Version : 2016 Rev.0

MUFFLE FURNACE

SH-FU-4/11/22MS

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

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. We stand behind our products and want 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 with easy operation.

2. GRAPHIC SYMBOLS

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 STRICTY PROHIBITED with regards to the unit.

Potential electrical hazards.

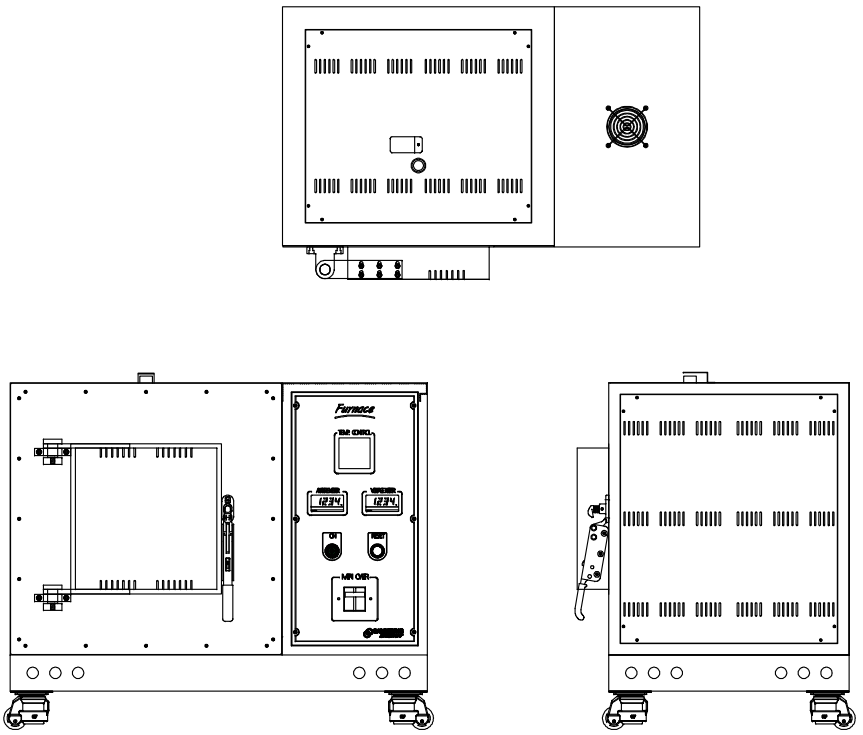
Explosive.

No disassemble.

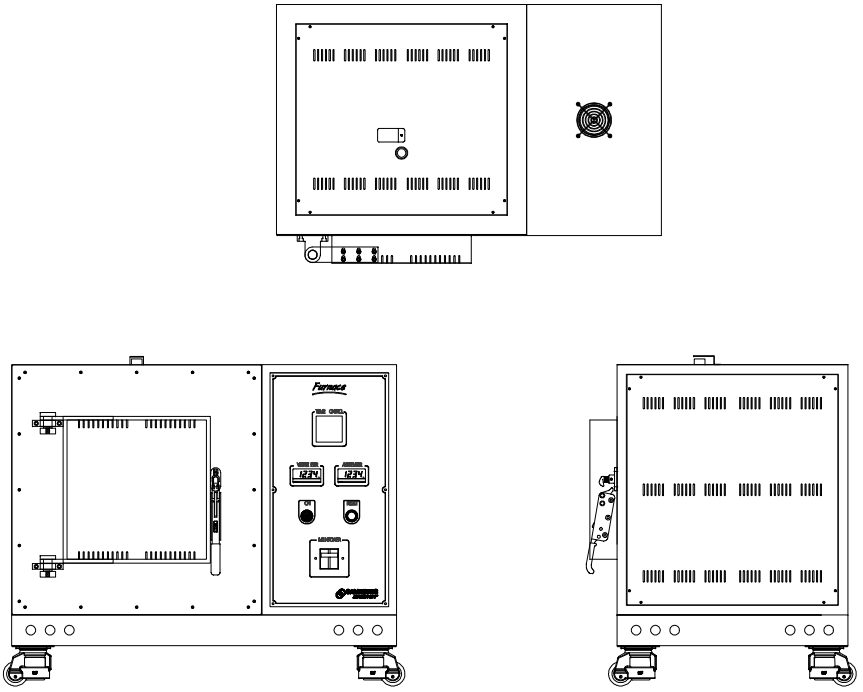
Flammable.

Hot surface or steam.

