



MIRROR BLANK MATERIAL, ALIGO TELESCOPE MIRROR #2

| AUTHOR: | CHECKED: | DATE | APPROVALS | | |
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| | | | DCN NO. | REV | DATE |
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Applicable Documents

D070087-00-D ALIGO Telescope Mirror #2 Blank
 MIL-G-174-B Glass, Optical

Requirements

- Physical Dimensions Per D070087-00-D ALIGO Telescope Mirror #2 Blank
- Diameter 78 mm, +1 mm, -0 mm
- Thickness 53 mm, +1 mm, -0 mm
- Clear Aperture Central 70 mm
- Serial Number Blanks shall be serialized as MMT2-XX, where XX increments starting at 01
- Material BK7
- Final Shaping Shaping shall be performed using a progression of grit size ending with a 320 or smaller grit wheel
- Defect Depth Maximum on any surface or corner is less than 0.5 mm
- Homogeneity $\leq 5 \times 10^{-6}$ peak to valley at $\lambda = 632.8$ nm, within the central 65 mm
- Birefringence ≤ 5 nm/cm within the central 65 mm
- Bubble and inclusion cross section within clear aperture
 - Total ≤ 0.25 mm²/100 cm³ of glass
 - Inclusions with a diameter of 0.06 mm or less are disregarded
 - Maximum inclusion diameter ≤ 0.1 mm
 - ≤ 0.03 mm²/100 cm³ in region 8 mm down from surface of side 1
- Striae within the clear aperture Grade A according to MIL-G-174
- Absorption < 50 ppm per centimeter at $\lambda=1.06$ μ m (lowest possible)



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Table 1: Measurement Matrix - Frequency and Method

| Specification | Test Method | Frequency of Inspection | Data Delivered |
|----------------------------------|--|-------------------------|--|
| Physical Dimensions | Visual Inspection | 100% | Diameter, Thickness |
| Serial Number | Visual Inspection | 100% | Inspection Report included with Certification |
| Material | Process Control Material Certification | 100% | Certification |
| Defect Depth | Visual Inspection | 100% | Certification |
| Homogeneity | Interferometric Measurement | 100% | Certification |
| Birefringence | MIL-G-174, Section 4.4.5 | 100% | Inspection Report included with Certification |
| Inclusions | Visual Inspections | 100% | Hand sketch indicating location, depth, and dimensions |
| Striae | MIL-G-174, Section 4.4.5, method 1 or 2 (in optical axis only) | 100% | Certification |
| Absorption at 1.06 μm | Material Certification | 100% | Certification |