# Calibration Certificate

**NCL-2026-00001**

Northgate Calibration Ltd

Issued 2026-09-09

**INSTRUMENT**
Digital caliper 0–150 mm

**ASSET TAG**
CAL-0091

**MANUFACTURER**
Mitutoyo

**MODEL**
500-196-30

**SERIAL**
A2318804

**CALIBRATION DATE**
2026-09-09T00:00:00.000Z

**CALIBRATION DUE**
—

**DECISION RULE**
guardband

**WORST-CASE TUR**
1.73

## RESULT: CONDITIONAL

| POINT | NOMINAL | TOLERANCE / LIMITS | AS-FOUND | ERROR (AF) | AS-LEFT | EXPANDED U | TUR | STATUS (AS-LEFT) |
|---|---|---|---|---|---|---|---|---|
| 10 mm | 10 mm | ± 0.02 | 10.003 | 0.003 | 10.003 | ± 0.012 mm (k=2) | 1.73 | PASS |
| 50 mm | 50 mm | ± 0.02 | 50.012 | 0.012 | 50.012 | ± 0.012 mm (k=2) | 1.73 | CONDITIONAL |
| | | specification met (within tolerance) but inside the guard band, so NOT accepted under the guard-banded rule; probability of non-conformance if treated as accepted: 8.3% (normal, u = U/k) | | | | | | |
| 100 mm | 100 mm | ± 0.02 | 100.019 | 0.019 | 100.019 | ± 0.012 mm (k=2) | 1.73 | CONDITIONAL |
| | | specification met (within tolerance) but inside the guard band, so NOT accepted under the guard-banded rule; probability of non-conformance if treated as accepted: 43.1% (normal, u = U/k) | | | | | | |
| 150 mm | 150 mm | ± 0.03 | 150.011 | 0.011 | 150.011 | ± 0.012 mm (k=2) | 2.59 | PASS |

### Reference standards (metrological traceability)

- Grade 0 gauge block set (steel, 1–100 mm) — cert UKAS-0332-24-1187, traceable to NPL, U=0.00021 mm

### Electronic signatures (record hashes)

**J. Moreno**
Performed calibration · 2026-09-09 04:47:57
`sig:07cb7a7ecbbdcac1dfe784396a7db97ed9e2c4`

**J. Moreno**
Approved calibration · 2026-09-09 04:47:58
`sig:20ed6596e812b19e8bb3080964a764cb8bb13a`

**Decision rule (ISO/IEC 17025 §7.8.6)**

Guard-banded acceptance (ILAC-G8:2019 §4.2.2 / ANSI-NCSL Z540.3 method 6): a result is reported PASS only when it lies inside the tolerance by at least the guard band w = U (U = expanded uncertainty, k as stated per point); a result within tolerance but inside the guard band is reported CONDITIONAL with its probability of false acceptance (PFA, JCGM 106); a result outside tolerance is reported FAIL. Probabilities assume a normal distribution with standard uncertainty u = U/k about the measured value (JCGM 106). Rule agreed with the customer before calibration.

The measurement results are metrologically traceable to the SI through the reference standards listed. Expanded uncertainties are reported at coverage factor k=2 ("H95 % confidence). Expanded uncertainties are shown to two significant figures; the test uncertainty ratio and any probability of

non-conformance are computed from the unrounded uncertainty. Results relate only to the item calibrated. The calibration covers only the points listed; functions and ranges not listed were not calibrated. Where the item was not adjusted, the as-found and as-left values coincide and the stated uncertainty applies to both. Issued under the laboratory's accreditation UKAS 0417; the results reported are within the accredited scope unless marked otherwise.