

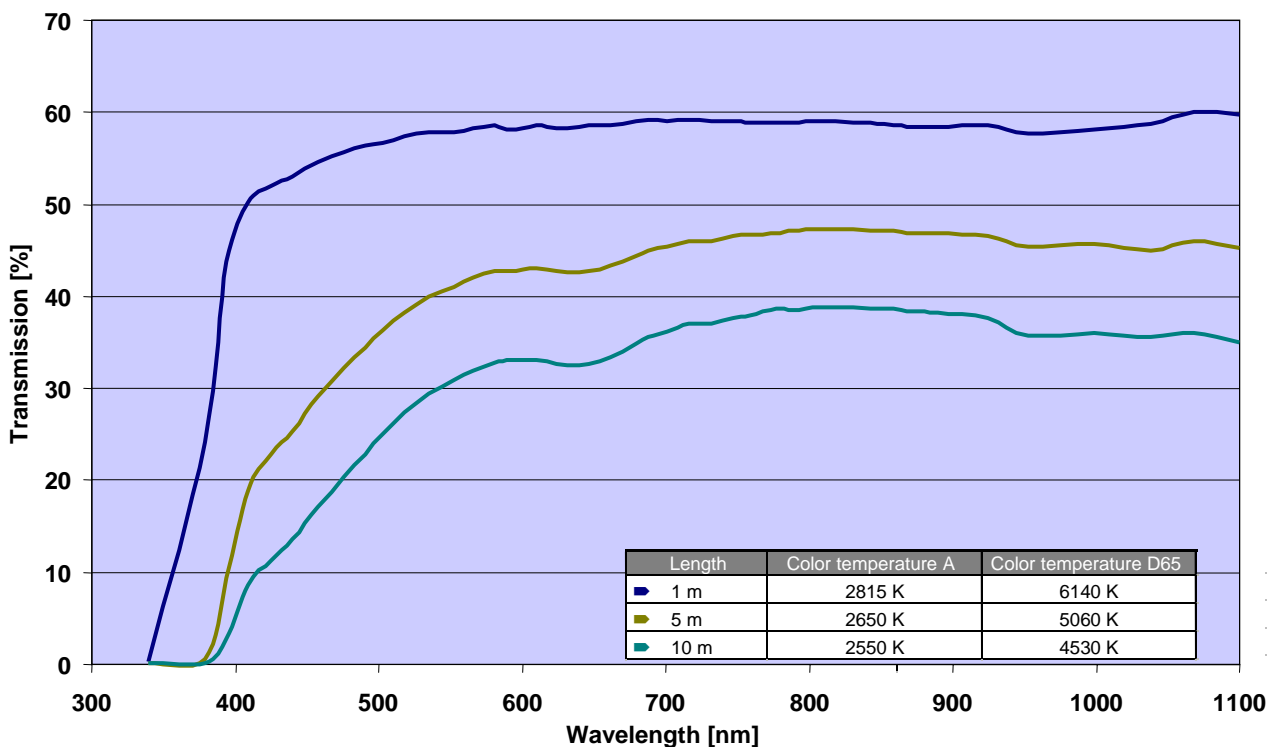
A5 Fiber

The A5 fiber with an 76° acceptance angle featuring excellent transmission and high chemical resistance by having an extremely low colour shift in the visible spectrum. Typical fields of application are medical technologies, in particular the field of endoscopy.

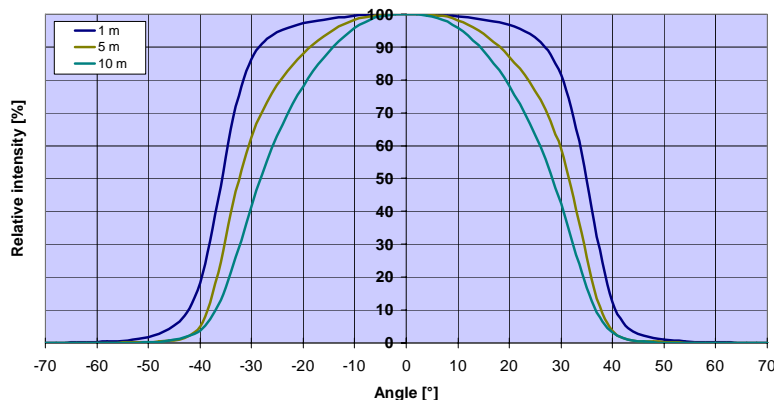


- Numerical aperture** (theoretical value at 587 nm) **0.63**
- Effective acceptance angle 2α** at $V(\lambda)$ for 1m length $\geq 65^\circ$ (30 μm fiber) $[\geq 76^\circ$ (70 μm fiber)]
- Optical attenuation of single fiber** at 553 nm **< 300 dB/km** (measured for 70 μm fiber)

