## **Schedule of Accreditation**

## **United Kingdom Accreditation Service**

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



Accredited to ISO/IEC 17025:2017

### **Poole Instrument Calibration Limited**

Issue date: 20 January 2021 **Issue No:** 012

Unit 1

**Cabot Business Village** 

**Holyrood Close** 

**Poole** 

Dorset **BH17 7BA**  **Contact: Mr Matthew Suter** Tel: +44 (0)1202 658333

Fax: +44 (0)1202 659966

E-Mail: m.suter@pooleinstruments.com

Website: www.pooleinstruments.co.uk

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 Unit 1 Cabot Business Village	Local contact Mr Matthew Suter	Electrical, Temperature and Dimensional.	Р
Holyrood Close Poole Dorset BH17 7BA	Tel: +44 (0)1202 658333 Fax: +44 (0)1202 659966 Email: m.suter@pooleinstruments.com		

#### Site activities performed away from the locations listed above:

Location details	Activity	Location code
The customers' site or premises must be suitable for the nature of the particular calibrations undertaken and will be the subject of contract review arrangements between the laboratory and the customer.	Electrical and Temperature.	S

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### **Poole Instrument Calibration Limited**

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Calibration performed by the Organisation at the locations specified

#### **DETAIL OF ACCREDITATION**

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL			Electrical calibrations are performed as a comparison against a reference standard	
DC Voltage			Teleferice Standard	
Measurement	0 mV to 50 mV 50 mV to 100 mV 100 mV to 500 mV 500 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1 kV	1.6 μV 2.4 μV 11 μV 16 μV 65 μV 1.5 mV 12 mV	Outputs of instruments can be measured to the stated uncertainties	Р
Generation			Values can be generated for the calibration of measuring instruments	Р
	0 mV to 200 mV 200 mV to 1 V 1 V to 2 V 2 V to 10 V 10 V to 20 V 20 V to 200 V 200 V to 1000 V	4.0 μV 21 μV 38 μV 85 μV 0.18 mV 3.5 mV		
DC Current				
Measurement			Outputs of instruments can be measured to the stated uncertainties	Р
	0 μA to 100 μA 100 μA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 10 A 10 A to 30 A	3.0 nA 22 nA 0.2 μA 5.0 μA 0.2 mA 5.0 mA 25 mA		

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### **Poole Instrument Calibration Limited**

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#### Calibration performed by the Organisation at the locations specified

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (cont'd)			Electrical calibrations are performed as a comparison against a reference standard	
DC Current				
Generation	0 μA to 20 μA 20 μA to 100 μA 100 μA to 200 μA 0.2 mA to 1 mA 1 mA to 2 mA 2 mA to 5 mA 5 mA to 10 mA 10 mA to 20 mA 20 mA to 100 mA 100 mA to 200 mA 0.2 A to 1 A 1 A to 2 A 2 A to 10A 10 A to 20A 20 A to 30A	3.0 nA 9.0 nA 15 nA 35 nA 75 nA 0.2 μA 0.4 μA 1.0 μA 11 μA 17 μA 80 μA 0.25 mA 4.0 mA 5.5 mA 8.0 mA	Values can be generated for the calibration of measuring instruments	Р
DC Resistance	0 A to 60 A 60 A to 300 A 300 A to 1500 A	100 mA 160 mA 650 mA	Simulated current using multi turn coil, for the calibration of clamp-on ammeters.	Р
Measurement  Measurement	$\begin{array}{c} 0 \ m\Omega \ to \ 10 \ m\Omega \\ 10 \ m\Omega \ to \ 100 \ m\Omega \\ 0.1 \ \Omega \ to \ 1 \ \Omega \\ 1 \ \Omega \ to \ 10 \ \Omega \\ 10 \ \Omega \ to \ 100 \ \Omega \\ 0.1 \ k\Omega \ to \ 100 \ k\Omega \\ 1 \ k\Omega \ to \ 10 \ k\Omega \\ 10 \ k\Omega \ to \ 100 \ k\Omega \\ 0.1 \ M\Omega \ to \ 100 \ k\Omega \\ 0.1 \ M\Omega \ to \ 5 \ M\Omega \\ 5 \ M\Omega \ to \ 10 \ M\Omega \\ 10 \ M\Omega \ to \ 50 \ M\Omega \\ 50 \ M\Omega \ to \ 100 \ M\Omega \\ 0.1 \ G\Omega \ to \ 100 \ G\Omega \\ 1 \ G\Omega \ to \ 10 \ G\Omega \\ 10 \ G\Omega \ to \ 100 \ G\Omega \\ 0.1 \ T\Omega \ to \ 1 \ T\Omega \\ \end{array}$	$\begin{array}{c} 25 \; \mu\Omega \\ 50 \; \mu\Omega \\ 0.1 \; m\Omega \\ 0.2 \; m\Omega \\ 1.4 \; m\Omega \\ 14 \; m\Omega \\ 81 \; m\Omega \\ 1.5 \; \Omega \\ 14 \; \Omega \\ 0.60 \; k\Omega \\ 0.80 \; k\Omega \\ 80 \; k\Omega \\ 0.12 \; M\Omega \\ 1.5 \; M\Omega \\ 200 \; M\Omega \\ 2.5 \; G\Omega \\ 70 \; G\Omega \\ \end{array}$	Outputs of instruments can be measured to the stated uncertainties	P

