



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

MRM PRECISION INSTRUMENTS INC.  
1 Regan Road, Unit 1  
Brampton, Ontario, Canada  
L7A 1B8  
Rafik Mohamed Phone: 905 595 1000

CALIBRATION

Valid To: October 31, 2020

Certificate Number: 4194.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations<sup>1, 7</sup>:

I. Dimensional

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Calipers	Up to 300 mm (300 to 600) mm (600 to 1000) mm	12 µm 16 µm 24 µm	Caliper checker
Coating Thickness Gauges	(0.001 to 1.5) mm	60 µm	Coating thickness standards
Depth Gauges	Up to 300 mm	10 µm	Depth checker
Height Gauges	Up to 300 mm (300 to 600) mm (600 to 1000) mm	12 µm 18 µm 24 µm	Height checker
Indicators	Up to 25 mm (25 to 50) mm (50 to 100) mm	1 µm 2 µm 8 µm	Gauge blocks

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Micrometers	Up to 50 mm (50 to 100) mm (100 to 300) mm (300 to 600) mm (600 to 1000) mm	1 µm 2 µm 6 µm 13 µm 21 µm	Gauge blocks
Micrometer Heads	Up to 50 mm	1 µm	Gauge blocks
Test Indicators	Up to 0.8 mm Up to 100 mm	0.7 µm 1.5 µm	Gauge blocks
Ultrasonic Thickness Gauges	(0.01 to 100) mm	3 µm	Steel gauge blocks
Protractors/ Inclinometers	(0.1 to 360)°	0.06°	Angle plates
Micrometer Standards	Up to 75 mm (75 to 300) mm (300 to 600) mm (600 to 1000) mm	2 µm 6 µm 12 µm 19 µm	Height checker
Pin Gauges	(0.2 to 25) mm	2 µm	Digital micrometer
Test Stands <sup>3, 6</sup> (Distance)	(0.01 to 12) in/min	0.59 % of setting	Stopwatch
Thickness Gauges	(0.04 to 25) mm	2 µm	Digital micrometer

## II. Dimensional Testing<sup>4</sup>

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Length – 1D <sup>5</sup>	Up to 25.4 mm Up to 100 mm Up to 300 mm Up to 600 mm Up to 1000 mm	2 µm 3 µm 6 µm 12 µm 19 µm	Linear height standard
Angle <sup>5</sup>	Up to 90°	0.13°	Digital protractor

## III. Mechanical

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Scales & Balances <sup>3</sup> –  Resolution: 0.01 mg 0.1 mg 1 mg 0.001 g 0.01 g 0.1 g 1 g 1 g	Up to 81 g Up to 210 g Up to 200 g Up to 2200 g Up to 2200 g Up to 2200 g Up to 10 kg Up to 250 kg	0.09 mg 0.30 mg 0.65 mg 0.65 mg 6.1 mg 0.11 g 1.4 g 1.9 g	ASTM class 0 weights      NIST class F weights
Mass –  Class F Weights (Pounds)	0.5 lb 1 lb 2 lb 3 lb 4 lb 5 lb 6 lb 7 lb 8 lb 9 lb 10 lb 15 lb	68 µlb 68 µlb 68 µlb 68 µlb 69 µlb 69 µlb 69 µlb 710 µlb 710 µlb 710 µlb 710 µlb 710 µlb	Tolerances are in accordance with NIST handbook 105-1, precision balance

