

## Reaction-bonded Silicon Carbide- RBSiC(SiSiC)

This is reaction-bonded (silicon infiltrated) silicon carbide, being formed zero porosity by filling up open porosity with silicon metal (Si). Because of its zero porosity characteristic, thermal conductivity is more than twice of Oxide Bonded SiC's, bending strength is more than 5 times higher comparing to Oxide Bonded SiC.

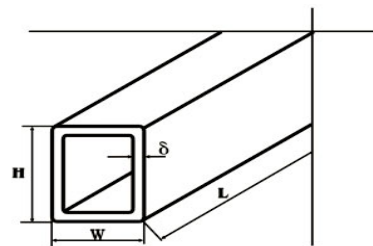
**RBSiC(SiSiC)**'s special feature is its ability to maintain high strength from room temperature up to 1,350°C. Also it has very high oxidation resistance, chemical resistance and wear resistance. Used as beam, roller, radiant tube burner and burner nozzle etc.

### Specifications

Item	Unit	Index
Application temperature	°C	1380
Density	g/cm <sup>3</sup>	≥ 3.02
Open porosity	%	≤ 0.1
Bending strength	Mpa	250 (20°C)
	Mpa	280 (1200°C)
Modulus of elasticity	Gpa	330 (20°C)
	Gpa	300 (1200°C)
Thermal conductivity	W/m.k	45 (1200°C)
Coefficient of thermal expansion	K-1×10-6	4.5
Rigidity		13
Acid and alkali resistance		Excellent

### Products Introduction of RBSiC(SiSiC):

#### Beams



**H** = 20-200mm    **L** = 50-4500mm  
**W** = 20-200mm    **δ** = 4-12mm

We have cross beam, solid beam and special shape beam.

Reaction-bonded silicon carbide beam is applied to the bearing frame of tunnel furnace, shuttle furnace and industrial furnace. reaction-bonded silicon carbide beam is characterized by big high-temperature resistance, no bending deformation and long service life, and is an ideal furnace applied to sanitary ceramics and electro ceramics furnaces. reaction-bonded silicon carbide, with good thermal conductivity, can save energy consumption significantly

The Bending Strength of RBSiC(SiSiC) Beams is 250MP, safety coefficient is 5.

Concentrated Loading = the Value in the Table Accordingly x 1/L.

Uniformly Distributed Loading = the Value in the Table Accordingly x 1/L.

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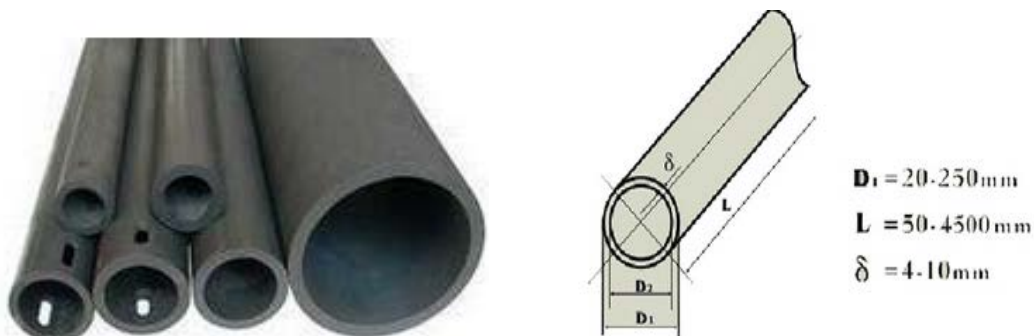
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Bearing Capacity of RBSiC(SiSiC) Beams						
Size of Section (mm)		Wall Thickness(mm)	Concentrated Loading (kg.m/L)		Uniformly Distributed Loading(kg.m/L)	
B Side	H Side		B Side	H Side	B Side	H Side
30	30	5	74	74	147	147
30	40	5	117	95	235	190
40	40	5	149	149	298	298
50	50	6	283	283	567	567
50	60	6	374	331	748	662
50	70	6	473	379	946	757
60	60	7	481	481	962	962
80	80	7	935	935	1869	1869
100	100	8	1708	1708	3416	3416
110	110	10	2498	2498	4997	4997

**Roller**



Loading Capacity of RBSiC(SiSiC) Rollers			
Size of Section (mm)	Wall Thickness(mm)	Concentrated Loading (kg.m/L)	Uniformly Distributed Loading(kg.m/L)
30	5	43	86
35	5	63	126
38	5	77	154
40	6	97	194
45	6	130	260
50	6	167	334
60	7	283	566
70	7	405	810

Reaction-bonded silicon carbide roller rod is applied to high-temperature burning zone of the roller furnace for domestic ceramics, sanitary ceramics, building ceramics, glass and magnetic materials, etc. reaction-bonded silicon carbide roller rod is characterized by big high-temperature resistance and no bending deformation, and its service life is 10-15 times that of alumina ceramic rod.

The Bending Strength of RBSiC(SiSiC) Rollers is 250MP, safety coefficient is 5.

Concentrated Loading =the Value in the Table Accordingly x 1/L,

Uniformly Distributed Loading = the Value in the Table Accordingly x 1/L.

