

SAINT-GOBAIN PERFORMANCE CERAMICS & REFRACTORIES

CERAMIC ROLLERS

FOR LITHIUM-ION BATTERY
CATHODE POWDERS



OUR SOLUTION

NEXT GENERATION FOR ROLLER HEARTH KILNS

Lithium-ion batteries are ubiquitous in electric vehicles (EVs), energy storage systems (ESSs), handheld electronics, medical equipment, power tools, and many other products. Suppliers must respond to the increasing demand for these products by developing new battery chemistries for greater energy density while boosting recycling efforts and expanding production capacity. Roller Hearth Kilns (RHKs) operating at high temperatures and with caustic environments (atmosphere, volatilizing compounds, etc.) are critical to manufacturing the cathode powders required in lithium-ion batteries.



SILICON CARBIDE ROLLERS

Hexoloy® SE
Silit® SK

TAILOR-MADE MATERIALS & SOLUTIONS

We provide extruded rollers designed to meet your needs:

PRODUCTIVITY

QUALITY

SUSTAINABILITY

EXTRUDED ROLLERS

Saint-Gobain Performance Ceramics & Refractories' experienced engineers are on hand to support you in selecting and/or developing the most appropriate product and material for your applications.

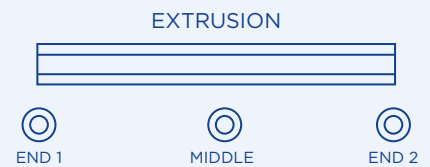
100% INSPECT

DIMENSIONAL
-
LOAD TESTING
-
TRACEABILITY LASER MARK

HIGH UNIFORMITY

Utilizing proprietary formulation and extrusion techniques, our rollers for Roller Hearth Kilns are manufactured and sintered creating a product with consistent wall thickness uniformity. What does this mean for the end user?

- Reduced lateral travel of saggars through the kiln
- Reduced impact and brakeage of rollers and saggars while in use
- Longer roller life and reduced kiln downtime due to roller maintenance



IMPROVED QUALITY CONTROL

4 POINTS ROTATIONAL DYNAMIC LOADING TEST

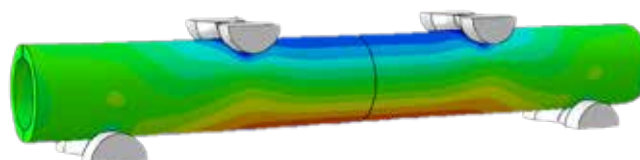
Saint-Gobain Performance Ceramics & Refractories has developed a exclusive quality control technique for measuring roller strength. End user benefits include:

- Reduced delivery of sub-standard parts
- Consistently high (and improving) roller strength/capacity
- Reduced frequency of breakages which can lead to kiln idling

TIGHTER TIR CONTROL BY LASER SYSTEM

Using a blue light laser measurement system, TIR is measured and controlled across the length for all rollers. This leads to:

- Necessary SPC data for process optimization and control
- Precise measurement data available for each roller shipped
- Low product variation upon delivery



OUR PRODUCTS

HEXOLOY® SE SILICON CARBIDE ROLLERS

Best-in-class Hexoloy® rollers offer distinct mechanical, thermal, and corrosion-resistant characteristics, delivering unparalleled performance. Hexoloy® rollers offer the ultimate level of high-temperature capability and mechanical strength when employed in roller hearth kilns operating above 1,500°C. This superior strength and length capability results in the highest kiln capacity and productivity.

SINTERED SILICON CARBIDE (SSiC)

FEATURES: HEXOLOY®



Outstanding chemical resistance



High service temperature (up to 1,750°C)



Excellent mechanical strength

SILIT® SK SILICON CARBIDE ROLLERS

Best-in-class Silit® rollers offer distinct mechanical, thermal, and corrosion-resistant characteristics, delivering unparalleled performance. This trusted, reliable material technology helps reduce energy consumption and increase productivity in roller hearth kilns used to produce DPF/GPF filters, substrate manufacturing, and cathode active material (CAM) for lithium-ion batteries.

UP TO 4000 MM
LENGTH AND
70 MM
DIAMETER*

*Other dimensions on request.

SILICONIZED SILICON CARBIDE (SiSiC)

FEATURES: SILIT® SK



Very good chemical resistance



High service temperature (up to 1,380°C)



High mechanical strength

YOUR ADVANTAGES

Benefit from these advantages:

BENEFITS



Excellent service life



100% inspection



High process reliability



Customized solutions



Proven material technology



Recycling offered at End of Life (EOL)



Large shape flexibility

OUR MATERIALS WITHSTAND

- thermal shock & temperature gradients
- corrosion due to Lithium source (LiOH, Li₂CO₃)
- automated handling & vibration

