Schedule of Accreditation

Issued by

United Kingdom Accreditation Service

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0228

Accredited to ISO/IEC 17025:2017

MP Calibration Services Ltd

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Calibration performed by the Organisations at the locations specified below

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details		Activity	Location code
Address 43 Haviland Road Ferndown Industrial Estate Wimborne Dorset BH21 7RY	**Local contact** Mr M J Yeoman	Dimensional	A

Site activities performed away from the locations listed above:

Location details		Activity	Location code
At customers premises	Mr M J Yeoman	Dimensional	B

DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k = 2$)	Remarks	Location Code
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED				
LENGTH			Note 1 The uncertainty quoted is for the departure from either flatness, straightness, parallelism, or squareness, i.e. the distance separating the two parallel planes which just enclose the surface under consideration.	
Plain plug gauges (parallel)	0.3 to 50 diameter 50 to 100 diameter 100 to 165 diameter	1.0 2.0 on diameter 2.5	Calibrated by comparison to length standards using a single axis length machine	A
Plain ring gauges (parallel)	2 to 12 diameter 12 to 50 diameter 50 to 100 diameter 100 to 300 diameter	1.5 1.2 on diameter 1.5 3.0	Calibrated by comparison to length standards using a single axis length machine	A
Length gauges, flat and spherical ended (excluding length bars)	0 to 600	1.0 + (8.0 x length in m)	Calibrated by comparison to length standards	A
Parallels	5 to 50 x 100 x 400	1.5 to 5.0 see note 1	BS 906:Parts 1&2:1972	A
Vee blocks	20 to 150 designating size	2.5 to 5.0 see note 1	BS 3731:1987	A
Plain gap gauges	0.5 to 100 100 to 200 200 to 300	3.0 5.0 8.0	Calibrated by comparison to length standards using a single axis length machine	A
Screw plug gauges (parallel) including check and setting plugs (See Note 2)	1 to 100 diameter	3.0 on pitch diameter	Note 2 Single start, symmetrical threads only. Calibrated by comparison to cylindrical setting standards using thread measuring wires.	A
Screw pitch	0.2 to 8	1.5	Calibrated using a single axis length machine	A

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k = 2$)	Remarks	Location Code
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED				
LENGTH continued				
Screw flank angle	0° to 52°	5.0 minutes of arc	Calibrated using a optical projection methods	A
Screw ring gauges (parallel)	1 to 20	See note 3	Note 3 1 mm to 20mm diameter range relates to functional test of size using check plugs.	A
Screw caliper gauges	1 to 30	See note 4	Note 4 Functional test of size using setting plugs calibrated with a CMC of 3.0 µm	A
ANGLE				
Squares				
Blade type	50 to 300 300 to 600	3.0 On squareness 5.0 See note 1	BS 939:2007	A
Cylindrical type	75 to 300 300 to 600	2.0 On squareness 3.0 See note 1	BS 939:2007	A
Sine Bars and Tables	0 to 250	Linear dimension 1.0 + (10 x length in m) Overall performance 5.0 seconds of arc	BS 3064:1978	A
Right angle and Box Plates	50 to 600	Squareness: 3.0 + (1.0 per 100 mm) Parallelism: 1.0 + (1.0 per 100 mm)	BS 5535:1978	A
FORM				
Surface plate Granite and Cast iron	160 x 100 to 1600 x 1000	1.5 + (0.80 x diagonal in m) See note 1	BS 817:2008	A, B

