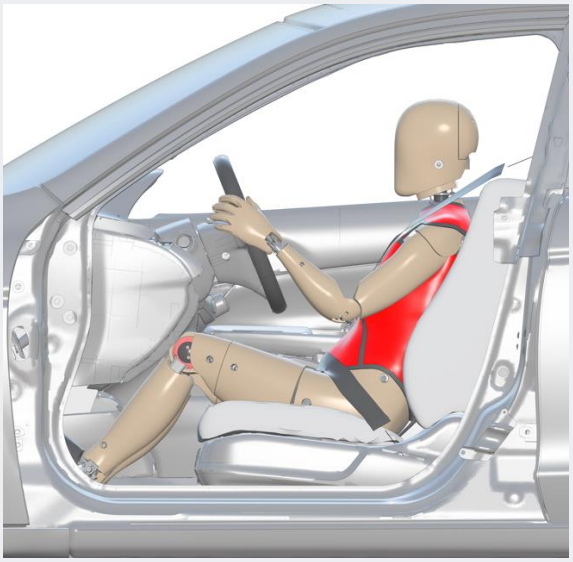
June 2023

HUMANETICS CAE UPDATES

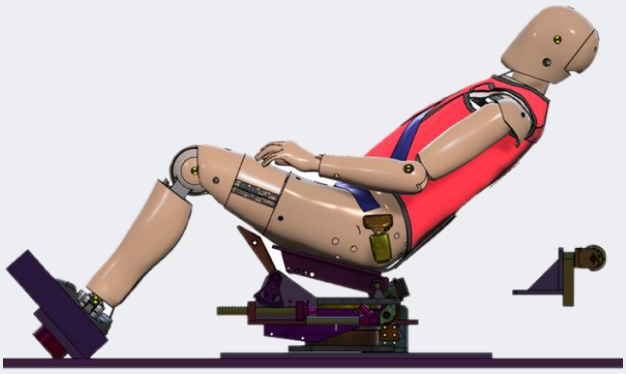
THOR-5F

- THOR-5F is the most biofidelic female crash test dummy in the world, representing small female anthropometry
- It features significant improvements over the HIII-5F dummy, including a greater range of sensors for advanced injury detection
- THOR-5F v1.3 FE model represents the latest available hardware design, known as SBL-B
- v1.3 FE model includes improvements to femur force and updates to the geometries of the battery case, wrist and APTS
- Humanetics have been awarded in 2023 by NHTSA to further develop the THOR-5F hardware towards SBL-C



THOR-AV-50M

- Automated vehicles will play a critical role in achieving the long-term goal of zero fatalities
- THOR-AV-50M dummy is designed to adapt to reclined seating positions in autonomous vehicles with its more flexible pelvic structure, abdomen and lumbar spine
- THOR-AV-50M v0.7 FE model represents the latest design, incorporating various mesh and material updates
- It also includes pelvis validation at the component level and full dummy sled validation
- THOR-AV-50M demonstrates good to excellent biofidelity in all body regions based on upright and reclined sled test configurations
- It accurately replicates human posture up to 60° reclined seat back angle
- THOR-AV-50M is currently evaluated for future reclined test requirements
- It has shown good durability in sled tests



THOR-AV-50M Biofidelity Status

Test Configurations		Test Conditions	THOR-AV BioRank
Neck Evaluation	6 configurations	frontal (2x), oblique, lateral (2x), torsion	1.47
Uriot et al. 2015 Stapp	Front Seat (22°)	50 km/h, PT load limit 7.0 kN	0.84
	Rear Seat (22°)		0.77
UMTRI AVOK	25°	32 km/h, no PT, load limit 3.5 kN	0.73
	45°		0.89
Kang et al. 2020 Stapp (rearward)	25°	56 km/h, Honda Odyssey 2nd row seat	1.95
	45°		1.38
Richardson et al. 2020 Stapp	49°	50 km/h, dual PT, load limit 3.5 kN	
UMTRI AVOK 2nd test series	25°	52 km/h, load limit 3 kN	In progress
	45°		0.80

B≤1.0	1.0<B≤2.0
Excellent	Good

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