



SPECIFICATION

End Reaction Mass Electro Static Drive gold coating specification

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A patterned gold coating is to be deposited onto one face of the End Reaction Mass, using a mask provided by LIGO. The End Reaction Mass (ERM) is a cylindrical fused silica substrate, 340 mm diameter x 130 mm thick; see LIGO-D080116-B for the detailed drawing of the ERM.

Applicable Documents

- LIGO-D080116-B End Reaction Mass
- LIGO-D090949-v1 End Reaction Mass ESD mask

Coating Specifications:

Side S1 (refer to D080116-B) is to be coated with an Electro-Static Drive (ESD) pattern using the supplied mask.

Underlayer: 500 Angstroms (nominal) of inconel or other suitable material to provide adhesion.

Gold coating: 1000 Angstroms (nominal) gold.

Uniformity: Coating thickness should be uniform to approximately 25%.

Mask registration: The mask should be centered on the ERM to within 0.5 mm. Note: The outer diameter of the mask pattern is 336 mm; the diameter of the ERM is 340 mm, with a 2 mm chamfer around its perimeter. Therefore, given the tolerances specified, the mask pattern may overlap the chamfer by as much as 0.5 mm.

Durability: The coating must be able to withstand soldering, using an Indium-Silver solder, at a temperature of 220-240 deg C.