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

**VÍTKOVICE TESTING CENTER s. r. o.**
CAB number 2285, Metrological Inspection Centre
Kotkova 431/4a, 703 00 Ostrava - Vítkovice

## CMC for the field of measured quantity: Length

| Ord. number[1] | Calibrated quantity / Subject of calibration | Nominal range min | unit | | max | unit | Parameter(s) of the measurand | Lowest stated expanded mesurement uncertainty[2] | Calibration principle | Calibration procedure identification[3] | Work-place |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Length gauges and rules of measuring instruments | 0 mm | to | | 6,000 mm | | | (0.8·L + 0.14) μm | Measurement by a laser interferometer | CI-300.25-015 | |
| 2* | Length gauges | 0 mm | to | | 100 mm | | | (1.0·L + 0.20) μm | Measurement using parallel gauge blocks | CI-300.25-028 | |
| 3 | Parallel gauge blocks | 0.5 mm | to | | 100 mm | | | (2.0·L + 0.10) μm | Comparison with parallel gauge blocks in vertical position on a comparator | CI-300.25-020 | |
| 4 | Parallel gauge blocks | 100 mm | to | | 500 mm | | | (3.8·L + 0.30) μm | Comparison with parallel gauge blocks in horizontal position on a length gauge | CI-300.25-503 | |
| 5 | Slide gauges | 0 mm | to | | 500 mm | | | (1·L + 8.5) μm | Measurement using parallel gauge blocks | CI-300.25-021 | |
| | | 500 mm | to | | 1,475 mm | | | (2·L + 13) μm | Measurement by check gauges | | |
| | | 1,475 mm | to | | 3,000 mm | | | (8·L + 13) μm | Comparative measurement using inside micrometer gauges set on a length gauge | | |
| 6 | Micrometer calliper gauges | 0 mm | to | | 200 mm | | | (2·L + 0.9) μm | Measurement using parallel gauge blocks | CI-300.25-022 | |
| | | 200 mm | to | | 500 mm | | | (3·L + 1.0) μm | Measurement by check gauges | | |
| | | 500 mm | to | | 1,500 mm | | | (3·L + 2.5) μm | | | |
| | | 1,500 mm | to | | 3,000 mm | | | (7·L + 3) μm | Comparative measurement using inside micrometer gauges set on a length gauge | | |
| 7 | Thickness gauges with dial indicator | 0 mm | to | | 400 mm | | | 3.4 μm | Measurement using parallel gauge blocks | CI-300.25-027 | |

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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 mesurement uncertainty[2] | Calibration principle | Calibration procedure identification[3] | Work-place |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | Inside micrometer gauges – total length | 20 | mm | to | 1,000 | mm | | (2.5·L + 1.2) μm | Measurement on a universal length gauge | CI-300.25-023 | |
| | | 1,000 | mm | to | 5,000 | mm | | (6·L + 1.6) μm | | | |
| 9 | Rigid check gauges and gauges with mounting | 25 | mm | to | 1,000 | mm | | (2·L + 0.3) μm | Measurement on a universal length gauge | CI-300.25-030 | |
| | | 1,000 | mm | to | 2,000 | mm | | (8·L + 0.7) μm | | | |
| 10 | Limit gauges, smooth | 2 | mm | to | 250 | mm | | (3·L + 0.5) μm | Measurement on a universal length gauge | CI-300.25-043 | |
| 11 | Feeler gauges | 0.01 | mm | to | 2 | mm | | (1·L + 1.3) μm | Measurement on a universal length gauge | CI-300.25-131 | |
| 12 | Thread gauges – male | 2 | mm | to | 200 | mm | | 2.8 μm | Indirect measurement on a length gauge using thread measuring wires | CI-300.25-127 | |
| | Thread gauges – female | 16 | mm | to | 130 | mm | | 2.5 μm | | | |
| 13 | Dial indicators | 0 | mm | to | 50 | mm | | 0.48 μm | Direct measurement by calibration instruments for indicators | CI-300.25-046 | |
| 14 | Roughness stylus instruments | 0.1 | μm | to | 800 | μm | Roughness Ra<br>Roughness Rz<br>Roughness RzISO<br>Roughness Rmax<br>Roughness Rt<br>Roughness Pt | 3.5 %<br>4.3 %<br>4.5 %<br>4.4 %<br>4.4 %<br>2.4 % | Measurement using reference roughness plates | CI-300.25-034 | |
| | Roughness reference standards | 0.1 | μm | to | 800 | μm | Roughness Ra<br>Roughness Rz | 5.2 %<br>5.5 % | Contact measurement by a roughness meter | | |

