SIC TECH®

江苏环能硅碳陶瓷有限公司

JIANGSU HUANNENG SILICONS CARBON CERAMICS CO., LTD

COMPANY PROFILE

Jiangsu Huanneng Silicon Carbon Ceramics Co., Ltd. was established in 2001,we mainly produces high-temperature silicon carbide heating elements,Since we establishment,we have been manufacturing high-tech and high-quality products with the spirit of continuous innovation.In 2006, we cooperated with the Silicon Carbide Materials Research Institute to develop new silicon carbide heating elements,and adopted the newest production equipment and the industry's latest production technology,the SIC TECH brand silicon carbide heating elements produced by us have been well received by customers over 50 more countries.

QUALITY CONTROL

We ONLY Choose the Finest Material

Inspection On Raw Material Moisture, Density, Bending, etc

Quality Control Throughout Whole Process

Every Process Does Matter With Details

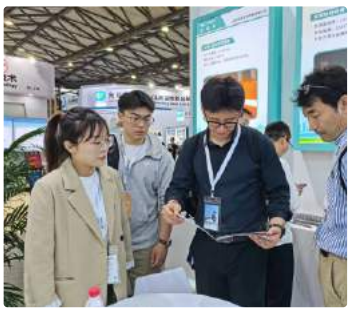
Higher quality developed to challenge the industry top

Finished product surface defects second inspection

Heater Assembly Inspection and Finished Product Inspection

Max temperature tested and recorded

SIC TECH AT THE EXHIBITIONS

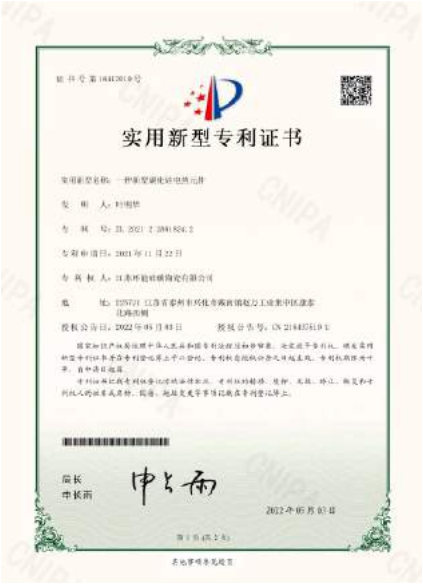


Professional Management System Core Patents

ISO14001:2015

ISO45001:2018

ISO9001:2015



WHY CHOOSE SIC TECH

We ONLY Choose the Finest Material

The finest raw material for sic heating element is high-purity, high-density, and highly crystalline silicon carbide powder. High-density silicon carbide powder is essential for producing a compact and strong structure, while highly crystalline powder ensures that the elements have excellent electrical conductivity and high-temperature stability.

- High quality green hexagonal silicon carbide powder
- Highest hardness with high purity Sic powder
- High quality adhesives for connecting cold zone and hot zone

Quality Control Throughout Whole Process

Making sure products are up to standard is crucial in the manufacturing process. First, ingredients should be checked to ensure they are the right quality. During production, the process should be monitored to catch problems early. Regular testing should also be done to make sure everything meets standards, and any issues should be investigated.

- Inspection standard match with Europe and USA standards
- Well trained & experienced inspectors over 10 years
- If for unqualitified heaters, it will be directly thrown away

OEM & ODM Service

We can manufacture Silicon Carbide Heating Elements according to customer's design and specification, some of our OEM services are as follows:

- Customized sizes, shapes, resistance and coatings, etc..
- Customzed solution for different heating furnace etc..

Safety Package Promise

Silicon carbide heating elements are easily broken. We fully understand that you would like to receive the product in complete and undamaged condition. Therefore, we are committed to providing you with the following safe packaging services.

- We use specialized packaging materials and techniques to ensure that the products are not damaged during logistics
- If the received product is damaged due to packaging problems, you can apply for a return or exchange within the valid date

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SILICON CARBIDE HEATING ELEMENTS

SIC TECH® Silicon carbide heating element is a type of electric resistance heater that uses high purity silicon carbide as the main material. Silicon carbide is a ceramic compound that has high electrical conductivity, high thermal conductivity, high strength, high hardness, and good resistance to oxidation and corrosion.

SIC TECH® adopts the latest production technology, which can reach the max surface temperature 1625℃. It can effectively resist the erosion of harmful gases, water vapor and metal oxides.

Electrical Specification

Silicon carbide heating element has a high and variable resistivity at room temperature, but this falls with increasing temperature, reaching about 650-700℃. Above 700℃, the resistance will increase with rising temperature. Therefore, resistance measurement under room temperature do not give any indication of the resistance at higher temperature.

In general, resistance measurement must always be carried out at a constant temperature at or above 1000℃, and the value calculated by dividing the voltage and current, which across each element.

Physical Characteristics

Characteristics Items	Unit	Type		
		GD/C/U/W	SGR/SG	MHD/W
Pretension Density	g/cm^3	3.2	3.1	3.1
Bulk Density	g/cm^3	2.58	2.8	2.8
Apparent Porosity	%	12	5	5
Bending Strength	Mpa at 25℃	50	98	98
Specific Heat	KJ/kg at 25℃-1300℃	1.0	1.0	1.0
Heat Conductivity(Hot Zone)	Heat Conductivity	14-19	16-21	16-21
Nominal Resistance(Hot Zone)	Ω cm at 1000℃	0.1	0.016	0.016
Coefficient of Thermal Expansion	1000℃(X10-6/℃)	4.5	4.5	4.5
Max. Temperature in Furnace Chamber	℃	1400	1550	1400

Production Process

发热体 —— 混料 – 成型 – 干燥 – 检验 – 烧结 – 检验 – 切割
Heating element — Mixing – forming – drying – inspection – sintering – inspection – cutting

冷　端 —— 混料 – 成型 – 干燥 – 检验 – 切割 – 硅化 – 检验
Cold zone — Mixing – forming – drying – inspection – cutting – silicidation – inspection

包装 – 镀铝 – 检验 – 焊接 – 对接
packaging – aluminized – inspection – welding – Butt

Applications

Float Glass Production (Tin Bath)
Lead Crystal Glass Melting, Conditioning, etc..
Borosilicate Glass Forehearths
Optical Glass Production
Glass Fiber Production
Display Glass Substrate and Cover Glass Production
Glass Feeders in The Production of Glasses

