The Appendix is an integral part of
Certificate of Accreditation No. 366/2018 of 11/07/2018

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

UNIMETRA, spol. s r.o.
Calibration Laboratory Department
Těšínská 367, 716 00 Ostrava-Radvanice

Field of measured quantity: length

Calibration: Nominal calibration temperature: (20 ± 1) °C

Ordinal number [1)]	Measured quantity	Measured quantity range	Calibration and Measurement Capability [±] [2)]	Calibration procedure identification
1.	Micrometer calliper gauges	(0 ÷ 1000) mm	(1 + 6·L) µm	PP-11.01
2.	Steel parallels	(0.5 ÷ 100) mm	(0.15 + 1.5·L) µm	PP-11.02
		(100 ÷ 500) mm	(0.16 + 2·L) µm	
3.	Slide gauges: - division 0.05 mm	up to 1,000 mm	(30 + 2·L) µm	PP-11.05
	- division 0.02 mm		(12 + 5·L) µm	
	- division 0.01 mm – digital		(12 + 5·L) µm	
	Height gauges – digital		(0.7 + 8·L) µm	
4.	Length gauges - flexible and rigid	up to 1,000 mm	(22 + 15·L) µm	PP-11.06
		up to 5000 mm	(22 + 32·L) µm	
	Rules of portable microscopes	up to 20 mm	4 µm	
	Measuring tapes for circumference and diameter measurement	up to 2200 mm circumference up to ø 700 mm	(145 + 55L) µm	
	Measuring tapes	up to 10 m	(145 + 65·L) µm	
	Tape measures	up to 5 m	(135 + 50·L) µm	
		up to 10 m [3)]	(140 + 25·L) µm	
	Tape measures - digital	up to 5 m	(120 + 2·L) µm	
	Folding rules	up to 5 m	(170 + 50·L) µm	
	Telescopic tubes	up to 5 m	(270 + 40·L) µm	
5. [3)]	Tape measures	up to 50 m	(35 + 30·L) µm	PP-11.08
6.	Inside micrometer gauges	up to 1,000 mm	(1.5 + 9·L) µm	PP-11.09
	Folding inside micrometer gauges with extension piece up to 1000 mm	up to 1,000 mm	(1.5 + 9·L) µm	
	Inside micrometers: - division 0.001 mm	up to 300 mm	(1.5 + 6·L) µm	
	- division 0.01 and 0.005 mm		(2.5 + 5·L) µm	
	Micrometer depth gauges	up to 300 mm	(2 + 8·L) µm	
	Micrometric heads	up to 50 mm	(1.2 + 3·L) µm	
7.	Weld gauges	up to 100 mm	60 µm	PP-11.12

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Ordinal number [1]	Measured quantity	Measured quantity range	Calibration and Measurement Capability [±] [2]	Calibration procedure identification
8.	Feeler gauges	up to 10 mm	(0.6 + 20·L) µm	PP-11.13
	Wedges for joints	up to 30 mm	15 µm	
	Adjustable gauges for ultrasonic equipment	up to 250 mm	(1 + 8L) µm	
9.	Dial indicators analogue: - division 0.001 and 0.002 mm	up to 5 mm	(0.4 + 40·L) µm	PP-11.14
	- division 0.01 mm	up to 100 mm	(1.2 + 60·L) µm	
	- division 0.1 mm	up to 60 mm	(12 + 350·L) µm	
	digital: - resolution 0.001 mm	up to 100 mm	(1.2 + 70·L) µm	
	- resolution 0.01 mm		(12 + 350·L) µm	
10.	Calibration foil	up to 20 mm	0.5 µm	PP-11.15
11.	Layer thickness measuring devices - mechanical	up to 1.5 mm	(2.4 + 0.02·l) µm	PP-11.16
	- electronic	up to 1.5 mm	1.3 µm	
12.	Cylindrical, flat and slot gauges, balls	up to 300 mm	(0.7 + 5·L) µm	PP-11.17
	Rigid inside micrometers, check tubes	up to 1,000 mm	(1 + 9·L) µm	
	Measuring wires	(0.17 ÷ 6.35) mm	0.5 µm	
	Cylindrical gauges	up to 20 mm	0.5 µm	
13.	Film thickness standards	up to 0.5 mm	(2.3 + 0.01·l) µm	PP-11.18
		(0.5 ÷ to 1.5) mm	8.5 µm	
14.	Pasameters	up to 200 mm	(0.7 + 3.5·L) µm	PP-11.19
	Micropasameters		(1 + 6·L) µm	
15.	Thickness gauges with DI: - division 0.1 mm	up to 100 mm	25 µm	PP-11.22
	- division 0.01 mm	up to 100 mm	6 µm	
	- division 0.001 mm	up to 30 mm	1.5 µm	
	Dial indicators with measuring arms for external measurement	up to 300 mm	(1.5 + 10·L) µm	
	Dial indicators with measuring arms for internal measurement		(1 + 7·L) µm	

