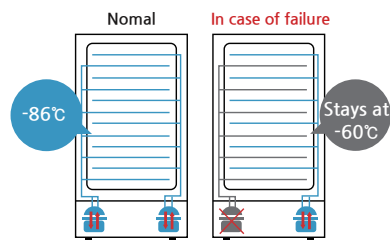
Feature



Audible and visual alarm



Door with vacuum release port



Independent cooling system



Low noise

Control System



Microprocessor-based temperature controller, -40°C ~ -86°C can be set freely, controlling precision is 1°C , Digital temperature display. Keyboard lock and password protected configuration page, Delayed start and safe stop interval between restart and being terminated.

Option



Chart recorder



CO2 back up system



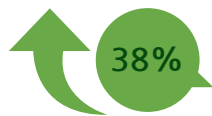
Sliding Rack & 2" (3") Boxes

Freezer:

Power Consumption



Storage Capacity



Cost to use



Model		SH-DF-398S	SH-DF-528S	SH-DF-678S	SH-DF-778S	SH-DF-858S	SH-DF-1008S
Capa	L	398 L	528 L	678 L	778 L	858 L	1008 L
	2"Box	25 ea x 12 racks	25 ea x 16 racks	25 ea x 20 racks	25 ea x 24 racks	25 ea x 24 racks	25 ea x 28 racks
	3"Box	20 ea x 9 racks	20 ea x 12 racks	20 ea x 15 racks	20 ea x 18 racks	20 ea x 18 racks	20 ea x 21 racks
Total(2"Box)		300 ea	400 ea	500 ea	600 ea	600 ea	700 ea
Insulation		155 mm foaming insulation with VIP+					
Dimension External (W×D×H)		785x1041x1947 (mm)	930x1041x1947 (mm)	1090x998x1955 (mm)	1205x994x1955 (mm)	1218x997x1998 (mm)	1363x997x1998 (mm)
		30.90x41.02x76.65 (inch)	36.61x41.02x76.65 (inch)	42.91x39.29x76.97 (inch)	47.44x39.13x76.97 (inch)	47.95x39.25x78.66 (inch)	53.66x39.25x1998 (inch)
Dimension Internal (W×D×H)		440x696x1266 (mm)	585x696x1266 (mm)	750x696x1268 (mm)	865x696x1268 (mm)	877x696x1378 (mm)	1022x696x1378 (mm)
		17.32x27.40x49.84 (inch)	23.03x27.40x49.84 (inch)	29.52x27.40x49.92 (inch)	34.06x27.40x49.92 (inch)	34.53x27.40x54.25 (inch)	40.24x27.40x43.25 (inch)
Input power		1050 W	1050 W	1550W	1550 W	1550 W	1950 W
Power Supply		220V, 60Hz					

09

SHAKERS

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Stackable Incubator Shakers: (with or without CO₂ Controller)



Description

Stackable incubator shakers are the ideal choice for optimizing laboratory space without compromising the advantages of performing large capacity incubations. The products are designed with sliding platforms and light controller for easy of access to samples.

Model	IS-RDS3	IS-RDS3C	IS-RDS3L	IS-RDS4
Product Name	Stackable Incubator Shaker	Stackable Incubator Shaker with CO ₂ Controller	Stackable Incubator Shaker with Light Controller	Low Profile Stackable Incubator Shaker
Speed	0rpm, 30~300rpm			
Speed Precision	±1rpm			
Orbit Diameter	Φ26mm			
Maximum Capacity	50mlx84/100mlx42/150mlx42/ 200mlx40/250mlx40/500mlx24/ 1000mlx15/2000mlx12/3000mlx8/5000mlx6			50mlx84/100mlx42/ 150mlx42/200mlx40/ 250mlx40/500mlx24/ 1000mlx15/2000mlx12
Flask Clamps in Standard Package	500mlx18			
Platform Dimensions	740mmx500mm			
Number of Platforms	1Piece / Accessories available			
Temp. Range	Ambient -15°C~60°C (Low Limit:4°C)			
Temp. Sensitivity	0.1°C			
Temp. Uniformity	±0.3°C (@37°C)			
CO ₂ Sensor	N/A	Infrared	N/A	
CO ₂ Control Sensitivity	N/A	0~20%	N/A	
CO ₂ Concentration Indicator	N/A	Digital Display	N/A	
Light intensity	N/A		0~20000LX (9 step)	N/A
Automatic Defrost	Yes			
Display	LCD			
Timer	0~999 Hours			
Outside Dimensions	1240x777x670mm			1240x777x570mm
Inside Dimensions	840x590x483mm			840x590x383mm
Power	<1100W		<1300W	<1100W
Power Supply	220V, 60Hz			
Weight	220 kg (Single unit)			200 kg (Single unit)
Max. Height	2M			1.7M

Chest-Type Incubator Shakers:



Description

The design of the chest-type, top cover incubator with a large single layer platform area affords reliable sealing, ease of sample access and high visibility. It is suitable for small scale to medium scale experiments and production.

Model	IS-RDH1	IS-RSH1	IS-RDH2	IS-RSH2
Product Name	Chest-type Incubator Shaker		High Profile Chest-type Incubator Shaker	
Speed	0rpm, 30~300rpm			
Speed Precision	±1rpm			
Orbit Diameter	Φ26mm			
Maximum Capacity	50mlx120/100mlx60/ 150mlx58/200mlx58/250mlx58/ 500mlx35/1000mlx18/2000mlx14			50mlx120/100mlx60/ 150mlx58/200mlx58/ 250mlx58/500mlx35/ 1000mlx18/2000mlx14/ 3000mlx8/5000mlx6
Flask Clamps in Standard Package	500mlx28			
Platform Dimensions	910mmx510mm			
Number of Platforms	1Piece / Accessories available			
Temp. Range	Ambient-15°C~60°C (Low Limit:4°C)	Ambient+5°C~60°C	Ambient-15°C~60°C (Low Limit:4°C)	Ambient+5°C~60°C
Temp. Sensitivity	0.1°C			
Temp. Uniformity	±0.5°C(@37°C)			
Automatical Defrost	Yes	N/A	Yes	N/A
Display	LCD			
Timer	0~999 Hours			
Outside Dimensions	1200x700x850mm		1200x700x960mm	
Inside Dimensions	960x560x350mm		960x560x420mm	
Power	<1200W	<1000W	<1200W	<1000W
Power Supply	220V, 60Hz			
Weight	230 kg	220 kg	240 kg	230 kg

Bench-Top Incubator Shakers:



Description

Ergonomically designed with curved glass window and cover, it has an appealing look and large viewing area for clear visibility. The product is suitable for small scale experiments.

Model	IS-RDD3	IS-RSD3
Product Name	Bench-Top Incubator Shaker with Full-range Temperature Controller	Bench-Top Incubator Shaker
Speed Range	0rpm, 30~400rpm	
Speed Precision	±1rpm	
Orbit Diameter	Φ26mm	
Maximum Capacity	50mlx42/100mlx25/150mlx24/200mlx20/250mlx20/500mlx12/1000mlx8	
Flask Clamps in Standard Package	100mlx20	
Platform Dimensions	450mmx400mm	
Number of Platforms	1Piece	
Temp. Range	Ambient-15°C~60°C (Low Limit:4°C)	Ambient+5°C~60°C
Temp. Sensitivity	0.1°C	
Temp. Uniformity	±0.5°C(@37°C)	
Automatic Defrost	Yes	N/A
Display	LCD	
Timer	0~999 Hours	
Outside Dimensions	700x650x620mm	
Inside Dimensions	500x460x350mm	
Power	<700W	<550W
Power Supply	220V, 60Hz	
Weight	110 kg	100 kg

Low Profile Bench-Top Incubator Shakers:



Description

This model is designed with small footprint for standard bench top applications. Its sliding platform facilitates easy sample handling. The tempered glass door provides clear visibility.

Model	IS-RSDA
Product Name	Low Profile Bench-top Incubator Shaker
Speed Range	0rpm, 30~300rpm
Speed Precision	±1rpm
Orbit Diameter	Φ26mm
Maximum Capacity	50mlx28/100mlx15/150mlx11/200mlx10/250mlx9/500mlx4/1000mlx2
Flask Clamps in Standard Package	100mlx12
Platform Dimensions	350mmx300mm
Number of Platforms	1Piece
Temp. Range	Ambient+5°C~80°C
Temp. Sensitivity	0.1°C
Temp. Uniformity	±0.5°C(@37°C)
Automatic Defrost	Yes
Display	LED
Timer	0~999 Hours
Outside Dimensions	440x535x550mm
Inside Dimensions	392x330x330mm
Power	<750W
Power Supply	220V, 60Hz
Weight	50 kg

Single Door Double Layers Upright Incubator Shakers:



Description

The body of the instrument is divided into 3 sections from top to bottom. There are two layers of platforms to maximize space usage. Large glass window provides high visibility. This product is suitable for medium scale experiments and production.

Model	IS-RDV1	IS-RSV1
Product Name	Single Door Double Layers Upright Incubator Shaker with Full-Range Temperature Controller	Single Door Double Layers Upright Incubator Shaker
Speed Range	0rpm, 30~300rpm	
Speed Precision	±1rpm	
Orbit Diameter	Φ26mm	
Maximum Capacity	50mlx90/100mlx42/150mlx42/200mlx39/250mlx39/500mlx23/1000mlx14	
Flask Clamps in Standard Package	250mlx24	
Platform Dimensions	494x348mm / 494x333mm	
Number of Platforms	2Piece	
Temp. Range	Ambient-15°C~60°C (Low Limit:4°C)	Ambient+5°C~60°C
Temp. Sensitivity	0.1°C	
Temp. Uniformity	±0.5°C(@37°C)	
Automatic Defrost	Yes	N/A
Display	LCD	
Timer	0~999 Hours	
Outside Dimensions	700x650x1320mm	
Inside Dimensions	598x424x676mm	
Power	<1000W	<600W
Power Supply	220V, 60Hz	
Weight	150 kg	140 kg

Double Doors Double Layers Upright Incubator Shakers:



Description

The product has 2 doors and 2 windows at appropriate heights for easy access and visibility. The large double platforms can accommodate large quantity of flasks and high samples. It is suitable for medium scale experiments and production.

Model	IS-RDV3	IS-RSV3	IS-RDV35	IS-RSV35
Product Name	Double Doors Double Layers Upright Incubator Shaker		Double Doors Double Layers Large Amplitude Incubator Shaker	
Speed	0rpm, 30~300rpm		0rpm, 30~250rpm	
Speed Precision	±1rpm			
Orbit Diameter	Φ26mm		Φ50mm	
Maximum Capacity	50mlx218/100mlx112/ 150ml101/200mlx101/250mlx101/ 500mlx54/1000mlx35/2000mlx26		50mlx206/100mlx104/ 150mlx95/200mlx90/250mlx90/ 500mlx50/1000mlx30/2000mlx22	
Flask Clamps in Standard Package	500mlx23 1000mlx15			
Platform Dimensions	530x890mm/510x890mm		510x825mm/510x890mm	
Number of Platforms	2Piece			
Temp. Range	Ambient-15°C~60°C (Low Limit:4°C)	Ambient+5°C~60°C	Ambient-15°C~60°C (Low Limit:4°C)	Ambient+5°C~60°C
Temp. Sensitivity	0.1°C			
Temp. Uniformity	±0.5°C(@37°C)			
Automatical Defrost	Yes	N/A	Yes	N/A
Display	LCD			
Timer	0~999 Hours			
Outside Dimensions	1102x810x1458mm			
Inside Dimensions	1000x590x800mm			
Power	<1300W	<850W	<1300W	<850W
Power Supply	220V, 60Hz			
Weight	290 kg	260 kg	300 kg	270 kg

Accessories:

Flask Clamp



Part Number	Specifications	Note
IS-A1	50ml	Made of polished stainless steel sheet. They can be fixed on any platform of all models of incubator shakers.
IS-A2	100ml	
IS-A3	150ml	
IS-A4	200ml	
IS-A5	250ml	
IS-A6	500ml	
IS-A7	1000ml	
IS-A8	2000ml	
IS-A9	3000ml	
IS-A10	5000ml	
IS-A50	25ml	

Test Tube Rack



Part Number	Specifications	Note
IS-A11	40hole 14mm	Made of stainless steel and high grade ABS plastic material. Compatible with all of Incubator Shaker Outside Dimensions (WxDxH): 262x112x140mm
IS-A12	40hole 16mm	
IS-A23	40hole 18mm	
IS-A24	27hole 22mm	
IS-A42	21hole 30mm	

Adjusttable Test Tube Rack



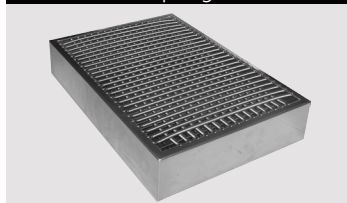
Part Number	Specifications	Note
IS-A20	40hole 14mm	Made of stainless steel and high grade ABS plastic material. Compatible with all of Incubator Shaker. Outside Dimensions (WxDxH): 267x125x172mm
IS-A21	40hole 16mm	
IS-A30	40hole 18mm	
IS-A31	27hole 22mm	
IS-A32	21hole 30mm	

Adjusttable Test Tube Rack



Part Number	Specifications	Note
IS-A37	24hole 30mm	Made of stainless steel, rack for 300mm long tubes. Outside Dimensions (WxDxH): 267x125x172mm

Universal Spring Platform



Part Number	Specifications	Note
IS-A19	WxDxH: 165x165x80mm	For all shakers. Made of stainless steel. Can be fixed onto shaking platform.
IS-A27	WxDxH: 350x240x80mm	
IS-A22	WxDxH: 450x400x80mm	
IS-A14	WxDxH: 428x295x80mm	
IS-A39	WxDxH: 720x440x80mm	
IS-A48	WxDxH: 840x440x80mm	For chest-type incubator shakers.

Fixture for Separating Funnel



Part Number	Specifications	Note
IS-A25	WxDxH: 355x402x153mm	Used for separating funnel with volume 5000ml.

Fixture for Separating Funnel



Part Number	Specifications	Note
IS-A35	N/A	Used for separating funnel with volume greater than 500ml.

Infusion Bottle Clamp



Part Number	Specifications	Note
IS-A33	500ml	Made of stainless steel. Can be fixed on all platforms of incubator shakers.

Infusion Bottle Clamp



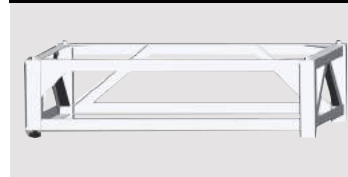
Part Number	Specifications	Note
IS-A34	1000ml	Made of stainless steel. Can be fixed on all platforms of incubator shakers.

Sticky Mat



Part Number	Specifications	Note
IS-A47	WxD: 140x140mm	For all shakers. Wipe it with water, it will recover the stickiness to dry few minutes.

Rack for Stackable Incubator Shakers



Part Number	Specifications	Note
IS-A29	WxDxH: 948x630x225mm	Support stackable incubator shakers (up to two units).

Flask Holder



Part Number	Specifications	Note
IS-A26	5000ml	Hold 5000ml Flask. (For IS-RDS3, IS-RDS3C, IS-RDH2, IS-RSH2)

96-Well Microplate Holder



Part Number	Specifications	Note
IS-A13	WxD: 136x95mm	Can be fixed on any platform of incubator shakers.

Universal Spring Platform



Part Number	Specifications	Note
WBA30	WxDxH: 370x240x180mm	Previous Model: SY-2330-03A Maximum Capacity:1

Water Bath Shaker:



Description

SY-2230 reciprocal bath shaker is a microprocessor-controlled unit with digital LED display. Its adjustable speed range of 20-200 rpm permits gentle as well as vigorous agitation and aeration. The stainless steel construction, maintenance free brushless motor, PTC heating units and other features guarantee its continuous, heavy duty operation. The product is built with low water level and over heating protection as well as alarm features so that samples are protected if the temperature exceeds the maximum limit.

Model	SY-2230
Temp. Range	(Ambient)+5°C~99°C
Temp. Fluctuation	±0.3°C
Speed	20~200rpm
Timer	0~99.9 Hours
Tank Volume	27L
Drainage	Yes
Tank Internal Dimensions (WxDxH)	528x308x226mm
Standard Configuration	One Platform for Flask Clamp and Six Clamps for 250ml Flask
Outside Dimensions	750x380x326mm
Max. Power Consumption	1400W
Power Supply	220V, 60Hz
Weight	30 kg
Oribit Diameter	25.4mm
Overheating Protection	Yes
Water level Protection	Yes
Audial and Visual Alarm	Yes

Accessories

Name	Part Number	Maximum Capacity	Picture	Note
Observable Gable Cover	SY-2230-01	1		Transparent Area: 474x120mm
Tubes Rack A	SY-2230-02A	3		Φ22mm
Tubes Rack B	SY-2230-02B	3		Φ18mm
Tubes Rack C	SY-2230-02C	3		Φ16mm
Platform for Tubes Rack	SY-2230-02D	1		
Tubes Rack E	SY-2230-02E	3		Φ30mm
Universal Spring Platform	WBA30	1		See page 13
100ml Flask Clamp	IS-A2	15		N/A
150ml Flask Clamp	IS-A3	15		
250ml Flask Clamp	IS-A5	10		
500ml Flask Clamp	IS-A6	6		
1000ml Flask Clamp	IS-A7	4		
Platform for Flask Clamp	SY-2230-03F	1		

Large-Capacity Platform Shaker:



Description

SYC-2105 large capacity shaker is designed for high volume experiments and production. Its sliding platform makes it feasible to operate on multi-shelves. This effectively saves space. Each unit on the shelf can be controlled independently.

Model	SYC-2105
Speed Range	30~300rpm
Speed Precision	±1rpm
Orbit Diameter	Φ26mm
Capacity	250mlx56/500mlx24/1000mlx18/2000mlx12/3000mlx8/5000mlx6
Max.Load	20 kg
Platform Dimensions	930x520mm
Environmental Condition	Temp. 5°C~40°C Humidity<80%RH
Standard Configuration	500mlx24
Timer	0~99 Hours
Outside Dimensions (WxDxH)	990x615x2000mm
Power	<300W
Power Supply	220V, 60Hz
Weight	100 kg

Large-Capacity Platform Shakers with Double-Tire Extension:



Description

This heavy workload shaker comes with either single platform or double platforms. The units are digital controlled with LED display and can operate in extreme environment and temperature controlled rooms. The space between two platforms is large enough for easy access to flasks and for accommodating large flasks such as 5L flasks.

Model	SYC-2104	SYC-2104D(Double Tires)
Speed	30~300rpm	
Speed Precision	±1rpm	
Orbit Diameter	Φ26mm	
Maximum Capacity	250mlx35/500mlx24/ 1000mlx19/2000mlx12/ 3000mlx6/5000mlx4	250mlx70 / 500mlx48 / 1000mlx34/2000mlx24/ 3000mlx12/5000mlx8
Platform Dimensions	780x518mm	
Distance between Two Platforms	N/A	480mm
Number of Platforms	1	2
Ambient	5℃~40℃	
Noise Level	<60dB	
Display	LED	
Timer	0~99h59min	
Outside Dimensions (WxDxH)	800x600x455mm	800x600x915mm
Power	<120W	
Power Supply	220V, 60Hz	
Weight	150 kg	170 kg

Orbit Shaker:



Description

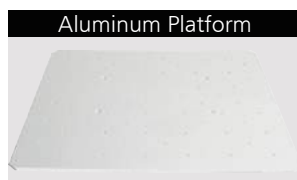
The Orbital Shaker may be used for several applications including culturing microbes, and general mixing. A spring platform is an available accessory which can handle multiple flasks. CTI's SilentShaker® is designed and built for a heavy workload, and provides continuous shaking with no vibration or heat output. The SilentShaker® can be placed into a standard incubator, converting the incubator into a shaking incubator.

Features

- Digital control and LED display
- Low noise level;
- Gentle speed up and slow down;
- Automatic recovery from power outage;
- Includes standard platform with non-skid mat.

Model	SYC-2102
Rotation Method	Circular Orbit, 26mm dia.
Speed	30~300rpm
Time Range	0~99 hours(0 represents no setting, run continuously)
Platform Dimensions	400x400mm
Capacity	1000mlx6/2000mlx4
Max. Workload	10 kg
Outside Dimensions (WxDxH)	432x535x190mm
Relative Humidity	<80%
Ambient	5℃~40℃
Max. Power Consumption	85 W
Power Supply	220V, 60Hz
Weight	38 kg

SYC-2102 Accessories



Part Number	Specifications
OSA01 Previous Model:SYC2102-A	WxDxH: 400x400x5mm



Part Number	Specifications
OSA02 Previous Model:SYC2102-B	WxDxH: 417x402x146mm



Part Number	Specifications
OSA03 Previous Model:SYC2102-C	WxDxH: 417x417x207mm



Part Number	Specifications
OSA04 Previous Model:SYC2102-D	L=400mm, ϕ =28mm

Universal Accessories

Name	Part Number	Name	Part Number
Flask Clamp	IS-A1	Test Tube Rack	IS-A11
	IS-A2		IS-A12
	IS-A3		IS-A23
	IS-A4		IS-A24
	IS-A5	Adjustable Test Tube Rack	IS-A20
	IS-A6		IS-A21
	IS-A7		IS-A30
	IS-A8		IS-A31
	IS-A9		IS-A37
	IS-A10	Mini Universal Spring Platform	IS-A19
96-Well Microplate Holder	IS-A13		IS-A27
Infusion Bottle Clamp	IS-A33	Separatory Funnel Fixture	IS-A35
	IS-A34	Sticky Pad	IS-A47

Mini Orbital Shaker:



Description

Orbital shaker is based on the needs of modern biological cell culture and development. It is designed with closed-loop electronic control system, and it processes high-precision speed control capability. It can be used for mixing and cell culture of small capacity reagents. A variety of optional accessories can meet the different experiments' needs. It can be widely used in a variety of fields, such as biology, chemistry, cell culture, fermentation, hybridization and enzyme, tissue research (such as gel electrophoresis fixing, Ma as blue staining, bleaching, dyeing silver nitrate fixing, staining and development) and various bacteria cultures, stains washing and general mixing which have higher requirements of oscillation frequencies.

Features

- Space saving design that includes variable speed and a timer function;
- A wide variety of accessories are available to meet the demands of any researcher;
- Brushless DC motor provides a smooth start and low noise;
- Automatic recovery from power outage.

Model	OS-03U
Orbit Size	Φ20mm
Speed Range	30~300rpm
Time Range	0~99h59min
Platform Dimensions	285mmx235mm
Maximum Capacity	50mlx20/100ml~150mlx10/200ml~250mlx8/500mlx4/1000mlx2/2000mlx1
Power	7W
Max. Load	2.5 kg
Display	LCD
Dimensions (WxDxH)	355x240x123mm
Relative Humidity	<80%
Ambient	5℃~40℃
Weight	38 kg

Multi-purpose Shaker:



Description

Multi-purpose shaker is a staple of many laboratories.

The OS-6U can be used with flask clamps or directly with the platform and sticky mat to satisfy many life science, pharmaceutical, biotechnology and biomedical engineering applications.

Features

- Variable shaking speed: 50~450rpm.
- Holds up to 4.5kg, and up to 4 pieces of 140mm x 140mm sticky mat.
- Automatic load balancing system.
- Continuous or timed operation with; automatic switch-off.
- Maximum flexibility with many options of interchangeable accessories.
- Simple set up and easy to operate.
- Continue to run by last set speed and the remaining time when the power recovered.
- 5~40°C operating temp range, which allows for use in cold rooms and incubators.

Model	OS-06U
Speed Range	50~450rpm
Speed Accuracy	±2rpm(150rpm below 150rpm) ±5rpm(150rpm above 150rpm)
Orbit Diameter	Φ10mm
Max.Load	4.5 kg (6X250 ml flasks)
Timer	0~99h59min
Platform Dimensions	310x284x5mm
Display	LED
Max.Capacity	20x25/50ml, 8x100/250ml, 6x500ml, 4x1000ml, 2x2000/3000ml, 1x5000ml
Ambient	5°C~40°C
Outside Dimensions(WxDxH)	296x440x129mm
PowerSupply	220V, 60Hz
Weight	15 kg

Microplate Shaker:



Description

Microplate shaker can accommodate all SBS format plates, PCR, tissue culture & HTS. Great for mixing applications requiring specific speeds or times.

