N610-DF11-1500/FW12

Keramikblech®
Walter E. C. Pritzkow Spezialkeramik

Material description: This material is developed for high performance applications at temperatures up to 1100°C and high mechanical load. Very thin walled 3 D-components can be produced where extremely light weight structures are needed.

		Value	Unit	Standard
Manufacturer		Walter E.C. Pritzkow Spezialkeramik		
Textile	Fibre	Nextel 610		
	Fibre manufacturer	3M		
	Fabric type	DF11-1500		
	Layer thickness	0,25	mm	
	Preform structure	Anisotropic fabric 0/90, isotropic possible		
	Fibre volume content	-		
Matrix composition		85% Al_2O_3; 15% 3YSZ		
Production process		open laminated, hand laminate, press moulds		
Maximum manufacturable component size		4	m	
Minimum wall thickness		0,25	mm	
Joining process		Yes		
Coatability		Yes		
Temperatures	Recommended continuous operating temperature without mechanical load	< 1.300	°C	
	Recommended continuous operating temperature under mechanical load	< 1.200	°C	
	Recommended continuous operating temperature under high mechanical load	< 1.000	°C	
Machineability		Yes, certain diamond-coated cutting edges, laser		
TRL		5 - 9		
Density		2,5	g/cm³	DIN EN 1389
Porosity		30	%	DIN EN 1389
CTE	@+300	6,94	10^{-6} 1/K	DIN EN 1159-1
	@+600	7,69	10^{-6} 1/K	DIN EN 1159-1
	@+900	8,17	10^{-6} 1/K	DIN EN 1159-1
	@+1100	8,49	10^{-6} 1/K	DIN EN 1159-1
λ	@+300	3,8	W/(mK)	DIN EN 1159-2
	@+600	2.81	W/(mK)	DIN EN 1159-2
	@+900	2,3	W/(mK)	DIN EN 1159-2
	@+1100	2,02	W/(mK)	DIN EN 1159-2
Strength	Bending anisotropic 0/90° at RT	350	MPa	DIN EN 658-3 3PB
	Bending anisotropic +/-45° at RT	180	MPa	DIN EN 658-3 3PB
	Shear 0/90° at RT	17	MPa	DIN EN 658-4
	Tensile anisotropic 0/90° at RT	280	MPa	DIN EN 658-1
	Tensile anisotropic +/-45° at RT	88,5	MPa	DIN EN 658-1
	Tensile 0/90°at 1000 °C	215	MPa	DIN EN 658-1
	Tensile 0/90°at 1200°C	73	MPa	DIN EN 658-1
	Compression 0/90°at RT	207	MPa	DIN EN 658-2
Young's Modulus	Bending 0/90°at RT	92	GPa	DIN EN 658-3
	tension 0/90°at RT	97	GPa	DIN EN 658-1
	compression 0°/90° at RT	123	GPa	DIN EN 658-2
Emissivity		available		