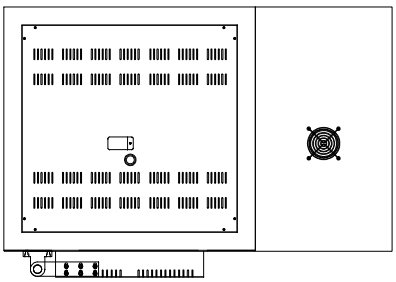
3. THE OUTWARD

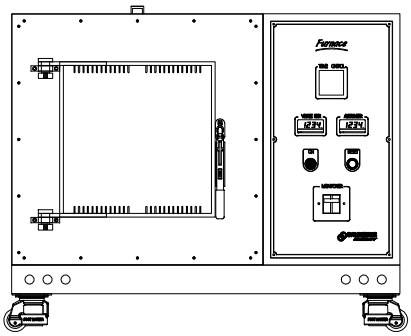


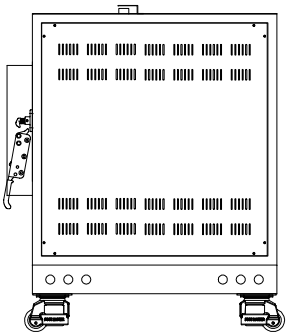
<FU-4MS>



<FU-11MS>

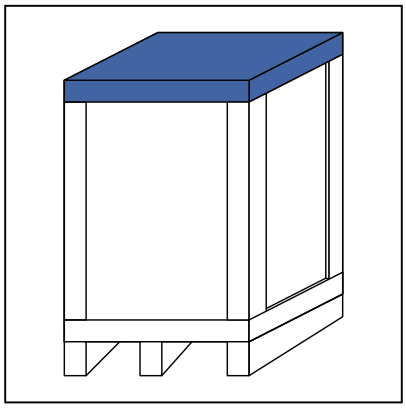




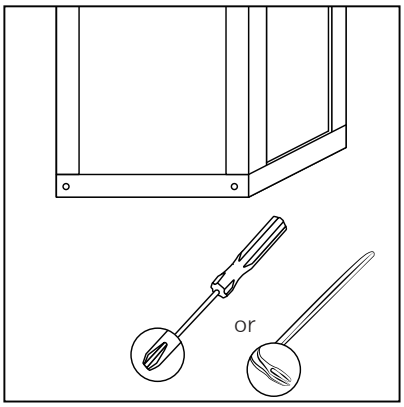


<FU-22MS>

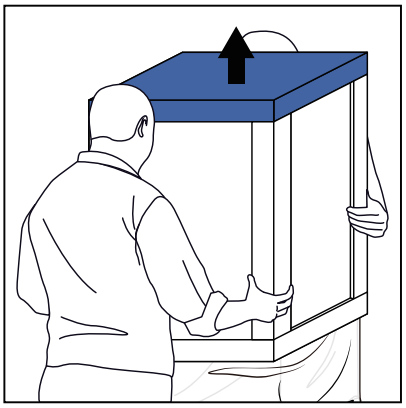
4. INSTALLATION



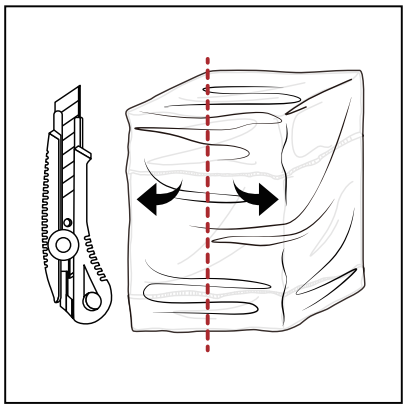
① Once the product is delivered, place the package on a flat location.



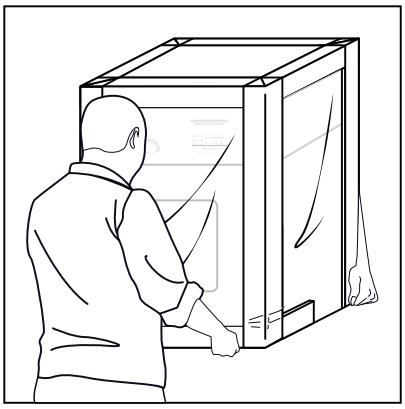
② Unscrew the bottom of the box.



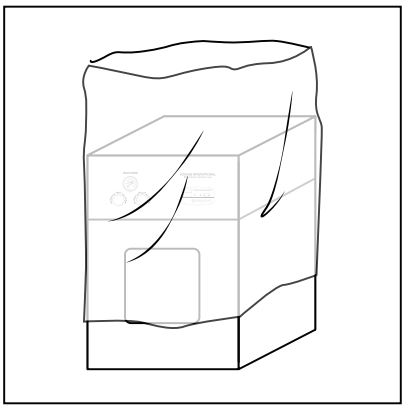
③ Lift the box as shown in the picture.



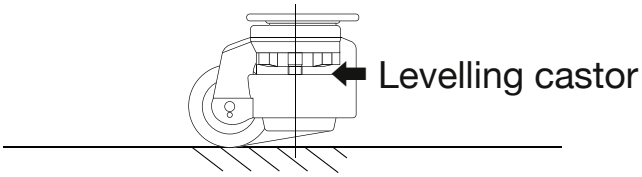
④ Unwrap the bag.



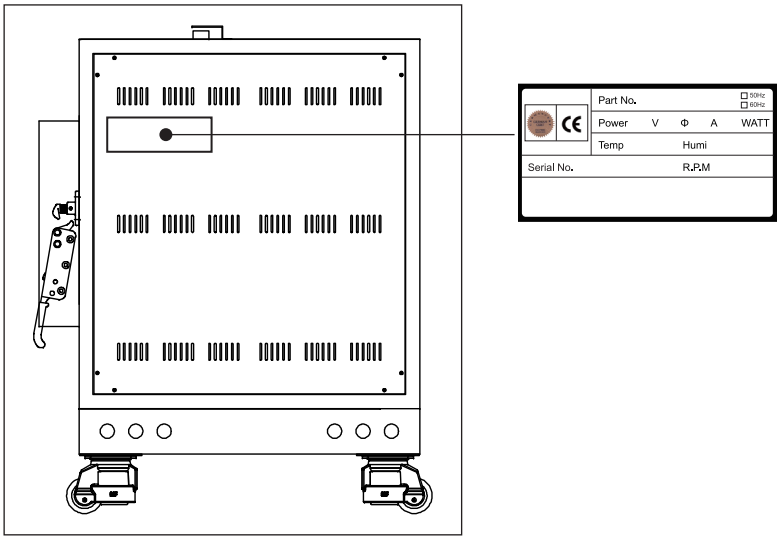
⑤ Place the equipment on your desired location.



⑥ Lift the remaining plastic up.



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



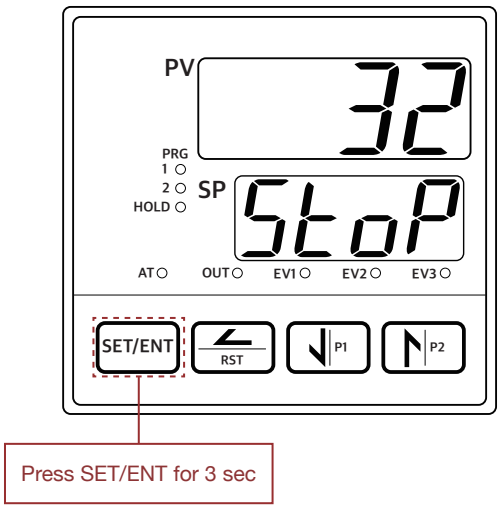
Serial label shows the electric power specification of the unit.
Connect power and turn on the main switch (E.L.B)

Please do not raise up to high temp at once.
It case to decline durability.
We recommend raise temp under 15°C/min.

5. SETTING AND OPERATION

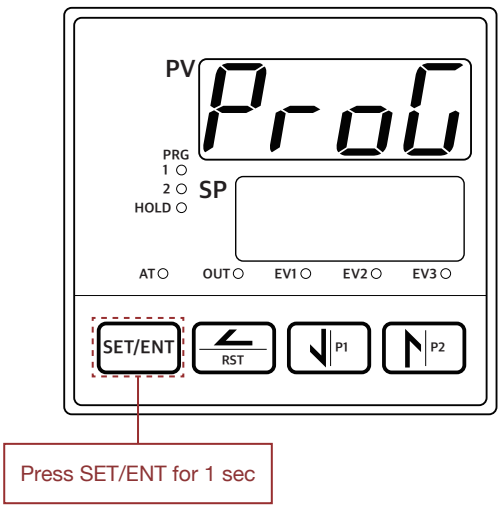
ex) 100°C for 1 hour, 200°C for 1 hour.

