

Material Overview KYOCERA Fineceramics Europe GmbH

	StarCeram® S	StarCeram® Si ¹⁾	StarCeram® Z	StarCeram® AT * 1201/1203 Al ₂ TiO ₅	StarCeram® A Al ₂ O ₃ 99,7%	StarCeram® N 7000 Si ₃ N ₄	StarCeram® N 3000 Si ₃ N ₄	StarCeram® N 8000 Si ₃ N ₄
Density [g/cm ³]	3.13	3.05	6.05	3.35	3.90	3.22	3.23	3.23
Flexural strength RT [MPa] ***	375	300	1.200	40/25	300	800	900	1.050
Weibull modulus RT [-]	15	10	10	40	> 10	25	> 15	> 15
Fracture toughness [MPa √m] **	3.0	3.6	10	3 - 5	4.7	6.7	6.5	6.0
Hardness (DPH) [GPa]	25	20	12	5	20	15	15	15
Young's modulus (RT) [GPa]	395	380	210	15/10	380	300	300	310
Thermal conductivity (RT) [W/mK]	125	200	2	1.4	25	20	25	25
CTE (RT- 1000 °C) [x10 ⁻⁶ K ⁻¹]	4.5	4.0	10.8	1.6	7.8	3.4	3.4	3.4
Resistivity RT [Ωm]	10 ⁴	10 ⁻²	10 ⁸ - 10 ¹³	10 ¹⁴	10 ¹²	10 ¹¹ - 10 ¹²	10 ¹¹ - 10 ¹²	10 ¹¹ - 10 ¹²
Thermal shock coefficient R1 [K]	180	190	280	1.500/2000	80	620	670	760
Max. working temperature [°C]	1.600	1.350	800	1.000	1.500	1.000	1.200	1.200
Max. outside diameter [mm] ****	530	680	500	550	530	500	275	280
Max. length [mm] ****	1.100	800	1.350	1.750	850	1.500	370	900

¹⁾ Electrically conductive, wire-cut and ram electrical discharge machinable

* Porosity <= 10%

** ICL method

*** 4-point-bending 40/20 mm

**** depending on specific geometry