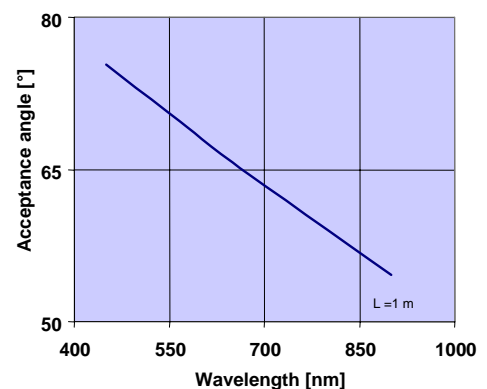
Typical spectral transmission of A5-30 μm fiber for different lengths



Effective acceptance angle of A5-30 μm fiber at $V(\lambda)$ for different lengths



Dependence of effective acceptance angle of A5-30 μm fiber on wavelength

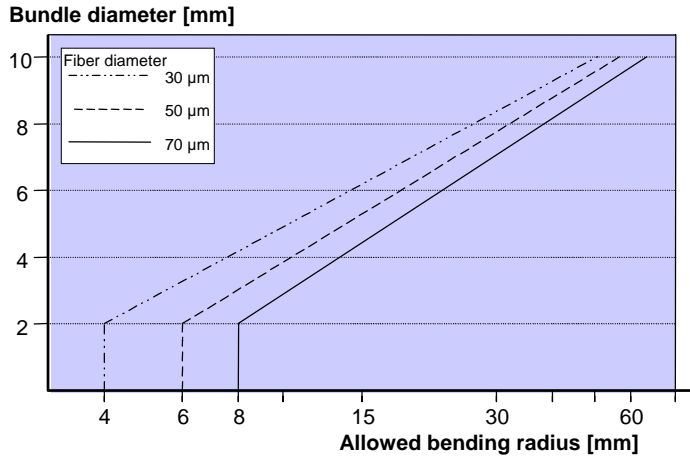


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A5 Fiber



Dimensions	Fiber diameter / Tolerance [µm]					
	30 +/- 4		50 +/- 4		70 +/- 4	
Core surface / fiber surface ratio	0.86		0.86		0.86	
Available bundle diameter [all data in mm] *)						
Delivery form	Bundle Ø	Tolerance	Bundle Ø	Tolerance	Bundle Ø	Tolerance
Fiber bundle on spool (dependent on bundle diameter up to max. length of 200 m)	1.0 – 1.7	+/- 0.05			1.0 – 1.5	+/- 0.15
					1.6 – 4.0	+/- 0.1
					4.0 – 6.0	+/- 0.05
Cut-to-length bundle (from 5 m to max. 10 m in length)	1.0 – 10.0	+/- 0.05			1.0 – 10.0	+/- 0.05
Thin precision bundles (standard length = 5.7 m)	0.35 – 2.0	+/- 0.05			0.35 – 2.0	+/- 0.05

*) All specifications refer to standard dimensions. Other lengths, diameters and tolerances are available on request

Temperature stability

(Please refer to the notes on Sheet 3)

- Storage / Transport - 20°C to +70°C (Note: bring to room temperature prior to further processing)
- Use (static use / installation) - 20°C to +200°C
- Short-term (e.g. for assembly, t < 0.5 hr) up to 350°C

Shelf life

min. 2 years in accordance with IEC 60721 part 3-1 (Class: 1K2, 1B1, 1C1, 1S2)

Lubricants

Dry and wet lubricants available

Delivery form/ Packaging

- Fiber bundles on spool: Wound onto spool with cotton thread
- Cut-to-length bundles: Individually packed in film tube, up to 20 bundles coiled up in carton
- Thin precision bundles: Individually packed in tubular film, up to 20 bundles consecutively coiled up in carton

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Explanatory Notes and Measurement Methods

→ Spectral transmission

Measured in accordance with DIN 58 141 Part 2.

Note

The following conditions influence the maximum transmission of a fiber bundle:

- Internal transmission of core glass
- Packing density of fibers
- Core surface/fiber surface ratio
- Quality of end termination
- Length of fiber bundle

The displayed transmission curves represent SCHOTT's regular manufacturing level for light guides glued at both ends. SCHOTT's patented hot-fusing process can increase transmission by approx. 10 %.

Color temperature

The color temperature is calculated using the measurement results of the spectral transmission in accordance with DIN 5033. The values for standard light source A and standard light source D65 are calculated.

→ Effective acceptance angle

Measured for glued light guides in accordance with DIN 58 141 Part 3.

→ $V(\lambda)$

$V(\lambda)$ corresponds to the spectral luminous efficiency of the human eye in daylight. $V(\lambda)$ is standardized in Germany within DIN 5031.

→ Optical attenuation

Measured for a 70 μm single fiber in accordance with DIN 58 141 Part 1.

→ Dimensions / Bundle diameters

In general the bundle diameter is tested and adapted with gauging ferrules without wetting the ("dry") bundle .

If required the testing method can be mutually agreed with the customer. Adjustment with "wet" bundle should be specified separately in the order.

The respective tolerances are derived from the different manufacturing methods.

→ Temperature stability

Optical glass fibers can withstand temperatures up to 350°C. Normally the coatings used have a lower temperature resistance. The adhesive and sheathing material should also be taken into consideration for the temperature resistance of a light guide.

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