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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 mesurement uncertainty[2] | Calibration principle | Calibration procedure identification[3] | Work-place |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Roughness RzISO<br>Roughness Rmax<br>Roughness Rt | 5.5 %<br>5.5 %<br>5.6 % | | | |
| 15 | Steel rules | 0 | m | to | 3 | m | | (31·L + 41) µm | Comparison with a reference gauge | CI-300.25-004 | |
| | Wooden rules | 0 | m | to | 3 | m | | (30·L + 53) µm | | | |
| | Tape measures | 0 | m | to | 10 | m | | (2·L + 260) µm | | | |
| 16 | Steel rules | 0 | mm | to | 5,000 | mm | | (1·L + 10) µm | Measurement by a laser interferometer | CI-300.25-130 | |
| 17 | Tape measures | 0 | mm | to | 50 | m | | (10·L + 90) µm | Comparison with a reference tape measure | CI-300.25-024 | |
| 18 | Micrometer depth gauges | 0 | mm | to | 300 | mm | | (6·L + 0.8) µm | Measurement using parallel gauge blocks | CI-300.25-506 | |
| | Depth gauges with dial indicator | 0 | mm | to | 300 | mm | | (0.6·L + 11.6) µm | | | |
| 19 | Inside caliper gauge | 100 | mm | to | 500 | mm | | (3·L + 2.5) µm | Measurement on a universal length gauge | CI-300.25-126 | |
| | Inside micrometer | 3 | mm | to | 200 | mm | | (1·L + 3.8) µm | Measurement by setting rings | | |
| | Inside micrometer – two-contact | 200 | mm | to | 300 | mm | | (1·L + 2.4) µm | Measurement using set gauges | | |
| | Internal gauge with measuring arms – digital | 2.5 | mm | to | 200 | mm | | (1·L + 12.2) µm | Measurement by setting rings | | |
| | Internal gauge with measuring arms –with dial indicator | 2.5 | mm | to | 200 | mm | | (1·L + 6.8) µm | | | |
| | Three-contact internal gauge | 2 | mm | to | 200 | mm | | (2·L + 2.8) µm | | | |
| 20 | Weld gauges | 0 | mm | to | 100 | mm | | 10 µm | Measurement using parallel gauge blocks | CI-300.25-084 | |

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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 mesurement uncertainty[2] | Calibration principle | Calibration procedure identification[3] | Work-place |
|---|---|---|---|---|---|---|---|---|---|
| 21 | Instruments for thickness measurement of surface layers | 0 µm | to | 5,000 µm | | (2.2·l + 2.2) µm | Measurement with calibration sheets | CI-300.25-087 | |
| | Calibration sheets | 5 µm | to | 5,000 µm | | (0.6·l + 0.4) µm | Measurement on a universal length gauge | | |
| 22* | Surface/ layout plates | 250 mm | to | 4,000 mm | | 2 M µm | Measurement by a laser interferometer | CI-300.25-048 | |
| 23 | Pasameters and micropasameters | 0 mm | to | 300 mm | | (1·L + 1.4) µm | Measurement using parallel gauge blocks | CI-300.25-510 | |
| 24 | Thread-measuring wires | 0.17 mm | to | 10 mm | | (1·L + 0.22) µm | Measurement on a universal length gauge | CI-300.25-504 | |
| 25 | Flat and trying squares | 0 mm | to | 1 mm | Longer side up to 400 mm | (1.4 L + 5.7) µm | Measurement on a calibration instrument for squares | CI-300.25-026 | |
| | Angles with angle 120° | 0 mm | to | 1 mm | Longer side up to 160 mm | 11 µm | | | |
| | Knife angles | 0 mm | to | 1 mm | Longer side up to 160 mm | (1.2 L + 5.2) µm | | | |

[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.

