Box Type Resistance Furnace

Operation Manual

Ⅰ. Introduction

This series of furnace is used for element analyzing in labs, mineral enterprises and science research institutes; other applications include small size steel heating, annealing and tempering.

It is equipped with temperature controller and thermocouple thermometer, we can supply the whole set.

Ⅱ. Main Technical Parameters

Model	Rated power (kw)	Rated tem. (℃)	Rated voltage(v)	Working voltage(v)	P	Heating-up time(min)	Working room size(mm)
SX-2.5-10	2.5	1000	220	220	1	≤60	200×120×80
SX-4-10	4	1000	220	220	1	≤80	300×200×120
SX-8-10	8	1000	380	380	3	≤90	400×250×160
SX-12-10	12	1000	380	380	3	≤100	500×300×200
SX-2.5-12	2.5	1200	220	220	1	≤100	200×120×80
SX-5-12	5	1200	220	220	1	≤120	300×200×120
SX-10-12	10	1200	380	380	3	≤120	400×250×160
SRJX-4-13	4	1300	220	0~210	1	≤240	250×150×100
SRJX-5-13	5	1300	220	0~210	1	≤240	250×150×100
SRJX-8-13	8	1300	380	0~350	3	≤350	500×278×180
SRJX-2-13	2	1300	220	0~210	1	≤45	¢30×180
SRJX-2.5-13	2.5	1300	220	0~210	1	≤45	2-¢22×180
XL-1	4	1000	220	220	1	≤250	300×200×120

Ⅲ. Characteristics

1. High-quality cold rolling steel case with spraying surface. Open-side door is easy to on/off.
2. Medium-temperature furnace adopts enclosed fire pot. The spiral heating component made by electric heated alloy wire coils all around of furnace pot, which guarantees furnace temperature evenness and prolongs its service life.
3. High-temperature tubular resistance furnace adopts high temperature proof combustion tube, and takes elema as heating component to fix on outer sleeve of fire pot.

4. High-temperature box resistance furnace takes elema as heating component fixing in the fire pot to ensure high heat use ratio.
5. Adopt 0.4~0.6 light-weight spumy insulating brick and aluminosilicate fiber cotton as thermal insulation material to ensure good heat insulation effect, so to promote furnace heat storage capacity, shorten heating up time, and reduce empty furnace power loss and power consumption.

Ⅳ. Installation and operation instruction

1. Check the furnace before installation to ensure the whole set is complete. Place the furnace on level ground or table. Avoid collision and keep the controller away from heat to prevent the inside unit is too hot to work. Fill the space between carbon stick and furnace with asbestos ropes.
2. Install the switch on original line to control the whole power. Keep the furnace and controller ground reliably to ensure the equipment operates safely.
3. Space between hole and electro thermal must be filled with asbestos rope. Use the spare wire to connect controller, and make sure the positive pole and negative pole are not reversed.
4. Connect controller to the line and make sure it is correct. Then switch on power and set the temperature as needs. It starts to heating when indicator light is green. Adjust the power to reach the target temperature, and make sure the voltage and electric current are not surpass the rated power.

Ⅴ. Maintenance and attentions

1. If the furnace is new or has been unused for a long time, dry the stove when using it. The operation methods are as follows:

   For 1000℃ and 1200℃ furnace,

   Room temperature~ 200 ℃ (4hours), then 200℃~600℃(4 hours);

   For1300℃furnace,200℃(1hours),200℃~500℃(2hours),500℃~800℃

   (3 hours),800℃~1000℃(4 hours)

When low temperature open a bit the door. when the temperature higher than 400℃,should close the door. Don't open the furnace door while drying, and let it cool down slowly. when using it shall not exceed the max temperature, so as not to burn out the electric heating elements, and it is forbidden to perfusion liquid and easily dissolved metal in the work chamber.The work temperature is better work at lower 50 degrees than the max temperature of the furnace,then the electric heating element has a long life

