

Autoclave (Full Automatic Type)



The fully-automated AUTOCLAVE with excellent efficiency in sterilizing materials, such as glassware & etc. in the field of biochemistry, biotechnology, microbiology & other related-sector.

Only initial & simple setting enables end-users to effectively operate our high-performance Autoclave with fully-automated process for easy & quick control.

Time for sterilization can be easily adjusted by user-friendly control system, When setting time for sterilization ends up, buzzer sound comes together with automatic exhaust of steam inside the equipment.

The advanced dual safety system makes optimized protection against any kind of dangerous factors which may be caused by excessive uptake of temperature & pressure.

High efficiency over temperature Limit function fullfill reliable protection against overheating above a set temperature.

User-friendly control panel enables end-users to take a look at both setting & present temperature

When it comes up to end-user's setting temperature for sterilization, the timer is automatically activated and both operating temperature & progress time of sterilization temperature are shown on the display for easy monitoring.

The safety devices present effective protection function against overheating and overcurrent.

User-friendly all-in-one type control panel.

When it comes up to end-user's setting time for sterilization, buzzer is automatically activated and in case of sudden stoppage of power supply, automatic return function is also activated.

Using the solidly-made four-arm locker, it features easy & quick operation with the completely-isolated structure from the outside of the equipment.

• GENERAL SPECIFICATIONS

Temp	Range : Amb +10°C to 125°C
Display	controller : Digital PID controller 5 pattern 18 segment PV & SV Dual Digital Display
Time	99hr 59min 59 sec
Pressure Gauge	0~3kg/cm ²
Operating Pressure	1.2kg/cm ² at 121°C (Degrees of Celcius)
Door packing	One touch Pressure Handle Type
Safety System	Over temperature, Over Pressure and Over current protector
Basket	Standard Wire basket (Included in Every Unit of Model)
Supply Voltage & Frequency	AC 230V, 50/60Hz

• SPECIFICATION

MODEL	FTAC-701/701P	FTAC-702/702P	FTAC-703/703P	FTAC-705/705P
Capacity	40 liters	60 liters	80 liters	100 liters
Dimension (in) (W*D*H)m	Ø300×650	Ø350×650	Ø400×650	Ø450×650
Dimension (out) (W*D*H)m	670×520×1,090(H)m	670×520×1,090(H)m	750×600×1,090(H)m	850×650×1,090(H)m
Heater	2 KW	3 KW	4 KW	5 KW

Drying Oven



The high-performance FORCED CONVECTION DRYNG OVEN with its advanced features & stylish design.

• GENERAL SPECIFICATIONS

Type	Forced Convection Oven
Temp	Range : Amb $\pm 10^{\circ}\text{C}$ to 200°C (Max 250°C) Accuracy : $\pm 0.5^{\circ}\text{C}$ Controller : program PID Controller 5 Pattern 18 Step Regulator : Triac Controller
Thermocouple	K (CA Type)
Timer	Range : 99hr 59min Controller : Digital display
Material	(In) : Stainless Steel (Out) : Steel Plate with Powder Coating Insulation : Glass Wool Door Packing : High Temp. Silicone Rubber Shelves : Stainless Steel, (Adjustable Type) Window : High Temp. Safety Glass/3Glass
Safety Device	Over Current Circuit Breaker
Fan Motor	1/16HP
Power	AC 220V 50/60Hz 1Ø

By using the highly efficient fan motor, it circulates air inside the chamber FTFD models series by force and this operation features very fast diffusion of heat and it presents excellent distribution of temperatures

- The viewing window is made of triple layers tempered safety glass.
- Current temperature and setting temperature is displayed separately on the control panel.
- Easy to reserve and set up your start time.
- The excellent fan provides you with less noise than any other products.
- Wide range of Timer control ; 0~99 hour 59minute.
- The inner surface of the chamber, witch is made of Stainless Steel, enables you to experience very easy maintenance for cleanness.
- As it circulates internal air flow by force, faster drying and excellent distribution of temperature is effented.
- The height adjustable shelves enable end-users to the cabinet regardless of the size of the reagent and you can safely monitor inside the chamber.
- With the elegant coordination of up-to-date design at the control board and center of the door, it presents splendid exterior design which will surely upgrade interior image of your laboratory space.

