SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
& ANSI/NCSL Z540-1-1994

HUMANETICS
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MECHANICAL

Valid To: September 30, 2024 Certificate Number: 2421.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following Crash Test Dummy tests:

Test Type	Parameter(s)	Range	Test Method(s)
Head Drop	Resultant Acceleration Lateral Acceleration Unimodal Oscillation Temperature Humidity	300 g ± 15 g (0 to 17) % (18 to 26) °C (10 to 70) % RH	49 CFR, Part 572 Subpart: • E (H3-50) • N (H3-6YO) • O (H3-5) • P (H3-3) • R (Crabi-12) • T (H3-10) • U (ESID2-RE) • V (SID2s) ECE 94: Regulation 95 (ESID2) SAE J2860 (H3-95) ISO 15830-2 (WorldSID 50th)

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Test Type	Parameter(s)	Range	Test Method(s)
Neck Pendulum	Velocity Acceleration Rotation Moment Displacement Temperature Humidity	(2.40 to 7.77) m/s (0 to 30) g (45 to 114) ° (12.0 to 130) Nm (-20 to 168) mm (18 to 26) °C (10 to 70) % RH	49 CFR, Part 572 Subpart: • E (H3-50) • M (SID H3) • N (H3-6YO) • O (H3-5) • P (H3-3) • R (Crabi-12) • T (H3-10) • U (ESID2-RE) • V (SID2s) ECE 94: Regulation 95 (ESID2) SAE J2860 (H3-95) ISO 15830-2 (WorldSID 50th) THOR 50th Percentile Male Qualification Procedures Manual (THOR-50M Metric) EURONCAP THOR Specification and Certification (THOR-50M ENCAP)
Thorax Impact	Velocity Displacement Hysteresis Acceleration Force Rotation Moment Temperature	(2.94 to 6.83) m/s (0 to 76.0) mm (50 to 85) % (14 to 70) g (1 to 11.1) kN (-21 to 29) deg (-23.5 to 17.8) Nm; (20 to 83) m/s (18 to 26) °C	49 CFR, Part 572 Subpart: • E (H3-50) • M (SID H3) • N (H3-6YO) • O (H3-5) • P (H3-3) • R (Crabi-12) • T (H3-10) • U (ESID2-RE) • V (SID2s) SAE J2779 (H3-50 L\S) SAE J2860 (H3-95) SAE J2878 (H3-5 L\S) ISO 15830-2 (WorldSID 50th)

Test Type	Parameter(s)	Range	Test Method(s)
Thorax Impact cont.	Humidity	(10 to 70) % RH	ECE 94: Regulation 95 (ESID2) BIORID: ECE/TRANS/WP.29/1101/Amend.3/Addendum 1 THOR 50th Percentile Male Qualification Procedures Manual (THOR-50M Metric) EURONCAP THOR Specification and Certification (THOR-50M ENCAP)
Torso Flexion	Velocity Force Angle Temperature Humidity	(0.5 to 1.5) °/s (130 to 550) N (0 to 50) ° (18.9 to 25.6) °C (10 to 70) % RH	49 CFR, Part 572 Subpart: • N (H3-6YO) • O (H3-5) • P (H3-3) • T (H3-10) SAE J2860 (H3-95)
Hip Flexion	Velocity Angle Torque Temperature Humidity	(5 to 10) °/s (0 to 50) ° (0 to 203) Nm (18 to 26) °C (10 to 70) % RH	49 CFR, Part 572 Subpart: • E (H3-50) SAE J2862 (H3-5)
Rib Module	Velocity Displacement Temperature Humidity	(1 to 10) m/s (10 to 51.0) mm (18 to 26) °C (10 to 70) % RH	49 CFR, Part 572 Subpart: • U (ESID2-RE) ECE 94: Regulation 95 (ESID2)

Test Type	Parameter(s)	Range	Test Method(s)
Knee Impact	Velocity Force Temperature Humidity	(2 to 3) m/s (2.0 to 7.3) kN (18 to 26) °C (10 to 70) % RH	49 CFR, Part 572 Subpart: • E (H3-50) • N (H3-6YO) • O (H3-5) • T (H3-10) SAE J2862 (H3-5) SAE J2860 (H3-95)
Knee Slider Impact	Velocity Displacement Force Temperature Humidity	(1.5 to 3) m/s (9.3 to 18.3) mm (1.26 to 3.10) kN (18 to 26) °C (10 to 70) % RH	SAE J2856 (H3-50) SAE J2860 (H3-95) SAE J2862 (H3-5) SAE J2876 (H3-50 Low Speed)
Foot Impact	Velocity Force Moment Acceleration Temperature Humidity	(4.3 to 6.8) m/s (2.8 to 3.8) kN (95 to 145) Nm (245 to 345) g (19 to 25) °C (10 to 70) % RH	ECE Regulation 94: Addendum 93: Annex 10 (H3-50)

CALIBRATION

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

I. Mechanical

Parameter/Equipment	Range	CMC[2, 3] (±)	Comments
Rotary Displacement Transducer	+/- 75 mm	0.2 % F.S.	TL-WI-00003H CL-PR-00025C
Linear Displacement Transducers	(0 to 72) mm	0.2 % F.S.	TL-WI-00034H CL-WI-00001C
Chest Potentiometer Assemblies	(0 to 90) mm	0.5 % F.S.	SAE J2517:2016

[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. CMCs 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".

Accredited Laboratory

A2LA has accredited

HUMANETICS

Huron, OH

for technical competence in the field of

Mechanical Testing & Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *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 5th day of October 2022.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2421.01
Valid to September 30, 2024
Revised 10/02/2023

For the tests and calibrations to which this accreditation applies, please refer to the laboratory's Mechanical and Calibration Scope of Accreditation.