

Version : 2016 Rev.0

VACUUM DRYING OVEN



SH-VDO-08NG/30NG/70NG/125NG/216NG
SH-VDO-30NH/70NH

TABLE OF CONTENTS

Keep this manual on-hand so it can be used by all operators of the unit.
Use the unit only in the way described in this manual.
Failure to follow the instruction in this manual may cause wrong operation.

1. General Description	3
2. Graphic Symbols	4
3. Key Features	5
4. The Outward	6
5. Installation	8
6. Setting and Operation	
6-1. VDO-08NG	11
6-2. VDO-30/70/126/216NG, 30/70NH	15
7. Specification	19
8. Troubleshooting	23

1. GENERAL DESCRIPTION

Thank you for purchasing our product. We know that in today's competitive marketplace, customers have many choices when purchasing laboratory equipments.

We appreciate your choosing our quality product. Our stands behind our products and wants to let you know we are here if you need us.

Before you use the unit, read this entire manual carefully to understand how to install, operate and maintain the unit in a safe manner.

Your satisfaction with the unit will be maximized as you read this manual thoroughly.

Our capable products will satisfy you by the best performance of with easy operation.

2. GRAPHIC SIMBOLS

BE SURE THAT YOU UNDERSTAND ALL OF THESE SYMBOLS
BEFORE OPERATING THE UNIT.



Important operating and / or maintenance instruction.
Read the accompanying text carefully.



This symbol indicates items and procedures that are **STRICTLY PROHIBITED** with regards to the unit.



Potential electrical hazards.



Explosive.



No disassemble.

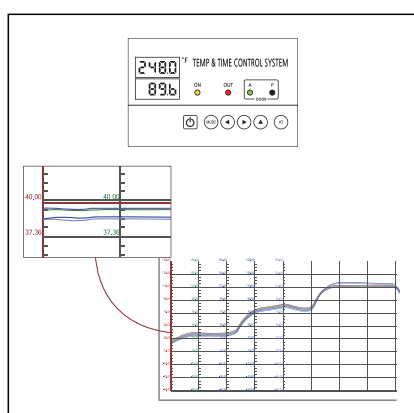


Flammable.

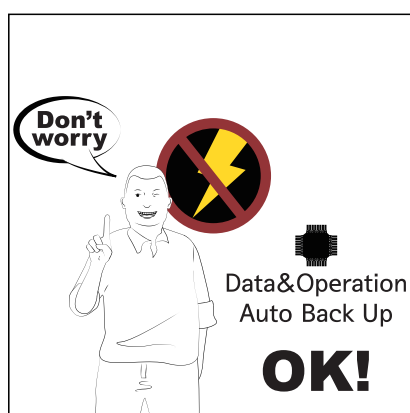


Hot surface or steam.

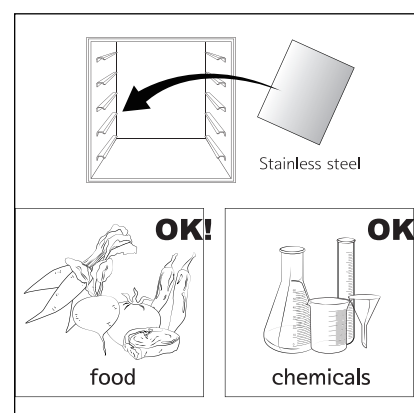
3. KEY FEATURE



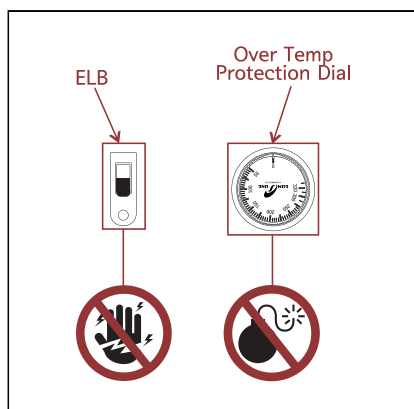
- Digital display of temp and time
- Multi key-in (100Ω(DIN Pt100Ω), KPt100Ω(JPt100Ω), K(CA))
- Precise temperature control
- Alarm when timer ends



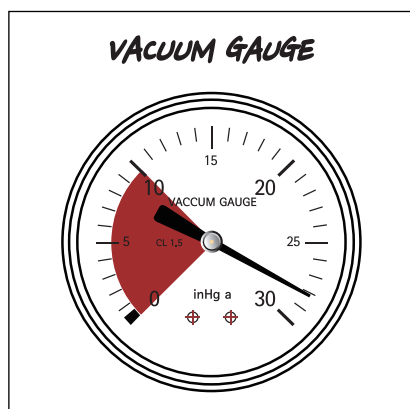
- Auto back up



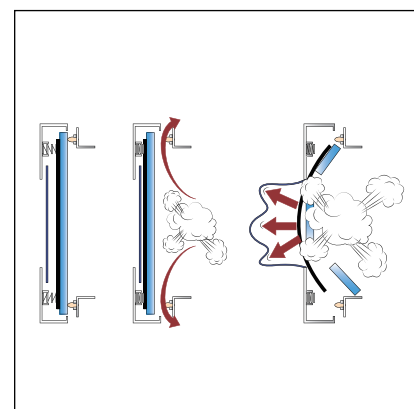
- Highend internal material



- Over-temperature protection function
- Over-current protection function

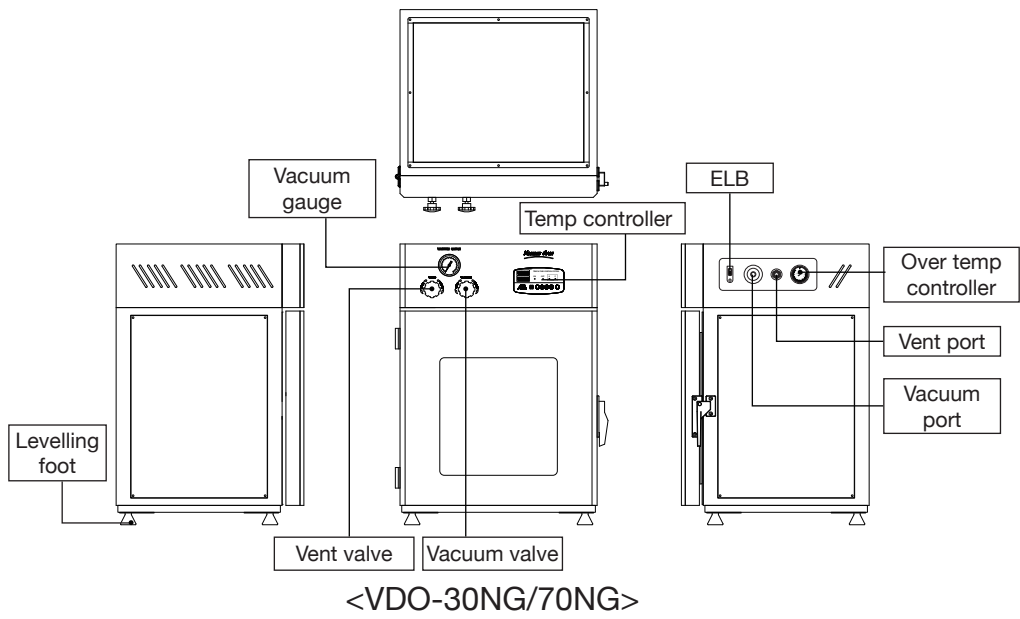
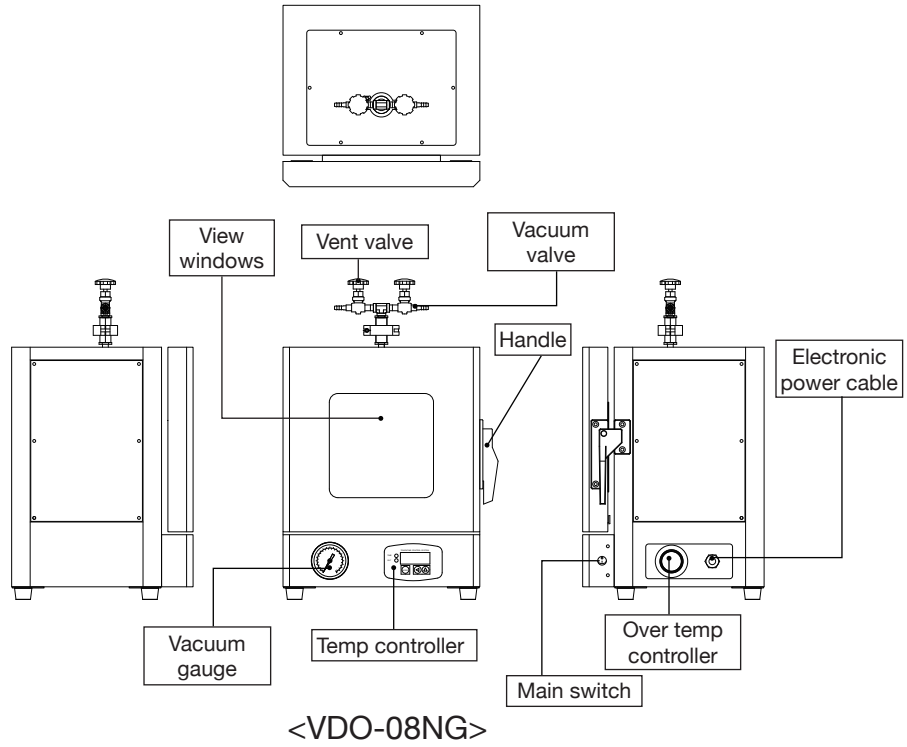


