#### M & B Calibr, spol. s r.o.

CAB number 2301, Calibration Laboratory Krumlovská 1454/26, 664 91 Ivančice

CMC for the field of measured quantity: Length

Ord.	Calibrated quantity /	No	ominal ı	range	Parameter(s) of	Lowest stated expanded	g .m	Calibration	- ·
num- ber <sup>1</sup>	Subject of calibration	min. unit		max. unit	the measurand	measurement uncertainty <sup>2</sup>	Calibration principle	procedure identification <sup>3</sup>	Location
1	Steel parallels						Comparative measurement	KP D1	
		0.5 mm	to	1,000 mm		$(2\cdot L + 0.2) \mu m$	using steel parallels		
2*	Steel length gauges						Comparative measurement	KP D2	
		0 m	to	2 m		60 μm	using steel parallels		
		2 m	to	5 m		180 µm			
	Steel tape measures			2		0.14	Comparative measurement on a		
		0 m	to	2 m		0.14 mm	reference track		
		2 m	to	3 m		0.28 mm			
		3 m	to	5 m		0.42 mm			
		5 m	to	8 m		0.70 mm			
		8 m	to	10 m		0.98 mm			
3	Tape measures	0 m	to	10 m		0.4 mm	Comparative measurement	KP D3	
		10 m	to	20 m		0.6 mm	on a reference track		
		20 m	to	50 m		1.0 mm			
		50 m	to	100 m		2.2 mm			
	Laser distance meters	0 m	to	5 m		0.2 mm			
		5 m	to	10 m		0,4 mm			
4	Limit and end measuring						Direct and comparative	KP D4	
	rings						measurement by a distance		
		1 mm	to	100 mm		$(2\cdot L + 0.5) \mu m$	meter		
		100 mm	to	500 mm		$(2\cdot L + 2.4) \mu m$			
	Limit snap gauges	1 mm	to	100 mm		$(2:L + 0.5) \mu m$			
		100 mm	to	500 mm		$(2:L + 2.4) \mu m$			
	Feeler gauges	0.02 mm	to	100 mm		$(2\cdot L + 0.5) \mu m$			
	Limit cylindrical	100 mm	to	500 mm		$(2 \cdot L + 2.4) \mu m$			
	gauges								

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

#### M & B Calibr, spol. s r.o.

Ord.	Calibrated quantity /	No	ominal	range	Parameter(s) of	Lowest stated expanded		Calibration	T
num- ber <sup>1</sup>	Subject of calibration	min. unit		max. unit	the measurand	measurement uncertainty <sup>2</sup>	Calibration principle	procedure identification <sup>3</sup>	Location
5*	Feeler gauges, Limit					$(2\cdot L + 2.4) \mu m$	Direct measurement by a	KP D4	
	cylindrical gauges.	1 mm	to	125 mm		$(2L + 2.4) \mu m$	micropasameter		
6	Limit plug gauges						Direct measurement by a	KP D5	
		1 mm	to	200 mm		$(3\cdot L + 3) \mu m$	distance meter		
							Direct measurement on		
		1 mm	to	160 mm		$(1:L + 4) \mu m$	MasterScanner XP 16060		
	Threaded rings						Comparison by a wear pin		
		1 mm	to	3 mm		$(3\cdot L + 3) \mu m$	gauge	_	
				• • •		(0.7	Indirect measurement by a		
		2.5 mm	to	200 mm		$(3\cdot L + 3) \mu m$	distance meter		
				1.60		(17 4)	Direct measurement on		
	T 1	3 mm	to	160 mm		$(1\cdot L + 4) \mu m$	MasterScanner XP 16060	VD D 5	
7*	Limit plug gauges	1	to	125 mm		(2.1 + 2.5)	Direct measurement by a	KP D5	
8*	Slide gauges: slide rules,	1 mm	to	123 111111		$(3\cdot L + 3.5) \mu\text{m}$	micropasameter  Comparative measurement	KP D6	
8**	depth gauges, height						using steel parallels and ring	Kr D0	
	gauges	0 mm	to	1,000 mm		12 μm	using steel paramets and fing		
	gauges	1,000 mm	to	3,000 mm		20 μm			
9*	Micrometer gauges:	1,000 111111	ιο	3,000 111111		20 μπ	Comparative measurement	KP D7	
9*	micrometers, pasameters,						using steel parallels	Kr D/	
	micropasameters,						using seed paramets		
	micrometer heads,								
	micrometer depth gauges	0 mm	to	25 mm		0.7 µm			
		25 mm	to	100 mm		1.4 µm			
		100 mm	to	1,000 mm		2.5 μm			
		1,000 mm	to	1,500 mm		4.1 μm			
10*	Inside micrometers	1,000 11111	ιο	1,500 11111		4.1 μ111	Comparative measurement	KP D8	
10.	Three contact internal						using setting rings	IXI Do	
	gauges	2 mm	to	100 mm		2.0 µm			
	00	100 mm	to	300 mm		4.0 μm	1		
		100 11111	ιυ	500 IIIII		τ.υ μπ			

