CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

HORIBA Instruments Incorporated – Contract Testing Services
2890 John R Rd.
Troy, MI 48083
(and satellite location as listed on the scope)

Fulfills the requirements of

ISO/IEC 17025:2017

In the fields of

CALIBRATION and TESTING

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.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 24 February 2024
Certificate Number: ACT-1312

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

HORIBA Instruments Incorporated – Contract Testing Services

2890 John R Rd.
Troy, MI 48083
Marie Squier Phone: 248 689 9000
marie.squier@horiba.com www.hii.horiba.com

CALIBRATION AND TESTING

Valid to: **February 24, 2024** Certificate Number: **ACT-1312**

TESTING

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Radial Loading (force / strain) Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Hydraulic Actuator up to 100 000 pounds-force / 2 500 με (micro-strain)
Axial Loading (force / strain) Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Hydraulic Actuator up to 100 000 pounds-force / 2 500 με (micro-strain)
Torsional Loading Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Rotary Hydraulic Actuation up to 5 000 pound-feet; Dynamometer up to 5 000 pound-feet
Dynamic Loading (Force/Acceleration/ Strain) Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Hydraulic Actuator up to 100 G's/measure up to 500 G's / 2 500 με (micro-strain)
Dynamic Torsional Loading Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Rotary Hydraulic Actuator up to 2 500 pound-feet; Dynamometer up to 5 000 pound-feet
Static Pressure Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Hydraulic Pressure up to 20 000 psi
Dynamic Pressure Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Hydraulic Pressure up to 10 000 psi

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Rotational Speed Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Dynamometers/Motors up to 18,000 RPM
Linear Displacement Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Hydraulic Actuator – up to 20 in / measure –up to 20 in
Angular/Rotary Displacement Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Encoder: +/- 2 880 ° Inclinometer: +/- 90 ° (Digital Gage)

Thermodynamic / Environmental Simulation

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Temperature Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Thermal Chambers (- 100 to 250) °F Natural Gas Burners up to 2 000 °F
(Static and Dynamic) Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Thermal Chamber Humidifier/Steam Generator (25 to 95) %RH

Satellite Site

Horiba Instruments Incorporated – Contract Testing Services

5900 Hines Drive
Ann Arbor, MI 48108
Marie Squier Phone: 248 689 9000
marie.squier@horiba.com www.hii.horiba.com

CALIBRATION

Mass and Mass Related Calibration

Calibration Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Remarks
Flow	Up to30 slm (Standard Liters/Minute)	22 mL/min	Gas Divider-Checker (GDC) WI-QM-B-009 WI-QM-B-019
Flow	Up to 30 slm (Standard Liters/Minute)	48 mL/min	Span Gas Divider (SGD) WI-QM-B-010 WI-QM-B-020
Flow	Up to 30 slm (Standard Liters/Minute)	0.17%	Gas Divider-Checker (GDC ONE) WI-QM-B-023
Flow	Up to 10 slm (Standard Liters/Minute)	26 mL/min	CFO Kit WI-QM-B-015

Note:

1. This scope is formatted as part of a single document including Certificate of Accreditation No. ACT-1312.
2. Calibration and Measurement Uncertainties (Expanded Uncertainty) are based on approximately a 95% confidence interval, using a coverage of k=2

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