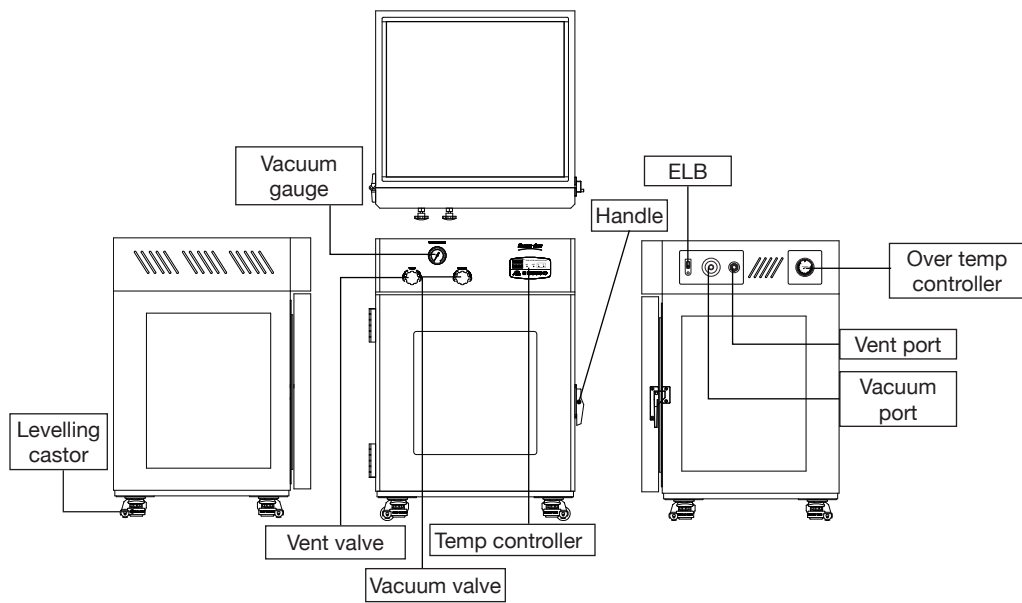
- Exclusive gauge design



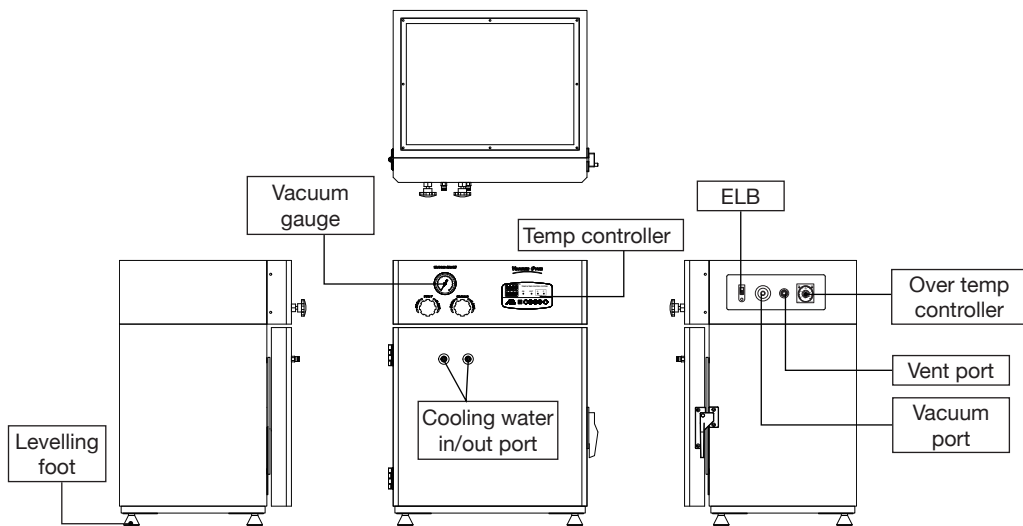
- Explosion safety door

4. THE OUTWARD



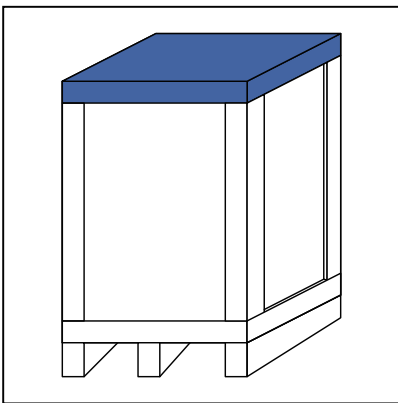


<VDO-125NG/216NG>

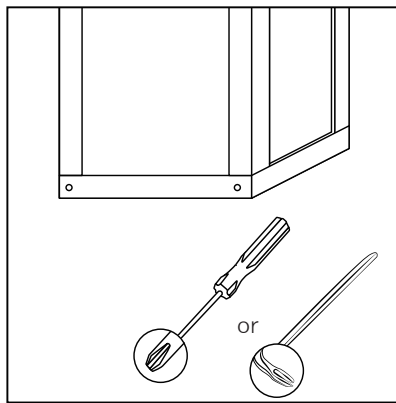


<VDO-30NH/70NH>

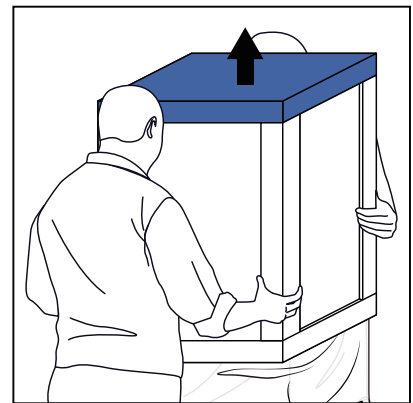
5. INSTALLATION



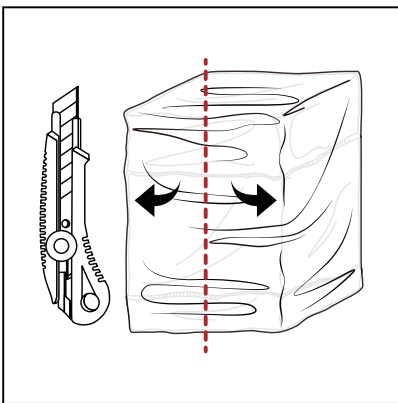
① Once the product is delivered, place the package on a flat location.