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

#### M & B Calibr, spol. s r.o.

Ord.	Calibrated quantity /	No	ominal r	ange	Parameter(s) of	Lowest stated expanded		Calibration	
num- ber <sup>1</sup>	Subject of calibration	min. unit		max. unit	the measurand	measurement uncertainty <sup>2</sup>	Calibration principle	procedure identification <sup>3</sup>	Location
11	Inside micrometer gauges						Direct measurement by a	KP D9	
		10 mm	to	3,000 mm		$(3\cdot L + 2.2) \mu m$	distance meter		
12*	Electromagnetic,						Comparative measurement by a	KP D10	
	ultrasonic thickness						thickness reference standard		
	gauges	0 mm	to	1.5 mm		$(1 \cdot L + 1.3) \mu m$			
		1.5 mm	to	500 mm		$(1:L + 2.3) \mu m$			
13	Direct and lever dial						Direct measurement by a special	KP D11	
	indicators	0 mm	to	100 mm		0.3 µm	measuring device		
	Two-contact internal								
	gauges	2 mm	to	205 mm		0.3 µm			
14	Gauges, measuring jigs,						Measurement by a 3D CMM	KP D12	
	templates, meters of								
	plane and angle	0 mm	to	2,000 mm		$(4.5 L + 1.7) \mu m$			
15*	Profile projectors,						Comparative measurement	KP D13	
	measuring microscopes	0 mm	to	300 mm		$(1.L + 2.6) \mu m$	using a rule		
16*	Measurement of						Direct measurement by a laser	KP D14	
	straightness, linear						interferometer		
	sensing, measurement								
	flatness	0 m	to	20 m		$(1\cdot L + 0.1)  \mu m$			
	engineering gauges	0 m	to	20 m		$1.5 \ \mu m/m^2$			
17	Gauges, measuring jigs,						Measurement by a linear height	KP D15	
	special meters	0 mm	to	600 mm		$(2.5 \cdot L + 1.2) \mu m$	gauge		
18*	Linear height gauges						Comparative measurement by a	KP D16	
		0 mm	to	600 mm		$(0.8 \cdot L + 0.5)  \mu m$	calibration comb		
							Comparative measurement by a		
							calibration comb and steel		
		600 mm	to	1,000 mm		$(1\cdot L + 3.0)  \mu m$	parallels		
19*	Contourographs	_					Comparative measurement	KP D17	
		0 mm	to	100 mm		$(1\cdot L + 2.6) \mu m$	using end standards		

#### M & B Calibr, spol. s r.o.

CAB number 2301, Calibration Laboratory Krumlovská 1454/26, 664 91 Ivančice

Ord.	Calibrated quantity /	No	minal r	ange	Parameter(s) of	Lowest stated expanded	g .m	Calibration	<b>.</b>
num- ber <sup>1</sup>	Subject of calibration	min. unit		max. unit	the measurand	measurement uncertainty <sup>2</sup>	Calibration principle	procedure identification <sup>3</sup>	Location
20*	Length measuring						Direct measurement by a laser	KP D18	
	instruments	0 mm	to	20,000 mm		$(2\cdot L + 0.2) \mu m$	interferometer		
21*	3D coordinate measuring						Comparative measurement by a	KP D19	
	machines	0 mm	to	600 mm		$(2\cdot L + 0.2) \mu m$	calibration comb		
							Comparative measurement by a		
							calibration comb and steel		
		600 mm	to	1,000 mm		$(2\cdot L + 0.2) \mu\text{m}$	parallels		
							Direct measurement by a laser		
		0 mm	to	10,000 mm		$(1\cdot L + 0.1) \mu m$	interferometer		
22	Gauges, special meters,						Direct measurement by a 2D	KP D20	
	measuring jigs,						microscope		
	templates, rules	0 mm	to	330 mm		$(2\cdot L + 3.5) \mu m$			
23	Blade and surface rules	0 mm	to	2,000 mm		$(5.L + 2) \mu m$	Direct measurement on a plate	KP D21	
		2,000 mm	to	3,000 mm		$(5\cdot L + 12) \mu m$	Measurement on a bed		
24*	Roughness meters						Comparative measurement by a	KP DR1	
	_	0.01 µm	to	6,000 µm		5 %	roughness reference standard		
25	Roughness standards						Direct measurement by a	KP DR1	
		0.01 µm	to	6,000 µm		5 %	roughness meter		
26	Angles from 0° to 180°				Length of the arm		Direct measurement by a 3D	KP R2	
		0 mm	to	7 mm	up to 3 m	$(4.5 L + 2) \mu m$	CMM		

