

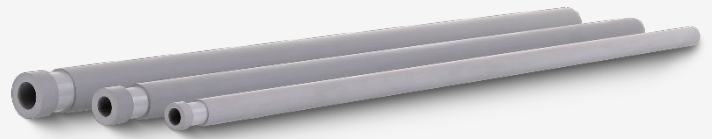
Technical Data Sheet

⚡ Syalon 101

The allrounder

Advantages

- High thermal conductivity
- Wear resistance
- 100% Gastight due to 0% porosity
- High temperature shock resistance
- No chemical reaction or erosion in molten aluminium
- Excellent non-wetting features



Description

Syalon 101 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 \varnothing 28 mm | inner \varnothing 16 mm
- outer \varnothing 22 mm | inner \varnothing 12 mm
- outer \varnothing 16 mm | inner \varnothing 9 mm
- outer \varnothing 12,5 mm | inner \varnothing 6,5 mm
- outer \varnothing 10 mm | inner \varnothing 4 or 6 mm
- outer \varnothing 6 mm | inner \varnothing 4 mm

Standard lengths

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

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Syalon 101

Properties

		Value ⁷
Density ¹	P	3,21 g/cm ³
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 MPa ^{1/2}
Young's modulus	E	320 GPa
Poisson ratio	ν	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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