

WHIPOX®

Wound Highly Porous Oxide Ceramic Matrix Composite

Innovative all-oxide continuous fiber reinforced ceramic composite (OCMC)

Property range of WHIPOX®

Tensile strength:	55 - 120	MPa
Bending strength:	80 - 700	MPa
Young's Modulus:	40 - 200	GPa
Interlaminar shear strength:	5 - 30	MPa
Density:	1.5 - 3.0	g/cm ³
Thermal conductivity (200°C):	0.5 - 5.7	W/mK
Thermal conductivity (1000°C):	0.4 - 2.7	W/mK
Thermal expansion:	4.3 - 8.4	10 ⁻⁶ /K
Total porosity:	25 - 50	Vol. %

WHIPOX® properties can be varied in a wide range, dependent on fiber content, fiber type, fiber orientation, winding pattern, matrix system and load direction.

Properties of WHIPOX® Quality N610/45

Chemical composition: pure alumina (Al₂O₃), based on 3M Nextel™ 610 fiber

Fiber orientation:	±45	°
Fiber content:	39	vol. %
Density:	2.9	g/cm ³
Total porosity:	26	Vol. %
Tensile strength (0°/90°):	110	MPa
Tensile strength (±45°):	70	MPa
Bending strength (60 mm span):	190	MPa
Young's Modulus:	110	GPa
Interlaminar shear strength:	12	MPa
Thermal conductivity (200°C):	5.7	W/mK
Thermal conductivity (1000°C):	2.7	W/mK
Thermal expansion (100°C):	6.5	10 ⁻⁶ /K
Thermal expansion (1250°C):	8.4	10 ⁻⁶ /K

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