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

Explanatory notes:

CMM – coordinate measuring machine

L – nominal length in metres

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).

#### M & B Calibr, spol. s r.o.

CAB number 2301, Calibration Laboratory Krumlovská 1454/26, 664 91 Ivančice

CMC for the field of measured quantity: Plane angle

Ord.	Calibrated quantity /	Nom	inal ra	ange		Lowest stated expanded	a	Calibration	
num- ber <sup>1</sup>	Subject of calibration min. unit max. unit		Parameter(s) of the measurand	measurement uncertainty <sup>2</sup>	Calibration principle	procedure identification <sup>3</sup>	Location		
1	Levels – builder's, liquid, machine	-52 mm/m	to	52 mm/m	Division sensitivity from 0.01 mm/m	0.005mm/m	Direct measurement by a small angle generator	KP R1	
	Clinometers	-180 °	to	180 °	Division from 0.01°	0.15°			
2	Angle gauges						Direct measurement	KP R2	
		0 °	to	360 °		5′	using angle gauges		

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

<sup>&</sup>lt;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>&</sup>lt;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).

#### M & B Calibr, spol. s r.o.

CAB number 2301, Calibration Laboratory Krumlovská 1454/26, 664 91 Ivančice

CMC for the field of measured quantity: Mass

Ord.	Calibrated quantity /	Nor	ninal 1	range	Donomoton(s) of the	Lowest stated		Calibration	Loca-
num- ber <sup>1</sup>	Subject of calibration	min. unit		max. unit	Parameter(s) of the measurand	expanded measurement uncertainty <sup>2</sup>	Calibration principle	procedure identification <sup>3</sup>	tion
1*	Non-automatic weighing instruments						Reference weight loading (according to OIML R111-1:2004)	KP VA1	
		0.001 g	to	2000 g	E2 class weight	2.7·10 -6			
		2 kg	to	20 kg	F2 class weight	1.4·10 -5			
		20 kg	to	1000 kg	M1 class weight	5.0·10 -5			
2	Conventional weight of weights and objects						Comparison with a reference weight (according to OIML R111-	KP VA2	
				1 g		0.4 mg	1:2004) on the standard scales		
		1 g	to	2 g		0.5 mg			
		2 g	to	5 g		0.6 mg			
		5 g	to	10 g		0.7 mg			
		10 g	to	20 g		0.9 mg			
		20 g	to	50 g		1.2 mg			
		50 g	to	100 g		1.9 mg			
		100 g	to	200 g		2.8 mg			
		200 g	to	500 g		5.1mg			
		500 g	to	1 kg		10 mg			
		1 kg	to	2 kg		17 mg			
		2 kg	to	5 kg		31 mg			
		5 kg	to	10 kg		60 mg			
1		10 kg	to	20 kg		90 mg			

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

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>&</sup>lt;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).

#### M & B Calibr, spol. s r.o.

CAB number 2301, Calibration Laboratory Krumlovská 1454/26, 664 91 Ivančice

#### CMC for the field of measured quantity: Rotational speed

Ord. num- ber <sup>1</sup>	Calibrated quantity / Subject of calibration	Nominal min. unit	max. unit Paramete of the measura		Lowest stated expanded measurement uncertainty <sup>2</sup>	Calibration principle	Calibration procedure identification <sup>3</sup>	Location
1*	Revolution meters					Direct measurement by a revolution	KP OT1	
		30 min <sup>-1</sup> to 40,000 min <sup>-1</sup>			1.1 %	generator		

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

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).

