

Oxide/oxide ceramic matrix composite “Keramiklech”, standard materials for applications up to 1300°C

Keramiklech-Type	AvM 1415N	AvM 1415N-3000
Faser (Gewebe)	Nextel 610/ 1500 denier (DF11)	Nextel 610/ 3000 denier (DF19)
Matrix	70% Al ₂ O ₃ 30% SiO ₂	70% Al ₂ O ₃ 30% SiO ₂
Bending strength [MPa] at room temperature	160-170 ⁽²⁾	120-130
Young's modulus (bending) [GPa] at room temperature	78 ⁽²⁾	50
Tensile Strength [MPa] at room temperature	60-65 ^{(2), (3)}	–
Tensile Strength [MPa] at 1000 °C	35 ⁽³⁾	–
Young's modulus (tension) [GPa] at room temperature	78 ⁽²⁾	–
Compression strength [MPa] at room temperature	62 ⁽²⁾	–
Young's modulus (compression) [GPa] at room temperature	93 ⁽²⁾	–
Shear strength (ILSS) [MPa] at room temperature	10,5 ⁽²⁾	–
Thermal expansion [10 ⁻⁶ 1/K]	6-8	6-8
Thermal conductivity [W/mK]		
300 °C	2,44 ⁽⁴⁾	–
600 °C	1,89	–
900 °C	1,63	–
1100 °C	1,52	–
Recommended continuous service temperature [°C]	< 1300 °C	< 1300 °C
Maximum continuous service temperature [°C] tested by clients	< 1200 °C	< 1200 °C

AvM1415N (replaced more often by the new development FW12)

For applications up to 1300°C where components with thin wall thickness and good mechanical properties are needed. This material is used for burner tubes and hot gas leading components in facilities for testing exhaust systems.

AvM1415N-3000 (replaced more often by the new development FW30)

For applications up to 1300°C where components with large wall thickness with moderate mechanical properties are needed. This type is used for large structures.