

STAR

泛半导体领域用碳化硅结构件的专业供应商

WWW.STARLIGHTSIC.COM

地址：辽宁省沈阳市新民市胡台新城繁荣六路42号

电话：024 - 87720168

LIGHT

SiC



设计 / 研发 / 制造

沈阳星光新材料有限公司

SHENYANG STARLIGHT NEW MATERIAL CO., LTD

新型碳化硅材料
制造企业



沈阳星光新材料有限公司

SHENYANG STARLIGHT NEW MATERIAL CO., LTD.

设计 / 研发 / 制造
DESIGN / R&D / MANUFACTURING

沈阳星光新材料有限公司坐落于中国重工业基地——沈阳，是一家集设计、研发、制造于一体的新型碳化硅材料制造企业，主要生产应用于半导体、光伏等相关行业的高纯度、高精度碳化硅结构部件，包括扩散炉衬管、晶舟、隔热板、导气管、悬臂桨等。

公司倡导“以科研为先导，以材料为核心，以人为本，以科学、严谨的态度做产品”的经营理念，致力于成为泛半导体领域用碳化硅结构件的专业供应商。

Shenyang Starlight New Material Co., Ltd. is located in China's heavy industry base - Shenyang which is a new type silicon carbide material manufacturing enterprise. It integrates design, R&D, manufacturing and mainly produces high-purity and high-precision silicon carbide structure parts for semi-conductor and photovoltaic related industries, such as diffusion furnace liner tube, wafer boat, thermal shield plate, air duct pipe and cantilever paddle etc.

The company advocates the business philosophy of "scientific research first, material as the core, people-oriented, with scientific and rigorous attitude to make products" and is committed to becoming a professional supplier of silicon carbide structural parts in the field of pan-semiconductor.

CONCENT

- /02 公司简介
Company profile
- /04 技术优势
Technical advantage
- /07 产权专利
Property patents
- /08 产品介绍
Product introduction
- /22 未来愿景
Future vision

半导体
Semi-conductor

光伏
Photovoltaic

陶瓷膜
Ceramic membrane

电子陶瓷
Electronic ceramic

高温窑具
High temperature kiln furniture



TECHNICAL ADVANTAGE

技术优势

公司创立的 30 年来，积累了丰富的研发与制造经验，不断突破技术瓶颈，实现碳化硅制品纯度 99%-99.99%，加工精度 0.01mm。同时，公司依托清华大学、东北大学、中科院金属所、沈阳市环科院等国内科研院所，持续加强合作，攻克碳化硅制品在半导体、光伏等领域的应用难题。

In the past 30 years, the company has accumulated rich experience in R & D and manufacturing, constantly breaks through the technical bottleneck, achieves the purity of silicon carbide 99%-99.99% and processing accuracy 0.01mm. Meanwhile, The company relies on Tsinghua University, Northeastern University, Institute of Metals Research, Chinese Academy of Sciences, Shenyang Academy of Environmental Sciences and other domestic research institutes to continue to strengthen cooperation and overcome the application problems of silicon carbide products in semiconductor, photovoltaic and other fields.



产学研用

INDUSTRY-COLLEGE-INSTITUTE COOPERATION

清华大学

东北大学

中科院金属所

沈阳市环科院

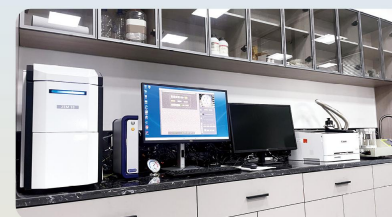
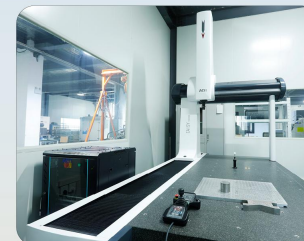


先进的生产检测设备

ADVANCED PRODUCTION TESTING EQUIPMENT

公司具有先进的生产及检测设备，包括国际先进水平的真空感应烧炉、大口径挤出机、全自动压铸生产线，及三坐标检测仪、粒度分析仪、扫描电镜等，满足大规模生产和各种质量检测要求。

The company has advanced production and testing equipment, including the international advanced level of vacuum induction sintering furnace, large diameter extruder, automatic pressure casting production line, and coordinate detector, particle size analyzer, scanning electron microscopy which can meet the requirement of large-scale production and various quality inspections.