#### M & B Calibr, spol. s r.o.

CAB number 2301, Calibration Laboratory Krumlovská 1454/26, 664 91 Ivančice

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

Ord.	Calibrated quantity / Subject of	No	minal	range	- Parameter(s) of	Lowest stated expanded		Calibration	
num- ber <sup>1</sup>	calibration	min unit.		max unit.	the measurand	measurement uncertainty <sup>2</sup>	Calibration principle	procedure identification <sup>3</sup>	Location
1	Hardness / Rockwell hardness						Direct measurement	KP TV1	
	plates and samples	70 HRA	to	85 HRA		0.40 HRA			
		60 HRB	to	100 HRB		0.40 HRB			
		20 HRC	to	70 HRC		0.40 HRC			
	Hardness / Hardness plates								
	Shore A	0 ShA	to	100 ShA		2.0 ShA			
	Shore D	0 ShD	to	100 ShD		2.0 ShD			
	Brinell	8 HBW	to	650 HBW		1.0 %			
	Vickers	10 HV	to	2,900 HV	HV2 to HV50	1.0 %			
2*	Hardness / Hardness meters for						Direct measurement using	KP TV1	
	metals						reference hardness plates		
	Rockwell	70 HRA	to	85 HRA		0.50 HRA			
		60 HRB	to	100 HRB		0.50 HRB			
		20 HRC	to	70 HRC		0.50 HRC			
	Vickers	10 HV	to	2,000 HV		0.50 %			
	Brinell	10 HBW	to	650 HBW		0.50 %			
	Hardness / Shore hardness								
	meters, type A,D,E,C	1 Sh	to	100 Sh		0.50 Sh			
3*	Torque / Torque wrenches						Comparative measurement by	KP S1	
		0.1 Nm		,100 Nm		0.65 %	a reference torque sensor		
		1,100 Nm	to 3	,000 Nm		0.90 %			
	Torque / Torque measuring								
	devices, torque drivers, torque	0.1.37		700 N		0.40.0/			
	sensors	0.1 Nm		500 Nm		0.40 %			
		500 Nm	to 2	,000 Nm		1.05 %			

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

#### M & B Calibr, spol. s r.o.

Ord.	Calibrated quantity / Subject of		Nominal	range		Parameter(s) of	Lowest stated expanded		Calibration	
num- ber <sup>1</sup>	calibration	min	unit.	max	unit.	the measurand	measurement uncertainty <sup>2</sup>	Calibration principle	procedure identification <sup>3</sup>	Location
4	Moment of force / Force meters							Comparative measurement	KP S2	
	and extensometric sensors	0.001 N	to	5 kN			0.20 %	by a reference force sensor		
		5 kN	N to	30 kN			0.30 %			
5*	Moment of force / Force meters							Comparative measurement	KP S2	
	and extensometric sensors	0.001 N	to	5 kN			0.20 %	by a reference force sensor		
		5 kN	N to	20 kN			0.30 %			

<sup>&</sup>lt;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>&</sup>lt;sup>2</sup> The expanded measurement uncertainty is in accordance with ILAC-P14 and EA-4/02 M, part of CMC, and it is the lowest value of the respective uncertainty. If not stated otherwise, its coverage probability is approx. 95 %. If stated otherwise, the uncertainty values stated without a unit are relative to the value measured. If the calibration is carried out outside the laboratory premises, the measurement uncertainty may be affected.

<sup>&</sup>lt;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).

#### M & B Calibr, spol. s r.o.

CAB number 2301, Calibration Laboratory Krumlovská 1454/26, 664 91 Ivančice

#### CMC for the field of measured quantity: Pressure

Ord.	Calibrated quantity / Subject of	Noi	ninal raı	nge	Paran	neter(s) of the	Lowest stated expanded		Calibration	Loca-
num- ber <sup>1</sup>	calibration	min. unit	ma	ax. unit		easurand	measurement uncertainty <sup>2</sup>	Calibration principle	procedure identification <sup>3</sup>	tion
1*	Deformation manometers, tyre pressure gauges, electromechanical pressure gauges (digital pressure gauges, pressure transducers with digital output of the measured quantity)	kPa	to	7 MPa	Gas	Absolute pressure	0.05% +100 Pa	Comparative measurement by a reference digital pressure gauge	KP T1, KP T2	
	output of the measured quantity)	-100 kPa 0 kPa 35 kPa	to to to	0 kPa 35 kPa 7 MPa	Gas	Overpressure	130 Pa 18 Pa 0.05%			
		0 kPa 7 MPa 70 MPa	to to to	7 MPa 70 MPa 140 MPa	Liquids	Absolute pressure	0.05% +100 Pa 0.05% 0.2 %			
		0 MPa 1.4 MPa 70 MPa	to to to	1.4 MPa 70 MPa 140 MPa	Liquids	Overpressure	1,4 kPa 0.05 % 0.2 %			

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

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>&</sup>lt;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).