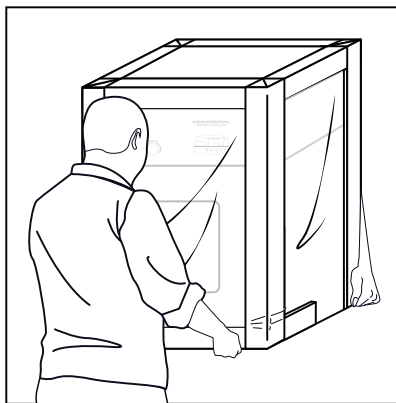
② Unscrew the bottom of the box.



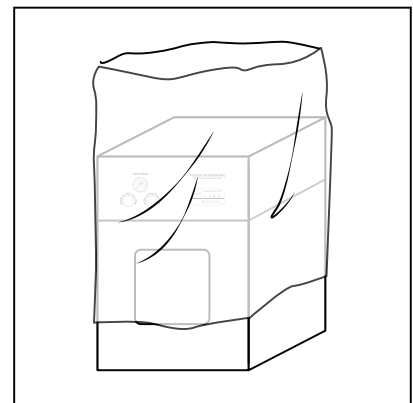
③ Lift the box as shown in the picture.



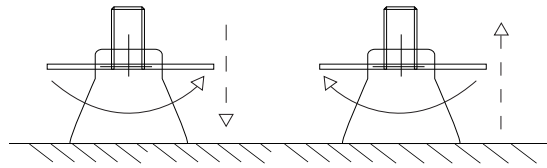
④ Unwrap the bag.



⑤ Place the equipment on your desired location.

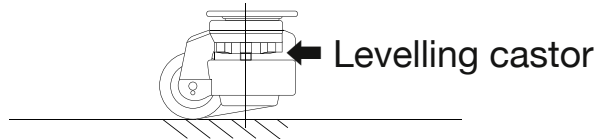


⑥ Lift the remaining plastic up.



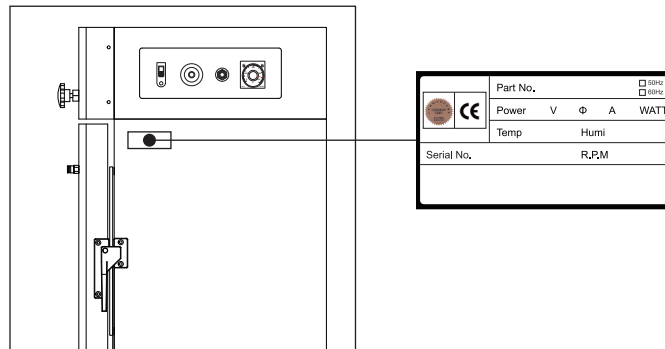
<VDO-30NG/70NG/30NH/70NH>

Turn the levelling foot clockwise or counter clockwise to adjust.



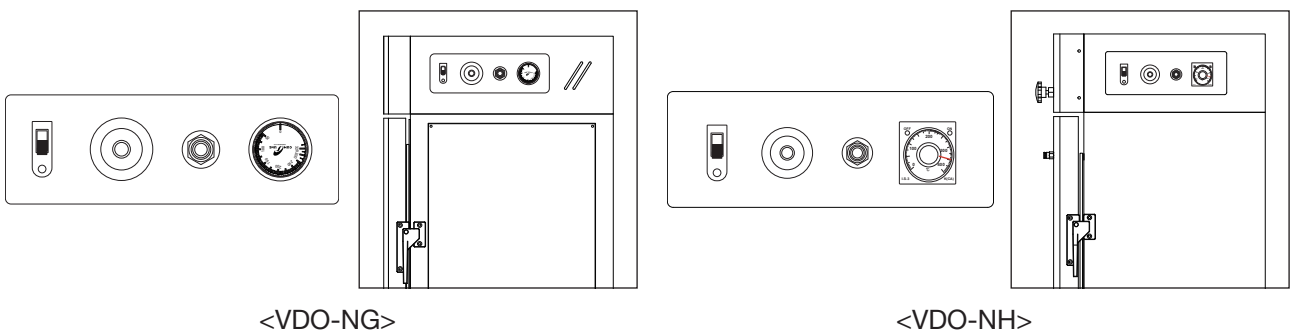
<VDO-125NG/216NG>

Turn the levelling castor clockwise or counter clockwise to be flat.



! Serial label shows the electric power specification of the unit.
Connect power and turn on the main switch (E.L.B)

<Position of OVER TEMP>



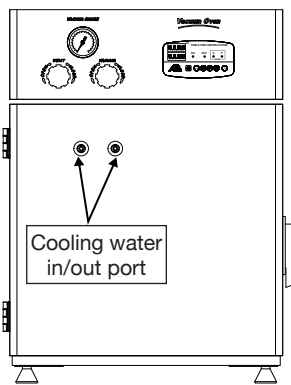
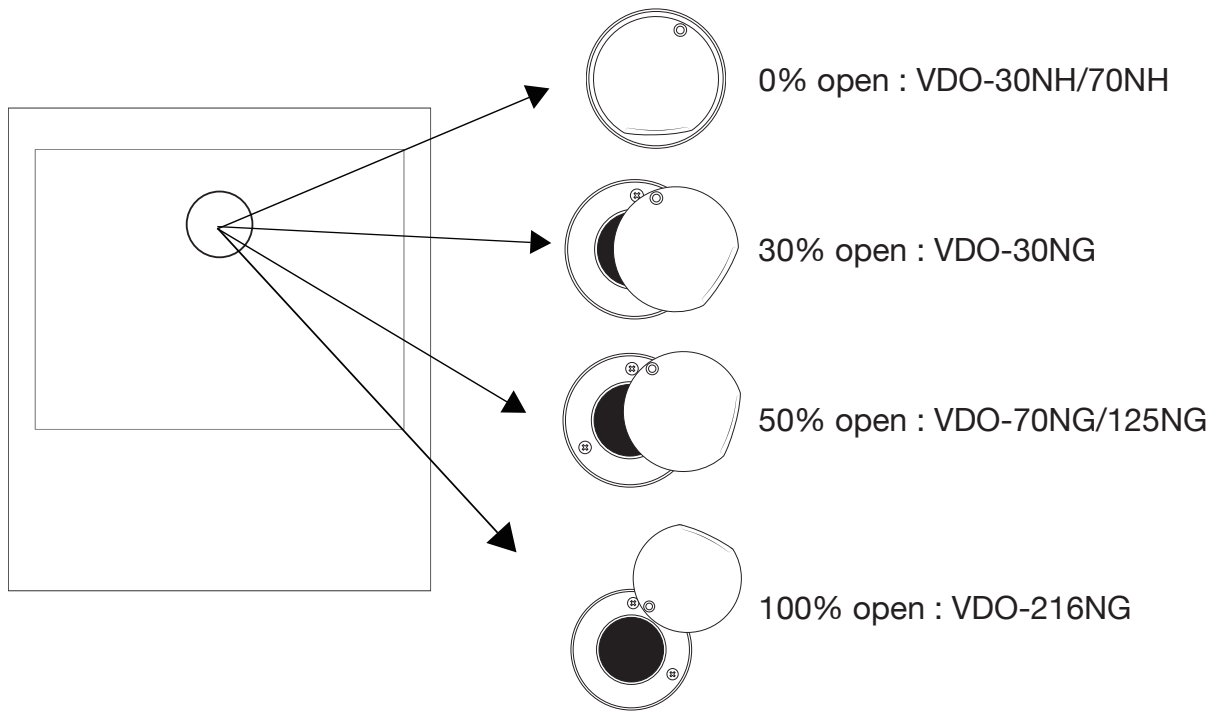
<VDO-NG>

<VDO-NH>

! OVER TEMP dial is placed at the side of the unit.
OVER TEMP should be set at least 30°C higher than the target set temp.