1)



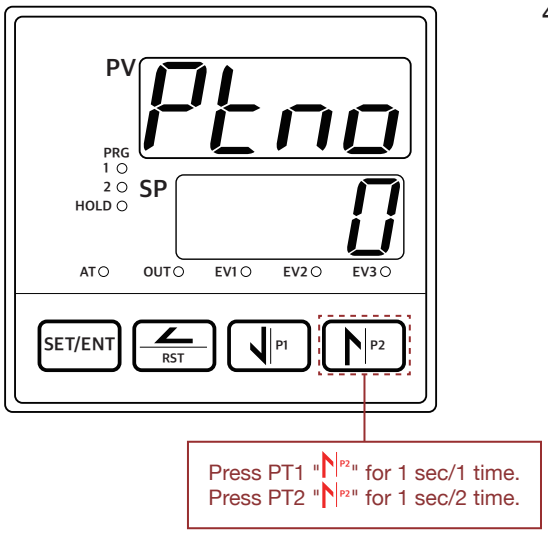
Press SET/ENT for 3 sec,
Goes to setting mode.

2)



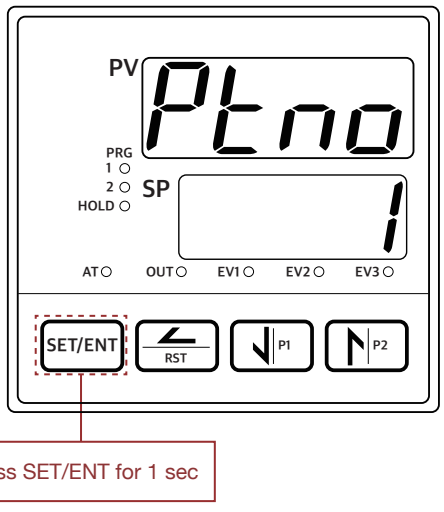
Press SET/ENT for 1 sec,
Goes to patten mode.

3)



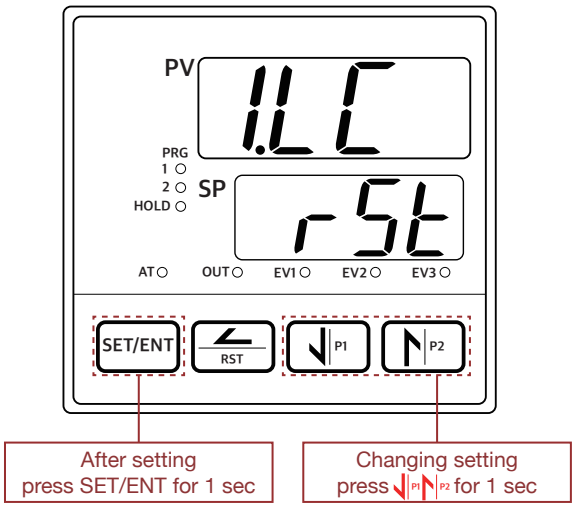
Goes to program pattern setting
each of them.

4)



Goes to program No.1 setting.
No.2 program is ptno 2

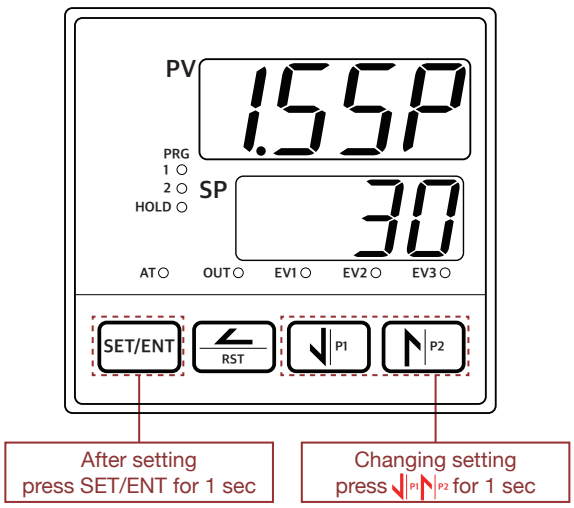
5)



1.LC means program No,
LC means parameter when operating is end.

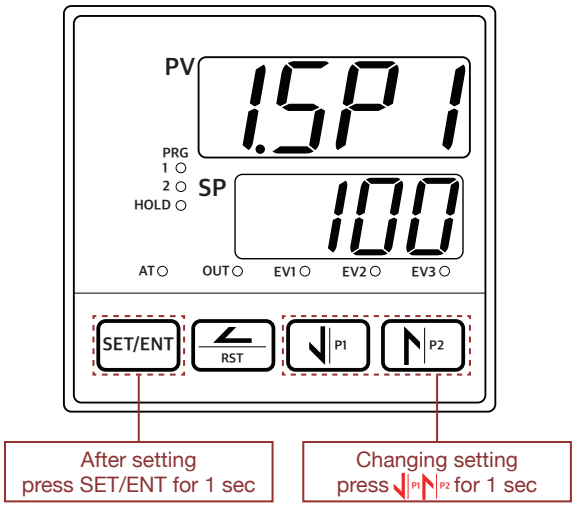
RST-Stop operating after last segment
HOLD-Keep temp of last segment
PTH1-Endless loop of No.1 program
PTH2-Endless loop of No.2 program

6)



Setting "0" is no effect for operating.

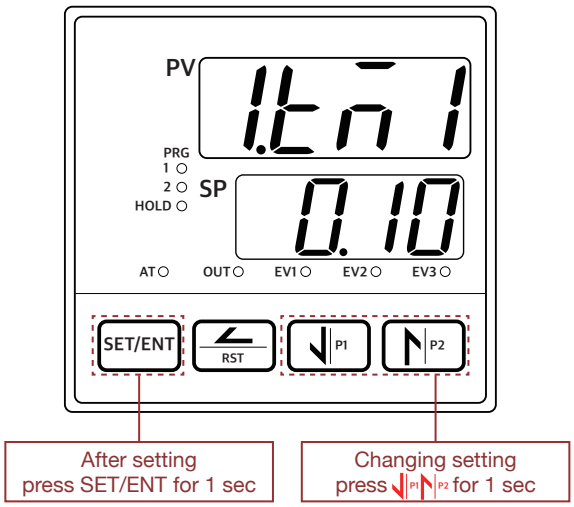
7)



SP1 is setting parameter for
1st testing temp.

ex) 1st testing temp is 100°C
※ Heating time is depending on heating value
If you setting time more shorten the
overshoot will be increased.

