Keramikblech®
Walter E. C. Pritzkow Spezialkeramik

Oxide/oxide ceramic matrix composite “Keramikblech”, N610-DF11-1500/FW12 material for applications up to 1300°C

Keramikblech Type, old name	FW12	
Keramikblech Type, new name	**N610-DF11-1500/FW12**	**test standard**
Fibre (Fabric)	Nextel 610/1500 denier (DF11-1500)	–
Matrix	85% Al_2O_3 15% 3YSZ	–
Thickness per layer [mm]	0,25	–
Density [g/cm³]	2,5	–
Bending strength [MPa] anisotrop 0/90° at RT*	350 (3)	DIN 658-3, 3 point bending
Young’s modulus (bending) [GPa] at room at RT*	92(2), (1), (3)	–
Bending strength [MPa] anisotrop +/–45° at RT*	180	DIN 658-3, 3 point bending
Bending strength [MPa] isotrop 0/90° at RT*	321	DIN 658-3, 3 point bending
Tensile strength [MPa] anisotrop 0/90° at RT*	280(3)	DIN 658-1
Young’s modulus (tension) [GPa] at RT*	97(3)	DIN 658-1
Tensile strength [MPa] anisotrop +/-45° at RT*	88,5(3)	DIN 658-1
Tensile strength [MPa] at 1000 °C	215(3)	DIN 658-1
Tensile strength [MPa] at 1200°C	73(3)	DIN 658-1
Compression strength [MPa] at RT*	207(2)	DIN 658-2
Young’s modulus (compression) [GPa] at RT*	123(2)	DIN 658-2
Shear strength (ILSS) [MPa] at RT*	17(2), (1), (3)	DIN 658-4
Thermal expansion coefficient [10^{-6} 1/K]		DIN 1159-1
25–300 °C	6,94(1)	–
25–600 °C	7,69	–
25–900 °C	8,17	–
25–1100 °C	8,49	–
Thermal conductivity [W/mK]		DIN 1159-2
300 °C	3,80(1)	–
600 °C	2,81	–
900 °C	2,30	–
1100 °C	2,02	–
Recommended continuous service temperature [°C] without mechanical load	‹ 1300 °C	–
Recommended continuous service temperature [°C] with mechanical load	‹ 1200 °C	–
Maximum continuous service temperature [°C] with high mechanical load	‹ 1000 °C	–

Material N610-DF11-1500/FW12/as of 2021, (*at room temperature)
Gemessen durch FhG-ISC (1), FhG-IWM (2), Universität Bremen, Advanced Ceramics (3), TU Freiberg (4), Berner Fachhochschule TI (5)