If the TEMP CONTROLLER set value is 120°C, OVER TEMP Dial must set over 150°C.
(Default value is 250°C)

The optimal open area ratio of each vent hole is already set as delivered but if the cover has been accidentally displaced, the user can reset as shown in the guide below:



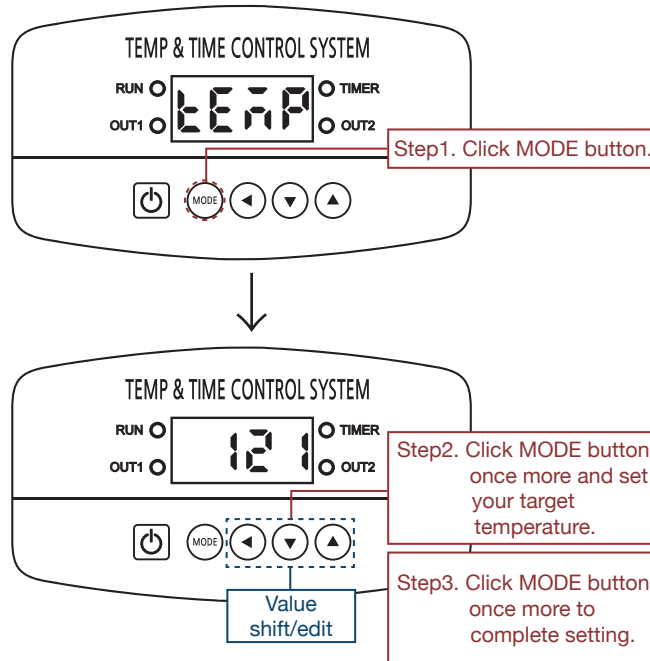
Cooling water should be flowed through in/out port. Otherwise, door gasket will be damaged.

Oven and Pump connection

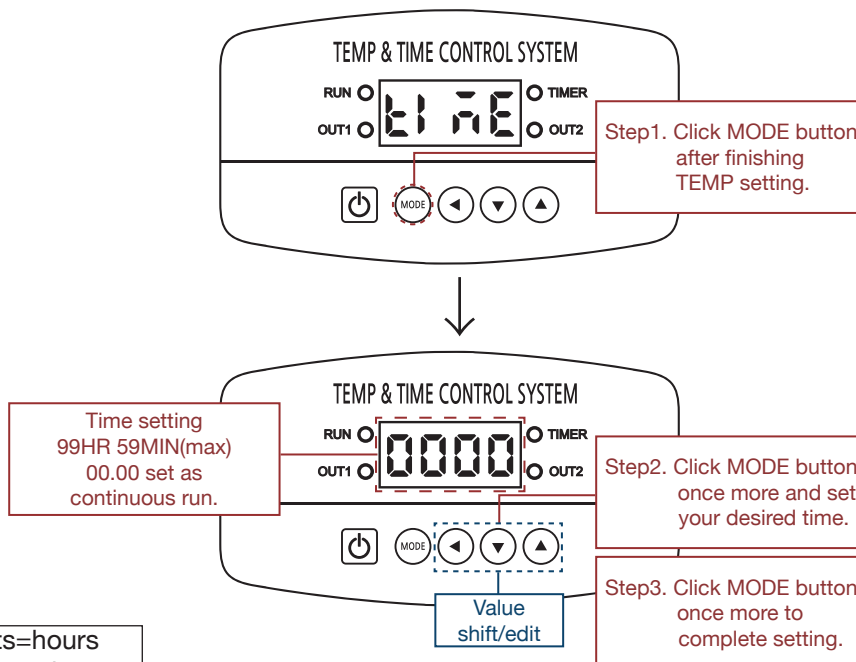
1. Before operating ensure that the vent valve and vacuum valve are closed.
2. Connect the KF clamps and KF O-rings to the oven and to the vacuum pump.
3. When operating, strictly follow these procedures step by step:
 - 1) Turn on the vacuum pump.
 - 2) Open the vacuum valve.
 - 3) In order to end operation, close vacuum valve.
 - 4) Turn off the vacuum pump.
 - 5) Open the vent valve.

6-1. SETTING AND OPERATION (VDO-08NG)

(1) TEMP mode



(2) TIME mode



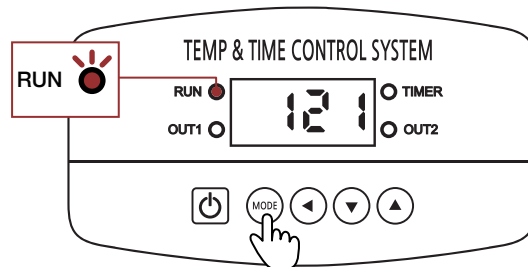
※The first 2 digits=hours
The last 2 digits=minutes



If you want a minute-second or day-hour time combination instead, feel free to contact your supplier.




※Be aware that 00.00 means infinite value.

The unit will continue to run until the user manually turns it off.

(4) Start / Stop the unit



Press  for 3 sec and the unit will start running with RUN lamp on.
 Press  for 3 sec and the unit will stop running with RUN lamp off.

-  OUT1 lamp will be on or blinking during the unit runs.
-  TIMER lamp will be blinking and it will be on when the set temp is reached.
-  OUT2 is nothing to do with this product.

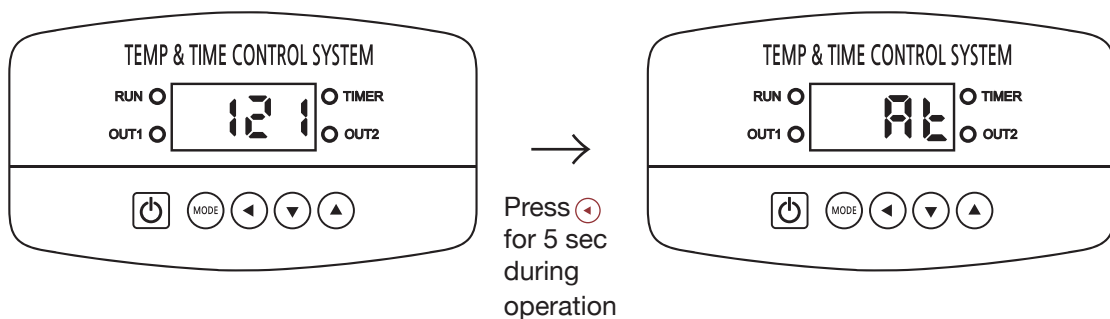
(5) Auto Tuning(AT)

AT is recommended under 2 cases.

case1. When the change of current temp is fluctuating more than $\pm 0.1^{\circ}\text{C}$.

case2. When the unit can not reach at the set temp.

