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TECHSPEC<sup>®</sup> 9mm Dia. x 27mm FL, NIR II Coated, UV Double-Convex Lens



UV Fused Silica Double-Convex (DCX) Lenses



Stock **#22-179** 5 In Stock

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-

1

+

A\$228<sup>00</sup>

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| Qty 1-5        | A\$228.80 each                |
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General

Double-Convex Lens

Type:

Physical & Mechanical Properties

Diameter (mm):

|                           |                      |
|---------------------------|----------------------|
| 9.00 +0.0/-0.025          |                      |
| Centering (arcmin):       | <1                   |
| Bevel:                    | Protective as needed |
| Center Thickness CT (mm): | 2.50 ±0.05           |
| Edge Thickness ET (mm):   | 1.66                 |
| Clear Aperture CA (mm):   | 8.1                  |

|                                                       |                                                                                                                        |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Optical Properties                                    |                                                                                                                        |
| Back Focal Length BFL (mm):                           | 26.13                                                                                                                  |
| Effective Focal Length EFL (mm):                      | 27.00                                                                                                                  |
| Coating:                                              | NIR II (750-1550nm)                                                                                                    |
| Coating Specification:                                | R <sub>abs</sub> ≤1.5% @ 750 - 800nm<br>R <sub>abs</sub> ≤1.0% @ 800 - 1550nm<br>R <sub>avg</sub> ≤0.7% @ 750 - 1550nm |
| Substrate: <input type="checkbox"/>                   | <a href="#">Fused Silica</a> (Corning 7980)                                                                            |
| Surface Quality:                                      | 40-20                                                                                                                  |
| Power (P-V) @ 632.8nm:                                | 1.5λ                                                                                                                   |
| Irregularity (P-V) @ 632.8nm:                         | λ/4                                                                                                                    |
| Radius R <sub>1</sub> =R <sub>2</sub> (mm):           | 24.36                                                                                                                  |
| f/#:                                                  | 3.00                                                                                                                   |
| Focal Length Specification Wavelength (nm):           | 587.6                                                                                                                  |
| Focal Length Tolerance (%):                           | ±1                                                                                                                     |
| Numerical Aperture NA:                                | 0.17                                                                                                                   |
| Wavelength Range (nm):                                | 750 - 1550                                                                                                             |
| Damage Threshold, Reference: <input type="checkbox"/> | 8 J/cm <sup>2</sup> @ 1064nm, 10ns                                                                                     |

|                             |                           |
|-----------------------------|---------------------------|
| Regulatory Compliance       |                           |
| RoHS 2015:                  | <a href="#">Compliant</a> |
| Certificate of Conformance: | <a href="#">View</a>      |
| Reach 235:                  | <a href="#">Compliant</a> |

## 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-VIS, VIS-EXT, VIS-NIR, VIS 0°, NIR I, or NIR II coatings.

## Technical Information



UV FS Transmission Curve



| FUSED SILICA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|-----|----|-----|----|-----|----|-----|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>Uncoated Fused Silica<br/>Typical Transmission</div><div><table border="1"><caption>Approximate data for Uncoated Fused Silica Transmission</caption><thead><tr><th>Wavelength (nm)</th><th>Transmission T (%)</th></tr></thead><tbody><tr><td>200</td><td>92</td></tr><tr><td>400</td><td>94</td></tr><tr><td>600</td><td>94</td></tr><tr><td>800</td><td>94</td></tr><tr><td>1000</td><td>94</td></tr><tr><td>1200</td><td>94</td></tr><tr><td>1400</td><td>92</td></tr><tr><td>1600</td><td>94</td></tr><tr><td>1800</td><td>94</td></tr><tr><td>2000</td><td>94</td></tr><tr><td>2200</td><td>90</td></tr></tbody></table></div></div>                                         | Wavelength (nm)    | Transmission T (%) | 200 | 92 | 400 | 94 | 600 | 94 | 800 | 94 | 1000 | 94 | 1200 | 94 | 1400 | 92 | 1600 | 94 | 1800 | 94 | 2000 | 94 | 2200 | 90 | <div>Typical transmission of a 3mm thick, uncoated fused silica window across the UV - NIR spectra.</div> <div><a href="#">Click Here to Download Data</a></div>                                                                                                                                                                                                                                                                                                   |
| Wavelength (nm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Transmission T (%) |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 92                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 94                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 94                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 800                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 94                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 94                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 94                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 92                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 94                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1800                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 94                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 94                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 90                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <div><div>Fused Silica with MgF<sub>2</sub> Coating<br/>Typical Transmission</div><div><table border="1"><caption>Approximate data for Fused Silica with MgF<sub>2</sub> Coating Transmission</caption><thead><tr><th>Wavelength (nm)</th><th>Transmission T (%)</th></tr></thead><tbody><tr><td>200</td><td>94</td></tr><tr><td>400</td><td>97</td></tr><tr><td>600</td><td>97</td></tr><tr><td>800</td><td>96</td></tr><tr><td>1000</td><td>96</td></tr><tr><td>1200</td><td>96</td></tr><tr><td>1400</td><td>93</td></tr><tr><td>1600</td><td>95</td></tr><tr><td>1800</td><td>95</td></tr><tr><td>2000</td><td>95</td></tr><tr><td>2200</td><td>90</td></tr></tbody></table></div></div> | Wavelength (nm)    | Transmission T (%) | 200 | 94 | 400 | 97 | 600 | 97 | 800 | 96 | 1000 | 96 | 1200 | 96 | 1400 | 93 | 1600 | 95 | 1800 | 95 | 2000 | 95 | 2200 | 90 | <div>Typical transmission of a 3mm thick fused silica window with MgF<sub>2</sub> (400-700nm) coating at 0° AOI.</div> <div>The blue shaded region indicates the coating design wavelength range, with the following specification:</div> <div><math>R_{avg} \leq 1.75\% \text{ @ } 400 - 700\text{nm (N-BK7)}</math></div> <div>Data outside this range is not guaranteed and is for reference only.</div> <div><a href="#">Click Here to Download Data</a></div> |
| Wavelength (nm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Transmission T (%) |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 94                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 97                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 97                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 800                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 96                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 96                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 96                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 93                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 95                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1800                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 95                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 95                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 90                 |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <div><div>Fused Silica with UV-AR Coating<br/>Typical Transmission</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                    |     |    |     |    |     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