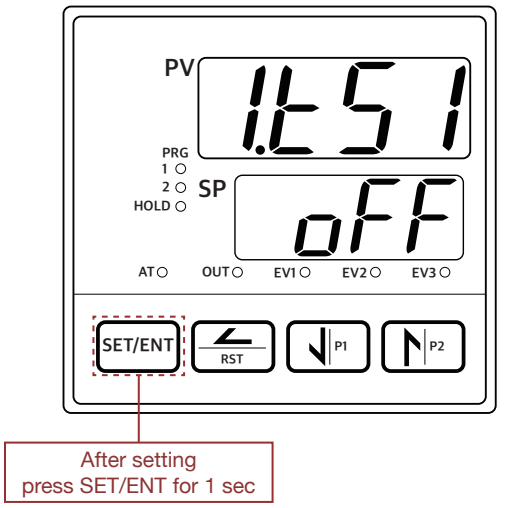
8)



Time1 is setting parameter for heating time.

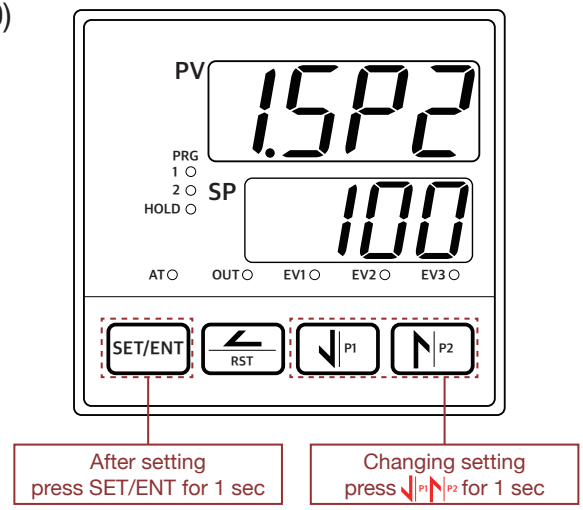
ex) Set heating from 30°C to 100°C
for 10min.

9)



TS1(Time Siginal) is setting for usage of function.
Only use in case of using controller EV.

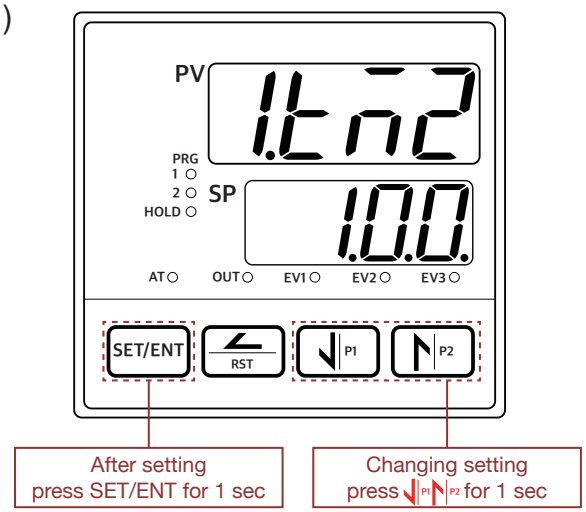
10)



SP2 is setting parameter for keep section of 1st testing temp.

ex) Setting 100°C for 1st test.

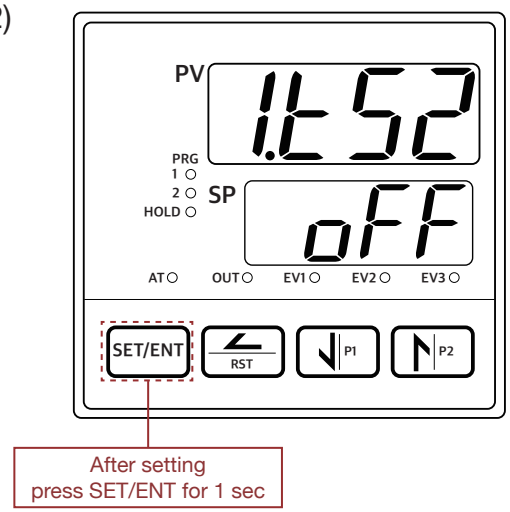
11)



Time2 is setting parameter for keeping time of SP2.

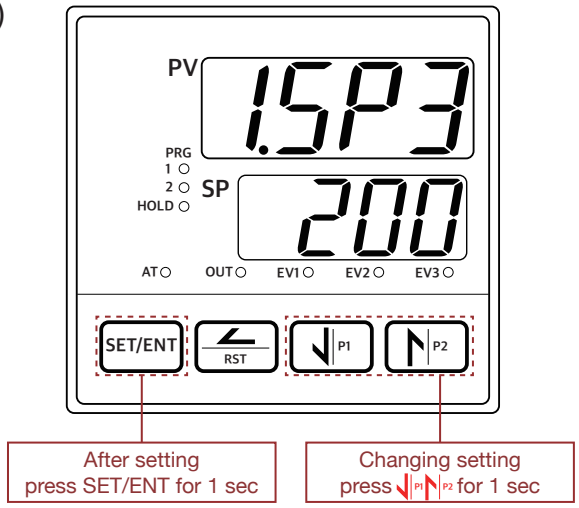
ex) Keep 100°C(SP2) for 1hour.

12)



TS2 is setting for usage of function.
Only use in case of using controller EV.

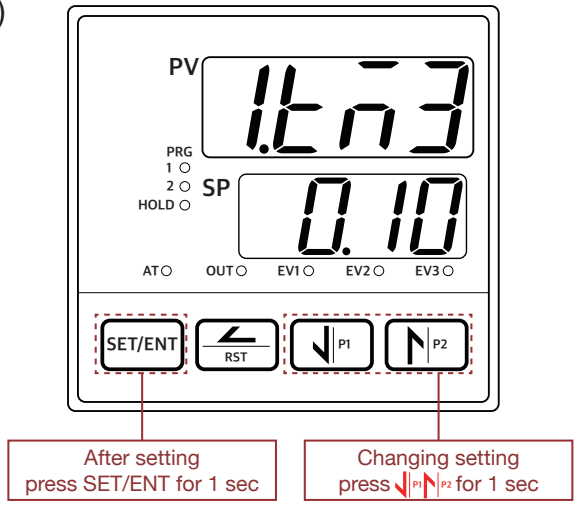
13)



SP3 is setting parameter for keep section of 2nd testing Temp.

ex) Setting 100°C of 2nd test.

