# 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 | MPa | DIN EN 658-3 |
| | tension 0/90°at RT | 97 | MPa | DIN EN 658-1 |
| | compression 0°/90° at RT | 123 | MPa | DIN EN 658-2 |
| Emissivity | | available | | |