50 KM+
OF ROLLERS
ALREADY
SUPPLIED

... AND MAINTAIN MECHANICAL STABILITY

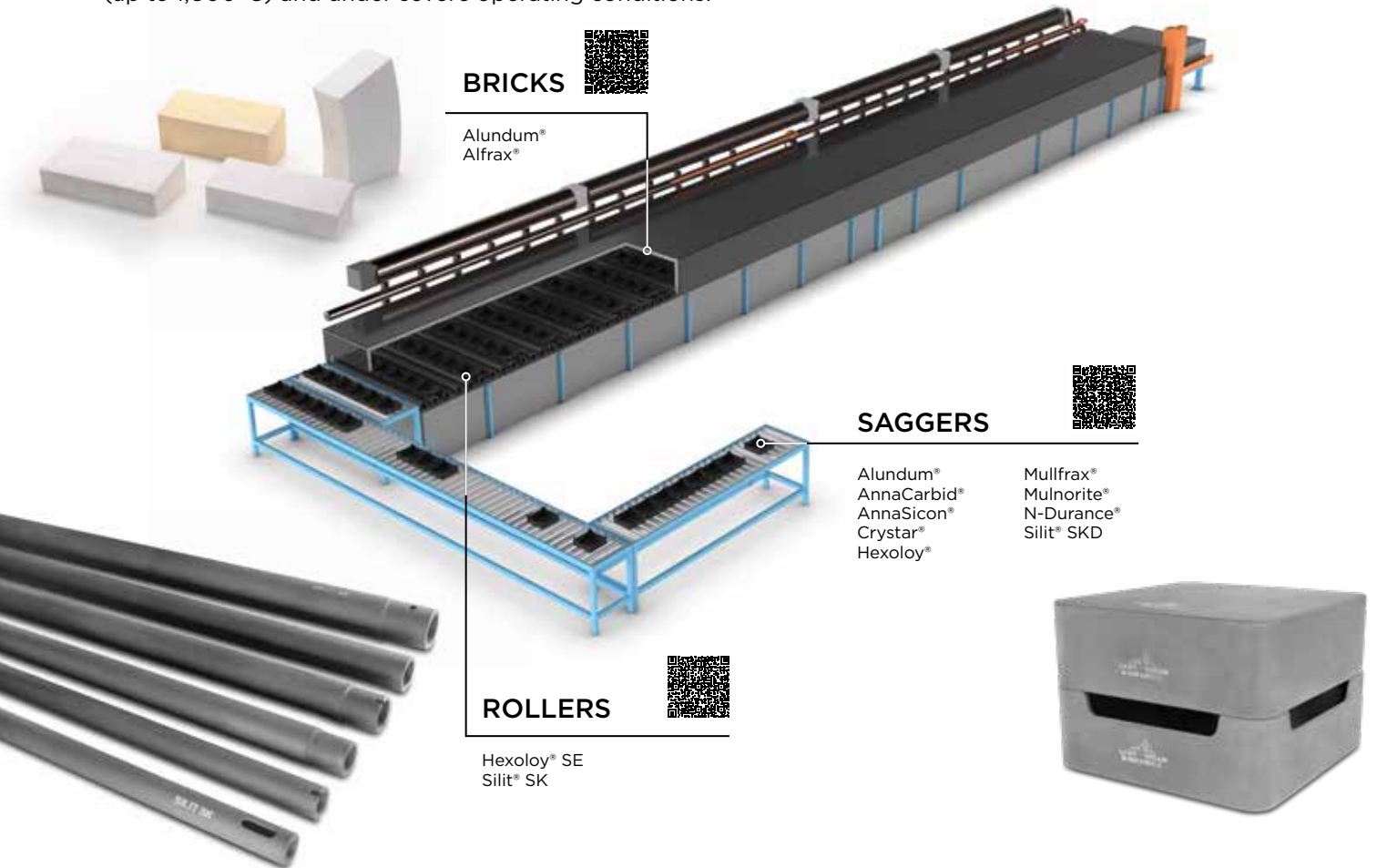
Material	Sintered Silicon Carbide	Siliconized Silicon Carbide
Brand	HEXOLOY® SE	SILIT® SK
SiC, %	>98	85
Maximum Use Temperature, °C in air	1,750	1,380
Density, g/cc	3.05	3.00
Apparent Porosity, %	5.1	0
Modulus of Elasticity, RT°C, GPa	420	340
Flexural Strength, MPa		
RT	280	260
1,400°C	-	260
1,450°C	270	-
Thermal Conductivity, 1,000°C, W/mK	34.8	35
CTE, /K, 1,100°C	4.0x10 ⁻⁶	4.5x10 ⁻⁶

Technical data, right of modification reserved.

OUR PORTFOLIO

DISCOVER OUR ENTIRE PRODUCT RANGE

Saint-Gobain Performance Ceramics & Refractories' products and solutions for kilns and furnaces are specifically designed and developed to facilitate consistent and long-term performance at high temperatures (up to 1,800°C) and under severe operating conditions.



OUR COMPLETE PORTFOLIO OF SERVICES



DESIGN & ENGINEERING

Customized solutions including unique ceramic drawings, informed design modification, and modeling capabilities to minimize maintenance and improve productivity.



