The Appendix is an integral part of
Certificate of Accreditation No. 437/2023 of 14/08/2023

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

VOP CZ, s.p.
CAB number 2399, Calibration Laboratory
Dukelská 102, 742 42 Šenov u Nového Jičína

CMC for the field of measured quantity: Length

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range	Parameter(s) of the measurand	Lowest stated expanded measurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min. unit max. unit					
1	Slide gauges	0 mm to 250 mm 250 mm to 1000 mm		(11·L + 12) µm (14·L + 19) µm	Comparison with parallel gauge blocks	KP-GL-2.1	
2	Slide depth gauges	0 mm to 250 mm		(11·L + 12) µm	Comparison with parallel gauge blocks	KP-GL-2.8	
3	Slide height gauges	0 mm to 1,000 mm		(14·L + 19) µm	Comparison with parallel gauge blocks	KP-GL-2.9	
4	Weld gauges	0 mm to 100 mm		(14·L + 120) µm	Comparison with parallel gauge blocks	KP-GL-2.7	
5	Micrometer calliper gauges	0 mm to 200 mm 200 mm to 500 mm		(11·L + 1.5) µm (14·L + 16) µm	Comparison with parallel gauge blocks	KP-GL-2.2	
6	Pasameters	0 mm to 200 mm		(11·L + 1.5) µm	Comparison with parallel gauge blocks	KP-GL-2.3	
7	Dial indicators	0 mm to 25 mm		(14·L + 1.5) µm	Direct measurement on a device for the calibration of dial indicators	KP-GL-2.4	
8	Two-contact internal gauges	0 mm to 200 mm		(14·L + 1.3) µm	Direct measurement on a device for the calibration of dial indicators	KP-GL-2.4	
9	Thickness gauges	0 mm to 1 mm		1.2 µm	Direct measurement on a length gauge	KP-GL-2.6	
10	Plain cylindrical gauges	0 mm to 200 mm		(14·L + 2.4) µm	Direct measurement on a length gauge	KP-GL-1.2	
11	Male thread gauges for metric threads	3 mm to 100 mm		(14·L + 2.8) µm	Direct measurement of a dimension across wires on a length gauge	KP-GL-4.1	
12	Tape measures	10,00 0 mm to 0 mm		(0.042·L + 0.13) mm	Comparison with a linear scale	KP-GL-1.7	
13	Steel rules	0 mm to 2,000 mm		(0.042·L + 0.13) mm	Comparison with a linear scale	KP-GL-1.6	
14	Feeler gauges	0 mm to 10 mm		(14·L + 1.9) µm	Direct measurement on a length gauge	KP-GL-1.4	
15	Calibration foils	0 mm to 10 mm		1.9 µm	Direct measurement on a length gauge	KP-GL-1.9	
16	Inside micrometer gauges	0 mm to 250 mm		(14·L + 2.4) µm	Direct measurement on a length gauge	KP-GL-2.10	

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		min.	unit	max.	unit					
17	Surface rules	0 mm	to	1,100 mm			(1.4·L + 7) µm	Comparison with a linearity standard and parallel gauge blocks	KP-GL-3.1	
18	Two-contact and three-contact inside micrometers	0 mm	to	200 mm			(14·L + 1.5) µm	Direct measurement on a length gauge	KP-GL-2.11	
19	Setting and limit rings	22 mm	to	200 mm			(14·L + 2.2) µm	Comparative measurement by a distance meter	KP-GL-1.5	
20	90°Angles	0 mm	to	4 mm		length up to 630 length up to 1,000 mm	(1.4·L + 9.2) µm (2·L + 22) µm	Direct measurement of parallel gauge blocks, with an indicator	KP-GU-1.1	

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Explanatory notes:

L - nominal length (m)

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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[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
1	Angle gauges	0	°	to 360	°		4.8 ´	Comparison with angle gauges	KP-GU-2.1	
2	Clinometers	0	°	to 360	°		0.12 °	Comparison with a sine ruler	KP-GU-2.2	
3	Machinery and builder's levels (up to 2,000mm)	0	mm/m	to 87	mm/m		0.02 mm/m	Comparison with a sine ruler	KP-GU-2.3	

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CMC for the field of measured quantity: Force, mechanical tests

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min	jedn.		max	jedn.	Parameter(s) of the measurand	Lowest stated expanded measurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
1	Torque wrenches and screwdrivers	1 Nm		to	1,000 Nm			0.6 %	Comparison with a torque sensor	KP-MS-3.1	
2	Hardness test plates and samples - Rockwell	10 HRBW		to	100 HRBW		HRBW	1.3 %	ČSN EN ISO 6508-3	KP-MS-2.3	
		20 HRC		to	70 HRC		HRC	1.2 %			
3	Hardness test plates and samples - Brinell	10 HBW		to	650 HBW		HBW 2.5	1.4 %	ČSN EN ISO 6506-3	KP-MS-2.4	
4	Hardness test plates and samples - Vickers	10 HV		to	3,000 HV		HV 10	1.6 %	ČSN EN ISO 6507-3	KP-MS-2.2	
							HV 30	1.2 %			

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CMC for the field of measured quantity: Pressure

