

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 0269 Accredited to ISO/IEC 17025:2017	G B Quality Assurance (Consultants) & N.D.T. Limited trading as G B Quality Assurance Issue No: 031 Issue date: 03 December 2021	
	Unit 9 Chancel Way Moor Lane Industrial Estate Birmingham B6 7AU	Contact: Tony Facey Tel: +44 (0)121-356 7430 Fax: +44 (0)121-344 3837 E-Mail: tony.facey@gbqualityassurance.co.uk Website: www.gbqualityassurance.co.uk
Calibration performed by the Organisation at the locations specified		

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details	Activity	Location code
Address Unit 9 Chancel Way Moor Lane Industrial Estate Birmingham B6 7AU Contact: Tony Facey Tel: +44 (0)121-356 7430 Fax: +44 (0)121-344 3837 E-Mail: tony.facey@gbqualityassurance.co.uk	Dimensional	A

Site activities performed away from the locations listed above:

Location details	Activity	Location code
At customers premises Contact: Tony Facey	Dimensional	B



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Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	Location Code
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED				
LENGTH				
Gauge block accessories	0.1 to 12.5	0.50	BS 4311: Part 2: 2009 By comparison with reference standards and datums	A
Thread measuring cylinders and specials	0.1 to 5	0.50	As BS 5590:1978 and specials. Calibration performed using a length measuring machine and length standards	A
Plain plug gauges (parallel), cylindrical setting standards and rollers	1 to 50 diameter 50 to 100 100 to 150 150 to 300	0.80 1.0 1.5 2.0	Calibration performed using a length measuring machine and length standards	A
Plain plug gauges (taper) Taper up to 1 in 8 on diameter	3 to 50 diameter 50 to 100 100 to 150	3.0 on diameter 4.0 5.0	Calibration performed using a length measuring machine and length standards	A
Taper above 1 in 8 and up to 1 in 3 on diameter	3 to 50 diameter 50 to 100 100 to 150	5.0 on diameter 6.0 7.0		
Plain ring gauges (taper) Taper up to 1 in 8 on diameter	3 to 50 diameter 50 to 100 100 to 150	4.0 on diameter 5.0 6.0	Calibration performed using a length measuring machine and length standards	A
Taper above 1 in 8 and up to 1 in 3 on diameter	3 to 50 diameter 50 to 100 100 to 150	6.0 on diameter 7.0 8.0		
Length gauges, flat and spherical ended	1 to 1000	1.0 + (8.0 x length in metres)	Calibration performed by comparison to length standards	A
Plain gap gauges (parallel)	0.5 to 100 100 to 200 200 to 300	3.0 5.0 8.0	Calibration performed by comparison to length standards	A



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RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED				
LENGTH (cont'd)				
Parallels	5 to 50 x 100 x 400	1.5 up to 5.0	Calibration as BS 906: 1972 by comparison to datum surfaces and reference standards	A
Vee blocks	20 to 150	2.5 to 5.0	Calibration as BS 3731:1987 by comparison to datum surfaces and reference standards	A
Screw plug gauges (parallel) including check and settings plugs	1 to 100 diameter 100 to 150	3.0 on pitch diameter 4.0	Calibration performed using screw thread diameter measuring machine and thread measuring cylinders See Note 2	A
Screw Plug Gauges (taper)	2 to 100 diameter 100 to 150	4.0 on pitch diameter 8.0	Calibration performed using screw thread diameter measuring machine and thread measuring cylinders See Note 3	A
Screw ring gauges (parallel)	1 to 100 diameter 100 to 150	5.0 on pitch diameter 6.0	Calibration performed using length measuring machine and end vee pieces See Note 2 and 4	A
Screw Ring Gauges (Taper)	6 to 150 diameter	7.0 on pitch diameter	Calibration performed using length measuring machine and end vee pieces See Note 3	A
Screw pitch	0.2 to 8	1.5	Calibration performed by comparison to	A
Screw flank angle	0° to 52°	5.0 minutes of arc	Calibration performed by comparison using optical measuring equipment	A
Screw thread adjustable calliper gauges (parallel) See Note 3	1 to 150 diameter	See Note 5	Size verified by comparison to setting plugs	A



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RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED				
ANGLE				
Squares Blade type	50 to 300 300 to 450	3.0 On squareness 5.0	Calibration as BS 939:2007 by comparison to datum surfaces and reference standards See note 1	A
Cylindrical	75 to 300 300 to 600 600 to 900 900 to 1200	2.0 On squareness 4.0 6.0 8.0	Calibration as BS 939:2007 by first principles See note 1	A
Block	50 to 300 300 to 600 600 to 900 900 to 1200	3.0 On squareness 5.0 8.0 10.0	Calibration as BS 939:2007 by comparison to datum surfaces and reference standards See note 1	A
Angle plates and box angle plates	50 to 600	Squareness: 3.0 + (1.0 per 100 mm) Parallelism: 1.0 + (1.0 per 100 mm)	Calibration as BS 5535:1978 by comparison to datum surfaces and reference standards See note 1	A
Sine centres	0 to 300 length or between centres	Linear dimensions:1.0 + (10 x length in m) Overall performance: 3.0 seconds of arc	In house method based on BS 3064:1978 by comparison to datum surfaces and reference standards	A
FORM				
Surface plates Granite or Cast iron	160 x 100 to 2500 x 1600	1.5 + (0.80 x diagonal in metres)	Calibration as BS 817:2008 using an electronic level See note 1	A, B
Straightedges - Cast iron	300 to 5000	1.0 + (2.0 x length in metres)	Calibration as BS 5204: Part 1:1975 using an electronic level See note 1	A, B