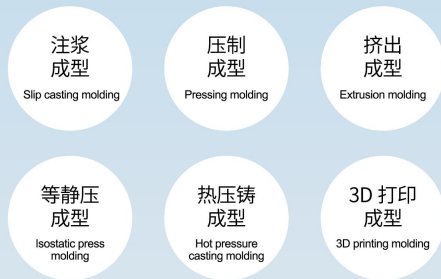


EXCELLENT ADVANCED

公司高度重视知识产权，每年获得十余项产权专利，这是创新与实力的见证。
荣誉加身，彰显卓越品质。以专利护发展，以荣誉促前行，不断攀登行业新高峰。



六大成型方式 SIX MOLDING METHODS



The company attaches great importance to intellectual property and obtains more than ten properties and patents every year, which is a witness of innovation and strength. Honor added, reflects outstanding quality. Protect the development with patents, promote the progress with honor, constantly climb the new peak of the industry.



半导体、光伏领域

SEMICONDUCTOR, PHOTOVOLTAIC INDUSTRIES

产品应用 / 技术指标:

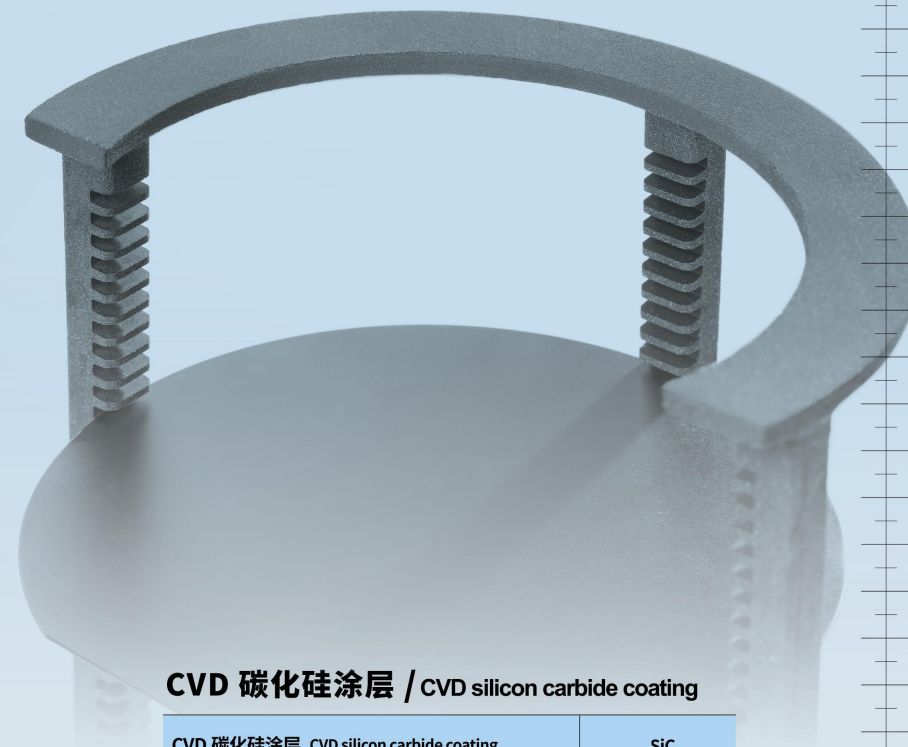
可生产碳化硅系列结构件制品, 适用于 4 寸、6 寸、8 寸、12 寸等晶圆氧化 / 扩散、离子注入生产制程。

Product application / Technical index:

The silicon carbide series structural parts are suitable for the production process of oxidation, diffusion and ion implantation of 4", 6", 8", 12" wafer.

