

Advanced LIGO COC Material Specification

LIGO-T1000382-v1							
Mirror acronym	ITM	BS	CP	R3	FM	ETM	
Spec number	E080031	E080035	E080037	E080041	E080045	E080047	
Drawing number	D080039	D080050	D080051	D080053	D080054	D080055	
Blank Size (4mm over in each dim)	345 x 204	375 x 64	345 x 134	270 x 105.4	375 x 64	345 x 204	
Clear Aperture	275	315	275	200	315	200	
Material	Heraeus 3001	Heraeus 3001	Heraeus 3001	Corning 7980	Corning 7980	Corning 7980	
Final Shaping	...progression of grit size ending with a 320 or smaller grit tool						
Defect Depth	≤ 0.5 mm						
Index homogeneity in central 110	≤ 5 x 10 ⁻⁷ P-V	≤ 5 x 10 ⁻⁷ P-V	≤ 5 x 10 ⁻⁷ P-V	na	na		
index homogeneity in clear Aperture	≤ 2.5 x 10 ⁻⁶ P-V	≤ 2.5 x 10 ⁻⁶ P-V	≤ 2.5 x 10 ⁻⁶ P-V	na	na	≤ 3 x 10 ⁻⁶ PV -TP	
Birefringence	≤1 nm/cm within the CA, ≤ 5 nm/cm outside the CA			≤ 5 nm/cm			
Bubble and inclusion cross section	Total ≤ 0.01 mm ² /100cm ³ certify for inclusions > 10um note inclusions > 5um			none within 5mm of surface within the CA		≤ 0.01 mm ² /100cm ³	
Maximum inclusion diameter	≤ 0.1 mm			na	na	na	
Striae	Class 1, Grade A			na	na	na	
OH content	≤ 1 ppm	≤ 1 ppm	≤ 1 ppm	na	na	na	