Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

5577

Accredited to ISO/IEC 17025:2017

Advanced Metallurgical Services Limited
Trading as Advanced Calibration Services

Issue No: 004 **Issue date:** 02 December 2024

Unit 8C Broadgate
Oldham Broadway Business Park
Chadderton
Oldham
OL9 9XA
United Kingdom

Contact: Mr Syed Ahmad
Tel: +44 (0)1706-882891
E-Mail: syed.ahmad@amstesting.co.uk
Website: www.amstesting.co.uk

Calibration performed by the Organisation at the locations specified

Locations covered by the organisation and their relevant activities

Site activities performed away from the locations listed above:

Location details	Activity	Location code
Customers' sites or premises	Force	Site
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	Hardness	Site

5577

Accredited to
ISO/IEC 17025:2017

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

Advanced Metallurgical Services Limited
Trading as Advanced Calibration Services

Issue No: 004 **Issue date:** 02 December 2024

Calibration performed by the Organisation at the locations specified

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
FORCE				Site
UNIVERSAL MATERIAL TESTING MACHINE				
Verification and calibration of the force measuring system by force proving instruments in tension	0.1 N to 250 N for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018 and ASTM E4-21	0.13 %		
	0.05 kN to 1000 kN for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018 and ASTM E4-21	0.27 %		
Verification and calibration of the force measuring system by force proving instruments in compression	0.1 N to 250 N for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018 and ASTM E4-21	0.13 %		
	0.05 kN to 1000 kN for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018 and ASTM E4-21	0.27 %		
	1000 kN to 3000 kN for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018 and ASTM E4-21	0.24 %		
IMPACT TESTING MACHINES				
Charpy & Izod	BS EN ISO 148-2:2016 ASTM E23-24 but excluding proof test using certified specimens BS 131:Part 4:1972	0.56 J		
CREEP TESTING MACHINES				Site
Verification and calibration of the force measuring system by calibrated masses in tension	0.1 N to 250 N for Class 0.5, 1 and 2 machines to BS EN ISO 7500-2:2006 ASTM E4-21	0.13 %		
Verification and calibration of the force measuring system by force proving instruments in tension.	0.1 kN to 500 kN for Class 0.5, 1 and 2 machines to BS EN ISO 7500-2:2006 ASTM E4-21	0.26 %		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
LENGTH				Site
Extensometers	As BS EN ISO 9513:2012 for the following classes and gauge lengths: Class 0.2 from 0.0005 mm to 50 mm As ASTM E83-23 for the following classes and gauge lengths: A from 15 mm B-1 from 1 mm B-2 from 5 mm Displacements 0.0005 mm to 50 mm	 1.8 µm		
	Displacements As BS ISO 5893:2019+A1 2020 Grades C, D and E 1 mm to 150 mm 25 to 1000 mm	 73 µm 100 µm		
Testing Machine Cross head/ Actuator displacement	1 mm to 1000 mm	100 µm		
Testing Machine Cross head/ Actuator speed	60 seconds to 10 minutes	0.11 mm/min		
HARDNESS TESTING MACHINES				Site
Direct calibration and verification of Brinell Hardness Testing Machines & indentation measuring devices	Brinell scales: HB 10/3000 to HB1/30 Force Length Time	See note 1 0.22 % 2.9 µm 0.28 s	Note 1 The calibration and verification shall be in accordance with the requirements of BS EN ISO 6506-2:2018 and/or ASTM E10-23.	
Indirect verification of Brinell Hardness Testing Machines	Brinell scales Scale 10/3000 600 HBW to 140 HBW Scale 5/750 500 HBW to 140 HBW Scale 1/30 600 HBW to 100 HBW	See note 2 5.4 HBW to 1.6 HBW 5.2 HBW to 2.1 HBW 3.7 HBW to 2.5 HBW	Note 2 The verification shall be in accordance with the requirements of BS EN ISO 6506-2:2018 and/or ASTM E10-23.	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
HARDNESS TESTING MACHINES (continued)				Site
Direct calibration and verification of Rockwell Hardness Testing Machines	Rockwell scales: A, B, C, E, N, T Force Length Time	See note 3 0.23 % 1.6 µm 0.28 s	Note 3 The calibration and verification shall be in accordance with the requirements of BS EN ISO 6508-2:2023 and/or ASTM E18-24	
Indirect verification of Rockwell Hardness Testing Machines	Rockwell scales: A, B, C, E, N, T HRA Scale 80 to 95 70 to 80 60 to 70 HRBW Scale 80 to 100 50 to 80 10 to 50 HRC Scale 60 to 70 40 to 59 20 to 39 HREW Scale 60 to 70 40 to 59 20 to 39 HR15N Scale 89 to 94 78 to 88 70 to 77 HR15TW Scale 88 to 93 81 to 87 67 to 80 HR30N Scale 74 to 86 55 to 73 42 to 54 HR30TW Scale 70 to 82 57 to 69 70 to 82	See note 4 0.15 HRA 0.20 HRA 0.28 HRA 0.50 HRBW 0.90 HRBW 1.0 HRBW 0.30 HRC 0.30 HRC 0.40 HRC 0.60 HREW 0.60 HREW 0.60 HREW 0.20 HR15N 0.20 HR15N 0.40 HR15N 0.23 HR15TW 0.23 HR15TW 0.38 HR15TW 0.28 HR30N 0.29 HR30N 0.56 HR30N 0.40 HR30TW 0.40 HR30TW 0.91 HR30TW	Note 4 The verification shall be in accordance with the requirements of BS EN ISO 6508-2:2023 and/or ASTM E18-24	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
HARDNESS TESTING MACHINES (continued)				Site
Direct calibration and verification of Vickers Hardness Testing Machines & indentation measuring devices	Vickers scales HV 30 to HV 0.2 Force Length Time	See note 5 0.21 % 2.8 µm 0.28 s	Note 5 The calibration and verification shall be in accordance with the requirements of BS EN ISO 6507-2:2018 and/or ASTM E92-23 and ASTM E384-22	
Indirect verification of Vickers Hardness Testing Machines	Vickers scales HV 30 200 HV 30 400 HV 30 700 HV 10 200 HV 10 400 HV 10 700 HV5 200 HV5 400 HV5 700 HV 1 200 HV 1 400 HV 1 700 HV 0.5 200 HV 0.5 400 HV 0.5 700 HV 0.3 200 HV 0.3 400 HV 0.3 700 HV 0.2 200 HV 0.2 400 HV 0.2 700 HV 0.1 200 HV 0.1 400 HV 0.05 200	See note 6 1.5 HV 30 4.0 HV 30 7.2 HV 30 1.9 HV 10 5.7 HV 10 10.2 HV 10 2.4 HV 5 6.9 HV 5 13 HV 5 3.2 HV 1 6.9 HV 1 13 HV 1 4.1 HV 0.5 18 HV 0.5 39 HV 0.5 5.1 HV 0.3 23 HV 0.3 50 HV 0.3 6.4 HV 0.2 30 HV 0.2 64 HV 0.2 8.8 HV 0.1 40 HV 0.1 13 HV 0.05	Note 6 The verification shall be in accordance with the requirements of BS EN ISO 6507-2:2018 and/or ASTM E92-23 and ASTM E384-22	

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