

## Dimensional & Mechanical Calibration Services

Traceable calibration of length, force, torque and mass instruments with documented measurement uncertainty



*Comparison calibration of dimensional and mechanical instruments against traceable reference standards*

Dimensional and mechanical calibration establishes the relationship between the value indicated by an instrument and the true length, force, torque or mass realised by a reference standard. At Mizan, each item is calibrated against reference gauge blocks, weights and force standards traceable to national and international standards – in the laboratory or on the customer's site – for manufacturing, automotive, aerospace, oil & gas and other process industries.

### What We Calibrate

- **Length & dimensional gauges**
  - Gauge blocks, plug and ring gauges
  - Calipers, micrometers and height gauges
  - Dial indicators and depth gauges
  - Squares, levels and straightedges
- **Force, torque & mass**
  - Torque wrenches and screwdrivers (ISO 6789)
  - Force gauges and load cells
  - Mass standards and weights (OIML R 111)
  - Mechanical and electronic balances
- **Coordinate & surface measurement**
  - Coordinate measuring machines (CMM)
  - Surface plates and granite tables
  - Surface roughness and form testers
  - Optical comparators and projectors
- **Hardness & specialist mechanical**
  - Hardness testers (Rockwell, Brinell, Vickers)
  - Tachometers and rotational-speed devices
  - Durometers and pressure indenters
  - Vibration and shock sensors

**Every dimensional and mechanical calibration is a documented comparison to a traceable reference – measured, not assumed**



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## Traceability & Uncertainty

Every calibration result is linked, through an unbroken chain of comparisons, to national and international standards. The reference gauges, weights and force standards are themselves calibrated by accredited and national laboratories.

- Reference standards calibrated by accredited or national laboratories
- Traceability to national and international standards (SI)
- Expanded uncertainty evaluated to the GUM (ISO/IEC Guide 98-3)
- Results reported at a coverage factor of  $k = 2$ , about 95% confidence

## The Calibration Certificate

**Each calibration is documented on a certificate that records:**

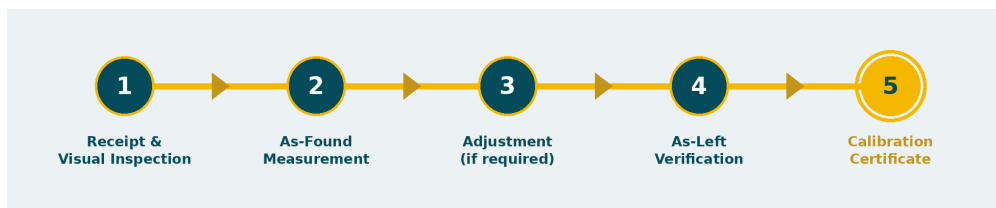
- Identification of the instrument and the reference standards used
- As-found and as-left readings at each calibration point
- The measurement result with its expanded uncertainty
- Ambient conditions during the calibration
- A statement of metrological traceability
- Calibration date and recommended recalibration interval



*Certified dimensional standards for precision measurement and calibration*

## The Calibration Process

Every instrument follows a defined, documented calibration process. Its condition is recorded before any adjustment is made and verified again afterwards, so that the calibration is repeatable and the result can be relied upon.



*Calibrations are performed under controlled environmental conditions by trained personnel, following documented procedures and using reference standards traceable to national and international standards.*

**Measurement you can trace. Uncertainty you can see.**



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