

# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

 <p><b>UKAS</b> CALIBRATION</p> <p>0173</p> <p>Accredited to <b>ISO/IEC 17025:2017</b></p>	<p><b>DACO Scientific Ltd</b></p> <p>Issue No: 045 Issue date: 24 April 2024</p>	
	<p>Vulcan House Calleva Industrial Park Aldermaston Berkshire RG7 8PB</p>	<p>Contact: Mr T Johnson Tel: +44 (0)118 981 7311 Fax: +44 (0)118 981 9963 E-Mail: lab@daco.co.uk Website: www.dacopressurecalibration.co.uk</p>
<p><b>Calibration performed at the above address only</b></p>		

### Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
<b>PRESSURE</b>			<b>NOTE</b> Methods consistent with EURAMET CG3 and CG17
<u>Gas pressure (gauge)</u>			
Determination of effective area of deadweight testers	3.5 kPa to 7 MPa 7 MPa to 86 MPa	0.0031 % Q [0.0036 %, 0.24 x 10 <sup>-6</sup> /MPa]	
“Pressure equivalent” calibration of Dead Weight Testers (pressure balances supplied with an associated set)	- 100 kPa to - 3.5 kPa - 3.5 kPa to 0 Pa 0 Pa to 3.5 kPa 3.5 kPa to 7 MPa 7 MPa to 86 MPa	0.0035 % Q [0.0031 %, 11 Pa] Q [0.0031 %, 1.4 Pa] 0.0031 % 0.0041 %	Calibrations of pressure measuring devices with an electrical output may be undertaken
Calibration of pressure indicating instruments and gauges	- 100 kPa to - 3.5 kPa - 3.5 kPa to 0 Pa 0 Pa to 3.5 kPa 3.5 kPa to 7 MPa 7 MPa to 86 MPa	0.0035 % Q [0.0030 %, 11 Pa] Q [0.0030 %, 1.4 Pa] 0.0029 % 0.0041 %	
Pressure relief valves and switches	1 kPa to 70 MPa	0.10 %	
<u>Gas pressure (absolute)</u>			
Determination of effective area of deadweight testers.	3.5 kPa to 7 MPa	0.0033 %	
“Pressure equivalent” calibration of Dead Weight Testers (pressure balances supplied with an associated mass set)	3.5 kPa to 7 MPa	0.0033 %	
Calibration of pressure indicating instruments and gauges	80 Pa to 3.5 kPa 3.5 kPa to 7 MPa 7 MPa to 86 MPa	Q [0.0030 %, 8.1 Pa] 0.0030 % 0.0041 %	
Vacuum Calibration of pressure indicating instruments and gauges	0 Pa to 1.3 Pa 1.3 Pa to 6.7 Pa 6.7 Pa to 13.3 Pa 13.3 Pa to 133 Pa	Q [0.16 %, 0.020 Pa] Q [0.16 %, 0.023 Pa] 1.2 % Q [0.31 %, 0.12 Pa]	



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks
<p>PRESSURE (cont'd)</p> <p><u>Hydraulic pressure (gauge)</u></p> <p>Determination of effective area of deadweight testers</p> <p>“Pressure equivalent” calibration of Dead Weight Testers (pressure balances supplied with an associated mass set)</p> <p>Calibration of pressure indicating instruments and gauges</p> <p><u>Hydraulic pressure (absolute)</u></p> <p>Calibration of pressure indicating instruments and gauges</p>	<p>0.5 MPa to 5 MPa 5 MPa to 140 MPa</p> <p>3.5 kPa to 500 kPa 0.5 MPa to 110 MPa 110 MPa to 140 MPa</p> <p>0 Pa to 34 kPa 34 kPa to 500 kPa 0.5 MPa to 110 MPa 110 MPa to 140 MPa</p> <p>0.6 MPa to 110 MPa 110 MPa to 140 MPa</p>	<p>Q [0.0041 %, 0.24 x 10<sup>-6</sup>/MPa] Q [0.0034 %, 0.24 x 10<sup>-6</sup>/MPa]</p> <p>Q [0.0032 %, 29 Pa] 0.0041 % 0.0047 %</p> <p>Q [0.0030 %, 10 Pa] Q [0.0030 %, 29 Pa] 0.0039 % 0.0047 %</p> <p>0.0039 % 0.0047 %</p>	<p>Methods consistent with EURAMET CG3 and CG17</p>
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:  $Q[a, b] = [a^2 + b^2]^{1/2}$