

**Standard Calibration Criteria – Field Calibration Offerings**

Decision Rules

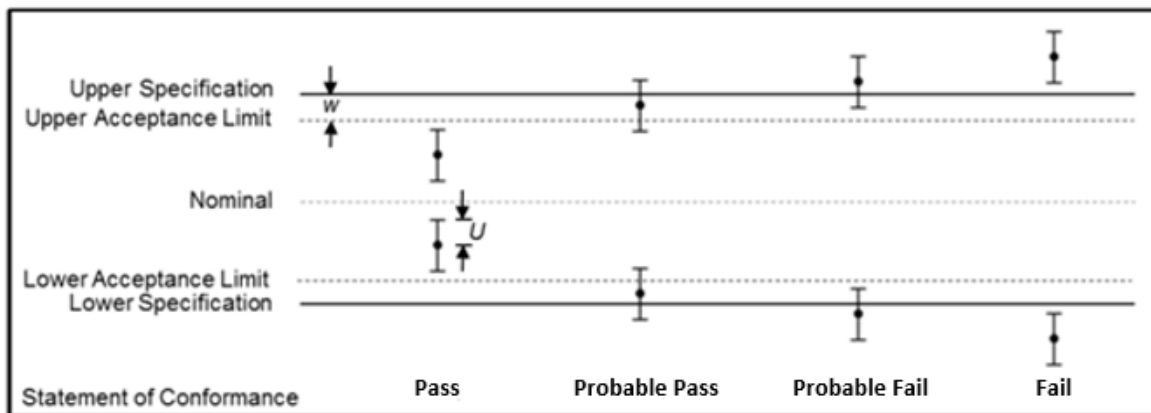
Where appropriate, conformity is reported using guard banding as detailed below:

Result	Symbol	Explanation
Pass <sup>1</sup>	None	The result is within the specified limits provided even when including the measurement uncertainty.
Probable Pass	!	The result is within the specified limits, however when including the measurement uncertainty, the result may be outside of the limits. However, compliance with the specified limits is more likely than non-compliance.
Probable Fail	^	The result is outside the specified limits, however when including the measurement uncertainty, the result may be inside of the limits. However, non-compliance with the specified limits is more likely than compliance.
Fail	F	The result is outside the specified limits provided even when including the measurement uncertainty.
No Conformity	@	The Calibration uncertainty is greater than the specified limit, therefore conformity can not be provided. Calibration will also be marked as limited calibration.

**Notes**

<sup>1</sup> = The absence of a compliance annotation can also mean that the measurement taken does not have any specified limits. In this instance, the calibration result would also be classified as a “PASS”.

**Example of Guard Banding:**



U = 95% expanded measurement uncertainty

Standard Calibration Criteria

- ✓ In most cases it would be expected the working environment will be within 14 to 35 °C. Work may not go ahead if these limits are not met.
- ✓ A suitable working area shall be provided for the technician performing the work.
- ✓ The technician shall be provided with a site contact who can outline all Health & safety concerns on-site as well as run through emergency procedures.
- ✓ Access to a 240V power supply shall be required,
- ✓ The technician shall be given reasonable access to equipment. If required, processes shall be stopped to allow the technician to carry out the work. Charges will apply if the technician is not given the items in an appropriate time frame.
- ✓ A prompt induction shall be carried out upon arrival to ensure the technician can start work. If the technician is left waiting for longer than 1 hour the visit shall be cancelled, and a charge will be applied.
- ✓ All Health & Safety risks shall be highlighted during the initial enquiry with the use of UFML 052 prior to quotation.
- ✓ A full list of assets requiring calibration shall be given to Avery Weigh-Tronix prior to quotation.
- ✓ Regarding additional items missed at the enquiry stage, Avery Weigh-Tronix will try their best to complete these during the scheduled visit. This is time permitting and any items that are not complete which are outside of the initial list provided will be chargeable on an additional visit.
- ✓ Any repairs / adjustments that can be made by Avery Weigh-Tronix are above and beyond the quotation and as such if can't be completed in the scheduled time frame will be an additional charge.
- ✓ If machines are to be dismantled to get access to instruments, this shall be done by the customer by an appropriately trained and competent person. Avery Weigh-Tronix personnel will not perform this work.
- ✓ All certificates will be sent by the technician performing the work at the end of the calibration visit.
- ✓ A site report will be carried out by the technician detailing all work carried out alongside any failures found.