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FORM (cont'd)				
Straightedges - Steel or Granite	300 to 2000	1.0 + (2.0 x length in metres)	Calibration as BS 5204:Part 2:1977 using an electronic level See note 1	A, B
Surface texture (excluding measurement standards and roughness comparison specimens)	Ra 0.02 µm to 80 µm	10% of measured value, minimum 0.65	Calibration as BS 1134:Part 1:2010	A
MEASURING INSTRUMENTS AND MACHINES				
External micrometer	0 to 600	Heads 2.0 between any two points. Setting and extension rods 1.0 + (8.0 x length in metres)	Calibration as BS 870:2008 by comparison to end standards	A
Internal micrometer	0 to 900	Heads 2.0 between any two points. Setting and extension rods 1.0 + (8.0 x length in metres)	Calibrated as BS 959:2008 by comparison to end standards	A
Depth micrometer	0 to 300	Heads 2.0 between any two points. Setting and extension rods 1.0 + (8.0 x length in metres)	Calibrated as BS 6468:2008 by comparison to end standards	A
3 point bore micrometer	6 to 150 150 to 250	5.0 8.0	Calibration performed by comparison to setting ring gauges	A
Micrometer heads	0 to 100	1.0	Calibrated as BS 1734:1951 by comparison to end standards	A
Bench micrometer	0 to 100	Overall performance 2.0	Calibrated as NPL MOY/SCMI 22 by comparison to end standards	A



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RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED				
MEASURING INSTRUMENTS AND MACHINES (cont'd)				
Digital, dial and vernier type calliper gauges	0 to 50 50 to 200 200 to 300 300 to 400 400 to 500 500 to 600 600 to 700 700 to 800 800 to 900 900 to 1000 3 to 50 Shift error (S) internal jaws 3 to 50 Shift error (S) depth and step	1.0 2.0 3.0 4.0 7.0 8.0 9.0 10 12 13 5.0 1.0	As BS EN ISO 13385-1:2019 verification by comparison to reference standards See note 8	A
Vernier type gauges including dial and digital				
Caliper	0 to 2000	Overall performance $10 + (30 \times \text{length in m})$	Calibration as BS 887:2008	A
Height	0 to 1000	Overall performance $10 + (30 \times \text{length in m})$	Calibration as BS 1643:2008 withdrawn	A
Depth	0 to 600	Overall performance $10 + (30 \times \text{length in m})$	Calibration as BS 6365:2008	A
Height gauges - (Simple) including vernier, dial and digital types	0 to 1000	Length measurement error (E): $10 + (5 \times \text{length in metres})$	Calibration as BS EN ISO 13225:2012 See note 6 and 7	A
Dial gauges and dial test indicators	0 to 50	1.0	Calibration as BS 907:2008 and BS 2795:1981	A
Displacement transducers (linear)	0 to 10 10 to 50	0.50 1.0	Calibration by comparison with reference standards	A
Height setting micrometer	0 to 300	Heads 1.0 Overall performance 3.0	In house method based on NPL MOY/SCMI 79	A
Riser blocks for above	150 300	2.5 5.0	Calibration by comparison to end standards	A



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MEASURING INSTRUMENTS AND MACHINES (cont'd)				
Bench centres	0 to 1000 between centres	Linear dimensions 1.0 + (10 x length in m)	In house method based on NPL MOY/SCMI 22	A
Thread diameter measuring machine	0 to 300	Overall performance 1.5	In house method based on NPL MOY/SCMI 9	A
Measuring machines Vertical Horizontal	0 to 1500	1.0+(5.0 x length in m)	By comparison with reference standards	A, B
Profile projectors	10 to 100 magnification 0 to 200 0° to 360°	125 at the screen 5.0 4.0 minutes of arc	Mechanical and optical comparison	A, B
Toolmakers microscopes	0 to 300 0° to 360°	125 at the screen 5.0 4.0 minutes of arc	In house method based on NPL MOY/SCMI 2	A, B
Bevel protractors	0° to 360°	6.0 minutes of arc	Calibration as BS 1685:2008	A
Comparators (external)	250 to 10 000 magnifications	1.0 % of range Minimum 0.20	Calibration as BS 1054:1975	A
Steel rules	0 to 4000	25 + (5.0 x length in m)	Calibration as BS 4372:1968	A
Spirit levels	5 seconds of arc to 60 minutes of arc nominal sensitivity	Means sensitivity 10% of nominal Minimum 0.50 seconds of arc	Calibration as BS 3509:1962 and/or BS 958:1968	A
Electronic indicating levels	0 minutes of arc to 60 minutes of arc	1.0 % of range Minimum 0.50 seconds of arc	Documented in-house methods based on BS 3509:1962	A
Height gauges, electronic	0 to 1000	1.0 + (5.0 x length in m)	Documented in-house method	A, B
Clinometers	0° to 360°	10 seconds of arc	In house method based on NPL MOY/SCMI 36	A
Fineness of grind gauges (Hegman type)	0 to 100 µm	1.0	Calibration as BS EN ISO 1524:2020,	A
Feeler gauges (including setting shims)	0.025 to 1	2.0	Calibration as BS 957:2008	A



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<p>Notes</p> <ol style="list-style-type: none"> 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 and asymmetrical thread forms only. 3. Single start, symmetrical thread forms only 4. Includes use of check plugs for screw rings from 1 mm to 6mm diameter. 5. Functional test of size using setting plugs calibrated with a CMC of 3.0 μm 6. Simple height gauges - vernier, dial and digital instruments designed only for measuring distances parallel to the beam. 7. Conformance statements cannot be made against specifications whose magnitudes are smaller than the specified CMC values 8. . The stated uncertainties have been calculated in accordance with the relevant standard method and relate to the test value uncertainty. The uncertainty quoted excludes contributions relating to the instrument under test. 				
<p>END</p>				



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