

**TECHSPEC® 12mm Dia. x 45mm FL, Uncoated, UV Double-Convex Lens**



UV Fused Silica Double-Convex (DCX) Lenses



Stock **#48-038** **20+ In Stock**

[Other Coating Options](#)

⊖ 1 ⊕ **S\$172<sup>20</sup>**

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Volume Pricing	
Qty 1-5	<b>S\$172.20</b> each
Qty 6-25	<b>S\$137.20</b> each
Qty 26-49	<b>S\$130.20</b> each
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**General**

Double-Convex Lens **Type:**

**Physical & Mechanical Properties**

**Diameter (mm):**

12.00 +0.0/-0.025

<1 **Centering (arcmin):**

Protective as needed **Bevel:**

2.99 ±0.05 **Center Thickness CT (mm):**

2.10 **Edge Thickness ET (mm):**

11.00 **Clear Aperture CA (mm):**

## Optical Properties

43.96 **Back Focal Length BFL (mm):**

45.00 **Effective Focal Length EFL (mm):**

Uncoated **Coating:**

Uncoated **Coating Specification:**

**Fused Silica** (Coming 7980) **Substrate:**

40-20 **Surface Quality:**

1.5λ **Power (P-V) @ 632.8nm:**

N4 **Irregularity (P-V) @ 632.8nm:**

40.79 **Radius R<sub>1</sub>=R<sub>2</sub> (mm):**

3.75 **f#:**

587.6 **Focal Length Specification Wavelength (nm):**

±1 **Focal Length Tolerance (%):**

0.13 **Numerical Aperture NA:**

200 - 2200 **Wavelength Range (nm):**

## Regulatory Compliance

**Compliant** **RoHS 2015:**

**Compliant** **Reach 219:**

**View** **Certificate of Conformance:**

## Need different specs or modifications?

Edmund Optics offers comprehensive custom manufacturing services for optical and imaging components tailored to your specific application requirements. Whether in the prototyping phase or preparing for full-scale production, we provide flexible solutions to meet your needs. Our experienced engineers are here to assist—from concept to completion.

Our capabilities include:

- Custom dimensions, materials, coatings, and more
- High-precision surface quality and flatness
- Tight tolerances and complex geometries
- Scalable production—from prototype to volume

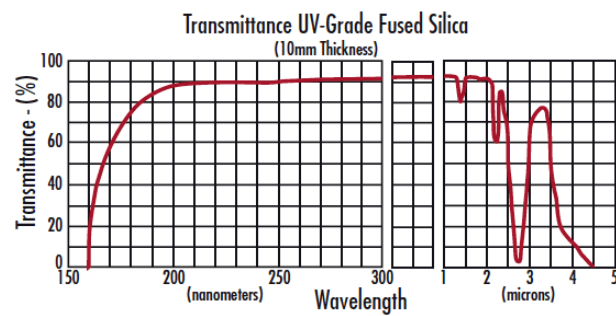
Learn more about our [custom manufacturing capabilities](#) or submit an inquiry [here](#).

## Product Details

- Ideal for Imaging Applications
- Minimize Aberrations Including Spherical and Coma
- Precision Fused Silica Substrate

TECHSPEC® UV Fused Silica Double-Convex (DCX) Lenses, also referred to as bi-convex lenses, have two positive, symmetrical faces with equal radii on both sides. These lenses are generally recommended for finite imaging applications with a conjugate ratio (ratio between object distance and image distance) between 0.2 and 5. At a conjugate ratio of 1, aberrations such as spherical aberration, chromatic aberration, coma, and distortion are minimized or canceled due to the symmetric lens design. TECHSPEC® UV Fused Silica Double-Convex (DCX) Lenses have a precision fused silica substrate. These lenses are available uncoated or with UV-AR, UV-MS, MS-EXT, MS-NIR, MS 0°, NIR I, or NIR II coatings.

