Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

0375

Accredited to ISO/IEC 17025:2017

SERCAL Materials Testing Machines 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 Southern Avenue Leominster Herefordshire HR6 0QH	**Local contact** Dr N Wrigley	Force	P

Site activities performed away from the locations listed above:

Location details		Activity	Location code
Customer's 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	**Contact** Dr N Wrigley	Force Hardness	S

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
FORCE			NOTES	
UNIVERSAL MATERIALS TESTING MACHINES			Note 1. Calibration also includes the alignment and restraint of the upper machine platen required by BS EN 12390-4:2000.	S
Verification and calibration of the force measuring system by force proving instruments in tension	25 N to 600 kN for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018	0.20 %		
	From 50 N up to 2000 kN for Class 1, 2 and 3 machines to BS EN ISO 7500-1:2018 and ASTM E4-21	0.32 %		
Verification and calibration of the force measuring system by force proving instruments in compression	5 N to 600 kN for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018	0.20 %		
	5 N to 16.5 MN for Class 1, 2 and 3 machines to BS EN ISO 7500-1:2018 and ASTM E4-21	0.32 %		
Verification and calibration of the force measuring system by calibrated masses in tension	0.01 N to 1000 N for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018 and ASTM E4-21	0.10 %		
Verification and calibration of the force measuring system by calibrated masses in compression	0.01 N to 1000 N for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018 and ASTM E4-21	0.10 %		
FORCE MEASURING DEVICES				P
Calibration of force measuring devices, eg, strain gauged load cells and load measuring rings (but excluding proving devices in) Tension and Compression	From 0,1 N up to1 0000 N	0.10 %		
	From 500 N up to 500 kN	0.41 %		
COMPRESSION TESTING MACHINES FOR CONCRETE				S
Verification of concrete testing machines by proving devices in Compression	100 kN to 16.5 MN for Class 1, 2 and 3 machines to BS EN ISO 7500-1:2018	0.32 %		
		See note 1		
Rate of application of force (Pacer rate)	As BS EN 12390-2:2019 3 kN/min to 1300 kN/min	1.2 %		
Flatness of platens and spacing blocks, and excluding the requirements of platen hardness and surface finish	As BS EN 12390-4:2019 40 mm to 300 mm	0.010 mm		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
TENSION CREEP TESTING MACHINES				S
Verification of the applied load using force proving instruments	25 N to 500 kN for Class 0.5, 1 and 2 machines to BS EN ISO 7500-2:2006 and ASTM E4-21	0.20 %		
Verification of the applied load using masses	0.01 N to 1000 N for Class 0.5, 1 and 2 machines to BS EN ISO 7500-2:2006 and ASTM E4-21	0.10 %		
LENGTH				S
Extensometers	As BS EN ISO 9513:2012 for the following classes and gauge lengths: Class 0.2 from 25 mm Class 0.5 from 10 mm Class 1 from 5 mm Class 2 from 5 mm As ASTM:E83-16 for the following classes and gauge lengths: B-1 from 20 mm B-2 from 10 mm C from 5 mm Displacements 0.005 mm to 50 mm	2.4 μm per mm		
Long Travel Extensometry	As BS EN ISO 5893:2019 Displacements 3 mm to 600 mm	0.015 mm + 0.2 mm/m		
Crosshead Rate	Timed between 30 seconds and 10 minutes	0.15 seconds		
Testing machine crosshead displacement and actuator displacement	1 mm to 1200 mm	0.011 mm + (0.13 mm per metre)		
TORSION TESTING MACHINES				S
Torque	4 N.m to 5000 N·m	0.43 %		
Angle	0º to 360º	0.25º		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
IMPACT TESTING MACHINES				S
Charpy	Absorbed Energy (joules) 1 J to 600 J BS EN ISO 148-2:2016 ASTM E23-18	0.70 J		
Izod	BS 131:Part 4:1972			
Plastics	BS ISO 13802:2015	0.11J		
