Aspheric Plano Convex Lens | AGL-15/AGL-20

RoHS

The aspheric shape allows the lens to achieve a shorter focus with smaller spherical aberration than provided by a simular convex surface of a plano convex lens. the lens is used for squeezing small illumination light or condensing efficiently the light emanating from a single point.

- Aspheric lenses can be used in a wide range from the visible to infrared of 1.5µm wavelength.
- There are two types of AGL-31.7P with a reduced spherical aberration by the plano convex lens of BK7 and AGL-12P with high NA using (FDS-90) high refractive index glass (FDS90).
- An aspheric shape can be produced by using a special polishing equipment. Polished Aspheric lenses do not have shrinkage, cracking and chipping which usually appear in molded aspheric lenses.

Specifications

Material	BK7, FDS90
Design Wavelength	587nm
Coating	Uncoated
Shape	Aspheric Plano Convex Polished Both Surfaces
Centration	<5′
Surface Quality (Scratch–Dig)	60–40

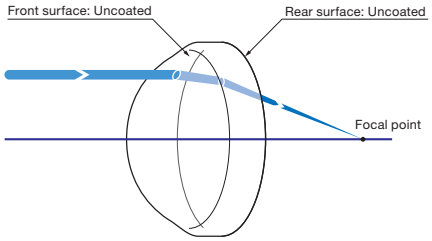
Guide

▶Please contact our Sales Division for Aspheric Condenser Lenses with anti-reflection coating.

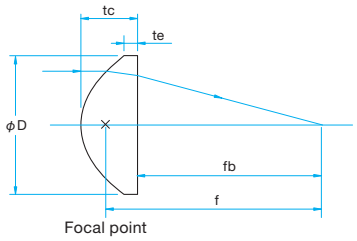
Attention

▶When the parallel light is incident from the back surface (flat), spherical aberration will not condense into a large point.
▶Since an aspheric plano convex lens is a single lens, the focal length will change depending on the wavelength.
▶Transmissions losses due to reflection off the front and rear surfaces of the lens can be minimized by coating the surfaces. Consult our Sales Division for anti-reflection coatings suitable for your application.

Schematic

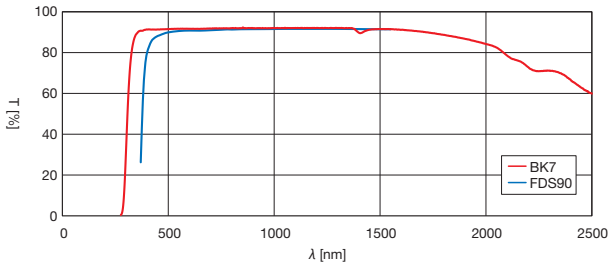


Outline Drawing (in mm)



●Tolerance
Diameter $\phi D^{0}_{-0.2}$
Thickness tc±0.2
Focal length ±7%

Typical Transmittance Data T: Transmission



Specifications

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Back focal length fb [mm]	NA* (D/2×0.8/f)	Edge thickness te [mm]	Center thickness tc [mm]	Material
AGL-15-12P	ϕ15	12	6	0.50	8.1	11	FDS90
AGL-15-31.7P	ϕ15	31.7	28.7	0.19	2.7	4.5	BK7
AGL-20-12P	ϕ20	12	6	0.67	5.6	11	FDS90
AGL-20-31.7P	ϕ20	31.7	27.7	0.25	2.8	6	BK7

* NA is calculated using 80% of the outer diameter of the lens.

■Aspheric and Spherical Lenses

When collecting a lot of light in a lens, it is required the lens which is short focal length and large diameter. However, when input the parallel light to the spherical lens of such conditions, there is the difference between the focal points of the rays passing through the vicinity of and periphery of the optical axis. This phenomenon is called the spherical aberration of the lens. In case of spherical lens, generally since the exceeding refraction occurs at the periphery area, it causes to be focused in closer point to the lens than the laght beam of the vicinity of the optical axis. Therefore, if the lens shape is designed such as more gentle curvature of the lens away from the center of optical axis, all parallel light incident on the lens will be focused at one point.

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