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Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (cont'd)			Electrical calibrations are performed as a comparison against a reference standard	
DC Resistance (cont'd)			Totoronoo damaara	
Generation (2 wire)	1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ 100 MΩ	$\begin{array}{c} 35 \text{ m}\Omega \\ 100 \text{ m}\Omega \\ 60 \text{ m}\Omega \\ 70 \text{ m}\Omega \\ 0.65 \Omega \\ 3.0 \Omega \\ 90 \Omega \\ 1.5 \text{ k}\Omega \\ 0.15 \text{ M}\Omega \\ 7.5 \text{ M}\Omega \end{array}$	Nominal values can be generated for the calibration of measuring instruments 2 Wire	Р
Generation (4 wire)	100 m $\Omega$ 1 $\Omega$ 10 $\Omega$ 100 $\Omega$ 1k $\Omega$ 10 k $\Omega$	$\begin{array}{l} 0.50~\text{m}\Omega \\ 1.5~\text{m}\Omega \\ 2.0~\text{m}\Omega \\ 4.5~\text{m}\Omega \\ 30~\text{m}\Omega \\ 0.30~\Omega \\ 3.5~\Omega \end{array}$	Nominal values can be generated for the calibration of measuring instruments 4 Wire	Р
AC Voltage				
Measurement	40 Hz to 10 kHz 25 mV to 50 mV 50 mV to 100 mV 0.1 V to 0.5 V 0.5 V to 1 V 1 V to 10 V 10 V to 100 V 100 V to 500 V 500 V to 1000 V	27 μV 37 μV 0.10 mV 0.14 mV 1.6 mV 20 mV 0.17 V 0.25 V	Outputs of instruments can be measured to the stated uncertainties	P

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Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (cont'd)			Electrical calibrations are performed as a comparison against a reference standard	
AC Voltage (cont'd) Generation	40 Hz to 1 kHz 0 mV to 100 mV 100 mV to 200 mV 0.2 V to 1 V 1 V to 1.5 V 1.5 V to 2 V 2 V to 15 V 15 V to 20 V 20 V to 100 V 100 V to 200 V 46 Hz to 1 kHz 200 V to 1000 V 700 V to 1000 V	65 μV 85 μV 0.55 mV 0.75 mV 1.1 mV 8.0 mV 14 mV 85 mV 0.10 V	Values can be generated for the calibration of measuring instruments	Р
AC Current Measurement	40 Hz to 3 kHz 0 μA to 50 μA 50 μA to 100 μA 0.1 mA to 0.5 mA 0.5 mA to 1 mA 40 Hz to 5 kHz 1 mA to 5 mA 5 mA to 10 mA 10 mA to 50 mA 50 mA to 100 mA 40 Hz to 1 kHz 0.1 A to 0.5 A 0.5 A to 1 A 1 A to 10 A 10 A to 30 A	64 nA 74 nA 0.42 μA 0.56 μA 5.0 μA 6.2 μA 45 μA 58 μA 0.52 mA 0.75 mA 15 mA 40 mA	Outputs of instruments can be measured to the stated uncertainties	P