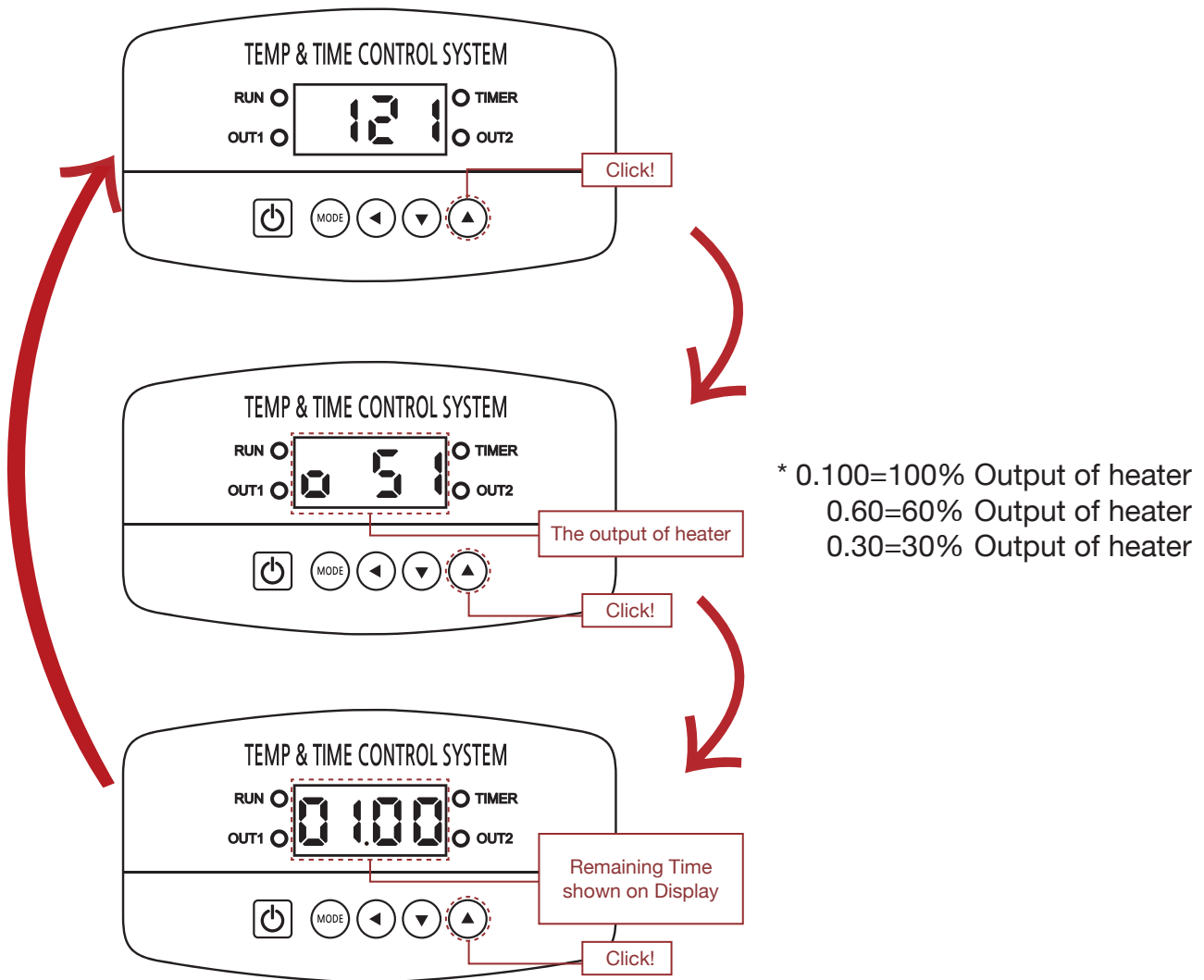
You can enter / quit AT mode by pressing  for 5 sec when the unit runs.



AT will be finished automatically when it is done.

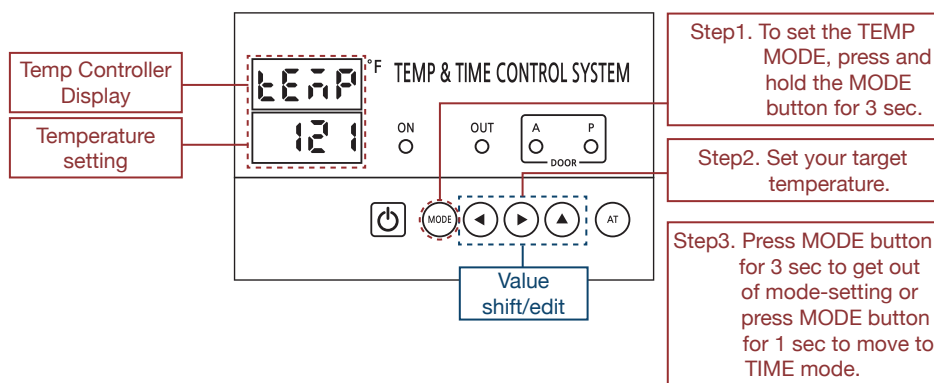
(6) Checking the remaining operation time and the output of heater

- ➔ You can check the output of heater by clicking ▲ button for 1 sec.
- ➔ You can check the remaining operating time by clicking ▲ button one more time.
- ➔ You can return to the original display by clicking ▲ button one more time.

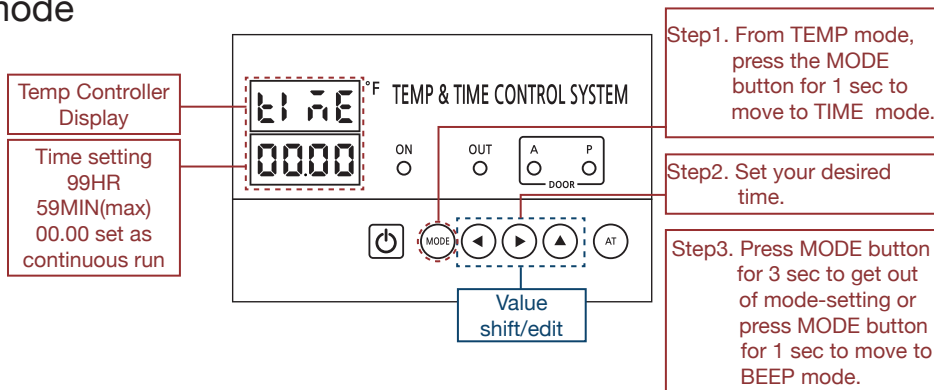


6-2. SETTING AND OPERATION (VDO-30/70/125/216NG) (VDO-30/70NH)

(1) TEMP mode



(2) TIME mode

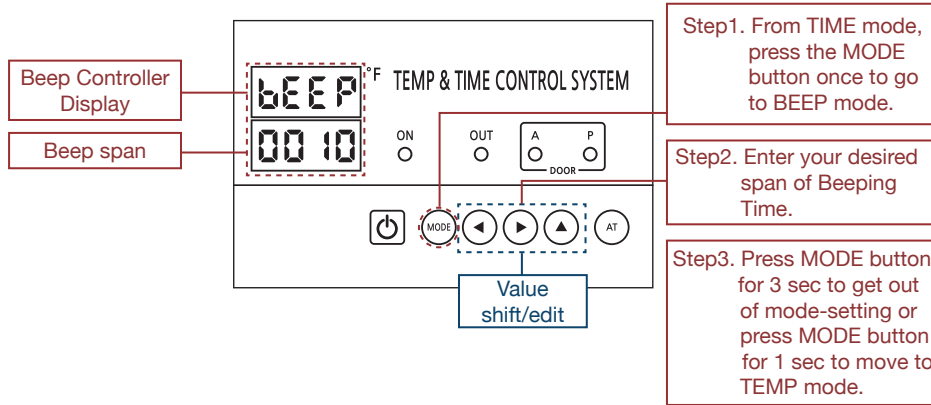


※The first 2 digits=hours
The last 2 digits=minutes

If you want a minute-second or day-hour time combination instead, feel free to contact your supplier.