SPECIFICATION

MODEL	FTFD-801	FTFD-802	FTFD-803	FTFD-805	FTFD-802 D	FTFD-803 D
					(Twin chamber)	(Twin chamber)
Capacity	49ℓ	91ℓ	150ℓ	250ℓ	91ℓx 2chambers	150ℓx 2chambers
In Size						
(WxDxH) mm	350x400x350	450x450x450	500x500x600	500x500x1,000	1,020x720x1,420	1,180x790x1,520
Out Size						
(WxDxH) mm	500x475x725	620x610x925	670x655x1,080	650x670x1,470	150x450x450x2c ambers	600x500x500x2c ambers
Heater						
Capacity	1 KW	1.2 KW	1.4 KW	2.7 KW	2.4 KW	3.4 KW
Shelves	2 EA	2 EA	3 EA	3 EA	4 EA	6 EA

Electric Muffle Furnace



The high-performance ELECTRIC FURNACE with its advanced features & stylish design for every diversified users in the world.

Very suitable for various purposes like gravimetric analysis for organic substance and measurement of quantity for coal and lime. With the distinguished Digital P.I.D controller, it provides you with

precise control of temperature and easiness to operate this equipment.

By the highly efficient heater installed in the four sides of the chamber, it directly heats materials which are handled. With this excellent feature, it surely reduces time of temperature climb. To prevent it from over heat and short circuit, the specializes safety device is installed.

By using the ceramic wool as a insulator, it maintains consistent temperature.

Easy to set up time of temperature climb and drop.

The three programs which are saved in accordance with your own you to correct it for your purpose. (This is optional part).

Reservation funtion of operation and self diagnosis

SPESIFICATION:

MODEL	FTMF-701/701P	FTMF-702/702P	FTMF-703/703P	FTMF-705/705P
Working range of temperature	300~1,000°C	300~1,000°C	300~1,000°C	300~1,000°C
Ascending Temperature	800°C	800°C	800°C	800°C
Ascending Time	Approximately 16min	Approximately 16min	Approximately 19min	Approximately 19min
Temperature Controller	Digital PID. Controller (program/P)			
Temperature Indication	Setting Temperature & Measuring Temperature			
Heat Transmission	K-Type	K-Type	K-Type	K-Type
Feature	PID, Tmer functicon for temperature control (99 hours 59minutes)and self diagnosis system			
External Dimension (LxDxH)mm	390x480x550	420x540x570	480x550x680	530x590x640
Internal Dimension (LxDxH)mm	130x250x90	150x300x100	200x300x200	250x350x160
Internal Capacity	3ℓ	4.5ℓ	12ℓ	14ℓ
Power Consumption	1.8KW	2.6KW	4.4KW	4.6KW
Supply Voltage & Frequency	AC230V, 1Ø, 50/60Hz	AC230V, 1Ø, 50/60Hz	AC230V, 1Ø, 50/60Hz	AC230V, 1Ø, 50/60Hz
Weight	Approximately 28kg	Approximately 32kg	Approximately 40kg	Approximately 28kg

GENERAL INCUBATOR



- Convenience
Forced convection system reduces temperature difference of the chamber

Very suitable for every kind of experiments for microbiology, cell cultivation of animals and plants and food.

With the solid double door including the inner tempered safety glass of its thickness 5mm, it enables you to easily monitor the inside of the chamber without any variation at temperature. The excellent quality of magnetic gum packing for external door. User-oriented design of shelves make you adjust each space of shelves without difficulty.

Round covered chamber to protect contamination and easy to clean.

