*LIGO Laboratory / LIGO Scientific Collaboration*

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Procedure for handling, cleaning and baking DLC coated stray light baffles

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**Permanent coating damage may occur if procedures are not followed!!!**

# Scope

The following procedure is only for handling, cleaning and baking of DLC coated stray light baffles. For handling of the large parts (ex D1700164 and bigger) at least two persons is required

# Handling

Coated super polished surface of the stray light baffles can be scratched! Be very careful when unpacking the baffles. Always wear gloves when handling the baffles even prior to cleaning.

Each baffle has a front side (super polished #8) and back side which is less polished. Each baffle is engraved with a serial number on the back side. Both sides of stray light baffles should be handled with care, particularly the front side. Never stack the baffles together. Always use appropriate clean spacers: only teflon spacers for cleaning and drying and only stainless steel for baking (never other way around).

# Cleaning

1. Use 10 ml of liquinox per each liter of water to make the sonic bath
2. Use teflon spacers to stack the baffles in a sonicating tank. Make sure the baffles are stable and will not move when water is agitated. Never use metal spacers for cleaning
3. Sonicate for 10 min at 50⁰ C
4. Thoroughly rinse the baffles with DI water within 1 min after removing it from the sonicator
5. Use clean teflon spacers to place baffles in a clean drying area. Thoroughly wipe down edges, slots and apertures of each baffle with Pre-wetted Vectra Alpha 10, TX8410, <https://es.vwr.com/store/product/8615562/cleanroom-wipes-pre-saturated-alphasat-with-vectra-alpha-10> (either while drying or after). If you see any dust or color residual on the wipe, continue until it is removed completely

# Baking

1. Use approved (cleaned and baked) stainless steel spacers to stack the baffles in the oven. Never use any polymer spacers when baking. The spacers should be placed at the location of the slots. Never locate the spacer close to an aperture of the baffle. Gently place the baffles on spacers. Be very careful not to drag the baffle plate on the spacers. At least two people should be handling large baffle panels
2. Bake out the baffles at 150⁰ C: rump up 6h, hold 48 hours, rump down 6h

# Wrapping

1. Cleaned, baked and cooled baffles should be individually wrapped in dry clean-room wipes (e.g. TX-1025) with sealed edge. Kapton tape can be used to secure the wipe from unwrapping. Place each wrapped baffle into a double ameristat bag. If you don`t have an ameriatat bag of an appropriate size, use the roll of the same material and seal with Kapton tape. The parts have to be top-gunned before the install if wipes with unsealed edge were used. Clean C3 covers are preferable to use instead (if available).
2. Parts with machine finish can be wrapped in one layer of the of dry clean-room wipes and then one layer of Al foil instead of using a second wipe with kapton tape
3. Bags should be labelled as normal with part number etc.

# Pre- and post-install handling

1. Inspect the baffles for dust, scratches, etc …
2. Parts have to be top-gunned before install if they were wrapped in wipes with unsealed edge or/and if any signs of dust accumulation occur
3. Already installed DLC coated baffles can be drag wiped with Pre-wetted Vectra Alpha 10, TX8410 wipes instead of top-gunning