Features

- Variable shaking speed: 150~1000rpm;
- Quick and easy fitting or any standard-depth multiwall plates;
- Continuous or timed operation, with automatic switch off;
- Display will show last used settings, even after power has been turned off;
- Continue to run by last set speed and the remaining time when the power recovered;
- Operating temperature 5°C~40°C allows for use in cold rooms or incubators;
- Holds two or four microplates;
- Easy-to-use electronic timer ensures accurate count-down and repeatability of time sensitive incubations

Model	OS-07U
Speed Range	150~1000rpm
Speed Accuracy	±2rpm(300rpm) ±5rpm(150rpm~1000rpm)
Orbit Diameter	Φ2.5mm
Max.Load	2 kg
Timer	0~99h59min
Platform Dimensions	275x235x12mm
Display	LED
Ambient	5°C~40°C
Outside Dimensions(WxDxH)	296x440x151mm
PowerSupply	220V, 60Hz
Weight	15 kg

Accessories



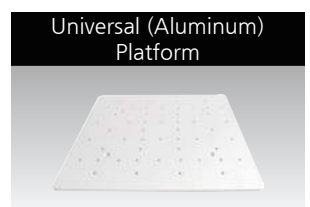
Part Number	Specifications	Note
OSA16	WxD: 306x246mm	For OS-06U



Part Number	Specifications	Note
OSA17	WxDxH: 327x289x22mm	For OS-06U



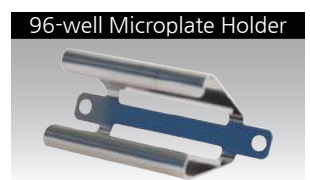
Part Number	Specifications	Note
OSA20	WxDxH: 306x303x145mm	For OS-06U



Part Number	Specifications	Note
OSA21	WxD: 310x284mm	For OS-06U



Part Number	Specifications	Note
NSA01	WxD: 180x7mm	For OS-07U



Part Number	Specifications	Note
OSA13	N/A	For OS-07U



Part Number	Specifications	Note
OSA14	WxDxH: 292x275x12mm	For OS-07U



Part Number	Specifications	Note
OSA15	WxDxH: 292x275x25mm	For OS-07U

Laboratory Sieve Shakers

Minor 200

up to Ø203mm



- Electromagnetic drive for quiet and virtually maintenance free operation
- Compact & portable
- Requires only small storage space due to small footprint and easily removable clamping belt system (included)
- Easy to use
- Different voltages available
- Complies with the requirements of AASHTO T 27

Model	Minor 200
Vibration Speed	3000 per min
Class	I (earthed)
Max. number of sieves	8개(Ø200 ~ 203mm, Sieve), 12개(Φ76 ~ 100mm)
Timer	Continuous, 0 ~ 60 min
Dimension External (WxH)	Ø262x126(mm)(+Clamp Plate 30mm)
	10.3x5(inch)(+Clamp Plate 1.2inch)
Weight	17 kg
Power	220V, 50/60Hz

Laboratory Sieve Shakers

Octagon 200

up to Ø203mm



- Easy-to-use sieve clamping system
- Accepts up to 8 full height 200 mm or 8" diameter sieves
- Dry and wet sieving 10 amplitude settings & digital timer
- 3D sieving motion allows for high separation efficiency and non blinding sieving action
- Different voltages available
- No mechanical moving parts
- Compact & portable
- Complies with the requirements of AASHTO T 27

Model	Octagon 200
Vibration Speed	3000 per min
Class	I (Earthed)
Approx. Amplitude	3.0 mm
Max. number of sieves	8개 (Φ200 ~ 203mm), 24개 (Φ76 ~ 100mm)
Timer Mode	Intermittent
Intermittent Process Timer	0 to 99.9 minutes
Intermittent Cycle Timer	Off time: 1 to 99 Seconds on time: 1 to 99 Seconds
Display	Digital 0.3 LED
Memory	Non Volatile, One set of data Stored
Dimension External (WxDxH)	418×435×232(mm) 16.5x17.1x9.1(inch)
Weight	35 kg
Power	220V, 50/60 Hz

Laboratory Sieve Shakers

Octagon 200CL

up to Ø203mm



- "Closed Loop" total amplitude control ensures reproducible sieving
- Digital controls for easy and reliable operation
- Easy-to-use sieve clamping system
- Accepts up to 8 full height 200 mm or 8" diameter sieves
- Suitable for dry and wet sieving
- 3D sieving motion allows for high separation efficiency and non blinding sieving action
- Full compatibility with new SieveWare evaluation and control software via RS232 Port (printed or digital protocols)
- Voltage-independent
- No mechanical moving parts
- Compact & portable
- Complies with the requirements of AASHTO T 27

Model	Octagon 200CL
Vibration Speed	3000 per min
Class	I (Earthed)
Approx. Amplitude	3.0 mm
Max. number of sieves	8개 (Φ200 ~ 203mm), 24개 (Φ76 ~ 100mm)
Timer Mode	Intermittent
Intermittent Process Timer	0 to 99.9 minutes
Intermittent Cycle Timer	Off time: 1 to 99 Seconds on time: 1 to 99 Seconds
Display	Digital 0.3 LED
Memory	Non Volatile, One set of data Stored
Dimension External (WxDxH)	418×435×232(mm) 16.5×17.1×9.1(inch)
Weight	35 kg
Power	220V, 50/60 Hz



Laboratory Sieve Shakers

Air Sizer 200

Ø203mm Sieve



- Advanced air jet technology for fine particles, usable for dry material of 20 µm upwards
- Adjustable nozzle speed, 5 - 55 rpm
- Extremely efficient & fast sieving times
- Sieving action keeps apertures clear
- Air flow fluidises and helps to separate sample
- Ideal for electrostatic materials
- Pre filter unit & industrial vacuum available as accessories
- Maintenance-free

Model	Air Sizer 200
Model	benchtop
Range	20 µm - ~ 4 mm
Drive / sieving motion	dispersion by air jet
Number of fractions	1
Speed	5 - 55 rpm (nozzle speed)
Time display	digital, 0:10-99:50 min:sec
Vacuum	20 - 99 mbar
Suitable for dry sieving	yes
Suitable for wet sieving	-
Sieve diameter	suitable for 8" "premium" air jet sieves
Max. height of sieve stack	1 sieve
Accessories	pre filter unit / industrial vacuum
Protection code	IP 40
Electrical supply	100 - 240 V , 50/60Hz
Power connection	1 - phase
Dimension External (WxDxH)	450x235x435(mm) 17.72x9.25x17.1(inch)
Weight	~ 16 kg

SieveWare Program For 200CL, Air Sizer 200



- Automatic registration, evaluation and administration of measurement data
- Logical, self-explanatory interface
- Measurement protocol in accordance with different standards
- Complex transformation into charts and tables
- Data link to different measurement instruments
- Automatic detection and configuration of common analytical scales
- Comprehensive data export
- Comprehensive help texts & detailed manual

SieveWare	
General Information	
Windows® interface	Windows® 2000/XP/Vista (others on request)
ASTM and Tyler Mesh	x
Password protection for sieve analysis	x
Serial no. for sieves	x
Sieve analysis with	
• nominal mesh size	x
• actual mesh size	x
Automatic simultaneous data transfer	x
Administration of measurement data	unlimited
Data import and export	x
PDF manual on CD-ROM	x
Measurement protocol (according to DIN 66165)	x
Language selection English/German	x
Tables	
Combined representation of several analyses	x
Curve representation	x
Graphic presentation	
• x-axis	lin, log
• y-axis	lin, log, RRSB
Windowing (Zoom)	x
Cumulative curve (throughput) Q3 (x)	x
Residual curve (1-Q3 (x))	x
Fraction p3/histogram	x
Lin. Division density q3(x)	x
Log. Division density q3*(x)	x
Trend analysis	x
Limit value graph with specifications limits	x
2 representation possibilities (including right y-axis)	x
Reference particles (registration of external particle size division)	x
Parameters	
Fineness parameters, 3 values Q3 (x)	x
Quantile particle size, 3 values x (Q3)	x
RRSB parameters	x
Sauter mean diameter X St	x
Splinter value	x
Specific surface	
• volume related Sv	
• mass related Sm	x
Unequal grade of granularity	x
AFS particle fineness No.	x



Test Sieves Size



ISO 3310 MM	ASTM E11 mesh(No)	KS 호칭
4.75	4	4.75
4.00	5	4
3.35	6	3.35
2.80	7	2.8
2.36	8	2.36
2.00	10	2
1.70	12	1.7
1.40	14	1.4
1.18	16	1.18
1.00	18	1
Microns		
850	20	850
710	25	710
600	30	600
500	35	500
425	40	425
355	45	355
300	50	300
250	60	250
212	70	212
180	80	180
150	100	150
125	120	125
106	140	106
90	170	90
75	200	75
63	230	63
53	270	53
45	325	45
38	400	38
25	500	25
20	625	20

Roller Culture Apparatus

10

ROLLER CULTURE APPARATUS

Roller Culture Apparatus for Monolayer and Suspension Cell Cultures.....	138
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Glass Roller Culture Bottles.....	141



Roller Culture Apparatus for Monolayer and Suspension Cell Cultures:



Frame Material: Stainless Steel

Description

All wheel driving design prevents roller bottles from any slippery and loss of consistent and uniform rotation. Their speed range is suitable for both monolayer and suspension cell culture applications. The units can operate in temperature controlled and CO₂ environment.

Model	CG III-45-SF	CG III-40-SF	CG III-30-SF
Cell Culture Method	Monolayer and Suspension Cell Cultures		
Bottle Rotation Speed	1~990r/h(Φ110mm Bottle)		
Rotation Mode	Clockwise/Counter Clockwise Alternating Rotation(10°~180°)		
Acceptable Bottle Size	Φ108mm~Φ121mm, L≤495mm Standard Bottle: Φ110mm, L=490mm(300ml)		
Bottle Positions per Deck	5	5	5
Bottle Positions	45	40	30
Material	Stainless Steel		
Digital Control Display	Speed/Angle/Time		
Fuse	4A250V		
Communication	RS 485		
Optional Accessory	RollerMate® Software		
Outside Dimensions (WxDxH)	770x594x1850mm	770x594x1668mm	770x594x1304mm
Max. Load	135	120	90
Environmental Temp.	5℃~70℃		
Relative Humidity	<90%		
Power	70W		
Power Supply	220V, 60Hz		
Weight	90 kg	85 kg	75 kg

Roller Culture Apparatus for Monolayer and Suspension Cell Cultures:



Frame Material: Aluminum

Description

All wheel driving design prevents roller bottles from any slippery and loss of consistent and uniform rotation. Their speed range is suitable for both monolayer and suspension cell culture applications. The units can operate in temperature controlled and CO₂ environment.

Model	CG III-45-F	CG III-40-F	CG III-30-F	CG III-16-F
Cell Culture Method	Monolayer and Suspension Cell Cultures			
Bottle Rotation Speed	1~990r/h(φ110mm Bottle)			
Rotation Mode	Clockwise/Counter Clockwise Alternating Rotation(10°~180°)			
Acceptable Bottle Size	φ108mm~φ121mm, L≤495mm Standard Bottle:φ110mm, L=490mm(300ml)			
Bottle Positions per Deck	5	5	5	4
Bottle Positions	45	40	30	16
Material	Aluminum			
Digital Control Display	Speed/Angle/Time			
Fuse	4A250V			
Communication	RS 485			
Optional Accessory	RollerMate® Software			
Outside Dimensions (WxDxH)	797x598x1850mm	797x598x1671mm	797x598x1304mm	672x598x936mm
Max.Load	135	120	90	48
Environmental Temp.	5℃~70℃			
Relative Humidity	<90%			
Power	70W			
Power Supply	220V, 60Hz			
Weight	90 kg	85 kg	75 kg	70 kg



Bench Top Roller Culture Apparatus:

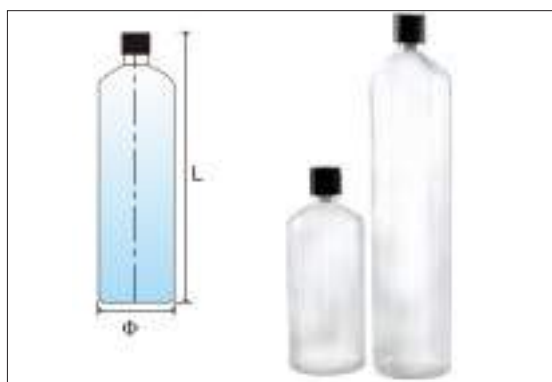


Description

All wheel driving design prevents roller bottles from any slippery and loss of consistent and uniform rotation. Their speed range is suitable for both monolayer and suspension cell culture applications. The units can operate in temperature controlled and CO₂ environment.

Model	CG I -06-F	CG-06-F
Cell Culture Method	Monolayer Cultures	Suspension Cultures
Bottle Rotation Speed	3~60r/h(Φ110mm Bottle)	60~900r/h(Φ110mm Bottle)
Rotation Mode	Clockwise/Counter Clockwise Alternating Rotation(10°~180°)	
Acceptable Bottle Size	Φ100mm~Φ113mm, L≤285mm Standard Bottle:Φ110mm, L=285mm(1500ml)	
Bottle Positions per Deck	3	
Bottle Positions	6	
Material	Aluminum	
Digital Control Display	Speed/Angle/Time	
Fuse	4A250V	
Communication	RS 485	
Outside Dimensions (WxDxH)	450x360x431.5mm	
Max.Load	10 kg	
Environmental Temp.	5℃~70℃	
Relative Humidity	<90%	
Power	70W	
Power Supply	220V, 60Hz	
Weight	22 kg	

Glass Roller Culture Bottles:



Description

Crystal CellRoller® glass bottles are made of cell culture grade borosilicate glass material. The product is produced with precise internal and external dimensions, good optical clarity, smooth surface and free of glass imperfections for high cell yield. Its neck area is tapered for easy harvesting and cleaning.

Part Number	GP-1500	GP-3000	GP-10000	GP-15000
Diameter	Φ110mm	Φ110mm	Φ220mm	Φ220mm
Length	285mm	490mm	450mm	580mm
Volume	1500ml	3000ml	10000ml	15000ml

Autoclave

11

AUTOCLAVE

Table Top Autoclave

-Feature.....143

-Specification.....144

Autoclave(Sterilizer)

-Feature.....145

-Specification.....146

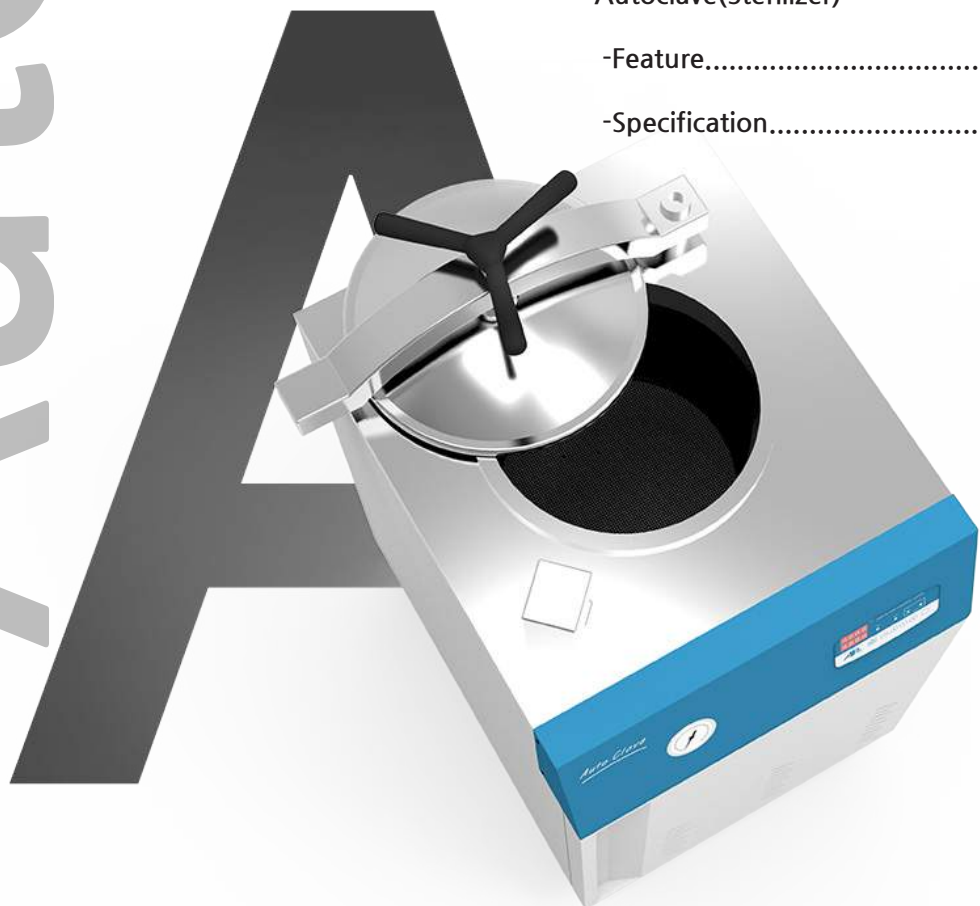
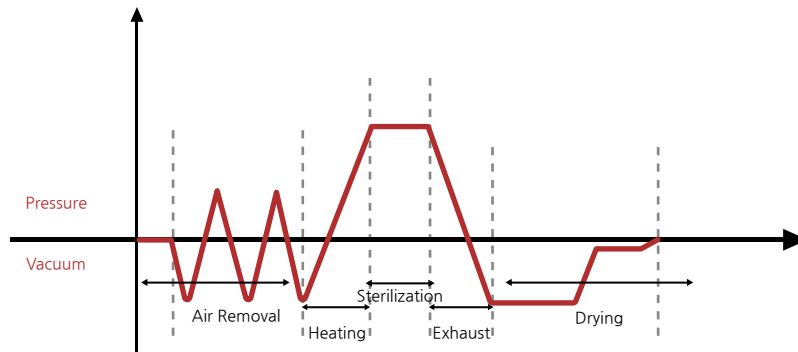


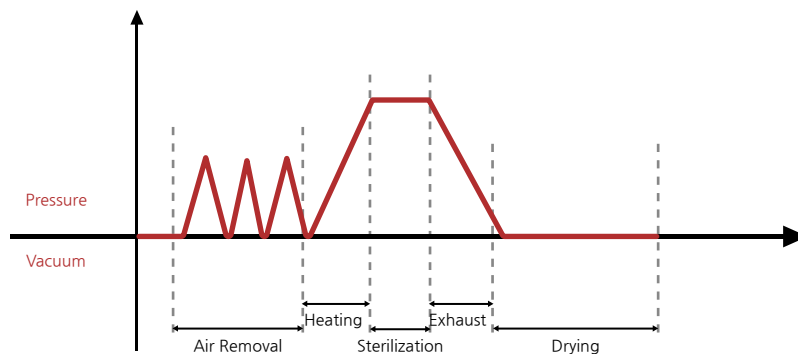
Table Top Autoclave -Feature

Graphic of working cycle

■ Class B (pre & post vacuum)



■ Class N (non vacuum)



Feature



Water tank

- Easily accessible watertank.



Vacuum pump

- Rapid post sterilization vacuum drying.(Class B only)



Independent Steam generator

- In built independent rapid steam generator ensures quick sterilization cycles.

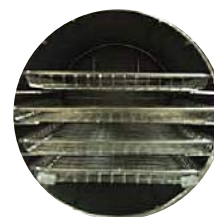


LCD displaying

- Fully automatic benchtop autoclave with pre set programs.
- LCD screen displaying time, temperature and pressure, process alert and instrument conditions.
- Liquid sterilization program



Double locking device



Stainless steel chamber and trays



Table Top Autoclave:



Class N AUTOCLAVE

Model	SH-AC-8N	SH-AC-16N	SH-AC-18N	SH-AC-23N
Temp Range	Max 138℃ (280.4°F)			
Volume	8 L	16 L	18 L	23 L
Using Press	0.11 to 0.21 MPa (1.2 to 2.1 kg/cm ²)			
Temp Controller	Touch Controller			
Material Internal	Stainless Steel			
Tray	2 EA	3 EA	3 EA	3 EA
Chamber size	Ø170x320mm	Ø230x360mm	Ø247x350mm	Ø247x450mm
Dimension External (W×D×H)	370x565x345(mm)	445x605x410(mm)	480x700x450(mm)	480x700x450(mm)
	14.56x22.24x13.58(inch)	17.51x23.81x16.14(inch)	18.89x27.56x17.71(inch)	18.89x27.56x17.71(inch)
Printer	Option			
Net weight	30 Kg	43 Kg	45 Kg	48 Kg
Power	1400 W	1900 W	2100 W	2100 W

Class B AUTOCLAVE

Model	SH-AC-8B	SH-AC-16B	SH-AC-18B	SH-AC-23B	SH-AC-29B
Temp Range	Max 138℃ (280.4°F)				
Volume	8 L	16 L	18 L	23 L	29 L
Using Press	0.11 to 0.21 MPa (1.2 to 2.1 kg/cm ²)				
Temp Controller	Touch Controller				
Material Internal	Stainless Steel				
Tray	2 EA	3 EA	3 EA	3 EA	3 EA
Chamber size	Ø170x320mm	Ø230x360mm	Ø247x350mm	Ø247x450mm	Ø247x600mm
Dimension External (W×D×H)	370x565x345(mm)	445x605x410(mm)	480x700x450(mm)	480x700x450(mm)	480x860x450(mm)
	14.56x22.24x13.58(inch)	17.51x23.81x16.14(inch)	18.89x27.56x17.71(inch)	18.89x27.56x17.71(inch)	18.89x338.58x17.71(inch)
Printer	Option				Standard(Built-in)
Net weight	34.5 Kg	45Kg	47 Kg	51 Kg	70 Kg
Power	1500 W	2000 W	2200 W	2200 W	2200 W

Option



• Printer



• Independent drying program(Class N only)

Safety Device

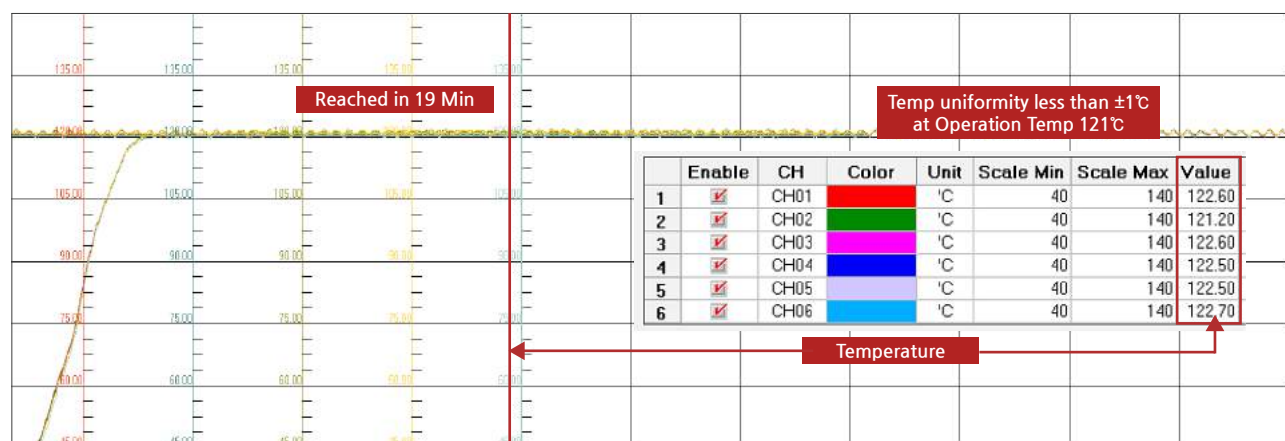
Double door protection system
Safety relief valve
Electric leakage circuit breaker
Automatic water supply system
Automatic reset function incoming power cut
Over temperature protection device

Autoclave (Sterilizer)

-Feature

An autoclave is a strong heated container used for chemical reactions and other processes in need of high amounts of pressure and temperature. Sterilization Autoclaves have a variety of uses in the fields of microbiology, medicine, podiatry, tattooing, body piercing, veterinary science, mycology, funeral homes, dentistry, prosthetics fabrications, etc.

Uniformity sheet



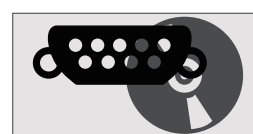
Feature



Stainless steel



Door sealing gasket



RS-485 or RS-232C interface



Leveling caster



Safety devices



Digital PID controller

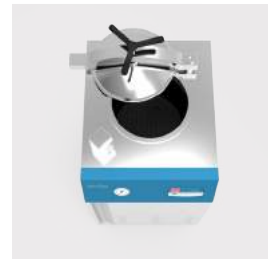
Basket detail



Catalog No.	Type	Dimension(WxDxH)	Weight	Material	Applicable Model
AC60WB	WIRE BASKET	318x265	1 Kg	Stainless steel	SH-AC-60M
AC80WB	WIRE BASKET	368 x 270	1.3 Kg		SH-AC-80M
AC100WB	WIRE BASKET	418 x 270	1.5 Kg		SH-AC-100M
AC128WB	WIRE BASKET	468 x 270	3 Kg		SH-AC-120M



Autoclave (Sterilizer):



Model	SH-AC-60M	SH-AC-80M
Temp Range	Max 130°C (266°F)	
Using Press	0.1177 to 0.1274 MPa (1.2 to 1.3 kg/cm²)	
Temp Controller	Microprocessor Digital PID Controller	
Sterling Time	00.00 to 99HR 59MIN (MIN SEC) selectable	
Pressure Gauge	Mechanical type 0 to 0.3 MPa	
Sensor	PT-100	
Capa	60 L	80 L
Dimension Internal	350Φx630H(mm)	400Φx650H(mm)
	13.78Φx24.80H(inch)	15.75Φx25.59H(inch)
Dimension External (WxDxH)	550x680x1070(mm)	600x730x1150(mm)
	21.65x26.77x42.12(inch)	23.62x28.74x45.27(inch)
Net weight	74 Kg	100 Kg
Material Internal	Stainless Steel	
Material External	Steel Plate with Powder Heating Coated	
Heater	3 KW	
Electrical Requirements 120V ,50/60Hz, 1Φ	25.0 A	
Cat. No.	AC60M120	AC80M120
Electrical Requirements 230V ,50/60Hz, 1Φ	13.0 A	
Cat. No.	AC60M230	AC80M230

Accessory

Wire basket x 2EA

Option

RS-485 interface
RS-232C interface

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Electric leakage circuit breaker
Over temperature protection device
Safety relief valve

Autoclave (Sterilizer):



Model	SH-AC-100M	SH-AC-128M
Temp Range	Max 130°C (266°F)	
Using Press	0.1177 to 0.1274 MPa (1.2 to 1.3 kg/cm ²)	
Time Controller	Microprocessor Digital PID Controller	
Sterling Time	00.00 to 99HR 59MIN (MIN SEC) selectable	
Pressure Gauge	Mechanical type 0 to 0.3 MPa	
Sensor	PT-100	
Capa	100 L	128 L
Dimension Internal (W×D×H)	450Φ×650H(mm)	500Φ×650H(mm)
	17.72Φ×25.59H(inch)	19.69Φ×25.59H(inch)
Dimension External (W×D×H)	650x780x1150(mm)	700x830x1365(mm)
	25.59x30.71x45.27(inch)	27.56x32.68x53.74(inch)
Net weight	120 Kg	140 Kg
Material Internal	Stainless Steel	
Material External	Steel Plate with Powder Heating Coated	
Heater	5 KW	
Electrical Requirements 120V ,50/60Hz, 1Φ	41.7 A	
Cat. No.	AC100M120	AC128M120
Electrical Requirements 230V ,50/60Hz, 1Φ	22.7 A	
Cat. No.	AC100M230	AC128M230

Accessory

Wire basket x 2EA

Option

RS-485 interface
RS-232C interface

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Electric leakage circuit breaker
Over temperature protection device
Safety relief valve



Rotary Evaporator & Distillation

12



EVAPORATOR & DISTILLATION

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Rotary Evaporator Package (5L)



Description

Rotary Evaporator can heat in constant-temperature and and form film in negative pressure, simultaneously, it will evaporate hydrolytic enzymes to condense receiving. Specially is suitable for concentration, crystallization, separation, reclamation, etc. it is ideal device from biological pharmaceutical, chemical, food industry, etc.



Rotary Evaporator SH-RE05	
Ambient temperature	5 ~ 35℃
Speed-regulation of main machine	Digital display, variable frequency, stepless speed-regulation
Rotary speed	10 ~ 140rpm
Rotating motor	40W
Evaporating capability	Water ≥ 2 ; Alcohol ≥ 4 (L/h)
Achievable vacuum	Below 399.9Pa
Water bath temp. range	Room temp ~ 180℃
Constant-temp. Resolution	±1℃
Power supply	Single phase 220/50(V/Hz)
Heater wattage	3kW
Condensing tube type	Standing, main Condenser
Condensing tube condenser	main : 0.27m ²
Rotary bottle	5L
Rotary bottle of flange opening	diameter of flange opening : Φ50(mm)/Φ2(inch)
Collecting bottle	3L
Vacuum sealing	Double sealing rings (Teflon) + Vinton materials
Water bath size	Φ300×170(mm)/Φ12×7(inch)
Water bath material	Stainless water bath
Water bath volume	12L
Elevating function	Electric elevation
Elevating stroke	0 ~ 150(mm)/0 ~ 6(inch)

Chiller WB-10CDR	
Can be equipped rotary evaporator and jacketed glass reactor	10L
Capacity of water tank	10L
Material of Water tank and size	Φ 300x200(mm)/Φ 12x8(inch)
Temp range	-10℃-RT
Coil Inner Diameter	Φ 270(mm)/Φ 11(inch)
Opening Size	Φ 250(mm)/Φ 10(inch)
Environment temp	5-25℃
Humidity	(60-80%) Ventilation
Empty-loading temp	-12℃
Voltage	220V±10% 50HZ
Refrigerating power	1825-820W
Temp Range of the gauge	-150℃-100℃
Temp accuracy	±0.5℃
Temp Sensor	PT100
Pump power	100W
Lift	4-6m
Flow	20(L/min)
Pressure	0.4(bar)
Compressor	Imported Fully Closed Compressor
Refrigerant	R404
Circulating Pump	Fully Closed No Leakage Special Pump
Inlet and outlet' nozzle	4 # (Lower: Inlet, Higher: Outlet)
Temp display	Digital Display
Temp resolution	1℃
Safe protection	Leakage, overload breaker, overload relay keep line, protection timer of a refrigerator, circulating pump thermal protection device, the refrigerator pressure switch, temperature regulating self diagnostic function
Cooling coil	Copper (Nickel Plating)
Material of machine body	Anti-corrosion spray coating
Overall dimension	580x450x730(mm)/23x18x29(inch)
GW	68kg

Chiller accessory

- Adaptor of inlet and outlet : 1set
- Stainless Rod : 1 pc
- Insulation Tube : 2pcs



Rotary Evaporator Package (20L)



Description

Rotary Evaporator can heat in constant-temperature and and form film in negative pressure, simultaneously, it will evaporate hydrolytic enzymes to condense receiving. Specially is suitable for concentration, crystallization, separation, reclamation, etc. it is ideal device from biological pharmaceutical, chemical, food industry, etc.

Attribute:

AC-motor for no classless adjustable speed, no brush-less, no sparkle, long-life. Sealing of the system is good, high vacuum degree, high evaporating rate, high recycling rate.

The glass is made of GG-17 high quality silicon, good function.

The advanced converting-frequency digital speed as well as liable electrical adjustable speed to ensure good working condition.