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Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (cont'd)			Electrical calibrations are performed as a comparison against a reference standard	
AC Current (cont'd)				
Generation			Values can be generated for the calibration of measuring instruments	Р
	40 Hz to 1 kHz 0 μA to 200 μA 0.2 mA to 0.5 mA 0.5 mA to 1 mA 1 mA to 2 mA 2 mA to 5 mA 5 mA to 10 mA 10 mA to 20 mA 20 mA to 50 mA 50 mA to 100 mA 100 mA to 200 mA 0.2 A to 1 A 1 A to 2 A 2 A to 10 A 10 A to 20 A 20 A to 30 A	0.35 μA 0.60 μA 0.90 μA 1.6 μA 5.0 μA 8.0 μA 14 μA 50 μA 90 μA 0.15 mA 1.5 mA 2.2 mA 25 mA 30 mA 0.12 A	Simulated current using multi turn coil, for the	
Canasitanas	300 A to 1500 A	1.2 A	calibration of clamp-on ammeters.	
Capacitance				
Generation	1 nF 10 nF 20 nF 50 nF 100 nF 1 µF 10 µF	4.0 pF 20 pF 40 pF 0.10 nF 0.15 nF 7.0 nF 30 nF	Nominal values can be i generated for the calibration of measuring nstruments	Р
Frequency				
Generation	10 Hz to 100 Hz 100 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 1 MHz 1 MHz to 10 MHz	1.0 mHz 6.0 mHz 60 mHz 120 mHz 300 mHz 0.60 Hz 6.0Hz 70 Hz	Values can be generated for the calibration of measuring instruments	Р

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Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
TEMPERATURE SIMULATION			Temperature simulation calibrations are performed as a comparison against a reference standard	
Temperature indicators, calibration by electrical simulation, for the following sensor types:			Televine standard	
Noble metal thermocouples			with cold junction Compensation	Р
Type R Type S	0 °C to 1700 °C -50 °C to +1700 °C	0.50 °C 0.50 °C	Compensation	
Base metal thermocouples			with cold junction	Р
Type K Type J Type T Type N Type E	-140 °C to +1340 °C -150 °C to +750 °C -250 °C to +400 °C -150 °C to +1300 °C 0 °C to 800 °C	0.30 °C 0.30 °C 0.40 °C 0.30 °C 0.32 °C	Compensation	
Resistance thermometer (Pt100)	-100 °C 0 °C 30 °C 60 °C 100 °C 200 °C 400 °C 800 °C	0.050 °C 0.030 °C 0.040 °C 0.050 °C 0.050 °C 0.060 °C 0.070 °C 0.080 °C	Nominal values	Р
Base metal thermocouples			with cold junction Compensation	S
Type K Type J Type T Type N	-50 °C to +1300 °C -50 °C to +1100 °C -50 °C to +390 °C -50 °C to +1300 °C	0.71 °C 0.60 °C 0.76 °C 0.93 °C	·	
Resistance thermometer (Pt100)	-50 °C to +600 °C	0.28 °C		S
Temperature simulators, calibration by electrical simulation, for the following sensor types:				
Noble metal thermocouples			with cold junction	Р
Type R Type S	0 °C to 1600 °C 0 °C to 1600 °C	0.70 °C 0.70 °C	Compensation	

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Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
TEMPERATURE SIMULATION (cont'd)  Temperature indicators, calibration by electrical simulation, for the following			Temperature simulation calibrations are performed as a comparison against a reference standard	
sensor types: (cont'd)  Base metal thermocouples  Type K	-150 °C to +555 °C	0.50 °C	with cold junction Compensation	Р
Type J Type T Type N Type E	-150 °C to +1100 °C -150 °C to +1100 °C -150 °C to +100 °C 100 °C to 390 °C -150 °C to +1250 °C -150 °C to +355 °C 355 °C to 900 °C	0.50 °C 0.50 °C 0.50 °C 0.50 °C 0.50 °C 0.60 °C 0.40 °C		
Resistance thermometer	-200 °C to 0 °C 0 °C to 800 °C	0.010 °C 0.020 °C		Р
Base metal thermocouples  Type K  Type J Type T  Type N	-50 °C to 0 °C 0 °C to 1300 °C -50 °C to +750 °C -50 °C to 0 °C 0 °C to 390 °C -50 °C to +1300 °C	1.0 °C 1.0 °C 1.0 °C 1.1 °C 1.0 °C 1.0 °C	with cold junction Compensation	S
Resistance thermometer (Pt100)	-50 °C to +600 °C	0.24 °C		S