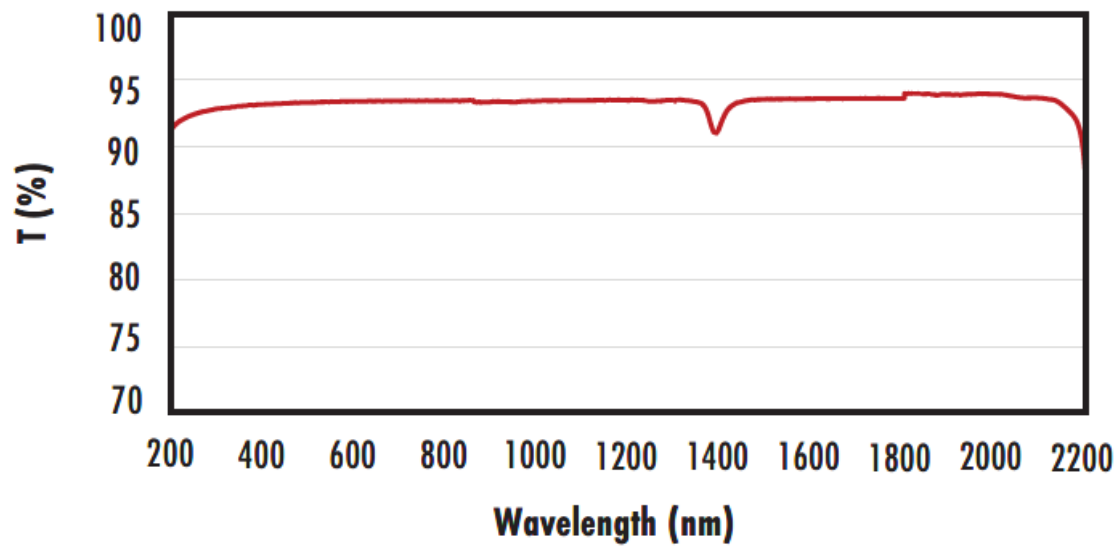
# Technical Information



UV FS Transmission Curve

## FUSED SILICA

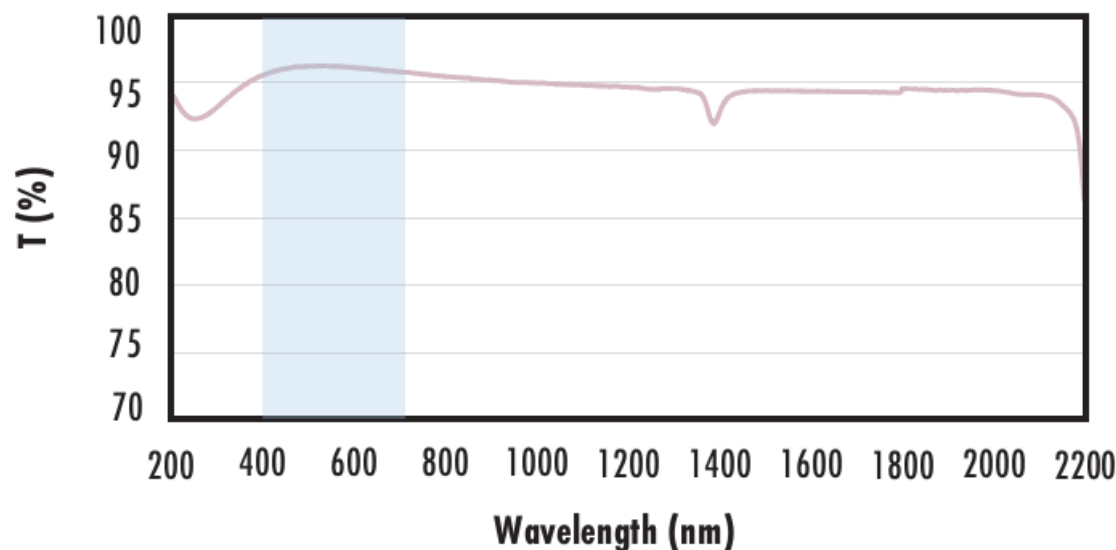
### Uncoated Fused Silica Typical Transmission



Typical transmission of a 3mm thick, uncoated fused silica window across the UV - NIR spectra.

[Click Here to Download Data](#)

### Fused Silica with MgF<sub>2</sub> Coating Typical Transmission



Typical transmission of a 3mm thick fused silica window with MgF<sub>2</sub> (400-700nm) coating at 0° AOI.