Rotary Evaluator SH-RE20		Chiller WB-30CDR	
Ambient temperature	5 ~ 35℃	Can be equipped rotary evaporator and jacketed glass reactor	30L
Speed-regulation of main machine	Digital display, variable frequency, stepless speed-regulation	Capacity of water tank	30L
		Material of Water tank and size	φ 350x350(mm)/φ 14x14(inch)
Rotary speed	20 ~ 130rpm	Coil Inner Diameter	φ 325(mm)/φ 13(inch)
		Opening Size	φ 250(mm)/φ 10(inch)
Rotating motor	250W	Temp range	RT to -32℃
Evaporating capability	Water ≥ 3.2 ; Alcohol ≥ 6.5(L/h)	Environment temp	5-25℃
Achievable vacuum	Below 399.9Pa	Humidity	(60-80%) Ventilation
Water bath temp. range	Room temp ~ 180℃	Empty-loading temp	-62℃
Constant-temp. Resolution	±1℃	Voltage	220V±10% 60HZ
Power supply	Single phase 220/50(V/Hz)	Refrigerating power	3960-1200W
Heater wattage	5kW	Temp Range of the gauge	-150℃-100℃
Condensing tube type	Standing, main+ auxiliary cooling and highly efficient 3 circulating cold trap	Temp accuracy	±0.5℃
Condensing tube Condenser	main : 0.8m ² auxiliary : 0.39m ²	Temp Sensor	PT100
Rotary bottle	20L	Pump power	100W
Rotary bottle of f flange opening	diameter of flange opening : φ125(mm)/φ5(inch)	Lift	10-12m
Collecting bottle	10L	Flow	35(L/min)
Vacuum sealing	Double sealing rings (Teflon) + Vinton materials	Pressure	2Mpa
Water bath size	φ450x260(mm)/φ18x10(inch)	Compressor	Recognized Fully Closed Compressor
Water bath material	Stainless water bath	Refrigerant	R404
Water bath volume	41L	Circulating Pump	Fully Closed No Leakage Special Pump
Elevating function	Electric elevation	Inlet and outlet' nozzle	4 # (Lower: Inlet, Higher: Outlet)
Elevating stroke	0 ~ 190(mm)/0 ~ 7(inch)	Temp display	Digital Display
		Temp resolution	1℃
		Safe protection	Leakage, overload breaker, overload relay keep line, protection timer of a refrigerator, circulating pump thermal protection device, the refrigerator pressure switch
		Cooling coil	Copper (Nickel Plating)
		Material of machine body	Anti-corrosion spray coating
		Overall dimension	770x650x1010(mm)/30x26x40(inch)
		GW	78kg

Chiller accessory

- Inlet and outlet Joints : 1set
- Stainless Rod : 1pc
- Insulation Tube : 2pcs

Rotary Evaporator Package (50L)



Description

Rotary Evaporator can heat in constant-temperature and and form film in negative pressure, simultaneously, it will evaporate hydrolytic enzymes to condense receiving. Specially is suitable for concentration, crystallization, separation, reclamation, etc. it is ideal device from biological pharmaceutical, chemical, food industry, etc.

Attribute:

AC-motor for no classless adjustable speed, no brush-less, no spark, long-life. Sealing of the system is good, high vacuum degree, high evaporating rate, high recycling rate.

The glass is made of GG-17 high quality silicon, good function.

The advanced converting-frequency digital speed as well as liable electrical adjustable speed to ensure good working condition.



Rotary Evaporator SH-RE50		Chiller WB-50CDR	
Ambient temperature	5 ~ 35℃	Can be equipped rotary evaporator and jacketed glass reactor	50L
Speed-regulation of main machine	Digital display, variable frequency, stepless speed-regulation	Capacity of water tank	50L
Rotary speed	20 ~ 130rpm	Material of Water tank and size	φ450x350(mm)/φ18x14(inch)
Rotating motor	250W	Coil Inner Diameter	φ415(mm)/φ16(inch)
Evaporating capability	Water ≥ 9 ; Alcohol ≥ 19(L/h)	Opening Size	φ345(mm)/φ14(inch)
Achievable vacuum	Below 399.9Pa	Temp range	RT to -30℃
Water bath temp. range	Room temp ~ 180℃	Environment temp	5-35℃
Constant-temp. Resolution	±1℃	Humidity	≤60
Power supply	Single phase 220/50(V/Hz)	Empty-loading temp	-32℃
Heater wattage	8kW	Voltage	220V/380V±10% 50HZ
Condensing tube type	Standing, main+ auxiliary cooling and highly efficient 3 circulating cold trap	Refrigerating power	7469-3540W
Condensing tube Condenser	main : 0.91㎡ auxiliary : 0.52㎡	Temp Range of the gauge	-150℃-100℃
Rotary bottle	50L	Temp accuracy	±0.5℃
Rotary bottle of flange opening	diameter of flange opening : φ125(mm)/φ5(inch)	Temp Sensor	PT100
Collecting bottle	20L	Pump power	100W
Vacuum sealing	Double sealing rings (Teflon) + Vinton materials	Lift	10-12m
Water bath size	φ550x320(mm)/φ21x13(inch)	Flow	30(L/min)
Water bath material	Stainless water bath	Pressure	2Mpa
Water bath volume	77L	Compressor	Imported Fully Closed Compressor
Elevating function	Electric elevation	Refrigerant	R404
Elevating stroke	0 ~ 180(mm)/0 ~ 7(inch)	Circulating Pump	Fully Closed No Leakage Special Pump
		Inlet and outlet nozzle	4 # (Lower: Inlet, Higher: Outlet)
		Temp display	Digital Display
		Temp resolution	1℃
		Safe protection	Leakage, overload breaker, overload relay keep line, protection timer of a refrigerator, circulating pump thermal protection device, the refrigerator pressure switch, temperature regulating self diagnostic function
		Cooling coil	Copper (Nickel Plating)
		Material of machine body	Anti-corrosion spray coating
		Overall dimension	790x680x1180(mm)/31x27x47(inch)
		GW	79kg

we can manufacture ex-proof chiller according to customer's requirements. And equip valves of double inlet and double outlet.

Chiller accessory

- Inlet and outlet Joints : 1set
- Stainless Rod : 1pc
- Insulation Tube : 2pcs



Rotary Evaporator Package (100L)



Description

Rotary Evaporator can heat in constant-temperature and and form film in negative pressure, simultaneously, it will evaporate hydrolytic enzymes to condense receiving.

Specially is suitable for concentration, crystallization, separation, reclamation, etc. it is ideal device from biological pharmaceutical, chemical, food industry, etc.

Attribute:

AC-motor for no classless adjustable speed, no brush-less, no spark, long-life. Sealing of the system is good, high vacuum degree, high evaporating rate, high recycling rate.

The glass is made of GG-17 high quality silicon, good function.

The advanced converting-frequency digital speed as well as liable electrical adjustable speed to ensure good working condition.



Rotary Evaporator SH-RE100	
Glass material	GG-17
Stent material	Stainless steel
Shell material	Plastic spraying and anti-corrosive 820x820(mm)/32x32(inch)
Bath material	Stainless steel 795x330(mm)/31x13(inch)
Size of bottom board	1600x830(mm)/63x33(inch)
Rotary flask volume	100L Ø 180 flange opening
Collecting flask volume	50L 40# sphere opening
Vacuum	0.098Mpa
Rotary speed	0-110rpm
Rotary power	400W 220V/50Hz
Bath heating power	12KW 380V/50Hz
Temperature control of bath	0-400°C
Temperature precision	±1°C
Voltage/frequency (V/Hz)	220V/50Hz
Elevating stroke	180(mm)/7(inch)
Exterior size	1700x850x2600(mm)/67x33x102(inch)
Packing weight	400kg
Speed regulation method	Frequency control
Running speed display	LCD display
Temperature display	K type sensor digital display
Temperature controlling	Intelligent temperature control
Sealing method	PTFE parts sealing
Condenser	Vertical efficient three reflow condenser, main condenser 230x950(mm)/9x37(inch), side condenser 230x530(mm)/9x21(inch)
Collecting continuously	Check value control
Elevating method	Main machine auto-lifting
Feed continuously	29# standard feed valve
Dumping method	PTFE dumping valve
Vacuum display	Vacuum meter

Chiller WB-100CDR	
Can be equipped rotary evaporator and jacketed glass reactor	100L
Capacity of water tank	100L
Material of Water tank and size	Ø 500x500(mm)/Ø 20x20(inch)
Coil Inner Diameter	Ø 450(mm)/Ø 18(inch)
Opening Size	Ø 345(mm)/Ø 14(inch)
Temp range	RT to -40°C
Environment temp	5-35°C
Humidity	≤60
Empty-loading temp	-42°C
Voltage	220V/±10% 60HZ three phase
Refrigerating power	11520-3160W
Temp Range of the gauge	-150°C-100°C
Temp accuracy	±0.5°C
Temp Sensor	PT100
Pump power	280W
Lift	19-22m
Flow	40(L/min)
Pressure	2Mpa
Compressor	Imported Fully Closed Compressor
Refrigerant	R404
Circulating Pump	Fully Closed No Leakage Special Pump
Inlet and outlet nozzle	6 # (Lower: Inlet, Higher: Outlet)
Temp display	Digital Display
Temp resolution	1°C
Safe protection	Leakage, overload breaker, overload relay keep line, protection timer of a refrigerator, circulating pump thermal protection device, the refrigerator pressure switch, temperature regulating self diagnostic function
Cooling coil	Copper (Nickel Plating)
Material of machine body	Anti-corrosion spray coating
Overall dimension	1100x900x1100(mm)/43x35x43(inch)
GW	185kg

we can manufacture ex-proof chiller according to customer's requirements. And equip valves of double inlet and double outlet.

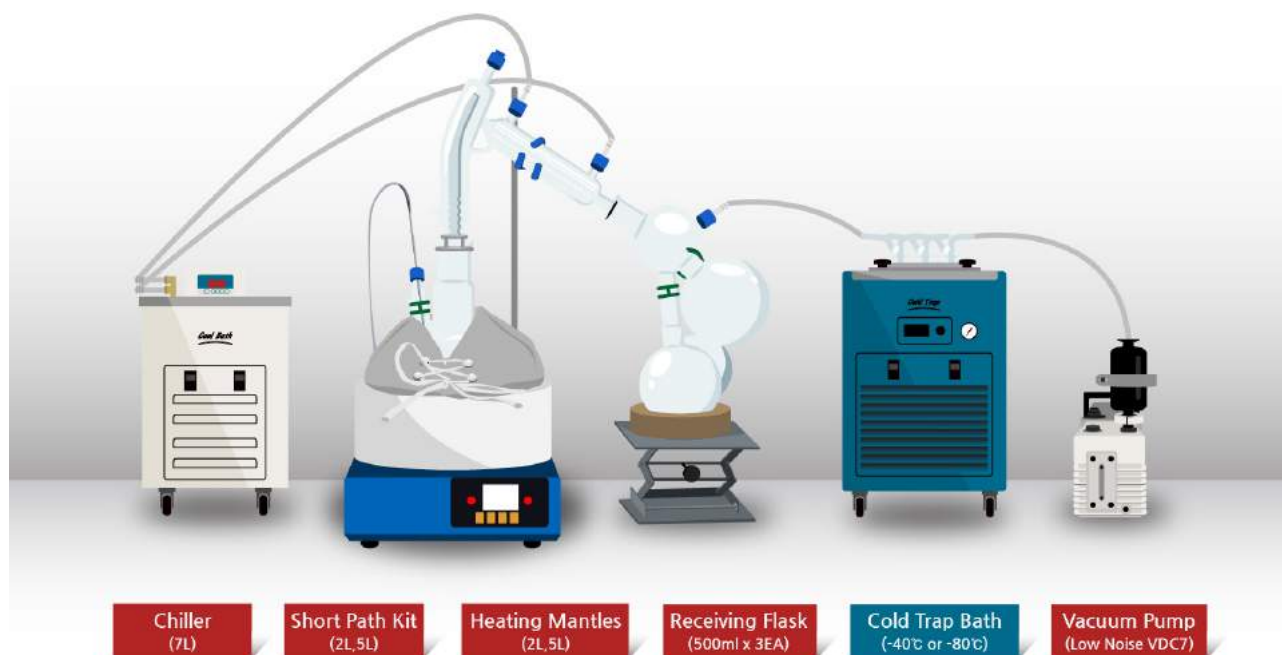
Chiller accessory

- Inlet and outlet Joints : 1set
- Stainless Rod : 1pc
- Insulation Tube : 2pcs

Short Path Full Kit With Cold Trap:

Description

Short path distillation evaporates and condenses the compound one time.
One the compound evaporates, it travels a very short distance and then condense and return to their lower energy state.



2L Short Path Part List	
Qty	Item
1	"2L 60° Distillation Head - 3 Straight Vigreux Rows - GL Fittings 24/40 Bottom, 24/40 Outlet, 14/20 Top - No Vacuum Port"
1	2L 2 Neck Boiling Flask - 24/40
1	250mL Triple Cow Receiver - 24/40 - GL Fitting
3	250mL 1 Neck Round Bottom Flask - 24/40
1	24/40 Glass Funnel
1	24/40 Thermometer Adapter
1	14/20 Thermometer Adapter
2	24/40 Stopper
1	14/20 Stopper
3	GL-14 Connections - 8mm 3/8"
5	24/40 Plastic Keck Clamp
2	24/40 Stainless Steel Keck Clamp
1	50mL - 250mL Cork Stand
1	250mL - 1000mL Cork Stand
1	4" x 6" x 27" Lab Stand for holding Distillation Head
1	Boss Head Clamp
1	3-Finger Adjustable Clamp

5L Short Path Kit List	
Qty	Item
1	"5L 60° Distillation Head - 5 Straight Vigreux Rows - GL Fittings 34/45 Bottom, 24/40 Outlet, 14/20 Top - No Vacuum Port"
1	5L 2 Neck Boiling Flask - 24/40
1	250mL Triple Cow Receiver - 24/40 - GL Fitting
3	500mL 1 Neck Round Bottom Flask - 24/40
1	24/40 Glass Funnel
1	24/40 Thermometer Adapter
1	14/20 Thermometer Adapter
2	24/40 Stopper
1	14/20 Stopper
3	GL-14 Connections - 8mm 3/8"
5	24/40 Plastic Keck Clamp
2	24/40 Stainless Steel Keck Clamp
1	34/45 Stainless Steel Keck Clamp
2	250mL - 1000mL Cork Stand
1	6" x 10" x 27" Lab Stand for Head
1	Boss Head Clamp
1	3-Finger Adjustable Clamp

Climate Chamber

13

Climate Chamber_Temp Control Model

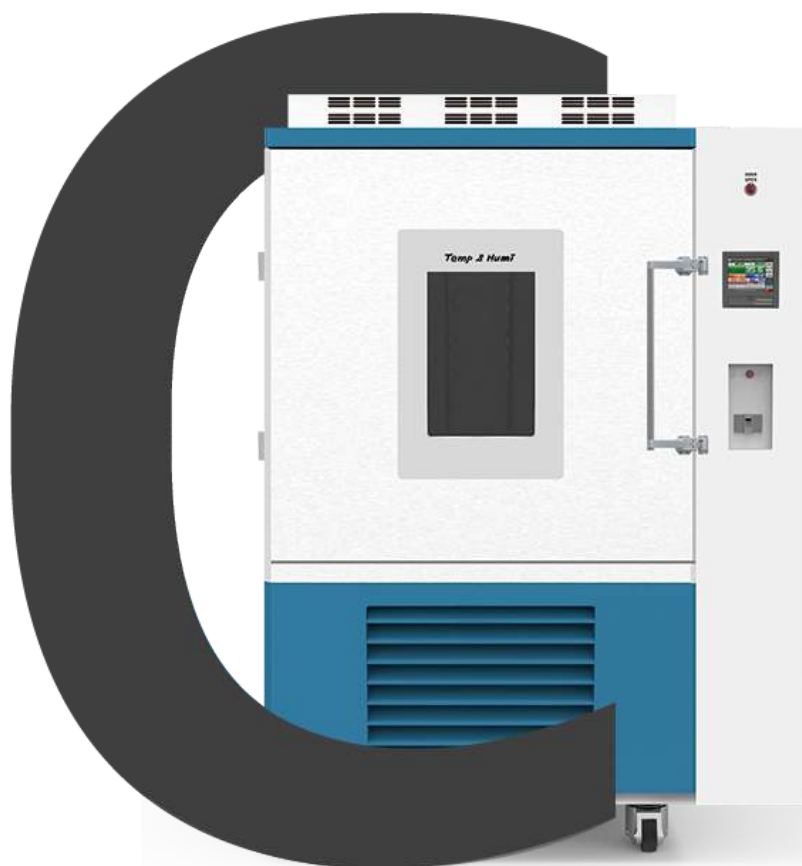
-Feature.....	155
-Specification.....	156
-Controller.....	160
-Options.....	162

Climate Chamber_Temp & Humi Control Model

-Feature.....	164
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Thermal Shock Tester.....

-Controller.....	174
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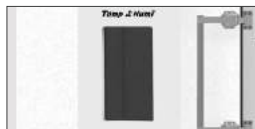


Climate Chamber_Temp Control Model

-Feature

A Climate Chamber (Temp Control Model) is used for testing material behaviors under constant temperature conditions. This unit has a powerful cooling system , interface functions. It also contains a non-dew observation window and an economic heating up function.

Feature



View window with LED lamp



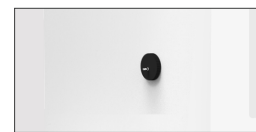
Door sealing gasket



Leveling caster



Steel plate with
powder heating coated

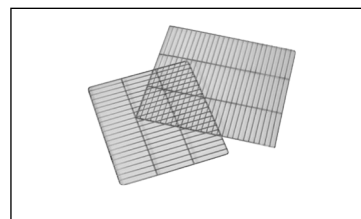


Port hole
for data cable

Shelves' detail



Stainless steel 12mm punched shelves



Stainless steel wire shelves

Catalog No.	Type	DIMENSION(WxDxH)	Weight	Material	Applicable Model
CHWS150	WIRE PLATE	470x475x8	1 Kg	Stainless Steel	SH-CH-150 Series
CHPS150	PUNCH PLATE	470x475x17	1.9 Kg		
CHWS288	WIRE PLATE	570x575x8	1.4 Kg		
CHPS288	PUNCH PLATE	570x575x17	2.8 Kg		SH-CH-288 Series
CHPS408	PUNCH PLATE	820x575x17	5 Kg		SH-CH-408 Series
CHPS800	PUNCH PLATE	970x775x17	8 Kg		SH-CH-800 Series
CHPS1200	PUNCH PLATE	1170x975x17	12 Kg		SH-CH-1200 Series

-25℃ ~ 120℃ Temp Control Model Climate Chamber:



Model	SH-CH-150U1	SH-CH-288U1	SH-CH-408U1
Temp Range	-25℃ ~ 120℃ (-13°F ~ 248°F)		
Dimension Internal (W×D×H)	500x500x600(mm)	600x600x800(mm)	850x600x800(mm)
	19.69x19.69x23.62(inch)	23.62x23.62x31.50(inch)	33.46x23.62x31.50(inch)
Dimension External (W×D×H)	920x995x1555(mm)	1020x1095x1755(mm)	1270x1095x1805(mm)
	36.22x39.17x61.22(inch)	40.15x43.11x69.09(inch)	50.00x43.11x71.06(inch)
Weight	250 Kg	330 Kg	395 Kg
Capa	150 L	288 L	408 L
Heater Capa	2 KW	3 KW	4 KW
Temp Accuracy & Stability	±0.1℃		
Temp Uniformity	±0.5℃		
Cool Down Time	23℃ ~ -20℃ (73.4°F ~ -4°F) About 40min		
Heating Up Time	-20℃ ~ 100℃ (-4°F ~ 212°F) About 40min		
Temp Controller	Microprocessor Programmable Controller Touch Screen Type-104p		
Material Internal	Stainless Steel		
Material External	Steel Plate with Powder Heating Coated		
Shelves	2 Supplied (17 Maximum)	2 Supplied (24 Maximum)	2 Supplied (24 Maximum)
Electrical Requirements 230V, 50/60Hz, 1Φ	14.5 A	20.5 A	27.0 A
Cat. No. 50Hz(60Hz)	CH150U1230-50 (CH150U1230-60)	CH288U1230-50 (CH288U1230-60)	CH408U1230-50 (CH408U1230-60)
Electrical Requirements 230V, 50/60Hz, 3Φ	N/A		16 A
Cat. No. 50Hz(60Hz)			CH408U1230-50-3 (CH408U1230-60-3)

Accessory

Movable stainless wire shelves 2EA

Option

Digital recorder
2CH Hybrid recorder
Max temperature 150℃

Safety Device

Automatic reset function incoming power cut
Over temp protection
Electric leakage breaker
Door open lamp display
Fan motor over load protection
Refrigerator over load protection

-25℃ ~ 120℃ Temp Control Model Climate Chamber:



Model	SH-CH-800U1	SH-CH-1200U1
Temp Range	-25℃ ~ 120℃(-13°F~248°F)	
Dimension Internal (W×D×H)	1000x800x1000(mm)	1200x1000x1000(mm)
	39.37x31.50x39.37(inch)	47.24x39.37x39.37(inch)
Dimension External (W×D×H)	1520x1325x2100(mm)	1790x1525x2100(mm)
	59.84x52.16x82.67(inch)	70.47x60.03x82.67(inch)
Weight	395 Kg	655 Kg
Capa	800 L	1200 L
Heater Capa	6 KW	7 KW
Temp Accuracy & Stability	±0.1℃	
Temp Uniformity	±0.5℃	
Cool Down Time	23℃ ~ -20℃ (73.4°F ~ -4°F) About 40min	
Heating Up Time	-20℃ ~ 100℃ (-4°F ~ 212°F) About 40min	
Temp Controller	Microprocessor Programmable Controller Touch Screen Type-104p	
Material Internal	Stainless Steel	
Material External	Steel Plate with Powder Heating Coated	
Shelves	2 Supplied (31 Maximum)	
Electrical Requirements 230V,50/60Hz, 3Φ	23.5 A	29.2 A
Cat. No. 50Hz(60Hz)	CH800U1230-50-3 (CH800U1230-60-3)	CH1200U1230-50-3 (CH1200U1230-60-3)
Electrical Requirements 380V,50/60Hz, 3Φ	14.0 A	17.4 A
Cat. No. 50Hz(60Hz)	CH-800U1380-50-3 (CH-800U1380-60-3)	CH-1200U1380-50-3 (CH-1200U1380-60-3)

Accessory

Movable stainless wire shelves 2EA

Option

Digital recorder
2CH Hybrid recorder
Max temperature 150℃

Safety Device

Automatic reset function incoming power cut
Over temp protection
Electric leakage breaker
Door open lamp display
Fan motor over load protection
Refrigerator over load protection

-50℃ ~ 120℃ Temp Control Model Climate Chamber:



Model	SH-CH-150U2	SH-CH-288U2	SH-CH-408U2
Temp Range	-50℃ ~ 120℃ (-58°F ~ 248°F)		
Dimension Internal (W×D×H)	500x500x600(mm)	600x600x800(mm)	850x600x800(mm)
	19.69x19.69x23.62(inch)	23.62x23.62x31.50(inch)	33.46x23.62x31.50(inch)
Dimension External (W×D×H)	920x995x1555(mm)	1020x1095x1755(mm)	1270x1095x1805(mm)
	36.22x39.17x61.22(inch)	40.15x43.11x69.09(inch)	50.00x43.11x71.06(inch)
Weight	250 Kg	330 Kg	410 Kg
Capa	150 L	288 L	408 L
Heater Capa	3 KW	4 KW	5 KW
Temp Accuracy & Stability	±0.1℃		
Temp Uniformity	±0.5℃		
Cool Down Time	23℃ ~ -40℃ (73.4°F ~ -40°F) About 40min		
Heating Up Time	-40℃ ~ 100℃ (-40°F ~ 212°F) About 40min		
Temp Controller	Microprocessor Programmable Controller Touch Screen Type-104p		
Material Internal	Stainless Steel		
Material External	Steel Plate with Powder Heating Coated		
Shelves	2 Supplied (17 Maximum)	2 Supplied (24 Maximum)	2 Supplied (24 Maximum)
Electrical Requirements 230V, 50/60Hz, 1Φ	21.0 A	23.2 A	36.0 A
Cat. No. 50Hz(60Hz)	CH150U2230-50 (CH150U2230-60)	CH288U2230-50 (CH288U2230-60)	CH408U2230-50 (CH408U2230-60)
Electrical Requirements 230V, 50/60Hz, 3Φ	N/A		21.0 A
Cat. No. 50Hz(60Hz)			CH408U2230-50-3 (CH408U2230-60-3)

Accessory

Movable stainless wire shelves 2EA

Option

Digital recorder
2CH Hybrid recorder
Max temperature 150℃

Safety Device

Automatic reset function incoming power cut
Over temp protection
Electric leakage breaker
Door open lamp display
Fan motor over load protection
Refrigerator over load protection

-50℃ ~ 120℃ Temp Control Model Climate Chamber:



Model	SH-CH-800U2	SH-CH-1200U2
Temp Range	-50℃ ~ 120℃ (-58°F ~ 248°F)	
Dimension Internal (W×D×H)	1000x800x1000(mm)	1200x1000x1000(mm)
	39.37x31.50x39.37(inch)	47.24x39.37x39.37(inch)
Dimension External (W×D×H)	1520x1325x2100(mm)	1790x1525x2100(mm)
	59.84x52.16x82.67(inch)	70.47x60.03x82.67(inch)
Weight	520 Kg	670 Kg
Capa	800 L	1200 L
Heater Capa	8 KW	
Temp Accuracy & Stability	±0.1℃	
Temp Uniformity	±0.5℃	
Cool Down Time	23℃ ~ -40℃ (73.4°F ~ -40°F) About 40min	
Heating Up Time	-40℃ ~ 100℃ (-40°F ~ 212°F) About 40min	
Temp Controller	Microprocessor Programmable Controller Touch Screen Type-104p	
Material Internal	Stainless Steel	
Material External	Steel Plate with Powder Heating Coated	
Shelves	2 Supplied (31 Maximum)	
Electrical Requirements 230V, 50/60Hz, 3Φ	33 A	
Cat. No. 50Hz(60Hz)	CH800U2230-50-3 (CH800U2230-60-3)	CH1200U2230-50-3 (CH1200U2230-60-3)
Electrical Requirements 380V, 50/60Hz, 3Φ	19.1 A	
Cat. No. 50Hz(60Hz)	CH-800U2380-50-3 (CH-800U2380-60-3)	CH-1200U2380-50-3 (CH-1200U2380-60-3)

Accessory

Movable stainless wire shelves 2EA

Option

Digital recorder
2CH Hybrid recorder
Max temperature 150℃

Safety Device

Automatic reset function incoming power cut
Over temp protection
Electric leakage breaker
Door open lamp display
Fan motor over load protection
Refrigerator over load protection

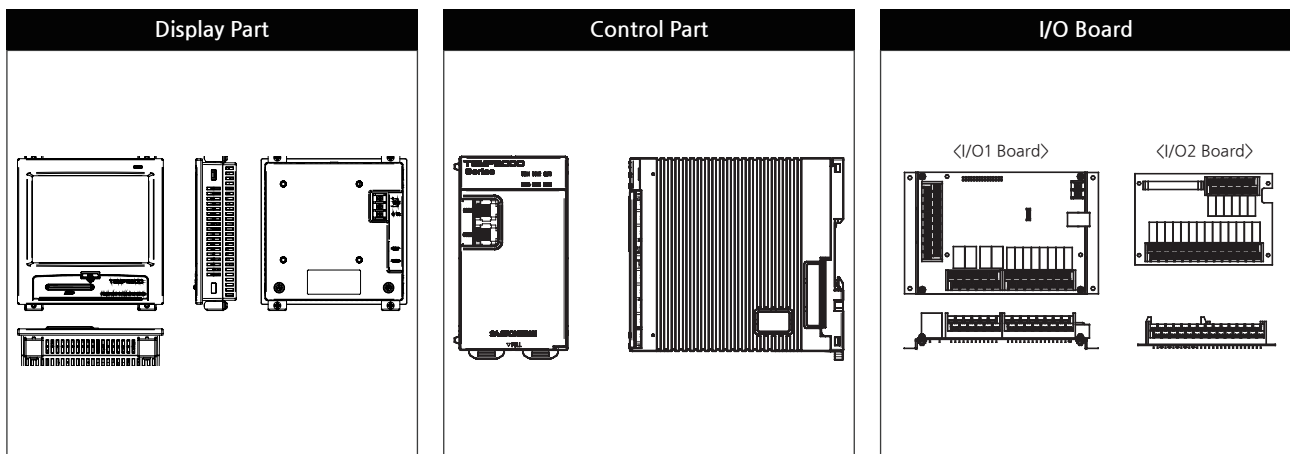


Programmable Controller Controller:



