SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005
& ANSI/NCSL Z540-1-1994

HUMANETICS INNOVATIVE SOLUTIONS, INC.
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Farmington Hills, MI 48335
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CALIBRATION

Valid To: September 30, 2020 Certificate Number: 2421.03

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations[1, 4]:

I. Mechanical

| Parameter/Equipment | Range | CMC[2, 3] (±) | Comments |
|---|---|---|---|
| Rotary Displacement Transducer | +/- 75 degrees | 0.2 % F.S. | CL-PR-00025C |
| Linear Displacement Transducers | (0 to 72) mm | 0.2 % F.S. | CL-WI-00001C |
| IR-TRACC | (0 to 120) mm | 0.2 % F.S. | CL-PR-000010C<br>CL-PR-00045C |
| Chest Potentiometer Assemblies | (0 to 90) mm | 0.2 % F.S. | SAE J2517: 2016 |
| Force –<br>Load Cells | 4 ozf to 400 lbf<br>(50 to 80 000) lbf | 0.2 % F.S.<br>0.2 % F.S. | Class F weights<br>Axial load using load cells |
| Moment –<br>Load Cells | (50 to 60 000) in·lbf | 0.5 % F.S. | Moment load with load cells |



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| Parameter/Range | Frequency | CMC[2, 3] (±) | Comments |
|---|---|---|---|
| Acceleration Sensitivity/Frequency Response V/(m/s2) – | | | |
| (0.25 to 10) g | (25 to < 100) Hz | 1.7 % of reading | Comparison using acoustic power system and 2270M8 or 2270M7A accelerometers |
| 10 g | (100 to 2500) Hz<br>(> 2500 to 10 000) Hz<br>(> 10 000 to 20 000) Hz | 1.4 % of reading<br>2.7 % of reading<br>5.9 % of reading | Comparison system using shaker and accelerometers |
| Acceleration – Resonance Search | | | |
| 10 g | (20 000 to 40 000) Hz | 8.7 % of reading | Comparison system using shaker |

[1] This laboratory offers commercial calibration service.

[2] Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMC's represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

[3] The "Rounded % Full Scale" is chosen to be conservative and larger than the determined "CMC".

[4] This scope meets A2LA's *P112 Flexible Scope Policy*.

# Accredited Laboratory

A2LA has accredited

## HUMANETICS INNOVATIVE SOLUTIONS, INC.

*Farmington Hills, MI*

for technical competence in the field of

## Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and R205 – Specific Requirements: Calibration Laboratory Accreditation Program. 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).

Presented this 24th day of December 2018.

Senior Director, Accreditation Services
For the Accreditation Council
Certificate Number 2421.03
Valid to September 30, 2020

*For the tests or types of tests to which this accreditation applies, please refer to the laboratory's «field» Scope of Accreditation.*