

## Scratch / Dig Specifications

### Purpose:

*This document defines glass surface quality on optical components per MIL-O-13830.*

### Definitions:

**SCRATCH:** Any marking or tearing of the glass surface.

**SLEEK SCRATCH:** A hairline scratch.

**CRUSH or RUB SCRATCH:** A surface scratch or a series of small scratches.

**DIG:** A small rough spot on the glass surface similar to pits in appearance. A bubble is considered a dig.

### Procedure:

Surface quality is to be specified by a number such as 60/40. The first digits relate to the maximum width allowance of a scratch as measured in microns. The next digits indicate to maximum diameter allowance for a dig in hundredths of a millimeter. Thus, as can be seen from the table below, a surface quality callout of 60/40 would permit a scratch width of .0024 inches and a dig diameter of .0158 inches. The size of a defect is to be measured through the use of an optical comparator.

Scratch or Dig Number	Maximum Scratch Width		Maximum Dig or Bubble Diameter		Dig or Bubble Separation Distance	
	mm	inch	mm	inch	mm	inch
120	0.12	0.0047	1.20	0.0473	20	0.787
80	0.08	0.0031	0.80	0.0315	20	0.787
60	0.06	0.0024	0.60	0.0236	20	0.787
50	0.05	0.0020	0.50	0.0196	20	0.787
40	0.04	0.0016	0.40	0.0158	20	0.787
30	0.03	0.0012	0.30	0.0118	20	0.787
20	0.02	0.0008	0.20	0.0079	20	0.787
15	0.015	0.0006	0.15	0.0059	20	0.787
10	0.010	0.0004	0.10	0.0039	1	0.040
05	0.005	0.0002	0.05	0.0020	1	0.040
03	0.003	0.00012	0.03	0.0012	1	0.040

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