Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

0463

Accredited to ISO/IEC 17025:2017

Pullman Instruments (UK) Ltd trading as Pullman Instruments North West

Issue No: 029 **Issue date:** 18 August 2021

Unit 17
Hindley Business Centre
Platt Lane
Hindley
Wigan
WN2 3PA

Contact: Mr Tony Cox
Tel: +44 (0)1942-526164
Fax: +44 (0)1942-525335
E-Mail: tonyc@pullman.co.uk
Website: www.pullman.co.uk

Calibration performed at the above address only

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
LENGTH			
Plain plug gauges (parallel) cylindrical setting standards and rollers	1 to 50 diameter 50 to 100 diameter 100 to 150 diameter	1.0 1.5 on diameter 2.0	By comparison with reference standards
Plain ring gauges (parallel) and setting standards	1 to 10 diameter 10 to 50 diameter 50 to 100 diameter 100 to 150 diameter	1.5 1.0 on diameter 1.5 2.0	By comparison with reference standards
Plain gap gauges (parallel)	0.5 to 100 diameter 100 to 150 diameter	3.0 5.0	By comparison with reference standards
Screw plug gauges (parallel) including check and setting plugs See Note 2	1 to 100 diameter	3.0 on pitch diameter	By comparison with reference standards
Screw pitch Screw flank angle	0.2 to 8 0° to 52°	1.5 5.0 minutes of arc	Mechanical and optical comparison
Screw thread adjustable caliper gauges (parallel)	1 to 150 diameter	See note 4	By use of setting plug
Length gauges, flat and spherical ended	0 to 600	1.0 + (8.0 x length in m)	By comparison with reference standards
Squares Blade type	BS 939:2007 50 to 300 300 to 450	3.0 See Note 1 5.0	

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
MEASURING INSTRUMENTS AND MACHINES			
Micrometers External (including ball and thread micrometers) Internal Depth	BS 870:2008 0 to 600 BS 959:2008 0 to 900 BS 6468:2008 0 to 300	Heads: 2.0 Setting and extension rods: 1.0 + (8.0 x length in m)	
Micrometer heads	BS 1734:1951 0 to 50	1.0	
Bore micrometer (three point) and Bore Gauges	3 to 150 diameter	Overall performance 5.0	By comparison with reference standards
Bevel protractors	BS 1685:2008 0° to 360°	6.0 min of arc	
Height gauges - (Simple) including vernier, dial and digital types (See note 3 and note 4)	BS EN ISO 13225:2012 0 to 1000	Length measurement error (E): 10 + (30 x length in m)	
Vernier caliper, height and depth gauges (including digital and dial instruments)	BS 887:2008 0 to 1000 BS 1643:2008 (withdrawn) 0 to 1000 BS 6365:2008 0 to 600	Overall performance 10 + (30 x length in m)	
Dial gauges and dial test indicators	BS 907:2008 and BS 2795:1981 0 to 50	1.0	
Feeler gauges	BS 957:2008 0.05 to 1	3.0	
Thickness Gauges (dial and digital types)	0 to 50	Dependent on size and performance Minimum 3.0	By comparison with reference standards
Spirit levels	BS 958:1968 5 seconds of arc to 60 minutes of arc nominal sensitivity	6.0 seconds of arc	
Vee blocks	BS3731:1987 20 to 150	2.5 to 5.0	

Notes:

1 The uncertainty quoted is for the departure from flatness, straightness, or squareness, i.e. the distance separating the two parallel planes which just enclose the surface under consideration

2. Single start, symmetrical thread forms only.

3. Simple height gauges
- vernier, dial and digital instruments designed only for measuring distances parallel to the beam.

4. Conformance statements cannot be made against specifications whose magnitudes are smaller than the specified CMC values

END

Appendix - Calibration and Measurement Capabilities

Introduction

The definitive statement of the accreditation status of a calibration laboratory is the Accreditation Certificate and the associated Schedule of Accreditation. This Schedule of Accreditation is a critical document, as it defines the measurement capabilities, ranges and boundaries of the calibration activities for which the organisation holds accreditation.

Calibration and Measurement Capabilities (CMCs)

The capabilities provided by accredited calibration laboratories are described by the Calibration and Measurement Capability (CMC), which expresses the lowest measurement uncertainty that can be achieved during a calibration. If a particular device under calibration itself contributes significantly to the uncertainty (for example, if it has limited resolution or exhibits significant non-repeatability) then the uncertainty quoted on a calibration certificate will be increased to account for such factors.

The CMC is normally used to describe the uncertainty that appears in an accredited calibration laboratory's schedule of accreditation and is the uncertainty for which the laboratory has been accredited using the procedure that was the subject of assessment. The measurement uncertainty is calculated according to the procedures given in the GUM and is normally stated as an expanded uncertainty at a coverage probability of 95 %, which usually requires the use of a coverage factor of $k = 2$. An accredited laboratory is not permitted to quote an uncertainty that is smaller than the published measurement uncertainty in certificates issued under its accreditation.

Expression of CMCs - symbols and units

It should be noted that the percentage symbol (%) represents the number 0.01. In cases where the measurement uncertainty is stated as a percentage, this is to be interpreted as meaning percentage of the measurand.
Thus, for example, a measurement uncertainty of 1.5 % means $1.5 \times 0.01 \times q$, where q is the quantity value.

The notation Q[a, b] stands for the root-sum-square of the terms between brackets: $Q[a, b] = [a^2 + b^2]^{1/2}$