CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Kistler Instrument Corporation
75 John Glenn Drive
Amherst, NY 14228
(with a satellite location as listed on the scope of accreditation)

Fulfills the requirements of

ISO/IEC 17025:2017

and national standard

ANSI/NCSL Z540-1-1994 (R2002)

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.

Jason Stine, Vice President
Expiry Date: 07 July 2026
Certificate Number: AC-1117

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

AND

ANSI/NCSL Z540-1-1994 (R2002)

Kistler Instrument Corporation

75 John Glenn Drive
Amherst, NY 14228
Fred Bartz 716-213-5752
Email: fred.bartz@kistler.com Website: www.kistler.com

CALIBRATION

Valid to: **July 7, 2026** Certificate Number: **AC-1117**

Acoustics and Vibration

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Vibration Magnitude / Frequency Response (0.5 to 20) Hz	5 mV to 4 V / g_n	0.9 % of reading	MB Dynamics Win 475, Reference accelerometer QA-650
Vibration Magnitude & Charge / Frequency Response (10 to 2 000) Hz (>2 000 to 10 000) Hz (>10 000 to 15 000) Hz (>15 000 to 17 000) Hz (>17 000 to 20 000) Hz	5 mV to 4 V / g_n 0.1 pC to 100 pC / g_n	1 % of reading 1.2 % of reading 2 % of reading 3.3 % of reading 5.2 % of reading	Kistler Primary Vibration System, 8002K Accelerometer, 5020 Charge Amplifier
Vibration Magnitude & Charge / Frequency Response (10 to 2 000) Hz (>2 000 to 10 000) Hz (>10 000 to 15 000) Hz (>15 000 to 17 000) Hz (>17 000 to 20 000) Hz	5 mV to 4 V / g_n 0.1 pC to 100 pC / g_n	1.1 % of reading 1.3 % of reading 2.1 % of reading 6.3 % of reading 6.6 % of reading	Kistler Secondary Vibration System, 8002K Accelerometer, 5020 Charge Amplifier
Vibration, Rotational (Magnitude)	12.5 Hz	1.6 % of reading	Kistler Vibration System 8002K/5020

Electrical – DC/Low Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Charge (Automated)	(1.6 to 90 000) pC	0.2 % of reading	Kistler Charge Calibrator 5395B, Function Generator, DMM
Charge (Manual)	(5 to 2 100 000) pC	0.1 % of reading	Kistler Charge Calibrator 5395B, Function Generator
Charge (Automated)	± 100 pC ± 1 000 pC ± 10 000 pC ± 100 000 pC ± 1 000 000 pC	0.04 % of reading	Kistler Precision Calibrator 5395B
DC Voltage – Source	(-10 to 10) V	0.001 V	Kistler Precision Calibrator 5395B
DC Voltage - Measure	(-10 to 10) V	0.001 V	Kistler Precision Calibrator 5395B
Gain Accuracy [2]	(0.5 to 150)	0.4 % of reading	National Instruments Data Acquisition Board PXI-4461
Gain Accuracy [2]	1x, 10x, 100x	0.8 % of reading	Digital Multimeter

Mass and Mass Related

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Force, Dynamic (Voltage Sensitivity)	(0.04 to 5) lbf	0.8 % of reading	Class 4 & 6 Mass Pieces, Oscilloscope
Force, Impulse Hammer (Sensitivity at 100 Hz)	(100 to 5 000) lbf	1.7 % of reading	Agilent Signal Analyzer 3562A
Force, Static (Voltage, Charge Sensitivity)	(50 to 50 000) lbf	0.5 % of reading	Morehouse Ring Dynamometers
Pressure, Absolute	(-14.5 to <0) psi (>0 to 500) psi	0.4 % of reading	Mensor Digital Pressure Gage 11900-401
Pressure, Sinusoidal	(50 to 1 000) psi	1.2 % of reading	Pressure Sensor, Amplifier, Oscilloscope
Pressure, Static	(20 to 15 000) psi	0.5 % of reading	Mansfield and Green Deadweight Tester