Sintering of Dental Zirconia Ceramics
Production of Refractory Material
Production of Silicon Nitride Components
Sintering of Technical Ceramics, Substrates, Packaging
Conventional, Li-ion Battery Materials, etc..
Pottery kilns
Production of Ceramic Tiles

Billet Heating
Non-ferrous Melting & Holding (Aluminum, magnesium, copper)
Immersion Heating of Zinc and Aluminum
Aluminum Alloy Parts
Alloy Parts for Automobiles and Airplanes
Hand Tools Production
Mold Shell Sintering

Magnet Production
Rapid Thermal Processing of Silicon Wafers
Diode Sealing
SOFC Sintering
Production of Phosphorus Powders and Phosphates

Flammability Testing
Thermal Conductivity Research
Thermal Expansion Testing
Infrared Spectometry Testing

Bright Annealing of Stainless Steel
Stress Relieving
Preheating Primary Metal Production Equipment and Fixtures
General Heat Treatment (Hardening, Tempering, Annealing, Normalizing, Carburizing, Carbonitriding, Nitriding, Nitrocarburizing, Boronizing)

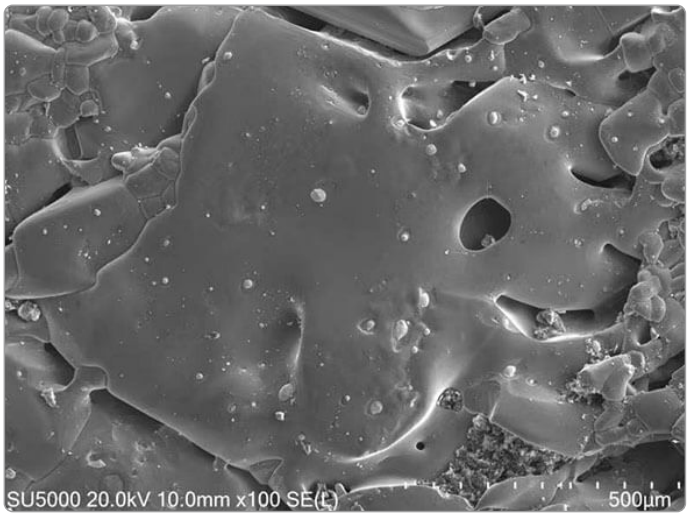
SGR - DOUBLE SPIRAL SIC HEATING ELEMENTS

Double Spiraled
Silicon Carbide Heating Element

SIC TECH® SGR element is a type of heating element composed of silicon carbide material and shaped in a double spiral configuration. It's made by a unique, reaction-sintering process.

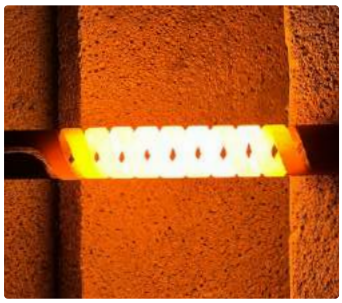
The hot zone of the element is formed by cutting a double spiral slot, which reduces the cross-sectional area through which current flows, resulting in higher resistance than the cold end. The cold end is formed by cutting two longitudinal slots along the length of the tube.

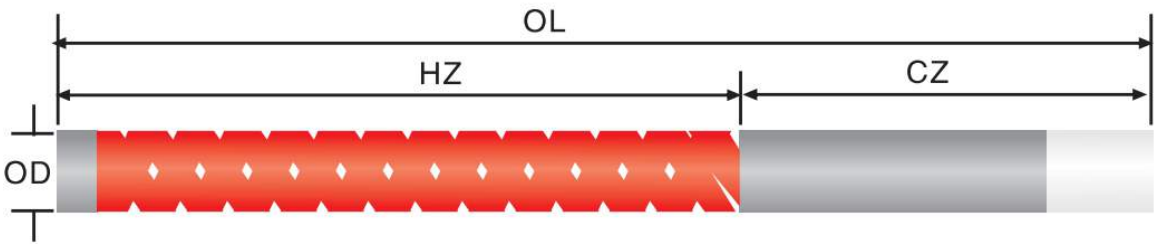
SGR elements standard sizes are available in a range of diameters between 14 and 50 mm, big diameter up to 75 mm is available on request. Sic Tech® SGR elements are available in a wide range of standard sizes, and special sizes are also could be customized on request.



Cross-Sectional Structure of Hot Zone (Magnified 5000 Times)

High densification, low porosity!
Hot Zone Density: ＞2.8 g/cm³





Outer Diameter : OD

Hot Zone Length: HZ

Cold Zone Length: CZ

Overall Length: OL

Order Example:
SGR Type, OD=30mm, HZ=400mm, CZ=300mm, OL=700mm, Resistane: 1.8Ω

Expressed As: SGR 30*400*700mm, 1.8Ω

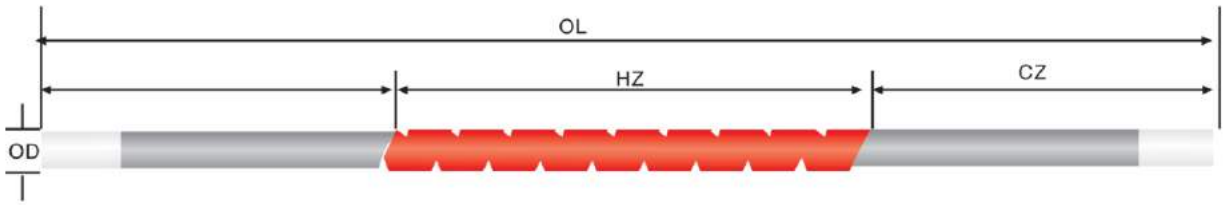
Diameter(mm)	Nominal Loading (at 1000℃)			
	Hot Zone		Cold Zone	
	Ω/mm	w/mm	Ω/mm	w/mm
18	0.02158	8.48	0.00430	1.70
20	0.02302	9.42	0.00384	1.60
25	0.01969	11.78	0.00328	1.78
30	0.01523	14.13	0.00190	1.75
35	0.01224	16.49	0.00150	2.00
40	0.00905	18.48	0.00100	2.10
45	0.00960	20.91	0.00079	2.10
55	0.00636	25.43	0.00073	2.30

SG - SINGLE SPIRAL SIC HEATING ELEMENTS

Single Spiraled
Silicon Carbide Heating Element

SIC TECH® SG element is a type of electric heating element that is made of high-quality green SiC as the main raw material. It has a rod-shaped design with a single spiral at the center. It can be used in various high-temperature furnaces and kilns that require uniform heating and high power density.