※Be aware that 00.00 means infinite value.
The unit will continue to run until the user manually turns it off.

(3) BEEP mode

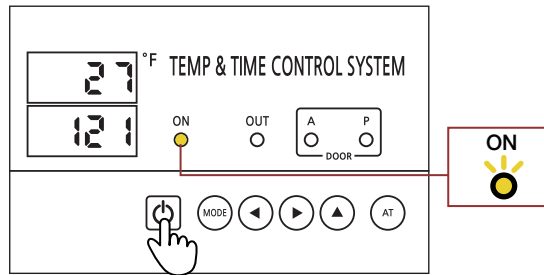


The span of time set under beep mode is the duration of the beeping once the set operating time has been finished.

1 buzzer sound/sec.


The BEEP timer will only operate once TIME mode is set.

(4) Start the unit



Press  for 3 sec and the unit will start running with lamp ON.



Make sure that you should press  always to run the unit.



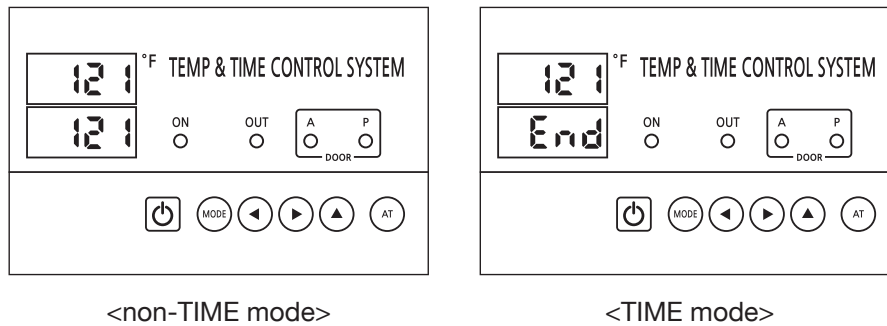
Lamp A means that door opening is Allowed because temperature inside the chamber is lower than 70°C.




Lamp P means that door opening is Prohibited because temperature inside the chamber is higher than 70°C.

This is to comply CE regulation.

(5) Stop the unit



When TIME mode ends or operator stops it manually by pressing  the unit will stop running.



Door can be opened when the chamber is depressurized.

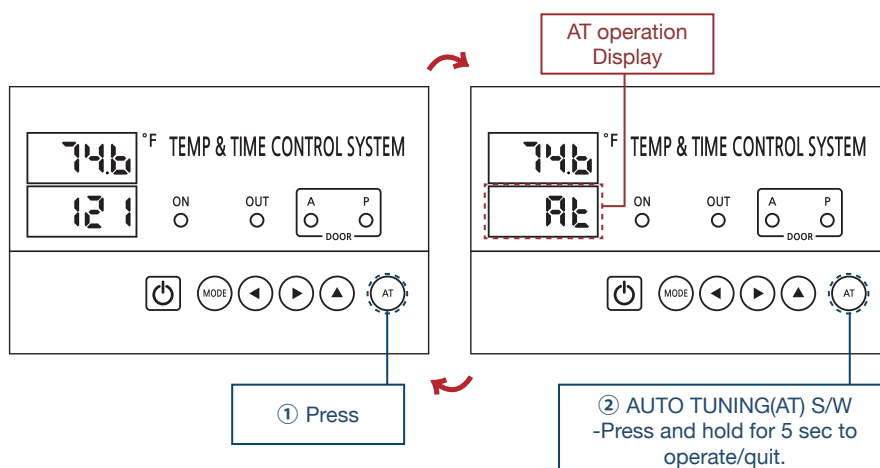
(6) Auto Tuning(AT)

AT is recommended under 2 cases.

case1. When the change of current temp is fluctuating more than $\pm 0.1^{\circ}\text{C}$.

case2. When the unit can not reach at the set temp.

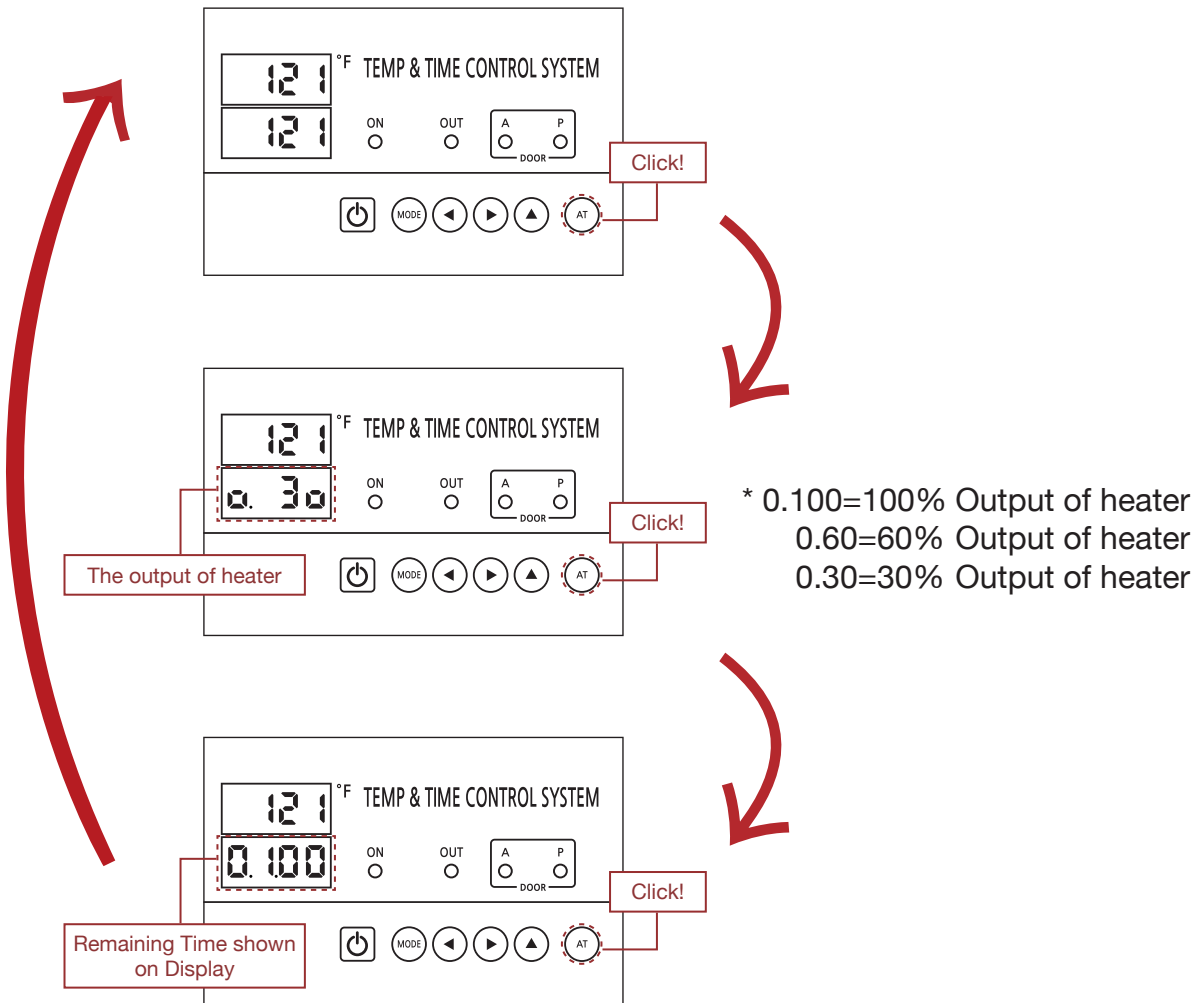
You can enter / quit AT mode by pressing AT button for 5 sec.