[3] 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).

Explanatory notes:
L ... Measured dimension in metres
l ... Measured dimension in millimetres
M … Diagonal 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 mesurement uncertainty[2] | Calibration principle | Calibration procedure identification[3] | Work-place |
|---|---|---|---|---|---|---|---|---|---|---|
| | | min | unit | max | unit | | | | | |
| 1 | Angle gauges | 0 | ° | to 360 | ° | | 0.9′ | Measurement using angle gauges | CI-300.25-025 | |
| 2 | Weld gauges – fixed angles | 5 | ° | to 160 | ° | | 30′ | Measuring with an optical angle gauge | CI-300.25-084 | |
| | Weld gauges – angle gauge | 0 | ° | to 180 | ° | | 30′ | Measurement using angle gauges | | |
| 3 | Builder's level | -8 | mm/m | to 8 | mm/m | up to 1 m | 150 μm/m | Measurement using parallel gauge blocks on a check plate | CI-300.25-501 | |

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[3] 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: Force, torque

| Ord. number[1] | Calibrated quantity / Subject of calibration | Nominal range min | unit | | max | unit | Parameter(s) of the measurand | Lowest stated expanded mesurement uncertainty[2] | Calibration principle | Calibration procedure identification[3] | Work-place |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Portable hardness testers | 210 | HV | to | 720 | HV | Vickers | 1.6 % | Direct measurement on hardness reference standards | CI-300.25-051 | |
| | | 200 | HBW | to | 660 | HBW | Brinell | 1.6 % | | | |
| | | 20 | HRC | to | 60 | HRC | Rockwell | 1.6 % | | | |
| | | 480 | HLD | to | 825 | HLD | Leeb | 1.6 % | | | |
| 2 | Torque / Torque wrenches and screwdrivers | 0.2 | Nm | to | 30 | Nm | | 1.0 % | Direct measurement on torque calibration instruments | CI-KMS I-41 | |
| | | 30 | Nm | to | 5,000 | Nm | | 0.7 % | | | |

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## CMC for the field of measured quantity: Temperature

| Ord. number[1] | Calibrated quantity / Subject of calibration | Nominal range min | unit | | max | unit | Parameter(s) of the measurand | Lowest stated expanded mesurement uncertainty[2] | Calibration principle | Calibration procedure identification[3] | Work-place |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Resistance temperature sensors | | | | 0 °C | | | 0.04 °C | Comparison with a reference resistance temperature sensor | CI-KMS I-01 | |
| | | 30 °C | | to | 200 °C | | | 0.15 °C | | | |
| | | 200 °C | | to | 400 °C | | | 0.6 °C | | | |
| 2 | Thermocouple temperature sensors | | | | 0 °C | | | 0.7 °C | Comparison with a reference thermocouple or resistance sensor | CI-KMS I-02 | |
| | | 30 °C | | to | 200 °C | | | 0.7 °C | | | |
| | | 200 °C | | to | 400 °C | | | 1.0 °C | | | |
| | | 400 °C | | to | 1,100 °C | | | 1.7 °C | | | |
| | | 1,100 °C | | to | 1,500 °C | | | 3.0 °C | | | |
| 3 | Radiation thermometers (pyrometers) | 30 °C | | to | 100 °C | | | 1.7 °C | Comparison with a reference thermometer / cavity, target black body | CI-KMS I-04 | |
| | | 100 °C | | to | 400 °C | | | 3.7 °C | | | |
| | | 400 °C | | to | 1,500 °C | | | 4.0 °C | | | |
| 4 | Direct indicating thermometers | 30 °C | | to | 500 °C | | | 1.9 °C | Comparison with a reference thermometer | CI-KMS I-03 | |

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