

Septum Window Polish

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Applicable Documents

LIGO-D1101005 aLIGO High Quality .75 Deg Wedged 6" Viewport, Optic

Requirements

Physical Configuration

According to

LIGO-D1101005 aLIGO High Quality .75 Deg Wedged 6" Viewport, Optic

Fabricate from
Corning grade 0AA fused silica or equivalent

Part and Serial Number

The Serial number shall be per D1101005 and of the format:
ESW YY Where
YY is incremental for each optic starting at 01

Registration Mark

Registration mark shall be etched, ground or sandblasted

Side and Bevel Polish

All sides and Bevels shall be polished from a five micrometer grit finish. These surfaces shall appear transparent with no gray, scuffs or scratches visible to the naked eye when viewed in normal room light against a black background.

Scratches and Point defects within the clear aperture defined by D1101005

Scratches and point defects are to be minimized as scattered light is highly detrimental to the project.
Requirement: 20/10
Goal: 10/5



SPECIFICATION

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Surfaces 1 and 2, measured over the central 140 mm diameter

Surface Figure: deviation from flat < 10 nm rms

High Spatial Frequency Band: Micro-roughness is measured with a commercial microscopic interferometer or surface profiler.

$\sigma_{rms} < 0.1$ nanometers

Measured at the following locations:

1. The center of the mirror substrate.
2. Four positions equally spaced along the circumference of a centered, 60 mm diameter circle.

Specification	Test Method	Frequency of Inspection	Data Delivered
Physical Dimensions	Visual Inspection	100%	Certification
Side and Bevel Polish	Visual Inspection	100%	Certification
Scratches and Point defects	Visual Inspection	100%	Certification
Surface Figure	Interferometry	100%	Surface Map
Surface Errors – High Spatial Frequency	High resolution Surface Map	100%	Certification