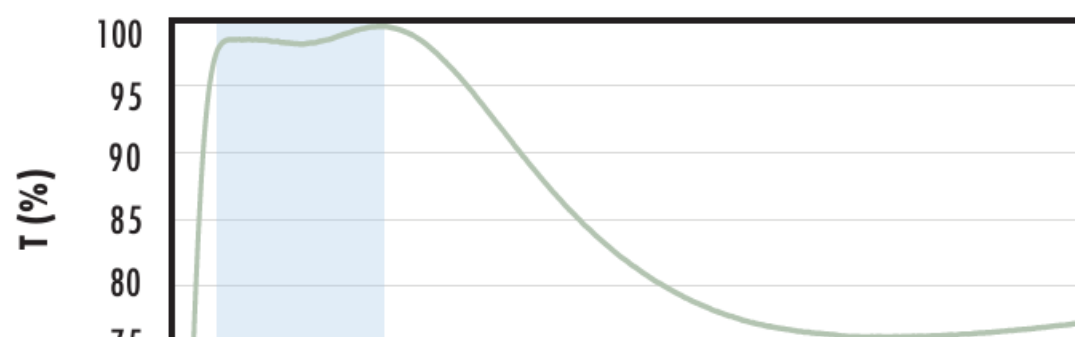
The blue shaded region indicates the coating design wavelength range, with the following specification:

$$R_{avg} \leq 1.75\% @ 400 - 700\text{nm (N-BK7)}$$

Data outside this range is not guaranteed and is for reference only.

[Click Here to Download Data](#)

### Fused Silica with UV-AR Coating Typical Transmission



Typical transmission of a 3mm thick fused silica window with UV-AR (250-425nm) coating at 0° AOI.

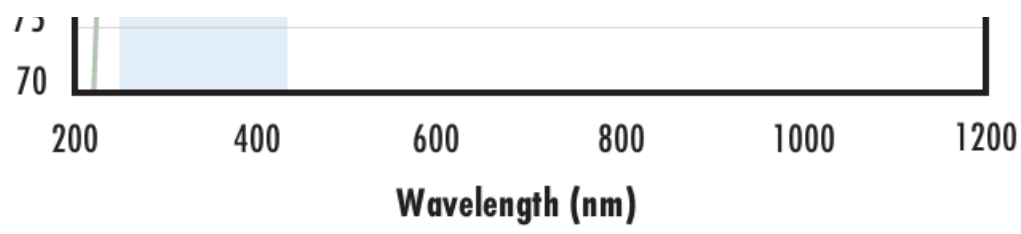
The blue shaded region indicates the coating design wavelength range, with the following specification:

$$R_{abs} \leq 1.0\% @ 250 - 425\text{nm}$$

$$R_{avg} \leq 0.75\% @ 250 - 425\text{nm}$$

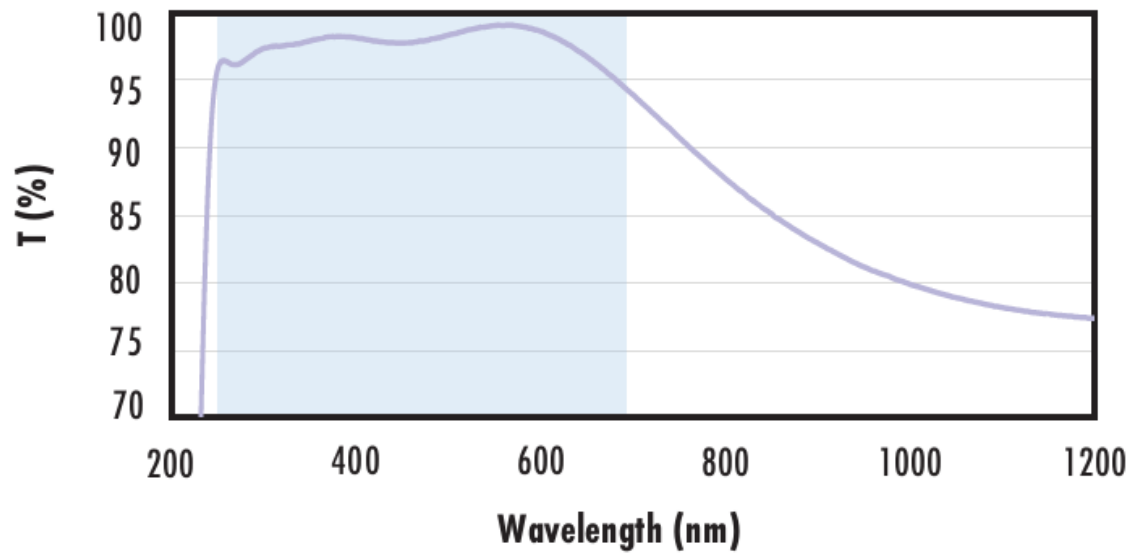
$$R_{avg} \leq 0.5\% @ 370 - 420\text{nm}$$

