Large-Diameter Aspheric Lenses (Page 1 of 6)

Thorlabs stocks precision-ground, large-diameter aspheric lenses from Asphericon. With diameters ranging from 10 mm (efl = 8 mm) to 100 mm (efl = 100 mm), these lenses have high numerical apertures. For aspheric lenses with diameters in excess of 15 mm, Asphericon uses CNC grinding and polishing machines to produce lenses with RMS wavefront errors that are typically 20 to 50 times less than a similarly sized molded aspheric lens. With the exception of AL7560 and AL100100, these lenses are made with Ohara’s S-LAH64 optical glass, a low-dispersion glass with high index of refraction in order to minimize chromatic aberration.

AL108 f = 8.0 mm and 0.547 NA

Aspheric Coefficients

<table>
<thead>
<tr>
<th>R</th>
<th>k</th>
<th>A₂</th>
<th>A₄</th>
<th>A₆</th>
<th>A₈</th>
<th>A₁₀</th>
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AL108-A $142.00 £98.50 €126.10 ¥1,199.10 800 - 700 nm 8.0 mm Focal Length, Large-Diameter Aspheric Lens
AL108-B $142.00 £98.50 €126.10 ¥1,199.10 650 - 1050 nm 8.0 mm Focal Length, Large-Diameter Aspheric Lens
AL108-C $142.00 £98.50 €126.10 ¥1,199.10 1050 - 1620 nm 8.0 mm Focal Length, Large-Diameter Aspheric Lens

AL1210 f = 10.0 mm and 0.545 NA

Aspheric Coefficients

<table>
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<tr>
<th>R</th>
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AL1210-A $164.00 £113.70 €145.70 ¥1,384.90 10.0 mm Focal Length, Large-Diameter Aspheric Lens
AL1210-B $164.00 £113.70 €145.70 ¥1,384.90 650 - 1050 nm 10.0 mm Focal Length, Large-Diameter Aspheric Lens
AL1210-C $164.00 £113.70 €145.70 ¥1,384.90 1050 - 1620 nm 10.0 mm Focal Length, Large-Diameter Aspheric Lens
Large-Diameter Aspheric Lenses (Page 2 of 6)

Asphericon SPA Precision
Large-Diameter Aspheric Lens
- Effective Focal Length: 12.0 mm
- Numerical Aperture: 0.546
- Diameter: 15.0 mm
- Surface Quality: 60-40 Scratch-Dig
- Design Wavelength: 780 nm
- Clear Aperture (Collimation): Ø13.50 mm
- Clear Aperture (Focusing): Ø11.67 mm
- Aspheric Lens Material: S-LAH64
- Refractive Index (@ Design λ): 1.777
- Abbe #: Vd = 47.4

Aspheric Coefficients

<table>
<thead>
<tr>
<th>ITEM#</th>
<th>$</th>
<th>£</th>
<th>€</th>
<th>RMB</th>
<th>AR COATING</th>
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<td>AL1512-B</td>
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<td>12.0 mm Focal Length, Large-Diameter Aspheric Lens</td>
</tr>
</tbody>
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Asphericon SPA Precision
Large-Diameter Aspheric Lens
- Effective Focal Length: 15.0 mm
- Numerical Aperture: 0.534
- Diameter: 18.0 mm
- Surface Quality: 60-40 Scratch-Dig
- Design Wavelength: 780 nm
- Clear Aperture (Collimation): Ø16.50 mm
- Clear Aperture (Focusing): Ø14.41 mm
- Aspheric Lens Material: S-LAH64
- Refractive Index (@ Design λ): 1.777
- Abbe #: Vd = 47.4

Aspheric Coefficients

<table>
<thead>
<tr>
<th>ITEM#</th>
<th>$</th>
<th>£</th>
<th>€</th>
<th>RMB</th>
<th>AR COATING</th>
<th>DESCRIPTION</th>
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<td>Y1,604.40</td>
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<td>Y1,604.40</td>
<td>650 - 1050 nm</td>
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<td>AL1815-C</td>
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<td>Y1,604.40</td>
<td>1050 - 1620 nm</td>
<td>15.0 mm Focal Length, Large-Diameter Aspheric Lens</td>
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</tbody>
</table>

Please refer to our website for complete models and drawings.
Large-Diameter Aspheric Lenses (Page 3 of 6)