INNOVATION

Research & development teams stationed at our cutting-edge R&D centers in Europe, North America, and Asia are using the most advanced and multidisciplinary technologies.



PARTNERSHIP

Experienced application teams offer in-person assessments, working in partnership with customers to explore the material science and shape capability offered by a world-leading industrial ceramic manufacturer.



CUSTOMER SUPPORT

Experienced, dedicated teams work closely with customers, either in person or remotely via the most advanced digital platforms.

SAINT-GOBAIN 2023

Derwent
Top 100
Global Innovator
2023

Clarivate
Analytics

top
EMPLOYER GLOBAL
2024



1 IN 4

PRODUCTS
did not exist 5 years ago



160,000

EMPLOYEES



47.9 BILLION

SALES IN 2023



REPRESENTED IN 76

COUNTRIES



-34%

CARBON EMISSIONS
REDUCTION
(vs. 2017 on scope 1+2)



MAIN R&D CENTRES

OUR PURPOSE

MAKING THE WORLD A BETTER HOME.

OUR MISSION

Saint-Gobain designs, manufactures and distributes materials and solutions which are key ingredients in the well-being of each of us and the future of all.

WE ARE COMMITTED TO
ACHIEVING NET ZERO
CARBON EMISSIONS BY 2050

SAINT-GOBAIN

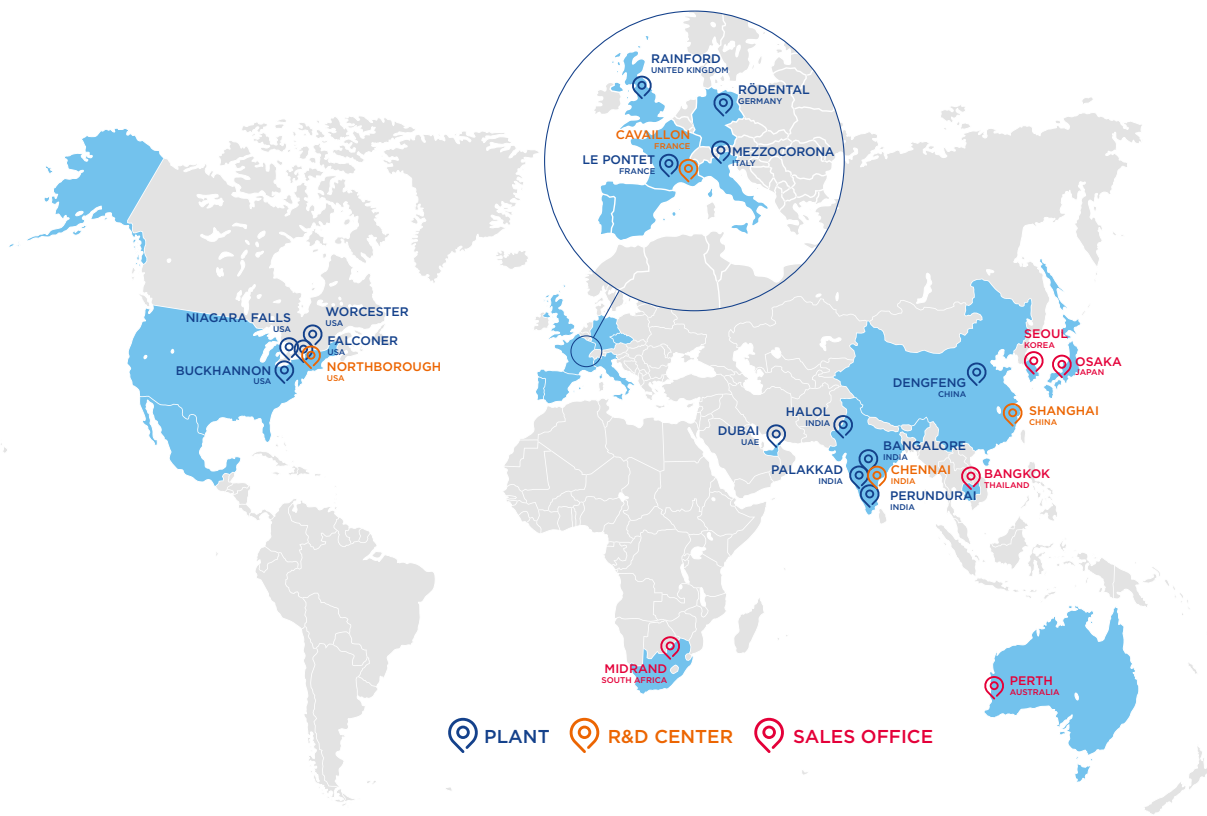
PERFORMANCE CERAMICS & REFRACTORIES

OUR MISSION

To design, develop and supply solutions and services for extreme operating industrial conditions. Our engineered ceramics and refractory products are manufactured to the highest industrial standards and deliver enhanced performance while minimizing environmental impact.

PIONEERING CERAMIC SOLUTIONS FOR EXTREME INDUSTRIAL APPLICATIONS AND A GREENER WORLD.

OUR GLOBAL PRESENCE



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