

# KALIBRACIJSKI CERTIFIKAT

## Calibration certificate

NAROČNIK  
Customer 5Labs d.o.o.  
Legen 112, 2380 Slovenj Gradec

LASTNIK  
Owner 5Labs d.o.o.  
Legen 112, 2380 Slovenj Gradec

MERILO  
Object Merilna urica • Dial gauge

IDENTIFIKACIJA  
Identification 18177002 PROIZVAJALEC  
Manufacturer Mitutoyo

TIP  
Type 543-790B MERILNI OBSEG  
Meas. range (0 - 12,7) mm

LOČLJIVOST  
Resolution 0,001 mm VRSTA MERILA  
Type of gauge Digitalna merilna urica •  
Digital dial gauge



**SLOVENSKA  
AKREDITACIJA**  
SIST EN ISO/IEC 17025  
**LK-034**

Slovenska akreditacija je podpisnica večstrankarskih sporazumov o priznavanju akreditacijskih organov z Evropsko akreditacijo (EA - MLA) in Mednarodnim združenjem za akreditacijo laboratorijev (ILAC - MRA). Slovenian Accreditation is signatory to the multilateral agreements on recognition of accreditation bodies with the European Accreditation (EA - MLA) and International Laboratory Accreditation Cooperation (ILAC - MRA).

KRAJ KALIBRACIJE  
Place of calibration Slovenj Gradec

DATUM KALIBRACIJE  
Date of calibration 18. 11. 2023

DATUM PREJEMA  
Date of receipt 18. 11. 2023

OPOMBE  
Notes

ODOBRIL  
Approved by Petra Oprešnik

Dovoljeno je razmnoževanje le celotnega certifikata. Verodostojnost podpisa je mogoče preveriti v elektronski obliki certifikata. Only the reproduction of the complete certificate is allowed. Signature validity can be verified in electronic version of certificate.

## 1. KALIBRACIJSKI POSTOPEK • Calibration procedure

Kalibracija obsega določitev pogreškov na celotnem merilnem obsegu merila v vsaj 10. točkah v skladu z interno postopkom KL-5Labs-7 in standardom VDI/VDE/DGQ 2618.

Calibration comprise the error determination of the gauge in at least 10 points in compliance with internal procedure KL-5Labs-7 and standard VDI/VDE/DGQ 2618.

## 2. KALIBRACIJSKI POGOJI • Calibration conditions

Temperatura • Temperature (20 ± 1) °C

## 3. SLEDLJIVOST • Traceability

Identifikacije pri kalibraciji uporabljenih etalonov

Standards identification used at calibration

000661404			
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Ta kalibracijski certifikat dokumentira sledljivost do (inter) nacionalnih etalonov v skladu z mednarodnim sistemom merskih enot (SI).

This calibration certificate documents the traceability to (inter) national standards, which realize the units of measurement according to the International System of Units (SI).

Kalibracijski certifikati zgoraj navedene opreme uporabljene pri kalibraciji so javno objavljeni na naši spletni strani pod [https://www.5labs.si/index.php/open\\_documents](https://www.5labs.si/index.php/open_documents)

The calibration certificates of the above mentioned equipment used at calibration are publicly available on our website at [https://www.5labs.si/index.php/open\\_documents](https://www.5labs.si/index.php/open_documents)

## 4. MERILNA NEGOTOVOST • Measuring uncertainty

$$U = 0,7 \mu\text{m} + 0,0000084 \cdot L$$

Merilna negotovost je podana kot standardna negotovost meritve pomnožena s faktorkem  $k = 2$ , ki pri normalni porazdelitvi ustrza verjetnosti 95%. Standardna merilna negotovost je določena v skladu s publikacijo EA-4/02.

The specification indicates the expanded measuring uncertainty resulting from multiplication of standard measuring uncertainty by the factor  $k = 2$ . It was determined in conformity with EA-4/02. The values of the measurement parameter lie within the specified range with a probability of 95%.