- Perfect Performance
- Over temperature protection, alarm, timer, and auto-tuning

• GENERAL SPECIFICATIONS	
Type	Forced Convection Oven
Temp	Range : Amb $\pm 5^{\circ}\text{C}$ to 60°C
	Accuracy : $\pm 0.1^{\circ}\text{C}$
	Controller : program PID Controller
	Regulator : Triac Controller
Thermocouple	Pt-100A Ω
Timer	Range : 99hr 59min
	Controller : Digital display
Material	interior Construction : Stainless Steel Plate
	Exterior Construction : Steel Plate with Powder Coating
	Insulation : Glass Wool
	Door Packing : Double Door Magnetic Gum Packing
	inner Door : High temperature safety glass of thickness 5mm
	Shelves : ABS coating (Adjustable Type)
Safety Device	Over Temperature Limit/Over Current Glass Fuse
Supply Voltage & Frequency	AC 230V 50/60Hz

• SPECIFICATION						
MODEL	FTGT-701	FTGT-702	FTGT-703	FTGT-705	FTGT-702 D	FTGT-703 F
Capacity	49L	91L	150L	250L	91Lx2EA	150Lx4
In Size	350x400x350	450x450x450	500x500x600	500x500x1,000	(450x450x450)x2EA	(450x450x450)x4EA
(WxDxH)mm						
Out Size	510x570x700	605x650x830	750x680x950	655x690x1,350	610x740x1,290	1,220x740x1,290
(WxDxH)mm						
Heater Capacity	300W	300W	500W	1KW	500W * 2EA	500W * 4EA
Shelves	2EA	2EA	3EA	3EA	4EA	8EA

Vortex Mixer



The high-performance VORTEX MIXER with its advanced features & user-friendly design.

Variable working Motion
Easy to use Touch on Motion
Sharming design
Max 3200RPM

• SPECIFICATION

MODEL	FVTM-501
Speed Range	0~3,000RPM
Operation mode	Touch On & Continue On
Material	Steel Powder Coating & ABS
Head	Rubber Mixing Cup
Dimension (WxDxH)mm	160x170x160
Storage Tank	AC220V, 0.14A, 50/60Hz

Shaker



he optimum performance SHAKER with its proven features & stylish design

FTSK series models

MULTI-SHAKER

Every user can easily select either orbital motion or reciprocating motion for purpose of use with the user-friendly controller of our High-Performance MULTI-SHAKER, and this advanced feature also enables every user to many different purpose of use, such as mixing physical reagent, shaking culture and cell culture.

 **COMBINATION SHAKER**

The advanced two separate platforms in our High-Performance COMBINATION SHAKER provide every user with very attractive feature as follows; using both orbital and reciprocating motion at the same time. And furthermore, every user also can use these two separate platforms for either orbital motion only or reciprocating motion only by easily selecting mode for each motion with our user-friendly controller and this is the outstanding feature to the optimize both your convenience and outcome.

OPTIONAL ACCESSORIES



GENERAL SPECIFICATIONS	
Speed Range	20 to 300 rpm
Speed Control	Microprocessor Digital controller
Display	LED Display
Timer	999 min
Motor	BL D/C Motor
Stroke	20 mm
Drive System	Belt type
Power	AC 220V, 60/Hz, 50W

SPECIFICATIONS

MODEL	FTSK-301	FTSK-701M	FTSK-701CM
Type	Orbital	Orbital or Reciprocating	Orbital or Orbital & Reciprocating
Plate Size	350×350mm	450×450mm	220×450mm×(2ea)
Holder/Rack	Rubber Pad	Rubber Pad	Spring Rack
Dimensions	350×350×120mm	450×530×120mm	450×530×120mm
Motion control		Lever Operate	Lever Operate

Hot plate & Stirrer (HS-0302)



- SOveral Dimension (W*D*H)(mm) : 200*320*130
- Plate size (W*D)(mm) : 185*185 (ceramic coated)
- Temperature (surface) : Up to 420°C (Max)
- Stirring
 - speed rpm : 100~1500
 - capacity ml : 100~3000
 - control : Digital FND controller
- Heating power (W) : 850
- Material

- Top plate : Stainless steel plate (ceramic coated)
- Body : Steel plate with powder coated finish
- Power source & consumption : AC 220V 60Hz 1phase 3.3A
- Weight(kg) : 4.1