Single spiral silicon carbide heating elements have the advantages of high temperature resistance, corrosion resistance, oxidation resistance, long service life, and easy installation. They can heat up to 1625°C and have a power density of up to 25 W/cm2.



Outer Diameter : OD

Hot Zone Length: HZ

Cold Zone Length: CZ

Overall Length: OL

Order Example:
SG Type, OD=25mm, HZ=300mm, CZ=200mm, OL=500mm,
Resistane: 1.3 Ω

Expressed As: SG 25*300*700mm, 1.3Ω

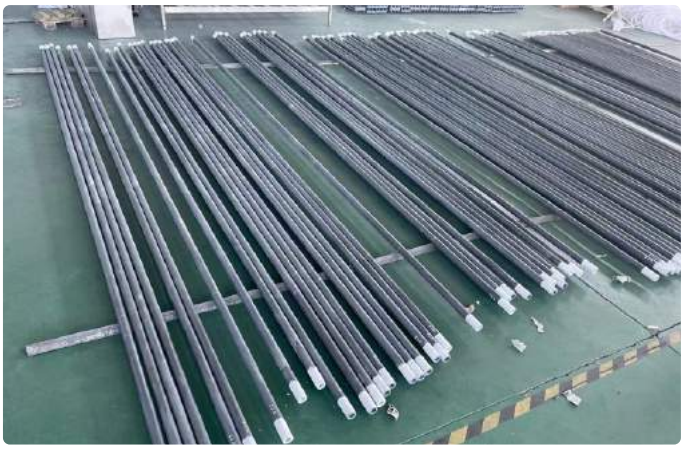
Diameter(mm)	Nominal Loading (at 1000℃)			
	Hot Zone		Cold Zone	
	Ω/mm	w/mm	Ω/mm	w/mm
14	0.02567	6.59	0.00450	0.30
16	0.02094	7.54	0.00387	0.50
18	0.01948	8.43	0.00312	0.55
20	0.01677	9.42	0.00291	0.60
25	0.01365	11.78	0.00174	0.93
30	0.01020	14.13	0.00120	0.95
35	0.00669	16.49	0.00096	0.98
40	0.00624	18.84	0.00072	1.00
45	0.00546	20.91	0.00066	1.02

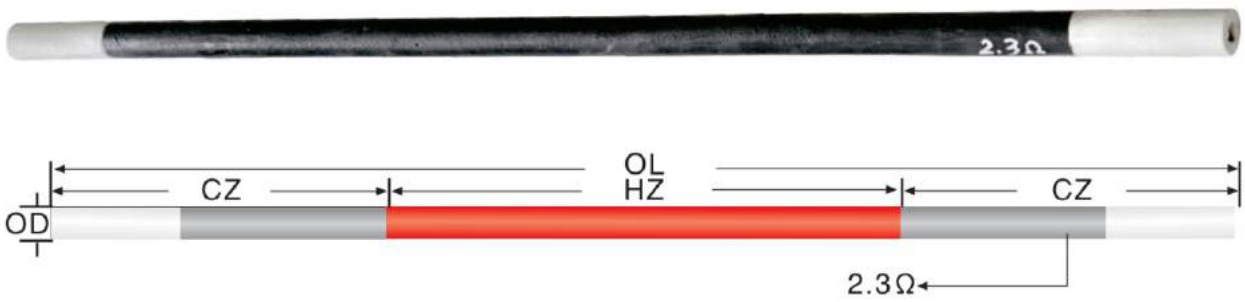
GD/MHD - STRAIGHT TYPE SIC HEATING ELEMENTS

GD type is one of the most widely used type of silicon carbide heating elements. It is made of three segments welded together, with a hot zone and two cold ends. It can be used for a wide range of applications. It Its diameter remains constant over its entire length.

Regarding GD type sic heating elements, We have two different density of hot zone. One is the GD type with a density of 2.58 g/cm³, and the other is the high density heaters (MHD),with a density of 2.8 g/cm³. This type of heaters can be used in positive and negative material sintering furnaces and other furnaces with temperatures of 1400°C or higher environments such as positive and negative material sintering furnaces.

The standard diameter of GD type silicon carbide heating element is from 12 to 60 mm. The maximum overall size is 5000mm, and special sizes can be customized according to customers' requirements.





Outer Diameter : OD

Hot Zone Length: HZ

Cold Zone Length: CZ

Overall Length: OL

Order Example:
GD Type, OD=55mm, HZ=1575mm, CZ=419mm, OL=2413mm,
Resistane: 0.9 Ω

Expressed As: GD 55*1575*2413mm, 0.9Ω

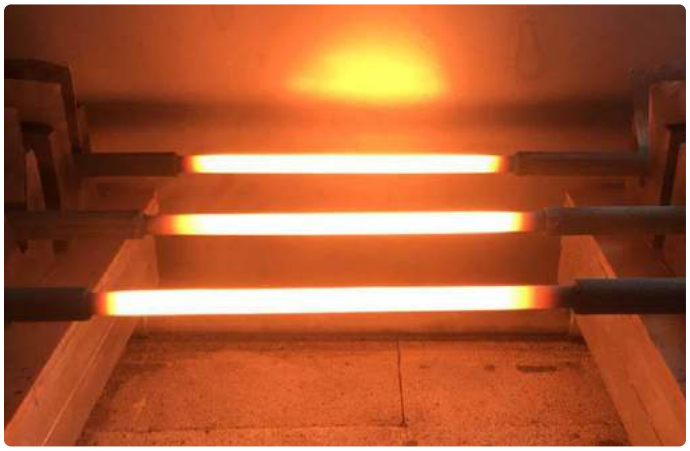
Diameter OD (mm)	10	12	14	16	18	20	25	30	32	35	38	40	45	50	55	60
Max Hot Zone HZ (mm)	350	500	600	600	800	900	1100	1300	1300	1450	2000	2000	2400	2400	2400	2400
Max Overall OL (mm)	650	950	1100	1300	1500	1600	1800	2100	2500	2500	3000	3800	3800	3800	3800	3800