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k = 2$)	Remarks	Location Code
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED				
MEASURING INSTRUMENTS AND MACHINES				
Micrometers				
External	0 to 600	Heads: 2.0 between any two points	BS 870:2008	A
Internal	0 to 300		BS 959:2008	A
Depth	0 to 300	Setting and extension rods 1.0 + (8.0 x length in m)	BS 6468:2008	A
3 point bore	0 to 100 100 to 200	3.0 4.0	Calibrated using master setting ring gauges and a calibration fixture	A
Height setting micrometer	0 to 300	Heads: 1.0 between any two points Overall performance 3.0	Calibrated by comparison to length standards	A
Riser blocks for above	150 300	2.5 3.0	Calibrated by comparison to length standards	A
Vernier gauges				
Caliper	0 to 1500	Overall performance: 10 + (30 x length in m)	BS 887:2008	A
Height	0 to 1500	Overall performance: 10 + (30 x length in m)	BS 1643:2008	A
Height (simple)	0 to 1500	Overall performance: 10 + (30 x length in m)	BS EN ISO 13225:2012	A
Depth	0 to 600	Overall performance: 10 + (30 x length in m)	BS 6365: 2008	A
Dial gauges and dial test indicators	0 to 50	1.0	BS 907:2008 and BS 2795:1981	A
Feeler gauges	0.025 to 1	3.0	BS 957:2008	A

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k = 2$)	Remarks	Location Code
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED				
MEASURING INSTRUMENTS AND MACHINES continued				
Bevel protractors	0° to 360°	6.0 minutes of arc	BS 1685:2008	A
Spirit levels	5 seconds of arc to 60 minutes of arc nominal sensitivity	Mean sensitivity: 10% of nominal Minimum 0.50 seconds of arc	BS 958:1968 and BS 3509:1962	A
Radius gauges	0 to 15	10 on profile	Calibrated using a optical projection methods	A
Graduated rules	0 to 300	5.0 + (10 x length in m)	Calibrated using a optical projection methods	A
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 uncertainty of measurement 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 CIPM-ILAC definition of the CMC is as follows:

A CMC is a calibration and measurement capability available to customers under normal conditions:
(a) as published in the BIPM key comparison database (KCDB) of the CIPM MRA; or
(b) as described in the laboratory's scope of accreditation granted by a signatory to the ILAC Arrangement.

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 CMC is calculated according to the procedures given in M3003 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 CMC in certificates issued under its accreditation.

The CMC may be described using various methods in the Schedule of Accreditation:

As a single value that is valid throughout the range.
As an explicit function of the measurand or of a parameter (see below).
As a range of values. The range is stated such that the customer can make a reasonable estimate of the likely uncertainty at any point within the range.
As a matrix or table where the CMCs depend on the values of the measurand and a further quantity.
In graphical form, providing there is sufficient resolution on each axis to obtain at least two significant figures for the CMC.

Expression of CMCs - symbols and units

In general, only units of the SI and those units recognised for use with the SI are used to express the values of quantities and of the associated CMCs. Nevertheless, other commonly used units may be used where considered appropriate for the intended audience. For example, the term "ppm" (part per million) is frequently used by manufacturers of test and measurement equipment to specify the performance of their products. Terms like this may be used in Schedules of Accreditation where they are in common use and understood by the users of such equipment, providing their use does not introduce any ambiguity in the capability that is being described.

When the CMC is expressed as an explicit function of the measurand or of a parameter, this often comprises a relative term (e.g., percentage) and an absolute term, i.e. one expressed in the same units as those of the measurand. This form of expression is used to describe the capability that can be achieved over a range of values. Some examples are shown below. It should be noted that these expressions are not mathematical formulae but are instead written in a commonly used shorthand for expressing uncertainties - therefore, for purposes of clarity, an indication of how they are to be interpreted is also provided below.

DC voltage, 100 mV to 1 V: 0.0025 % + 5.0 µV

Over the range 100 mV to 1 V, the CMC is 0.0025 %·V + 5.0 µV, where V is the measured voltage.

Hydraulic pressure, 0.5 MPa to 140 MPa: 0.0036 % + 0.12 ppm/MPa + 4.0 Pa

Over the range 0.5 MPa to 140 MPa, the CMC is $0.0036\ \% \cdot p + (0.12 \cdot 10^{-6} \cdot p \cdot 10^{-6}) + 4.0$ Pa, where p is the measured pressure in Pa.

It should be noted that the percentage symbol (%) simply represents the number 0.01. In cases where the CMC is stated only as a percentage, this is to be interpreted as meaning percentage of the measured value or indication.

Thus, for example, a CMC of 1.5 % means $1.5 \cdot 0.01 \cdot i$, where i is the instrument indication.