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min.	unit		max.	unit	Parameter(s) of the measurand		Lowest stated expanded measurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
1	Deformation pressure gauges	0 MPa	to	3 MPa	relative pressure	liquid (alcohol, oil)	4.8 kPa	Comparison with a standard digital pressure gauge	KP-MT-1.1	
		3 MPa	to	20 MPa			32 kPa			
		20 MPa	to	50 MPa			65 kPa			
		50 MPa	to	140 MPa			190 kPa			
2	Digital pressure gauges	0 MPa	to	3 MPa	relative pressure	liquid (air)	3.8 kPa	Comparison with a standard digital pressure gauge	KP-MT-1.2	
		3 MPa	to	20 MPa			25 kPa			
		20 MPa	to	50 MPa			37 kPa			
		50 MPa	to	140 MPa			104 kPa			

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CMC for the field of measured quantity: Electrical quantities

Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded measurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit	max.	unit					
1	Direct-current voltage/ voltmeters, multimeters, analogue and digital	0 mV	to	20 mV			0.035 % + 10 μV	Direct measurement by a standard calibrator	KP-EM-2.1 KP-EM-2.2	
		20 mV	to	100 mV			0.095 %			
		100 mV	to	200 mV			0.029 %			
		0.2 V	to	1 V			0.012 %			
		1 V	to	2 V			0.0054 %			
		2 V	to	10 V			0.0090 %			
		10 V	to	20 V			0.0047 %			
		20 V	to	100 V			0.0090 %			
		100 V	to	240 V			0.0047 %			
		240 V	to	1,000 V			0.029 %			
2	Alternating-current voltage/ voltmeters, multimeters, analogue and digital	10 mV	to	20 mV		20 Hz to 10 kHz	0.58 %	Direct measurement by a standard calibrator	KP-EM-2.1 KP-EM-2.2	
		20 mV	to	100 mV		20 Hz to 10 kHz	0.56 %			
		100 mV	to	200 mV		20 Hz to 10 kHz	0.21 %			
		0.2 V	to	1 V		20 Hz to 10 kHz	0.066 %			
		1 V	to	2 V		20 Hz to 10 kHz	0.038 %			
		2 V	to	10 V		20 Hz to 10 kHz	0.066 %			
		10 V	to	20 V		20 Hz to 10 kHz	0.038 %			
		20 V	to	100 V		20 Hz to 10 kHz	0.58 %			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range				Parameter(s) of the measurand	Lowest stated expanded measurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		min.	unit		max. unit					
		100 V	to	240 V		20 Hz to 1 kHz	0.15 %			
		240 V	to	1,000 V		20 Hz to 1 kHz	0.13 %			
3	Direct current/ ammeters, multimeters, analogue and digital	1 µA	to	200 µA			0.058 % + 20 nA	Direct measurement by a standard calibrator	KP-EM-2.1 KP-EM-2.2	
		0.2 mA	to	1 mA			0.078 %			
		1 mA	to	2 mA			0.035 %			
		2 mA	to	10 mA			0.045 %			
		10 mA	to	20 mA			0.019 %			
		20 mA	to	100 mA			0.046 %			
		100 mA	to	200 mA			0.019 %			
		0.2 A	to	1 A			0.072 %			
		1 A	to	2 A			0.029 %			
		2 A	to	10 A			0.13 %			
		10 A	to	20 A			0.047 %			
4	Alternating current/ ammeters, multimeters, analogue and digital	10 µA	to	100 µA		20 Hz to 1 kHz	0.52 %	Direct measurement by a standard calibrator	KP-EM-2.1 KP-EM-2.2	
		100 µA	to	200 µA		20 Hz to 1 kHz	0.21 %			
		0.2 mA	to	1 mA		20 Hz to 1 kHz	0.24 %			
		1 mA	to	2 mA		20 Hz to 1 kHz	0.12 %			
		2 mA	to	10 mA		20 Hz to 1 kHz	0.18 %			
		10 mA	to	20 mA		20 Hz to 1 kHz	0.092 %			

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Ord. number[1]	Calibrated quantity / Subject of calibration	Nominal range min. unit		Nominal range max. unit	Parameter(s) of the measurand	Lowest stated expanded measurement uncertainty[2]	Calibration principle	Calibration procedure identification[3]	Work-place
		20 mA	to	100 mA	20 Hz to 1 kHz	0.17 %			
		100 mA	to	200 mA	20 Hz to 1 kHz	0.090 %			
		0.2 A	to	1 A	20 Hz to 1 kHz	0.21 %			
		1 A	to	2 A	20 Hz to 1 kHz	0.12 %			
		2 A	to	10 A	20 Hz to 1 kHz	0.49 %			
		10 A	to	20 A	20 Hz to 1 kHz	0.23 %			
5	DC resistance/ ohmmeters, multimeters, analogue and digital						Direct measurement with a standard calibrator or resistance standard	KP-EM-2.1 KP-EM-2.2	
		0 Ω	to	100 Ω		0.036 % + 30 mΩ			
		100 Ω	to	400 Ω		0.038 %			
		0.4 kΩ	to	2 kΩ		0.023 %			
		2 kΩ	to	10 kΩ		0.019 %			
		10 kΩ	to	200 kΩ		0.018 %			
		0.2 MΩ	to	1 MΩ		0.059 %			
		1 MΩ	to	4 MΩ		0.12 %			
		4 MΩ	to	20 MΩ		0.23 %			
		20 MΩ	to	50 MΩ		0.59 %			

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