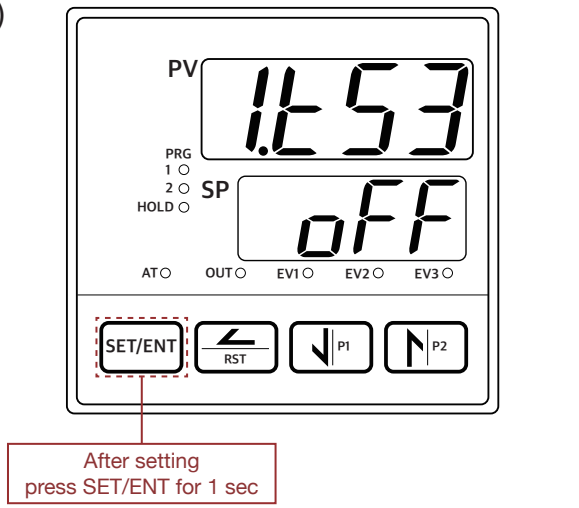
14)



Time3 is setting parameter for heaating time of SP3(Time:Min).

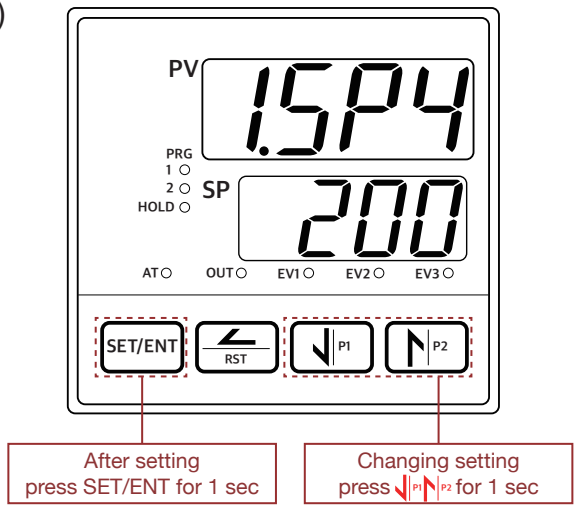
ex) Setting from 100°C(SP2) to 200°C(SP3) for 10min

15)



TS3 is setting for usage of function only use in case of using controller EV(event).

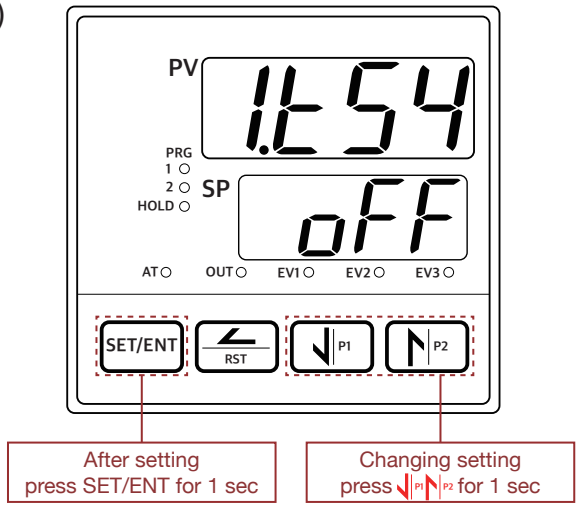
16)



SP4 is setting parameter for keep section of 1st testing Temp.

ex) Setting 2nd testing temp with 200°C.

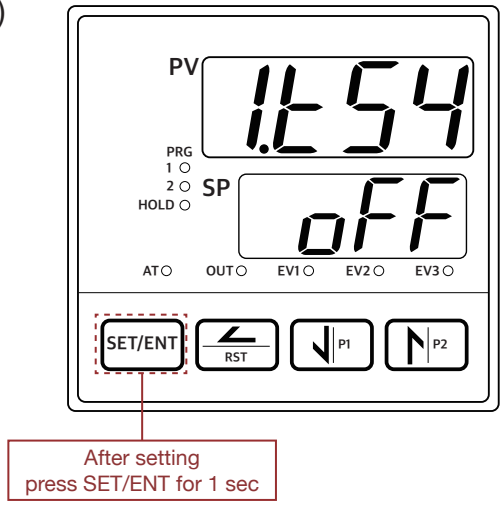
17)



Time4 is setting parameter for keeping time of SP4.

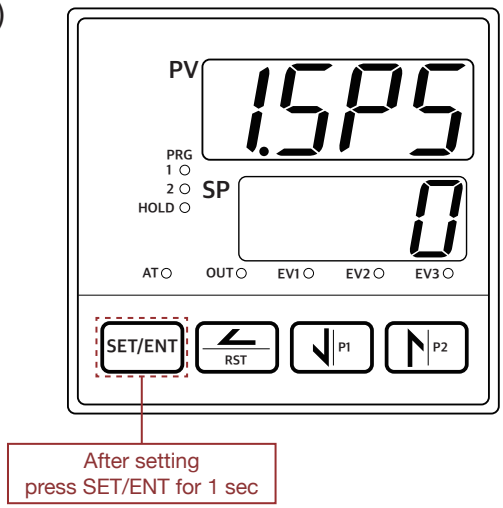
ex) Setting : Keep 200°C(SP4) for 1 hour.

18)



TS4 is setting parameter for usage of function.
Only use in case of using controller EV(event).