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Ordinal number [1)]	Measured quantity	Measured quantity range	Calibration and Measurement Capability [±] [2)]	Calibration procedure identification
	Internal gauges with DI: - division 0.01 mm	up to 300 mm	2.5 µm	
	- division 0.001 mm		2 µm	
	Depth gauges with DI	up to 150 mm	(2 + 8·L) µm	
16.	Length sensor	up to 100 mm	(0.45 + 4·L) µm	PP-11.23
17. [3)]	Roller length gauges	up to 250 m	(0.13 + 0.003·L) m	PP-11.29
18.	Limit and end measuring rings	(1 ÷ 300 mm)	(0.7 + 4·L) µm	PP-11.31
	Snap gauges	(1 ÷ 300 mm)	(0.6 + 3·L) µm	
19.	Ultrasonic thickness gauges	up to 200 mm	10 µm	PP-11.32
20.	Thread gauges – plug gauges	up to 200 mm	(3 + 5.5·L) µm	PP-11.33
21.	Thread gauges - female	(2 ÷ 16) mm (for wear comparison pin gauge)	(3 + 5.5·L) µm	PP-11.34
		(3.5 ÷ 200) mm	(3.3 + 2·L) µm	
22.	Rules	up to 1,000 mm	(3.5 + 3·L) µm	PP-11.45
		up to 2,000 mm	(5 + 6·L) µm	
	Check bars [3)]	up to 4000 mm	40 µm	
23.*	Measuring microscope (projectors)	up to 250 mm	$U_{x,y}$: 2 µm U_z:(1.5+3·L) µm	PP-11.48
24.	Length measuring instruments	up to 500 mm	(0.15 + 3·L) µm	PP-11.58
25.	Calibration of meters on an optical coordinate measuring machine SOL161	up to 160 mm	U_1:(4.5 + 5·L) µm U_2:(6 + 8·L) µm U_3:(7.5 + 12·L) µm	PP-11.59
26.* [4)]	Calibration by laser interferometer - length	up to 40 m	(0.1 + 1·L) µm	PP-11.50
	- surface rules	up to 15 m	(0.1 + 1.6·M) µm	
	- surface plates			

[1)] Asterisk at the ordinal number identifies the calibrations, which the Laboratory is qualified to carry out outside the permanent laboratory premises.

[2)] Expressed like uncertainty in accordance with the requirements of the document EA 4/02 at k = 2.

[3)] Nominal calibration temperature: (20 ± 4)°C

[4)] Nominal calibration temperature: (20 ± 10)°C

PP – Working Procedure of the Laboratory

U1-linear measurement uncertainty, U2-two-dimensional measurement uncertainty, U3-three-dimensional measurement uncertainty

$U_{X,Y}$-uncertainty for X and Y axes, U_Z-uncertainty for Z axis

L - length in [m], l – length in [µm] - only for ordinal number 11 and 13

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M – maximum measured distance [m]
DI – Dial Indicator

Measured instruments or devices:

(In accordance with the above list of measured quantities and the ranges of measurement the following types of instruments or devices can be measured.)

Ordinal number	Measured instrument/device type
1.	Micrometer calliper gauges
2.	Steel parallels
3.	Slide gauges, height gauges – digital
4.	Length gauges - flexible and rigid, rules of portable microscopes, measuring tapes for circumference and diameter measurement, measuring tapes, tape measures – digital, folding rules, telescopic tubes
5.	Tape measures
6.	Inside micrometer gauges, folding inside micrometer gauges, inside micrometers, micrometer depth gauges, micrometric heads
7.	Weld gauges
8.	Feeler gauges, wedges for joints, adjustable gauges for ultrasonic equipment
9.	Dial indicators (analogue, digital)
10.	Calibration foil
11.	Layer thickness measuring devices (mechanical, electronic)
12.	Cylindrical, flat and slot gauges, rigid inside micrometers, check tubes, balls
13.	Film thickness standards
14.	Pasameters, micropasameters
15.	Thickness gauges with dial indicator, dial indicators with measuring arms for external measurement, dial indicators with measuring arms for internal measurement, internal gauges with dial indicator, depth gauges with dial indicator
16.	Length sensor
17.	Roller length gauges
18.	Limit and end measuring rings, snap gauges
19.	Ultrasonic thickness gauges
20.	Thread gauges – male
21.	Thread gauges – female
22.	Rules, check bars
23.	Measuring microscope (projectors)
24.	Length measuring instruments
25.	Radius, weld, thread gauges, measuring wedges, scales of gauges, special gauges, meters and jigs specified by drawings
26.	Length gauges, measuring microscopes, profile projectors, metering systems, coordinate measuring machines, surface rules and blocks, surface plates

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Field of measured quantity: **Plane angle**