- Detachable display and control unit
- Heat and Cool Control Support
- Picture-like quality of the touch interface
- 18bit A / D converter through a high precision control
- 80 patterns, the 1200 segment operating various programs
- DI 16 points, DO 12 + 20(option) points built in
- Synchronous / asynchronous operation mode
- SYNC master controller
- Digital recorder function
- Users screen configuration support
- SD memory card support
- PC software included for free of change
- VESA Mounting Support
- Korean, English, Chinese, Japanese, Russian supported

TEMP2500 Drawing



Group		Specification
Display	Display	5.7" TFT-LCD
	Screen Resolution	640(W) x 480(H)
	Language	KOR/ENG/JPN, KOR/ENG/CHN, KOR/ENG/RUS
	Font	3 Font (HEAD/NORM/ART)
	Start Page	Support user's start page
	User Screen	16 customized user screen for screen saver
	Mount Method	Panel mount, VESA mount(MIS-D 75)
Control Mode		TEMP 1CH : Heat and Cool Support
Max Channel		1 Channel
Pattern & Segments		80pattern / Max 1200 segments , Max 999hour 59Min 59Sec can be set
Input	TC	K, J, E, T, R, B, S, L, N, U, W, PL, C,
	RTD	Pt100(JIS/IEC), JPt100(JIS)
	Analog Voltage Input	0.4V~2V DC, 1~5V DC, 0~10V, -10~20 mV DC, 1~100 mV DC(4~20 mA, 0~20 mA, External Resistance 250Ω, 500Ω)
Output	Control Output	1 Channel MV(0~100%)
	Current Output	4~20mA DC(Load Resistance : Max 600Ω)
	Voltage Output	24V DC(pulse width : Minimum5ms)
	Transmission Output	1 Channel (PV, SP, MV)
Digital Input	Contact Type	RUN/STOP/HOLD/STEP by DI, Pattern Number, Delay time of detecting DI error, Trouble Input by DI, Available to customize DI error
	Contact capacity	Max 12V DC, 10mA
Digital Output	Relay	C contact Normal Open 30V DC 5A, 250V AC 5A Normal Close 30V DC 1, 250V AC 2A
		A contact Normal Open 30V DC 3A, 250V AC 3A
	Open Collector	ON voltage across contacts at less than 2V, the leakage currentless than 100 μA
Sampling Time		250ms
Accuracy		±0.1% of FS ±1 digit
PID Control	PID group	6 group(Zone PID 6 group or Deviation PID 1 group or Seg PID 6 group)
	PID type	Zone PID, Dev PID, Seg PID
Communication	Interface	Flexible to change between RS485/RS232C by Dip switch, Max. 31 nodes.
	Protocol	PC Link(Checksum), MODBUS(RTU,ASCII), Sync-Master(CH1,CH2 selectable)
	Speed	Max 115,200 bps, Support Ethernet
Data Back-Up	Object	SDCard, MMC Card(FAT32 format)
	Functions	Back-up and restore data of Program Pattern / Parameter Settings, and SP/PV/MV vaule
Power Supply	Power	24VDC
	Power Consumption	22VA Max
Operating environment		-
Weight		-

Digital Recorder Options:



- Touch panel 5.7 Inch 640 x 480 TFT-LCD
- Universal input (Thermocouple, RTD, VDC)
- Trend view mode available
- 80MB internal memory and support SD/SDHC memory card
- RS 485/422 communication (Modbus, PC-link)

Suffix Code		
Model	Code	Information
GR200		Graphic recorder(applied touch panel function) 145(W) × 145(H) mm
Input channel	2	2 channels
	4	4 channels
	8	8 channels
	12	12 channels

Model	GR200
Number of channels	2, 4, 8, 12 (Refer to the type configuration)
Input type	2 thermoresistors (Pt-100, KPt-100) 12 thermocouples (K, J, E, T, R, B, S, L, N, U, Wre 5-26, PL-II) 4 VDC (-10 - 20 mV, 0 - 100 mV, 1 - 5V, 0 - 30 V)
Sampling period	250 ms
Current to measure the thermoresistor (RTD)	About 0.21 mA
Input resistor	Thermocouple : More than 1 MΩ, VDC : More than 1 MΩ
Allowable wiring resistor	Thermoresistor : Maximum 100Ω/wire (The RTD is up to 10Ω/wire for the range of -100.00 - .150.00) Thermocouple : Less than 200 Ω VDC : Less than 2 kΩ
Impact of the wiring resistor	Thermoresistor : ±0.3 °C/10 Ω (The 3 lines have the same wiring resistors)
Allowable input voltage	Thermocouple : Less than ±10 V DC, VDC : Less than ±33 V DC
Degree	±0.15 % of F.S., ±1 digit (Except the RJC temperature error) ※ Refer to the input table
The error in the reference junction compensation (RJC)	±2.0 °C (0 ~ 50 °C)
Sensor short detection (Burn-out)	UP-Scale for the short

Hybrid Recorder Options:



- 50mm thermal transfer method of paper recorder
- Data logger functions for recording without paper
- Supports RS485 communication and dedicated communication port to set or monitor parameters in real-time by PC/PLC
- Multi-input with high accuracy 0.2% level (RTD, TC, Analog)
- 2-channel simultaneous recording in graphic mode and digital mode
- High visibility and easy setting by LCD dot matrix
- Supports various option I/O functions
- Small size(W96×H96×L100 mm), light weight

Record accuracy		±0.5%F.S.
Alarm output		CH1(AL1, AL2), CH2(AL1, AL2) Relay out put(250 VAC/30 VDC 3 A 1 a)
Alarm output hysteresis		ON/OFF interval setting for alarm output: 1 to 999digit variable
Communication output		RS485 communication output(Modbus RTU protocol)
Set method		Setting by front keys
Sampling cycle		500 ms/channel x 2 channels = 1000 ms
Dielectric strength		2300 VAC 50/60 Hz for 1 min.(charging terminal of the other polarity)
Vibration		0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min.) in each of X, Y, Z directions for 1 hour
Relay life cycle		Mechanical: Over 5,000,000 operations, Electrical: Over 100,000 operations
Insulation resistance		Over 100 MΩ (at 500 VDC megger)
Noise resistance		Square shaped noise by noise simulator (pulse width 1 μs)±2 kV
Print	Method	Direct thermal line print
	Resolution	8 dot/mm
	Dots	384 dot/Line
	Life cycle	50 km
Record	Graphic mode	• Record speed(recording paper speed): 10, 30, 60, 120, 240, 480, 940 mm/hour • Memo cycle: 30 s, 1 m, 5 m, 10 m, 15 m, 30 m, 1 h, 2 h, 3 h, 4 h, 8 h, 16 h, 24 h
	Digital mode	TEXT mode record cycle: 00 m 05 s to 99 m 59 s
	Paper	Thermal Direct Receipt Paper (57 mm x 16 m)
	Paper supply method	Clamshell Type
	Language	Korean, English
Environment	Ambient temperature	0 to 50 ℃, storage: -20 to 60 ℃
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH
Approval		CE
Unit weight		Approx. 700 g

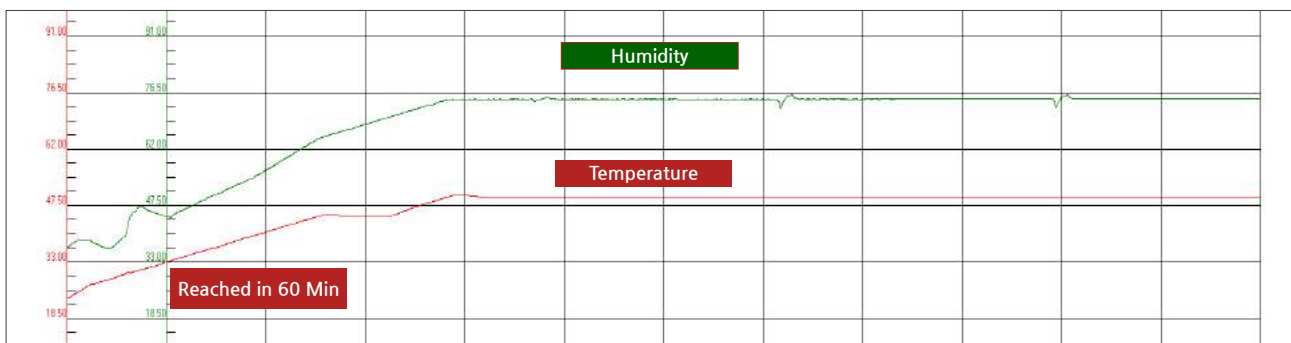
Climate Chamber_Temp&Humi Control Model

-Feature

Climate Chamber(Temp&Humi Control Model) simulates the effects on a product or material when its subjected to a range of temperature and humidity conditions. This unit has a powerful cooling system and interface functions. It also contains a non-dew observation window and an economic heating up function.

Applications of this equipment range from food science, semiconductors, and to military quality assurance.

Uniformity sheet

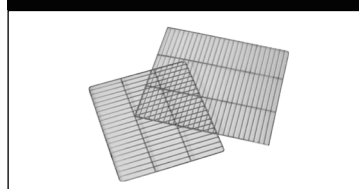


Shelves' detail

Stainless steel 12mm punched shelves



Stainless steel wire shelves



Catalog No.	Type	Dimension(WxDxH)	Weight	Material	Applicable Model
CHWS150	WIRE PLATE	470x475x8	1 Kg	Stainless Steel	SH-CTH-150 Series
CHPS150	PUNCH PLATE	470x475x17	1.9 Kg		
CHWS288	WIRE PLATE	570x575x8	1.4 Kg		SH-CTH-288 Series
CHPS288	PUNCH PLATE	570x575x17	2.8 Kg		
CHPS408	PUNCH PLATE	820x575x17	5 Kg		SH-CTH-408 Series
CHPS800	PUNCH PLATE	970x775x17	8 Kg		SH-CTH-800 Series
CHPS1200	PUNCH PLATE	1170x975x17	12 Kg		SH-CTH-1200 Series

Selection guide



Ambient temperature is below 25°C, relative humidity is lower than 80%.

-25℃ ~ 120℃ Temp&Humi Control Model Climate Chamber:



Model	SH-CTH-150SCR1	SH-CTH-288SCR1	SH-CTH-408SCR1
Temp Range	-25℃ ~ 120℃ (-13℉~248℉)		
Humi Range	30% ~ 99% at Temp 20℃ ~ 80℃(68℉~176℉) 25% ~ 95% at Temp 80℃ ~ 85℃(176℉~185℉) 20% ~ 80% at Temp 85℃ ~ 90℃(185℉~194℉)		
Accuracy & Stability Temp	±0.1℃		
Accuracy & Stability Humi	±1.5%		
Temp Uniformity	±0.5℃		
Humi Uniformity	±2%		
Temp & Humi Controller	Touch Screen Temp & Humi Controller-122p		
Sensor Temp	Pt-100Ω		
Sensor Humi	Electronic Sensor		
Dimension Internal (WxDxH)	500x500x600(mm) 19.69x19.69x23.62(inch)	600x600x800(mm) 23.62x23.62x31.50(inch)	850x600x800(mm) 33.46x23.62x31.50(inch)
Dimension External (WxDxH)	950x995x1595(mm) 37.40x39.17x62.79(inch)	1050x1095x1795(mm) 41.22x43.11x70.66(inch)	1300x1095x1845(mm) 51.18x43.11x72.63(inch)
Weight	210 Kg	305 Kg	365 Kg
Material Internal	Stainless Steel		
Material External	Steel Plate with Powder Heating Coated		
Shelves	2 Supplied (17 Maximum)	2 Supplied (24 Maximum)	2 Supplied (24 Maximum)
Temp Heater Capa	2.0 KW	2.0 KW	2.5 KW
Humi Heater Capa	2.0 KW	2.5 KW	3.5 KW
Illumination	LED Lamp		
View Windows	Hot wire type glass		
Water Storage tank	Stainless Steel with Powder Heating Coated		
Electrical Requirements 230,50/60Hz, 1φ	22.5 A	25.6 A	29.6 A
Cat. No. 50Hz (60Hz)	CTH150SCR1230-50 (CTH150SCR1230-60)	CTH288SCR1230-50 (CTH288SCR1230-60)	CTH408SCR1230-50 (CTH408SCR1230-60)
Electrical Requirements 230,50/60Hz, 3φ	N/A		17.1 A
Cat. No. 50Hz (60Hz)			CTH408SCR1230-50-3 (CTH408SCR1230-60-3)
Electrical Requirements 380v, 50/60Hz, 3φ			9.1 A
Cat. No. 50Hz (60Hz)			CTH408SCR1380-50-3 (CTH408SCR1380-60-3)

Accessory

Movable stainless wire shelves 2EA

Option

Digital recorder
2CH Hybrid recorder
Max temperature 150℃

Safety Device

Automatic reset function incoming power cut
Over temp protection
Electric leakage breaker
Door open lamp display
Fan motor over load protection
Refrigerator over load protection

-25℃ ~ 120℃ Temp&Humi Control Model Climate Chamber:



Model	SH-CTH-800SCR1	SH-CTH-1200SCR1
Temp Range	-25℃ ~ 120℃ (-13°F~248°F)	
Humi Range	30% ~ 99% at Temp 20℃ ~ 80℃(68°F~176°F) 25% ~ 95% at Temp 80℃ ~ 85℃(176°F~185°F) 20% ~ 80% at Temp 85℃ ~ 90℃(185°F~194°F)	
Accuracy & Stability Temp	±0.1℃	
Accuracy & Stability Humi	±1.5%	
Temp Uniformity	±0.5℃	
Humi Uniformity	±2%	
Temp & Humi Controller	Touch Screen Temp & Humi Controller-122p	
Sensor Temp	Pt-100Ω	
Sensor Humi	Electronic Sensor	
Dimension Internal (W×D×H)	1000x800x1000(mm) 39.37x31.50x39.37(inch)	1200x1000x1000(mm) 47.24x39.37x39.37(inch)
Dimension External (W×D×H)	1615x1325x2100(mm) 63.58x52.16x82.67(inch)	1790x1525x2100(mm) 70.47x60.03x82.67(inch)
Weight	495 Kg	570 Kg
Material Internal	Stainless Steel	
Material External	Steel Plate with Powder Heating Coated	
Shelves	2 Supplied (31 Maximum)	
Temp Heater Capa	3.0 KW	5.0 KW
Humi Heater Capa	4.0 KW	6.0 KW
Illumination	LED Lamp	
View Windows	Hot wire type glass	
Water Storage tank	Stainless Steel with Powder Heating Coated	
Electrical Requirements 230, 50/60Hz, 1Φ	N/A	
Cat. No. 50Hz (60Hz)		
Electrical Requirements 230, 50/60Hz, 3Φ	24.4 A	34.9 A
Cat. No. 50Hz (60Hz)	CTH800SCR1230-50-3 (CTH800SCR1230-60-3)	CTH1200SCR1230-50-3 (CTH1200SCR1230-60-3)
Electrical Requirements 380v, 50/60Hz, 3Φ	14.1 A	20.2 A
Cat. No. 50Hz (60Hz)	CTH800SCR1380-50-3 (CTH800SCR1380-60-3)	CTH1200SCR1380-50-3 (CTH1200SCR1380-60-3)

Accessory

Movable stainless wire shelves 2EA

Option

Digital recorder
2CH Hybrid recorder
Max temperature 150℃

Safety Device

Automatic reset function incoming power cut
Over temp protection
Electric leakage breaker
Door open lamp display
Fan motor over load protection
Refrigerator over load protection

-50℃ ~ 120℃ Temp&Humi Control Model Climate Chamber:



Model	SH-CTH-150SCR2	SH-CTH-288SCR2	SH-CTH-408SCR2
Temp Range	-50℃ ~ 120℃ (-58°F~248°F)		
Humi Range	30% ~ 99% at Temp 20℃ ~ 80℃(68°F~176°F) 25% ~ 95% at Temp 80℃ ~ 85℃(176°F~185°F) 20% ~ 80% at Temp 85℃ ~ 90℃(185°F~194°F)		
Accuracy & Stability Temp	±0.1℃		
Accuracy & Stability Humi	±1.5%		
Temp Uniformity	±0.5℃		
Humi Uniformity	±2%		
Temp & Humi Controller	Touch Screen Temp & Humi Controller-122p		
Sensor Temp	Pt-100Ω		
Sensor Humi	Electronic Sensor		
Dimension Internal (W×D×H)	500x500x600(mm) 19.69x19.69x23.62(inch)	600x600x800(mm) 23.62x23.62x31.50(inch)	850x600x800(mm) 33.46x23.62x31.50(inch)
Dimension External (W×D×H)	950x995x1595(mm) 37.40x39.17x62.79(inch)	1050x1095x1795(mm) 41.22x43.11x70.66(inch)	1300x1095x1845(mm) 51.18x43.11x72.63(inch)
Net Weight	268 Kg	355 Kg	420 Kg
Material Internal	Stainless Steel		
Material External	Steel Plate with Powder Heating Coated		
Shelves	2 Supplied (17 Maximum)	2 Supplied (24 Maximum)	2 Supplied (24 Maximum)
Temp Heater Capa	3.0 KW	3.0 KW	3.0 KW
Humi Heater Capa	2.0 KW	2.5 KW	4.0 KW
Illumination	LED Lamp		
View Windows	Hot wire type glass		
Water Storage tank	Stainless Steel with Powder Heating Coated		
Electrical Requirements 230,50/60Hz, 1Φ	33.1 A	35.4 A	43.8 A
Cat. No. 50Hz (60Hz)	CTH150SCR2230-50 (CTH150SCR1230-60)	CTH288SCR2230-50 (CTH288SCR1230-60)	CTH408SCR2230-50 (CTH408SCR2230-60)
Electrical Requirements 230,50/60Hz, 3Φ	N/A		25.3 A
Cat. No. 50Hz (60Hz)			CTH408SCR2230-50-3 (CTH408SCR2230-60-3)
Electrical Requirements 380v, 50/60Hz, 3Φ			14.6 A
Cat. No. 50Hz (60Hz)			CTH408SCR2380-50-3 (CTH408SCR2380-60-3)

Accessory

Movable stainless wire shelves 2EA

Option

Digital recorder
2CH Hybrid recorder
Max temperature 150℃

Safety Device

Automatic reset function incoming power cut
Over temp protection
Electric leakage breaker
Door open lamp display
Fan motor over load protection
Refrigerator over load protection

-50℃ ~ 120℃ Temp&Humi Control Model Climate Chamber:



Model	SH-CTH-800SCR2	SH-CTH-1200SCR2
Temp Range	-50℃ ~ 120℃ (-58°F~248°F)	
Humi Range	30% ~ 99% at Temp 20℃ ~ 80℃(68°F~176°F) 25% ~ 95% at Temp 80℃ ~ 85℃(176°F~185°F) 20% ~ 80% at Temp 85℃ ~ 90℃(185°F~194°F)	
Accuracy & Stability Temp	±0.1℃	
Accuracy & Stability Humi	±1.5%	
Temp Uniformity	±0.5℃	
Humi Uniformity	±2%	
Temp & Humi Controller	Touch Screen Temp & Humi Controller-122p	
Sensor Temp	Pt-100Ω	
Sensor Humi	Electronic Sensor	
Dimension Internal (W×D×H)	1000x800x1000(mm) 39.37x31.50x39.37(inch)	1200x1000x1000(mm) 47.24x39.37x39.37(inch)
Dimension External (W×D×H)	1615x1325x2100(mm) 63.58x52.16x82.67(inch)	1790x1525x2100(mm) 70.47x60.03x82.67(inch)
Net Weight	540 Kg	690 Kg
Material Internal	Stainless Steel	
Material External	Steel Plate with Powder Heating Coated	
Shelves	2 Supplied (31 Maximum)	
Temp Heater Capa	4.0 KW	6.0 KW
Humi Heater Capa	5.0 KW	7.0 KW
Illumination	LED Lamp	
View Windows	Hot wire type glass	
Water Storage tank	Stainless Steel with Powder Heating Coated	
Electrical Requirements 230,50/60Hz, 3φ	35.6 A	46.1 A
Cat. No. 50Hz (60Hz)	CTH800SCR2230-50-3 (CTH800SCR2230-60-3)	CTH1200SCR2230-50-3 (CTH1200SCR2230-60-3)
Electrical Requirements 380v, 50/60Hz, 3φ	20.6 A	26.7 A
Cat. No. 50Hz (60Hz)	CTH800SCR2380-50-3 (CTH800SCR2380-60-3)	CTH1200SCR2380-50-3 (CTH1200SCR2380-60-3)

Accessory

Movable stainless wire shelves 2EA

Option

Digital recorder
2CH Hybrid recorder
Max temperature 150℃

Safety Device

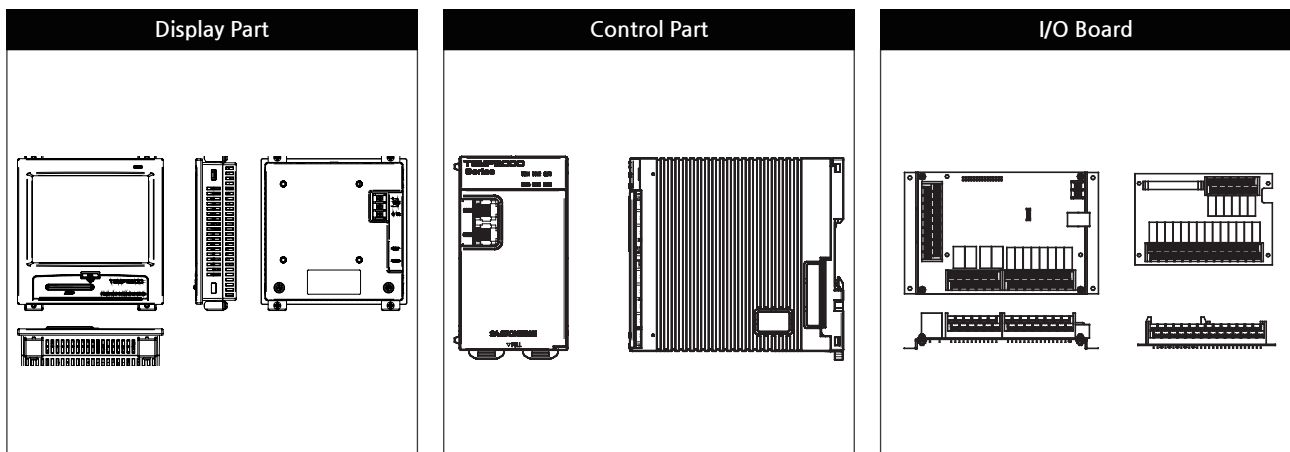
Automatic reset function incoming power cut
Over temp protection
Electric leakage breaker
Door open lamp display
Fan motor over load protection
Refrigerator over load protection

Programmable Controller Controller:



- Detachable display and control unit
- Heat and Cool Control Support
- Picture-like quality of the touch interface
- 18bit A / D converter through a high precision control
- 80 patterns, the 1200 segment operating various programs
- DI 16 points, DO 12 + 20(option) points built in
- Synchronous / asynchronous operation mode
- SYNC master controller
- Digital recorder function
- Users screen configuration support
- SD memory card support
- PC Software included for free of charge
- VESA Mounting Support
- Korean, English, Chinese, Japanese, Russian supported

TEMI2500 Drawing



Group			Specification
Display	Display		5.7" TFT-LCD
	Screen Resolution		640(W) x 480(H)
	Language		KOR/ENG/JPN, KOR/ENG/CHN, KOR/ENG/RUS
	Font		3 Font (HEAD/NORM/ART
	Start Page		Support user's start page
	User Screen		16 customized user screen for screen saver
	Mount Method		Panel mount, VESA mount(MIS-D 75)
Control Mode			Temp 1CH : Heat and Cool Support Humid 1CH : Humid and DE-Humid Support
Max Channel			2 Channel
Pattern & Segments			120 pattern / Max 1200 segments , Max 999hour 59Min 59Sec can be set
Input	Temp	PT1 100Ω	- 90.00 ~ 200.00℃
		PT2 100Ω	- 100.0 ~ 300.0℃
		DC voltage	- 1.000 ~ 2.000V
	Humid	PT1 100Ω	- 10.0 ~ 110.0℃
		DC voltage	1.000~5.000V
	Temp	PT1 100Ω	- 90.00 ~ 200.00℃
		PT2 100Ω	- 100.0 ~ 300.0℃
		DC voltage	- 1.000 ~ 2.000V
	Humid	PT1 100Ω	- 10.0 ~ 110.0℃
		DC voltage	1.000~5.000V
Output	Control Output		Temp & Humid MV (0 ~ 100%)
	Current Output		4~20mA DC(Load Resistance : Max 600Ω)
	Voltage Output		24V DC(pulse width : Minimum5ms)
	Transmission Output		Select PV, SP, MV of Temp & Humid
Digital Input	Contact Type		RUN/STOP/HOLD/STEP by DI, Pattern Number, Delay time of detecting DI error, Trouble Input by DI, Available to customize DI error
	Contact capacity		Max 12V DC, 10mA
Digital Output	Relay	C contact	Normal Open 30V DC 5A, 250V AC 5A Normal Close 30V DC 1, 250V AC 2A
		A contact	Normal Open 30V DC 3A, 250V AC 3A
	Open Collector		ON voltage across contacts at less than 2V, the leakage current less than 100 μA
Sampling Time			250ms
Accuracy			Temp(±0.1% ±1 digit of Full Scale), Humid(±1% ±1 digit of Full Scale)
PID Control	PID group		9 group(Temp, Humid PID 6 group + Only Temp PID 3 group)
	PID type		ZONE PID
Communication	Interface		Flexible to change between RS485/RS232C by Dip switch, Max. 31 nodes.
	Protocol		PC Link(Checksum), MODBUS(RTU,ASCII)
	Speed		Max 115,200 bps, Support Ethernet
Data Back-Up	Object		SDCard, MMC Card(FAT32 format)
	Functions		Back-up and restore data of Program Pattern / Parameter Settings, and SP/PV/MV vaule
Power Supply	Power		24VDC
	Power Consumption		22VA Max

Digital Recorder Options:



- Touch panel 5.7 Inch 640 x 480 TFT-LCD
- Universal input (Thermocouple, RTD, VDC)
- Trend view mode available
- 80MB internal memory and support SD/SDHC memory card
- RS 485/422 communication (Modbus, PC-link)

Suffix Code		
Model	Code	Information
GR200		Graphic recorder(applied touch panel function) 145(W) × 145(H) mm
Input channel	2	2 channels
	4	4 channels
	8	8 channels
	12	12 channels

Model	GR200
Number of channels	2, 4, 8, 12 (Refer to the type configuration)
Input type	2 thermoresistors (Pt-100, KPt-100) 12 thermocouples (K, J, E, T, R, B, S, L, N, U, Wre 5-26, PL-II) 4 VDC (-10 - 20 mV, 0 - 100 mV, 1 - 5V, 0 - 30 V)
Sampling period	250 ms
Current to measure the thermoresistor (RTD)	About 0.21 mA
Input resistor	Thermocouple : More than 1 MΩ, VDC : More than 1 MΩ
Allowable wiring resistor	Thermoresistor : Maximum 100Ω/wire (The RTD is up to 10Ω/wire for the range of -100.00 - .150.00) Thermocouple : Less than 200 Ω VDC : Less than 2 kΩ
Impact of the wiring resistor	Thermoresistor : ±0.3 °C/10 Ω (The 3 lines have the same wiring resistors)
Allowable input voltage	Thermocouple : Less than ±10 V DC, VDC : Less than ±33 V DC
Degree	±0.15 % of F.S, ±1 digit (Except the RJC temperature error) ※ Refer to the input table
The error in the reference junction compensation (RJC)	±2.0 °C (0 ~ 50 °C)
Sensor short detection (Burn-out)	UP-Scale for the short

