

# Eco-Light®-Advancing Efficiency

Eco-Light®-Systems of Schunk Ingenieurkeramik GmbH set new standards in the reduction of thermal mass, particularly in the case of tunnel kilns used in the ceramic industry.

## Eco-Light®-Beams (SiSiC)

High-strength material with excellent hot-bending and creep-resistance properties allow the efficient application of tailor-made load-, respectively mass-optimized beams and profiles with cross-sections  $\leq 30 \times 30 \text{ mm}$ .

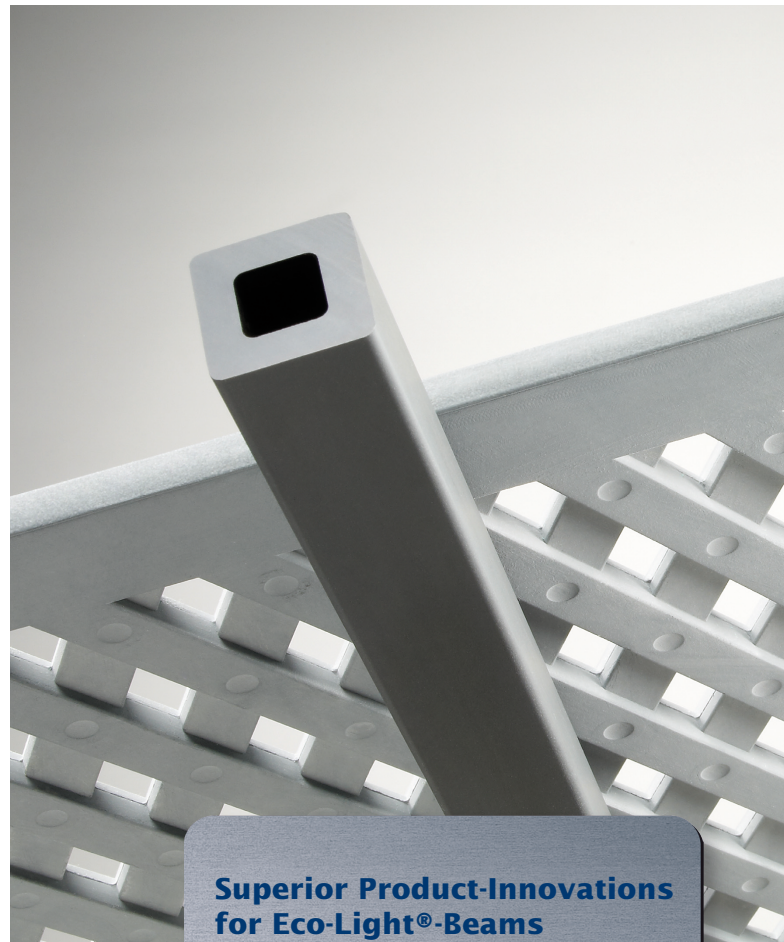
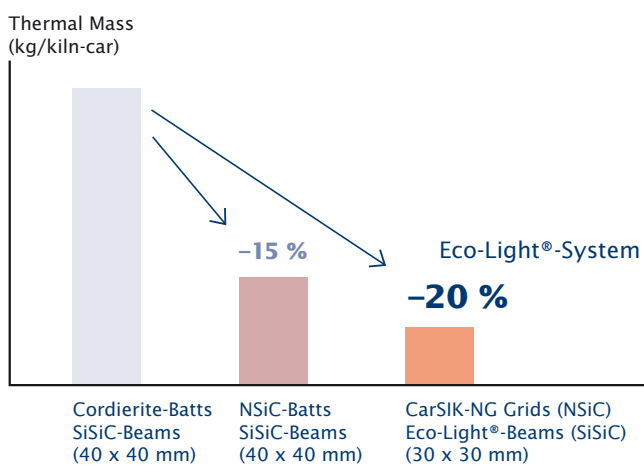
## CarSIK-NG Grids (NSiC)

The latticed surface structure allows optimal heat flow and therefore has a proven positive impact on the quality of the ware being fired.

