Technical Data Sheet

SRS AMSTERDAM

Syalon 101
The allrounder

Advantages

- zero porosity high thermal conductivity
- heat resistant up to 1200° C
- high temperature shock resistance up to 800° C high wear resistance
- high chemical resistance

Description
This Syalon is member of the Si-AL-O-N family, the first group of man-made ceramic alloys produced. It has been specifically developed for high loads under difficult circumstances.

Syalon 101 is a general purpose engineering grade ceramic. Our standard material is a dense, gas pressure sintered material which can be used wherever a combination of strength, toughness, excellent thermal shock resistance and high wear resistance are required.

Chemical components
Si_3N_4 90 %
Al_2O_3 6 %
Y_2O_3 4 %

Standard diameters
- outer Ø 28mm | inner Ø 16mm
- outer Ø 22mm | inner Ø 12mm
- outer Ø 16mm | inner Ø 9mm
- outer Ø 12,5mm | inner Ø 6,5mm
- outer Ø 10 mm | inner Ø 4 or 6 mm
- outer Ø 6 mm | inner Ø 4 mm

Standard lengths
Various dimensions, for further info please see list with sizes.

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Properties		Value [7]
Density [1]	P	3,21 g/cm³
Porosity		0 %
Microstructure		1-10 µm
Mechanical Properties		
Hardness (Vickers) [2]		16 Gpa
Compressive strength		3.000 MPa
Bending strength [3]	▫	760 MPa
Weibull-module	m	25
Fracture toughness	K_{IC}	8 MPam^{½}
Young's modulus	E	320 GPa
Poisson ratio	V	0,28
Thermal Properties		
Max. use temperature [4]	- inert gas	1.300 °C
	- air	1.200 °C
Thermal conductivity	λ (20° C)	30 W/mK
Thermal expansion coeff.	α (0 -1000°C)	3,2 $10^{-6}K^{-1}$
Thermal shock parameter R1 [5]		534 K
Thermal shock parameter R2 [6]		16.031 W/m

*1 Density and porosity according to DIN 51918 (Archimedes principal)

*2 Hardness according to ENV 843-4

*3 At room temperature according to EN 843

*4 Long-term temperature in continuous use

*5 Critical temperature difference with rapid temperature change (quenching)

*6 Thermal shock coefficient at constant temperature rise (annealing)

*7 The given values are only valid for the tested samples and therefore only to be used as indication values.

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