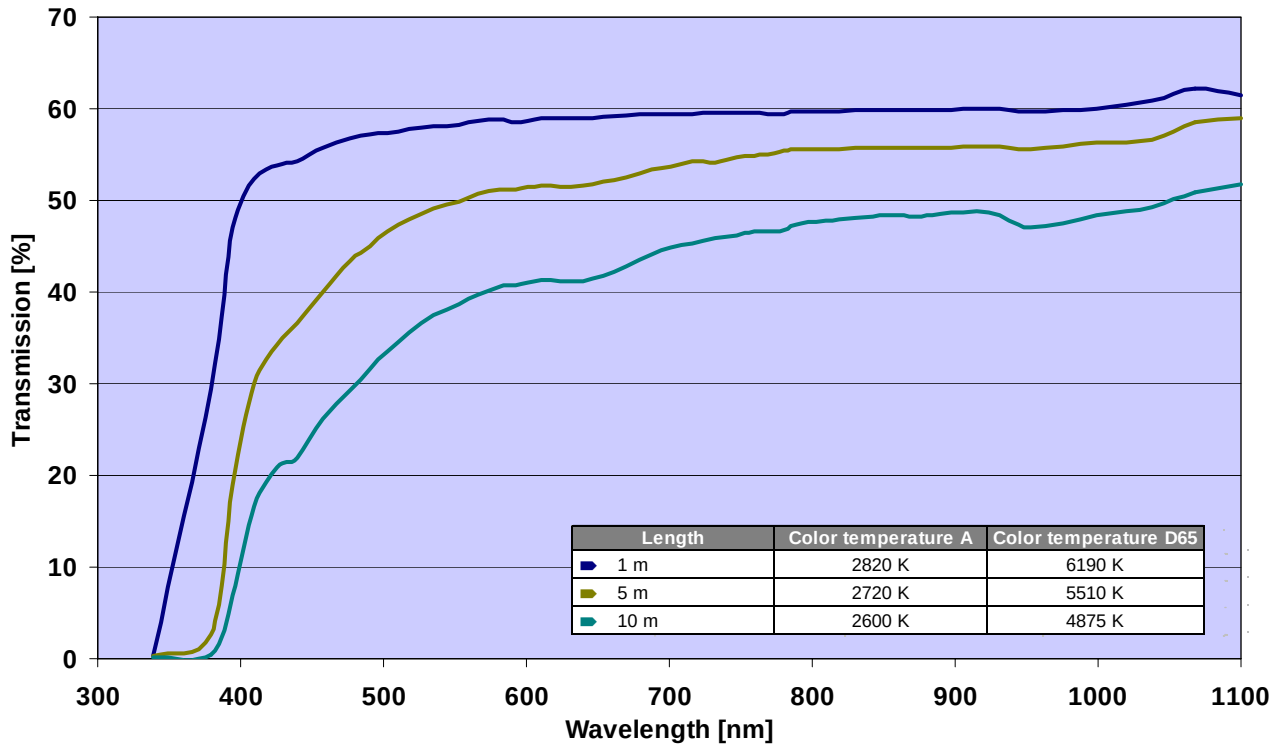
A3 Fiber

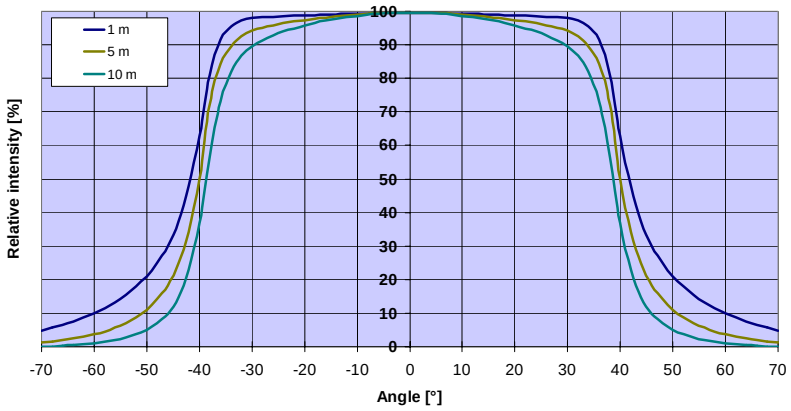
The A3 fiber with an 80° acceptance angle featuring excellent transmission and extremely low color shift in the visible spectrum. Typical fields of application are lighting, sensor and medical technology, in particular the field of endoscopy.