#### M & B Calibr, spol. s r.o.

CAB number 2301, Calibration Laboratory Krumlovská 1454/26, 664 91 Ivančice

#### CMC for the field of measured quantity: Temperature

Ord.	Calibrated quantity /	Nom	inal r	ange	Parameter(s)	Lowest stated expanded		Calibration	Loca-
num- ber¹	Subject of calibration	min. unit		max. un	of the measurand	measurement uncertainty <sup>2</sup>	Calibration principle	procedure identification <sup>3</sup>	tion
1*	Direct-indicating thermometers	-30 °C	to	0 °C		0.14 °C	Comparison with a reference digital thermometer in a dry block calibrator	KP TE1	
		0 °C	to	100 °C		0.08 °C	Comparison with a reference digital thermometer in a liquid bath		
		100 °C	to	200 °C		0.22 °C	Comparison with a reference digital thermometer in a dry block calibrator		
		200 °C 300 °C	to	300 °C 400 °C		0.32 °C 0.42 °C			
		300 °C 400 °C	to to	400 °C 500 °C		0.42 °C 0.52 °C			
		500 °C	to	650 °C		0.52 °C			
		650 °C	to	1,100 °C		1.5 °C	Comparison with a reference digital thermometer in an air oven		
	Contactless thermometers	-10 °C 200 °C 500 °C	to to	200 °C 500 °C 800 °C		3.0 °C 6.0 °C 10.0 °C	Comparison with a reference pyrometer on target-type or cavity-type black body	KP TE4	
2*	Thermoelectric temperature sensors	-30 °C	to	0 °C		0.7 °C	Comparison with a reference digital thermometer in a dry block calibrator	KP TE2	
	_	0 °C	to	100 °C		0.7 °C	Comparison with a reference digital thermometer in a liquid bath		
		100 °C	to	550 °C		0.9 °C	Comparison with a reference digital thermometer in a dry block calibrator		
		550 °C	to	800 °C		2.3 °C	Comparison with a reference digital thermometer in an air oven		

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

#### M & B Calibr, spol. s r.o.

Ord.	Calibrated quantity /	Nor	ninal ı	range	Parameter(s)	Lowest stated expanded		Calibration	Loca-
num- ber <sup>1</sup>	Subject of calibration	min. unit		max. un	of the measurand	measurement uncertainty <sup>2</sup>	Calibration principle	procedure identification <sup>3</sup>	tion
3*	Resistance temperature						Comparison with a reference digital	KP TE3	1
	sensors	-30 °C	to	0 °C		0.15 °C	thermometer in a dry block calibrator		
							Comparison with a reference digital		
		0 °C	to	100 °C		0.13 °C	thermometer in a liquid bath		
							Comparison with a reference digital		
		100 °C	to	400 °C		0.45 °C	thermometer in a dry block calibrator		

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

<sup>&</sup>lt;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>&</sup>lt;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).

#### M & B Calibr, spol. s r.o.

CAB number 2301, Calibration Laboratory Krumlovská 1454/26, 664 91 Ivančice

CMC for the field of measured quantity: Electrical quantities

Ord.	Calibrated quantity / Subject of calibration		Nor	minal ra	ange		Parameter(s) of the	Lowest stated expanded measurement	Calibration principle	Calibration procedure	Location
ber <sup>1</sup>		min.	unit		max.	unit	measurand	uncertainty <sup>2</sup>	Canoration principle	identification <sup>3</sup>	Location
1*	DC voltage / DC								Direct measurement by a	KP EL2	
	voltage sources	0 n		to	100 1			$0.0062 \% + 6.1 \mu\text{V}$	standard multimeter		
		0.1 V	7	to	1 `	V		$0.0047 \% + 16 \mu\text{V}$			
		1 V	7	to	10	V		0.0047 % + 0.14 mV			
		10 V	7	to	100	V		0.0079 % + 2.0 mV			
		100 V	7	to	1000	V		0.0079 % + 20 mV			
2*	DC voltage / DC								Direct generation with a	KP EL1	
	voltage meters	0 n	ıV	to	200 1	mV		$0.0053 \% + 7.7 \mu\text{V}$	standard calibrator		
		0.2 V		to	2	V		$0.0028 \% + 15 \mu\text{V}$			
		2 V	7	to	20	V		0.0028 % + 0.15 mV			
		20 V	7	to	200	V		0.0028 % + 1.5 mV			
		200 V	7	to	1000	V		0.0035 % + 17 mV			
3*	Direct current / Direct								Direct measurement by a	KP EL2	
	current sources	0 μ	Α	to	10 į	μΑ		0.050 % + 6.1 nA	standard multimeter		
		10 μ	A	to	100 j	μΑ		0.074 % + 17 nA			
		0.1 n	nA	to	1 1	mA		$0.075 \% + 0.16 \mu\text{A}$			
		1 n	nA	to	10 1	mA		$0.034 \% + 1.2 \mu\text{A}$			
		10 n	nA	to	100 1	mA		$0.034 \% + 12 \mu\text{A}$			
		100 n	nA	to	1 .	A		0.068 % + 0.15 mA			
		1 A	1	to	3 .	A		0.061 % + 1.1 mA			
4*	Direct current / Direct								Direct generation with a	KP EL1	
	current meters	0 μ	A	to	200 إ	μA		0.020 % + 73 nA	standard calibrator		
		0.2 n	nA	to	2 1	mA		$0.016 \% + 0.13 \mu\text{A}$			
		2 n	nΑ	to	20 1	mA		$0.009~\% + 0.94~\mu A$			
		20 n	nΑ	to	200 1	mA		$0.012 \% + 9.7 \mu A$			
		0.2 A	1	to	2 .	A		0.018 % + 0.13 mA			

