Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER

State Secretariat for Economic Affairs SECO
Swiss Accreditation Service SAS

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:	15.12.2018 to 14.12.2023
Scope of accreditation see:	www.sas.admin.ch (Accredited bodies)

Scope of accreditation as of 09.02.2022

Calibration laboratory for length and angles

Calibration and Measurement Capability (CMC)

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability ± [1)]	Remarks
LENGTH				
Machine tools	up to 40 m		0,5 µm + 3•10^{-6}•*L*	Positioning precision with laser interferometer On-site calibration
Length measuring instruments				
Horizontal instruments	up to 3 m		0,2 µm + 2•10^{-6}•*L*	Error of indication, with laser interferometer and gauge blocks
Height gauges	up to 1 m		0,2 µm + 2•10^{-6}•*L*	With step gauge
	up to 3 m			With laser interferometer Also on-site calibration
Electronic length indicator	up to 12 mm		0,3 µm + 2,5•10^{-6}•*L*	Comparison with reference length indicator

The given extended measurement uncertainty is the standard uncertainty of the measurement multiplied by an extension factor k = 2, which corresponds to a confidence level of about 95% for a normal distribution.

SCS Directory

Accreditation number: SCS 0006

Measured Quantity / Instrument or Gauge	**Measurement Range**	**Measurement Conditions**	**Best Measurement Capability ± [1)]**	**Remarks**
Setting gauge for probe constant	5 – 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 – 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 µm + 1,5•10^{-6}•*L* 0,8 µm	Using coordinate measuring machine; Measurement uncertainty according to ISO 15530-3
Coordinate measuring machines	up to 1 m		Uncertainty of the standards used: Uncertainty of the standards used: Gauge blocks: 0,05 µm + 0,5•10^{-6}•*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 µm + 5•10^{-6}•*L*	Calibration with photo mask Also on-site calibration
Gauge blocks Step gauges Ball Bars	up to 3000 mm up to 1200 mm 100 mm ...3000 mm		0,3 µm + 1,6•10^{-6}•*L* 0,3 µm + 1,6•10^{-6}•*L* 0,6 µm + 0,5•10^{-6}•*L*	Length measuring machine with laser interferometer and mechanical probing
Line scales	Engineer scale up to 3000 mm Standard scale up to 3000 mm		3 µm + 2•10^{-6}•*L* 5 µm + 0.8•10^{-6}•*L*	Length measuring machine with laser interferometer and optical probing Calibration rod with circular optical markers

The given extended measurement uncertainty is the standard uncertainty of the measurement multiplied by an extension factor k = 2, which corresponds to a confidence level of about 95% for a normal distribution.

SCS Directory

Accreditation number: SCS 0006

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability ± [1)]	Remarks
	Glass scale up to 1000 mm		0,5 µm + 0,5•10^{-6}•*L*	With graduation marks or circular structures
Guideways				on-site calibration
Straightness	*L* ≤ 3 m		0,1 µm + 0,4•10^{-6}•*L* + 0,025•*A*	With straightness interferometer
	L ≤ 30 m*L* ≤ 3 m*L* ≤ 30 m		0,5 µm + 0,4•10^{-6}•*L* + 0,025•*A*	*L*= measured length *A* = indicated value
	L ≤ 15 m		0,2 µm + (0,15+ *B*/2000) •10^{-6}•*L*	With angle interferometer or electronic levels *B* = base length in mm
Straightness standards				
Straight edges	up to 3 m			STRAIGHT-line method
Straightness			0,15 µm + 0,15•10^{-6}•*L*+ 0,02•*A*	*L*= measured length *A* = indicated value
Parallelism			0,2 µm + 0,25•10^{-6}•*L*+ 0,02•*A*	
Squareness standards				
Squareness	up to 1400 mm		0,5 µm + 0,5•10^{-6}•*L*+ 0,02•*A*	STRAIGHT-line method (specimen reclining)
	up to 1000 mm		0,2 µm + 0,2•10^{-6}•*L*+ 0,02•*A*	SQUARE-master method (specimen upright)
	up to 500 mm		0,2 µm + 1,5•10^{-6}•*L* + 0,02•*A*	With rotatory table and STRAIGHT-line *L*= length *A* = indicated value
Surface plates				
Flatness	Minimal size 0,2 m x 0,2 m		0,5 µm + 0,5•10^{-6}•*L*	Electronic levels *L*= length Also on-site calibration
Flatness artefacts				
Flatness and parallelism	Surface > 1 cm^2		0,4 µm + 0,5•10^{-6}•*L*	TOPO-method

The given extended measurement uncertainty is the standard uncertainty of the measurement multiplied by an extension factor k = 2, which corresponds to a confidence level of about 95% for a normal distribution.

SCS Directory

Accreditation number: SCS 0006

Measured Quantity / Instrument or Gauge	**Measurement Range**	**Measurement Conditions**	**Best Measurement Capability ± [1)]**	**Remarks**
	up to 3000 mm			*L*= measured length
ANGLE Angular deviation of guideways	up to 100"		0,2" + 2•10^{-3}•*A* + 0,05"•*L*	Angle interferometer *A* = value *L* = 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
Digital inclinometers	360° 1° interval		2,5"	With index table
Angle encoders	360° arbitrary interval		10"	With rotary table
Optical polygons	360° arbitrary interval		0,3"	With rotary table and autocollimator

* / * / * / * / *

The given extended measurement uncertainty is the standard uncertainty of the measurement multiplied by an extension factor k = 2, which corresponds to a confidence level of about 95% for a normal distribution.