


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>0318</p> <p>Accredited to ISO/IEC 17025:2017</p>	<h3>CoMech Metrology Limited</h3> <p>Issue No: 039 Issue date: 25 August 2021</p>	
	<p>Metrology Division Calibration House Castings Road Derby DE23 8YL</p>	<p>Contact: Mr K Pallett Tel: +44 (0)1332 867 700 E-Mail: sales@comech.co.uk Website: www.comech.co.uk</p>
<p>Calibration performed at the above address only</p>		

Calibration and Measurement Capability

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k=2$)	Remarks
<p>RANGE IN MILLIMETRES AND UNDERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED</p>			
<p>MEASURING INSTRUMENTS AND MACHINES</p>			<p>NOTES</p>
<p>Micrometers External Internal Depth</p>	<p>BS 870:2008, 0 to 600 BS 959:2008, 0 to 600 BS 6468:2008, 0 to 300</p>	<p>Heads 2.0 Setting and extension rods 1.0 + (5.0 x length in m)</p>	<p>Calibrations may be made in metric or imperial units.</p>
<p>Vernier gauges Caliper Height Depth Dial gauge type Digital type</p>	<p>BS 887:2008 0 to 600 BS 1643:2008, 0 600 BS 6365:2008, 0 to 300 0 to 300 0 to 300</p>	<p>Overall performance: 10 + (30 x length in m)</p>	
<p>Dial gauges and dial test indicators</p>	<p>0 to 50 BS 907:2008 and BS 2795:1981</p>	<p>3.6</p>	
<p>Surface texture of Gauges (excluding surface texture standards)</p>	<p>As BS 1134:Part 1:1988</p>	<p>7.0 % (minimum 1.0 μm Ra)</p>	
<p>Length gauges, flat and spherical ended (excluding length bars)</p>	<p>25 to 1200</p>	<p>1.0 + (5.0 x length in m)</p>	<p>Using a length measuring Machine or by comparison with End standards</p>
<p>Plain plug gauges parallel</p>	<p>0 to 100</p>	<p>2.1</p>	<p>Using a length measuring machine</p>
<p>Receiver and position gauges, jigs, fixtures</p>	<p>Track Grinding Gauges (HB221) 0 to 1440</p>	<p>29</p>	<p>Procedure CM-C-686</p>
	<p>Autocoupler Pin Checking Gauges (HB035) 0 to 1.0</p>	<p>3.0</p>	<p>Procedure CM-C-706</p>
	<p>Brake Pad Wear Gauge (HB100) 0 to 10.0</p>	<p>2.7</p>	<p>Procedure CM-C-705</p>
	<p>Back to Back Gauges (HB018) 0 to 1360</p>	<p>8.1</p>	<p>Procedure CM-C-704</p>



0318
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

CoMech Metrology Limited
Issue No: 039 Issue date: 25 August 2021

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k=2$)	Remarks
ELECTRICAL MEASUREMENTS (cont'd)			
DC Current	1 A to 10.5 A 10.5 A to 20 A 20 A to 105 A 105 A to 525 A 525 A to 1000 A 1000 A to 2500 A	740 μ A/A + 1.2 mA 0.45 % + 26 mA 750 μ A/A + 12 mA 750 μ A/A + 60 mA 0.50 % + 1.3 A 690 μ A/A + 520 mA	Output values above 10 A -Simulation using a multi - turn Coil
Resistance	0 Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to 1 k Ω 1 k Ω to 10 k Ω 10 k Ω to 100 k Ω 100 k Ω to 1 M Ω 1 M Ω to 100 M Ω 10 M Ω to 100 M Ω 100 M Ω to 1.1 G Ω 1 G Ω to 2 G Ω	17 $\mu\Omega/\Omega$ + 180 $\mu\Omega$ 14 $\mu\Omega/\Omega$ + 1.0 m Ω 12 $\mu\Omega/\Omega$ + 58 m Ω 12 $\mu\Omega/\Omega$ + 84 m Ω 12 $\mu\Omega/\Omega$ + 1.0 Ω 17 $\mu\Omega/\Omega$ + 61 Ω 58 $\mu\Omega/\Omega$ + 320 Ω 580 $\mu\Omega/\Omega$ + 32 k Ω 0.58 % + 720 k Ω 21 M Ω	
AC Voltage	1 mV to 100 mV 50 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 50 kHz 100 mV to 1 V 40 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 50 kHz 1 V to 10 V 40 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 50 kHz 10 V to 100 V 40 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 50 kHz 100 V to 750 V 40 Hz to 1 kHz 1 kHz to 10 kHz 750 V to 1050 V 10 Hz to 3 kHz 3 kHz to 10 kHz 10 kHz to 20 kHz	700 μ V/V + 17 μ V 240 μ V/V + 16 μ V 0.16 % + 67 μ V 710 μ V/V + 130 μ V 250 μ V/V + 130 μ V 0.18 % + 1.5 mV 700 μ V/V + 1.3 mV 250 μ V/V + 1.3 mV 0.18 % + 4.9 mV 700 μ V/V + 13 mV 360 μ V/V + 12 mV 0.18 % + 50 mV 940 μ V/V + 240 mV 0.18 % + 460 mV 940 μ V/V + 160 mV 940 μ V/V + 250 mV 0.14 % + 370 mV	
High Voltage	1 kV to 40 kV 50 Hz to 60 Hz	1.5 % + 45 V	These output values can be measured.



