


# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

|  |  |  |
|--|--|--|
| <br><b>UKAS</b><br>CALIBRATION<br><br>0066<br><br>Accredited to<br>ISO/IEC 17025:2017 | <b>MTS Systems Limited</b>   |  |
|  | Issue No: 069  | Issue date: 23 February 2026   |
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| <b>Calibration performed by the Organisations at the locations specified below</b>   |  |  |

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<br><br>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 | Force<br>Hardness<br>Mass | S             |



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### Calibration and Measurement Capability (CMC)

| Measured Quantity<br>Instrument or Gauge   | Range   | Expanded<br>Measurement<br>Uncertainty ( $k = 2$ ) | Remarks  | Location Code |
|--|---|--|--|---------------|
| <b>FORCE</b>   |   |  |  | S             |
| <b>UNIVERSAL MATERIAL TESTING MACHINES</b>   |   |  |  |               |
| Verification and calibration of the force measuring system by force proving instruments in tension     | 0.10 kN to 500 kN<br>for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018        | 0.32 %   |  |               |
|  | 0.05 kN to 4 MN<br>For Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018          | 0.38 %   |  |               |
|  | 0.05 kN to 4 MN<br>to ASTM E4-21  | 0.38 %   |  |               |
| Verification and calibration of the force measuring system by force proving instruments in compression | 0.10 kN to 500 kN<br>for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018        | 0.32 %   |  |               |
|  | 0.05 kN to 5 MN<br>For Class 1, 2 and 3 machines to BS EN ISO 7500-1:2018               | 0.38 %   |  |               |
|  | 0.05 kN to 10 MN<br>for ASTM E4-21  | 0.38 %   |  |               |
| Verification and calibration of the force measuring system by calibrated masses in tension             | 0.01 N to 500 N<br>for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018          | 0.10 %   |  |               |
| Verification and calibration of the force measuring system by calibrated masses in compression         | 0.01 N to 500 N<br>for Class 0.5, 1, 2 and 3 machines to BS EN ISO 7500-1:2018          | 0.10 %   |  |               |
| <b>CONCRETE CUBE TESTING MACHINES</b>  |   |  |  |               |
| Verification and calibration of the force measuring system by force proving instruments in Compression | 0.05 kN to 5 MN<br>for Class 1, 2 and 3 machines to BS EN ISO 7500-1:2018<br>See note 1 | 0.38 %   | Notes<br>1. Calibration also includes the alignment and restraint of the upper machine platen required by BS EN 12390-4:2019 |               |
| Rate of application of force (Load pacer rate)   | As BS EN 12390-4:2019<br>3 kN/min to 1300 kN/min  | 1.0 %  |  |               |



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| Measured Quantity<br>Instrument or Gauge  | Range  | Expanded<br>Measurement<br>Uncertainty ( $k = 2$ ) | Remarks | Location Code |
|---|--|--|---------|---------------|
| <b>FORCE</b> (continued)  |  |  |         | S             |
| Flatness of platens<br>(Machine platens, auxiliary<br>platens and spacing blocks)                           | As BS EN 12390-4:2019<br>40 mm to 300 mm   | 0.010 mm   |         |               |
| <b>CREEP TESTING<br/>MACHINES</b>   |  |  |         |               |
| Verification and calibration of<br>the force measuring system<br>by force proving instruments<br>in tension | 0.1 kN to 100 kN<br>for Class 0.5, 1 and 2 machines<br>to BS EN ISO 7500-2:2006  | 0.32 %   |         |               |
| Verification and calibration of<br>the force measuring system<br>by calibrated masses in<br>tension         | 5 N to 100 N<br>for Class 0.5, 1 and 2 machines<br>to BS EN ISO 7500-2:2006  | 0.10 %   |         |               |
| <b>FORCE MEASURING<br/>DEVICES</b>  |  |  |         |               |
| Calibration of force<br>measuring devices used in<br>soil testing machines                                  | 0.1 kN to 500 kN<br>As BS 1377:Part 1:2016   | 0.38 %   |         |               |
| <b>IMPACT TESTING<br/>MACHINES</b>  |  |  |         |               |
| Charpy  | Absorbed Energy (joules)<br>1 J to 600 J<br>BS EN ISO 148-2:2016<br>ASTM E23-18 but excluding<br>proof test using certified<br>specimens | 0.70 J   |         |               |
| Izod  | BS 131:Part 4:1972   |  |         |               |
| <b>MASS</b>   |  |  |         | S             |
| Masses for generating force<br>on tension creep testing<br>machines   | 100 g to 5 kg<br>5 kg to 33 kg   | 0.340 g<br>2.1 g                                   |         |               |



