



SSIC Roller And Cooling Tube

Pressure less sintered silicon carbide tube and roller

Silicon carbide Roller and Cooling Tube made by the material of siliconized silicon carbide has series of basic superiority and characteristic such as high strength, extreme hardness, wear resistance, high temperature tolerance, corrosion resistance, oxidation resistance thermal shock resistance, high thermal conductivity, low coefficient of thermal expansion, creep resistance under high temperature and so on.

Key advantages:

1. First company in the world to produce silicon carbide heat exchanger tubes by isostatic pressing.
2. The physical properties are better than the extrusion process.

Typical physical properties

Physical Properties	Ours	International S	Local S	SISIC
Density(g/cc)	>3.13	3.07	3.05	3.02
Aparant Porosity(%)	<0.1	0.6	<3.0	<0.1
Bending Strength (Mpa)				
20°C	390	380	320	250
1300°C	380		330	260
1600 °C	430		350	-
Fracture Toughness (MPa.m ^{1/2})	4.8	4.6	3.5	3.8
Thermal conductivity (W/ml)1250°C	45		42	40
Coefficient of Thermal Expansion (10 ⁻⁶ /°C)RT-800°C	3.9	4.6	4.4	4.5
Max operating temperature* (°C)	1700	1700	1700	1380

Actual Test Data

Physical Properties	Ours	Local S
Density(g/cc)	3.147	3.055
Aparant Porosity(%)	0	0.03
Total Porosity(%)	1.04	3.93

Breaking Strength (Kgf)

Data	Company S (Kgf)	Ours (Kgf)	Difference (Kgf)	Increase (%)
Process	Extrusion Pressing	Isostatic Pressing		
Test I	58	83	25	43%
Test II	63	89	26	41%

