

SCHOTT® light guide rods

High-performance glass rods can be customized in shape for individual light guide design

Our light guide rods are RoHS-compliant, autoclavable, biocompatible, and chemically resistant - ensuring a safe, robust, and hygienic product throughout its life cycle.

Technical data

	Single Core Rod (SCR)		Multi Core Rod (MCR)		
Core type	single		multi		
Glass fibers (Material)	conventional lead-free	PURAVIS® fully RoHS-compliant	conventional lead-free	PURAVIS® fully RoHS-compliant	
Fiber diameter (Depending on the application)	1 – 19 mm		25 – 400 µm		
Typical numerical aperture λ = 587 nm	0.60	0.64	0.60	0.63	0.64
Typical acceptance angles 2α V(λ)-filter According to DIN 58 141 Part 3 Theoretical value at λ = 546 nm	73°	85°	73°	78°	85°
Color Outer clad	clear, brown or black				
Shape	straight or custom shape (e.g. round, half-round, oval / flat, kidney-shaped)				
Biocompatibility According to DIN ISO 10993-5	yes (certificate available upon request)				
Temperature operational Glass rod only	-20 °C / -4°F ... +350 °C / 662 °F				
Applicable wavelength	350 – 900 nm				
Typical application	Light homogenizer		Dental illumination and dental curing Caries detection and oral cancer screening Diode laser applications (medical / industrial) Beam detector and sensing tip		

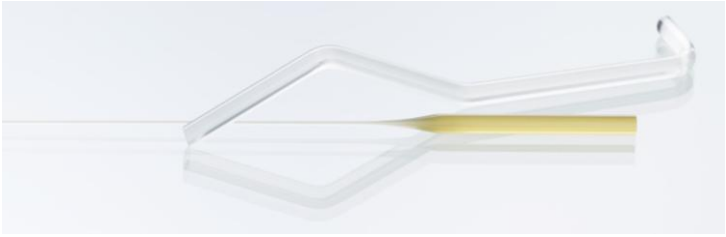
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Endless design options for light guide rods

Create your individual light guide design:
- straight,
- tapered
- multi-bent (2D / 3D)

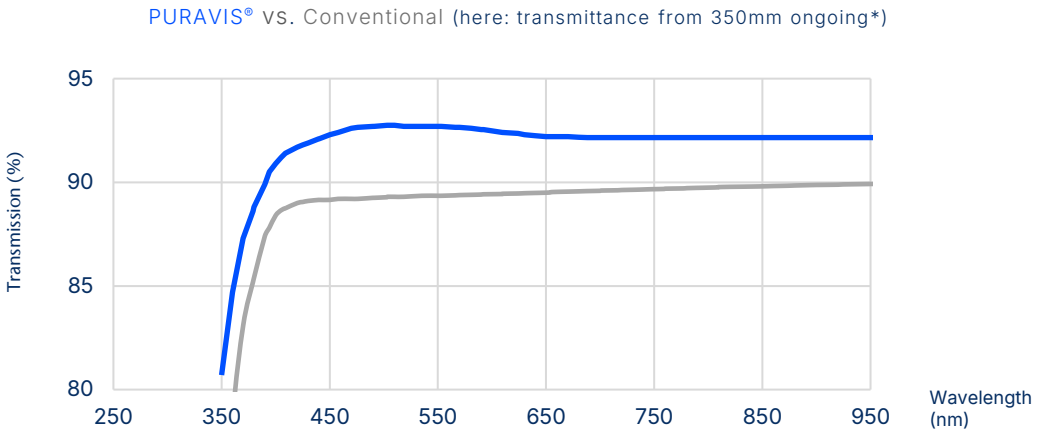
Combination of tapering and bending possible

Extremely high bending angle tolerance



Typical transmission (Measured in accordance with DIN 58 141 Part 2)

The transmission curves displayed below represent the typical manufacturing level for SCHOTT light guide rods.

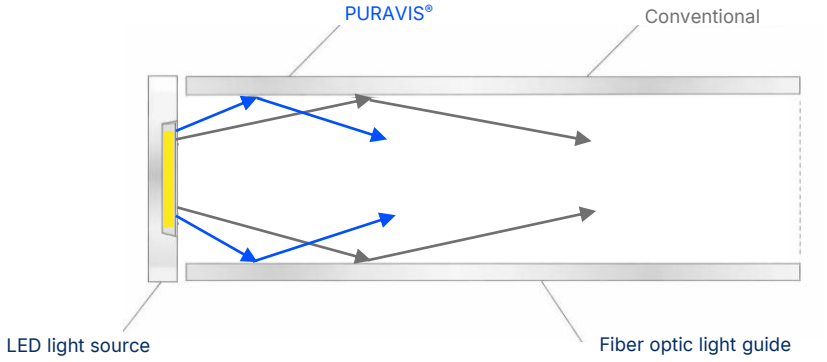


*More data upon request

Please note:
There is a minimal loss in transmission with blackened rods. The transmission of a light guide rod changes after bending/shaping.

Numercial aperture (Measured in accordance with DIN 58 141 Part 3)

The numerical aperture (NA) of an optical system is a dimensionless number that characterizes the range of angles over which the system can accept or emit light. When all angles are equal or smaller than the acceptance angle, light is transmitted within the fiber.



Light guide rods made of PURAVIS® fibers feature a larger numerical aperture (NA) and thus a larger acceptance angle than light guide rods made from conventional fibers (see data on page 1). This allows for a solid angle benefit and thus a better utilization of LED beam characteristics.

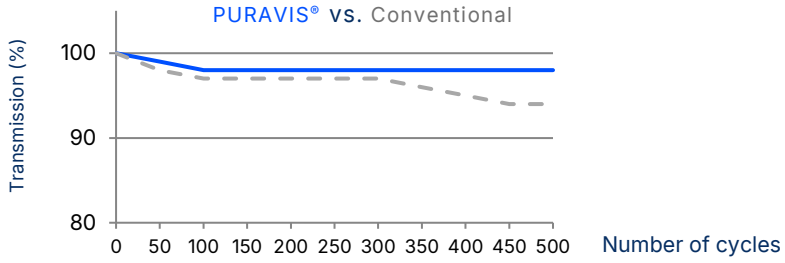
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Long term stability of PURAVIS® - Mechanical stability

PURAVIS® glass optical fibers feature excellent chemical stability. Core and cladding glasses have high chemical resistance which ensure long-term stability over lifetime under repeated autoclave cycles.

Validation of long-term stability by optical measurement

- Relative transmission measured in accordance with DIN 58 141 Part 2
- Aperture of light beam: 0.1
- Measurement wavelength: λ = 535 nm
- Prior to each measurement: cleaning of end surface with acetic acid 5 %



Chemical resistance classes	Conventional	PURAVIS®
Acid resistance class SR (acc. to ISO 8424: 1996 [2])	1.0 - 2.2	**1.0**
Alkaline resistance class AR (acc. to ISO 10629: 1996[3])	1.0	**1.0**
Climatic resistance class CR (acc. to proposed standard ISO/CD13384 [1])	1.0 – 2.0	**1.0**
Stain resistance class: FR	0	**0**



Certification

SCHOTT offers high quality products and services along tight regulatory directives, including **ISO 13485, ISO 50001 and ISO 9001 / 14001**.



Outstanding optical performance



Chemical stability



Temperature resistance



Mechanical robustness

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