

# **Electric Furnace for SOFC Holder**

## **Instruction Manual**



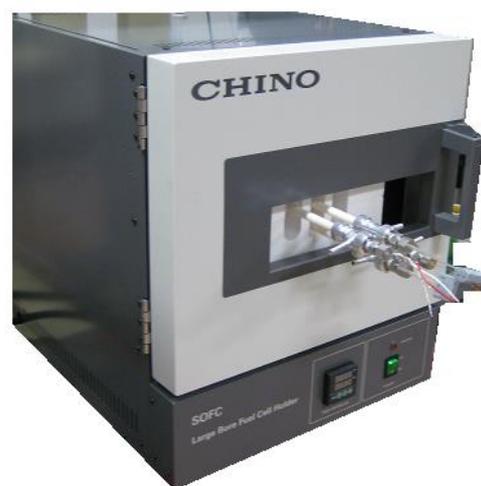
●Note

1. The inside of furnace can be heat up as high as 1,100 °C so do not touch the surface of furnace with bare hands.
2. Do not store combustible materials near or on to the furnace.
3. Before starting the operations, confirm the condition of AC power and ground (earth) connection.

\*To avoid heat leak, do not open the front side of the furnace more than you need.  
\*If you have major problem, please contact us during office hours.

●Specification

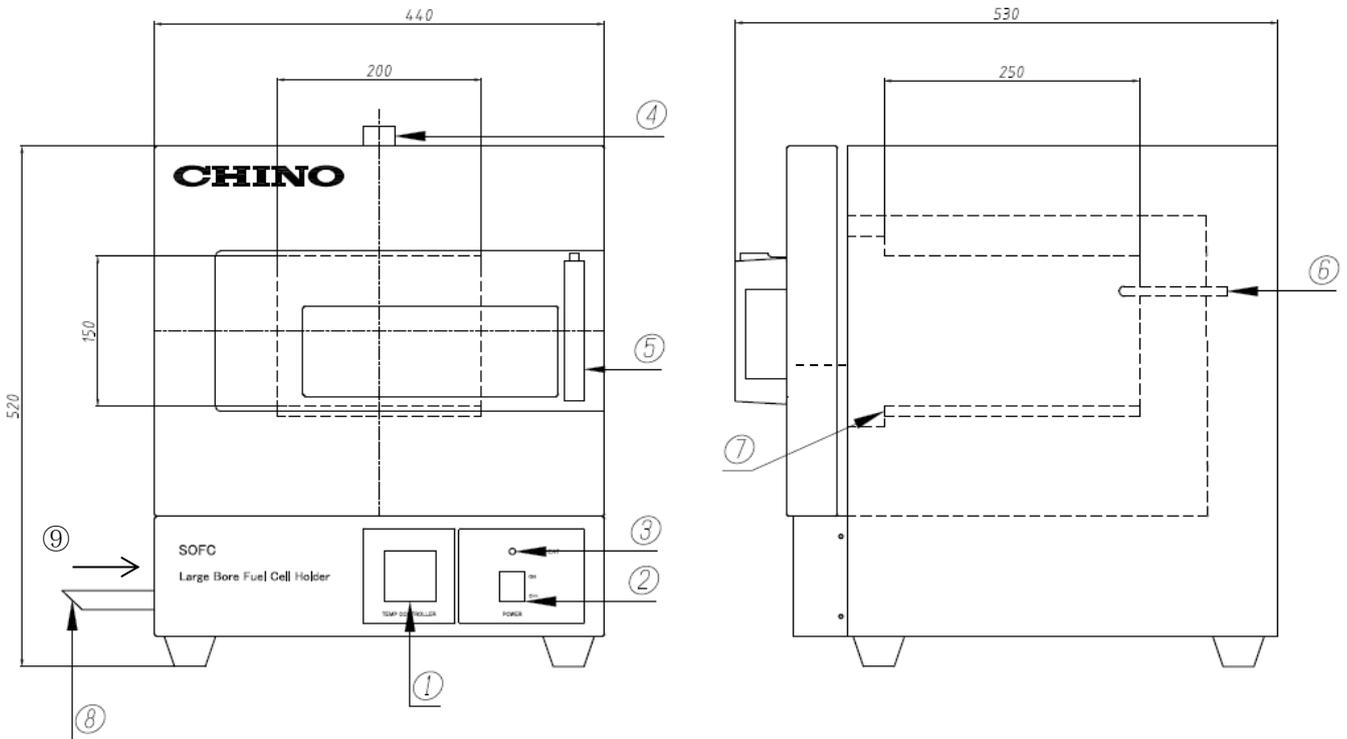
Dimensions	W440×H520×D530mm
Inner dimensions	W200×H150×D250mm
Weight	About 20kg
Control Range	MAX 1,100 °C.
Heating element	Kanthal (A-1)
Power	200V AC 9A
Temperature controller	CHINO DB 630 (Program control)



●Warning stickers



●Overall view



- ① Temperature controller (CHINO DB630) ② Power switch ③ Warning lamp ④ Exhaust hole  
⑤ Handle ⑥ Thermocouple ⑦ Hearth plate ⑧ Power cable ⑨ Earth connection point

●Operation

1. Turn on the main power switch ②. ( To avoid serious accident, do not forget Earth connection)
2. Change the operation mode from “RESET” to “RUN” of the Controller ①.  
Please refer to the operation Manual of DB600.
3. Alarm setting value (Maximum) is 950 °C, system will shut down the control and warning lamp lights when PV reach to the setting value (PV= Process Value). In that case, stop the operation and wait for the cooling. Restart, please cycle the power switch.

