

Important notes concerning the use of bar loading magazines

Requirements regarding the properties of material bars

INDEX Multi-spindle-turning-machines

Note on applicability

Illustrations in this publication may deviate from the product supplied. Errors and omissions due to technical progress expected.

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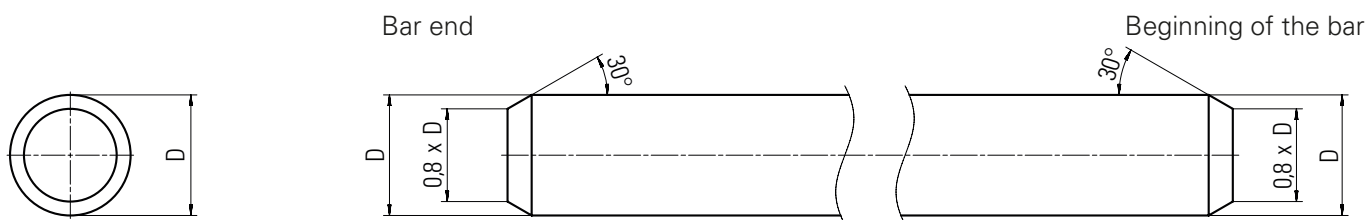
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Requirements concerning the properties of the material bars

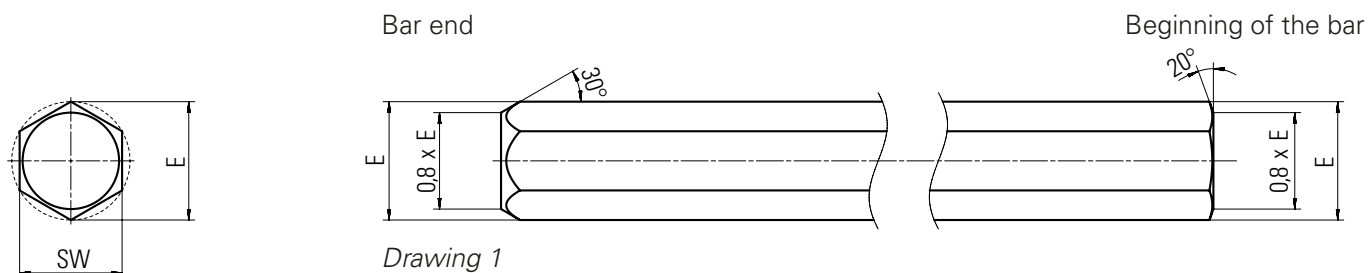


- INDEX recommends the exclusive use of drawn material bars as per standards DIN EN 10278 and DIN EN 10277-1.
- **The straightness of the material bar is very decisive for the speeds which can be reached, for vibrations, noise development and for the surface quality and the tolerances of the workpiece.**
 - 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 be buckled.
 - Bars which do not meet these requirements must be straightened.
- The beginning of the bar must be handled in the way shown in drawing 1: this also applies for edged or polygonal material.
- **The bar end must be free of burs. Please pay especial attention to the cleanliness of the bars!**
- The diameter tolerance must be h10 or better.
- For bar length tolerances refer to the respective feed unit operating instructions, please.
- Normally, the surface roughness ought to be within the range of Ra 1.6 µm or finer.
- In case of longitudinal turning machines, additional requirements apply concerning the properties of the material bars. Please refer to the respective section.

Round material



Polygonal material



Drawing 1

Additional requirements in case of longitudinal turning machines



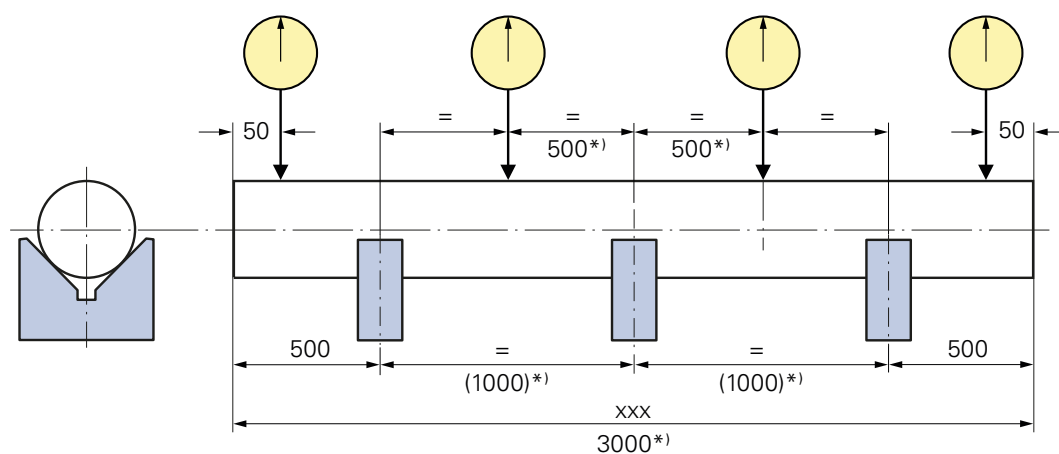
- Use grounded material bars as a matter of principle.
- For the machining of non-ferous metals you may alternatively use stripped material bars.
- Within one material bar and within one batch, tolerance deviation must not exceed 0.01 mm.
- The maximum admissible mean roughness index is Ra 0.8 μm (corresponds to depth of roughness Rz 6.3 μm).
- Handle the material bars in the way shown in the above drawing.
- For further notes concerning longitudinal turning attachments refer to document " Longitudinal turning attachments", please.