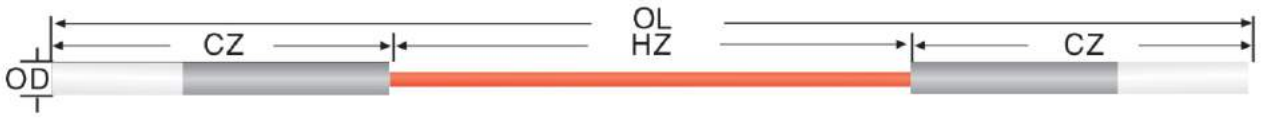
GC - DUMBELL TYPE SIC HEATING ELEMENTS

GC type sic heating element is also known as dumb bell shape. As one of the earliest heating element designs, the thick-ended SiC rod was originally designed to increase the cross-section of the cold end so as to The original design of the thick-ended rod was to increase the cold end cross-section in order to oversize the cold end and lower its resistance, thereby lowering the cold end operating temperature.

At present time, we have adopted advanced technology to keep the cold end cool by using a lower resistivity material in the manufacturing process to reduce resistance. As a result, no need for an oversized cold end now.

The standard diameter range for thick-end rods is 14-45 mm, with hot zone length up to 1,000 mm and maximum overall lengths up to 2,000 mm, depending on the customer's requirements.





Outer Diameter : OD

Hot Zone Length: HZ

Cold Zone Length: CZ

Overall Length: OL

Order Example:
GC Type, OD=14mm, HZ=180mm, CZ=60mm, OL=300mm,
Resistane: 4.0 Ω

Expressed As: GC 14/180/60mm, 4.0Ω

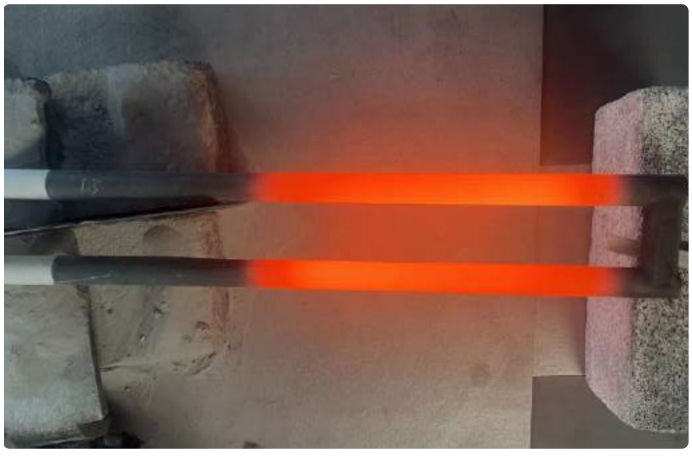
Diameter OD (mm)	14	16	18	20	25	30	32	35	38	40	45	50	55	60
Max Hot Zone HZ (mm)	600	600	800	900	1100	1300	1300	1450	2000	2000	2400	2400	2400	2400
Max Overall OL (mm)	1100	1300	1500	1600	1800	2100	2500	2500	3000	3800	3800	3800	3800	3800

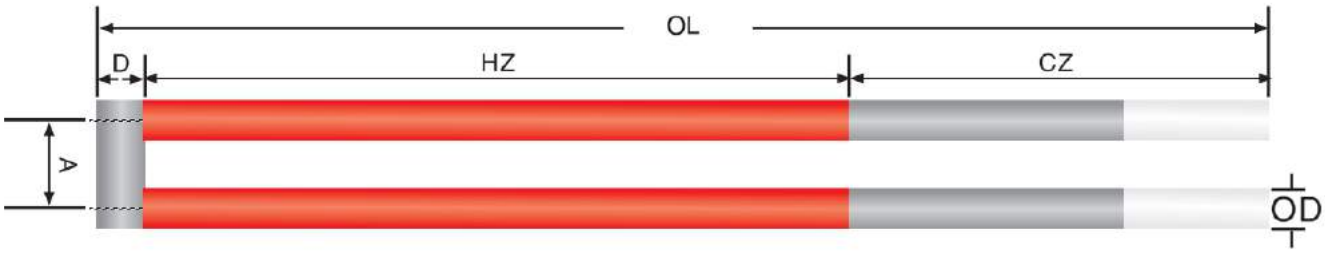
GDU - U TYPE SIC HEATING ELEMENTS

U type sic heating element consists of two carefully matched sic rods of same diameters. The two rods are connected by a thickened bridge and wired at one end. This design is well suited for feed through designs, radiant tube systems, or where an element cannot penetrate the heating chamber.

The U-shaped silicon carbon rods are connected with two heat-emitting parts and two cold ends, which is 10-20% less energy-efficient than the GD/MHD heater.

The standard diameter range of U-shaped rods is the same as for GD type, with the hot zone length up to 1000mm and the maximum overall length up to 3500mm. Special sizes can be customized according to customers' requirements.





Outer Diameter : OD

Hot Zone Length: HZ

Cold Zone Length: CZ

Overall Length: OL

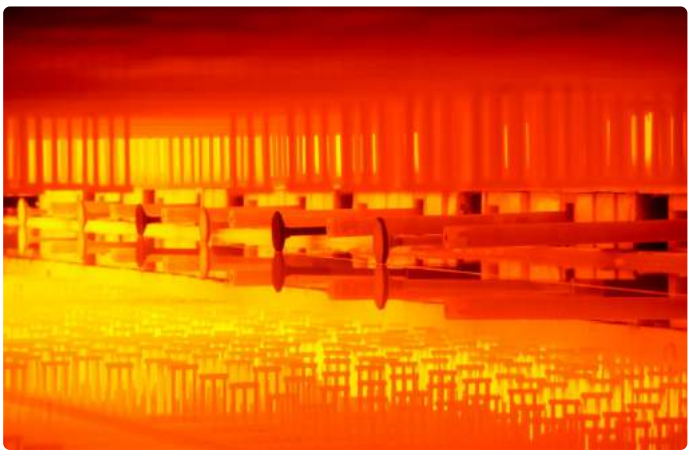
Order Example:
GDU Type, OD=20mm, HZ=300mm, CZ=400mm, OL=700mm, A=60mm, Resistane: 2.2 Ω

