Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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0227

Accredited to ISO/IEC 17025:2017

M E Broadstone Ltd
(t/a Broadstone Gauge and Tool Company)

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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	BS 5590:1978 and specials 0.1 to 5	0.50	
Plain plug gauges (parallel) cylindrical setting standards	0.15 to 50 diameter 50 to 100 diameter 100 to 200 diameter 200 to 300 diameter 300 to 450 diameter	0.50 1.0 2.0 4.0 5.0	Calibrated by comparison to reference standards.
Plain plug gauges (taper)			Calibrated by comparison to reference standards.
Taper parallel to 1 in 8 on diameter	3 to 50 diameter 50 to 100 diameter	3.0 4.0 on diameter	
Taper 1 in 8 to 1 in 3 on diameter	3 to 50 diameter 50 to 100 diameter	5.0 6.0	
Plain ring gauges (parallel) Including setting rings	1 to 10 diameter 10 to 50 diameter 50 to 100 diameter 100 to 200 diameter 200 to 300 diameter 300 to 450 diameter	2.0 1.0 1.5 2.0 4.0 6.0	Calibrated by comparison to reference standards.
Plain ring gauges (taper)			Calibrated by comparison to reference standards.
Taper parallel to 1 in 8 on diameter	3 to 50 diameter 50 to 100 diameter	4.0 5.0 on diameter	
Taper 1 in 8 to 1 in 3 on diameter	3 to 50 diameter 50 to 100 diameter	6.0 7.0	

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 (parallel)	BS 969 1 to 50 50 to 100 100 to 200 200 to 300	 3.0 5.0 8.0 12	
Length gauges, flat and spherical ended	0 to 750	1.0 + (5.0 x length in m)	Calibrated by comparison to reference standards.
Screw plug gauges (parallel) including check and setting plugs See Note 3	1 to 100 diameter 100 to 150 diameter 150 to 250 diameter 250 to 350 diameter 350 to 450 diameter	3.0 4.0 5.0 on pitch 6.0 diameter 8.0	Clibrated using two wire method
Screw plug gauges (taper) See Note 2	5 to 100 diameter 100 to 150 diameter	5.0 on pitch 8.0 diameter	Calibrated by comparison to reference standards.
Screw ring gauges (parallel) See Notes 3 and 4	1 to 100 diameter 100 to 150 diameter	5.0 on pitch 7.0 diameter	Calibrated by comparison to reference standards.
Screw ring gauges (taper) See Note 2 and 5	1 up to 150 diameter	7.0 on pitch diameter	Calibrated by comparison to reference standards.
Screw pitch Screw flank angle	0.2 to 8 0° to 52°	2.0 5.0 minutes of arc	Calibrated by comparison to reference standards.
Screw thread adjustable caliper gauges (parallel) See Note 6	1.5 to 300 diameter	See note 6	
Parallels	BS 906:1972 5 to 50 x 100 x 400	1.5 to 5.0	
Vee blocks	BS 3731:1987 20 to 150	2.5 to 5.0	
Thread measuring Vee pieces (prisms)	MOY/SCM1/60 0 to 4.5	2.5	
ANGLE			
Squares			
Blade type	BS 939:2007 50 to 450	3.0 On squareness	See note 1
Right angle and box angle plates	As BS 5535:1978 50 to 600	Squareness 3.0 + (1.0 per 100 mm) Parallelism 1.0 + (1.0 per 100 mm)	See note 1

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k=2)	Remarks
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED			
MEASURING INSTRUMENTS, MACHINES and TOOLS			
Micrometers			
External	BS 870:2008 0 to 600	Heads 2 between any two points	
Internal	BS 959:2008 0 to 900	Setting and extension rods 1.0 + (5.0 x length in m)	
Depth	BS 6468:2008 0 to 300		
Micrometer heads	BS 1734:1951 0 to 50	1.0	
Micrometers, 3 point bore	5 to 200	5.0	
Vernier caliper, height and depth gauges	BS 887:2008 0 to 1000 BS EN ISO13225:2012 and BS 1643:2008 0 to 1000 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	
ANCILLERY MEASUREMENTS			See note 7
Flatness		0.2	
Parallelism		0.5	
Squareness		2.0	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k=2)	Remarks

Notes:

1 The uncertainty quoted is for the departure from flatness, straightness, parallelism 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. Single and multi-start symmetrical and asymmetrical thread forms.

4. Includes use of check plugs for screw rings from 1 mm to 14 mm diameter.

5. Includes use of check plugs for screw rings (taper) from 1 mm to 14 mm diameter

6. Functional test of size using setting plugs calibrated with a CMC of 3.0 µm

7. Ancillery measurements made for completeness of calibraion

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