Arc radius and creation of new tolerance data. (realistic scenario)

90.0000°

according 3D model

R4.0000

New tolerance as a proposal to the designer

0.2266 Ⓤ 0.0979 A

new "basic dim"

3.9846

90.0000°

Tolerance according drawing

R4.0000±0.5000

0.545280

Center of LSQ-fitted max-arc

0.556400

Center of LSQ-fitted min-arc

R3.9846

least-squares-fitted to R4.0000

R4.5000

R4.0000

R3.5000

Vertical least-squares-fit to R4.0000

Vertical least-squares-fit to R4.0000

0.1133

0.1133

R3.5000

least-squares-fitted to R4.0000

intersection point #1 of arc and 45°-line

135.0000°

new "basic dim"

R4.0000

3.9846

mid point of line

0.1133

0.1133

R4.5000

least-squares-fitted to R4.0000

intersection point #2 of arc and 45°-line

2 intersection points yield

Profile tolerance:
0.1133
plus
0.1133
equal to
0.2266