Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

0325

Accredited to ISO/IEC 17025:2017

Precision Technologies International Ltd t/a Precision Technologies

Issue No: 021 **Issue date:** 26 August 2021

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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
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED			
GEARS SPUR/HELICAL EXTERNAL			NOTES
External (Tip) Diameter	10 to 100 100 to 200 200 to 300	1.8 Even 2.0 Odd 3.8 No of 5.0 No of 5.0 Teeth 6.5 Teeth	Horizontal measuring machine and reference setting standards.
Bore Diameter	12 to 100 100 to 200 200 to 250	1.2 3.8 5.0	
Profile total deviation (F_α)	0.6 module to 3 module 3 module to 6 module	1.5 2.5	CNC gear measuring machine.
Helix (lead) total deviation (F_β) /Helix Angle	0 to 50 Facewidth 0° to 15° 15° to 30° Helix Angle 30° to 45° 50 to 100 Facewidth 0° to 15° 15° to 30° Helix Angle 30° to 45°	 1.5 2.0 2.5 2.0 2.5 3.0	
Cumulative pitch deviation (F_p)	Min approx 1 module to 300 diameter	2.0	
Single pitch deviation (f_p)	Min approx 1 module to 300 diameter	2.0	
Adjacent pitch difference (f_u)	Min approx 1 module to 300 diameter	2.0	
Radial runout of tooth space deviation (F_r))	10 to 300	1.5	
Dimension over pins or rollers Spur gears (Mdr)	10 to 100 diameter 100 to 200 diameter 200 to 300 diameter	5.0 7.5 10	Horizontal measuring machine and reference setting standards.

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
RANGE IN MILLIMETRES AND UNCERTAINTY IN MICROMETRES UNLESS OTHERWISE STATED			
GEARS SPUR/HELICAL EXTERNAL (cont'd)			
Dimension over pins or rollers Helical gears (Mdr)	10 to 100 diameter 100 to 200 diameter 200 to 300 diameter	6.0 8.5 12	Horizontal measuring machine and reference setting standards and calibrated pins.
INTERNAL			
As for external gears except for:			
Internal (Tip) Diameter	22 to 100 100 to 200 200 to 250	15 Even 2.5 Odd 4.0 No of 5.5 No of 5.0 Teeth 7.0 Teeth	Horizontal measuring machine and reference setting standards
Dimension under Rollers or Pins (Mdr)	20 to 100 100 to 200 200 to 250	5.0 Spur 6.0 Helical 7.5 Gears 8.5 Gears 10 12	Horizontal measuring machine and reference setting standards and calibrated pins
SPLINE GAUGES, INVOLUTE SPUR/HELICAL EXTERNAL/INTERNAL			
As for Gears except for:			
Helix (lead) total deviation (F_β) /Helix Angle	0 to 50 Facewidth 0° to 15° Helix 15° to 30° Angle 50 to 100 Facewidth 0° to 15° Helix 15° to 30° Angle	 1.5 2.0 2.0 2.5	CNC gear measuring machine.
Runout Major/Minor Diameter		1.0	Horizontal measuring machine and reference setting standards.
SPLINE GAUGES, STRAIGHT SIDED PLUG AND RING			
As for Involute Spline Gauges			
Runout of Major/Minor Diameters	0 to 300	2.5	Horizontal measuring machine and reference setting standards.
Spline Width		1.2	
SERRATION GAUGES STRAIGHT SIDED PLUG AND RING			
As for straight sided Spline Gauges			
Angle of Serration Flank Spur Gauges Only	0 to 300	15 minutes of arc	Horizontal measuring machine and reference setting standards and calibrated pins.
END			

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