



CERTIFICATE OF ACCREDITATION

This is to attest that

MORGAN PRECISION INSTRUMENTS

3375 MILLER PARK ROAD
AKRON, OHIO 44312, U.S.A.

Calibration Laboratory CL-239

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date February 21, 2022

Expiration Date February 1, 2024



A handwritten signature in black ink, reading "Raj Nathan".

President

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

MORGAN PRECISION INSTRUMENTS

www.morgangages.com

Contact Name Jim Geib

Contact Phone +1 330 896-0846

Accredited to ISO/IEC 17025:2017

Effective Date February 21, 2022

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
<i>Dimensional</i>			
Angle Blocks	Up to 90°	20"	Grade II Gage Blocks Master Sine Bar Digital Mu Checker Procedure #1
Feeler Gages	0.001 in to 0.035 in	130 µin	Digital Micrometer Micrometer Stand / MPI Procedure #10
Outside Diameter	Up to 1 in	22 µin	Measuring Machine MTD Procedure #15
Micrometer Standards	Up to 80 in	(103 + 11L) µin	Measuring Machine MPI Procedure #3
Inside Micrometers	1.5 in to 150 in	(81 + 13L) µin	Measuring Machine MPI Procedure #6
Bar Gages	1 in to 120 in	(48 + 15L) µin	Measuring Machine MPI Procedure #2
Micrometers	Up to 72 in (0.001 in resolution) Up to 36 in (0.0001 in resolution) Up to 6 in (0.00005 in resolution)	(15 + 18L) µin (84 + 16L) µin (54 + 12L) µin	Grade II Gage Blocks / Direct comparison / MPI Procedure #8
Depth Micrometers	Up to 12 in	(268 + 7.6L) µin	Grade II Gage Blocks
Electronic Depth Micrometers	Up to 12 in Up to 6 in	(122 + 10L) µin 123 µin	Granite Surface Plate / Direct Comparison to gage blocks/ MPI Procedure #7
Dial Calipers, Vernier Calipers, Depth Gages	Up to 120 in	(114 + 23L) µin	Grade II Gage Blocks

* If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the Use of the International System of Units (SI)" apply.

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MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Digital Calipers and Depth Gages	Up to 60 in	(480 + 12L) μin	Granite Surface Plate / Direct Comparison to gage blocks/ MPI Procedure #12
Height Gages	Up to 40 in	(115 + 18L) μin	Grade II Gage Blocks
Digital Height Gages	Up to 40 in Up to 24 in	(447 + 11L) μin (67 + 16L) μin	Granite Surface Plate / Direct comparison to gage blocks/ MPI Procedure #4
Dial Indicators	Up to 4 in (0.001 in resolution) Up to 1 in (0.0005 in resolution) Up to 1 in (0.0001 in resolution)	580 μin 580 μin 120 μin	Grade II Gage Blocks Granite Surface Plate / MPI Procedure # 5
Electronic Indicators	Up to 1 in	62 μin	
Test Indicator	Up to 0.06 in (0.001 in resolution) Up to 0.06 in (0.0005 in resolution) Up to 0.06 in	1600 μin 580 μin 140 μin	Grade II Gage Blocks Granite Surface Plate or Heightmaster / MPI Procedure #5
Surface Roughness	1 μin to 250 μin	5.7 μin	Surfetest and Reference Specimen / MPI Procedure # 16
Sliding Gages (Profiles)	3 in to 60 in	1300 μin	TRA Masters / MPI Procedure # 18
Mandrels	3 in to 54 in	1300 μin	Pi Tape / MPI Procedure #17
ID Base Bands	3 in to 54 in	1600 μin	Pi Tape / MPI Procedure #13
Flat Tapes	3 in to 54 in	1700 μin	Vernier Caliper / MPI Procedure #13
Tapes, Rules and Scales	Up to 40 in	2700 μin	Vernier Caliper / MPI Procedure #19
Templates, Contour and Tolerance Gages	3 in to 48 in	1200 μin	Measuring Machine / CMM MPI Procedure #20
Dimensional Measurement 3D (Fixed Gaging)	X = Up to 40 in Y = Up to 80 in Z = Up to 40 in	(131 + 20L) μin	Coordinate Measuring Machine Used as Reference Standard

¹The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing calibrations of a best existing device. The measurement uncertainty reported on a calibration certificate may be greater than that provided in the CMC due to the behavior of the calibration item and other factors that may contribute to the uncertainty of a specific calibration.

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²When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated.

L = length in inches