



#### EA MLA Signatory Český institut pro akreditaci, o.p.s. (Czech Accreditation Institute) Hájkova 2747/22, Žižkov, 130 00 Praha 3

issues

according to section 16 of Act No. 22/1997 Coll., on technical requirements for products and on changes and amendments to some Acts, as amended

# CERTIFICATE OF ACCREDITATION

No. 332/2025

TÜV SÜD Czech s.r.o. with registered office Novodvorská 994, 142 21 Praha 4 Company Registration No. 63987121

for the Calibration Laboratory No. **2405**Calibration Laboratory

Scope of accreditation:

Calibrations in the field of length, plane angle, mechanical motion, pressure, frequency and time to the extent as specified in the appendix to this Certificate.

This Certificate of Accreditation is a proof of accreditation issued on the basis of assessment of fulfillment of the accreditation criteria in accordance with

#### ČSN EN ISO/IEC 17025:2018

In its activities performed within the scope and for the period of validity of this Certificate, the abovementioned Accredited Body is entitled to refer to this Certificate, provided that the accreditation is not suspended and the Accredited Body meets the specified accreditation requirements in accordance with the relevant regulations applicable to the activity of an accredited conformity assessment body.

This Certificate of Accreditation replaces, to the full extent, Certificate No.: 47/2024 of 05/02/2024, and/or any administrative acts building upon it.

The Certificate of Accreditation is valid until: 05/02/2029

Prague: 02/07/2025





Signed in the Czech original: Jan Velíšek on 02/07/2025

Jan Velíšek
Director of the Department
of Testing and Calibration Laboratories
Czech Accreditation Institute

This translation of the Czech original has been issued by: Eliška Frycová

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

### TÜV SÜD Czech s.r.o.

CAB number 2405, Calibration Laboratory UNO TECHNOLOGY PARK Bezděčín, Hala H1a, č.p. 108, 293 01 Mladá Boleslav

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

Ord.	Calibrated quantity / Subject of calibration		Nominal	range		Parameter(s) of	Lowest stated expanded measurement	Calibration principle	Calibration procedure	Location
ber <sup>1</sup>		min. u	ınit	max.	unit	the measurand	uncertainty <sup>2</sup>	Canoration principic	identification <sup>3</sup>	Location
1*	Sensors of displacement,							comparison with	1540 - 068 - 10	
	distance and position	0 mm	to	300 t	mm		0.04 mm	a height gauge		
		300 mm	to	1,500 1	mm		0.30 mm			
2	Belt motion sensors							comparison with a	1540 - 068 - 10	
		-400 mm	to	400 1	mm		$(0.2 \cdot L + 0.40) \text{ mm}$	calibration jig		

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

#### Explanatory notes:

L- measured 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>&</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).

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

Ord. Calibrated quantity			Non	ninal raı	nge		Parameter(s) of the Low	Lowest stated expanded measurement	Calibration principle	Calibration procedure	Location
num- ber <sup>1</sup>	calibration	min.	unit		max.	unit	measurand	uncertainty <sup>2</sup>	Canbi ation principic	identification <sup>3</sup>	Location
1*	Sensors of position and inclinometers								comparison with a digital inclinometer	1540 - 068 - 10	
		0 9	)	to	360 °			0.02°	or rotary index table		

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### CMC for the field of measured quantity: Mechanical motion

Ord.	Calibrated quantity / Subject of calibration		Nom	inal r	ange		Parameter(s) of the	Lowest stated expanded measurement	Calibration	Calibration procedure	Loca-
ber <sup>1</sup>		min.	unit		max.	unit	measurand	uncertainty <sup>2</sup>	principle	identification <sup>3</sup>	tion
1*	Meters and sensors of half-sine wave mechanical shock								comparison with a standard	I 540 – 068 – 43	
	acceleration	100	m·s <sup>-2</sup>	to	1 4	71 m·s <sup>-2</sup>		1.0 %	a standard acceleration sensor		
		1,471		to	-	00 m·s <sup>-2</sup>		1.5 %	decerement sensor		
		2,000		to		00 m·s <sup>-2</sup>		1.8 %			
2	Acceleration of linear mechanical vibrations of harmonic wave form <sup>4 5</sup> /Vibration sensors, vibrometers, vibration calibrators, vibration								comparison with a standard acceleration sensor	I 540 – 068 – 45	
	generators <sup>45</sup>	0.1	m·s <sup>-2</sup>	to	295	$\mathbf{m} \cdot \mathbf{s}^{-2}$	5 Hz up to 10 Hz	2.0 %			
							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 <sup>45</sup>								comparison with a vibration	I 540 – 068 – 45	
			$mV/(m \cdot s^{-2})$			$mV/(m\cdot s^{-2})$	=	2.0 %	standard		
			$pC/(m \cdot s^{-2})$	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.	Calibrated quantity / Subject of		Nom	inal ra	inge		Parameter(s) of the	Lowest stated expanded measurement	Calibration	Calibration procedure	Loca-
ber <sup>1</sup>	calibration	min.	unit		max.	unit	measurand	uncertainty <sup>2</sup>	principle	identification <sup>3</sup>	tion
4	Transmission of amplifiers,								direct measurement	I 540 – 068 – 45	
	filters and vibrometers	0.001	mV/pC	to	10,000	mV/pC	0.2 Hz up to 1 Hz	0.5 %			
							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 <sup>4 5</sup> / Vibration generators	0.1	m·s <sup>-2</sup>	to	295	m·s <sup>-2</sup>	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								comparison with	I 540 – 068 – 29	
	speedometers, speed sensors	5	km·h <sup>-1</sup>	to	180	km·h <sup>-1</sup>	distance standard	0.02 %	distance and time standard		
		20	km·h <sup>-1</sup>	to	130	km·h <sup>-1</sup>	measured distance	0.04 %			
7*	Speedometers with a rolling								direct generation	I 540 – 068 – 05	
	wheel	2	m·min⁻¹	to	10	00 m·min <sup>-1</sup>		0.1 % + 0.01 m·min <sup>-1</sup>	of circumferential velocity		