VERIFICATION OF HARDNESS TESTING MACHINES				S
Indirect verification of Rockwell Hardness Testing Machines See note 2	Rockwell scales: A, B, C, D, E, F, G, H, K, N and T HRA Scale 80 to 85 70 to 79 60 to 69 HRBW Scale 80 51 to 79 10 to 50 HRC Scale 60 to 70 40 to 59 20 to 39 HRD Scale 70 to 80 50 to 69 40 to 49 HREW Scale 89 75 to 88 65 to 87 HRFW Scale 87 70 to 86 40 to 69 HRGW Scale 80 40 to 79 10 to 39 HRHW Scale 90 80 to 89 60 to 79	 0.15 HRA 0.16 HRA 0.28 HRA 0.42 HRB 0.87 HRB 1.36 HRB 0.31 HRC 0.32 HRC 0.37 HRC 0.17 HRD 0.25 HRD 0.27 HRD 0.54 HRE 0.54 HRE 0.54 HRE 0.40 HRF 0.40 HRF 0.54 HRF 0.30 HRG 0.30 HRG 0.76 HRG 0.40 HRH 0.40 HRH 0.68 HRH	Note 2 The indirect verification shall be in accordance with the requirements of BS EN ISO 6508-2:2015 section 5 and/or ASTM E18-20 Annex A1.4	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
VERIFICATION OF HARDNESS TESTING MACHINES (continued)				
Indirect verification of Rockwell Hardness Testing Machines (cont'd)	Rockwell scales:		See Note 2	
	HRKW Scale			
	70	0.40 HRK		
	30 to 69	0.40 HRK		
	10 to 29	0.64 HRK		
	HR45N Scale			
	67 to 75	0.18 HR45N		
	50 to 66	0.21 HR45N		
	10 to 49	0.43 HR45N		
	HR45TW Scale			
	50 to 75	0.40 HR45T		
	40 to 49	0.40 HR45T		
	10 to 39	0.73 HR45T		
	HR30N Scale			
	77 to 85	0.27 HR30N		
	60 to 76	0.27 HR30N		
	40 to 59	0.55 HR30N		
	HR30TW Scale			
	57 to 85	0.39 HR30T		
	50 to 56	0.66 HR30T		
	20 to 49	0.90 HR30T		
	HR15N Scale			
	90 to 95	0.18 HR15N		
	80 to 89	0.18 HR15N		
	40 to 79	0.39 HR15N		
	HR15TW Scale			
	88 to 100	0.21 HR15T		
	80 to 87	0.21 HT15T		
	20 to 79	0.37 HR15T		
Indirect verification of Brinell Hardness Testing and Calibration machines See note 3	Brinell scales:		Note 3 The indirect verification shall be in accordance with the requirements of BS EN ISO 6506-2:2018 section 6 and/or ASTM E10-18 Annex A1.4	
	Scale 10/3000			
	600HBW to 140 HBW	8.0 HBW to 2.2 HBW		
	Scale 10/1500			
	299 HBW to 55 HBW	4.1 HBW to 1.2 HBW		
	Scale 10/1000			
	169 HBW to 55 HBW	2.3 HBW to 1.2 HBW		
	Scale 5/750			
	600 HBW to 140 HBW	9.8 HBW to 2.4 HBW		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
VERIFICATION OF HARDNESS TESTING MACHINES (continued)				
Indirect verification of Brinell Hardness Testing machines (cont'd)	Brinell scales: Scale 5/250 169 HBW to 55 HBW Scale 2.5/187.5 600 HBW to 140 HBW Scale 1/1 21.8 HBW to 3.18 HBW	 2.7 HBW to 1.3 HBW 16 HBW to 2.9 HBW 1.04 HBW to 0.09 HBW	See Note 3	
Indirect verification of Vickers hardness testing machines See note 4	Vickers scales: HV 100 200 HV 100 400 HV 100 700 HV 50 200 HV 50 400 HV 50 700 HV 30 200 HV 30 400 HV 30 700 HV 20 200 HV 20 400 HV 20 700 HV 10 200 HV 10 400 HV 10 700 HV5 200 HV5 400 HV5 700 HV3 200 HV3 400 HV3 700 HV1 200 HV1 400 HV1 700	 1.2 HV 3.4 HV 4.1 HV 1.9 HV 3.5 HV 6.3 HV 2.0 HV 4.4 HV 9.3 HV 2.5 HV 6.2 HV 11.0 HV 3.1 HV 7.7 HV 14.9 HV 3.9 HV 11.0 HV 19.7 HV 6.9 HV 16.3 HV 31.0 HV 8.7 HV 21.4 HV 44.0 HV	Note 4 The indirect verification shall be in accordance with the requirements of BS EN ISO 6507-2:2018 section 6 and/or and ASTM E92-17 Annex A1.4	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
VERIFICATION OF HARDNESS TESTING MACHINES (continued)				
Indirect verification of Vickers hardness testing machines (cont'd)	Vickers Scales: 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 0.1 700 HV 0.05 200 HV 0.05 400 HV 0.05 700 HV 0.025 200 HV 0.025 400 HV 0.025 700 HV 0.01 200 HV 0.01 400 HV 0.01 700	 5.0 HV 15.0 HV 17.0 HV 6.0 HV 16.0 HV 19.0 HV 7.0 HV 17.0 HV 20.0 HV 10.0 HV 30.0 HV 40.0 HV 8.5 HV 19.0 HV 27.0 HV 9.0 HV 20.0 HV 30.0 HV 10.0 HV 30.0 HV 40.0 HV	See Note 4	
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: $Q[a, b] = [a^2 + b^2]^{1/2}$