* O.D.:19mm * I.D.:14.5mm * Length: 800mm tube

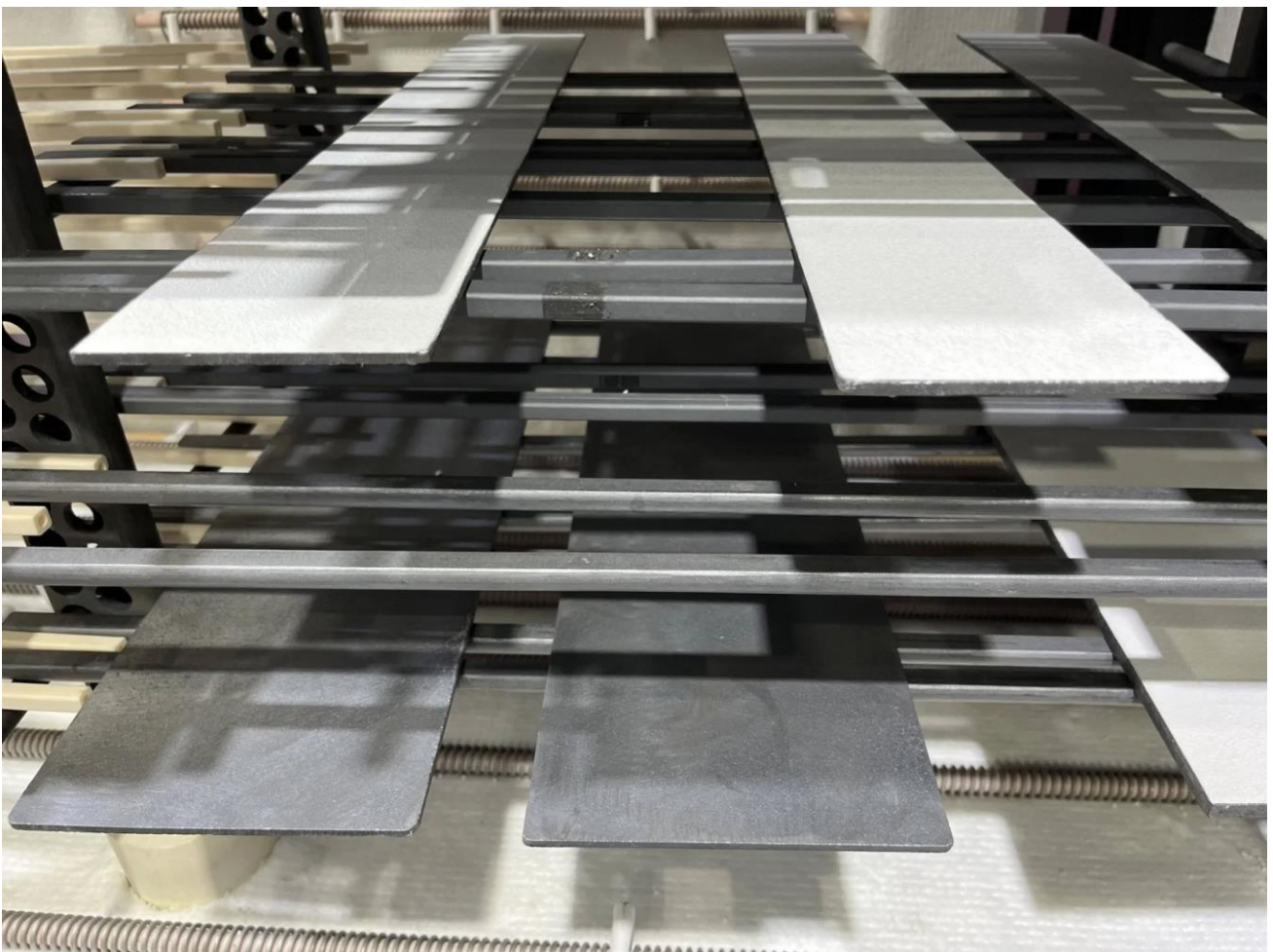
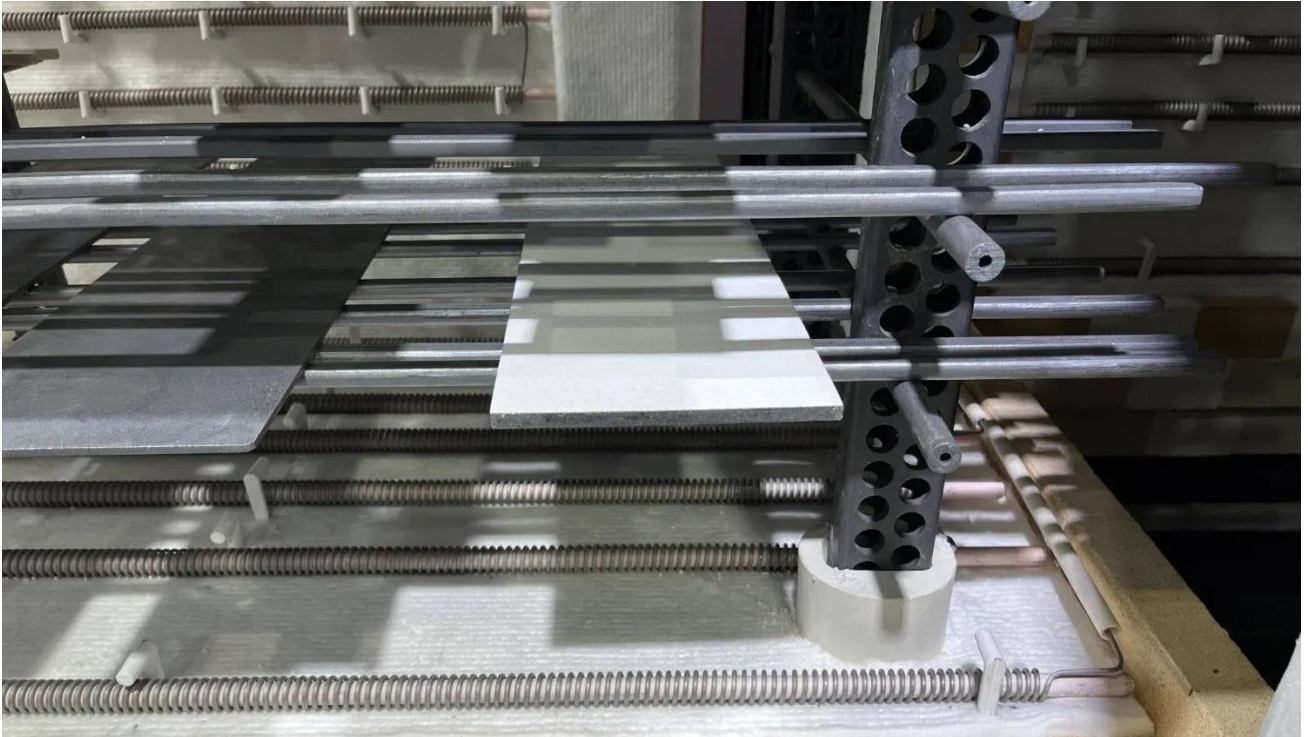
Recrystallized Silicon Carbide Beam Ssic Roller for Ceramic Industry

SSiC rollers are specialized components known for their exceptional properties, making them ideal for various applications in the ceramic industry.



Please visit the website for more details

WWW.SUNNYSTEEL.COM



Please visit the website for more details

WWW.SUNNYSTEEL.COM



Properties of SSiC Rollers:

- **High Hardness:** SSiC rollers are extremely resistant to wear and abrasion.
- **Chemical Stability:** They show excellent resistance to chemical corrosion.
- **Thermal Shock Resistance:** Capable of withstanding rapid temperature changes.
- **Low Friction Coefficient:** Reduces wear and energy consumption.
- **High Load Bearing Capacity:** Can bear high loads, important for heavy ceramic materials.
- **Long Service Life:** Durability leads to a longer service life compared to other materials.

Applications:

- Kiln furniture for supporting fired ceramic products.
- Roll feeders to transport green ceramic ware.
- Glaze application in certain production processes.
- Drying and curing conveyor systems.
- Pressing and forming machinery for ceramic bodies.
- Quality control inspection systems.



Please visit the website for more details

WWW.SUNNYSTEEL.COM

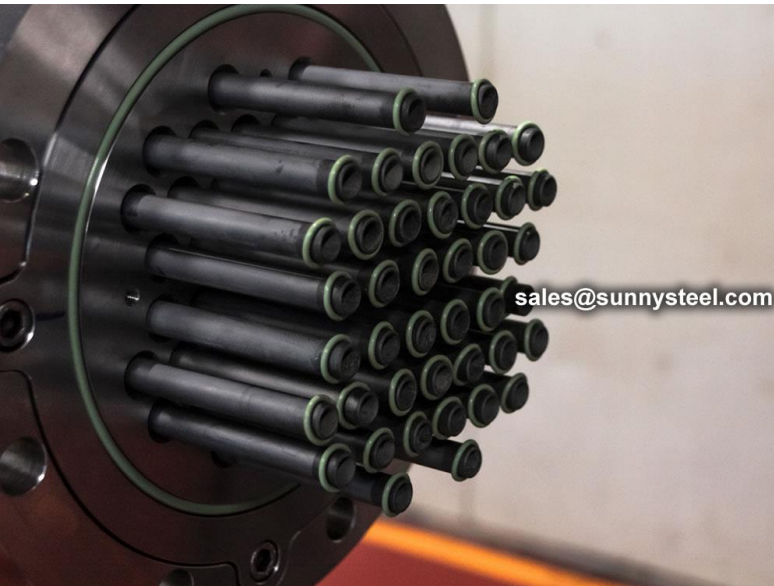
Standard Dimension Reaction Bonded Silicon Carbide Ceramic Roller Sistic

Reaction sintering silicon carbide ceramic roller is mainly used for lithium battery industry, daily porcelain, sanitary porcelain, building ceramics and magnetic materials, such as roller kiln, high temperature burning with ideal kiln, with a long service life. It has high temperature strength, thermal shock resistance, high temperature creep resistance, strong resistance, good wear resistance.

Roller



Heat Exchange Tube



Silicon carbide tubular heat exchanger is widely used in various furnaces of hot blast, heat treatment, baking equipment, and soaking pits, oil and gas boilers of steel, machinery, building materials, petrochemical, non-ferrous metal smelting and other industries.