• **Features**

- Chemical resistant ceramic coated
- Constructed for a long & durable life
- Charming feature which statute indicator
- Uniform heating conditions
- Very quick obtainment of desired Temperature
- PT100 Temperature sensor(Optional)
- Stable stand (Option)

MODEL	KML-1500A
Speed Range (RPM)	100~1700
Temperature Range	Ambient +370°C
Temperature Controller	Proportional controller
Heater	Interchangeable Heater
Plate area	190*190 mm
Dimention (W*D*H) (mm)	335*230*90mm
Power	220V, 50/60Hz

Rotary Evaporator



HS-2005S

- Dimension(W×D×H) : 720×340×510mm
 - Power source : AC 220V 50/60Hz 2.5A
 - Weight : 20kg
 - Distinguished Features
- 6 different types of flasks are attachable (from 50ml to 3000mℓ)
 Digital speed control
 Digital R.P.M Display / Speed control range : 20~280 R.P.M
 Slant type condenser
 Digital interior temperature measure and display
 (It catches the temperature changes caused by the interior pressure drops)
 Motorized UP- DOWN control switch
 Easy to utilize standard distillation solution
 Auto timer function
 Autonomous condenser lifting function after a complete shut down of the machine

Included Water bath HS-3001(PTFE coating)

- Heater : 1000W / Bath Material : SUS304 / Weight : 2.8kg
- Bath Dimension(φ×H)mm : 245×120(Capacity:4.3ℓ)
- Required Power Source : AC 220V 50/60Hz 3.5A

- Distinguished Features

If the amount of water goes down under the certain threshold in the heating bath, the system automatically turns off its power for the safety purpose

- Temp.Control range : Amb.~180°C
- Temp.Setting/Display : Digital control(controlled by the main controller)
- ※ Double jacketed bath body (Safe to touch)

Included vacuum controller

- Vacuum range : 0~760mmHg

HS-2005V

- Dimension(W×D×H) : 610×340×730mm
- Power source : AC 220V 50/60Hz 2.5A
- Weight : 21kg
- Distinguished Features

6 different types of flasks are attachable (from 50ml to 3000mℓ)

Digital speed control

Digital R.P.M Display / Speed control range : 20~280 R.P.M

Vertical type condenser

Digital interior temperature measure and display

(It catches the temperature changes caused by the interior pressure drops)

Motorized UP- DOWN control switch

Easy to utilize standard distillation solution

Auto timer function

Autonomous condenser lifting function after a complete shut down of the machine

Included Water bath HS-3001(PTFE coating)

- Heater : 1000W / Bath Material : SUS304 / Weight : 2.8kg
 - Bath Dimension(φ×H)mm : 245×120(Capacity:4.3ℓ)
 - Required Power Source : AC 220V 50/60Hz 3.5A
 - Distinguished Features
- If the amount of water goes down under the certain threshold in the heating bath, the system automatically turns off its power for the safety purpose
- Temp.Control range : Amb.~180°C
 - Temp.Setting/Display : Digital control(controlled by the main controller)
 - ※ Double jacketed bath body (Safe to touch)

Included vacuum controller

- Vacuum range : 0~760mmHg

HS-2005S-N

- Dimension(W×D×H) : 730×410×630mm
- Power source : AC 220V 50/60Hz 2.5A
- Weight : 19.5kg
- Distinguished Features

6 different types of flasks are attachable (from 50ml to 3000ml)

Digital speed control

Digital R.P.M Display / Speed control range : 20~280 R.P.M

Slant type condenser

Digital interior temperature measure and display

(It catches the temperature changes caused by the interior pressure drops)

Motorized UP- DOWN control switch
Easy to utilize standard distillation solution

Included Water bath HS-3001(PTFE coating)

- Heater : 1000W / Bath Material : SUS304 / Weight : 2.8kg
- Bath Dimension($\phi \times H$)mm : 245 \times 120(Capacity:4.3 ℓ)
- Required Power Source : AC 220V 50/60Hz 3.5A
- Distinguished Features