2. Make sure the relative humidity of environment that the furnace and controller work in is less than 85%, and no dust, explosive and corrosive gas are around furnace; while heating the oily metal material, the volatile gas it releases will corrode electro thermal components and shorten their service life, so try to prevent it while heating.
3. The working temperature of controller should be limited to 5～50℃.
4. Check the furnace regularly according to technical requirements, make sure the joints of controller are well contact, the pointer meter of controller is working normally, and the meter is displaying exactly.
5. Don't pull up the thermocouple in sudden when it is in high temperature in case of porcelain explosion.
6. Keep the chamber clean, and clear away the residue, such as oxidative material in it.
7. Pay attention to the furnace door, be careful in material loading and unloading.
8. Make sure the carbonic acid material and the electro thermal couple connects tightly. Check the touch plate and screw click regularly.
9. Under the high temperature, the silicon carbon stick will be oxidized by low dissolve carbonate and alkalescency material, such as alkali chloride, soil, heavy metal etc.
10. Under the high temperature, the silicon carbon stick will be oxidized by air and carbonic acid, which will add resistance of silicon carbon stick.
11. Under the high temperature, the vapor will affect the heating part of silicon carbon stick.
12. When the temperature of chlorine or chloride is over 500℃, it will affect the heating

components of carbon stick of silicon. At high temperature, the air will decompose the carbon stick of silicon, especially the thin part of the carbon stick of silicon.

13. After being long used, the carbon stick of silicon will be aged, and the resistivity will be added relatively; so even thought the controller knob is turned to the maximum output, it still cannot reach the rated power, at this time, change the connection as page 5 shows.

    If the carbon stick is broken before ageing, then all the sticks should be changed; keep the undamaged part for continuous use with the carbon stick which has similar resistance. Do not use the carbon sticks which have great resistance deviates together; make sure the resistance deviation will not exceed 10%.

14. While change furnace wire, open the furnace cap, and take the heat preservation material and firepot out; clean the furnace wire hole, and measure the length of furnace wire in the firepot, then switch on electricity to stretch the furnace wire; install the furnace wire into firepot, pull the terminal out and set on the porcelain tube, then connect it with the wiring terminal. Keep the firepot and fire hole connect properly, and make sure the thermal insulation material is filled closely.

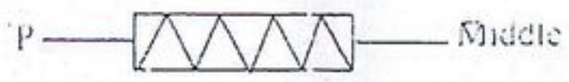
15. While change the carbon stick, first unload the line and board, take the broken carbon stick out, and check if the silicon hole of carbon stick is clear; then fix the carbon stick on; the carbon stick is fragile, so be careful when installing it; make sure the length of the out part is the same, and then connect the carbon stick tightly. To avoid accident, change the electric conduction clip after two or three times of carbon stick renew to prevent heat loss. Fill the space between carbon stick and hole with asbestos rope. After finishing all the procedure, recover the original device. To make sure it is clear when install carbon stick, put a straight metal stick of the similar diameter in at first, then install the carbon stick; fill the space between carbon stick and hole by asbestos rope up; at last, assemble the machine, , and dry it under the room temperature, then it can be use normally.

16. When the furnace is working under high temperature, long time of door open would result

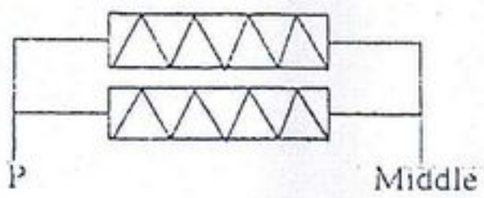
in sudden change of heat stress, which would damage the firepot. It can be continuously used only if it has no influence on construction strength of furnace. If the firepot is damaged in using, change it; make sure the stove chamber is installed properly and the heat preservation material is filled tightly.