#### M & B Calibr, spol. s r.o.

Ord.	Calibrated quantity /	No	minal r	ange	Parameter(s) of the	Lowest stated expanded measurement	Calibration principle	Calibration procedure	Location
ber <sup>1</sup>	Subject of calibration	min. unit		max. unit	measurand	uncertainty <sup>2</sup>	Canoration principle	identification <sup>3</sup>	
		2 A	to	30 A		0.069 % + 2.5 mA			
							Simulation using current		
		30 A	to	1500 A		0.42 % + 0.13 A	coil		
5*	AC voltage / AC	0.4		100 11	40.44	0.00504 25 11	Direct measurement by a	KP EL2	
	voltage sources	0.1 mV	to	100 mV	10 Hz to 20 kHz	$0.086 \% + 36 \mu V$	standard multimeter		
					20 kHz to 50 kHz	$0.16 \% + 59 \mu V$			
					50 kHz to 100 kHz	$0.69 \% + 93 \mu V$			
		0.1 V	to	1 V	10 Hz to 20 kHz	0.076 % + 0.43 mV			
					20 kHz to 50 kHz	0.14 % + 0.73 mV			
					50 kHz to 100 kHz	0.71 % + 0.81 mV			
		1 V	to	10 V	10 Hz to 20 kHz	0.076 % + 4.4 mV			
					20 kHz to 50 kHz	0.14 % + 7.3 mV			
					50 kHz to 100 kHz	0.71 % + 17  mV			
		10 V	to	100 V	10 Hz to 20 kHz	0.076 % + 44 mV			
					20 kHz to 50 kHz	0.14 % + 73 mV			
					50 kHz to 100 kHz	0.71 % + 81 mV			
		100 V	to	750 V	10 Hz to 20 kHz	0.07 % + 0.35 V			
					20 kHz to 50 kHz	0.14 % + 0.59 V			
					50 kHz to 100 kHz	0.61 % + 1.5 V			
6*	AC voltage / AC						Direct generation with a	KP EL1	
	voltage meters	0.1 mV	to	200 mV	10 Hz to 45 Hz	$0.16 \% + 64 \mu\text{V}$	standard calibrator		
					45 Hz to 10 kHz	$0.049 \% + 69 \mu\text{V}$			
					10 kHz to 20 kHz	$0.12~\% + 86~\mu V$			
					20 kHz to 50 kHz	$0.20~\% + 98~\mu V$			
		0.2 V	to	2 V	10 Hz to 45 Hz	0.082 % + 0.38 mV			
					45 Hz to 10 kHz	0.042 % + 0.29 mV			
					10 kHz to 20 kHz	0.12 % + 0.46  mV			

