

VISIONS GO LIVE

3D PRINTING

Advanced Ceramic Solutions
in a New Dimension

**RUBALIT® 3D: Additive
manufacturing with
 Al_2O_3**

Additive manufacturing without compromise – RUBALIT® 3D Aluminium Oxide

RUBALIT® Al₂O₃ – outstanding material properties

- + High-purity aluminium oxide
- + Very good electrical insulation
- + High mechanical & compressive strength
- + High hardness (>1600 HV)
- + Moderate thermal conductivity
- + High corrosion and wear resistance
- + Good gliding properties
- + Operating temperature without mechanical load above 1,000°C



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RUBALIT® 3D Al₂O₃ Printing Process

System Specifications		Part Quality	
Build area (w/d) on removable build tray	500 x 140 mm / 19.7 x 5.5 in	Accuracy	± 50 micron on dimensions up to 5 mm 1 % of larger dimensions up to ± 100 micron
Layer thickness	10 microns	Minimum feature size	200 micron
Building speed	Up to 0.8 mm height per hour	Surface roughness	N7 – N9 / Ra 1,6 – 6,3 depending on orientation of build tray
Material	Alumina Soluble support ceramics		

RUBALIT® 3D Al₂O₃ Material Properties

Properties	Unit	Test specification	RUBALIT® 3D
Density	g/cm ³	DIN EN 623-2	3.93
4-point bending strength	MPa	DIN EN 843-1	400 – 450
Young's Modulus	GPa	DIN EN 843-2 (dynamic)	387
Fracture Toughness	MPa x √m	DIN EN ISO 23146	3.4
Thermal conductivity	W/(m x K)	DIN EN 821-2	32 @30°C
Coefficient of linear thermal expansion	10 ⁻⁶ /K	DIN EN 821-1	7.1 (40-400°C) 8.0 (40-800°C)
Dielectric strength	kV/mm	DIN EN 60243-1	17
Dielectric constant (1 MHz)	F/m (1 MHz)	ASTM D150	9.9
Dissipation factor	F/m (1 MHz)	ASTM D150	< 0.0001

