

MELTING FURNACE MANUAL



CERAMICS AND GRAPHITE CRUCIBLES



CAUTIONS

1.1 General safety information for the use of electrical devices:

To avoid injury from or electric shock, please ensure compliance with safety instructions when using this device. Please read the instruction Carefully and make sure that you have understood it well, keep the manual near the equipment to be able to read it at any time. Always use current sources connected to the ground and providing the necessary voltage (indicated on the label on the device). If you have any doubt, let an electricien check that unit is propety grounded. Never use a damaged power cable. Do not open the unit of solar radiation. Use the device in a protected location to avoid damaging the equipment or endangering others. Make sure the device is able to cool after 3 hours constant working and avoid placing it too close to other devices that produce heat. Before cleaning, disconnect it. Use a soft damp cloth for cleaning. Avoid using detrgent and make sure that no liquid enters the unit. If the metal contains acid or alkali materials, which may have chemical reaction to corrode heating element in this way. please keep the top cover open during melting process. No internal element of this device needs to be maintained by the user. An opening of the device without our approval leads to a loss of warranty.

1.2 General safety information for the use of melting furnaces:

- The user manual should be kept close to the device and should always be accessible for the users. Instruct your employees how to use the melting furnace properly.

- Make sure your working area is well aerated.
- Keep the escape routes clear.
- Keep a fire extinguisher ready for use.
- Always use safety gloves.
- Do not place melting furnaces on combustible supports or close to combustible materials.
- Do not let the device be without surveillance during the heating.
- Do not overflow the crucible, in order to prevent it from overflow during the heating.
- Add solid melting materials by inserting it slowly into the hot liquid mass.

1.3: Specific safety information for the use of melting furnaces:

- In order to ensure a long durability and a good function of your device, we strongly advice to work less than 3 hours once. Please ensure to stop for 30 mins after 2 hours of continuous work.
- Periodically check the intactness of the crucible, to avoid damages of the heating coil.
- The maximal operating temperature tolerated by the melting furnace is 1100C , Never exceed this value.
- Recycled gold or silver contain acid and alkali which may corrode the heating element. If you want to melt that kind of metals, please open the cover of the melting chamber with regularity to let the toxic substance evaporate.



2. TECHNICAL PARAMETERS

Model	GF1100ND	GF1150ND
Power input	1800	1800
Power supply	60Hz/7A	50Hz/7A
Max Heating temperature	1150°C	1150°C
Measurement accuracy	±0.5%FS	±0.5%FS
Working environment	0-50C/30-85%RH	0-50C/30-85%RH
Working environment	212.76cm'	212.76cm'
External dimensions of the crucible(cm)	Diameter:7.2	Height:15.5
Internal dimensions of the crucible(cm)	Diameter:4.4	Height:14
Dimensions (cm)(L*W*H)	24*21*38	25*24*37.5
Shipping dimensions(L*W*H)	31*30*42.5	38*31*42.5
Weight(kg)	8	8.5
Shipping weight (kg)	9	10



2.1 Content of delivery:



3.BASIC PRINCIPLE OF OPERATION

Control system:the PID

The PID module has two functions:to measure and to control the heating.

The temperature measurement in the heating coil is made at regular intervals.

The information is transmittde to the PID module as current value.If the current value is inferior to the set value,the PID module makes the device

heat.If the current value is superior or equal to the set value,the PID module stops the heating.

This cycle gets repeated at a 2-second-interall.Therefore,a high grade of precision is ensurde.

The advantages of the PID module in comparison to a normal thermostat.

are the flexibility.the efficiency and the precision.

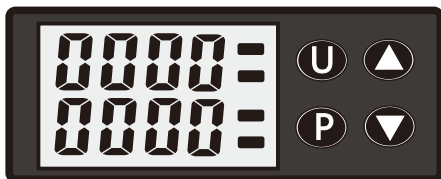
Thus,.the energy consumption can be optimizde,and the material fatigue can be compensated:Therefore.

How does the metal get molten?




The PID module controls the power flow to the heating coi(ON/OFF system).When the circuit is closed,the heating coil gets warm and transfers the heat to the crucible which forwards the warmth to the metal(passive heating without direct contact).The metal gets hot and liquid when it reaches its smelting point.



4. OPERATION



temperature control function

1. The temperature on the display is the actual temperature inside the furnace.
2. Press the key U, the temperature number under the display will flash. When flashing, it means the temperature can be set.
3. Press the key ▲▼ to adjust the required temperature
Short press ▲ the number will progressive increase by 1 degree, long press ▲ the number will speedily increase
Short press ▼ the number will progressive decrease by 1 degree, long press ▼ the number will speedily decrease.
4. Press the key P to confirm the setting temperature.
5. On the display, the symbol  means heating and insulation.
On the display, the symbol  flashing means increasing the temperature.
Below the display, the symbol  flashing means the holding temperature.

5. INSTRUCTIONS FOR METALS MELTING

IMPORTANT: The graphite crucible is only adapted to melt gold, Silver, copper and other sev noble metals!

5.1 List of the metal types which can be molten in the crucible provided with the device:

Metal	Symbol	Density	Density Fusion point
Copper	Cu	8.92 g/cm'	1084.62°C
Silver	Ag	0.49 g/cm'	961.78°C
Gold	Au	19.30 g/cm'	1064.18°C

Please consider that the crucible shouldn't be completely filled to reach an optimal result. If you overfill the crucible, the device won't be able to produce the heat needed to let the metal melt. Moreover, the melting process often produces vapors. If you overfill the crucible, it can lead to overpressure and the use of the device gets dangerous for the user, at the latest by opening the cover.

Please buy an adapted crucible to melt other metals. Always inform yourself about the production of vapors during the melting process to check the compatibility of the device with your intentions.

6.HOW TO EXCHANGE THE HEATING COIL

6.1 CAUTION:Never open the device without authorization of your seller.This can lead to a loss of warranty!

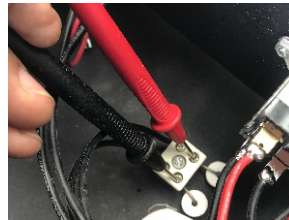
6.2 he heating coil may get damaged,and you have to exchange it.To do it,please follow these given instructions.

一、 Check the function of the heating coil

1.First open the bottom of the furnace.

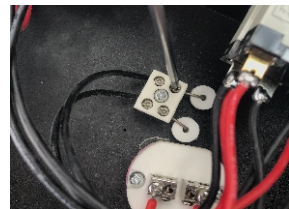


2.Check the resistance of the heating coil like this:If 110V,the resistance is about 8 Ω . If 220V,the resistance is about 30 Ω .If the resistance is infinite,that means the heating coil is broken,then you need to change a heating coil.



二、 Exchange

1. Take off the screws here.



2.Take off the protecting sleeve,Then take off the screws on the furnace body here.There are also screws here,take off them,then you can take out the flange.



3.After take out the flange,you can take out the furnace chamber,here is the furnace without furnace chamber.



4. Take off the broken heating coil and winding a new heating coil on the furnace chamber. Don't forget the insulating rod! This is the finished furnace chamber with heating coil