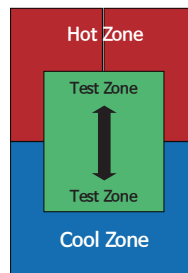
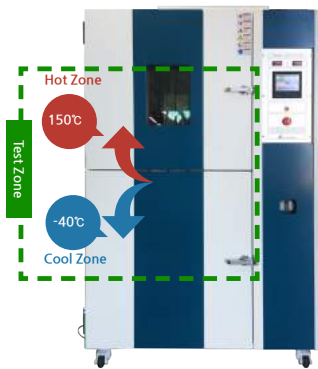
Hybrid Recorder Options:



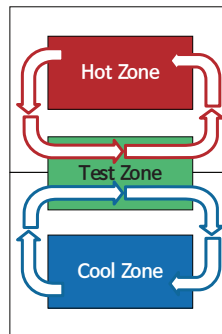
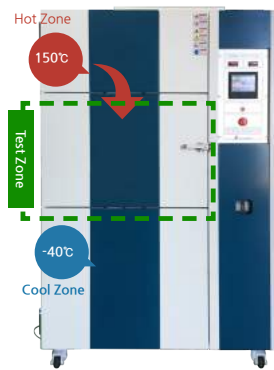
- 50mm thermal transfer method of paper recorder
- Data logger functions for recording without paper
- Supports RS485 communication and dedicated communication port to set or monitor parameters in real-time by PC/PLC
- Multi-input with high accuracy 0.2% level (RTD, TC, Analog)
- 2-channel simultaneous recording in graphic mode and digital mode
- High visibility and easy setting by LCD dot matrix
- Supports various option I/O functions
- Small size(W96×H96×L100 mm), light weight

Record accuracy		±0.5%F.S.
Alarm output		CH1(AL1, AL2), CH2(AL1, AL2) Relay out put(250 VAC/30 VDC 3 A 1 a)
Alarm output hysteresis		ON/OFF interval setting for alarm output: 1 to 999digit variable
Communication output		RS485 communication output(Modbus RTU protocol)
Set method		Setting by front keys
Sampling cycle		500 ms/channel x 2 channels = 1000 ms
Dielectric strength		2300 VAC 50/60 Hz for 1 min.(charging terminal of the other polarity)
Vibration		0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min.) in each of X, Y, Z directions for 1 hour
Relay life cycle		Mechanical: Over 5,000,000 operations, Electrical: Over 100,000 operations
Insulation resistance		Over 100 MΩ (at 500 VDC megger)
Noise resistance		Square shaped noise by noise simulator (pulse width 1 μs)±2 kV
Print	Method	Direct thermal line print
	Resolution	8 dot/mm
	Dots	384 dot/Line
	Life cycle	50 km
Record	Graphic mode	• Record speed(recording paper speed): 10, 30, 60, 120, 240, 480, 940 mm/hour • Memo cycle: 30 s, 1 m, 5 m, 10 m, 15 m, 30 m, 1 h, 2 h, 3 h, 4 h, 8 h, 16 h, 24 h
	Digital mode	TEXT mode record cycle: 00 m 05 s to 99 m 59 s
	Paper	Thermal Direct Receipt Paper (57 mm x 16 m)
	Paper supply method	Clamshell Type
	Language	Korean, English
Environment	Ambient temperature	0 to 50 °C, storage: -20 to 60 °C
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH
Approval		CE
Unit weight		Approx. 700 g

Thermal Shock Tester (-50℃ to 180℃)



2-Zone Type



3-Zone Type



Model	SH-TST27-2	SH-TST64-2	SH-TST27-3	SH-TST64-3
Type	Air to Air 2-Zone (Elevating type)		Air to Air 3-Zone (Air substitution type)	
Dimension Internal (WxDxH)	300 x 300 x 300(mm)	400 x 400 x 400(mm)	300 x 300 x 300(mm)	400 x 400 x 400(mm)
	11.8 x 11.8 x 11.8(inch)	15.7 x 15.7 x 15.7(inch)	11.8 x 11.8 x 11.8(inch)	15.7 x 15.7 x 15.7(inch)
Dimension External (WxDxH)	1130 x 1800 x 1845(mm)	1230 x 1900 x 2045(mm)	1130x1800x1820(mm)	1230x1900x2020(mm)
	44.4x 70.8 x 72.6(inch)	48.4 x 74.8 x 80.5(inch)	44.4x 70.8 x 71.6(inch)	48.4 x 74.8 x 79.5(inch)
Volume of chamber	27 L	62 L	27 L	62 L
Temp. controller	Touch screen TFT color programmable digital PID controller (TEMP2500S)			
Range	-50 ℃ ~ 180℃ (Cycle range -40 ℃ ~ 150℃, Variation : 5 min.)			
Heating up rate	Ambient +5℃ ~ 200℃ / 40 min.			
Cooling down rate	Ambient +5℃ ~ -70℃ / 40 min.			
Testing ramp	-50℃ to 150℃ / 5min, 150℃ to -50℃ / 5min			
Stability	≤±1.0℃			
Heater (Hot zone / Cool zone)	3 kW / 3 kW	6 kW / 4 kW	3 kW / 3 kW	6 kW / 4 kW
Compressor	2HP X 2 SET	3HP X 2 SET	3HP X 2 SET	5HP X 2 SET
Material (In)	Stainless steel plate (STS 304)			
Material (Out)	Steel plate with powder coating finished (SCP-1)			
Refrigeration system	Hermetic air cooled 2 Stage system			
Safety device	Electric leakage breaker, Over heat protector, Circulation motor over load relay : EOCR, Refrigeration HI/LOW pressure S/W, etc.			
Power source	AC 220 V or AC 380 V, 60 Hz, 1 Phase or 3 Phase			

I Option

Range : -70 ℃ ~ 180℃ (Cycle range -60 ℃ ~ 150℃, Variation : 5 min.)

Mobile alert system : A contact point (8 Point) alarm (SMS mobile alert supported, SMS-5CW)



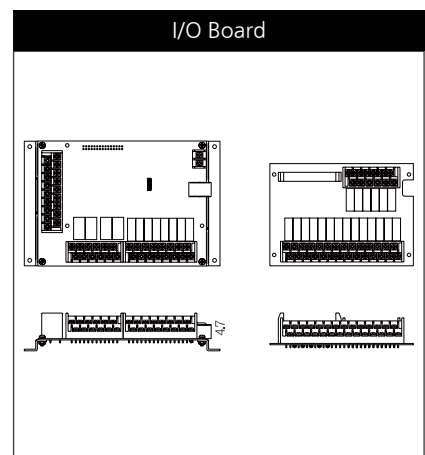
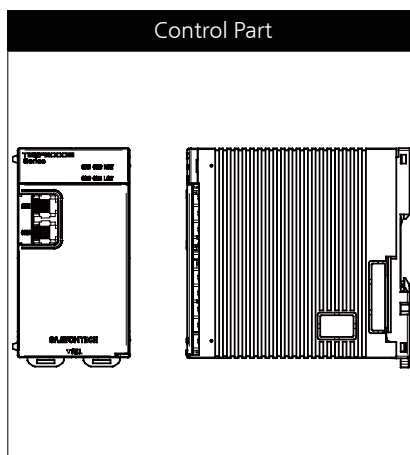
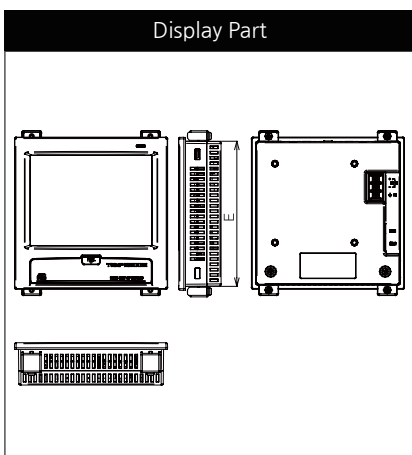
SMS-5CW SMS
Alarm system (Option)

Programmable Controller Controller:



- Detachable display and control unit
- The touch interface like the picture clear quality
- Digital recording function
- Various Pattern Operation(6 Pattern Type)
- Selectable for standby type in the first operation
- Supporting the diversified defrosting method (heater1, • heater2, hotgas, manual defrosting)
- DI 16Points, DO 12Points Support
- Function of input data calibration
- SD memory card support
- Multi language support (korean,english,chinese/korean,english,japanese)

TEMP2500S Drawing



Group		Specification
Display	Display	5.7" TFT-LCD
	Screen Resolution	640(W) x 480(H)
	Language	KOR/ENG/JPN, KOR/ENG/CHN, KOR/ENG/RUS
	Font	3 Font (HEAD/NORM/ART
	Start Page	Support user's start page
	User Screen	16 customized user screen for screen saver
	Mount Method	Panel mount, VESA mount(MIS-D 75)
Control Mode		1 Channel control
Max Channel		1 Channel
Pattern & Segments		120 Pattern / 6 Type, Max 999Hour 59Min 59Sec can be set
Input	Thermocouple	K, J, E, T, R, B, S, L, N, U, W, PL, C,
Output	Control Output	SSR, SCR
	Current Output	4~20mA DC(Load Resistance : Max 600Ω)
	Voltage Output	24V DC(pulse width : Minimum5ms)
	Transmission Output	High Temperature PV, Low Temperature PV, Experiment PV
Digital Input	Contact Type	RUN/STOP/HOLD/STEP by DI, Pattern Number, Delay time of detecting DI error, Trouble Input by DI, Available to customize DI error
	Contact capacity	Max 12V DC, 10mA
Digital Output	Relay	C contact Normal Open 30V DC 1A, 250V AC 1A Normal Close 30V DC 1A, 250V AC 1A
		A contact Normal Open 30V DC 1A, 250V AC 1A
	Open Collector	ON voltage across contacts at less than 2V, the leakage current less than 100μA
Sampling Time		250ms
Sampling Time		500ms
Accuracy		±0.1% + 1 digit of Full Scale
PID Control	PID group	Total 4 group(PID 3 group + deviation PID 1 group)
	PID type	Zone PID
Communication	Interface	Flexible to change between RS485/RS232C by Dip switch, Max. 31 nodes.
	Protocol	PC Link, PC Link(Checksum), MODBUS RTU, MODBUS ASCII
	Speed	Max 115,200 bps, Support Ethernet
Data Back-Up	Object	SDCard, MMC Card(FAT32 format)
	Functions	Back-up and restore data of Program Pattern / Parameter Settings, and High Temperature PV,SP/ Low Temperature PV,SP/ Experiment PV,SP value
Power Supply	Power	24VDC
	Power Consumption	22VA Max
Operating environment		-
Weight		1.30 kg

Water Bath

14



WATER BATH

General-Purpose Water Bath

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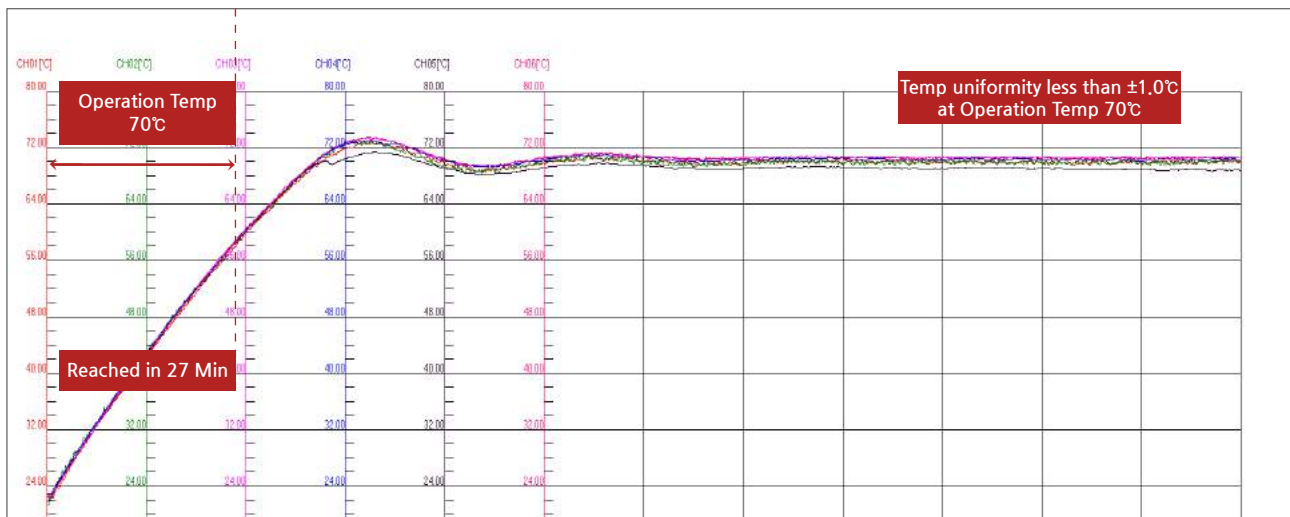
Digital Dry Bath.....189

General-Purpose Water Bath

-Feature

This unit is for heating materials in a gradual manner until it reaches a certain temperature. It can also be used for keeping materials warm over a certain set period. It is commonly used in cooking, scientific researches and other related industries concerned with this function.

Uniformity sheet



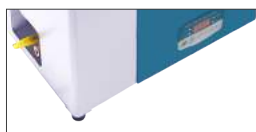
Feature



Stainless steel



Drain port



Prevention of slipperiness
rubber foot



Safety devices
heater cover



Digital PID controller

General-Purpose Water Bath:



Model	SH-WB-6GDN	SH-WB-11GDN	SH-WB-22GDN
Temp Range	Ambient +5℃ to 99℃ (Ambient + 9°F to 210°F)		
Temp Controller	Digital PID Controller		
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Display		
Capa	6 L	11 L	22 L
Dimension Internal (W×D×H)	300x150x150(mm)	300x240x150(mm)	500x295x150(mm)
	11.81x5.90x5.90(inch)	11.81x9.45x5.90(inch)	19.69x11.61x5.90(inch)
Dimension External (W×D×H)	340x190x295(mm)	330x270x295(mm)	535x330x295(mm)
	13.38x7.48x11.61(inch)	12.99x10.62x11.61(inch)	21.06x12.99x11.61(inch)
Net weight	6 Kg	6.8 Kg	8.5 Kg
Material Internal	Stainless Steel		
Material External	Steel Plate With Powder Heating Coated		
Material Lid	Stainless Steel		
Heater Capa	600 W	1000 W	2000 W
Circulation Pump	None		
Drain Valve	None		Yes
Electrical Requirements 120V ,50/60Hz, 1Φ	5.1 A	8.6 A	17.4 A
Cat. No.	WB6GDN120	WB11GDN120	WB22GDN120
Electrical Requirements 230V,50/60Hz, 1Φ	2.7 A	4.5 A	9.1 A
Cat. No.	WB6GDN230	WB11GDN230	WB22GDN230

Accessory

Heater cover
Bath Lid

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Electric leakage circuit breaker

Economy Model

General-Purpose Water Bath:



Model	SH-WB-6GAN	SH-WB-11GAN	SH-WB-22GAN
Temp Range	Ambient +5℃ to 99℃ (Ambient + 9°F to 210°F)		
Temp Controller	Temp Dial Controller		
Capa	6 L	11 L	22 L
Dimension Internal (W×D×H)	300x150x150(mm)	300x240x150(mm)	500x295x150(mm)
	11.81x5.90 x5.90(inch)	11.81x9.45x5.90(inch)	19.69x11.61x5.90(inch)
Dimension External (W×D×H)	340x190x295(mm)	330x270x295(mm)	535x330x295(mm)
	13.39x7.48x11.61(inch)	12.99x10.62x11.61(inch)	21.06x12.99x11.61(inch)
Net weight	6 Kg	6.8 Kg	8.5 Kg
Material Internal	Stainless Steel		
Material External	Steel Plate With Powder Heating Coated		
Material Lid	Stainless Steel		
Heater Capa	600 W	1000 W	2000 W
Circulation Pump	None		
Drain Valve	None		Yes
Electrical Requirements 120V, 50/60Hz, 1Φ	5.1 A	8.6 A	17.4 A
Cat. No.	WB6GAN120	WB11GAN120	WB22GAN120
Electrical Requirements 230V, 50/60Hz, 1Φ	2.7 A	4.5 A	9.1 A
Cat. No.	WB6GAN230	WB11GAN230	WB22GAN230

Accessory

Heater cover
Bath Lid

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived
Electric leakage circuit breaker



General-Purpose Oil Bath:

A General-Purpose Oil Bath is made for samples that requires a temperature higher than 100°C. This is not respected by water's boiling point at 100°C. To accommodate this need, this equipment can process on a higher temperature upto 300°C.

It is commonly used in the fields of culinary, scientific researches and other related industries.



Model	SH-WB-10GDH	SH-WB-20GDH	SH-WB-40GDH
Temp Range	Ambient +10°C to 300°C (Ambient +18°F to 572°F)		
Temp Controller	Digital PID Controller		
Capa	13 L	24 L	48 L
Dimension Internal (W×D×H)	250x300x170(mm)	350x400x170(mm)	600x400x200(mm)
	9.84x11.81x6.69(inch)	13.78x15.75x6.69(inch)	23.62x15.75x7.87(inch)
Dimension External (W×D×H)	635x385x345(mm)	732x485x345(mm)	1035x500x390(mm)
	25.00x15.15x13.58(inch)	28.81x19.09x13.58(inch)	40.74x19.68x15.35(inch)
Weight	21 Kg	29 Kg	38 Kg
Material Internal	Stainless Steel		
Material External	Steel Plate With Powder Heating Coated		
Heater Capa	2 KW	3.5 KW	4.8 KW
Electrical Requirements 120V ,50/60Hz, 1Φ	17.3 A	30.7 A	44.1 A
Cat. No.	WB10GDH120	WB20GDH120	WB40GDH120
Electrical Requirements 230V,50/60Hz, 1Φ	9.0 A	16.0 A	23.0 A
Cat. No.	WB10GDH230	WB20GDH230	WB40GDH230

Accessory

Heater cover
Bath Lid

Safety Device

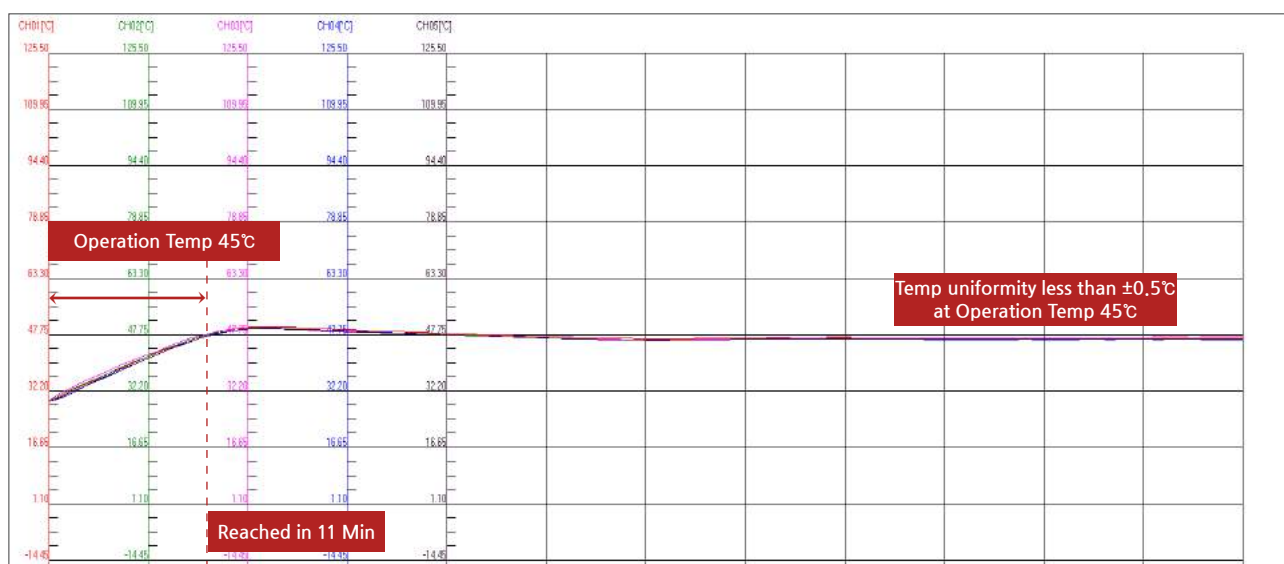
Automatic reset function incoming power cut
Buzzer on when set time arrived
Electric leakage circuit breaker
Over temperature protection

Circulating Water Bath

-Feature

Circulating Water Bath contains both a circulation pump and a series of input-output nozzles in order to supply uniform water temperature to a specified storage tank. With its powerful circulation and the distribution degree of constant temperature in the bath is sufficient. Also, a circulation with an external device such as an evaporator is made possible through this model.

Uniformity sheet



Feature



External port
(IN and OUT)



Stainless steel



Drain valve



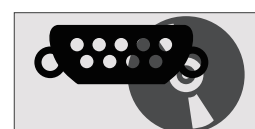
Prevention of slipperiness
rubber foot



Safety devices



Digital PID controller



RS-485
or
RS-232C interface



Circulating Water Bath:



Model	SH-WB-11CDN	SH-WB-22CDN	SH-WB-48CDN
Temp Range	Ambient +5℃ to 99℃ (Ambient + 9°F to 210°F)		
Temp Controller	Digital PID Controller		
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Display		
Capa	10.8 L	21.8 L	48 L
Heater Capa	800 W	1500 W	4000 W
Dimension Internal (W×D×H)	240x300x150(mm)	290x500x150(mm)	600x400x200(mm)
	9.45x11.81x5.90(inch)	11.42x19.69x5.90(inch)	23.62x15.75x7.87(inch)
Dimension External (W×D×H)	340x390x470(mm)	335x600x470(mm)	1005x485x440(mm)
	13.38x15.35x18.50(inch)	13.18x23.62x18.05(inch)	39.56x19.09x17.32(inch)
Top Open (W×D)	240x124(mm)	293x265(mm)	600x400(mm)
	9.45x4.88(inch)	11.54x10.44(inch)	23.62x15.75(inch)
Net weight	7 Kg	13 Kg	33 Kg
Material Internal	Stainless Steel		
Material External	Steel Plate With Powder Heating Coated		
Electrical Requirements 120V ,50/60Hz, 1φ	6.7 A	12.5 A	33.3 A
Cat. No.50 (60Hz)	WB11CDN120-50 (WB11CDN120-60)	WB22CDN120-50 (WB22CDN120-60)	WB48CDN120-50 (WB48CDN120-60)
Electrical Requirements 230V ,50/60Hz, 1φ	3.5 A	6.5 A	17.4 A
Cat. No.50 (60Hz)	WB11CDN230-50 (WB11CDN230-60)	WB22CDN230-50 (WB22CDN230-60)	WB48CDN230-50 (WB48CDN230-60)

| Accessory
Bath Lid

| Option
RS-485 interface
RS-232C interface

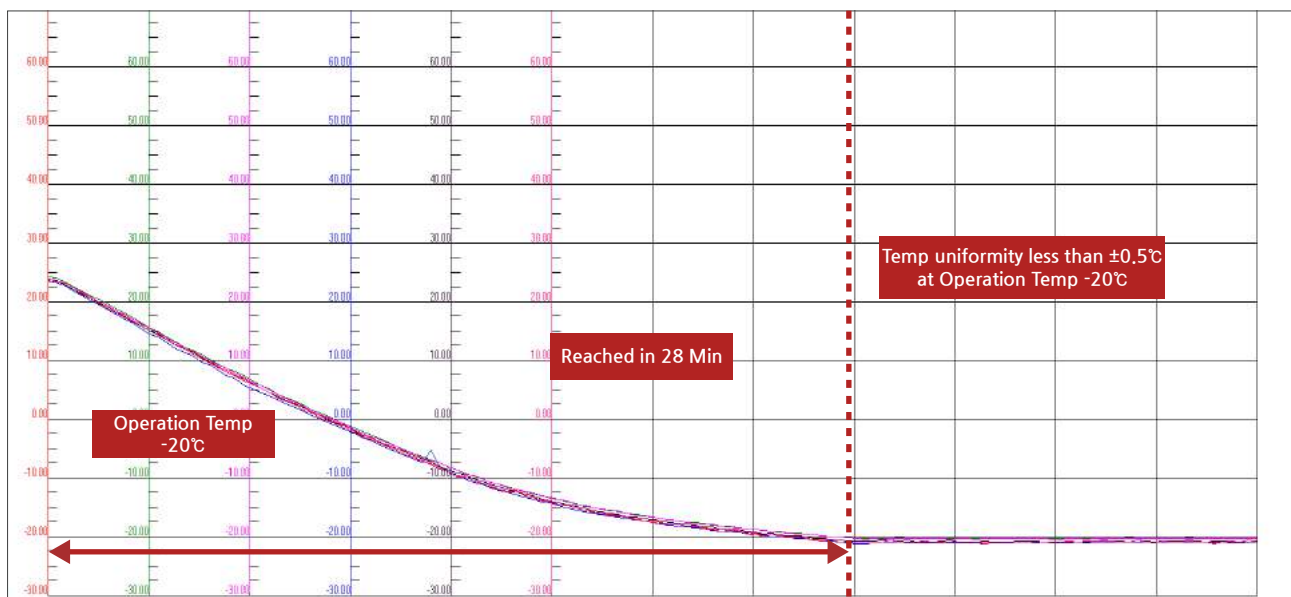
| Safety Device
Automatic reset function incoming power cut
Buzzer on when set time arrived
Electric leakage circuit breaker
Over temperature protection

Refrigerated Circulating Bath

-Feature

A Refrigerated Circulating Bath is a version of the General Purpose Water Bath that comes with a cooling function. It is used in keeping materials cooled over a certain set period. This application can be actualized in cooking, scientific researches and other related industries.

Uniformity sheet



Feature



External circulation port
(IN and OUT)



Stainless steel



Silicone drain hose with
metal cap



Safety devices



Digital PID controller



RS-485
or
RS-232C interface



Refrigerated Circulating Bath:



Model	SH-WB-7CDR	SH-WB-13CDR	SH-WB-22CDR	SH-WB-48CDR
Temp Range	-20℃ to 150℃ (Option : -40℃ Cool Down System)			-20℃ to 65℃ (Option : -40℃ Cool Down System)
Temp Controller	Microprocessor membrane Digital PID Controller			
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter			
Capa	6.8 L	11.3 L	22L	48L
Heater Capa	1.5 KW	1.8 KW	2.2 KW	3.2 KW
Dimension Internal (W×D×H)	150x300x150(mm)	250x350x150(mm)	350x420x150(mm)	600x400x200(mm)
	5.91x11.81x5.90(inch)	9.84x13.78x5.90(inch)	13.78x16.54x5.90(inch)	23.62x15.67x17.91(inch)
Dimension External (W×D×H)	320x405x675(mm)	420x455x715(mm)	520x525x805(mm)	735x755x965(mm)
	12.60x15.94x26.57(inch)	16.54x17.91x28.15(inch)	20.47x20.67x31.69(inch)	28.93x29.72x37.99(inch)
Top Open (W×D)	150x120(mm)	250x165(mm)	350x235(mm)	600x400(mm)
	5.91x4.72(inch)	9.84x6.50(inch)	13.78x9.25(inch)	23.62x15.75(inch)
Net weight	44 Kg	53 Kg	80 Kg	123 Kg
Material Internal	Stainless Steel			
Material External	Steel Plate With Powder Heating Coated			
Electrical Requirements 230V ,50Hz, 1Φ	6.5 A	7.8 A	9.6 A	13.9 A
Cat. No.	WB7CDR230-50	WB13CDR230-50	WB22CDR230-50	WB48CDR230-50
Electrical Requirements 230V ,60Hz, 1Φ	6.5 A	7.8 A	9.6 A	13.9 A
Cat. No.	WB7CDR230-60	WB13CDR230-60	WB22CDR230-60	WB48CDR230-60

| Accessory
Bath Lid

| Option
RS-485 interface
RS-232C interface

| Safety Device
Automatic reset function incoming power cut
Buzzer on when set time arrived
Electric leakage circuit breaker
Over temperature protection
Refrigerator over load protection

Recirculating Chiller

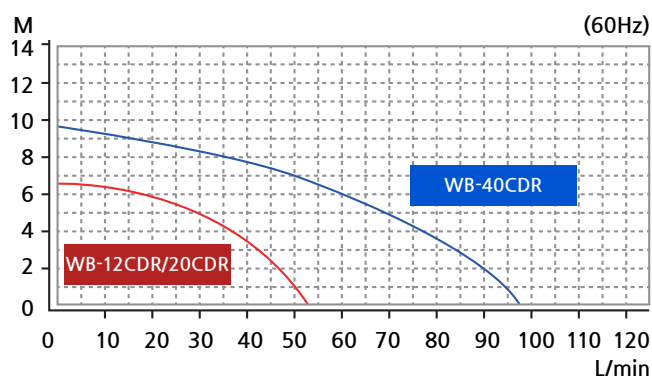
-Feature

This equipment is a device that connects to all equipment requiring evaporator and other condensing to supply cooling water. It has a powerful cooling power and circulating ability to achieve a perfect and fast condensing effect. A reservoir with easy structure for observation and cleaning has maximized the durability of the equipment and the user's ease of use.