This innovative product line establishes significant savings with regard to Energy and Investment costs for Kiln Furniture.

## Comparison of Thermal-Mass

In correlation to kiln-furniture-concepts



## Superior Product-Innovations for Eco-Light®-Beams

**Bending Strengths up to 40 % higher** vs. Competitor products in SiSiC

**Warpage  $\leq 0,1$  %** over entire lengths on application side\*

**Product-Warranty of 5 years** for Eco-Light®-Beams if being used with CarSIK-NG Grids\*\*

**Tailor-Made cross-sections** to eliminate oversized beams and to reduce investment costs



	Eco-Light®-Beams	CarSIK-NG Grids
Grade	SiSiC	NSiC
Bulk density (g/cm <sup>3</sup> )	3,11	2,85
Apparent porosity (Vol.%)	0	<1
Modulus of rupture/4-point loading (MPa)	280	200
Modulus of elasticity (GPa)	360	220
Thermal expansion coefficient RT-1000°C (10 <sup>-6</sup> /K)	4,9	4,6
Thermal conductivity (W/mK) 1200°C	24	12
Specific heat (J/kgK)		
20°C	600	750
1300°C	1200	1100
Limit of application (°C)	1380	1450
Chemical composition (wt. %)		
SiC	90	65
Si (free)	9	-
Si <sub>3</sub> N <sub>4</sub> + Si <sub>2</sub> ON <sub>2</sub>	-	27

The values quoted above were determined on testspecimens and cannot generally be applied to all shapes.

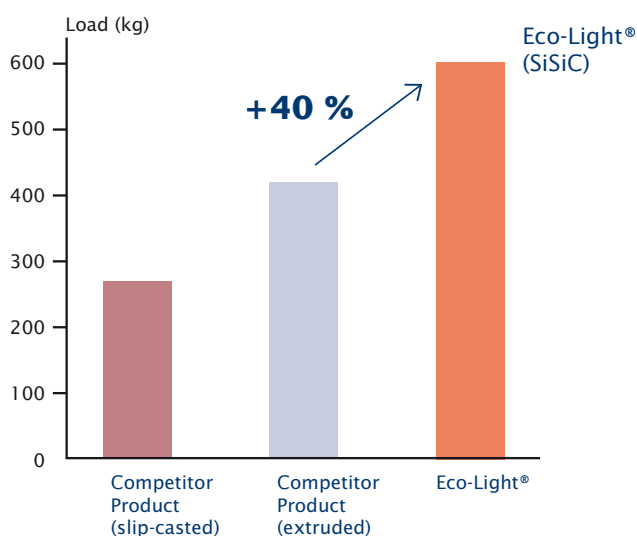
Eco-Light®-Beams				CarSIK-NG Grids		
Cross-section mm	Wall-thk. mm	Warpage* %	Max. length mm	Max. size mm	Wall-thk. mm	Warpage % (over diagonal)
30 x 30	6 +1/-0,5	≤ 0,10	3000	800 x 500	≤ 10 ± 0,8	≤ 0,20
25 x 25	6 +1/-0,5	≤ 0,10	3000			
20 x 20	6 +1/-0,5	≤ 0,10	3000			

The charts show the benefit in using our Eco-Light®-Products on a real loading scenario on a standard kiln car superstructure in the Sanitary Industry.

Eco-Light®-Beams within the defined range of cross-sections from Schunk Ingenieurkeramik have superior bending strength when compared to commercially available competitor products. This ensures a high degree of reliability and economy in service.

If you want to profit from the advanced efficiency of the Eco-Light®-System, our specialists will provide you with an Application Profile of suitable beams for your specific application.

## Bending Strenghts of 30 x 30 mm SiSiC-Beams (commercially available competitor products)



\* Standard Deviation on two parallel sides according to DIN 40680.  
Lateral Deviation ≤ 0,2%

\*\* Extent of Product-Warranty will be verified in case of an order  
Stated charts are based on exemplified standard kiln-car-super structures in sanitary industry

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