

1. General**1.1 Straightness**

The straightness of polished rods is to be taken from the following table:

Diameter [mm]	Length [mm]	max. Deflection [mm]
1,0 – 3,0	≥250	0,20
>3,0 – 8,0	≥250	0,10
>8,0 – 10,0	≥250	0,08
>10,0 – 12,0	≥250	0,05
> 12,0 – 20,0	≥250	0,04
> 20,0	≥250	0,02
≤6,0	>152 - <250	0,08
>6,0	>152 - <250	0,04

Measurement method:

Two point support with dial gauge at half-length, difference between the smallest and the largest values after rotating rod by 360°. Distance of support points from rod end ≤ 5 mm.

1.2 Run-out

The admissible run-out of polished rods of a length ≤ 152 mm is to be taken from the following table:

Diameter [mm]	Length [mm]	max. Deviation of Run-out [mm]
< 3,0	< 50	0,010
< 3,0	< 100	0,030
3,0 – 4,0	< 50	0,006
3,0 – 4,0	< 100	0,020
3,0 – 4,0	- 152	0,035
> 4,0 – 6,0	< 50	0,005
> 4,0 – 6,0	< 100	0,015
> 4,0 – 6,0	- 152	0,025
> 6,0 – 10,0	< 100	0,010
> 6,0 – 10,0	- 152	0,020
> 10,0	< 100	0,005
> 10,0	- 152	0,010

The **measuring point** is 5mm from the end of the rod, in the case of a chamfer or tip 2 mm from the interfering edge.

The **supporting point A** for the measurement is 5mm from the end of the rod, in the case of a chamfer 2 mm from the interfering edge.

The **supporting point B** for the measurement depends on the diameter and it is shown in the following table:

Diameter [mm]	Distance Supporting Point B [mm]
< 6,0	28
6 - 8	36
> 8 - 10	40
> 10 - 14	45
> 14 - 18	48
> 18 - 20	50
> 20 - 25	56
> 25 - 32	60

If the rod length is less than twice the distance between supporting point B and the end of the rod, the supporting point is at half the rod length.

Rods without chamfer are measured on both sides.

1.3 Roundness

The maximal admissible deviation from roundness amounts to 50 % of the particular diameter tolerance.

Diameter [mm]	Deviation from Roundness [mm]
1 - < 6,0	0,002
6,0 – 18,0	0,003
> 18,0	0,004

Measurement method:

Three point external micrometer, difference between the largest and the smallest values of rotating rod – measured at different points.

1.4 Surface**1.4.1 Surface Finish**

The rods are free of crack.

1.4.2 Roughness

The requirement to roughness, measured along to axis of rod, is to be taken from the following table:

Feature	Roughness
Ra	$\leq 0,06 \mu\text{m}$
Rz	$\leq 0,40 \mu\text{m}$

Measurement method:

Deviation measurement by profile method instrument according DIN EN ISO 4287.

1.5 Angularity of end of rod

The machined end of the rod has a maximal angularity of $90^\circ \pm 0,5^\circ$ to axis of symmetry. In the raw state the maximal angularity is $90 \pm 3^\circ$.