

Magnifier lenses

One of the key components of optical magnifiers is the optical lens and its image quality.

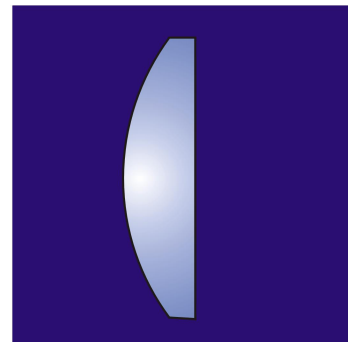
Optical magnifier lenses are available in different designs and are commonly made of either mineral glass or special lightweight plastic materials of optical quality.

While mineral glass lenses are still very popular in industrial applications thanks to their outstanding resistance against scratches, dirt, oil and grease, their use in low vision magnifiers is limited due to their great weight.

Overview of common lens types:

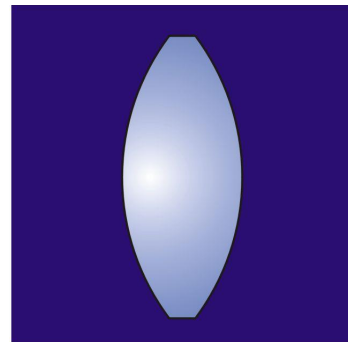
Plano-convex lens

Lens with one flat (planar) surface and one spherical (convex) surface. The radius of curvature of the convex surface is constant.



Bi-convex lens

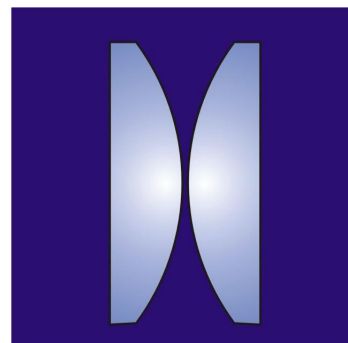
Lens with both its spherical surfaces curved outwards. The radius of curvature can be identical for both surfaces ("mirrored") or different.



Aplanatic lens system

A combination of 2 plano-convex lenses with the 2 curved surfaces facing each other.

Although this lens system is heavy and expensive, it provides excellent image quality without spherical aberrations.



Aspheric lens

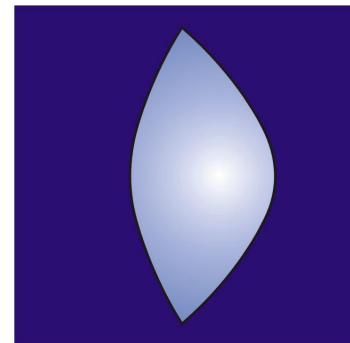
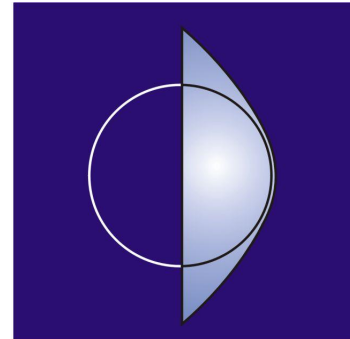
The radius of curvature of an aspheric lens varies radially from the centre of the lens.

This design can almost eliminate aberrations which are common for spherical lenses.

Nowadays most optical low vision magnifiers use aspheric lenses thanks to their high image quality, lower weight and lower cost compared to, for example, aplanatic lens systems.

Aspheric lenses used in low vision magnifiers usually have an aspheric curve on both sides. The radius of curvature can be identical for both surfaces ("mirrored") or different.

Aspheric lenses with two different radii of curvature significantly reduce optical aberrations, are extremely tolerant of changes in working distance, and are thus more comfortable to use.



SCHWEIZER uses its own brand of aspheric lightweight lenses in its magnifiers. Its ASOTAL lenses are injection moulded in house from the clearest optical PMMA plastic material (PolyMethylMethaCrylate) available with a refractive index of 1.49.

The lenses are unbreakable and once moulded, they undergo numerous antistatic treatments before becoming a key component of optical magnifiers.

SCHWEIZER offers a wide range of optical lenses to cater for almost every need: from rectangular lenses in powers of 8 D (100 x 75 mm) and 10 D (75 x 50 mm) to round lenses in 12 powers from 6 D to 56 D and diameters between 100 mm and 35 mm.