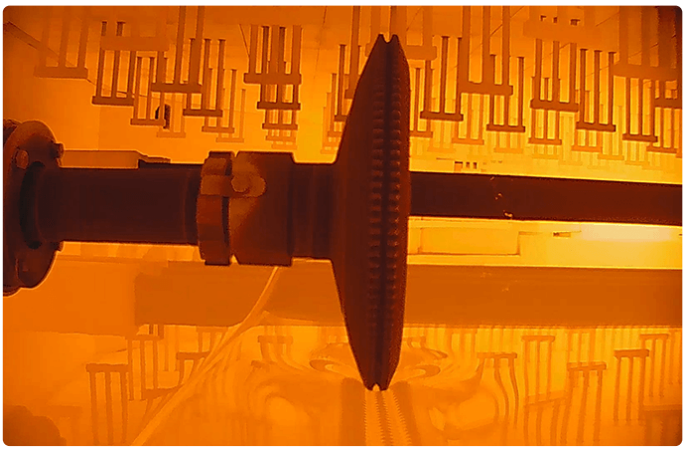
Expressed As: GDU 20/300/400/60mm, 2.2 Ω

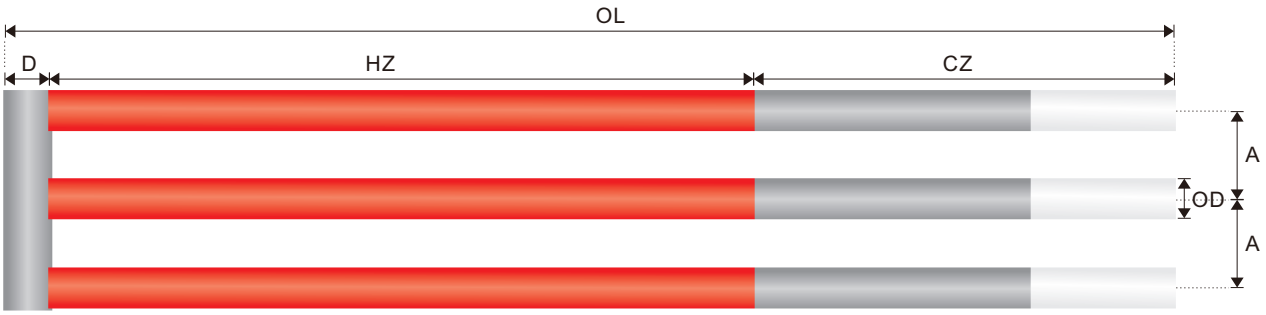
GDW/MHDW - 3 PHASE W TYPE SIC HEATING ELEMENTS

SIC TECH® W shape element is widely used in float glass production. They are installed at the top of tin bath, designed to control the cooling rate and the thickness of the glass as it floats over the molten tin in the tin bath.

There are different types of Sic heating elements for float glass production tin bath, such as 3-phase elements, horizontal heaters, and customized heating elements. 3-phase elements are available in special glazed quality, to minimize attack by volatiles present in the tin bath. They are also suitable for producing display glass and borosilicate glass. Horizontal heaters can be installed and replaced while the tin bath is operational. They are commonly used to extend campaign lives, where conventional elements in the side zones have been broken Customized heating elements can be tailored to suit non-standard bath designs or special float applications.







Outer Diameter : OD

Cold Zone Length: CZ

Hot Zone Length: HZ

Overall Length: OL

Order Example:
GDU Type, OD=20mm, HZ=300mm, CZ=400mm, OL=700mm, A=60mm, Resistane: 2.2 Ω

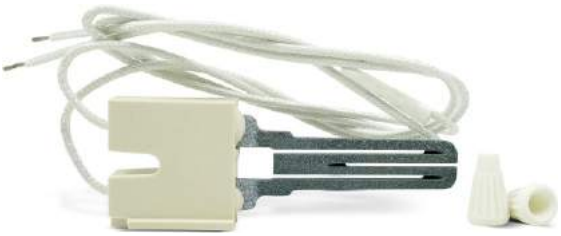
Expressed As: GDU 20/300/400/60mm, 2.2 Ω

CUSTOMIZED SILICON CARBIDE PRODUCTS

At Sic Tech, we are not only committed to providing our customers with high-quality silicon carbide rods, but we also provide you with special customized silicon carbide heating elements. Our silicon carbide heating elements utilize advanced technology and materials to ensure superior performance and reliable durability.

No matter what kind of silicon carbide heating element you need, we can customize it to fit your needs. Our specialized team will work with you to understand your specific requirements and provide you with the best solution. Whether it's size, shape or power requirements, we can meet your needs.

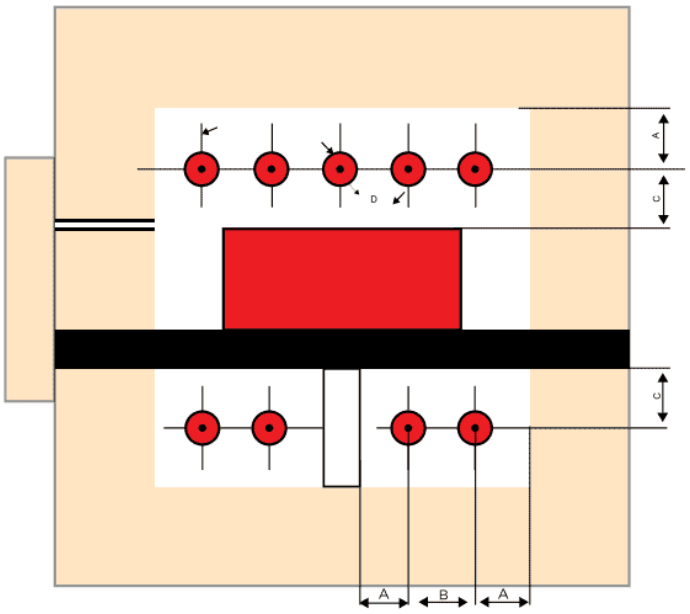
Our silicon carbide heating elements are used in a wide variety of applications, including industrial heating, electronic equipment, laboratory equipment, and more. Whether you



Service Life of Sic Heating Element

The service life of a silicon carbide heating element depends on various factors, such as the operation temperature, the surface loading, the atmosphere, the furnace operation, the electrical connection, and the installation method.