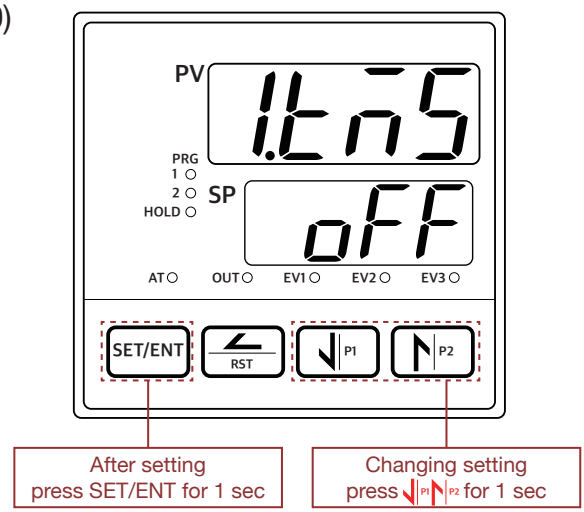
19)



After "OFF" in parameter time, There is no more parameter.

ex) SP1~SP9 figure / SP10~SP15 Alphabet
SP10→SPA, SP11→SPB, SP12→SPC
SP13→SPD, SP14→SPE, SP10→SPF

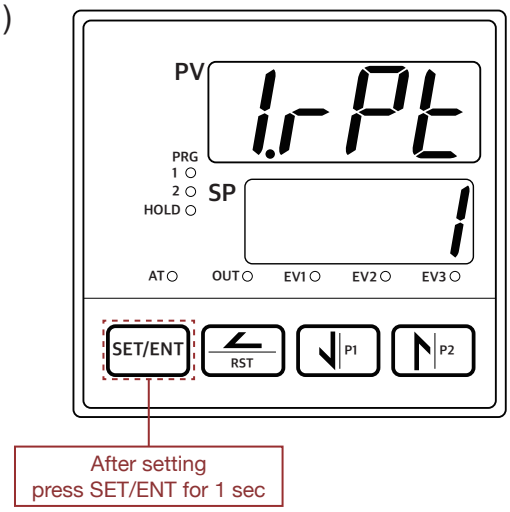
20)



In case of set time as "OFF", There is no more parameter from SP6 to SPF(15).

ex) If you input time, parameter is created.

21)

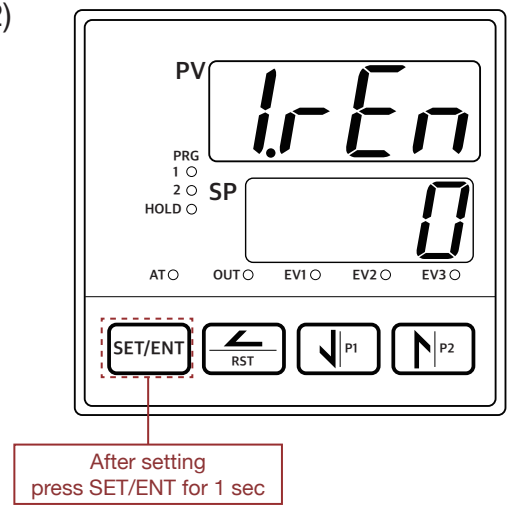


RPT is repeat mode of section,
available setting 1~999.

※ Initial value "1" (Do not change).

You don't need to use repeat functiom
please set as "1"

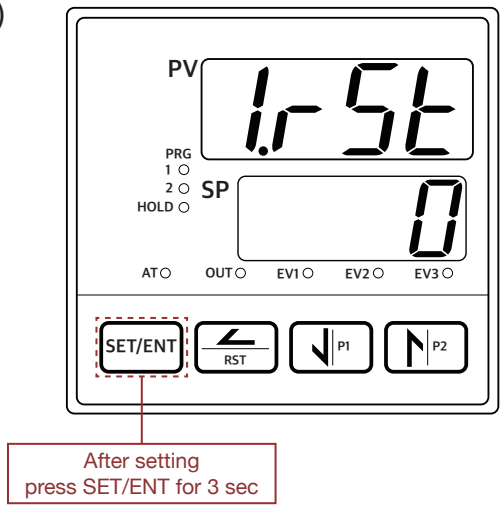
22)



REN is setting setting last segment No of
repeat mode. But you don't need to use
repeat function. So please set as "0".

※ Initial value "0" (Do not change).

23)

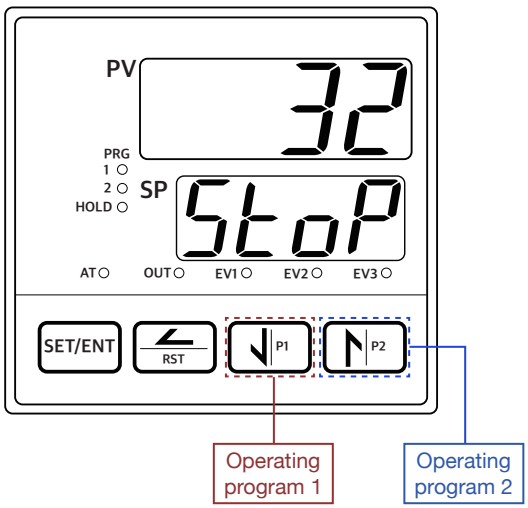


RST is setting setting last segment No of
repeat mode. But you don't need repeat
function. So please set as "0".

※ Initial value "0" (Do not change).

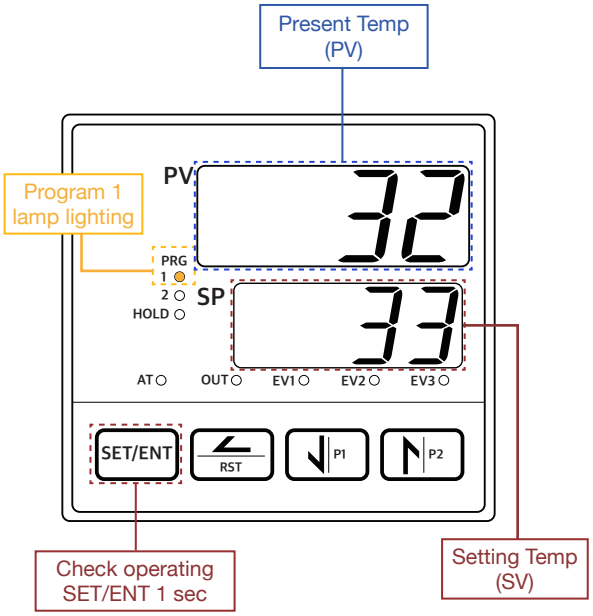
Press SET/SET for 3 sec after setting.
It goes to stand by mode.

24)



Finish setting program
press program button for 1 sec to start.

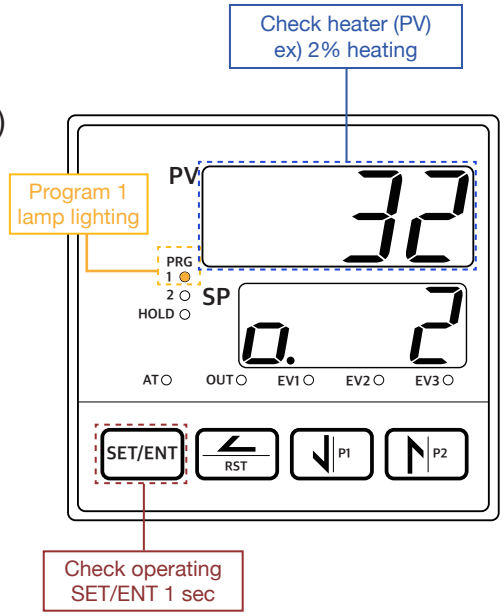
25)



Yellow light on PRG1 show SV on SP.