AL2018  f = 18.0 mm and 0.488 NA

Asphericon SPA Precision
Large-Diameter Aspheric Lens
- Effective Focal Length: 18.0 mm
- Numerical Aperture: 0.488
- Diameter: 20.0 mm
- Surface Quality: 60-40 Scratch-Dig
- Design Wavelength: 780 nm
- Clear Aperture (Collimation): Ø18.00 mm
- Clear Aperture (Focusing): Ø15.49 mm
- Aspheric Lens Material: S-LAH64
- Refractive Index (@ Design λ): 1.777
- Abbe #: V_d = 47.4

Aspheric Coefficients

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<th>A_8</th>
<th>A_10</th>
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</table>

AL2520  f = 20.0 mm and 0.543 NA

Asphericon SPA Precision
Large-Diameter Aspheric Lens
- Effective Focal Length: 20.0 mm
- Numerical Aperture: 0.543
- Diameter: 25.0 mm
- Surface Quality: 60-40 Scratch-Dig
- Design Wavelength: 780 nm
- Clear Aperture (Collimation): Ø22.50 mm
- Clear Aperture (Focusing): Ø20.32 mm
- Aspheric Lens Material: S-LAH64
- Refractive Index (@ Design λ): 1.777
- Abbe #: V_d = 47.4

Aspheric Coefficients

<table>
<thead>
<tr>
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<th>R</th>
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<td>-4.116682E-12</td>
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Large-Diameter Aspheric Lenses (Page 4 of 6)

### AL3026  \( f = 26.0 \text{ mm and } 0.522 \text{ NA} \)

**Asphericon SPA Precision Large-Diameter Aspheric Lens**
- Effective Focal Length: 26.0 mm
- Numerical Aperture: 0.522
- Diameter: 30.0 mm
- Surface Quality: 60-40 Scratch-Dig
- Design Wavelength: 780 nm
- Clear Aperture (Collimation): Ø28.00 mm
- Clear Aperture (Focusing): Ø25.14 mm
- Aspheric Lens Material: S-LAH64
- Refractive Index (@ Design \( \lambda \)): 1.777
- Abbe #: \( V_d = 47.4 \)

**Aspheric Coefficients**

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<tr>
<th>( \mathbf{R} )</th>
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<th>( \mathbf{A_2} )</th>
<th>( \mathbf{A_4} )</th>
<th>( \mathbf{A_6} )</th>
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### AL4532  \( f = 32.0 \text{ mm and } 0.612 \text{ NA} \)

**Asphericon SPA Precision Large-Diameter Aspheric Lens**
- Effective Focal Length: 32.0 mm
- Numerical Aperture: 0.612
- Diameter: 45.0 mm
- Surface Quality: 60-40 Scratch-Dig
- Design Wavelength: 780 nm
- Clear Aperture (Collimation): Ø41.00 mm
- Clear Aperture (Focusing): Ø37.30 mm
- Aspheric Lens Material: S-LAH64
- Refractive Index (@ Design \( \lambda \)): 1.777
- Abbe #: \( V_d = 47.4 \)

**Aspheric Coefficients**

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<th>( \mathbf{R} )</th>
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<th>( \mathbf{A_2} )</th>
<th>( \mathbf{A_4} )</th>
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**ITEM#**  | **\( \mathbf{\$} \)**  | **\( \mathbf{\£} \)**  | **\( \mathbf{\€} \)**  | **RMB**  | **AR COATING**  | **DESCRIPTION**
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**ITEM#**  | **\( \mathbf{\$} \)**  | **\( \mathbf{\£} \)**  | **\( \mathbf{\€} \)**  | **RMB**  | **AR COATING**  | **DESCRIPTION**
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<td>€335.60</td>
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<td>3191.90</td>
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</tbody>
</table>
Large-Diameter Aspheric Lenses (Page 5 of 6)

AL5040 \( f = 40.0 \) mm and 0.554 NA

Asphericon SPA Precision Large-Diameter Aspheric Lens

- Effective Focal Length: \( 40.0 \) mm
- Numerical Aperture: 0.554
- Diameter: 50.0 mm
- Surface Quality: 60-40 Scratch-Dig
- Design Wavelength: 780 nm
- Clear Aperture (Collimation): Ø46.00 mm
- Clear Aperture (Focusing): Ø41.83 mm
- Aspheric Lens Material: S-LAH64
- Refractive Index (@ Design \( \lambda \)): 1.777
- Abbe #: \( V_d = 47.4 \)