Generally, the life of a silicon carbide heating element expires when its resistance increases to about 3 times the initial resistance for types GD, GDU and GDW, or 1.7 times the original value for types MHD, SG and SGR. This is because the oxidation process reduces the cross-sectional area of the element and increases its resistance. The oxidation rate is faster at higher temperatures and higher surface loadings. Therefore, it is recommended to keep the surface temperature of the element as low as possible and minimize the difference in temperature between the furnace chamber and the element. It is also advisable to avoid harsh atmospheres, such as acidic, alkaline, or volatile ones, that may corrode or damage the element. Additionally, it is important to follow the proper installation and connection methods to ensure a stable and uniform heating performance.



OPERATING TEMPERATURE

Sic Tech® SGR elements may be used in air at fur nace temperatures up to maximum of 1625°C, but the higher temperature, the shorter life.

Oxidation accelerates and the life shortens especially when the furnace chamber temperature exceeds 1550℃ (for Types SG and SGR). Therefore, it is recommended the surface temperature of element shall be kept as low as possible when in use. Namely, it is necessary to minimize the difference in temperature between inside the furnace chamber and the elements. This point will be discussed in the next section on surface loading(W/cm2).

ELEMENT SPACING

Elements should be spaced at a minimum of two diameters between centres, but 2.5–3 times the diameter is preferred. There should be 1.5 diameters between element centres and the refractory lining, and a distance of at least two diameters should be allowed between
the element centres and the products being fired.

It may be necessary to increase this if uniformity of heating is required, especially if the distance between adjacent elements is large.

A = (1.5 x D) = Minimum spacing between component centre & adjacent refractory

B = (2.5 x D) = Minimum spacing between adjacent element centres

C = (1.5 x D) = Minimum spacing between component centers & hearth plates or work

D = component Diameter

Installation Guide

1. Firstly check the whole batch of sic heaters' resistance value, and use the most similar resistance heaters in the same group, in order to make the furnace temperature is more even;

2. As the sic heater is a hard and fragile material, they can not be fixed very tightly during installation. They should be able to rotate freely after installation; Sic heaters can be installed in vertically or horizontally;

3. Sic heaters need to be equipped with power adjustable controller, combined with intelligent temperature control instrumentation. The rated power of the controller should be more than 2 times the power of the of the sic heater, so as to increase the service life of the heaters;

4. Customers should choose a reasonable electric connection method according to the hot zone size and resistance value of the heaters;

5. New sic heaters in the temperature increasing process should be slowly to add power, make sure the heater's surface temperature is very close to inside chamber temperature. In this condition, sic heaters do not over-temperature work, which can increase its service life;

6. After new sic heaters installed, power supply is suggested to use following way: first adjust the power to 30-40% of the design power, preheating 20 minutes -40 minutes, and then adjust the power to 60-70%, keep warming 20-30 minutes. After the heaters' surface has a similar temperature to the inside chamber, then slowly increase the power until the temperature reach the setting, finally recorded voltage and current. The voltage and current is the normal use of the sic heaters;

7. Each time the cold furnace should startup warming up by 50% of rated power at least 15mins;

8. In the use of sic heaters, we can not only look at the current or voltage, because the heaters be slowly increase its resistance value (the use of voltage will slowly become higher, the current will slowly become smaller), as long as the input of the overall power is unchanged, the heating temperature is constant;

9. If sic heater broke after using several months, it can not be individually replaced with a new heater. At this time, you can choose to use an old sic heater which has similar resistance with current on using heaters. If there is no old heater as replacement, you should change the whole group heaters with similar resistance heaters. The replaced & fined heaters can be used in the future to replace broken elements;

10. After long time using, sic heaters' resistance continues to become larger. When the controller's voltage is adjusted to the highest but the temperature still can not meet the use of sic heaters, you can change the connection way, example, change the previous series connection into parallel connection, the previous is a Y type connection can be changed into a triangular type connection.

11. Furnace metal oxides and slag and other impurities should be cleaned in a timely manner, can not be accumulated in the furnace, in order to prevent it from contact with the components and damage to the components;

12. The heated material should not contain too much moisture to prevent accelerated aging of the components, and try to avoid direct contact with alkaline substances;

Element Connection

SIC TECH® SGR element could be considered as a simple resistance load. It may be connected in parallel, series or combinations of the two.

Combination of series and parallel connections are generally used with our heating elements. The maximum number of SGR heating elements in series must be limited to 2 units, or a two-step series connection must be used. If the furnace chamber temperature exceeds 1350℃, a parallel connection must be used. Open delta connection (single-phase 3circuits) is recommended for a three-phase connection.

1.Single-phase parallel connection (Fig.1)
2.Single-phase 2 units series and parallel connections(Fig.2)
3. Open delta connection (Fig. 3)

A series-parallel combination is usually an effective compromise, and in this case, the series groups should be connected in parallel. Elements should never be connected with parallel groups connected in series, as failure of one element will result in overloading of the remaining elements in that group. (Fig. 4)

The rated voltage can be obtained by the following formula:

$V = IR = WR = W/I$

$W = VI = I^2R = V^2/R$

V is voltage, I is ampere, W is watt,
R is resistance(Ω)

