



[Optics](#) ➤ [Optical Specifications](#) ➤ [Cosmetic Surface Quality](#) ➤ [Scratches](#)

[Home](#)

[Optics Guide Contents](#)

[Fundamental Optics](#) ➤

[Gaussian Beam Optics](#) ➤

[Optical Specifications](#) ➤

[Material Properties](#) ➤

[Optical Coatings](#) ➤

[Optics Glossary](#)

## Cosmetic Surface Quality

### Scratches

A scratch is defined as any marking or tearing of a polished optical surface. In principle, scratch numbers refer to the width of the reference scratch in ten thousandths of a millimeter. For example, an 80 scratch is equivalent to an 8- $\mu$ m standard scratch. However, this equivalence is determined strictly by visual comparison, and the appearance of a scratch can depend upon the component material and the presence of any coatings. Therefore, a scratch on the test optic that appears equivalent to the 80 standard scratch is not necessarily 8  $\mu$ m wide.

If maximum visibility scratches are present (e.g., several 60 scratches on a 60-40 lens), their combined lengths cannot exceed half of the part diameter. Even with some maximum visibility scratches present, MIL-O-13830A still allows many combinations of smaller scratch sizes and lengths on the polished surface.

[Back to Top](#)

[Previous](#) [Next](#)

Optics Guide © 2004 Melles Griot Inc.