Aspheric Coefficients

<table>
<thead>
<tr>
<th>R</th>
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<th>( A_4 )</th>
<th>( A_5 )</th>
<th>( A_6 )</th>
<th>( A_8 )</th>
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<tr>
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Item # | $   | £     | €     | RMB | AR Coating | Description |
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<tr>
<td>AL5040-B</td>
<td>400.00</td>
<td>277.30</td>
<td>355.20</td>
<td>337.70</td>
<td>650 - 1050 nm</td>
<td>40 mm Focal Length, Large-Diameter Aspheric Lens</td>
</tr>
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<td>AL5040-C</td>
<td>400.00</td>
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<td>355.20</td>
<td>337.70</td>
<td>1050 - 1620 nm</td>
<td>40 mm Focal Length, Large-Diameter Aspheric Lens</td>
</tr>
</tbody>
</table>

AL7560 \( f = 60.0 \) mm and 0.619 NA

Asphericon SPA Precision Large-Diameter Aspheric Lens

- Effective Focal Length: \( 60.0 \) mm
- Numerical Aperture: 0.619
- Diameter: 75.0 mm
- Surface Quality: 60-40 Scratch-Dig
- Design Wavelength: 780 nm
- Clear Aperture (Collimation): Ø69.00 mm
- Clear Aperture (Focusing): Ø57.73 mm
- Aspheric Lens Material: B270
- Refractive Index (@ Design \( \lambda \)): 1.517
- Abbe #: \( V_d = 58.6 \)

Aspheric Coefficients

<table>
<thead>
<tr>
<th>R</th>
<th>k</th>
<th>( A_3 )</th>
<th>( A_4 )</th>
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Item # | $   | £     | €     | RMB | AR Coating | Description |
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<td>60 mm Focal Length, Large-Diameter Aspheric Lens</td>
</tr>
<tr>
<td>AL7560-B</td>
<td>715.00</td>
<td>495.70</td>
<td>634.80</td>
<td>6,037.50</td>
<td>650 - 1050 nm</td>
<td>60 mm Focal Length, Large-Diameter Aspheric Lens</td>
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<tr>
<td>AL7560-C</td>
<td>715.00</td>
<td>495.70</td>
<td>634.80</td>
<td>6,037.50</td>
<td>1050 - 1620 nm</td>
<td>60 mm Focal Length, Large-Diameter Aspheric Lens</td>
</tr>
</tbody>
</table>

All Dimensions are in Millimeters

Please refer to our website for complete models and drawings.

www.thorlabs.com
Large-Diameter Aspheric Lenses (Page 6 of 6)

AL100100  \( f = 100.0 \text{ mm} \) and 0.478 NA

Asphericon SPA Precision
Large-Diameter Aspheric Lens
- Effective Focal Length: 100.0 mm
- Numerical Aperture: 0.478
- Diameter: 100.0 mm
- Surface Quality: 60-40 Scratch-Dig
- Design Wavelength: 780 nm
- Clear Aperture (Collimation): Ø92.00 mm
- Clear Aperture (Focusing): Ø83.08 mm
- Aspheric Lens Material: B270
- Refractive Index (@ Design \( \lambda \)): 1.517
- Abbe #: \( V_d = 58.6 \)

**Aspheric Coefficients**

<table>
<thead>
<tr>
<th>ITEM#</th>
<th>$$ $$</th>
<th>£</th>
<th>€</th>
<th>RMB</th>
<th>AR COATING</th>
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<tr>
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<td>Y 9,195.60</td>
<td>1050 - 1620 nm</td>
<td>100 mm Focal Length, Large-Diameter Aspheric Lens</td>
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**Optomechanical Lens Mounts**

Self-Centering Lens Mounts

- SCL03 Holds Optics Ø3.8 to Ø43.2 mm
- SCL04 Holds Optics Ø3.8 to Ø76.0 mm

Adjustable Lens Mounts

- LH1 Holds Optics Ø7.0 to Ø45.7 mm
- LH2 Holds Optics Ø19.6 to Ø57.9 mm

Adjustable-Height Optic Clamp

- VG100 Holds Optics Ø13.0 to Ø89.0 mm

**Tools of the Trade**