RAMSIS Module THOR-50M

Digital ergonomics

Crash test dummy THOR (50th percentile male) now integrated into belt routing simulation

Safety, ergonomics and regulations in international markets

Every passenger car nowadays is produced for the world market. Critical factors are above all the safety components — especially the seat belt. It must fulfill its function and convince each of your target groups ergonomically and economically. The RAMSIS Seat Belt Design module has been supplemented by the crash test dummy THOR 50M and is now available digitally.

You can use the Seat Belt Design Module for RAMSIS Automotive to test and optimize every seat belt system in a fully digital process. The seat belt examination has now become even more accurate by integrating the CAD model of the crash test dummy THOR 50M as a supplement to Seat Belt Design's seat belt routing simulation. The user can precisely position the dummy in the vehicle by adjusting the H-point position and the joint angles. The subsequent routing of the seat belt webbing has already been entirely and realistically reproduced in 3D during the CAD phase. Our leading ergonomics tool takes humans into account and addresses the seat and the kinematic belt anchorage configuration. Different concepts can be compared and optimized.

Your advantages include

> Optimized belt systems already in CAD – ergonomic, safe and economical
> Time & cost savings, such as fewer physical test stands, more straightforward documentation and traceable results
> Testing based on target group-specific manikins and conventional test bodies
> An automatically generated test report

Real occupants and test devices

Optimal belt simulation starts with human beings. That's why RAMSIS Seat Belt Design can reproduce the CAD model of the vehicle and target market-driven models of the (real) future occupants. The module also provides a wide range of different CAD models of global test devices. These include

anthropomorphic test devices (ATD), the Gabarit and now the brand new THOR 50M.

Ergonomics testing

Safety first! But only if it's ergonomically convincing — because the belt has physical contact with the wearer throughout the entire journey. So RAMSIS Seat Belt Design shows you all the contact areas for the various occupants of your target markets. The belt routing and anchoring positions are checked on the model. Once the human model is established, it's all systems go, and the model is placed in the vehicle.

During the visual inspection of the belt routing, you can see problem areas caused by twisting or strap detachment. A scale also displays the critical distances of the webbing to the neck and the base of the arm. The results of the belt analysis and the evaluation of the different anchor points provide comprehensive data for optimizing the belt system.

Thanks to target group-specific analyses, you get valuable ergonomic information PLUS a very practical value – the length of the belt strap for relevant target markets.

General belt testing

To analyze specific design criteria such as belt length and storage, you could calculate belt routing digitally without human beings or test devices. To this end, the belt tongue can be inserted into the lock or hung on the rolled-up belt strap.