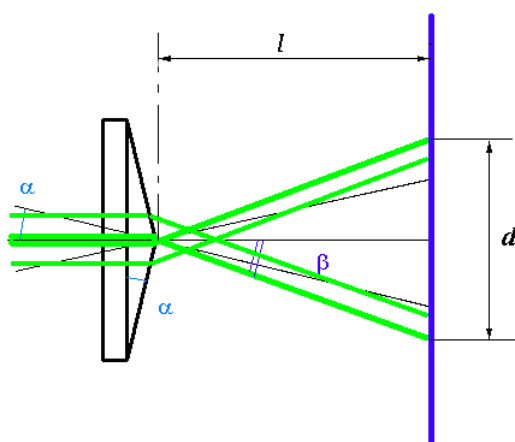


# Special Lense

## -Axicon Lens

Axicon lens is a lens that has one flat face and one conical face. If it is combined with a lens, then a ring focus will be produced. Following is ZnSe Axicon Lens and the conical face is diamond cut-machined. Commonly, the conical face has a shallow angle of a few arc minutes or degrees.

BK7 and Fused Silicon Axicon lens for UV-NIR application is available upon request.



Standard Axicons

Axicon cone angle equal to  $180^\circ - 2\alpha$

Cone angle (°)	$\alpha$ (°)
140	20
160	10
165	7.5
170	5
175	2.5
178	1
179.5	0.25 = 15'

Part No.	Material	Dia. (inch)	ET (mm)	SAG
LZAX-0.5-ET3	ZnSe	0.5	3.0	TBA
LZAX-1-ET3	ZnSe	1.0	3.0	TBA
LZAX-1.5-ET4	ZnSe	1.5	4.0	TBA

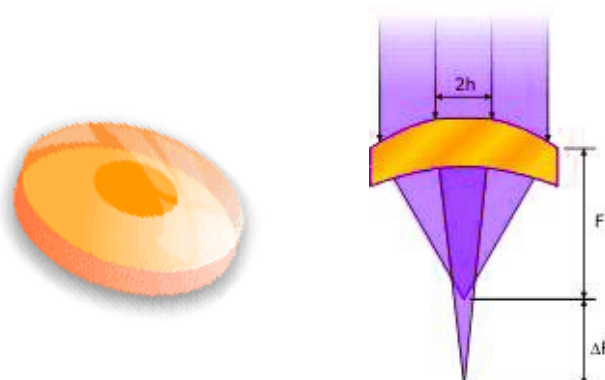
## - Deep Focus Lens

Deep focus lens is a lens that has two focus points with one focus is positioned deeper compared with the other. By distributing a calculated fraction of the laser energy into a secondary (lower) focus, the lenses provide faster, cleaner cuts, with easier initiation and the elimination of sub-surface dross. Dual-Focus lenses also allow much thicker materials to be cut at a given laser power. Additional advantages come from the fact that assist gas requirements are significantly reduced.

**ZnSe Deep-Focus lenses are designed for CO2 laser.**

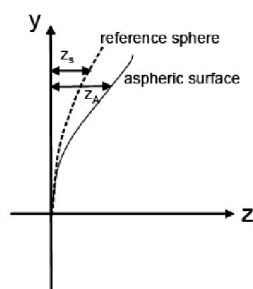
Part No.	Material	Dia (inch)	FL(inch)	ET(mm)
LZDF-1.1-5/7.5	ZnSe	1.1	5.0/7.5	4.0
LZDF-1.5-5/7.5/10	ZnSe	1.5	5.0/7.5/10.0	6.0/7.4
LZDF-2-5/7.5/10	ZnSe	2.0	5.0/7.5/10.0	8.0/9.6

BK7 or Fused Silicon deep focus lens for UV to NIR application is available upon request.



## - Aspheric lens

Aspheric lens can be applied to reduce spherical aberration and other optical aberrations, especially in complex lens system, one single aspheric lens will replace multiple lenses, it will make optical system more compact and cost reduced. we provide aspheric lens made by crystal material ZnSe , ZnS, Ge, Si and glass material as well.



$$Z_{A,E} = \frac{cr^2}{1 + \sqrt{1 - (1+k)c^2r^2}} + \alpha_1 r^2 + \alpha_2 r^4 + \alpha_3 r^6 + \alpha_4 r^8 + \dots$$

Specification	Tolerance	Comment
Diameter	Up to +0 / -.05mm	
Center thickness	Up to ± .05mm	
Form error/Irregularity	Up to 1 micron	
(peak to valley)	Up to 1/8 wave	
Base radius (In addition to form error) *	Up to 1 micron	* Tolerance given in terms of the <u>sag difference</u> across the aperture.
Centration	Up to 1'	
Surface quality	Up to 40/20	