#### M & B Calibr, spol. s r.o.

Ord.	Calibrated quantity /		Nomi	nal rang	ge		Parameter(s) of the	Lowest stated expanded measurement	Calibration principle	Calibration procedure	Location
ber <sup>1</sup>	Subject of calibration	min.	unit	r	nax.	unit	measurand	uncertainty <sup>2</sup>	Canoration principle	identification <sup>3</sup>	Location
							20 kHz to 50 kHz	0.17 % + 0.73 mV			
		2 V		to	20 V		10 Hz to 45 Hz	0.084 % + 3.8 mV			
							45 Hz to 10 kHz	0.042 % + 2.7 mV			
							10 kHz to 20 kHz	0.12 % + 4.7 mV			
							20 kHz to 50 kHz	0.17 % + 5.6 mV			
		20 V	•	to	200 V		30 Hz to 45 Hz	0.082 % + 31 mV			
							45 Hz to 10 kHz	0.10 % + 43 mV			
							10 kHz to 20 kHz	0.14 % + 56 mV			
							20 kHz to 40 kHz	0.17 % + 61 mV			
		200 V		to	1000 V		30 Hz to 45 Hz	0.082 % + 0.45 V			
							45 Hz to 1 kHz	0.09 % + 0.28 V			
							1 kHz to 5 kHz	0.14 % + 0.38 V			
							5 kHz to 10 kHz	0.16 % + 0.49 V			
7*	Alternating current /								Direct measurement by a	KP EL2	
	Alternating current								standard multimeter		
	sources	0,1 μ		to	100 μΑ		10 Hz to 1 kHz	0.15 % + 7.3 nA			
		0,1 m		to	1 m		10 Hz to 5 kHz	$0.10 \% + 0.51 \mu\text{A}$			
		1 m		to	10 m		10 Hz to 5 kHz	$0.10 \% + 5.1 \mu\text{A}$			
		10 m		to	100 mA		10 Hz to 5 kHz	$0.10 \% + 51 \mu\text{A}$			
		0,1 A		to	1 A		10 Hz to 5 kHz	0.10 % + 0.51  mA			
		1 A		to	3 A		10 Hz to 5 kHz	0.15 % + 3.4 mA			
8*	Alternating current /								Direct generation with a	KP EL1	
	Alternating current	20		4	200 4		10 11 4 45 11	0.25.0/ . 0.40 . 4	standard calibrator		
	meters	20 μ	A	to	200 μΑ	A.	10 Hz to 45 Hz	$0.25 \% + 0.40 \mu\text{A}$			
		0.2					45 Hz to 1 kHz	$0.08 \% + 0.30 \mu\text{A}$			
		0,2 m	ıΑ	to	2 m/	A	10 Hz to 45 Hz	$0.23 \% + 0.40 \mu\text{A}$			
							45 Hz to 1 kHz	$0.06 \% + 0.30 \mu A$			

#### M & B Calibr, spol. s r.o.

Ord.	Calibrated quantity /		Nor	minal ra	ange	Parameter(s) of the	Lowest stated expanded measurement	Calibration principle	Calibration procedure	Location
ber <sup>1</sup>	Subject of calibration	min.	unit		max. unit	measurand	uncertainty <sup>2</sup>	Canbi ation principle	identification <sup>3</sup>	Location
		2 mA		to	20 mA	10 Hz to 45 Hz	0.23 % + 4.5 μA			
						45 Hz to 1 kHz	$0.05 \% + 3.0 \mu\text{A}$			
		20	mA	to	200 mA	10 Hz to 45 Hz	$0.23 \% + 45 \mu\text{A}$			
						45 Hz to 1 kHz	$0.05 \% + 30 \mu\text{A}$			
		0.2	A	to	2 A	10 Hz to 45 Hz	0.23 % + 0.45 mA			
						45 Hz to 1 kHz	0.06 % + 0.30 mA			
		2	A	to	30 A	30 Hz to 45 Hz	0.23 % + 4.5 mA			
						45 Hz to 100 Hz	0.06 % + 3.0 mA			
						100 Hz to 1 kHz	0.60 % + 5.8 mA			
								Simulation using current		
		30	A	to	1500 A	30 Hz to 60 Hz	0.42 % + 0.13 A	coil		
9*	DC resistance / DC							Direct generation with a	KP EL 1	
	resistance / DC				0.1.0		9.70	standard calibrator		
	resistance meters				0.1 Ω 1 Ω		8.7 mΩ 8.9 mΩ			
					10 Ω		11 mΩ			
					100 Ω		20 mΩ			
					1 kΩ		0.16 Ω			
					10 kΩ		1.6 Ω			
					100 kΩ		15 Ω			
					1 MΩ		0.29 kΩ			
					10 MΩ		8.0 kΩ			
					100 MΩ		0.98 ΜΩ			
			0		1 GΩ		22 MΩ			
			Ω	to	100 Ω		$0.018 \% + 88 \text{ m }\Omega$			
		100		to	330 Ω		$0.012 \% + 0.11 \Omega$			
		330	Ω	to	1 kΩ		$0.01 \% + 0.19 \Omega$			