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TEMPERATURE			Temperature calibrations are performed as a comparison against a reference standard	
Resistance thermometers and Electronic thermometers with sensors	-80 °C to 0 °C 0 °C to 140 °C 0.01 °C 140 °C to 200 °C	0.06 °C 0.10 °C 0.035 °C 0.10 °C	In Triple point of water cell	Р
Base metal thermocouples	200 °C to 400 °C 400 °C to 600 °C -80 °C to +200 °C 200 °C to 600 °C	0.15 °C 0.18°C 0.40 °C 0.60 °C		Р
Noble metal thermocouples				
Type R & Type S	0 °C to 200 °C 200 °C to 400 °C 400 °C to 600 °C	0.60 °C 0.75 °C 1.0 °C		
Metal block calibrators	-80 °C to 230 °C 230 °C to 420 °C 420 °C to 660 °C	0.05 °C 0.06 °C 0.085 °C		Р
Temperature surveys  Temperature controlled, incubators, ovens, environmental chambers, fridges/refrigerators and freezers	-80 °C to +200 °C 200 °C to 600 °C	0.75 °C 1.0 °C	Single and multipoint time dependent temperature profiling, also referred to as spatial temperature surveying or mapping	S
Temperature indicators and recorders, with temperature sensor(s)	-30 °C to +140 °C 140 °C to 400 °C 400 °C to 600 °C	0.16 °C 0.20 °C 0.30 °C		S

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#### Calibration performed by the Organisation at the locations specified

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
EQUIPMENT FOR IEE 16 <sup>TH</sup> /17 <sup>T</sup>	 <sup>H</sup> /18 <sup>TH</sup> EDITION WIRING TESTING   	  G 	Electrical calibrations are performed as a comparison against a reference standard	
LOOP TESTERS	Nominal applied resistances			
AC Resistance at 50 Hz	$\begin{array}{c} 0.05 \ \Omega \\ 0.10 \ \Omega \\ 0.22 \ \Omega \\ 0.33 \ \Omega \\ 0.5 \ \Omega \\ 1 \ \Omega \\ 5 \ \Omega \\ 100 \ \Omega \\ 1 \ k\Omega \end{array}$	$\begin{array}{c} 3.6 \text{ m}\Omega \\ 3.9 \text{ m}\Omega \\ 3.6 \text{ m}\Omega \\ 4.1 \text{ m}\Omega \\ 4.9 \text{ m}\Omega \\ 6.6 \text{ m}\Omega \\ 20 \text{ m}\Omega \\ 37 \text{ m}\Omega \\ 370 \text{ m}\Omega \\ 3.0 \Omega \end{array}$		Р
CONTINUITY TESTERS				
DC Resistance	1 m $\Omega$ to 100 m $\Omega$ 100 m $\Omega$ to 2 $\Omega$ 2 $\Omega$ to 100 $\Omega$ 100 $\Omega$ to 1 k $\Omega$ 1 k $\Omega$ to 10 k $\Omega$ 10 k $\Omega$ to 50 k $\Omega$	1.0 m $\Omega$ 2.0 m $\Omega$ 3.8 m $\Omega$ 14 m $\Omega$ 32 m $\Omega$ 2.0 $\Omega$		Р
Continuity Current	0 mA to 400 mA	70 uA		Р
INSULATION TESTERS				
DC Resistance	10 kΩ to 20 kΩ 20 kΩ to 2 MΩ 2 MΩ to 4 MΩ 4 MΩ to 6 MΩ 6 MΩ to 9 MΩ 9 MΩ to 20 MΩ 20 MΩ to 90 MΩ 90 MΩ to 400 MΩ 400 MΩ to 800 MΩ 800 MΩ to 2 GΩ 2 GΩ to 10 GΩ	0.12 % 0.12% 0.12 % 0.12 % 0.60 % 0.85 % 0.65 % 1.3 % 1.2 % 1.30 % 3.0 %		Р
DC Voltage	50 V 100 V 150 V 200 V 250 V 500 V 1000 V	0.80 V 1.1 V 1.4 V 1.7 V 2.0 V 3.5 V 6.5 V		P
Earth Resistance	100 m $\Omega$ to 2 $\Omega$ 2 $\Omega$ to 100 $\Omega$ 100 $\Omega$ to 1 k $\Omega$	2.0 mΩ 3.8 mΩ 14 mΩ		Р

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Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
EQUIPMENT FOR IEE 16TH/1	7TH/18TH EDITION WIRING TEST	  TING (cont'd) 	Electrical calibrations are performed as a comparison against a reference standard	
RCD TESTERS				
Trip time	20 ms to 390 ms 390 ms to 1 s	0.75 ms 9.3 ms		Р
Trip Current at 50 Hz	10 mA 15 mA 30 mA 60 mA 100 mA 150 mA 300 mA 500 mA 1 A	110 µA 170 µA 280 µA 520 µA 770 µA 1.2 mA 2.4 mA 4.0 mA 8.0 mA		Р
AC Voltage Source at 50 Hz	100 V 200 V 230 V 300 V 400 V	0.27 V 0.36 V 0.48 V 0.48 V 0.66 V		P
PORTABLE APPLIANCE TEST	 <u>TERS</u>			
Earth Bond Resistance at 50Hz	$\begin{array}{c} 0.05\Omega \\ 0.1\Omega \\ 0.17\Omega \\ 0.28\Omega \\ 0.38\Omega \\ 0.54\Omega \\ 1\Omega \\ 5\Omega \\ 10\Omega \\ 100\Omega \\ 1k\Omega \end{array}$	$\begin{array}{l} 3.5 \text{ m}\Omega \\ 5.0 \text{ m}\Omega \\ 5.5 \text{ m}\Omega \\ 5.5 \text{ m}\Omega \\ 6.0 \text{ m}\Omega \\ 6.5 \text{ m}\Omega \\ 9.0 \text{ m}\Omega \\ 25 \text{ m}\Omega \\ 40 \text{ m}\Omega \\ 375 \text{ m}\Omega \\ 4.0 \Omega \end{array}$		Р
Earth Continuity and Bond Current at 50Hz	100 mA 200 mA 200 mA to 500 mA 500 mA to 4 A 4 A to 8 A 8 A to 12 A 12 A to 25 A	4.9 mA 5.7 mA 8.5 mA 80 mA 115 mA 150 mA 270 mA		Р
Earth Continuity Current DC	10 mA to 100 mA 100 mA to 300 mA	1.3 mA 3.0 mA		
Leakage Current at 50Hz	0 mA to 1 mA 1 mA to 10 mA 10 mA to 20 mA	3.0 µA 8.0 µA 50 µA		Р

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Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks	Location Code
EQUIPMENT FOR IEE 16TH/17	  TH/18TH EDITION WIRING TEST   	TING (cont'd)	Electrical calibrations are performed as a comparison against a reference standard	
Insulation Resistance DC See DC Resistance Insulation Testers				Р
Insulation Resistance Test Voltage	50 V 100 V 150 V 200 V 250 V 500 V 1000 V	0.8 V 1.1 V 1.4 V 1.7 V 2.0 V 3.5 V 6.5 V		Р
Earth Continuity Resistance See DC Resistance Continuity Testers				
Flash Test Voltage at 50 Hz	1 kV to 1.5 kV (Class 1) 1.5 kV to 3 kV (Class 2)	45 V 80 V		Р
Flash Test Current	0.67 mA to 1 mA (Class 1) 0.34 mA to 1 mA (Class 2)	40 μA 40 μA		Р
Load at 50Hz	49 VA to 7.5 kVA	0.20 VA		Р

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Measured Quantity	Range	Calibration and	Remarks	Location			
Instrument or Gauge		Measurement		Code			
		Capability (CMC)					
		Expressed as an Expanded Uncertainty					
		(k=2)					
	RANGE IN MILLIMETRES AN	D UNCERTAINTY IN MICROME	I TRES				
UNLESS OTHERWISE STATED							
Length							
Thread measuring cylinders	BS 5590:1978 and specials 0.1 to 6.5	0.50 on diameter		Р			
Plain plug gauges (parallel), and cylindrical standards	1 to 50 diameter 50 to 100 diameter 100 to 200 diameter	0.80 1.2 1.5	By comparison with end standards.				
Plain ring gauges (parallel) and setting standards	3 to 50 50 to 100 100 to 150 150 to 200	1.5 2.0 2.5 3.5	By comparison with end standards.				
Screw plug gauges (parallel) including check and setting plugs See Notes 1	1 to 100 diameter 100 to 150 diameter	3.0 on pitch 4.0 diameter	Screw thread gauges are calibrated using the methods based on NPL	Р			
Screw plug gauges (taper) including check plugs See Notes 1	1 to 100 diameter 100 to 150 diameter	5.0 on pitch 8.0 diameter	publication Notes on Applied Science No. 1 "Gauging and Measuring Screw Threads"				
Screw ring gauges (parallel) See Notes 1 and 2	1 to 100 diameter	5.0 on pitch diameter					
Screw pitch	0.2 to 8	2.0		Р			
Screw flank angle	0° to 52°	5.0 minutes of arc					
Screw thread adjustable calliper gauges (parallel) See Note 3	1 to 100 diameter	See Note 3	By comparison with setting plugs.	Р			
Length gauges, flat and spherical ended	25 to 575	1.0 + (8.0 x length in m)	By comparison with end standards.	Р			