Numerical aperture (theoretical value at 587 nm)	**0.64**
Effective acceptance angle 2α at V(λ) for 1m length	**≥ 80°** (measured for 70 µm fiber)
Optical attenuation of single fiber at 553 nm	**< 300 dB/km** (measured for 70 µm fiber)

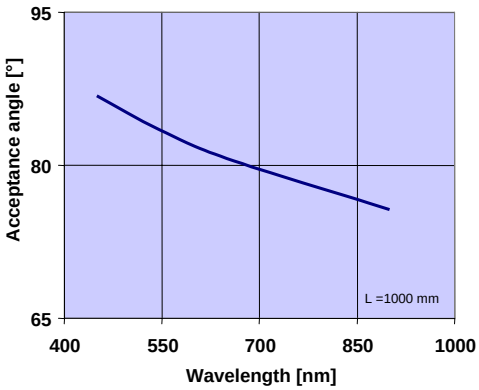
Typical spectral transmission of A3-70 µm fiber at V(λ) different lengths



Effective acceptance angle of A3-70 µm fiber at V(λ) for different lengths



Dependence of effective acceptance angle of A3-70 µm fiber on wavelength



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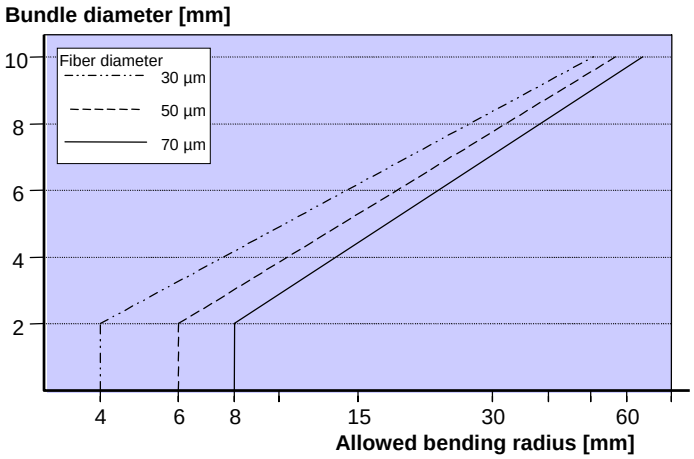

Dimensions	Fiber diameter / Tolerance [µm]					
	30 +/- 4		50 +/- 4		70 +/- 4	
Core surface / fiber surface ratio	0.79		0.89		0.89	
Available bundle diameter [all data in mm] *)						
Delivery form	**Bundle Ø**	**Tolerance**	**Bundle Ø**	**Tolerance**	**Bundle Ø**	**Tolerance**
Fiber bundle on spool (dependent on bundle diameter up to max. length of 200 m)	1.0 –1.7	+/- 0.05	1.0 – 2.0 2.1 - 4.0	+/- 0.1 +/- 0.05	1.0 – 1.5 1.6 – 4.0 4.0 – 6.0	+/- 0.15 +/- 0.1 +/- 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	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	0.35 – 2.0	+/- 0.05

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

Temperature stability (bitte beachten Sie unsere Hinweise auf Blatt 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)

Coatings Dry and wet coatings available

Delivery form/ Packaging

Fiber bundles on spool: Wound onto spool with cotton thread

Cut-to-length bundles: Individually packed in tubular film, 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 ca. 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(λ)

V(λ) corresponds to the spectral luminous efficiency of the human eye in daylight. V(λ) 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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