0318
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

CoMech Metrology Limited
Issue No: 039 Issue date: 25 August 2021

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k=2$)	Remarks
ELECTRICAL MEASUREMENTS (cont'd)			
AC Current	1 μ A to 100 μ A 40 Hz to 1 kHz	0.18 % + 38 nA	
	100 μ A to 1 mA 40 Hz to 1 kHz	0.46 % + 270 nA	
	1 mA to 10 mA 40 Hz to 1 kHz 1 kHz to 5 kHz	0.47 % + 2.8 μ A 0.035 % + 5.3 μ A	
	10 mA to 100 mA 40 Hz to 1 kHz	0.46 % + 15 μ A	
	100 mA to 1 A 40 Hz to 1 kHz	0.46 % + 340 μ A	
	1 A to 3.2 A 10 Hz to 3 kHz 3 kHz to 10 kHz	0.12 % + 560 μ A 0.13 % + 3.0 mA	
AC Current	3.2 A to 10.5 A 10 Hz to 3 kHz 3 kHz to 10 kHz	0.23 % + 4.4 mA 0.58 % + 12 mA	
	10.5 A to 120 A 50 Hz 51 Hz to 100 Hz	360 μ A/A + 140 mA 580 μ A/A + 110 mA	
	10.5 A to 105 A 10 Hz to 400 Hz	0.28 % + 44 mA	-Simulation using a multi -turn coil
	105 A to 525 A 10 Hz to 400 Hz	0.28 % + 220 mA	
	500 A to 1000 A 50 Hz 51 Hz to 100 Hz	430 μ A/A + 130 mA 430 μ A/A + 310 mA	
	1000 A to 2500 A 50 Hz to 100 Hz	430 μ A/A + 1.3 A	
Capacitance 1 kHz	0.5 nF to 4 nF 4 nF to 40 nF 40 nF to 400 nF 400 nF to 4 μ F 4 μ F to 40 μ F 40 μ F to 400 μ F 400 μ F to 4 mF 4 mF to 40 mF	0.50 % + 18 pF 0.40 % + 36 pF 0.40 % + 190 pF 0.50 % + 580 pF 0.60 % + 20 nF 0.60 % + 190 nF 0.60 % + 59 μ F 0.20 % + 70 μ F	Simulated values for the Calibration of capacitance Meters.



0318
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

CoMech Metrology Limited
Issue No: 039 **Issue date:** 25 August 2021

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k=2$)	Remarks
ELECTRICAL MEASUREMENTS (cont'd)			
Oscilloscopes			
Vertical deflection	<i>At 1 kHz</i> 10 mV to 100 mV 100 mV to 120 V	0.040 % + 27 μ V 0.050 %	
Horizontal deflection	2 ns to 5 s	0.12 %	
17th Edition capability			
Insulation Resistance	10 k Ω to 40 k Ω 40 k Ω to 200 k Ω 200 k Ω to 10 M Ω 10 M Ω to 1 G Ω 1 G Ω to 2 G Ω	200 $\mu\Omega/\Omega$ + 15 Ω 250 $\mu\Omega/\Omega$ + 15 Ω 500 $\mu\Omega/\Omega$ + 590 Ω 0.22 % + 120 k Ω 0.52 % + 120 k Ω	
Insulation Resistance: test current	0 mA to 9.9 mA	76 μ A	
Continuity resistance	100 m Ω to 400 m Ω 400 m Ω to 5 Ω 5 Ω to 30 Ω 30 Ω to 200 Ω 200 Ω to 2 k Ω 2 k Ω to 10 k Ω	1.0 % + 1.5 m Ω 0.80 % + 8.3 m Ω 0.12 % 0.11 % 0.11 % 0.17 %	
Continuity resistance current	50 mA to 400 mA	21 %	
Voltage Output	3 V to 600 V 3 V 50 Hz to 600 V 50 Hz	0.15 % 0.18 %	
Voltage measurement	180 mV to 1 kV 130 mV 50 Hz to 1 kV 50 Hz	0.060 % + 180 mV 0.10 % + 130 mV	
High Voltage 50 Hz	1 kV to 7 kV 10 kV to 25 kV	0.25 % + 24 V 0.25 % + 120 V	
High Voltage DC	1 kV to 10 kV 10 kV to 25 kV	0.060 % + 40 V 0.060 % + 120 V	



