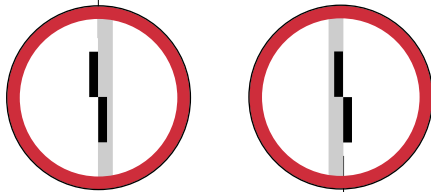
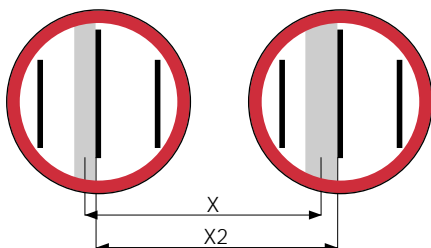
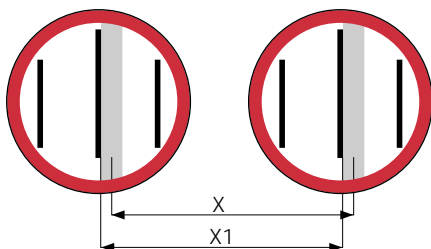
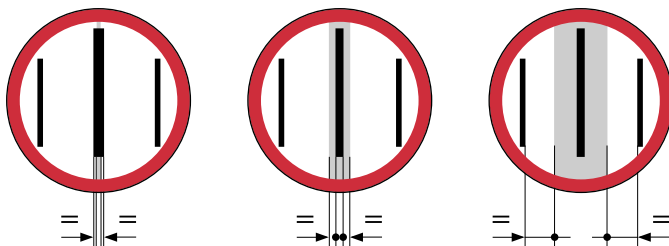
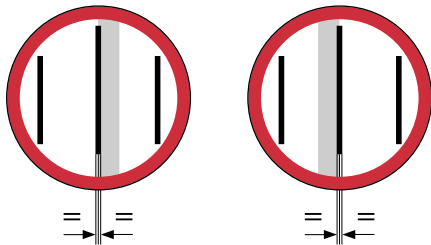


→ Light gap disappears



← Light gap disappears



### Reading error through parallax

Graduation and line to be checked meet on the same plane: even in oblique view no parallax error.

Graduation and line to be checked are apart from each other: on oblique view a parallax error will result.

To avoid parallax errors each loupe is equipped with a red centering ring.

Perpendicular viewing = ring concentric = no parallax error.

Oblique viewing = ring eccentric = a parallax error may result.

### Measuring of line thicknesses

a) narrow lines

Use the special measuring marks with the light-eliminating method («shaving» the left and right edge of the line).

Proper offset-marking alignment: light gap disappears

b) thick lines

Use the scale divisions by aligning the edges of the line to be measured with the center of the graduation line («halved»).

### Measuring of distances

a) aligning to the line to be measured by estimating symmetry

Methods for correct alignment of different line thicknesses

b) without estimating symmetry through edge alignment of lines

Alignment of left and/or right edges with the light-eliminating method.

If line thicknesses are equal, dimension X (center to center of lines) equals dimension X1 (edge to edge of lines).

If line thicknesses are not equal, dimension X (center to center of lines) equals the average of the two dimension X1 (measurement left edges) and X2 (measurement right edges).

$$X = (X1 + X2) / 2$$

### Cleaning and maintenance

Glass scale, metal frame, rubber pads and the adjusting screw E can be cleaned with cleaning alcohol whenever necessary. The adjusting screw should be lubricated with a drop of oil afterwards.

**Warning:** to not oil any other parts of the scale or the Dial Indicator!