碳化硅烧结体 / Silicon carbide sintered body

半导体 / 光伏领域 Semiconductor/Photovoltaic Industries	RSiC	RSSiC	SiSiC
SiC 纯度 SiC purity (%)	99.9-99.99	99.9-99.99	99-99.9
密度 Bulk density (g/cm ³)	2.65-2.75	3.0-3.05	3.0-3.1
气孔率 Apparent porosity (%)	15-16	< 0.1	< 0.1
常温强度 Room temperature strength (MPa)	90	150	260
高温强度 1300°C Strength at 1300°C (MPa)	100	160	280
烧结体的连接强度 Connection strength of sintered body (MPa)	≥ 25	≥ 25	≥ 25



CVD 碳化硅涂层 / CVD silicon carbide coating

CVD 碳化硅涂层 CVD silicon carbide coating	SiC
SiC 纯度 SiC purity (%)	99.9999
CVD 涂层密度 CVD coating density (g/cm ³)	3.2
涂层厚度 Coating thickness (μm)	50-300
涂层和基体结合强度 Coating and base bonding strength (MPa)	≥ 24
涂层耐腐蚀强度 浓度 40% 以上氢氟酸常温 100 小时浸泡, 腐蚀深度 Soak in hydrofluoric acid with a concentration of over 40% at room temperature for 100 hours, corrosion depth (nm)	< 100
涂层金属杂质浓度 Metal impurity concentration of coating (ppm)	≤ 1

半导体、光伏领域

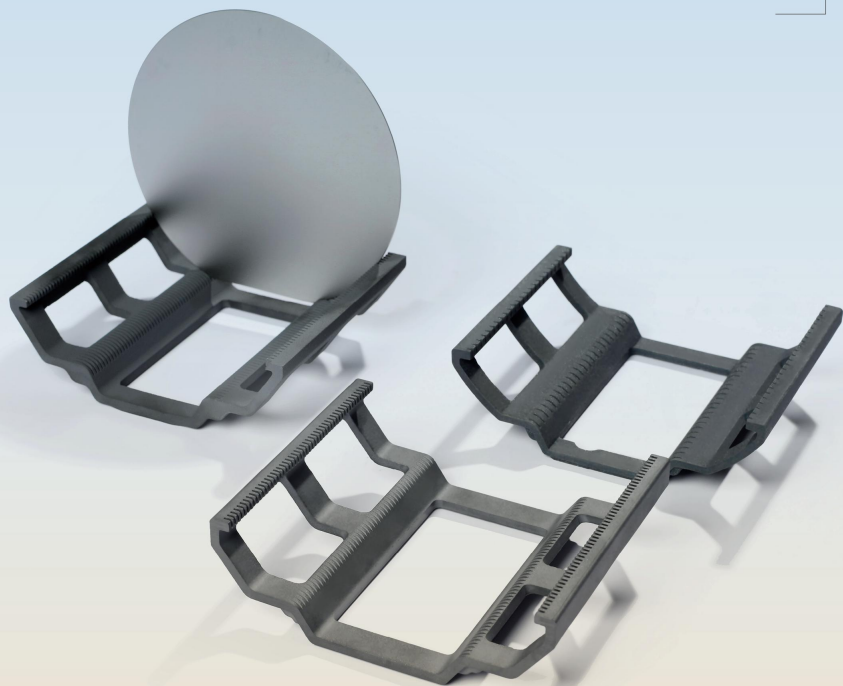
Semiconductor, Photovoltaic Industries

晶舟系列制品

WAFER BOAT SERIES PRODUCTS

公司可生产瓦片舟、三柱舟、四柱等系列碳化硅晶舟。

The company can produce SiC series wafer boat including horizontal wafer boat, three-column wafer boat and four-column wafer boat etc.



半导体、光伏领域

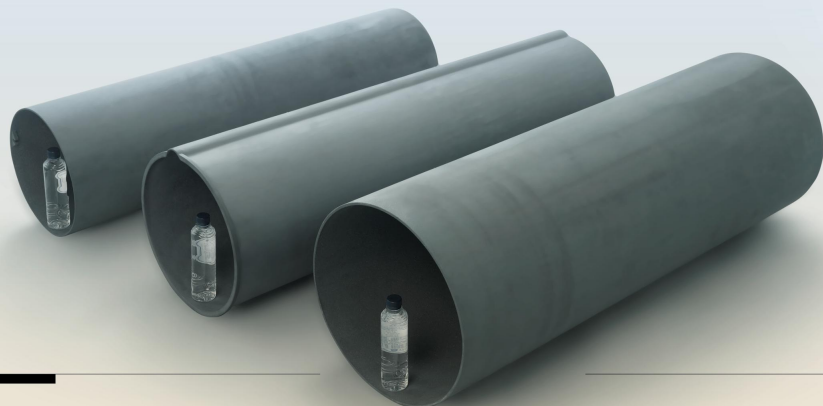
Semiconductor, Photovoltaic Industries

炉管系列制品

FURNACE TUBE SERIES PRODUCTS

公司可生产工艺管、衬管等系列碳化硅炉管，烧结体纯度 3N 以上，加工精度 0.01mm。

The company can produce furnace tube including process tube, liner tube etc. The purity of the sintered body is above 3N and machining precision is 0.01mm.



半导体、光伏领域

Semiconductor, Photovoltaic Industries

炉腔配件系列制品

FURNACE CHAMBER PARTS SERIES PRODUCTS

高温氧化炉用炉腔配件：隔热板、隔热板支架、保温桶等各类炉腔配件，烧结体纯度 3N 以上，加工精度 0.01mm。

Furnace chamber fittings for high temperature oxidation furnaces: thermal shield plate, thermal shield plate support, thermal insulation bucket and other types of furnace chamber parts. The purity of the sintered body is above 3N and machining precision is 0.01mm.



多孔碳化硅陶瓷膜领域

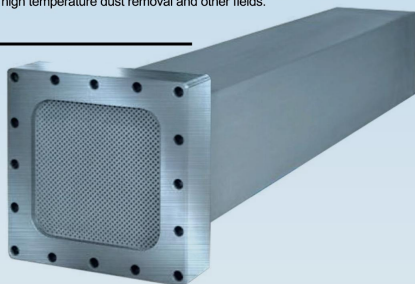
POROUS SiC CERAMIC MEMBRANE INDUSTRY

产品应用 / 技术指标 :

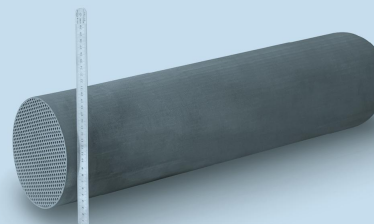
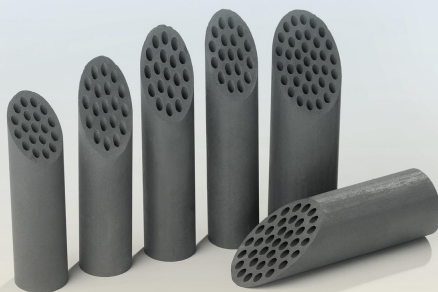
产品广泛应用于工业废水、切削液、生物制药、油水分离、渗滤液、饮用水、印染油墨、农副产品加工、高温除尘等领域。

Product application / Technical index:

The products are widely used in industrial wastewater, cutting fluid, bio-pharmaceutical, oil-water separation, percolate, drinking water, printing and dyeing ink, agricultural and sideline product processing, high temperature dust removal and other fields.