Calibration: Nominal calibration temperature: (20 ± 1) °C

Ordinal number	Measured quantity	Measured quantity range	Calibration and Measurement Capability [±] [1)]	Calibration procedure identification
1.	Knife, flat and trying angles	up to 630 mm	(5 + 10·H) µm	PP-11.04
		> 630 mm up to 1000 mm	35 µm	
		>1000 mm up to 2,000 mm	75 µm	
2.	Universal angle gauges: - division 1´and 2´	(0 ÷ 360)°	2´	PP-11.07
	- division 5´		3´	
	- division 10´		6´	
	Protractors: - division 0.5°	(0 ÷ 180)°	0.17°	
	- division 1°		0.26°	
3.	Liquid and electronic levels	± 2 mm/m	4 µm/m	PP-11.37
		± 20 mm/m	8 µm/m	
	Clinometers	± 90°	9´´	
	Builder's levels	up to 2 m	0.18 mm/m	
	Builder's levels with angle gauges or clinometers - division 0.1°	± (0 ÷ 180)°	0.2°	
	- division 1°		0.24°	

[1)] Expressed like uncertainty in accordance with the requirements of the document EA 4/02 at k = 2.

PP – Working Procedure of the Laboratory
H – arm length [m]

Measured instruments or devices:

(In accordance with the above list of measured quantities and the ranges of measurement the following types of instruments or devices can be measured.)

Ordinal number	Measured instrument/device type
1.	Knife, flat and trying angles
2.	Universal angle gauges and protractors
3.	Liquid and electronic levels, clinometers, builder's levels, builder's levels with angle gauges and clinometers

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Field of measured quantity: force

Calibration: Nominal calibration temperature: (23 ± 5) °C

Ordinal number	Measured quantity	Measured quantity range	Calibration and Measurement Capability [±] [1)]	Calibration procedure identification
1.	Torque	(1.25 ÷ 25) Nm	0.45 % MV	PP-11.70
		(20 ÷ 400) Nm	0.47 % MV	
		(75 ÷ 1500) Nm	0.44 % MV	

[1)] Expressed like uncertainty in accordance with the requirements of the document EA 4/02 at k = 2.

PP – Working Procedure of the Laboratory

MV – Measured Value [Nm]

Measured instruments or devices:

(In accordance with the above list of measured quantities and the ranges of measurement the following types of instruments or devices can be measured.)

Ordinal number	Measured instrument/device type
1.	Torque wrenches and screwdrivers

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Measured quantity field: temperature

Calibration: Nominal calibration temperature: (23 ± 5) °C

Ordinal number	Measured quantity	Measured quantity range	Calibration and Measurement Capability [±] [1)]	Calibration procedure identification
1.	Direct-indicating electronic thermometers	(-30 ÷ 100) °C	0.10 °C	PP-11.90
		(100 ÷ 300) °C	0.20 °C	
		(300 ÷ 500) °C	0.40 °C	
		(500 ÷ 650) °C	0.60 °C	
2.	Direct-indicating electronic contact thermometers	(-30 ÷ 100) °C	2 °C	
		(100 ÷ 200) °C	3 °C	
		(200 ÷ 300) °C	5 °C	
		(300 ÷ 500) °C	6 °C	
3.	Thermometers for the measurement of air temperature	(-10 ÷ 100) °C	0.3 °C	PP-11.91
4.	Infrared thermometers	(35 ÷ 100) °C	1,3 °C	PP-11.92
		(100 ÷ 300) °C	2,2 °C	
		(300 ÷ 500) °C	3,3 °C	

[1)] Expressed like uncertainty in accordance with the requirements of the document EA 4/02 at k = 2.

Measured instruments or devices:

(In accordance with the above list of measured quantities and the ranges of measurement the following types of instruments or devices can be measured.)

Ordinal number	Measured instrument/device type
1.	Direct-indicating electronic thermometers
2.	Direct-indicating electronic contact thermometers
3.	Dial thermometers, outdoor (glass, covered) thermometers, digital (electronic) thermometers, thermometers for the measurement of air temperature, measuring chains for the measurement of air temperature, dataloggers for the measurement of air temperature
4.	Infrared thermometers

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Measured quantity field: humidity

Calibration: Nominal calibration temperature: (23 ± 5) °C

Ordinal number	Measured quantity	Measured quantity range	Calibration and Measurement Capability [±] [1)]	Calibration procedure identification
1.	Hygrometers Relative humidity	(10 ÷ 50) % RH	1,5 % RH	PP -11.95
		(50 ÷ 70) % RH	2,0 % RH	
		(70 ÷ 90) % RH	2,5 % RH	

[1)] Expressed like uncertainty in accordance with the requirements of the document EA 4/02 at k = 2.

RH - Relative Humidity

PP – Operating Procedure

Measured instruments or devices:

(In accordance with the above list of measured quantities and the ranges of measurement the following types of instruments or devices can be measured.)

Ordinal number	Measured instrument/device type
1.	Hair (deformation) hygrometers, digital (electronic) hygrometers, measuring chains of relative humidity, relative humidity meters, dataloggers for the measurement of relative humidity