## Torque Calibrations based on BS EN ISO6789:2003 (Withdrawn)

- ✓ A maximum range of 300n.m shall be calibrated on customer premises, above this limit will require calibration within our laboratory.
- ✓ All torque tools will be calibrated based on criteria set out in [BS EN ISO6789:2003 \(Withdrawn\) standard](#).
- ✓ All torque tools will be calibrated in a clockwise direction only.
- ✓ Instruments can be calibrated in lbf.ft, lbf.in or N.m. Where possible N.m will be used on all calibrations.
- ✓ Fixed adjustment preset torque tools will be tested at the set point defined by the instrument at the time of the calibration. This statement also applies to adjustable preset torque wrenches with a valid tamper proof seal.
- ✓ Adjustable preset torque wrenches without a tamper proof seal will not be calibrated until the customer has advised the desired test point.
- ✓ Calibrations to BS EN ISO6789:2003 (Withdrawn) standard of adjustable torque tools will be performed at the following test points:
  - Approximately 20% of full scale (if 20% is not marked on scale, the next minimum point will be taken)
  - Approximately 60% of full scale
  - 100% of full scale

## Pressure Calibrations

- ✓ We have a maximum testing range of 1000 bar on customer premises above this limit will require calibration within our laboratory.
- ✓ We will **not** accept equipment used on **Oxygen** or **Skydrol** systems.
- ✓ All pressure fittings on equipment shall be in a good condition, items may not be calibrated if found to be otherwise.
- ✓ The technician shall be made aware of any fluids being used within the pressure equipment to be tested prior to starting work.
- ✓ All pressure equipment will be calibrated as per the manufacturer's instructions which will include the allowed tolerances, if applicable. If no manufacturer's tolerance is available, then no tolerance will be used.
- ✓ Pressure equipment will be calibrated in the vertical position.
- ✓ All pressure equipment will be calibrated to a minimum of 10 test points at approximately:
  - 0, 20, 40, 60, 80, 100% of full range rising
  - 80, 60, 40, 20 and 0% falling
- ✓ Vacuum instruments will be calibrated up to 90% of maximum vacuum.
- ✓ Mechanical pressure equipment will be calibrated to the outer scale, this will include the unit of measure.
- ✓ Digital pressure equipment, where multiple units of measure are possible, will be calibrated in psi or bar unless agreed otherwise.
- ✓ All high-pressure gas gauges shall be fitted with safety glass. Replacement glass can be offered for an additional cost.

## Temperature Calibrations

- ✓ Unless otherwise agreed, no allowed tolerances will be given to the instrument.
- ✓ Where an accredited calibration is requested, an indicator **must** be available with all temperature probes. Any probes without an available indicator will not be calibrated. Probes without an indicator will be accepted if non-accredited calibration is requested.
- ✓ Calibrations will be performed in a metrology well using the immersion method. Probes that will not fit into a metrology well will not be calibrated. This will also apply to temperature probes with a length less than 80mm.
- ✓ Probes must be in a good condition – if received otherwise the item may not be calibrated.
- ✓ Unless otherwise specified, calibration will be performed at 0 to 100°C at the following test points:
  - 0, 50 and 100°C followed by a repeat reading at 0°C
- ✓ Access to temperature probes shall be given and production / processes stopped in timely manner to allow the technician to perform the calibration safely.
- ✓ If the temperature probe is in a location which requires dismantling any machinery this shall be done by the customer by a trained and competent person not the Avery Weigh-Tronix technician.

## Temperature Indicating Devices (via Electrical Simulation)

- ✓ Unless otherwise agreed, no allowed tolerances will be given to the instrument.
- ✓ Where possible, the technician shall remove power from any electrical panel prior to entering – This is not possible through LOTO due to needing the device powered on to perform the calibration.
- ✓ All temperature indicating devices calibrated by electrical simulation will be tested at the following

test points as a minimum:

- 0, 10, 20, 40, 60, 80 and 100% of the full range of the instrument under test
- ✓ More tests points may be added, depending on the accuracy of the device.
- ✓ The technician shall be made aware of any alarm functions that may be set for standard process work as the calibration will usually be carried out above this range.