CERTIFICATE OF ACCREDITATION

ANSI National Accreditation Board

11617 Coldwater Road, Fort Wayne, IN 46845 USA

This is to certify that

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

has been assessed by ANAB and meets the requirements of international standard

ISO/IEC 17025:2005

while demonstrating technical competence in the field of

CALIBRATION and TESTING

Refer to the accompanying Scope of Accreditation for information regarding the types of activities to which this accreditation applies

ACT-1312
Certificate Number

ANAB Approval

Certificate Valid Through: 02/24/2020
Version No. 008 Issued: 02/28/2019

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. 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 17025:2005

Horiba Instruments Incorporated – Contract Testing Services

2890 John R Rd.
Troy, MI 48083
Gerard Lysse Phone: 248-689-9000
gerard.lysse@horiba.com www.hii.horiba.com

CALIBRATION AND TESTING

Valid to: **February 24, 2020** 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
Rotational Speed Fatigue and/or durability	Customer Supplied and/or F12-LMS-Test-Acceptance-Document	Customer Supplied	Dynamometers/Motors up to 18,000 RPM

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
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

ANSI National Accreditation Board

ANAB

Satellite Site

Horiba Instruments Incorporated – Contract Testing Services
5900 Hines Drive
Ann Arbor, MI 48108
Gerard Lysse Phone: 248-689-9000
gerard.lysse@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)	0.006 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

Vice President