Cooling capacity

Model	WB-12CDR					WB-20CDR					WB-40CDR				
110V / 60Hz															
Evaporating temperature		Cooling capacity			Evaporating temperature		Cooling capacity								
℃	℉	Btu/h	Kal/h	W	℃	℉	Btu/h	Kal/h	W						
-40	-40	1067	269	313	-40	-40	1770	446	519						
-35	-31	1486	375	436	-35	-31	2472	623	724						
-30	-22	1983	500	581	-30	-22	3279	826	961						
-25	-13	2564	646	751	-25	-13	4192	1056	1228						
-20	-4	3235	815	948	-20	-4	5210	1313	1527						
-15	5	4003	1009	1173	-15	5	6333	1596	1856						
-10	14	4874	1228	1428	-10	14	7563	1906	2216						
220V / 60Hz															
Evaporating temperature		Cooling capacity			Evaporating temperature		Cooling capacity			Evaporating temperature		Cooling capacity			
℃	℉	Btu/h	Kal/h	W	℃	℉	Btu/h	Kal/h	W	℃	℉	Btu/h	Kal/h	W	
-40	-40	1199	302	351	-40	-40	1824	460	535	-40	-40	2910	734	852	
-35	-31	1528	385	448	-35	-31	2467	622	723	-34	-30	5110	1288	1497	
-30	-22	1961	494	575	-30	-22	3281	827	961	-32	-25	6380	1608	1869	
-25	-13	2499	630	732	-25	-13	4276	1077	1253	-26	-15	9320	2350	2371	
-20	-4	3140	791	920	-20	-4	5464	1377	1601	-21	-5	12800	3227	3751	
-15	5	3886	979	1139	-15	5	6859	1728	2010	-15	5	16800	4263	4924	
-10	14	4736	1193	1388	-10	14	8470	2135	2482	-12	10	19100	4816	5578	

Recirculating pump curve



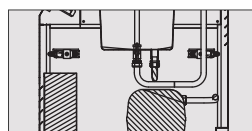
Feature



Equipment for
supplying cooling water.
&
powerful cooling power



Digital controller



Effects of durability
of equipment and
user convenience



Easy structure for
observation and cleaning

Recirculating Chiller:



Model		SH-WB-12CDR	SH-WB-20CDR	SH-WB-40CDR
Temp Range		-40°C to Ambient		
Temp Controller		Microprocessor membrane digital controller		
Temp Accuracy & Stability		±2.0°C		
Cooling Capacity		please see the 193 page		
Reservior Capa		12.5 L	20 L	40 L
Recirculating Pump	Max flow	50 L / Min		95 L / Min
	Max pressure	9.2 psi		14 psi
Dimension External (W×D×H)		610x655x755(mm)	650x715x905(mm)	830x755x995(mm)
		24.01x25.78x29.72(inch)	25.59x28.14x35.62(inch)	32.67x29.72x39.17(inch)
Weight		80 Kg	100 Kg	140 Kg
Material reservior		Stainless Steel		
Material External		Steel Plate With Powder Heating Coated		
Electrical Requirements 120V ,60Hz, 1Φ		6.2 A	8.3 A	N/A
Cat. No.		WB12CDR120-60	WB20CDR120-60	N/A
Electrical Requirements 230V ,60Hz, 1Φ		3.0 A	4.5 A	8.0 A
Cat. No.		WB12CDR230-60	WB20CDR230-60	WB40CDR230-60

Accessory

Reservior Lid

Safety Device

Automatic reset function incoming power cut
Electric leakage circuit breaker
Refrigerator over load protection

Water Bath with Gable Cover/ Concentric Ring Cover:

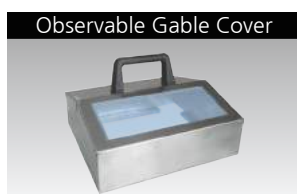


Model (Water Baths with Concentric Ring Cover)	SYG-1210	SYG-1220	SYG-1230
Model (Water Baths with Gable Cover)	SY-1210	SY-1220	SY-1230
Temp. Range	Ambient +5°C~99°C		
Temp. Uniformity	±0.3°C		
Temp. Fluctuation	±0.3°C		
Temp. Resolution	0.1°C		
Number of pores of Water Bath Pot	2		6
Reservoir Dimension	49/72/94/114/140mm		
Reservoir Volume	6L	10L	20L
Outside Dimension (W×D×H)	400x225x370mm	400x312x370mm	400x572x370mm
Internal Dimension (W×D×H)	270x130x140mm	270x200x140mm	270x450x140mm
Maximum Power	600W	600W	1200W
Power Supply	220V, 60Hz		
Overheating Protection	Yes		
Low Water Level Protection	Yes		
Audible and Visual Alarm	Yes		
Drainage	No	Yes	Yes

Accessories



Part Number	Applicable Product Type	Material	Note
SY-1210-01	SY-1210	Body: Stainless Steel Window: Plaxi Glass	Transparent Area:274x48mm



Part Number	Applicable Product Type	Material	Note
SY-1220-01	SY-1220	Body: Stainless Steel Window: Plaxi Glass	Transparent Area:274x90mm



Part Number	Applicable Product Type	Material	Note
SY-1230-01	SY-1230	Body: Stainless Steel Window: Plaxi Glass	Transparent Area:474x120mm

Mini Water Bath:



Description

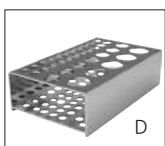
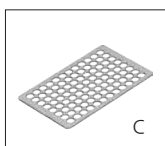
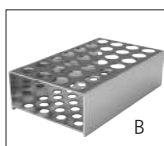
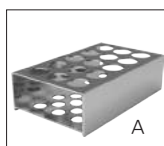
This mini Water Bath is a high-precision, intelligent temperature instrument which is widely used in colleges and universities, medical, chemical, pharmaceutical and other scientific research. Coupled with sophisticated micro-computer temperature control system, this instrument provides high precision and accurate temperature control. Automatic overheating device is also available to prevent dry burning and over heating.

Features

- Designed with a small footprint
- Microprocessor-controlled
- Overheating alarm
- Models WB-01A & WB-01E are available with a programmable feature
- Various types of tube holders are available to meet the needs of every customer

Model	WB-02
Temp. Range	Ambient +5°C~95°C
Temp Uniformity	±0.3°C (@37°C)
Max.Capacity	240ml
Programming	N/A
Display	LED
Timer	N/A
Max.Power	90W
Ambient Temperature	5~40°C
Protection Level	IP21
Outside Dimensions(WxDxH)	262x143x96mm
Power Supply	220V, 60Hz
Weight	1.2 kg
Standard Configure	WBA13

Accessories



Name	Part Number	Hold Size
Tube Holder A	WBA10	5ml(15xØ13.5mm)
Tube Holder B	WBA11	1.5ml(28xØ11mm)
Tube Holder C	WBA12	0.2ml(96xØ7.6mm)
Tube Holder D	WBA13	5ml, 1.5ml, 0.2ml(5xØ13.5mm, 7xØ11mm, 22xØ7.6mm)

Name	Part Number
Insulation cover	DBA05

Digital Dry Bath:



Description

CTI's digital dry baths are microprocessor controlled with an automatic PID temperature control program, providing accurate and uniform temperature distribution across the thermal block. Digital dry bath are ideal tools for a wide variety of life science, clinical and general chemistry applications.

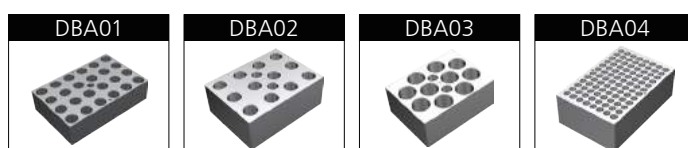
Muti-block dry bath are used in various applications, including enzyme reactions, inactivation of sera, Rh studies, blood cross-matching and cholesterol determinations. This unit is controlled by microcomputer which makes the temperature more stable and accurate.

Features

- Microprocessor controlled with digital display
- High quality aluminum block and heating elements provide excellent temperature uniformity
- Safe operation with a reliable overheating alarm and automatic shut off
- Easy calibrated for accurate temperature control and display
- Programmable multi-section controls enable a variety of incubation experiments
- Quick and easy temperature adjustment; Overheating safety switch
- A variety of block type available to suit every customers needs

Model	DB-02
Temp. Range	Ambient +5°C~120°C
Temp. Fluctuation	@50~100°C: ≤±0.15°C, @100.1~120°C: ≤±0.2°C
Max. temp. difference	@40°C: 0.3°C
Heating up Time	Ambient temp 20°C to 120°C: ≤15min
Temp. Uniformity	@40°C: ≤±0.3°C
Temp. Accuracy	0.1°C
Display	LED
Control	1
Timer	N/A
IP class	IP21
No. of block	1
Ambient	50°C~40°C
Relative Humidity	≤85%
Outside Dimensions(WxDxH)	262X143X96mm
Power	100W
Power Supply	220V, 60Hz
Weight	1.2 kg

Accessories



Name	Part Number	Specifications	Hold Size
Aluminum module	DBA01	118x78x31.5mm	5ml(24-Φ13.5mm)
	DBA02	59x78x30mm	2ml(12-Φ11mm)
	DBA03	59x78x30mm	10ml(10-Φ16.5mm)
	DBA04	118x78x40mm	0.2ml(96-Φ7.6mm)



Name	Part Number
Insulation cover	DBA05

Mixer & Mini Centrifuges

15

MIXER & MINI CENTRIFUGES

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Mini Centrifuges.....	211

Tube Revolvers:



Description

The tube revolver can be used in a variety of laboratory fields such as Molecular Biology, Biochemistry, Clinical, and Histochemistry. The rotisseries are interchangeable so that the unit works with a variety of tube sizes. The four rotisserie paddles can be mixed for a combination of different tubes. Each paddle direction can be independently adjusted from 0-90 degrees.

In addition to the speed adjustability and digital display, Model HYQ-1131 can be programmed to operate in a back and forth oscillating mode, simulating the mixing process by hand. Oscillation occurs at every 40 degrees in the rotation. The combination of rotation and oscillation mixes liquid more effectively.

Features

- Small footprint, "Plug and Play" operation
- Includes five different interchangeable rotisseries
- Rotation direction can be changed by slightly touching the rotisseries
- Paddle angle is adjustable for different mixing purposes
- High quality, maintenance-free motor with quiet operation

Model	TR-01	TR-02U
Product Name	Invariable Speed Tube Revolver	Variable Speed Tube Revolver with Digital Display
Rotation Speed	18rpm	10~40rpm
Capacity	42x0.5ml tubes, 30x1.5ml/2.0ml tubes, 14x5ml/7ml tubes, 14x10ml tubes, 6x50ml tubes	
Standard Configuration	(Holder for Tubes): 2PCS TRA01, 2PCS TRA02, 2PCS TRA03, 2PCS TRA04, 1PCS TRA05	
Ambient	4~60°C	
Outside Dimensions(WxDxH)	225x148x195mm	260x148x195mm
Power	4W	10W
Power Supply	220V, 60Hz	
Weight	0.8 kg	1.2 kg

Accessories for Tube Revolvers (• Can single buy.)



Name	Part Number	PCS/Pack
Rotisserie Paddles for 10ml/15ml Tubes	TRA01	2



Name	Part Number	PCS/Pack
Rotisserie Paddles for 5ml/7ml Tubes	TRA02	2



Name	Part Number	PCS/Pack
Rotisserie Paddles for 1.5ml/2ml Tubes	TRA03	2



Name	Part Number	PCS/Pack
Rotisserie Paddles for 0.5ml/0.8ml Tubes	TRA04	2



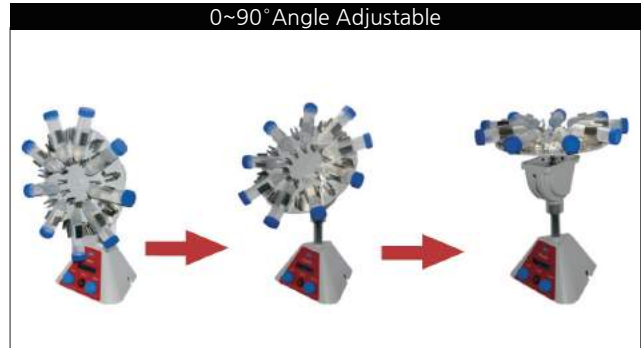
Name	Part Number	PCS/Pack
Rotisserie Paddles for 50ml Tubes	TRA05	1



Name	Part Number	PCS/Pack
Magnetic Platform	TRA07	1



Tube Rotator:



Description

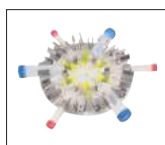
The tube rotator is an ideal instrument for numerous applications where high efficiency and consistent mixing are needed. A common place for this instrument is clinical, research and teaching laboratories. This instrument is available in an economical fixed speed model and a variable speed model with timer.

Features

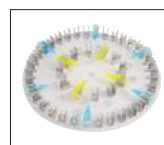
- Circular rotating action, gives gentle but effective mixing
- Designed with a small footprint
- Various types of tube holders are available to meet the needs of every customer
- Cold room and incubator compatible

Model	TR-03	TR-04U
Product Name	Standard Tube Rotator	Digital Tube Rotator
Speed Range	20rpm	2~80rpm
Tilt Angle	0~90°	
Display	N/A	LCD
Timer	N/A	0~99h59min
Rotating Disk Diameter	Ø250mm	
Max. Load	12X50ml(Ø250mm)	
Material	Aluminum 6061T6/Flexible plastic/Stainless steel	
Tube Holder	1.5ml~50ml	
Ambient	5℃~40℃	
Relative Humidity	≤80%	
Outside Dimensions(WxDxH)	250x220x405mm	
Protection Level	IP21	
Power Supply	220V, 60Hz	

Accessories



Name	Part Number	Capacity
Working Plate for Multi-Tubes (φ250mm)	TRA19	9x50ml/ 9x15ml/ 12x2ml



Name	Part Number	Capacity
Working Plate for 2ml Tubes (φ250mm)	TRA20	48x2ml



Name	Part Number	Capacity
Working Plate for 15ml Tubes (φ250mm)	TRA21	18x15ml



Name	Part Number
Tube Holders for 50ml Tubes (φ250mm)	TRA15
Tube Holders for 15ml Tubes (φ250mm)	TRA16
Tube Holders for 2ml Tubes (φ250mm)	TRA17



Name	Part Number	Capacity
Working Plate for 50ml Tubes (φ250mm)	TRA22	12x50ml

High profile Tube Rotator:



Description

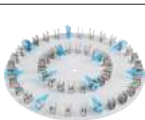
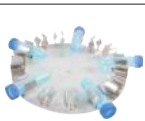
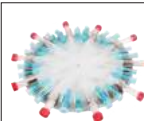
The high profile tube rotator is a versatile instrument able to accommodate a wide range of tube sizes, mixing speeds & angles to accomplish many mixing applications.

Features

- Digital microprocessor control
- Adjustable speed provides gentle or vigorous mixing action
- Adjustable angled head offers mixing angles from 95°~180°
- Timer features both time up and time down counting modes
- Continue to run by last set speed and the remaining time when the power recovered
- Audible and visual alarm: In timed mode, alarm will sound 5 times and then the time window shows "End" and flicker 5 times when the time reaches zero, then alarm stops

Model	TR-05U
Speed Range	5~80rpm
Speed Accuracy	1rpm
Carousel Angle	95°~180° (6PCS: 95° 112° 129° 146° 163° 180°)
Timer	0~99h59min
Platform Dimensions	15x50ml (Rotary plate) (Diameter) Φ 290mm
Display	LED
Carousel Capacity	50x9~11mm (1.5/2ml), 30x14~18mm (15ml) 15x27~34mm (50ml), 10x10~15ml, 20x5~7mm 64x18.5mm, 64x14mm
Outside Dimensions (WxDxH)	440x296x466mm
Power Supply	220V, 60Hz
Weight	8.1 kg

Accessories

	<table><tr><th>Name</th><th>Part Number</th><th>Capacity</th></tr><tr><td>1.5/2.0ml rotator assembly</td><td>TRA23</td><td>50x1.5ml/ 50x2ml</td></tr></table>	Name	Part Number	Capacity	1.5/2.0ml rotator assembly	TRA23	50x1.5ml/ 50x2ml		<table><tr><th>Name</th><th>Part Number</th><th>Capacity</th></tr><tr><td>15ml rotator assembly</td><td>TRA24</td><td>30x15ml</td></tr></table>	Name	Part Number	Capacity	15ml rotator assembly	TRA24	30x15ml
Name	Part Number	Capacity													
1.5/2.0ml rotator assembly	TRA23	50x1.5ml/ 50x2ml													
Name	Part Number	Capacity													
15ml rotator assembly	TRA24	30x15ml													
	<table><tr><th>Name</th><th>Part Number</th><th>Capacity</th></tr><tr><td>50ml rotator assembly</td><td>TRA25</td><td>15x50ml</td></tr></table>	Name	Part Number	Capacity	50ml rotator assembly	TRA25	15x50ml		<table><tr><th>Name</th><th>Part Number</th><th>Capacity</th></tr><tr><td>10/15ml + 5/7ml assembly</td><td>TRA26</td><td>10x10ml/ 10x15ml + 20x5ml 20x7ml</td></tr></table>	Name	Part Number	Capacity	10/15ml + 5/7ml assembly	TRA26	10x10ml/ 10x15ml + 20x5ml 20x7ml
Name	Part Number	Capacity													
50ml rotator assembly	TRA25	15x50ml													
Name	Part Number	Capacity													
10/15ml + 5/7ml assembly	TRA26	10x10ml/ 10x15ml + 20x5ml 20x7ml													
	<table><tr><th>Name</th><th>Part Number</th><th>Capacity</th></tr><tr><td>Drum for 14mm culture tubes Dia.14mm</td><td>TRA27</td><td>64x14ml</td></tr></table>	Name	Part Number	Capacity	Drum for 14mm culture tubes Dia.14mm	TRA27	64x14ml		<table><tr><th>Name</th><th>Part Number</th><th>Capacity</th></tr><tr><td>Drum for 18.5mm culture tubes Dia.18.5mm</td><td>TRA28</td><td>64x18.5ml</td></tr></table>	Name	Part Number	Capacity	Drum for 18.5mm culture tubes Dia.18.5mm	TRA28	64x18.5ml
Name	Part Number	Capacity													
Drum for 14mm culture tubes Dia.14mm	TRA27	64x14ml													
Name	Part Number	Capacity													
Drum for 18.5mm culture tubes Dia.18.5mm	TRA28	64x18.5ml													

Mini Roller:



Description

The Mini Roller is used for liquid mixing, cell cultures, hybridization, and more. It can operate in a variety of environment including the bench top, regular incubators as well as CO₂ incubators. Additional rollers can be added, up to a total of 11. The different spacing of the rollers allows the user to use a variety of different size tubes and bottles.

Features

- Variable speed to accommodate numerous applications
- Anti-corrosive and wear-resistant construction for use in humid and CO₂ environments
- Easy to add or remove rolls to fit different sized tubes or bottles
- Stackable mechanism allows two units to be stacked for space savings
- Remote control box makes it easy to operate the unit while it is in an incubator

Model	MR-01U	MR-02U	MR-03U
Product Name	Stackable Mini Roller	Standard Mini Roller	3D Mini Roller
Roller Bars	6bars(Optional 11)		11bars
Roller Speed	0.5~80rpm		
Operating Mode	Way forward		
Roller Dimensions(DxL)	Φ28mmx259mm		
Swing of Roller Bars	N/A		18mm
Available Tubes or Bottles	≤Φ120 Max. Ø120mm bottles; tubes		
Positions	3PCS 1500ml		
Max.Load	6.5kg		
Ambient	5℃~60℃		
Relative Humidity	≤95%		
Display	LED		
Timer (Control Box)	0~999min or continuous		
Outside Dimensions(WxDxH)	378mmx360x72mm		
Power	10W		
Power Supply	220V, 60Hz		
Weight	6.5kg		
Stacking	Optional	N/A	Optional

Accessories



Name	Part Number	Note
Roller	MRA01	N/A



Name	Part Number	Note
3D Rocker Roller	MRA07	N/A



Name	Part Number	Note
O Ring	MRA02	1 Set 20PCS 23.5x3.6



Name	Part Number	Note
O Ring	MRA03	1 Set 20PCS 13.2x2.7



Name	Part Number	Note
Bar for Stacking	MRA04	1 Set 4PCS



Name	Part Number	Note
Control Box	MRA05	1PCS

Vortex Mixers:

Vortex Mixer with Digital Controller
Timer and Analog Adjusted Speed
VM-01U



Vortex Mixer with Digital
Controlled Timer and Speed
VM-02U



Description

Vortex Mixers are essential research lab instruments used for mixing & stirring in a variety of applications. Our strict quality control and manufacturing processes ensure every silentshaker[®] vortex mixer is precise, accurate and easy to use. These mixers conform to international design specifications and safety regulations to protect the user and environment.

Features

- Ergonomically designed
- Brushless DC motor drive for long life
- Three operation modes: touch control, timed, or continuous mode
- Constant torque within full range of speed
- Counter balance design for minimal body vibration
- Universal Head for a wide variety of mixing applications

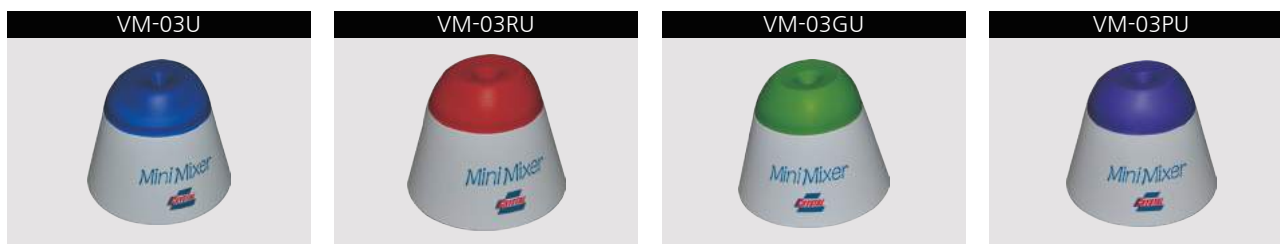
Model	VM-01U	VM-02U
Operation Mode	Touch Control, Timed or Continuous Run	
Orbital Diameter	Circular Orbit, 4.5mm Dia.	
Stirring Speed	200~3000rpm	
Speed Display	Panel Marker	LED Digital Display
Timing Display	LED	
Dimension of Standard Platform	Φ76mm	
Max. Load	0.5 kg	
Ambient	5~40°C	
Relative Humidity	<80%	
Platform in Package	VMA01, VMA02, VMA04, VMA05	
Dimensions(WxDxH)	205x155x108mm	
Power	24W	
Power Supply	220V, 60Hz	
Weight	4 kg	

Accessories

	<table><tr><th>Name</th><th>Part Number</th><th>Dimensions</th><th>Description</th></tr><tr><td>Head for Single Tube</td><td>VMA01</td><td>Φ82x16.5mm</td><td>Concave shape prevents tube from slipping out.</td></tr></table>	Name	Part Number	Dimensions	Description	Head for Single Tube	VMA01	Φ82x16.5mm	Concave shape prevents tube from slipping out.
Name	Part Number	Dimensions	Description						
Head for Single Tube	VMA01	Φ82x16.5mm	Concave shape prevents tube from slipping out.						
	<table><tr><th>Name</th><th>Part Number</th><th>Dimensions</th><th>Description</th></tr><tr><td>Adaptor</td><td>VMA02</td><td>Φ82x19mm</td><td>It is used for listed accessories to be adapted so that multi-tubes can be stirred.</td></tr></table>	Name	Part Number	Dimensions	Description	Adaptor	VMA02	Φ82x19mm	It is used for listed accessories to be adapted so that multi-tubes can be stirred.
Name	Part Number	Dimensions	Description						
Adaptor	VMA02	Φ82x19mm	It is used for listed accessories to be adapted so that multi-tubes can be stirred.						
	<table><tr><th>Name</th><th>Part Number</th><th>Dimensions</th><th>Description</th></tr><tr><td>Shim Clamps</td><td>VMA03</td><td>97x85x32mm</td><td>Used with EVA shims in big size.</td></tr></table>	Name	Part Number	Dimensions	Description	Shim Clamps	VMA03	97x85x32mm	Used with EVA shims in big size.
Name	Part Number	Dimensions	Description						
Shim Clamps	VMA03	97x85x32mm	Used with EVA shims in big size.						
	<table><tr><th>Name</th><th>Part Number</th><th>Dimensions</th><th>Description</th></tr><tr><td>Multi-Tube Platform</td><td>VMA04</td><td>Φ87.5x30mm</td><td>Used with VMA02accessory, it can hold 7 tubes(12mm diameter).</td></tr></table>	Name	Part Number	Dimensions	Description	Multi-Tube Platform	VMA04	Φ87.5x30mm	Used with VMA02accessory, it can hold 7 tubes(12mm diameter).
Name	Part Number	Dimensions	Description						
Multi-Tube Platform	VMA04	Φ87.5x30mm	Used with VMA02accessory, it can hold 7 tubes(12mm diameter).						
	<table><tr><th>Name</th><th>Part Number</th><th>Dimensions</th><th>Description</th></tr><tr><td>Multi-Tube Platform</td><td>VMA05</td><td>Φ87.5x30mm</td><td>Form block for customer to drill holes of desired diameters.</td></tr></table>	Name	Part Number	Dimensions	Description	Multi-Tube Platform	VMA05	Φ87.5x30mm	Form block for customer to drill holes of desired diameters.
Name	Part Number	Dimensions	Description						
Multi-Tube Platform	VMA05	Φ87.5x30mm	Form block for customer to drill holes of desired diameters.						
	<table><tr><th>Name</th><th>Part Number</th><th>Dimensions</th><th>Description</th></tr><tr><td>Microplate Holder</td><td>VMA06</td><td>136x92x15mm</td><td>Holds microplate.</td></tr></table>	Name	Part Number	Dimensions	Description	Microplate Holder	VMA06	136x92x15mm	Holds microplate.
Name	Part Number	Dimensions	Description						
Microplate Holder	VMA06	136x92x15mm	Holds microplate.						
	<table><tr><th>Name</th><th>Part Number</th><th>Dimensions</th><th>Description</th></tr><tr><td>Shim Clamps</td><td>VMA07</td><td>160x120x40mm</td><td>Mounted on shim clamps to hold elisa plate.</td></tr></table>	Name	Part Number	Dimensions	Description	Shim Clamps	VMA07	160x120x40mm	Mounted on shim clamps to hold elisa plate.
Name	Part Number	Dimensions	Description						
Shim Clamps	VMA07	160x120x40mm	Mounted on shim clamps to hold elisa plate.						
	<table><tr><th>Name</th><th>Part Number</th><th>Dimensions</th><th>Description</th></tr><tr><td>Combinational shims</td><td>VMA08</td><td>Φ140x40mm</td><td>Mounted on shim clamps; available tube in varied.</td></tr></table>	Name	Part Number	Dimensions	Description	Combinational shims	VMA08	Φ140x40mm	Mounted on shim clamps; available tube in varied.
Name	Part Number	Dimensions	Description						
Combinational shims	VMA08	Φ140x40mm	Mounted on shim clamps; available tube in varied.						
	<table><tr><th>Name</th><th>Part Number</th><th>Dimensions</th><th>Description</th></tr><tr><td>PCR Shims</td><td>VMA09</td><td>130x85x22mm</td><td>Used on PCR, with shim clamps and elisa plate shim.</td></tr></table>	Name	Part Number	Dimensions	Description	PCR Shims	VMA09	130x85x22mm	Used on PCR, with shim clamps and elisa plate shim.
Name	Part Number	Dimensions	Description						
PCR Shims	VMA09	130x85x22mm	Used on PCR, with shim clamps and elisa plate shim.						

