VYRCO · v1.0 · 2026-11-16

Questionable instrument result: review the impact on earlier measurements

Mold metrology, manufacturing and maintenance technicians; quality personnel. Intermediate level.

Prepare an evidence file linking an instrument finding to specific dimensional records so an authorized person can determine the scope and actions.

Use this guide after a failed check, observed damage, or a report showing results outside the applicable criterion. Distinguish a suspicion from a confirmed failure. A satisfactory later certificate does not by itself describe the instrument’s earlier condition.

1. Preserve the finding

Identify the instrument, serial number, accessory, function, range used, date with time zone, and role detecting the event, without names. Record exactly which evidence triggered review and which documented criterion was used. Retain the original report and separate observations from hypotheses. Manage availability under the authorized procedure; this guide does not authorize adjustment or repair.

2. Reconstruct the sequence

Gather earlier checks, calibrations, use records, configuration changes, transport events, impacts, and known repairs. Distinguish as-received data from data after adjustment or calibration. Mark missing information unavailable and assign someone to retrieve it; do not reconstruct it from memory as though it were an original record.

3. Define a candidate review period

Propose an evidence-based beginning and end and explain uncertainty in that scope. The last satisfactory check is a reference, not proof that every later result is valid. If the deviation’s onset is unknown, record that uncertainty and escalate the decision. Do not assume linear drift or apply a blanket retrospective correction.

4. Link results, not just lots

Create a row for each result or traceable group: component, drawing revision, characteristic, instrument/configuration, date, value with unit, documented specification, report, and original disposition. Add current location: being machined, stored, installed, or delivered. Keep unlocated results as open items. The number of parts in a lot is not the number of affected measurements.

5. Prepare a technically appropriate check

A competent person must define the method, suitable instrument, references, conditions, relevant uncertainty, and task-specific decision criterion. Link each new measurement to the same component and characteristic. Record changes in condition, temperature, or setup that limit comparability. Do not automatically treat a difference as proof that the component changed or that the first instrument caused the error.

6. Close with a traceable decision

Separate investigated scope, reviewed results, open items, and authorized disposition. Record the responsible person, date, evidence, and corrected documents while retaining their history. Containment, remeasurement, release, and external communication depend on the applicable system. Do not close the review solely because the instrument was recalibrated.

Documented basis: NIST distinguishes traceability from fitness for purpose and does not set a universal recalibration interval. Its guidance supports retaining instrument data and context. The six steps and worksheet are an original VYRCO proposal, not a NIST procedure or a normative requirement.

FICTIONAL EXAMPLE: an internal check identifies a discrepancy involving instrument DEMO-M01. Its use log links two fictional insert records, DEMO-R-A and DEMO-R-B; another record does not identify the instrument. The proposed scope covers the first two and seeks evidence for the third. There is insufficient evidence to date the onset. Status: scope pending approval; this worksheet declares no component conforming or nonconforming.

Does not set tolerances, uncertainties, intervals, measurement parameters, or acceptance rules. Does not demonstrate standards compliance or replace the current drawing, contract, manual, or procedure. Does not require rejecting every component or authorize release. Do not include personal, employer, or client information in public examples. Do not enter names or personal data; use case codes and roles.

Ficha / Worksheet

Case ID / revision / assigned role (no names)

Instrument / serial number / function / configuration

Observed finding / original evidence / documented criterion

Date and time zone / authorized availability status

As-received data / data after adjustment or calibration

Last satisfactory evidence and its limitations

Candidate period / basis / uncertainties / approval

Component / drawing and revision / characteristic

Original record / date / value / unit / drawing specification

Current location / original disposition / missing evidence

Proposed method / reference / conditions / technical role (no names)

New check result / unit / relevant uncertainty

Authorized disposition / basis / assigned role (no names) / date

Open items / assigned role (no names) / user-defined next review

NIST: Metrological traceability

https://www.nist.gov/metrology/metrological-traceability

NIST: Recommended calibration interval

https://www.nist.gov/calibrations/recommended-calibration-interval

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