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Ord.	Calibrated quantity / Subject of		Nomi	inal ra	inge		Parameter(s) of the	Lowest stated expanded measurement	Cambration	Calibration procedure	Loca-
ber <sup>1</sup>	calibration	min.	unit	it max. unit		unit	measurand	uncertainty <sup>2</sup>	principle	identification <sup>3</sup>	tion
8*	Revolution counters, rpm sensors, stroboscopes	500 r	min <sup>-1</sup>	to	10,000	min <sup>-1</sup>		0.006 min <sup>-1</sup>	direct measurement of an optical or electrical signal	I 540 – 068 – 05	
		10,000 r	nin <sup>-1</sup>	to	100,000	min <sup>-1</sup>		0.06 min <sup>-1</sup>			
9	Angular velocity of the vibration-rotation harmonic waveform <sup>67</sup> / Angular velocity								comparison with a standard angular velocity sensor	I 540 – 068 – 45	
10	sensors <sup>67</sup>	0.01	rad·s <sup>-1</sup>	to	87.3 ra	ad·s-1	1 Hz to 200 Hz	1.5 %		1.540 0.60 45	
10	Sensitivity of angular velocity sensors <sup>67</sup>	0.001 r	nV/(rad·s <sup>-1</sup> )	to	10 000 m	V/(rad.s-1)	1 Hz to 200 Hz	1.5 %	comparison with a standard angular velocity sensor	I 540 – 068 – 45	

- 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.
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- <sup>4</sup> The measured quantity can also be velocity and displacement, assuming that a vibrational signal of the harmonic waveform is generated at a known frequency.
- It can also be given in the units g, pC/g or mV/g, where  $1 \text{ g} = 9.807 \text{ m} \cdot \text{s}^{-2}$
- <sup>6</sup> The measured quantity can also be angular acceleration, angular displacement assuming that a vibration-rotation signal of the harmonic waveform is generated at a known frequency.
- Can also be given in units of  $^{\circ} \cdot s^{-1}$ , mV/( $^{\circ} \cdot s^{-1}$ ), where  $1^{\circ} \cdot s^{-1} = \pi/180 \ rad \cdot s^{-1}$

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

Ord.	Calibrated quantity /		ľ	Nominal r	ange		Parameter(s) of the	Lowest stated expanded measurement	Calibration	Calibration procedure	Location
ber <sup>1</sup>	Subject of calibration	min.	unit		max.	unit	measurand	uncertainty <sup>2</sup>	principle	identification <sup>3</sup>	Location
1	Mechanical and electromechanical						gas		comparison with a digital pressure	1540 – 068 – 3	
	manometers	-95	kPa	to	0	kPa		0.1 kPa	gauge		
		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			
							oil	3.5 kPa	comparison with a piston pressure		
		0	MPa	to	6	MPa			gauge		
		6	MPa	to	60	MPa		0.06 %			

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### CMC for the field of measured quantity: Time, frequency

Ord.	Calibrated quantity / Subject of		Non	ninal ra	ange		Parameter(s) of	Lowest stated expanded measurement	Calibration principle	Calibration procedure	Location
ber <sup>1</sup>	calibration	min.	unit		max.	unit	the measurand	uncertainty <sup>2</sup>	Canbration principle	identification <sup>3</sup>	Location
	Frequency measurement, frequency generators, digital speed cameras, synchronization boxes, time bases for measuring instruments and systems,								direct measurement with a standard counter	I 540 – 068 – 44	
	counters and frequency meters	1	Hz	to	1	MHz		2.3·10 <sup>-7</sup> Hz			
2*	Time interval /								comparison with	I 540 – 068 – 02	
	stopwatches, timers and other								a standard counter		
	chronometers	1	ms	to	1,000	ms		1.0·10 <sup>-5</sup> s			
		1	S	to	10,800	S		6.0·10 <sup>-4</sup> s			

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<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."