

Material Type: Zirconia (Y-TZP) ( $ZrO_2$ ,  $Y_2O_3$ ,  $Al_2O_3$ )

**MECHANICAL & PHYSICAL CHARACTERISTICS (TYP.)**

Purity		[wt.-%]	≥99.8
Density		[g/cm <sup>3</sup> ]	≥6.0
Open porosity		[vol.-%]	0
Average size of crystallites		[μm]	0.8
Bending strength $\sigma_m$ DIN EN 843-1		[MPa]	1000
Weibull modulus		[-]	10
Toughness $K_{Ic}$ SEVNB		[MPa*m <sup>0.5</sup> ]	4.6
Compressive strength		[MPa]	2200
Young's modulus (static)		[GPa]	200
Poisson's ratio		[-]	0.3
Hardness HV1		[-]	1420
Maximum service temperature in air		[°C]	1000
Linear coefficient of expansion	20 - 1000°C	[10 <sup>-6</sup> /K]	10.5
Specific heat 20 °C		[J/(kg*K)]	400
Thermal conductivity	100 °C	[W/(m*K)]	2.5
Resistivity	50 °C	[Ω*cm]	5*10 <sup>10</sup>
	100 °C		2.5*10 <sup>9</sup>
	300 °C		4.5*10 <sup>5</sup>
	600 °C		8*10 <sup>3</sup>
	1000 °C		15
Stability under hydrothermal conditions (autoclave) 230 °C / 28 bar / deionized water		h	≥5
Typical colour		[-]	white

The data indicated on this table are in line with the introductory German Industrial Standard DIN 60672-2 are relate to test specimens from which they were obtained. They are not unconditionally applicable to other forms if the same material. The data must be regarded as indicative only. All data refer to a temperature of 20 °C, unless otherwise specified.