



## Thread Guides for Technical Fibres



# Ceramic Coatings for Technical Fibres

## Process

The ceramic powder melts within 0,5 seconds in a plasma flame at temperatures between 10,000 °C and 20,000 °C. The molten material is deposited at supersonic speeds on to a metal surface that has been pre-prepared by sand blasting. For improved surface finishes the coatings can be machined with diamond tooling.

## Surface structure

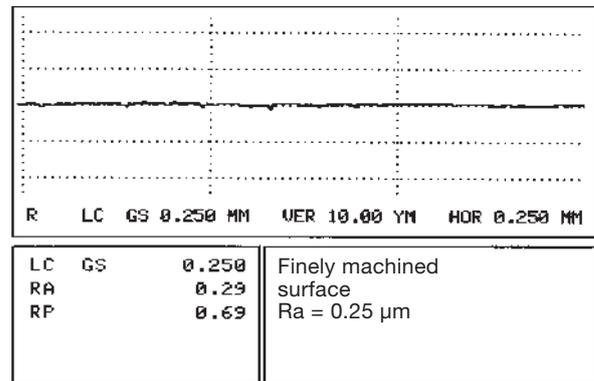
The ceramic coating has a laminar, porous structure that gives good adhesive strength and impact resistance. It also readily allows for the difference in the thermal expansion between the metal and ceramic.

## Electrical Characteristics

The choice of ceramic coating allows for varying levels of electrical insulation or it can even be semi-conductive. For example, the material R103 is used for the electrical insulation of roller bearing outer casings. With a layer thickness of 150 µm, a dielectric strength of 1000V is guaranteed.

## Our Intention

To supply quality components to our customers specifications, and required delivery date.



## Ceramic Coatings

layer material	Nr.	colour	wear resistance	electrical insulation	thermal insulation
Al <sub>2</sub> O <sub>3</sub> / TiO <sub>2</sub>	(97/3)	R103	grey	●	○
Al <sub>2</sub> O <sub>3</sub> / TiO <sub>2</sub>	(87/13)	R113	anthracite	○	○
Al <sub>2</sub> O <sub>3</sub> / TiO <sub>2</sub>	(60/40)	R140	black	○	○
Al <sub>2</sub> O <sub>3</sub>	(99)	R100	white	●	○
ZrO <sub>2</sub> / CaO	(95/5)	R295	ivory	○	●
ZrO <sub>2</sub> / Y <sub>2</sub> O <sub>3</sub>	(92/8)	R292	ivory	○	●
Cr <sub>2</sub> O <sub>3</sub>	(99)	R399	grey green	○	○
Cr <sub>2</sub> O <sub>3</sub> / TiO <sub>2</sub>	(60/40)	R360	anthracite	○	○

<b>layer thickness</b>	standard layer thickness	90 µm ± 30 µm	<ul style="list-style-type: none"> <li>● very well suitable</li> <li>◐ conditionally suitable</li> <li>○ not suitable</li> </ul>
	with polished finish	120 µm ± 60 µm	
	with subsequent grinding	> = 200 µm	
	maximum layer thickness	ca. 500 µm	

<b>Hardness HV</b>	depending on the layer material	700 - 1800
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<b>Porosity</b>	depending on the layer material	3.0 - 5.0 %
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<b>Dielectric strength</b>	at 150 µm	< 1000 V
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<b>Surface properties</b>	unprocessed surface	for electrical insulation	
	non-slip surface	for transport function	Ra = 3 - 4 µm
	thread-friendly surface		Ra = 1.5 - 2 µm
	finely machined surface	for guiding particularly sensitive chemical fibres or metal wires	Ra = 0.2 - 0.5 µm