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| Measured Quantity<br>Instrument or Gauge   | Range   | Expanded<br>Measurement<br>Uncertainty ( $k = 2$ )  | Remarks   | Location Code |
|--|---|---|---|---------------|
| <b>HIP SIMULATORS</b><br><br>ISO 14242-1:2014+A1:2018<br>(section 6 – Apparatus)     | Angular displacement<br>(protractor)<br>0 to 50 degrees of arc  | 0.25 degrees of arc   | In house procedures<br><br>A11.16   | S             |
|  | Angular displacement<br>(clinometer)<br>0 to 60 degrees of arc  | 0.50 degrees of arc   | A11.16  |               |
|  | Test cycle frequency<br>0 to 1 Hz   | 0.0040 Hz   | A11.17  |               |
|  | Linear displacement (see note)<br>0 to 10 mm  | 0.025 mm  | A11.15<br><br>Note: Measurement<br>of linear<br>displacement is not<br>required by the<br>standard but has<br>been included for<br>completeness |               |
| <b>LENGTH</b><br><br>Extensometers   | As BS EN ISO 9513:2012 for<br>the following classes and gauge<br>lengths:<br>Class 0.2 from 25 mm<br><br>Class 0.5 from 10 mm<br>Up to<br>Class 1 from 5 mm<br>Class 2 from 5 mm<br><br>As ASTM E83-16 for the<br>following classes and gauge<br>lengths:<br>B-1 from 20 mm<br>B-2 from 10 mm<br>C from 5 mm<br><br>Displacements |   |   | S             |
|  | 0.02 mm to 2.5 mm   | 0.50 $\mu\text{m}$ + ( 0.50 $\mu\text{m}$ per<br>mm)  |   |               |
|  | 2.5 mm to 100 mm  | 5.0 $\mu\text{m}$ + (0.25 $\mu\text{m}$ per<br>mm)  |   |               |
| Testing machine cross head<br>and actuator displacement by<br>use of linear encoders | 0.01 mm to 50 mm<br>50 mm to 300 mm<br>300 mm to 450 mm<br>450 mm to 500 mm   | 5.5 $\mu\text{m}$ + ( 700 $\mu\text{m}$ per m)<br>20 $\mu\text{m}$ + ( 700 $\mu\text{m}$ per m)<br>25 $\mu\text{m}$ + ( 700 $\mu\text{m}$ per m)<br>45 $\mu\text{m}$ + ( 700 $\mu\text{m}$ per m) |   |               |



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|---|--|--|---|---------------|
| <b>HARDNESS TESTING<br/>MACHINES IN SERVICE</b>                   |  |  |   | S             |
| Direct verification of<br>Rockwell Hardness Testing<br>Machines   | Rockwell scales:<br>A, B, C, D, E, F, G, H, K, L, M, N<br>, P, R, S, T, V, W, X & Y<br>Force     | See Note 2<br><br>0.24 %                           | 2. The calibration/<br>verification shall be<br>in accordance with<br>the requirements of<br>BS EN ISO 6508-<br>2:2015 & ASTM<br>E18-20 |               |
|   | Length   | 0.20 $\mu\text{m}$                                 |   |               |
|   | Time   | 0.10 s   |   |               |
| Indirect verification of<br>Rockwell Hardness Testing<br>Machines | Rockwell scales:<br>A, B, C, D, E, F, G, H, K, L, M, N<br>, P, R, S, T, V, W, X & Y<br>HRA Scale | See note 2<br><br>0.15 HRA<br>0.16 HRA<br>0.28 HRA |   |               |
|   | HRB Scale  | 0.42 HRB<br>0.87 HRB<br>1.36 HRB                   |   |               |
|   | HRC Scale  | 0.31 HRC<br>0.32 HRC<br>0.37 HRC                   |   |               |
|   | HRD Scale  | 0.17 HRD<br>0.25 HRD<br>0.27 HRD                   |   |               |
|   | HRE Scale  | 0.54 HRE<br>0.54 HRE<br>0.54 HRE                   |   |               |
|   | HRF Scale  | 0.40 HRF<br>0.40 HRF<br>0.54 HRF                   |   |               |
|   | HRG Scale  | 0.30 HRG<br>0.30 HRG<br>0.76 HRG                   |   |               |
|   | HRH Scale  | 0.40 HRH<br>0.40 HRH<br>0.68 HRH                   |   |               |