Data outside this range is not guaranteed and is for reference only.



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### Fused Silica with UV-VIS Coating Typical Transmission



Typical transmission of a 3mm thick fused silica window with UV-VIS (250-700nm) coating at 0° AOI.

The blue shaded region indicates the coating design wavelength range, with the following specification:

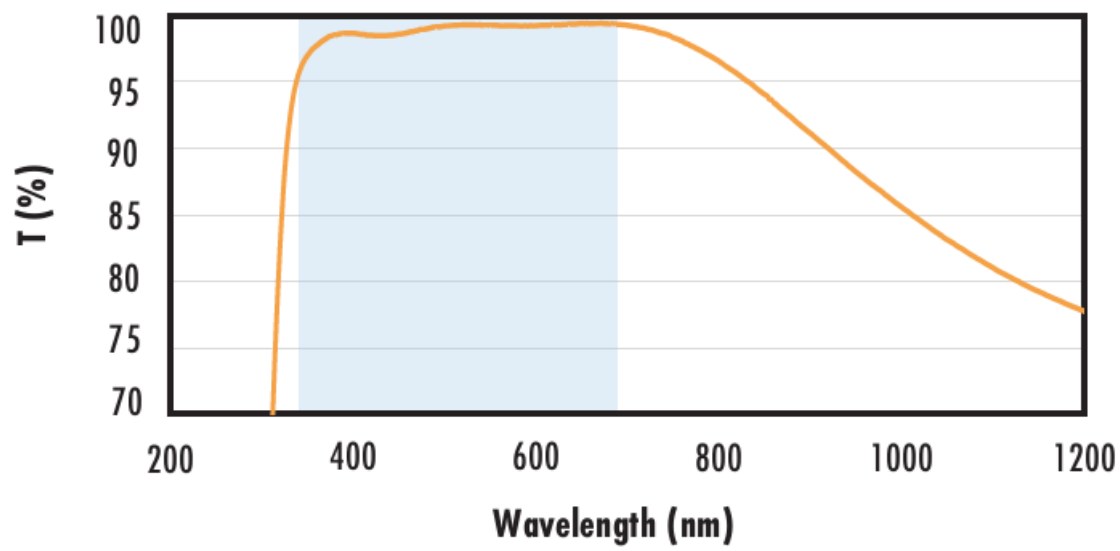
$$R_{abs} \leq 1.0\% @ 350 - 450\text{nm}$$

$$R_{avg} \leq 1.5\% @ 250 - 700\text{nm}$$

Data outside this range is not guaranteed and is for reference only.

[Click Here to Download Data](#)

### Fused Silica with VIS-EXT Coating Typical Transmission



Typical transmission of a 3mm thick fused silica window with VIS-EXT (350-700nm) coating at 0° AOI.