■Reference page of the Manual (DB630)

①Name and function of display and key	
3-2 Name and function of display	→ Page38
3-4 Name and function of key	→ Page40
②Setting of program pattern	
5-4-3 Program pattern setting	→ Page78
③Start the program pattern	
4-3 Program operation	→ Page50

●Shutdown:

1. Operation mode (DB Controller) will be changed to END mode at end of the program. Please change to RESET mode to avoid wrong operation. RESET MODE = Waiting Condition

It is possible to change the mode to RESET anytime.

Caution:

Temperature will rise at the same time with restart from the power failure (or shut down the power) in program operation ("RUN" mode). In that case, please cool down and restart from the first.

2. Turn off the power switch.

●Others

Cautions in momentary power failure,etc (DB630)

When the power is turned ON again, "Operation on power ON (MODE6)" will be performed.

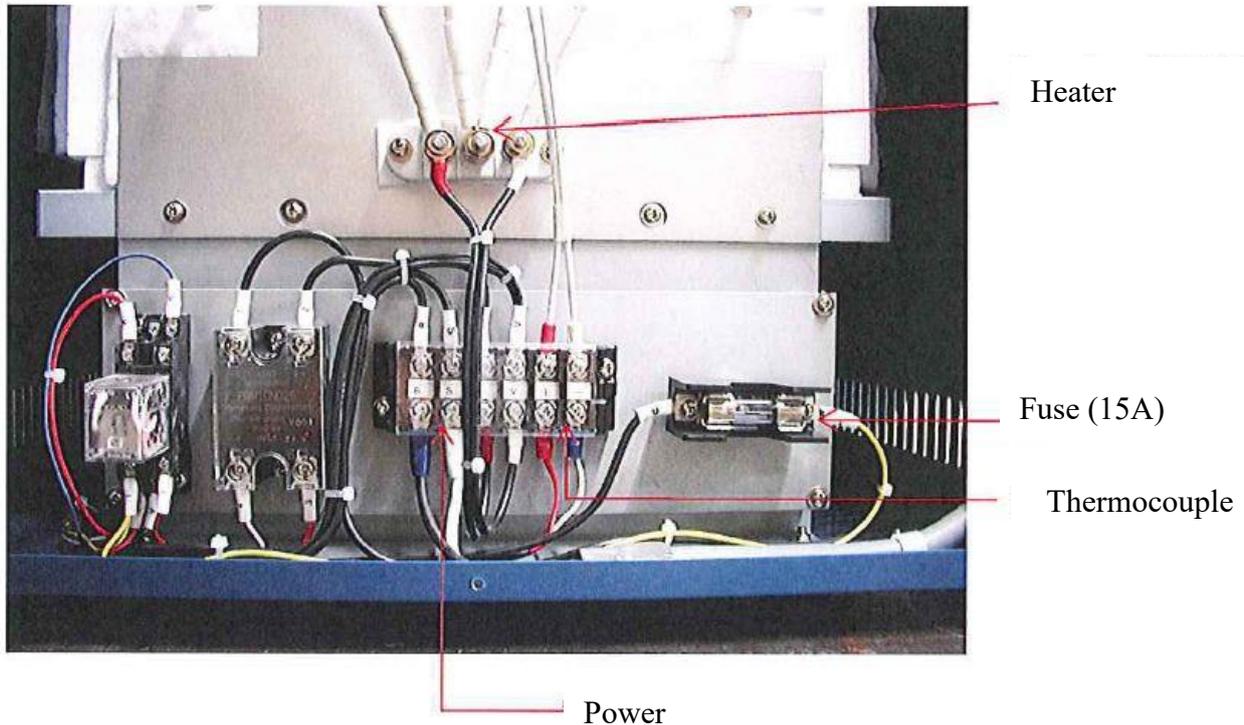
When "CONTI" has been set, the operation started right before power OFF will be started.

When "READY" has been set, the instrument will always start in READY status (at constant value operation)

/program operation RESET status (at program operation) even if the RUN status is set by the setting screen.

Default is "CONTI"

●Check : Illustration of control board



1. Check for a condition of the Fuse (15A). It will not turn on after operation main SW.
2. Check for a condition of thermocouple connection when you find the under bar \_ \_ \_ \_ displayed on the DB controller. It indicates open circuit condition.
3. How to check the Main heater: Measure the resistance of heater at the connection terminal. It is between  $20\Omega$  and  $100\Omega$ .

**( Please power off during the following operation )**

**Caution: If fuse blowout continues, please stop the operation and contact CHINO.**

