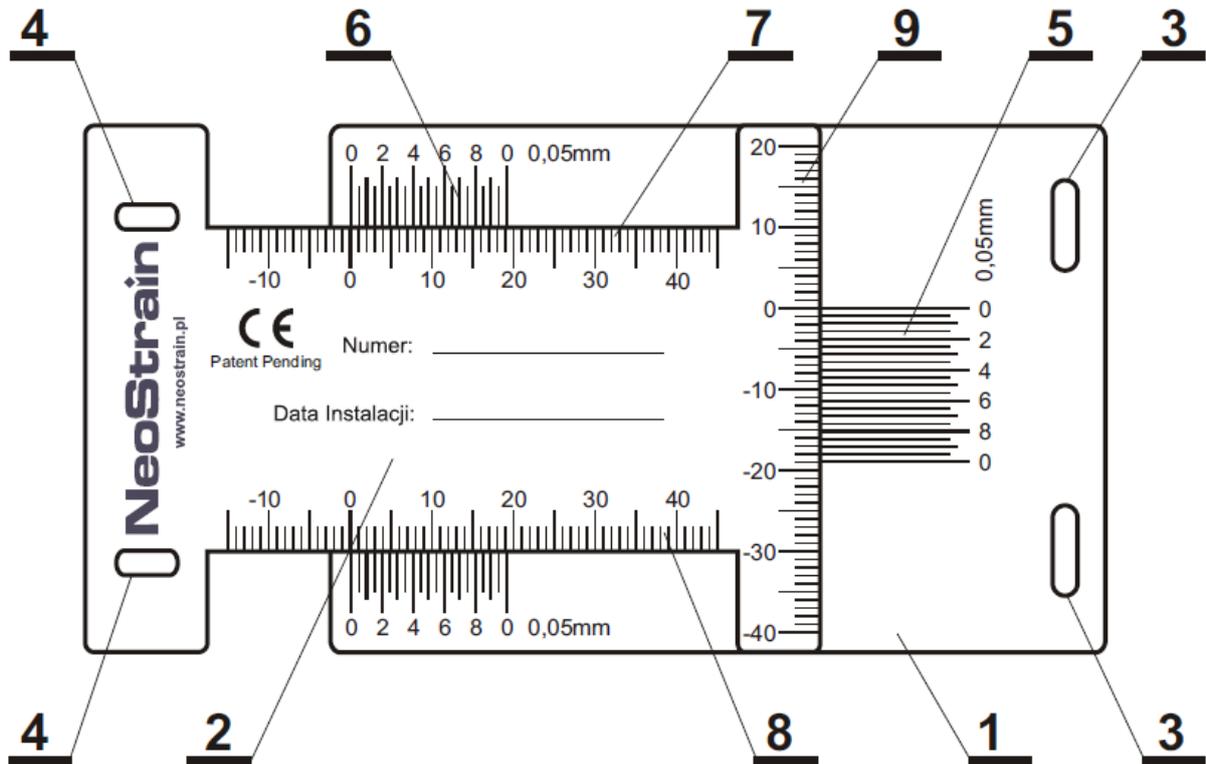CRACKMETER WR05

Application:

Crackmeter measures the crack width in two directions. It's also possibile to calculate the rotation angle between the crackmeter plates when rotation is detected.
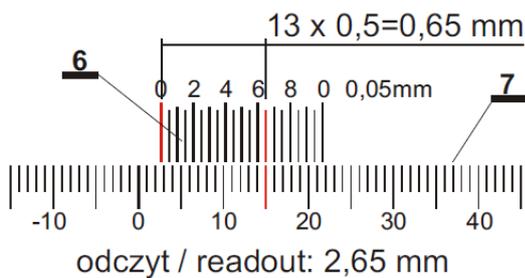
Layout drawing:

Construction:

1 – Lower plate with vernier scale: horizontal (6) and vertical (5),

2 – Upper plate with milimetr scale: horizontal (7,8) and vertical (9),

3,4 – openings for mounting screws,

Readout of positive values.

odczyt / readout: 2,65 mm

The readout process is very simple and should not create any difficulties. It works very similar to the caliper. Vernier scale is located below/above the milimetr scale and provides the readout accuracy of 0,05 mm. Absolute values must be read in accordance to the „0" on the milimeter scale and „0" on the vernier scale. For positive values „0"on the vernier scale will be located on the right side of „0" on milimeter scale. To get the accurate result, you must check when lines on the milimeter and vernier scale will create one vertical line. Later you need to count number of scale fields and result multiply by 0,5 mm.

Readout of negative values.
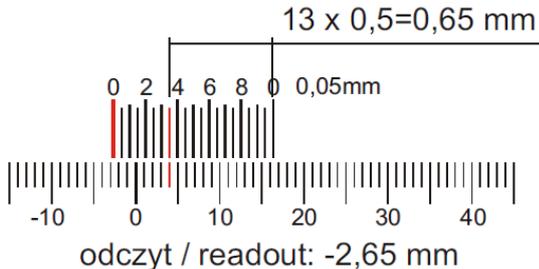
It's very similar to readout of positive values, however the „0" on the vernier scale will be located on the left side of „0" on the milimeter scale. To get the accurate result, you must check when lines on the milimeter and vernier scale will create one vertical line, but you need to count number of scale fields from the „0" on the right hand side and the result multiply by 0,5 mm.

Readout of rotation angle

If readouts from upper (7) and lower scale (8) are deferent, it means that crackmeter sections has rotated between eachother.
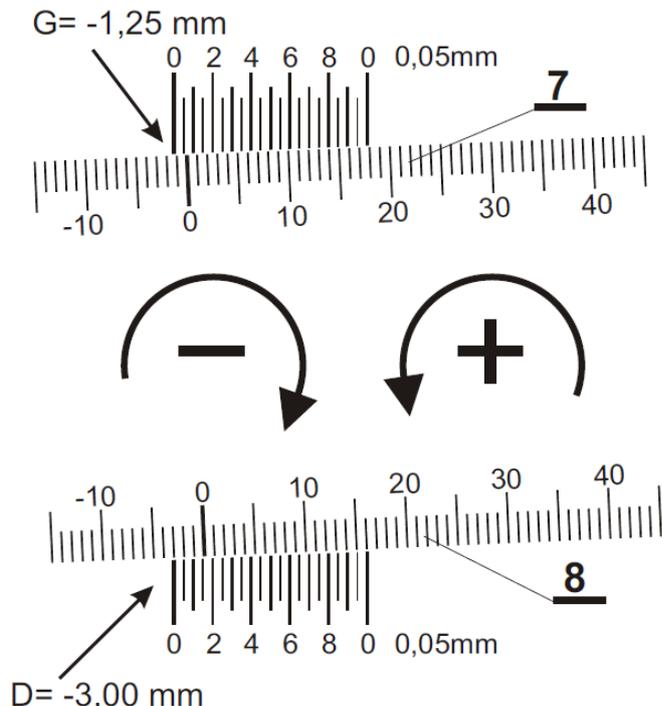
The rotation angle (in degrees) can be calculated according to the below formula:

$$tg(\varphi)=(G-D)/40$$

where:

G – is the readout takenn from the upper scale (7),

D – is the readout taken from the lower scale (8),

Calculations:

$tg(\varphi) = (G - D)/40 = (-1{,}25 - (-3)) / 40 = 1{,}75/40$
$\varphi = arctg(\varphi) = arctg(1{,}75/40) = 2{,}5$ stopnia

The result is the angle value.