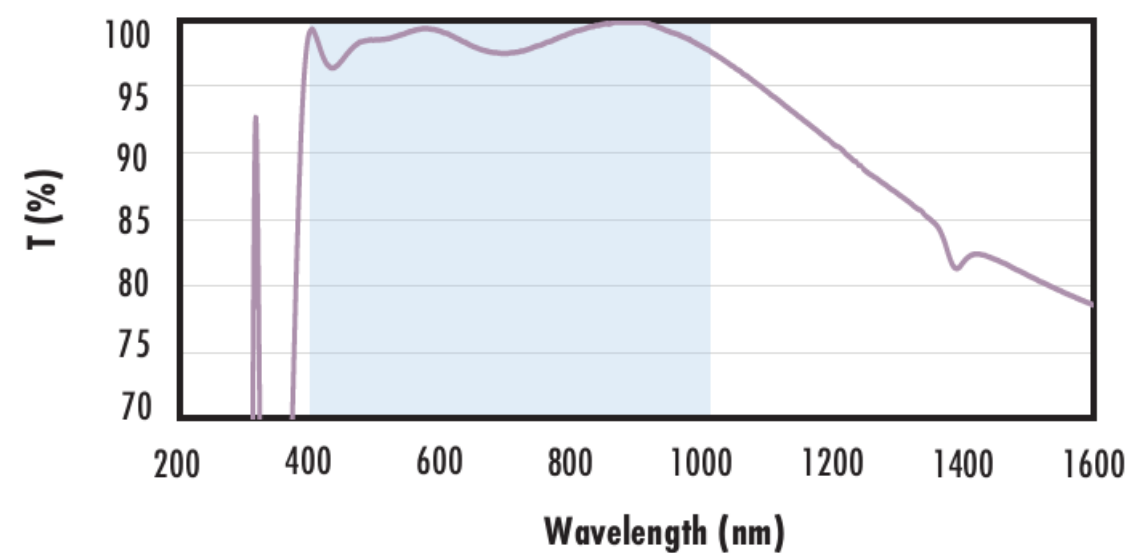
The blue shaded region indicates the coating design wavelength range, with the following specification:

$$R_{avg} \leq 0.5\% @ 350 - 700\text{nm}$$

Data outside this range is not guaranteed and is for reference only.

[Click Here to Download Data](#)

### Fused Silica with VIS-NIR Coating Typical Transmission



Typical transmission of a 3mm thick fused silica window with VIS-NIR (400-1000nm) coating at 0° AOI.

The blue shaded region indicates the coating design wavelength range, with the following specification:

$$R_{abs} \leq 0.25\% @ 880\text{nm}$$

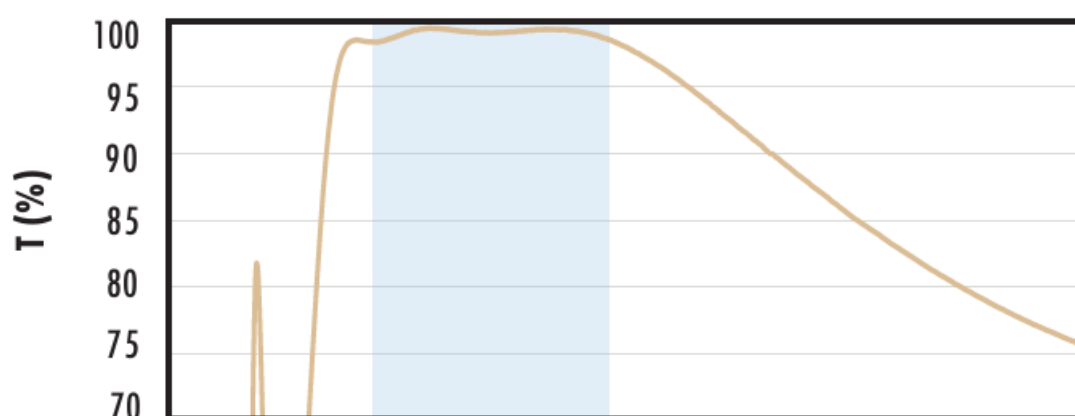
$$R_{avg} \leq 1.25\% @ 400 - 870\text{nm}$$

$$R_{avg} \leq 1.25\% @ 890 - 1000\text{nm}$$

Data outside this range is not guaranteed and is for reference only.

