



COMPONENT SPECIFICATION

TITLE MIRROR BLANK MATERIAL, MODE CLEANER CURVED MIRROR

APPROVALS:	DATE	REV	DCN NO	BY	CHK	DCC	DATE
DRAWN:							
CHECKED:							
APPROVED:							
DCC RELEASE:							

Applicable Documents

LIGO-D970538-00-D Mode Cleaner Curved Mirror Blank

MIL-G-174-B Glass, Optical

Requirements

Physical Dimensions	per LIGO-D970538-00-D Mode Cleaner Curved Mirror Blank
Diameter:	78 mm + 1 mm, -0 mm
Thickness:	28 mm + 1 mm, -0 mm
Clear Aperture	Central 70 mm
Serial Number	Blanks shall be serialized as MCCMXX, where XX increments starting at 01
Material	Fused Silica
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 the clear aperture	Total ≤ 0.25 mm ² /100cm ³ of Glass Inclusions with a diameter of .06 mm or less are disregarded Maximum inclusion diameter - ≤ 0.1 mm ≤ 0.03 mm ² in region 8 mm down from surface of side 1
Striae within the clear aperture	Grade A according to MIL-G-174



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Specification	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%	Certification
Inclusions	Visual Inspection	100%	Hand sketch indicating location, depth, and dimensions
Striae	MIL-G-174 Section 4.4.6, method 1 or 2 (in optical axis only)	100%	Certification

Table 1: MEASUREMENT MATRIX: FREQUENCY AND METHOD