|                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                     | <p>Typical transmission of a 3mm thick fused silica window with UV-AR (250-425nm) coating at 0° AOI.</p> <p>The blue shaded region indicates the coating design wavelength range, with the following specification:</p> <p><math>R_{abs} \leq 1.0\%</math> @ 250 - 425nm<br/><math>R_{avg} \leq 0.75\%</math> @ 250 - 425nm<br/><math>R_{avg} \leq 0.5\%</math> @ 370 - 420nm</p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p><a href="#">Click Here to Download Data</a></p> |
| <p><b>Fused Silica with UV-VIS Coating</b><br/><b>Typical Transmission</b></p>    | <p>Typical transmission of a 3mm thick fused silica window with UV-VIS (250-700nm) coating at 0° AOI.</p> <p>The blue shaded region indicates the coating design wavelength range, with the following specification:</p> <p><math>R_{abs} \leq 1.0\%</math> @ 350 - 450nm<br/><math>R_{avg} \leq 1.5\%</math> @ 250 - 700nm</p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p><a href="#">Click Here to Download Data</a></p>                                                   |
| <p><b>Fused Silica with VIS-EXT Coating</b><br/><b>Typical Transmission</b></p>  | <p>Typical transmission of a 3mm thick fused silica window with VIS-EXT (350-700nm) coating at 0° AOI.</p> <p>The blue shaded region indicates the coating design wavelength range, with the following specification:</p> <p><math>R_{avg} \leq 0.5\%</math> @ 350 - 700nm</p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p><a href="#">Click Here to Download Data</a></p>                                                                                                    |
| <p><b>Fused Silica with VIS-NIR Coating</b><br/><b>Typical Transmission</b></p>  | <p>Typical transmission of a 3mm thick fused silica window with VIS-NIR (400-1000nm) coating at 0° AOI.</p> <p>The blue shaded region indicates the coating design wavelength range, with the following specification:</p> <p><math>R_{abs} \leq 0.25\%</math> @ 880nm<br/><math>R_{avg} \leq 1.25\%</math> @ 400 - 870nm<br/><math>R_{avg} \leq 1.25\%</math> @ 890 - 1000nm</p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p><a href="#">Click Here to Download Data</a></p> |
| <p><b>Fused Silica with VIS 0° Coating</b><br/><b>Typical Transmission</b></p>   | <p>Typical transmission of a 3mm thick fused silica window with VIS 0° (425-675nm) coating at 0° AOI.</p>                                                                                                                                                                                                                                                                                                                                                                                                        |

|                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                     | <p>The blue shaded region indicates the coating design wavelength range, with the following specification:</p> <p><math>R_{avg} \leq 0.4\% @ 425 - 675\text{nm}</math></p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p><a href="#">Click Here to Download Data</a></p>                                                                                                                                                                                                                                  |
| <p><b>Fused Silica with YAG-BBAR Coating</b><br/><b>Typical Transmission</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><math>R_{abs} \leq 0.25\% @ 532\text{nm}</math><br/><math>R_{abs} \leq 0.25\% @ 1064\text{nm}</math><br/><math>R_{avg} \leq 1.0\% @ 500 - 1100\text{nm}</math></p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p><a href="#">Click Here to Download Data</a></p>           |
| <p><b>Fused Silica with NIR I Coating</b><br/><b>Typical Transmission</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><math>R_{avg} \leq 0.5\% @ 600 - 1050\text{nm}</math></p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p><a href="#">Click Here to Download Data</a></p>                                                                                                                     |
| <p><b>Fused Silica with NIR II Coating</b><br/><b>Typical Transmission</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><math>R_{abs} \leq 1.5\% @ 750 - 800\text{nm}</math><br/><math>R_{abs} \leq 1.0\% @ 800 - 1550\text{nm}</math><br/><math>R_{avg} \leq 0.7\% @ 750 - 1550\text{nm}</math></p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p><a href="#">Click Here to Download Data</a></p> |

## Custom

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

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