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Mass – (cont)			
Class F Weights (Pounds)	20 lb 25 lb 30 lb 40 lb 50 lb 60 lb 70 lb	720 µlb 720 µlb 720 µlb 720 µlb 720 µlb 720 µlb 730 µlb	Precision balance
Class F Weights (Ounces)	(0.0001 to 0.5) oz (1/64 to 1/2) oz 1 oz 2 oz 3 oz 5 oz 6 oz 8 oz 10 oz 12 oz 14 oz 16 oz	11 µoz 11 µoz 11 µoz 15 µoz 16 µoz 22 µoz 30 µoz 0.0007 oz 0.0007 oz 0.0007 oz 0.0007 oz 0.0007 oz	Tolerances are in accordance with NIST handbook 105-1 Analytical balance
Class F Weights (Metric)	(1 to 900) mg (1 to 10) g 20 g (30 to 50) g (60 to 100) g 200 g (300 to 900) g 1 kg 2 kg 3 kg 4 kg 5 kg 6 kg 7 kg 8 kg 9 kg 10 kg 15 kg 20 kg	0.10 mg 0.08 mg 0.16 mg 0.28 mg 0.53 mg 0.87 mg 16 mg 16 mg 16 mg 17 mg 330 mg 330 mg 330 mg 330 mg 330 mg 330 mg 330 mg 330 mg 330 mg 330 mg	Analytical balance       Precision balance

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Mass – (cont)  Class F Weights (Metric)	25 kg 30 kg 35 kg	330 mg 340 mg 340 mg	Tolerances are in accordance with NIST handbook 105-1; precision balance
Force Gauges <sup>6</sup> – Transducers, Test Stands, Dynamometers (Tension & Compression)	Up to 4 lbf Up to 44 lbf Up to 500 lbf	0.001 lbf 0.007 lbf 0.03 lbf	Force calibration system
Force Gauges <sup>3, 6</sup> – Transducers, Test Stands, Dynamometers (Tension & Compression)	(0 to 1000) lbf (0 to 10 000) lbf	0.83 % of full scale 0.43 % of full scale	Load cell system
Hand Dynamometers –  Digital Hydraulic (Compression)  Pinch Gauges (Compression)	Up to 200 lbf Up to 200 lbf  Up to 60 lbf	0.55 lbf 3.0 lbf  0.79 lbf	Digital force gauge
Torque Tools	(0 to 7) in·lbf (0.03 to 15) in·lbf (4 to 50) in·lbf (30 to 400) in·lbf (80 to 1000) in·lbf (8 to 80) ft·lbf (25 to 250) ft·lbf (60 to 600) ft·lbf	0.09 in·lbf 0.20 in·lbf 0.15 in·lbf 1.3 in·lbf 3.2 in·lbf 0.26 ft·lbf 0.78 ft·lbf 1.9 ft·lbf	Torque calibration system

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Torque Testers & Torque Transducers	(4 to 50) in·lbf (30 to 400) in·lbf (80 to 1000) in·lbf (25 to 250) ft·lbf (60 to 400) ft·lbf	0.08 in·lbf 0.21 in·lbf 0.52 in·lbf 0.37 ft·lbf 0.41 ft·lbf	Dead weights, torque arm
Hardness –  Durometers (A, B, C, D, DO, O, OO, OOO, M)  Spring Force only  Durometer Calibrators	   (10 to 90) duro  Up to 100 duro	   0.61 duro  0.15 N	   Durometer calibrator  Digital force gauge

#### IV. Time & Frequency

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Stopwatches	1 s to 10 hrs	1.1 s	Precision stopwatch, and camera

<sup>1</sup> This laboratory offers commercial calibration service and field calibration service.

<sup>2</sup> Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of  $k = 2$ . The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

<sup>3</sup> Field calibration service is available for this calibration and this laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.

<sup>4</sup> This laboratory offers commercial dimensional testing/calibration service.

<sup>5</sup> This laboratory meets *R205 – Specific Requirements: Calibration Laboratory Accreditation Program* for the types of dimensional tests listed above and is considered equivalent to that of a calibration.

<sup>6</sup> Test Stands are calibrated for both Distance under the Dimensional portion of the Scope of Accreditation and Force under the Mechanical portion of the Scope of Accreditation.

<sup>7</sup> This scope meets A2LA's *P112 Flexible Scope Policy*.

SUSPENDED



## Accredited Laboratory

A2LA has accredited

**MRM PRECISION INSTRUMENTS INC.**

*Brampton, Ontario, CANADA*

for technical competence in the field of

**Calibration**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets R205 – Specific Requirements: Calibration Laboratory Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 29<sup>th</sup> day of April 2019.

A blue ink signature of the Vice President, Accreditation Services.

Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 4194.01  
Valid to October 31, 2020

*For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.*