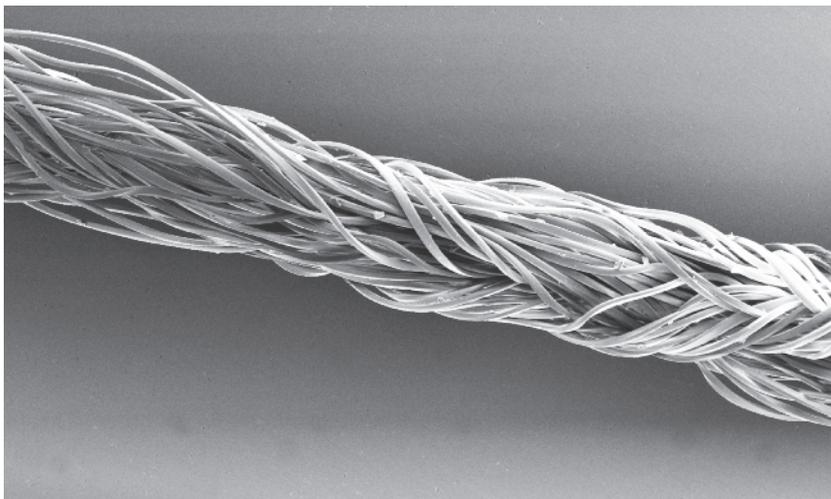
# Thread Guides for Technical Fibres in Rapal 300

## Defect free ceramic surfaces

RAUSCHERT ceramics can offer the optimum kinetic friction for any ceramic/ yarn interface, combined with any additional and specific production process requirements for carbon, glass or aramid high-tenacity technical fibres.

Thanks to our special 'defect free' ceramic surfaces, yarn filament breakages or damage caused by adhesion or abrasion are eliminated and thus the yarn physical properties are maintained at consistently high levels for a longer period of time. As a consequence, the lifespan of components and the cleaning cycles of components is extended.

These are all key factors which influence the quality and cost effectiveness of technical textiles.



100 µm Rauschert Rapaltex 167 f 36 black

## Physical Properties

Material according to DIN EN 60672	RAPAL®300 C 799	RAPAL®200 AZ C 799
Aluminium oxide %	99.9	84
Zirconium oxide %	0	15
Colour	ivory	white
Density g/cm <sup>3</sup>	> 3.95	4.1
Porosity %	0	0
Flexural strength MPa	400	400
Hardness Vickers (depending on the shape) HV 0.1	1900-2300	1800-2300
Volume resistivity at Alternating voltage Ω cm	10 <sup>12</sup>	10 <sup>12</sup>
Coefficient of linear expansion 10 <sup>-6</sup> K <sup>-1</sup> between 20 ... 1000 °C	9	9
Thermal conductivity W/30 - 100 °C m · K	19 - 30	19 - 30



Part No. 390637/1P/87044



Part No. 390637P/EK01020



Part No. 390101P



Part No. 390362/1AZP/87071

## Rauschert at a Glance



### Technical Ceramics



Electroceramics



Ceramics for lighting



Ceramic components for textile machines



Ceramics for mechanical engineering



High temperature ceramics



Infrared heater plates



Ceramic honeycombs



Welding back-ups



Porous wicks



Ignition components



Ceramic coating



Ceramic sealing and regulation discs



Ceramic parts for pumps



Ceramic components



### Plastic Injection Moulding



2-component-plastic-parts



System components



Assemblies (ceramics/metal/plastic)

# Rauschert

## Thread Guides for Technical Fibres

### Take advantage of the Rauschert experience!

The Thread Guides for Technical Fibres belong to the textile ceramics business unit.

The production of ceramic yarn guides is a major business activity for Rauschert.

The Yarn Guides Product Division is very successful and has expanded greatly. Our goal is to be a competitive supplier in the marketplace. Management and employees are constantly striving to improve the quality of our products and efficiency of production.

The representatives for the Yarn Guides Product Division are based in Pressig/Germany and Shanghai/China.

Pressig is located 120 km north of Nuremberg and can be reached via Autobahn A9 and A73.

Rauschert Textile Ceramics (Shanghai) Co., Ltd was founded in 2003 and is a supplier of textile ceramics for the Chinese market.

With more than 100 years experience in supplying industrial customers Rauschert can also be a reliable partner for you.

With 1200 employees in 12 manufacturing plants worldwide Rauschert is meeting today's international challenges.

Please request our literature or visit us on our website!

[www.rauschert.com](http://www.rauschert.com)

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