

Certificate of Accreditation



Kistler Instruments Ltd

Calibration Laboratory No. 0576

**Is accredited in accordance with International Standard ISO/IEC 17025:2017
– General Requirements for the competence of testing and calibration
laboratories.**

This accreditation demonstrates technical competence for a defined scope specified in the schedule to this certificate, and the operation of a management system (refer joint ISO-ILAC-IAF Communiqué dated April 2017). The schedule to this certificate is an essential accreditation document and from time to time may be revised and reissued.

The most recent issue of the schedule of accreditation, which bears the same accreditation number as this certificate, is available from www.ukas.com.

This accreditation is subject to continuing conformity with United Kingdom Accreditation Service requirements.

A handwritten signature in black ink, appearing to read "Matt Gantley", is positioned above a horizontal line.

Matt Gantley, *Chief Executive Officer*
United Kingdom Accreditation Service

Initial Accreditation: 17 July 1998
Certificate Issued: 25 January 2021



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Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>0576</p> <p>Accredited to ISO/IEC 17025:2017</p>	<p>Kistler Instruments Ltd</p> <p>Issue No: 041 Issue date: 17 April 2024</p>	
	<p>13 Murrell Green Business Park London Road Hook Hampshire RG27 9GR</p>	<p>Contact: Mr Chris Ollivier Tel: +44 (0)1256 741550 Fax: +44 (0)1256 741551 E-Mail: chris.ollivier@kistler.com Website: www.kistler.com</p>
<p>Calibration performed at the above address only</p>		

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	
<p>Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.</p>				
Charge; DC, 100 Hz & 1 kHz Nominal Set points at full range	10 pC 100 pC 1 nC 10 nC 100 nC 1 µC 2 µC	0.19 % 0.033 % 0.033 % 0.033 % 0.033 % 0.033 % 0.033 %	For the calibration of charge amplifiers and charge meters	
Range values	2 pC to 10 pC 10 pC to 100 pC	0.19 % 0.060 %		
500 mV to 10 V	100 pC to 1 nC 1 nC to 10 nC 10 nC to 100 nC 100 nC to 1 µC 200 nC to 2 µC	0.060 % 0.060 % 0.060 % 0.060 % 0.060 %		
All range values	2 pC to 10 pC 10 pC to 100 pC 100 pC to 1 nC 1 nC to 10 nC 10 nC to 100 nC 100 nC to 1 µC 200 nC to 2 µC	0.24 % 0.15 % 0.15 % 0.15 % 0.15 % 0.15 % 0.15 %		
DC Voltage	Zero Volts	60 µV		
	100 mV to 200 mV 200 mV to 10 V	0.027 % + 12 µV 0.012 % + 12 µV		Measurement of residual noise from the charge amplifier output/input Available source values
	100 mV to 500 mV 500 mV to 10 V	0.027 % + 115 µV 0.013 % + 115 µV		These values can be Measured
Voltage Current resistance ratio Piezo resistive amplifiers	10 Ω to 1000 Ω	0.04 %		
Excitation current	1 mA to 4 mA	0.025 %		

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Calibration performed at main address only

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks
PRESSURE Hydraulic Pressure Continuous calibration of piezoelectric pressure sensors	10 MPa to 20 MPa 20 MPa to 30 MPa 30 MPa to 100 MPa 100 MPa to 800 MPa	2.0 % 0.98 % 0.78 % 0.73 %	By comparison with a reference sensor using a pressure ram

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