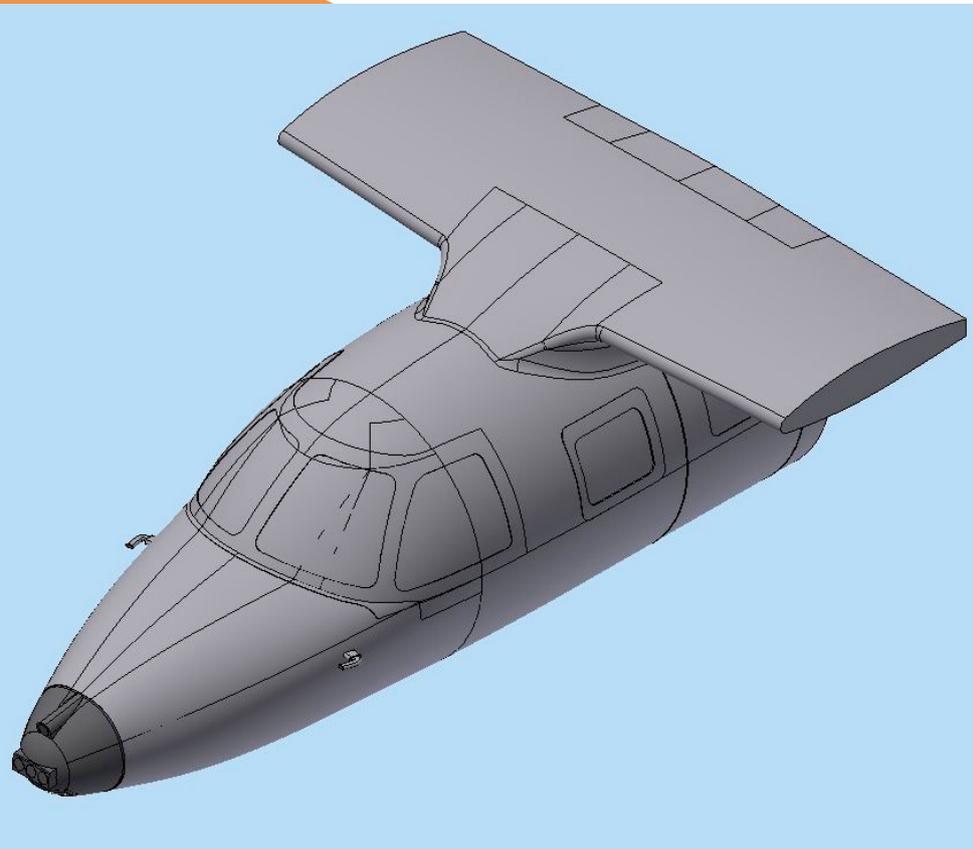




# 3D laser scanning saves Saab a month of working time



“Symetri has played an important role in the success of the project, as a consulting partner that acted quickly and gave us tangible solution proposals, in the design phase when the scanning was done, and during the data delivery, which was of very good quality. Without them we couldn’t have completed the project within our specified timeframe and with the data precision required. We are very happy.”

## Customer profile



**SAAB**  
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**Company** Saab

**Segment** Manufacturing industry

**Country** Sweden

## Business Challenge

- Sensors had to be built into the nose of an aircraft for Saab to be able to analyse the best way to help pilots land with very limited visibility
- There were no design data
- An exact copy of the original was needed. Measuring the nose by hand was too difficult as it consisted of complex geometries

## Solution

- Symetri scanned a plane using a 3D laser scanner
- As near as perfect 3D images of the surfaces could be produced in a short time

## Benefits

- Saab was able to complete the project within the specified timetable and with the required data precision
- They also got a complete model that could be used to simulate a flow analysis
- 3D laser scanning is a very cost-effective way to produce data

“Without 3D laser scanning we could not have produced the exact design data we needed. We saved about a month of working time and completed the job ahead of schedule. We also had a complete model that our analysis department could use to simulate a flow analysis.”

When Saab needed to rebuild the nose of an existing aircraft, there were no design data. The nose, which consisted of complex geometries in the form of double curvature surfaces, was very difficult to measure by hand, and to manage the task, we had to produce an exact copy in a short space of time. The solution was 3D laser scanning, which meant that the design department had quick access to correct geometry and, at the same time, was able to use the scanning as data for the simulation analysis.

The time was short, the regulations extensive and the geometry of the nose, in principle, impossible to measure by hand. These were the conditions the staff at Saab, Support and Services, in Nyköping faced ahead of the reworking. As well as the competence to make the modifications, the team works on aeroplane maintenance for, among others, the Coast Guard and Babcock Scandinavian AirAmbulance, aeroplanes used for target towing and aeroplanes from Electronic Warfare for training the Armed Forces.

*“The challenge of this particular aeroplane was that we needed to build in sensors in the nose to be able to analyse the best way to help pilots land with very limited visibility without*

*compromising safety,”* explains Magnus Enell, Design Office at Saab.

Not having to reroute aeroplanes, whether civil or military, means that the carbon dioxide emissions and exhausts can be reduced, as can the noise levels – something that Saab has been working on actively with the EU’s research programme Clean Sky 2.

### Exact copy of the nose

As there was no 3D CAD model of the plane that was going to be rebuilt, only old drawings that were not correct, there were no basic data that could be used for the required changes.

*“We knew that it would be difficult to measure the nose by hand, not*





3D  
LASER  
SCANNING

least as the design data had to be an exact copy of the original. We also had to be able to verify the effect of the geometry after the rebuilding as there is then a risk of changing the air flows over the plane. This, in turn, can affect the altimeter and speedometer to show the wrong altitude and speed, which can be devastating for a pilot," says Patrik Fernlund, Engineer Aircraft Structure at Saab.