[Click Here to Download Data](#)

### Fused Silica with VIS 0° Coating Typical Transmission



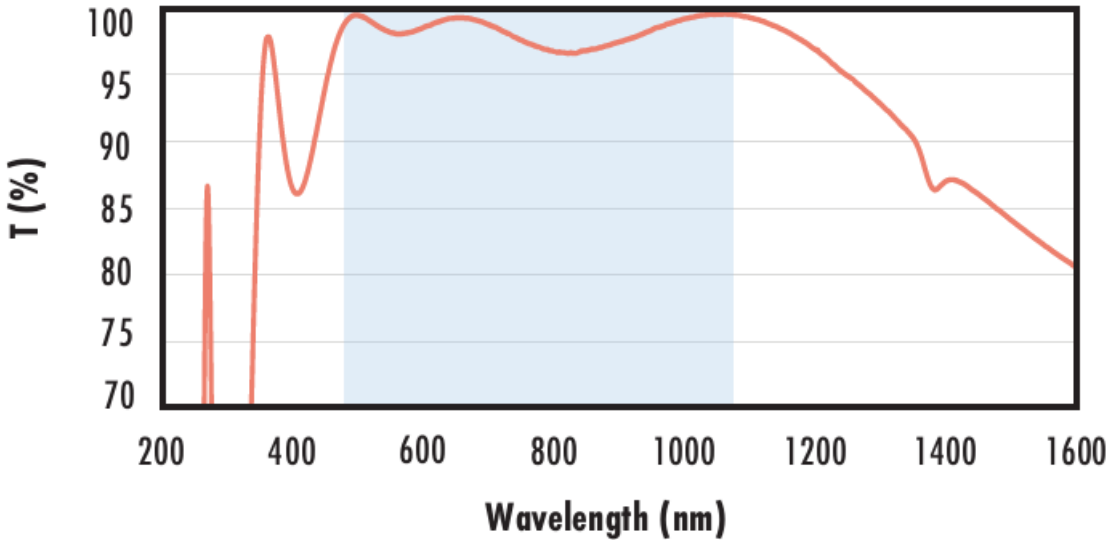
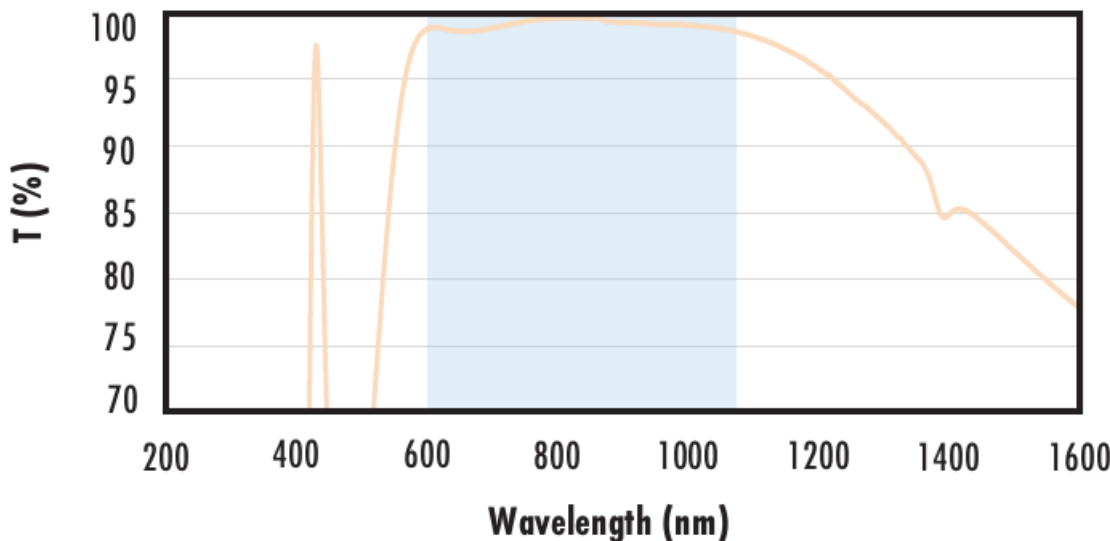
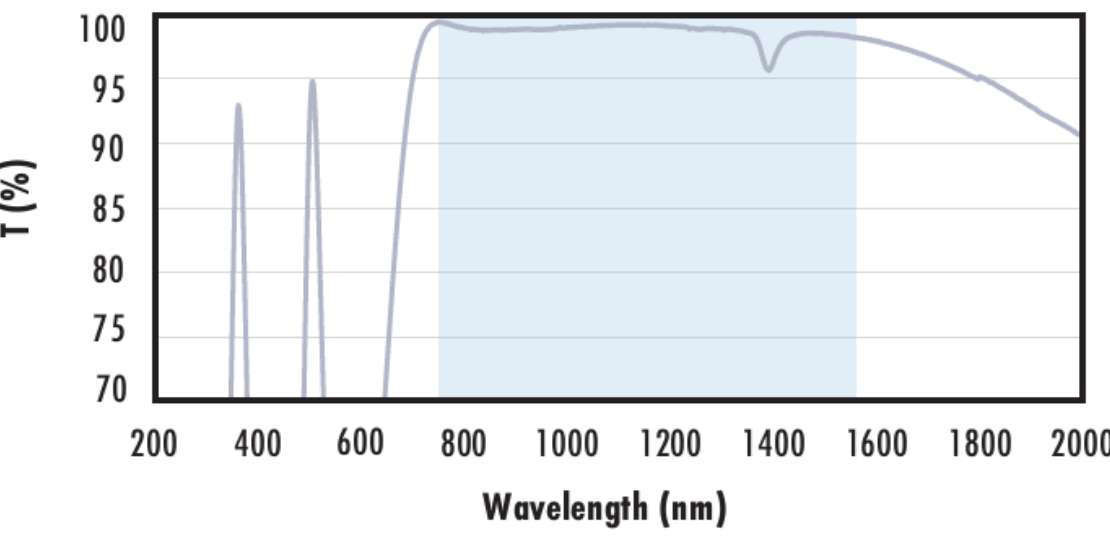
Typical transmission of a 3mm thick fused silica window with VIS 0° (425-675nm) coating at 0° AOI.

