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Optical Specifications

Cosmetic Surface Quality

Cosmetic surface quality describes the level of defects that can be visually noted on the surface of an optical component. Specifically, it defines state of polish, freedom from scratches and digs, and edge treatment of components. These factors are important, not only because they affect the appearance of the component, but also because they scatter light, which adversely affects performance. Scattering can be particularly important in laser applications because of the intensity of the incident

illumination. Unwanted diffraction patterns caused by scratches can lead to degraded system performance, and scattering of high-energy laser radiation can cause component damage.

Overspecifying cosmetic surface quality, on the other hand, can be costly. Melles Griot components are tested at appropriate levels of cosmetic surface quality according to their intended application.

The most common and widely accepted convention for specifying surface quality is the U.S. Military Surface Quality Specification, MIL-0-13830A, Amendment 3. The surface quality of all Melles Griot optics is tested in accordance with this specification. In Europe, an alternative specification, the DIN (Deutsche Industrie Norm) specification, DIN 3140, Sheet 7, is used. Melles Griot can also work to ISO-10110 requirements.

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