



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Northern Gauge, Inc.
#400 – 280 Portage Close
Sherwood Park, Alberta, Canada T8H 2R6

Fulfills the requirements of

ISO/IEC 17025:2017

In the field of

CALIBRATION

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

A handwritten signature in black ink, appearing to read 'R. Douglas Leonard Jr.', is positioned above a horizontal line.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 25 March 2023

Certificate Number: L2350



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
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).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Northern Gauge, Inc.
#400 – 280 Portage Close
Sherwood Park, Alberta, Canada T8H 2R6
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CALIBRATION

Valid to: **March 25, 2023**

Certificate Number: **L2350**

Length – Dimensional Metrology

| Parameter/Equipment | Range | Expanded Uncertainty of Measurement (+/-) ² | Reference Standard, Method, and/or Equipment |
|---|----------------------------------|--|---|
| Gauge Blocks: Central Length | (0.05 to 4) in | (2.7 + 4.5L) μin | ISO 3650/ASME B89.1.9 Octagon Precision Gauge Block Comparator & Master Gauge Blocks |
| Plain Plug Gauges | (0.1 to 7) in (0.20 to 7) in | (46 + 2.4D) μin (41 + 3.8D) μin | ANSI/ASME B89.1.5: Trimos Horizon Premium Micura CMM |
| Plain Ring Gauges | (0.25 to 7) in (0.20 to 7) in | (74 + 5.5D) μin (41 + 3.8D) μin | ANSI/ASME B89.1.6: Trimos Horizon Premium Micura CMM |
| Thread Plug Gauges: (4-80 TPI) Pitch Diameter Major Diameter | Diameter: (0.1 to 7) in | (82 + 2D) μin (46 + 2.4D) μin | ANSI/ASME B1.1-B1.2, ANSI/ASME B1.5-B1.8 Trimos Horizon Premium |
| Thread Ring Gauges: (4-80 TPI) Pitch Diameter Major Diameter | Diameter: (0.25 to 7) in | (74 + 10D) μin (74 + 5.5D) μin | ANSI/ASME B1.1-B1.2, ANSI/ASME B1.5-B1.8 Trimos Horizon Premium |
| Rod Length Standards | (0.1 to 20) in | (50 + 3.5L) μin | Trimos Horizon Premium |
| Calipers - OD, ID and depth | (0.5 to 48) in | (580 + 18L) μin | Master gauge blocks |
| | (0.5 to 25.5) in | (620 + 23L) μin | Caliper Checker |
| Micrometers | (0.05 to 59) in | (59 + 22L) μin | Master gauge blocks |

Length – Dimensional Metrology

| Parameter/Equipment | Range | Expanded Uncertainty of Measurement (+/-) ² | Reference Standard, Method, and/or Equipment |
|---|--|--|--|
| Dial/Digital Indicators | (0 to 3) in | 38 μin | Master gauge blocks |
| | (0 to 3) in | 55 μin | Trimos Horizon Premium |
| Height Gauges | (0 to 24) in | (150 + 3.2L) μin | Master gauge blocks |
| Lead Gauge / Ring Groove Setting Standards | (0 to 18) in | (47 + 4.6L) μin | API 5B & API 6A using CMM Micura |
| Universal Length Measuring Machines (ULM's) ¹ | (0 to 20) in | (10 + 2.2L) μin | Renishaw XL-80 Laser Interferometer |
| Tape Measures & Ruler | Up to 300 in | (540 + 3.1L) + 11N μin | JIS B 7512 using Octagon Tape and Scale Measuring Machine N = number of resets of the 6 inch reference standard |
| Thread Profile – Comparison Method | (2 to 20) pitch | 500 μin | API 7-2 / API 5B ANSI B1.5, B1.8, B1.9 Thread Profile Overlays using Optical Comparator |
| Surface Plates ¹ : Flatness Overall Flatness on any Local Area | Length/Width/Diameter: Up to 48 in Any (250 mm x 250 mm) | 90 μin 0.99 μm (39 μin) | ISO 8512-2 using: Electronic Level System |

Mass and Mass Related

| Parameter/Equipment | Range | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment |
|--------------------------|--|---|---|
| Pneumatic Pressure Gages | (0 to 5 000) psig (5 000 to 10 000) psig (10 000 to 30 000) psig (0 to 40 000) psig | 26 psig 12 psig 140 psig 53 psig | API/ISO 14313:10.2.3 using Crystal Eng'g Pressure Gauges/Sino Inst. Additel Pressure Modules |
| Pressure Transducers | (0 to 30 000) psig | 39 psig | EURAMET CG-17 Additel Process Calibrator Additel Pressure Modules |

Mass and Mass Related

| Parameter/Equipment | Range | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment |
|---------------------|-----------------------|---|--|
| Torque Wrenches | (20 to 100) lbf·in | 2.3 % of reading | ISO 6789:2003 using Torque Transducers and Readout, or Torque Analyzer |
| | (20 to 100) lbf·ft | 3 % of reading | |
| | (100 to 200) lbf·ft | 3.4 % of reading | |
| | (200 to 1 000) lbf·ft | 3 % of reading | |

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 ($k=2$), corresponding to a confidence level of approximately 95%.

Notes:

1. On-site calibration service is available for this parameter, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope.
2. L = length in inches, D = Diameter in inches.
3. This scope is formatted as part of a single document including Certificate of Accreditation No. L2350.



R. Douglas Leonard Jr., VP, PILR SBU