Tubular material



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)



Drawing 2

*) 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 arrange further prisms after every meter. Thus, with a bar length of 3 m respectively 4 m, the last 500 mm of the bar i.e. the distance from the last prism to the end of the bar, are free floating, too.
- If a bar has another 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.
- The measurement happens at points which are outside or at half length between the prisms.
- Install the dial gauges as shown in the two illustrations 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.

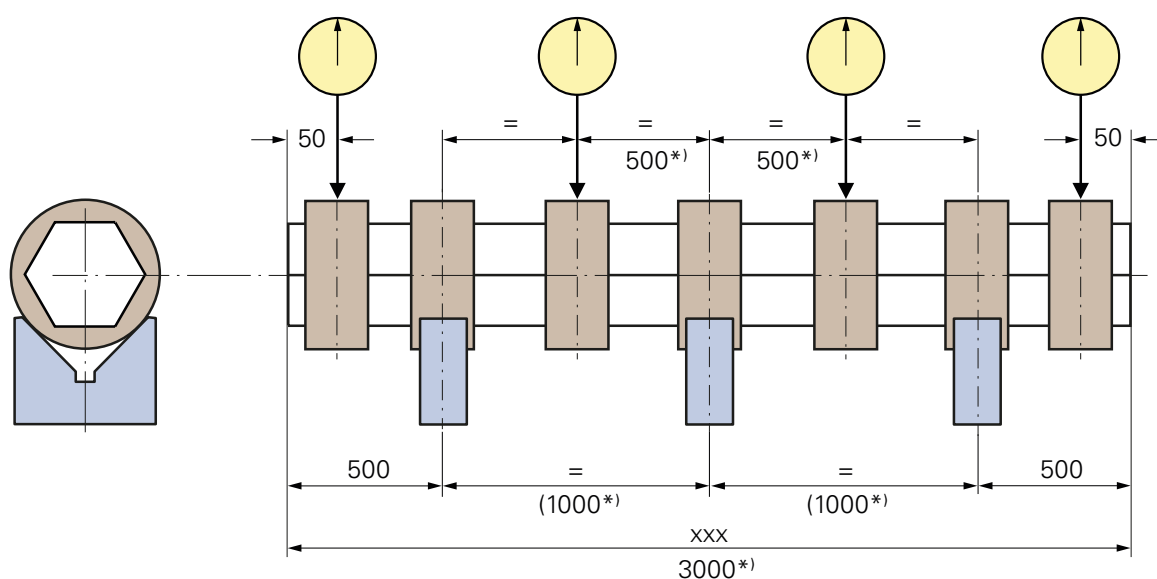
Thereafter, you can evaluate the measured data as follows:

S_{max} (mm)	Straightness of the bar
< 0,25	good
0,25 < S _{max} < 0,5	moderate
> 0,5	problematic

Value **S_{max}** is the difference between the maximum and the minimum reading at the dial gauge.

Checking the straightness of the bar in case of profiled material

- Profiled material is measured in round bushes. The first bush is supposed to be 50 mm away from the bar start, the second bush 500 mm.
- Arrange the other bushes in such a way, that the too last bushes are 50 respectively 500 mm away from the bar end again.
- Put the bar which is to be checked together with the bushes on prisms in such a way that the bush with the first prism is 500 mm away from the bar start and the bush with the last prism 500 mm from the bar end.
- The measurement happens on bushes which are outside respectively between the prisms.
- The rest of the procedure and the evaluation of the straightness of the bar is the same as described for round bars



Drawing 3

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



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