

MoSi2 heater



Product advantages:

- A. It has anti-oxidation and automatic repair function and can be used continually in oxidative atmosphere.
- B. We are using thermal processing in shape, which maintains a very good high-temperature tenacity and plasticity of the basic materials.

Besides the products in the standard size and geometric shape, we can also produce special shape and size products according to the requirement from customers so as to meet their demands of various installments.

- D. In the cold and hot end welding aspect, it uses special joint technology to take shape. Therefore, the welding point is fast and strong anti-impact. No damage caused by the impact of current during the in and outage. No rupture caused by installation.
- E. The product has high density that greatly improves the conductivity of the product. Our products are warming faster, lower consuming lower than the products of other manufacturers, and then save energy and costs.
- F. good surface quality, high mechanical strength and toughness.

Physics characters

Bulk density	Bending strength	Hardness	Apparent porosity	Drawing water rate	Thermal elongation rate	Fracture toughness	Compressive Strength
5.8g/cm ³	350MPa	12.0GPa	±2%	0	4%	4.5MPa.m ^{1/2}	650MPa

Products catalogue

classification	name	distinction criterion	specification	trading limits
Heating elements	1700 type	Element operating temperature 1700°C is acceptable	LeΦ 6-12W type/U type/L type/all kinds of heterotype / stripe shape	high temperature electric resistance furnace
	1800 type	Element operating temperature 1800°C is acceptable		
	1800J type	Element operating temperature ≥ 1800°C	LeΦ 3-12W type	Special, high temperature and high-power electric resistance furnace
	1800T type	Element operating temperature ≤ 1800°C	LeΦ 3-12W type U type	Not oxidized special air high temperature electric resistance furnace
Thermocouple protecting tube	standard type	Element heat-resisting temperature ≤ 1700°C	Producing all kinds of inside and outside diameter according to customers' need	Thermocouple whose temperature under 1500°C
	High temperature	Element heat-resisting temperature ≤ 1800°C	Producing all kinds of inside and outside diameter according to customers' need	Thermocouple whose temperature under 1700°C
cracker pipe	Glass making kiln tube	Distinguish by simple pore diplopore and porous pore	Length and aperture is optional	Glass kiln
MoSi2 powder	initial powder	Purity ±98% granularity 0.4–4μm surface area 7.8 m ² /cm	Modulate granularity according to customers' demand	All kinds of spare parts of MoSi2 emery cloth, grinding wheel, other ceramics as well as additive
	Ceramic powder	Purity ±90%	Modulate granularity according to customers' demand	

Chemical property

Ant-oxidation in high temperature atmosphere: When MoSi2 bar is used in the high temperature and oxidative atmosphere; it will form a compact SiO2 protecting film in its surface to prevent its continuing oxidized. When the temperature of element is over 1700°C, the SiO2 protecting film whose melting point is 1710°C will be melted. Due to the surface tension, SiO2 agglomerate into drops and lose protection. It must be pointed out is that the MoSi2 heating element can not be used in the temperature between 400°C to 700 °C for long time. Otherwise, the element will be pulverized because of the low-temperature oxidation.

Main performance index

Atmosphere influence on the operating temperature of element

Atmosphere	The max element temperature(°C)	
	1700type	1800type
Air	1700	1800
N ₂	1600	1700
He Ar Ne Argon, Helium	1600	1700
Dry Hydrogen(dew point) -80°C	1150	1150
Wet Hydrogen(Dew point) -20°C	1450	1450
mixed gas (e . g . 10%CO ₂ , 50%CO, 15% H ₂)	1600	1700
mixed gas (e . g . 40%CO ₂ , 20%CO)	1400	1450
Cracked and partly burnt ammonia	1400	1450

Resistance characters

MoSi₂ elements have good resistance characteristic. This is the deciding factor that it can replace conventional heating elements to be an ideal heating material. Its resistivity is very low in the greenhouse. As the temperature rises, the resistivity increases rapidly. Therefore, it is self-evident that the product has rapid temperature increment and low power expenditure. In normal operating circumstances, the elements resistances is not changing along with the length of time changes ,so the old and new elements can be mixed.

Product use and maintenance

MoSi₂ heating elements belong to Metal ceramic material. They are hard, crisp and low impact strength at room temperature .Therefore to be careful to avoid damage during transport and installation.

When MoSi₂ elements continue use under the oxidative atmosphere, the surface temperature of 1700 type should not exceed 1700 ° C,1800-type should not over 1800 °C and when intermittent use,1700 type-element should not over 1650 ° C,1800type-element can not exceed 1750 °C.

The MoSi₂ heating element should avoid using in the temperature between 400°C to 700 °C for long time. Otherwise, the element will be low-temperature oxidized because of the adverse temperature condition.

Furnace dryness

New or old furnace not used for a long time needs to be dry before the use. Generally, the drying temperature is 100-200°C.However, if the element is used for a long time under the low temperature, it will cause the low-temperature oxidation. For the little furnace, the drying time is short, so the influence of several drying hours is little, but the large furnace need to be dry for a long time, you had better open the furnace door to ventilate well. you can open the furnace door ajar with the temperature increment and completely close until the temperature reach 1000°C above

Furnace start

If the furnace dry out has been completed or does not need drying, it has to rise its temperature. In order to avoid the over sized electric current impact and cause the electrical equipment overload; please go up the furnace temperature according to the next table.

Small furnace (power100KW)		Large furnace(Power 100-500KW)	
Furnace temperature	Voltage	furnace temperature°C	Voltage
20-150	1/3Operating Voltage	200-300	1/3Operating Voltage
150-500	2/3Operating Voltage	300-700	2/3Operating Voltage
500-operating temperature	The Whole-Operating Voltage	700-Operating temperature	The whole-Operating Voltage

It should not take a long time when shifting gears. Otherwise it easily causes the electric current shocking to break the electrical equipment.

Element Replacement

If there is a damaged part found in the process of operation, the first thing you should do is determine its location and get all the combination elements ready. After that, you should separate the wire the damaged element clipped to from the screw which is connected to the generatrix. Then remove the remained refractory wool and pull out the refractory stoppers. Insert the new combination elements into the furnace from its roof. Connect all the wires and get the refractory wool filled, and finally raise the temperature.