※ Program operating START!

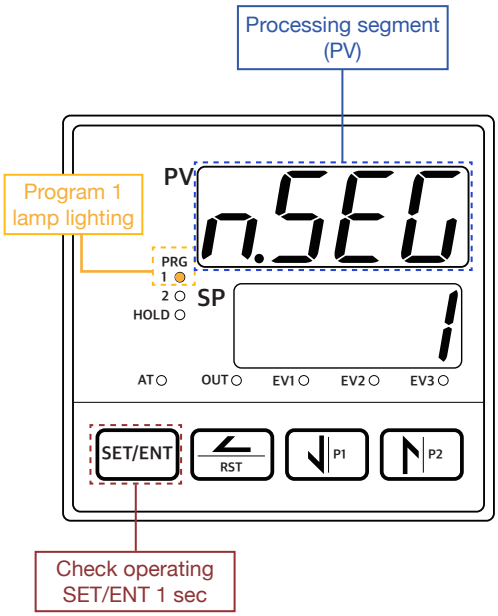
26)



Press SET/ENT for 1 sec to check present operating showing on SP.

※ PV 2% heating.

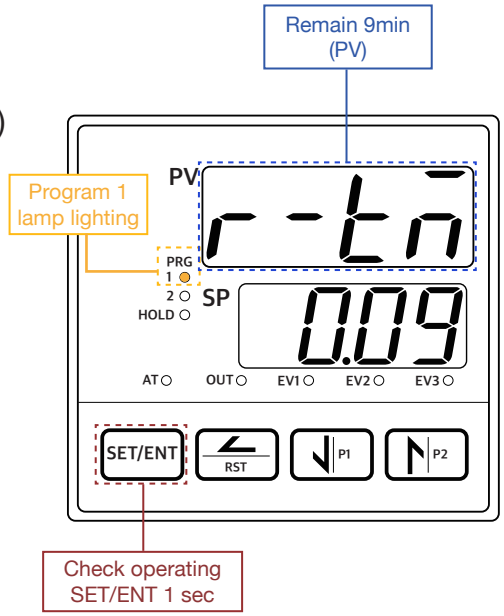
27)



Press SET/ENT for 1 sec to check present operating showing on SP.

※ On going process of segment1.

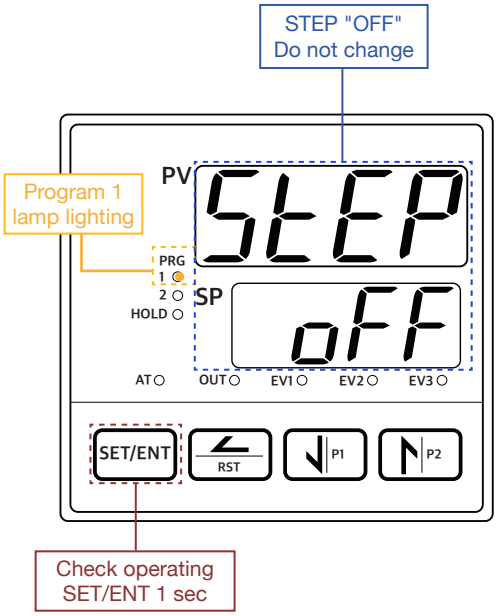
28)



Press SET/ENT for 1 sec to check present operating showing on SP.

※ Remain 9 min of operating segment.

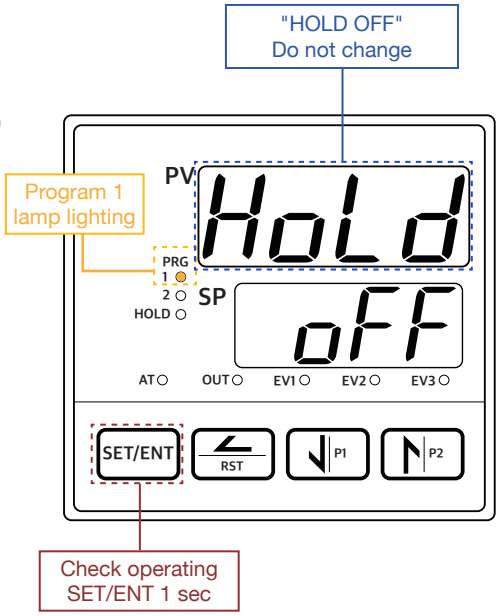
29)



Press SET/ENT for 1 sec to check present operating showing on SP.

※ STEP OFF-Do not change

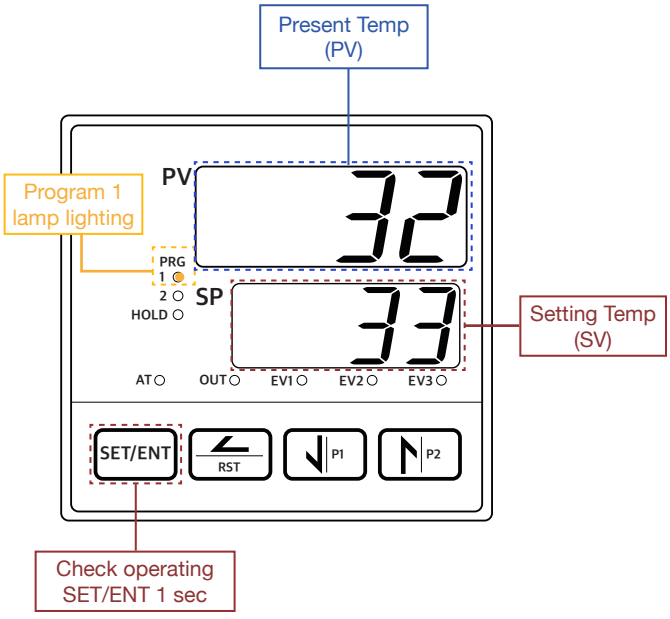
30)



Press SET/ENT for 1 sec to check present operating showing on SP.

