



Photonics for Industrial Solutions: Plano and Parallel Plates.

For applications in the semiconductor industry, laser technology, metrology, medicine, defense, etc. BERLINER GLAS manufactures precision plano optics.

Plano and Parallel Plates.

Products:

- ◆ Plano plates
- ◆ Plano-parallel plates
- ◆ Wedge-shaped plates with customized shapes and angles
- ◆ Elliptical plano and parallel plates
- ◆ Laser substrates as windows and mirrors
- ◆ Neutral filters according to optical density
- ◆ Filter glasses of any shape
- ◆ Linear deviation filters

Specification*:

Material	optical glass, CaF ₂ , MgF ₂ , quartz, glassceramics, ceramic, borosilicate glass and filter glass
Dimensions	up to max. 1,500 mm
Flatness	$\lambda/40$ PV, measured at 632.8 nm
Parallelism	1"
Angular accuracy	1"
Micro roughness	2 Å rms
Surface defects	5/1 x 0.004

Quality Assurance:

In addition to a permanent process inspection we also have a precise final inspection for which we employ sophisticated measurement devices.

Notes:

We manufacture monolithical optics (integration of more than one optical function in one glass component) as well as multi-functional optics (integration of mechanical functions in a glass component).

Metrology:

Wavefront	Interferometer (4-24"), Shack-Hartmann-wavefront sensor (UV, DUV, VIS, NIR)
Form deviation	3D coordinate measuring devices, caliper, CCD micrometers, Stitching-interferometer
Angle precision	Goniometer, interferometer, auto-collimators
Transmission/reflection	Spectral photometer
Surface defects	Traveling microscopes
Micro roughness	White light interferometer, atomic force microscope
Imaging performance/resolution	Computer-supported MTF measurement, microscopic image resolution
Centering	Objective metrology system, laser centering station
Additional functional measurement	Assembly-specific metrology station
Fine correcting procedure	Ionic beam process, robotic polishing, magnetorheological process

* The following error and tolerance data indicates possible limit values. Specified and assessed according to ISO/MIL/DIN.