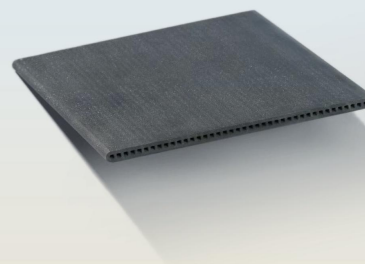
多孔碳化硅陶瓷膜领域 Porous SiC ceramic membrane industry	管式膜 Tubular membrane
SiC 含量 SiC content (%)	100
气孔率 Apparent porosity (%)	>45
平均孔径 Average pore size (nm)	50~500
过滤精度 Filtration accuracy (nm)	50~500
PH 值 PH value	0-14
通量 Flux (LMH)	3000
工作压力 Working pressure (bar)	1-2
操作温度 Operating temperature (°C)	4-80



多孔碳化硅陶瓷膜领域 Porous SiC ceramic membrane industry	柱式膜 Column membrane
SiC 含量 SiC content (%)	100
气孔率 Apparent porosity (%)	>45
平均孔径 Average pore size (nm)	50~200
过滤精度 Filtration accuracy (nm)	50~200
PH 值 PH value	0-14
通量 Flux (LMH)	3000
工作压力 Working pressure (bar)	1-2
操作温度 Operating temperature (°C)	4-80



多孔碳化硅陶瓷膜领域 Porous SiC ceramic membrane industry	碟式膜 Disc type membrane
SiC 含量 SiC content (%)	100
气孔率 Apparent porosity (%)	>45
平均孔径 Average pore size (nm)	100~200
过滤精度 Filtration accuracy (nm)	100~200
PH 值 PH value	0-14
通量 Flux (LMH)	3000
工作压力 Working pressure (bar)	1-2
操作温度 Operating temperature (°C)	4-80



多孔碳化硅陶瓷膜领域 Porous SiC ceramic membrane industry	平板膜 Flat sheet membrane
SiC 含量 SiC content (%)	100
气孔率 Apparent porosity (%)	>45
平均孔径 Average pore size (nm)	100~200
过滤精度 Filtration accuracy (nm)	100~200
PH 值 PH value	0-14
通量 Flux (LMH)	3000
工作压力 Working pressure (bar)	1-2
操作温度 Operating temperature (°C)	4-80

电子陶瓷领域

ELECTRONIC CERAMIC INDUSTRY

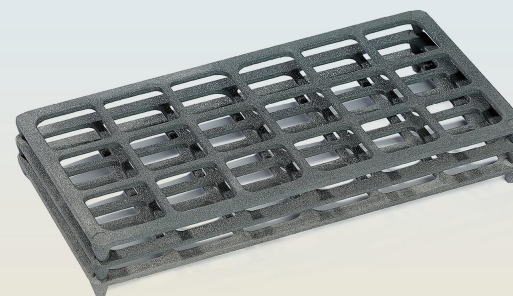
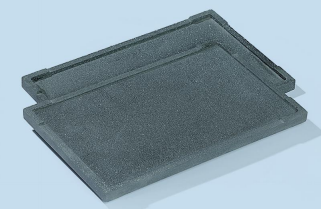
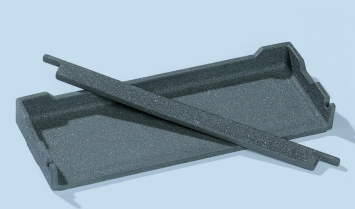
产品应用 / 技术指标:

应用于瓷介电容、电感等电子元件及陶瓷手机背板的烧制。

Product application / Technical index:

It is applied to the firing of electronic components such as ceramic dielectric capacity, inductance and ceramic mobile phone backplane.

电子陶瓷领域 Electronic Ceramic Industry	RSiC
SiC 含量 SiC content (%)	98-99
密度 Bulk density (g/cm ³)	2.60-2.70
气孔率 Apparent porosity (%)	<17
常温强度 Room temperature strength (MPa)	80
高温强度 1300°C Strength at 1300°C (MPa)	90
弹性模量 (20°C) Elasticity modulus at 20°C	240
导热系数 1200°C Thermal conductivity at 1200°C	35
热膨胀系数 $\times 10^{-6}/^{\circ}\text{C}$ Thermal expansion $\times 10^{-6}/^{\circ}\text{C}$	4.6
最高使用温度 Max using temperature (air atmosphere) °C	1650



