

Plano-Convex Axicons (Conical lenses)

Description

Plano-convex axicons are conical lenses which are used for variety of applications. When followed by a conventional spherical lens, axicons can focus laser light to a ring shape with annular focus. This feature can be used in hole drilling, microscopy and medical applications. Another interesting feature of axicons is a possibility to transform Gaussian beam into non-diffractive Bessel beam in the near field. Bessel beams can be used in atom or molecule guiding applications.

Altechna offers two types of plano-convex axicons: regular and precision. Regular axicons will create annularly shaped beam whereas precision axicons will also transform Gaussian beam into a Bessel beam. You can choose accordingly, depending to your specific application.

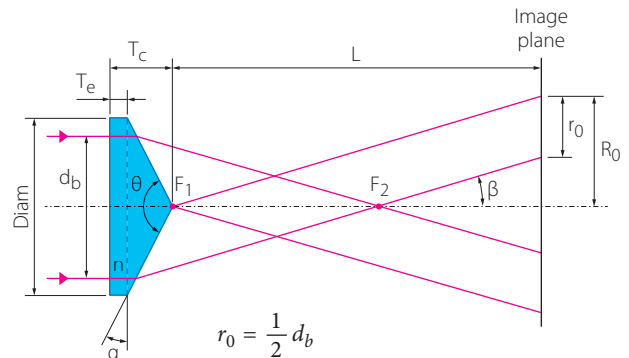


Standard specifications

Material	UVFS
Diameter tolerance	+0/-0.15 mm
Thickness tolerance	±0.1 mm
Apex angle	90° - 179.98°
Clear aperture	>90 %
Apex angle tolerance	±0.5°
Surface quality	40-20 S-D
Protective chamfers	<0.25 mm x 45°
UV coatings	AR/AR ($R_{avg} \leq 0.75\%$) @ 250-425 nm + ($R < 0.5\%$) @ 370-420 nm AOI=0°
VIS coatings	AR/AR ($R_{avg} \leq 0.4\%$) @ 425-675 nm, AOI=0°
NIR coatings	AR/AR ($R_{avg} \leq 0.8\%$) @ 600-1100 nm, AOI=0°

Features

- Produces non diffracting Bessel beam in the near field and ring shaped image in the far field
- Available diameter up to 50 mm
- Plano convex, plano concave and double convex available
- Various AR coatings are available for all these lenses.
- Apex angle tolerance available down to ±0.02°



$$r_0 = \frac{1}{2} d_b$$

$$R_0 = L \tan[(n - 1)\alpha]$$

$$2\alpha = 180 - \theta$$

$$2\beta = 2\sin^{-1}\left(n \sin \frac{\alpha}{2}\right) - \alpha$$

Miscellaneous

- Custom design production is available
- Mass production capabilities: 4'000 pieces per month

→ Read further

Catalog Items

Regular Type PCX Axicons				
Diameter, mm	Thickness, mm	Apex angle, °	Product ID	Price
25.4	5.0	90	1-APX-2-UV-A254	480 €
		90	1-APX-2-VIS-A254	480 €
		90	1-APX-2-NIR-A254	480 €
		90	1-APX-2-A254	305 €
		130	1-APX-2-UV-B254	460 €
		130	1-APX-2-VIS-B254	460 €
		130	1-APX-2-NIR-B254	460 €
		130	1-APX-2-B254	290 €
		140	1-APX-2-UV-C254	460 €
		140	1-APX-2-VIS-C254	460 €
		140	1-APX-2-NIR-C254	460 €
		140	1-APX-2-C254	290 €
		160	1-APX-2-UV-D254	460 €
		160	1-APX-2-VIS-D254	460 €
		160	1-APX-2-NIR-D254	460 €
		160	1-APX-2-D254	290 €
		170	1-APX-2-UV-E254	460 €
		170	1-APX-2-VIS-E254	460 €
		170	1-APX-2-NIR-E254	460 €
		170	1-APX-2-E254	290 €
		175	1-APX-2-UV-F254	460 €
		175	1-APX-2-VIS-F254	460 €
		175	1-APX-2-NIR-F254	460 €
		175	1-APX-2-F254	290 €
		176	1-APX-2-UV-G254	460 €
		176	1-APX-2-VIS-G254	460 €
		176	1-APX-2-NIR-G254	460 €
		176	1-APX-2-G254	290 €
		178	1-APX-2-UV-H254	460 €
		178	1-APX-2-VIS-H254	460 €
178	1-APX-2-NIR-H254	460 €		
178	1-APX-2-H254	290 €		
179	1-APX-2-UV-J254	460 €		
179	1-APX-2-VIS-J254	460 €		
179	1-APX-2-NIR-J254	460 €		
179	1-APX-2-J254	290 €		

Precision PCX Axicons				
Diameter, mm	Thickness, mm	Apex angle, °	Product ID	Price
25.4	5.0	170	1-APX-2-UV-E254-P	850 €
		170	1-APX-2-VIS-E254-P	850 €
		170	1-APX-2-NIR-E254-P	850 €
		170	1-APX-2-E254-P	640 €
		175	1-APX-2-UV-F254-P	850 €
		175	1-APX-2-VIS-F254-P	850 €
		175	1-APX-2-NIR-F254-P	850 €
		175	1-APX-2-F254-P	640 €
		176	1-APX-2-UV-G254-P	850 €
		176	1-APX-2-VIS-G254-P	850 €
		176	1-APX-2-NIR-G254-P	850 €
		176	1-APX-2-G254-P	640 €
		178	1-APX-2-UV-H254-P	850 €
		178	1-APX-2-VIS-H254-P	850 €
		178	1-APX-2-NIR-H254-P	850 €
		178	1-APX-2-H254-P	640 €
		179	1-APX-2-UV-J254-P	850 €
		179	1-APX-2-VIS-J254-P	850 €
		179	1-APX-2-NIR-J254-P	850 €
		179	1-APX-2-J254-P	640 €

Related products and accessories

Plano-Concave Axicons
(Conical lenses)



Refer to page 46

Variable Beam Expanders



Refer to page 202

4SCML-4 - Self-Centering Lens
Mount



www.altechna.com

WOP-4LL-OM - Four-Axis
Optical Mount



www.altechna.com