



SCS Directory

Accreditation number: SCS 0006

International standard: ISO/IEC 17025:2017
Swiss standard: SN EN ISO/IEC 17025:2018

Kunz precision AG
Riedtalstrasse 16 A
4800 Zofingen

Head: Roland Zurbrügg
Responsible for MS: Roland Zurbrügg
Telephone: +41 62 746 00 20
E-Mail: <mailto:messdienst@kunz-precision.ch>
Internet: <http://www.kunz-precision.ch>
Initial accreditation: 10.07.1987
Current accreditation: 15.12.2023 to 14.12.2028
Scope of accreditation see: www.sas.admin.ch
(Accredited bodies)

Scope of accreditation as of 15.12.2023

Calibration laboratory for length and angles

Calibration and Measurement Capability (CMC)

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability \pm ¹⁾	Remarks
LENGTH Machine tools	up to 40 m		0,5 μm + $3 \cdot 10^{-6} \cdot L$	Positioning precision with laser interferometer On-site calibration
Length measuring instruments Horizontal instruments	up to 3 m		0,2 μm + $2 \cdot 10^{-6} \cdot L$	Error of indication, with laser interferometer and gauge blocks
Height gauges	up to 1 m up to 3 m		0,2 μm + $2 \cdot 10^{-6} \cdot L$	With step gauge With laser interferometer Also on-site calibration



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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability \pm ¹⁾	Remarks
Electronic length indicator	up to 12 mm		$0,3 \mu\text{m} + 2,5 \cdot 10^{-6} \cdot L$	Comparison with reference length indicator
Setting gauge for probe constant	5 mm – 50 mm		0,4 μm 0,5 μm	Using coordinate measuring machine; Measurement uncertainty according to ISO 15530-3 On-site calibration
Distance gauge sphere to plane Distance Diameter Roundness	 0 mm – 100 mm up to 50 mm		 0,6 μm 0,6 μm 0,5 μm	Using coordinate measuring machine; Measurement uncertainty according to ISO 15530-3
Hole plate Distance Diameter	 up to 700 mm x 600 mm up to 50 mm		 $1,0 \mu\text{m} + 1,5 \cdot 10^{-6} \cdot L$ 0,8 μm	Using coordinate measuring machine; Measurement uncertainty according to ISO 15530-3
Coordinate measuring machines Length measurement error Probing error	up to 1 m		Uncertainty of the standards used: Uncertainty of the standards used: Gauge blocks: $0,05 \mu\text{m} + 0,5 \cdot 10^{-6} \cdot L$ Reference sphere: 0,08 μm	Acceptance test using calibration artefacts according to ISO 10360-2 Also on-site calibration
Measuring microscopes and projectors 2-D position deviation	up to 200 mm x 300 mm Interval of division 10 mm		 $1,2 \mu\text{m} + 5 \cdot 10^{-6} \cdot L$	Calibration with photo mask Also on-site calibration
Gauge blocks Step gauges	up to 3000 mm up to 1200 mm		$0,3 \mu\text{m} + 1,6 \cdot 10^{-6} \cdot L$ $0,3 \mu\text{m} + 1,6 \cdot 10^{-6} \cdot L$	Length measuring machine with laser interferometer and mechanical probing
Ball Bars	100 mm – 3000 mm		$0,6 \mu\text{m} + 0,5 \cdot 10^{-6} \cdot L$	



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Line scales	Engineer scale up to 3000 mm		$3 \mu\text{m} + 2 \cdot 10^{-6} \cdot L$	Length measuring machine with laser interferometer and optical probing
	Standard scale up to 3000 mm		$5 \mu\text{m} + 0.8 \cdot 10^{-6} \cdot L$	Calibration rod with circular optical markers
	Glass scale up to 1000 mm		$0,5 \mu\text{m} + 0,5 \cdot 10^{-6} \cdot L$	With graduation marks or circular structures
Guideways Straightness	$L \leq 3 \text{ m}$ $L \leq 30 \text{ m}$ $L \leq 15 \text{ m}$		$0,1 \mu\text{m} + 0,4 \cdot 10^{-6} \cdot L + 0,025 \cdot A$ $0,5 \mu\text{m} + 0,4 \cdot 10^{-6} \cdot L + 0,025 \cdot A$ $0,2 \mu\text{m} + (0,15 + B/2000) \cdot 10^{-6} \cdot L$	on-site calibration With straightness interferometer L = measured length A = indicated value With angle interferometer or electronic levels B = base length in mm
Straightness standards Straight edges Straightness Parallelism	up to 3 m		$0,15 \mu\text{m} + 0,15 \cdot 10^{-6} \cdot L + 0,02 \cdot A$ $0,2 \mu\text{m} + 0,25 \cdot 10^{-6} \cdot L + 0,02 \cdot A$	STRAIGHT-line method L = measured length A = indicated value
Squareness standards Squareness	up to 1400 mm up to 1000 mm up to 500 mm		$0,5 \mu\text{m} + 0,5 \cdot 10^{-6} \cdot L + 0,02 \cdot A$ $0,2 \mu\text{m} + 0,2 \cdot 10^{-6} \cdot L + 0,02 \cdot A$ $0,2 \mu\text{m} + 1,5 \cdot 10^{-6} \cdot L + 0,02 \cdot A$	STRAIGHT-line method (specimen reclining) SQUARE-master method (specimen up-right) With rotatory table and STRAIGHT-line L = length A = indicated value



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Surface plates Flatness	Minimal size 0,2 m x 0,2 m		$0,5 \mu\text{m} + 0,5 \cdot 10^{-6} \cdot L$	Electronic levels $L = \text{length}$ Also on-site calibration
Flatness artefacts Flatness and parallelism	Surface > 1 cm ² up to 3000 mm		$0,4 \mu\text{m} + 0,5 \cdot 10^{-6} \cdot L$	TOPO-method $L = \text{measured length}$
ANGLE Angular deviation of guideways	up to 100"		$0,2'' + 2 \cdot 10^{-3} \cdot A + 0,05'' \cdot L$	Angle interferometer $A = \text{value}$ $L = \text{measured length in m}$ Also on-site calibration
Dividing heads Rotary tables / Position error of rotary axes	Full circle 1° or arbitrary interval 10° interval		1,2" 0,5"	With rotary axis calibrator, or index table with angle interferometer or electronic level Optical polygon and autocollimator Also on-site calibration
Inclinometers	360° 1° interval		2,5"	With index table
Electronic levels / Bubble levels	$\pm 1^\circ$ arbitrary interval		$0,2'' + 2 \cdot 10^{-3} \cdot A$	With inclination table and angle interferometer
Angle encoders	360° arbitrary interval		10"	With rotary table
Optical polygons	360° arbitrary interval		0,3"	With rotary table and autocollimator

In case of contradictions in the language versions of the directories, the German version shall apply.

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