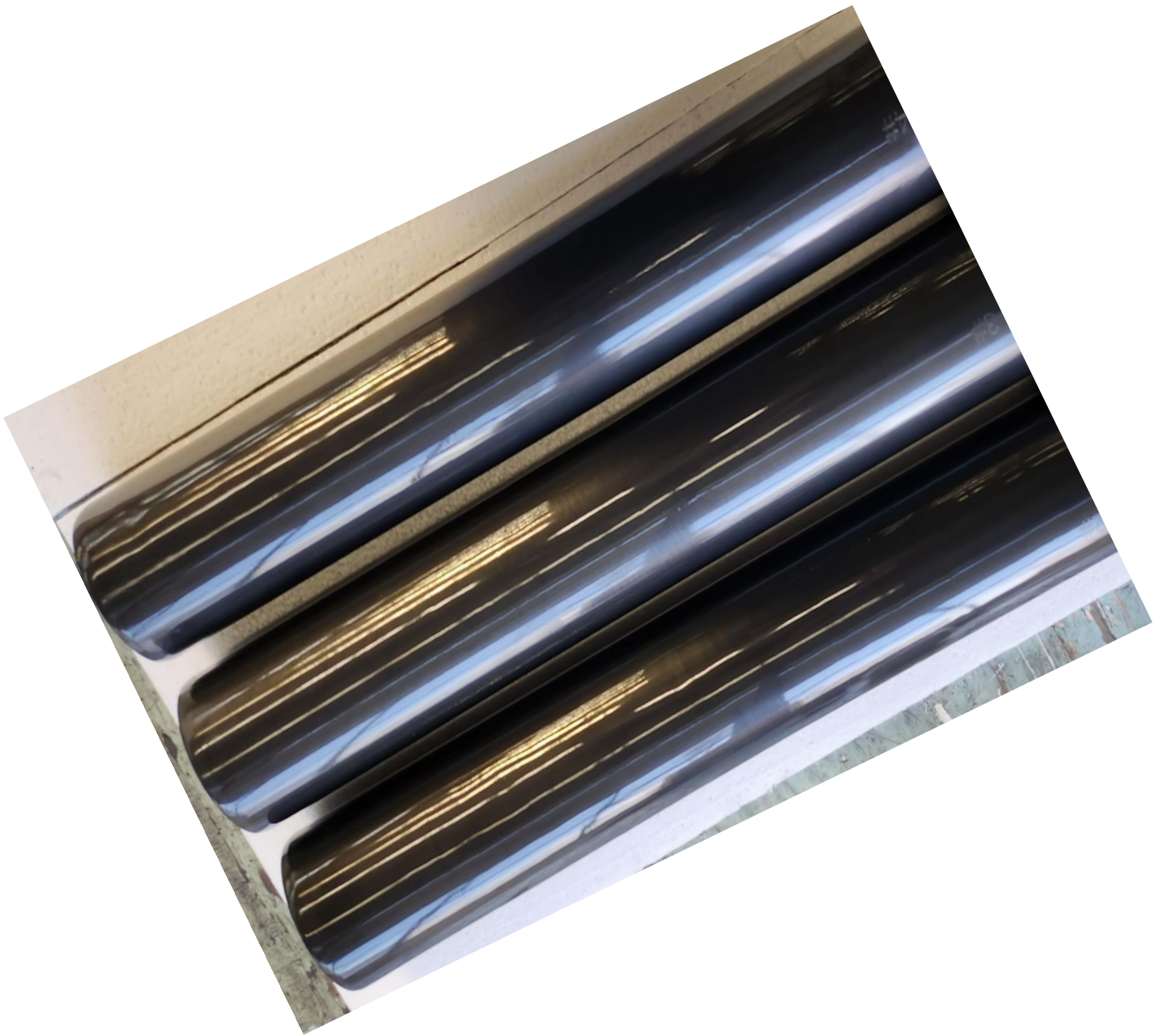


Please visit the website for more details

WWW.SUNNYSTEEL.COM

SSIC Protection Tube

The pressureless sintered silicon carbide thermocouple protection tube has the characteristics of oxidation resistance, high thermal conductivity, corrosion resistance, thermal shock resistance and excellent high temperature strength, etc.