If the amount of water goes down under the certain threshold in the heating bath, the system automatically turns off its power for the safety purpose

- Temp.Control range : Amb.~180 $^{\circ}$ C
- Temp.Setting/Display : Digital control(controlled by the main controller)
- ※ Double jacketed bath body (Safe to touch)

HS-2005V-N

- Dimension(W \times D \times H) : 620 \times 410 \times 870mm
- Power source : AC 220V 50/60Hz 2.5A
- Weight : 19.5kg
- Distinguished Features

6 different types of flasks are attachable (from 50ml to 3000m ℓ)

Digital speed control

Digital R.P.M Display / Speed control range : 20~280 R.P.M

Vertical type condenser

Digital interior temperature measure and display

(It catches the temperature changes caused by the interior pressure drops)

Motorized UP- DOWN control switch

Easy to utilize standard distillation solution

Included Water bath HS-3001(PTFE coating)

- Heater : 1000W / Bath Material : SUS304 / Weight : 2.8kg
- Bath Dimension($\phi \times H$)mm : 245 \times 120(Capacity:4.3 ℓ)
- Required Power Source : AC 220V 50/60Hz 3.5A
- Distinguished Features

If the amount of water goes down under the certain threshold in the heating bath, the system automatically turns off its power for the safety purpose

- Temp.Control range : Amb.~180 $^{\circ}$ C
- Temp.Setting/Display : Digital control(controlled by the main controller)
- ※ Double jacketed bath body (Safe to touch)

HS-2000NS

- Dimension(W \times D \times H) : 320 \times 730 \times 520mm
- Power source : AC 220V 50/60Hz 2.5A
- Weight : 16kg
- Distinguished Features

6 different types of flasks are attachable (from 50ml to 3000m ℓ)

Digital speed control

Digital R.P.M Display / Speed control range : 20~280 R.P.M

Slant type condenser

Digital interior temperature measure and display

(It catches the temperature changes caused by the interior pressure drops)

Motorized UP- DOWN control switch

Easy to utilize standard distillation solution

Included Water bath HS-3001(PTFE coating)

- Heater : 1000W / Bath Material : SUS304 / Weight : 2.8kg
- Bath Dimension($\phi \times H$)mm : 245 \times 120(Capacity:4.3 ℓ)
- Required Power Source : AC 220V 50/60Hz 3.5A

- Distinguished Features

If the amount of water goes down under the certain threshold in the heating bath, the system automatically turns off its power for the safety purpose

- Temp.Control range : Amb.~180°C
- Temp.Setting/Display : Digital control(controlled by the main controller)
- ※ Double jacketed bath body (Safe to touch)

HS-2001NS

- Dimension(W×D×H) : 320×580×720mm
- Power source : AC 220V 50/60Hz 2.5A
- Weight : 17kg
- Distinguished Features
6 different types of flasks are attachable (from 50ml to 3000mℓ)

Digital speed control

Digital R.P.M Display / Speed control range : 20~280 R.P.M

Vertical type condenser

Digital interior temperature measure and display

(It catches the temperature changes caused by the interior pressure drops)

Motorized UP- DOWN control switch

Easy to utilize standard distillation solution

Included Water bath HS-3001(PTFE coating)

- Heater : 1000W / Bath Material : SUS304 / Weight : 2.8kg

- Bath Dimension(φ×H)mm : 245×120(Capacity:4.3ℓ)

- Required Power Source : AC 220V 50/60Hz 3.5A

- Distinguished Features

If the amount of water goes down under the certain threshold in the heating bath, the system automatically turns off its power for the safety purpose

- Temp.Control range : Amb.~180°C
- Temp.Setting/Display : Digital control(controlled by the main controller)
- ※ Double jacketed bath body (Safe to touch)

HS-5SP

- Dimension(W×D×H) : 400×400×800mm

- Power source : AC 220V 50/60Hz 2.5A

- Weight : 26kg

- Distinguished Features

Evaporating flask : 5000ml

Receiving flask : 3000ml

Digital speed control

Digital R.P.M Display

Speed control range : 20~280 R.P.M

Vertical type condenser

Digital interior temperature measure and display

(It catches the temperature changes caused by the interior pressure drops)

