Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

0256

Accredited to ISO/IEC 17025:2017

Norbar Torque Tools Limited

Issue No: 038 **Issue date:** 08 April 2022

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Calibration performed at the above address only

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
TORQUE			NOTES
Hand torque tools	To BS EN ISO 6789-2:2017 0.1 N·m to 3000 N·m	0.16 % See Notes 1 and 2	1 The uncertainty quoted is for both the application of the calibration torque and the characteristics of the device being calibrated.
Torque Multiplying Gearboxes	Documented In-House Method 50 N·m to 7000 N·m	0.66 % See Notes 1 and 2	
Mechanical and Electronic Torque Calibration Equipment	To BS EN 7882:2017 0.005 N·m to 1500 N·m	0.020 % See Notes 1, 2 and 3	2 Calibrations may also be given in other torque units.
	To BS EN 7882:2017 0.005 N·m to 7000 N·m	0.030 % See Notes 1, 2 and 3	3 Calibrations may also be given in units of electrical signal output, including voltage ratio measurements.
	To BS EN 7882:2017 1000 N.m to 4000 N·m	0.40 % see Notes 1, 2 and 3	4 The length may also be given in inch units.
	4000 N.m to 108500 N·m	0.20 % see Notes 1, 2 and 3	
Electrical torque indicators *Calibration using electrical signals. The results may be expressed in units of torque, as applicable*	Documented In-House Method 0.5 mV dc 1 mV dc 2 mV to 16.5 mV dc 5 V dc 0.05 Vdc 0.10 Vdc 0.2 Vdc to 2 Vdc 10 mA to 22 mA dc	 0.16 % 0. 0.097% 0.084 % to 0.053 % 0.0014 % 0.35 % 0.18 % 0.11 % 0.014 %	
LENGTH			
Torque Beam Radius	Documented In-House Method 100 mm 250 mm 254 mm 305 mm 500 mm 610 mm 1000 mm 1220 mm	See Note 4 10 µm 13 µm 13 µm 14 µm 21 µm 26 µm 41 µm 50 µm	

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