Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

9157

Accredited to ISO/IEC 17025:2017

Sheffield Calibration Services Ltd

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Calibrations performed by the Organization at the locations specified below

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details		Activity	Location code
Address 180 Attercliffe Road Sheffield South Yorkshire S4 7WZ	**Local contact** Mr Mark Walster	Dimensional	P

Site activities performed away from the locations listed above:

Location details	Activity	Location code
Customers' sites or premises The customer's sites or premises must be suitable for the nature of the particular calibrations undertaken and will be subject of contract review arrangements between the laboratory and the customer	Dimensional	S

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
RANGE IN MILLIMETRES AND UNCERTAINTIES IN MICROMETRES UNLESS OTHERWISE STATED				
LENGTH				
Gauge blocks Inch (Steel, tungsten carbide and ceramic)	As BS 4311:Part 1: 2007 0.01in to 0.4 in 0.4 in to 1 in Size 2 in Size 3 in Size 4 in	Class (See footnotes) C D 3.0 4.0 4.0 5.0 5.0 7.0 6.0 8.0 7.0 10 µ inches	NOTES All dimensional calibrations can be given in Inch units.	P
Millimetre (Steel, tungsten carbide and ceramic)	As BS EN ISO 3650:1999 0.5 to 10 10 to 25 Sizes 30, 40, 50, 60, 70, 75, 80, 90, 100	C D .080 .10 .10 .13 .12 .17 .15 .21 .18 .25		
Comparison **Class C** uncertainties apply to the measurement of length of steel gauges by comparison with grade K standards of length of a similar material. Class C uncertainties apply to grade 0, 1 and 2 gauges to BS EN ISO 3650:1999 and BS 4311:Part 1:2007. **Class D** uncertainties represent the best capability for the measurement of length of tungsten carbide and ceramic gauges by comparison with grade K standards of length of a dissimilar material.				
Thread measuring cylinders	As BS 3777:1964, BS 5590:1978 and specials 0.1 to 5	0.50		P
Plain plug gauges (parallel) cylindrical setting standards, gear measuring cylinders and rollers	1 to 50 diameter 50 to 100 100 to 150 150 to 200 200 to 300 300 to 400	0.50 0.80 1.0 1.5 2.0 2.5 on diameter	Using length measuring machine and end standards.	P
Plain ring gauges (parallel) and setting standards	1.5 to 25 diameter 25 to 50 50 to 100 100 to 150 150 to 300	0.80 1.0 1.5 2.0 2.5 on diameter	Using length measuring machine and standards.	P

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
RANGE IN MILLIMETRES AND UNCERTAINTIES IN MICROMETRES UNLESS OTHERWISE STATED				
LENGTH (cont'd)				
Screw plug gauges (parallel) including check and setting plugs	1 to 100 diameter 100 to 200	3.0 on pitch diameter 4.0	Single start symmetrical and asymmetrical thread forms only. Using length measuring machine and standards.	P
Screw ring gauges (parallel)	3 to 100 diameter 100 to 200	5.0 on pitch diameter 6.0		P
	Pitch 0.2 to 8	1.5	Using length measuring machine.	
	Flank angle 0° to 30°	5.0 minutes of arc	Using a projector.	
Length gauges, flat and spherical ended	1 to 1000	1.0 + (5.0 x length in m)	By comparison with end standards.	P
Plain gap gauges (parallel)	1 to 100 100 to 200 200 to 300	2.0 3.0 4.0	Using end standards.	P
Graduated rules	As BS 4372:1968 0 to 2000	5.0 + (10 x length in m)		P
ANGLE				
Squares			The uncertainty quoted is for the departure from squareness, i.e. the distance separating the two parallel planes which just enclose the surfaces under consideration.	
Blade type	As BS 939:2007 50 to 450	5.0 on squareness		P
MEASURING INSTRUMENTS ANDMACHINES				
Micrometers				P
External Internal Depth	As BS 870:2008 0 to 1000 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 + (5.0 x length in m)		
Micrometer heads	As BS 1734:1959 0 to 50	1.0 between any two points		P

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
RANGE IN MILLIMETRES AND UNCERTAINTIES IN MICROMETRES UNLESS OTHERWISE STATED				
LENGTH (cont'd)				
Vernier gauges				
Caliper	As BS 887:2008 0 to 1000	Overall performance: 10 + (30 x length in m)		P
Height	As BS 1643:2008 0 to 1000			
Depth	As BS 6365:2008 0 to 1000			
Height gauges, electronic	0 to 1000	Overall performance 2.0 + (10 x length in m)	Using end standards	P
Dial gauges and dial test indicators	As BS 907:2008 and BS 2795:1981 0 to 100	1.0		P
Receiver, position and profile gauges, jigs and fixtures	Maximum size 0 to 500 x 750 x 1000	See Remarks	Features and associated parts of these gauges can be measured to the uncertainties given for equivalent items listed in this schedule, when using the same methods.	P
FORM				
Surface Plates				
Granite and Cast Iron	As BS 817:2008 160 x 100 to 2500 x 1600	1.5 + (0.8 x diagonal in m)	The uncertainty quoted is for the departure from flatness, i.e. the distance separating the two parallel planes which just enclose the surface under consideration.	P & S
ANCILLERY MEASUREMENTS				
Flatness		0.3	Ancillery measurements made for completeness of calibration. Best CMC's are dependent on methodology and range.	
Parallelism		0.3		
Squareness		7.0		
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: $Q[a, b] = [a^2 + b^2]^{1/2}$