

## 1. Cosmetic Requirements

- a. Parts are to be free of sharp edges and chips (chips less than 0.1mm will be ignored). All edges must have protective bevels.
- b. No tooling marks (swirl marks made by a surface grinder) shall be visible on finished product.
- c. All unpolished surfaces to be fine ground with #20 microgrit or finer.
- d. All surfaces, polished and ground, to be uniformly clean and free of scratches, stains, watermarks, and any discolorations than may be objectionable to a customer. Any defects on polished surfaces must be within the surface quality callout on the manufacturing drawing for both coated and uncoated parts.
- e. All required markings to be in pencil and located per manufacturing drawing.
- f. Parts are to be made using the material specified on the manufacturing drawing. Prior approval by Thorlabs is required for any substitute/equivalent materials. Vendor will submit a sample of any substitute materials for testing. Sample to be 25mm diameter and at least 2-3mm thick polished flat on both sides with a surface finish comparable to the finished part.

## 2. Dimensional Requirements

- a. Chamfers are to have a uniformity of +/- 0.1mm
- b. Geometric tolerances
  - i. Diameter/Length and Width: X.XX +0/-0.2mm
  - ii. Thickness: X.XX +/- 0.2mm
  - iii. Perpendicularity : < 30 arc minutes
  - iv. Angularity: < 3 arc minutes
  - v. Parallelism: < 3 arc minutes
- c. Optical tolerances
  - i. Clear Aperture: central 90% of diameter/ length and width
  - ii. Flatness : 0.25 waves P-V power and irregularity
  - iii. Surface Quality: 60-40 Scratch-Dig

## 3. Optical Cementing Requirements

- a. All parts requiring cementing with optical cement must use Norland NOA61 with the exception of calcite assemblies which must use Norland NOA65 unless otherwise preapproved by Thorlabs.
- b. All cemented interfaces to be free of contaminates and must meet surface quality requirements on print.
- c. Cement must be fully cured and all excess cement beyond bonded area completely removed.

## 4. Coating Requirements

- a. Coatings must meet all transmission and reflectance specifications on the print.
- b. One coating witness sample for each coated surface of each coating run.
- c. Coating witness samples to have a minimum size of 12.7mm diameter and be greater than 2mm thick.
- d. Both coating curves and witness samples are to be delivered with the finished parts.
- e. All coatings must pass adherence test (tape test) per MIL-C-675C.