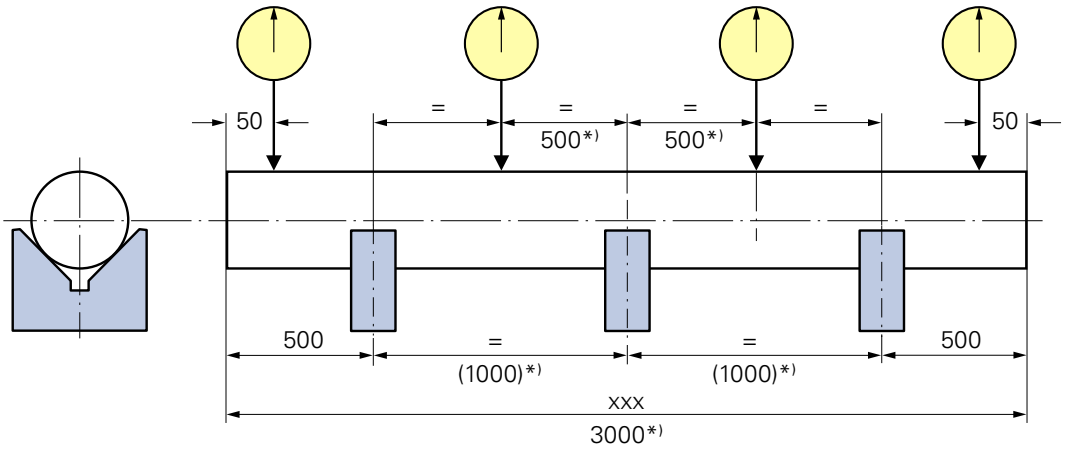
Requirements for bar stock

Single-spindle lathes

- INDEX recommends to use **pulled material bars** only.
- The **straightness of the material bar** is very decisive for the speeds which can be reached, for vibrations, noise development and for the surface quality, and the tolerances of the workpiece.
  - ➞ You should only process bars whose straightness values do not deviate from the values mentioned below.
  - ➞ In the region of the bar ends, the material bars **must not have short bucklings**.
  - ➞ Bars which do not meet these requirements must be straightened.
- The bar circumference must be **chamfered at 30°**; this does also apply for square-edged material bars.
- The bar end must be **free of burs**. Please pay particular attention to the **cleanliness** of the bars!

If you process tubular material, the bar ends must be tightly sealed with a plug or the like!

Checking the straightness of the bar (in case of round bars)



*) Arrangement of the measurement points and of the prisms in case of a 3 meter bar

- Put the bar which you want to check on prisms in such a way that the first prism is 500 mm away from the beginning of the bar.
- Then use another prism after every meter. Thus, with a bar length of 3 m or 4 m, respectively , the last 500 mm of the bar, i.e. the distance from the last prism to the end of the bar, are free floating again.

- If a bar has a different length, you have to re-arrange the prisms at such regular distances that you get the free floating 500 mm at the end of the bar.
- Measure at points which are outside or at half the length between the prisms.
- Install the dial gauges as shown in the illustration and rotate the material bar by 360 degrees. During this, read and note down the maximum and the minimum measured value.
- Repeat this measurement along the entire length of the bar.

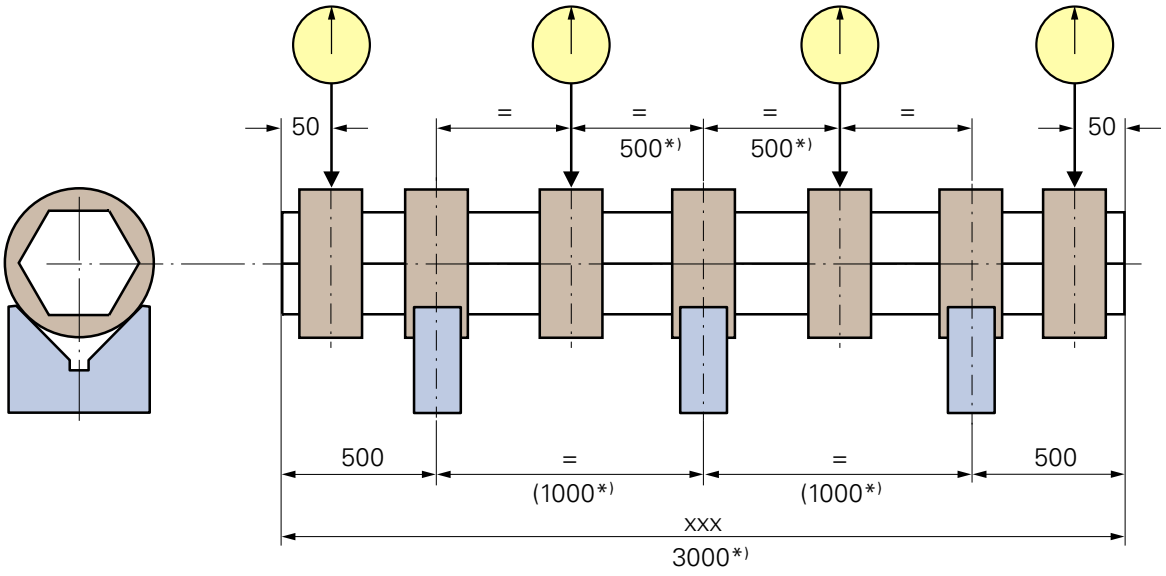
Thereafter, you can evaluate the measured data as follows:

S_{max} (mm)	Straightness of the bar
< 0.25	Good
0.25 < S_{max} < 0.5	Moderate
> 0.5	Problematic

S_{max} = difference between the maximum and the minimum reading at the dial gauge.

Checking the straightness of the bar in case of profiled material

- Measure profiled material in round bushes. The first bush should be 50 mm away from the start of the bar, the second bush 500 mm.
- Arrange the other bushes in such a way, that the last two bushes are 50 or 500 mm, respectively, away from the end of the bar.
- Place the bar to be checked along with the bushes on prisms in such a way that the bush with the first prism is 500 mm away from the start of the bar and the bush with the last prism is 500 mm away from the end of the bar.
- Measure on bushes that are located outside or between the prisms, respectively.
- The rest of the procedure and the evaluation of the straightness of the bar is the same as described for round bars.



*) Arrangement of the measurement points and of the prisms for a 3 meter bar

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