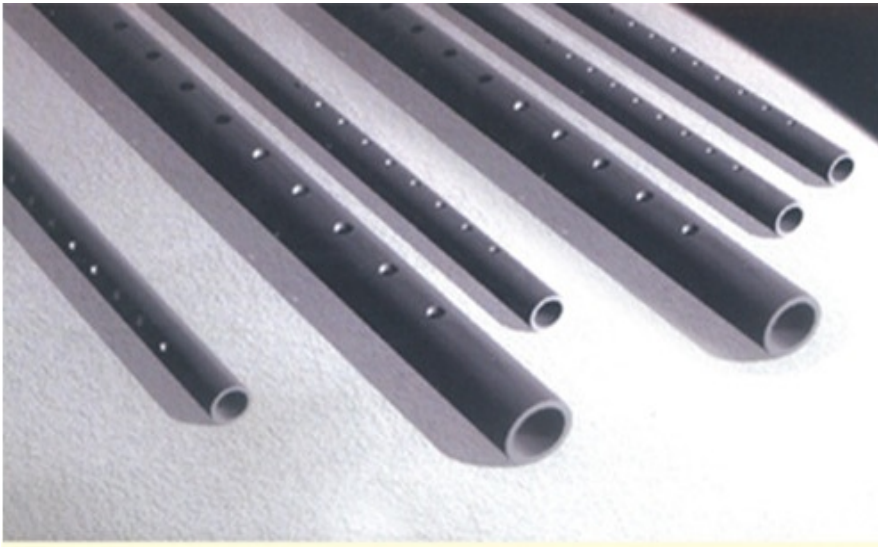
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### Cold-Air Tube



reaction-bonded silicon carbide cold-air tube is applied to the cooling zone of the roller furnace. reaction-bonded silicon carbide cold-air tube is characterized by big quick-cooling/quick-heating resistance and no bending deformation, and its service life is more than 10 times that of stainless steel tube.

### Nozzles Series



#### Atomizing Nozzle

reaction-bonded silicon carbide desulfurizing and atomizing nozzle is the key part for thermal power plant and large-capacity boiler flue gas desulfurizing and dedusting device. It has been applied in batch to thermal power plant and large-capacity boiler flue gas desulfurizing and dedusting device.

#### Liquid Column Nozzle

reaction-bonded silicon carbide desulfurizing and atomizing nozzle is the key part for thermal power plant and large-capacity boiler flue gas desulfurizing and dedusting device. It has been applied in batch to thermal power plant and large-capacity boiler flue gas desulfurizing and dedusting device.

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### **Two-Way Nozzle**

reaction-bonded silicon carbide desulfurizing and atomizing nozzle is the key part for thermal power plant and large-capacity boiler flue gas desulfurizing and dedusting device. It has been applied in batch to thermal power plant and large-capacity boiler flue gas desulfurizing and dedusting device.

### **Flame Nozzle - Flame Separator**

Reaction-bonded silicon carbide flame nozzle is an ideal flaming device for tunnel furnace, shuttle furnace and roller furnace, and is widely applied to the industrial furnaces with open-fire direct heating system and radiant tube indirect heating system.

Reaction-bonded silicon carbide flame nozzle has been used by domestic and overseas famous furnace companies and manufacturers.

### **Silicon Carbide Plate**



reaction-bonded silicon carbide plate is applied to kiln furniture for sanitary ceramics and fine ceramics.

### **Heat Radiation Indirect Heating System**



Reaction-bonded silicon carbide heat exchange tube, reaction-bonded silicon carbide radiant tube inner tube and outer tube assembly, applied to heat radiation indirect heating system. Reaction-bonded silicon carbide heat radiation indirect heating system is applied to some industrial furnaces, such as roller furnace, bogie furnace, etc. in such industries as steel and iron, stainless steel and non-ferrous metals.

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### Case-Crucible



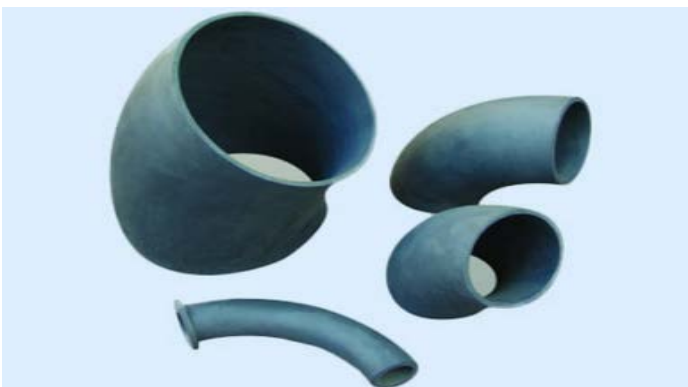
reaction-bonded silicon carbide case-crucible is applied to powder sintering, metal smelting, etc. in such industries as metallurgy, chemicals, glass, etc.

### Wear-resisting barrels



Reaction-bonded silicon carbide wear-resisting barrels are used for cyclone wear-resistant liner, instead of imported products, it has high strength, high wear resistance, good heat conduction performance.

### Elbow



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**Taper Sleeve**



**Irregular And Special-Shaped Silicon Carbide Ceramics**



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