Patrik Fernlund and his colleagues contacted Symetri to see if there was a solution to the problem. Symetri was quickly on location in Nyköping and trial-scanned a plane using a 3D laser scanner that quickly builds up a point cloud with such precision that 3D images that are as good as perfect of the surfaces can be produced.

### Cost-effective and time-saving

Magnus Enell and Patrik Fernlund completely agree that the result exceeded expectations:

*"Without 3D laser scanning we could not have produced the exact design data we needed. We saved about a month of working time and*

*completed the job ahead of schedule. We also had a complete model that our analysis department could use to simulate a flow analysis."*

Patrik and Magnus also agree that laser scanning is a very cost-effective way to produce data:

*"Symetri has played an important role in the success of the project, as a consulting partner that acted quickly and gave us tangible solution proposals, in the design phase when the scanning was done, and during the data delivery, which was of very good quality. Without them we couldn't have completed the project within our specified time frame and with the data precision required. We are very happy."*

The analysis has now been followed up by physical tests and flight trials; the aeroplane has also been put back into use.

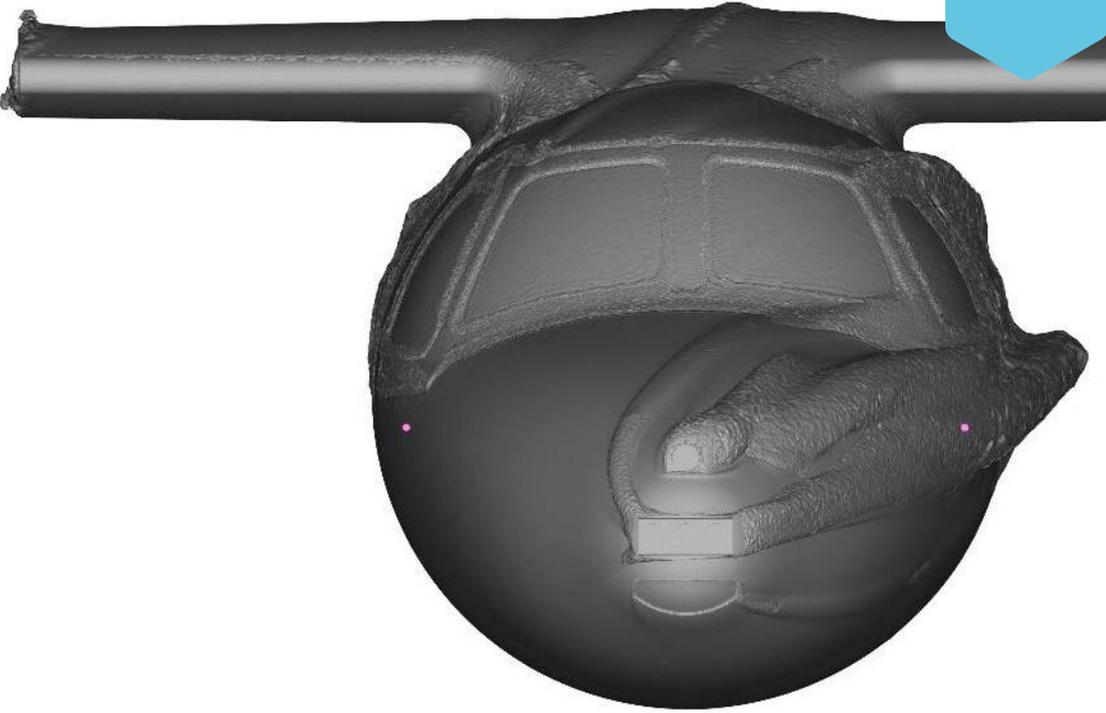
### Saves time and produces exact data

Anders Jansson, Symetri's 3D laser scanning expert who works daily to

help companies throughout Northern Europe reproduce reality exactly as it is using 3D laser scanning says:

*"In the Saab project, we used FARO's scanners Focus X330 and the handheld scanner Freestyle X with excellent results. With 3D laser scanning we can produce exact data, regardless of which business the customer is in and the type of object we scan. It could be, for example, aeroplanes, products, spare parts, tunnels, bridges, buildings or factories. Laser scanning combined with our CAD competence means that we can help many customers, whatever their business, to produce design data that are missing or difficult and time-consuming to produce."*

Would you like to find out more about 3D laser scanning or book a no-obligation visit, contact [Anders Jansson](#) on +46 (0)31 703 23 69.



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RELIABLE  
INNOVATIVE

### About 3D laser scanning

From physical product to digital 3D model - this is how 3D laser scanning works:

1. The object is scanned by a 3D scanner that quickly builds up a point cloud that is a near perfect 3D image of the object
2. A mesh model is produced from the point cloud and entered into a modelling program, and the result is saved in a step file
3. This can be opened in Inventor where the design work can start

### Advantages of 3D laser scanning

There are a number of factors that make 3D laser scanning so efficient for producing exact design data:

- Time efficient - 3D scanning quickly produces data to work on
- Cost-efficient - as it is quick to scan and produce correct data, the project time is reduced, which means that a lot of money can be saved
- Correct data - sometimes there are a lack of data and sometimes the geometries can be difficult to measure. With laser scanning, you always get correct data and can ensure that a machine will fit into a specific space in a factory, a spare part can be manufactured and fitted to an existing product or documents for the conversion of a building can easily be produced

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