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Measured Quantity Instrument or Gauge	Range	Calibration and Measurement	Remarks	Location Code			
		Capability (CMC)					
		Expressed as an Expanded Uncertainty					
		( <i>k</i> =2)					
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED							
MEASURING INSTRUMENTS AND MACHINES cont.							
Micrometers External	BS 870:2008 0 to 125	Heads: 2.0		Р			
Depth	BS 6468:2008	Setting and extension rods 2.0 + (7.0 x length in m)					
	0 to 300	Flatness of measuring faces: 0.5					
		Paralellism of measuring faces: 1.0					
Bore micrometers (three point)	3 to 50 diameter 50 to 100 diameter 100 to 150 diameter 150 to 200 diameter	4.0 5.0 5.5 6.0	By comparison with setting rings	P			
Vernier caliper, height and depth gauges	BS 887:2008 0 to 1000	Overall performance		Р			
	BS 1643:2008 0 to 1000	10 + (30 x length in m)  Flatness of measuring					
	BS 6365:2008	faces: 5.0					
	0 to 600	Paralellism of measuring faces: 5.0					
		Squareness of measuring faces: 5.0					
Dial gauges and dial test indicators	BS 907:2008 and BS 2795:1981	40		Р			
	0 to 50	1.0					
Notes for dimensional calibration	าร	1	ı				
<ol> <li>Single start, symmetrical thread forms only.</li> <li>Includes use of check plugs for screw rings from 1 mm to 8mm diameter</li> <li>Functional test of size using setting plugs calibrated</li> </ol>							
				-			
END							

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#### **Poole Instrument Calibration Limited**

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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 uncertainty of measurement 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 CIPM-ILAC definition of the CMC is as follows:

A CMC is a calibration and measurement capability available to customers under normal conditions:

- (a) as published in the BIPM key comparison database (KCDB) of the CIPM MRA; or
- (b) as described in the laboratory's scope of accreditation granted by a signatory to the ILAC Arrangement.

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 CMC is calculated according to the procedures given in M3003 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 CMC in certificates issued under its accreditation.

The CMC may be described using various methods in the Schedule of Accreditation:

As a single value that is valid throughout the range.

As an explicit function of the measurand or of a parameter (see below).

As a range of values. The range is stated such that the customer can make a reasonable estimate of the likely uncertainty at any point within the range.

As a matrix or table where the CMCs depend on the values of the measurand and a further quantity.

In graphical form, providing there is sufficient resolution on each axis to obtain at least two significant figures for the CMC.

#### Expression of CMCs - symbols and units

In general, only units of the SI and those units recognised for use with the SI are used to express the values of quantities and of the associated CMCs. Nevertheless, other commonly used units may be used where considered appropriate for the intended audience. For example, the term "ppm" (part per million) is frequently used by manufacturers of test and measurement equipment to specify the performance of their products. Terms like this may be used in Schedules of Accreditation where they are in common use and understood by the users of such equipment, providing their use does not introduce any ambiguity in the capability that is being described.

When the CMC is expressed as an explicit function of the measurand or of a parameter, this often comprises a relative term (e.g., percentage) and an absolute term, i.e. one expressed in the same units as those of the measurand. This form of expression is used to describe the capability that can be achieved over a range of values. Some examples are shown below. It should be noted that these expressions are *not* mathematical formulae but are instead written in a commonly used shorthand for expressing uncertainties - therefore, for purposes of clarity, an indication of how they are to be interpreted is also provided below.

DC voltage, 100 mV to 1 V: 0.0025 % + 5.0 μV

Over the range 100 mV to 1 V, the CMC is 0.0025 %·V + 5.0 µV, where V is the measured voltage.

Hydraulic pressure, 0.5 MPa to 140 MPa: 0.0036 % + 0.12 ppm/MPa + 4.0 Pa

Over the range 0.5 MPa to 140 MPa, the CMC is 0.0036 %·p + (0.12·10·6·p·10·6) + 4.0 Pa, where p is the measured pressure in Pa.

It should be noted that the percentage symbol (%) simply represents the number 0.01. In cases where the CMC is stated only as a percentage, this is to be interpreted as meaning percentage of the measured value or indication.

Thus, for example, a CMC of 1.5 % means  $1.5 \cdot 0.01 \cdot i$ , where i is the instrument indication.

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