Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

0306

Accredited to ISO/IEC 17025:2017

Smithers MSE Limited

Issue No: 042 **Issue date**: 01 September 2021

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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
MEASURING INSTRUMENTS			NOTES
Micrometers (External) Micrometer Heads	Accuracy of Traverse, 0 mm to 25 mm >25 mm to 100 mm	 0.001 3 mm between any two points 0.002 9 mm between any two points	Calibrated by comparison to gauge blocks
Dial Gauges, Displacement Transducers and Linear Transducers	0 mm to 100 mm (Foot Force) 1 g to 500 g	0.002 9 mm 0.026 g	Calibrated by comparison to gauge blocks
HARDNESS			
Shore Durometers A & D			
Length - Indenter geometry	0 to 20 mm	0.004 6 mm	Calibrated using an optical projector
Angle – Indenter angle	20º to 40º	0.12º	Calibrated using an optical projector
Force	475 mN to 8125 mN 4200mN to 45000 mN	26 mN 89 mN	Calibrated using a force proving device Calibrated using a force proving device

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
TIME			
Stopwatches and Timers	1 minute to 72 hours	0.14 s	Calibrated against MSF time and GPS UTC second markers
Rotational Speed	60 RPM to 5000 RPM	2.0 RPM	Calibrated using an optical tachometer
PRESSURE			
GAS PRESSURE (GAUGE)			Methods consistent with EURAMET CG17
Calibration of pressure indicating instruments and gauges	– 100 kPa to + 206 kPa + 206 kPa to + 689 kPa + 689 kPa to + 2.48 MPa	1.1 kPa 1.1 kPa 2.1 kPa	Calibrated using a pressure transducer
HYDRAULIC PRESSURE (GAUGE)			
Calibration of pressure indicating instruments and gauges	620 kPa to 110 MPa	0.78 kPa + 0.050 %	Calibrated using a dead weight pressure tester
TEMPERATURE			
Electronic thermometers with sensors	– 70 °C to <– 10 °C – 10 °C to <+ 65 °C + 65 °C to <+ 90 °C + 90 °C to <+ 170 °C – 170 °C to + 300 °C	0.45 °C 0.043 °C 0.30 °C 0.069 °C 0.054 °C	Within liquid baths

Notes

1 All items are calibrated strictly in accordance with procedures agreed by UKAS and which may not necessarily comply with all requirements of a relevant British Standard.

2 The calibration undertaken will have associated uncertainties of measurement commensurate with the general levels of tolerance prevailing in the Rubber, Plastics and allied industries. Such calibrations will result in the performance of these instruments being determined to an order of accuracy suitable for use in the Rubber, Plastics and allied industries, but not for industries where a high level of precision is required.

3 Linear calibrations may be made and reported in Inch units.

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