The Appendix is an integral part of
Certificate of Accreditation No. 47/2024 of 05/02/2024

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

TÜV SÜD Czech s.r.o.
CAB number 2405, Calibration Laboratory
Novodvorská 994, 142 21 Praha 4

Calibration laboratory locations:

1. UNO TECHNOLOGY PARK Bezděčín, Hala H1a, č.p. 108, 293 01 Mladá Boleslav, Czech Republic

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]	Location
		min.	unit	max.	unit					
1*	Sensors of displacement, distance and position	0 mm	to	300 mm			0.04 mm	comparison with a height gauge	I540 – 068 – 10	
		300 mm	to	1,500 mm			0.20 mm			
2	Belt motion sensors	-400 mm	to	400 mm			(0.2·L + 0.40) mm	comparison with a calibration jig	I540 – 068 – 10	

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

[2] 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.

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Explanatory notes:

L – measured length in metres

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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]	Location
		min.	unit	max.	unit					
1*	Sensors of position and inclinometers	0 °	to	360 °			0.02°	comparison with a digital inclinometer or rotary index table	I540 – 068 – 10	

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CMC for the field of measured quantity: Mechanical motion

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]	Location
1*	Meters and sensors of half-sine wave mechanical shock acceleration	100	$m \cdot s^{-2}$	to	1,471	$m \cdot s^{-2}$		1.0 %	comparison with a standard acceleration sensor	I 540 – 068 – 43	
		1,471	$m \cdot s^{-2}$	to	2,000	$m \cdot s^{-2}$		1.5 %			
		2,000	$m \cdot s^{-2}$	to	40,000	$m \cdot s^{-2}$		1.8 %			
2	Acceleration of linear mechanical vibrations of harmonic wave form[4 5]/ Vibration sensors, vibrometers, vibration calibrators, vibration generators[4 5]	0.1	$m \cdot s^{-2}$	to	295	$m \cdot s^{-2}$	5 Hz up to 10 Hz	2.0 %	comparison with a standard acceleration sensor	I 540 – 068 – 45	
							10 Hz up to 20 Hz	1.0 %			
							20 Hz up to 80 Hz	0.75 %			
							80 Hz	0.5 %			
							80 Hz up to 1,000 Hz	0.75 %			
							1,000 Hz up to 5,000 Hz	1.0 %			
							5,000 Hz up to 10,000 Hz	2.0 %			
3	Sensitivity of vibration sensors and vibrometers[4 5]	0.01	$mV/(m \cdot s^{-2})$	to	10,000	$mV/(m \cdot s^{-2})$	5 Hz up to 10 Hz	2.0 %	comparison with a vibration standard	I 540 – 068 – 45	
		0.01	$pC/(m \cdot s^{-2})$	to	1,000	$pC/(m \cdot s^{-2})$	10 Hz up to 20 Hz	1.0 %			
		0.01	$mV/(m \cdot s^{-1})$	to	10,000	$mV/(m \cdot s^{-1})$	20 Hz up to 80 Hz	0.75 %			
		0.01	mV/m	to	10,000	mV/m	80 Hz	0.5 %			
							80 Hz up to 1,000 Hz	0.75 %			
							1,000 Hz up to 5,000 Hz	1.0 %			
							5,000 Hz up to 10,000 Hz	2.0 %			

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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]	Location
4	Transmission of amplifiers, filters and vibrometers	0.001	mV/pC	to	10,000	mV/pC	0.2 Hz up to 1 Hz	0.5 %	direct measurement	I 540 – 068 – 45	
							1 Hz up to 5,000 Hz	0.4 %			
							5,000 Hz up to 10,000 Hz	0.4 %			
							10,000 Hz up to 20,000 Hz	0.6 %			
							20,000 Hz up to 50,000 Hz	1.0 %			
		0.001	V/V	to	1,000	V/V	0.2 Hz up to 1 Hz	0.4 %			
							1 Hz up to 20,000 Hz	0.3 %			
							20,000 Hz up to 50,000 Hz	1.0 %			
5	Vibration measurement [4] [5]/ Vibration generators	0.1	$m \cdot s^{-2}$	to	295	$m \cdot s^{-2}$	5 Hz up to 10 Hz	2.0 %	direct measurement	I 540 – 068 – 45	
							10 Hz up to 20 Hz	1.0 %			
							20 Hz up to 80 Hz	0.75 %			
							80 Hz	0.5 %			
							80 Hz up to 1,000 Hz	0.75 %			
							1,000 Hz up to 5,000 Hz	1.0 %			
							5,000 Hz up to 10,000 Hz	2.0 %			
6*	Speedometers, GPS and radar speedometers, speed sensors	5	$km \cdot h^{-1}$		180	$km \cdot h^{-1}$	distance standard	0.02 %	comparison with distance and time standard	I 540 – 068 – 29	
		20	$km \cdot h^{-1}$		130	$km \cdot h^{-1}$	measured distance	0.04 %			
7*	Speedometers with a rolling wheel	2	$m \cdot min^{-1}$		100	$m \cdot min^{-1}$		0.1 % + 0.01 $m \cdot min^{-1}$	direct generation of circumferential velocity	I 540 – 068 – 05	

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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]	Location
		min.	unit	max.	unit					
8*	Revolution counters, rpm sensors, stroboscopes	500 10,000	min^{-1} min^{-1}	to 10,000 to 100,000	min^{-1} min^{-1}		0.006 min^{-1} 0.06 min^{-1}	direct measurement of an optical or electrical signal	I 540 – 068 – 05	

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[4] The measured quantity can also be velocity and displacement, assuming that a vibrational signal of the harmonic waveform is generated at a known frequency.

[5] It can also be given in the units g, pC/g or mV/g, where 1 g = 9.807 $m \cdot s^{-2}$

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CMC for the field of measured quantity: Pressure, mechanical stress

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]	Location
		min.	unit	max.	unit						
1	Deformation and electromechanical manometers	-95	kPa to	0	kPa	gas		0.1 kPa	comparison with a digital pressure gauge	I540 – 068 – 3 (ČSN EN 837– 1, ČSN EN 837– 3, EURAMET cg-17)	
		0	MPa to	0.7	MPa	gas/ liquid	0.03 %	+ 0.08 kPa			
		0.7	MPa to	3.5	MPa		0.03 %	+ 0.4 kPa			
		3.5	MPa to	7	MPa		0.03 %	+ 0.8 kPa			
		7	MPa to	20	MPa		0.03 %	+ 2.3 kPa			
		0	MPa to	6	MPa	oil		3.5 kPa	comparison with a piston pressure gauge		
		6	MPa to	60	MPa		0.06 %				

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CMC for the field of measured quantity: Time, frequency

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]	Location
1*	Digital speed cameras				1,000	Hz		$2.1 \cdot 10^{-4}$ Hz	direct measurement with a standard counter	I 540 – 068 – 44	
2*	Time interval / stopwatches, timers and other chronometers	1 1	ms s	to to	1,000 10,800	ms s		$1.0 \cdot 10^{-5}$ s $6.0 \cdot 10^{-4}$ s	comparison with a standard counter	I 540 – 068 – 02	

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