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|--|--|--|---------|---------------|
| <b>HARDNESS TESTING<br/>MACHINES IN SERVICE</b><br>(continued)             |  |  |         | S             |
| Indirect verification of<br>Rockwell Hardness Testing<br>Machines (cont'd) | HRK Scale<br>70<br>30to69<br>10to29              | 0.40 HRK<br>0.40 HRK<br>0.64 HRK                   |         |               |
|  | HRL Scale<br>115<br>90 to 114                    | 0.35 HRL<br>0.35 HRL                               |         |               |
|  | HRM Scale<br>100<br>70 to 99                     | 0.56 HRM<br>0.56 HRM                               |         |               |
|  | HRP Scale<br>85<br>40 to 84                      | 0.65 HRP<br>0.91 HRP                               |         |               |
|  | HRR Scale<br>120<br>100 to 119                   | 0.23 HRR<br>0.40 HRR                               |         |               |
|  | HRS Scale<br>112<br>110 to 111                   | 0.19 HRS<br>0.91 HRS                               |         |               |
|  | HRV Scale<br>104<br>80 to 103                    | 0.20 HRV<br>0.61 HRV                               |         |               |
|  | HR15N Scale<br>90to95<br>80to89<br>40to79        | 0.18 HR15N<br>0.18 HR15N<br>0.39 HR15N             |         |               |
|  | HR15T Scale<br>88 to 100<br>80 to 87<br>20 to 79 | 0.21 HR15T<br>0.21 HT15T<br>0.37 HR15T             |         |               |
|  | HR15W Scale<br>89 to 100<br>80 to 88             | 0.53 HR15W<br>0.44 HR15W                           |         |               |
|  | HR15X Scale<br>88 to 100<br>80 to 87             | 0.33 HR15X<br>0.62 HR15X                           |         |               |
|  | HR15Y Scale<br>94 to 100<br>85 to 93             | 0.63 HR15Y<br>1.30 HR15Y                           |         |               |



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|--|---|--|------------|--|--|
| <b>HARDNESS TESTING<br/>MACHINES IN SERVICE</b><br>(continued)             |   |  |            | S  |  |
| Indirect verification of<br>Rockwell Hardness Testing<br>Machines (cont'd) | HR30N Scale<br>77 to 85<br>60 to 76<br>40 to 59             | 0.27 HR30N<br>0.27 HR30N<br>0.55 HR30N             |            |  |  |
|  | HR30T Scale<br>57 to 85<br>50 to 56<br>20 to 49             | 0.39 HR30T<br>0.66 HR30T<br>0.90 HR30T             |            |  |  |
|  | HR30W Scale<br>65 to 100<br>40 to 64                        | 0.76 HR30W<br>0.90 HR30W                           |            |  |  |
|  | HR30X Scale<br>79 to 100<br>60 to 78                        | 0.15 HR30X<br>0.99 HR30X                           |            |  |  |
|  | HR30Y Scale<br>88 to 100<br>60 to 87                        | 0.37 HR30Y<br>0.82 HR30Y                           |            |  |  |
|  | HR45N Scale<br>67 to 75<br>50 to 66<br>10 to 49             | 0.18 HR45N<br>0.21 HR45N<br>0.43 HR45N             |            |  |  |
|  | HR45T Scale<br>50 to 75<br>40 to 49<br>10 to 39             | 0.40 HR45T<br>0.40 HR45T<br>0.73 HR45T             |            |  |  |
|  | HR45W Scale<br>49 to 100<br>10 to 47                        | 0.12 HR45W<br>0.29 HR45W                           |            |  |  |
|  | HR45X Scale<br>69 to 100<br>40 to 68                        | 0.34 HR45X<br>0.81 HR45X                           |            |  |  |
|  | HR45Y Scale<br>82 to 100<br>60 to 81                        | 0.29 HR45Y<br>0.94 HR45Y                           |            |  |  |
|  | Direct verification of Brinell<br>Hardness Testing Machines | Brinell scales:<br>HB 10/3000 to HB1/1             | See note 3 | 3. The calibration/<br>verification shall be<br>in accordance with<br>the requirements of<br>BS EN ISO 6506-<br>2:2018 and<br>ASTM E10-18. |  |
|  |   | Force  | 0.24 %     |  |  |
|  |   | Time   | 0.10 s     |  |  |
| Length   |   | 6 $\mu$ m  |            |  |  |



