

# Tema Automotive is the natural partner for world-leading Autoliv

– The software offers entirely new opportunities

Image Systems' TEMA Automotive software is an important element of world-leading automotive safety group Autoliv's ever evolving development to save lives.

- The software opens entirely new opportunities that we couldn't even dream of before, says Johan Svärd, chief testing engineer at Autoliv Tech Center in Vårgårda, Sweden.

Autoliv has a long history as a world leader in automobile safety. As a pioneer in seat belts as well as airbags, the company today leads the technical development and also offers the broadest range of products in automotive safety. Autoliv delivers solutions for safety to all the major auto makers and has production and development units all over the world. In close co-operation with the world's automotive industry new innovations and products are developed that save more than 25,000 lives every year and prevent ten times as many severe injuries.

#### The goal of saving lives

- The goal of everything we do is to save lives, says Johan Svärd, chief testing engineer at Autoliv Tech Center in Vårgårda, and sums up what he sees as the main reasons behind Autoliv's great successes.

- We have always been strong in the area of innovation. That is probably the most important reason. Over the years, we have also achieved broad coverage in the area of automotive safety products, at the same as we have retained our competitiveness. Another important success factor is that we have always invested in geographical diversification. We have facilities all over the world and in all countries where cars are produced.

#### Crash tests

Johan Svärd has worked for more than ten years at Autoliv's Vårgårda development unit. Together with his colleagues he is deeply involved in the development of new products, all of which are based on crash tests that are mapped out and analyzed in the minutest detail. When working with crash tests, just like at several of Autoliv's other development units around the world, Image Systems' software TEMA Automotive is a central partner in these efforts. The software is used to streamline the analysis process, allowing the user to focus on analyzing the test results rather than spending time on initial settings and manual labour.



JOHAN SVÄRD, CHIEF TESTING ENGINEER

- We have and have had TEMA Automotive almost exclusively at all of our laboratories for the simple reason that we think it is the best. We have tested other brands from time to time, but we have never seen reason to change to something else, states Johan Svärd.

#### **Saves time**

With TEMA it is possible to conduct film analysis and measure the movement of body parts on crash test dummies, to study different structures, the deployment pattern of air bags, etc. In this way we can calculate distances, speeds, acceleration, angles and more, even on objects in the test that have not been equipped with sensors before the test.

- By creating templates in TEMA we can also verify that all TEMA studies have the same initial settings in cases where we perform many tests in the same way. This is valuable because it allows us to create repeatable and reproducible analyses, regardless of which operator is using the software. We also save a lot of time since we don't have to do all the initial settings in TEMA for every test, says Johan Svärd.

#### **All types of tests**

Today it is the latest version 3.7 that is the tool of choice. Measurements are taken in all types of tests, everything from crash tests to simple component tests. Johan Svärd expands on the advantages of TEMA Automotive 3.7 and its predecessors on which it is based.

- Our crash test dummies are full of accelerometers, potentiometers and force transducers placed at predetermined locations on the dummy. These sensors provide us with measurements that we can then analyze. But often we want to be able to measure some part of the crash test dummy or of the crash environment where we do not have a sensor. Aided by TEMA Automotive it is sufficient with a simple mark, a contrasting point, a contour or a circular form somewhere in order for us to be automatically able to follow this point and generate rapid and reliable data, he says.

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**“We can now measure things after testing that we hadn't thought of before performing the test.”**

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#### **Enormous potential**

- Before the process of taking manual measurements at different points was very time-consuming and involved a lot of manual labour compared to today. I really appreciate that we can now perform the job in one twentieth of the time it took before. This function is also constantly refined, which opens fantastic opportunities for us to track new aspects and immediately get results in

the form of easy-to-interpret graphics.

The software in fact creates opportunities that we hadn't even reflected on previously.

- We can now measure things after testing that we hadn't thought of before performing the test. In this way we are able to provide the customer with much better results and analysis, extols Johan Svärd, who also emphasizes the visual value of the program in connection with customer presentations

- With aid of TEMA we can now create films from two tests, synchronized side by side or on top of each other with different colouring. It is an immensely powerful advantage to be able to show the customer differences between two tests in such a visual manner. With this functionality in TEMA we have been able to dispense with other narrow, specialized software we used previously just to be able to accomplish this.

#### **Stability**

Something should also be said about the reliability of TEMA Automotive.

- TEMA has a very stable feel and provides a sense of security in the day-to-day work. At the same time it is reassuring to know that Image Systems is always there if there is something we need help with. In that context Johan Svärd remembers a crucial moment in connection with his most recent business trip to China.

- We had ended up in a critical situation where everything simply had to work. On that occasion it was a tremendous relief to have direct contact with and support from Image Systems.

#### **Responsiveness**

The development unit at Autoliv also works in close co-operation with Image Systems in the development of new functions.

- We describe our needs and the next time a new version of TEMA comes out we often find the functions we have looked for. This kind of responsiveness and service is very valuable to us in our development work.