

# W Fiber

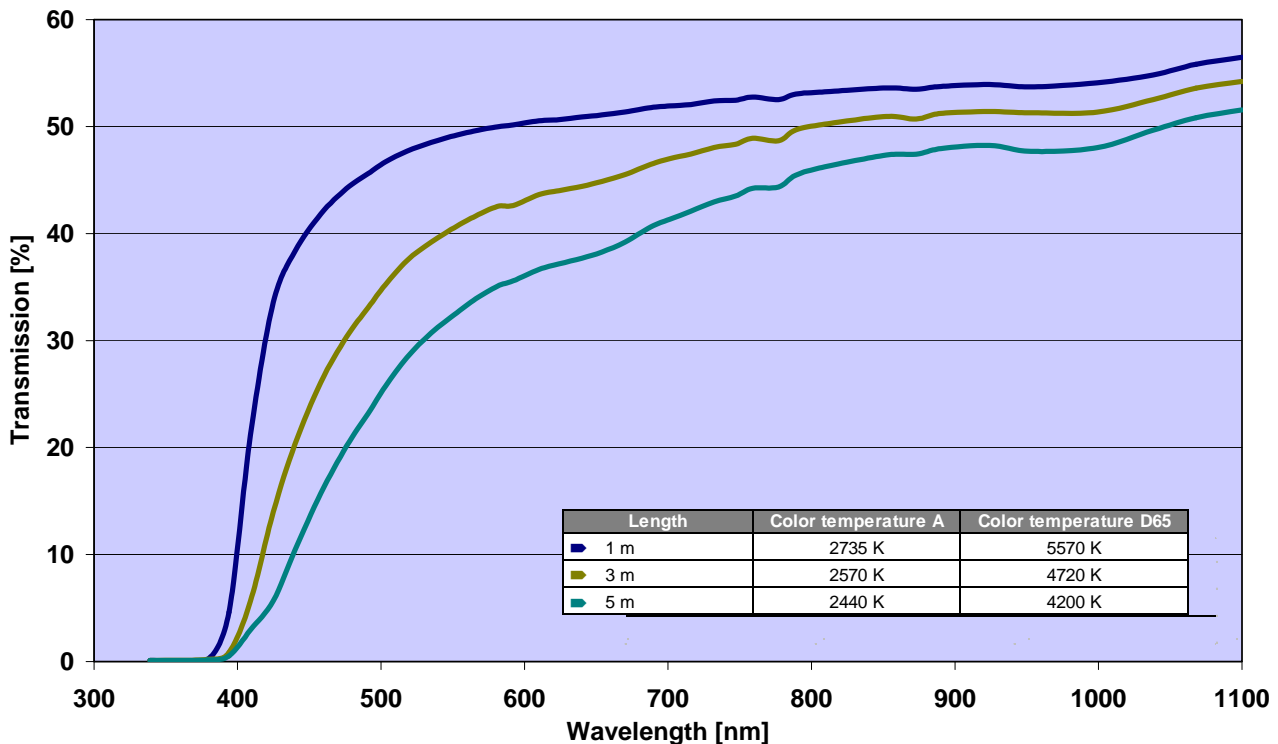
The W fiber has a very wide acceptance angle of 106°, low color shift and is used in the visible spectrum.

Typical fields of application are medical and sensor technology.

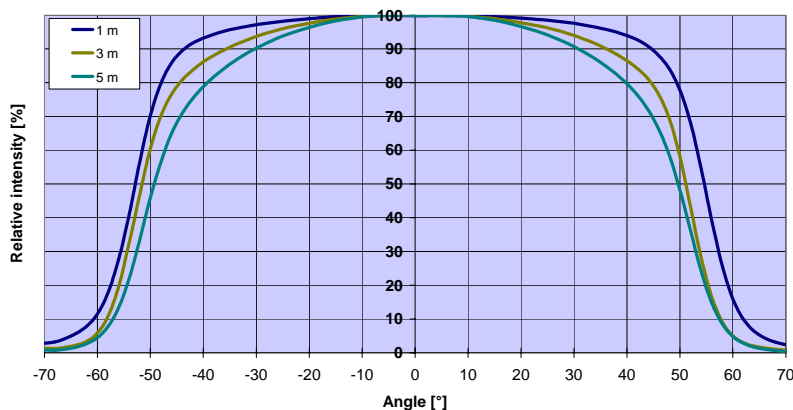


- Numerical aperture** (theoretical value at 587 nm) **0.86**
- Effective acceptance angle  $2\alpha$**  at  $V(\lambda)$  for 1 m length  **$\geq 106^\circ$**  (measured for 30  $\mu\text{m}$  fiber)
- Optical attenuation of single fiber** at 553 nm  **$< 500 \text{ dB/km}$**  (measured for 70  $\mu\text{m}$  fiber)

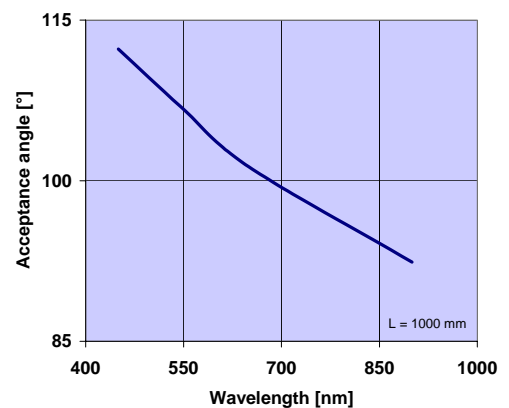
Typical spectral transmission of W-30  $\mu\text{m}$  fiber for different lengths



Effective acceptance angle of W-30  $\mu\text{m}$  fiber at  $V(\lambda)$  for different lengths



Dependence of effective acceptance angle of W-30  $\mu\text{m}$  fiber on wavelength

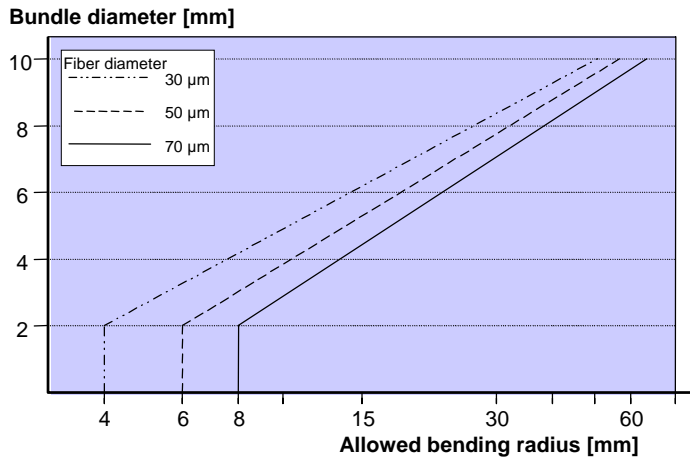


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Dimensions	Fiber diameter / Tolerance [μm]					
	30 +/- 4		50 +/- 4		70 +/- 4	
Core surface / fiber surface ratio	0.86		0.89		0.89	
<b>Available bundle diameter [all data in mm] *)</b>						
Delivery form	Bundle Ø	Tolerance	Bundle Ø	Tolerance	Bundle 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	+/- 0.1	1.0 – 1.5	+/- 0.15
			2.1 – 4.0	+/- 0.05	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	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

(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)

## 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.
- **$V(\lambda)$**   $V(\lambda)$  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  $\mu\text{m}$  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.