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|--|---------------------------------------|--|---|---------------|
| <b>HARDNESS TESTING<br/>MACHINES IN SERVICE</b><br>(continued)   |                                       |  |   | S             |
| Indirect verification of Brinell<br>Hardness Testing Machines<br>and Indentation Measuring<br>Devices including Portable<br>Brinell Hardness Testers<br>(King or Brinell type) | Scale 10/3000<br>600HBW to 140 HBW    | See Note 3<br>9.4 HBW to 2.0 HBW                   |   |               |
|  | Scale 10/1500<br>299 HBW to 55 HBW    | 4.1 HBW to 1.2 HBW                                 |   |               |
|  | Scale 10/1000<br>169 HBW to 55 HBW    | 2.6 HBW to 0.75 HBW                                |   |               |
|  | Scale 10/500<br>100 HBW to 35 HBW     | 1.3 HBW to 0.45 HBW                                |   |               |
|  | Scale 5/750<br>600 HBW to 140 HBW     | 7.8 HBW to 1.9 HBW                                 |   |               |
|  | Scale 5/250<br>169 HBW to 55 HBW      | 2.2 HBW to 1.75 HBW                                |   |               |
|  | Scale 2.5/187.5<br>600 HBW to 140 HBW | 8.2 HBW to 1.95 HBW                                |   |               |
|  | Scale 1/30<br>600 HBW to 140 HBW      | 11.6 HBW to 2.6 HBW                                |   |               |
|  | Scale 1/5<br>110 HBW to 35 HBW        | 2.1 HBW to 0.63 HBW                                |   |               |
| Direct verification of Vickers<br>Hardness Testing Machines<br>& indentation measuring<br>devices  | Vickers scales:<br>HV 100 to HV 0.1   | See note 4   | 4. The verification<br>shall be in<br>accordance with the<br>requirements of<br>BS EN ISO 6507-<br>2:2018 and ASTM<br>E92-17. |               |
|  | Force                                 | 0.24 %   |   |               |
|  | Time                                  | 0.10 s   |   |               |
|  | Length                                | 0.5 $\mu$ m  |   |               |



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|--|--|--|---------|---------------|
| <b>HARDNESS TESTING<br/>MACHINES IN SERVICE</b><br>(continued) |  |  |         | S             |
| Indirect verification of Vickers<br>Hardness Testing Machines  | Vickers scales:<br>HV 100 200<br>HV 100 400<br>HV 100 700<br><br>HV 50 200<br>HV 50 400<br>HV 50 700<br><br>HV 30 200<br>HV 30 400<br>HV 30 700<br><br>HV 20 200<br>HV 20 400<br>HV 20 700<br><br>HV 10 200<br>HV 10 400<br>HV 10 700<br><br>HV5 200<br>HV5 400<br>HV5 700<br><br>HV3 200<br>HV3 400<br>HV3 700<br><br>HV1 200<br>HV1 400<br>HV1 700<br><br>HV 0.5 200<br>HV 0.5 400<br>HV 0.5 700<br><br>HV 0.3 200<br>HV 0.3 400<br>HV 0.3 700<br><br>HV 0.2 200<br>HV 0.2 400<br>HV 0.2 700<br><br>HV 0.1 200<br>HV 0.1 400 | See note 4<br>1.2 HV<br>3.4 HV<br>4.1 HV<br><br>1.9 HV<br>3.5 HV<br>6.3 HV<br><br>2.0 HV<br>4.4 HV<br>9.3 HV<br><br>2.5 HV<br>6.2 HV<br>11.0 HV<br><br>3.1 HV<br>7.7 HV<br>14.9 HV<br><br>3.9 HV<br>11.0 HV<br>19.7 HV<br><br>6.9 HV<br>16.3 HV<br>31.0 HV<br><br>8.7 HV<br>21.4 HV<br>44.0 HV<br><br>5.0 HV<br>15.0 HV<br>17.0 HV<br><br>6.0 HV<br>16.0 HV<br>19.0 HV<br><br>7.0 HV<br>17.0 HV<br>20.0 HV<br><br>10.0 HV<br>30.0 HV |         |               |
| 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:  $Q[a, b] = [a^2 + b^2]^{1/2}$