Box-resistance furnace heating components connection sketch map

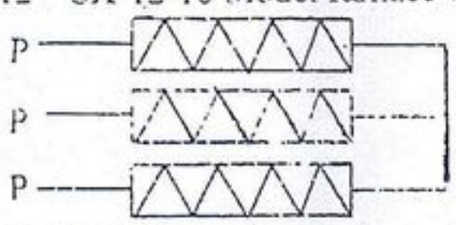
1. SX-2.5-10 SX-2.5-12 Model furnace wire connect method sketch map



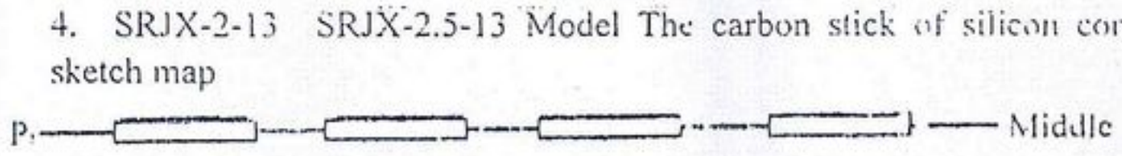
2. SX-4-10 SX-5-10 Model furnace wire connect method sketch map



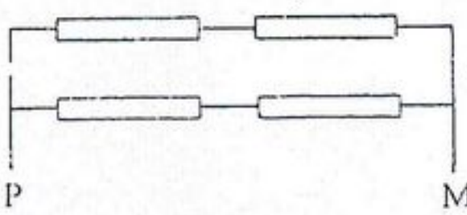
3. SX-8-10 SX-10-12 SX-12-10 Model furnace wire connect method sketch map



4. SRJX-2-13 SRJX-2.5-13 Model The carbon stick of silicon connect method sketch map

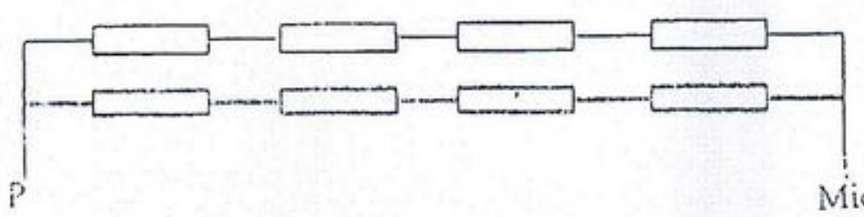


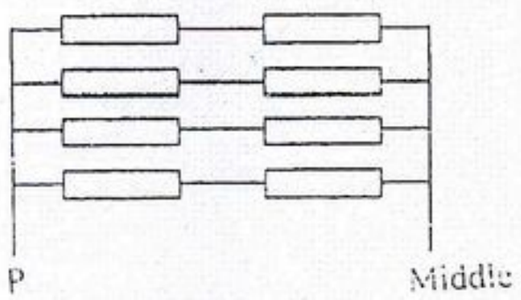
New connect method sketch map of the carbon stick of silicon



The connect method sketch map after aging

5. SRJX-4-13 SRJX-5-13 Model The carbon stick of silicon connect method sketch

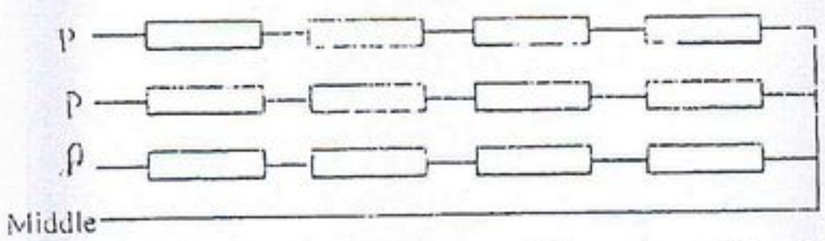




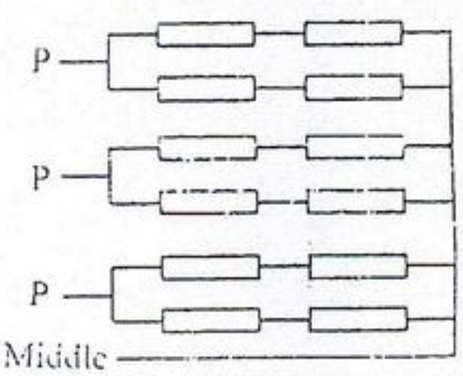
New connect method sketch map of the carbon stick of silicon

The connect method sketch map after aging

6. SXJX-8-13 Model furnace wire connect method sketch map



New connect method sketch map of the carbon stick of silicon



The connect method sketch map after aging