

# Schedule

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Certificate No. : LA-2013-0551-C-1  
Issue No. : 2  
Date : 5 October 2017  
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FIELD OF TESTING : Calibration and Measurement

| MEASURED QUANTITIES/INSTRUMENTS/ RANGE TO BE CALIBRATED                            | METHOD  | CALIBRATION & MEASUREMENT CAPABILITY (CMC*)                             |
|--|---|---|
| <b>A DIMENSIONAL</b>   |   |   |
| 1. Plain Plug Gauges (Parallel)<br>1 to 50 mm<br>50 to 100 mm<br>100 to 150 mm     | BS 969:2008<br>QCD/2.4.24 Issue 3                               | 0.0010 mm on Diameter<br>0.0010 mm on Diameter<br>0.0012 mm on Diameter |
| 2. Length Gauges Flat and Spherical Ended<br>0 to 600 mm (0 – 24 Inch)             | BS 870:2008<br>QCD/2.3.1 Issue 3                                | 0.0010 mm + (0.005 mm x Length in m)                                    |
| 3. External Micrometer (Digital & Vernier)<br>0 to 600 mm (0 – 24 Inch)            | BS 870:2008<br>QCD/2.4.1 Issue 2                                | Heads: 0.002 mm<br>Rods: 0.0010 mm + (0.005 mm x Length in m)           |
| 4. Depth Micrometer (Digital & Vernier)<br>0 to 300 mm (0 – 12 Inch)               | BS 6468:2008<br>QCD/2.4.4 Issue 2                               | Heads: 0.002 mm heads<br>Rods: 0.0010 mm + (0.005 mm x Length in m)     |
| 5. Internal Micrometer (Rod type) (Digital & Vernier)<br>0 to 300 mm (0 – 12 Inch) | BS 959:2008<br>QCD/2.4.2 Issue 2                                | Heads: 0.002 mm<br>Rods: 0.0010 mm + (0.005 mm x Length in m)           |
| 6. Caliper (Digital, Dial & Vernier)<br>0 to 1000 mm (0 – 40 Inch)                 | BS 887:2008<br>QCD/2.4.6 Issue 2                                | 0.01 mm + (0.03 mm x Length in m)                                       |
| 7. Height Gauge (Digital , Dial & Vernier)<br>0 to 600 mm (0 – 24 Inch)            | BS 1643:2008<br>Manufacturer Specification<br>QCD/2.4.5 Issue 3 | 0.01 mm + (0.03 mm x Length in m)                                       |

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|---|---|---|
| 8. Vernier Depth Gauge<br>0 to 600 mm (0 – 24 Inch)             | BS 6365:2008<br>QCD/2.4.8 Issue 3                         | 0.01 mm + (0.03 mm x Length in m)           |
| 9. Dial Indicators (Plunger Type)<br>Up to 50 mm (Up to 2 Inch) | BS 907:2008<br>QCD/2.4.11 Issue 2                         | 0.002 mm (Digital)<br>0.0012 mm (Analog)    |
| 10. Ring Gauges Plain<br>6-50 mm<br>50-100 mm<br>100-150 mm     | BS 4064:1966<br>QCD/2.3.2 Issue 2                         | 0.0012 mm<br>0.0016 mm<br>0.0025 mm         |
| 11. Dial Test Indicator (Lever Type)<br>Up to 1 mm              | BS 2795:1981<br>QCD/2.4.11 Issue 2                        | 0.002 mm (Digital)<br>0.0012 mm (Analog)    |
| <b>B. MECHANICAL</b>  |   |   |
| 1. Torque Calibration<br>( 0.25 to 1500 ) N·m                   | BS EN ISO 6789:2003<br>QCD/3.6.6 Issue 1                  | 1 % of reading                              |
| 2. Pressure Measuring Devices<br>(Lab/Site)                     |   |   |
| a. Direct indicating instruments<br>Pressure Gauges             | BS EN 837-1:1998<br>BS EN 837-3:1998<br>QCD/3.7.2 Issue 1 |   |
| b. Pressure Transducers with<br>indicators                      |   |   |
| (0 to 6) bar  |   | 0.05 % F.S.                                 |
| (0 to 100) bar  |   | 0.05 % F.S.                                 |
| (0 to 1000) bar   |   | 0.05 % F.S.                                 |
| 3. Digital Weighing Scales<br>(Lab/Site)                        | QCD 3.6.5 Issue 1<br>(Section 8)                          |   |
| ( 0 to 210 ) g  |   | 1.6 mg                                      |
| ( 0 to 410 ) g  |   | 3 mg  |
| ( 0 to 6100 ) g   |   | 50 mg                                       |
| ( 0 to 60 ) kg  |   | 2.3 g                                       |

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|---|----------------------|---|
| <b>C. TEMPERATURE</b>   |                      |   |
| 1. Resistance Thermometer<br>PT-100 Probe<br>20 °C to 120 °C  | QCD-LCP-0600 Issue 2 | 0.1 °C  |
| 2. Electrical simulation of Temperature-<br>Calibration of measuring and<br>simulation instruments (Lab/Site) |                      |   |
| Measure and Source  |                      |   |
| a. RTD PT100<br>-200 °C to 200 °C<br>200 °C to 600 °C<br>600 °C to 850 °C                                     | QCD 4.4 Issue 2      | 0.06 °C<br>0.08 °C<br>0.11 °C                     |
| b. J-Type<br>0 °C to 1200 °C  | QCD 4.9 Issue 2      | 0.24 °C   |
| c. K-Type<br>0 °C to 1000 °C<br>1000 °C to 1372 °C  |                      | 0.25 °C<br>0.34 °C                                |
| d. N-Type<br>0 °C to 800 °C<br>800 °C to 1300 °C  |                      | 0.27 °C<br>0.26 °C                                |
| e. R-Type<br>0 °C to 400 °C<br>400 °C to 1768 °C  |                      | 0.51 °C<br>0.45 °C                                |
| f. S-Type<br>0 °C to 300 °C<br>300 °C to 1768 °C  |                      | 0.51 °C<br>0.45 °C                                |
| g. T-Type<br>-200 °C to 0 °C<br>0 °C to 400 °C  |                      | 0.51 °C<br>0.45 °C                                |

\* CMC is expressed as an expanded uncertainty estimated at a level of confidence of approximately 95 %.

The SAC Programme is managed by SPRING Singapore

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Approved signatories:

Mr George Bastings For all items.

Mr Alwin Antony For category A (Dimensional) and category B (Mechanical) only.

Mr Vincent Lim For category A (Dimensional) and item B1 only.

Mr Zahin Hatman For item B2 only.

Note:

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025:2005. A laboratory's fulfilment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid calibrations. The **management system requirements** in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.