#### M & B Calibr, spol. s r.o.

Ord.	Calibrated quantity /		No	minal ra	nge		Parameter(s) of the	Lowest stated expanded measurement	Calibration principle	Calibration procedure	Location
ber <sup>1</sup>	Subject of calibration	min.	unit		max.	unit	measurand	uncertainty <sup>2</sup>	FF	identification <sup>3</sup>	
		1 k	:Ω	to	3.3	kΩ		$0.012 \% + 0.29 \Omega$			
		3,3 k	$\Omega$ :	to	10	$k\Omega$		$0.0082~\% + 1.4~\Omega$			
		10 k	$10 \text{ k}\Omega$ to		33	$k\Omega$		$0.012 \% + 2.2 \Omega$			
		33 k	$\Omega$ :	to	100	$k\Omega$		$0.0066 \% + 18 \Omega$			
		100 k	Ω	to	330	$k\Omega$		$0.011 \% + 24 \Omega$			
		330 k	$\Omega$	to	1	$M\Omega$		$0.0066 \% + 0.18 \text{ k}\Omega$			
		1 N	$\Omega$ N	to	3.3	$M\Omega$		$0.013 \% + 0.24 \text{ k}\Omega$			
		3.3 N	$\Omega$ N	to	10	$M\Omega$		$0.0075 \% + 1.8 \text{ k}\Omega$			
		10 N	$\Omega$ N	to	33	$M\Omega$		$0.052 \% + 6.4 \text{ k}\Omega$			
		33 N	$\Omega$ N	to	100	$M\Omega$		$0.064~\% + 0.21~\mathrm{M}\Omega$			
		100 N	$\Omega$ N	to	330	$M\Omega$		$1.3 \% + 1.9 M\Omega$			
		330 N	$\Omega$ N	to	1	$G\Omega$		$2.4 \% + 13 M\Omega$			
10*	Capacitance / Electrical								Direct generation with a	KP EL1	
	Capacitance Meters					nF	1 kHz	0.48 %	standard calibrator		
						nF	1 kHz	0.73 %			
					5	nF	1 kHz	0.70 %			
						nF	1 kHz	0.54 %			
					100		1 kHz	0.41 %			
						μF	1 kHz	0.65 %			
					10	μF	1 kHz	0.98 %			
		10 μ	ıF	to	100	μF		1.2 %	Comparison with a standard multimeter		

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

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>&</sup>lt;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).

#### M & B Calibr, spol. s r.o.

CAB number 2301, Calibration Laboratory Krumlovská 1454/26, 664 91 Ivančice

CMC for the field of measured quantity: Time quantities and frequency

Ord.		Noi	minal	l range		- Parameter(s) of	Lowest stated expanded		Calibration	
num- ber <sup>1</sup>	Calibrated quantity / Subject of calibration	min. unit		max.	unit	` '	measurement uncertainty <sup>2</sup>	Calibration principle	procedure identification <sup>3</sup>	Location
1	Time interval / time meters, stopwatches,							Comparison with a reference digital	KP Č1	
	timers	1 s	to	86,400 s	S		0.5 s	stopwatch		
2*	Frequency / low frequency and high							Direct generation by reference	KP EL1	
	frequency counters	1 Hz	to	100 k	kHz		$1.7.10^{-6}$	calibrator		1
		100 KHz	to	1,000 I	KHz		$2.3.10^{-6}$			
				10 N	MHz		1.7.10 <sup>-5</sup>			

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

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).

#### M & B Calibr, spol. s r.o.

CAB number 2301, Calibration Laboratory Krumlovská 1454/26, 664 91 Ivančice

#### CMC for the field of measured quantity: Humidity

Ord. num- ber <sup>1</sup>	Calibrated quantity / Subject of calibration	No	minal ra	ange	Parameter(s) of the measurand	Lowest stated expanded		Calibration procedure identification <sup>3</sup>	Loca-
		min. unit		max. unit		measurement uncertainty <sup>2</sup>	Calibration principle		tion
1*	Relative humidity meters except psychrometers	10 % RH	to	95 % RH	(20 to 40) °C	2.3% RH	Comparative measurement by a reference hygrometer in a humidity generator	KP VL1	

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

<sup>&</sup>lt;sup>2</sup> The expanded measurement uncertainty is in accordance with ILAC-P14 and EA-4/02 M, 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 value measured. If the calibration is carried out outside the laboratory premises, the measurement uncertainty may be affected.

<sup>&</sup>lt;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).

<sup>&</sup>quot;This document is an appendix to the certificate of accreditation. In case of any discrepancies between the English and Czech versions, the Czech version shall prevail, both for the certificate appendix and the certificate itself."