Motorized UP- DOWN control switch

Easy to utilize standard distillation solution

Included Water bath HS-3001(PTFE coating)

- Heater : 1000W / Bath Material : SUS304 / Weight : 2.8kg
- Bath Dimension($\phi \times H$)mm : 245 \times 120(Capacity:4.3 ℓ)
- Required Power Source : AC 220V 50/60Hz 3.5A
- Distinguished Features

If the amount of water goes down under the certain threshold in the heating bath, the system automatically turns off its power for the safety purpose

- Temp.Control range : Amb.~180 $^{\circ}$ C
- Temp.Setting/Display : Digital control(controlled by the main controller)
- ※ Double jacketed bath body (Safe to touch)

Included vacuum controller

- Vacuum range : 0~760mmHg

Cooling Water Circulator(Bath)



• FEATURE

As a source of cooling water to the Rotary Evaporator and as a heat-emitting equipment it supplies sufficient quantity of cooling water as highly efficient chemical pumps are installed and does not contaminate other instruments as it does not get corroded.

• SPECIFICATION(HS-3005)

Capacity	15 ℓ
Bath Dimension (D \times H)	ϕ 280 \times 270
Circulator Pump	Magnet 20W Max. flow 15 ℓ /min
Temp.Range	Down to~ -20 $^{\circ}$ C
Controller	FND Controller
Refrigerator	3/4HP
Refrigerant	134A
Dimension (W \times D \times H)	330 \times 560 \times 670mm
Gross weight	40kg
Power consumption	750W
Power Supply	AC 230V 50/60Hz

• SPECIFICATION(HS-3005W)

Capacity	24 ℓ
Bath Dimension (D \times H)	ϕ 350 \times 250
Circulator Pump	Magnet 40W Max. flow 35 ℓ /min
Temp.Range	Down to~ -20 $^{\circ}$ C
Controller	FND Controller
Refrigerator	2HP
Refrigerant	R404

Dimension (W×D×H)	630×680×900mm
Gross weight	110kg
Power consumption	2000W
Power Supply	AC 230V 50/60Hz

HS-3005N(CE)



• FEATURE

As a source of cooling water to the Rotary Evaporator and as a heat-emitting equipment it supplies sufficient quantity of cooling water as highly efficient chemical pumps are installed and does not contaminate other instruments as it does not get corroded.

• SPECIFICATION

Capacity	4ℓ
Bath Dimension (D×H)	φ190×200
Circulator Pump	Magnet 20W Max. flow 15ℓ/min
Temp.Range	Down to~ -20°C
Controller	FND Controller
Refrigerator	1/3HP
Refrigerant	134A
Dimension (W×D×H)	250×510×510mm
Gross weight	28kg
Power consumption	334W
Power Supply	AC 230V 50/60Hz

Cold Trap Bath HS-3003



- SPECIFICATION

- Capacity : 4ℓ
- Bath Dimension(D×H) : φ190×200
- Type : Glass Trap
- Temp.Range : Down to~ -40°C
- Controller : FND Controller
- Refrigerator : 1/3HP
- Refrigerant : 134A
- Dimension(W×D×H) : 250×510×510mm
- Gross weight : 28kg
- Power consumption : 334W
- Power Supply : AC 230V 50/60Hz

- APPLICATION

- When cold trap needs to be done in extremely low temperature.
- Solvent vapor trap to prevent contamination of vacuum pump by lubricating oil.
- Quick freezing of sample for freeze-drying.
- Quick freezing for reaction stop of enzyme.

Vacuum controller HS-0245



- SPECIFICATION

Solid state module maintains precise control ($\pm 3\%$) of the system

vacuum by cycling the pump on/off as required.

Adjustable for any level between 1mmHg and 760mmHg

- Power source : AC 220V 50/60Hz
- Dimensions(W×D×H) : 160×130×95mm
- Weight : 1.8kg