Please visit the website for more details

WWW.SUNNYSTEEL.COM

SSIC Sagger

Silicon carbide was originally produced by a high-temperature electrochemical reaction of sand and carbon. Silicon carbide is an excellent abrasive and was made into grinding wheels and other abrasive products. Today the material has been developed into a high quality technical ceramic with very good mechanical properties. It is used in abrasives, refractories, ceramics and a wide range of high performance applications. Silicon carbide can also be made into an electrical conductor and has applications in resistance heating, flame igniters and electronic components.



SiC crucibles maintain structural integrity and strength even at high temperatures.

Moderate Thermal Conductivity:
These crucibles offer efficient thermal conductivity, ensuring even heat distribution.



Please visit the website for more details

WWW.SUNNYSTEEL.COM

Silicon carbide heat exchange block

Silicon carbide heat exchanger blocks are manufactured by direct isostatic pressing and pressureless sintering.

The heat exchange between the two media is achieved through the hole walls of the vertical and horizontal holes. The Silicon Carbide Heat Exchange Block is an innovative and high-performance solution designed for industries that require efficient heat transfer and temperature control.

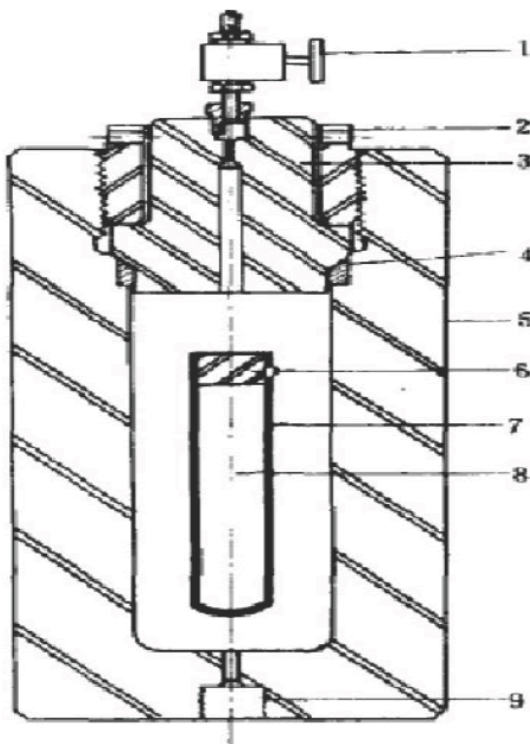
The hole size can be designed according to the design requirements, the minimum hole size can reach 6mm, and the minimum hole wall thickness can reach 2.5mm.



FAQ

Performance

- Flexural strength: 390Mpa
- Modulus of elasticity: 360Gpa
- Vickers hardness: 23 Gpa
- Fracture Toughness: 4.79
- MPa-m^{1/2}
- Thermal expansion coefficient 1000°C
- 4.85x10⁻⁶ mm/mm°K
- Actual breaking strength tested by the customer: 330Mpa



Structure diagram of isostatic press

1. Exhaust valve
2. compression nut
3. top cover
4. sealing ring
5. high pressure reservoir
6. rubber plug
7. die sleeve
8. Ceramic powder
9. high pressure fluid inlet



Please visit the website for more details

WWW.SUNNYSTEEL.COM

The process of isostatic pressing

1. Early stage: the pressure is low and the powder particles migrate and re-accumulate.
2. Intermediate stage: the pressure is gradually increased and the powder begins to flow and break.
3. Later stage: when the pressure is maximum, the powder volume is compressed, the pores are emptied and compaction is achieved.
4. Description of the pressurisation process: The liquid is injected into a high pressure resistant vessel using a high pressure pump. The static pressure of the high pressure liquid acts directly on the powder in the elastomeric rubber sleeve. The powder is uniformly compressed in all directions simultaneously to produce a green body with uniform density and high strength.

SUNNY STEEL ENTERPRISE LTD.

Phone:+86 21 3378 0199

Fax:+86 21 5107 9722

E-mail:sales@sunnysteel.com

Collect steel pipes and fittings



+86 13916927033(W/A)



Please visit the website for more details

WWW.SUNNYSTEEL.COM