

# TECHNICAL PROPERTIES

Product name	FormAlox999	FormAlox 998	FormAcon 3Y	FormAcore
Product description	<p>Engineering alumina parts, manufactured using LCM additive manufacturing method</p> <ul style="list-style-type: none"> <li>high hardness</li> <li>superior temperature resistance</li> <li>excellent wear resistance</li> <li>high corrosion resistance</li> </ul>	<p>Engineering alumina parts, manufactured using LCM additive manufacturing method</p> <ul style="list-style-type: none"> <li>high biocompatibility</li> <li>electrical insulator</li> <li>puncture-proof</li> <li>chemical resistance</li> </ul>	<p>Engineering zirconia parts, manufactured using LCM additive manufacturing method</p> <ul style="list-style-type: none"> <li>excellent strength</li> <li>fracture toughness</li> <li>high thermal shock resistance</li> <li>low thermal conductivity</li> <li>high wear resistance</li> <li>high corrosion resistance</li> </ul>	<p>Engineering parts from a mixture of silica with alumina and zircon, manufactured using LCM additive manufacturing method</p> <ul style="list-style-type: none"> <li>suitable for complex functional cores</li> <li>low thermal expansion</li> <li>excellent processibility</li> </ul>
Material	Al <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>	ZrO <sub>2</sub> mol-% Y <sub>2</sub> O <sub>3</sub> stabilized	Silica-based SiO <sub>2</sub>
Purity	99.9%	99.8%	99.8%	-
Density	3.985 g/cm <sup>3</sup> (99.4% of theoretical density)	3.985 g/cm <sup>3</sup> (98.4% of theoretical density)	6.088 g/cm <sup>3</sup> (99.4% of theoretical density)	2.44 g/cm <sup>3</sup> (72.0% of theoretical density)
Hardness HV10	1550	1550	1250	-
Bending strength	430 MPa (4-point)	400 MPa (4-point)	930 MPa (4-point)	10 MPa (3-point)
Young's modulus	300 GPa	380 GPa	205-210 GPa	-
CTE	7-8 ppm/K	7-8 ppm/K	10 ppm/K	-
Thermal conductivity	37 W/mK	29 W/mK	2.5-3 W/mK	-
Surface roughness Ra	~ 0.4 µm	0.9 µm	~ 0.3 µm	< 3 µm
Max. operating temp.	1650 °C	1650 °C	1500 °C	1575 °C
Color	White	White	White	White
Size	Max.: 84.9 x 51.4 x 156.8 mm Wall thickness: up to 4 mm	Max.: 84.9 x 51.4 x 156.8 mm Wall thickness: up to 5 mm	Max.: 75.3 x 47.2 x 146.5 mm Wall thickness: up to 3 mm	Max.: 110.6 x 61.5 x 192.1 mm Wall thickness: up to 6 mm

Typical values for these ceramic types. The given values were not determined from additive manufactured components.  
UPDATE 23.10.2023