• Customized tube holders are available according customer's specification.

Vortex Mixers:

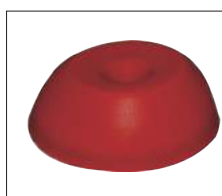


Features

- Extremely compact and easy operation
- Powerful vortexing for tubes up to 30mm
- Head is made of durable material to ensure long life
- Refined steel base is designed to ensure product stability
- Choice of different colored working head

Model	VM-03U	VM-03RU	VM-03GU	VM-03PU
Product Name	Mini Vortex Mixer			
Color	Blue	Red	Green	Purple
Oscillation Mode	Circumference Oscillation			
Orbital Diameter	Φ4.5mm			
Max. Capacity	80ml			
Max. Tube Diameter	Φ30mm			
Speed	3000rpm			
IP rating(DINEN 60529)	IP40			
Ambient	5~40°C			
Outside Dimensions(ΦxH)	96x85mm			
Power	5W			
Power Supply	220V, 60Hz			
Weight	0.55 kg			

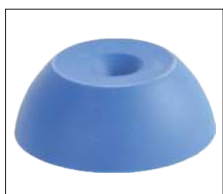
Accessories



Name	Part Number
Red Cap	VMA11



Name	Part Number
Green Cap	VMA13



Name	Part Number
Blue Cap	VMA12



Name	Part Number
Purple Cap	VMA14

3D Nutating Shaker:



Description

The 3D nutating shaker product is an economical mini 3D shaker for mixing samples with the combined motions of an orbital shaker and a rocker. This provides a gentle yet thorough mixing of the sample.

Features

- Small footprint and an elegant design;
- 3D motion generates thorough and gentle mixing;
- Dimpled non-skid mat holds tubes firmly in place

Model	NS-01
Speed	20rpm
Tilt Angle	20°
Max.Load	0.8 kg
Ambient	5℃~40℃
Relative Humidity	≤80%
Platform Dimensions	260x260mm
Outside Dimensions(WxDxH)	260x260x190mm
Power	20W
Power Supply	220V, 60Hz
Weight	1.8 kg

20° 3D Digital Nutating Mixer:



Description

20° Digital Nutating Mixer variable speed Nutating shaker/mixer is well suited for many routine laboratory applications including gentle mixing of western blots.

Features

- Variable speed from 2~60rpm offers gentle continuous mixing of samples
- Low-profile, compact design enables placement at every workstation 327x289mm, platform accommodates a variety of tubes and vessels
- Operating Ambient temperature range up to 40°C; Continuous or timed operation with automatic switch-off
- Audible and visual alarm: In timed mode, alarm will sound 5 times and then the time window shows "End" and flicker 5 times when the time reaches zero
- Quiet operation

Model	NS-11U
Speed Range	2~60rpm
Speed Accuracy	1rpm
Tilt Angle	20°
Timer	0~99h59min
Platform Dimensions	327x289x22 mm
Display	LED
Outside Dimensions(WxDxH)	440x296x255 mm
Max. Load	0.8kg
Power Supply	220V, 60Hz
Weight	6.8 kg

Accessories



Part Number	Specifications	Capacity
NSA01	WxD: 180x7mm	NS-10, NS-11U, NS-12U, NS-13U, NS-14U, OS-05U



Part Number	Specifications	Capacity
NSA02	WxD: 298x258mm	NS-10, NS-11U, NS-12U, NS-13U, NS-14U, OS-05U

20° 3D Nutating Mixer:



Description

The Nutating mixer is an economical choice for many routine laboratory applications that require gentle yet thorough mixing.

Features

- Compact; fits on any flat surface or benchtop
- Operating range: 5°C~40°C
- Load capacity: 0.8kg
- Tubes can be placed on dimpled rubber mat without additional strapping
- Rubber mat is removable for easy cleaning
- Maintenance-free
- Very quiet

Model	NS-10
Speed Range	2~60rpm
Speed Accuracy	24rpm
Tilt Angle	20°
Timer	0~99h59min
Platform Dimensions	327x289x22 mm
Display	LED
Outside Dimensions(WxDxH)	440x296x261 mm
Max. Load	0.8kg
Power Supply	220V, 60Hz
Weight	5.9 kg

7° 3D Digital Nutating Mixer:



Description

The 7° Digital Nutating Mixer has an expanded speed range and low tilt angle to meet any labs most demanding mixing applications.

Features

- Variable speed: 2~80rpm
- The adjustable and gentle motion is ideal for many staining applications
- Includes a large platform and non-slip mat
- Low voltage power supply provides safe cold room operation and low energy consumption
- Operating temperature range of 5°C~40°C allows for use in cold rooms or incubators
- Continuous or timed operation with automatic switch-off
- Continue to run by last set speed and the remaining time when the power recovered
- Audible and visual alarm: In timed mode, alarm will sound 5 times and then the time window shows "End" and flicker 5 times when the time reaches zero

Model	NS-12U
Speed Range	2~80rpm
Speed Accuracy	1rpm
Tilt Angle	7°
Timer	0~99h59min
Platform Dimensions	327x289x22mm
Display	LED
Outside Dimensions(WxDxH)	440x296x189mm
Max. Load	0.8kg
Power Supply	220V, 60Hz
Weight	6.7 kg

3D Adjustable Rocker:



Description

Adjustable rockers are a popular laboratory instrument capable for gently mixing solutions, blotting, staining applications.

Features

- Variable speed: 1~50rpm; Adjustable tilt angle: 1~15°
- Automatic load balancing system
- Continuous or timed operation with automatic switch-off
- Easy to read LED display
- Simple set up and easy to operate
- Continue to run by last set speed and the remaining time when the power recovered
- 5~40°C operating temp range, which allows for use in cold rooms and incubators

Model	NS-14U
Speed Range	1~50rpm
Speed Accuracy	1rpm
Tilt Angle	1~15°(adjustable in 1° increments)
Timer	1s~9999min
Platform Dimensions	327x289x22mm
Display	LED
Outside Dimensions(WxDxH)	440x296x209mm
Max. Load	4.5 kg
Standard Configure	6 Dimpled Rubber Mat and 6 Rubber Strips
Power Supply	220V, 60Hz
Weight	14 kg

Accessories



Part Number	Specifications	Capacity
NSA01	WxD: 180x7mm	NS-10, NS-11U, NS-12U, NS-13U, NS-14U, OS-05U



Part Number	Specifications	Capacity
NSA02	WxD: 298x258mm	NS-10, NS-11U, NS-12U, NS-13U, NS-14U, OS-05U



Part Number	Specifications	Capacity
NSA04	WxDxH: 295x322x109mm	NS-14U

Multi Modes Nutating Mixer:



Description

Multi Modes Nutating Mixer with the greatest speed range and additional features such as reciprocal motion mode & vibration modes to achieve the utmost of sample mixing.

Features

- Variable speed: 5~100rpm
- Reciprocal rotation: 0°~360° turning angle for long and medium way motion
- Vibration: 0°~ 5° turning angle, programmable in bursts of 0 to 5 seconds, for short wave motion
- Operating temperature range of 5°C~40°C allows for use in cold rooms or incubators
- Continuous or timed operation with automatic switch-off
- Continue to run by last set speed and the remaining time when the power recovered
- Audible and visual alarm: In timed mode, alarm will sound 5 times and then the time window shows "End" and flicker 5 times when the time reaches zero, then alarm stops

Model	NS-13U
Speed Range	5~100rpm
Speed Accuracy	1rpm
Turning Angle(reciprocal mode)	0~360°
Turning Angle(vibration mode)	0~5°
Tilt Angle	7°
Orbit Diameter	23mm
Timer (orbital/360° vertical or reciprocal mode)	0~250 sec
Timer (vibration mode)	0~5 sec
Time of cycles	0~250sec
Ambient	5°C~40°C
Platform Dimensions	327x289x22mm
Display	LED
Outside Dimensions(WxDxH)	440x296x243mm
Max. Load	1 kg
Power Supply	220V, 60Hz
Weight	7.1 kg

2D Rocker:



Description

The 2D Rocker is excellent for gentle mixing of samples, solutions, reagents and especially western blots. It has a high quality quality motor for durability and ultra quiet operation. Space saving design and simple to use operation make this a popular item for any laboratory.

Features

- Compact shape, simple operation
- Large platform included to accommodate many applications
- Available with variable speed, timer & LED display functions
- Ultra quiet operation

Model	NS-04	NS-05U
Speed	20rpm	2~80rpm
Speed Control	N/A	1rpm
Tilt Angle	±10°	
Platform Dimensions	307x267mm	
Ambient	5°C~40°C	
Time Range	N/A	0~99h59min
Display	N/A	LED
Outside Dimensions(WxDxH)	355x240x123mm	
Power	4W	10W
Weight	2 kg	

Magnetic Stirrer:



• Key pad Magnetic Stirrer



• Touch- pad Magnetic Stirrer

Description

The MS1 series of Magnetic Stirrers are available with either an LED keypad or LCD touchpad control. The rotating magnetic field of these stirrers is generated by a wear-free magnetic driver with no moving parts for a reliable, durable, and maintenance-free operation. Each stirrer has a wide range of speed and magnetic strengths which are adjustable to meet the demands of stirring solutions with different volume and viscosities.

Features

- Elegant design with digital control and display
- Motorless driven mechanism for quiet and maintenance-free operation
- Five power levels for mixing liquids with high viscosities
- Constructed of corrosive resistant materials for easy clean-up and long operational life

Model	MS-01U	MS-01TU
Stirring Speed	80~2000rpm	
Speed Resolution	10rpm	
Display Screen	LED	LCD Touch Screen
Number of Stirring Positions	1	
Maximum Capacity	2000ml	
Standard Stirring Bar	Φ12x30mm	
Max. Length for Stir Bar	≤50mm	
Ambient	5°C~40°C	
Platform Dimensions	140x140mm	
Outside Dimensions(WxDxH)	160x200x48mm	
Power	10W	
Power Supply	220V, 60Hz	
Weight	1 kg	

- Speed parameters to Φ12X30 cylindrical stirring in aqueous solution as the standard 10L.

Low profile Magnetic Stirrer:



Description

This product can be used in medical, biotechnology, chemistry and other research fields. It is designed with small size and high grade of waterproofing.

Features

- High level of waterproofing protection
- Motorless driven mechanism for quiet and maintenance-free operation
- Sleek low profile design

Model	MS-01FU
Speed	15~1500rpm
Max.Capacity	500ml
Standard Stirring Bar	Φ7x20mm
Stir Bar in Standard Package	≤30mm
Working Platform	110x110mm
Max.Load	2 kg
IP rating(DIN EN 60529)	IP45(EN60529)
Ambient	5~40°C
Relative Humidity	≤80°C
Outside Dimensions(DxWxH)	175x125x20.5mm
Power	6W
Power Supply	220V, 60Hz
Weight	0.3 kg

- Speed parameters to Φ7X20 cylindrical stirring in aqueous solution as the standard 10L.

Digital Controlled Stirring Hotplates:



Description

This product is ideal for general lab applications such as mixing reagents, stirring bacteriological cultures. Its hot plate is made of high grade aluminum alloy with an anodized surface which is resistant to corrosion. The aluminum body and brushless motor provide maintenance free operation.

Features

- It takes only 8 minutes to raise the plate's temperature from ambient to 300°C
- Brushless DC motor provides accurate stirring speed and maintenance free operation
- Strong magnets prevent loss of stirring speed
- Warning light flashes when plate is hot
- Automatic shut off while plate's temperature exceeds 350°C or no indication of temperature rise after 30 seconds of heating
- Anodized plate surface keeps it resistant to corrosive

Model	MS-01H
Stirring Speed	80~1500rpm
Speed Resolution	10rpm
Display	LCD
Stirring Positions	1
Maximum Capacity(Water)	10000ml
Standard Stirring Bar	Φ12x50mm
Max. Length for Stir Bar	≤80mm
Plate Temp.	Ambient +5°C~300°C
Temperature Deviation	@100°C: ≤±10°C
Temperature Fluctuation	@100°C: ≤±5°C
Temperature Resolution	5°C
Shut off Temperature	350°C
Platform Dimensions	175x175mm
Ambient	5°C~40°C
Outside Dimensions(WxDxH)	355x240x121mm
Power	1000W
Power Supply	220V, 60Hz
Weight	4.5 kg

- Speed parameters to Φ12X50 cylindrical stirring in aqueous solution as the standard 10L.



Economical Magnetic Stirrers:



Features

- Max. stirring quantity 10L
- Variable speed adjustment. MS-01DU includes timing function
- DC motor provides accurate and stable stirring speed
- Previous setting will be automatically saved when restarting the unit
- ABS plastic working plate with excellent durability and chemical resistance
- Exterior specifically designed to prevent leaking

Model	MS-01AU	MS-01DU
Stirring Speed	0~1500rpm	80~1500rpm
Number of Stirring Positions	1	
Standard Stirring Bar	Φ12x50mm	
Maximum Capacity(Water)	10000ml	
Stir Bar in Standard Package	≤80mm	
Standard Stirring Bar	Φ12x50mm	
Max. Length for Stir Bar	≤80mm	
Platform Dimensions	175x175mm	
Display	N/A	LCD
Timer	N/A	0~99h59min
IP rating (DIN En60529)	IP21(DINEN60529)	
Ambient	5°C~40°C	
Outside Dimensions(WxDxH)	355x240x120mm	
Power	7.5W	12W
Power Supply	220V, 60Hz	
Weight	2.5 kg	3 kg

- Speed parameters to Φ12X50 cylindrical stirring in aqueous solution as the standard 10L.

Multi-Position Hot Plate Stirrers:



Description

Our Multi-Position Hot Plate Stirrers have an elegant space saving design. Simple to use right out of the box with variable speed and temperature. Ideal for any laboratory that uses stirring, mixing & temperature controlled applications.

Features

- Utilizing electric film provides fast heating speed & temperature uniformity
- Heat and stir a variety of beaker or flask sizes
- High quality brushless DC motor provides excellent durability & quiet operation
- The exterior is made of aluminum alloy which has high temperature resistance, corrosion protection and good insulation properties
- Elegant working plate is made of pyroceram
- Using SCM to control motor speed which is smooth at low speed and strong at high speed
- Built-in electronic voltage regulator circuit, using silicon controlled to regulate heating

Model	MS-05H	MS-10H	MS-15H
Stirring Speed	0rpm, 100~1200rpm		
Temp. Range	Ambient)+5°C~120°C		
Max. Capacity (water)	500ml		
Standard Stir Bar	Φ10X40mm		
Platform Dimensions	125x588mm	210x588mm	305x588mm
Platform Material	Black glass-ceramic		
Number of Stirring Positions	5	10	15
Distance between stirring positions	95mm		
Max. Length for Stir Bar	≤50mm		
Max. Power	220W	450W	660W
Ambient	5°C~40°C		
Humidity	<90%		
Weight	4.5kg	7.1kg	10kg
Outside Dimensions(WxDxH)	130x612x78mm	215x610x80mm	310x612x78mm

Accessories

Name	Part Number	Specifications
MSA01	Stir Bar Retriever	Φ7x300mm
MSA02	Stir Bar	Φ8x50mm
MSA03		Φ10x40mm
MSA04		Φ12x30mm
MSA05		Φ7x20mm
MSA06		Φ6x15mm
MSA15		Φ12x50mm



Position Magnetic Stirrer:



Description

This multi-position magnetic Stirrer is designed for the parallel and series experiment. The front control panel has the ability to detach from the main unit. This unique feature allows the main stirring based to be placed & operated in a water bath. An ideal and versatile instrument for many lab applications.

Features

- Super-flat stainless steel plate protects against intrusion and guarantees reliability
- Fully closed body is able to stir in a water bath
- Magnetic coils drive mechanism provides long & quiet operation
- Five levels of stirring power provide excellent mixing capability, including liquids with high viscosity
- Previous setting will be automatically saved when restarting the unit
- Exterior is specifically designed to prevent leaking

Model	MS-04SU	MS-06SU	MS-15SU
Stirring Speed	80~2000rpm		
Number of Stirring Positions	4	6	15
Distance between stirring positions	128mm		64mm
Maximum Capacity(Water)	1000ml		500mlx8, 200mlx15
Standard Stirring Bar	φ12x30mm		φ6x15mm
Max. Length for Stir Bar	≤50mm		≤20mm
Viscosity Level	1~5 Level		
Platform Dimensions	250X270mm	385X270mm	
Platform Material	SUS304		
IP rating(DINEN60529)	IP21, IP68S		
Ambient	5°C~50°C, 5°C~40°C		
Outside Dimensions(WxDxH)	280X398X40mm	280X528X40mm	
Power	30W	45W	
Power Supply	220V, 60Hz		
Weight	6.5 kg	10 kg	

Accessories



Name	Part Number	Note
Ø25 Hole Tube Rack for MS-15SU	MSA10	15xΦ30hole



Name	Part Number	Note
Ø16 Hole Tube Rack for MS-15SU	MSA12	15xΦ16hole



Name	Part Number	Note
Ø20 Hole Tube Rack for MS-15SU	MSA11	15xΦ20hole

- MS-04SU, MS-06SU speed parameters to 12 × 30 stirring in an aqueous solution containing the full scale of 1L beaker to work as a standard, MS-15SU speed parameters to 5 × 15 stirring in an aqueous solution containing 100ml beaker full scale to work as a standard.

Mini Centrifuges:



Description

Our mini centrifuges are essential laboratory equipment used in clinical, environmental and industrial research. These personal centrifuges are ideal for quick spins, microfiltration of samples, cell separations and many other routine laboratory procedures.

Features

- Ergonomically designed with a small footprint
- High grade plastic cover for clear visibility; Smooth and quiet operation
- Automatic stop when lid is opened
- Digital control delivers precise speed
- Fit a variety of tubes with included accessories

Model	MLX-204	MLX-206	MLX-210
Rotating Speed	4000rpm	6000rpm	10000rpm
G-force(RCF)	900g	2000g	5000g
Noise Level	≤60dB	≤60dB	≤60dB
Shell color	Pink	Milky white	Blue
Standard Heads	0.2ml 8-Place PCR Strip Rotator		
Safety Features	Stop at Opening		
Ambient	5~40°C		
Relative Humidity	≤80%		
Outside Dimensions(WxDxH)	155x140x115mm		
Power Supply	220V, 60Hz		
Weight	1 kg		

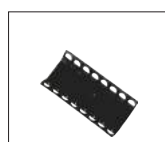
Accessories



Name	Part Number
Adaptor for 0.5ml Centrifuge Tube	MLXF 1



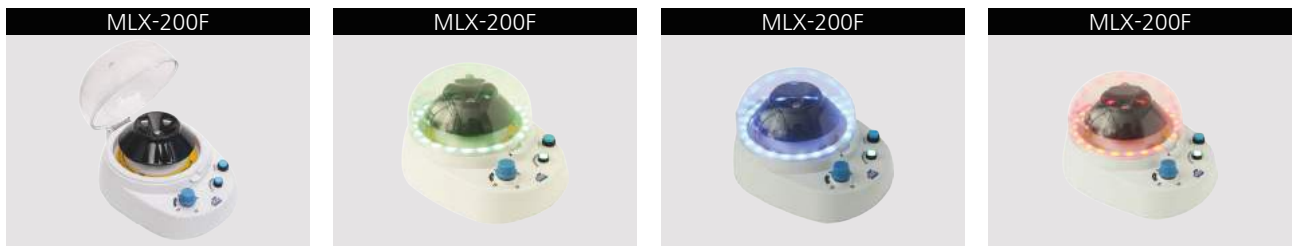
Name	Part Number
Adaptor for 0.2ml Centrifuge Tube	MLXF 2



Name	Part Number
0.2ml 8-Place PCR Strip Rotator	MLXF 3



Name	Part Number
1.5ml 6-Place Rotator	MLXF 7



Description

The unit comes with three rotors and switchable dual speeds. It can operate in one of three different modes (timed, touch control and continuous). Its LED ring indicates operation status. The LED ring color can be selected or turned off by a switch underneath the unit.

Features

- Elegant design and contemporary appearance
- Switchable dual speeds:6000~9200rpm
- Multi rotors provided for different centrifuge tube
- Three operation modes are selectable
- Automatical locking mechanism for safe operation
- Wide voltage range (100-240 VAC)
- Color LED ring illuminates while unit is active

Model		MLX-200F		
Rotating Speed		6000rpm		9200rpm
Rotor	G-force(RCF)	5ml	2414g	5677g
		1.5ml	2012g	4731g
		0.2ml	1509g	3549g
Operation Mode		Touch control or continuous or timer (0~15minute)		
LED Color Selection		Green, Blue, Red or Off		
Rotators in Standard Package		4x5ml/8x1.5ml/16x0.2ml(0.2ml 8-Place PCR Strip Rotator)		
Safety Feature		Stop at Opening		
Noise Level		≤60dB		
Ambient		5℃~40℃		
Relative Humidity		≤80%		
Outside Dimensions(WxDxH)		187x240x139mm		
Power Supply		220V, 60Hz		
Weight		1.8 kg		

Accessories



Name	Part Number
0.2ml 8-Place PCR Strip Rotator	MLXF-6



Name	Part Number
8x1.5ml Roter	MLXF-4



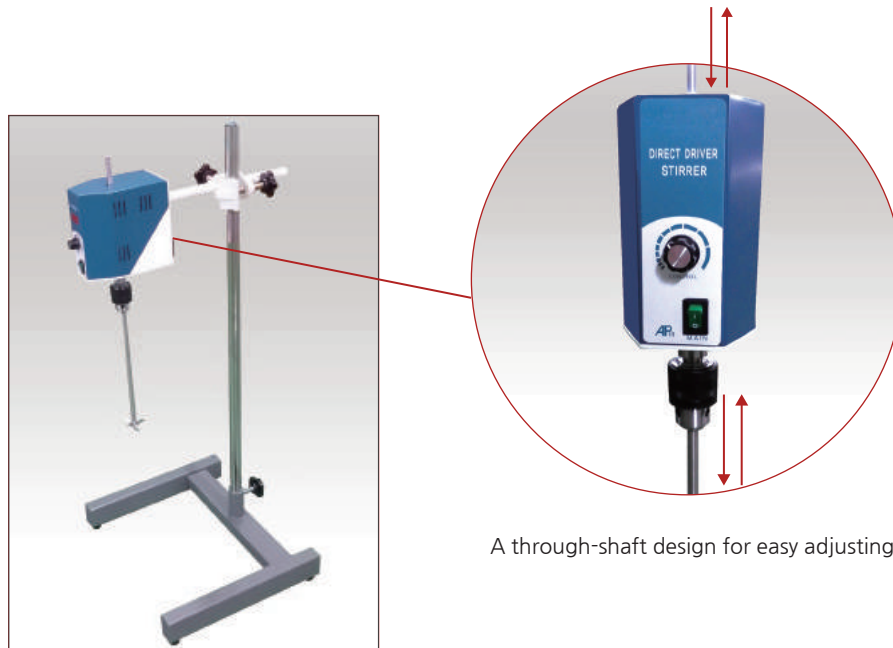
Name	Part Number
4x5ml Roter	MLXF-5

Overhead Stirrer & Mantle

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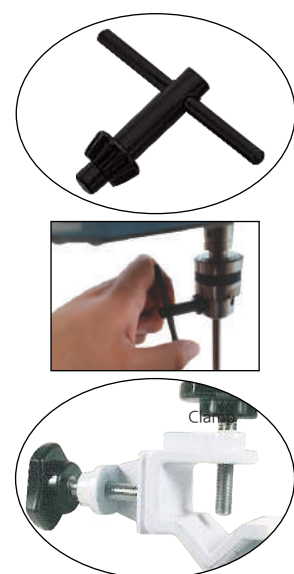
Overhead Stirrer:



A through-shaft design for easy adjusting

- These models are ideal for standard stirring and mixing tasks.
- These models are specifically designed to convert a high-viscosity solution to a low-viscosity solution by thorough mixing applications.

Components



SH-OS-11



- General-purpose mixer
- Through-shaft design (for easy impeller adjusting)
- Brushless DC electric motor for excellent durability and spark-free safety
- Noiseless and maximum safety design with compact body

Model	SH-OS-11
Stirring Capacity	10 L (H ₂ O)
Maximum Viscosity	10,000 cps
Maximum Torque	85 Ncm
Motor	DC 60W
Speed Range	50 ~ 3,000 R.P.M
Display	None
Controller	Analogue Phase Control
Electrical Supply	230V or 120V, 50/60 Hz

SH-OS-11D



- General-purpose mixer
- Digital Display
- Through-shaft design (for easy impeller adjusting)
- Brushless DC electric motor for excellent durability and spark-free safety
- Noiseless and maximum safety design with compact body

Model	SH-OS-11D
Stirring Capacity	10 L (H ₂ O)
Maximum Viscosity	10,000 cps
Maximum Torque	85 Ncm
Motor	DC 60W
Speed Range	50 ~ 3,000 R.P.M
Display	Digital Display
Controller	Analogue Phase Control
Electrical Supply	230V(120V), 50/60Hz

SH-OS-41



- General Purpose Basic Laboratory Mixing.
- Through-shaft design.(easy to adjust impeller position)
- Brushless DC electric motor for excellent durability and spark-free safety.
- Noiseless and maximum safety design with compact body.

Model	SH-OS-41
Stirring Capacity	60 L (H ₂ O)
Maximum Viscosity	40,000 cps
Maximum Torque	95 Ncm
Motor	DC 100W
Speed Range	50 ~ 3,000 R.P.M
Display	None
Controller	Analogue Phase Control
Electrical Supply	230V(120V), 50/60Hz

SH-OS-41D



- General-purpose mixer
- Digital Display
- Through-shaft design (for easy impeller adjusting)
- Brushless DC electric motor for excellent durability and spark-free safety
- Noiseless and maximum safety design with compact body

Model	SH-OS-41D
Stirring Capacity	60 L (H ₂ O)
Maximum Viscosity	40,000 cps
Maximum Torque	95 Ncm
Motor	DC 100W
Speed Range	50 ~ 3,000 R.P.M
Display	Digital Display
Controller	Analogue Phase Control
Electrical Supply	230V(120V), 50/60 Hz



Impeller:

Using the right stirring tool is the key to a successful mixing task .
 In choosing what kind of stirring tool to use, consider the following characteristics: circulation method, range of speed, and minimum and maximum viscosity capacity.



