Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

24452
Accredited to ISO/IEC 17025:2017

H.W. Wallace and Co Limited

Issue No: 003 **Issue date:** 04 April 2025

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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 Curtis Road Industrial Estate Dorking Surrey RH4 1EJ	**Local contact** Gordon Hold	Rubber Hardness Meter calibration Indenter and foot geometry	A
Address Unit 3, Glebelands Centre Vincent Lane Dorking Surrey RH4 3HW	**Local contact** Gordon Hold	Rubber Hardness Meter calibration Force, mass and displacement measurement	B

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Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
HARDNESS				
Calibration of Shore Hardness Meters Scale A			BS ISO 48-9:2018	
Force	500 to 9000 mN	8.3 mN	By comparison to reference force indicating device	B
Indenter displacement	0 to 2.5 mm	1.0 µm	By comparison to length standards	B
Indenter geometry				
Shaft Diameter	1.10 to 1.40 mm	2.2 µm	Indenters measured by	A
Angle	34.75 to 35.25º	0.050 °	optical projection or direct	A
Cone Frustum	0.78 to 0.80 mm	3.0 µm	measurement	A
Pressure Foot				
Outer Diameter	17.50 to 18.50mm	0.022 mm	Pressure foot measured by	A
Bore Diameter	2.90 to 3.10mm	0.020 mm	optical projection or direct measurement	A
Mass on Foot	1.000 to 1.1000 kg	10 g	By comparison to reference force indicating device	B
Calibration of Shore Hardness Meters Scale D			BS ISO 48-9:2018	
Force	4 to 50 N	50 mN	By comparison to reference force indicating device	B
Indenter displacement	0 to 2.5 mm	1.0 µm	By comparison to length standards	B
Indenter geometry				
Shaft Diameter	1.10 to 1.40 mm	2.2 µm	Indenters measured by	A
Angle	29.75 to 30.25 º	0.050 °	optical projection or direct	A
Tip Radius	0.09 to 0.11 mm	6.0 µm	measurement	A
Pressure Foot				
Outer Diameter	17.50 to 18.50 mm	0.022 mm	Pressure foot measured by	A
Bore Diameter	2.90 to 3.10 mm	0.022 mm	optical projection or direct measurement	A
Mass of Foot	5.000 to 5.500 kg	0.015 kg	By comparison to reference force indicating device	B

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
HARDNESS (continued)			BS ISO 48-9:2018	
Calibration of Shore Hardness Meters Scale AM				
Force	300 to 1000 mN	1.20 mN	By comparison to reference force indicating device	B
Indenter displacement	0 to 1.25 mm	1.0 µm	By comparison to length standards	B
Indenter geometry				
Shaft Diameter	0.76 to 0.82 mm	2.2 µm	Indenters measured by optical projection or direct measurement	A
Angle	29.75 to 30.25 º	0.050 °		A
Radius	0.09 to 0.11 mm	6.0 µm		A
Pressure Foot				
Outer Diameter	8.70 to 9.30 mm	0.022 mm	Pressure foot measured by optical projection or direct measurement	A
Bore Diameter	1.16 to 1.22 mm	0.022 mm		A
Mass of Foot	250 to 300 g	1.0 g	By comparison to reference force indicating device	B
Calibration of IRHD Hardness Meters method M			BS ISO 48-9:2018	
Force on Pressure Foot	205 to 265 mN	0.50 mN	By comparison to reference force indicating device	B
Contact Force	7.8 to 8.8 mN	0.30 mN		B
Total Force	152.3 to 154.3 mN	0.30 mN		B
Indenter displacement	0 to 0.302 mm	0.41 µm	By comparison to length standards	B
Indenter geometry				
Ball diameter	0.390 mm to 0.400 mm	2.0 µm	Indenters measured by optical projection or direct measurement	A
Pressure Foot				
Outer Diameter	3.20 to 3.50 mm	2.0 µm	Pressure foot measured by optical projection or direct measurement	A
Bore Diameter	0.85 to 1.15 mm	10 µm		A
Calibration of IRHD Hardness Meters method N and H				
Force on Pressure Foot	6.80 to 9.80 N	0.10 N	By comparison to reference force indicating device	B
Contact Force	0.28 to 0.32 N	0.50 mN		B
Total Force	5.67 to 5.73 N	6.5 mN		B
Indenter displacement	0 to 1.81 mm	1.0 µm	By comparison to length standards	B
Indenter geometry				
Ball diameter	0.99 to 2.51 mm	2.2 µm	Indenters measured by optical projection or direct measurement	A
Pressure Foot				
Outer Diameter	19.00 to 21.00 mm	0.022 mm	Pressure foot measured by optical projection or direct measurement	A
Bore Diameter	5.00 to 7.00 mm	0.022 mm		A

END

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