WPX AA 15-100

OCMC components can be manufactured very cost-efficiently using a winding technique that features load-appropriate fiber orientation and/or open grid structures. AA15 material is characterized by superior mechanical stability at temperatures below 1.000°C. Due to its good corrosion resistance in water-vapor atmospheres and its resistance to many molten metals and solders, it is used as kiln furniture in industrial furnaces by renown automotive suppliers.

		Value	Unit	Standard
Manufacturer		WPX Faserkeramik		
Textile	Fibre	Nextel 610/ 10.000 den		
	Fibre manufacturer	3M		
	Roving type	10.000	Denier	
	Layer thickness	0,7 – 1.0	mm	
	Preform structure	Wound rovings		
	Fibre volume content	30%, adjustable		
Matrix composition		Al_2O_3		
Production process		Filament winding of infiltrated rovings		
Maximum manufacturable component size		1.100 x 700 x 12	mm^3	
Minimum wall thickness		0,7	mm	
Joining process		Wet lamination		
Coatability		yes		
Temperatures	Recommended continuous operating temperature with strength values < 1 MPa	<1.200	°C	
	Recommended continuous operating temperature with strength values <6 MPa	< 1.100	°C	
	Recommended continuous operating temperature with strength values <20 MPa	< 900	°C	
Machineability		laser, waterjet, PKD milling, grinding		
TRL		9		
Density		2,8	g/cm^3	DIN EN 1389
Porosity		30	%	DIN EN 1389
CTE	@-200	6,4	1/K	DIN EN 821-1
	@+600	7,5	1/K	DIN EN 821-1
	@+900	-	1/K	DIN EN 821-1
	@+1200	8,4	1/K	DIN EN 821-1
λ	@+200	6,0	W/(mK)	DIN EN 821-2
	@+600	3,6	W/(mK)	DIN EN 821-2
	@+900	-	W/(mK)	DIN EN 821-2
	@+1300	2,6	W/(mK)	DIN EN 821-2
Strength	Bending anisotropic +/-15° at RT	280	MPa	DIN EN 658-3*
		-	MPa	
	Shear +/-15° at RT	14	MPa	DIN EN 658-4*
		-	MPa	
		-	MPa	
Young's Modulus	Bending +/-15°at RT	100	GPa	DIN EN 658-3*
	tension 15°at RT	-	GPa	
	compression 15° at RT	-	GPa	
Emissivity for wavelengths 2-18 µm 200°C 600°C 1.400°C		 0,8 0.7 0.6		

* based on the testing standard