Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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0475

Accredited to ISO/IEC 17025:2017

Excel Calibration & Test Ltd

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Calibration performed at the above address only

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2	Remarks
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED			
LENGTH			
Thread measuring cylinders	As BS 3777, BS 5590 and specials 0.1 to 5	0.50	
Plain plug gauges (parallel) and cylindrical setting standards	1 to 50 diameter 50 to 100 100to 150 150to 200	0.80 1.0 1.5 2.0	Using length measuring machine and end standards.
Plain ring gauges (parallel) and setting rings	2.5 to 5 diameter 5 to 50 50 to 100 100 to 150 150 to 200 200 to 300	2.0 1.0 1.5 2.0 2.5 3.0	Using length measuring machine and standards.
Screw plug gauges (parallel) including check and setting plugs See Note 1	1 to 100 diameter 100 to 300	3.0 ┐ on pitch 5.0 ┘ diameter	Note 1. Single and multi-start symmetrical and asymmetrical thread forms using length measuring machine.
Screw ring gauges (parallel) See Note 1	3 to 100 diameter 100 to 150 150 to 300	4.0 ┐ 6.0 ├ on pitch diameter 8.0 ┘	
Screw pitch	0.2 to 8	1.5	Using length measuring machine.
Screw flank angle	0° to 52°	5.0 minutes of arc	Using a goniometric head.
Screw thread adjustable calliper gauges (parallel) See Note 1	1 to 100 diameter	See Note 3	Note 3. Functional test of size using setting plugs calibrated with a CMC of 3.0 µm
Steel and tungsten carbide balls	1 to 30 diameter	0.80	Using length measuring machine and end standards.
Length gauges, flat and spherical ended	1 to 1200	1.0 + (8.0 x length in m)	Using surface plate, comparator and end standards or length measuring machine and end standards.

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2	Remarks
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED			
LENGTH (cont'd)			
Plain gap gauges	5 to 100	3.0	Using gauge blocks
Parallels	As BS 906:1972 5 to 50 x 100 x 400	Dependant on size and grade 1.5 to 5.0	
Vee Blocks	As BS 3731:1987 20 to 150	Dependant on size and grade 2.5 to 5.0	
ANGLE			
Sine bars and tables	As BS 3604:1978 0 to 500 length	Linear dimensions: 1.0 + (10 x length in m) Overall performance: 5.0 seconds of arc	
Squares Blade type	As BS 939:2007 50 to 300	3.0 on squareness See Note 2	Note 2. 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.
Angle plates and box angle plates	As BS 5535:1978 50 to 600	Squareness 3.0 + (1.0 per 100 mm) See Note 2 Parallelism 1.0 + (1.0 per 100 mm)	
MEASURING INSTRUMENTS AND MACHINES			
Micrometers External Internal Depth	As BS 870:2008 0 to 600 As BS 959:2008 0 to 900 As BS 6468:2008 0 to 300	Heads: 2.0 between any two points Setting and extension rods 1.0 + (8.0 x length in m)	
Vernier gauges Calliper, Height Depth gauges	As BS 887:2008 and above 0 to 1500 As ISO13225:2012 and BS 1643:2008 0 to 1000 As BS 6365: 2008 0 to 600	Overall performance 10 + (30 x length in m)	
Dial gauges and dial test indicators	As BS 907:2008 and BS 2795:1981 0 to 50	1.0	
Feeler gauges	As BS 957:2008 0.025 to 1	3.0	
END			

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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: $Q[a, b] = [a^2 + b^2]^{1/2}$