

**Accredited entity according to ČSN EN ISO/IEC 17025:2018:**

**Mitutoyo Česko s.r.o.**  
CAB number 2390, Calibration Laboratory  
Dubská 1626, 415 01 Teplice 1

**CMC for the field of measured quantity: Length**

Ord. num ber <sup>1</sup>	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded measurement uncertainty <sup>2</sup>	Calibration principle	Calibration procedure identification <sup>3</sup>	Work place
		min.	unit	max.	unit					
1*	Coordinate measuring machines (CMM)	0 m	to	5 m			(0.3L + 0.1) µm (0.6L + 0.3) µm 0.2 µm	measurement by a laser interferometer comparison using a step gauge comparison with a reference sphere	MCZ-PI-KL_SD15_KP01 (ČSN EN ISO 10360-2, ČSN EN ISO 10360-4, ČSN EN ISO 10360-5)	
2*	Surface roughness measuring instruments									
	Ra	0.1 µm	to	50 µm			3.4 %	comparison with a roughness standard	MCZ-PI-KL_SD15_KP02 (ČSN EN ISO 3274, ČSN EN ISO 12179)	
	Rz	0.01 µm	to	50 µm			2.4 %			
	Rsm	0.1 µm	to	400 µm			0.6 %			
	Linearity measurement error	-400 µm	to	400 µm			4 µm	comparison with UDT linearity standard		
	Straightness measurement error	-15 µm		15 µm			0.06 µm	comparison with an optical plane standard		
3*	Surface profile measuring instruments									
		0 mm	to	200 mm		axes X, Y	(0.3L + 0.2) µm	measurement by a laser interferometer	MCZ-PI-KL_SD15_KP02 (ČSN EN ISO 3274, ČSN EN ISO 12179)	
		0 mm	to	60 mm		Z-axis	(0.3L + 0.2) µm	comparison with a parallel gauge		
	Straightness measurement error	-15 µm		15 µm			0.06 µm	comparison with an optical plane standard		

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		min.	unit	max.	unit			
4*	Profile projectors	0 mm	to	200 mm		(8.9L + 1.2) µm	comparison with a glass rule	MCZ-PI-KL_SD15_KP03
	Parallelity P <sub>XY</sub>	-200 µm		200 µm		1 µm		
	Cross hair position E <sub>CH</sub>	-200 µm		200 µm		4 µm		
	Magnification error	-1 %		1 %		0.01 (abs.)		
	Measuring microscopes	0 mm	to	400 mm		(8.9L + 1.2) µm		
	Parallelity P <sub>XY</sub>	-200 µm		200 µm		1 µm		
5*	1D measuring instruments (height gauges)	0 m	to	1 m		(0.23L + 0.05) µm	measurement by a laser interferometer	MCZ-PI-KL_SD15_KP04
		0 m	to	1 m		(0.5L + 0.3) µm	comparison using a step gauge	
6*	Ring gauges						comparison with UDT linearity standard  comparison with reference hemisphere comparison with reference hemisphere comparison with reference cylinder	MCZ-PI-KL_SD15_KP05
	Sensor linearity measurement error	-400 µm	to	400 µm		4 µm		
	Spindle axial runout	-200 µm	to	200 µm		0.02 µm		
	Spindle radial runout	-200 µm	to	200 µm		0.04 µm		
	Cylindricity	0 µm	to	200 µm		1.8 µm		
7*	Coordinate measuring machines equipped with a camera system (VMM)	0 m	to	1 m	X, Y axis	(2,4L + 0,2) µm	comparison with a glass rule	MCZ-PI-KL_SD15_KP06
		0 m	to	0.3 m	Z axis	(3,1L + 0,3) µm	comparison with a parallel gauge	

<sup>1</sup> Asterisk at the ordinal number identifies the calibrations, which the Laboratory is qualified to carry out outside the permanent laboratory premises.

<sup>2</sup> The expanded measurement uncertainty is in accordance with ILAC-P14 and EA-4/02 M a part of CMC and it is the lowest value of the respective uncertainty. If not stated otherwise, its coverage probability is approx. 95 %. If not stated otherwise, the uncertainty values stated without a unit are relative to the measured value. The uncertainty value stated herein is based on the best conditions achievable by the laboratory; the uncertainty value of a specific calibration may be higher depending on the conditions of such a calibration. For identical extreme values of adjacent ranges, the lower uncertainty value always applies.

<sup>3</sup> If the document identifying the calibration procedure is dated only these specific procedures are used. If the document identifying the calibration procedure is not dated, the latest edition of the specified procedure is used (including any changes).

**Explanatory notes:**

L – Length in metres

Parallelity P<sub>XY</sub> – Parallelity of a cross table with a cross hair P<sub>XY</sub>

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**CMC for the field of measured quantity: Plane angle**

Ord. number 1	Calibrated quantity / Subject of calibration	Nominal range		Parameter(s) of the measurand	Lowest stated expanded measurement uncertainty <sup>2</sup>	Calibration principle	Calibration procedure identification <sup>3</sup>	Work place
		min.	unit	max.	unit			
1*	Error of angle measurement in the XZ plane / Surface profile measuring instruments			135 °		0.0034°	direct measurement of angle gauge 135° MCZ-PI-KL_SD15_KP02 (ČSN EN ISO 3274, ČSN EN ISO 12179)	
2*	Angle measurement error – 360° focus screen rotation / Profile projectors			360 °		0.5′	direct measurement of glass gauge position MCZ-PI-KL_SD15_KP03	

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<sup>2</sup> The expanded measurement uncertainty is in accordance with ILAC-P14 and EA-4/02 M a part of CMC and it is the lowest value of the respective uncertainty. If not stated otherwise, its coverage probability is approx. 95 %. If not stated otherwise, the uncertainty values stated without a unit are relative to the measured value. The uncertainty value stated herein is based on the best conditions achievable by the laboratory; the uncertainty value of a specific calibration may be higher depending on the conditions of such a calibration. For identical extreme values of adjacent ranges, the lower uncertainty value always applies.

<sup>3</sup> If the document identifying the calibration procedure is dated only these specific procedures are used. If the document identifying the calibration procedure is not dated, the latest edition of the specified procedure is used (including any changes).