高温窑具领域

HIGH TEMPERATURE KILN FURNITURE INDUSTRY

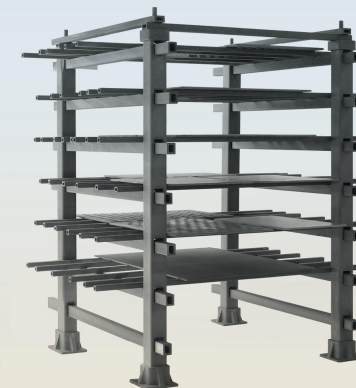
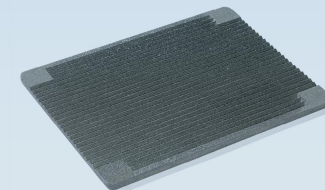
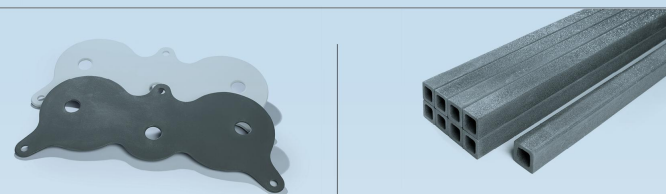
产品应用 / 技术指标:

应用于日用瓷、卫生瓷、电瓷等各类高温窑炉。

Product application / Technical index:

It is used in various high temperature kiln furnace such as tableware, sanitary-ware and electric ceramic etc.

高温窑具领域 High temperature kiln equipment industry	RSiC	NSiC	SiSiC
SiC 含量 SiC content (%)	≥ 99%	≤ 75%	≥ 90%
Si ₃ N ₄ 含量 Si ₃ N ₄ content (%)		≥ 25%	
Si 含量 Si content (%)			5%—10%
密度 Bulk density (g/cm ³)	2.65~2.75	2.73~2.83	3.02~3.07
气孔率 Apparent porosity (%)	< 17	< 12	< 0.1
常温强度 Room temperature strength (MPa)	90~100	160~170	260~270
高温强度 1300°C Strength at 1300°C (MPa)	100~110	170~180	280~290
弹性模量 Elasticity modulus at 20°C	240	250	330
导热系数 1200°C Thermal conductivity at 1200°C (W/mk)	36	20	45
热膨胀系数 ×10 ⁻⁶ /°C Thermal expansion x10 ⁻⁶ /°C	4.6	4.7	4.5
最高使用温度 (空气气氛) Max using temperature (air atmosphere) °C	1650°C	1450°C	1350°C
硬度 Hardness at 20° C (Kg/mm ²)	2000	2500	2400
断裂韧性 Fracture toughness at 20° (MpaM ^{1/2})	2.0	4.0	3.3



其他

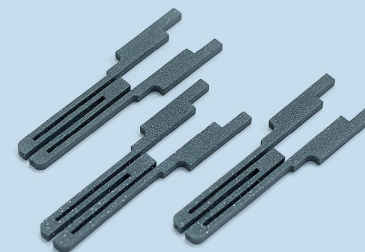
OTHERS

主要产品：

有测氢探头、转子套、点火针、烧烤炉盘等。

Main products:

hydrogen probe, rotor sleeve, ignition needle, grill plate etc.



FUTURE VISION

未来愿景

沈阳星光新材料有限公司

创新无界，进取无畏 以科技驱动未来，共创美好明天。

多年的品牌积淀，铸就了星光人不断进取、创新、自信的品格，为碳化硅材料专业技术的发展和提高注入了创新活力，未来公司会始终站在行业潮头，为客户做到最优质的服务。我们相信星光公司全体员工在广大合作伙伴的支持下，凭借自身努力，必将创造出辉煌的未来。

Years of brand accumulation, build Starlight people the character of enterprising, innovative, confident and injected innovative vitality for the development and improvement of silicon carbide material technology, The company will always stand in the forefront of the industry in the future, try our best to serve customers. We believe that Shenyang Starlight will create a brilliant future with the support of our partners and our own efforts.

INNOVATION WITHOUT BOUNDARY
ENTERPRISING WITHOUT FEAR

DRIVE THE FUTURE WITH TECHNOLOGY
CREATE A BETTER TOMORROW TOGETHER.