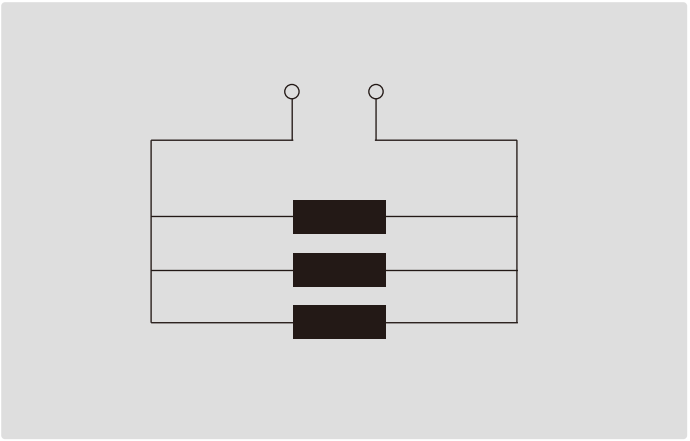


Fig.1 Single-phase parallel connection

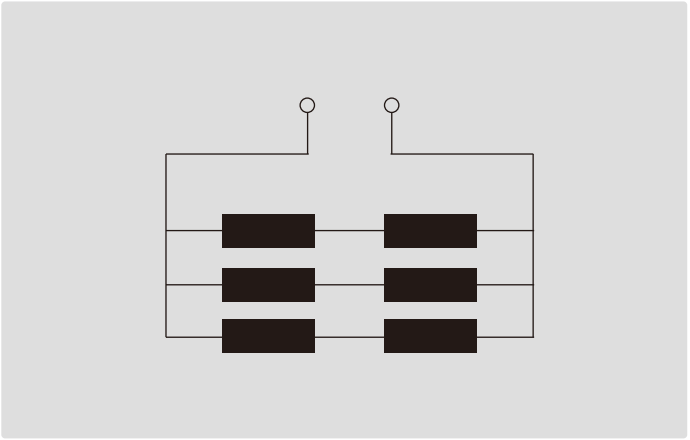


Fig.2 Single-phase 2 units, series connection and parallel connection

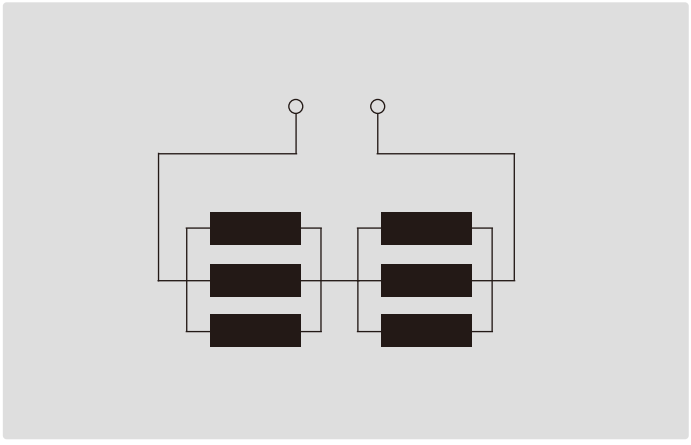


Fig.4 Method of parallel/series connection
Not recommended!!

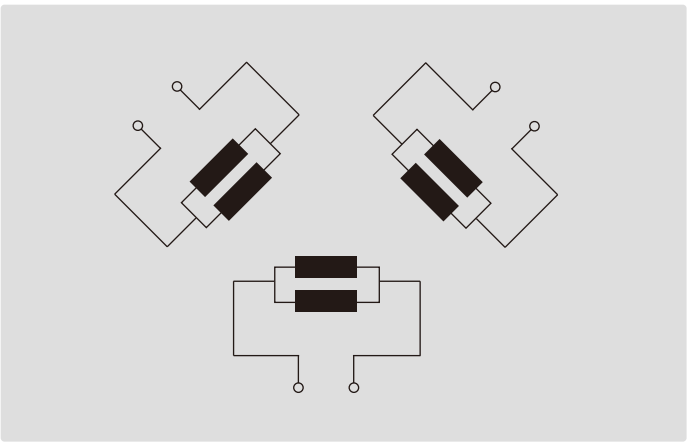


Fig.3 Open delta connection
(single phase 3 circuits)

Matching of Resistance Value

It is recommended that any series connected elements be selected within a resistance range of ±5% of each other, and elements connected in parallel may have a wider range of ±10%.

If any element fails or is broken after only a short period in use it can usually be replaced with a new element; preferably one from the higher end of the resistance tolerance (low amp value). If the elements have been in
use for a considerable time however, the entire group should be replaced; otherwise an excessive load will fall on either the new or the old elements, resulting in premature failure.

It is good practice to divide the total number of elements in the furnace into relatively small control groups, to simplify matching at a later date. For example, a furnace fitted with 48 elements, will be far more flexible if the
elements are divided into eight groups of six, than with three groups of 16 elements, and matching of element resistance will be greatly simplified.

When a group of elements has been replaced, it is essential to ensure that the voltage output of the power supply equipment is reduced to the correct value before switching on, as overloading of elements, even for a very short period, can cause irreparable damage. The
old elements may be retained for later use with others which have been in use for a similar period of time. If possible, voltage and current readings should be taken from each element before removal and the increased resistance value marked on the terminal to assist in
matching at a later date.

It is important to note that the resistance values of elements at room temperature give no indication of their resistance at operating temperature and re sistance measurements should always be taken at a constant temperature above 1000°C.

Voltage Reserve

In order to compensate for the increase in element resistance which occurs with use, a variable voltage power supply is usually provided. The amount of voltage reserve required will depend upon the elements' rate of resistance increase and the life expected, but is usually in the order of 50–100% of the voltage required to give full power with new elements.

For example, if 110 V is required to give full power with new elements, then a voltage range of 110–220 V will be required to give 100% voltage reserve, and a range of 110–165 V to give 50% reserve.

When elements are to be operating for long periods at temperatures of about 1400°C or above, or where the furnace conditions are such that an excessively high rate of resistance increase will occur at a lower temperature, then allowance should be made for 100% voltage reserve. Conversely, if the element temperature is very low, or the furnace only infrequently used, a voltage reserve of 50% or less may be found enough.