0318
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

CoMech Metrology Limited
Issue No: 039 Issue date: 25 August 2021

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k=2$)	Remarks
ELECTRICAL MEASUREMENTS (cont'd)			
High Voltage Current 50 Hz	300 μ A	0.36 % + 3.4 μ A	
	3 mA	0.24 % + 8.5 μ A	
	30 mA	0.58 % + 27 μ A	
	300 mA	0.23 % + 180 μ A	
High Voltage Current DC	300 μ A	0.36 % + 3.4 μ A	
	3 mA	0.24 % + 8.5 μ A	
	30 mA	0.58 % + 25 μ A	
	300 mA	0.23 % + 180 μ A	
Loop impedance 50 Hz	10 m Ω to 90 m Ω	3.7 % + 18 m Ω	
	90 m Ω to 320 m Ω	1.8 % + 18 m Ω	
	320 m Ω to 490 m Ω	0.90 % + 23 m Ω	
	490 m Ω to 1 Ω	0.60 % + 24 m Ω	
	1 Ω to 5 Ω	0.30 % + 43 m Ω	
	5 Ω to 500 Ω	0.10 % + 200 m Ω	
RCD Trip Current 50 Hz	500 Ω to 1.8 k Ω	0.10 % + 24 Ω	
	1 mA to 30 mA	0.20 % + 38 μ A	
	30 mA to 300 mA	0.20 % + 1.4 mA	
RCD Trip time	300 mA to 3 A	0.20 % + 11 mA	
	0 ms to 5 s	0.10 % + 4.7 ms	
PAT Insulation resistance	10 k Ω to 40 k Ω	200 $\mu\Omega/\Omega$ + 15 Ω	
	40 k Ω to 200 k Ω	250 $\mu\Omega/\Omega$ + 15 Ω	
	200 k Ω to 10 M Ω	500 $\mu\Omega/\Omega$ + 590 Ω	
	10 M Ω to 1 G Ω	0.22 % + 120 k Ω	
	1 G Ω to 2 G Ω	0.52 % + 120 k Ω	
Earth Bond resistance	0 Ω to 10 Ω	0.30 % + 40 m Ω	
	10 Ω to 1 k Ω	0.11 % + 200 m Ω	
Earth bond current	100 μ A to 100 mA	4.0 mA	
	100 mA to 20 A	0.53 % + 32 mA	
Leakage current	1 μ A to 30 mA	0.52 % + 20 μ A	



0318
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

CoMech Metrology Limited
Issue No: 039 Issue date: 25 August 2021

Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k=2$)	Remarks
ELECTRICAL MEASUREMENTS (cont'd)			
Temperature simulation Thermocouple type			
K	-180 °C to 0 °C	0.16 °C	Excluding internal reference junction compensation
	0 °C to 1300 °C	0.14 °C	
J	-200 °C to 0 °C	0.15 °C	Including internal reference junction compensation
	0 °C to 1190 °C	0.13 °C	
K	-180 °C to 0 °C	0.64 °C	Including internal reference junction compensation
	0 °C to 1300 °C	0.63 °C	
J	-200 °C to 0 °C	0.63 °C	
	0 °C to 1190 °C	0.63 °C	
Resistance thermometer simulation			
PT 100	-200 °C to 0 °C	0.21 °C	
	0 °C to 850 °C	0.21 °C	
END			



0318
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

CoMech Metrology Limited
Issue No: 039 **Issue date:** 25 August 2021

Calibration performed at main address only

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