

Cosmetics

Defect Size

Scratch and Dig - (MIL Spec XX)

Definition: The first number represents the maximum allowable scratch width in microns (20/10 = no scratches greater than 20um wide allowed). The second number represents the maximum allowable dig in 10's of microns as measured LxW/2 (20/10 = no digs greater than 100um allowed).

Typical Scratch and Dig Specifications:

120/80	Defects are clearly visible in normal room lighting. This is generally a commercial specification for glass that will be exposed to further wear.
80/50	Defects are discrete but visible in normal room lighting. This specification is typical for commercial and non critical optical applications.
60/40	Defects are visible under fluorescent lighting (1.5K Lux). This specification is common for non-magnified optical applications.
40/20	Defects difficult to detect under fluorescent light and may require low-intensity halogen lamp (5K Lux). Typical optical applications.
20/10	Defects require Hi-Intensity halogen lighting to identify (10K Lux). Common specification for critical optical applications.
10/5	Defects require Hi-Intensity halogen lighting to identify (15K Lux or greater). Common specification for the most critical optical applications.

A scratch and dig spec can be written and inspection standard developed around any known requirements. The sample specifications listed above are intended to provide a general guideline and encompass the most commonly used values.

Customer Input Required Yes No Default Specification: 60/40

Light Condition

Intensity

Definition: Coresix uses a standard "K Lux" to describe the required light intensity for a given inspection criterion. Any existing or known light intensity such as foot candle, wattage, etc. can generally be converted to a K Lux standard. Once the standard is defined, the specification states "no defects visible with the unaided eye" under the specified *light intensity*, in the specified *position* and within the specified *inspection time*.

Typical Light Intensity Specification

1.5K Lux	Typically used to identify scratches beyond 60um wide and digs greater than 400um for low-end optical or high end industrial applications.
5K Lux	Typically used to identify scratches beyond 40um wide and digs greater than 200um for common optical applications.
10K Lux	Typically used to identify scratches beyond 20um wide and digs greater than 100um for high end optical applications.
15K - 50K Lux	Various collimated lighting used to identify defects to 1um for critical optical applications.

Customer Input Required Yes No Default Specification: 1.5K Lux

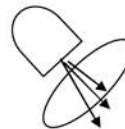
Position

Definition: The angle, distance and/or orientation of the glass being inspected to the light source.

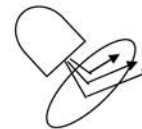
Angle: The angle at which the part is held to the light source can influence the visibility of a defect. The specified angle may be driven by the final application (coatings to be applied, angle to be viewed, etc.) or to achieve maximum effectiveness. Unless otherwise specified, the angle will be defined by the standard to orientation.

Orientation: The orientation of the part to the light source can influence the visibility of a defect. The specified orientation may be driven by the final application or to achieve maximum effectiveness. Unless otherwise specified, the standard orientation of inspection will be transmissive.

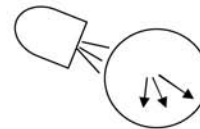
Distance: The distance of the glass from the light source is generally defined by the specified light intensity. However, under certain conditions it may be necessary to specify distance in conjunction with light intensity. If no specification is provided, distance from the light source will be defined by the specified light intensity.



Transmissive
(standard 45o
to surface)



Reflective
(standard 45o
to surface)



Edge Light
(standard 90o
to edge)

Customer Input Required Yes No Default Specification:

Time

Definition: The longer an inspector looks at a glass component under any condition, the more likely he or she is to identify defects. For production efficiency the specification is designed to identify the necessary cosmetic quality level in a minimal inspection time. Our standard inspection time averages 5-10 seconds per part

Customer Input Required Yes No Default Specification: