

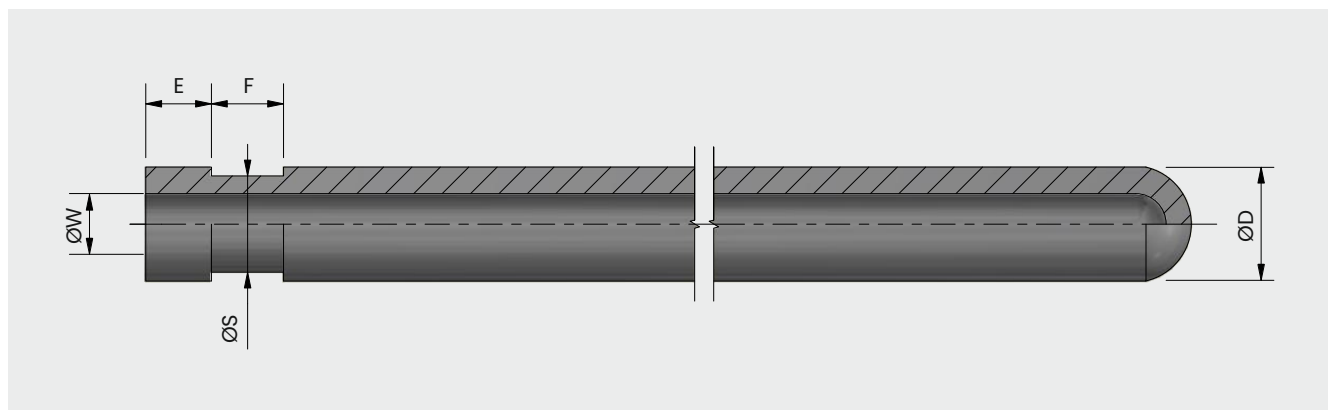
## Description

Termoaparatura Wrocław supplies a range of silicon nitride-based thermocouple protective tubes for use in the aluminum and non-ferrous metals processing industry. They offer excellent performance in terms of temperature control and are extremely cost effective compared to competing materials such as cast iron, silicon carbide and alumina.

Syalons are silicon nitride alloys that have a unique combination of physical properties such as abrasion resistance, licking resistance, oxidation resistance, low weight, excellent thermal shock resistance, corrosion and erosion resistance.

Syalon protective tubes are available in a variety of standard sizes as shown in the table below.

Outer diameter D [mm]	Inner diameter W [mm]	Length L [mm]
Ø 12.5	Ø 6.5	250 .. 900
Ø 16	Ø 8	250 .. 900
Ø 22	Ø 12	300 .. 1000
Ø 28	Ø 16	300 .. 1600
Ø 30	Ø 18	300 .. 1600



Syalon protection tubes are made with a locating groove. The table below shows the standard grooves in thermocouple protection tubes.

Outer diameter D [mm]	S ±0.2 [mm]	F ±0.5 [mm]	E ±0.5 [mm]
Ø 12.5	Ø 9.5	13	7
Ø 16	Ø 13	13	7
Ø 22	Ø 18	14	13
Ø 28	Ø 24	14	13
Ø 30	Ø 26	14	13



## Physical property data

Property	Value
Density	> 3.2g / cm <sup>3</sup>
Si <sub>3</sub> N <sub>4</sub> content	> 92%
Flexural strength	> 750 MPa
Compressive strength	> 1500 MPa
Thermal conductivity (W/mk)	> 22
Porosity	0
Thermal expansion (RT-1000°C)	3.2
Maximal temperature in air	+1400°C
Hardness (HRA)	> 92

## Corrosion behaviour in acids and alkalis

Acid/Alkali	Conc. [%]	Time [h]	Reaction
Acetic acid	100	100	none
Benzoic acid	100	100	none
Formic acid	100	100	none
Hydrochloric acid	33	100	none
Hydrofluoric acid	100	100	strong
Nitric acid	69	100	weak
Sulphuric acid	98	100	none
Ammonium chloride	98	100	none
Potassium chloride	100	100	none
Sodium chloride	100	100	none
Sodium hydroxide	50	100	none

## Corrosion behaviour in molten metals

Metal	Temp. [°C]	Time [h]	Reaction
Aluminium	950	1000	none
Bismuth	800	10	none
Brass	950	50	none
Cadmium	550	50	none
Cast iron	1450	2	weak
Copper	1150 (in air)	10	strong
Copper	1150 (in vacuum)	10	none
Lead	400	200	none
Magnesium	750	100	none
Stainless steel	1450	10	strong
Tin	300	100	none

## Ordering code

Syalon -  -  -

1	<input type="text"/>	<b>Material</b> 101	Syalon 101
2	<input type="text"/>	<b>Outer / Inner diameter</b> xxx	see table 1
3	<input type="text"/>	<b>Length</b> xxx	length in millimeters