Model	Type	Blade Size	Shaft Dia	Material
SH-IMP-50-3	Propeller Type	Φ 50mm blade	Φ 8mm X 500mm	SUS304
SH-IMP-60-3	Propeller Type	Φ 60mm blade	Φ 8mm X 500mm	SUS304
SH-IMP-80-3	Propeller Type	Φ 80mm blade	Φ 8mm X 650mm	SUS304
SH-IMP-100-3	Propeller Type	Φ 100mm blade	Φ 8mm X 650mm	SUS304



Model	Type	Blade Size	Shaft Dia	Material
SH-IMP-70-4	Propeller Type	Φ 70mm blade	Φ 8mm X 500mm	SUS304
SH-IMP-90-4	Propeller Type	Φ 90mm blade	Φ 8mm X 650mm	SUS304
SH-IMP-100-4	Propeller Type	Φ 100mm blade	Φ 8mm X 650mm	SUS304



Model	Type	Blade Size	Shaft Dia	Material
SH-IMP-90-4	Diamond Type	Φ 90mm blade	Φ 8mm X 500mm	SUS304
SH-IMP-100-4	Diamond Type	Φ 100mm blade	Φ 8mm X 650mm	SUS304



Model	Type	Blade Size	Shaft Dia	Material
SH-IMP-100-2	Centrifugal Type	Φ 100mm blade	Φ 8mm X 500mm	SUS304



Model	Type	Blade Size	Shaft Dia	Material
SH-IMP-90-2	Teflon Coated Centrifugal Type	Φ 90mm blade	Φ 8mm X 500mm	SUS304
SH-IMP-120-2		Φ 120mm blade	Φ 8mm X 650mm	SUS304



Model	Type	Blade Size	Shaft Dia	Material
SH-IMA-70-2	Anchor Type	Φ 70mm blade	Φ 8mm X 500mm	SUS304
SH-IMA-90-2	Anchor Type	Φ 90mm blade	Φ 8mm X 650mm	SUS304

Magnetic Stirrer with Hot Plate:

- Excellent in Sample String and Basic Lab Heating Applications
- Superior Temperature Uniformity: Less than 10% on the plate at room temperature
- Chemical Resistant and Ceramic Coated

Magnetic Stirrer with Hot Plate



Model		SH-HPS-180
Material	Body	Powder Coated Steel
	Plate	Ceramic Coated Aluminum
Plate Size		180 x 180 (mm)
Max Temp		350°C
R.P.M		150~1500 R.P.M
Display	Temp	None
	R.P.M	None
Heater Power		570 W
Power		230V(120V), 50/60Hz

Magnetic Stirrer with Hot Plate (with Digital Temp Controller)



Model		SH-HPS-180-D1
Material	Body	Powder Coated Steel
	Plate	Ceramic Coated Aluminum
Plate Size		180 x 180 (mm)
Max Temp		350°C
R.P.M		150~1500 R.P.M
Display	Temp	Digital
	R.P.M	None
Heater Power		570 W
Power		230V(120V), 50/60Hz

Magnetic Stirrer with Hot Plate (with Full Digital Controller)



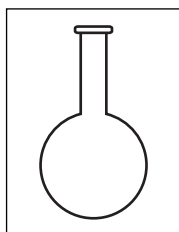
Model		SH-HPS-180-D2
Material	Body	Powder Coated Steel
	Plate	Ceramic Coated Aluminum
Plate Size		180 x 180 (mm)
Max Temp		350°C
R.P.M		150~1500 R.P.M
Display	Temp	Digital
	R.P.M	Digital
Heater Power		570 W
Power		230V(120V), 50/60Hz

Heating Mantle:

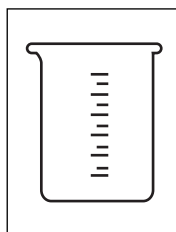
Heating Mantle



- Our mantle contains nichrome wire and ceramic fiber mat
- High quality heating mantle that can heat up to 450°C



Model	Capacity	Power/Temp Limit
SH-HMG-100R	100 ML	Power 230(120V) 50/60Hz
SH-HMG-250R	250 ML	
SH-HMG-500R	500 ML	
SH-HMG-1000R	1 L	
SH-HMG-2000R	2 L	Heating Element Temp up to 450°C
SH-HMG-3000R	3 L	
SH-HMG-4000R	4 L	
SH-HMG-5000R	5 L	
SH-HMG-6000R	6 L	
SH-HMG-10000R	10 L	

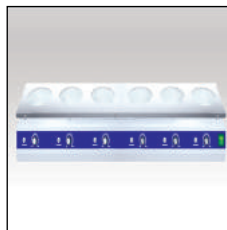


Model	Capacity	Power/Temp Limit
SH-HMG-100B	100 ML	Power 230(120V) 50/60Hz
SH-HMG-250B	250 ML	
SH-HMG-600B	600 ML	
SH-HMG-1000B	1 L	
SH-HMG-2000B	2 L	Heating Element Temp up to 450°C
SH-HMG-3000B	3 L	
SH-HMG-4000B	4 L	
SH-HMG-5000B	5 L	
SH-HM-10000B	10 L	

Multi with Heating Mantle

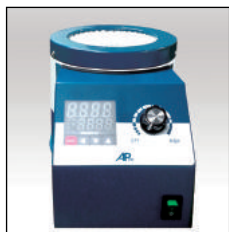


Model	Capacity	Power/Temp Limit
SH-HMG-100R3	100 ML	Power 230(120V) 50/60Hz
SH-HMG-250R3	250 ML	
SH-HMG-500R3	500 ML	Heating Element Temp up to 450°C
SH-HMG-1000R3	1 L	

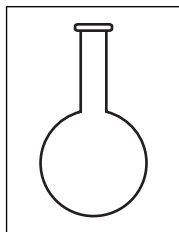


Model	Capacity	Power/Temp Limit
SH-HMG-100R6	100 ML	Power 230(120V) 50/60Hz
SH-HMG-250R6	250 ML	
SH-HMG-500R6	500 ML	Heating Element Temp up to 450°C
SH-HMG-1000R6	1 L	

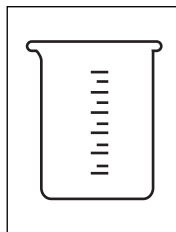
Digital Heating Mantle



- Our mantle contains of Nichrome wire and ceramic fiber mat
- High quality heating Mantle that can heat up to 450°C
- Improved accuracy of temp controller by using digital PID controller with auto function.

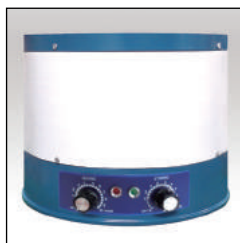


Model	Capacity	Power/Temp Limit
SH-HMD-100R	100 ML	Power 230(120V) 50/60Hz
SH-HMD-250R	250 ML	
SH-HMD-500R	500 ML	
SH-HMD-1000R	1 L	
SH-HMD-2000R	2 L	Heating Element Temp up to 450°C
SH-HMD-3000R	3 L	
SH-HMD-4000R	4 L	
SH-HMD-5000R	5 L	
SH-HMD-6000R	6 L	
SH-HMD-10000R	10 L	

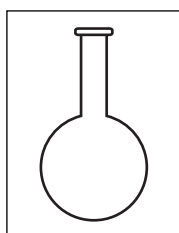


Model	Capacity	Power/Temp Limit
SH-HMD-100B	100 ML	Power 230(120V) 50/60Hz
SH-HMD-250B	250 ML	
SH-HMD-600B	600 ML	
SH-HMD-1000B	1 L	
SH-HMD-2000B	2 L	Heating Element Temp up to 450°C
SH-HMD-3000B	3 L	
SH-HMD-4000B	4 L	
SH-HMD-5000B	5 L	
SH-HMD-10000B	10 L	

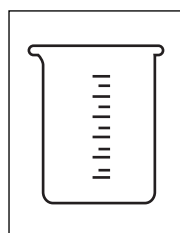
Magnetic Stirrer with Heating Mantle



- Our mantle contains of Nichrome wire and ceramic fiber mat
- High quality Heating mantle that can heat up to 450°C
- Individual switches for stirring function and heating function



Model	Capacity	Power/Temp Limit
SH-HMS-100R	100 ML	Power 230(120V) 50/60Hz
SH-HMS-250R	250 ML	
SH-HMS-500R	500 ML	
SH-HMS-1000R	1 L	
SH-HMS-2000R	2 L	
SH-HMS-3000R	3 L	Heating Element Temp up to 450°C
SH-HMS-4000R	4 L	
SH-HMS-5000R	5 L	
SH-HMS-6000R	6 L	
SH-HMS-10000R	10 L	



Model	Capacity	Power/Temp Limit
SH-HMS-100B	100 ML	Power 230(120V) 50/60Hz
SH-HMS-250B	250 ML	
SH-HMS-600B	600 ML	
SH-HMS-1000B	1 L	
SH-HMS-2000B	2 L	
SH-HMS-3000B	3 L	Heating Element Temp up to 450°C
SH-HMS-4000B	4 L	
SH-HMS-5000B	5 L	
SH-HMS-10000B	10 L	

Fabric Mantle



Model	Capacity	Power/Temp Limit
SH-HMF-50R	50 ML	Power 230(120V) 50/60Hz
SH-HMF-100R	100 ML	
SH-HMF-250R	250 ML	
SH-HMF-500R	500 ML	
SH-HMF-1000R	1 L	
SH-HMF-2000R	2 L	Heating Element Temp up to 450°C
SH-HMF-3000R	3 L	
SH-HMF-5000R	5 L	



Model	Capacity	Power/Temp Limit
SH-HMF-50B	50 ML	Power 230(120V) 50/60Hz
SH-HMF-100B	100 ML	
SH-HMF-250B	250 ML	
SH-HMF-600B	600 ML	
SH-HMF-1000B	1 L	
SH-HMF-2000B	2 L	Heating Element Temp up to 450°C
SH-HMF-3000B	3 L	
SH-HMF-5000B	5 L	

Heating Tape



- Can be applied with glass cloth tape wrapping
- Recommend to use on moderate temperature conditions such as covering pipe line or for materials with complicated shape

Heating Tape 1'			
Model	WxL (mm)	Heater Capacity	Power/Temp Limit
SH-HMT-251	25x1000(mm)	200 W	Power 230(120V) 50/60Hz
SH-HMT-251.5	25x1500(mm)	250 W	
SH-HMT-252	25x2000(mm)	300 W	
SH-HMT-252.5	25x2500(mm)	350 W	
SH-HMT-253	25x3000(mm)	400 W	
SH-HMT-254	25x4000(mm)	550 W	Heating Element Temp up to 450°C
SH-HMT-255	25x5000(mm)	700 W	

Heating Tape 1/2'			
Model	WxL (mm)	Heater Capacity	Power/Temp Limit
SH-HMT-131	13x1000(mm)	200 W	Power 230(120V) 50/60Hz
SH-HMT-131.5	13x1500(mm)	250 W	
SH-HMT-132	13x2000(mm)	300 W	
SH-HMT-132.5	13x2500(mm)	350 W	
SH-HMT-133	13x3000(mm)	400 W	
SH-HMT-134	13x4000(mm)	550 W	Heating Element Temp up to 450°C
SH-HMT-135	13x5000(mm)	700 W	



Desiccator

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DESICCATOR

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Desiccator:

Desiccator cabinets or dry boxes are sealed containers designed to protect samples from contamination in a low humidity environment. The controlled atmosphere inside the desiccator cabinets is ideal for storing retained samples, reference materials, biopharmaceutical products, metallographic specimen, tobacco and DNA samples.



Model No.	SH-DS-3T		Options	
Dimension Internal	270x300x400(mm)		Purge	Desiccant
	10.63x11.81x15.75(inch)			
Dimension External	320x330x480(mm)			
	12.60x12.99x18.90(inch)			
Material	Body	PMMA	N/A	N/A
	Frame	ABS		
	Shelve	ABS		
	Caster	N/A		
Component	Temp / Humi gage	Analog built in		
	Dehumidifier	built in		
	Shelves	3 EA, 270x300(mm)		

Option Guide:

User should order dependent on the type of the desiccator. If user is using a desiccator with Purge function need options(Essential : Valves 2EA, Optional : Gas Flowmeter). If user using Desiccator with desiccant, at least silica tray or dehumidifier(option) is required.

Silica Tray will be provided in case of Dehumidifier is not ordered.



Model No.	SH-DS-10		Options	
Dimension Internal	560x483x731(mm)		Purge	Desiccant
	22.05x19.02x28.78(inch)			
Dimension External	574x535x765(mm)			
	22.60x20.87x30.12(inch)			
Material	Body	PMMA	Essential valve 2EA Optional Gas flowmeter	Basic composition Silica tray Optional Dehumidifier
	Frame	AL		
	Shelve	SUS		
	Caster	N/A		
Component	Temp / Humi gage	Digital built in		
	Dehumidifier	Option		
	Shelves	2 EA, 460x490(mm)		



Model No.	SH-DS-12		Options	
Dimension Internal	560x483x986(mm)		Purge	Desiccant
	22.05x19.02x38.82(inch)			
Dimension External	574x535x1090(mm)			
	22.60x20.87x42.91(inch)			
Material	Body	PMMA	Essential valve 2EA Optional Gas flowmeter	Basic composition Silica tray Optional Dehumidifier
	Frame	AL		
	Shelve	SUS		
	Caster	N/A		
Component	Temp / Humi gage	Digital built in		
	Dehumidifier	Option		
	Shelves	4 EA, 460x490(mm)		



Model No.	SH-DS-20		Options		
Dimension Internal	560x483x1486(mm)		Purge	Desiccant	
	22.05x19.02x58.50(inch)		Essential  valve 2EA Optional  Gas flowmeter	Basic composition	
Dimension External	574x535x1770(mm)			 Silica tray	
	22.60x20.87x69.69(inch)			Optional  Dehumidifier	
Material	Body	PMMA			
	Frame	AL			
	Shelve	SUS			
	Caster	PA			
Component	Temp / Humi gage	Digital built in			
	Dehumidifier	Option			
	Shelves	4 EA, 460x490(mm)			

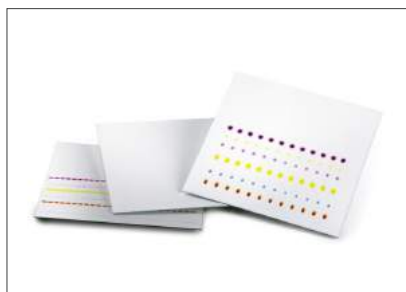


Model No.		SH-DS-40		Options	
Dimension Internal	1138x483x1486(mm)		Purge		Desiccant
	44.80x19.02x58.50(inch)		Essential  valve 2EA	Basic composition	
Dimension External	1164x535x1770(mm)			 Silica tray	
	45.83x20.87x69.69(inch)			Optional  Gas flowmeter	
Material	Body	PMMA		Optional  Dehumidifier	
	Frame	AL			
	Shelve	SUS			
	Caster	PA			
Component	Temp / Humi gage	Digital built in			
	Dehumidifier	Option			
	Shelves	8 EA, 460x490(mm)			



Vacuum Desiccator:

The Vacuum Desiccator is a sealed and PMMA cabinet that provides dust-free and corrosion-free environments ideal for the storage of moisture-sensitive materials such as halide salt cells and chromatography plates. Rapid drying of the stored products is also guaranteed through the vacuum inside the equipment.



Model No.		SH-VDS-12	SH-VDS-19	SH-VDS-36
Dimension Internal (WxDxH)		260x180x260(mm)	260x200x360(mm)	260x300x460(mm)
		10.23x7.09x10.24(inch)	10.24x7.87x14.17(inch)	10.24x11.81x18.11(inch)
Material	Body	PMMA		
Component	Valves	8MM VALVE 2EA		
	Gauge	Vacuum gauge		
	Dehumidifier	Silica tray		
Shelves		2 EA	3 EA	4 EA



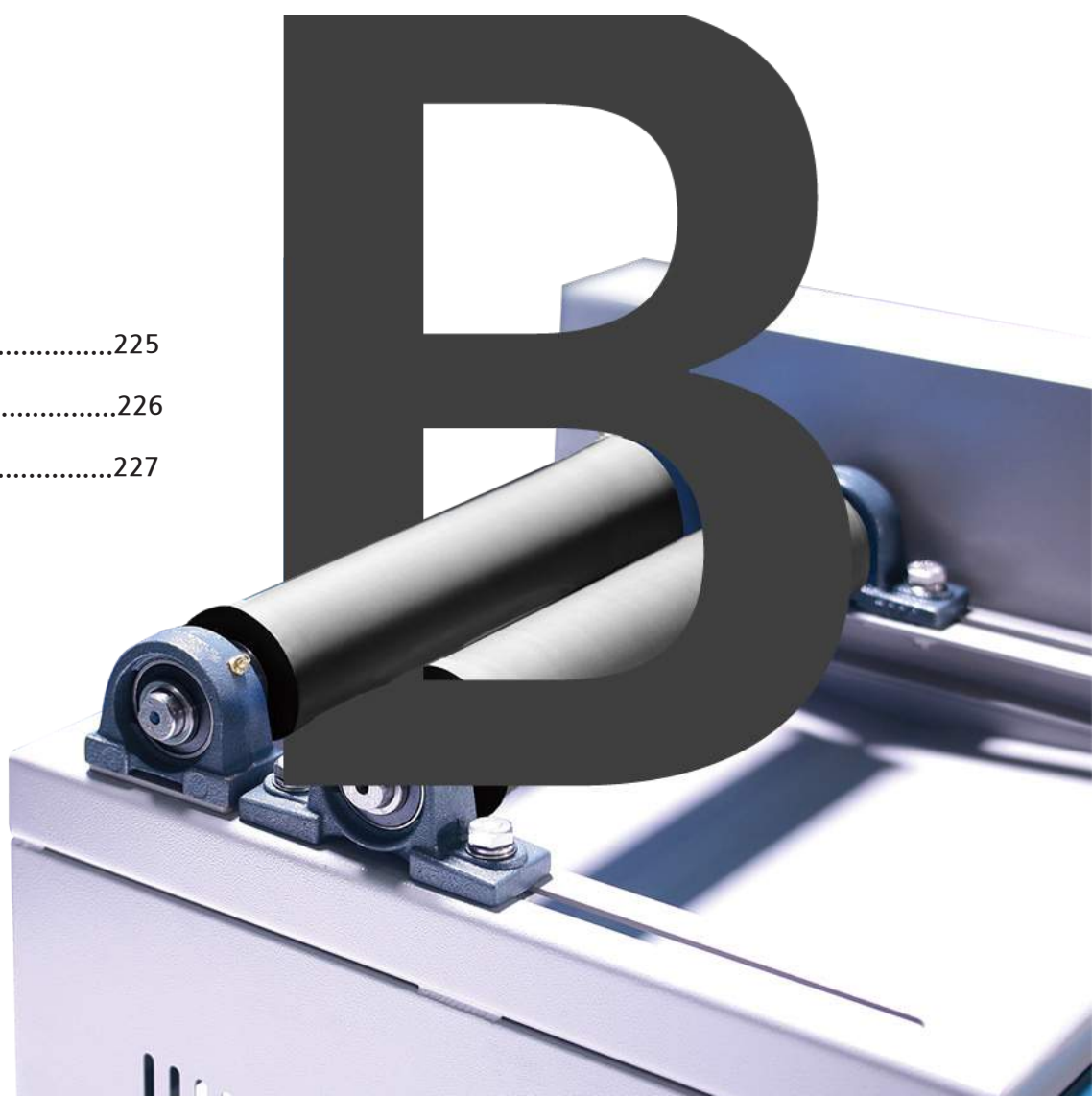
Model No.		SH-VDS-29	SH-VDS-43
Dimension Internal (WxDxH)		260x280x410(mm)	300x280x510(mm)
		10.24x11.02x16.14(inch)	11.81x11.02x20.18(inch)
Material	Body	PMMA	
Component	Valves	8MM VALVE 2EA	
	Gauge	Vacuum gauge	
	Dehumidifier	Silica tray	
Shelves		4 EA	5 EA

BALL MILLS

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BALL MILL

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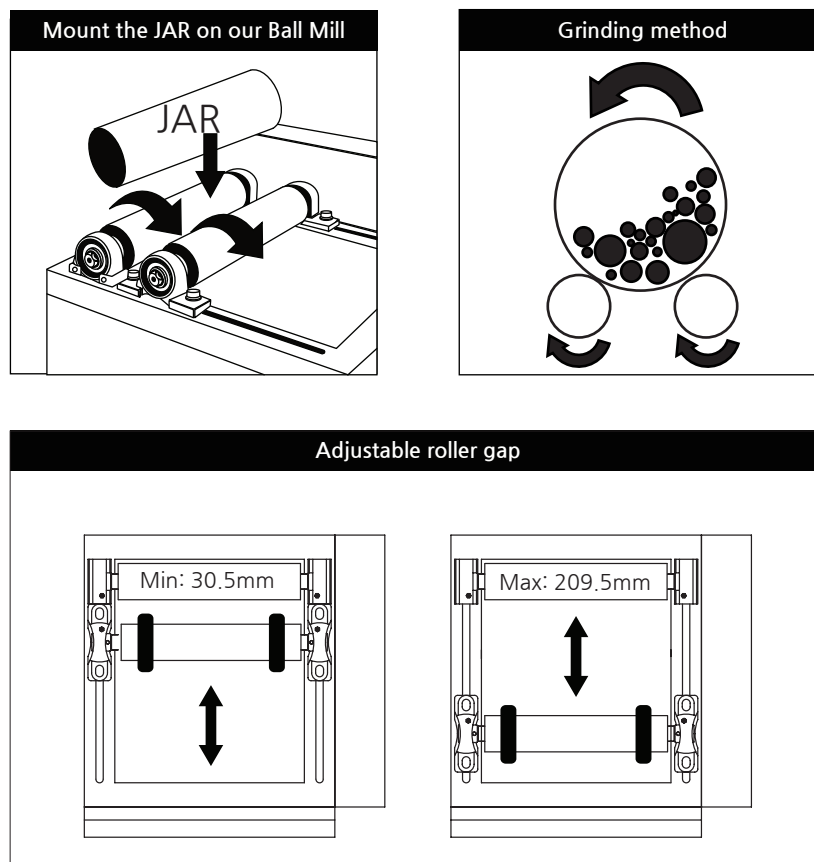


Ball Mill

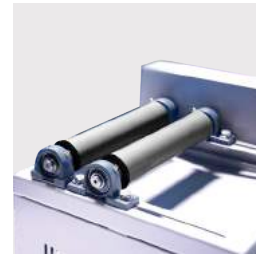
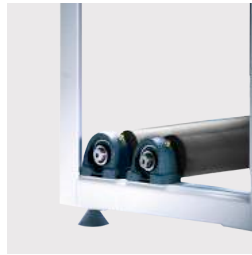
-Feature

A ball mill is a type of grinder used to pulverize materials for paints, pyrotechnics, ceramics, mineral processing, selective laser sintering, 3D printing technology. Furthermore, we are offering two kinds of ball mills, one for the use of lightweight samples and another one for heavyweight samples.

How it works



Ball Mill:



Model	SH-BALL300-1	SH-BALL700-1	SH-BALL300-2	SH-BALL700-2
Drive Motor	DC Geared Motor 40W	DC Geared Motor 100W	DC Geared Motor 90W	DC Geared Motor 150W
R.P.M Controller	Stepless Voltage Controller			
R.P.M range	0 to 300			
R.P.M Accuracy	±1 R.P.M			
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter			
Dimension External (W×D×H)	493x500x350(mm)	893x500x350(mm)	731x450x614(mm)	1131x450x614(mm)
	19.41x19.69x13.78(inch)	35.16x19.69x13.78(inch)	28.78x17.72x24.17(inch)	44.53x17.72x24.17(inch)
Dimension Roller Length, 70Φ	300mm x 1stage	700mm x1stage	300mm x 2stage	700mm x 2stage
Net weight	31 Kg	53 Kg	53 Kg	89 Kg
Electrical Requirements	120V ,50/60Hz, 1Φ			
Cat. No.	BALL3001120	BALL7001120	BALL3002120	BALL7002120
Electrical Requirements	220V ,50/60Hz, 1Φ			
Cat. No.	BALL3001230	BALL7001230	BALL3002230	BALL7002230

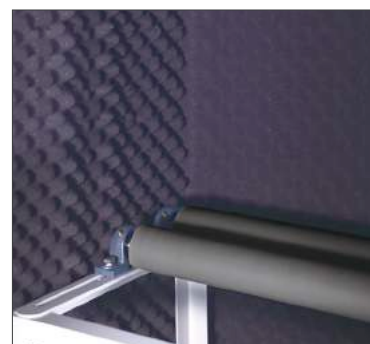
Accessory

JAR holder
-Single stage 2EA
-Twin stage 4EA

Safety Device

Automatic reset function incoming power cut
Buzzer on when set time arrived

Noiseproof Model BOX Ball Mill:



Model	SH-BALL300B	SH-BALL700B
Drive Motor	DC Geared Motor 100W	DC Geared Motor 150W
R.P.M Controller	Stepless Voltage Controller	
R.P.M range	0 to 300	
R.P.M Accuracy	±1 R.P.M	
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter	
Dimension External (W×D×H)	841x602x1085(mm)	1241x602x1085(mm)
	33.11x23.70x42.72(inch)	48.86x23.70x42.72(inch)
Dimension Roller Length, 70Φ	300mm x 2stage	700mm x 2stage
Net weight	113 Kg	150 Kg
Electrical Requirements	120V ,50/60Hz, 1Φ	
Cat. No.	BALL300B120	BALL700B120
Electrical Requirements	220V ,50/60Hz, 1Φ	
Cat. No.	BALL300B230	BALL700B230

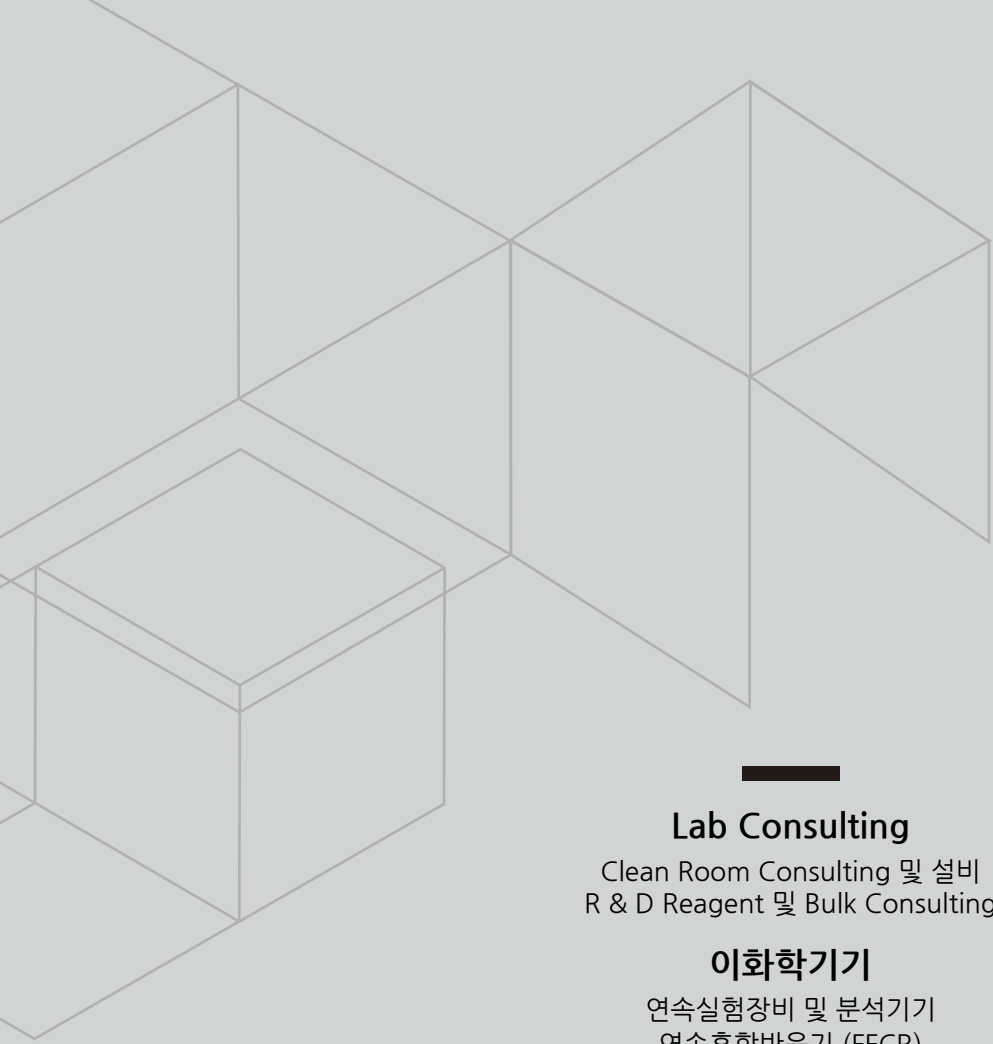
Accessory

JAR holder
-Single stage 2 EA
-Twin stage 4 EA

Safety Device

Buzzer on when set time arrived
Electric leakage circuit breaker





Lab Consulting

Clean Room Consulting 및 설비
R & D Reagent 및 Bulk Consulting

이화학기기

연속실험장비 및 분석기기
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수질 및 대기 측정 계측장비
생명과학 기기 및 소모품

시약 및 초자

국산시약
수입시약
특수원료
일반초자 및 Pyrex Reactor Unit



주소 : 서울시 금천구 디지털로9길 32, 갑을그레이트밸리 A-708호(가산동 60-5)
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