AT will be finished automatically when it is done.

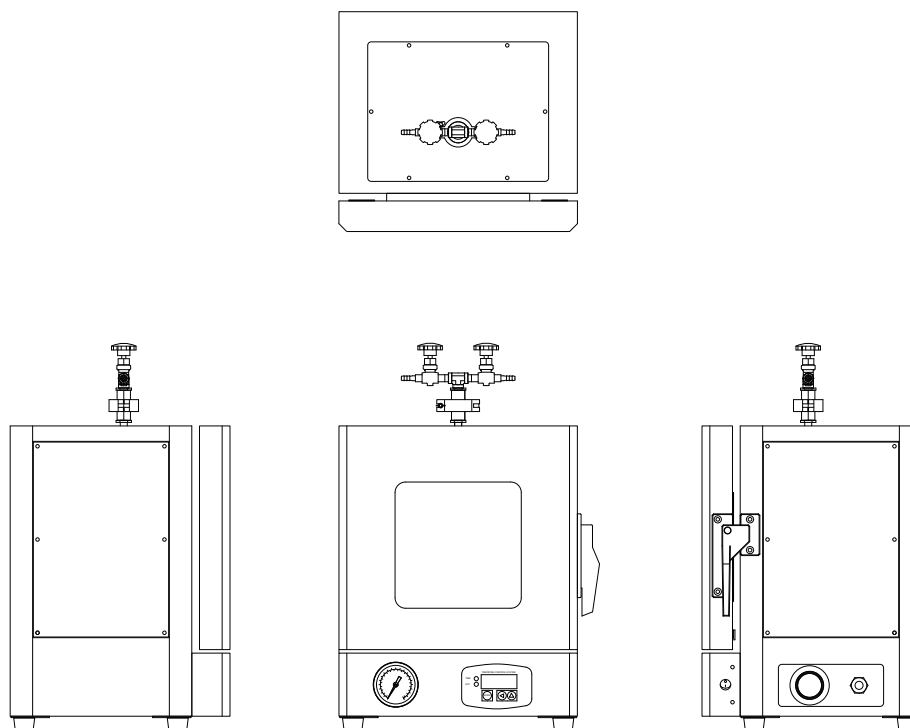
(7) Checking the remaining operation time and the output of heater

- ➔ You can check the output of heater by clicking "AT" button for 1 sec.
- ➔ You can check the remaining operating time by clicking "AT" button one more time.
- ➔ You can return to the original display by clicking "AT" button one more time.



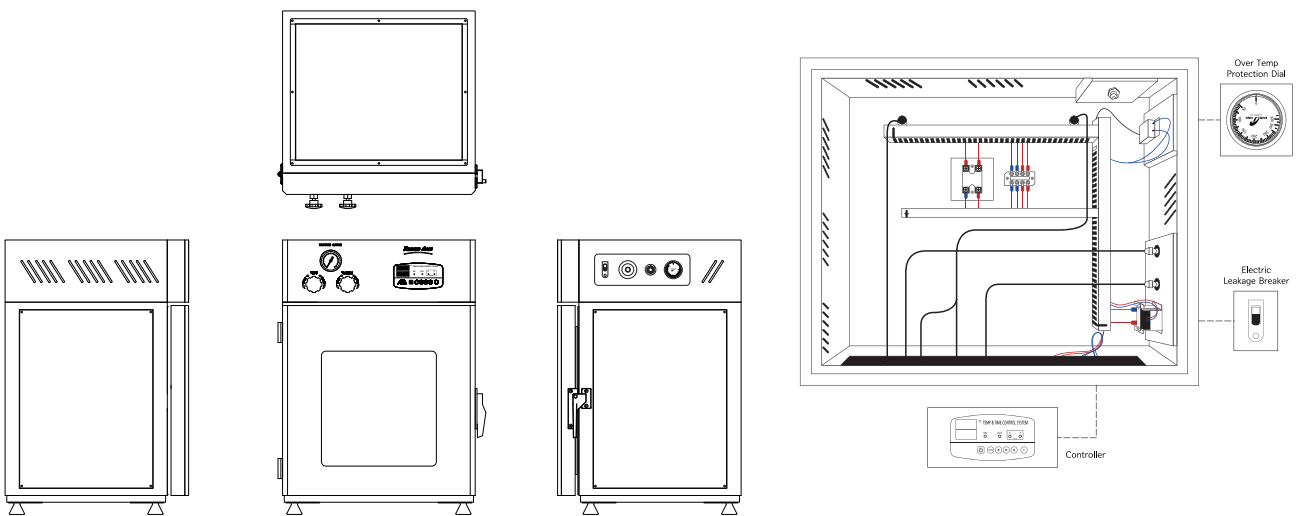
7. SPECIFICATIONS

VACUUM DRYING OVEN - 08NG



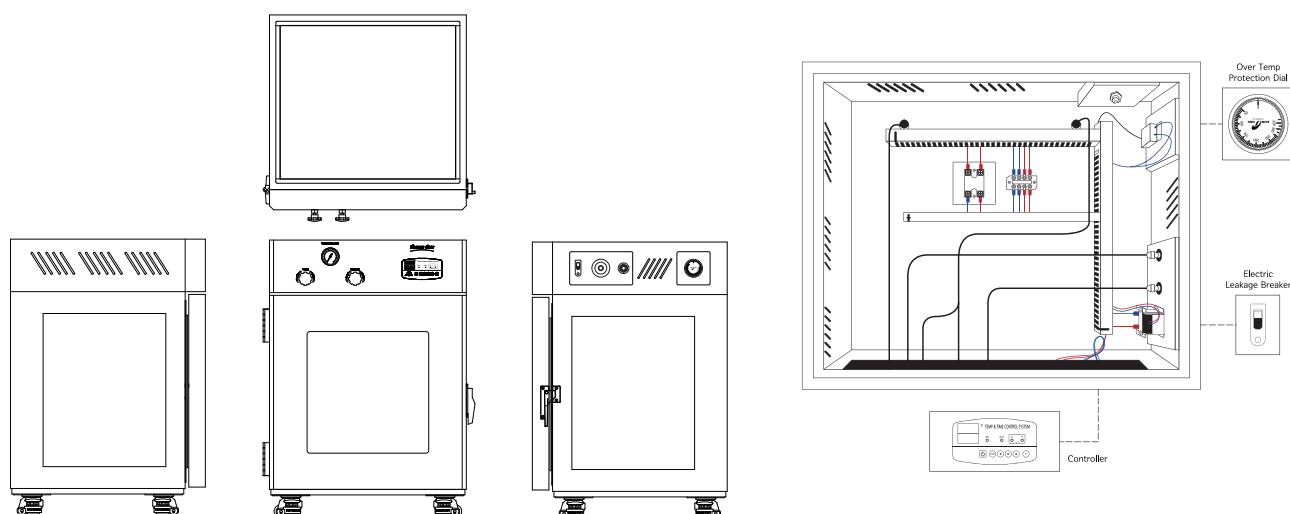
Model	SH-VDO-08NG
Temp Range	Ambient +5°C to 250°C (Ambient + 9°F to 482°F)
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer
Vacuum Resistance	0 to 76 cmHg (0 to 0.1MPa)
Temp & Time controller	Microprocess PID Membrane Touch Digital controller
Heater capa	800 W
Dimension Internal (WxDxH)	200x200x200(mm) 7.87x7.87x7.87(inch)
Dimension External (WxDxH)	385x314x611(mm) 15.16x12.36x24.06(inch)
Net weight	29 Kg
Capa	8 L
Material Internal	Stainless Steel
Material External	Steel Plate With Powder Heating Coated
Material Packing	Silicon Rubber Packing
View Window	Tempered Glass
Shelves -p.63	2 Supplied (2 Maximum)
Electrical Requirements 120V ,50/60Hz, 1Φ	6.6 A
Electrical Requirements 230V,50/60Hz, 1Φ	3.5 A

