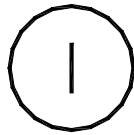
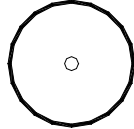


# ISO 14997 PLUS SCRATCH DIG ARTIFACT STANDARD



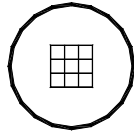
FEATURES:  
SCRATCHES

This standard includes feature requirements in accordance with ISO 10110-7 & ISO 14997. These optical defect features simulate, in chrome on glass, scratches & digs (circular defects) of known size. These features can be compared to observed defects in optical surfaces.



DIGS  
(CIRCULAR DEFECTS)

In addition, this standard has grids based on the diameter of the circular defects, ronchi rulings based on the scratch widths and a scale which can be used to measure the length of long scratches.

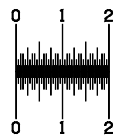


GRIDS

The grids are an excellent way of measuring the area of irregularly shaped defects. This feature is important because optical drawings will specify a total defect area for a region, that is the area of all defects in that region added together. The square root of that area is then the grade number for that set of defects. Note that for a given grade number, the area of the circular feature and the area of the scratch have the same area as a square whose side is the grade number.



RONCHI RULING



SCALE

For plate #1, the grid lines are the width of that grade's scratch and the line to line spacing is the size of the circular defect. For plate #2, all lines are the line width are .010 mm wide and the line to line spacing is the size of the circular defect.

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Artifact Dimensions Plate #1

Grade Number	Diameter of Circle (microns)	Dimension of Scratch (microns)
0.004	4.5	1 x 16
0.006	7	1.6 x 25
0.010	11	2.5 x 40
0.016	18	4 x 63
0.025	28	6.3 x 100
0.040	45	10 x 160

The ronchi rulings allow the user to test and focus their optical system. Especially with the smaller line widths on plate #1, these areas provide an easy to find area of lines which are the same width as the scratches located in the center of the locator rings. The finest lines may be beyond the resolving power of a given optical system. The user can test the resolving power of their optical system by moving between the different rulings.

The scale has divisions every 0.025mm. This allows the user to measure long scratches or other surface features.

Artifact Dimensions Plate #2

Grade Number	Diameter of Circle (microns)	Dimension of Scratch (microns)
.040	45	10 x 160
.060	70	16 x 225
.100	110	25 x 400
.160	180	40 x 630
.250	280	63 x 1000
.400	450	100 x 1600

Care needs to be taken when handling these standards. The glass extends below the bottom of the frame. This allows the plate to be put in contact with the optic to be examined, but also exposes it to potential abuse. Some users may wish to place lens tissue on any surface where the standard will be placed to help protect it.

These standards are intended to be used as described in ISO 10110-7 and ISO 14997 and our user manual on the accompanying CD. A paper copy of the complete ISO documents may be purchased at [www.iso.org](http://www.iso.org).