

Advanced LIGO COC Material Specification

2/9/15

Mirror acronym	ITM	BS	CP
Spec number	E080031	E080035	E080037
Drawing number	D080039	D080050	D080051
Blank Size (4mm over in each dim)	345 x 204	375 x 64	345 x 134
Clear Aperture	275	315	275
Material	Heraeus 3001	Heraeus 3001	Heraeus 3001
Final Shaping	...progression of grit size ending		
Defect Depth	≤ 0.5		
Index homogeneity in central 110	≤ 5 x 10 ⁻⁷ P-V	≤ 5 x 10 ⁻⁷ P-V	≤ 5 x 10 ⁻⁷ P-V
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
Birefringence	≤ 1 nm/cm within the CA, ≤ 5 nm/cm outside the CA		
Bubble and inclusion cross section	Total ≤ 0.01 mm ² /100cm ³ certify for inclusions > 10um note inclusions > 5um		
Maximum inclusion diameter	≤ 0.1 mm		
Striae	Class 1, Grade A		
OH content	≤ 1 ppm	≤ 1 ppm	≤ 1 ppm

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R3	FM	ETM		
E080041	E080045	E080047		
D080053	D080054	D080055		
270 x 105.4	375 x 64	345 x 204		
200	315	200		
Corning 7980	Heraeus 312	Heraeus 312		
g with a 320 or smaller grit tool				
mm				
na	na			
na	na	$\leq 3 \times 10^{-6}$ PV -TP		
≤ 5 nm/cm				
none within 5mm of surface within the CA		≤ 0.01 mm ² /100cm ³		
na	na	na		
na	na	na		
na	na	na		