## 5. RAZLAGA REZULTATOV • Result explanation

Pogrešek = Razbirek na urici - Razbirek na etalonu

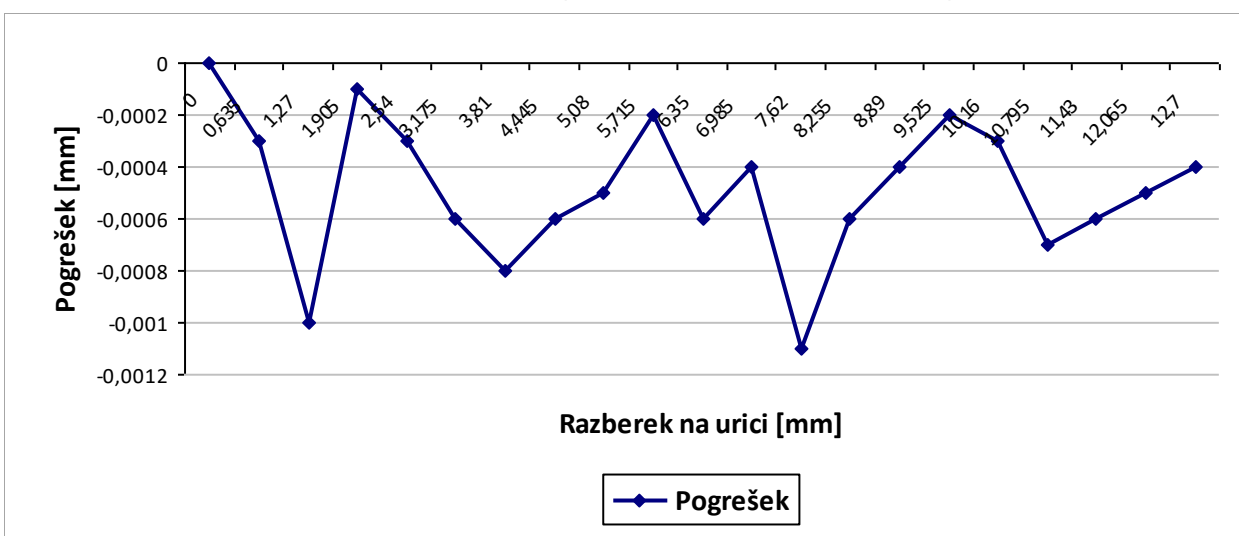
Error = Instrument indication - Reference value

Podani merilni rezultati in pripadajoča merilna negotovost se nanašajo samo na to kalibrirano merilo. Izmerjene vrednosti veljajo v času meritev in ne zagotavljajo dolgotrajne stabilnosti.

The measurement results and uncertainties quoted refer only to this calibrated gauge. The measurement results are valid at the time of measurement and do not guarantee long-term stability.

## 6. MERILNI REZULTATI • Measurement results

Razberek na urici • Instrument indication L [mm]	Razberek na etalonu • Reference value [mm]	Pogrešek • Error [mm]
0,0000	0,0000	0,0000
0,6350	0,6353	-0,0003
1,2700	1,2710	-0,0010
1,9050	1,9051	-0,0001
2,5400	2,5403	-0,0003
3,1750	3,1756	-0,0006
3,8100	3,8108	-0,0008
4,4450	4,4456	-0,0006
5,0800	5,0805	-0,0005
5,7150	5,7152	-0,0002
6,3500	6,3506	-0,0006
6,9850	6,9854	-0,0004
7,6200	7,6211	-0,0011
8,2550	8,2556	-0,0006
8,8900	8,8904	-0,0004
9,5250	9,5252	-0,0002
10,1600	10,1603	-0,0003
10,7950	10,7957	-0,0007
11,4300	11,4306	-0,0006
12,0650	12,0655	-0,0005
12,7000	12,7004	-0,0004



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	Rezultat • Result ( $\mu\text{m}$ )	Največji dopustni pogrešek • Maximum permissible error (specifikacija proizvajalca • manufacturer's specification) ( $\mu\text{m}$ )
Največji odstopok • Maximum deviation	1,1	2

UGOTOVITEV  
Findings

Pogreški merila brez upoštevanja merilne negotovosti ustrezajo zahtevam podanim v specifikaciji proizvajalca. • The measurement errors without measuring uncertainty meet the requirements of producer specification.