Mass and Mass Related

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Pressure, Static	(5 000 to 100 000) psi	1.4 % of reading	6213BU High Pressure Transducer
Pneumatic Pressure Gage / Absolute (Current: 4 mA to 20 mA)	(-14.5 to <0) psi (>0 to 1 500) psi	0.25 % of reading	Mensor Digital Pressure Gages 600 & CPC6000
Pneumatic Pressure Gage / Absolute (Voltage: Up to 10 V)	(-14.5 to <0) psi (>0 to 1 500) psi	0.25 % of reading	
Hydraulic Pressure (Current: 4 mA to 20 mA)	(500 to 5 000) psig	0.25 % of reading	Pressurements Dead Weight Tester
Hydraulic Pressure (Voltage: Up to 10 V)	(500 to 6 000) psig	0.25 % of reading	Pressurements Dead Weight Tester
Hydraulic Pressure (Voltage: Up to 10 V)	(0 to 700) bar	0.25 % of reading	Ruska Hydraulic Pressure Controller

Services performed at satellite location

30280 Hudson Drive
Novi, MI 48377
Bruce Noland 248-668-6843

Acoustics and Vibration

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Vibration (Magnitude / Frequency Response) (3 to 8) Hz (>8 to 16) Hz (>16 to 1 000) Hz (>1 000 to 5 000) Hz (>5 000 to 10 000) Hz	0.04 mV to 4 V/g_n at 100 Hz 0.1 pC to 100 pC / g_n	2 % of reading 1.1 % of reading 0.75 % of reading 1.6 % of reading 2.6 % of reading	Spektra Vibration System CS18

Electrical – DC/Low Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
DC Voltage - Source	(-10 to 10) V	0.1 V	Hewlett Packard Universal Source 3245A, Calibration Source Digistant 4462
DC Voltage – Source	(-10 to 10) V	0.000 6 V	Kistler Precision Calibrator 5395B
DC Voltage - Measure	(-10 to 10) V	0.04 V	Kistler Charge Calibrator 5395B
DC Voltage - Measure	(0 to 20) V	0.003 5 V	Keithley Digital Multimeter 2000
Charge	(2 to 2 100 000) pC	0.088 % of reading	Kistler Charge Calibrator 5395B
Charge (Automated)	± 100 pC ± 1 000 pC ± 10 000 pC ± 100 000 pC ± 1 000 000 pC	0.04 pC 0.4 pC 4 pC 40 pC 400 pC	Kistler Precision Calibrator 5395B
Current – Measure	(1 to 20) mA	0.04 % of reading	Keithley Digital Multimeter 2000

Length – Dimensional Metrology

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Linear Displacement	(0 to 300) mm	0.15 mm	Linear Encoder
Rotational Displacement	(0 to 360)º	0.31º	Rotary Encoder

Mass and Mass Related

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Force, Static [1]	(100 to 500) N (>500 to 5 000) N (>5 000 to 50 000) N	0.41 % of reading 0.21 % of reading 0.18 % of reading	Load Frame and Reference Load Cell
Force, Static	(2 200 to 22 000) N (>22 000 to 500 000) N	0.48 % of reading 0.35 % of reading	Load Frame and Reference Load Cell
Pressure, Static	(1 to 300) bar (80 to 8 000) bar	0.52 % of reading 0.59% of reading	Reference Pressure Sensor
Pressure, Static (IEPE)	(1 to 250) bar	0.58 % of reading	Reference Pressure Sensor
Velocity	(1 to 330) kph	0.31 % of reading	Speed Measurement System
Force Moment	(0.5 to 25) kN (12.5 to 1 000) Nm	0.24 % of reading	Load Frame and Reference Load Cell
Torque Transducers [1]	(2 to 10) N·m (10 to 200) N·m (50 to 500) N·m 500 N·m to 2 kN·m (2 to 4) kN·m	0.25 % of reading 0.19 % of reading 0.3 % of reading 0.16 % of reading 0.11 % of reading	VDI/VDE 2646, reference transducer
Torque Wrenches [1,3]	(2 to 20) N·m (>20 to 500) N·m	2.3 % of reading + *R* 0.9 % of reading + *R*	ISO 6789, reference transducer

Time and Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Frequency - Measure	(0 to 20 000) Hz	0.49 Hz	Agilent Universal Counter 53131A, Keysight Universal Counter 53220A
Time - Measure	(0 to 150) µs	0.93 µs	

Time and Frequency

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Angular Rate	(-3 000 to 3 000) deg/sec	0.22 deg/sec	Rate Table

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. Gain Accuracy is expressed as a ratio of input voltage to output voltage therefore it has no units
3. R = resolution of the unit under test.
4. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1117.

Jason Stine, Vice President