

DATA SHEET

Aspheres

S1ADX0380/328

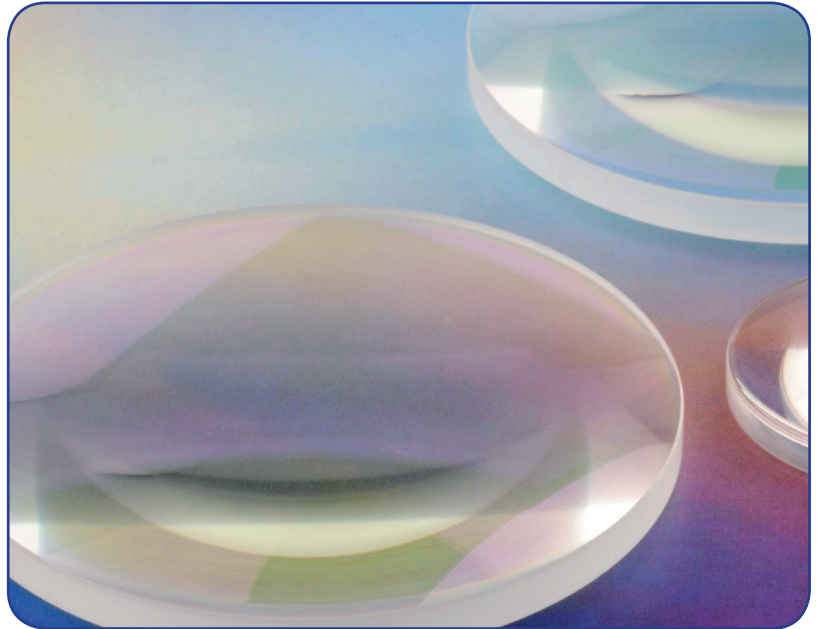
S1ADX0310/328

S1ADX0312/328

S1ADX0315/328

S1ADX0320/328

- ◆ **for high-power laser**
- ◆ **with low-absorption coating**



A spheric surface has a constant curvature from the centre to the edge. If the beam diameter is small in respect to the focal length, simple plano-convex lenses are suitable for many applications. With decreasing f-number, spherical aberrations occur: Rays in a far distance from the optical axis are not focussed at the same focal position as rays which are close to the optical axis. As a result, the focussed beam size does not reach the theoretical limit (diffraction limit).

Multi-lens-elements can be used to compensate for this spherical aberration. In high power laser applications these optical systems might introduce some unwanted effects such as thermal shifts and ghosts, i.e. unwanted images formed by a small amount of light which is reflected back from the lens surfaces. Thermal shifts lead to unstable working conditions; the more lenses are used, the larger the thermal shift will be. In addition, ghosts might harm or even destroy optical elements. Aspheres minimize the above effects as only one lens element has to be used.

As a standard we offer 1.5" diameter lenses with focal length of 80..200 mm. Lenses with a 2" diameter are in preparation. For high power applications we can use low absorption anti-reflection coatings on the fused silica aspheres. Custom systems are available.

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Specifications

design wavelength [nm] ⁴⁾	1064
EFL [mm]	80, 100, 120, 150, 200
max. NA	0.16
total transmission [%]	> 99%
lens material	fused silica
diameter ²⁾	1.5" (38.1mm)
wavefront error	$< \lambda/10$ on axis and incident angle 0.5°
surface accuracy	$\lambda/5$ (aspherical) $\lambda/10$ (spherical)
surface quality [scratch/dig]	60-40
damage threshold	5.0 J/cm ² per 1ns pulse at 50Hz
RoHs conform	yes
low absorption coating [nm]	1030 - 1090
weight [g]	approx. 24
accessory	mount $\varnothing 41$ mm, lenght 16mm S6ASS8xxx

Tolerances

- 1) thickness: +/- 0.2mm
- 2) diameter: - 0.1mm
- 3) centering: 3'
- 4) EFL: +/- 2%