Power Supply Devices

Generally, a variable voltage power supply is usually provided to enable the design power to be maintained throughout the life of the elements. The type of equipment used may have an effect on element performance and it is important that the correct selection procedures are adhered to if the best element life is to be obtained. These following power supply devices can be used:

1. Variable output transformer

2. Thyristor unit (SCR)

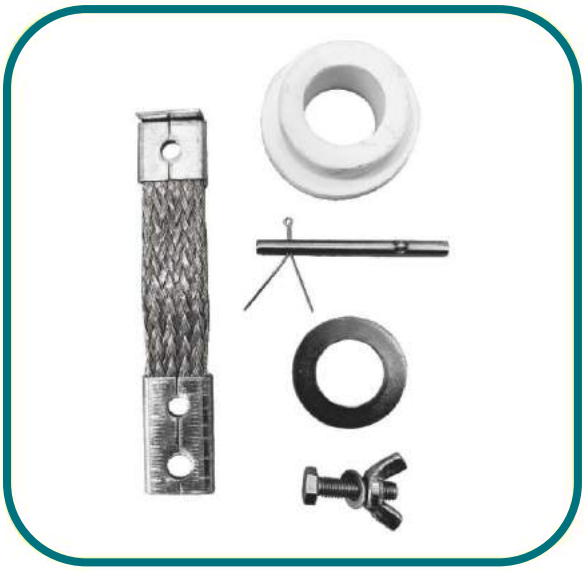
3. Combined thyristor/Transformer system

Influence of Atmosphere

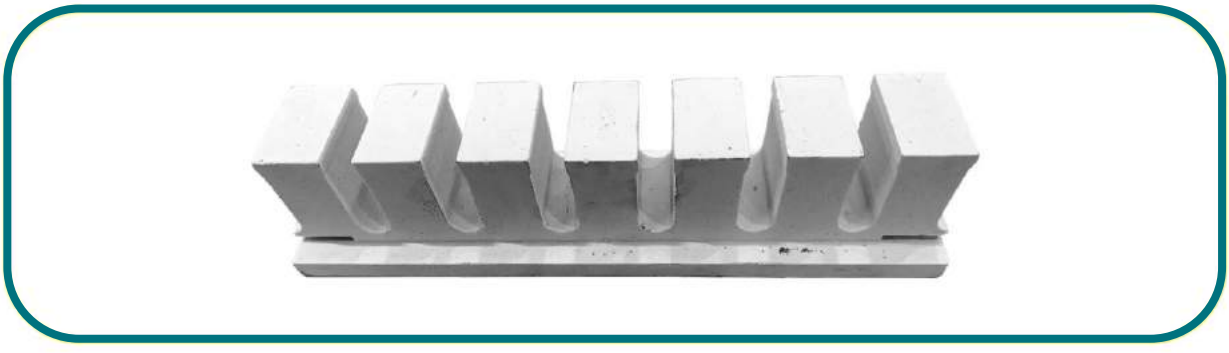
SIC TECH® Silicon carbide heating element coating is a kind of synthetic film, which is coating the surface of hot zone after producing the finished element. It can extend the life of silicon carbide heating element in the special using environment, can be separated from the gas to accelerate the aging of silicon carbide heating element, to protect the silicon carbide heating element.

For more details of coating, please see the following introduction:
1/ T Coating: This coating is used for lower oxidation rate in normal use, make the silicon carbide heating element extend working life of 30%-60%.
2/ D Coating: This coating is used in the case of nitrogen.
3/ S Coating: This coating is used in three phase heating element for float glass. (W Type)
4/ Q Coating: This coating is used in the case of steam or hydrogen.

Atmosphere	Effect	Countermeasure	Recommend Coating
Water Vapor	Heater' s lifespan is sometimes cut to less than one fifth of the expected lifespan under dry open air conditions	It' s important to raise the temperature after purging moisture sufficiently at a low temperature when initiating a new furnace or starting to use one after a long suspension	**Q Coating**
Hydrogen gas	The resistance increases rapidly and its mechanical strength deteriorates quickly if the temperature exceeds 1350°C in a hydrogen gas atmosphere. The service life, however, depends on the intensity of moisture of the gas	It is recommended that it shall be used at a temperature of less than 1300°C in the furnace chamber. It is recommended that the surface load shall be decreased as much as possible. ($5W/cm^2$)	**Q Coating**
Nitrogen gas	Nitrogen gas reacts with silicon carbide, forming silicon nitride when the temperature exceeds 1400°C, and this shortens the service	It is recommended that it shall be used at a temperature of less than 1300°C in the furnace chamber. It is recommended that the surface load shall be decreased as much as possible. ($5W/cm^2$)	**D Coating**
Ammonia converted gas($H_2$75%),($N_2$25%)	This is the same as in the cases of hydrogen gas and nitrogen gas	It is recommended that it shall be used at a temperature of less than 1300°C in the furnace chamber. It is recommended that the surface load shall be decreased as much as possible.	**D Coating**
Decomposition reaction gas(N_2,CO,CO_2,H_2,CH_2O, etc)	Decomposed hydrocarbon attaches on the surface of heating elements and may cause short-circuiting in an atmosphere including hydrocarbon	It is necessary to burn off carbon by occasionally introducing air into the furnace. The electric furnace should be designed with wide spacing between heating elements to prevent short-circuiting	**D Coating**
Sulfur gas(S,SO_2)	The surface of heating elements will be damaged and resistance rapidly increases if the temperature of element exceeds 1300°C	Use the heating elements under 1300°C	**D Coating**
Others	Various substances, emitted from processed materials during calcination, including such halides as lead, antimony, alkali and alkaline earth, as well as oxides, chemical compounds thereof may occasionally stick to heating elements and corrode them	It' s important to remove these beforehand from processed materials or exhaust them by installing an exhaust port	**S Coating**



Clamps Braids Refractory



浮法玻璃硅碳棒接线夹和绝缘卡座

Connection clamp and insulation clamp base for float glass W Style heater

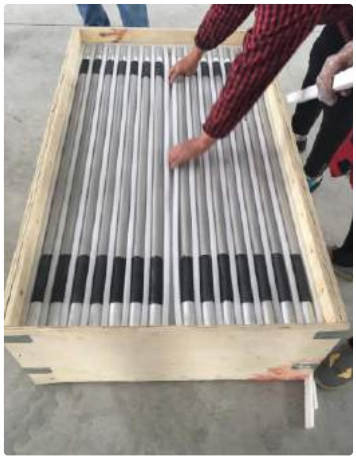
Safety Package

Sic heaters are ceramic products, which are fragile. After repeated tests, Sic Tech has chosen the following safe packaging methods to ensure the safety of domestic and international logistics.

In order to protect the interests of our customers, we offers a commitment to safe packaging, and we provide no-cost compensation or compensation in new orders for any products that are damaged due to logistics and package.












20+ Years Experience Focus On Silicon Carbide Heating Element

Heating Temperature up to 1625°C

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