※ HOLD OFF-Do not change

31)

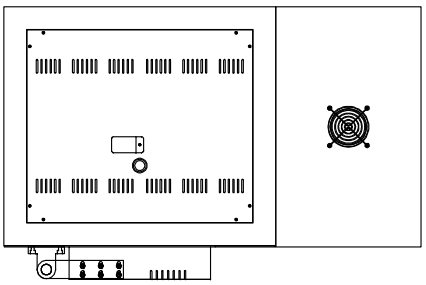


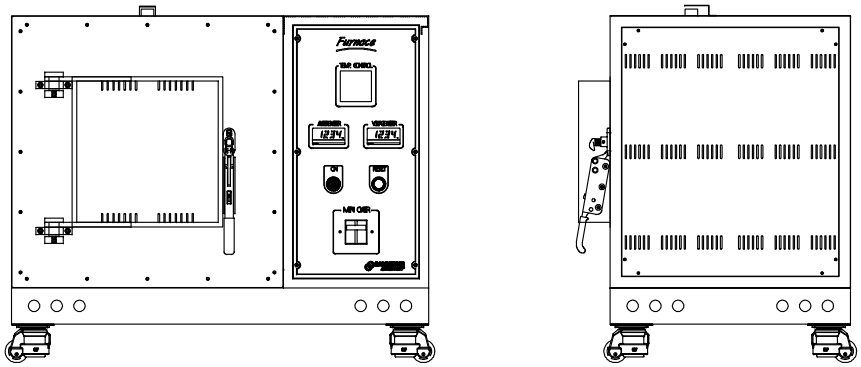
Out lamp is light is on and off during operating and heating.

※ EV1, EV2, EV3-Assistant
AT-Auto Tuning
HOLD-Temp hold

6. SPECIFICATIONS

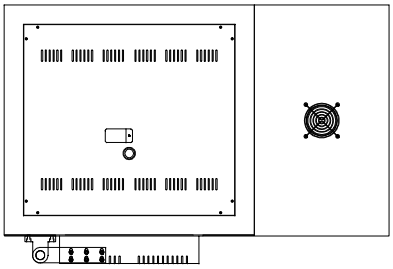
1700°C/1800°C MUFFLE FURNACE - 4MS

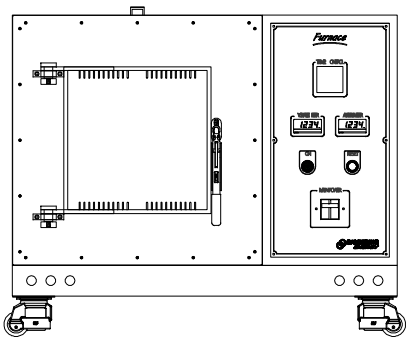


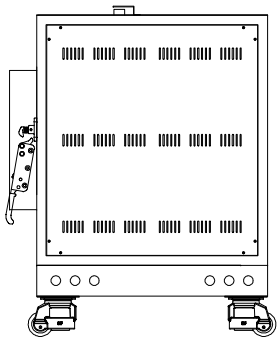


Model(1700℃ / 1800℃)		SH-FU-4MS
Max Temp		1700℃ (3092℉) / 1800℃ (3272℉)
Temp Controller		Programmable Controller -223p
Sensor		R type (1700℃) / B type (1800℃)
Heater Capa	1700℃	4.2 KW
	1800℃	3.0 KW
Capa		4.5 L
Dimension Internal (W×D×H)		150x200x150(mm)
		5.91x7.87x5.91(inch)
Dimension External (W×D×H)		920x600x765(mm)
		36.22x23.62x30.12(inch)
Net weight		150 Kg
Heater Element		MoSi2
Insulation		Ceramic Board & Wool
Electrical Requirements 230V ,50/60Hz, 1Φ		19.0 A / 13.6 A

1700°C/1800°C MUFFLE FURNACE - 11MS

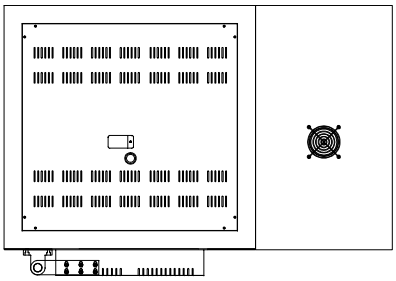


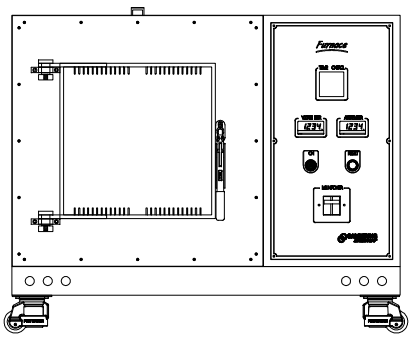


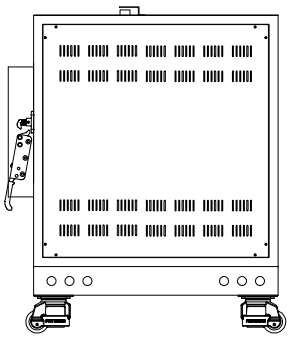


Model(1700℃ / 1800℃)		SH-FU-11MS
Max Temp		1700℃ (3092℉) / 1800℃ (3272℉)
Temp Controller		Programmable Controller -223p
Sensor		R type (1700℃) / B type (1800℃)
Heater Capa	1700℃	9.2 KW
	1800℃	6.6 KW
Capa		11 L
Dimension Internal (W×D×H)		200x270x200(mm)
		7.87x10.63x7.87(inch)
Dimension External (W×D×H)		1000x670x835(mm)
		39.37x26.38x32.87(inch)
Net weight		186 Kg
Heater Element		MoSi2
Insulation		Ceramic Board & Wool
Electrical Requirements 230V ,50/60Hz, 1Φ		41.8 A / 30.0 A

1700°C/1800°C MUFFLE FURNACE - 22MS







Model(1700℃ / 1800℃)		SH-FU-22MS
Max Temp		1700℃ (3092℉) / 1800℃ (3272℉)
Temp Controller		Programmable Controller -223p
Sensor		R type (1700℃) / B type (1800℃)
Heater Capa	1700℃	13.0 KW
	1800℃	9.5 KW
Capa		22 L
Dimension Internal (W×D×H)		250x350x250(mm)
		9.84x13.78x9.84(inch)
Dimension External (W×D×H)		1080x750x910(mm)
		42.52x29.53x35.83(inch)
Net weight		210 Kg
Heater Element		MoSi2
Insulation		Ceramic Board & Wool
Electrical Requirements 230V ,50/60Hz, 1Φ		59.1 A / 43.2 A