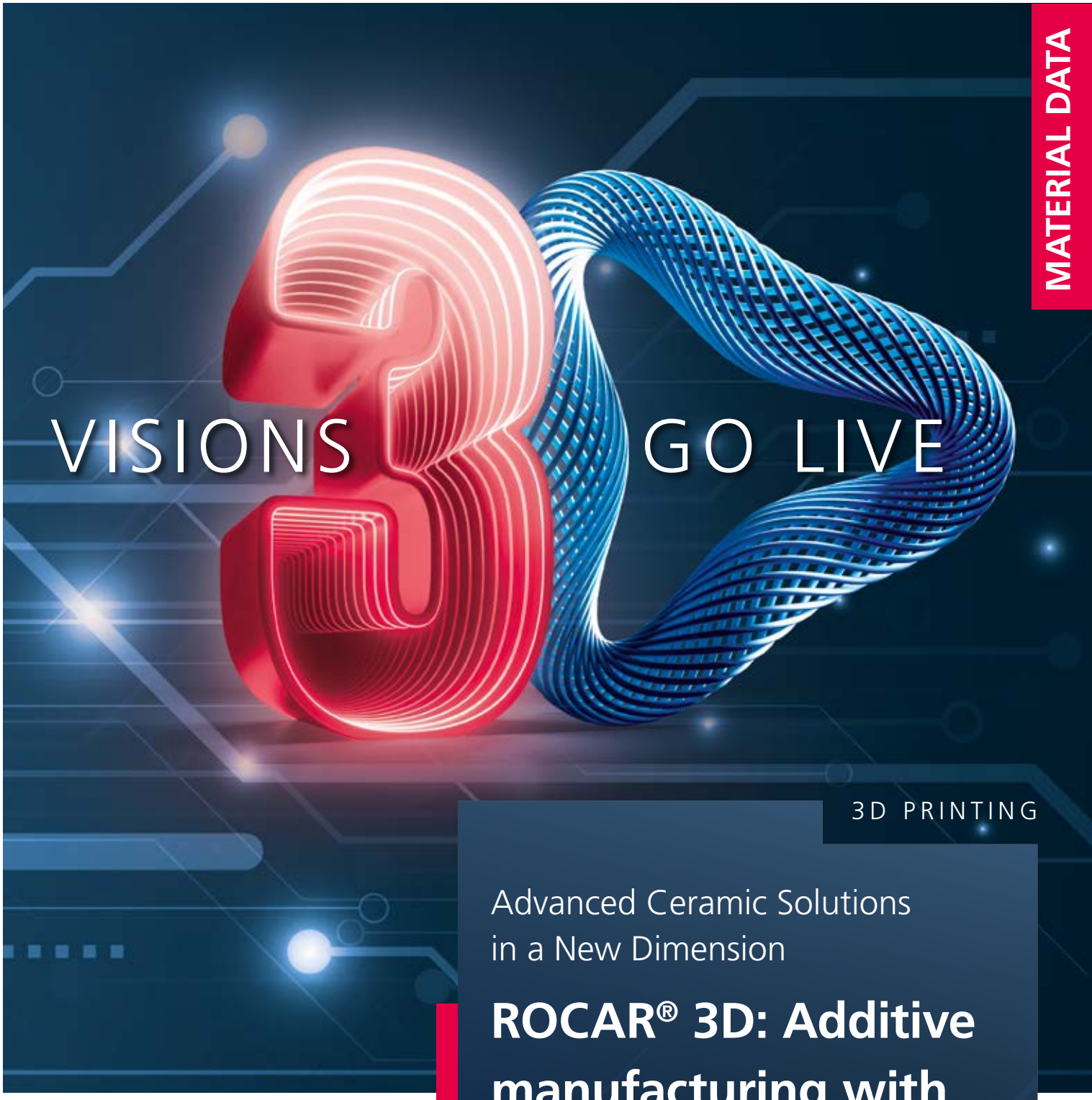
CeramTec



MATERIAL DATA

3D PRINTING

Advanced Ceramic Solutions
in a New Dimension

ROCAR® 3D: Additive manufacturing with SiSiC

THE CERAMIC EXPERTS

Additive manufacturing without compromise – ROCAR® 3D Silicon Carbide

ROCAR® 3D SiSiC – outstanding material properties

+ Temperature resistance up to 1,350 °C
+ High hardness, stiffness and flexural strength
+ Lower density than metal
+ Very abrasion-resistant
+ Thermal expansion near zero
+ High thermal conductivity
+ Resistant to oxidation
+ Electrically conductive
+ Erodible

ROCAR® 3D SiSiC Printing Process

System Specifications	
Build area (w/h/d)	500 x 400 x 300 mm / 19.7 x 15.7 x 11.8 in
Layer thickness	150 microns
Building speed	Approx. 10 mm height per hour
Material	SiC

Part Quality	
Accuracy	± 0.4% (min. ± 0.3 mm)
Minimum feature size	2 mm
Surface roughness	N11 / Ra25

ROCAR® 3D SiSiC Material properties

Properties		Unit	Test specification	ROCAR® 3D light	ROCAR® 3D
Density		g/cm³	DIN EN 623-2	2.88	2.94
Si content		m%	calculated	~31	~24
4-point bending strength		MPa	DIN EN 843-1	160	180
Young´s modulus		GPa	DIN EN 843-2 (dynamic)	>280	>300
Thermal conductivity		W/(m x K)	DIN EN 821-2	170	160
Linear thermal expansion coefficient	30 - 400 °C 30 - 600 °C 30 - 1000 °C	10^{-6}/K	DIN EN 821-1	3.7 4.2 4.6	3.9 4.3 4.7

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THE CERAMIC EXPERTS

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