The blue shaded region indicates the coating design wavelength range, with the following specification:

$$R_{avg} \leq 0.4\% @ 425 - 675\text{nm}$$

Data outside this range is not guaranteed and is for reference only.

[Click Here to Download Data](#)

<p style="text-align: center;">200      400      600      800      1000      1200</p> <p style="text-align: center;"><b>Wavelength (nm)</b></p>	
<p style="text-align: center;"><b>Fused Silica with YAG-BBAR Coating</b> <b>Typical Transmission</b></p>  <p style="text-align: center;">200      400      600      800      1000      1200      1400      1600</p> <p style="text-align: center;"><b>Wavelength (nm)</b></p>	<p>Typical transmission of a 3mm thick fused silica window with YAG-BBAR (500-1100nm) coating at 0° AOI.</p> <p>The blue shaded region indicates the coating design wavelength range, with the following specification:</p> <p style="text-align: center;"><math>R_{abs} \leq 0.25\% @ 532nm</math>  <math>R_{abs} \leq 0.25\% @ 1064nm</math>  <math>R_{avg} \leq 1.0\% @ 500 - 1100nm</math></p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p style="text-align: center;"><a href="#">Click Here to Download Data</a></p>
<p style="text-align: center;"><b>Fused Silica with NIR I Coating</b> <b>Typical Transmission</b></p>  <p style="text-align: center;">200      400      600      800      1000      1200      1400      1600</p> <p style="text-align: center;"><b>Wavelength (nm)</b></p>	<p>Typical transmission of a 3mm thick fused silica window with NIR I (600 - 1050nm) coating at 0° AOI.</p> <p>The blue shaded region indicates the coating design wavelength range, with the following specification:</p> <p style="text-align: center;"><math>R_{avg} \leq 0.5\% @ 600 - 1050nm</math></p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p style="text-align: center;"><a href="#">Click Here to Download Data</a></p>
<p style="text-align: center;"><b>Fused Silica with NIR II Coating</b> <b>Typical Transmission</b></p>  <p style="text-align: center;">200      400      600      800      1000      1200      1400      1600      1800      2000</p> <p style="text-align: center;"><b>Wavelength (nm)</b></p>	<p>Typical transmission of a 3mm thick fused silica window with NIR II (750 - 1550nm) coating at 0° AOI.</p> <p>The blue shaded region indicates the coating design wavelength range, with the following specification:</p> <p style="text-align: center;"><math>R_{abs} \leq 1.5\% @ 750 - 800nm</math>  <math>R_{abs} \leq 1.0\% @ 800 - 1550nm</math>  <math>R_{avg} \leq 0.7\% @ 750 - 1550nm</math></p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p style="text-align: center;"><a href="#">Click Here to Download Data</a></p>

**Compatible Mounts**