VACUUM DRYING OVEN - 30NG/70NG



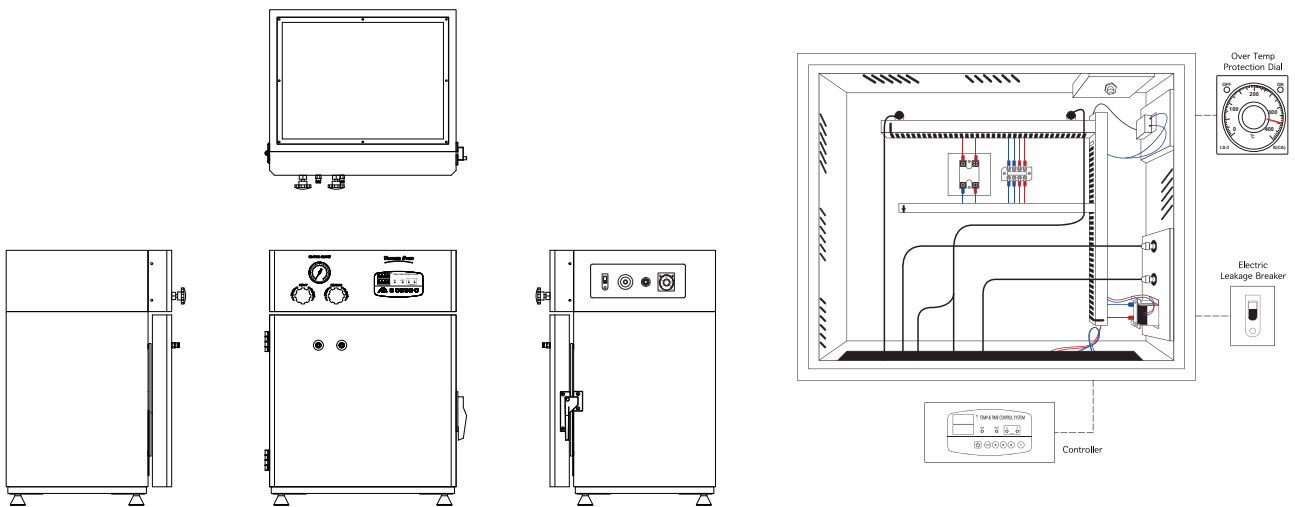
Model	SH-VDO-30NG	SH-VDO-70NG
Temp Range	Ambient +5°C to 250°C (Ambient + 9°F to 482°F)	
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer	
Vacuum Resistance	0 to 76 cmHg (0 to 0.1MPa)	
Temp & Time controller	Microprocess PID Membrane Touch Digital controller	
Heater capa	1000 W	1500 W
Dimension Internal (WxDxH)	300x300x300(mm)	400x400x400(mm)
	11.81x11.81x11.81(inch)	15.75x15.75x15.75(inch)
Dimension External (WxDxH)	515x513x712(mm)	615x611x812(mm)
	20.28x20.20x28.03(inch)	24.21x24.06x31.97(inch)
Net weight	69 Kg	100 Kg
Capa	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	
Shelves -p.63	2 Supplied (4 Maximum)	3 Supplied (5 Maximum)
Electrical Requirements 120V ,50/60Hz, 1Φ	8.3 A	12.5 A
Electrical Requirements 230V,50/60Hz, 1Φ	4.3 A	6.5 A

VACUUM DRYING OVEN - 125NG/216NG






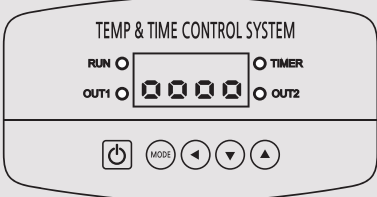
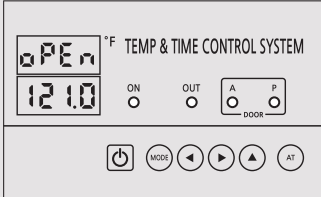
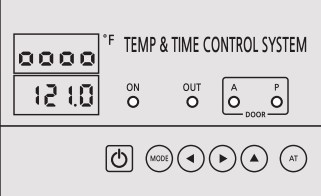

Model	SH-VDO-125NG	SH-VDO-216NG
Temp Range	Ambient +5°C to 250°C (Ambient + 9°F to 482°F)	
Time Range	00.00 to 99HR 59MIN (MIN SEC) Selectable Digital Counter Timer	
Vacuum Resistance	0 to 76 cmHg (0 to 0.1MPa)	
Temp & Time controller	Microprocess PID Membrane Touch Digital controller	
Heater capa	3000 W	4500 W
Dimension Internal (WxDxH)	500x500x500(mm)	600x600x600(mm)
	19.69x19.69x19.69(inch)	23.62x23.62x23.62(inch)
Dimension External (WxDxH)	767x750x1007(mm)	867x862x1107(mm)
	30.20x29.53x39.65(inch)	34.13x33.94x43.58(inch)
Net 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	
Shelves	4 Supplied (6 Maximum)	5 Supplied (7 Maximum)
Electrical Requirements 120V ,50/60Hz, 1Φ	25.0 A	37.5 A
Electrical Requirements 230V,50/60Hz, 1Φ	13.0 A	19.6 A

VACUUM DRYING OVEN - 30NH/70NH



Model	SH-VDO-30NH	SH-VDO-70NH
Temp Range	Ambient +5°C to 350°C (Ambient + 9°F to 662°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	
Temp Accuracy & Stability	±0.1°C	
Heater capa	1700 W	3000 W
Dimension Internal (WxDxH)	300x300x300(mm)	400x400x400 (mm)
	11.81x11.81x11.81(inch)	15.75x15.75x15.75(inch)
Dimension External (WxDxH)	605x542x766(mm)	705x610x866(mm)
	23.81x21.34x30.26(inch)	27.75x24.02x34.09(inch)
Net weight	93 Kg	113 Kg
Capa	27 L	64 L
Material Internal	Stainless Steel	
Material External	Steel Plate With Powder Heating Coated	
Material Packing	Silicon Rubber Packing	
View Window	None	
Shelves	2 Supplied (4 Maximum)	3 Supplied (5 Maximum)
Electrical Requirements 120V ,50/60Hz, 1Φ	14.2 A	25.0 A
Electrical Requirements 230V,50/60Hz, 1Φ	7.4 A	13.0 A

8. TROUBLESHOOTING

Symptom	Possible Causes of Problem
Unit does not work	Check power is connected well.
Temperature does not rise	Press  for 3 sec.
	Press  button for 5 sec.
	Check OVER TEMP set value.
Operating Temp.fluctuates	Press  button for 5 sec.
	Alert of temperature sensor's short circuit. (VDO-08NG)
	Alert of door open during operation. Make sure if door is closed. (VDO-30/70/125/216NG) (VDO-30/70NH)
	Alert of temperature sensor's short circuit. (VDO-30/70/125/216NG) (VDO-30/70NH)
<p data-bbox="225 1722 560 1756">Vacuum does not work</p> 	Check whether vacuum valve is open. Check whether vacuum pump is on. Check whether vent valve is closed.

