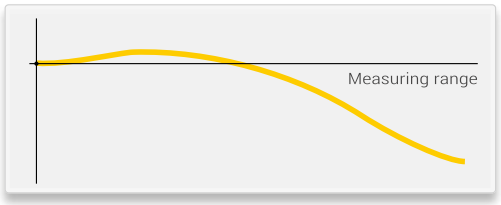
ACCURACY DEFINITION

Baseline error



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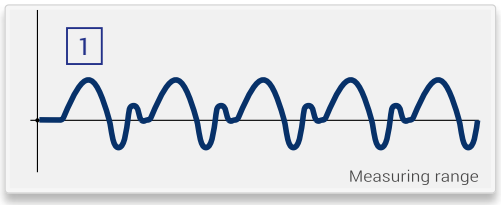
Interpolation error



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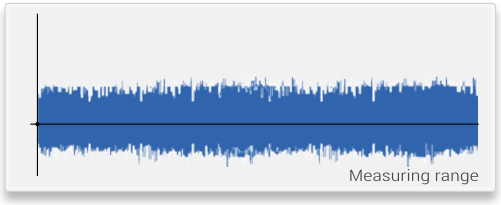
Position noise



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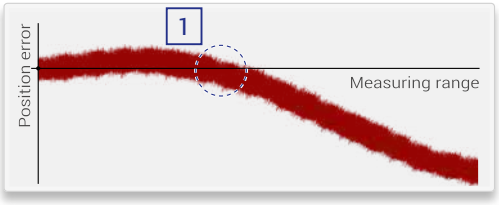
Overall error



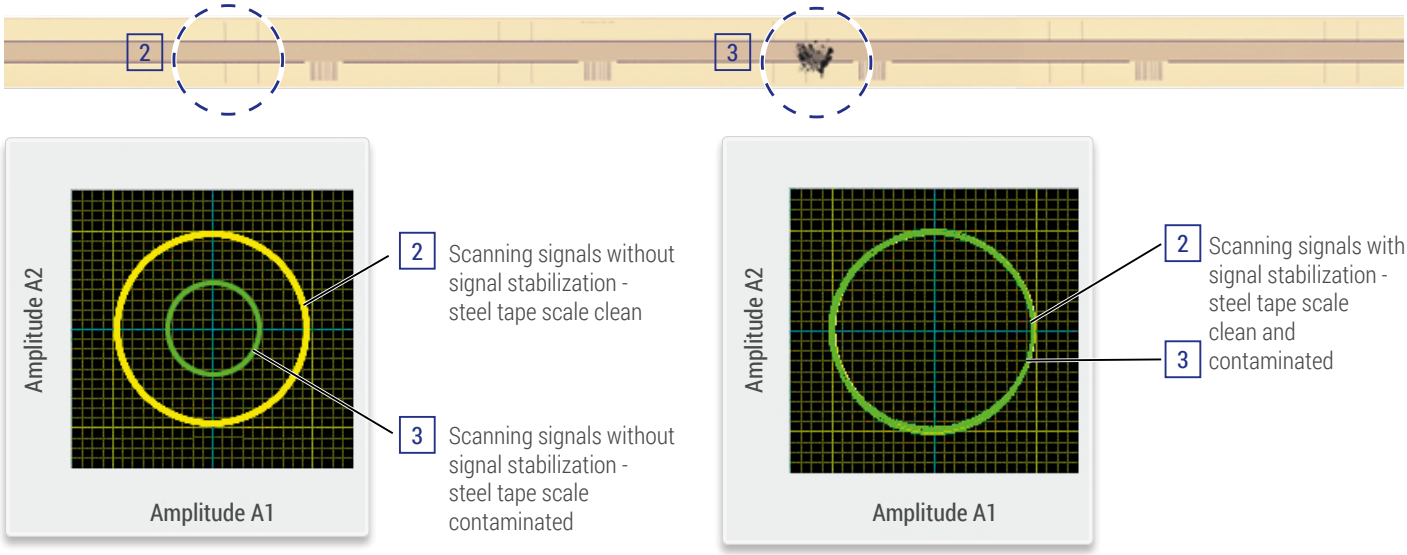
The accuracy of a linear encoder is mainly determined by the baseline error of the scale unit, the interpolation error of the optoelectronic scanning and the position noise.

The baseline error is the error of the scale unit identified in a measurement room under optimum conditions, along a determined measuring length, without any interpolation error and position noise.

The indicated accuracy grade represents the maximum possible baseline error. It is calculated within any section with a maximum length of one meter.

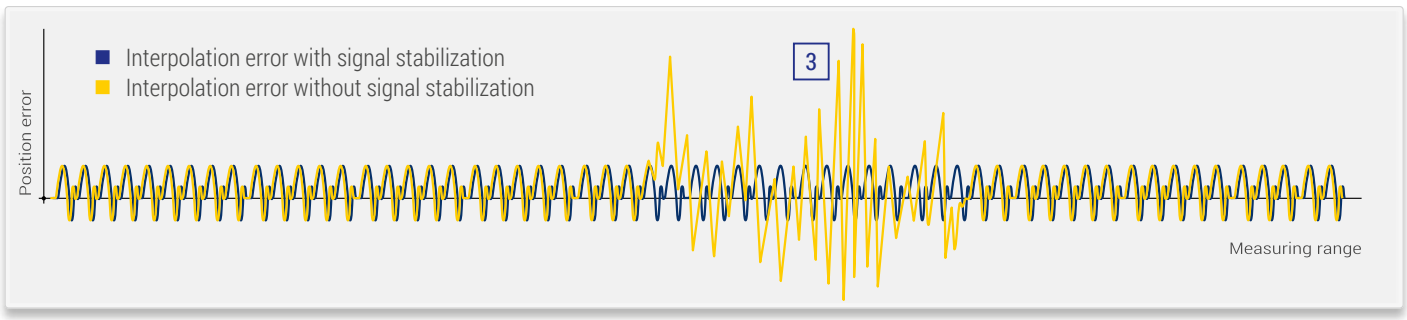
Effect of contamination on the quality and amplitude of scanning signal

Steel tape scale contaminated by fluids, dust, particles, fingerprints etc.



Effect of contamination on the intepolation error

Steel tape scale contaminated by fluids, dust, particles, fingerprints etc.



ACCURACY CHART

The accuracy of the linear encoder is classified with a "± tolerance" in µm/m (e.g. ± 5 µm/m).

The accuracy and tolerance apply to any meter within the measuring length. For measuring lengths less than 1000 mm, the accuracy specification applies to the whole measuring length.

For best system accuracy, the encoder should be mounted near the machining level and as parallel as possible to the motion direction.

Example of a typical calibration chart for a MS 25 scale tape: